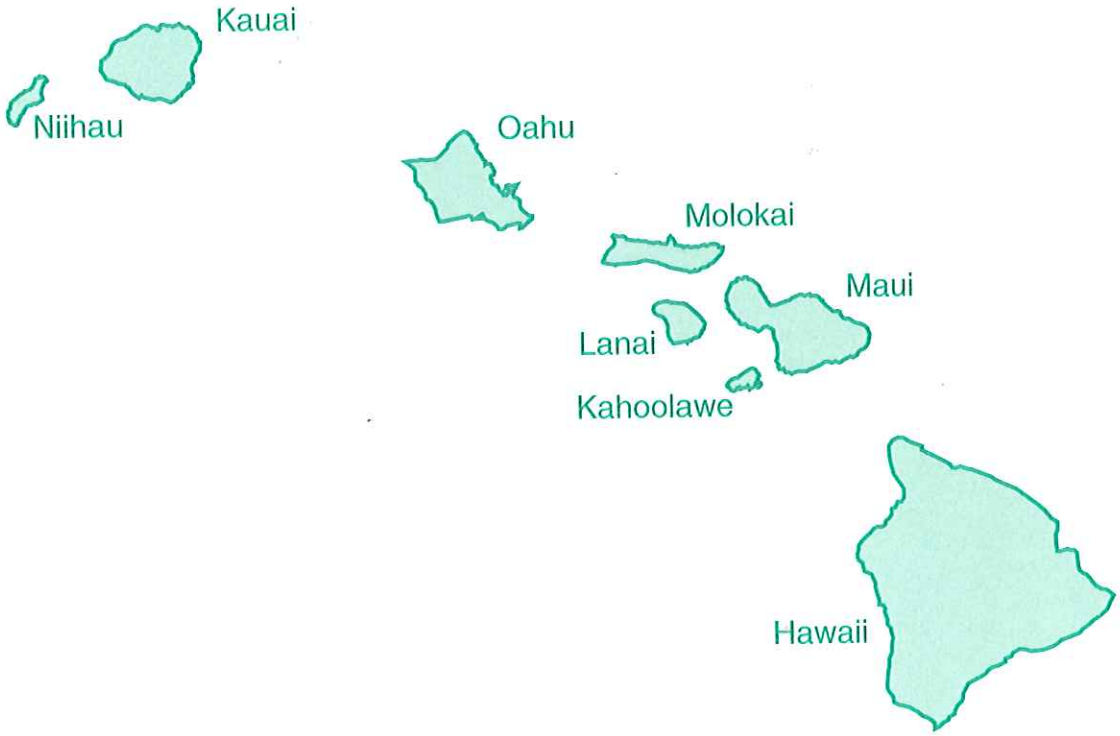
Water Resources Data
Hawaii
Water Year 1995



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT HI-95-1
Prepared in cooperation with the State of Hawaii
Department of Land and Natural Resources,
Commission on Water Resource Management
and with other agencies

CALENDAR FOR WATER YEAR 1995

1994

OCTOBER

S	M	T	W	T	F	S
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NOVEMBER

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DECEMBER

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1995

JANUARY

S	M	T	W	T	F	S
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FEBRUARY

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APRIL

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MAY

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JUNE

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JULY

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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

AUGUST

S	M	T	W	T	F	S
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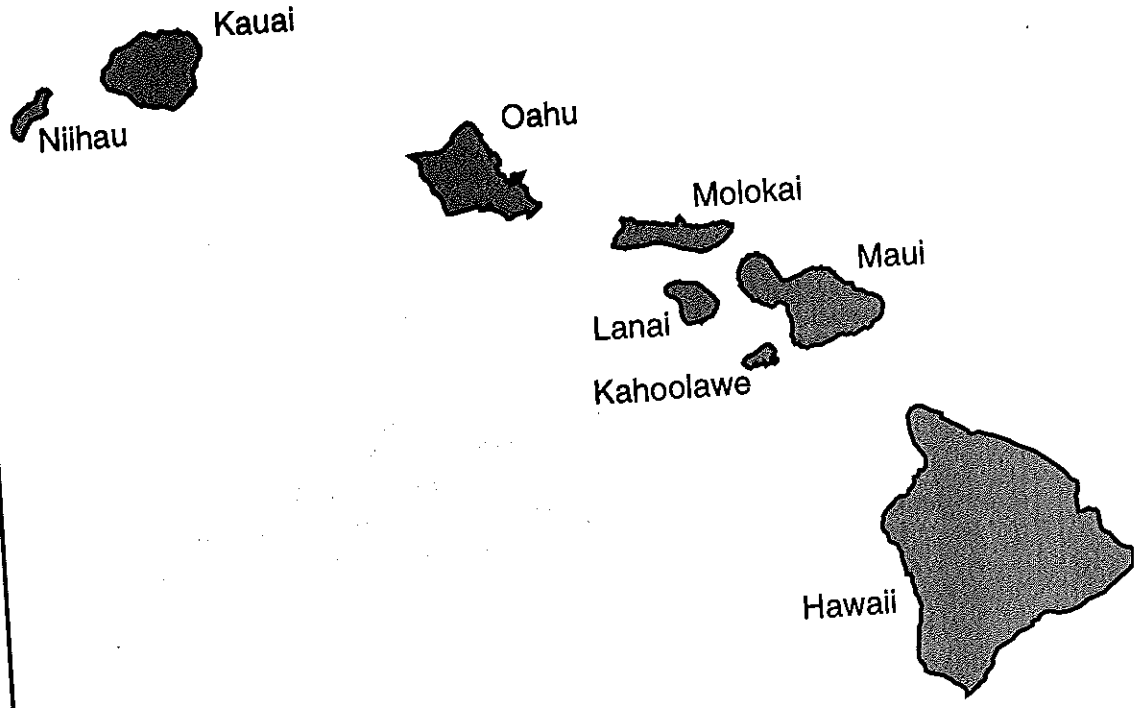
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

SEPTEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Water Resources Data
Hawaii
Water Year 1995

by Richard A. Fontaine, Roy I. Taogoshi, Vaughn E. Kunishige, and Wayne S. Shibata



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U.S DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY

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Honolulu, Hawaii 96813

1997

PREFACE

This annual hydrologic data report of Hawaii 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, American Virgin Islands, selected islands in the Caribbean, Commonwealth of the Northern Mariana Islands, Guam, American Samoa, Republic of Palau, and selected islands in the Pacific. 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.

This report contains hydrologic data for Hawaii. It is the culmination of a concerted effort by personnel of the U.S. Geological Survey 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 U.S. Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

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This report was prepared in cooperation with the State of Hawaii, and with other local and federal agencies under the general supervision of William Meyer, District Chief, Hawaii.

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13. ABSTRACT (Maximum 200 words)
Water-resources data for the 1995 water year for Hawaii consist of records of stage, discharge, and water quality of streams and springs; and water levels and quality of water wells. This report contains discharge records for 91 gaging stations; water quality at 12 gaging stations; 22 partial-record flow stations, and 167 wells; and water levels for 78 observation wells. Also included are 107 crest-stage partial record stations, 4 miscellaneous partial-record stations, 6 low-flow partial-record stations, and 44 rainfall stations. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Federal, State, and other local agencies in Hawaii.

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*Hawaii, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Chemical analyses, Sediments, Water temperature, Sampling sites, Water levels, Water analyses, Rainfall accumulation.

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Letters after station name designate type of data: (d) discharge, (c) chemical, (m) microbiological, (t) water temperature, and (s) sediment

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ISLAND OF OAHU		
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SURFACE-WATER STATIONS IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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Letters after well number designate type of data:
(c) chemical, (t) water temperature, (w) water level

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HAWAII

ISLAND OF KAUAI

(2-0021-01)	220057159210301	(w)	338
(2-0044-13)	220018159444702	(ctw)	339, 388
(2-0044-14)	220019159444801	(w)	340
(2-0044-15)	220016159442701	(ctw)	341, 388
(2-0120-01)	220136159205501	(ct)	388
(2-0120-02)	220134159205401	(w)	341
(2-0145-10)	220148159453501	(ct)	388
(2-0145-11)	220148159453502	(w)	342
(2-0320-01)	220354159205601	(ctw)	342, 388
(2-0320-03)	220354159205602	(ctw)	343, 388
(2-0345-04)	220341159453901	(ctw)	343, 388
(2-0545-01)	220530159450401	(ct)	388
(2-0623-04)	220621159232101	(ctw)	344, 388
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(2-0818-02)	220826159185401	(ct)	389
(2-0818-03)	220825159185301	(w)	389
(2-1020-03)	221038159203801	(w)	344
(2-1125-01)	221141159252501	(ct)	345
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			354, 390

ISLAND OF OAHU

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(3-2255-35)	212259157554201	(ct)	391
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(3-2358-29)	212343157584701	(ct)	393
(3-2359-05)	212336157591801	(ct)	393
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DISCONTINUED GAGING STATIONS

The following continuous record streamflow stations in Hawaii have been discontinued or converted to partial-record stations. Daily records were collected and are stored in WATSTORE for the period of record shown for each station.

Station Number	Station name	Drainage area (mi^2)	Period of Record
	ISLAND OF KAUAI		
16011000	Waikoali Str nr Waimea	1.58	1909-13, 1919-25
16012000	Kauaikinana Str nr Waimea	0.84	1919-25
16013000	Mohihi Str at alt 3,420 ft nr Waimea	1.68	1920-26, 1936-71
16014000	Kokee Ditch nr Waimea	--	1926-82
16015000	Mohihi Str nr Waimea	2.20	1909-17
16016000	Waimea River at alt 840 ft nr Waimea	20.0	1916-18, 1925-68
16017000	Koaie Str at alt 3,770 ft nr Waimea	1.68	1919-32, 1954-68
16018000	Koaie Str nr Waimea	9.97	1916-18
16020000	Waialae Str nr Waimea	2.81	1910-16
16021000	Waialae Str at alt 800 ft nr Waimea	7.87	1917-21
16022000	Kekaha Ditch at Camp 1 nr Waimea	--	1908-68
16024000	Kekaha Ditch at siphon nr Waimea	--	1910-12
16025000	Kekaha Ditch at flume 2 nr Waimea	--	1910-12
16027000	Kekaha Ditch below tunnel 12 nr Waimea	--	1908-34
16028000	Waimea River below Kekaha Ditch intake near Waimea	44.2	1921-55
16029000	Waimea Ditch nr Waimea	--	1912-14 1916-21
16029100	Waimea Ditch below wasteway nr Waimea	--	1960-72
16031000	Waimea River nr Waimea	57.8	1910-18, 1919, 1943-68, 1969-72
16033000	Olokele Ditch at weir nr Makaweli	--	1912-17
16034000	Olokele River nr Waimea	4.85	1915-16
16035000	Halekua Str nr Waimea	0.56	1912-14
16037000	Poowaiomahaihai Ditch nr Waimea	--	1911-13
16037100	Makaweli R bl Poowaiomahaihai Ditch nr Waimea	25.0	1911-17
16039000	Hiloa Ditch nr Eleele	--	1911-15
16042000	Hanapepe Ditch at Hanapepe Falls nr Eleele	--	1911-15
16043000	Hanapepe Ditch below intake	--	1930-38
16044000	Hanapepe Ditch at Koula nr Eleele	--	1910-21, 1927-49
16045000	Hanapepe Ditch below makai siphon nr Eleele	--	1929-32
16046000	Hanapepe Ditch at weir nr Hanapepe	--	1912-13, 1915-17
16047000	Koula River at Koula nr Eleele	12.6	1910-16
16048000	Manuahi Str at Koula nr Eleele	5.44	1917-20
16050000	G Ditch at makai siphon nr Eleele	--	1929-32
16051000	Hanapepe River at makai siphon nr Eleele	20.5	1929-32
16053000	Kamoolao Str nr Koloa	1.30	1939-41
16053400	Upper Haiku Ditch nr Puhi	--	1963-71
16053600	Lower Haiku Ditch nr Puhi	--	1963-71
16053800	Kamooloa Str nr Puhi	5.79	1963-70
16054000	Kuia Str nr Puhi	0.40	1939-41
16054200	Koloa Ditch nr Koloa	--	1964-71
16054400	Koloa tunnel nr Koloa	--	1966-71
16054500	Kuia Str nr Puhi	5.09	1963-66
16056000	Hanamaulu Str at Kapaia nr Lihue	6.41	1911-13
16056800	Waiahi-Kuia aqueduct nr Puhi	--	1964-71
16057000	Lihue Ditch nr Lihue	--	1910-19
16058000	Hanamaulu Ditch nr Lihue	--	1910-20
16058500	S F Wailua River nr rock quarry nr Lihue	20.2	1974-83
16061000	North Wailua Ditch nr Lihue	--	1932-85
16063000	N F Wailua River at alt. 650 ft nr Lihue	5.29	1914-85
16064000	Kanaha Ditch nr Lihue	--	1910-55
16068700	North Fork Wailua River nr Lihue	14.6	1910-14
16070000	Aahoaka Ditch nr Kapaa	--	1966-72
16072000	Konohiki Str at Makakualele mka weir nr Kapaa	0.65	1911-13
16073000	Konohiki Str at Makakualele mki weir nr Kapaa	0.89	1912
16074000	N F Kaehulua Str at Kainahola weir nr Kapaa	1.39	1911-13
16075000	S F Kaehulua Str at Wainamuamu weir nr Kapaa	0.04	1911-13
16076000	Kaehulua Str at Kuhinoa weir nr Kapaa	1.90	1911-13
16078000	Kapaa Str nr Kealia	3.05	1910-20
16079200	Tunnel Ditch at Kapahi nr Kapaa	--	1909-11
16079400	Pipe Ditch at Kapahi nr Kapaa	--	1909-11
16079600	Kapaa Ditch at Kapahi nr Kapaa	--	1909-11
16082000	Kaneha Ditch nr Kealia	--	1909-13
16086000	Anahola Ditch above wasteway nr Kealia	--	1915-21
16087000	Anahola Ditch wasteway nr Kealia	--	1936-85
16089000	Anahola Str nr Kealia	4.27	1910, 1913-85
16090000	Lower Anahola Ditch at Kiokala nr Kealia	--	1909-14
16092000	Lower Anahola Ditch at makai weir nr Kealia	--	1909-10

DISCONTINUED GAGING STATIONS--Continued

Station Number	Station name	Drainage area (mi^2)	Period of Record
	ISLAND OF KAUAI--Continued		
16093000	Anahola Str at Kiokala Dam nr Kealia	4.27	1910-12
16093200	Anahola Str at Anahola	9.24	1962-65
16094200	Ka Loko Ditch nr Kilauea	--	1932-68
16095000	Puu Ka Ele Ditch nr Kilauea	--	1932-67
16095200	Ross Ditch nr Kilauea	--	1955-67
16095900	Kalihiwai Ditch above wasteway nr Kilauea	--	1960-68
16096000	Kalihiwai Ditch nr Kilauea	--	1934-67
16097000	Pohakuhonu Str nr Kilauea	1.73	1957-72
16097300	Halaulani Str nr Kilauea	0.12	1922-25
16098000	Kalihiwai River nr Hanalei	3.64	1914-23
16099000	Kalihiwai River nr Kilauea	4.12	1912-13
16099500	Hanalei Ditch nr Kilauea	--	1956-62
16100000	Hanalei tunnel outlet nr Lihue	--	1932-85
16101000	Hanalei River at alt. 625 ft. nr Hanalei	7.17	1914-55
16102000	China Ditch nr Hanalei	--	1911-19
16104000	Kuna Ditch nr Hanalei	--	1912-14, 1917-20
16105000	Waioli Str nr Hanalei	1.81	1914-32
16106000	Lumahai River nr Hanalei	6.95	1914-33
16109000	Wainiha River above intake nr Hanalei	11.6	1914-16
16110000	Wainiha Canal at intake nr Wainiha	--	1910-16
16111000	Wainiha Canal at tunnel 18 nr Wainiha	--	1911
16113000	Wainiha River nr Wainiha	20.6	1912-16
16115000	Hanakapiai Str nr Hanalei	2.73	1931-52
16116000	Hanakoa Str nr Hanalei	0.50	1931-52
16117000	Kalalau Str nr Hanalei	1.55	1931-55
	ISLAND DF OAHU		
16201000	RB of NF Kaukonahua Str nr Wahiawa	1.17	1913-53
16203000	Mauka Ditch nr Wahiawa	--	1947-68
16204000	North Fork Kaukonahua Str nr Wahiawa	4.86	1946-68
16206000	South Fork Kaukonahua Str nr Wahiawa	1.93	1913-14, 1915-16, 1944-50
16206500	Koolau Ditch at reservoir nr Wahiawa	4.00	1914-15
16207000	SF Kaukonahua Str bl U.S. Army res nr Wahiawa	0.86	1914-17
16208500	RB of South Fork Kaukonahua Str nr Wahiawa	5.26	1957-72
16209000	SF Kaukonahua Str ab Wahiawa res nr Wahiawa	--	1946-58
16210900	Poamoho Tunnel nr Wahiawa	1.79	1958-79
16211000	Poamoho Str nr Wahiawa	--	1947-73
16211850	Puea Mauka Ditch nr Waianae	4.39	1960-67
16211900	Kaupuni Str nr Waianae	0.60	1957-60
16212000	Puhawai Str at Lualualei nr Waianae	1.16	1930-44
16212400	Awanui Gulch nr Barbers Point NAS	13.80	1957-58
16212900	Kipapa Str nr Waipahu	--	1966-68
16217000	Pearl Harbor Spr at Puukapu nr Pearl City	--	1931-35
16218000	Pearl Harbor Springs at Loko Kukona	--	1931-35, 1936-45
16218500	Pearl Harbor Spr at Kaluaoopu nr Pearl City	--	1931-37
16219000	Hawn Elec. Co. tunnel at Waiau nr Pearl City	--	1939-42
16220000	Hawn Elec. Co. wasteway at Waiau nr Pearl City	--	1953-59
16222000	Pearl Harbor Sprngs at Waiau	--	1913-39, 1942-47
16224000	Pearl Harbor Springs at Kalauoa	--	1931-62, 1964-65, 1966-68, 1970-88
16224500	Kalauao Str at Moanalua Road at Aiea	2.59	1957-82
16225000	Kalauao Str at Aiea	2.61	1953-57
16227500	Moanalua Str nr Kaneohe	0.94	1968-78
16227700	Moanalua Str tributary nr Kaneohe	0.62	1968-78
16227900	Moanalua Str tributary nr Aiea	0.03	1972-78
16228900	Kalihi Str nr Kaneohe	0.60	1966-71
16230000	Lulumahu Dit at upper Nuuanu Res nr Honolulu	--	1911-13
16231000	Luakaha weir in upper Nuuanu Valley nr Hon	--	1910-13
16231500	Moole Ditch mauka station nr Honolulu	--	1917-20
16231700	Moole Ditch makai station nr Honolulu	--	1918-23
16235000	Nuuanu Str at Kuakini Street nr Honolulu	4.39	1911-12
16236000	Kahuawai Spring nr Honolulu	--	1912-14
16237000	Pauoa Str at upper Pauoa Valley nr Honolulu	0.79	1911-13
16238500	Waihi Str at Honolulu	1.14	1913-21, 1925-83
16239500	East Manoa Ditch nr Honolulu	--	1915-16, 1918-20, 1926-39
16241000	Manoa Str at upper Manoa Valley nr Honolulu	2.62	1910-13
16242000	Manoa Str at College of Hawaii nr Honolulu	4.99	1909-10, 1912-18
16243000	Manoa Str at Waialae Road nr Honolulu	5.38	1910-12

DISCONTINUED GAGING STATIONS--Continued

Station Number	Station name	Drainage area (mi^2)	Period of Record
	ISLAND OF OAHU--Continued		
16244000	Pukele Str nr Honolulu	1.18	1926-82
16245000	Waiomao Str at upper Palolo Valley nr Hon	0.35	1911-13
16246000	Waiomao Str nr Honolulu	1.04	1911, 1912, 1926-71
16247000	Palolo Str nr Honolulu	3.63	1952-79
16248900	Waimanalo Ditch below main res nr Waimanalo	--	1912-13
16249000	Waimanalo Str at Waimanalo	2.16	1967-70
16249200	Maunawili Str nr Waimanalo	1.28	1912-16
16249400	Main Spring nr Kailua	--	1914-16
16249600	Makawao Spring nr Kailua	--	1914-16
16249800	Makawao Ditch nr Kailua	--	1912-15
16250000	Maunawili Ditch nr Waimanalo	--	1954-68
16256000	Kamakalepo Str nr Kailua	0.82	1912, 1913-16
16257000	Pohakea Str nr Kailua	0.21	1912-14
16258000	Maunawili Str ab Wong Leongs Ditch nr Kailua	4.60	1922-23
16260000	Maunawili Str nr Kailua	4.60	1912, 1913-16
16260500	Maunawili Str at highway 61 nr Kailua	5.34	1967-71
16261000	North Branch Kahanaiki Str nr Kailua	0.34	1913-14
16262000	South Branch Kahanaiki Str nr Kailua	0.21	1913-14
16263000	Kahanaiki Str nr Kailua	0.58	1912, 1914-16
16264400	Kawainui Swamp drain canl at Kailua Rd at Kailua	--	1961-65
16264500	Kawainui Swamp canal at Wanaao Rd at Kailua	--	1961-64
16266000	Kamooalii Str nr Kaneohe	1.48	1914-16
16267000	Hooleinaiwa Str nr Kaneohe	0.61	1914-16
16268000	Piho Str nr Kaneohe	0.43	1914-16
16269000	Kuou Ditch nr Kaneohe	--	1914-16
16270000	Kuou Str nr Kaneohe	0.37	1914-16
16270500	Kamooalii Str below Kuou Str nr Kaneohe	3.21	1967-70, 1971, 1972-76
16271000	North Luluku Ditch nr Kaneohe	--	1914-16
16272000	Luluku Str nr Kaneohe	0.46	1914-16
16273000	Young Mau Ditch nr Kaneohe	--	1914-16
16273900	Kamooalii Str at Kaneohe	4.38	1959-63, 1965-80
16274000	Ahlo Ditch nr Kaneohe	--	1914-16
16276000	Reservoir Ditch nr Heeia	--	1914-16
16277000	Waipio Ditch nr Heeia	--	1914-16
16278000	Iolekaa Str mauka nr Heeia	0.29	1940-70
16279000	Iolekaa Str nr Heeia	0.52	1914-16
16280000	Wing Wo Tai Ditch nr Heeia	--	1914-16
16281000	Hop Tuck Ditch nr Heaia	--	1914-16
16282000	Lee Ditch nr Heeia	--	1914-16
16283000	Kahaluu Str nr Heeia	0.28	1935-71
16283800	Waihee Str at alt. 260 ft nr Heeia	0.31	1961-66
16284000	Waihee Str nr Heeia	0.93	1935-82
16284500	Waihee Str at Kahaluu	2.26	1966-71
16285000	Waiahole tunnel at Waianu nr Waiehole	--	1950-69
16286000	Waiahole tunl wasteway at intk 31 nr Waiahole	--	1951-69
16287000	Waiahole tunnel at north portal nr Waiahole	--	1951-69
16287200	Waiahole tunnel at adit 8 nr Waipahu	--	1956-69
16288000	Halona Str nr Waikane	0.08	1911
16289000	Waihi Str nr Waikane	0.11	1911
16290000	Waiahole Str below powerhouse nr Waiahole	0.46	1915
16291000	Waiahole Str at alt. 250 ft. nr Waiahole	0.99	1955-68
16292000	Waiahole Str nr Waiahole	1.22	1911-16
16293000	Waianu Str nr Waikene	1.28	1911
16294000	Waiahole Str at Waiahole nr Waikane	3.60	1911-12
16295000	Waikane Str nr Waikane	2.35	1912
16296000	Kahana Str nr Kahana	3.20	1914-17
16297000	Kawa Str nr Kahana	2.09	1914-17
16299000	Punaluu Str at alt. 539 ft. nr Punaluu	0.98	1915-18
16300000	Waihoi Str nr Punaluu	0.50	1915-17
16301000	Punaluu Str at alt. 250 ft. nr Punaluu	2.78	1914-18
16304000	Kaluanui Str nr Hauula	0.50	1915-17
16305000	Kaipapau Str nr Hauula	0.21	1906-07
16306000	Koloa Gulch nr Laie	0.90	1914-18
16307000	Wailele Gulch nr Laie	0.50	1914-15, 1916-18
16308000	East Branch Kahawainui Str nr Laie	0.53	1914-18
16308990	Malaekahana Str nr Laie	0.64	1963-71
16309000	Malaekahana Str nr Kahuku	1.66	1914-18
16310000	Middle Branch Malaekahana Str nr Kehuku	0.69	1914-18
16329000	Kaiwikoele Str tributary nr Maunawai	0.97	1967-71
16340500	Anahulu River tributary nr Haleiwa	0.83	1967-71
16343000	Helemano Str at Haleiwa	14.20	1967-82

DISCONTINUED GAGING STATIONS--Continued

Station Number	Station name	Drainage area (mi^2)	Period of Record
	ISLAND OF MOLOKAI		
16401000	Papalaua Str nr Pukoo	2.00	1919-29
16402000	Pulena Str nr Wailau	4.38	1919-28, 1937-57
16403000	Waiakeakua Str nr Wailau	1.41	1919-29, 1937-57
16404000	Pelekunu Str nr Pelekunu	2.59	1919-29, 1937-47, 1948-57, 1971-82
16405000	Lanipuni Str nr Pelekunu	1.09	1919-29, 1937-57
16406000	Waikolu Str at alt. 650 ft nr Kalaupapa	2.99	1920-23
16409000	Waihanau Str nr Kalaupapa	1.18	1930-32
16410000	Keolewa Str nr Kalae	0.18	1940-44
16411000	Waialala Spring nr Kalae	--	1940-60
16412000	Mokomoko Gulch nr Kalae	0.23	1940-45
16411300	Kakaako Gulch at Hwy 46 nr Mauna Loa	0.18	1964-85
16415000	EF Kawela Gulch	0.45	1946-71
16416000	Punaula Gulch nr Pukoo	0.24	1947-72
	ISLAND OF MAUI		
16501000	Palikea Str bl diversion dam nr Kipahulu	6.29	1927-29, 1931-35, 1935-38, 1939-83
16502000	Hahalawe Gulch nr Kipahulu	0.43	1927-37, 1938-69
16503000	Kaeluku flume nr Kaeleku	--	1940-45
16504000	Hana flume nr Hana	--	1940-45
16506000	Makapipi Ditch nr Nahiku	--	1948-66
16506500	West Makapipi Spring nr Nahiku	--	1932-45
16507000	Makapipi Str nr Nahiku	1.93	1932-45
16510000	Kapaula Gulch nr Nahiku	0.69	1921-63
16511000	Kapaula Gulch below government road nr Nahiku	0.93	1932-47
16512000	Koolau Ditch at Nahiku weir nr Nahiku	--	1919-85
16513000	Waiaaka Str nr Nahiku	0.10	1932-47
16514000	Paakea Gulch nr Nahiku	0.34	1932-47
16515000	Waiohue Gulch nr Nahiku	0.32	1921-63
16516000	Kopiliula Str nr Keanae	4.31	1914-17, 1921-58
16517000	East Wailuaiki Str nr Keanae	3.11	1913-17, 1922-58
16519000	West Wailuanui Str nr Keanae	1.93	1913-17, 1922-58
16520000	East Wailuanui Str nr Keanae	0.51	1914-17, 1921-58
16521000	Wailuanui Str nr Keanae	2.51	1932-36, 1938-47
16522000	Taro patch feeder Ditch at Keanae	--	1934-68
16523000	Koolau Ditch nr Keanae	--	1910-12, 1917-85
16524000	Honomanu Str at Haiku-uka boundry nr Kaili	2.54	1919-27, 1932-34, 1962-68
16525000	Sevth Br Honomanu Str at Haiku-uka nr Kailiili	0.30	1932-33
16526000	Fourth Br Honomanu Str at Haiku-uka nr Kailiili	0.10	1932-33
16527000	Honomanu Str nr Keanae	3.17	1913-64
16528000	Spreckels Ditch at station 1 nr Huelo	--	1910-13
16529000	Spreckels Ditch at station 2 nr Kuelo	--	1911-13
16530000	Spreckels Ditch at station 3 nr Kuelo	--	1910-13
16531000	Kula diversion from Haipuaena Str nr Olinda	--	1945-85
16531100	Haipuaena Str at Kula pipeline intake nr Olinda	0.27	1946-68
16532000	Haipuaena Str at Haiku-uka bdy nr Kailiili	0.63	1919-26, 1932-34
16533000	Third Br Haipuaena Str at Haiku-uka nr Kailiili	0.06	1932-33
16534000	First Br Haipuaena Str at Haiku-uka nr Kailiili	0.05	1932-33
16535000	Haipuaena div ditch at Kolea Gulch nr Keanae	--	1938-60
16536000	Haipuaena Str above Spreckels Ditch nr Huelo	1.16	1913-67
16537000	Haipuaena Str nr Huelo	1.10	1910-13
16538000	Spreckels Ditch at Haipuaena weir nr Huelo	--	1922-85
16539000	Spreckels Ditch at station 4 nr Huelo	--	1910-13
16541000	Koolau Ditch at Haipuaena nr Huelo	--	1932-87
16541500	Manuel Luis Ditch at Puohokamoa Gulch nr Huelo	--	1917-24
16542000	E Br Puohokamoa Str at Haiku-uka bdry nr Kailiili	0.14	1919-27, 1932-33
16543000	M Br Puohokamoa Str at Haiku-uka bdry nr Kailiili	0.48	1919-27, 1932-34, 1962-69
16544000	W Br Puohokamoa Str at Haiku-uka bdry nr Kailiili	0.45	1919-28, 1932-34
16545000	Puohokamoa Str above Spreckels Ditch nr Huelo	2.35	1913-71
16546000	Puohokamoa Str nr Huelo	2.60	1910-13
16547000	Puohokamoa intake of Koolau Ditch nr Huelo	--	1922-30
16551000	Koolau Ditch at Wahinepee nr Huelo	--	1922-29
16552000	Spreckels Ditch at Wahinepee nr Huelo	--	1929-30, 1931-38
16552200	Spreckels Ditch at station 5 nr Huelo	--	1911-13
16552500	Manuel Luis Ditch W of Puohokamoa Str nr Huelo	--	1930-35
16552600	Waikamoi Str at Puuluau nr Olinda	2.10	1949-66
16552800	Waikamoi Str ab res at Kula pl intake nr Olinda	2.50	1953-68

DISCONTINUED GAGIHG STATIOHS--Continued

Station Number	Station name	Drainage area (mi^2)	Period of Record
	ISLAHD OF MAUI--Continued		
16553000	Waikamoi Str bl res at Kula pl intake nr Olinda	2.52	1945-49
16554000	Waikamoi Str at Haiku-uka boundary nr Kailiili	3.46	1918,19-28, 1932-34
16554500	E Br Waikamoi Str at Haiku-uka bdry nr Kailiili	0.07	1918-28, 1932-33
16555000	Waikamoi Str above Wailoa Ditch nr Huelo	3.93	1922-57
16556000	Waikamoi Str nr Huelo	3.98	1910-22
16557000	Alo Str nr Huelo	0.47	1910-57
16558000	Koolau Ditch at Alo diversion weir nr Huelo	--	1908-11
16560000	Spreckels Ditch at station 6 nr Huelo	--	1911-13
16561000	Center Ditch below Kolea reservoir nr Huelo	--	1918, 1919, 1920-24, 1925-30
16562000	Center Ditch nr Huelo	--	1910-12
16565000	Kaaiea Gulch nr Huelo	0.58	1921-62
16565500	Spreckels Ditch below Kaaiea Gulch nr Huelo	--	1917-30
16566000	Oopuola Str nr Huelo	0.20	1930-57
16567000	Oopuola Str ab Spreckels Dt crossing nr Huelo	0.58	1910-15
16567500	Spreckels Ditch at station 7 nr Huelo	--	1911-12
16568000	Spreckels Ditch at station 8 nr Huelo	--	1911-13
16569000	Second Branch Hailiilihaele Str at Haiku-uka	0.20	1932-33
16570000	Hailiihaele Str nr Huelo	3.49	1910-11, 1913-18, 1919-24, 1925-75
16571000	Nailiilihaele Str bl new Hamakua Dt nr Huelo	3.60	1912
16572000	Hew Hamakua Ditch at Hailiilihaele weir nr Huelo	--	1910-12
16573000	New Hamakua Ditch at station 1 nr Kailiili	--	1912-13
16574000	Kailua Str at Haiku-uka boundary nr Kailiili	0.80	1918-28, 1932-34
16574500	Kailua Str nr Kailiili	1.10	1963-71
16575000	Tenth Br Kailua Str at Haiku-uka nr Kailiili	0.10	1932-33
16576000	Hinth Br Kailua Str at Haiku-uka nr Kailiili	0.20	1932-33
16577000	Kailua Str nr Huelo	2.41	1910-11, 1912-18, 1919-58
16578000	Hew Hamakua Ditch at station 2 nr Huelo	--	1912-13
16579000	New Hamakua Ditch at station 3 nr Huelo	--	1912-13
16579500	New Hamakua Ditch at station 4 nr Huelo	--	1912-13
16580000	Oanui Str nr Huelo	0.90	1910-11, 1913-16
16582000	New Hamakua Ditch at station 5 nr Huelo	--	1912-13
16583000	Old Hamakua Ditch at Kailua nr Huelo	--	1919-22
16584000	Kailua Str nr Huelo	3.69	1912-13
16585000	Hoolawanui Str nr Huelo	1.34	1910-71
16586000	Hoolawaliilii Str nr Huelo	0.55	1911-57
16588000	Wailoa Ditch at Honopou nr Huelo	--	1922-87
16589000	New Hamakua Ditch at Honopou nr Huelo	--	1918-85
16590000	Old Hamakua Ditch at Honopou nr Huelo	--	1918-22, 1936-65
16591000	Honopou Str at Lowrie Ditch siphon nr Huelo	2.00	1932-47
16592000	Lowrie Ditch at Honopou Gulch nr Huelo	--	1910-27
16593000	Honopou Str above Haiku Ditch nr Huelo	2.20	1930-85
16594000	Haiku Ditch at Honopou Gulch nr Kailua	--	1910-28, 1930-85
16595000	Honopou Str below Haiku Ditch nr Huelo	2.30	1932-47
16596000	New Hamakua Ditch at Halehaku weir nr Huelo	--	1910-14, 1915-23
16596200	Halehaku Gulch nr Kailiili	0.13	1965-71
16597000	Halehaku Gulch weir at New Hamakua Dt nr Huelo	--	1910-12
16598000	Halehaku Gulch nr Huelo	1.40	1910-12
16599000	E Br Opana Gulch at Haiku-uka bdry nr Kailiili	0.60	1932-33
16600000	Opana Ditch nr Huelo	--	1910-12
16601000	Opana Str nr Huelo	3.30	1910-12
16602000	Kauhikoa Ditch at Opana weir nr Huelo	--	1910-13, 1913-15, 1916-28
16602400	Awalau Gulch nr Kailiili	0.23	1965-71
16603000	Kaluanui Ditch at Puuomalei nr Hamakuapoko	--	1910-12
16604000	Iao Str nr Wailuku	--	1910-15
16605000	Maniania Ditch nr Wailuku	--	1910-13
16608000	North Waiehu Str nr Wailuku	0.90	1912-15
16609000	North Waiehu Ditch nr Wailuku	--	1910-11, 1916-17
16609500	North Waiehu Str bl N Waiehu Ditch nr Wailuku	0.90	1910-11
16610000	South Waiehu Str nr Wailuku	0.70	1910-17
16611000	South Waiehu Ditch nr Wailuku	--	1913
16612000	Waihee River nr Waihee	3.90	1913-17
16613000	Waihee Canal nr Waihee	--	1910-12
16613500	Waihee Canal at Waiale weir nr Wailulu	--	1911-12
16615000	Spreckels Ditch nr Waihee	--	1910-13
16616000	Spreckels Ditch at Waiale weir nr Wailuku	--	1910-11
16617000	Left Branch Makamakaole Str nr Waihee	0.40	1939-52
16617700	Kahakuloa Str at alt. 1,380 ft. nr Honokohau	1.50	1913-14

DISCONTINUED GAGING STATIONS--Continued

Station Number	Station name	Drainage area (mi^2)	Period of Record
	ISLAND OF MAUI--Continued		
16619000	Kahakuloa Str at Kahaluloa nr Waihee	4.00	1912-13
16620000	Honokohau Str nr Honokohau	4.11	1911, 1913-20, 1922-88
16621000	Honokohau Ditch intake nr Honokohau	--	1907-13
16622000	Honokohau Ditch above Honolua Str nr Honolohau	--	1910-11
16623000	Honolua Str nr Honokohau	2.90	1913-17
16624000	Honokohau Ditch at Honokowai weir nr Lahaina	--	1910-12
16625000	Honolua Ditch nr Honokohau	--	1911-12
16626000	Honolua Str at Honolua Ranch nr Honokahau	3.96	1911
16627000	Kapaloa Str at weir 1 nr Lahaina	1.00	1901
16628000	Kapaloa Str nr Lahaina	1.00	1911-12
16629000	Honokowai Ditch nr Lahaina	--	1912-17, 1918-67
16630000	Honokowai Str nr Lahaina	1.10	1913-17
16633000	Kahoma development tunnel nr Lahaina	--	1911-17
16634000	Kahoma Str nr Lahaina	1.19	1911-12, 1913-17
16635000	Lahainaluna Str at weir 1 nr Lahaina	0.54	1901
16635500	Lahainaluna Str at weir 2 nr Lahaina	0.19	1901
16636000	Kahana Str above pipeline intake nr Lahaina	1.51	1916-25, 1926-32
16637000	Lahainaluna Ditch nr Lahaina	--	1913-14
16638000	Kahana Str nr Lahaina	1.83	1911-16
16638500	Kahoma Str at Lahaina	5.22	1962-89
16639000	North Fork Kauaula Str nr Lahaina	0.52	1901
16640000	South Fork Kauaula Str nr Lahaina	0.18	1901
16641000	Kauaula Str nr Lahaina	1.84	1912, 1914-17
16643000	Kauaula Ditch nr Lahaina	--	1911-17
16644000	Launiupoko Str nr Lahaina	1.13	1911-18
16645000	Olowalu Ditch nr Olowalu	--	1911-16, 1916-20, 1920-58, 1958-67
16646000	Olowalu Str nr Olowalu	4.00	1913-16
16647000	Ukumehame Gulch nr Olowalu	3.75	1911-12, 1913-19
16647100	Ukumehame Gulch at mouth nr Olowalu	4.03	1964-71
16648000	South side Waikapu Ditch nr Waikapu	--	1910-17
16649000	Palolo Ditch nr Waikapu	--	1910-17
16650000	Waikapu Str nr Waikapu	2.76	1910-17
	ISLAND OF HAWAII		
16701000	Olaa Flume at Kaumana nr Hilo	--	1917-20
16701200	Waiakea Str nr Hilo	33.60	1957-67
16701700	Wailuku River nr Pua Akala	10.20	1964-65
16701750	Wailuku River nr Humuula	34.80	1965-82
16701800	Wailuku River nr Kaumana	43.40	1966-82
16703000	Wailuku River at Pukamaui nr Hilo	97.20	1923-28, 1929-40
16705000	Hilo Boarding School Ditch at intake nr Hilo	--	1931-40
16706000	Hilo Boarding School Ditch nr Hilo	--	1918-19
16707000	Kapehu Ditch diversion nr Hilo	--	1954-62
16708000	Kapehu Ditch nr Hilo	--	1938-41, 1942-48, 1948-51, 1951-62
16709000	Kapehu Str at Piihonua nr Hilo	4.84	1928-37
16710000	Wailuku River nr Hilo	150.00	1911-13, 1918-19
16716000	Honolii Str nr Hilo	8.00	1924-32
16717500	Kawainui Str nr Pepeekeo	9.20	1912
16717820	Manowaiopae Str nr Laupahoehoe	1.04	1965-71
16718000	Upper Hamakua Ditch at Puualala nr Kukuihaele	--	1913-20
16721000	Kawainui Str at alt. 2,120 ft nr Waipio	3.48	1901-02
16721500	Br 3 Kawainui Str at alt. 1,700 ft nr Waipio	3.90	1901-02
16722000	Kawainui Str at alt. 1,435 ft nr Waipio	4.43	1901-02
16722300	Br 3 Kawainui Str at alt. 1,405 ft nr Waipio	0.47	1901-02
16722600	Br 1 Kawainui Str at alt. 1,380 ft nr Waipio	5.19	1901-02
16723000	Kawainui Str nr Waipio	5.55	1901-02
16724000	Kawainui Str at alt. 775 ft nr Waipio	6.00	1901-02
16728000	Alakahi Str at alt. 1,200 ft nr Waipio	1.49	1901-02
16729000	Alakahi Str at alt. 730 ft. nr Waipio	3.14	1901-02
16730000	Koiawe Str at alt. 1,120 ft. nr Waipio	1.65	1901-02
16731000	Koiawe Str at alt. 610 ft. nr Waipio	2.23	1901-02
16732000	Waipio Str below Koiawe Str nr Waipio	11.70	1901-02
16732100	Waima Str at alt. 790 ft. nr Waipio	0.51	1901-02
16732150	Waima Str at alt. 385 ft nr Waipio	0.77	1901-02
16732200	Wailoa Str nr Waipio	14.30	1901-02, 1911-12, 1964-69
16732300	Upper Hamakua Ditch at Puualala and Res No. 3	--	1913-20

DISCONTINUED GAGING STATIONS--Continued

Station Number	Station name	Drainage area (mi^2)	Period of Record
	ISLAND OF HAWAII--Continued		
16732600	Lower Hamakua Ditch at Waima flume nr Kukuihaele	--	1910-13
16732900	Lower Hamakua Ditch at main weir nr Kukuihaele	--	1910-20
16733000	Lower Hamakua Ditch wasteway nr Kukuihaele	--	1964-73
16733100	Lower Hamakua Ditch bl main weir nr Kukuihaele	--	1964-73
16733200	Honokaa diversion at Honokaa	--	1964-73
16733300	Lower Hamakua Ditch bl Honokaa div at Honokaa	--	1964-73
16737000	Waiilikahi Str nr Waimanu	0.76	1939-60
16738000	Kaimu Str nr Waimanu	0.90	1939-47, 1950-52
16739000	Punalulu Str nr Waimanu	0.66	1939-52
16740000	Waiaalala Str nr Waimanu	0.12	1939-52
16741000	Paopao Str nr Waimanu	0.32	1939-52
16742000	Kukui Str nr Waimanu	0.22	1939-52, 1959-66
16743000	Awini Ditch at E Honokane iki Gulch nr Niulii	--	1927-38, 1938-49, 1950-72
16744000	E Honokane iki intake to Awini Ditch nr Niulii	--	1927-36, 1937-38, 1939-40, 1940-49, 1951-72
16745000	Awini Ditch above Honokane Gulch nr Kohala	--	1918
16745500	Awini Ditch at Awini Weir nr Kohala	--	1907-17
16747000	E Br Honokane nui Str at alt 1,300ft nr Honokane	4.53	1901
16747500	East Branch Honokane nui Str nr Niulii	4.96	1963-69
16748000	E Br Honokane nui Str at alt 770ft nr Honokane	5.41	1901
16749000	W Br Honokane nui Str at alt 1,370ft nr Honokane	1.81	1901
16749500	W Br Honokane nui Str at alt 775ft nr Honokane	2.40	1901
16750000	Kohala Ditch at Honokane weir nr Kohala	--	1907-12
16750900	Kohala Ditch at Honokane nr Niulii	--	1963-72
16751000	Kohala Ditch at Pololu nr Niulii	--	1927-38, 1938-72
16752000	Kohala Ditch at Niulii weir nr Kohala	--	1907-17
16755000	Kehena Ditch nr Kohala	--	1917-19, 1928-66
16757000	Waikoloa Str nr Kamuela	0.78	1947-71
16759200	Right Branch Waiaha Str nr Holualoa	1.89	1960-82
16759500	Waiaha Str nr Holualoa	9.35	1957-68
16759800	Kiilae Str nr Honaunau	0.67	1958-82
16761200	Kahilipali nui Gulch at Waiohinu	0.47	1962-65
16765000	Hilea Gulch tributary 2 nr Honuapo	1.86	1966-82
16767000	Ninole Gulch nr Punaluu	15.5	1966-82
16770500	Paauau Gulch at Pahala	1.74	1962-79

DISCONTINUED WATER-QUALITY STATIONS

The following continuous water-quality stations in Hawaii have been discontinued. Daily records were collected and are stored in WATSTORE for the period of record shown for each station.

[Type of record: C (specific conductance), S (sediment), T (temperature).]

Station Number	Station name	Drainage area (mi^2)	Type of Record	Period of Record
	ISLAND OF OAHU			
16212800	Kipapa Str nr Wahiwa	4.29	S	1973-82
16213000	Waikele Str nr Waipahu	45.70	C,T	1973-81
16227500	Moanalua Str nr Kaneohe,	0.94	S	1971-78
16270500	Kamooalii Str blw Kuou Str nr Kaneohe	3.21	S	1972-76
	ISLAND OF HAWAII			
16704000	Wailuku River at Piihonua, Hawaii, HI	125.00	C	1975-78
			T	1975-79
			S	1977-79, 1980-83
16713000	Wailuku River at Hilo, Hawaii, HI	256.00	C,T	1982-84, 1984-85

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WATER RESOURCES DATA FOR HAWAII, 1995

Volume 1--HAWAII

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey (USGS), in cooperation with State, local, and other Federal agencies, obtains a large amount of data pertaining to the water resources of Hawaii and other Pacific areas 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 State and the Pacific areas. 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 - Hawaii and other Pacific Areas."

This report includes records on both surface and ground water in the State. Specifically, it contains: (1) Discharge records for 91 stream-gaging stations, 4 miscellaneous streamflow stations, 107 crest-stage, partial-record streamflow stations, and 6 low-flow partial-record streamflow stations; (2) water-quality records for 12 streamflow-gaging stations, and 22 partial-record streamflow stations; (3) water-level records for 78 observation wells; (4) water-quality records for 167 observation wells; (5) accumulated rainfall records for 44 rainfall stations. Records included for stream stages and for ground-water levels in this report are only a small fraction of those obtained during the water year.

This series of annual reports for Hawaii and other Pacific areas began with the 1961 fiscal year (State of Hawaii) with a report that contained only data relating to the quantities of surface water. For the 1964 fiscal year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels. Beginning with the 1993 water year, accumulated rainfall data was included in the report.

Prior to introduction of this series (through June 30, 1960, for Hawaii and other Pacific areas) and for several water years concurrent with it, water-resources data for Hawaii and other Pacific areas were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States." The records in Hawaii were contained in the series as "Surface Water Supply of Hawaii." Records for other Pacific areas were contained in one volume entitled, "Surface Water Supply of Mariana, Caroline, and Samoa Islands." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." These Water-Supply Papers may be consulted in the libraries of the principal cities in the United States, or if out of print, may be purchased from the U.S. Geological Survey, Branch of Information Services, Box 25286, Denver, Colorado 80225-0286. For further ordering information, telephone (303) 202-4210.

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 report is identified as "U.S. Geological Survey Water-Data Report HI-95-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. 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, VA 22161. For further ordering information, the Customer Inquires telephone number is (703) 487-4650.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (808) 522-8290.

COOPERATION

The U.S. Geological Survey and organizations of the State of Hawaii have had cooperative agreements for the systematic collection of streamflow and ground water-level records since 1909, and for water-quality records since 1967. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreement with the USGS are:

Hawaii Department of Land and Natural Resources, Commission of Water Resource Management, Rae Loui, Deputy Director.
Hawaii Department of Transportation, Kazu Hayashida, Director.
Hawaii Department of Agriculture, Paul Matsuo, Administrator.
City and County of Honolulu, Board of Water Supply, Raymond Sato, Manager and Chief Engineer.
City and County of Honolulu, Department of Public Works, Kenneth E. Sprague, Director and Chief Engineer.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, Public Works, U.S. Navy, National Weather Service, and National Park Service.

The following organizations aided in collecting records:

Maui County Board of Water Supply; East Kauai Water Co., Ltd.; McBryde Sugar Co., Ltd.; East Maui Irrigation Co., Ltd.; and Bernice Pauahi Bishop Estate.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

Runoff during the 1995 water year was normal at the index stations on the islands of Oahu and Maui, excessive (upper 25 percent of record) at the index station on the island of Hawaii, and deficient (lower 25 percent of record) at the index station on the island of Kauai. The monthly mean flow for all index stations was normal for the months of December, April, July, and September.

The index station on the island of Hawaii was changed from Waiakea Stream near Mountain View, Hawaii (16700000) to Honolii Stream near Papaikou, Hawaii (16717000). The index station for Oahu was changed back to Kalihi Stream near Honolulu, Oahu (16229000) from Nuuanu Stream below reservoir 2 wasteway near Honolulu (16232000) this water year.

The annual mean discharge at East Branch of North Fork Wailua River near Lihue, Kauai was 78 percent of the 1961-90 median, 76 percent at Kalihi Stream near Honolulu, Oahu, and 89 percent at Honopou Stream near Huelo, Maui. The annual mean discharge at Honolii Stream near Papaikou, Hawaii was 122 percent of the 1967-90 median.

Monthly and yearly mean discharges of the four index stations are compared with their medians in figure 1. Comparisons of 1995 peak discharge to peaks for period of record at the index stations are shown in Table 1.

Table 1. Comparison of peak discharge for 1995 water year with the peak discharge for the period of record at four representative stations

Station Number	Station name	Water year 1995		Period of record	
		Date	Peak discharge (ft^3/s)	Date	Peak discharge (ft^3/s)
16068000	East Branch of North Fork Wailua River near Lihue, Kauai	Oct. 3	1,780	Nov. 12, 1955	18,400
16229000	Kalihi Stream near Honolulu, Oahu	Feb. 27	1,100	Nov. 18, 1930	12,400
16587000	Honopou Stream near Huelo, Maui	Nov. 13	558	Nov. 18, 1930	5,710
16717000	Honolii Stream near Papaikou, Hawaii	Nov. 16	12,800	May 23, 1978	22,600

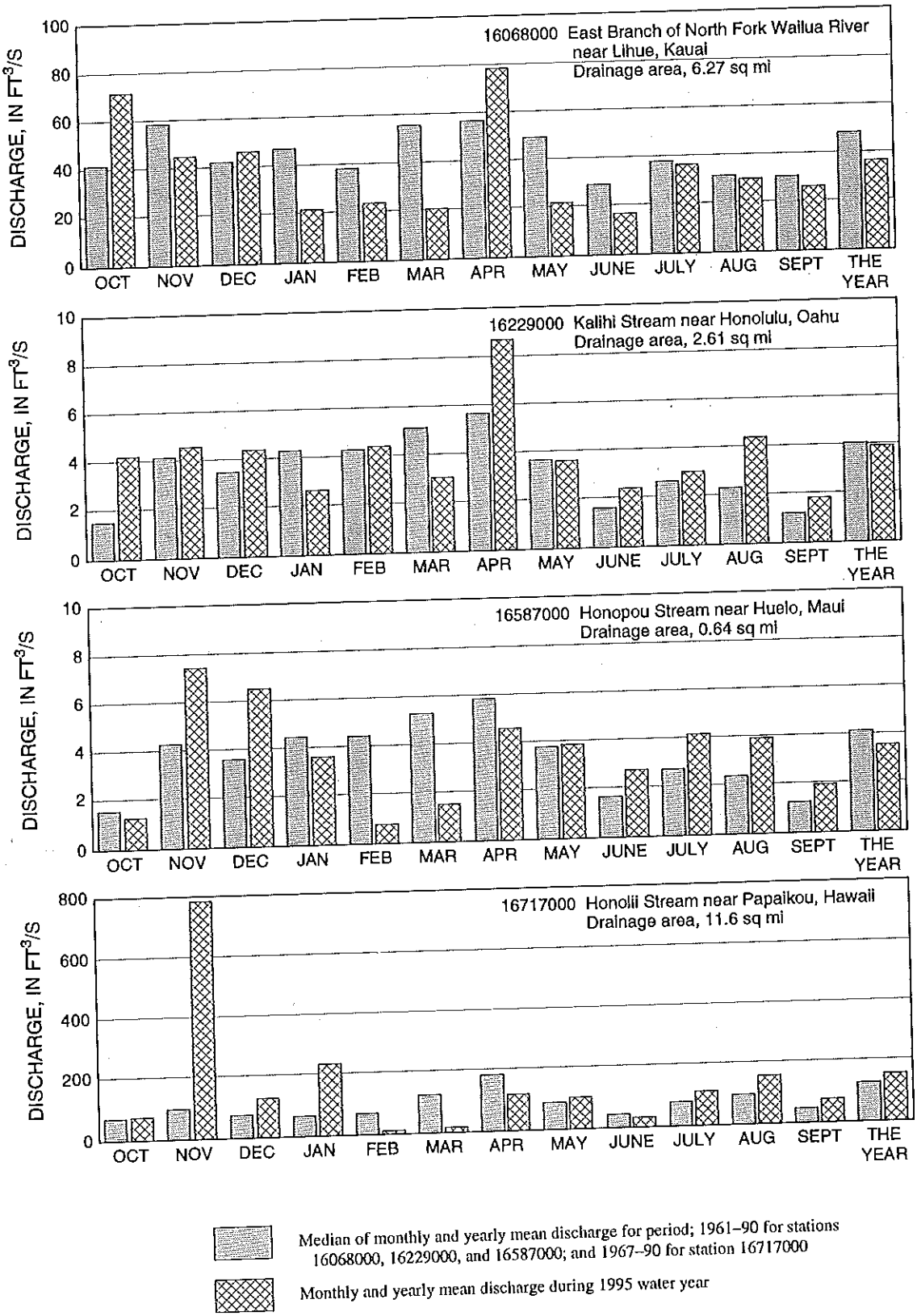


Figure 1. Discharge during 1995 water year compared with median discharge for four representative gaging stations.

Water Quality

Two of the three NASQAN (National Stream Quality Accounting Network) stations showed no significant changes with regards to water-quality constituents for water year 1995. Dissolved solids concentrations and specific conductance values for samples collected at Waimea River at Waimea, Kauai, and Halawa Stream at Halawa, Molokai remained in a very narrow range during water year 1995. Samples collected from these two sites had dissolved-solids concentrations ranging from 27 to 85 mg/L. At Waikele Stream at Waipahu, Oahu, dissolved-solids concentration, specific conductance, alkalinity and major ions and dissolved metals all increased during water year 1995. It should be noted that discharge decreased throughout this period.

Sampling at Waikele Stream at Waipahu, Oahu and Waimea River at Waimea, Kauai is done on a bimonthly basis. Sampling at Halawa Stream at Halawa, Molokai is done on a quarterly basis.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 53 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the human activities.

National Stream-Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 142 sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objective of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting, such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

NASQAN was redesigned in 1995 and will be known as NASQAN II beginning in 1996. NASQAN II will focus on four of the largest river basins in the Nation-- the Mississippi, the Columbia, the Colorado, and the Rio Grande. The objective of NASQAN II 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 Program (NAWQA); (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.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of wet atmospheric deposition, which includes snow, rain, sleet and hail. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in about two-thirds of the study units and ultimately will be conducted in 60 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 will be 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 decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Radiochemical Programs is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1995 water year that began October 1, 1994, and ended September 30, 1995. 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 water, ground-water, and reservoirs, ground-water level data, and rainfall accumulation data. The locations of the stations and wells where the data were collected are shown in figures 2-11. 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.

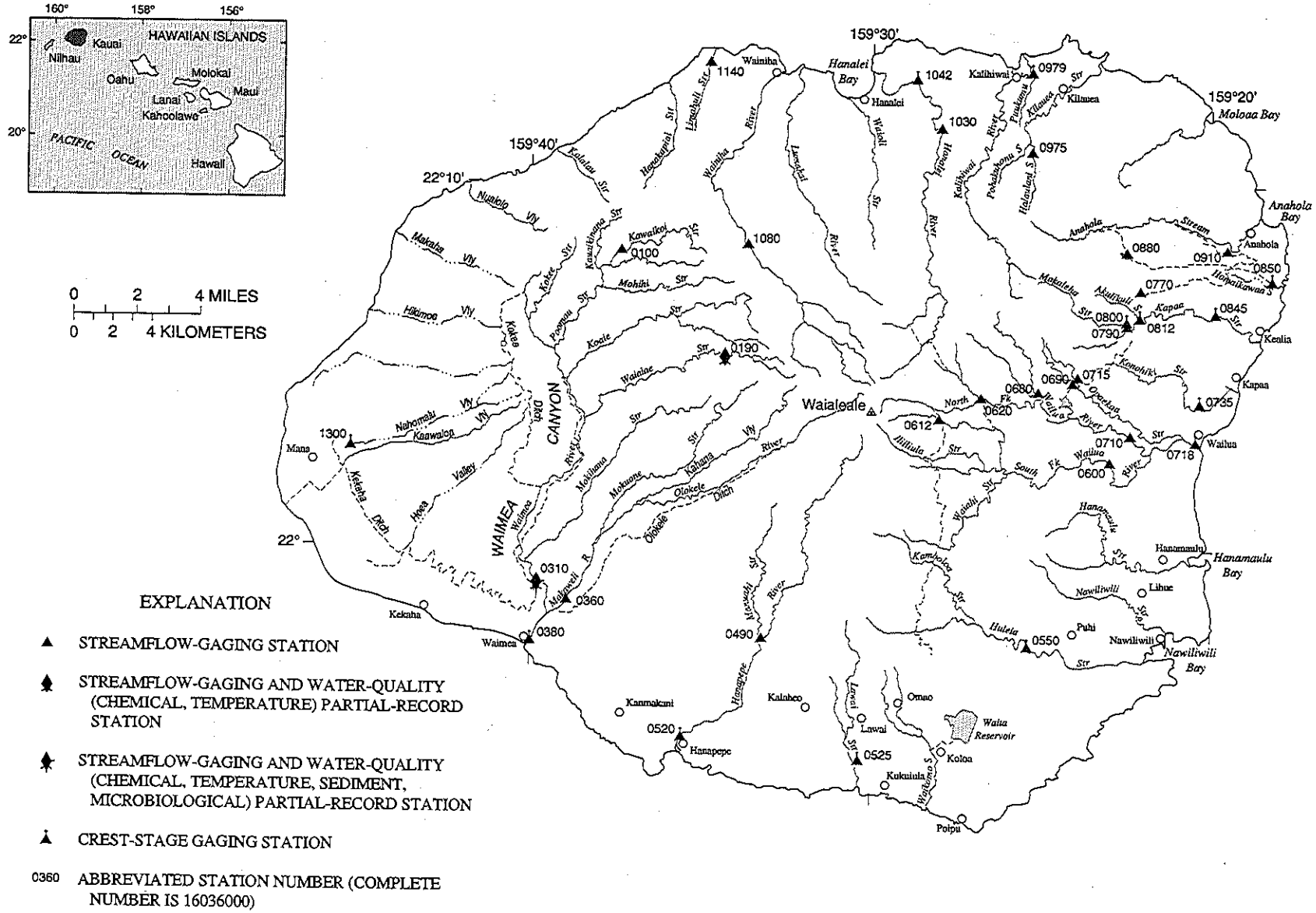
Station Identification Numbers

Each data station, whether streamsite, well, or raingage, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells and, in Hawaii and other Pacific areas, for surface-water stations where only miscellaneous measurements are made, and for rainfall stations.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in U.S. Geological Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indention in the "List of Stations" in the front of this report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, 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 made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 16200000, which appears just to the left of the station name, includes the two-digit number "16" plus the six-digit downstream order number "200000."



EXPLANATION

- ▲ STREAMFLOW-GAGING STATION
- STREAMFLOW-GAGING AND WATER-QUALITY (CHEMICAL, TEMPERATURE) PARTIAL-RECORD STATION
- STREAMFLOW-GAGING AND WATER-QUALITY (CHEMICAL, TEMPERATURE, SEDIMENT, MICROBIOLOGICAL) PARTIAL-RECORD STATION
- CREST-STAGE GAGING STATION
- 0360 ABBREVIATED STATION NUMBER (COMPLETE NUMBER IS 16036000)

Figure 2. Locations of gaging, water-quality, and partial-record stations on Kauai.

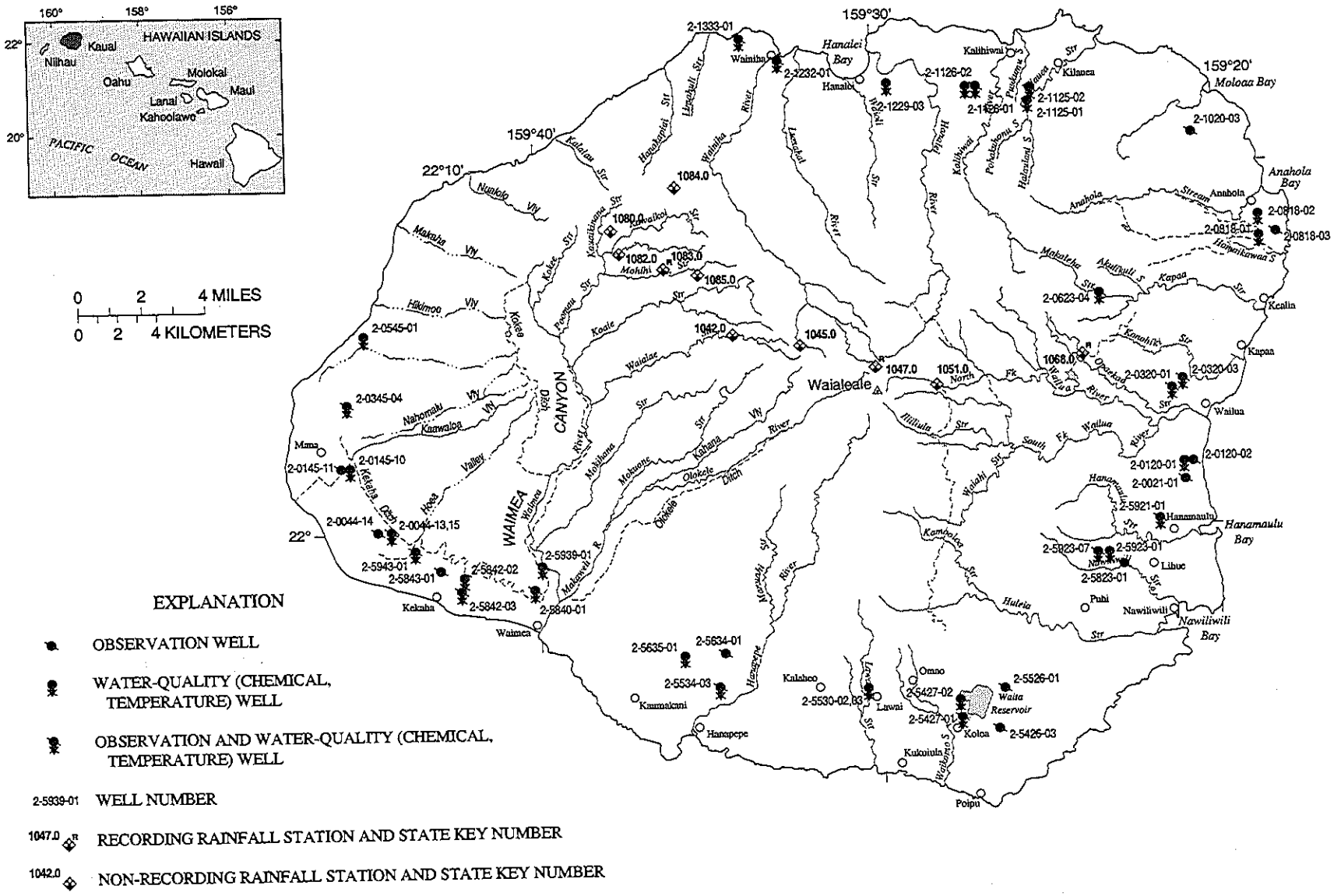


Figure 3. Locations of observation wells, ground-water quality sampling wells, and rainfall stations on Kauai.

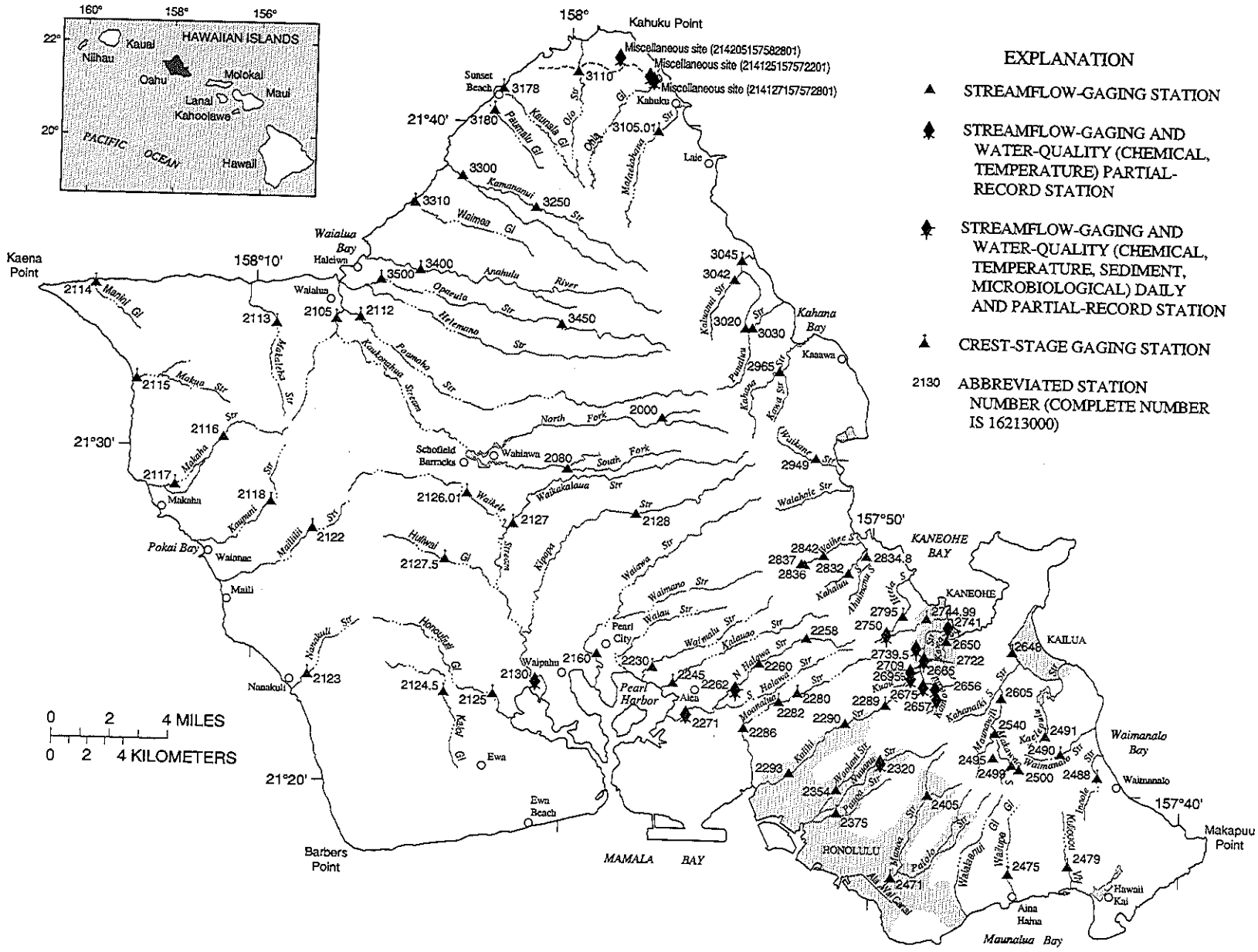


Figure 4. Locations of gaging, water-quality, and partial-record stations on Oahu.

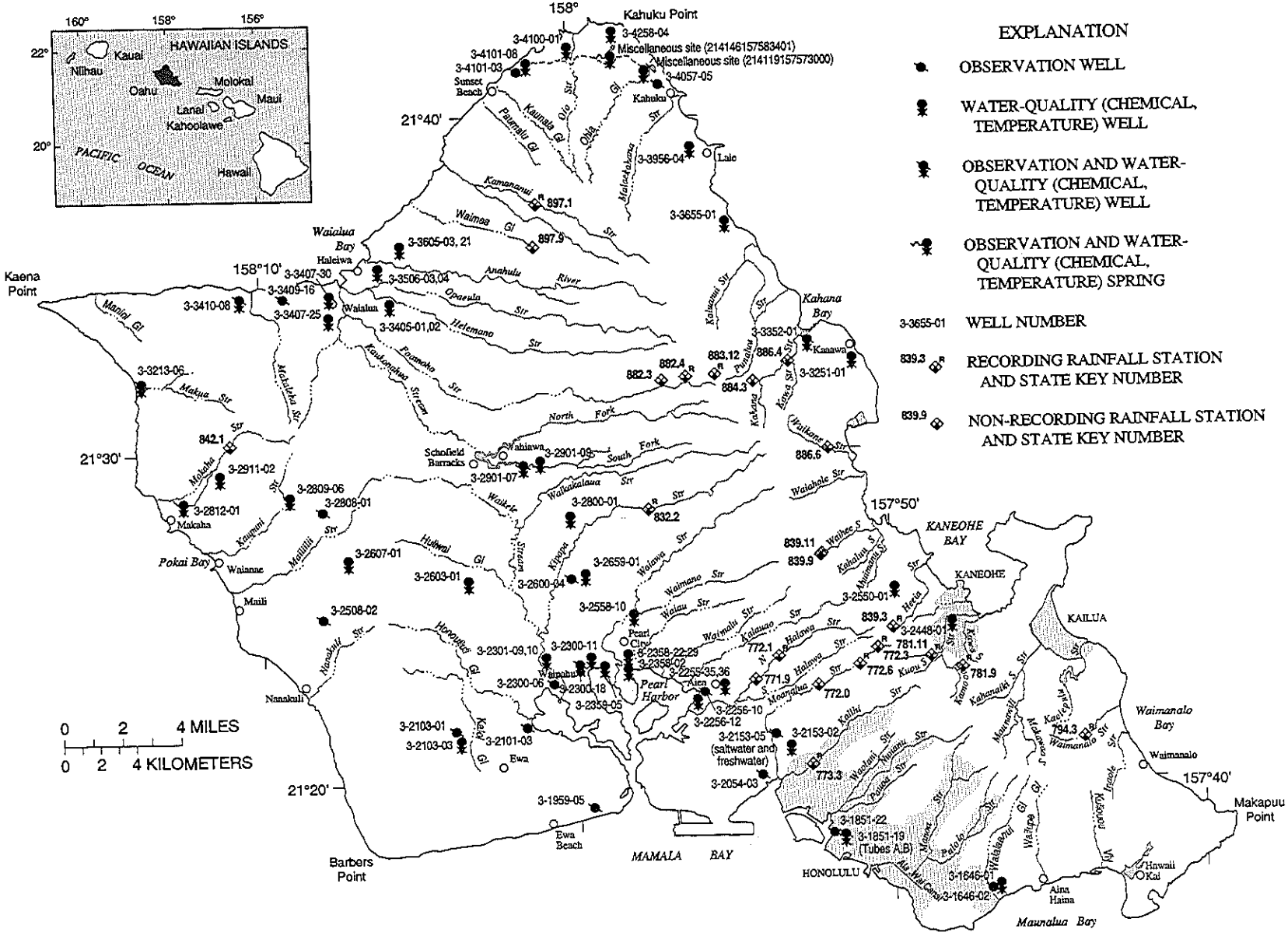


Figure 5. Locations of observation wells, ground-water quality sampling wells, and rainfall stations on Oahu.

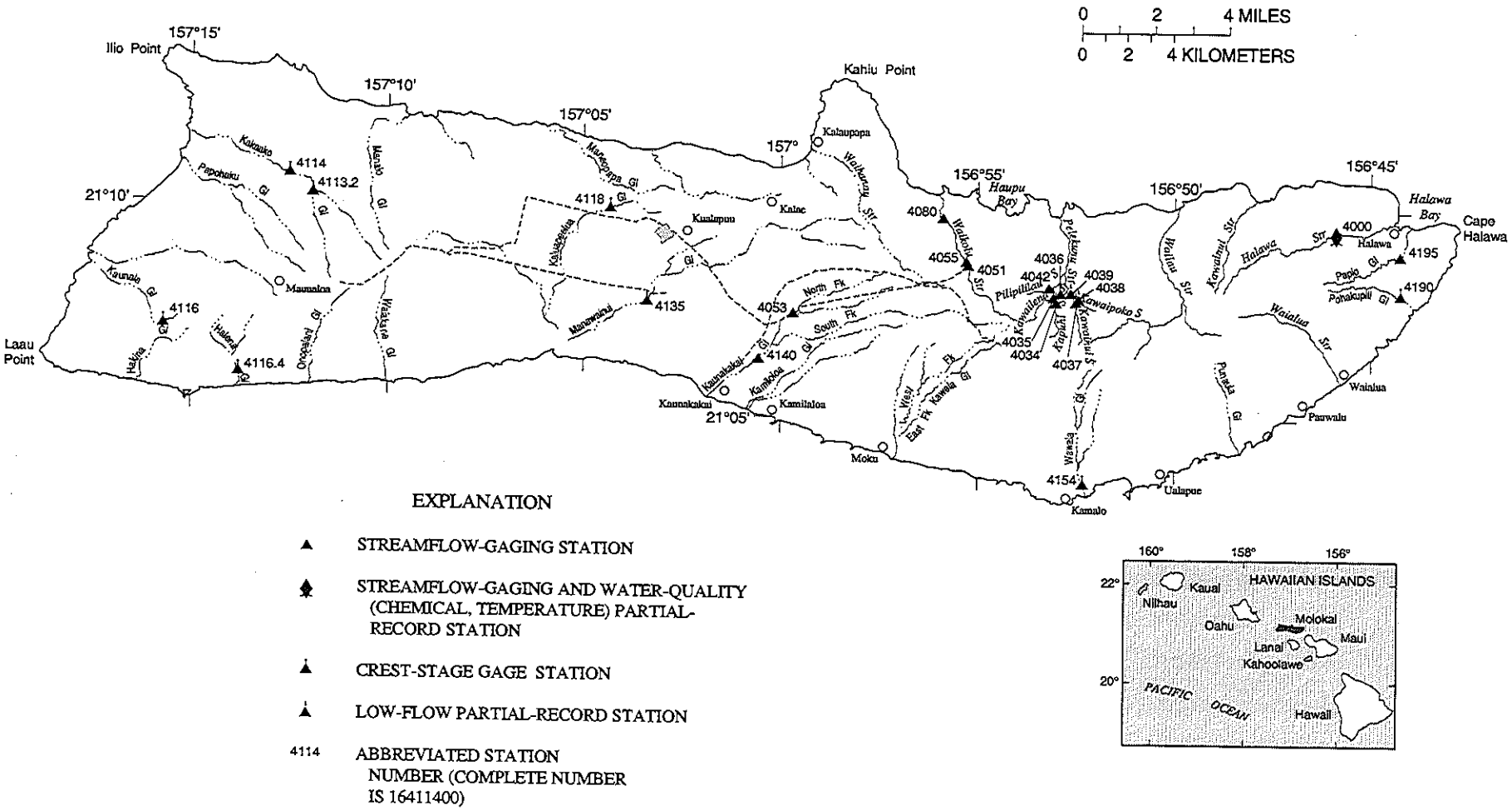


Figure 6. Locations of gaging, water-quality, and partial-record stations on Molokai.

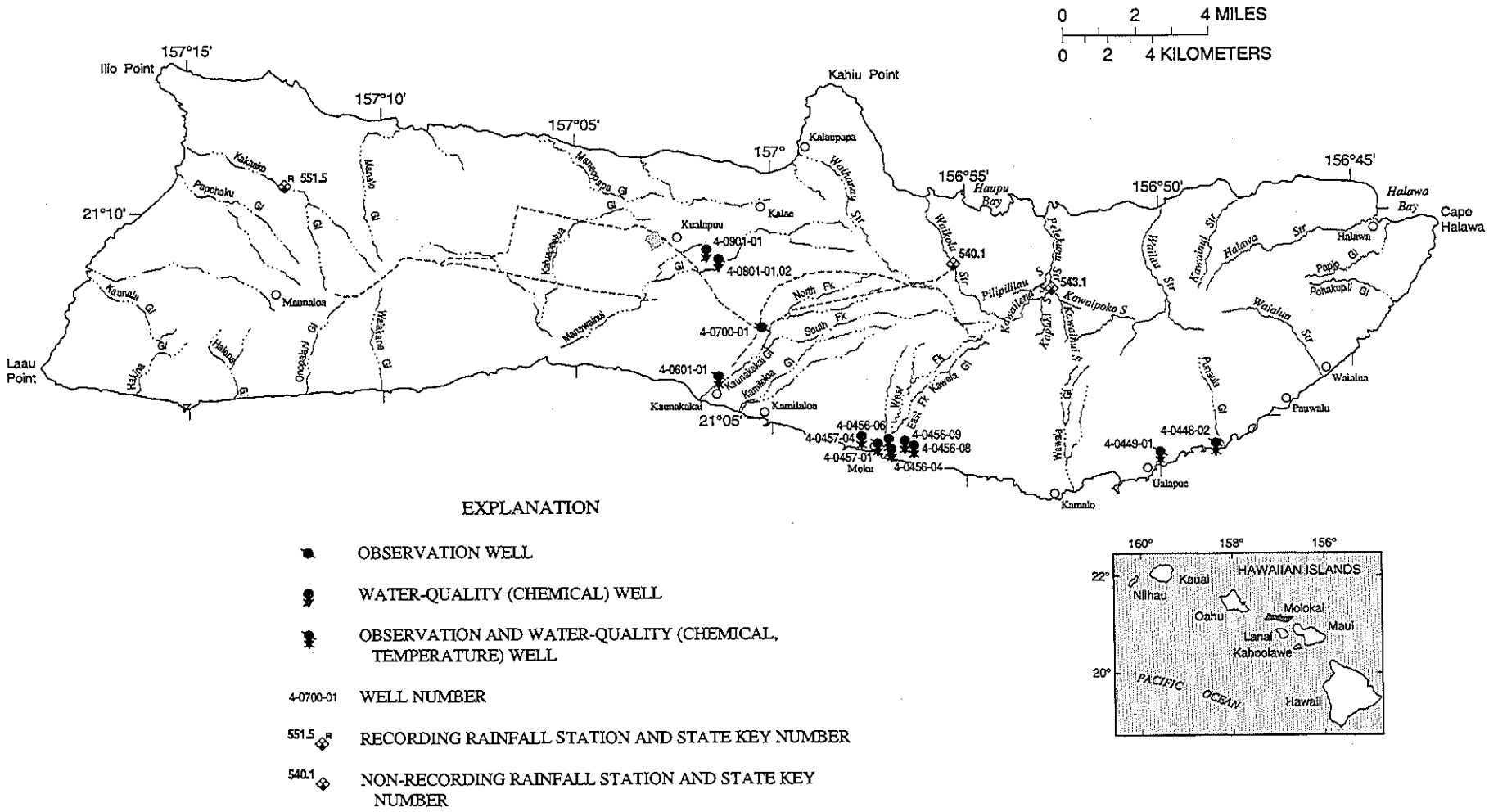


Figure 7. Locations of observation wells, ground-water quality sampling wells, and rainfall stations on Molokai.

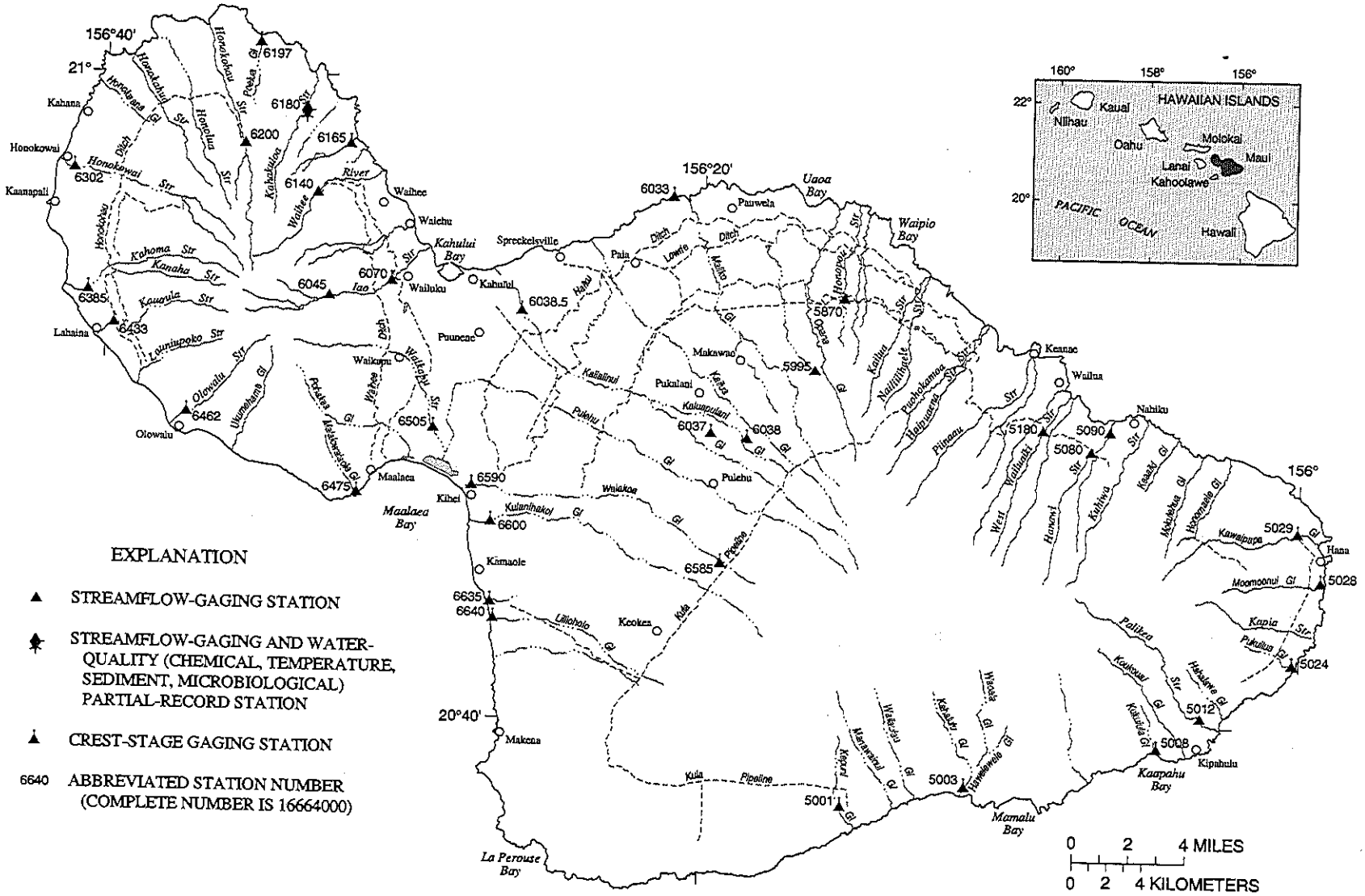


Figure 8. Locations of gaging, water-quality, and partial-record stations on Maui.

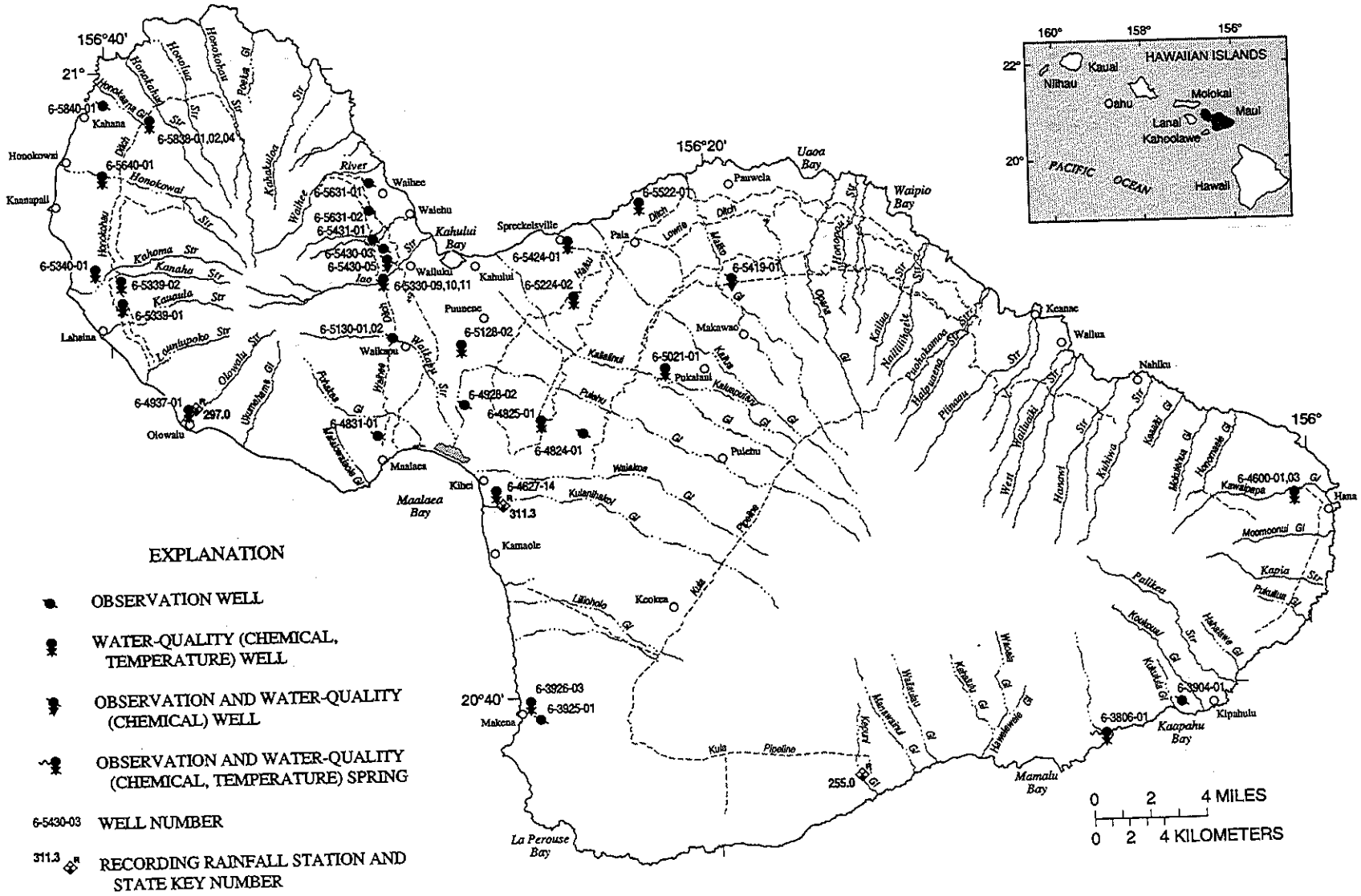


Figure 9. Locations of observation wells, ground-water quality sampling wells, and rainfall stations on Maui.

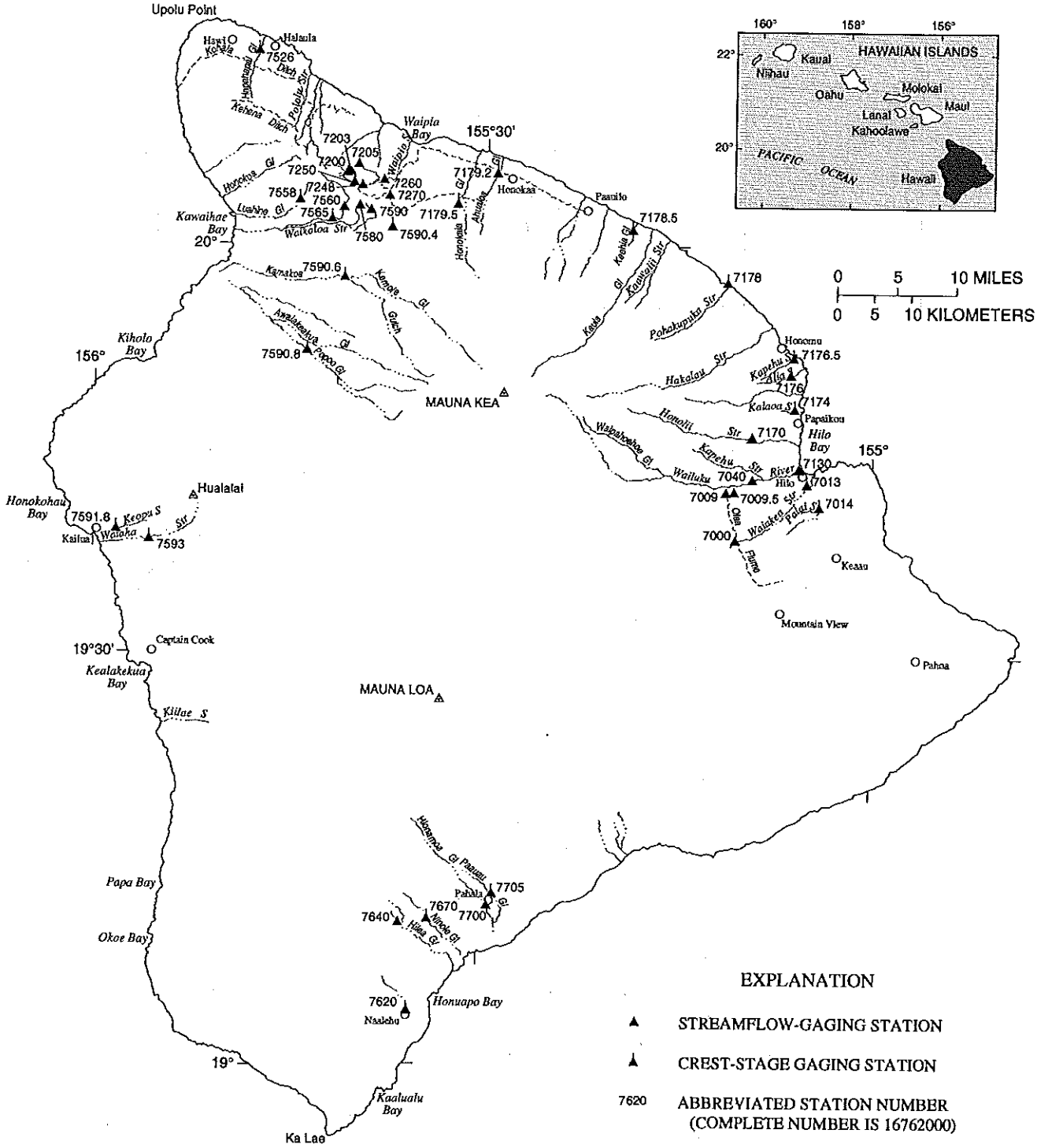


Figure 10. Locations of gaging, water-quality, and partial-record stations on Hawaii.

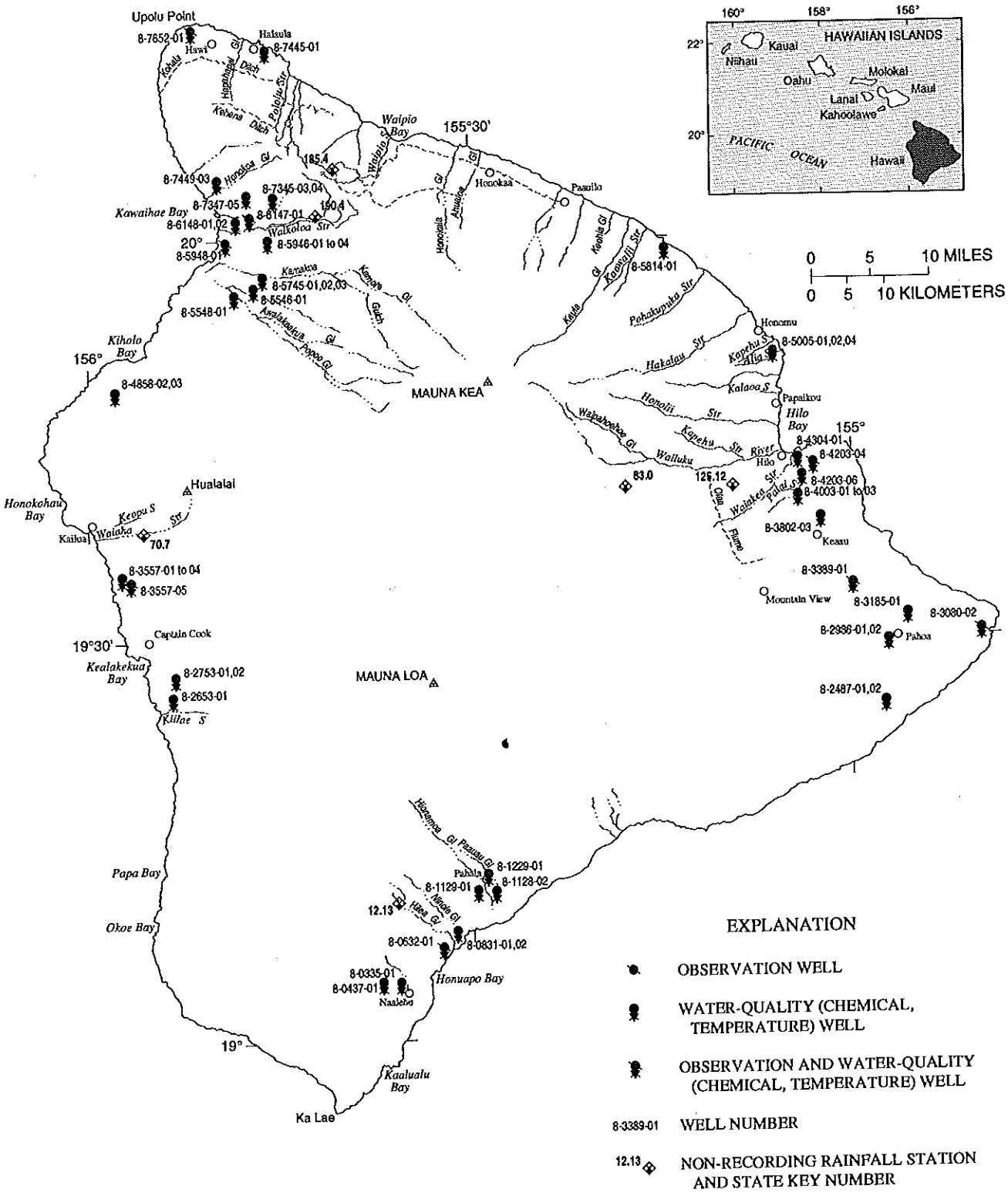


Figure 11. Locations of observation wells, ground-water quality sampling wells, and rainfall stations on Hawaii.

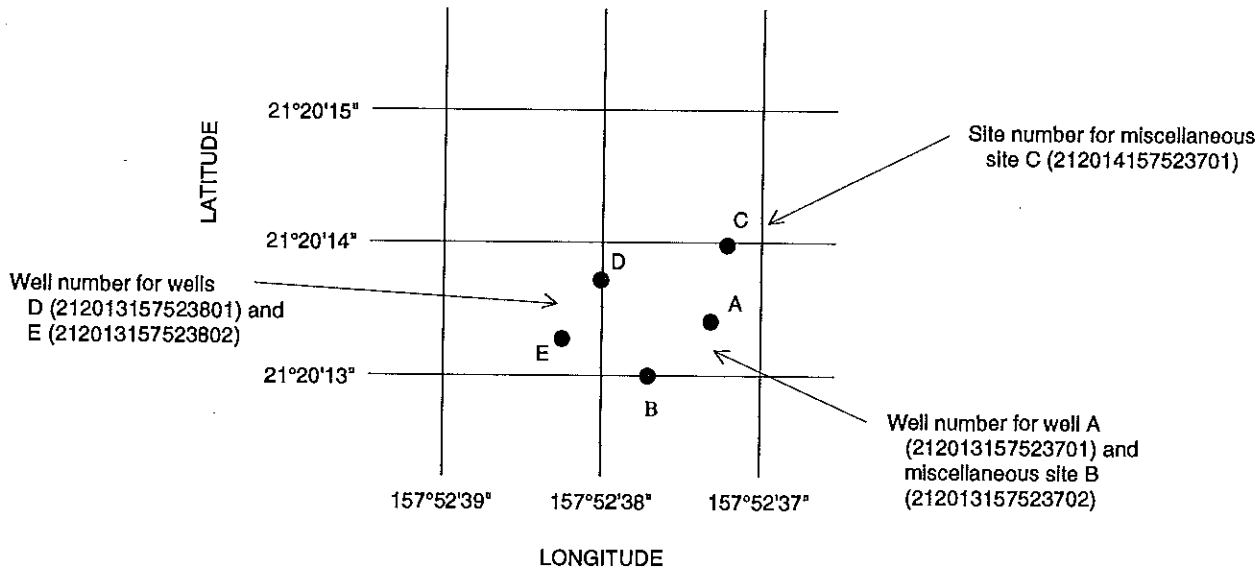


Figure 12. Sketch showing system for numbering wells and miscellaneous sites.

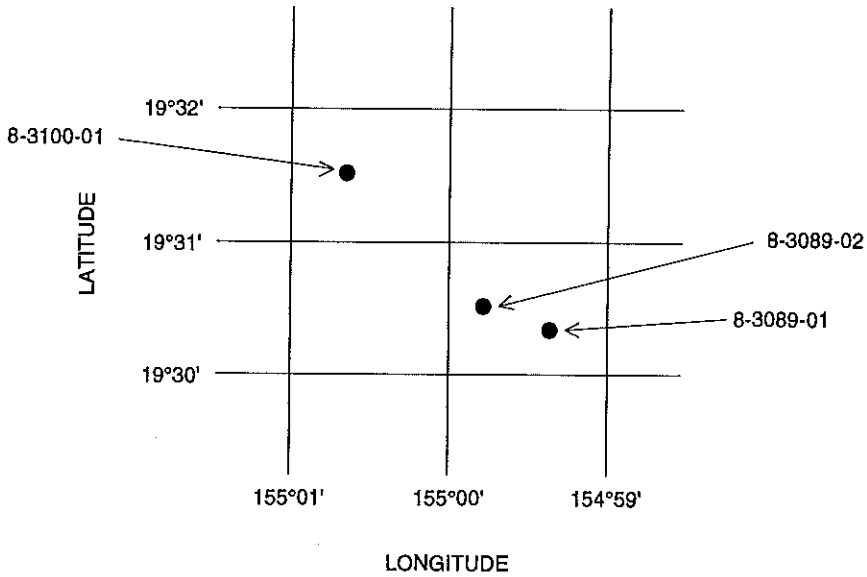


Figure 13. Sketch showing local well-numbering system.

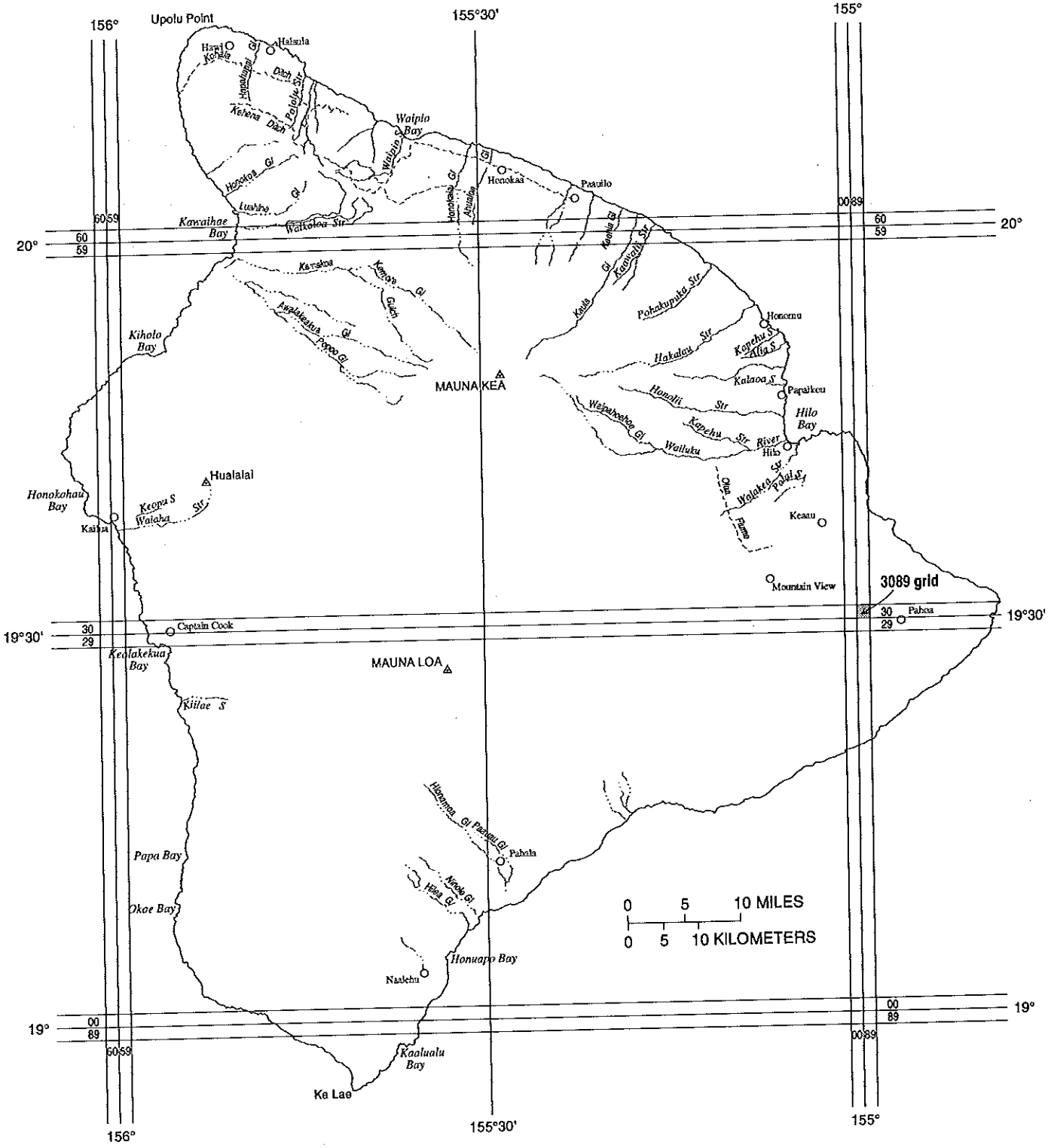


Figure 14. Map of island of Hawaii showing system for numbering local well numbers.

Latitude-Longitude System

The identification numbers for wells, miscellaneous surface-water sites, and rainfall stations are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a one-second grid. This site-identification number, once assigned, is a pure number, and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure 12.)

Local Identifier Well-Numbering System

In addition to the latitude-longitude based site identification number, wells in the State of Hawaii are assigned local well numbers. Beginning in 1971, the local well-numbering system was restructured to contain seven digits based on a non-arbitrary, unique one-minute grid system. One-minute parallel lines for both latitude and longitude are drawn on the map resulting in one-minute grids. Each grid is designated by a four-digit number. The first two digits represent minutes of latitude for the grid and the second two digits represent minutes of longitude for that grid. This establishes unique minute-grid numbers within each of the islands in the state except for the island of Hawaii where it encompasses an area more than one degree (60 minutes) of latitude and longitude. To establish unique minute-grid numbers for this island, 30 was added to the minutes of latitude in areas less than 19°00" of latitude, and 60 was added to the minutes of latitude in areas more than 20°00" of latitude. For the same reason, 30 was added to the minutes of longitude in areas less than 155°00" of longitude, and 60 was added to the minutes of longitudes more than 156°00" longitude. See figures 13 and 14.

To distinguish wells within a minute grid, two digits are added following the 4-digit minute-grid numbers with a dash separator. These two-digit numbers are assigned with the oldest well constructed within the grid as 01 and increase chronologically, with few exceptions, to the latest.

Since it is possible to have a same 6-digit number for wells on different islands, another digit distinguishing each of the islands is added in front of the 6-digit number with a dash separator.

Local State Key Numbering System

In addition to the latitude-longitude based site identification number, rainfall stations in the State of Hawaii are assigned state key numbers. The numbering system was devised in 1948 by the authors of "A Key to Rain Gages in Hawaii." The numbers run from 1 to 1145, proceeding from south to north up the island chain. However, within each five-minute latitude band, numbers proceed from west to east. Following are the blocks of numbers assigned to each island.

Island	State Key Number
Hawaii	1-223
Maui	248-497
Molokai	500-563
Lanai	650-696
Oahu	700-912
Kauai	925-1145

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily meen discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figures 2, 4, 6, 8, and 10.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relations between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relations between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with digital recorders that punch stage values on paper tapes at selected time intervals, or with analog recorders that trace continuous graphs of stage. Measurements of discharge are made with current meters, using methods adapted by the U.S. Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, Water-Supply Paper 2175, and the U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), Book 3, Chapter A1 to 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).

In computing discharge records, results of individual measurements are plotted against corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This 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 set at some distance from the base gage. At some stations the 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.

In computing records of lake or reservoir contents, it is necessary to have information available from surveys, curves, or tables that define the relation of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Discharges over lake or reservoir spillways are computed from stage-discharge relations much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the validity of the recorded gage height is so questionable that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous and following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous and following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1992 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences. In addition, beginning with the 1992 water year, a graphical hydrograph is included for surface-water discharge stations.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of five parts, the station manuscript; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; a summary statistics table that includes statistical data of annual and daily flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration; and a hydrograph of the daily mean values of discharge for the current water year. Summary statistics were not included for certain sites where these data would be misleading. Contact the U.S. Geological Survey Hawaii District office for information concerning summary statistics for these sites.

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 to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage 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.

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 indicates the period for which there are published records 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 records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means the instantaneous maximum discharge was revised; "(m)" the instantaneous minimum was revised; and "(P)" the peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to mean sea level, and a condensed history of the types, locations, and datums of previous gages are given under this heading. In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the National Mapping Division of the U.S. Geological Survey unless otherwise qualified.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station manuscript for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remark statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, special methods of computation, conditions that affect natural flow at the station, and possibly other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

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

AVERAGE DISCHARGE.--The discharge value given is the arithmetic average of the water-year mean discharges. Average discharge is computed only for stations having at least 5 water years of complete record; water years with incomplete record are not included in the computation. The mean-discharge value that uses all published data may differ from that given in the summary statistics data, which is based only on computer-stored data. The summary data does not include values of monthly or yearly data that were determined by various methods for the series of Water-Supply Papers entitled "Compilation of Records of Surface Water of the United States." The average-discharge value is not computed for stations where diversions, storage or other water-use practices cause the value to be meaningless. If water projects that significantly alter flow at a station are put into use after the station has been in operation for a period of years, the new average is computed as soon as 5 water years of record have accumulated after the project began.

EXTREMES FOR PERIOD OF RECORD.--Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a grephic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning 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 U.S. Geological Survey

EXTREMES FOR CURRENT YEAR.--Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for any canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published 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 ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because 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 skeleton stage-capacity table when daily contents 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 average flow in cubic feet per second during the month, and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for the month. Discharge for the month also is usually 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"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas.

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "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 figures. The designated period will be expressed as "FOR WATER YEAR ____-____, 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. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be 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 record within the specified water years, inclusive, including months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be 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 headings. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to 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 of 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.)

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (see address on back title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, 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 second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates 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.

HYDROGRAPH.--The hydrograph gives a graphical presentation of the mean discharge for each day of the water year. Where possible, the same scale is used in order to facilitate visual comparison between gaging stations

Data collected at miscellaneous sites are presented in a table following the information for continuous sites. This table summarizes discharge measurements made at sites other than continuous-record sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station manuscript.

Accuracy of the Records

The accuracy of streamflow records 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 measurements of stage, measurements of discharge, and interpretations of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of their true values; "good," within 10 percent; and "fair" within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft^3/s; 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 for more than 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the discharge figure. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff because of the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures 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 to 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 Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the U.S. Geological Survey Hawaii District office. Also, most of the daily mean discharges are in computer readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the unpublished records may be obtained from the U.S. Geological Survey Hawaii District office.

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 measurements 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 one 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 or obtained via data collection platform. 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 figures 2, 4, 6, 8, and 10.

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 measurements at miscellaneous sites.

On-Site Measurements and Sample Collection

In obtaining water-quality data, it is important 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 on site 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, treating the samples to prevent changes in quality pending analysis, and shipping the samples to the laboratory. Procedures for on site measurements and for collecting, treating, and shipping samples are detailed in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. These references are listed in the PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section of this report. These methods are consistent with ASTM standards and generally follow ISO standards. Also, detailed information on collecting, treating, and shipping samples may be obtained from the U.S. Geological Survey Hawaii 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. All samples obtained for the National Stream-Quality Accounting Network (see "DEFINITION OF TERMS") are obtained from at least five verticals. 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 measurements of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S. Geological Survey office whose address is given on the back of the title page in this report.

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. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. 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.

At stations where recording instruments are used, maximum, minimum, and mean temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the U.S. Geological Survey Hawaii District office.

Sediment

Suspended-sediment concentrations are determined from samples collected by one of the standard techniques discussed in TWRI, Book 3, Chapter C2, "Field methods for measurement of fluvial sediment," 1985 revision. Samples are obtained using standard depth- or point-integrating samplers, or by means of an approved pumping sampler. Mean concentrations for the sampled cross section are in turn determined from these samples.

During periods of rapidly changing flow or rapidly changing suspended-sediment concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. 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, and suspended-sediment loads for other periods of similar discharge. Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3. These methods are consistent with ASTM standards and generally follow ISO standards.

At other stations, suspended-sediment samples were collected periodically. 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 in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, periodic measurements of the particle-size distributions for the suspended-sediment, bed-load, and bed-material samples are included for stations where samples were obtained to measure this parameter.

Laboratory Measurements

Sediment samples, samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the U.S. Geological Survey National Water-Quality Laboratory in Arvada, Colorado. Methods used to analyze sediment samples and to compute sediment records are described in the TWRI Book 5, Chapter C1. Methods used by the U.S. Geological Survey laboratories are given in TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapter A1, A3, A4, and A5. These methods are consistent with ASTM standards and generally follow ISO standards.

In March 1989, the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

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. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and 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, sediment pumping sampler, or other sampling davice 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 FOR PERIOD OF RECORD.--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 and 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 tha 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.

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 to 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 report:

PRINTED OUTPUT	REMARK
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.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
&	Biological organism estimated as dominant.

Dissolved Trace-Element Concentrations

*NOTE.--Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter (µg/L) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's and 100's of nanograms per liter (ng/L). Data above the µg/L level should be viewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994.

Change in National Trends Network procedures

*NOTE.--Sample handling procedures at all National Trends Network stations were changed substantially on January 11, 1994, in order to reduce contamination from the sample shipping container. The data for samples before and after that date are different and not directly comparable. A tabular summary of the differences based on a special intercomparison study, is available from the NADP/NTN Coordination Office, Colorado State University, Fort Collins, CO 80532 (Telephone: 303-491-5643).

Records of Ground-Water Levels

Only water-level data from a basic network of observation wells are given in this report. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers. Locations of the observation wells in Hawaii listed in this report are shown in figures 3, 5, 7, 9, and 11.

Although, in this report, records of water levels are presented for fewer than 100 wells, records are obtained through cooperative efforts of many Federal, State, and local agencies for several thousand observation wells throughout Hawaii and are placed in computer storage, published in reports, or kept in files. Information about the availability of ground-water data may be obtained from the District Chief, Hawaii District, U.S. Geological Survey, 677 Ala Moana Blvd., Suite 415, Honolulu, Hawaii, 96813.

Data Collection and Computation

Measurements of water levels are made in many types of wells, under varying conditions, but the method 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.

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey TWRI publications referred to in the "On-site Measurements and Sample Collection" and the "Laboratory Measurements" sections in this data report. In addition, the TWRI Book 1, Chapter D2, describes guidelines for the collection and field analysis of ground-water samples for selected constituents. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. These methods are consistent with ASTM standards and generally follow ISO standards. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Tables of water-level data are presented by islands. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel or electrical tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level 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 every day. When complete water-level data for a day is not available, the day is noted with three dashes (---). To show the intraday variation in the ground-water levels caused by local pumping and tidal fluctuations, instantaneous maximum and minimum water levels for the year are given at the bottom of each daily tables.

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 in 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 or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

Data Presentation

Each well record consists of three parts, the station description, the data table of mean daily water levels observed during the current water year, and a hydrograph of water levels observed during the past 5 years. 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.

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 owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) 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 the land-surface elevation at the well. The elevation of the land-surface datum is described is described in feet above (or below) mean 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-U.S. Geological 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 U.S. 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.

A table of water levels follows the station description for each well. Water levels are reported in feet above mean sea level and all taped measurements of water levels are listed. For wells equipped with a recorder, only abbreviated tables are published; generally, only water-level lows are listed for every fifth day and at the end of the month (eom). The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

ACCESS TO WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the U.S. Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National WATer Data STOrage and REtrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

* Station Header File - Contains descriptive information on more than 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.

* Daily Values File - Contains more than 220 million daily values of stream flows, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water levels.

* Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.

* Water Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemical characteristics of both surface and ground water.

* Ground-Water Site Inventory Data Base - Contains inventory data for more than 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requester will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey
National Water Data Exchange
421 USGS National Center
Reston, Virginia 20192

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's District offices. (See address on the back of the title page).

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See the table for converting English units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-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 325,851 gallons or 1,233 cubic meters.

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

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

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.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, 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.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies within 24 hours when incubated at 35°C ± 0.5°C on M-Endo agar (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC agar (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 0.5°C on KF Streptococcus agar (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Benthic organisms (invertebrates) are the group of animals living in or on 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.

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 time, expressed as the weight per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in g/m^3 (grams per cubic meter), and periphyton and benthic organisms in g/m^2 (grams per square meter).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, 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.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Recoverable from 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 only 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.

Total in bottom material is the total 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."

Cells/volume refers to the number of cells of any organism which 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, usually mL of liters (L).

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate or delayed incubation membrane filter method.

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

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.

Continuing record station is a specified site which meets one or all conditions listed:

1. When chemical samples are collected daily or monthly for 10 or more months during the water year.

2. When water temperature records include observations taken one or more times daily.

3. When sediment discharge records include those periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, 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 salt water.

Cubic foot per second (ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic foot per second-day [$(ft^3/s)/d$] is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.9835 acre-feet, or 646,317 gallons or 2,447 cubic meters.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic average of individual daily mean discharges during a specified period.

Instantaneous discharge is the discharge at a particular instant of time. If this discharge is reported instead of the daily mean, the heading of the discharge column in the table is "STREAMFLOW INSTANTANEOUS (CFS)."

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or 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.)

Dissolved is that material in a representative water sample which passes through a 0.45 micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

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

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic Bench-Mark Network is a network of 53 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the human activities.

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

Microgram per gram (µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element per unit mass (gram) of sediment.

Microgram per liter (µG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

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

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or " mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

National Stream-Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in national or regional water-quality planning and management. The 284 sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objective of NASQAN is to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting. The design of the network is intended to provide data for (1) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (2) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (3) a nationally consistent data base useful for water-quality assessment and hydrologic research.

Parameter code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) 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 used in this report agrees with recommendations 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.....	.004 - .062	Sedimentation.
Sand.....	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material 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.

Percent composition 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, mass, or volume.

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

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

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton are suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

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

Blue-green algae are phytoplankton organisms having a blue pigment in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often 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.

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.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it 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 influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

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 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times suspended-sediment concentration in milligrams per liter times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total-sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent 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.

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

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.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that 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 water-suspended 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 95 percent) of the constituent present 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.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended 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. A 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 analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituents.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical 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.....Arthropoda
Class.....Insecta
Order.....Ephemeroptera
Family.....Ephemeridae
Genus.....*Hexagenia*
Species.....*Hexagenia limbata*

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 that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment 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 determines all of the constituent in the sample.)

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment 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, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed Nephelometric turbidity units (NTU).

Water year in U.S. Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends. Thus the year ending September 30, 1994, is called the "1994 water year".

WDR is used as an abbreviation for "Water-Data Reports" in the summary REVISIONS paragraph to refer to previously published State annual basic-data reports.

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 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.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

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

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals 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.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

2-E2. *Borehole geophysics applied to ground-water investigations*, by W. S. Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.

2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W. E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS-TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3. Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurement at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A9. *Measurement of time of travel in streams by dye tracing,* by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.

3-A10. *Discharge ratings at gaging stations,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement of discharge by the moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A12. *Fluorometric procedures for dye tracing,* Revised, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS- -TWRI Book 3, Chapter A12. 1986. 34 pages.

3-A13. *Computation of continuous records of streamflow,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. *Use of flumes in measuring discharge,* by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

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HYDROLOGIC-DATA STATION RECORDS

HAWAII, ISLAND OF KAUAI

16010000 KAWAIKOI STREAM NEAR WAIMEA

LOCATION.--Lat 22°08'09", long 159°37'22", Hydrologic Unit 20070000, on left bank 0.2 mi upstream from Kokee-Mohihi Road crossing, 2.5 mi east of Kokee Lodge, and 12.5 mi north of Waimea.

DRAINAGE AREA.--3.95 mi^2.

PERIOD OF RECORD.--April 1909 to October 1912, December 1912 to March 1913, May 1913 to June 1915, August 1915 to May 1916, July to December 1916, July 1919 to current year. Monthly discharge only for some periods, published in WSP 1319.

REVISED RECORDS.--WSP 555: 1920-21. WSP 1185: 1914-17(M), 1920-38(M), 1940-43(M), 1947(M). WSP 1719: 1912, 1921-25, 1927-32, 1936. WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 3,420 ft above mean sea level, by barometer. Prior to May 26, 1910, nonrecording gage at site 300 ft downstream at different datum.

REMARKS.--Records good. No diversion upstream.

AVERAGE DISCHARGE.--78 years (water years 1912, 1914, 1920-95), 34.3 ft^3/s (24,820 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft^3/s, Jan. 13, 1967, gage height, 15.33 ft, from rating curve extended above 470 ft^3/s on basis of slope-area measurements at gage heights 12.12 ft and 13.43 ft; minimum, 1.14 ft^3/s, Sept. 21, 22, 1953.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 2,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 18	1600	*2,040	*7.66	No peak greater than base discharge.			

Minimum discharge 3.3 ft^3/s, July 8, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	7.0	37	8.4	6.0	10	7.5	14	32	4.0	20	8.0
2	49	6.5	17	7.9	8.3	29	10	12	20	4.3	17	6.7
3	338	6.2	11	7.4	6.3	19	257	11	40	3.6	9.6	6.4
4	37	7.3	8.0	7.0	52	10	98	9.7	24	9.4	11	6.4
5	16	14	12	66	81	9.4	129	11	10	22	7.5	5.7
6	12	9.5	12	15	44	8.8	73	21	9.1	6.6	5.9	6.4
7	12	8.1	49	9.1	13	7.7	40	14	13	4.4	5.6	5.2
8	11	7.2	53	7.8	8.8	7.2	18	9.7	24	3.6	8.6	4.7
9	8.9	6.5	21	7.1	7.5	7.3	14	8.6	10	3.4	119	4.5
10	8.6	5.8	87	6.7	30	6.9	12	7.9	8.1	45	41	4.2
11	22	5.5	86	13	11	6.4	10	7.6	6.4	39	56	4.2
12	23	6.6	23	20	7.7	6.4	9.4	7.9	5.5	22	24	4.0
13	22	7.5	21	9.2	64	7.4	12	7.6	5.2	12	11	4.0
14	12	21	16	7.6	54	6.2	14	7.0	11	12	101	3.9
15	8.6	37	24	26	14	5.5	44	6.9	7.5	8.4	30	3.8
16	14	55	21	12	11	5.2	46	11	9.9	5.6	15	4.6
17	16	295	34	9.4	407	4.9	12	7.4	6.6	4.5	118	4.5
18	382	50	16	7.5	40	4.7	20	6.3	5.0	3.9	34	4.0
19	63	22	10	6.6	21	4.5	55	5.8	4.4	3.7	14	4.0
20	19	14	9.0	6.0	16	4.3	13	5.5	4.2	8.5	11	3.7
21	14	11	8.2	5.7	14	4.2	35	7.4	4.0	40	9.2	3.9
22	13	9.5	24	5.4	13	4.4	251	12	4.0	25	8.2	7.4
23	12	12	177	5.2	11	4.4	115	7.1	4.3	69	71	9.3
24	11	10	27	5.0	10	4.2	49	5.8	4.0	92	31	6.6
25	10	8.4	15	4.9	9.4	4.1	27	5.3	3.6	37	12	5.2
26	8.9	7.8	15	5.7	8.9	6.6	23	4.9	3.5	90	23	12
27	8.8	7.7	12	13	8.9	114	35	4.5	3.7	16	14	14
28	8.7	7.1	9.7	15	10	116	88	4.3	4.3	9.3	11	17
29	8.6	6.8	18	9.0	---	23	31	11	8.4	22	10	37
30	8.8	6.8	12	9.4	---	22	19	35	4.4	17	13	60
31	7.8	---	9.3	6.7	---	10	---	37	---	34	12	---
TOTAL	1190.7	678.8	894.2	344.7	987.8	483.7	1566.9	326.2	300.1	677.2	873.6	271.3
MEAN	38.4	22.6	28.8	11.1	35.3	15.6	52.2	10.5	10.0	21.8	28.2	9.04
MAX	382	295	177	66	407	116	257	37	40	92	119	60
MIN	5.0	5.5	8.0	4.9	6.0	4.1	7.5	4.3	3.5	3.4	5.6	3.7
AC-FT	2360	1350	1770	684	1960	959	3110	647	595	1340	1730	538

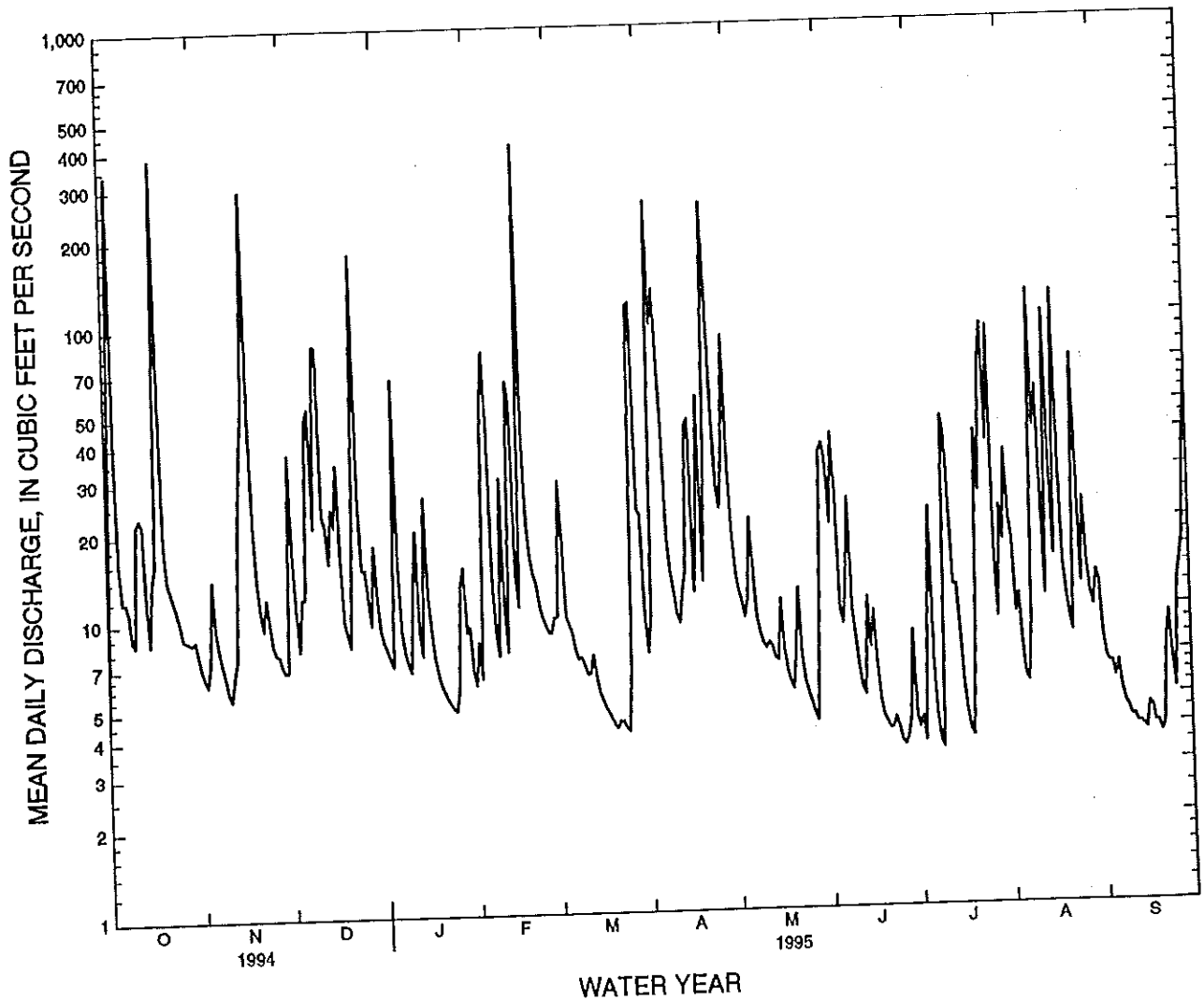
HAWAII, ISLAND OF KAUAI

16010000 KAWAIKOI STREAM NEAR WAIMEA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1995, BY WATER YEAR (WY)

MEAN	21.7	43.4	53.6	53.3	42.2	49.1	45.3	27.0	16.6	23.6	21.9	14.6
MAX	60.3	170	176	343	165	152	115	86.2	68.7	94.7	195	58.1
(WY)	1917	1929	1968	1921	1956	1951	1980	1927	1978	1989	1950	1992
MIN	3.34	4.16	11.9	3.23	4.26	6.15	5.74	3.38	3.58	5.18	2.54	1.86
(WY)	1985	1964	1923	1945	1945	1926	1992	1966	1951	1922	1984	1953

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1911 - 1995	
ANNUAL TOTAL	11232.7		8595.2		34.3	
ANNUAL MEAN	30.8		23.5		60.7	1982
HIGHEST ANNUAL MEAN					15.3	1945
LOWEST ANNUAL MEAN					2620	Jan 15 1921
HIGHEST DAILY MEAN	382	Oct 18	407	Feb 17	1.1	Sep 21 1953
LOWEST DAILY MEAN	2.9	Aug 21	3.4	Jul 9	1.2	Sep 17 1953
ANNUAL SEVEN-DAY MINIMUM	3.1	Aug 16	3.9	Jun 21		
ANNUAL RUNOFF (AC-FT)	22280		17050		24820	
10 PERCENT EXCEEDS	83		49		74	
50 PERCENT EXCEEDS	12		10		13	
90 PERCENT EXCEEDS	5.8		4.5		4.4	



HAWAII, ISLAND OF KAUAI

16019000 WAIALAE STREAM AT ALTITUDE 3,820 FT, NEAR WAIMEA

LOCATION.--Lat 22°05'20", long 159°34'18", Hydrologic Unit 20070000, on left bank 5.0 mi northeast of mouth, 6.4 mi southeast of Kokee Lodge, and 11 mi northeast of Waimea.

DRAINAGE AREA.--1.79 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1920 to July 1932, June 1952 to current year. Prior to July 1954, published as Waialae River at altitude 3,700 ft near Waimea.

REVISED RECORDS.--WSP 1937: 1921, 1922-32(M), 1953(M), 1954. WSP 2137: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,820 ft above mean sea level, from topographic map.

REMARKS.--Records good. No diversion upstream.

AVERAGE DISCHARGE.--54 years (water years 1921-31, 1953-95), 21.5 ft^3/s (15,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,530 ft^3/s, Jan. 16, 1921, gage height, 8.44 ft, from rating curve extended above 1,100 ft^3/s on basis of slope-area measurement at gage height 4.60 ft; minimum, 0.99 ft^3/s, May 17, 18, May 30 to June 2, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft3/s and maximum (*):

Date	Time	Discharge (ft3/s)	Gage height (ft)
Oct. 18	1930	*2,140	*5.78

No other peak greater than base discharge.

Minimum discharge, 2.3 ft^3/s, June 30, July 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	7.4	84	5.2	6.3	12	3.2	6.9	8.7	2.4	14	5.3
2	109	6.0	19	4.7	5.2	47	3.0	5.8	5.4	2.3	10	4.7
3	453	26	12	4.4	5.2	19	21	5.3	5.7	2.4	6.7	7.3
4	28	11	9.5	4.2	5.4	11	22	4.7	8.8	8.6	4.8	4.7
5	12	16	22	4.9	69	9.3	31	11	7.4	15	4.1	3.7
6	10	24	17	4.7	31	8.1	17	14	13	4.0	3.4	3.5
7	14	44	74	4.4	10	6.3	17	7.7	14	2.7	3.5	3.1
8	9.1	19	39	3.9	7.1	5.5	11	5.4	16	2.5	4.2	2.9
9	6.7	8.7	34	3.7	5.9	5.0	11	4.4	5.7	2.9	22	2.8
10	6.7	14	68	3.5	12	4.6	6.6	4.0	4.1	42	12	2.7
11	40	9.1	56	5.8	7.1	4.4	4.8	4.7	3.2	54	34	2.7
12	72	15	28	6.7	5.2	4.6	7.1	14	2.9	24	12	2.7
13	43	9.1	22	4.7	145	4.3	20	8.3	2.9	13	6.1	2.7
14	11	22	21	5.2	38	3.8	26	5.6	5.6	41	23	2.7
15	7.4	68	21	32	12	3.5	34	5.1	5.3	13	27	2.6
16	7.8	279	13	8.7	12	3.4	38	7.9	7.3	5.7	7.9	2.6
17	31	458	16	5.7	372	3.3	11	5.0	4.1	3.8	76	2.7
18	479	184	12	4.7	26	3.2	78	3.9	3.0	3.0	13	2.6
19	106	48	9.1	3.9	13	3.0	48	3.4	2.9	2.8	7.5	2.7
20	29	38	7.4	3.5	11	3.0	13	3.0	3.3	25	9.9	2.7
21	28	31	6.3	3.2	8.2	3.0	9.6	3.8	3.1	68	10	2.8
22	24	20	6.3	3.0	9.1	3.1	51	4.8	2.8	13	20	2.6
23	11	35	103	3.0	8.7	3.3	34	3.8	2.7	31	167	2.5
24	8.7	16	37	3.0	7.1	3.6	19	3.2	2.5	69	70	4.9
25	7.1	18	12	3.0	5.7	3.1	12	2.8	2.4	54	13	7.6
26	6.0	59	9.1	16	5.2	3.2	10	2.7	2.4	214	13	4.1
27	5.7	21	7.8	87	10	12	8.7	2.6	2.5	16	8.5	12
28	5.7	13	6.7	40	36	24	15	2.5	2.9	8.4	6.4	7.2
29	23	44	7.4	33	---	7.2	9.8	2.8	2.6	8.5	6.3	24
30	9.1	14	7.1	14	---	4.5	8.1	5.2	2.4	8.3	6.1	171
31	7.4	---	5.7	8.2	---	3.6	---	5.4	---	28	6.0	---
TOTAL	1616.6	1577.3	792.4	337.9	888.4	234.9	599.9	169.7	155.6	788.3	627.4	306.1
MEAN	52.1	52.6	25.6	10.9	31.7	7.58	20.0	5.47	5.19	25.4	20.2	10.2
MAX	479	458	103	87	372	47	78	14	16	214	167	171
MIN	5.7	6.0	5.7	3.0	5.2	3.0	3.0	2.5	2.4	2.3	3.4	2.5
AC-FT	3210	3130	1570	670	1760	466	1190	337	309	1560	1240	607

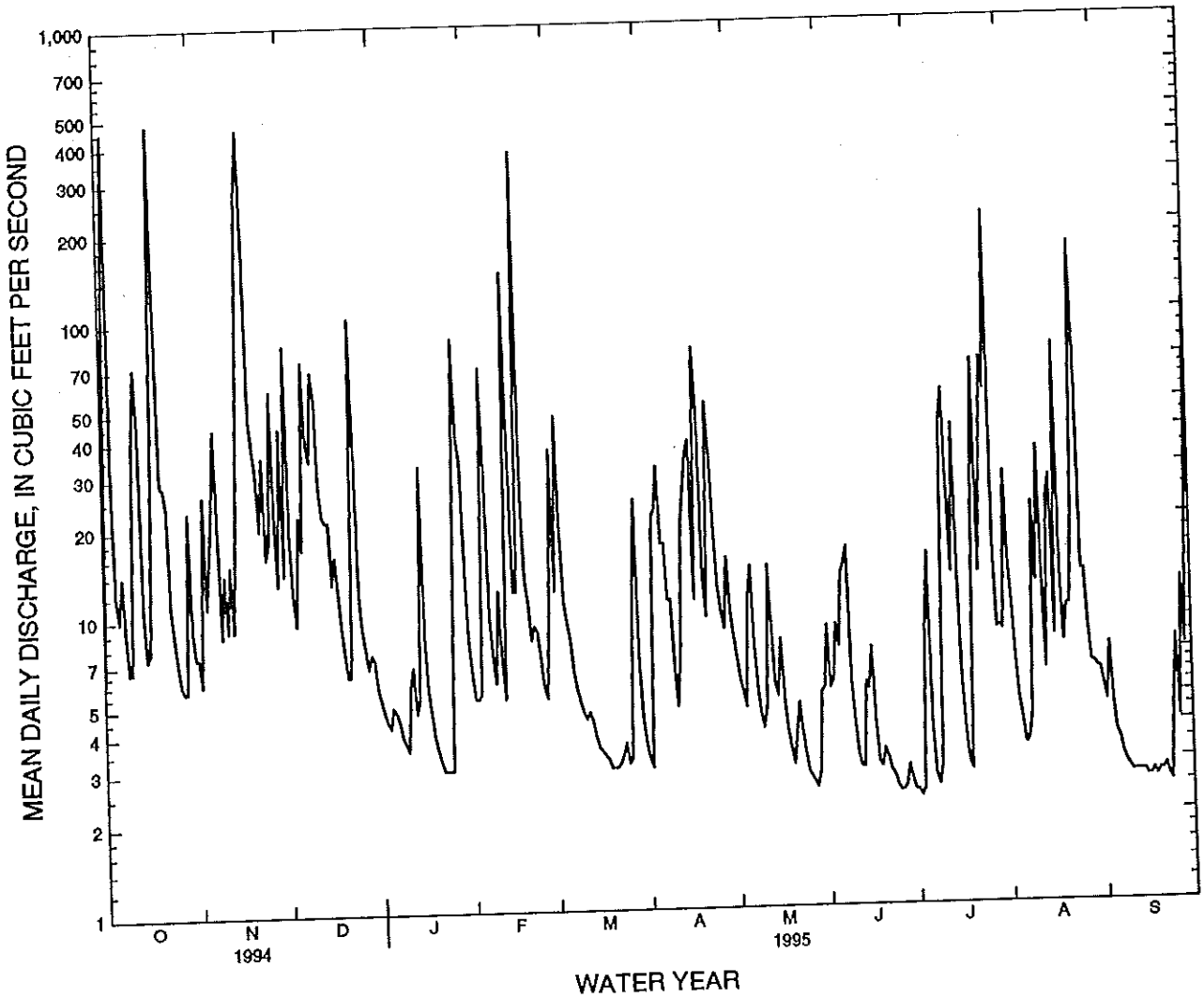
HAWAII, ISLAND OF KAUAI

16019000 WAIALAE STREAM AT ALTITUDE 3,820 FT, NEAR WAIMEA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 1995, BY WATER YEAR (WY)

MEAN	15.8	32.4	34.2	33.8	27.5	28.3	24.4	13.4	9.53	15.3	12.8	11.1
MAX	52.1	99.2	106	166	155	106	92.4	44.1	39.4	58.0	44.9	56.0
(WY)	1995	1968	1968	1921	1956	1982	1974	1927	1978	1989	1959	1922
MIN	2.49	5.58	4.16	4.48	2.44	2.15	1.87	1.81	1.89	2.56	2.86	1.67
(WY)	1927	1927	1923	1966	1983	1926	1966	1966	1975	1984	1952	1975

	SUMMARY STATISTICS FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1920 - 1995		
ANNUAL TOTAL	8479.6		8094.5		21.5		
ANNUAL MEAN	23.2		22.2		40.9		1982
HIGHEST ANNUAL MEAN					8.94		1926
LOWEST ANNUAL MEAN					1440	Dec 1	1957
HIGHEST DAILY MEAN	479	Oct 18	479	Oct 18	.99	May 17	1966
LOWEST DAILY MEAN	2.4	Aug 6	2.3	Jul 2	1.1	May 26	1966
ANNUAL SEVEN-DAY MINIMUM	2.5	Aug 14	2.5	Jun 26			
ANNUAL RUNOFF (AC-FT)	16820		16060		15600		
10 PERCENT EXCEEDS	47		42		45		
50 PERCENT EXCEEDS	8.0		7.8		6.6		
90 PERCENT EXCEEDS	3.0		2.9		2.5		



16019000 WAIALAE STREAM AT ALTITUDE 3,820 FT NEAR WAIMEA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Quality-of-water samples obtained at the gage.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT
NOV											
14...	1015	20	30	7.2	16.5	15.5	6	0.86	0.83	3.5	55
MAR											
01...	0900	12	27	6.3	16.0	14.0	5	0.77	0.76	3.0	55
MAY											
25...	1000	2.9	33	6.3	20.0	16.0	6	0.82	0.87	3.7	57
AUG											
30...	1425	6.1	26	6.3	23.0	19.0	4	0.60	0.63	3.2	61

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
NOV											
14...	0.6	0.60	2.9	0.70	6.9	<0.10	3.5	19	0.03	330	5.0
MAR											
01...	0.6	0.20	3.0	0.50	4.7	<0.10	3.5	16	0.02	500	3.0
MAY											
25...	0.7	0.30	4.5	0.70	6.1	<0.10	6.5	22	0.03	180	<1.0
AUG											
30...	0.7	0.30	3.1	0.50	6.0	<0.10	4.7	18	0.02	280	2.0

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16031000 WAIMEA RIVER NEAR WAIMEA
(National stream-quality accounting network station)

LOCATION.--Lat 21°59′02″, long 159°39′47″, Hydrologic Unit 20070000, on right bank 1.3 mi upstream from Makaweli River, and 1.9 mi north of Waimea Post Office.

DRAINAGE AREA.--57.8 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1910 to June 1918, July to October 1919, November 1943 to September 1968, October 1969 to September 1972 (discontinued as a continuous-record station, converted to a crest-stage partial-record station October 1972 to April 1975), May 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 20.0 ft above mean sea level (Department of Water, County of Kauai bench mark). Prior to Oct. 5, 1911, nonrecording gage at site 1.0 mi downstream at different datum. Oct. 5, 1911 to Oct. 31, 1919, nonrecording gage at present site at different datum.

REMARKS.--Records good. Several upstream diversions for power and irrigation.

AVERAGE DISCHARGE.--54 years (water years 1911-17, 1945-68, 1970-72, 1976-95), 124 ft^3/s (89,930 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,100 ft^3/s, Feb. 7, 1949, gage height, 19.3 ft, from rating curve extended above 5,200 ft^3/s on basis of slope-area measurements at gage heights 10.28 ft and 18.7 ft; practically no flow occasionally owing to upstream diversions.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 19, 1974, which destroyed the station reached a stage of 19.05 ft, from floodmarks, discharge, 29,100 ft^3/s, from rating curve extended above 2,200 ft^3/s on basis of slope-area measurement at gage height 19.05 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 3	0600	*17,600	*15.92	Oct. 18	2100	9,040	12.56

Minimum discharge, 7.9 ft^3/s, Jan 21-25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

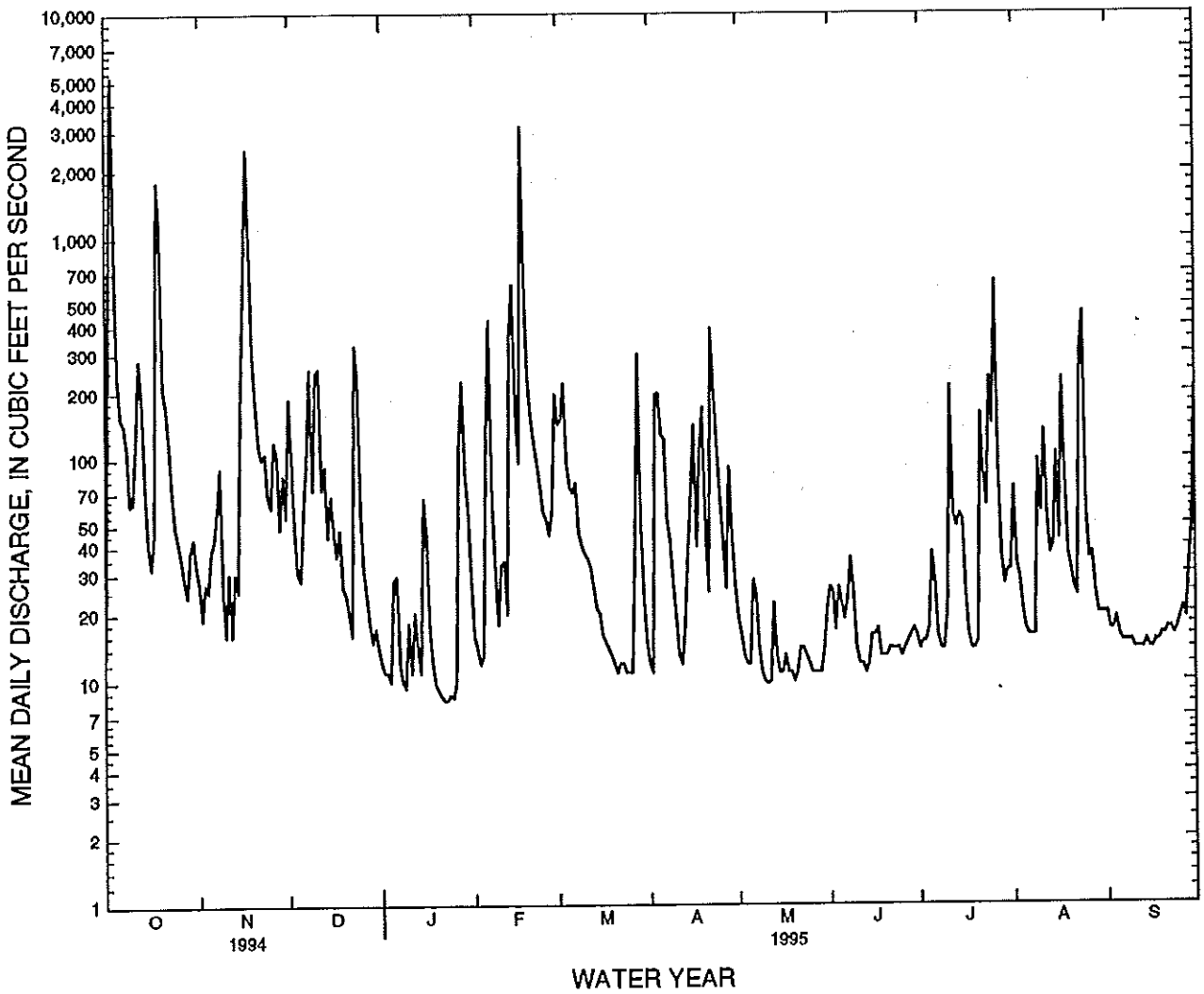
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	27	186	12	16	143	12	19	26	14	73	20
2	515	19	95	11	14	149	11	16	25	15	33	17
3	5250	27	47	11	12	218	195	13	17	15	29	17
4	718	25	30	10	13	95	197	12	26	17	21	19
5	230	38	28	28	118	74	128	12	22	37	17	16
6	153	42	58	29	422	70	122	28	19	27	16	15
7	143	57	95	12	65	77	52	24	23	16	16	15
8	112	90	252	10	31	46	42	14	35	14	16	15
9	62	25	72	9.4	18	40	27	11	24	14	97	15
10	63	16	245	18	33	37	19	10	14	20	57	14
11	120	30	254	11	34	35	13	9.8	12	211	132	14
12	281	16	72	20	20	32	12	10	12	55	55	14
13	181	30	92	14	360	26	18	22	11	49	37	14
14	76	25	44	11	613	21	38	13	12	55	40	15
15	41	174	67	65	161	20	71	11	16	52	104	14
16	32	593	46	44	96	16	141	11	16	25	43	14
17	46	2480	36	17	3130	15	40	13	17	16	229	15
18	1780	863	47	12	656	14	105	11	13	14	83	15
19	1140	298	26	9.7	236	13	169	11	13	14	37	16
20	210	177	24	9.1	155	12	49	10	13	15	31	16
21	172	114	20	8.6	118	11	25	11	14	158	26	17
22	117	99	16	8.3	96	12	386	14	14	84	24	17
23	72	105	324	8.3	76	12	200	14	14	61	289	16
24	49	67	224	8.7	57	11	112	13	14	231	455	17
25	42	60	56	8.5	53	11	66	12	13	142	58	19
26	35	118	31	10	45	11	43	11	14	632	35	21
27	28	102	24	112	58	44	26	11	15	90	37	19
28	24	48	18	223	195	298	91	11	16	36	25	33
29	38	83	15	86	---	49	42	11	17	27	20	48
30	43	54	17	58	---	23	26	14	16	31	20	209
31	32	---	14	29	---	15	---	21	---	31	20	---
TOTAL	11818	5902	2575	923.6	6901	1650	2478	423.8	513	2218	2175	726
MEAN	381	197	83.1	29.8	246	53.2	82.6	13.7	17.1	71.5	70.2	24.2
MAX	5250	2480	324	223	3130	298	386	28	35	632	455	209
MIN	13	16	14	8.3	12	11	11	9.8	11	14	16	14
AC-FT	23440	11710	5110	1830	13690	3270	4920	841	1020	4400	4310	1440

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1910 - 1995, BY WATER YEAR (WY)

MEAN	67.3	179	222	256	193	209	140	62.4	26.6	42.8	58.7	34.4
MAX	381	1632	1285	1639	996	1113	589	244	125	423	1453	294
(WY)	1995	1914	1968	1916	1956	1951	1918	1965	1978	1989	1950	1914
MIN	2.79	8.94	8.39	2.28	2.97	1.80	1.60	.95	1.02	2.54	.000	1.13
(WY)	1950	1945	1977	1945	1978	1915	1966	1966	1912	1953	1911	1949

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1910 - 1995	
ANNUAL TOTAL	41259.5		38303.4			
ANNUAL MEAN	113		105		124	
HIGHEST ANNUAL MEAN					297	1982
LOWEST ANNUAL MEAN					24.1	1984
HIGHEST DAILY MEAN	5250	Oct 3	5250	Oct 3	17300	Aug 16 1950
LOWEST DAILY MEAN	5.9	May 10	8.3	Jan 22	.00	Jun 12 1911
ANNUAL SEVEN-DAY MINIMUM	6.2	May 8	8.7	Jan 19	.00	Jun 16 1911
ANNUAL RUNOFF (AC-FT)	81840		75970		89930	
10 PERCENT EXCEEDS	245		196		250	
50 PERCENT EXCEEDS	29		27		15	
90 PERCENT EXCEEDS	8.5		12		2.2	



WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-74, November 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT										
20...	1130	200	70	7.5	27.0	21.0	3.8	762	8.8	99
DEC										
20...	0900	24	118	7.9	19.0	18.5	1.2	767	9.2	98
FEB										
08...	1030	43	93	7.8	20.0	17.0	1.4	760	9.4	98
APR										
19...	0915	126	65	7.0	23.5	19.0	2.3	766	9.3	100
JUN										
13...	0845	12	140	7.4	25.0	24.0	1.5	765	8.2	97
AUG										
29...	0910	17	104	6.9	25.5	23.0	3.1	763	8.8	103

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3
OCT											
20...	340	440	22	3	3.0	3.4	5.1	33	0.5	0.60	23
DEC											
20...	88	890	36	1	4.7	6.0	6.7	28	0.5	0.50	43
FEB											
08...	380	940	30	1	4.1	4.9	6.0	30	0.5	0.50	36
APR											
19...	350	1200	18	2	2.6	2.9	4.9	36	0.5	0.40	20
JUN											
13...	150	1700	48	0	6.2	8.0	7.6	25	0.5	0.60	65
AUG											
29...	260	1500	34	0	4.5	5.6	5.7	26	0.4	0.50	47

DATE	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT									
20...	0	20	19	1.3	7.4	<0.10	14	55	48
DEC									
20...	0	37	36	1.0	10	<0.10	18	71	68
FEB									
08...	0	31	30	0.90	9.8	<0.10	17	72	62
APR									
19...	0	16	16	0.80	9.2	<0.10	9.7	46	41
JUN									
13...	0	54	54	1.0	11	<0.10	20	85	86
AUG									
29...	0	40	38	1.0	8.0	<0.10	17	72	66

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

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT										
20...	0.08	0.370	0.370	0.040	<0.20	0.020	<0.010	<0.010	130	2.0
DEC										
20...	0.10	--	<0.050	0.020	<0.20	<0.010	<0.010	<0.010	--	--
FEB										
08...	0.10	0.150	0.150	0.020	<0.20	0.020	<0.010	0.010	70	<2.0
APR										
19...	0.06	--	<0.050	<0.015	0.20	<0.010	<0.010	<0.010	140	<2.0
JUN										
13...	0.12	--	<0.050	0.030	<0.20	0.010	<0.010	<0.010	--	--
AUG										
29...	0.10	--	<0.050	<0.015	<0.20	0.040	0.020	<0.010	30	2.0

DATE	TIME	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)
OCT											
20...	1130	<3.0	170	<4	6.0	<10	3.0	<1	<1.0	21	<6
FEB											
08...	1030	<3.0	140	<4	7.0	<10	2.0	<1	<1.0	28	<6
APR											
19...	0915	<3.0	210	<4	6.0	<10	3.0	<1	<1.0	17	<6
AUG											
29...	0910	<3.0	200	<4	9.0	<10	2.0	<1	<1.0	30	<6

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	DATE	TIME	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT					DEC				
20...	1130	7	3.8	--	20...	0900	3	0.20	--

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

16036000 MAKAWELI RIVER NEAR WAIMEA

LOCATION.--Lat 21°58′31", long 159°38′55", Hydrologic Unit 20070000, on left bank 0.7 mi upstream from mouth, and 1.9 mi northeast of Waimea.

DRAINAGE AREA.--26.0 mi^2.

PERIOD OF RECORD.--July 1943 to current year. Records for October 1911 to June 1917 at site 0.2 mi downstream not equivalent owing to intervening diversion.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 18.2 ft above mean sea level (by stadia survey). Prior to June 16, 1959, at datum 1.00 ft higher.

REMARKS.--Records good, except for periods of estimated discharges which are poor. Olokele ditch diverts all low flow from the headwaters of the Olokele River 9 mi upstream for irrigation in vicinity of Makaweli. A 5 ft^3/s capacity ditch diverts water 0.1 mi upstream of station for irrigation of taro in the vicinity of the station.

AVERAGE DISCHARGE.--52 years (water years 1944-95), 87.0 ft^3/s (63,060 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft^3/s, Jan. 31, 1975, gage height, 15.51 ft, from rating curve extended above 3,200 ft^3/s on basis of slope-area measurement at gage height 10.65 ft; minimum, 3.15 ft^3/s, July 19, 1951.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,700 ft^3/s: and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 3	0600	7,830	10.10	Nov. 17	0530	10,180	10.94
Oct. 18	2000	*21,000	*13.70	Sep. 30	1730	13,750	12.00

Minimum discharge, 13 ft^3/s, Sep. 8-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	e26	e231	28	33	105	22	18	16	17	31	17
2	659	e26	91	27	29	236	22	17	16	14	21	26
3	2810	e70	65	26	24	142	47	17	16	14	19	20
4	356	e61	63	26	23	97	45	16	18	72	20	16
5	153	e51	106	26	51	84	94	24	31	70	26	15
6	90	e62	86	26	95	68	54	31	21	18	18	15
7	125	e207	218	25	34	44	42	18	28	15	17	14
8	53	e85	163	25	28	39	29	16	45	14	17	14
9	41	e30	114	24	26	36	34	15	17	17	25	13
10	38	e65	149	25	43	34	38	15	15	83	20	13
11	93	e44	152	31	29	32	24	25	15	126	57	13
12	232	e79	104	39	26	33	99	54	15	66	33	13
13	362	e38	84	27	431	31	217	19	20	38	18	14
14	85	e68	83	38	249	29	84	16	23	112	34	13
15	51	200	78	113	98	28	115	24	18	47	47	13
16	44	981	49	42	112	27	116	19	25	21	19	13
17	170	2890	56	29	1320	27	39	15	16	18	136	14
18	2730	1130	43	25	270	25	161	14	14	17	27	14
19	685	389	36	24	153	24	125	14	15	16	20	14
20	216	211	33	20	132	23	52	14	17	119	21	15
21	157	145	32	20	107	23	30	14	16	218	16	15
22	119	e73	31	19	69	28	129	17	16	37	18	15
23	e60	e142	240	19	68	34	55	15	16	39	401	14
24	e41	e89	148	19	54	25	34	18	15	154	300	20
25	e34	e100	53	19	44	23	25	14	15	111	44	18
26	e32	e340	41	49	42	23	23	14	14	658	36	15
27	e31	148	35	151	44	60	21	14	17	81	25	34
28	e32	e82	32	104	202	70	21	14	18	47	21	20
29	e68	195	34	65	---	28	19	14	17	54	21	58
30	e38	e77	30	55	---	23	18	17	16	26	19	1380
31	e28	---	28	37	---	22	---	15	---	85	20	---
TOTAL	9653	8104	2708	1203	3836	1523	1834	567	561	2424	1547	1888
MEAN	311	270	87.4	38.8	137	49.1	61.1	18.3	18.7	78.2	49.9	62.9
MAX	2810	2890	240	151	1320	236	217	54	45	658	401	1380
MIN	20	26	28	19	23	22	18	14	14	14	16	13
AC-FT	19150	16070	5370	2390	7610	3020	3640	1120	1110	4810	3070	3740

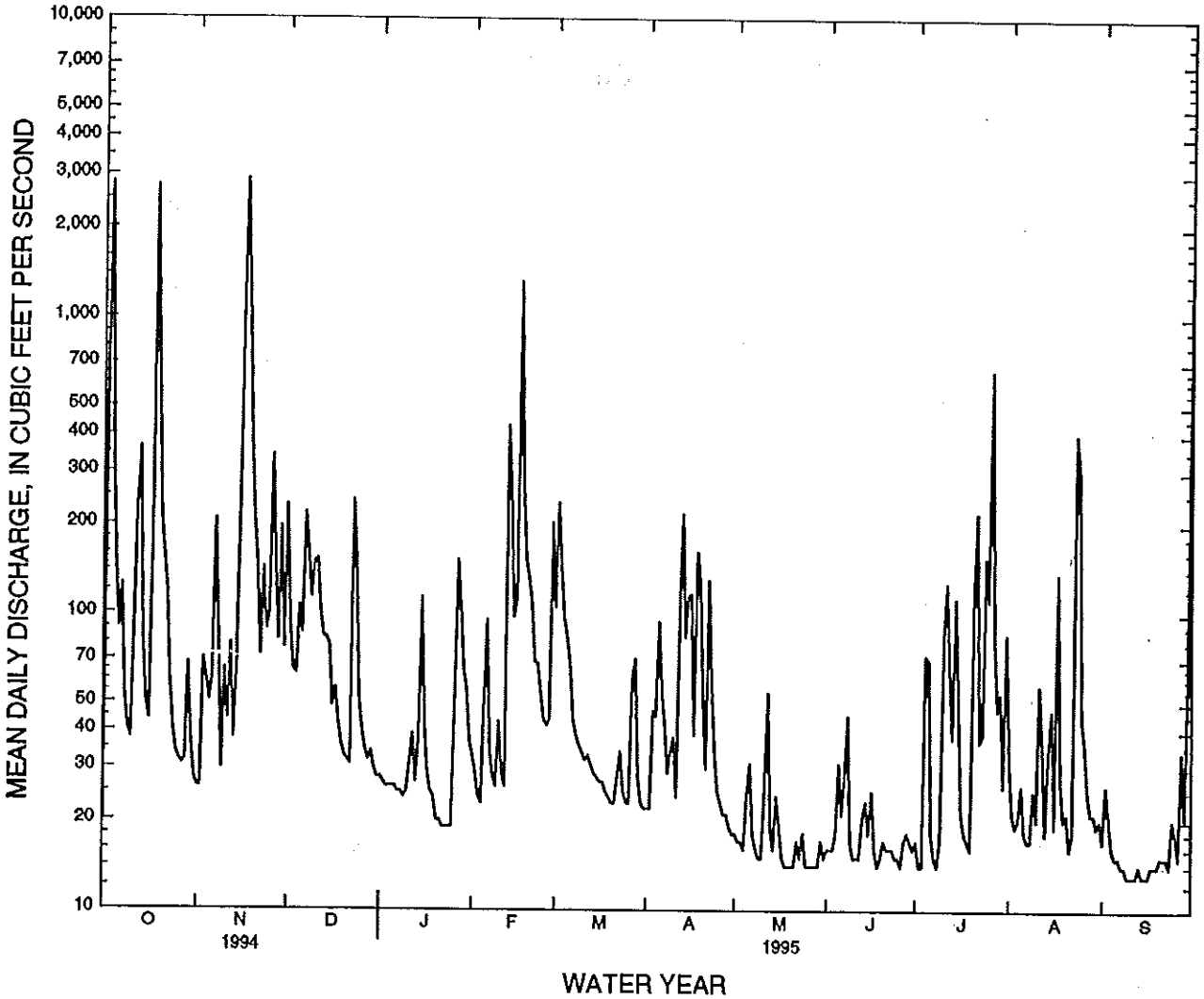
e Estimated

16036000 MAKAWELI RIVER NEAR WAIMEA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1995, BY WATER YEAR (WY)

MEAN	60.1	123	145	133	118	132	97.1	58.0	37.0	53.2	53.2	37.3
MAX	311	491	577	441	774	609	419	283	101	222	328	204
(WY)	1995	1991	1993	1989	1956	1982	1963	1965	1980	1989	1950	1994
MIN	11.7	15.2	18.0	9.49	12.0	10.6	11.6	15.5	9.56	10.0	14.2	9.54
(WY)	1960	1951	1977	1945	1978	1959	1992	1966	1951	1984	1944	1962

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1943 - 1995	
ANNUAL TOTAL	38597.6		35848			
ANNUAL MEAN	106		98.2		87.0	
HIGHEST ANNUAL MEAN					204	1982
LOWEST ANNUAL MEAN					31.1	1984
HIGHEST DAILY MEAN	2890	Nov 17	2890	Nov 17	5170	Dec 1 1957
LOWEST DAILY MEAN	8.2	Aug 16	13	Sep 9	4.3	Jul 19 1951
ANNUAL SEVEN-DAY MINIMUM	8.7	Aug 14	13	Sep 9	5.7	Oct 21 1944
ANNUAL RUNOFF (AC-FT)	76560		71100		63060	
10 PERCENT EXCEEDS	190		155		172	
50 PERCENT EXCEEDS	29		31		27	
90 PERCENT EXCEEDS	9.8		15		12	



16049000 HANAPEPE RIVER BELOW MANUAHI STREAM, NEAR ELEELE

LOCATION.--Lat 21°57′29", long 159°33′13", Hydrologic Unit 20070000, on left bank 200 ft downstream from Manuahi Stream, and 4.0 mi northeast of Eleele.

DRAINAGE AREA.--18.5 mi^2.

PERIOD OF RECORD.--July 1917 to January 1921, December 1926 to current year. Prior to July 1952, published as "at Koula, near Eleele." Records for August 1910 to December 1916 at site 0.5 mi upstream not equivalent owing to intervening inflow.

REVISED RECORDS.--WSP 740: 1931. WSP 1719: 1929-31(M). WSP 1937: 1918, 1919(M), 1920, 1921(M), 1927-28(M), 1930, 1936-37(M), 1941(P), 1943-46(P), 1947(M), 1948-52(P), 1955(M), 1956-57(P), 1958(M), 1960(M). WSP 2137: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 222 ft above mean sea level (by stadia survey). July 1, 1917, to Jan. 22, 1921, nonrecording gage and Dec. 16, 1926, to June 30, 1951, water-stage recorder, at same site at datum 1.00 ft higher.

REMARKS.--Records good except for estimated discharges, which are fair. Koula ditch diverts water 3.0 mi upstream of station for irrigation in vicinity of Makaweli.

AVERAGE DISCHARGE.--71 years (water years 1918-20, 1928-95), 84.6 ft^3/s (61,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft^3/s, Apr. 15, 1963, gage height, 14.87 ft, from rating curve extended above 7,600 ft^3/s on basis of slope-area measurement of peak flow; minimum, 5.1 ft^3/s, May 21, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 3	0500	5,860	7.52	Nov. 17	0500	6,100	7.64
Oct. 18	1930	*12,200	*9.87	Sep. 30	1730	11,600	9.72

Minimum discharge, 15 ft^3/s, Jun. 30, Jul. 1, 7, 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e54	26	275	23	18	41	17	21	21	26	41	21
2	e680	21	113	22	17	81	16	21	21	16	28	30
3	2150	39	60	21	17	44	21	21	22	19	22	25
4	e300	61	75	21	17	26	46	20	20	75	20	21
5	e150	40	125	20	43	25	128	21	26	77	22	21
6	e90	53	103	20	41	22	105	21	21	20	20	21
7	e120	310	334	20	19	21	74	19	30	16	21	21
8	e50	134	191	20	18	21	33	19	37	16	20	21
9	e40	44	151	20	17	20	48	18	22	21	32	21
10	e38	57	168	20	20	19	137	18	19	78	36	21
11	e100	42	131	25	18	18	39	25	18	130	50	21
12	e200	94	91	23	17	21	195	57	18	85	38	21
13	e205	52	65	20	380	20	406	22	29	50	20	21
14	63	148	87	33	187	19	115	20	31	107	31	21
15	38	233	75	118	94	18	120	34	21	57	38	22
16	73	969	48	30	89	18	122	22	28	25	21	22
17	155	2120	59	20	1020	18	39	20	19	20	132	21
18	1390	1030	41	19	197	18	220	19	18	19	32	21
19	532	501	34	19	111	18	139	19	21	19	36	24
20	209	248	30	19	94	17	162	19	22	154	41	51
21	179	152	28	19	83	18	56	19	18	308	28	27
22	150	112	27	18	79	21	170	20	19	67	56	20
23	100	188	282	18	75	53	65	20	19	49	427	24
24	83	109	125	18	71	21	37	20	17	190	299	31
25	75	114	49	19	66	19	27	19	17	183	77	23
26	56	355	36	21	65	17	28	19	17	680	53	22
27	27	172	32	33	49	31	20	19	18	99	30	43
28	26	112	28	22	106	34	30	19	19	44	26	36
29	39	227	29	19	---	20	22	19	17	56	33	84
30	25	104	25	18	---	18	21	20	16	28	24	1080
31	32	---	23	18	---	17	---	20	---	96	25	---
TOTAL	7429	7867	2940	756	3028	774	2658	670	641	2830	1779	1858
MEAN	240	262	94.8	24.4	108	25.0	88.6	21.6	21.4	91.3	57.4	61.9
MAX	2150	2120	334	118	1020	81	406	57	37	680	427	1080
MIN	25	21	23	18	17	17	16	18	16	16	20	20
AC-FT	14740	15600	5830	1500	6010	1540	5270	1330	1270	5610	3530	3690

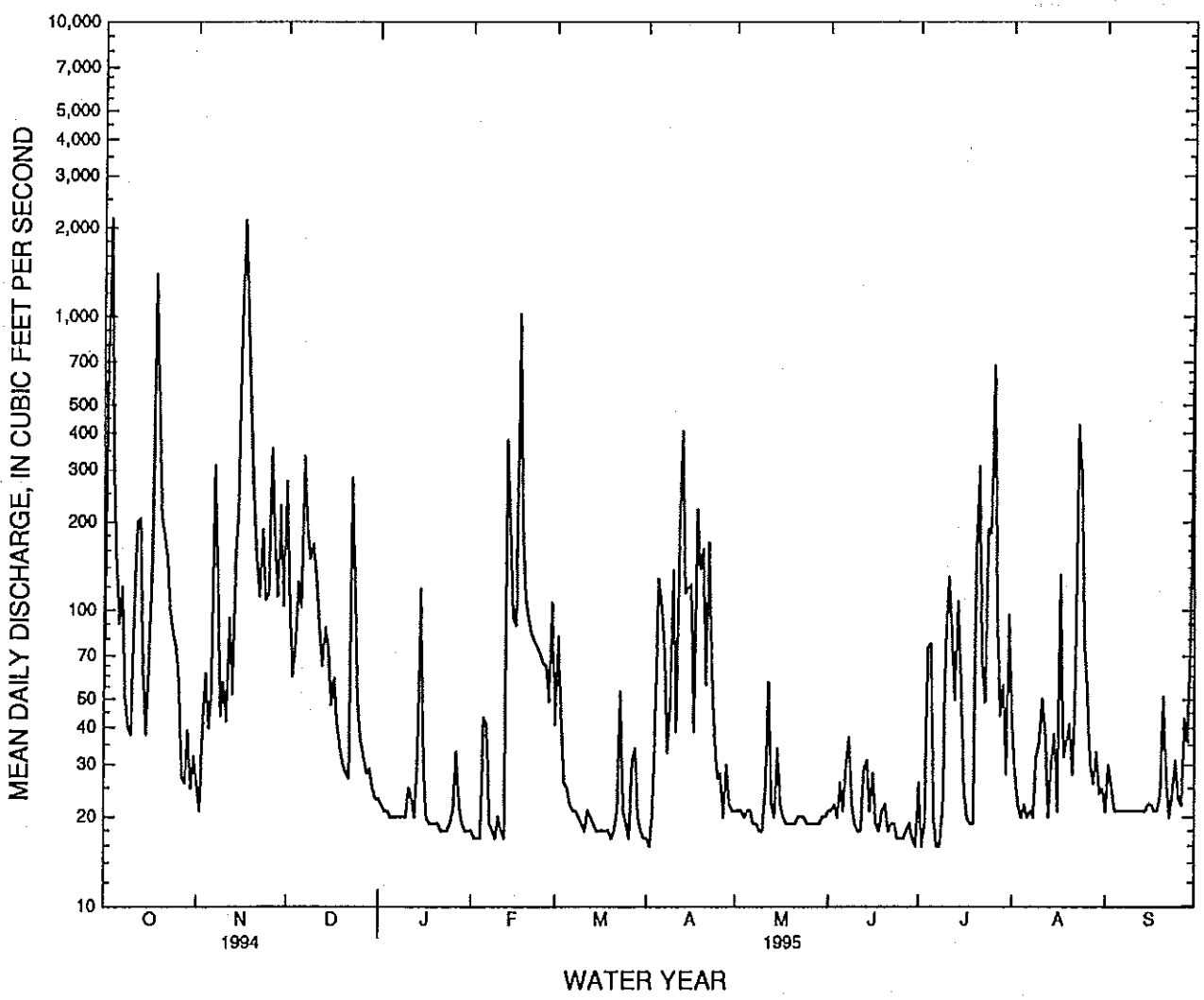
e Estimated

16049000 HANAPEPE RIVER BELOW MANUAHI STREAM, NEAR ELEELE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 1995, BY WATER YEAR (WY)

MEAN	61.2	105	116	110	99.6	116	91.9	67.1	51.4	72.6	73.6	53.7
MAX	240	430	720	578	657	803	470	201	175	202	222	190
(WY)	1995	1991	1920	1920	1932	1918	1963	1965	1978	1989	1931	1994
MIN	11.5	15.3	13.0	11.7	15.0	8.84	13.2	12.9	12.1	13.6	18.4	11.7
(WY)	1954	1977	1986	1986	1986	1959	1941	1958	1959	1953	1953	1953

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1917 - 1995		
ANNUAL TOTAL	36218		33230				
ANNUAL MEAN	99.2		91.0		84.6		
HIGHEST ANNUAL MEAN					182		1918
LOWEST ANNUAL MEAN					30.6		1953
HIGHEST DAILY MEAN	2150	Oct 3	2150	Oct 3	10900	Dec 3	1919
LOWEST DAILY MEAN	15	Apr 27	16	Apr 2	5.3	May 21	1954
ANNUAL SEVEN-DAY MINIMUM	16	May 6	17	Jun 24	6.4	May 10	1954
ANNUAL RUNOFF (AC-FT)	71840		65910		61300		
10 PERCENT EXCEEDS	190		181		173		
50 PERCENT EXCEEDS	32		28		30		
90 PERCENT EXCEEDS	18		18		15		



16060000 SOUTH FORK WAILUA RIVER NEAR LIHUE

LOCATION.--Lat 22°02′24", long 159°22′58", Hydrologic Unit 20070000, on right bank 0.2 mi upstream from Wailua Falls and 4.3 mi north of Lihue.

DRAINAGE AREA.--22.4 mi^2.

PERIOD OF RECORD.--December 1911 to April 1919, June 1919 to March 1921, May 1921 to June 1957, August, September 1957, November 1957 to February 1958, June 1958 to current year. Monthly discharge only for some periods, published in WSP 1319. Published as "above Waiehu Falls, near Lihue" 1912-13.

REVISED RECORDS.--WSP 1249: 1941-47(M), 1948-51(P). WSP 1719: 1943-49. WSP 1937: 1958-60.

GAGE.--Water-stage recorder. Elevation of gage is 240 ft above mean sea level, from topographic map. Prior to Nov. 18, 1918, at site 0.3 mi upstream at different datum. Nov. 18, 1918, to June 30, 1957, at site 10 ft downstream from present site at datum 2.50 ft higher and July 1, 1957, to June 23, 1958, at present datum.

REMARKS.--Records good. Lihue and Hanamaulu ditches divert water upstream of station for irrigation of sugarcane in vicinity of Lihue.

AVERAGE DISCHARGE.--78 years (water years 1913-18, 1920, 1922-24, 1926-56, 1959-95), 116 ft^3/s (84,150 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,300 ft^3/s, Apr. 15, 1963, gage height, 22.90 ft, from rating curve extended above 13,000 ft^3/s on basis of slope-area measurement of peak flow; minimum, 1.5 ft^3/s, Aug. 21, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,800 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 3	1500	6,480	14.81	Nov. 17	0600	6,430	14.79
Oct. 18	2000	*11,300	*16.24	Sep. 30	1900	6,090	14.66

Minimum discharge, 3.7 ft^3/s, Sep. 12-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

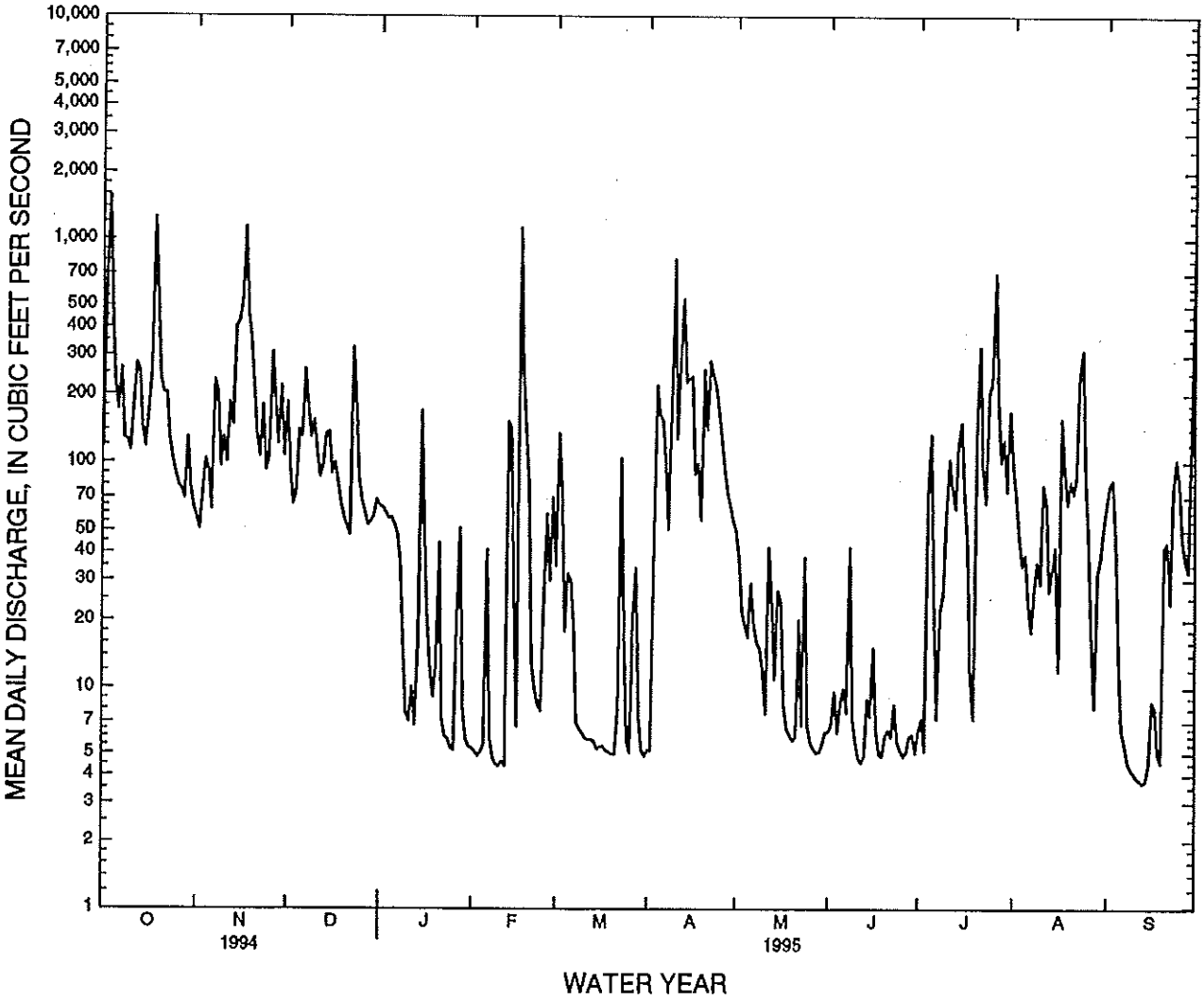
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	118	58	185	64	5.3	35	5.2	50	6.3	6.3	96	64
2	674	51	93	63	5.1	134	5.2	38	6.8	7.2	70	79
3	1560	74	66	60	4.9	76	43	22	9.6	5.2	47	83
4	447	103	74	57	5.1	18	220	19	6.3	74	35	46
5	227	92	139	57	5.5	32	163	17	8.5	133	39	14
6	172	62	131	53	41	30	153	29	9.9	23	24	6.4
7	263	232	259	48	5.9	19	101	19	7.8	7.3	18	5.6
8	128	205	176	36	4.8	6.9	51	16	42	22	27	4.6
9	126	97	130	16	4.5	6.5	182	15	7.3	26	36	4.3
10	114	130	154	7.7	4.4	6.2	809	12	5.7	60	29	4.1
11	180	101	111	7.1	4.6	5.9	128	7.7	4.8	103	79	3.9
12	276	183	87	10	4.4	5.8	285	42	4.6	77	66	3.8
13	255	147	97	6.8	151	5.8	535	24	4.9	63	27	3.7
14	144	403	133	16	141	5.7	230	11	8.9	122	33	3.8
15	118	421	136	169	24	5.3	236	27	7.4	150	42	4.5
16	168	517	90	46	6.7	5.4	241	24	15	71	12	8.6
17	257	1130	99	20	1120	5.4	89	8.4	6.4	43	156	8.1
18	1240	466	82	12	258	5.2	99	6.5	5.0	11	92	5.0
19	568	360	65	9.1	141	5.1	56	6.1	4.9	7.3	66	4.6
20	236	223	57	13	80	5.0	259	5.8	6.0	156	82	42
21	204	133	52	44	13	5.0	141	6.0	6.4	327	73	44
22	203	107	48	7.2	10	8.0	282	20	6.0	94	87	24
23	126	179	325	6.0	8.4	104	245	6.8	8.4	67	246	75
24	103	93	188	5.8	7.9	17	217	38	5.7	204	316	102
25	89	106	86	5.3	25	5.7	169	6.8	5.2	226	88	80
26	79	309	68	5.2	59	5.1	129	5.7	4.9	698	45	45
27	76	187	60	21	30	21	94	5.3	5.1	186	17	37
28	70	121	53	51	70	34	74	5.1	6.0	101	8.2	33
29	129	218	55	8.1	---	7.5	64	5.1	6.1	126	32	117
30	78	108	58	5.8	---	5.2	55	5.5	5.1	75	38	846
31	63	---	68	5.4	---	4.9	---	6.3	---	168	51	---
TOTAL	8491	6616	3425	935.5	2240.5	635.6	5360.4	510.1	237.0	3439.3	2077.2	1802.0
MEAN	274	221	110	30.2	80.0	20.5	179	16.5	7.90	111	67.0	60.1
MAX	1560	1130	325	169	1120	134	809	50	42	698	316	846
MIN	63	51	48	5.2	4.4	4.9	5.2	5.1	4.6	5.2	8.2	3.7
AC-FT	16840	13120	6790	1860	4440	1260	10630	1010	470	6820	4120	3570

16060000 SOUTH FORK WAILUA RIVER NEAR LIHUE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1995, BY WATER YEAR (WY)

MEAN	91.1	170	173	176	128	150	134	99.5	54.6	73.6	84.4	75.0
MAX	339	866	696	1485	716	830	673	467	271	281	321	650
(WY)	1983	1991	1917	1921	1932	1982	1963	1927	1914	1989	1948	1914
MIN	2.58	3.13	6.61	4.66	3.15	3.46	3.84	3.29	2.82	3.27	4.76	2.59
(WY)	1954	1934	1977	1986	1947	1934	1931	1926	1957	1953	1973	1953

	SUMMARY STATISTICS FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1912 - 1995	
ANNUAL TOTAL	54874.6		35769.6			
ANNUAL MEAN	150		98.0		116	
HIGHEST ANNUAL MEAN					284	1982
LOWEST ANNUAL MEAN					17.3	1984
HIGHEST DAILY MEAN	1810	Feb 16	1560	Oct 3	13800	Jan 16 1921
LOWEST DAILY MEAN	6.0	May 12	3.7	Sep 13	1.8	Sep 17 1953
ANNUAL SEVEN-DAY MINIMUM	8.1	Jan 7	4.0	Sep 9	1.8	Sep 16 1953
ANNUAL RUNOFF (AC-FT)	108800		70950		84150	
10 PERCENT EXCEEDS	324		228		265	
50 PERCENT EXCEEDS	82		48		37	
90 PERCENT EXCEEDS	15		5.2		4.7	



16061200 NORTH WAILUA DITCH BELOW WAIKOKO STREAM, NEAR LIHUE

LOCATION.--Lat 22°03'34", long 159°28'00", Hydrologic Unit 20070000, on left bank 380 ft downstream from Waikoko Stream, 8.1 mi west of Wailua, and 8.4 mi northwest of Lihue.

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 1,070 ft above mean sea level, from topographic map.

REMARKS.--Records good. Ditch diverts water from North Fork Wailua River and Waikoko Stream for power and irrigation in vicinity of Lihue.

AVERAGE DISCHARGE.--30 years (water years 1966-95), 21.9 ft^3/s (15,860 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 58 ft^3/s, Oct. 11, 1966; no flow for many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 31 ft^3/s, Jul. 26, Sep. 30; minimum daily, 4.3 ft^3/s, Mar. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	15	15	14	12	13	9.3	20	20	22	24	22
2	19	15	15	14	12	14	7.2	20	20	22	24	24
3	20	15	15	14	12	13	24	20	20	23	23	23
4	17	16	15	14	13	13	26	20	19	29	23	22
5	16	15	16	14	13	13	26	21	21	27	23	22
6	16	15	15	14	13	13	10	20	21	24	22	21
7	17	17	16	14	12	13	8.6	20	23	23	23	21
8	15	15	15	14	12	13	12	20	23	22	23	21
9	15	15	15	14	12	12	14	20	21	23	24	20
10	15	15	15	14	12	12	16	20	20	25	24	20
11	16	15	15	14	12	12	19	21	20	25	24	20
12	16	15	15	14	12	12	24	22	20	26	22	19
13	16	15	15	14	14	4.3	25	21	22	25	23	19
14	16	16	15	14	13	7.6	22	21	23	28	24	19
15	15	17	15	14	12	16	22	21	24	27	25	20
16	16	17	15	13	14	16	21	21	24	24	23	22
17	17	18	15	13	18	16	20	20	22	23	26	20
18	19	17	15	12	14	16	23	20	22	23	23	19
19	17	16	14	12	13	16	22	20	22	22	23	22
20	16	16	14	12	13	16	25	20	23	28	23	23
21	16	15	14	12	13	17	23	21	22	29	22	23
22	16	15	14	12	13	18	25	20	23	25	23	21
23	15	15	17	12	12	20	25	21	23	26	27	23
24	15	15	15	12	12	18	24	21	22	28	28	23
25	15	15	14	12	12	18	22	20	21	28	24	23
26	15	17	14	13	12	20	22	20	21	31	23	21
27	15	16	14	14	12	23	21	20	22	26	23	23
28	15	15	14	14	12	22	21	20	23	25	23	22
29	16	16	14	13	---	20	21	20	22	25	23	25
30	15	15	14	13	---	20	21	20	21	24	22	31
31	15	---	14	13	---	16	---	20	---	27	23	---
TOTAL	498	469	458	412	356	472.9	601.1	631	650	785	730	654
MEAN	16.1	15.6	14.8	13.3	12.7	15.3	20.0	20.4	21.7	25.3	23.5	21.8
MAX	20	18	17	14	18	23	26	22	24	31	28	31
MIN	15	15	14	12	12	4.3	7.2	20	19	22	22	19
AC-FT	988	930	908	817	706	938	1190	1250	1290	1560	1450	1300

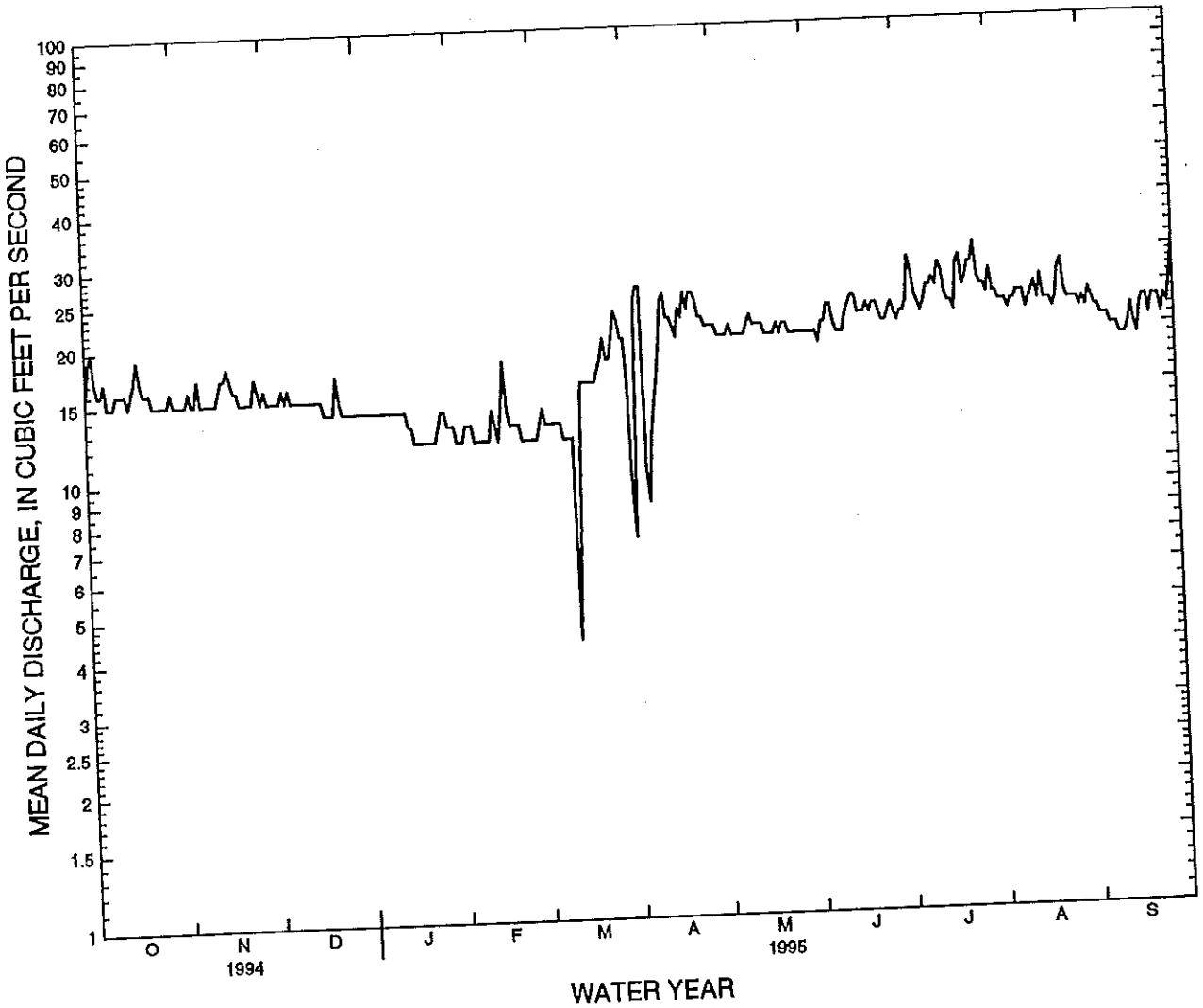
HAWAII, ISLAND OF KAUAI

16061200 NORTH WAILUA DITCH BELOW WAIKOKO STREAM, NEAR LIHUE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY)

MEAN	22.5	23.1	21.1	20.0	20.7	21.7	22.7	22.5	22.1	22.7	22.6	21.8
MAX	29.7	34.0	33.4	30.1	34.4	32.0	31.8	31.3	28.5	34.0	31.7	30.5
(WY)	1969	1966	1969	1968	1969	1969	1986	1969	1986	1969	1966	1966
MIN	11.0	12.3	2.94	.42	.065	.21	.14	.097	.16	3.89	16.2	13.7
(WY)	1993	1983	1991	1993	1991	1991	1991	1991	1991	1991	1994	1991

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1965 - 1995		
ANNUAL TOTAL	6324.59		6717.0				
ANNUAL MEAN	17.3		18.4		21.9		
HIGHEST ANNUAL MEAN					30.3		1969
LOWEST ANNUAL MEAN					6.64		1991
HIGHEST DAILY MEAN	25	Feb 16	31	Jul 26	58	Oct 11	1966
LOWEST DAILY MEAN	.79	Jun 29	4.3	Mar 13	.00	Jan 1	1965
ANNUAL SEVEN-DAY MINIMUM	9.1	Jun 28	10	Mar 8	.00	Jan 1	1965
ANNUAL RUNOFF (AC-FT)	12540		13320		15860		
10 PERCENT EXCEEDS	21		24		29		
50 PERCENT EXCEEDS	17		19		22		
90 PERCENT EXCEEDS	15		13		16		



16062000 STABLE STORM DITCH NEAR LIHUE

LOCATION.--Lat 22°04'09", long 159°26'46", Hydrologic Unit 20070000, on left bank 100 ft downstream from intake, 7.8 mi northwest of Lihue, and 7.9 mi west of Kapaa.

PERIOD OF RECORD.--December 1936 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Elevation of gage is 710 ft above mean sea level, by barometer.

REMARKS.--Records good. Ditch diverts water from North Fork Wailua River for irrigation of sugarcane in vicinity of Lihue.

AVERAGE DISCHARGE.--58 years (water years 1938-95), 9.90 ft^3/s (7,170 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 71 ft^3/s, Apr. 3, 1948; no flow on many days.

EXTREMES FOR CURRENT YEAR.--Maxiumum daily discharge, 25 ft^3/s, Jun. 7; no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	12	.00	.00	.23	24	15	.15	.10
2	.02	.00	.00	.00	12	.12	.00	.29	23	14	.15	.12
3	.09	.00	.00	.00	12	.00	.04	.28	16	15	.15	.08
4	.07	.00	.00	.00	14	.00	.06	.25	7.4	19	.15	.08
5	.03	.00	.00	.00	15	.00	.06	.22	10	10	.15	.08
6	.01	.00	.00	.00	14	.00	.04	.21	21	7.1	.15	.08
7	.02	.00	.02	.00	12	.00	.04	.22	25	2.4	.15	.08
8	.00	.00	.01	.00	11	.00	.08	.22	20	.30	.04	.09
9	.00	.00	.00	.00	7.1	.00	.18	.23	7.2	.30	.00	.11
10	.00	.00	.01	.00	12	.00	.22	.22	.50	.30	.06	.08
11	.00	.00	.00	.00	17	.00	.23	.22	.50	.30	.12	.08
12	.00	.00	.00	.42	17	.00	.23	14	.50	.30	.10	.08
13	.00	.00	.00	3.3	17	.00	.26	20	8.3	.22	.10	.08
14	.00	.00	.00	12	9.6	.00	.22	20	10	.22	.13	.10
15	.00	.03	.00	13	3.5	.00	.22	20	9.2	.22	.15	.08
16	.00	.03	.00	11	.50	.00	.22	11	10	.15	.12	.14
17	.01	.05	.00	10	.79	.00	.22	.62	6.5	.15	.14	.15
18	1.1	.03	.00	9.3	.08	.00	.22	.62	6.2	.15	.15	.13
19	.08	.03	.00	8.9	.08	.00	.22	.54	5.9	.15	.15	.13
20	.05	.01	.00	8.6	.03	.00	.22	.50	10	.08	.15	.08
21	.03	.00	.00	8.3	.00	.00	.22	.57	14	.08	.15	.08
22	.02	.00	.00	8.2	.00	.00	.22	.50	16	.08	.15	.08
23	.00	.00	.02	8.0	.00	.00	.24	.51	15	.08	.19	.08
24	.00	.00	.01	7.9	.00	.00	.30	.50	15	.08	.17	.08
25	.00	.00	.00	7.6	.00	.00	.28	.50	14	.08	.15	.08
26	.00	.02	.00	10	.00	.00	.25	.50	12	.08	.15	.05
27	.00	.01	.00	17	.00	.00	.26	.50	13	.08	.15	.08
28	.00	.00	.00	15	.00	.00	.23	.41	15	.08	.15	.06
29	.00	.01	.00	12	---	.00	.24	15	14	.08	.15	.14
30	.00	.00	.00	13	---	.00	.22	23	13	.08	.14	1.6
31	.00	---	.00	12	---	.00	---	24	---	.15	.12	---
TOTAL	1.53	0.22	0.07	195.52	186.68	0.12	5.44	155.86	362.20	86.29	4.13	4.28
MEAN	.049	.007	.002	6.31	6.67	.004	.18	5.03	12.1	2.78	.13	.14
MAX	1.1	.05	.02	17	17	.12	.30	24	25	19	.19	1.6
MIN	.00	.00	.00	.00	.00	.00	.00	.21	.50	.08	.00	.05
AC-FT	3.0	.4	.1	388	370	.2	11	309	718	171	8.2	8.5

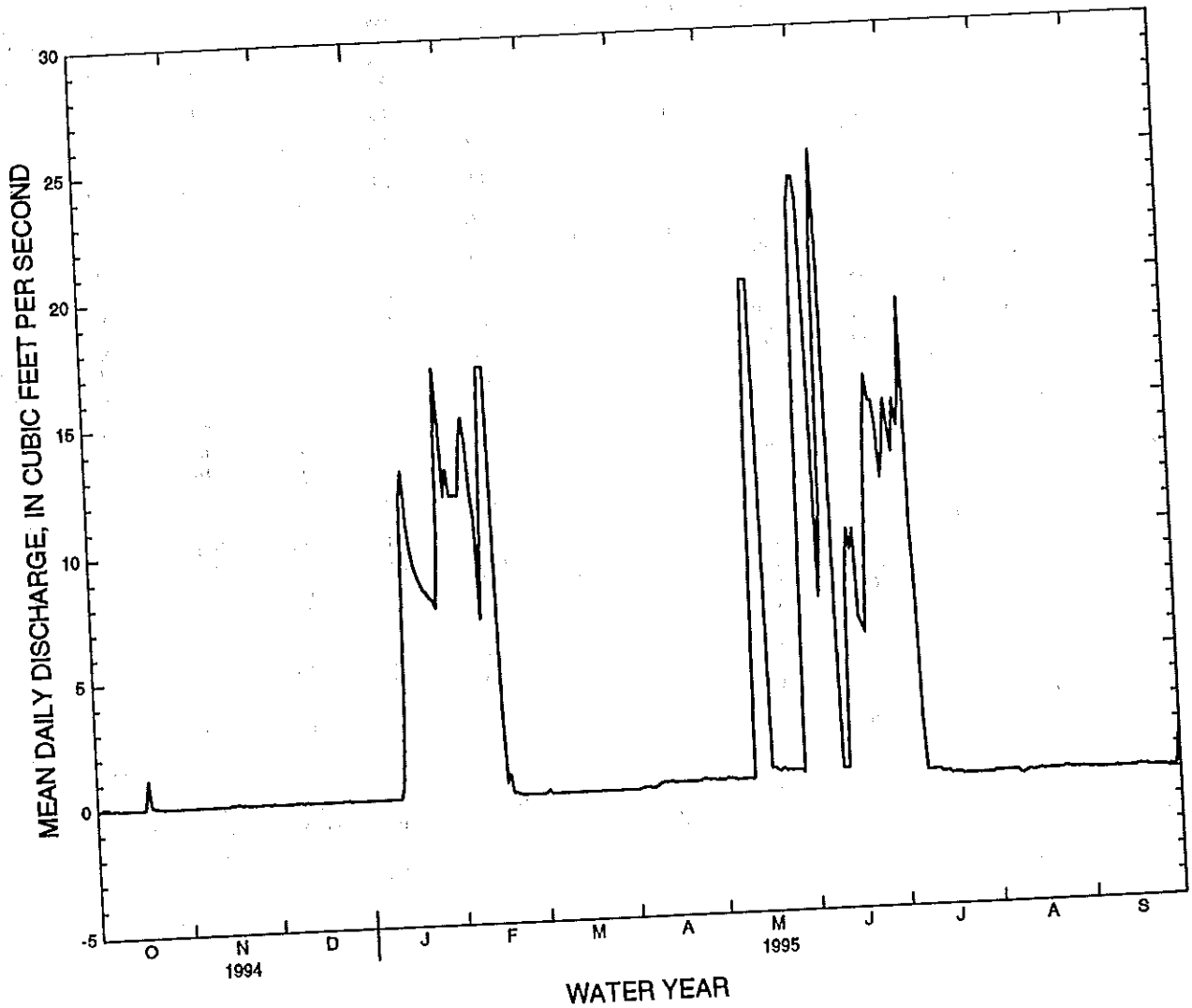
HAWAII, ISLAND OF KAUAI

16062000 STABLE STORM DITCH NEAR LIHUE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1995, BY WATER YEAR (WY)

MEAN	12.9	6.17	4.54	6.44	8.86	7.72	8.78	9.72	15.6	11.7	11.7	14.8
MAX	37.3	35.7	24.8	31.4	32.3	36.0	34.7	34.4	38.7	36.8	37.0	36.1
(WY)	1951	1951	1984	1946	1991	1947	1954	1954	1953	1953	1970	1950
MIN	.020	.000	.000	.000	.000	.000	.000	.000	.000	.014	.000	.000
(WY)	1990	1938	1991	1939	1938	1939	1939	1963	1938	1980	1964	1989

SUMMARY STATISTICS	FOR 1994 CALEHDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1938 - 1995		
ANNUAL TOTAL	23.02		1002.34		9.90		
ANNUAL MEAN	.063		2.75		22.1		1984
HIGHEST ANNUAL MEAN					.15		1994
LOWEST ANNUAL MEAN					71	Apr 3	1948
HIGHEST DAILY MEAN	2.9	Sep 2	25	Jun 7	.00	Oct 1	1937
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Oct 1	1937
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 8			
ANNUAL RUNOFF (AC-FT)	46		1990		7170		
10 PERCENT EXCEEDS	.15		12		34		
50 PERCENT EXCEEDS	.00		.08		.29		
90 PERCENT EXCEEDS	.00		.00		.00		



HAWAII, ISLAND OF KAUAI

16068000 EAST BRANCH OF NORTH FORK WAILUA RIVER NEAR LIHUE

LOCATION.--Lat 22°04'19", long 159°25'05", Hydrologic Unit 20070000, on right bank 1,200 ft upstream from mouth, and 7.2 mi northwest of Lihue.

DRAINAGE AREA.--6.27 mi^2.

PERIOD OF RECORD.--July 1912 to September 1914, December 1914 to March 1915, May 1915 to March 1919, June 1919 to current year. Monthly discharge only for some periods, published in WSP 1319.

REVISED RECORDS.--WSP 770: 1932-33. WSP 1719: 1916. WSP 1937: 1918. WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 500 ft above mean sea level, from topographic map. Prior to Dec. 31, 1914, nonrecording gage at site 725 ft downstream at different datum. Dec. 31, 1914 to May 10, 1934, water-stage recorder at site 75 ft upstream at present datum.

REMARKS.--Records good. No diversion upstream.

AVERAGE DISCHARGE.--80 years (water years 1913-14, 1916-17, 1920-95), 48.3 ft^3/s (35,030 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,400 ft^3/s, Nov. 12, 1955, gage height, 14.7 ft, from floodmarks, from rating curve extended above 2,700 ft^3/s; minimum, 6.8 ft^3/s, July 3, 13, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 1,900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 3	1330	*1,780	*5.16

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peak greater than base discharge.			

Minimum discharge, 13 ft^3/s, Feb. 11, 12, Mar. 20, 21, Jun. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41	30	64	28	15	17	62	33	19	17	34	25
2	78	29	37	26	15	32	34	31	17	16	32	24
3	267	30	33	25	15	22	121	29	18	17	26	23
4	120	38	36	25	17	18	135	28	17	41	24	21
5	67	37	54	27	18	18	117	28	16	33	23	21
6	57	31	43	24	16	17	88	27	18	20	22	20
7	82	57	78	23	15	16	71	24	21	17	22	19
8	49	48	49	22	14	16	48	23	22	16	22	19
9	44	31	51	22	14	16	149	22	17	16	27	18
10	42	35	61	21	14	15	121	21	15	24	30	18
11	46	31	47	21	14	15	62	22	14	27	37	18
12	70	41	41	20	14	15	78	24	14	33	31	18
13	54	48	38	20	16	15	118	23	17	26	28	18
14	41	80	46	24	20	15	66	21	19	29	35	17
15	36	87	48	50	17	14	79	23	16	28	33	18
16	55	65	37	26	16	15	63	22	17	20	24	47
17	150	59	43	22	183	14	42	21	14	18	54	24
18	227	65	35	20	37	14	32	20	14	18	31	19
19	123	56	32	19	24	14	23	19	13	17	26	20
20	80	45	30	19	21	14	78	18	15	40	31	20
21	67	39	29	19	20	14	71	21	15	90	25	20
22	59	37	29	18	20	17	147	23	19	30	25	18
23	50	53	163	18	18	45	127	22	24	39	57	21
24	48	37	69	18	17	18	106	18	17	62	42	23
25	43	35	45	18	26	16	75	17	16	57	30	21
26	39	47	39	17	20	19	57	17	16	175	31	19
27	37	37	35	17	18	72	49	16	20	54	26	25
28	35	35	33	17	18	48	49	16	18	39	26	22
29	44	52	35	17	---	23	41	17	16	39	26	60
30	34	34	30	17	---	20	36	18	15	29	25	135
31	32	---	29	16	---	25	---	19	---	47	27	---
TOTAL	2217	1349	1439	676	672	649	2345	683	509	1134	932	791
MEAN	71.5	45.0	46.4	21.8	24.0	20.9	78.2	22.0	17.0	36.6	30.1	26.4
MAX	267	87	163	50	183	72	149	33	24	175	57	135
MIN	32	29	29	16	14	14	23	16	13	16	22	17
AC-FT	4400	2680	2850	1340	1330	1290	4650	1350	1010	2250	1850	1570

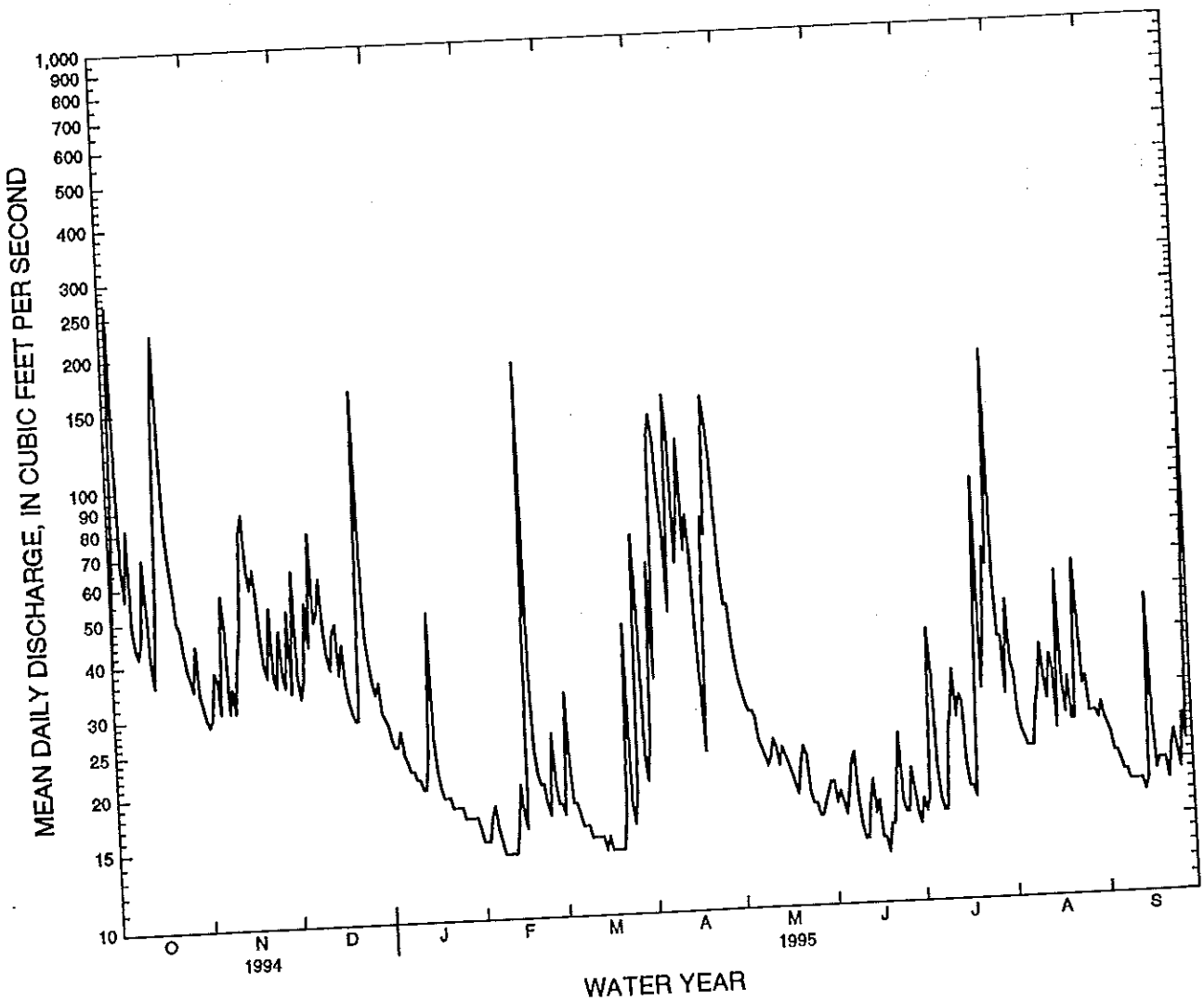
HAWAII, ISLAND OF KAUAI

16068000 EAST BRANCH OF NORTH FORK WAILUA RIVER NEAR LIHUE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1995, BY WATER YEAR (WY)

MEAN	41.5	59.7	60.7	59.4	48.7	56.5	57.2	47.1	32.9	38.4	40.2	36.6
MAX	94.6	226	157	392	197	270	173	144	84.9	78.4	111	112
(WY)	1983	1991	1988	1921	1994	1982	1927	1967	1978	1980	1948	1994
MIN	12.4	16.8	12.3	11.0	8.87	11.0	10.6	9.81	13.0	12.3	11.5	11.8
(WY)	1954	1934	1964	1986	1986	1970	1926	1926	1969	1926	1984	1953

	SUMMARY STATISTICS FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1912 - 1995	
ANNUAL TOTAL	22224		13396			
ANNUAL MEAN	60.9		36.7		48.3	
HIGHEST ANNUAL MEAN					95.5	1982
LOWEST ANNUAL MEAN					21.3	1984
HIGHEST DAILY MEAN	2570	Feb 13	267	Oct 3	2570	Feb 13 1994
LOWEST DAILY MEAN	18	Jan 11	13	Jun 19	7.0	Jul 8 1926
ANNUAL SEVEN-DAY MINIMUM	19	Jan 8	14	Mar 15	8.2	Mar 5 1986
ANNUAL RUNOFF (AC-FT)	44080		26570		35030	
10 PERCENT EXCEEDS	92		67		84	
50 PERCENT EXCEEDS	37		26		31	
90 PERCENT EXCEEDS	21		16		16	



HAWAII, ISLAND OF KAUAI

16069000 WAILUA DITCH NEAR KAPAA

LOCATION.--Lat 22°04'34", long 159°24'04", Hydrologic Unit 20070000, on right bank 2,000 ft downstream from Wailua Reservoir, 5.2 mi west of Kapaa, and 7.0 mi north of Lihue.

PERIOD OF RECORD.--November 1936 to current year.

GAGE.--Water-stage recorder. Sharp-crested weir since Feb. 4, 1965. Datum of gage is 462.3 ft above mean sea level (by stadia survey).

REMARKS.--Records good. Ditch diverts water from North Fork Wailua River to reservoir, 2,000 ft upstream and thence to fields for irrigation of sugarcene in vicinity of Kapaa.

AVERAGE DISCHARGE.--58 years (water years 1938-95), 16.2 ft^3/s (11,710 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 63 ft^3/s, June 4, 1937; no flow on many days.

EXTREMES FOR CURRENT YEAR.--Maximum daily discherge, 29 ft^3/s, Nov. 28-30 and Jul. 6, 7; minimum daily, 3.9 ft^3/s, Feb. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	22	28	26	18	24	25	26	25	27	25	28
2	19	23	28	26	14	23	25	26	25	27	24	28
3	20	23	28	26	13	23	25	26	25	27	24	28
4	21	23	28	25	14	22	26	25	25	28	24	28
5	22	23	28	25	16	23	26	16	25	28	24	27
6	23	24	28	25	17	23	27	13	25	29	23	27
7	23	24	28	25	17	23	26	13	25	29	23	27
8	24	25	28	25	17	23	26	24	25	28	23	27
9	24	25	28	24	17	23	26	27	25	28	24	27
10	24	25	28	24	17	23	26	27	24	28	24	27
11	24	25	28	24	17	23	26	27	24	28	25	27
12	24	25	28	23	3.9	23	25	27	24	28	25	27
13	25	26	28	23	5.5	23	19	27	24	28	26	27
14	25	26	28	23	20	23	18	27	24	27	26	27
15	25	26	28	23	22	23	24	27	24	27	26	27
16	25	26	28	23	24	23	25	27	24	27	26	27
17	25	27	28	23	26	23	25	27	24	27	27	27
18	25	27	28	23	27	23	24	26	23	27	27	27
19	24	28	28	23	26	23	23	26	22	26	27	27
20	23	28	27	22	26	23	22	26	22	26	28	27
21	22	28	27	22	25	23	22	26	22	26	28	27
22	20	28	25	21	26	24	21	25	22	25	28	27
23	18	28	28	21	26	24	22	25	23	25	28	27
24	16	28	28	20	27	24	22	25	24	25	28	27
25	18	28	28	20	27	24	22	25	24	25	28	27
26	19	28	28	19	26	24	22	25	25	25	28	27
27	20	28	27	19	24	24	22	25	25	25	28	27
28	21	29	27	19	24	25	24	25	26	25	28	27
29	21	29	27	19	---	25	25	25	26	25	28	27
30	22	29	27	19	---	25	25	24	27	25	28	28
31	22	---	27	18	---	25	---	25	---	25	28	---
TOTAL	683	784	858	698	562.4	727	716	765	728	826	809	815
MEAN	22.0	26.1	27.7	22.5	20.1	23.5	23.9	24.7	24.3	26.6	26.1	27.2
MAX	25	29	28	26	27	25	27	27	27	29	28	28
MIN	16	22	25	18	3.9	22	18	13	22	25	23	27
AC-FT	1350	1560	1700	1380	1120	1440	1420	1520	1440	1640	1600	1620

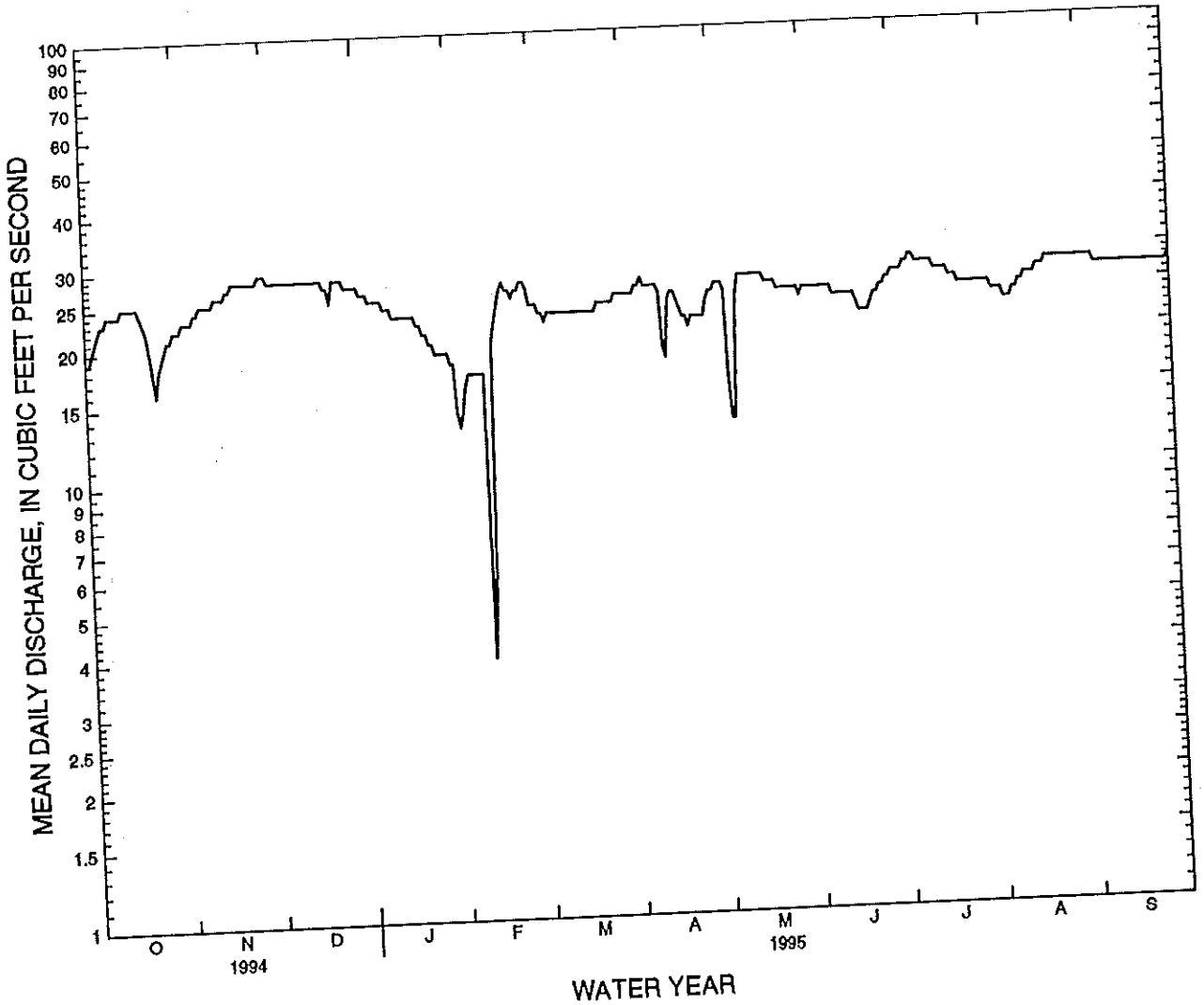
HAWAII, ISLAND OF KAUAI

16069000 WAILUA DITCH NEAR KAPAA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995, BY WATER YEAR (WY)

MEAN	18.9	12.3	9.29	10.7	11.9	12.6	13.6	16.7	21.6	22.3	22.2	22.7
MAX	35.2	28.5	33.3	35.3	37.8	27.3	28.8	40.5	40.0	46.5	48.6	53.5
(WY)	1958	1984	1938	1938	1940	1980	1938	1938	1937	1938	1939	1938
MIN	2.80	.19	.009	.20	.071	.41	.90	1.08	7.87	9.72	5.72	3.89
(WY)	1969	1965	1955	1968	1969	1956	1963	1965	1962	1954	1954	1946

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1937 - 1995		
ANNUAL TOTAL	7631.56		8971.4				
ANNUAL MEAN	20.9		24.6		16.2		
HIGHEST ANNUAL MEAN					32.9		1938
LOWEST ANNUAL MEAN					6.52		1962
HIGHEST DAILY MEAN	29	Nov 28	29	Nov 28	63	Jun 4	1937
LOWEST DAILY MEAN	.89	Feb 21	3.9	Feb 12	.00	May 15	1940
ANNUAL SEVEN-DAY MINIMUM	1.0	Feb 15	13	Feb 7	.00	May 15	1940
ANNUAL RUNOFF (AC-FT)	15140		17790		11710		
10 PERCENT EXCEEDS	27		28		31		
50 PERCENT EXCEEDS	22		25		16		
90 PERCENT EXCEEDS	16		21		.87		



HAWAII, ISLAND OF KAUAI

16071000 NORTH FORK WAILUA RIVER NEAR KAPAA

LOCATION.--Lat 22°03′08″, long 159°22′22″, Hydrologic Unit 20070000, on right bank 1.1 mi upstream from confluence with South Fork, 3.7 mi southwest of Kapaa, and 5.0 mi north of Lihue.

DRAINAGE AREA.--17.9 mi^2.

PERIOD OF RECORD.--July 1952 to current year.

REVISED RECORDS.--WSP 2137: Drainage area. WDR HI-75-1: 1974.

GAGE.--Water-stage recorder. Elevation of gage is 18 ft above mean sea level, from topographic map.

REMARKS.--Records good. Wailua ditch (station 16069000) diverts water upstream for irrigation of sugarcane in vicinity of Kapaa and Wailua.

AVERAGE DISCHARGE.--43 years (water years 1953-95), 121 ft^3/s (88,010 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,200 ft^3/s, Nov. 12, 1955, gage height, 19.88 ft in gage well, 20.8 ft, from floodmarks, from rating curve extended above 3,700 ft^3/s on basis of slope-area measurement of peak flow; minimum, 2.1 ft^3/s, Oct. 28, 1953.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 4,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep. 30	1800	*3,670	*7.06

Minimum discharge, 5.5 ft $^3/s$, Feb. 10, 11.

Date	Time	Discharge (ft^3/s)	Gage height (ft)

No peak greater than base discharge.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

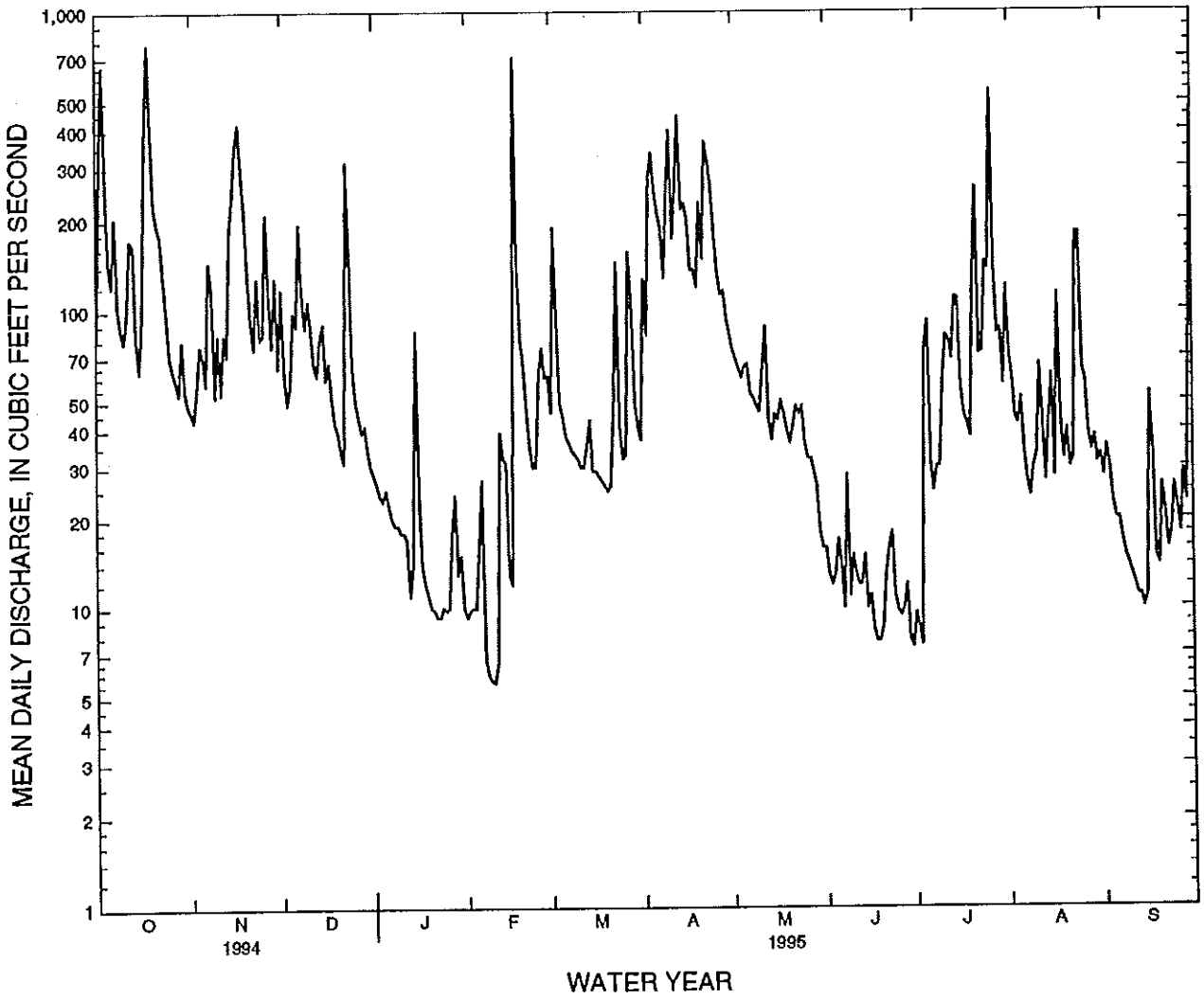
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	46	117	28	9.3	46	127	74	16	9.5	72	28
2	281	43	63	26	9.8	189	83	69	13	8.5	60	35
3	657	55	49	24	10	91	275	64	12	7.5	44	30
4	271	76	56	23	10	49	334	60	13	74	42	23
5	144	70	98	25	16	44	249	65	17	92	51	20
6	121	57	89	22	27	38	210	66	14	31	34	20
7	203	144	194	20	6.7	36	187	53	10	25	27	17
8	103	118	115	19	5.9	34	129	51	28	30	24	15
9	87	52	88	19	5.7	33	238	48	11	30	30	14
10	79	83	107	18	5.6	32	399	46	15	58	33	13
11	97	53	85	18	6.5	30	175	63	13	82	66	12
12	172	83	66	17	39	30	262	88	12	80	42	11
13	166	71	61	11	32	35	448	43	12	69	27	11
14	81	183	79	14	31	43	218	37	15	110	43	10
15	63	237	90	85	13	29	228	45	10	109	61	11
16	96	350	59	25	12	29	201	43	11	56	28	53
17	366	420	67	14	704	28	136	50	8.4	45	113	34
18	779	288	51	12	141	27	137	45	7.7	42	44	15
19	410	213	42	11	80	26	120	40	7.7	38	32	14
20	223	130	39	10	65	25	229	36	8.6	130	40	26
21	192	92	34	9.8	46	26	149	41	13	256	30	21
22	177	75	31	9.3	35	47	365	48	16	72	32	16
23	130	128	312	9.3	30	144	316	45	18	73	181	18
24	98	81	148	10	30	41	263	48	11	144	181	26
25	70	83	65	9.8	60	32	182	36	9.8	137	64	22
26	63	209	50	10	75	33	135	32	9.4	541	58	18
27	58	109	44	18	60	156	113	32	10	138	39	29
28	53	76	39	24	61	110	116	29	12	84	34	23
29	79	128	41	13	---	50	94	26	7.8	87	38	92
30	54	65	34	15	---	41	83	18	7.4	57	31	475
31	48	---	30	10	---	37	---	16	---	120	33	---
TOTAL	5501	3818	2443	579.2	1626.5	1611	6201	1457	368.8	2835.5	1634	1152
MEAN	177	127	78.8	18.7	58.1	52.0	207	47.0	12.3	91.5	52.7	38.4
MAX	779	420	312	85	704	189	448	88	28	541	181	475
MIN	48	43	30	9.3	5.6	25	83	16	7.4	7.5	24	10
AC-FT	10910	7570	4850	1150	3230	3200	12300	2890	732	5620	3240	2280

16071000 NORTH FORK WAILUA RIVER NEAR KAPAA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1995, BY WATER YEAR (WY)

MEAN	99.2	183	171	148	134	146	154	119	61.3	89.4	88.6	61.9
MAX	255	591	459	529	522	730	474	418	247	230	223	273
(WY)	1983	1991	1993	1956	1979	1982	1971	1967	1980	1980	1958	1994
MIN	2.54	19.1	7.74	6.90	4.43	4.76	15.0	11.8	5.78	5.22	5.80	3.17
(WY)	1954	1977	1984	1986	1978	1978	1966	1992	1957	1953	1984	1953

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1952 - 1995		
ANNUAL TOTAL	44614		29227.0				
ANNUAL MEAN	122		80.1		121		
HIGHEST ANNUAL MEAN					262		1982
LOWEST ANNUAL MEAN					25.7		1984
HIGHEST DAILY MEAN	3230	Feb 13	779	Oct 18	7350	Jan 25	1956
LOWEST DAILY MEAN	16	Jan 12	5.6	Feb 10	2.2	Oct 21	1953
ANNUAL SEVEN-DAY MINIMUM	22	Aug 6	9.0	Jun 27	2.4	Oct 20	1953
ANNUAL RUNOFF (AC-FT)	88490		57970		88010		
10 PERCENT EXCEEDS	226		190		256		
50 PERCENT EXCEEDS	70		45		67		
90 PERCENT EXCEEDS	30		11		8.2		



16071500 LEFT BRANCH OPAEKAA STREAM NEAR KAPAA

LOCATION.--Lat 22°04'44", long 159°23'55", Hydrologic Unit 20070000, on left bank 0.4 mi upstream from mouth, 0.6 mi northeast of Wailua Reservoir, and 4.9 mi west of Kapaa.

DRAINAGE AREA.--0.65 mi^2.

PERIOD OF RECORD.--May 1960 to current year. Prior to July 1960, published as Left Branch Opaikaa Stream near Kapaa.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 458.4 ft above mean sea level (by stsdia survey).

REMARKS.--Records fair. Recording rain gage located at station.

AVERAGE DISCHARGE.--35 years (water years 1961-95), 2.64 ft^3/s (1,910 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,060 ft^3/s, Dec. 14, 1991, gage height, 6.60 ft, from rating curve extended above 415 ft^3/s on basis of slope-area measurement at gage height 5.01 ft; minimum, 0.09 ft^3/s, Sep. 27-30, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 70 ft^3/s end maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 9	2230	*49	*2.04	No peak greater than base discharge.			

Minimum discharge, 0.50 ft^3/s, Sep. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

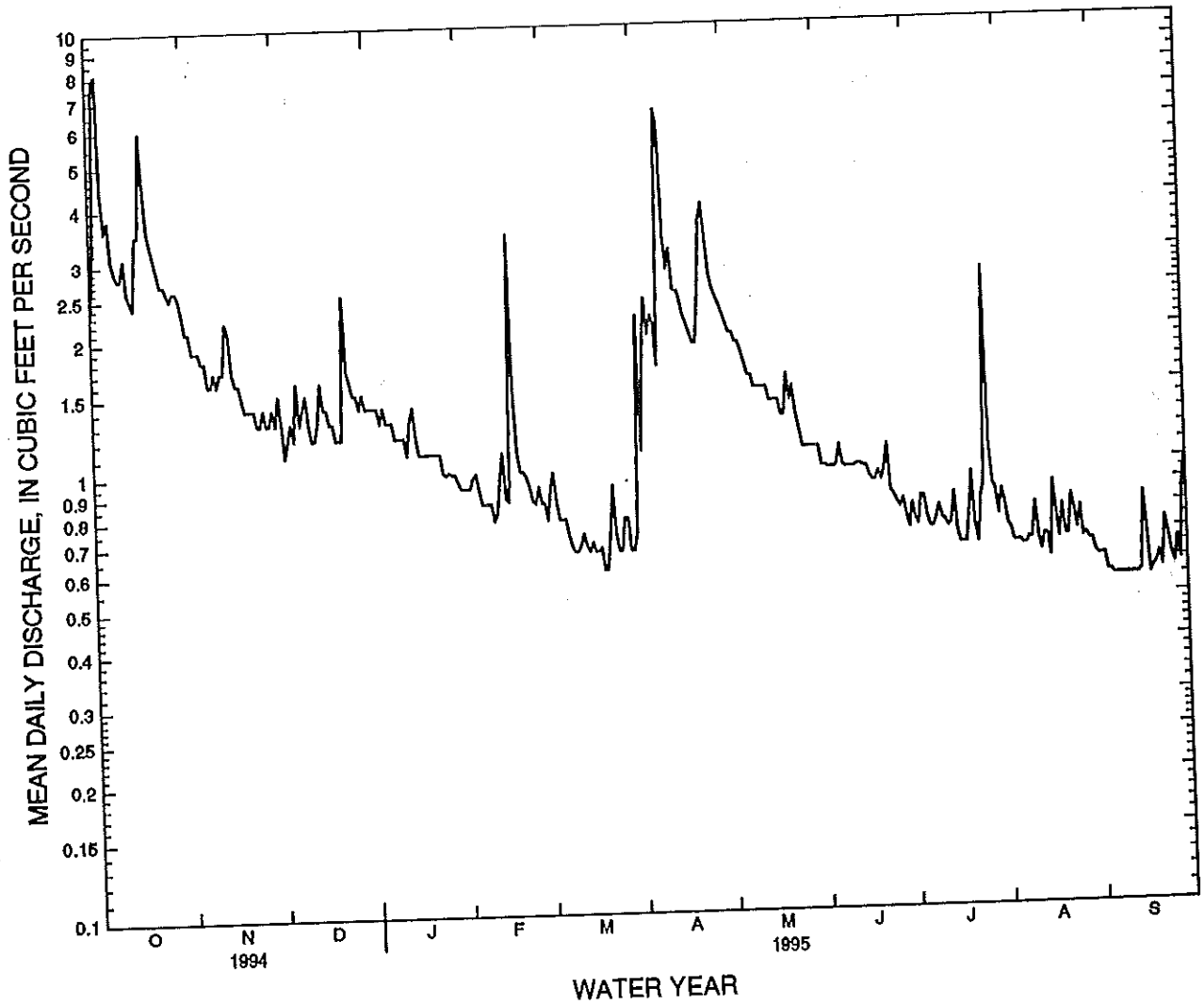
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.1	1.5	1.4	.92	.78	2.2	2.1	1.0	.81	.80	.61
2	3.3	2.1	1.3	1.4	.92	.92	1.1	2.0	1.0	.75	.72	.61
3	7.9	1.9	1.1	1.4	.92	.99	1.8	2.0	.99	.73	.70	.61
4	8.1	1.9	1.2	1.3	.97	.85	2.4	1.9	.99	.84	.66	.56
5	4.4	1.9	1.3	1.4	.99	.78	2.0	1.9	.99	.84	.66	.56
6	3.6	1.8	1.2	1.3	.91	.78	2.2	1.8	1.0	.76	.66	.55
7	3.8	1.8	1.6	1.3	.85	.78	2.1	1.7	1.1	.72	.65	.55
8	3.1	1.6	1.3	1.3	.85	.72	1.7	1.6	1.0	.72	.65	.55
9	2.9	1.6	1.4	1.2	.85	.68	6.4	1.6	.99	.75	.67	.55
10	2.8	1.7	1.5	1.2	.85	.66	5.9	1.5	.99	.80	.67	.55
11	2.8	1.6	1.3	1.2	.78	.66	3.3	1.5	.99	.75	.80	.55
12	3.1	1.7	1.2	1.2	.81	.68	2.8	1.5	.99	.74	.67	.55
13	2.6	1.7	1.2	1.1	.96	.72	3.1	1.5	1.0	.72	.63	.55
14	2.5	2.2	1.3	1.3	1.1	.68	2.5	1.5	1.0	.73	.68	.55
15	2.4	2.1	1.6	1.4	.87	.66	2.5	1.4	.99	.85	.68	.56
16	3.5	1.7	1.4	1.2	.86	.69	2.4	1.4	.99	.70	.61	.83
17	3.5	1.6	1.4	1.1	3.4	.66	2.2	1.4	.94	.66	.89	.68
18	6.0	1.6	1.3	1.1	1.5	.66	2.1	1.4	.92	.66	.76	.55
19	4.5	1.5	1.3	1.1	1.1	.67	2.0	1.3	.92	.66	.67	.57
20	3.6	1.4	1.2	1.1	1.0	.60	1.9	1.3	.96	.78	.79	.58
21	3.3	1.4	1.2	1.1	1.0	.60	1.9	1.6	.92	.94	.68	.61
22	3.1	1.4	1.2	1.1	.97	.72	2.4	1.4	.98	.72	.68	.57
23	2.9	1.4	2.5	1.1	.92	.92	3.6	1.5	1.1	.66	.83	.73
24	2.7	1.3	1.7	1.1	.86	.72	3.9	1.3	.87	.83	.77	.67
25	2.7	1.3	1.6	1.0	.85	.66	3.2	1.2	.85	.89	.70	.61
26	2.6	1.4	1.5	.99	.92	.66	2.7	1.1	.82	2.7	.78	.58
27	2.5	1.3	1.5	1.0	.85	.78	2.5	1.1	.80	1.1	.67	.66
28	2.6	1.3	1.4	.99	.85	.78	2.4	1.1	.83	.89	.68	.59
29	2.6	1.4	1.5	.99	---	.66	2.3	1.1	.77	.86	.66	.88
30	2.5	1.3	1.4	.95	---	.66	2.2	1.1	.72	.76	.66	1.0
31	2.3	---	1.4	.92	---	.72	---	1.1	---	.86	.62	---
TOTAL	106.5	49.0	43.5	36.24	28.63	22.50	79.7	45.9	28.41	26.18	21.75	18.57
MEAN	3.44	1.63	1.40	1.17	1.02	.73	2.66	1.48	.95	.84	.70	.62
MAX	8.1	2.2	2.5	1.4	3.4	.99	6.4	2.1	1.1	2.7	.89	1.0
MIN	2.3	1.3	1.1	.92	.78	.60	1.1	1.1	.72	.66	.61	.55
AC-FT	211	97	86	72	57	45	158	91	56	52	43	37

16071500 LEFT BRANCH OPAEKAA STREAM NEAR KAPAA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1995, BY WATER YEAR (WY)

MEAN	2.31	3.76	3.96	3.21	2.64	2.85	3.30	2.85	1.85	1.69	1.65	1.54
MAX	8.29	14.3	11.0	12.4	10.8	14.7	11.8	9.66	5.68	3.80	4.24	4.67
(WY)	1961	1966	1992	1989	1994	1982	1982	1965	1980	1989	1982	1980
MIN	.42	.59	.56	.58	.50	.50	.81	.62	.29	.59	.36	.38
(WY)	1985	1964	1963	1977	1986	1978	1993	1966	1968	1968	1984	1975

SUMMARY STATISTICS FOR 1994 CALENDAR YEAR			FOR 1995 WATER YEAR		WATER YEARS 1960 - 1995	
ANNUAL TOTAL	1047.1		506.88			
ANNUAL MEAN	2.87		1.39		2.64	
HIGHEST ANNUAL MEAN					5.72	1982
LOWEST ANNUAL MEAN					.92	1984
HIGHEST DAILY MEAN	118	Feb 13	8.1	Oct 4	218	Dec 14 1991
LOWEST DAILY MEAN	1.1	Dec 3	.55	Sep 6	.09	Sep 28 1968
ANNUAL SEVEN-DAY MINIMUM	1.3	Nov 30	.55	Sep 6	.10	Jun 6 1968
ANNUAL RUNOFF (AC-FT)	2080		1010		1910	
10 PERCENT EXCEEDS	3.5		2.5		4.5	
50 PERCENT EXCEEDS	2.1		1.1		1.7	
90 PERCENT EXCEEDS	1.3		.66		.67	



HAWAII, ISLAND OF KAUAI

16077000 MAKALEHA DITCH NEAR KEALIA

LOCATION.--Lat 22°07′06″, long 159°22′04″, Hydrologic Unit 20070000, on left bank at end of last tunnel from which flow enters Mimino Reservoir, 3.9 mi northwest of Kealia, and 4.0 mi northwest of Kapaa.

PERIOD OF RECORD.--December 1936 to current year.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 518 ft above mean sea level (by stadia survey).

REMARKS.--Records good. Ditch diverts water from Makaleha Stream for irrigation of sugarcane in vicinity of Kealia.

AVERAGE DISCHARGE.--58 years (water years 1938-95), 6.22 ft^3/s (4,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 31 ft^3/s, Aug. 1, 1961, June 30, 1982; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3.2 ft^3/s, Apr. 24; minimum daily, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.01	.00	.00	.49	1.3	.41	.46	.54	.58	.67
2	.01	.00	.00	.01	.00	.49	.79	.43	.55	.59	.57	.69
3	.02	.00	.00	.00	.00	.50	.96	.30	.65	.55	.66	.67
4	.06	.00	.00	.00	.00	.46	1.3	.39	.60	.53	.68	.61
5	.03	.00	.00	.00	.00	.46	1.1	.52	.53	.16	.62	.64
6	.02	.00	.00	.00	.00	.58	1.0	.73	.07	.10	.51	.62
7	.02	.00	.00	.00	.00	.51	.88	.73	.04	.10	.55	.58
8	.02	.00	.00	.00	.00	.53	.72	.56	.06	.07	.46	.54
9	.02	.00	.00	.00	.00	.57	.62	.57	.07	.07	.54	.53
10	.02	.00	.00	.00	.00	.55	1.2	.46	.07	.06	.68	.61
11	.02	.00	.00	.00	.00	.50	.70	.28	.04	.06	.66	.63
12	.02	.00	.00	.00	.00	.43	.56	.29	.04	.07	.59	.63
13	.01	.00	.00	.00	.00	.57	.48	.19	.07	.08	.70	.63
14	.00	.01	.00	.00	.39	.55	.27	.30	.03	.07	.68	.52
15	.00	.00	.00	.00	.45	.56	.26	.28	.03	.09	.58	.66
16	.07	.00	.00	.00	.37	.47	.34	.29	.05	.09	.57	.62
17	.26	.00	.00	.00	.82	.57	.29	.34	.05	.05	.67	.65
18	.08	.00	.00	.00	.72	.46	.27	.40	.03	.00	.65	.59
19	.05	.00	.00	.00	.47	.59	.21	.43	.02	.01	.55	.67
20	.04	.00	.00	.00	.48	.57	.27	.42	.17	.00	.64	.56
21	.03	.00	.00	.00	.53	.60	.26	.30	.51	.17	.64	.64
22	.02	.00	.00	.00	.56	.60	.41	.40	.53	.28	.59	.69
23	.03	.00	.00	.00	.55	.73	1.6	.42	.59	.35	.68	.65
24	.02	.00	.00	.00	.56	.66	3.2	.42	.43	.03	.72	.65
25	.02	.01	.00	.00	.46	.66	2.4	.45	.43	.06	.57	.22
26	.02	.01	.00	.00	.60	.48	1.3	.37	.47	.64	.73	.35
27	.02	.01	.00	.00	.52	.14	.62	.53	.40	.72	.68	.73
28	.02	.02	.00	.00	.54	.15	.61	.59	.43	.12	.71	.65
29	.02	.01	.00	.00	---	.17	.57	.51	.48	.03	.68	.77
30	.00	.01	.00	.00	---	.25	.47	.44	.52	.19	.68	1.2
31	.00	---	.00	.00	---	.27	---	.39	---	.76	.71	---
TOTAL	0.97	0.08	0.01	0.01	8.02	15.12	24.96	13.14	8.42	6.64	19.53	18.87
MEAN	.031	.003	.000	.000	.29	.49	.83	.42	.28	.21	.63	.63
MAX	.26	.02	.01	.01	.82	.73	3.2	.73	.65	.76	.73	1.2
MIN	.00	.00	.00	.00	.00	.14	.21	.19	.02	.00	.46	.22
AC-FT	1.9	.2	.02	.02	16	30	50	26	17	13	39	37

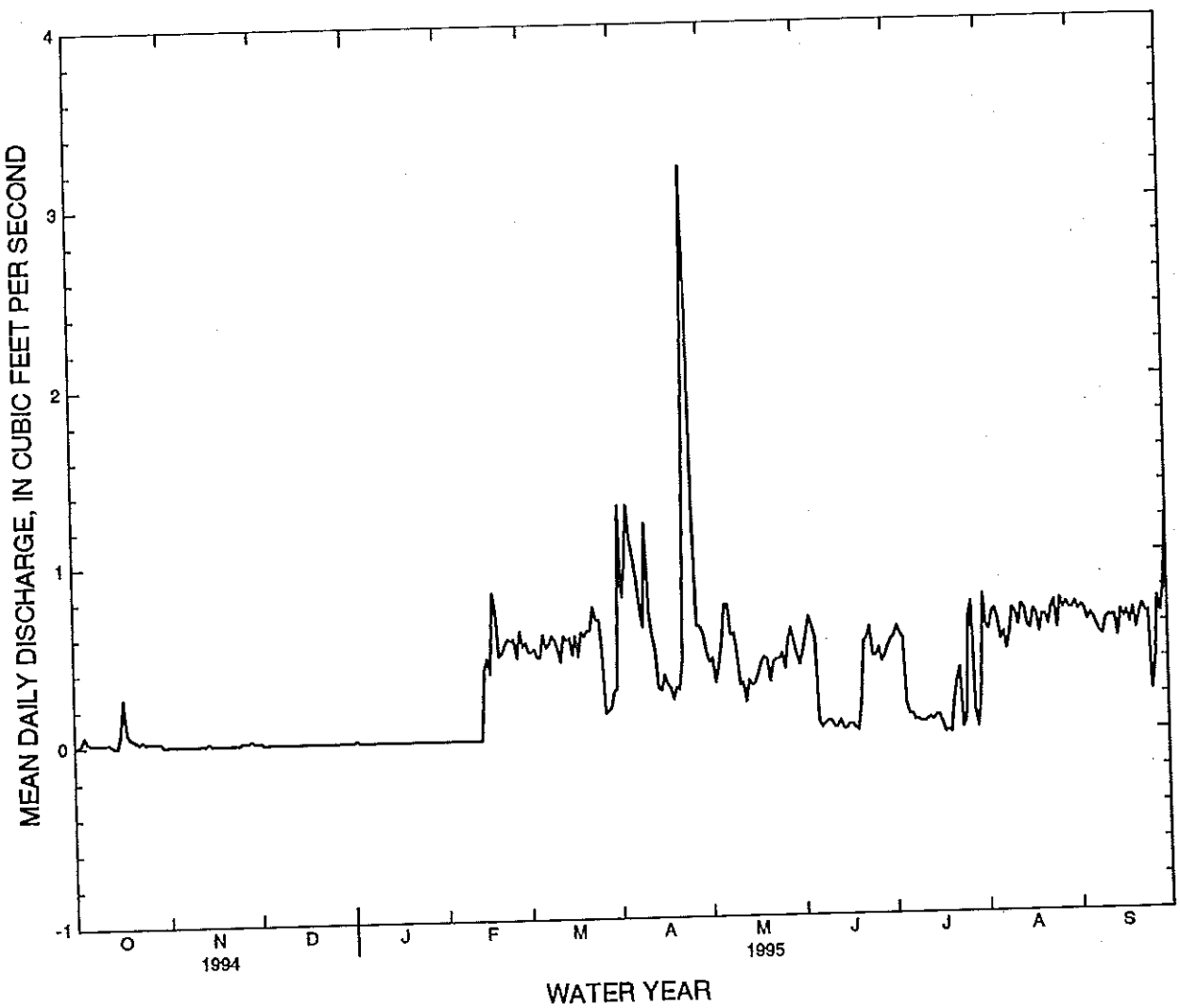
HAWAII, ISLAND OF KAUAI

16077000 MAKALEHA DITCH NEAR KEALIA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995, BY WATER YEAR (WY)

MEAN	7.90	4.97	3.40	3.40	4.32	4.54	5.29	6.33	8.26	8.85	8.66	8.24
MAX	13.7	11.8	10.1	9.48	12.7	13.0	15.7	17.1	16.8	17.1	16.4	14.0
(WY)	1984	1954	1939	1983	1961	1961	1960	1956	1956	1958	1955	1969
MIN	.031	.003	.000	.000	.013	.028	.027	.030	.009	.005	.000	.007
(WY)	1995	1995	1995	1995	1993	1992	1992	1992	1993	1994	1994	1993

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1937 - 1995		
ANNUAL TOTAL	12.00		115.77		6.22		
ANNUAL MEAN	.033		.32		10.0		1961
HIGHEST ANNUAL MEAN					.042		1994
LOWEST ANNUAL MEAN					31	Aug 1	1961
HIGHEST DAILY MEAN	1.8	Feb 16	3.2	Apr 24	.00	Jan 11	1958
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Dec 6	1959
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 9	.00	Oct 30	4500		
ANNUAL RUNOFF (AC-FT)	24		230		13		
10 PERCENT EXCEEDS	.07		.68		6.4		
50 PERCENT EXCEEDS	.01		.27		.11		
90 PERCENT EXCEEDS	.00		.00				



HAWAII, ISLAND OF KAUAI

16079000 KAPAHI DITCH NEAR KEALIA

LOCATION.--Lat 22°06'09", long 159°22'28", Hydrologic Unit 20070000, on right bank 500 ft downstream from intake, and 4.0 mi west of Kealia.

PERIOD OF RECORD.--April 1909 to February 1911, May 1911, July 1911 to May 1914, July 1915 to April 1917, June 1917 to current year. Published as "at Kapahi, near Kapaa" prior to January 1914 and as "at Kapahi, near Kealia" January to December 1913.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 377.1 ft above mean sea level (by stadia survey). Prior to Nov. 26, 1936, at site 61 ft upstream at datum 2.52 ft higher.

REMARKS.--Records good. Ditch diverts water from Kapaa Stream for irrigation of sugarcane in vicinity of Kapaa.

AVERAGE DISCHARGE.--77 years (water years 1918-20, 1922-95), 6.26 ft^3/s (4,540 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 138 ft^3/s, Feb. 6, 1913; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 23 ft^3/s, Feb. 17; minimum daily, 0.04 ft^3/s, July 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	7.3	11	1.6	8.2	8.5	15	4.8	8.6	12	5.1	.23
2	13	7.3	10	1.6	8.4	8.8	14	2.5	8.5	12	5.2	.19
3	15	7.3	9.6	1.6	8.5	8.5	15	2.3	8.5	14	5.0	.23
4	14	7.3	9.8	3.3	9.5	8.1	7.0	1.8	8.3	20	5.0	.23
5	13	7.3	11	6.4	9.9	7.9	5.0	1.4	8.4	14	4.9	.23
6	12	7.3	10	7.3	9.1	7.9	4.8	1.2	5.2	9.8	4.9	.29
7	13	7.4	11	8.8	8.6	7.9	4.5	1.1	12	5.5	4.7	.29
8	12	7.4	10	8.6	8.4	8.0	4.2	2.8	15	.40	4.7	.29
9	12	7.1	10	8.6	8.4	7.9	3.8	5.9	9.9	.20	4.9	.29
10	12	7.4	10	8.8	8.2	7.8	8.0	5.9	10	.13	2.5	.29
11	12	7.4	10	8.8	8.2	7.8	10	5.9	9.8	.12	1.4	.29
12	13	7.5	10	8.8	8.1	7.8	10	6.0	9.7	.10	1.2	.35
13	12	7.6	9.8	9.0	9.0	7.8	6.6	6.1	14	.09	.75	.29
14	12	7.8	10	10	13	7.8	4.3	6.1	15	.12	.58	.35
15	12	7.7	10	13	9.6	7.8	4.3	6.0	14	.12	.50	.35
16	13	7.5	9.8	12	9.0	7.7	4.1	8.1	14	.10	.50	.42
17	6.2	7.4	10	12	23	7.7	4.1	12	11	.06	.50	.35
18	1.7	7.4	9.6	11	14	7.6	4.3	10	9.6	.04	.42	4.6
19	1.0	7.4	8.4	11	10	7.6	4.2	9.6	9.3	.10	.50	9.2
20	4.0	7.3	7.7	10	9.5	7.6	4.4	9.2	11	.14	.75	9.5
21	8.4	7.2	7.5	9.8	9.7	9.1	4.4	12	10	.18	.66	10
22	8.4	7.1	7.5	10	10	14	4.7	15	17	.09	.58	5.2
23	8.3	7.0	5.8	9.6	8.7	21	4.5	13	20	.09	.58	2.1
24	8.1	6.5	3.3	9.2	5.6	10	9.0	8.7	13	.09	.50	1.9
25	7.9	6.3	3.2	9.0	3.5	8.5	15	8.4	10	.10	.35	1.6
26	7.8	6.2	3.2	9.6	3.4	12	13	8.2	10	.18	.35	1.4
27	7.6	5.8	2.9	9.0	6.6	21	13	8.2	14	.08	.29	1.2
28	7.5	7.3	2.6	8.8	8.8	16	8.6	8.0	14	2.3	.23	.97
29	7.5	10	2.0	8.4	---	12	6.8	8.3	10	5.0	.23	.73
30	7.4	10	1.6	7.9	---	11	6.7	8.5	8.8	4.8	.23	.45
31	7.4	---	1.6	7.9	---	9.7	---	8.4	---	5.2	.35	---
TOTAL	301.2	221.5	238.9	261.4	256.9	302.8	223.3	215.4	338.6	107.13	58.35	53.81
MEAN	9.72	7.38	7.71	8.43	9.17	9.77	7.44	6.95	11.3	3.46	1.88	1.79
MAX	15	10	11	13	23	21	15	15	20	20	5.2	10
MIN	1.0	5.8	1.6	1.6	3.4	7.6	3.8	1.1	5.2	.04	.23	.19
AC-FT	597	439	474	518	510	601	443	427	672	212	116	107

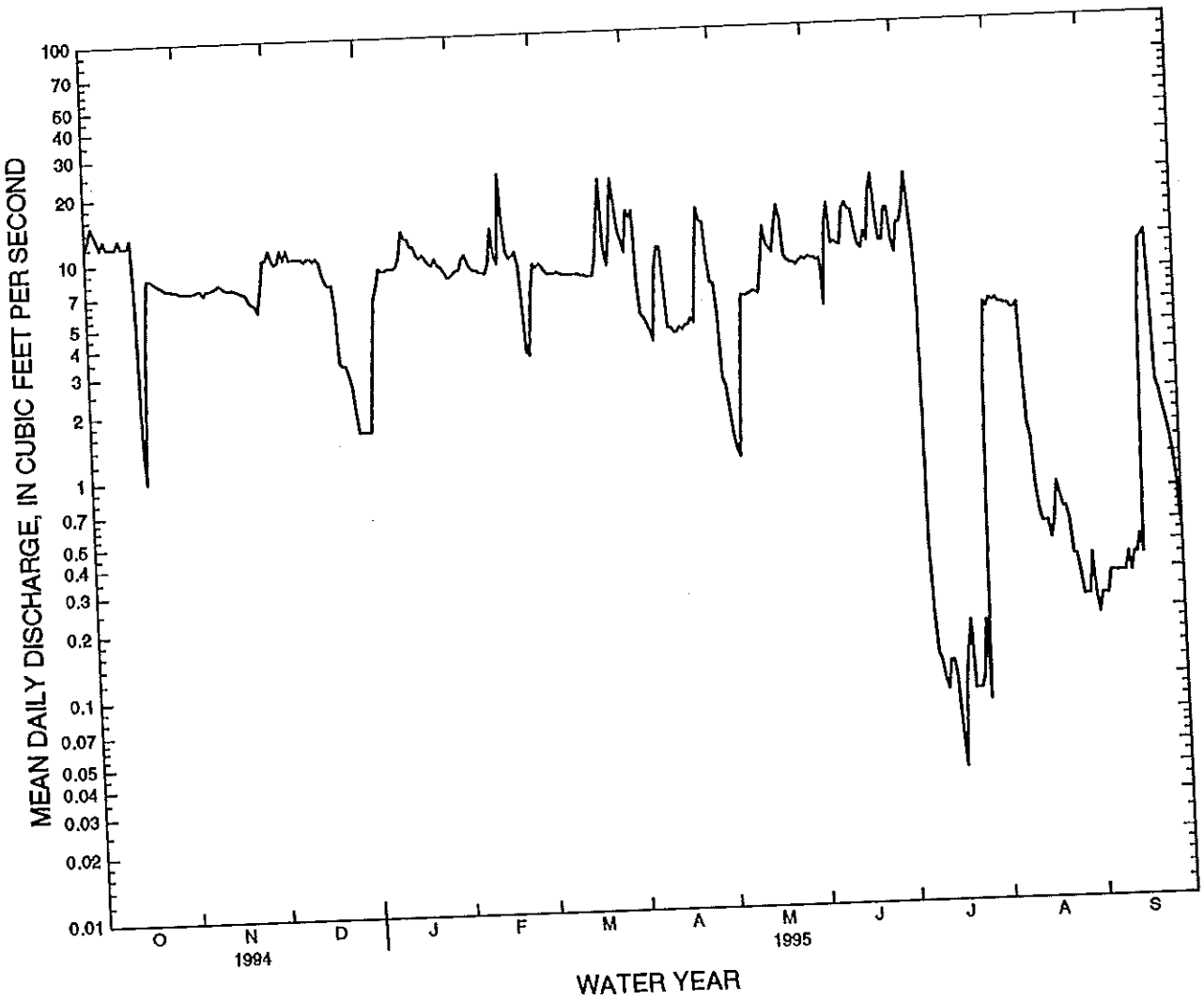
HAWAII, ISLAND OF KAUAI

16079000 KAPAHI DITCH NEAR KEALIA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1918 - 1995, BY WATER YEAR (WY)

MEAN	6.07	5.18	4.64	4.48	4.89	5.69	6.50	7.75	7.63	8.27	8.54	7.09
MAX	26.0	21.8	27.5	22.9	19.4	22.6	21.2	28.0	26.1	33.6	30.0	25.8
(WY)	1919	1919	1922	1918	1919	1919	1922	1918	1918	1918	1918	1920
MIN	.27	.044	.073	.012	.042	.22	.27	.32	1.57	1.66	1.88	.72
(WY)	1961	1952	1949	1943	1956	1968	1945	1965	1962	1987	1995	1946

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1918 - 1995	
ANNUAL TOTAL	3452.72		2579.29			
ANNUAL MEAN	9.46		7.07		6.26	
HIGHEST ANNUAL MEAN					21.0	1918
LOWEST ANNUAL MEAN					2.23	1965
HIGHEST DAILY MEAN	23	Feb 13	23	Feb 17	94	Oct 25 1926
LOWEST DAILY MEAN	.03	Feb 27	.04	Jul 18	.00	Jun 4 1922
ANNUAL SEVEN-DAY MINIMUM	.07	Feb 25	.09	Jul 12	.00	Nov 13 1925
ANNUAL RUNOFF (AC-FT)	6850		5120		4540	
10 PERCENT EXCEEDS	14		12		15	
50 PERCENT EXCEEDS	10		7.8		4.5	
90 PERCENT EXCEEDS	2.5		.35		.25	



HAWAII, ISLAND OF KAUAI

16088000 ANAHOLA DITCH ABOVE KANEHA RESERVOIR, NEAR KEALIA

LOCATION.--Lat 22°08′10", long 159°22′28", Hydrologic Unit 20070000, on left bank at point of discharge into Kaneha Reservoir, 500 ft below wasteway gates, and 4.8 mi northwest of Kealia.

PERIOD OF RECORD.--December 1921 to current year. Records for May 1915 to December 1921 at site 520 ft upstream not equivalent owing to intervening diversion.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 821.8 ft above mean sea level (Lihue Plantation bench mark). Dec. 9, 1921, to June 2, 1934, at site 480 ft upstream at different datum.

REMARKS.--Records good. Ditch diverts water from Anahola Stream to Kaneha Reservoir, where it is stored for irrigation. Flood sometimes diverted upstream by Anahola ditch wasteway (see sta. 16087000).

AVERAGE DISCHARGE.--71 years (water years, 1923-25, 1928-95), 4.25 ft^3/s (3,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 62 ft^3/s, Nov. 12, 1947; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 21 ft^3/s, Sep. 30; minimum daily, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.00	.01	.03	.08	.05	14	.10	.24	.59	.45	.78
2	.00	.00	.00	.03	.08	.08	3.0	.08	.24	.56	.43	.81
3	.07	.00	.00	.03	.09	.44	14	.08	.23	.65	.35	.77
4	.02	.00	.00	.04	.12	.75	6.0	.07	.55	1.3	1.8	.70
5	.01	.00	.02	.06	.08	.72	6.7	.11	1.0	.92	3.2	.64
6	.01	.00	.02	.04	.12	.72	6.2	.23	1.0	.58	2.8	.66
7	.04	.00	.03	.04	.14	.72	5.2	.01	1.1	.50	2.8	.64
8	.00	.00	.02	.04	.14	.72	3.6	.00	.98	.52	3.2	.64
9	.00	.00	.03	.02	.16	.82	3.3	.02	.87	.49	7.5	.64
10	.00	.00	.05	.02	.18	.71	4.7	.04	.81	.54	8.0	.59
11	.00	.00	.04	.02	.18	.69	3.5	.02	.81	.60	9.4	.52
12	.01	.02	.03	.02	.18	.64	4.5	.03	.77	.51	7.2	.55
13	.00	.02	.04	.02	.20	.69	3.8	.04	.80	.49	4.0	.49
14	.01	.01	.04	.04	.24	.64	.83	.04	.83	.59	11	.42
15	.02	.01	.04	.03	.18	.63	.87	.08	.76	.39	9.3	.49
16	.01	.01	.04	.02	.20	.58	.72	1.1	.79	.35	4.8	.37
17	.00	.00	.06	.02	.23	.56	.60	2.3	.72	.34	12	.10
18	.01	.02	.05	.03	.02	.56	.56	2.2	.70	.30	7.5	.07
19	.00	.00	.05	.04	.02	.56	.56	2.0	.67	.34	7.0	.06
20	.00	.00	.05	.02	.02	.55	.64	1.8	.69	.71	6.1	.05
21	.00	.02	.06	.02	.06	.60	.59	2.3	.64	.89	4.8	.09
22	.00	.02	.07	.02	.06	1.0	.81	8.4	1.1	.38	3.8	.05
23	.00	.02	.05	.02	.05	8.1	.66	3.0	1.4	.55	1.4	.11
24	.00	.02	.01	.04	.05	1.8	.55	2.2	.95	1.1	1.1	.10
25	.00	.00	.02	.05	.08	1.2	.21	1.9	.69	.87	.94	.07
26	.00	.02	.02	.04	.04	1.5	.12	1.8	1.1	1.1	.96	.05
27	.00	.00	.02	.10	.03	17	.09	1.4	1.1	.46	.81	5.5
28	.00	.00	.02	.16	.05	4.5	.19	.41	.67	.37	.91	4.1
29	.00	.00	.02	.13	---	1.9	.15	.41	.56	.48	.91	12
30	.00	.00	.02	.08	---	2.0	.06	.38	.54	.37	.81	21
31	.00	---	.02	.08	---	1.4	---	.26	---	.62	.81	---
TOTAL	0.22	0.19	0.95	1.35	3.08	52.83	86.71	32.81	23.31	18.46	126.08	53.06
MEAN	.007	.006	.031	.044	.11	1.70	2.89	1.06	.78	.60	4.07	1.77
MAX	.07	.02	.07	.16	.24	17	14	8.4	1.4	1.3	12	21
MIN	.00	.00	.00	.02	.02	.05	.06	.00	.23	.30	.35	.05
AC-FT	.4	.4	1.9	2.7	6.1	105	172	65	46	37	250	105

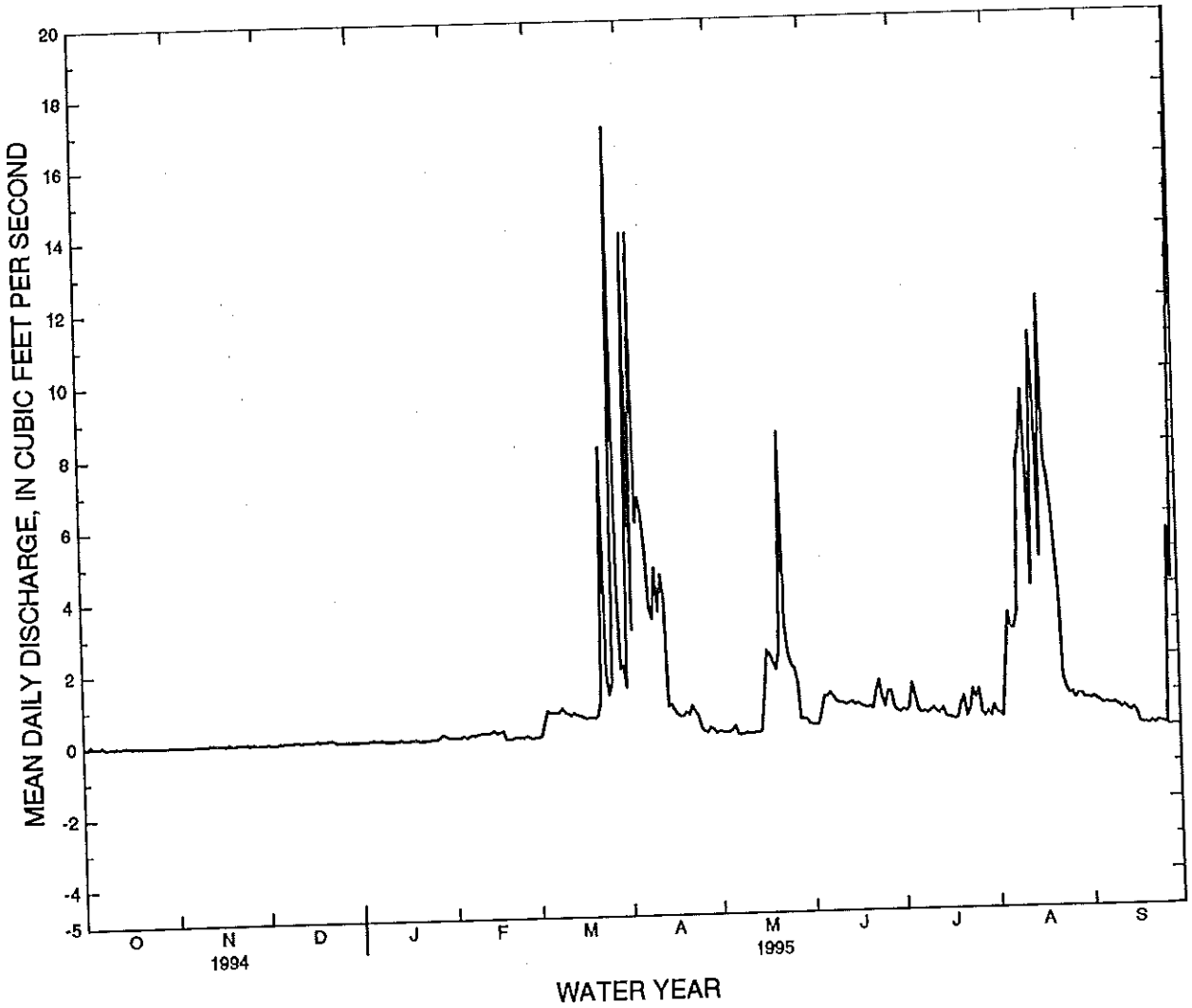
HAWAII, ISLAND OF KAUAI

16088000 ANAHOLA DITCH ABOVE KANEHA RESERVOIR, NEAR KEALIA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 1995, BY WATER YEAR (WY)

MEAN	4.59	3.41	2.17	2.31	3.24	3.63	4.69	4.90	4.85	6.32	5.56	4.92
MAX	12.1	9.93	7.96	10.8	16.1	11.1	12.5	11.1	11.5	11.4	11.8	10.0
(WY)	1987	1950	1987	1975	1989	1986	1986	1986	1952	1969	1951	1941
MIN	.007	.004	.002	.003	.004	.000	.001	.009	.000	.003	.005	.002
(WY)	1995	1992	1961	1933	1969	1993	1993	1993	1993	1993	1993	1991

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1922 - 1995	
ANNUAL TOTAL	55.39		399.05			
ANNUAL MEAN	.15		1.09		4.25	
HIGHEST ANNUAL MEAN					8.00	1987
LOWEST ANNUAL MEAN					.13	1992
HIGHEST DAILY MEAN	.85	Apr 19	21	Sep 30	62	Nov 12 1947
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 2	.00	Dec 11 1923
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 19	.00	Dec 15 1923
ANNUAL RUNOFF (AC-FT)	110		792		3080	
10 PERCENT EXCEEDS	.61		3.1		10	
50 PERCENT EXCEEDS	.05		.23		2.9	
90 PERCENT EXCEEDS	.00		.00		.02	



HAWAII, ISLAND OF KAUAI

16091000 LOWER ANAHOLA DITCH NEAR KEALIA

LOCATION.--Lat 22°08′14", long 159°19′31", Hydrologic Unit 20070000, on left bank 100 ft downstream from last wasteway, 1.5 mi southwest of mouth of Anahola Stream, and 2.8 mi northwest of Kealia.

PERIOD OF RECORD.--December 1936 to September 1983, October 1984 to September 1995 (discontinued).

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 276.11 ft above mean sea level (Highway Department bench mark).

REMARKS.--Records good. Ditch diverts water from Anahola Stream for irrigation of sugarcane in vicinity of Anahola.

AVERAGE DISCHARGE.--57 years (water years 1938-83, 1986-95), 2.35 ft^3/s (1,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18.6 ft^3/s, June 1, 1938; no flow at times.

EXTREMES FOR CURRENT YEAR.--No flow for the entire year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	e.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	e.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	e.00	.00	e.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	e.00	.00	e.00	.00	.00
31	.00	---	.00	.00	---	.00	---	e.00	---	e.00	.00	---
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

e Estimated

16091000 LOWER ANAHOLA DITCH NEAR KEALIA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1995, BY WATER YEAR (WY)

MEAN	2.73	1.79	1.20	1.29	1.98	1.70	2.13	2.65	3.16	3.29	3.17	3.27
MAX	7.48	7.72	7.46	5.39	8.12	7.38	8.51	10.9	10.0	9.58	7.55	9.16
(WY)	1955	1955	1975	1973	1975	1947	1954	1938	1937	1947	1943	1940
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1983	1952	1940	1937	1937	1937	1956	1983	1983	1983	1982	1982

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1937 - 1995		
ANNUAL MEAN					2.35		
HIGHEST ANNUAL MEAN					6.06		1947
LOWEST ANNUAL MEAN					.000		1983
HIGHEST DAILY MEAN					19	Jun 1	1938
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Jan 1	1937
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Jan 1	1937
ANNUAL RUNOFF (AC-FT)					1700		
10 PERCENT EXCEEDS	.00		.00		7.0		
50 PERCENT EXCEEDS	.00		.00		.08		
90 PERCENT EXCEEDS	.00		.00		.00		

16097500 HALAULANI STREAM AT ALTITUDE 400 FT, NEAR KILAUEA

LOCATION.--Lat 22°10′54″, long 159°25′17″, Hydrologic Unit 20070000, on left bank 0.5 mi upstream from confuence with Pohakuhono Stream, and 2.3 mi south of Kilauea.

DRAINAGE AREA.-- 1.19 mi^2, revised. (Drainage area of 1.9 mi^2 published in the data report for water years 1977-94 was in error; the correct figure is 1.19 mi^2.)

PERIOD OF RECORD.--November 1957 to current year.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 391.8 ft above mean sea level (by stadia survey).

REMARKS.--Records good, except for estimated days which are poor.

AVERAGE DISCHARGE.-- 37 years (water years 1959-95), 12.0 ft^3/s (8,670 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,140 ft^3/s, Feb. 13, 1994, gage height, 9.76 ft; minimum, 1.8 ft^3/s, Sep. 6-8, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 580 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep. 30	0600	*159	*2.73	No peak greater than base discharge.			

Minimum discharge, 3.8 ft^3/s, Mar. 25, 26, 30, 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	6.2	9.1	6.3	4.7	4.2	7.3	7.3	5.5	5.1	8.0	6.9
2	6.7	6.1	7.3	6.3	4.5	4.3	4.1	6.7	4.8	5.0	7.2	7.2
3	22	6.0	6.8	6.2	4.5	4.2	e20	6.4	4.9	5.5	6.6	6.8
4	14	6.3	6.7	5.8	5.9	4.1	e17	6.0	4.3	16	6.3	6.4
5	8.0	6.4	8.5	5.8	5.0	4.1	e44	6.0	4.5	14	5.9	6.1
6	7.5	6.1	7.8	5.4	4.6	4.1	e28	18	4.5	7.6	5.5	6.1
7	11	6.9	9.3	5.3	4.5	4.1	e16	7.1	6.2	6.3	5.8	5.8
8	7.5	7.2	9.4	5.3	4.5	4.0	e7.3	6.3	6.5	5.7	6.2	5.5
9	7.3	6.1	9.1	5.3	4.5	4.2	e6.9	5.9	5.6	5.5	7.9	5.3
10	8.0	6.3	13	5.2	4.4	4.1	e11	5.4	4.8	6.8	6.7	5.3
11	8.0	6.3	8.8	5.3	4.3	4.0	7.3	5.3	4.5	7.1	8.2	5.2
12	16	7.1	7.8	5.2	4.3	4.0	8.4	5.5	4.4	7.8	8.7	5.2
13	8.7	11	7.3	5.2	4.3	4.1	12	5.4	4.8	7.4	7.2	5.0
14	7.6	21	8.3	7.4	4.8	4.0	8.1	5.2	5.0	7.9	14	4.9
15	7.1	19	8.9	13	4.4	4.0	12	5.4	4.8	7.1	10	14
16	20	15	7.9	6.9	4.3	4.0	9.6	5.2	4.9	5.9	7.7	46
17	14	9.8	8.9	6.3	e15	3.9	7.5	5.1	4.4	5.5	11	9.8
18	28	20	7.8	5.7	e7.0	3.9	7.0	4.8	4.2	5.3	12	7.5
19	17	10	6.9	5.5	e5.0	3.9	6.5	4.6	4.3	5.3	9.2	6.9
20	10	8.9	6.6	5.2	e4.7	3.9	9.4	4.4	4.3	7.4	9.5	6.4
21	9.3	8.1	6.7	5.2	e4.6	4.2	8.8	4.6	4.4	13	8.3	6.9
22	10	7.7	7.0	5.0	e4.6	4.4	46	4.8	6.4	7.5	8.6	6.1
23	8.3	8.7	24	5.0	e4.5	5.3	38	4.5	12	6.9	16	7.4
24	7.9	7.3	13	5.2	e4.5	4.0	26	4.2	5.6	12	10	6.9
25	7.5	7.1	8.4	5.0	4.4	3.8	14	4.1	7.5	18	8.7	6.0
26	7.2	11	8.1	4.8	4.3	3.9	11	4.1	12	38	8.3	6.0
27	7.1	7.8	7.3	4.7	4.3	5.6	8.5	4.1	9.5	12	7.2	6.9
28	6.8	7.5	6.7	4.5	4.3	4.7	10	4.0	6.4	8.9	8.8	6.8
29	6.8	7.5	6.5	4.5	---	4.0	13	4.2	5.5	8.6	8.7	12
30	6.4	6.8	6.3	4.5	---	3.8	8.3	4.8	5.2	7.5	7.7	50
31	6.3	---	6.4	4.5	---	3.9	---	4.8	---	9.3	7.4	---
TOTAL	318.9	271.2	266.6	175.5	140.7	128.7	433.0	174.2	171.7	285.9	263.3	287.3
MEAN	10.3	9.04	8.60	5.66	5.02	4.15	14.4	5.62	5.72	9.22	8.49	9.58
MAX	28	21	24	13	15	5.6	46	18	12	38	16	50
MIN	6.3	6.0	6.3	4.5	4.3	3.8	4.1	4.0	4.2	5.0	5.5	4.9
AC-FT	633	538	529	348	279	255	859	346	341	567	522	570

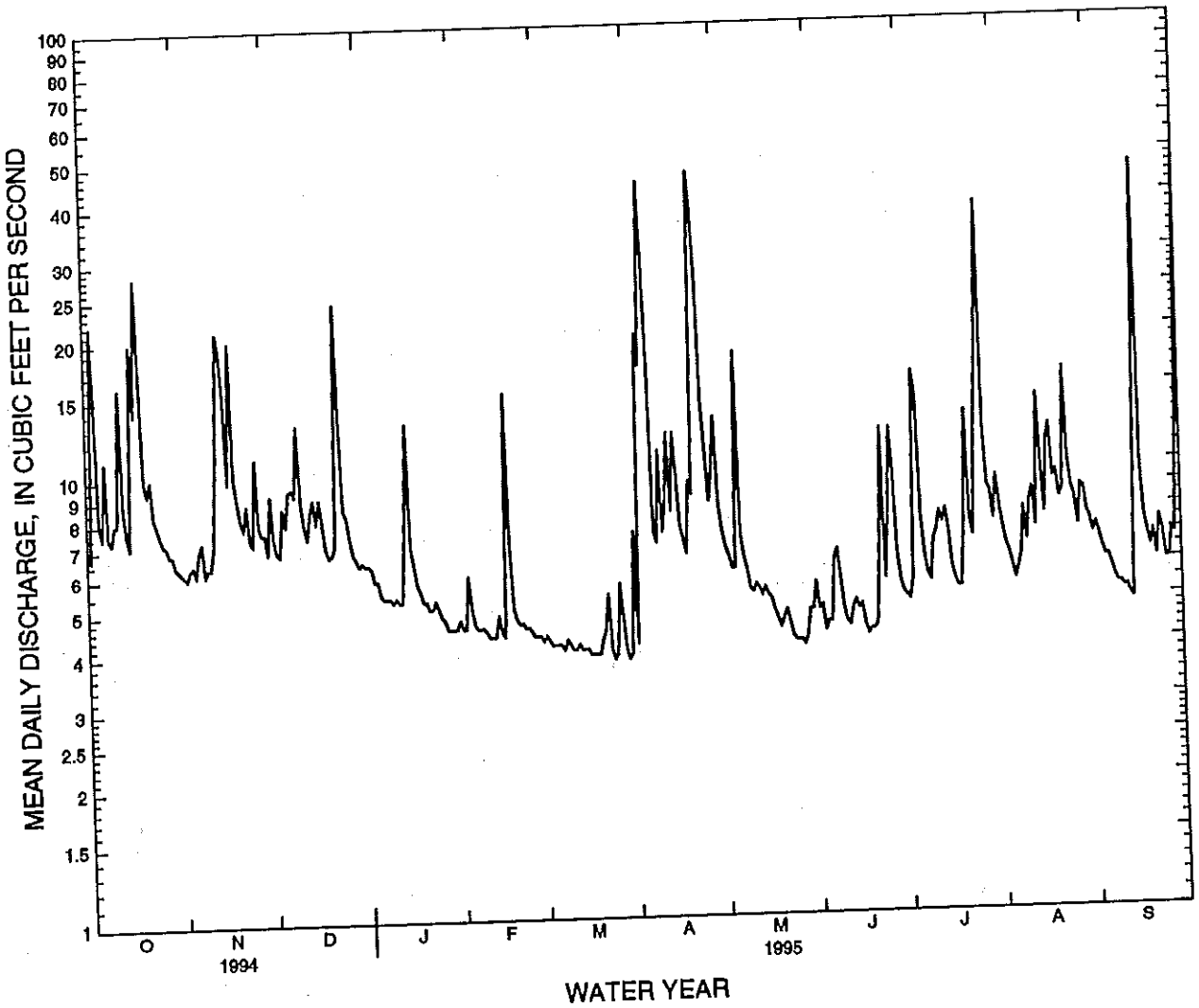
e Estimated

16097500 HALAULANI STREAM AT ALTITUDE 400 FT, NEAR KILAUEA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1995, BY WATER YEAR (WY)

MEAN	10.4	16.1	14.2	11.4	11.7	13.9	15.1	12.0	8.54	11.5	10.5	8.31
MAX	24.6	42.4	43.1	28.4	54.8	42.7	35.1	22.5	29.1	27.1	23.7	15.7
(WY)	1983	1991	1988	1989	1994	1982	1971	1965	1978	1989	1991	1994
MIN	4.40	5.73	3.79	3.45	3.20	4.15	5.06	5.62	4.27	5.05	3.95	3.93
(WY)	1985	1977	1986	1986	1986	1995	1992	1995	1959	1975	1973	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1958 - 1995	
ANNUAL TOTAL	4797.3		2917.0			
ANNUAL MEAN	13.1		7.99		12.0	
HIGHEST ANNUAL MEAN					19.6	1982
LOWEST ANNUAL MEAN					7.01	1984
HIGHEST DAILY MEAN	879	Feb 13	50	Sep 30	879	Feb 13 1994
LOWEST DAILY MEAN	5.1	Aug 18	3.8	Mar 25	1.9	Sep 5 1968
ANNUAL SEVEN-DAY MINIMUM	5.3	Aug 14	3.9	Mar 14	2.4	Sep 2 1968
ANNUAL RUNOFF (AC-FT)	9520		5790		8670	
10 PERCENT EXCEEDS	19		13		21	
50 PERCENT EXCEEDS	7.5		6.5		7.5	
90 PERCENT EXCEEDS	5.7		4.3		4.6	



16103000 HANALEI RIVER NEAR HANALEI

LOCATION.--Lat 22°11'31", long 159°27'57", Hydrologic Unit 20070000, on right bank 2.6 mi southeast of Hanalei School, and 4.9 mi upstream from mouth.

DRAINAGE AREA.--19.1 mi^2.

PERIOD OF RECORD.--January 1912 to November 1919, water years 1962-63 (annual maximum), December 1962 to current year.

REVISED RECORDS.--WSP 1937: Drainage area. WSP 2137: 1962(M), 1963-65(P). WDR HI-77-1: 1970-76(M), 1975-76.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 35.8 ft above mean sea level (by stadia survey). Jan. 1, 1912, to Nov. 20, 1919, nonrecording gage at site 0.2 mi upstream at different datum. Jan. 26 to Dec. 26, 1962, crest-stage gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Since 1925, Hanalei tunnel (sta. 16100000) has diverted water from Hanalei River and its tributary Kaapoko Stream upstream of the station to North Branch of North Fork Wailua River for irrigation. China ditch diverts water upstream of station for irrigation of taro in vicinity of Hanalei.

AVERAGE DISCHARGE (since diversion to Hanalei tunnel).--32 years (water years 1964-95), 214 ft^3/s (154,700) acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft^3/s, Sep. 30, 1995, gage height, 14.66 ft, from rating curve extended above 9,600 ft^3/s; minimum, 31 ft^3/s, Sept. 30, Oct. 1, 2, 5, 12, 13, Nov. 3, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep. 30	1730	*26,600	*14.66

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No other peak greater than base discharge.			

Minimum discharge, 60 ft^3/s, May 28, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	123	333	119	e84	78	112	109	84	60	166	123
2	201	123	202	117	e82	134	157	100	72	59	152	165
3	693	174	170	114	e82	87	852	93	85	64	124	137
4	239	180	168	112	e90	76	482	88	90	207	118	115
5	162	168	232	151	e110	74	524	88	89	189	139	126
6	157	168	221	113	e94	74	348	165	94	79	108	114
7	274	474	426	109	e86	74	264	92	145	68	112	103
8	146	269	268	109	e80	74	162	83	136	64	116	100
9	138	159	224	107	e76	74	163	78	94	67	213	97
10	136	190	284	105	e85	72	278	75	83	119	176	94
11	172	156	241	105	69	71	139	87	79	152	232	93
12	312	233	191	108	68	71	300	135	78	165	205	90
13	414	221	171	103	73	73	460	94	98	113	150	90
14	168	391	189	139	93	71	223	84	110	175	330	90
15	143	584	192	284	74	70	259	113	104	134	230	122
16	426	1160	159	139	69	70	227	93	126	88	150	276
17	896	1370	184	117	793	69	149	80	88	78	322	126
18	1520	910	150	108	146	68	160	74	83	74	188	102
19	710	620	136	105	100	68	166	70	91	75	163	112
20	383	339	131	e103	90	67	214	68	86	313	151	106
21	322	255	126	e100	87	69	216	69	65	482	136	109
22	270	212	133	e96	87	85	1060	75	74	172	145	100
23	196	314	698	e95	83	167	621	67	79	298	663	110
24	174	214	334	e95	82	78	513	66	67	569	543	115
25	157	219	172	e95	80	72	286	64	62	454	216	109
26	146	485	162	e130	80	93	203	62	63	994	199	102
27	140	275	142	e120	78	364	172	62	63	264	151	131
28	135	230	134	e110	81	245	263	60	68	183	149	114
29	194	395	143	e120	---	105	161	67	61	178	147	311
30	135	209	127	e100	---	96	125	86	58	143	131	2800
31	125	---	121	e88	---	84	---	77	---	256	150	---
TOTAL	9418	10820	6564	3616	3102	2973	9259	2624	2575	6336	6175	6382
MEAN	304	361	212	117	111	95.9	309	84.6	85.8	204	199	213
MAX	1520	1370	698	284	793	364	1060	165	145	994	663	2800
MIN	125	123	121	88	68	67	112	60	58	59	108	90
AC-FT	18680	21460	13020	7170	6150	5900	18370	5200	5110	12570	12250	12660

e Estimated

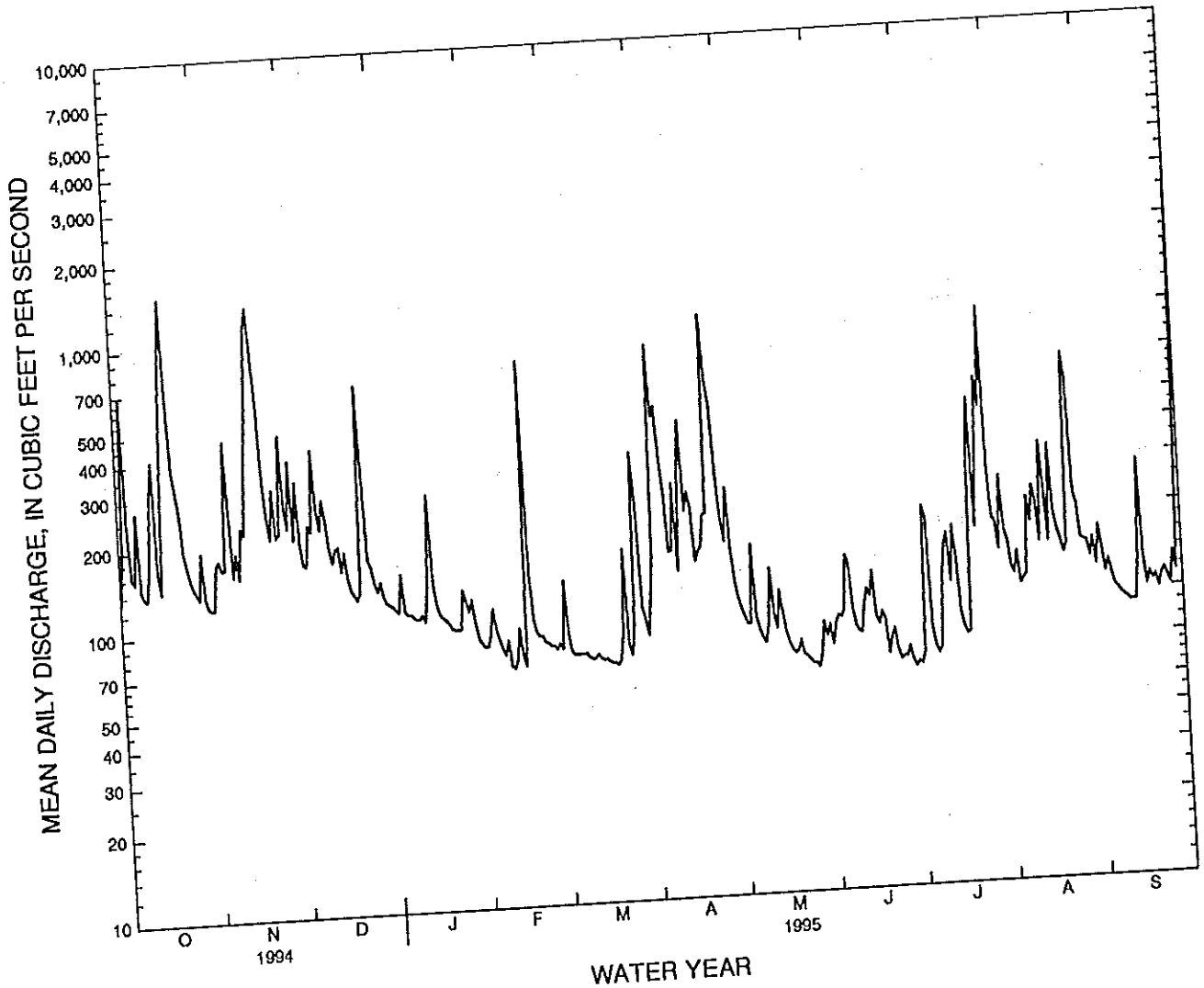
HAWAII, ISLAND OF KAUAI

16103000 HANALEI RIVER NEAR HANALEI--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

MEAN	178	304	247	215	225	276	294	214	141	185	159	139
MAX	466	793	596	614	616	1096	781	626	567	418	413	523
(WY)	1983	1991	1968	1989	1989	1982	1974	1967	1978	1989	1982	1994
MIN	44.0	72.8	59.6	49.5	42.8	56.4	76.3	73.5	57.5	62.6	42.1	35.7
(WY)	1985	1964	1984	1986	1978	1970	1966	1984	1975	1984	1973	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1962 - 1995	
ANNUAL TOTAL	93589		69844			
ANNUAL MEAN	256		191		214	
HIGHEST ANNUAL MEAN					408	1982
LOWEST ANNUAL MEAN					92.7	1984
HIGHEST DAILY MEAN	2520	Sep 4	2800	Sep 30	8340	May 22 1967
LOWEST DAILY MEAN	86	Jan 11	58	Jun 30	31	Nov 3 1975
ANNUAL SEVEN-DAY MINIMUM	89	Mar 4	62	Jun 26	33	Sep 19 1975
ANNUAL RUNOFF (AC-FT)	185600		138500		154700	
10 PERCENT EXCEEDS	478		336		419	
50 PERCENT EXCEEDS	162		126		118	
90 PERCENT EXCEEDS	97		71		58	



HAWAII, ISLAND OF KAUAI

16108000 WAINIHA RIVER NEAR HANALEI

LOCATION.--Lat 22°08'20", long 159°33'38", Hydrologic Unit 20070000, on left bank at Puwainui Falls, 1.5 mi upstream from Wainiha power plant intake, and 6.0 mi southwest of Hanalei.

DRAINAGE AREA.--10.2 mi^2.

PERIOD OF RECORD.--August 1952 to February 1956, October 1957 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 960 ft above mean sea level, from topographic map.

REMARKS.--Records good, except for periods above 120 cfs which are fair. No diversion upstream.

AVERAGE DISCHARGE.--40 years (water years 1953-55, 1959-95), 139 ft^3/s (100,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,100 ft^3/s, Apr. 19, 1974, gage height, 9.47 ft, from rating curve extended above 1,100 ft^3/s on basis of slope-area measurement at gage height 7.72 ft; minimum, 32 ft^3/s, Oct. 21-23, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 17, 1956, which destroyed the station, reached a stage of 14.1 ft, from floodmarks, discharge, about 40,000 ft^3/s, from unit-discharge study.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,600 ft^3/s: and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 18	1600	3,880	5.33	Sep. 30	1700	*3,900	5.34

Minimum discharge, 50 ft^3/s, June 30, July 1

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	69	325	67	62	63	66	73	100	74	110	69
2	266	76	133	66	60	151	83	68	79	61	97	115
3	776	133	94	65	59	69	381	65	113	73	68	77
4	174	163	103	64	68	60	261	63	89	220	69	64
5	87	114	170	76	131	61	266	80	113	131	154	60
6	116	135	155	67	100	58	171	87	103	65	63	61
7	173	414	366	60	67	56	161	67	138	59	91	57
8	79	139	199	64	62	56	86	62	116	56	85	56
9	82	88	168	63	60	55	73	60	81	83	177	55
10	105	167	230	62	68	55	106	59	67	183	172	54
11	206	113	181	65	60	54	74	124	63	187	176	54
12	242	158	163	69	58	54	245	185	63	163	142	54
13	458	131	118	63	150	54	267	87	118	111	97	53
14	100	222	154	131	112	53	183	82	103	196	195	53
15	79	342	145	229	67	53	206	129	102	116	144	53
16	102	1390	93	95	64	53	165	85	97	71	80	58
17	366	1580	128	74	953	53	92	78	66	63	332	54
18	1200	995	90	67	128	52	215	63	61	59	104	53
19	501	432	77	63	73	52	178	60	76	58	127	58
20	262	192	72	62	69	52	141	59	83	306	94	59
21	172	170	70	61	65	72	136	62	70	415	84	68
22	133	120	76	60	64	113	492	67	70	115	125	59
23	85	215	587	60	62	121	285	61	62	217	1040	74
24	76	155	196	60	59	57	175	61	58	321	593	88
25	71	163	97	59	57	53	115	59	57	288	126	86
26	69	581	81	79	57	70	98	58	56	885	124	66
27	73	189	75	146	60	261	96	57	56	118	81	120
28	73	133	71	108	78	196	157	57	62	88	86	83
29	137	279	88	130	---	84	95	90	58	119	91	226
30	68	100	72	81	---	74	82	94	55	79	78	1220
31	70	---	68	65	---	63	---	92	---	230	92	---
TOTAL	6474	9158	4645	2481	2973	2378	5151	2394	2435	5210	5097	3307
MEAN	209	305	150	80.0	106	76.7	172	77.2	81.2	168	164	110
MAX	1200	1580	587	229	953	261	492	185	138	885	1040	1220
MIN	68	69	68	59	57	52	66	57	55	56	63	53
AC-FT	12840	18160	9210	4920	5900	4720	10220	4750	4830	10330	10110	6560

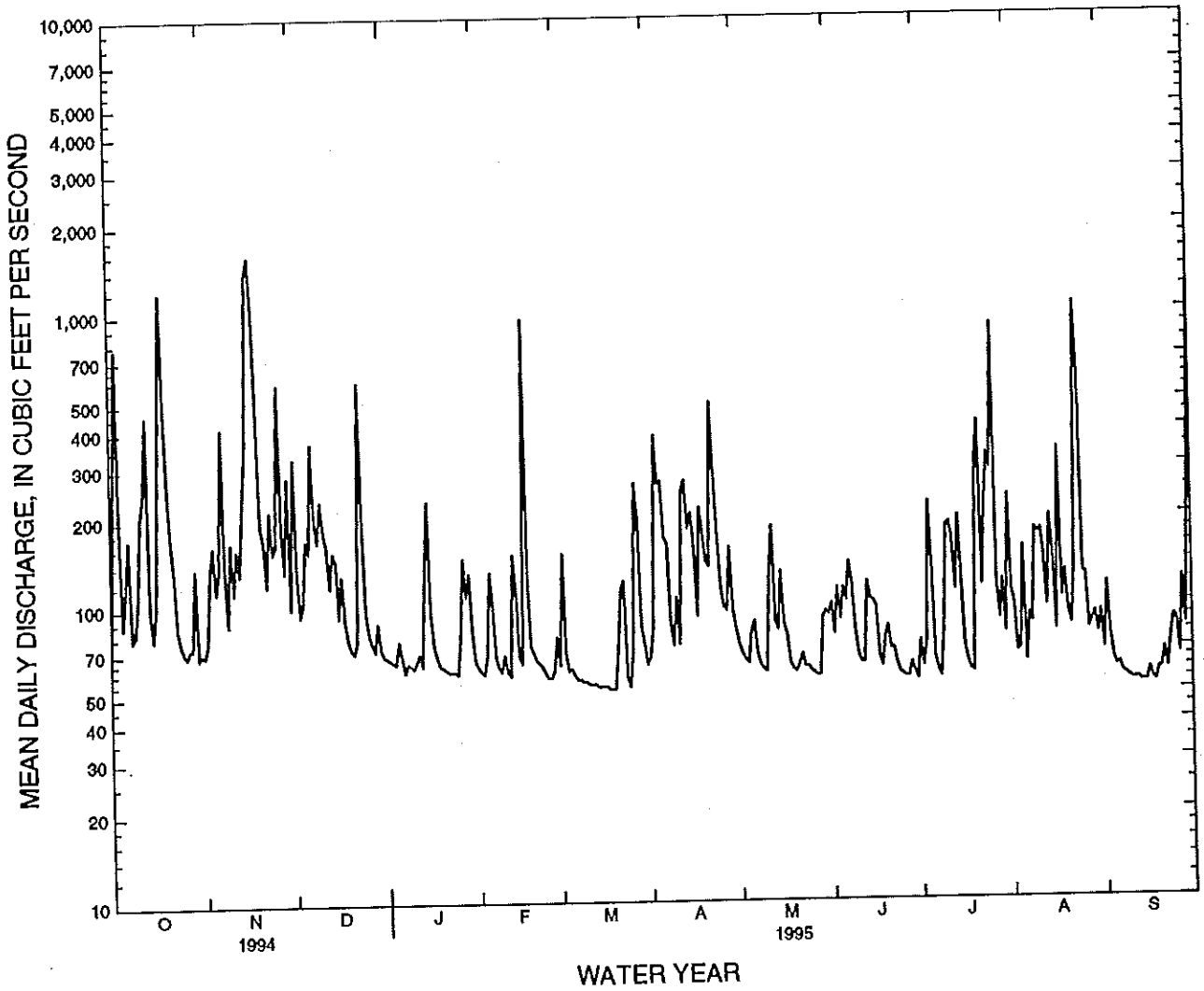
HAWAII, ISLAND OF KAUAI

16108000 WAINIHA RIVER NEAR HANALEI--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1995, BY WATER YEAR (WY)

MEAN	113	187	168	143	143	172	176	123	99.1	132	116	94.9
MAX	228	414	384	371	492	611	504	238	187	315	272	249
(WY)	1983	1991	1968	1989	1969	1982	1971	1967	1978	1989	1982	1994
MIN	42.8	72.7	54.1	44.6	36.5	52.2	52.8	51.9	53.1	50.4	54.6	42.3
(WY)	1985	1964	1984	1986	1978	1970	1992	1966	1993	1984	1965	1965

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1952 - 1995	
ANNUAL TOTAL	57831		51703			
ANNUAL MEAN	158		142		139	
HIGHEST ANNUAL MEAN					243	1982
LOWEST ANNUAL MEAN					84.7	1984
HIGHEST DAILY MEAN	1580	Nov 17	1580	Nov 17	3650	Nov 21 1974
LOWEST DAILY MEAN	44	Jan 11	52	Mar 18	31	Sep 29 1965
ANNUAL SEVEN-DAY MINIMUM	46	Mar 4	53	Mar 14	33	Sep 24 1965
ANNUAL RUNOFF (AC-FT)	114700		102600		100400	
10 PERCENT EXCEEDS	323		243		264	
50 PERCENT EXCEEDS	93		84		78	
90 PERCENT EXCEEDS	53		58		48	



HAWAII, ISLAND OF KAUAI

16114000 LIMAHULI STREAM NEAR WAINIHA

LOCATION.--Lat 22°13'15", long 159°34'48", Hydrologic Unit 20070000, on left bank 0.2 mi upstream from intersection with Kuhio highway, and entrance to Haena State Park.

DRAINAGE AREA.--1.36 mi^2.

PERIOD OF RECORD.--October 1994 to September 1995.

GAGE.--Water-stage recorders and natural control. Elevation of gage is 160 ft above mean sea level, by altimeter.

REMARKS.--Records poor. No diversion upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 157 ft^3/s, Aug. 23, 1995, gage height, 3.10 ft; minimum, 3.5 ft^3/s, June 30, July 1, 2, 1995.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Aug. 23	1930	*157	*3.10

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No other peak greater than base discharge.			

Minimum discharge, 3.5 ft^3/s, June 30, July 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.8	e4.8	6.9	6.9	4.7	5.7	5.0	6.3	8.4	3.7	8.3	7.7
2	e8.0	e4.7	6.2	6.9	4.6	7.3	7.4	5.7	5.7	3.7	7.6	8.0
3	e14	e5.0	5.8	6.7	4.6	8.8	31	5.6	6.3	4.5	6.9	7.3
4	e8.8	e5.3	5.6	6.5	6.4	6.9	21	5.2	5.9	8.8	6.6	6.7
5	e5.8	e5.2	6.1	7.2	5.3	6.3	27	11	5.2	9.3	6.0	6.9
6	e5.3	e6.0	5.9	6.7	5.2	6.1	13	29	5.2	6.3	5.7	6.3
7	e6.5	e8.8	8.9	6.2	4.7	5.7	13	13	8.0	5.7	5.7	5.9
8	e5.4	e7.0	9.0	6.0	4.7	5.5	8.4	11	7.7	5.4	5.2	5.4
9	e5.2	e5.0	7.3	5.9	5.0	5.5	12	9.3	6.7	5.2	11	5.4
10	e5.0	e5.8	8.5	5.7	11	5.3	11	8.6	5.4	8.4	7.5	5.0
11	e5.2	e5.2	9.5	5.6	6.6	5.1	7.7	8.9	5.0	8.2	7.5	4.9
12	e5.5	e6.0	7.6	10	6.0	5.4	6.9	8.9	4.9	7.5	6.5	4.9
13	e8.4	e6.9	6.8	7.0	6.3	5.3	5.9	7.9	5.0	6.3	5.7	4.6
14	e6.0	e6.6	7.2	7.4	7.8	5.0	5.9	7.5	5.7	6.1	10	4.6
15	e5.4	e7.8	7.3	8.5	6.1	4.9	7.6	7.7	6.7	6.7	8.9	6.1
16	e9.0	e9.0	6.6	7.2	5.7	4.8	8.0	7.5	5.4	5.9	7.1	18
17	e16	e35	7.5	6.6	12	4.7	6.3	7.1	5.4	4.6	20	8.6
18	e35	e15	7.1	6.2	8.2	4.7	8.2	6.7	4.6	4.0	17	6.7
19	e22	9.8	6.1	5.8	7.0	4.7	10	6.3	4.6	4.4	11	6.9
20	e12	7.7	5.7	5.6	6.4	4.9	7.1	6.3	4.6	7.1	9.5	6.1
21	e8.6	6.9	5.5	5.5	6.6	5.0	8.0	6.3	4.2	11	8.4	5.7
22	e7.8	6.6	5.2	5.2	6.5	5.2	34	6.1	4.1	7.1	8.0	5.2
23	e7.2	6.6	12	5.0	6.1	5.0	22	5.7	3.9	9.6	34	5.4
24	e6.3	6.2	11	4.8	5.8	4.9	14	5.4	3.9	19	19	5.4
25	e5.8	6.0	8.4	4.7	5.6	5.0	10	5.4	3.8	22	11	5.4
26	e5.6	6.6	8.5	4.6	5.4	5.2	8.9	5.0	4.1	32	9.3	5.9
27	e5.4	6.2	7.8	4.4	5.3	6.5	10	4.7	3.9	13	8.0	7.1
28	e5.0	6.0	7.2	4.4	5.9	7.7	11	4.6	3.9	9.8	8.2	7.5
29	e5.6	6.0	8.2	4.5	---	6.1	8.4	4.9	3.9	8.8	8.9	11
30	e5.4	6.0	7.9	4.7	---	5.9	7.4	5.6	3.8	8.1	8.4	38
31	e4.9	---	7.1	4.7	---	5.4	---	6.7	---	8.6	8.0	---
TOTAL	261.9	229.7	230.4	187.1	175.5	174.5	356.1	239.9	155.9	270.8	304.9	232.6
MEAN	8.45	7.66	7.43	6.04	6.27	5.63	11.9	7.74	5.20	8.74	9.84	7.75
MAX	35	35	12	10	12	8.8	34	29	8.4	32	34	38
MIN	4.9	4.7	5.2	4.4	4.6	4.7	5.0	4.6	3.8	3.7	5.2	4.6
AC-FT	519	456	457	371	348	346	706	476	309	537	605	461

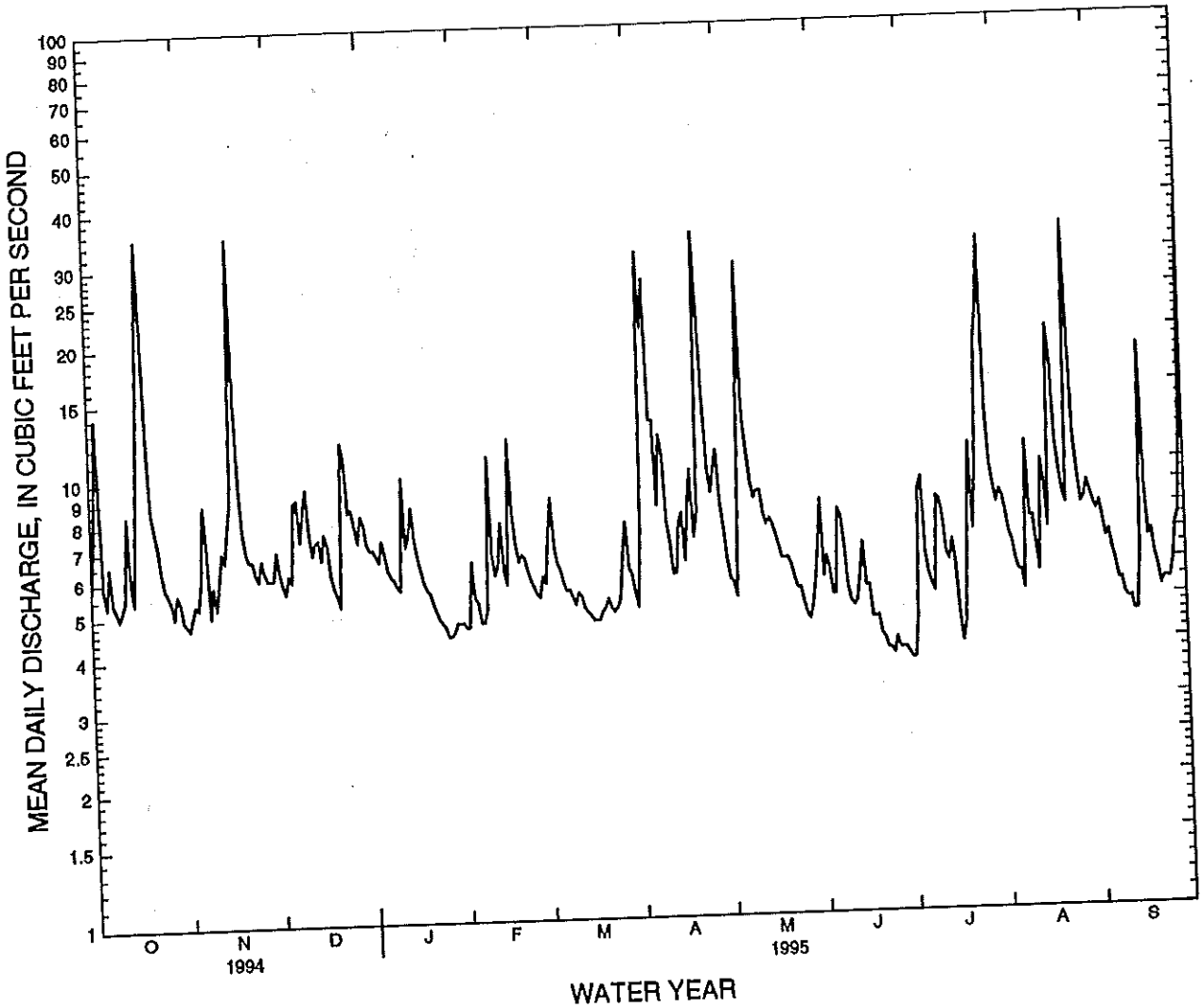
e Estimated

16114000 LIMAHULI STREAM NEAR WAINIHA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1995, BY WATER YEAR (WY)

MEAN	8.45	7.66	7.43	6.04	6.27	5.63	11.9	7.74	5.20	8.74	9.84	7.75
MAX	8.45	7.66	7.43	6.04	6.27	5.63	11.9	7.74	5.20	8.74	9.84	7.75
(WY)	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995
MIN	8.45	7.66	7.43	6.04	6.27	5.63	11.9	7.74	5.20	8.74	9.84	7.75
(WY)	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995

SUMMARY STATISTICS	FOR 1995 WATER YEAR	
ANNUAL TOTAL	2819.3	
ANNUAL MEAN	7.72	
HIGHEST DAILY MEAN	38	Sep 30
LOWEST DAILY MEAN	3.7	Jul 1
ANNUAL SEVEN-DAY MINIMUM	3.9	Jun 26
ANNUAL RUNOFF (AC-FT)	5590	
10 PERCENT EXCEEDS	11	
50 PERCENT EXCEEDS	6.3	
90 PERCENT EXCEEDS	4.7	



16208000 SOUTH FORK KAUKONAHUA STREAM AT EAST PUMP RESERVOIR, NEAR WAHIAWA

LOCATION.--Lat 21°29′32", long 157°59′54", Hydrologic Unit 20060000, on right bank on upstream side of dam at East Pump Reservoir, 2.3 mi east of Wahiawa Post Office, and 7.1 mi north of Waipahu.

DRAINAGE AREA.--4.04 mi^2.

PERIOD OF RECORD.--July 1957 to June 1963, water years 1963-64 (annual maximum), July 1964 to current year.

GAGE.--Water-stage recorder and Ogee-type dam control. Datum of gage is 860.35 ft above mean sea level (from USC&GS trig station).

REMARKS.--Records good. Prior to 1960, water was diverted from reservoirs upstream of station for use at Schofield Barracks.

AVERAGE DISCHARGE.--33 years (water years 1961-62, 1965-95), 21.6 ft^3/s (15,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,460 ft^3/s, Apr. 15, 1963, gage height, 11.33 ft, from rating curve extended above 1,100 ft^3/s on basis of computation of peak flow over dam; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep. 30	0230	*720	*4.38	No peak greater than base discharge.			

Minimum discharge, 0.49 ft^3/s, Mar. 19-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	4.7	99	6.7	3.4	2.3	3.2	3.0	1.8	3.9	25	33
2	123	5.1	20	6.3	3.3	2.0	2.3	2.8	3.3	2.5	19	18
3	39	7.5	16	5.8	3.1	2.7	34	2.5	3.6	14	9.6	15
4	21	8.9	13	5.5	3.0	2.6	79	2.4	2.4	36	9.0	12
5	25	28	47	5.1	3.0	2.2	53	2.2	2.6	17	11	17
6	23	5.9	17	4.9	3.6	6.4	16	2.2	5.4	4.7	7.2	12
7	36	13	28	4.6	3.2	2.7	12	1.9	55	3.3	8.6	9.7
8	21	11	22	4.4	2.7	1.6	6.4	2.0	10	3.0	12	8.8
9	18	5.0	22	4.2	2.5	1.2	4.5	1.8	3.8	3.9	67	8.8
10	16	22	51	4.0	2.6	1.0	3.6	1.6	2.6	12	25	10
11	17	50	29	3.9	2.4	.91	3.0	1.7	1.8	46	114	9.2
12	27	36	15	4.2	2.2	.98	3.2	2.8	3.0	74	30	7.5
13	32	36	13	3.7	2.4	1.0	9.0	3.7	15	23	61	7.0
14	19	56	15	122	13	.97	8.1	2.7	32	33	38	6.4
15	21	23	12	126	4.5	.85	24	14	5.4	11	27	6.0
16	40	48	12	67	2.5	.75	7.3	14	3.3	7.6	27	6.1
17	46	35	35	22	2.3	.65	4.2	28	2.4	7.2	26	13
18	59	46	14	12	24	.60	4.5	11	2.0	5.5	24	5.9
19	15	16	11	9.0	5.5	.55	3.1	4.7	1.8	7.7	63	5.1
20	8.6	12	9.5	7.4	2.8	.51	5.3	2.5	1.8	64	30	4.5
21	7.5	12	8.2	6.4	2.2	.54	4.9	2.0	4.2	83	74	4.3
22	9.0	11	7.6	5.8	1.9	12	80	7.8	50	15	30	4.3
23	7.0	15	89	5.4	1.7	16	89	4.9	33	11	150	4.2
24	6.8	8.8	29	5.0	1.9	72	12	4.0	6.8	32	37	4.0
25	9.1	9.2	13	4.7	2.0	14	27	2.0	3.5	12	25	4.0
26	6.5	38	9.9	4.9	3.5	3.4	11	1.7	2.5	71	40	3.9
27	24	12	8.9	5.6	2.4	7.0	5.3	1.4	2.3	16	32	9.2
28	7.4	13	8.8	6.1	2.9	8.9	4.3	1.2	2.1	82	20	35
29	5.9	30	18	8.8	---	43	3.7	1.1	1.8	21	e22	96
30	5.3	20	17	4.6	---	9.4	3.3	1.3	3.0	13	e18	154
31	5.1	---	8.0	3.7	---	3.8	---	1.5	---	14	21	---
TOTAL	711.2	638.1	717.9	489.7	110.5	222.51	526.2	136.4	268.2	749.3	1102.4	533.9
MEAN	22.9	21.3	23.2	15.8	3.95	7.18	17.5	4.40	8.94	24.2	35.6	17.8
MAX	123	56	99	126	24	72	89	28	55	83	150	154
MIN	5.1	4.7	7.6	3.7	1.7	.51	2.3	1.1	1.8	2.5	7.2	3.9
AC-FT	1410	1270	1420	971	219	441	1040	271	532	1490	2190	1060

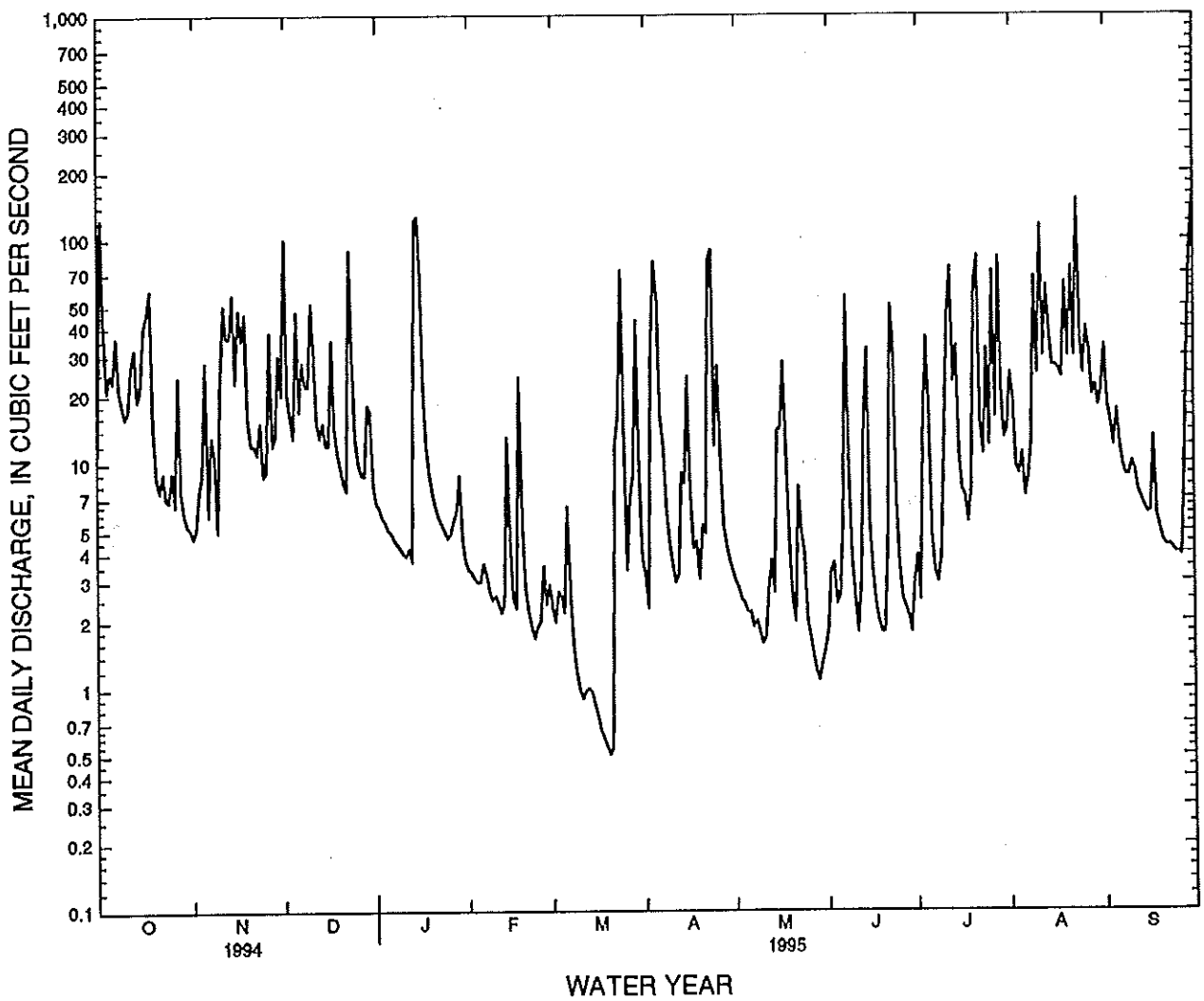
e Estimated

16208000 SOUTH FORK KAUKONAHUA STREAM AT EAST PUMP RESERVOIR, NEAR WAHIAWA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

MEAN	17.1	28.5	22.8	19.9	17.4	27.3	30.8	21.6	16.3	25.6	18.9	15.0
MAX	38.0	107	61.7	55.2	99.7	104	90.1	64.9	46.1	60.9	53.7	35.7
(WY)	1967	1966	1988	1989	1969	1980	1963	1963	1987	1989	1967	1990
MIN	.32	3.54	2.07	.38	.11	.66	2.45	.51	3.40	4.25	3.04	1.43
(WY)	1985	1963	1990	1986	1986	1983	1992	1992	1968	1968	1971	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1961 - 1995		
ANNUAL TOTAL	9027.5		6206.31				
ANNUAL MEAN	24.7		17.0		21.6		
HIGHEST ANNUAL MEAN					37.2		1982
LOWEST ANNUAL MEAN					11.1		1984
HIGHEST DAILY MEAN	816	Mar 24	154	Sep 30	1050	Feb 1	1969
LOWEST DAILY MEAN	1.6	Jan 17	.51	Mar 20	.00	Dec 24	1960
ANNUAL SEVEN-DAY MINIMUM	3.1	Mar 13	.64	Mar 15	.00	Jan 19	1977
ANNUAL RUNOFF (AC-FT)	17910		12310		15670		
10 PERCENT EXCEEDS	47		41		50		
50 PERCENT EXCEEDS	13		8.1		9.0		
90 PERCENT EXCEEDS	4.6		2.0		1.8		



HAWAII, ISLAND OF OAHU

16211600 MAKAHA STREAM NEAR MAKAHA

LOCATION.--Lat 21°30′16″, long 158°10′59″, Hydrologic Unit 20060000, on right bank, 1.5 mi northeast of Kaneaki Heiau, and 3.4 mi northeast of Makaha.

DRAINAGE AREA.--2.31 mi^2.

PERIOD OF RECORD.--July 1959 to current year.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder and concrete-masonry control. Datum of gage is 938.64 ft above mean sea level (Waianae Plantation bench mark).

REMARKS.--Records good, except for periods of no gage height record which is poor. Honolulu Board of Water Supply wells upstream of station were put into production this year. Recording rain gage located at station.

AVERAGE DISCHARGE.--36 years (water years 1960-95), 1.85 ft^3/s (1,340 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,450 ft^3/s, Jan. 6, 1982, gage height, 7.40 ft, from floodmarks, from rating curve extended above 51 ft^3/s on basis of slope-area measurements at gage heights 6.50 ft and 7.40 ft; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1953, about 7.8 ft, Nov. 24, 1954, from information by local resident. Discharge, about 1,700 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 3	0830	*106	*2.88	No peak greater than base discharge.			

Minimum discharge, No flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.02	.39	.00	.56	.51	.06	.02	.00	.00
2	.04	.00	.00	.00	.24	.00	.45	.43	.05	.01	.00	.00
3	9.9	.00	.00	.00	.14	.00	3.2	.38	.05	.00	.00	.00
4	2.3	.00	.00	.00	.08	.00	8.3	.31	.05	.00	.00	.00
5	1.1	.00	.00	.00	.06	.00	3.8	.34	.04	.00	.00	.00
6	.63	.00	.00	.00	.64	.00	2.1	e3.0	.03	.00	.00	.00
7	.43	.00	.00	.00	.35	.00	1.5	e1.5	.03	.00	.00	.00
8	.34	.00	.02	.00	.23	.00	1.0	e.81	.02	.00	.00	.00
9	.27	.00	.15	.00	.13	.00	.68	e.70	.01	.00	.00	.00
10	.18	.00	.11	.00	1.3	.00	.53	.74	.00	.00	.00	.00
11	.14	.00	.10	.00	.51	.00	.44	.64	.00	.00	.00	.00
12	.12	.00	.04	.42	.39	.00	.37	.62	.00	.00	.00	.00
13	.08	.00	.00	.20	1.6	.00	.30	.59	.00	.00	.00	.00
14	.07	.00	.00	.15	1.0	.00	.32	.50	.00	.00	.00	.00
15	.05	.00	.00	.41	.00	.00	.35	.43	.00	.00	.00	.00
16	.04	.00	.00	.30	.00	.00	.53	.42	.00	.00	.00	.00
17	.04	.00	.00	.18	.00	.00	.41	.43	.00	.00	.00	.00
18	.04	.00	.01	.10	.00	.00	.33	.39	.00	.00	.00	.00
19	.03	.00	.02	.06	.00	.00	.33	.35	.00	.00	.00	.00
20	.02	.00	.00	.03	.00	.00	.29	.29	.00	.00	.00	.00
21	.00	.00	.02	.00	.00	.00	.24	.26	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	2.5	.24	.00	.00	.00	.00
23	.00	.00	.04	.00	.00	.00	2.8	.22	.00	.00	.00	.00
24	.00	.00	.28	.00	.00	.00	.86	.20	.00	.00	.00	.00
25	.00	.00	.19	.00	.00	.00	1.6	.17	.00	.00	.00	.00
26	.00	.00	.09	.00	.00	.00	.90	.15	.00	.00	.00	.00
27	.00	.00	.03	1.1	.00	.00	.66	.13	.00	.03	.00	.00
28	.00	.00	.00	1.5	.00	e1.1	2.7	.11	.00	.07	.00	.00
29	.00	.00	.00	1.0	---	e2.1	.99	.09	.03	.02	.00	.00
30	.00	.00	.01	.88	---	e1.6	.65	.08	.03	.00	.00	.00
31	.00	---	.07	.53	---	e.90	---	.07	---	.00	.00	---
TOTAL	15.82	0.00	1.18	6.88	7.06	5.70	39.69	15.10	0.40	0.15	0.00	0.00
MEAN	.51	.000	.038	.22	.25	.18	1.32	.49	.013	.005	.000	.000
MAX	9.9	.00	.28	1.5	1.6	2.1	8.3	3.0	.06	.07	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.24	.07	.00	.00	.00	.00
AC-FT	31	.00	2.3	14	14	11	79	30	.8	.3	.00	.00

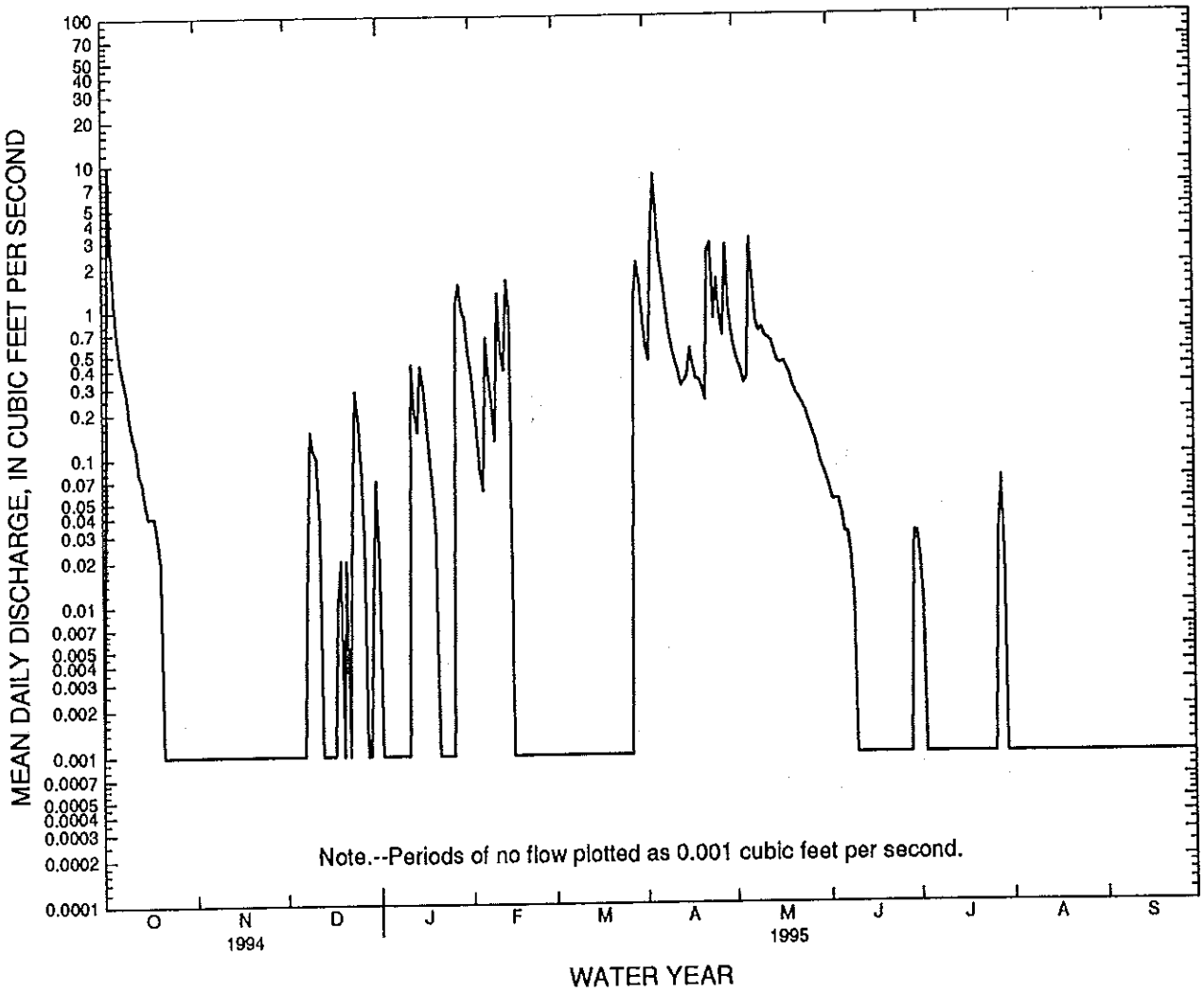
e Estimated

16211600 MAKAHA STREAM NEAR MAKAHA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1995, BY WATER YEAR (WY)

MEAN	.77	1.58	3.02	4.26	3.50	3.13	2.65	1.48	.63	.49	.38	.39
MAX	3.66	8.67	15.0	22.7	16.3	11.5	15.7	5.33	1.72	1.31	1.44	2.19
(WY)	1983	1966	1965	1982	1976	1962	1963	1965	1978	1986	1983	1974
MIN	.000	.000	.038	.22	.25	.18	.13	.20	.013	.005	.000	.000
(WY)	1976	1995	1995	1995	1995	1995	1993	1984	1995	1995	1995	1961

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1959 - 1995	
ANNUAL TOTAL	442.22		91.98			
ANNUAL MEAN	1.21		.25		1.85	
HIGHEST ANNUAL MEAN					3.80	1963
LOWEST ANNUAL MEAN					.25	1995
HIGHEST DAILY MEAN	126	Mar 24	9.9	Oct 3	283	Feb 7 1976
LOWEST DAILY MEAN	.00	Aug 1	.00	Oct 1	.00	Sep 25 1960
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 1	.00	Oct 21	.00	Aug 28 1961
ANNUAL RUNOFF (AC-FT)	877		182		1340	
10 PERCENT EXCEEDS	1.6		.64		3.5	
50 PERCENT EXCEEDS	.19		.00		.59	
90 PERCENT EXCEEDS	.00		.00		.06	



HAWAII, ISLAND OF OAHU

16212800 KIPAPA STREAM NEAR WAHIAWA

LOCATION.--Lat 21°28′13″, long 157°57′40″, Hydrologic Unit 20060000, on left bank 1,700 ft downstream from forest-reserve boundary, 4.9 mi southeast of Wahiawa Post Office, and 6.3 mi northeast of Waipahu.

DRAINAGE AREA.--4.29 mi^2.

PERIOD OF RECORD.--January 1957 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 690 ft above mean sea level, from topographic map.

REMARKS.--Records fair. At times, a small amount of water is diverted from the gage pool for domestic use. Recording rain gage located at station.

AVERAGE DISCHARGE.--38 years (water years 1958-95), 11.0 ft^3/s (8,000 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,370 ft^3/s, Mar. 21, 1991, gage height, 12.67 ft, from rating curve extended above 5,680 ft^3/s on basis of the shape of the rating; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 930 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Aug. 23	0700	*870	*6.74

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peak greater than base discharge.			

Minimum discharge, 0.01 ft^3/s on Mar. 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

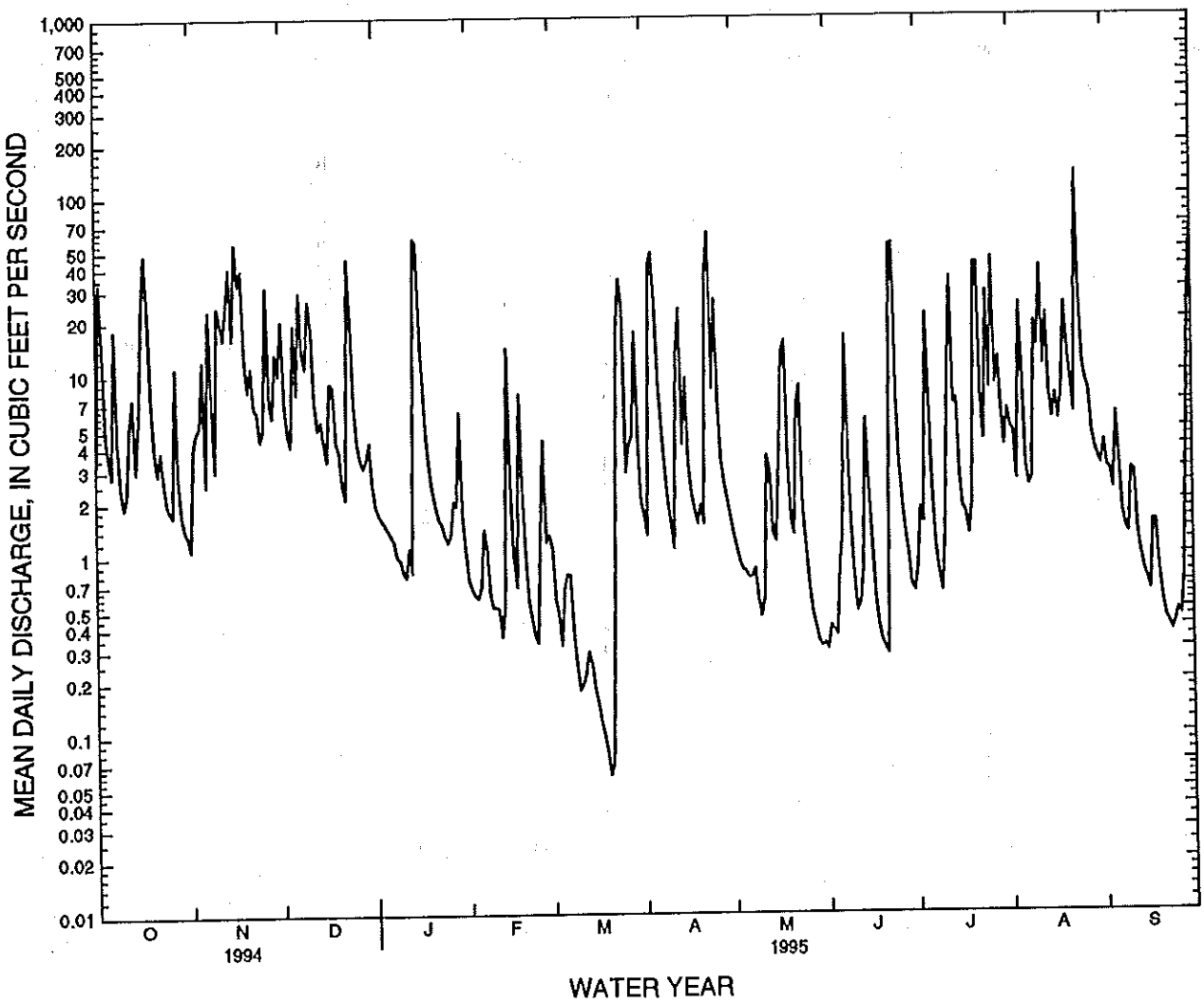
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	1.1	20	1.9	.74	1.1	1.7	1.3	.30	.84	5.0	4.1
2	33	4.0	7.0	1.7	.66	.57	1.3	1.1	.40	1.8	4.7	3.0
3	15	4.9	4.8	1.6	.61	.47	41	.92	.38	1.5	2.6	2.9
4	4.8	5.2	4.1	1.5	.59	.32	48	.84	.36	21	24	2.3
5	3.6	12	19	1.4	.68	.66	23	.81	.87	6.3	9.2	5.9
6	2.8	2.5	7.9	1.3	1.4	.79	8.6	.76	1.3	2.2	3.1	3.3
7	18	23	29	1.2	1.1	.79	5.0	.76	16	1.1	2.4	1.7
8	4.2	7.4	13	.99	.61	.39	3.1	.84	4.5	.79	2.6	1.4
9	2.4	3.0	11	.95	.52	.25	2.0	.57	1.5	.63	19	1.3
10	1.9	24	26	.82	.52	.18	1.5	.46	.79	1.4	14	2.9
11	2.2	20	18	.77	.51	.19	1.1	.58	.49	9.7	39	2.8
12	5.2	16	7.3	1.1	.36	.22	13	3.5	.53	34	11	1.3
13	7.5	24	5.0	.82	.55	.29	23	2.8	.81	6.7	21	1.0
14	3.0	40	5.5	58	14	.25	4.1	1.3	5.5	7.1	7.8	.81
15	5.7	16	4.3	55	2.5	.18	9.4	1.2	2.6	2.7	5.6	.72
16	22	55	3.4	17	1.0	.15	3.2	3.4	1.2	1.8	7.5	.63
17	48	32	8.9	8.8	.68	.12	2.2	13	.58	1.7	5.5	1.5
18	22	39	8.6	4.6	7.8	.10	1.8	15	.40	1.3	7.7	1.5
19	7.2	13	4.3	3.1	2.4	.08	1.5	3.7	.33	1.9	24	.80
20	3.9	8.2	3.7	2.3	.99	.06	1.9	1.6	.30	41	13	.56
21	2.9	11	2.5	1.9	.56	.07	1.5	1.3	.28	41	9.1	.44
22	3.8	6.6	2.1	1.6	.45	.68	37	6.5	52	7.4	6.0	.41
23	2.7	6.2	45	1.5	.36	18	62	8.5	53	4.3	132	.37
24	2.0	4.4	19	1.3	.33	34	8.3	1.8	7.5	28	26	.41
25	1.8	5.0	6.8	1.2	1.3	23	26	1.1	3.1	8.2	11	.48
26	1.7	31	4.2	1.3	4.3	2.9	7.1	.67	1.9	44	8.9	.45
27	11	7.1	3.4	2.0	1.2	4.1	3.4	.48	1.3	8.7	7.8	.74
28	2.7	5.9	3.1	1.9	1.3	4.5	2.5	.40	1.0	12	4.7	3.7
29	1.7	13	3.4	6.2	---	17	2.0	.33	.67	6.1	3.8	28
30	1.4	10	4.2	1.7	---	4.8	1.6	.31	.63	4.0	3.4	65
31	1.3	---	2.5	1.1	---	2.0	---	.32	---	6.2	3.1	---
TOTAL	248.7	450.5	307.0	186.55	48.02	118.21	347.8	76.15	160.52	315.36	444.5	140.42
MEAN	8.02	15.0	9.90	6.02	1.71	3.81	11.6	2.46	5.35	10.2	14.3	4.68
MAX	48	55	45	58	14	34	62	15	53	44	132	65
MIN	1.3	1.1	2.1	.77	.33	.06	1.1	.31	.28	.63	2.4	.37
AC-FT	493	894	609	370	95	234	690	151	318	626	882	279

16212800 KIPAPA STREAM NEAR WAHIAWA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1995, BY WATER YEAR (WY)

MEAN	10.3	15.0	12.8	11.1	10.4	16.8	15.5	9.51	5.42	9.90	8.64	6.33
MAX	49.6	61.8	42.2	32.1	54.4	98.4	60.9	34.0	21.9	28.1	37.5	23.6
(WY)	1982	1966	1988	1989	1969	1991	1963	1965	1978	1989	1958	1994
MIN	.84	.23	.83	.17	.19	.021	.33	.39	.16	.47	.30	.54
(WY)	1958	1963	1990	1977	1978	1983	1966	1992	1959	1968	1971	1984

	SUMMARY STATISTICS FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1957 - 1995	
ANNUAL TOTAL	5232.58		2843.73			
ANNUAL MEAN	14.3		7.79		11.0	
HIGHEST ANNUAL MEAN					25.2	1982
LOWEST ANNUAL MEAN					4.50	1984
HIGHEST DAILY MEAN	535	Mar 24	132	Aug 23	852	Apr 15 1963
LOWEST DAILY MEAN	.68	Aug 11	.06	Mar 20	.00	Jun 18 1959
ANNUAL SEVEN-DAY MINIMUM	.97	Mar 13	.11	Mar 15	.00	Jun 18 1959
ANNUAL RUNOFF (AC-FT)	10380		5640		8000	
10 PERCENT EXCEEDS	31		23		25	
50 PERCENT EXCEEDS	5.0		2.7		2.9	
90 PERCENT EXCEEDS	1.3		.46		.34	



HAWAII, ISLAND OF OAHU

16213000 WAIKELE STREAM AT WAIPAHU
(National stream-quality accounting network station)

LOCATION.--Lat 21°23′11″, long 158°00′49″, Hydrologic Unit 20060000, on left bank 300 ft upstream from bridge on Highway 90, and 0.3 mi southwest of sugar refinery at Waipahu.

DRAINAGE AREA.--45.7 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June to October 1951, December 1951 to October 1959, July 1960 to current year.

REVISED RECORDS.--WSP 1639: 1955(M). WSP 1937: Drainage area. WSP 2137: 1965.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1.37 ft above mean sea level (by stadia survey). Prior to July 1, 1960, at site 300 ft downstream at datum 1.30 ft higher.

REMARKS.--Records good. Diversions upstream for irrigation of sugarcane in vicinity of Waipahu.

AVERAGE DISCHARGE.--42 years (water years 1953-59, 1961-95), 40.9 ft^3/s (29,610 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft^3/s, Nov. 28, 1954, gage height, 14.82 ft, site and datum then in use, from rating curve extended above 730 ft^3/s on basis of slope-area measurement of peak flow; no flow for part of Feb. 25, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 3	0430	*2,940	*6.43	No other peak greater than base discharge.			

Minimum discharge, 15 ft^3/s, Sep. 15-25, 28, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

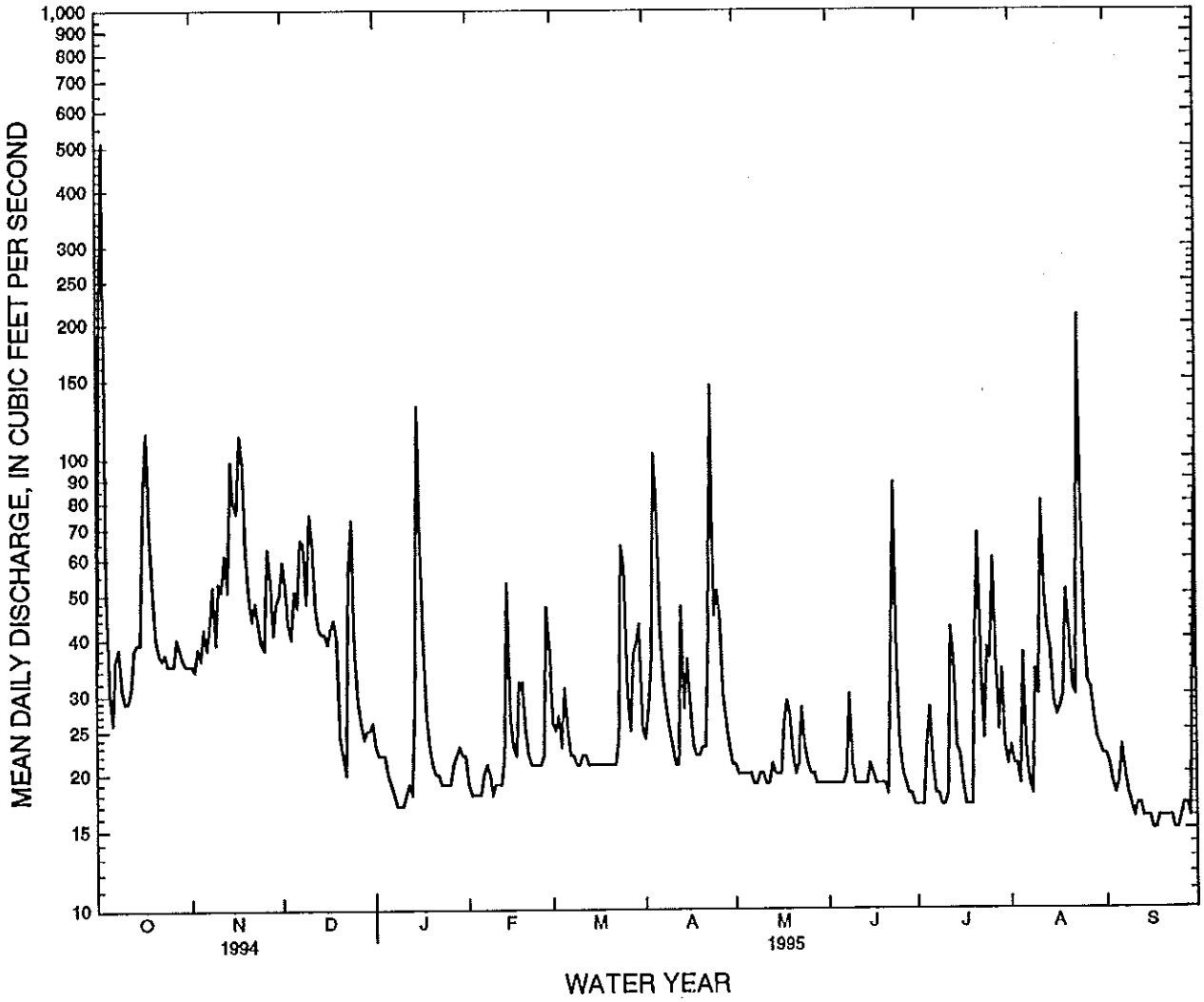
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	35	59	23	19	26	24	21	19	17	23	22
2	209	34	52	22	18	25	28	20	19	17	21	21
3	511	38	43	22	18	27	36	20	19	17	21	19
4	52	36	40	22	18	23	1D2	20	19	23	19	18
5	31	42	51	20	18	31	76	20	19	28	37	19
6	26	38	47	19	20	25	42	20	19	21	22	23
7	36	42	66	18	21	22	32	19	20	18	19	20
8	38	52	65	17	20	22	28	19	30	18	18	18
9	31	39	48	17	18	21	25	20	21	17	34	17
10	29	53	75	17	19	21	23	20	19	17	30	16
11	29	51	64	18	19	22	21	19	19	18	80	17
12	31	61	47	19	19	22	21	19	19	42	51	17
13	38	51	42	18	22	21	47	21	19	36	42	16
14	39	98	41	28	53	21	28	20	19	23	38	16
15	39	79	41	131	27	21	36	20	21	22	29	16
16	82	76	39	64	23	21	28	20	20	19	27	15
17	114	112	42	39	22	21	23	26	19	17	28	15
18	68	97	44	27	32	21	22	29	19	17	30	16
19	51	62	40	23	32	21	22	27	19	17	51	16
20	40	50	24	21	25	21	23	22	19	40	41	16
21	37	44	22	20	22	21	23	20	18	68	31	16
22	36	48	20	20	21	21	39	21	37	35	30	16
23	37	43	56	19	21	24	145	28	88	24	208	15
24	35	39	73	19	21	64	45	23	35	38	78	15
25	35	38	37	19	21	57	51	21	23	36	42	16
26	35	63	29	19	22	30	45	20	20	60	32	17
27	40	54	26	21	47	25	30	20	19	36	31	17
28	38	41	24	22	38	37	26	19	18	25	27	16
29	36	48	25	23	---	39	23	19	18	34	24	35
30	35	50	25	22	---	43	21	19	17	23	23	110
31	35	---	26	22	---	25	---	19	---	21	22	---
TOTAL	1928	1614	1333	811	676	841	1135	651	690	844	1209	626
MEAN	62.2	53.8	43.0	26.2	24.1	27.1	37.8	21.0	23.0	27.2	39.0	20.9
MAX	511	112	75	131	53	64	145	29	88	68	208	110
MIN	26	34	20	17	18	21	21	19	17	17	18	15
AC-FT	3820	3200	2640	1610	1340	1670	2250	1290	1370	1670	2400	1240

16213000 WAIKELE STREAM AT WAIPAHU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1995, BY WATER YEAR (WY)

MEAN	33.3	47.9	51.0	61.0	56.5	55.4	50.7	33.4	23.4	29.2	26.4	22.5
MAX	97.8	198	146	222	179	195	235	99.3	51.5	76.8	90.0	68.1
(WY)	1992	1966	1966	1969	1955	1991	1963	1965	1980	1989	1958	1994
MIN	7.22	12.2	13.3	14.7	7.72	6.13	18.4	14.9	10.6	9.08	7.50	6.28
(WY)	1978	1954	1954	1986	1978	1978	1961	1954	1981	1985	1984	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1953 - 1995		
ANNUAL TOTAL	19325		12358				
ANNUAL MEAN	52.9		33.9		40.9		
HIGHEST ANNUAL MEAN					77.3		1969
LOWEST ANNUAL MEAN					18.5		1954
HIGHEST DAILY MEAN	1620	Mar 24	511	Oct 3	2590	Mar 21	1991
LOWEST DAILY MEAN	15	Jan 4	15	Sep 16	.61	Feb 25	1978
ANNUAL SEVEN-DAY MINIMUM	16	Jan 1	16	Sep 13	2.5	Feb 24	1978
ANNUAL RUNOFF (AC-FT)	38330		24510		29610		
10 PERCENT EXCEEDS	75		53		64		
50 PERCENT EXCEEDS	35		23		24		
90 PERCENT EXCEEDS	19		18		12		



16213000 WAIKELE STREAM AT WAIPAHU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967-72. April 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1973 to September 1981.
WATER TEMPERATURE: April 1973 to September 1981.
SUSPENDED SEDIMENT DISCHARGE: July 1972 to August 1993.

INSTRUMENTATION.--Water-quality monitor April 1973 to September 1981. Automatic pumping sediment sampler July 1972 to August 1993.

REMARKS.--Water-quality samples are collected bimonthly.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 796 micromhos/cm, Dec. 1, 1980; minimum, 30 micromhos/cm, Apr. 19, 1974.
WATER TEMPERATURES: Maximum, 30.0°C, May 6, 1973; minimum, 16.0°C, Mar. 16, 1976.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,420 mg/L, Feb. 7, 1976; minimum daily mean, 1 mg/L, Mar. 16, 20-22, 1989, July 10, 1990.
SEDIMENT DISCHARGE: Maximum daily, 32,900 tons, Apr. 19, 1974; minimum daily, less than 0.01 ton, Aug. 29, 30, 1992.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT										
19...	0905	53	220	7.6	31.0	23.0	47	763	7.7	90
DEC										
14...	1255	41	268	7.1	27.0	22.5	11	768	8.5	97
FEB										
07...	1120	22	420	7.6	19.0	21.0	2.5	766	7.1	79
APR										
18...	1340	21	420	7.5	25.5	23.0	2.6	768	7.1	82
JUL										
12...	1130	21	395	7.3	29.0	23.0	6.0	763	7.2	84
SEP										
25...	1015	15	500	7.1	30.0	21.5	2.2	764	6.8	77

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3
OCT											
19...	5100	8600	41	11	7.5	5.5	24	55	2	1.5	37
DEC											
14...	500	2600	54	12	9.4	7.5	32	55	2	1.8	52
FEB											
07...	K11000	K820	71	14	12	10	49	59	3	2.3	70
APR											
18...	140	700	78	22	13	11	54	59	3	2.4	68
JUL											
12...	680	820	68	21	11	9.9	45	58	2	2.1	58
SEP											
25...	720	400	89	33	14	13	63	60	3	2.7	68

K Results based on colony count outside acceptance range

HAWAII, ISLAND OF OAHU

16213000 WAIKELE STREAM AT WAIPAHU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	CARBONATE WATER DIS IT FIELD MG/L AS CO3	ALKALINITY LAB (MG/L AS CACO3)	ALKALINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 19...	0	35	33	8.3	38	<0.10	26	140	132
DEC 14...	0	46	43	8.6	47	<0.10	39	173	174
FEB 07...	0	58	58	15	81	0.10	51	283	261
APR 18...	0	57	56	17	87	0.10	52	277	271
JUL 12...	0	53	47	15	69	0.20	48	253	234
SEP 25...	0	66	56	20	94	0.10	63	317	311

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DISSOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	BARIUM, DISSOLVED (UG/L AS BA)
OCT 19...	0.19	0.550	0.550	<0.015	0.20	0.090	0.060	0.060	30	3.0
DEC 14...	0.24	0.710	0.710	<0.015	<0.20	0.130	0.090	0.090	--	--
FEB 07...	0.38	1.30	1.30	0.020	<0.20	0.150	0.120	0.160	30	6.0
APR 18...	0.38	--	--	0.020	<0.20	0.160	0.150	0.160	40	6.0
JUL 12...	0.34	1.10	1.10	0.020	<0.20	0.130	0.110	0.140	--	--
SEP 25...	0.43	1.70	1.70	0.020	<0.20	0.200	0.190	0.190	--	--

DATE	TIME	COBALT, DISSOLVED (UG/L AS CO)	IRON, DISSOLVED (UG/L AS FE)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)
OCT 19...	0905	<3.0	24	<4	26	<10	<1.0	<1	<1.0	51	11
FEB 07...	1120	<3.0	87	<4	47	<10	1.0	<1	<1.0	83	27
APR 18...	1340	<3.0	86	<4	50	<10	<1.0	1	<1.0	90	29

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

HAWAII, ISLAND OF OAHU

16216000 WAIAWA STREAM NEAR PEARL CITY

LOCATION.--Lat 21°23′57″, long 157°58′51″, Hydrologic Unit 20060000, on left bank 100 ft upstream from lower bridge on Highway 90, 0.6 mi northwest of Pearl City, and 2.0 mi northeast of Waipahu.

DRAINAGE AREA.--26.4 mi^2.

PERIOD OF RECORD.--June 1952 to current year.

REVISED RECORDS.--WSP 1569: Drainage area, WDR HI-90-1: 1982-89 (M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1.81 ft above mean sea level (State of Hawaii benchmark).

REMARKS.--Records poor. Occasional small irrigation diversion and return flow upstream.

AVERAGE DISCHARGE.--43 years (water years 1953-95), 34.4 ft^3/s (24,930 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,900 ft^3/s, Oct. 28, 1981, gage height, 22.46 ft, from rating curve extended above 1,100 ft^3/s on basis of slope-area measurements at gage heights 17.1 ft and 20.56 ft; minimum, 1.1 ft^3/s on several days in 1984 and 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 23	0600	2,530	9.10	Aug. 23	0800	*4,050	*10.80

Minimum discharge, 1.3 ft^3/s, Jan. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.0	e4.7	53	1.6	2.4	e6.0	2.2	e3.7	1.7	1.8	4.7	3.0
2	e56	4.7	15	1.5	2.4	e4.5	3.4	e3.3	1.7	1.8	6.6	3.1
3	e169	4.7	11	1.4	2.3	e3.2	141	e2.9	1.7	1.8	3.3	2.6
4	e20	5.2	8.3	1.4	2.6	e2.5	146	e2.5	1.7	13	82	2.6
5	e15	32	35	1.4	3.0	e2.2	76	e2.4	1.7	12	23	2.6
6	e12	8.5	14	1.4	e2.4	e2.1	23	e2.4	1.7	3.8	4.6	2.7
7	e9.5	31	60	1.4	e2.3	e2.0	13	e2.2	1.7	2.1	2.5	2.6
8	e10	22	28	1.5	e2.3	2.0	8.1	e2.1	1.7	1.9	2.1	2.6
9	e9.0	8.8	20	1.4	e2.2	2.0	4.4	e2.0	1.7	1.8	96	2.6
10	e8.5	24	85	1.5	e2.2	2.0	3.1	e1.9	1.7	1.8	27	2.6
11	e8.5	29	23	1.6	e2.1	2.0	2.4	e1.9	1.7	1.8	117	2.6
12	e8.2	42	14	1.4	e2.1	2.3	2.2	1.9	1.7	42	25	2.6
13	e8.0	28	11	1.4	e5.4	2.5	118	1.8	1.7	16	57	2.6
14	e8.0	87	9.2	179	e15	1.9	13	1.8	1.7	5.7	29	2.6
15	e7.5	36	8.6	175	e6.2	1.9	13	1.8	1.7	4.0	14	2.6
16	e27	106	7.6	43	e4.0	1.9	8.0	1.8	1.7	2.5	13	2.6
17	e215	57	15	22	e3.0	1.9	6.3	1.7	1.7	1.9	12	2.5
18	e56	57	14	10	e2.6	1.9	5.4	1.7	1.7	1.8	14	2.5
19	e46	18	9.4	6.2	e2.5	1.9	4.3	2.2	1.7	1.7	34	2.5
20	e14	11	3.4	4.1	e2.5	1.8	3.1	1.9	1.7	75	24	2.5
21	e8.0	8.4	2.4	3.0	e2.3	1.9	2.6	1.9	1.7	51	80	2.6
22	e9.0	9.1	1.9	2.4	e2.3	1.9	85	1.8	61	14	29	2.6
23	e7.8	6.0	44	2.2	e2.2	1.9	516	16	123	5.6	721	2.6
24	e7.1	4.5	38	2.2	e2.2	38	29	3.4	15	29	74	2.6
25	e6.0	4.5	12	2.2	e2.1	55	66	2.3	4.3	14	25	2.6
26	e5.8	18	5.9	2.3	e2.1	6.1	23	1.9	2.3	151	37	2.6
27	e8.0	11	3.7	2.3	e11	2.8	8.9	2.1	2.0	22	19	2.6
28	e6.0	5.6	2.6	2.4	e9.4	4.0	e6.0	1.8	1.9	21	10	2.7
29	e5.5	7.8	2.2	2.5	---	2.5	e5.0	1.8	1.8	13	5.8	2.8
30	e5.2	9.5	1.9	2.8	---	7.3	e4.2	1.7	1.8	5.6	3.8	103
31	e4.9	---	1.7	2.4	---	3.0	---	1.7	---	3.9	3.0	---
TOTAL	787.5	701.0	560.8	484.9	103.1	172.9	1341.6	80.3	248.8	524.3	1598.4	179.3
MEAN	25.4	23.4	18.1	15.6	3.68	5.58	44.7	2.59	8.29	16.9	51.6	5.98
MAX	215	106	85	179	15	55	516	16	123	151	721	103
MIN	4.9	4.5	1.7	1.4	2.1	1.8	2.2	1.7	1.7	1.7	2.1	2.5
AC-FT	1560	1390	1110	962	204	343	2660	159	493	1040	3170	356

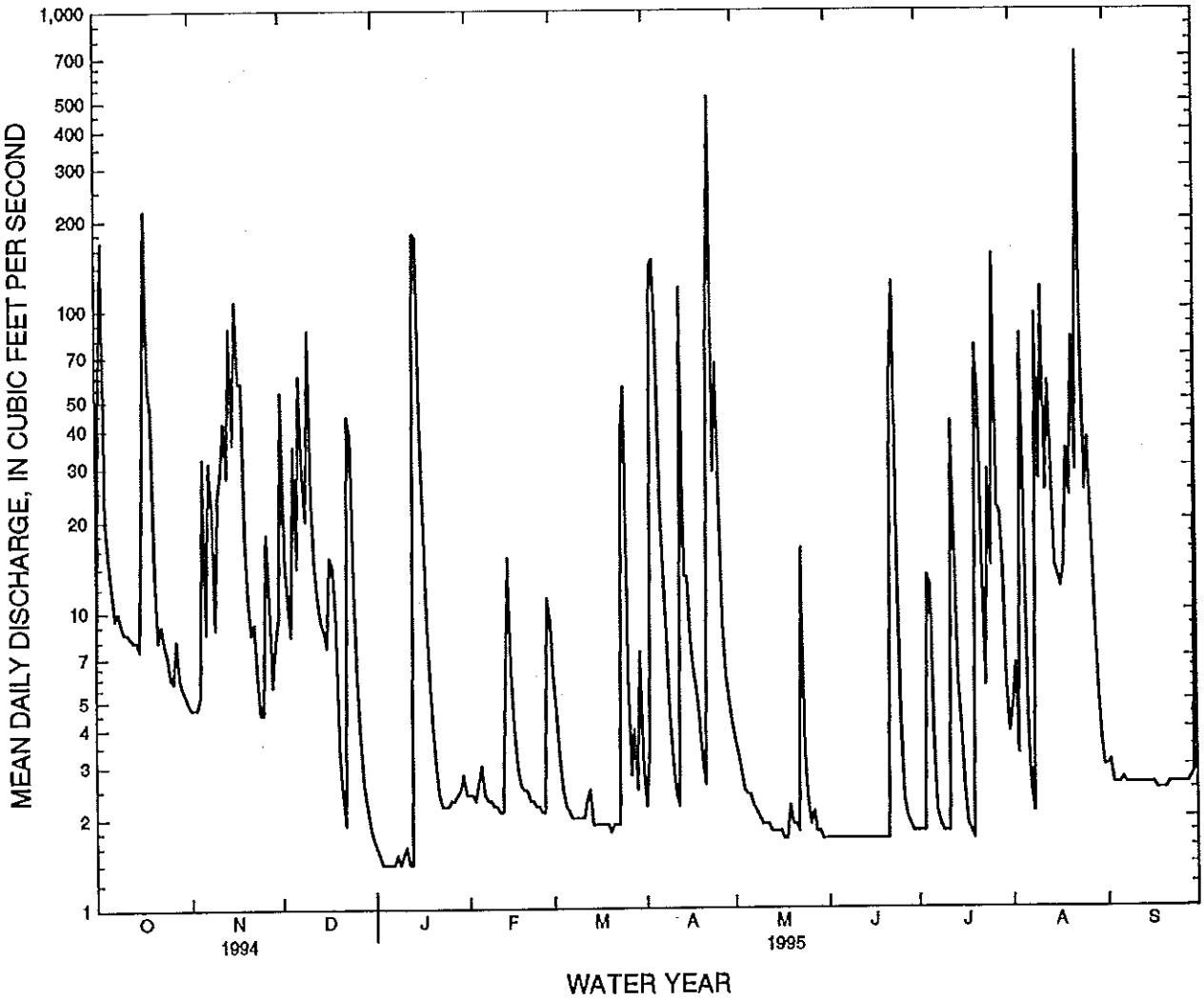
e Estimated

16216000 WAIAWA STREAM NEAR PEARL CITY--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1995, BY WATER YEAR (WY)

MEAN	30.2	50.1	46.4	44.7	40.3	55.1	42.4	24.8	14.3	27.4	22.3	14.4
MAX	131	209	351	199	208	336	241	131	72.9	149	128	104
(WY)	1967	1991	1988	1969	1955	1980	1974	1965	1987	1970	1982	1992
MIN	1.55	2.54	1.92	1.65	1.66	1.56	1.75	1.62	1.43	1.40	1.28	1.28
(WY)	1985	1990	1984	1986	1986	1993	1992	1992	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1952 - 1995		
ANNUAL TOTAL	21817.0		6782.9				
ANNUAL MEAN	59.8		18.6		34.4		
HIGHEST ANNUAL MEAN					80.8		1982
LOWEST ANNUAL MEAN					7.56		1984
HIGHEST DAILY MEAN	5150	Mar 24	721	Aug 23	5150	Mar 24	1994
LOWEST DAILY MEAN	1.5	Jan 17	1.4	Jan 3	1.1	May 18	1993
ANNUAL SEVEN-DAY MINIMUM	1.9	Mar 9	1.4	Jan 3	1.1	May 25	1993
ANNUAL RUNOFF (AC-FT)	43270		13450		24930		
10 PERCENT EXCEEDS	80		43		48		
50 PERCENT EXCEEDS	11		3.4		6.7		
90 PERCENT EXCEEDS	2.3		1.7		2.3		



HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE

LOCATION.--Lat 21°24'33", long 157°52'06", (Kaneohe quadrangle, 1968, 1:24,000), on right bank, 4.1 miles west of Kaneohe Post Office, and 4.4 miles east of Aiea High School.

DRAINAGE AREA.--1.64 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1991 to current year.

GAGE.--Water-stage recorder. Gage datum is 646.52 ft above mean sea level (by stadia survey).

REMARKS.--Records fair. Suspended sediment data are collected at this site.

AVERAGE DISCHARGE- 4 years (water years 1992-95), 2.81 ft^3/s (2,040 acre ft/yr). The years of record for average discharge published in the 1993 and 1994 report was in error; the correct figures are 1993: 2 years (water years 1992-93) and 1994: 3 years (water years 1992-94).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 470 ft^3/s , revised, Oct. 16, 1991, gage height, 6.94 ft, revised; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft^3/s and maximum (*)

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2400	*275	*5.29	No other peak greater than base discharge.			

Minimum discharge, No flow on many days.

REVISIONS.--The maximum discharge and gage height for water years 1992 to 1994 have been revised to 470 ft^3/s, Oct. 16, 1991, gage height, 6.94 ft, superseding figures published in the report for 1992 to 1994.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

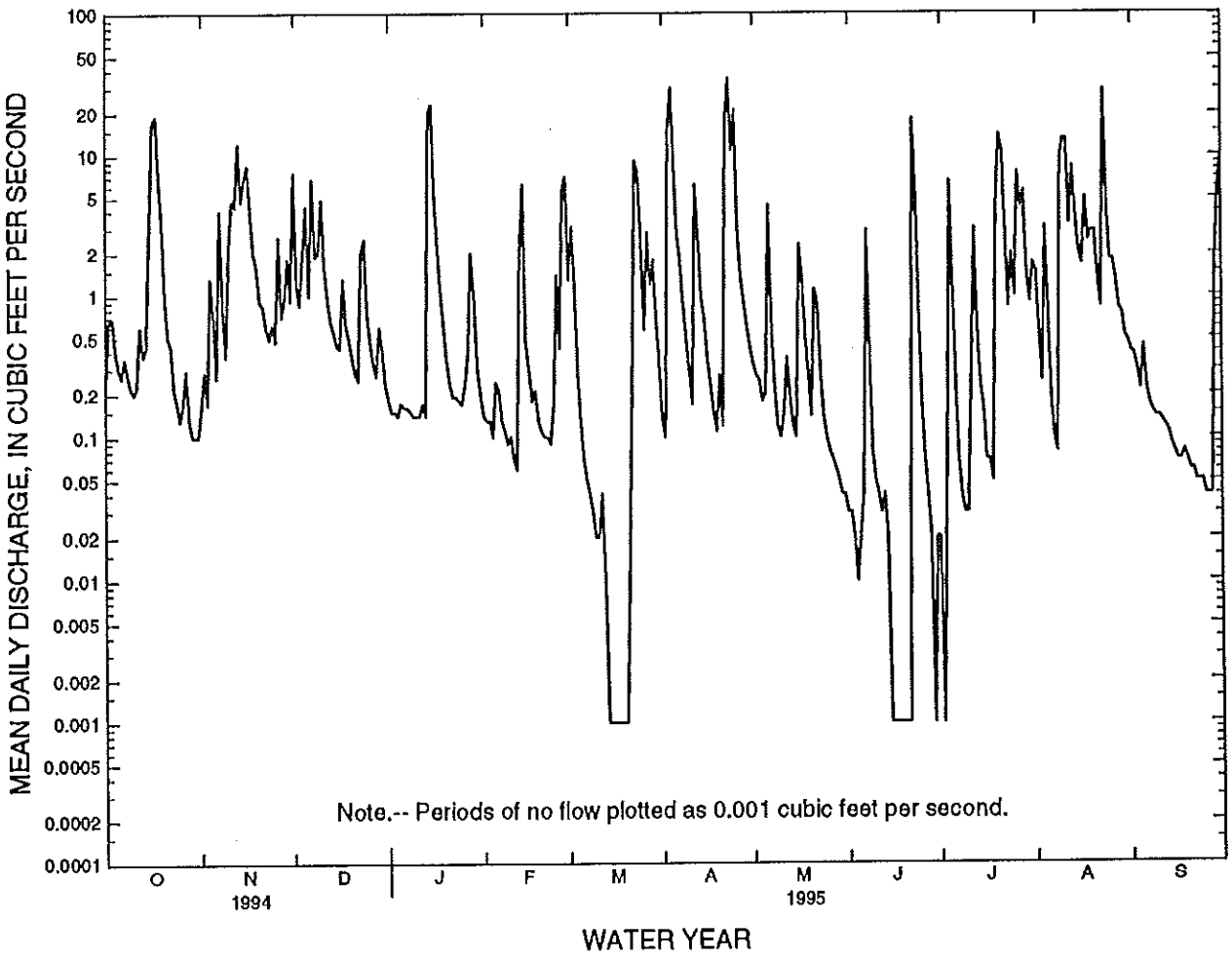
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.27	.16	7.5	.18	.14	1.3	.13	.33	.03	.02	1.5	.40
2	.67	.28	1.2	.15	.13	3.1	.10	.27	.03	.00	.58	.38
3	.68	.17	.86	.15	.13	1.2	15	.25	.02	.04	.25	.30
4	.40	1.3	1.9	.14	.10	.28	30	.18	.01	6.5	3.1	.22
5	.30	.70	4.3	.17	.24	.13	9.2	.20	.02	1.3	.76	.44
6	.26	.26	1.0	.16	.21	.07	2.8	4.4	.04	.23	.19	.22
7	.35	4.0	6.7	.16	.13	.05	1.8	.58	2.9	.07	.10	.17
8	.27	.80	1.9	.15	.11	.04	.90	.22	.40	.04	.08	.15
9	.22	.37	2.0	.14	.09	.03	.50	.12	.08	.03	9.3	.14
10	.20	2.2	4.8	.14	.10	.02	.29	.10	.05	.03	13	.14
11	.22	4.7	1.6	.14	.07	.02	.17	.15	.04	.27	13	.13
12	.59	4.3	.95	.17	.06	.04	6.2	.36	.03	3.0	3.3	.12
13	.37	12	.65	.14	1.8	.01	2.7	.19	.04	.57	8.3	.11
14	.42	4.7	.55	20	6.2	.00	.96	.12	.02	.23	3.9	.09
15	2.8	6.7	.44	23	.46	.00	.67	.10	.00	.16	2.1	.08
16	17	8.4	.42	5.2	.29	.00	.35	2.3	.00	.07	1.7	.07
17	19	4.0	1.3	2.3	.18	.00	.23	1.4	.00	.07	5.0	.07
18	6.8	2.0	.62	1.1	.21	.00	.15	.52	.00	.05	2.5	.08
19	3.3	1.6	.49	.61	.13	.00	.11	.29	.00	3.9	2.9	.07
20	.95	.91	.37	.35	.11	.00	.27	.14	.00	14	2.9	.06
21	.50	.83	.28	.24	.10	.01	.12	1.1	.00	11	1.4	.06
22	.43	.59	.25	.19	.10	.26	17	.91	18	3.0	.84	.05
23	.21	.49	2.0	.19	.09	9.1	35	.29	6.0	.84	29	.05
24	.17	.61	2.5	.18	.17	7.7	11	.14	.78	2.0	4.4	.05
25	.13	.47	.73	.17	1.4	2.4	21	.10	.17	1.0	1.8	.04
26	.17	2.6	.46	.23	.42	.57	3.2	.08	.07	7.6	1.8	.04
27	.29	.70	.32	.38	5.7	2.8	1.4	.07	.04	4.3	1.3	.04
28	.13	.91	.27	2.0	7.1	1.2	.90	.06	.02	5.6	.82	1.7
29	.10	1.8	.59	1.0	---	1.8	.62	.05	.00	1.5	.75	5.2
30	.10	.92	.39	.31	---	.65	.43	.04	.02	.90	.52	9.8
31	.10	---	.23	.20	---	.32	---	.04	---	1.7	.47	---
TOTAL	57.40	69.47	47.57	59.64	25.97	33.10	163.20	15.10	28.81	70.02	117.56	20.47
MEAN	1.85	2.32	1.53	1.92	.93	1.07	5.44	.49	.96	2.26	3.79	.68
MAX	19	12	7.5	23	7.1	9.1	35	4.4	18	14	29	9.8
MIN	.10	.16	.23	.14	.06	.00	.10	.04	.00	.00	.08	.04
AC-FT	114	138	94	118	52	66	324	30	57	139	233	41

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1995, BY WATER YEAR (WY)

MEAN	3.30	2.97	3.15	2.97	2.37	3.64	2.60	.69	1.19	3.49	2.97	4.31
MAX	4.48	7.27	6.89	8.09	7.87	12.0	5.44	1.59	2.85	7.07	5.97	12.3
(WY)	1992	1993	1993	1994	1994	1994	1995	1994	1994	1993	1991	1992
MIN	1.85	.56	1.28	.81	.25	.20	.018	.033	.11	2.26	1.13	.68
(WY)	1995	1992	1994	1992	1993	1993	1992	1992	1992	1995	1992	1995

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1991 - 1995	
ANNUAL TOTAL	1571.01		708.31			
ANNUAL MEAN	4.30		1.94		2.81	
HIGHEST ANNUAL MEAN					4.28	1994
LOWEST ANNUAL MEAN					1.94	1995
HIGHEST DAILY MEAN	213	Mar 24	35	Apr 23	213	Mar 24 1994
LOWEST DAILY MEAN	.00	Jan 1	.00	Mar 14	.00	Nov 28 1991
ANNUAL SEVEN-DAY MINIMUM	.10	Jan 10	.00	Mar 14	.00	Jan 24 1992
ANNUAL RUNOFF (AC-FT)	3120		1400		2040	
10 PERCENT EXCEEDS	7.6		5.4		6.3	
50 PERCENT EXCEEDS	.96		.31		.45	
90 PERCENT EXCEEDS	.27		.04		.01	



WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1991 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: April 1991 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since September 1991.

REMARKS.--Record of "Sediment discharge, suspended (tons/day)" for water years 1994 and 1995 was not completed at the time of this publication.

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16226000 NORTH HALAWA STREAM NEAR AIEA

LOCATION.--Lat 21°23′46″, long 157°53′37″, Hydrologic Unit 20060000, on left bank 2.7 mi upstream from confluence with South Halawa Stream, and 2.7 mi northeast of Aiea Post Office.

DRAINAGE AREA.--3.45 mi^2.

PERIOD OF RECORD.--August 1929 to June 1933, July 1953 to current year. Monthly discharge only May, June 1931, published in WSP 1319.

REVISED RECORDS.--WSP 1319: Drainage area. WSP 1719: 1954-55(P), 1956, 1957(P), 1958-59.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft above mean sea level, from topographic map.

REMARKS.--Records good. Recording rain gage located at station.

AVERAGE DISCHARGE.--45 years (water years 1930-32, 1954-95), 5.46 ft^3/s (3,960 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,650 ft^3/s, Feb. 28, 1932, gage height, 13.36 ft, from rating curve extended above 420 ft^3/s; maximum gage height, 13.46 ft, May 14, 1963; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 570 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2400	*335	*7.84	No peak greater than base discharge.			

Minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

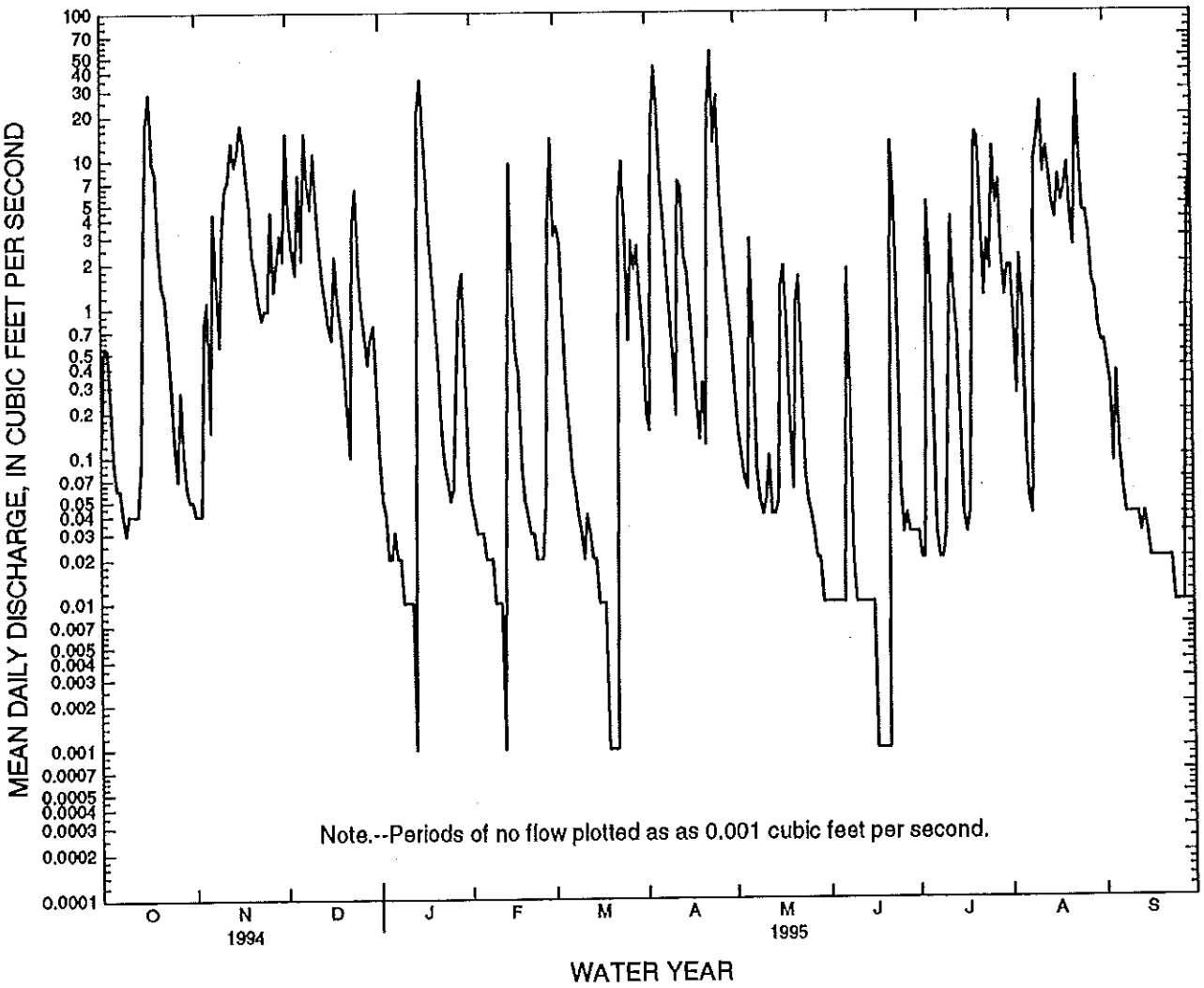
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.04	15	.10	.05	3.1	.19	.25	.01	.03	1.9	.59
2	.55	.04	3.9	.05	.04	3.6	.15	.14	.01	.02	.84	.42
3	.53	.04	2.3	.04	.03	2.7	16	.10	.01	.02	.26	.30
4	.23	.79	1.7	.02	.03	.80	43	.07	.01	5.1	2.2	.09
5	.09	1.1	7.8	.02	.03	.28	21	.06	.01	2.0	1.1	.36
6	.06	.15	2.1	.03	.02	.15	7.2	2.9	.01	.22	.13	.11
7	.06	4.3	15	.02	.02	.08	4.0	.57	1.8	.03	.05	.06
8	.04	1.5	6.6	.02	.02	.06	1.9	.08	.29	.02	.04	.04
9	.03	.56	4.7	.01	.01	.04	.96	.05	.02	.02	10	.04
10	.04	3.4	11	.01	.01	.03	.49	.04	.01	.03	14	.04
11	.04	6.4	4.8	.01	.01	.02	.19	.05	.01	.44	24	.04
12	.04	7.3	2.5	.01	.00	.04	7.1	.10	.01	4.0	8.1	.04
13	.04	13	1.5	.00	.20	.03	6.5	.04	.01	1.2	12	.03
14	.09	9.1	1.1	21	9.4	.02	2.2	.04	.01	.66	8.0	.04
15	2.3	11	.75	35	1.2	.02	1.7	.05	.01	.18	5.0	.03
16	18	17	.62	15	.50	.01	.86	1.4	.01	.04	4.0	.02
17	28	13	2.2	6.6	.36	.01	.45	1.9	.00	.03	7.7	.02
18	9.6	7.7	1.1	2.7	.09	.01	.22	.64	.00	.04	5.2	.02
19	8.0	4.8	.73	1.5	.05	.00	.13	.15	.00	1.1	6.3	.02
20	2.6	2.2	.45	.82	.04	.00	.31	.06	.00	15	9.3	.02
21	1.4	1.7	.21	.42	.03	.00	.12	1.1	.00	14	4.1	.02
22	1.2	1.1	.10	.16	.03	.00	21	1.6	13	4.3	2.6	.02
23	.66	.84	3.7	.09	.02	5.1	54	.37	6.1	1.2	36	.02
24	.30	.97	6.3	.07	.02	9.7	13	.08	.83	2.8	11	.01
25	.12	.95	1.8	.05	.02	3.6	27	.05	.06	1.8	4.4	.01
26	.07	4.4	.96	.06	.05	.61	6.3	.04	.03	12	4.4	.01
27	.27	1.3	.65	.32	3.8	2.8	2.8	.03	.04	5.0	3.1	.01
28	.10	2.0	.42	1.3	14	1.8	1.5	.02	.03	7.1	1.5	.64
29	.06	3.1	.63	1.7	---	2.6	.91	.02	.03	2.2	1.3	5.5
30	.05	2.1	.75	.37	---	1.2	.53	.01	.03	1.2	.74	13
31	.05	---	.30	.08	---	.65	---	.01	---	1.9	.58	---
TOTAL	74.74	121.88	101.67	87.58	30.08	39.06	241.71	12.02	22.39	83.68	189.84	21.57
MEAN	2.41	4.06	3.28	2.83	1.07	1.26	8.06	.39	.75	2.70	6.12	.72
MAX	28	17	15	35	14	9.7	54	2.9	13	15	36	13
MIN	.03	.04	.10	.00	.00	.00	.12	.01	.00	.02	.04	.01
AC-FT	148	242	202	174	60	77	479	24	44	166	377	43

16226000 NORTH HALAWA STREAM NEAR AIEA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1995, BY WATER YEAR (WY)

MEAN	3.53	7.80	7.95	6.59	8.23	8.35	7.21	4.92	1.77	3.75	3.82	2.22
MAX	16.3	50.6	35.0	26.0	76.3	37.8	33.2	30.1	7.86	23.0	21.6	17.1
(WY)	1959	1966	1930	1988	1932	1968	1932	1965	1932	1954	1982	1931
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1933	1954	1990	1977	1931	1931	1931	1931	1931	1953	1962	1953

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1929 - 1995		
ANNUAL TOTAL	2270.79		1026.22				
ANNUAL MEAN	6.22		2.81		5.46		
HIGHEST ANNUAL MEAN					15.7		1932
LOWEST ANNUAL MEAN					1.41		1984
HIGHEST DAILY MEAN	310	Mar 24	54	Apr 23	956	Nov 18	1930
LOWEST DAILY MEAN	.01	Jan 1	.00	Jan 13	.00	Sep 14	1929
ANNUAL SEVEN-DAY MINIMUM	.01	Jan 9	.00	Jun 15	.00	Sep 14	1929
ANNUAL RUNOFF (AC-FT)	4500		2040		3960		
10 PERCENT EXCEEDS	13		8.5		11		
50 PERCENT EXCEEDS	1.2		.32		.39		
90 PERCENT EXCEEDS	.04		.01		.00		



HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU

LOCATION.--Lat 21°23'04", long 157°54'22", Hydrologic Unit 20060000, on right bank, 0.5 mi north of Halawa quarry, 1.7 mi east of Aiea High School, and 1.9 mi east of Aiea.

DRAINAGE AREA.--4.01 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 160 ft above mean sea level, from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--12 years (water years 1984-95), 5.38 ft^3/s (3,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,780 ft^3/s, Dec. 18, 1990, gage height, 12.02 ft; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 17	0015	*501	*9.69

No peak greater than base discharge.

Minimum discharge, no flow on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

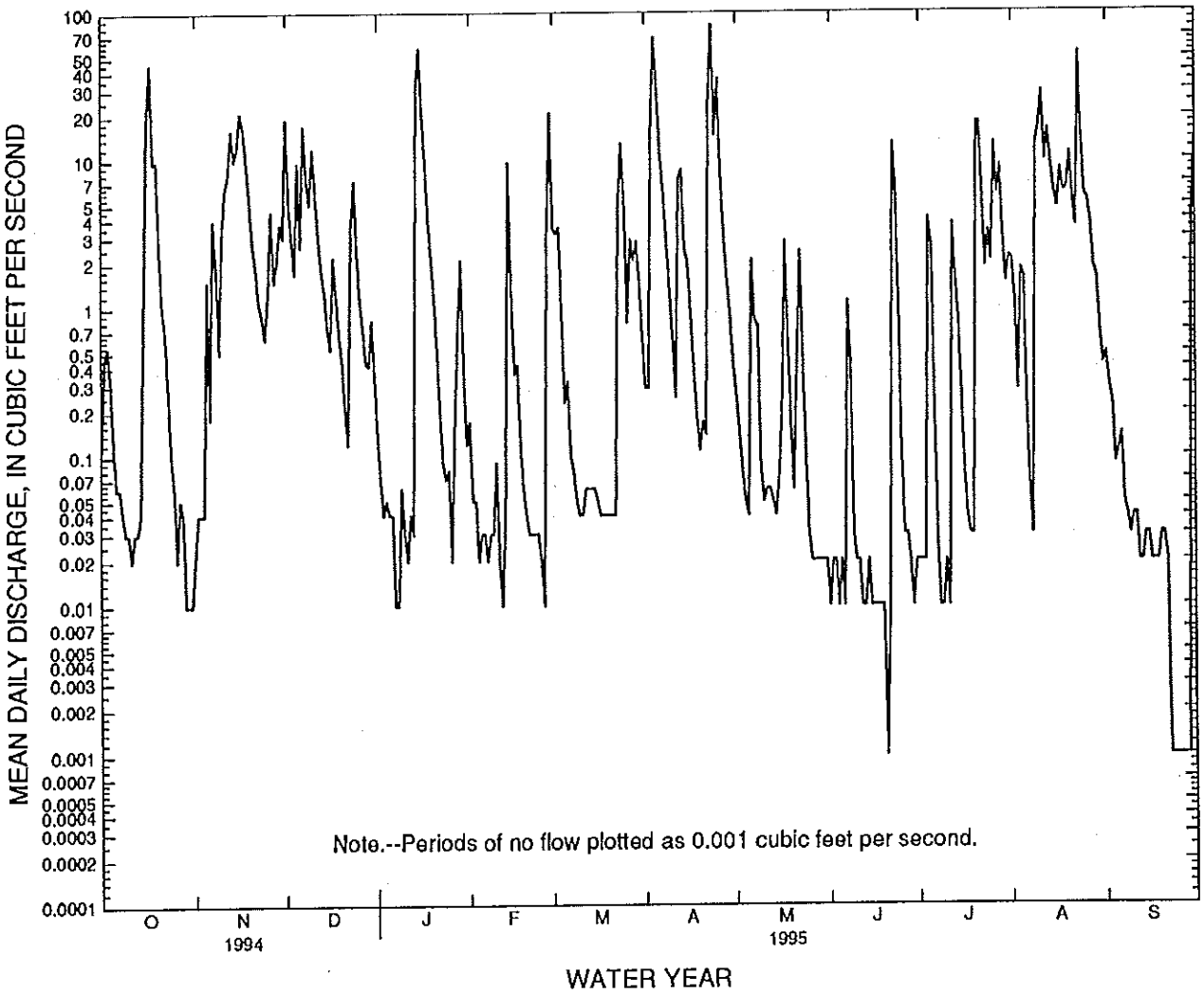
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.02	19	.14	.17	3.5	.29	.27	.01	.02	2.1	.49
2	.45	.04	5.2	.07	.05	3.2	.29	.15	.02	.02	1.1	.30
3	.54	.04	3.0	.04	.05	3.5	21	.08	.02	.02	.28	.23
4	.31	.04	1.7	.05	.02	.87	68	.05	.01	4.0	1.8	.09
5	.11	1.5	9.4	.04	.03	.23	30	.04	.02	2.7	1.6	.11
6	.06	.18	2.6	.04	.03	.32	11	2.1	.01	.24	.20	.14
7	.06	3.9	17	.01	.02	.10	6.1	.82	1.1	.03	.06	.05
8	.04	1.9	7.6	.01	.03	.08	3.0	.75	.41	.01	.03	.04
9	.03	.50	5.1	.06	.03	.05	1.4	.08	.03	.01	13	.03
10	.03	3.2	12	.03	.09	.04	.63	.05	.02	.02	17	.04
11	.02	6.3	5.9	.02	.02	.04	.25	.06	.02	.01	29	.04
12	.03	7.9	3.1	.04	.01	.06	7.5	.06	.01	3.7	10	.02
13	.03	16	1.8	.03	.04	.06	8.6	.05	.01	1.6	16	.02
14	.04	10	1.3	31	9.6	.06	2.5	.04	.02	.84	9.4	.03
15	.78	12	.74	58	1.3	.06	2.0	.07	.01	.25	6.1	.03
16	18	21	.53	21	.36	.05	.90	.21	.01	.08	4.8	.02
17	45	17	2.2	10	.41	.04	.40	2.8	.01	.04	8.6	.02
18	9.6	9.9	1.2	4.1	.12	.04	.19	.65	.01	.03	6.1	.02
19	9.8	5.7	.67	2.2	.06	.04	.11	.17	.01	.03	6.3	.03
20	2.6	2.8	.43	1.2	.04	.04	.17	.06	.00	18	11	.03
21	1.0	1.9	.21	.52	.03	.04	.14	.41	.01	18	5.6	.02
22	.68	1.1	.12	.20	.03	.04	26	2.4	13	5.8	3.6	.00
23	.29	.88	3.5	.09	.03	4.6	83	.43	6.6	1.9	53	.00
24	.10	.62	7.2	.07	.03	13	15	.10	1.1	3.3	14	.00
25	.06	1.2	2.4	.08	.02	5.4	36	.03	.10	2.1	5.7	.00
26	.02	4.5	1.1	.02	.01	.80	7.8	.02	.03	13	5.4	.00
27	.05	1.5	.73	.15	3.3	2.9	3.2	.02	.03	5.9	3.9	.00
28	.04	2.0	.42	.65	21	2.1	1.6	.02	.02	9.0	1.9	.00
29	.01	3.7	.41	2.1	---	2.8	.90	.02	.01	3.1	1.6	3.8
30	.01	3.0	.82	.39	---	1.5	.43	.02	.02	1.5	.73	14
31	.01	---	.36	.12	---	.66	---	.02	---	2.2	.42	---
TOTAL	89.91	140.32	117.74	132.47	36.93	46.22	338.40	12.05	22.68	97.45	240.32	19.60
MEAN	2.90	4.68	3.80	4.27	1.32	1.49	11.3	.39	.76	3.14	7.75	.65
MAX	45	21	19	58	21	13	83	2.8	13	18	53	14
MIN	.01	.02	.12	.01	.01	.04	.11	.02	.00	.01	.03	.00
AC-FT	178	278	234	263	73	92	671	24	45	193	477	39

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1995, BY WATER YEAR (WY)

MEAN	3.83	6.43	9.32	6.79	4.87	8.73	6.51	3.00	1.62	4.50	3.20	3.27
MAX	9.71	25.9	40.6	29.6	17.4	31.0	35.3	15.5	7.84	15.0	10.0	12.6
(WY)	1992	1991	1988	1988	1989	1991	1989	1988	1987	1989	1991	1992
MIN	.000	.059	.008	.001	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1985	1990	1990	1986	1983	1983	1983	1992	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1983 - 1995		
ANNUAL TOTAL	2634.90		1294.09				
ANNUAL MEAN	7.22		3.55		5.38		
HIGHEST ANNUAL MEAN					10.1		1988
LOWEST ANNUAL MEAN					1.43		1984
HIGHEST DAILY MEAN	476	Mar 24	83	Apr 23	476	Mar 24	1994
LOWEST DAILY MEAN	.01	Jan 1	.00	Jun 20	.00	Feb 1	1983
ANNUAL SEVEN-DAY MINIMUM	.01	Jan 8	.00	Sep 22	.00	Feb 1	1983
ANNUAL RUNOFF (AC-FT)	5230		2570		3900		
10 PERCENT EXCEEDS	13		10		11		
50 PERCENT EXCEEDS	1.3		.29		.54		
90 PERCENT EXCEEDS	.04		.02		.00		



16226200 NORTH HALAWA STREAM NR HONOLULU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1983 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: February 1983 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since February 1983.

REMARKS.--Water-quality samples also were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water years 1994 and 1995 was not completed at the time of this publication.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
12...	1230	0.03	300	7.4	28.0	25.0	1.7	759	7.0	85	--
NOV											
14...	1215	6.7	170	7.9	25.5	22.5	55	757	8.5	99	560
DEC											
20...	1130	0.42	305	7.7	24.0	20.5	190	762	8.4	93	--
JAN											
11...	0840	0.10	310	7.9	22.0	19.5	16	757	7.7	85	--
FEB											
14...	1320	5.0	145	7.5	21.0	20.0	33	757	8.9	99	3000
MAR											
17...	1245	0.03	340	8.0	25.5	22.0	47	762	7.8	89	--
APR											
12...	1445	4.4	220	8.2	24.0	23.0	18	759	8.2	96	--
MAY											
23...	1345	0.36	227	8.0	28.0	25.0	3.3	762	8.2	99	K1300
JUN											
14...	1100	0.01	365	7.6	26.0	22.5	0.50	760	6.2	72	--
JUL											
11...	1315	0.01	340	7.6	--	24.5	0.80	761	8.4	101	--
SEP											
14...	1115	0.09	318	7.8	28.5	23.5	7.2	758	7.3	87	16000

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
14...	1215	47	11	4.8	12	35	0.8	1.3	45	6.2	18
SEP											
14...	1115	100	19	13	23	33	1	1.3	105	7.9	31

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
14...	1215	<0.10	14	96	95	0.13	72	0.110	0.110	<0.20	<0.010
FEB											
14...	1320	--	--	--	--	--	28	0.180	0.180	<0.20	0.030
MAY											
23...	1345	--	--	--	--	--	1	--	<0.050	<0.20	<0.010
SEP											
14...	1115	<0.10	24	185	183	0.25	4	0.050	0.050	<0.20	0.020

< Actual value is known to be less than the value shown
K Results based on colony count outside acceptance range

16226200 NORTH HALAWA STREAM NR HONOLULU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
NOV												
14...	1215	2500	100	<1	<100	<2.0	<10	<1	10	4	<3.0	8
SEP												
14...	1115	360	<10	<1	<100	3.0	<10	<1	1	<1	<3.0	1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV											
14...	3000	61	2	<10	<4	110	16	<0.10	<1	<10	9
SEP											
14...	530	8.0	<1	<10	<4	100	69	<0.10	<1	<10	2

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	ALDRIN, TOTAL (UG/L)
NOV											
14...	<1.0	<1	<1	<1	<1.0	46	<6	20	3.7	<1	<0.010
SEP											
14...	<1.0	<1	<1	<1	<1.0	110	<6	<10	30	<1	<0.010

DATE	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)
NOV											
14...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP											
14...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDOSULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV										
14...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP										
14...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARATHION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV										
14...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010
SEP										
14...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

16229000 KALIHI STREAM NEAR HONOLULU

LOCATION.--Lat 21°22'00", long 157°50'49", Hydrologic Unit 20060000, on right bank 1.9 mi upstream from Kamanaiki Stream, and 4.1 mi north of Honolulu Post Office.

DRAINAGE AREA.--2.61 mi^2.

PERIOD OF RECORD.--September 1913 to April 1914, July 1914 to current year. Monthly discharge only for some periods, published in WSP 1319.
CHEMICAL ANALYSES: Water years 1972, 1974-93, quarterly (discontinued).

REVISED RECORDS.--WSP 1569: Drainage area. WSP 1719: 1921-22(M), 1923-24, 1925-26(M), 1927-28, 1929-32(M), 1935, 1937, 1938-39(M), 1943(M), 1948-52(P), 1955-56, 1957-58(M), 1959.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 464.40 ft above mean sea level (by stadia survey). Prior to Oct. 12, 1923, at datum 2.00 ft lower.

REMARKS.--Records fair. Miscellaneous chemical analyses published for the 1969, and 1973 water years.

AVERAGE DISCHARGE.--81 years (water years 1915-95), 6.54 ft^3/s (4,740 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 12,400 ft^3/s, Nov. 18, 1930, gage height, 13.81 ft, from rating curve extended above 280 ft^3/s on basis of indirect measurements at gage heights 8.9 ft, 10.96 ft, and 11.27 ft; minimum, 0.09 ft^3/s, Oct. 22, 1933, July 29, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 27	2300	*1,100	*8.23	No other peak greater than base discharge.			

Minimum discharge, 0.75 ft^3/s, Sep. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	1.9	e9.7	1.7	1.4	8.4	2.1	3.8	1.8	1.5	2.0	2.0
2	7.4	3.4	e3.5	1.8	1.4	4.3	1.9	3.7	2.0	1.4	1.8	2.1
3	3.2	2.2	e2.4	1.7	1.3	3.1	10	3.5	1.9	2.5	1.4	1.7
4	2.7	2.3	e3.9	1.4	1.3	2.4	33	3.3	1.9	4.2	1.4	1.5
5	2.3	2.2	e9.0	1.4	1.5	2.5	19	3.4	1.9	2.3	1.4	2.9
6	2.2	2.1	2.5	1.4	1.4	2.4	7.4	4.5	1.8	1.8	1.2	1.9
7	2.4	5.3	17	1.4	1.2	2.2	5.0	3.3	4.9	1.6	1.4	1.6
8	2.0	2.7	4.7	1.4	1.3	2.2	3.9	2.9	2.2	1.5	1.4	1.4
9	1.9	2.3	4.8	1.3	1.1	2.2	4.7	2.6	1.8	1.4	5.2	1.3
10	1.8	3.8	13	1.4	1.4	2.2	3.3	2.6	1.7	2.3	2.0	1.4
11	1.9	7.8	3.6	1.3	1.1	1.8	2.8	2.8	1.6	2.9	11	1.3
12	2.5	11	2.7	1.5	.93	3.0	14	3.5	1.7	4.2	3.1	1.2
13	2.1	13	2.5	1.3	2.3	1.8	7.6	2.7	1.7	e2.8	6.7	1.2
14	2.2	7.0	2.3	21	6.2	1.5	4.1	2.4	1.7	e2.9	6.2	1.2
15	9.9	4.9	2.3	9.8	1.8	1.3	3.5	4.5	1.5	e1.7	3.0	1.2
16	26	13	2.2	4.3	1.4	1.4	3.1	5.6	1.3	e1.5	3.3	1.2
17	11	8.6	3.0	2.7	1.3	1.4	2.9	4.3	1.3	e1.6	2.4	1.2
18	9.0	4.6	2.4	2.1	1.4	1.3	2.8	3.9	1.3	e1.2	2.3	1.2
19	5.3	3.3	3.0	1.9	1.2	1.3	2.5	3.1	1.3	e1.3	4.2	1.3
20	3.6	2.8	2.1	1.7	1.1	1.3	2.5	2.8	1.3	e10	4.0	1.1
21	3.0	2.8	1.9	1.6	1.0	2.1	2.5	15	2.0	e6.4	2.2	1.1
22	3.3	3.2	1.9	1.6	1.0	6.1	18	6.1	11	e2.6	2.0	.93
23	2.6	2.9	9.0	1.5	1.0	9.8	35	3.7	9.1	e2.3	36	.93
24	2.4	2.4	11	1.4	1.4	9.6	13	3.1	3.0	e3.5	6.4	.89
25	2.3	2.2	2.9	1.5	2.3	3.1	25	2.8	2.2	e4.2	4.1	.84
26	2.9	e5.5	2.4	1.7	1.5	2.4	9.6	2.4	1.7	e12	4.0	.84
27	3.8	e2.2	2.1	2.4	53	2.9	6.3	2.1	1.8	3.4	6.3	.90
28	2.4	e3.7	2.1	3.1	30	2.6	5.3	2.0	1.7	3.0	2.9	1.3
29	2.2	e5.6	2.0	2.2	---	3.5	4.6	2.0	1.5	2.3	2.6	5.6
30	2.1	e2.5	2.0	1.6	---	2.4	4.2	1.9	1.7	1.9	2.1	12
31	2.0	---	1.8	1.6	---	2.3	---	1.7	---	1.7	1.9	---
TOTAL	130.7	137.2	135.7	82.7	123.23	94.8	259.6	112.0	72.3	93.9	135.9	55.23
MEAN	4.22	4.57	4.38	2.67	4.40	3.06	8.65	3.61	2.41	3.03	4.38	1.84
MAX	26	13	17	21	53	9.8	35	15	11	12	36	12
MIN	1.8	1.9	1.8	1.3	.93	1.3	1.9	1.7	1.3	1.2	1.2	.84
AC-FT	259	272	269	164	244	188	515	222	143	186	270	110

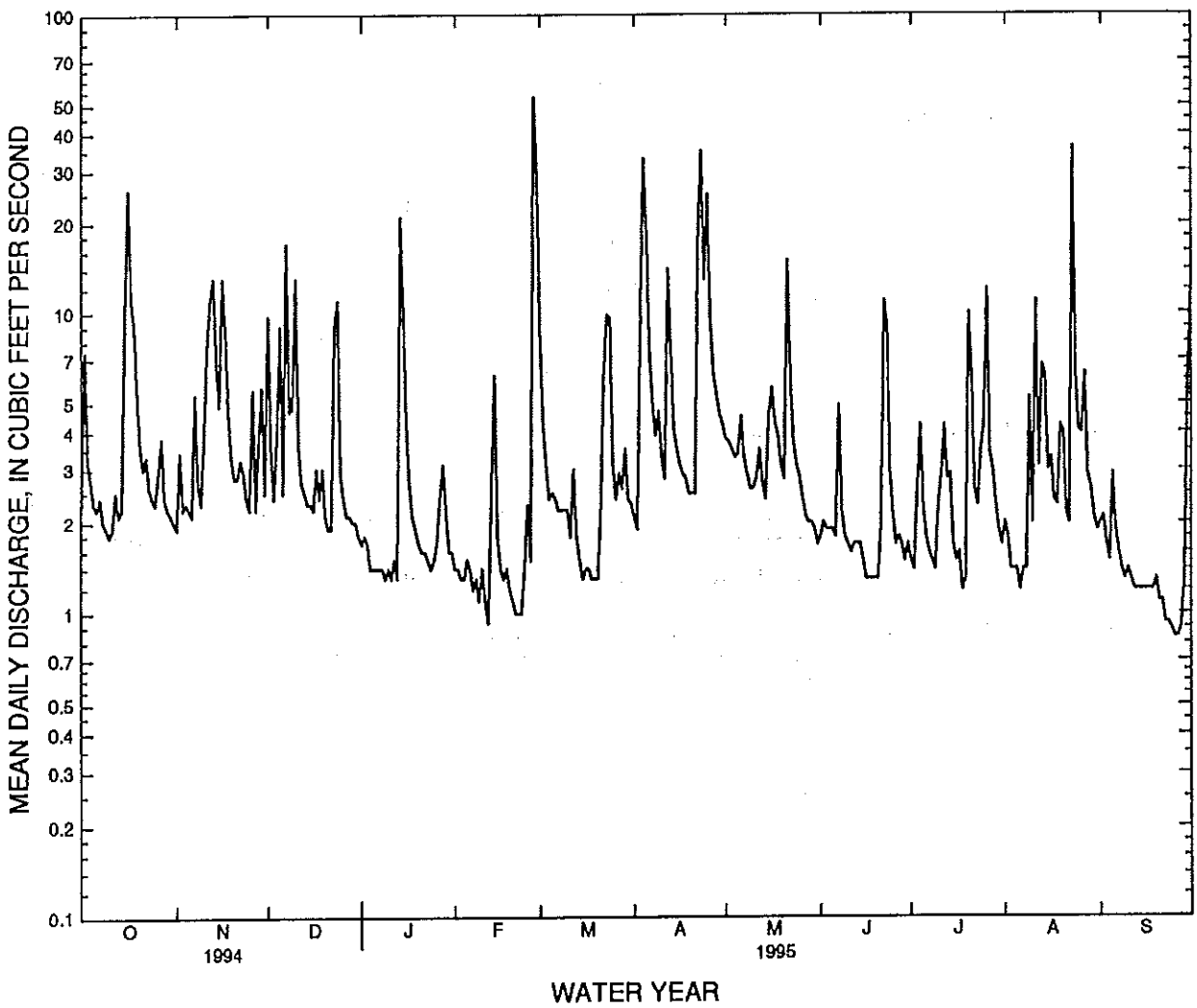
e Estimated

16229000 KALIHI STREAM NEAR HONOLULU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1995, BY WATER YEAR (WY)

MEAN	4.68	7.26	8.59	9.10	7.31	8.68	8.48	6.59	3.71	4.56	5.18	4.60
MAX	18.9	35.0	35.0	65.7	48.6	40.6	36.0	37.5	12.9	16.6	26.7	31.3
(WY)	1937	1928	1930	1923	1932	1951	1989	1927	1934	1954	1958	1914
MIN	.29	.46	.74	.50	.34	.74	.63	.27	.32	.60	.43	.30
(WY)	1985	1954	1977	1977	1978	1926	1926	1926	1966	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1914 - 1995		
ANNUAL TOTAL	2655.22		1433.26				
ANNUAL MEAN	7.27		3.93		6.54		
HIGHEST ANNUAL MEAN					13.5		1923
LOWEST ANNUAL MEAN					2.04		1984
HIGHEST DAILY MEAN	327	Mar 24	53	Feb 27	951	Jan 19	1923
LOWEST DAILY MEAN	.95	Jan 16	.84	Sep 25	.11	Jul 29	1966
ANNUAL SEVEN-DAY MINIMUM	1.0	Jan 10	.92	Sep 21	.15	May 15	1926
ANNUAL RUNOFF (AC-FT)	5270		2840		4740		
10 PERCENT EXCEEDS	11		8.8		12		
50 PERCENT EXCEEDS	3.6		2.3		2.9		
90 PERCENT EXCEEDS	2.0		1.3		1.0		



16229300 KALIHI STREAM AT KALIHI

LOCATION.--Lat 21°20′29", long 157°52′36", Hydrologic Unit 20060000, on right bank at Kalihi, 0.4 mi northwest of Bishop Museum, and 2.4 mi northwest of Honolulu Post Office.

DRAINAGE AREA.--5.18 mi^2.

PERIOD OF RECORD.--Water year 1962 (annual maximum), July 1962 to current year.
CHEMICAL ANALYSES: Water years 1970-74, 1975-93, quarterly (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: Water years 1969-74, 1975-93, quarterly (discontinued).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 70 ft above mean sea level, from topographic map. Aug. 28, 1961, to June 30, 1962, crest-stage gage at site 600 ft downstream at different datum.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--33 years (water years 1963-95), 10.4 ft^3/s (7,550 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,110 ft^3/s, Apr. 19, 1974, gage height, 9.98 ft from rating curve extended above 180 ft^3/s on basis of slope-area measurement at gage height 9.98 ft; minimum, 0.16 ft^3/s, June 24, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 14, 1960, reached a stage of 8.0 ft from floodmarks, present site and datum, discharge, 6,350 ft^3/s, from slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 980 ft^3/s (revised) and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 27	2300	*3,090	*6.69	No other peak greater than base discharge.			

Minimum discharge, 0.58 ft^3/s, Mar. 10-12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

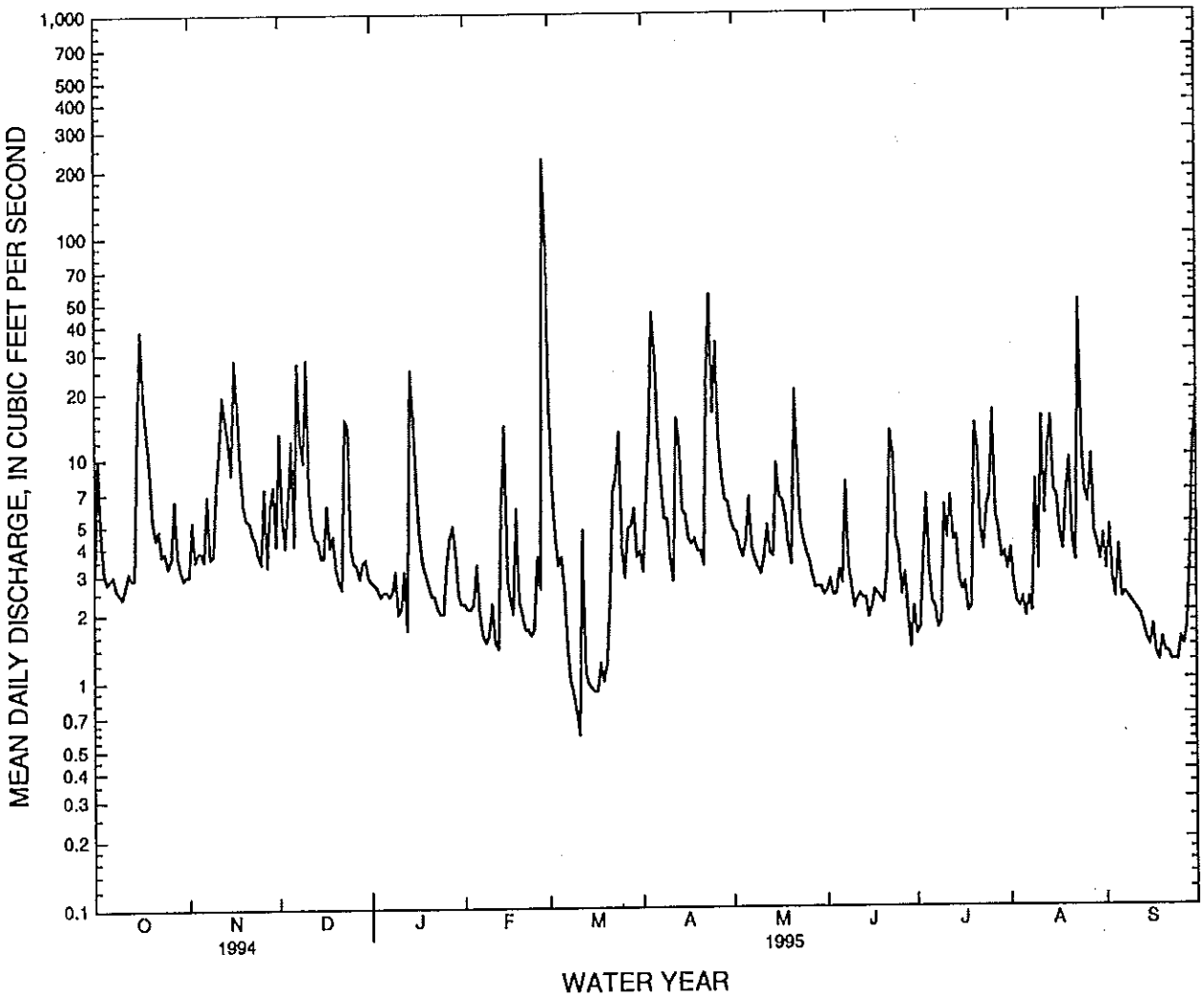
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	3.0	13	2.8	2.2	16	3.1	4.7	2.5	1.6	3.8	3.1
2	10	5.2	5.4	2.7	2.1	7.1	6.5	4.6	2.8	1.7	2.7	4.8
3	4.5	3.5	4.0	2.6	2.1	4.4	13	3.9	2.4	3.4	2.2	2.8
4	3.1	3.8	6.5	2.4	2.2	3.3	45	3.6	2.4	6.7	2.1	2.3
5	2.8	3.8	12	2.5	3.3	3.6	29	4.1	3.1	3.1	2.3	3.9
6	2.9	3.5	4.1	2.5	2.0	2.6	12	6.6	2.7	2.2	1.9	2.3
7	3.0	6.8	27	2.4	1.6	1.4	7.6	3.9	7.7	2.1	2.3	2.4
8	2.6	3.6	12	2.5	1.5	1.0	5.3	3.5	3.2	1.7	2.0	2.3
9	2.5	3.7	9.7	3.1	1.6	.88	5.3	3.2	2.6	1.8	7.8	2.2
10	2.4	7.4	28	2.0	2.2	.73	3.5	3.0	2.1	6.0	3.1	2.1
11	2.7	11	7.2	2.1	1.5	.58	2.8	3.6	2.3	4.3	15	2.0
12	3.1	19	5.0	3.1	1.4	4.7	15	4.9	2.4	6.6	5.5	1.9
13	2.9	15	4.4	1.7	6.1	1.1	12	3.7	2.3	4.2	11	1.7
14	2.9	12	4.3	25	14	.97	5.8	3.6	2.3	4.4	15	1.5
15	14	8.6	3.6	15	2.9	.93	5.5	9.3	1.9	2.8	7.0	1.4
16	38	28	3.6	7.3	2.3	.90	4.3	6.6	2.1	2.5	6.6	1.7
17	19	17	6.1	4.5	2.0	.90	4.1	6.4	2.5	2.7	4.5	1.3
18	13	9.1	4.0	3.4	5.9	1.2	4.3	5.4	2.4	2.0	3.8	1.2
19	9.3	6.2	4.5	3.0	2.3	1.0	3.8	4.0	2.3	2.1	6.7	1.5
20	5.4	5.3	3.2	2.7	2.0	1.2	3.8	3.3	2.2	14	9.7	1.3
21	4.4	5.2	2.8	2.4	1.7	2.3	3.3	20	3.1	11	4.1	1.3
22	4.8	4.6	2.6	2.4	1.7	7.1	23	8.9	13	4.8	3.4	1.2
23	3.7	4.3	15	2.1	1.6	8.3	54	5.0	10	3.8	50	1.2
24	3.8	3.7	14	2.0	1.7	13	16	4.2	4.3	5.9	11	1.2
25	3.3	3.4	4.0	2.0	3.6	3.9	33	3.7	3.7	6.7	6.9	1.5
26	3.6	7.3	3.4	3.3	2.6	2.9	12	3.4	2.4	16	6.2	1.4
27	6.5	3.3	3.3	4.4	223	4.8	8.3	2.9	3.0	5.5	10	1.7
28	3.7	6.1	2.9	4.9	96	4.9	6.5	2.6	2.0	4.6	4.5	3.6
29	3.2	7.5	3.4	3.7	---	5.9	6.3	2.6	1.4	3.5	4.0	11
30	2.9	4.1	3.5	2.4	---	3.6	5.2	2.6	2.1	3.7	3.4	17
31	3.0	---	2.9	2.2	---	3.8	---	2.4	---	3.1	4.4	---
TOTAL	190.1	225.0	225.4	125.1	393.1	114.99	359.3	150.2	99.2	144.5	222.9	84.8
MEAN	6.13	7.50	7.27	4.04	14.0	3.71	12.0	4.85	3.31	4.66	7.19	2.83
MAX	38	28	28	25	223	16	54	20	13	16	50	17
MIN	2.4	3.0	2.6	1.7	1.4	.58	2.8	2.4	1.4	1.6	1.9	1.2
AC-FT	377	446	447	248	780	228	713	298	197	287	442	168

16229300 KALIHI STREAM AT KALIHI--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

MEAN	7.00	13.6	15.5	13.5	11.5	16.3	13.8	9.94	5.23	8.00	6.24	4.70
MAX	22.2	49.2	56.6	45.8	60.3	73.2	57.6	40.9	19.5	29.3	35.7	20.4
(WY)	1964	1966	1988	1982	1969	1968	1989	1965	1980	1970	1982	1992
MIN	.95	2.15	1.15	.82	.78	1.15	1.65	1.49	.87	1.17	.83	.64
(WY)	1985	1981	1977	1977	1978	1983	1992	1966	1966	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1962 - 1995	
ANNUAL TOTAL	4485.8		2334.59			
ANNUAL MEAN	12.3		6.40		10.4	
HIGHEST ANNUAL MEAN					21.3	1982
LOWEST ANNUAL MEAN					3.13	1984
HIGHEST DAILY MEAN	777	Mar 24	223	Feb 27	781	Feb 1 1969
LOWEST DAILY MEAN	2.1	Jan 13	.58	Mar 11	.23	Jun 28 1966
ANNUAL SEVEN-DAY MINIMUM	2.1	Jan 11	1.0	Mar 13	.36	Oct 14 1984
ANNUAL RUNOFF (AC-FT)	8900		4630		7550	
10 PERCENT EXCEEDS	17		12		18	
50 PERCENT EXCEEDS	5.4		3.6		3.8	
90 PERCENT EXCEEDS	2.9		1.7		1.3	



16232000 NUUANU STREAM BELOW RESERVOIR 2 WASTEWAY, NEAR HONOLULU

LOCATION.--Lat 21°20′57″, long 157°49′40″, Hydrologic Unit 20060000, on right bank beside Old Pali Road in upper Nuuanu Valley, 0.2 mi downstream from reservoir 2 wasteway, and 3.5 mi northeast of Honolulu Post Office.

DRAINAGE AREA.--3.35 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1913 to January 1921. September 1921 to current year.

REVISED RECORDS.--WSP 985: 1921-35(M). WSP 1319: 1931. WSP 1569: Drainage area. WSP 1639: 1931, 1935.

GAGE.--Water-stage recorder and sharp-crested weirs. Datum of gage is 630.71 ft above mean sea level (by stadia survey). Prior to Sep. 7, 1915, nonrecording gage at same site at datum 631.68 ft and Sep. 7, 1915 to Mar. 31, 1918, at 631.71 ft above mean sea level. Datum of gage lowered 1.00 ft on Feb. 4, 1992.

REMARKS.--Records good. Low-flow regulation by reservoirs 2, 3, and 4, capacities, 21 acre-ft, 34 acre-ft, and 1,630 acre-ft, respectively. Honolulu Board of Water Supply diverts ground water from tunnels within the drainage area.

AVERAGE DISCHARGE.--79 years (water years 1915-16, 1918-20, 1922-95), 7.00 ft^3/s (5,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,990 ft^3/s, Jan. 16, 1921, gage height, 8.74 ft, from floodmarks, from rating curve extended above 420 ft^3/s by test of physical model of station site; minimum, 0.09 ft^3/s, Sep. 10, 11, 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 240 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2300	*701	*5.89	Feb. 27	2300	426	5.34

Minimum discharge, 2.2 ft^3/s, Feb. 13, 23, 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

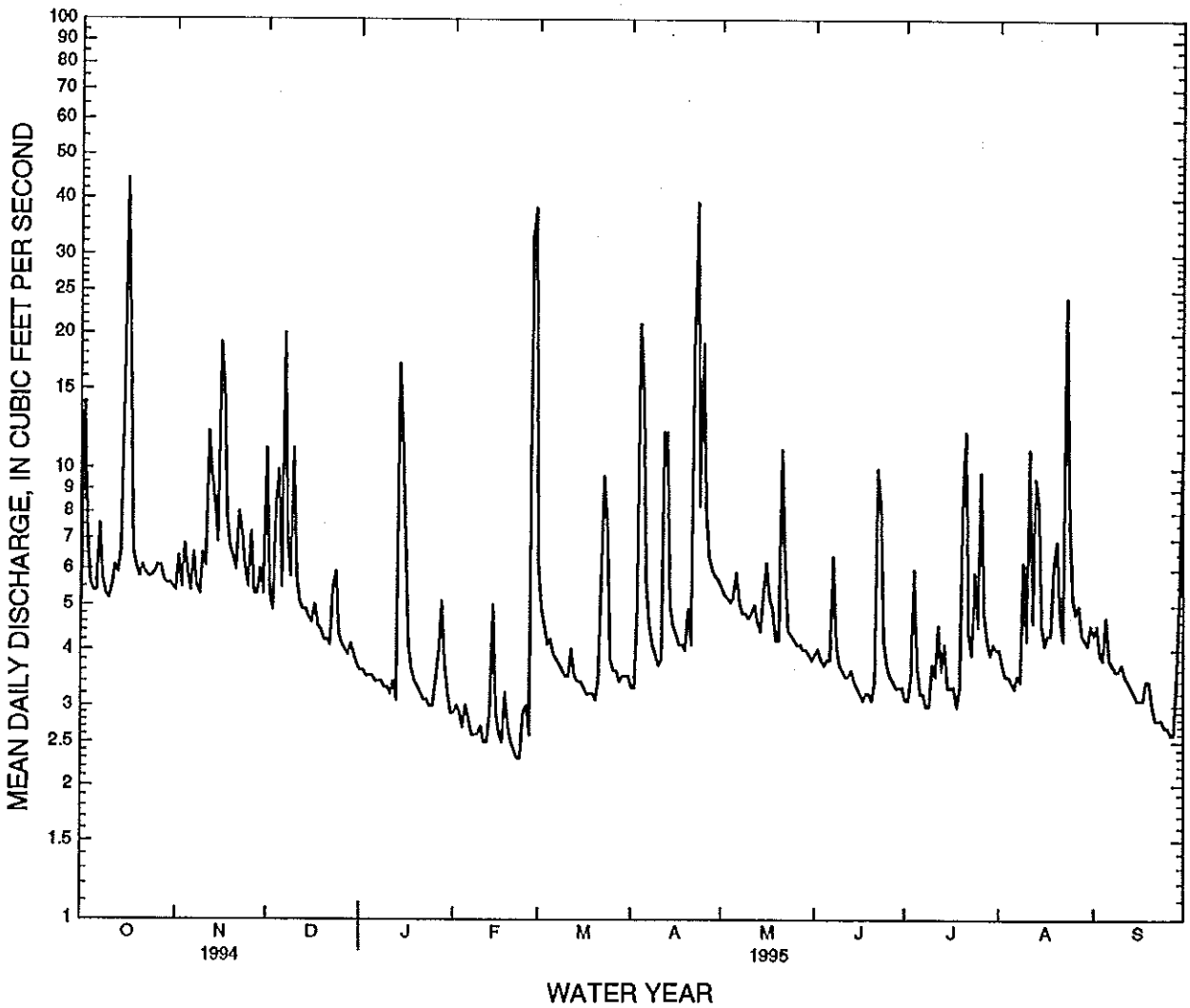
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	5.4	11	3.6	2.9	6.1	3.3	5.5	3.9	3.1	4.0	4.3
2	14	6.4	5.3	3.6	3.0	4.9	3.3	5.3	4.0	3.1	3.7	4.5
3	7.2	5.5	4.9	3.5	2.9	4.5	4.9	5.2	3.8	3.5	3.5	3.9
4	5.6	6.8	8.2	3.5	2.7	4.1	21	5.1	3.7	6.0	3.5	3.8
5	5.4	5.9	9.9	3.5	3.0	4.2	15	5.2	3.8	3.7	3.4	4.7
6	5.4	5.4	5.5	3.4	2.8	3.9	5.6	5.9	3.8	3.2	3.3	3.8
7	7.5	6.5	20	3.4	2.6	3.8	4.5	5.1	6.4	3.2	3.5	3.7
8	5.7	5.5	6.9	3.4	2.6	3.7	4.1	4.8	4.1	3.0	3.4	3.6
9	5.3	5.3	5.8	3.3	2.6	3.6	3.9	4.8	3.7	3.0	6.2	3.6
10	5.2	6.5	11	3.3	2.7	3.5	3.7	4.7	3.6	3.7	4.2	3.7
11	5.5	6.1	5.8	3.2	2.5	3.5	3.8	4.8	3.5	3.5	11	3.5
12	6.1	12	5.1	3.4	2.5	4.0	12	5.0	3.5	4.5	4.6	3.4
13	5.9	9.6	4.9	3.1	2.9	3.5	12	4.6	3.6	3.6	9.5	3.3
14	6.6	8.4	4.9	17	5.0	3.4	5.0	4.4	3.4	4.1	8.4	3.2
15	15	6.9	4.7	12	2.9	3.4	4.5	5.3	3.3	3.3	4.5	3.1
16	44	19	4.6	7.0	2.6	3.3	4.3	6.2	3.2	3.3	4.1	3.1
17	18	15	5.0	4.1	2.5	3.2	4.1	5.2	3.1	3.3	4.3	3.1
18	6.6	7.8	4.5	3.6	3.2	3.2	4.1	4.9	3.2	3.0	4.3	3.4
19	6.1	6.7	4.4	3.4	2.7	3.2	4.0	4.2	3.2	3.3	6.1	3.4
20	5.8	6.4	4.2	3.3	2.5	3.1	4.9	4.2	3.1	8.7	6.9	3.0
21	6.1	6.0	4.2	3.2	2.4	3.4	4.1	11	3.4	12	4.7	2.8
22	5.9	8.0	4.1	3.1	2.3	5.7	19	6.2	10	4.3	4.2	2.8
23	5.8	7.2	5.5	3.1	2.3	9.6	39	4.4	8.3	3.9	24	2.8
24	5.8	6.1	5.9	3.0	2.9	7.5	8.3	4.3	4.2	5.9	7.8	2.7
25	5.9	5.5	4.3	3.0	3.0	3.8	19	4.2	3.7	4.5	5.2	2.7
26	6.1	7.2	4.1	3.4	2.6	3.6	8.2	4.1	3.5	9.8	4.8	2.6
27	6.1	5.3	4.0	3.9	33	3.6	6.4	4.1	3.4	4.8	5.0	2.6
28	5.7	5.3	3.9	5.1	38	3.4	6.0	4.0	3.3	4.2	4.3	3.5
29	5.6	6.0	4.1	3.7	---	3.5	5.8	4.0	3.3	3.9	4.2	5.4
30	5.6	5.3	3.9	3.2	---	3.5	5.7	3.9	3.3	4.1	4.1	11
31	5.5	---	3.7	2.9	---	3.5	---	3.8	---	4.0	4.5	---
TOTAL	250.1	219.0	184.3	132.2	143.6	127.2	249.5	154.4	120.3	137.5	175.2	111.0
MEAN	8.07	7.30	5.95	4.26	5.13	4.10	8.32	4.98	4.01	4.44	5.65	3.70
MAX	44	19	20	17	38	9.6	39	11	10	12	24	11
MIN	5.1	5.3	3.7	2.9	2.3	3.1	3.3	3.8	3.1	3.0	3.3	2.6
AC-FT	496	434	366	262	285	252	495	306	239	273	348	220

16232000 NUUANU STREAM BELOW RESERVOIR 2 WASTEWAY, NEAR HONOLULU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1995, BY WATER YEAR (WY)

MEAN	4.35	6.87	8.86	9.46	9.07	9.62	9.44	8.05	5.00	4.30	5.04	4.50
MAX	21.5	43.7	46.8	56.0	81.3	52.5	41.7	46.2	19.0	10.7	32.4	27.7
(WY)	1931	1966	1928	1988	1932	1968	1989	1927	1938	1954	1982	1931
MIN	.23	.38	.38	.51	.39	.39	.32	.28	.35	.22	.43	.38
(WY)	1918	1946	1920	1920	1920	1926	1926	1926	1920	1922	1920	1917

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1914 - 1995		
ANNUAL TOTAL	3648.8		2004.3				
ANNUAL MEAN	10.0		5.49		7.00		
HIGHEST ANNUAL MEAN					20.0		1932
LOWEST ANNUAL MEAN					.88		1920
HIGHEST DAILY MEAN	282	Mar 24	44	Oct 16	514	May 16	1927
LOWEST DAILY MEAN	2.5	Jan 16	2.3	Feb 22	.14	Jul 7	1922
ANNUAL SEVEN-DAY MINIMUM	2.8	Jan 10	2.6	Feb 17	.14	Jul 18	1922
ANNUAL RUNOFF (AC-FT)	7240		3980		5070		
10 PERCENT EXCEEDS	16		8.3		14		
50 PERCENT EXCEEDS	6.8		4.2		3.7		
90 PERCENT EXCEEDS	4.0		3.0		.93		



16232000 NUUANU STREAM BELOW RESERVOIR 2 WASTEWAY, NEAR HONOLULU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1994 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT
OCT											
31...	1110	5.5	130	7.2	26.0	22.5	38	5.1	6.2	11	38
JAN											
30...	1120	3.3	120	7.9	24.5	21.5	36	4.9	5.8	10	37
MAY											
01...	1100	5.6	130	7.7	23.0	19.0	36	4.9	5.8	11	39
31...	1420	4.0	135	7.7	23.0	21.0	38	4.9	6.2	11	38
SEP											
01...	1105	4.5	135	7.8	29.0	22.0	37	5.0	5.9	11	39

DATE	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
OCT											
31...	0.8	0.60	34	5.0	16	<0.10	12	76	0.10	150	20
JAN											
30...	0.7	0.90	33	3.8	16	<0.10	12	73	0.10	150	26
MAY											
01...	0.8	0.50	34	5.0	17	<0.10	12	77	0.10	110	18
31...	0.8	0.40	35	4.4	15	<0.10	12	75	0.10	110	16
SEP											
01...	0.8	0.70	35	4.5	16	<0.10	13	77	0.11	150	22

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

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16240500 WAIAKEAKUA STREAM AT HONOLULU

LOCATION.--Lat 21°19′53", long 157°48′12", Hydrologic Unit 20060000, on right bank 5 ft downstream from bridge on Waaloa Way, 500 ft upstream from confluence with Waihi Stream, and 4.2 mi northeast of Honolulu Post Office.

DRAINAGE AREA.--1.06 mi^2.

PERIOD OF RECORD.--May 1913 to January 1921, August 1925 to current year. Prior to July 1960, published as East Branch Manoa Stream near Honolulu.

REVISED RECORDS.--WSP 1319: 1919(M), 1930-33(M). WSP 1569: Drainage area. WSP 1937: 1949(M), 1960(M).

GAGE.--Water-stage recorder and combination Parshall flume and concrete weir. Datum of gage is 294.50 ft above mean sea level (Honolulu Board of Water Supply bench mark). Prior to May 20, 1914, nonrecording gage at site 200 ft upstream at different datum. May 20, 1914 to Jan. 16, 1921, water-stage recorder at site 30 ft upstream at different datum. Aug. 18, 1925 to Mar. 15, 1928, water-stage recorder at present site at datum 2.99 ft lower. Mar. 16, 1928 to Oct. 18, 1933, water-stage recorder at present site at datum 0.41 ft higher.

REMARKS.--Records good. Honolulu Board of Water Supply at times diverts a small amount of ground water from tunnel upstream of station. Occasional small diversions for irrigation upstream of station.

AVERAGE DISCHARGE.--77 years (water years 1914-20, 1926-95), 4.94 ft^3/s (3,580 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,090 ft^3/s, Jan. 16, 1921, gage height, 10.4 ft, from floodmarks, site and datum then in use, from rating curve extended above 58 ft^3/s. Current peak discharges are derived from rating curve extended above 1,760 ft^3/s on the basis of slope-area measurement at gage height 5.28 ft; minimum, 0.6 ft^3/s, June 7, 8, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 310 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2300	321	3.16	Feb. 28	0100	*425	*3.44

Minimum discharge, 2.2 ft^3/s, Mar. 19-21, Sep. 23-26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

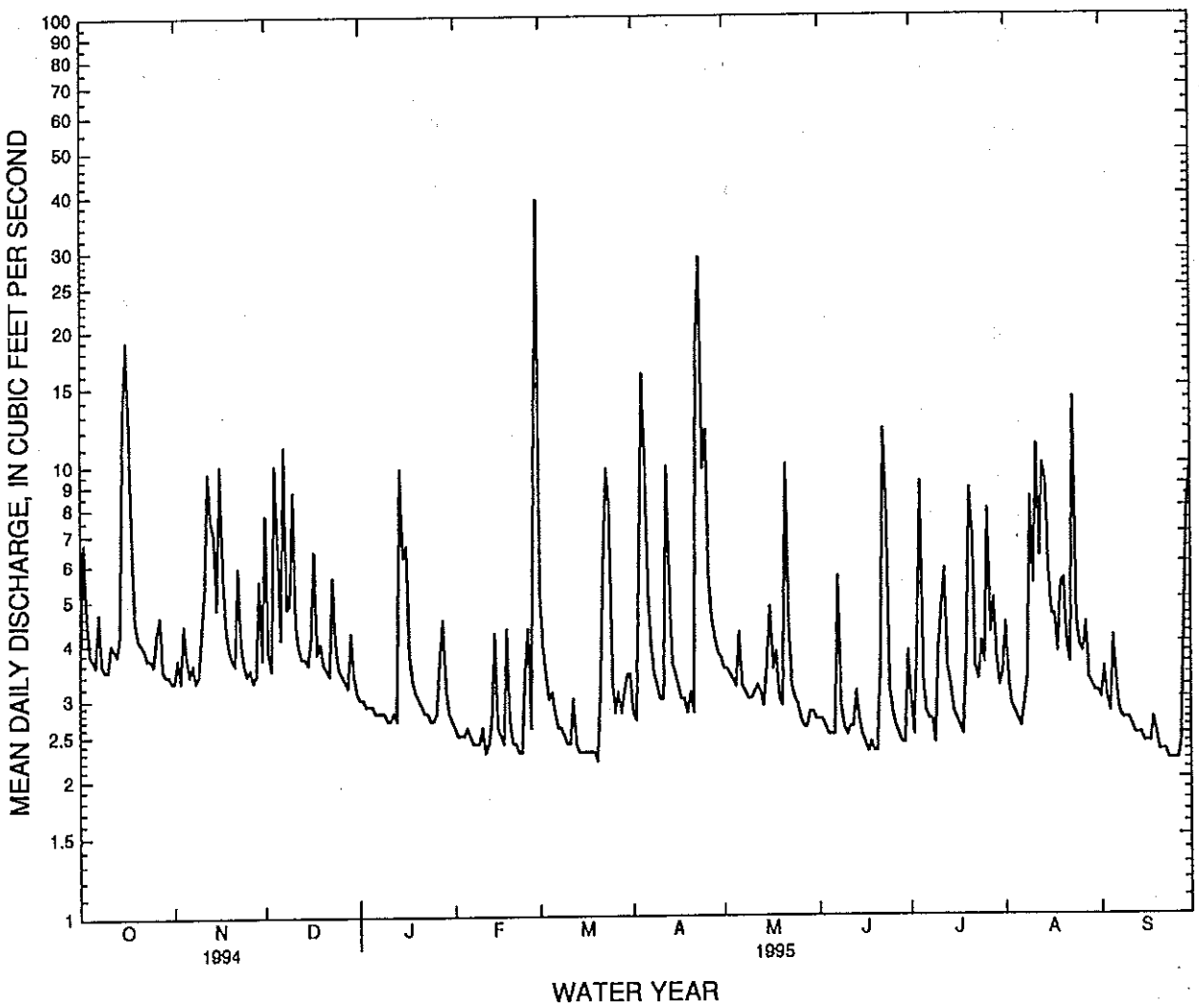
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	3.3	7.7	3.0	2.6	5.1	2.8	3.5	2.7	3.0	4.4	3.0
2	6.7	3.7	3.8	3.0	2.5	3.9	2.7	3.5	2.7	2.5	3.3	3.5
3	4.7	3.3	3.5	2.9	2.5	3.4	6.4	3.4	2.6	4.3	2.9	3.0
4	3.8	4.4	10	2.9	2.5	3.0	16	3.3	2.5	9.1	2.8	2.8
5	3.7	3.7	6.7	2.9	2.6	3.1	10	3.2	2.5	3.3	2.7	4.1
6	3.6	3.4	4.1	2.8	2.5	2.8	5.1	4.2	2.5	2.8	2.6	3.2
7	4.7	3.6	11	2.8	2.4	2.6	3.9	3.2	5.6	2.7	2.9	2.8
8	3.6	3.3	4.8	2.8	2.4	2.6	3.4	3.1	2.9	2.7	3.3	2.7
9	3.5	3.4	4.9	2.8	2.4	2.5	3.2	3.0	2.6	2.4	8.4	2.7
10	3.5	4.2	8.7	2.7	2.6	2.4	3.0	3.0	2.5	3.9	5.4	2.7
11	4.0	5.3	4.4	2.7	2.3	2.4	3.0	3.1	2.6	4.8	11	2.6
12	3.9	9.6	3.9	2.8	2.4	3.0	9.9	3.2	2.6	5.8	6.2	2.5
13	3.8	7.5	3.7	2.7	2.7	2.4	5.6	3.1	3.1	3.5	10	2.5
14	4.2	7.0	3.7	9.8	4.2	2.3	3.6	2.9	2.7	3.2	9.1	2.5
15	13	4.8	3.6	6.2	2.6	2.3	3.4	3.6	2.5	2.8	5.7	2.4
16	19	10	4.1	6.6	2.5	2.3	3.2	4.8	2.4	2.7	4.6	2.4
17	12	5.8	6.4	3.8	2.4	2.3	3.0	3.5	2.3	2.6	4.6	2.4
18	6.5	4.4	3.8	3.3	4.3	2.3	3.0	3.8	2.4	2.5	3.8	2.7
19	4.5	3.9	4.0	3.1	2.7	2.3	2.8	3.0	2.3	3.8	5.4	2.5
20	4.1	3.7	3.6	3.0	2.4	2.2	3.1	2.9	2.3	8.8	5.5	2.3
21	4.0	3.6	3.5	2.9	2.4	3.1	2.8	10	3.5	7.0	3.9	2.3
22	3.9	5.9	3.4	2.8	2.3	6.0	19	4.4	12	3.5	3.6	2.3
23	3.7	4.0	5.6	2.8	2.3	9.8	29	3.2	8.2	3.3	14	2.2
24	3.7	3.6	4.0	2.7	3.4	8.1	9.8	3.0	3.2	4.0	4.5	2.2
25	3.6	3.4	3.5	2.7	4.3	3.3	12	2.9	2.8	3.6	3.9	2.2
26	4.2	3.5	3.4	2.8	2.6	2.8	5.6	2.7	2.6	7.9	3.8	2.2
27	4.6	3.3	3.3	3.7	11	3.1	4.5	2.6	2.5	4.2	4.4	2.4
28	3.5	3.4	3.2	4.5	39	2.8	4.1	2.6	2.4	5.0	3.3	4.7
29	3.4	5.5	4.2	3.2	---	3.1	3.8	2.8	2.4	3.7	3.2	8.1
30	3.4	3.7	3.4	2.8	---	3.4	3.7	2.8	3.8	3.2	3.1	9.8
31	3.3	---	3.1	2.7	---	3.4	---	2.7	---	3.4	3.1	---
TOTAL	157.8	138.2	147.0	106.2	120.8	104.1	191.4	107.0	97.7	126.0	155.4	93.7
MEAN	5.09	4.61	4.74	3.43	4.31	3.36	6.38	3.45	3.26	4.06	5.01	3.12
MAX	19	10	11	9.8	39	9.8	29	10	12	9.1	14	9.8
MIN	3.3	3.3	3.1	2.7	2.3	2.2	2.7	2.6	2.3	2.4	2.6	2.2
AC-FT	313	274	292	211	240	206	380	212	194	250	308	186

16240500 WAIAKEAKUA STREAM AT HONOLULU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 1995, BY WATER YEAR (WY)

MEAN	4.22	5.24	5.40	4.91	4.55	5.50	5.73	5.23	4.17	4.96	4.91	4.21
MAX	10.7	18.1	15.5	14.8	15.6	19.5	17.5	13.3	10.3	12.3	13.6	13.3
(WY)	1915	1928	1988	1988	1955	1942	1989	1988	1938	1958	1958	1914
MIN	1.18	1.17	1.42	1.28	1.03	1.14	1.16	.87	1.27	.87	1.31	1.27
(WY)	1946	1934	1920	1977	1920	1926	1926	1926	1920	1926	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1913 - 1995		
ANNUAL TOTAL	2275.7		1545.3				
ANNUAL MEAN	6.23		4.23		4.94		
HIGHEST ANNUAL MEAN					8.23		1988
LOWEST ANNUAL MEAN					1.94		1920
HIGHEST DAILY MEAN	183	Mar 24	39	Feb 28	183	Mar 24	1994
LOWEST DAILY MEAN	2.6	Jan 3	2.2	Mar 20	.62	Feb 26	1920
ANNUAL SEVEN-DAY MINIMUM	2.7	Jan 10	2.2	Sep 20	.75	May 23	1926
ANNUAL RUNOFF (AC-FT)	4510		3070		3580		
10 PERCENT EXCEEDS	8.8		7.0		8.1		
50 PERCENT EXCEEDS	4.5		3.3		3.6		
90 PERCENT EXCEEDS	3.4		2.4		1.7		



16249500 MAUNAWILI DITCH AT AINONI SPRING

LOCATION.--Lat 21°21′08", long 157°46′03" on left bank approximately 1,000 ft below Siphon 8, 3.2 miles east of Waimanalo Elementary School, and 3.8 miles northeast of Manoa Elementary School.

PERIOD OF RECORD.--June 1991 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 440 ft above mean sea level, from topographic map.

REMARKS.--Records good. At times flow is diverted above gage by Waimanalo Irrigation System, State Department of Agriculture.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2.8 ft^3/s, Jun. 25, 1994; minimum daily, no flow on Jan. 1, 2, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2.5 ft^3/s, Nov. 10; minimum daily, 0.20 ft^3/s, Mar. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

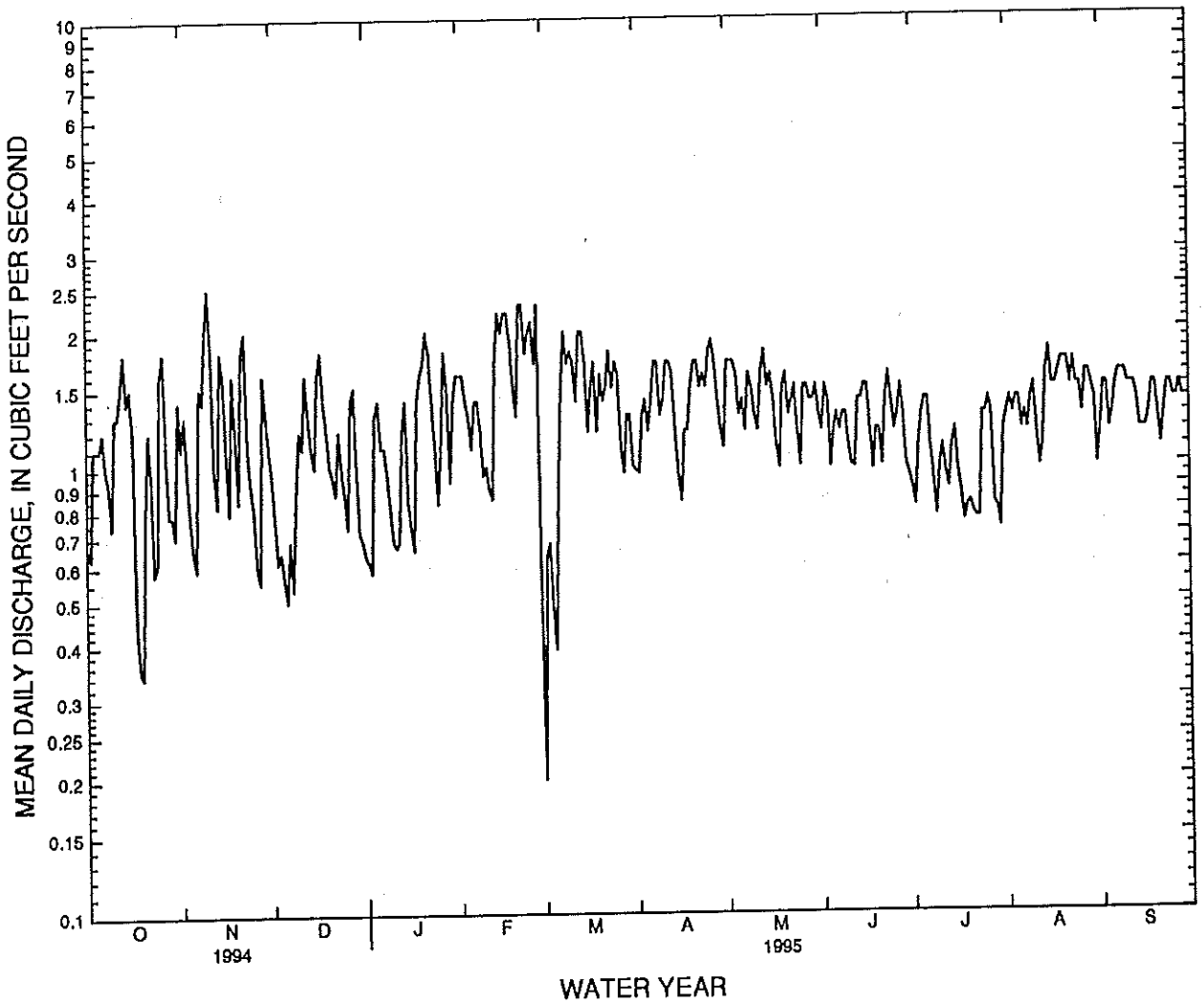
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.66	1.1	.94	.63	1.6	.20	.98	1.7	1.2	.89	1.3	1.2
2	.63	1.3	.75	.61	1.6	.63	.97	1.7	1.5	.81	1.4	1.5
3	1.1	.96	.61	.58	1.4	.67	1.3	1.7	1.4	1.1	1.3	1.5
4	1.1	.76	.64	1.3	1.3	.48	1.4	1.6	.99	1.3	1.4	1.2
5	1.1	.64	.56	1.4	1.1	.39	1.2	1.3	1.2	1.4	1.4	1.3
6	1.2	.59	.50	1.1	1.4	.91	1.4	1.4	1.3	1.4	1.2	1.5
7	1.0	1.5	.68	1.1	1.4	1.5	1.7	1.2	1.2	1.1	1.3	1.6
8	.92	1.4	.53	.97	1.2	2.0	1.7	1.6	1.3	.93	1.2	1.6
9	.74	2.0	.86	.81	.96	1.7	1.3	1.5	1.3	.77	1.4	1.6
10	1.3	2.5	1.2	.68	1.0	1.8	1.4	1.3	1.1	.99	1.5	1.5
11	1.3	1.8	1.1	.66	.89	1.7	1.7	1.2	1.0	1.1	1.2	1.5
12	1.5	.99	1.6	.68	.85	1.4	1.7	1.6	.99	.97	.99	1.5
13	1.8	.82	1.3	1.2	1.7	2.0	1.6	1.8	1.4	.89	1.1	1.4
14	1.4	1.8	1.1	1.4	2.2	2.0	1.2	1.5	1.4	1.1	1.6	1.2
15	1.5	1.6	1.0	.84	2.0	1.7	.96	1.6	1.5	1.2	1.8	1.2
16	1.2	1.1	1.6	.73	2.2	1.2	.84	1.4	1.5	.97	1.5	1.2
17	.44	.79	1.8	.65	2.2	1.5	1.2	1.1	1.2	.87	1.5	1.3
18	.35	1.6	1.4	1.4	1.9	1.7	1.2	.99	.98	.75	1.6	1.5
19	.34	1.2	1.2	1.6	1.5	1.2	1.5	1.5	1.2	.81	1.7	1.5
20	.78	.84	1.0	1.7	1.3	1.6	1.7	1.6	1.2	.82	1.7	1.3
21	1.2	1.8	.95	2.0	2.3	1.4	1.7	1.3	1.0	.78	1.7	1.1
22	.93	2.0	.87	1.8	2.3	1.5	1.5	1.4	1.4	.76	1.5	1.3
23	.58	1.1	1.2	1.4	1.8	1.8	1.6	1.5	1.6	.76	1.7	1.5
24	.61	.91	.97	1.1	2.0	1.5	1.5	1.2	1.4	1.3	1.5	1.5
25	1.6	.80	.87	.83	2.1	1.7	1.8	1.0	1.2	1.3	1.5	1.4
26	1.8	.59	.73	1.1	1.7	1.6	1.9	1.5	1.3	1.4	1.3	1.4
27	1.1	.55	1.4	1.8	2.3	1.1	1.7	1.5	1.5	1.3	1.6	1.5
28	.78	1.6	1.5	1.5	.55	.97	1.4	1.4	1.3	.82	1.6	1.4
29	.78	1.3	.97	.93	---	1.3	1.2	1.4	1.0	.80	1.5	1.4
30	.70	1.1	.71	1.4	---	1.3	1.1	1.5	.95	.72	1.4	1.4
31	1.4	---	.68	1.6	---	1.0	---	1.3	---	1.2	1.0	---
TOTAL	31.84	37.04	31.22	35.50	44.75	41.45	42.35	44.29	37.51	31.31	44.39	42.0
MEAN	1.03	1.23	1.01	1.15	1.60	1.34	1.41	1.43	1.25	1.01	1.43	1.40
MAX	1.8	2.5	1.8	2.0	2.3	2.0	1.9	1.8	1.6	1.4	1.8	1.6
MIN	.34	.55	.50	.58	.55	.20	.84	.99	.95	.72	.99	1.1
AC-FT	63	73	62	70	89	82	84	88	74	62	88	83

16249500 MAUNAWILI DITCH AT AINONI SPRING--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1995, BY WATER YEAR (WY)

MEAN	1.43	1.52	1.21	1.18	1.23	1.44	1.34	1.53	1.56	1.49	1.57	1.59
MAX	2.01	1.84	1.86	1.89	1.60	1.76	1.63	1.64	1.80	1.76	1.76	1.90
(WY)	1992	1992	1992	1992	1995	1992	1992	1994	1994	1991	1991	1992
MIN	1.03	1.23	.74	.41	.75	.96	.76	1.43	1.25	1.01	1.43	1.32
(WY)	1995	1995	1993	1993	1993	1994	1994	1995	1995	1995	1995	1994

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1991 - 1995		
ANNUAL TOTAL	454.02		463.65				
ANNUAL MEAN	1.24		1.27		1.41		
HIGHEST ANNUAL MEAN					1.75		1992
LOWEST ANNUAL MEAN					1.27		1995
HIGHEST DAILY MEAN	2.8	Jun 25	2.5	Nov 10	2.8	Jun 25	1994
LOWEST DAILY MEAN	.05	Mar 27	.20	Mar 1	.00	Jan 1	1993
ANNUAL SEVEN-DAY MINIMUM	.17	Mar 25	.55	Feb 28	.05	Dec 31	1992
ANNUAL RUNOFF (AC-FT)	901		920		1020		
10 PERCENT EXCEEDS	1.9		1.7		2.0		
50 PERCENT EXCEEDS	1.2		1.3		1.5		
90 PERCENT EXCEEDS	.59		.74		.68		



HAWAII, ISLAND OF OAHU

16249900 MAUNAWILI DITCH ABOVE ANIANINUI TUNNEL NR KAILUA

LOCATION.--Lat 21°20'50", long 157°46'26" on left bank approximately 1,000 ft above Aniani Nui Tunnel, 2.5 miles east of Waimanalo Elementary School, and 3.6 miles north of Wailupe Valley Elementary School.

PERIOD OF RECORD.--December 3, 1990 to current year.

GAGE.--Water-stage recorder and 3 ft semi-circular corrugated metal pipe control with concrete on upstream end. Elevation of gage is 400 ft above mean sea level, from topographic map.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 5.5 ft^3/s, Mar. 24, 1994; no flow on Mar. 22, 24, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3.0 ft^3/s, Aug. 27; minimum daily, 0.68 ft^3/s, Mar. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

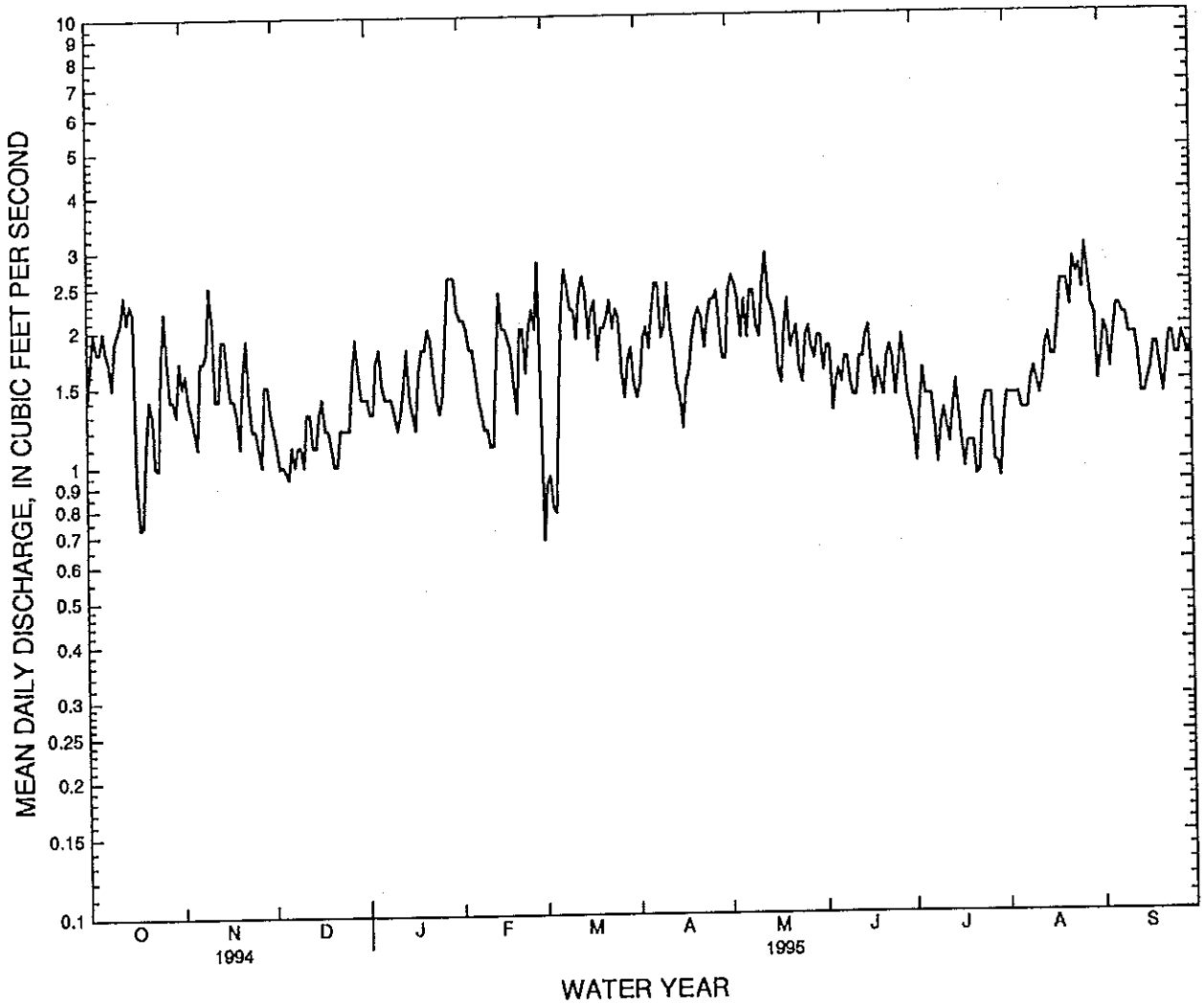
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.5	1.2	1.4	2.1	.68	1.4	2.4	1.6	1.2	1.4	1.7
2	1.7	1.6	1.1	1.3	2.1	.91	1.5	2.6	1.8	1.0	1.4	2.0
3	2.0	1.4	.99	1.3	2.0	.94	1.9	2.5	1.8	1.3	1.4	1.9
4	1.8	1.3	1.0	1.7	1.8	.80	2.0	2.3	1.3	1.6	1.4	1.6
5	1.8	1.2	.97	1.8	1.8	.78	1.8	1.9	1.5	1.4	1.4	1.9
6	2.0	1.1	.94	1.5	1.6	1.4	2.2	2.3	1.6	1.4	1.3	2.2
7	1.8	1.7	1.1	1.4	1.4	2.2	2.5	1.9	1.5	1.4	1.3	2.2
8	1.7	1.7	1.0	1.4	1.3	2.7	2.5	2.4	1.7	1.2	1.3	2.1
9	1.5	1.8	1.1	1.4	1.2	2.5	1.9	2.4	1.7	.99	1.5	2.1
10	1.9	2.5	1.1	1.3	1.2	2.2	2.0	2.0	1.5	1.2	1.6	1.9
11	2.0	2.1	1.0	1.2	1.1	2.2	2.5	1.9	1.4	1.3	1.5	1.9
12	2.1	1.4	1.3	1.3	1.1	1.9	2.0	2.5	1.4	1.2	1.4	1.9
13	2.4	1.4	1.3	1.5	1.6	2.4	1.8	2.9	1.7	1.1	1.5	1.7
14	2.1	1.9	1.1	1.8	2.4	2.6	1.5	2.3	1.7	1.3	1.8	1.4
15	2.3	1.9	1.1	1.4	2.0	2.4	1.4	2.2	1.9	1.5	1.9	1.4
16	2.2	1.6	1.3	1.3	2.0	1.9	1.2	2.0	2.0	1.3	1.7	1.5
17	.93	1.4	1.4	1.2	1.9	2.2	1.5	1.6	1.6	1.1	1.7	1.6
18	.73	1.4	1.2	1.6	1.8	2.3	1.6	1.5	1.4	.97	2.0	1.8
19	.74	1.3	1.2	1.8	1.5	1.7	1.9	2.0	1.6	1.1	2.5	1.8
20	1.1	1.1	1.1	1.8	1.3	2.0	2.1	2.3	1.5	1.1	2.5	1.6
21	1.4	1.6	1.0	2.0	2.0	2.0	2.2	1.8	1.4	1.1	2.5	1.4
22	1.3	1.9	1.0	1.9	2.0	2.1	2.1	1.9	1.7	.93	2.2	1.6
23	1.0	1.4	1.2	1.6	1.6	2.3	1.8	2.0	1.8	.95	2.8	1.9
24	.99	1.2	1.2	1.4	2.0	2.0	2.1	1.6	1.7	1.3	2.6	1.9
25	1.7	1.2	1.2	1.3	2.2	2.2	2.3	1.5	1.4	1.4	2.7	1.7
26	2.2	1.1	1.2	1.4	2.0	2.1	2.3	1.9	1.6	1.4	2.4	1.7
27	1.7	1.0	1.6	1.9	2.8	1.6	2.4	2.0	1.9	1.4	3.0	1.9
28	1.4	1.5	1.9	2.6	1.4	1.4	2.0	1.8	1.7	1.0	2.6	1.8
29	1.4	1.5	1.6	2.6	---	1.7	1.7	1.7	1.4	.99	2.2	1.7
30	1.3	1.3	1.4	2.6	---	1.8	1.7	1.9	1.3	.92	2.1	1.8
31	1.7	---	1.4	2.2	---	1.5	---	1.9	---	1.2	1.5	---
TOTAL	50.29	45.0	37.20	50.9	49.2	57.41	57.8	63.9	48.1	37.25	59.1	53.6
MEAN	1.62	1.50	1.20	1.64	1.76	1.85	1.93	2.06	1.60	1.20	1.91	1.79
MAX	2.4	2.5	1.9	2.6	2.8	2.7	2.5	2.9	2.0	1.6	3.0	2.2
MIN	.73	1.0	.94	1.2	1.1	.68	1.2	1.5	1.3	.92	1.3	1.4
AC-FT	100	89	74	101	98	114	115	127	95	74	117	106

16249900 MAUNAWILI DITCH ABOVE ANIANINUI TUNNEL NR KAILUA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1995, BY WATER YEAR (WY)

MEAN	2.17	2.23	1.69	1.76	1.81	2.00	1.84	2.13	2.03	1.99	2.16	2.27
MAX	2.69	2.99	2.57	2.22	2.18	2.23	2.19	2.38	2.38	2.80	2.75	3.22
(WY)	1992	1992	1992	1992	1994	1992	1993	1994	1994	1992	1992	1992
MIN	1.62	1.50	1.20	1.20	1.22	1.79	1.18	1.97	1.60	1.20	1.84	1.79
(WY)	1995	1995	1995	1993	1993	1994	1994	1993	1995	1995	1994	1995

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1992 - 1995	
ANNUAL TOTAL	655.02		609.75			
ANNUAL MEAN	1.79		1.67		2.01	
HIGHEST ANNUAL MEAN					2.48	1992
LOWEST ANNUAL MEAN					1.67	1995
HIGHEST DAILY MEAN	5.5	Mar 24	3.0	Aug 27	5.5	Mar 24 1994
LOWEST DAILY MEAN	.61	Mar 28	.68	Mar 1	.60	Jan 2 1993
ANNUAL SEVEN-DAY MINIMUM	.77	Mar 26	.99	Feb 28	.77	Mar 26 1994
ANNUAL RUNOFF (AC-FT)	1300		1210		1450	
10 PERCENT EXCEEDS	2.6		2.3		2.8	
50 PERCENT EXCEEDS	1.8		1.6		2.0	
90 PERCENT EXCEEDS	1.0		1.1		1.2	



16250000 MAUNAWILI DITCH NEAR WAIMANALO

LOCATION.--Lat 21°20'45", long 157°45'10", Hydrologic Unit 20060000, on left bank 80 ft downstream from Aniani Nui Ridge tunnel, and 3.5 miles west of Waimanalo Post Office.

PERIOD OF RECORD.--March 1954 to September 1968, October 1993 to current year.

GAGE.--Water-stage recorder with concrete Columbus type control. Altitude of gage is 390 ft above mean sea level, from topograhpic map. Prior to Jul. 12, 1993, water stage recorder at same site with different datum.

REMARKS.--Records good. Ditch diverts from headwaters of Maunawili and Makawao streams for irrigation in vicinity of Waimanalo. Station was reestablished on October 1, 1993.

AVERAGE DISCHARGE.-- 16 years (water years 1955-1968, 1994-95), 2.44 ft^3/s (1,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 10.8 ft^3/s, Mar. 5, 1958; minimum, no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2.9 ft^3/s, Feb. 27; minimum daily 0.58 ft^3/s Mar. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

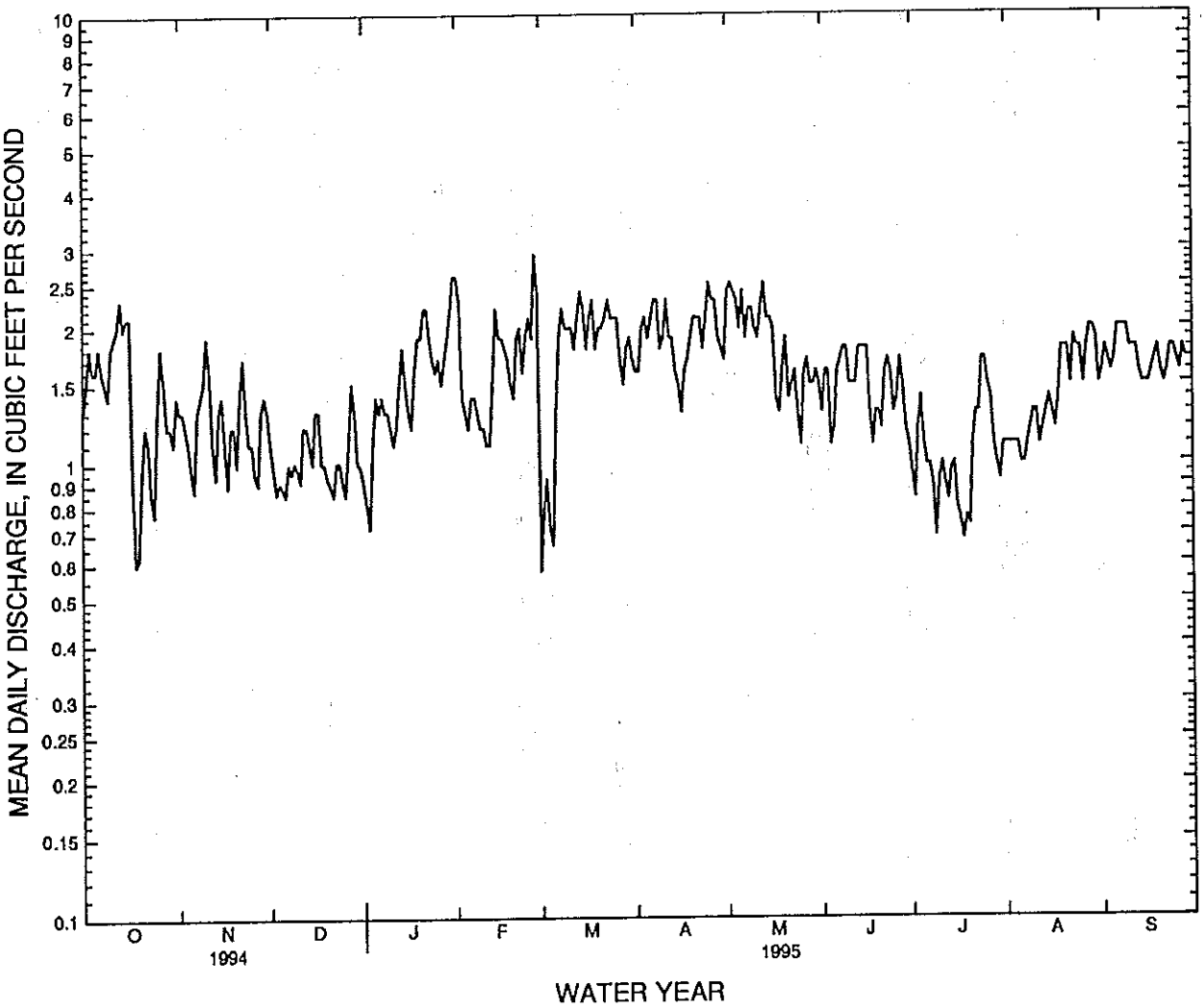
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.3	1.1	.90	2.6	.58	1.6	2.4	1.3	.96	1.1	1.6
2	1.5	1.3	.97	.81	2.3	.80	1.6	2.5	1.6	.84	1.1	1.8
3	1.8	1.2	.86	.72	1.4	.92	2.0	2.4	1.6	1.2	1.1	1.7
4	1.6	1.1	.90	1.1	1.3	.72	2.1	2.3	1.1	1.4	1.1	1.6
5	1.6	.96	.88	1.4	1.2	.66	1.9	2.0	1.2	1.1	1.1	1.7
6	1.8	.87	.85	1.3	1.4	1.3	2.1	2.4	1.6	.99	1.0	2.0
7	1.6	1.3	.99	1.4	1.4	1.9	2.3	1.9	1.7	.99	1.0	2.0
8	1.5	1.4	.95	1.3	1.3	2.2	2.3	2.2	1.8	.90	1.1	2.0
9	1.4	1.5	1.0	1.3	1.2	2.0	1.8	2.2	1.8	.69	1.2	2.0
10	1.8	1.9	.97	1.2	1.2	2.0	1.9	2.0	1.5	.91	1.3	1.8
11	1.9	1.6	.91	1.1	1.1	2.0	2.3	1.9	1.5	1.0	1.3	1.8
12	2.0	1.1	1.2	1.2	1.1	1.8	1.9	2.2	1.5	.91	1.1	1.8
13	2.3	.93	1.2	1.5	1.5	2.1	1.9	2.5	1.8	.83	1.2	1.6
14	2.0	1.3	1.1	1.8	2.2	2.4	1.6	2.1	1.8	.97	1.3	1.5
15	2.1	1.4	1.0	1.5	1.9	2.2	1.5	2.1	1.8	1.0	1.4	1.5
16	2.1	1.1	1.3	1.3	1.9	1.8	1.3	2.0	1.8	.80	1.3	1.5
17	.91	.89	1.3	1.2	1.8	2.1	1.6	1.4	1.3	.75	1.2	1.6
18	.60	1.2	1.0	1.6	1.7	2.3	1.7	1.3	1.1	.68	1.4	1.7
19	.62	1.2	.99	1.9	1.5	1.8	1.9	1.6	1.3	.76	1.8	1.8
20	.94	.99	.92	1.9	1.4	2.0	2.1	1.9	1.3	.73	1.8	1.6
21	1.2	1.4	.89	2.2	1.9	2.0	2.1	1.4	1.2	1.1	1.8	1.5
22	1.1	1.7	.85	2.2	2.0	2.1	2.1	1.5	1.6	1.3	1.5	1.6
23	.85	1.3	1.0	1.9	1.6	2.3	1.8	1.6	1.7	1.3	1.9	1.8
24	.77	1.1	1.0	1.7	1.9	2.1	2.1	1.3	1.6	1.7	1.8	1.8
25	1.3	1.1	.91	1.6	2.1	2.1	2.5	1.1	1.3	1.7	1.8	1.7
26	1.8	.94	.85	1.7	1.9	2.1	2.3	1.6	1.4	1.5	1.5	1.6
27	1.5	.90	1.1	1.5	2.9	1.7	2.3	1.7	1.7	1.4	1.8	1.8
28	1.2	1.3	1.5	1.7	2.4	1.5	1.9	1.5	1.5	1.1	2.0	1.7
29	1.2	1.4	1.3	1.9	---	1.8	1.8	1.5	1.2	1.0	2.0	1.7
30	1.1	1.3	1.0	2.2	---	1.9	1.7	1.6	1.1	.92	1.9	1.7
31	1.4	---	.98	2.6	---	1.7	---	1.5	---	1.1	1.5	---
TOTAL	44.79	36.98	31.77	47.63	48.1	54.88	58.0	57.6	44.7	32.53	44.4	51.5
MEAN	1.44	1.23	1.02	1.54	1.72	1.77	1.93	1.86	1.49	1.05	1.43	1.72
MAX	2.3	1.9	1.5	2.6	2.9	2.4	2.5	2.5	1.8	1.7	2.0	2.0
MIN	.60	.87	.85	.72	1.1	.58	1.3	1.1	1.1	.68	1.0	1.5
AC-FT	89	73	63	94	95	109	115	114	89	65	88	102

16250000 MAUNAWILI DITCH NEAR WAIMANALO--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1995, BY WATER YEAR (WY)

MEAN	2.90	2.51	1.66	1.69	1.51	1.84	2.54	3.08	3.18	2.97	5.36	5.41
MAX	4.36	3.87	3.24	3.22	2.67	3.89	4.07	4.90	4.52	4.02	46.8	47.9
(WY)	1955	1955	1961	1955	1957	1956	1966	1955	1955	1955	1993	1993
MIN	1.44	.93	.026	.000	.000	.097	.39	1.19	1.49	1.05	1.43	.61
(WY)	1995	1965	1968	1968	1968	1968	1963	1965	1995	1995	1995	1968

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1954 - 1995	
ANNUAL TOTAL	601.71		552.88			
ANNUAL MEAN	1.65		1.51		2.44	
HIGHEST ANNUAL MEAN					3.43	1955
LOWEST ANNUAL MEAN					1.46	1968
HIGHEST DAILY MEAN	5.5	Mar 24	2.9	Feb 27	128	Jul 28 1993
LOWEST DAILY MEAN	.49	Mar 28	.58	Mar 1	.00	Dec 27 1955
ANNUAL SEVEN-DAY MINIMUM	.61	Mar 26	.81	Jul 14	.00	Dec 27 1955
ANNUAL RUNOFF (AC-FT)	1190		1100		1770	
10 PERCENT EXCEEDS	2.4		2.1		4.1	
50 PERCENT EXCEEDS	1.6		1.5		2.7	
90 PERCENT EXCEEDS	.91		.92		.62	



HAWAII, ISLAND OF OAHU

16254000 MAKAWAO STREAM NEAR KAILUA

LOCATION.--Lat 21°21'49", long 157°46'02", Hydrologic Unit 20060000, on left bank 650 ft upstream from mouth, 2.7 mi southwest of Kailua, and 4.3 mi southeast of Kaneohe Courthouse.

DRAINAGE AREA.--2.04 mi^2.

PERIOD OF RECORD.--November 1912 to June 1916, January 1958 to current year.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 80 ft above mean sea level, from topographic map. Prior to Jan. 1, 1958, nonrecording gage at sites about 200 ft upstream at different datums.

REMARKS.--Records good. Maunawili ditch diverts 1.5 mi upstream of station for irrigation in vicinity of Waimanalo. Records do not include flow of Maunawili ditch (stations 16249500, 16249900, and 16250000).

AVERAGE DISCHARGE.--39 years (water years 1914-15, 1959-95), 5.11 ft^3/s (3,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,000 ft^3/s, Feb. 4, 1965, gage height, 12.41 ft, from rating curve extended above 470 ft^3/s on basis of slope-area measurement of peak flow; minimum, 0.43 ft^3/s, Sep. 8-12, 14, 16-20, 22, 23, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 390 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 28	0130	*1,100	*7.00

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No other peak greater than base discharge.			

Minimum discharge, 1.4 ft^3/s, Sep. 4, 5, 8, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

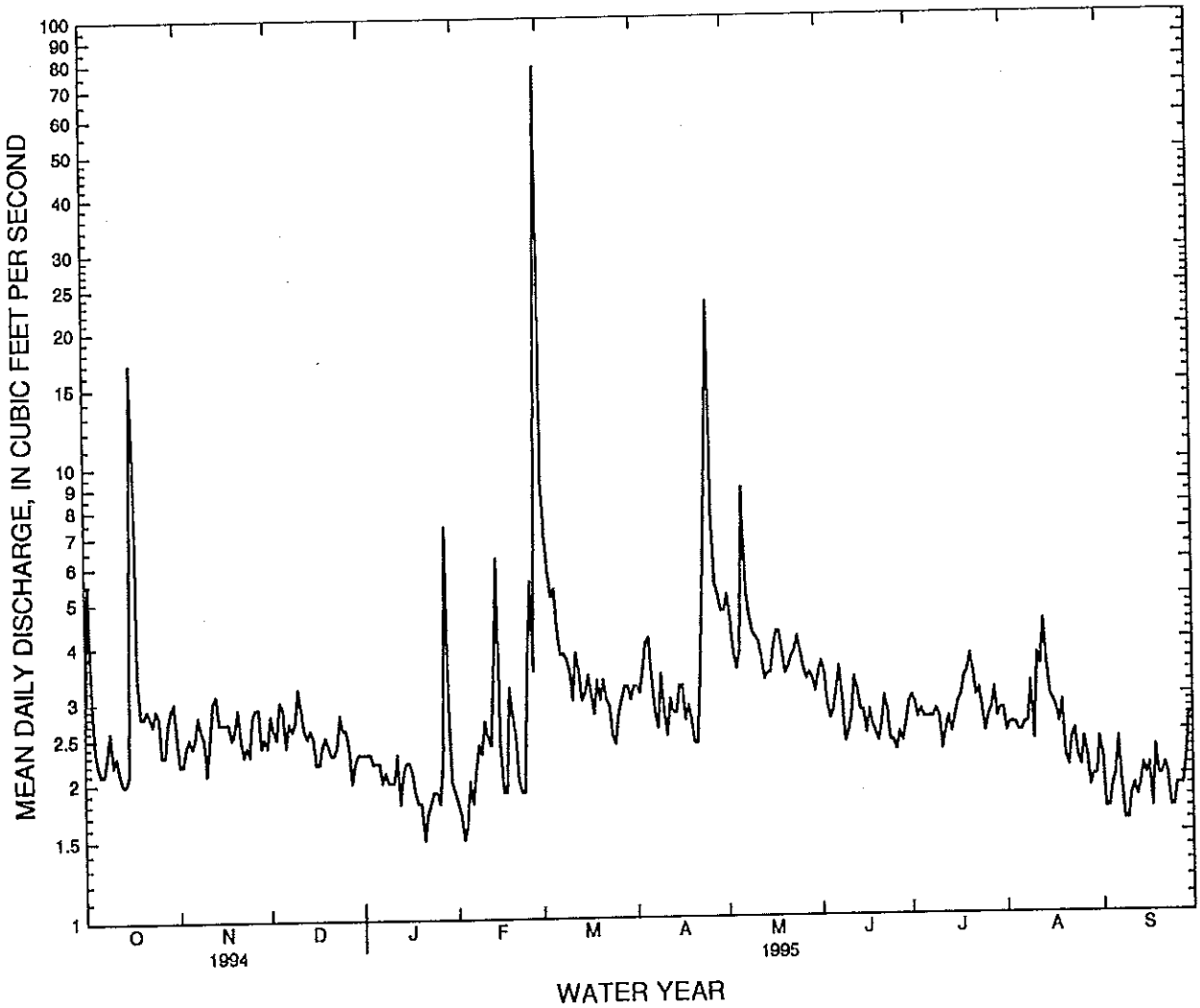
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.2	2.8	2.3	1.8	9.0	3.2	5.1	3.6	3.0	2.5	2.2
2	5.5	2.2	2.6	2.3	1.7	6.9	3.1	4.5	3.4	2.9	2.6	1.7
3	3.3	2.4	2.5	2.3	1.5	5.8	3.5	3.8	2.9	2.7	2.6	1.7
4	2.4	2.5	3.0	2.2	1.6	5.1	4.0	3.5	2.7	2.8	2.6	1.9
5	2.2	2.4	2.9	2.2	2.0	5.3	4.1	3.8	2.8	2.7	2.5	2.0
6	2.1	2.5	2.4	2.2	1.8	4.3	3.3	8.8	3.1	2.7	2.5	2.4
7	2.1	2.8	2.7	2.0	2.1	3.8	2.8	5.3	3.5	2.7	2.6	1.9
8	2.3	2.6	2.6	2.1	2.4	3.8	2.6	4.6	3.0	2.7	2.6	1.6
9	2.6	2.5	2.7	2.0	2.3	3.7	3.4	4.2	2.4	2.8	3.2	1.6
10	2.2	2.1	3.2	2.0	2.7	3.5	2.8	4.1	2.5	2.7	2.4	1.8
11	2.3	2.5	2.9	2.0	2.5	3.0	2.5	4.0	2.7	2.3	3.7	1.9
12	2.1	3.0	2.6	2.3	2.4	3.8	3.0	3.7	3.3	2.5	3.5	1.8
13	2.0	3.1	2.5	1.8	3.5	3.5	2.8	3.3	3.1	2.7	4.4	1.9
14	2.0	2.7	2.6	2.1	6.2	3.0	2.8	3.4	2.8	2.5	3.5	2.1
15	2.1	2.7	2.5	2.2	2.4	3.1	3.2	3.4	2.8	2.7	3.0	2.0
16	17	2.7	2.2	2.2	1.9	3.4	3.2	3.9	2.5	2.9	2.9	2.1
17	10	2.7	2.2	2.1	1.9	3.1	2.7	4.2	2.8	3.0	2.8	1.7
18	3.4	2.5	2.4	1.9	3.2	2.8	2.9	4.2	2.6	3.3	2.6	2.3
19	2.8	2.6	2.5	1.8	2.8	3.3	2.7	3.8	2.5	3.4	2.9	2.0
20	2.8	2.9	2.4	1.8	2.5	3.0	2.4	3.4	2.4	3.7	2.2	2.0
21	2.9	2.5	2.3	1.5	2.0	3.3	2.4	3.5	2.6	3.4	2.1	2.1
22	2.8	2.3	2.3	1.7	1.9	3.0	3.4	3.7	3.0	3.0	2.4	2.0
23	2.7	2.4	2.4	1.8	1.9	2.9	5.6	3.8	2.8	3.1	2.5	1.7
24	2.9	2.3	2.8	1.9	3.6	2.5	11	4.1	2.4	2.8	2.2	1.7
25	2.8	2.8	2.6	1.9	5.5	2.4	23	3.8	2.4	2.5	2.1	1.9
26	2.3	2.9	2.6	1.8	3.5	2.8	7.7	3.5	2.3	2.7	2.4	1.9
27	2.3	2.9	2.4	2.2	18	3.0	5.4	3.3	2.5	2.8	2.2	1.9
28	2.7	2.4	2.0	7.3	78	3.2	5.1	3.4	2.4	3.1	1.9	2.2
29	2.9	2.5	2.2	2.9	---	3.2	4.7	3.3	2.6	2.7	2.0	2.7
30	3.0	2.4	2.3	2.0	---	3.0	4.7	3.1	2.9	2.8	2.0	2.7
31	2.5	---	2.3	1.9	---	3.2	---	3.4	---	2.8	2.4	---
TOTAL	103.7	77.0	78.4	68.7	163.6	115.7	134.0	123.9	83.3	88.4	81.8	59.4
MEAN	3.35	2.57	2.53	2.22	5.84	3.73	4.47	4.00	2.78	2.85	2.64	1.98
MAX	17	3.1	3.2	7.3	78	9.0	23	8.8	3.6	3.7	4.4	2.7
MIN	2.0	2.1	2.0	1.5	1.5	2.4	2.4	3.1	2.3	2.3	1.9	1.6
AC-FT	206	153	156	136	325	229	266	246	165	175	162	118

16254000 MAKAWAO STREAM NEAR KAILUA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 1995, BY WATER YEAR (WY)

MEAN	3.05	5.56	7.15	8.30	7.17	7.80	6.71	5.38	3.32	2.68	2.56	2.49
MAX	8.43	38.2	34.8	39.2	27.2	24.3	31.4	17.2	11.3	6.66	8.52	15.1
(WY)	1966	1966	1988	1916	1979	1958	1963	1981	1982	1982	1982	1914
MIN	1.06	.99	1.22	1.24	1.11	1.25	1.55	1.40	1.15	1.25	1.18	1.00
(WY)	1976	1963	1978	1973	1978	1978	1973	1973	1973	1959	1984	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1913 - 1995		
ANNUAL TOTAL	1906.8		1177.9				
ANNUAL MEAN	5.22		3.23		5.11		
HIGHEST ANNUAL MEAN					11.1		1982
LOWEST ANNUAL MEAN					1.31		1973
HIGHEST DAILY MEAN	199	Mar 24	78	Feb 28	518	Dec 31	1987
LOWEST DAILY MEAN	1.7	Aug 30	1.5	Jan 21	.50	Sep 8	1964
ANNUAL SEVEN-DAY MINIMUM	2.0	Aug 24	1.8	Jan 31	.67	Sep 8	1964
ANNUAL RUNOFF (AC-FT)	3780		2340		3700		
10 PERCENT EXCEEDS	7.4		3.9		8.8		
50 PERCENT EXCEEDS	2.9		2.7		2.8		
90 PERCENT EXCEEDS	2.2		1.9		1.4		



16260500 MAUNAWILI STREAM AT HIGHWAY 61, NEAR KAILUA

LOCATION.--Lat 21°22'51", long 157°45'48", Hydrologic Unit 20060000, on right bank at downstream side of bridge on Highway 61, 0.6 mile west of Maunawili School, and 1.6 miles southwest of Kailua Post Office.

DRAINAGE AREA.--5.34 mi^2.

PERIOD OF RECORD.--Water years 1922, 1956-62, 1965-67 (low-flow measurements); water years 1958-67, 1971-91 (annual maximum); daily record January 1967 to October 1971, April 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 9.79 ft above mean sea level (levels by Sunn, Low, Tom, and Hara, Inc.), Oct. 16, 1957 to Dec. 31, 1966, crest-stage gage at site 400 ft upstream at datum 3.46 ft higher.

REMARKS.--Records good. Maunawili ditch diverts from headwaters of Maunawili and Makawao Streams for irrigation in vicinity of Waimanalo. Records of chemical analyses and suspended sediment loads were published during the water years 1969-71, and 1967-71 respectively.

AVERAGE DISCHARGE.--8 years (water years 1968-71, 1992-95), 15.0 ft^3/s (10,830 acre-ft/yr)

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,690 ft^3/s, Feb. 4, 1965, gage height, 15.62 ft (site and datum then in use), from rating curve extended above 700 ft^3/s on basis of contracted-opening measurement of peak flow; minimum, 2.1 ft^3/s, Oct. 12, 13, 1991.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 28	0230	*1,360	*8.43	No other peaks greater than base discharge.			

Minimum discharge, 2.7 ft^3/s, Sep. 24, 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

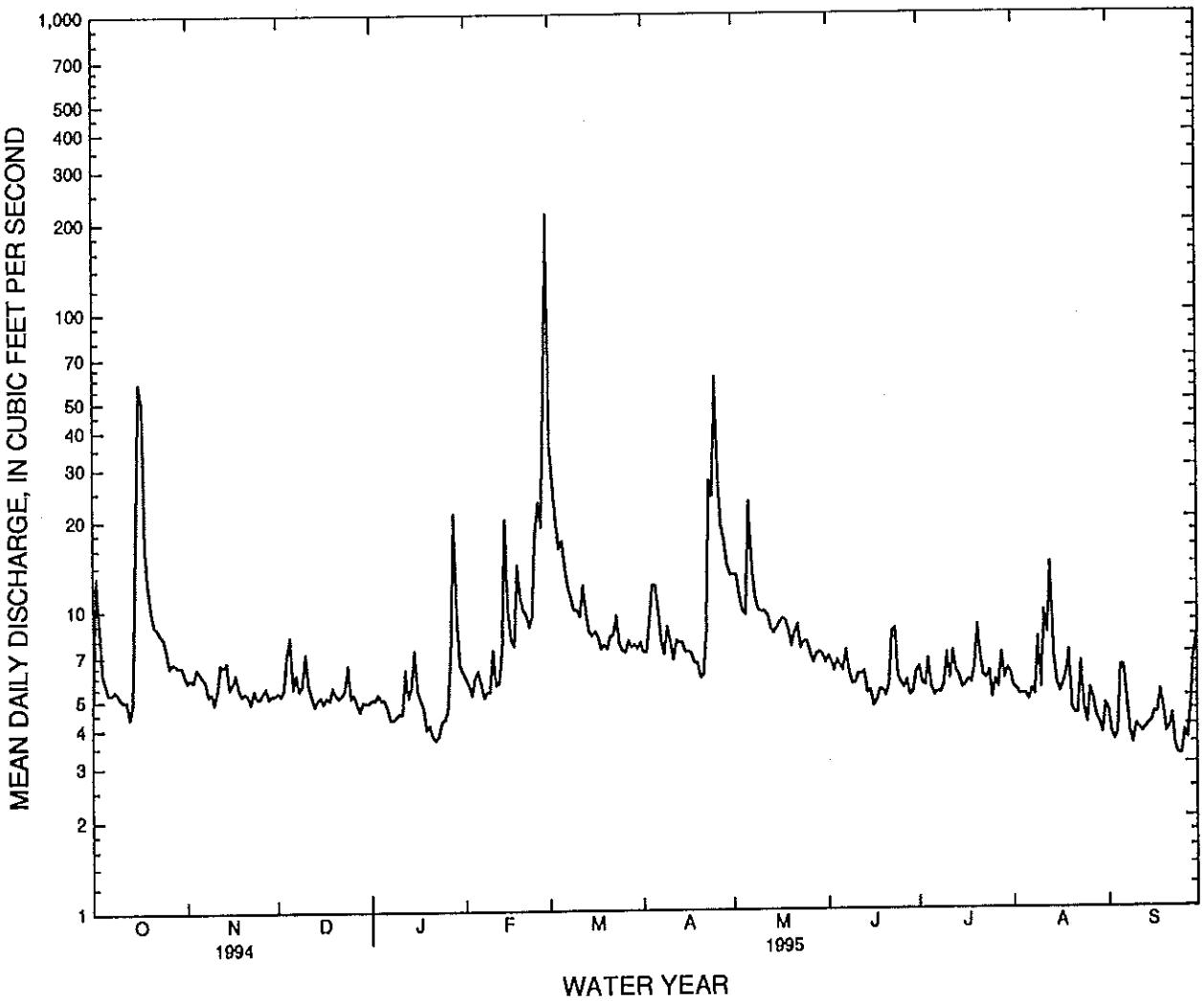
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	5.8	5.3	5.0	5.9	35	7.2	13	6.9	6.3	5.4	4.5
2	13	5.9	5.2	5.0	5.6	26	7.2	13	6.6	5.6	5.3	3.8
3	8.9	5.8	5.4	5.2	5.2	20	9.2	11	6.2	5.5	5.1	3.6
4	6.2	6.4	7.1	5.0	5.9	16	12	9.8	6.7	6.7	5.1	3.8
5	5.7	6.2	8.1	5.0	6.2	17	12	9.6	6.4	5.4	5.1	6.3
6	5.3	6.0	5.5	4.7	5.7	14	9.9	23	6.2	5.1	4.9	6.3
7	5.3	5.8	6.1	4.3	5.1	12	7.8	14	7.2	5.2	5.3	4.9
8	5.4	5.2	5.4	4.3	5.3	11	7.1	11	6.1	5.2	5.1	3.8
9	5.3	5.3	5.6	4.4	5.3	10	8.7	9.9	5.6	5.5	7.9	3.5
10	5.1	4.9	7.1	4.5	7.3	10	7.8	9.8	5.6	7.0	5.4	4.0
11	5.0	5.4	5.6	4.5	5.6	9.5	6.8	9.8	6.0	5.8	9.7	3.9
12	5.0	6.6	5.2	6.3	5.7	12	7.8	9.5	6.0	7.1	8.2	3.8
13	4.4	6.5	4.8	5.1	7.3	9.8	7.7	8.6	6.1	6.1	14	3.9
14	4.9	6.7	5.0	5.5	20	8.4	7.7	8.3	5.2	5.9	7.0	4.0
15	16	5.5	5.1	7.3	9.8	8.2	7.2	8.6	5.3	5.4	5.6	4.1
16	58	5.7	4.9	5.4	7.9	8.4	7.2	9.0	4.7	5.5	5.2	4.4
17	50	6.1	5.1	5.0	7.6	8.1	7.1	9.2	4.9	5.7	5.5	4.4
18	16	5.5	5.0	4.7	14	7.4	6.6	9.1	5.3	5.6	5.9	5.2
19	12	5.2	5.5	4.0	11	7.6	6.6	8.5	5.3	6.3	7.1	4.6
20	10	5.3	5.2	4.1	10	7.4	5.9	7.5	5.1	8.7	4.6	3.8
21	8.9	5.2	5.1	3.8	9.6	8.1	6.0	8.3	5.5	6.9	4.4	3.9
22	8.7	4.9	5.2	3.7	8.8	8.2	8.3	8.8	8.3	5.9	4.4	4.3
23	8.3	5.4	5.4	3.8	9.5	9.5	27	7.4	8.5	5.8	6.5	3.4
24	8.1	5.1	6.5	4.2	18	7.7	24	7.7	5.9	6.1	4.6	3.2
25	7.4	5.1	5.1	4.3	23	7.3	60	7.7	5.6	5.0	4.1	3.2
26	6.5	5.3	5.2	4.6	19	7.2	28	7.1	5.4	5.7	5.3	3.8
27	6.7	5.5	4.9	7.2	54	7.8	19	6.6	5.7	5.4	4.9	3.6
28	6.6	5.1	4.6	21	213	7.5	17	7.0	5.1	7.0	4.3	4.6
29	6.5	5.2	4.9	9.4	---	7.6	14	7.1	5.2	5.8	4.1	6.9
30	6.5	5.2	4.9	6.5	---	7.4	13	7.0	6.1	6.2	3.8	8.0
31	6.1	---	4.9	6.2	---	7.7	---	6.6	---	6.0	4.7	---
TOTAL	326.9	167.8	168.9	174.0	511.3	343.8	375.8	293.5	178.7	185.4	178.5	131.5
MEAN	10.5	5.59	5.45	5.61	18.3	11.1	12.5	9.47	5.96	5.98	5.76	4.38
MAX	58	6.7	8.1	21	213	35	60	23	8.5	8.7	14	8.0
MIN	4.4	4.9	4.6	3.7	5.1	7.2	5.9	6.6	4.7	5.0	3.8	3.2
AC-FT	648	333	335	345	1010	682	745	582	354	368	354	261

16260500 MAUNAWILI STREAM AT HIGHWAY 61, NEAR KAILUA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1995, BY WATER YEAR (WY)

MEAN	11.4	18.7	26.3	22.3	22.4	25.8	16.4	9.38	7.34	6.77	7.18	7.79
MAX	19.8	47.6	78.2	41.1	60.6	72.9	40.3	15.1	12.5	9.90	21.0	16.9
(WY)	1993	1971	1968	1969	1969	1968	1968	1968	1971	1967	1967	1967
MIN	5.91	5.59	5.45	5.61	9.79	5.84	4.45	3.85	3.04	5.55	4.63	4.38
(WY)	1971	1995	1995	1995	1993	1993	1993	1993	1993	1970	1994	1995

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1967 - 1995		
ANNUAL TOTAL	5106.7		3036.1				
ANNUAL MEAN	14.0		8.32		15.0		
HIGHEST ANNUAL MEAN					26.0		1968
LOWEST ANNUAL MEAN					8.32		1995
HIGHEST DAILY MEAN	643	Mar 24	213	Feb 28	875	Dec 18	1967
LOWEST DAILY MEAN	3.3	Aug 30	3.2	Sep 24	2.3	Jun 24	1993
ANNUAL SEVEN-DAY MINIMUM	3.8	Aug 24	3.6	Sep 21	2.5	Jun 22	1993
ANNUAL RUNOFF (AC-FT)	10130		6020		10830		
10 PERCENT EXCEEDS	22		12		26		
50 PERCENT EXCEEDS	6.5		6.0		8.0		
90 PERCENT EXCEEDS	4.9		4.4		4.3		



HAWAII, ISLAND OF OAHU

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE

LOCATION.--Lat 21°23'22", long 157°47'44", Hydrologic Unit 20060000, on left bank, 0.3 mi south of Hawaiian Memorial Park cemetery, 1.0 mi northwest of Pali Golf Course, and 1.3 mi south of Castle High School.

DRAINAGE AREA.--1.11 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 210 ft above mean sea level, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--12 years (water years 1984-95), 1.48 ft^3/s (1,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,160 ft^3/s, Nov. 10, 1986, gage height, 11.65 ft from rating curve extended above 100 ft^3/s on basis of slope-conveyance computation; minimum, 0.03 ft^3/s for several days in November, December 1984 and January 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 27	2145	*611	*8.50	No other peak greater than base discharge.			

Minimum discharge, 0.10 ft^3/s, Sep. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.70	.37	.32	.26	e.24	1.3	.14	e7.5	e.20	.21	.27	.14
2	3.0	.39	.28	.25	e.25	.46	.15	e.46	e.16	.20	.16	.16
3	.44	.35	.25	.26	.23	.27	.33	e.26	e.19	.23	.14	.18
4	.39	.39	.35	.25	.24	.21	.37	e.21	.22	.19	.14	.17
5	.37	.38	.32	.28	.70	.36	.41	e.29	.23	.16	.16	3.0
6	.37	.44	.29	.29	.31	.22	.30	e1.2	.21	.16	.16	.16
7	.39	.55	.41	.23	.27	.19	.21	e.36	.23	.13	.15	.15
8	.38	.47	.33	.24	.22	.19	.19	e.24	.19	.11	.14	.14
9	.40	.42	.40	.24	.24	.19	1.9	e.21	.20	.14	.22	.13
10	.36	.49	.34	.22	.44	.20	.34	e.21	.19	.20	.23	.18
11	.35	.70	.28	.29	.22	.21	e.28	e.27	.17	.21	.42	.17
12	.33	.47	.28	.37	.23	.35	e.26	.22	.16	.33	.28	.16
13	.34	.55	.31	.25	2.4	.19	e.21	.22	.16	.21	.35	.16
14	.33	.38	.30	.22	1.9	.20	e.21	.23	.17	.23	.21	.16
15	.43	.44	.28	.28	.25	.19	e.21	.22	.17	.23	.23	.13
16	16	.40	.26	.25	.25	.21	e.21	.25	.16	.18	.21	.16
17	2.3	.37	.29	.22	.26	.18	e.21	.24	.15	.16	.28	.18
18	.89	.32	.26	.22	.27	.17	e.24	.27	.15	.19	.21	.13
19	.42	.35	.30	.21	.24	.16	e.21	.23	.16	.27	.21	.12
20	.36	.33	.24	.20	.24	.18	e.18	.23	.16	.37	.14	.12
21	.34	.33	.24	.21	.24	.17	e.21	.23	.16	.17	.15	.12
22	.34	.35	.24	.25	.21	.26	e.51	e.26	.44	.17	.18	.14
23	.32	.32	.38	.27	.23	.29	e.36	e.26	.60	.17	.46	.18
24	.34	.30	.25	.25	7.0	.24	e2.0	e.28	.25	.16	.19	.16
25	.30	.32	.24	.25	1.7	.20	e11	e.22	.19	.18	.24	.13
26	.28	.34	.25	.35	.30	.18	e.52	e.21	.15	.20	.19	.10
27	.28	.32	.25	.65	34	.27	e.36	e.21	.17	.21	.28	.11
28	.19	.31	.25	e16	7.5	.21	e.32	e.21	.16	.20	.18	.25
29	.24	.32	.28	e4.9	---	.22	e.28	e.21	.16	.22	.18	1.2
30	.19	.29	.30	e.45	---	.19	e.24	e.21	.22	.20	.18	.41
31	.28	---	.23	e.28	---	.19	---	e.24	---	.21	.19	---
TOTAL	31.65	11.76	9.00	28.89	60.58	8.05	22.36	15.86	6.13	6.20	6.73	8.70
MEAN	1.02	.39	.29	.93	2.16	.26	.75	.51	.20	.20	.22	.29
MAX	16	.70	.41	16	34	1.3	11	7.5	.60	.37	.46	3.0
MIN	.19	.29	.23	.20	.21	.16	.14	.21	.15	.11	.14	.10
AC-FT	63	23	18	57	120	16	44	31	12	12	13	17

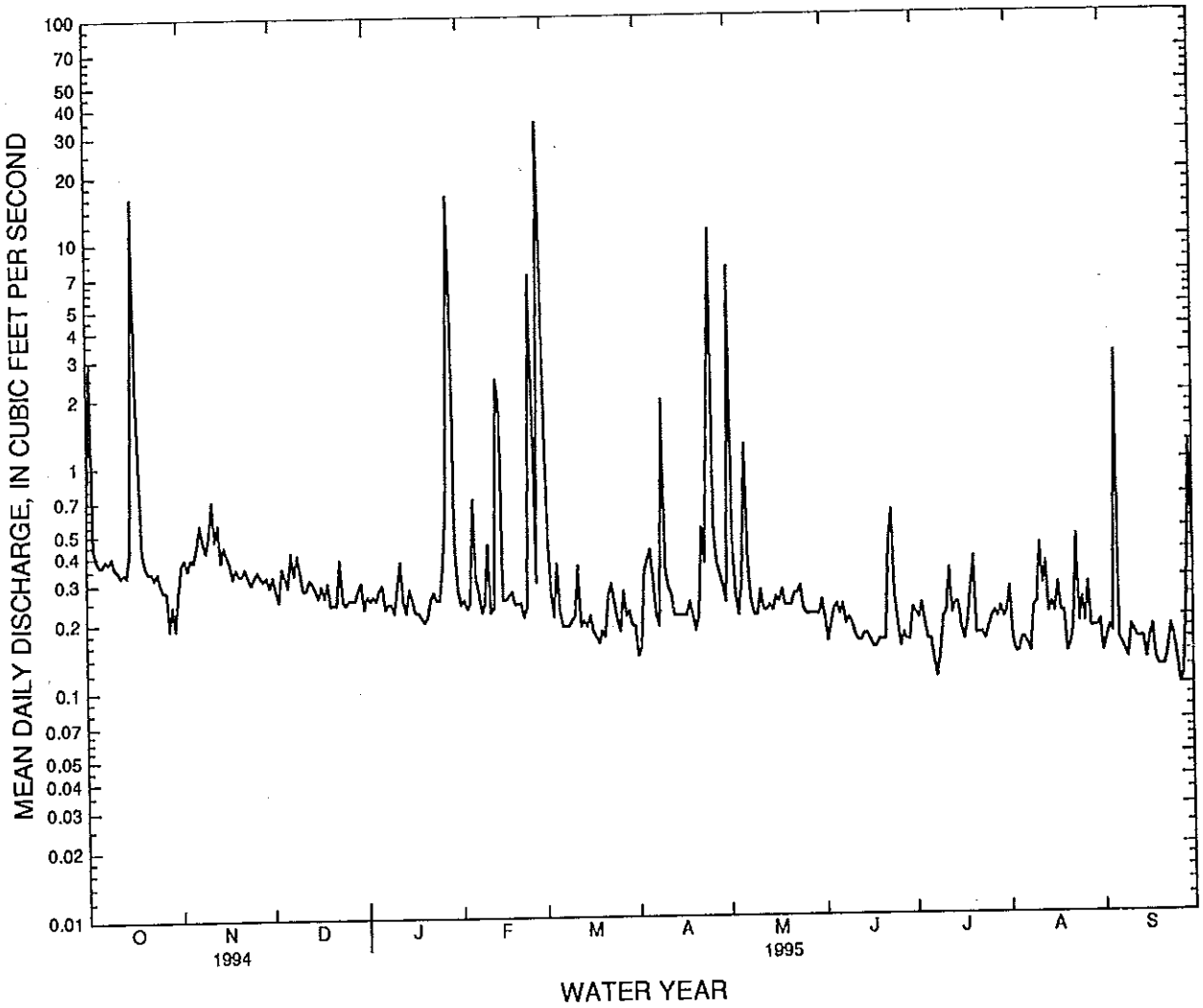
e Estimated

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1995, BY WATER YEAR (WY)

MEAN	1.13	2.39	2.55	1.32	2.34	2.18	1.80	.93	.78	.73	.55	1.01
MAX	2.21	9.43	15.0	4.05	5.56	8.83	11.9	1.95	2.17	1.92	1.10	4.36
(WY)	1990	1987	1988	1988	1994	1991	1989	1988	1989	1989	1989	1986
MIN	.34	.12	.26	.18	.44	.26	.34	.33	.20	.18	.14	.11
(WY)	1985	1985	1994	1985	1984	1995	1992	1984	1995	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1983 - 1995	
ANNUAL TOTAL	598.32		215.91			
ANNUAL MEAN	1.64		.59		1.48	
HIGHEST ANNUAL MEAN					2.84	1989
LOWEST ANNUAL MEAN					.33	1984
HIGHEST DAILY MEAN	112	Mar 24	34	Feb 27	177	Dec 31 1987
LOWEST DAILY MEAN	.19	Jan 2	.10	Sep 26	.03	Nov 16 1984
ANNUAL SEVEN-DAY MINIMUM	.25	Oct 25	.13	Sep 21	.04	Nov 15 1984
ANNUAL RUNOFF (AC-FT)	1190		428		1070	
10 PERCENT EXCEEDS	1.4		.44		1.7	
50 PERCENT EXCEEDS	.60		.24		.55	
90 PERCENT EXCEEDS	.29		.16		.24	



16265600 RIGHT BRANCH OF KAMOOALII STREAM NEAR KANEOHE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1983 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: February 1983 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since February 1983.

Remarks.--Water quality samples also were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water years 1994 and 1995 was not completed at the time of this publication.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
11...	1035	0.37	215	7.0	25.0	24.0	1.0	758	4.5	54	--
NOV											
15...	1240	0.34	192	6.8	23.0	23.5	5.3	758	4.8	57	1500
DEC											
20...	1440	0.25	205	6.8	25.0	23.0	1.0	763	5.2	61	--
JAN											
11...	0920	0.21	215	6.6	22.5	22.0	0.80	757	5.1	59	--
FEB											
13...	1345	0.22	210	6.8	22.5	22.5	1.3	757	4.8	56	590
MAR											
17...	1500	0.27	220	6.8	25.0	24.0	0.90	758	5.6	67	--
APR											
11...	1000	0.29	230	6.7	23.5	23.0	0.90	760	4.8	56	--
MAY											
23...	1155	0.28	220	6.7	25.0	23.5	1.4	763	5.2	61	350
JUN											
16...	1530	0.17	193	7.9	26.0	25.5	0.70	760	7.7	94	--
JUL											
11...	1130	0.17	190	6.6	25.0	23.5	1.3	760	4.4	52	--
SEP											
18...	1105	0.13	204	6.8	25.0	23.5	2.0	759	4.0	47	1300

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
15...	1240	52	11	5.9	15	38	0.9	1.4	50	10	19
SEP											
18...	1105	57	11	7.2	17	39	1	1.1	58	9.9	19

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
15...	1240	<0.10	16	113	111	0.15	4	0.410	0.410	<0.20	0.010
FEB											
13...	1345	--	--	--	--	--	1	0.430	0.430	<0.20	<0.010
MAY											
23...	1155	--	--	--	--	--	<1	0.320	0.320	<0.20	<0.010
SEP											
18...	1105	<0.10	21	114	123	0.16	9	0.340	0.340	<0.20	0.020

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

16265600 RIGHT BRANCH OF KAHOOALII STREAM NEAR KANEOHE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
NOV 15...	1240	310	30	<1	<100	11	<10	<1	2	<1	<3.0	2
SEP 18...	1105	20	<10	<1	<100	13	<10	<1	1	<1	<3.0	<1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV 15...	870	180	<1	<10	<4	120	110	<0.10	<1	<10	2
SEP 18...	750	290	<1	<1	<4	170	180	<0.10	<1	<10	1

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	ALDRIN, TOTAL (UG/L)
NOV 15...	1.0	<1	<1	<1	<1.0	75	<6	10	1.8	<1	<0.010
SEP 18...	2.0	<1	<1	<1	<1.0	84	<6	<10	1.8	<1	<0.010

DATE	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)
NOV 15...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP 18...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDOSULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV 15...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP 18...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARATHION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV 15...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010
SEP 18...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE

LOCATION.--Lat 21°23′42″, long 157°48′44″, Hydrologic Unit 20060000, on right bank 0.5 mi upstream from mouth, 1.4 mi southwest of Castle High School, and 1.9 mi south of Kaneohe Post Office.

DRAINAGE AREA.--0.44 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1960-63 (low-flow measurements), 1965-71, 1971-84 (annual maximum), April 1984 to current year.

GAGE.--Water-stage recorder and wooden control. Elevation of gage is 200 ft above mean sea level (from Corps of Engineers). Prior to April 1984, the station was located 400 ft upstream.

REMARKS.--Records fair. Honolulu Board of Water Supply diverts water from tunnel in drainage area.

AVERAGE DISCHARGE.--15 years (water years 1968-71, 1985-95), 1.39 ft^3/s (1010 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 651 ft^3/s, Nov. 26, 1970 (gage height, 6.18 ft for datum and site then in use), from rating curve extended above 10 ft^3/s on basis of slope-area measurement at gage height 6.09 ft; minimum, 0.03 ft^3/s on many days 1984-85.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 180 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 27	2315	*144	*1.63

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peak greater than base discharge.			

Minimum discharge, 0.26 ft^3/s, Sep. 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

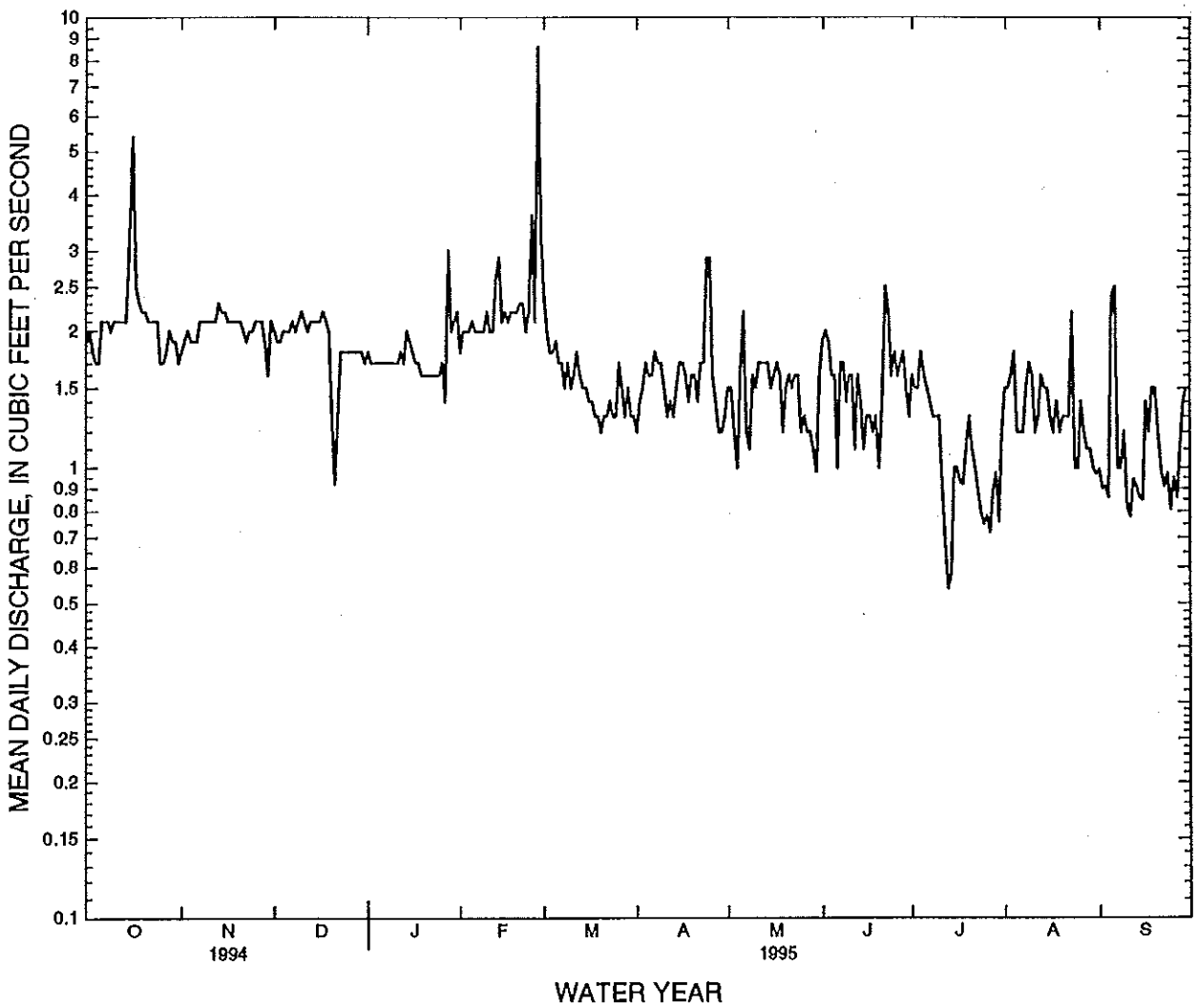
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.8	2.0	1.8	1.8	2.4	1.2	1.5	1.9	1.6	1.5	.99
2	2.0	1.9	1.9	1.7	2.0	2.0	1.4	1.5	2.0	1.5	1.5	.90
3	1.8	2.0	1.9	1.7	2.0	1.8	1.5	1.2	1.9	1.5	1.6	.91
4	1.7	1.9	2.0	1.7	2.0	1.8	1.7	1.0	1.6	1.8	1.8	.86
5	1.7	1.9	2.0	1.7	2.1	1.9	1.6	1.6	1.6	1.6	1.2	2.4
6	2.1	1.9	2.0	1.7	2.0	1.7	1.6	2.2	1.0	1.5	1.2	2.5
7	2.1	2.1	2.1	1.7	2.0	1.7	1.8	1.2	1.7	1.4	1.2	1.0
8	2.1	2.1	2.0	1.7	2.0	1.5	1.7	1.1	1.7	1.3	1.5	1.0
9	2.0	2.1	2.1	1.7	2.0	1.7	1.7	1.6	1.4	1.3	1.7	1.2
10	2.1	2.1	2.2	1.7	2.2	1.5	1.5	1.5	1.6	1.3	1.6	.82
11	2.1	2.1	2.1	1.7	2.0	1.6	1.3	1.7	1.6	.90	1.2	.78
12	2.1	2.1	2.0	1.8	2.0	1.8	1.4	1.7	1.1	.68	1.3	.94
13	2.1	2.3	2.1	1.7	2.6	1.6	1.3	1.7	1.6	.54	1.6	.91
14	2.1	2.2	2.1	2.0	2.9	1.5	1.5	1.7	1.4	.58	1.5	.86
15	3.2	2.2	2.1	1.9	2.1	1.5	1.7	1.5	1.1	1.0	1.5	.85
16	5.4	2.1	2.1	1.8	2.2	1.4	1.7	1.6	1.3	1.0	1.3	1.4
17	2.5	2.1	2.2	1.7	2.1	1.4	1.6	1.7	1.3	.93	1.2	1.2
18	2.3	2.1	2.1	1.7	2.2	1.3	1.4	1.6	1.2	.92	1.4	1.5
19	2.2	2.1	2.0	1.6	2.2	1.3	1.6	1.2	1.3	1.1	1.2	1.5
20	2.2	2.1	1.3	1.6	2.2	1.2	1.6	1.5	1.0	1.3	1.3	1.2
21	2.1	2.0	.92	1.6	2.3	1.3	1.4	1.6	1.4	1.1	1.3	.98
22	2.1	1.9	1.3	1.6	2.3	1.3	1.7	1.5	2.5	1.0	1.3	.91
23	2.1	2.0	1.8	1.6	2.0	1.4	1.7	1.6	2.2	.88	2.2	.97
24	2.1	2.0	1.8	1.6	2.2	1.3	2.9	1.6	1.6	.79	1.0	.81
25	1.7	2.1	1.8	1.6	3.6	1.3	2.9	1.2	1.8	.75	1.0	.95
26	1.7	2.1	1.8	1.7	2.1	1.7	1.6	1.3	1.6	.78	1.4	.86
27	1.8	2.1	1.8	1.4	8.6	1.5	1.4	1.2	1.7	.72	1.2	1.1
28	2.0	1.9	1.8	3.0	3.3	1.3	1.2	1.2	1.8	.89	1.1	1.4
29	1.9	1.6	1.8	2.0	---	1.5	1.2	1.1	1.5	.97	1.1	1.5
30	1.9	2.1	1.8	2.1	---	1.3	1.3	.98	1.3	.76	1.0	1.5
31	1.7	---	1.7	2.2	---	1.3	---	1.6	---	1.2	.97	---
TOTAL	66.8	61.0	58.62	55.0	69.0	47.8	48.1	45.18	46.7	33.59	41.87	34.70
MEAN	2.15	2.03	1.89	1.77	2.46	1.54	1.60	1.46	1.56	1.08	1.35	1.16
MAX	5.4	2.3	2.2	3.0	8.6	2.4	2.9	2.2	2.5	1.8	2.2	2.5
MIN	1.7	1.6	.92	1.4	1.8	1.2	1.2	.98	1.0	.54	.97	.78
AC-FT	132	121	116	109	137	95	95	90	93	67	83	69

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1995, BY WATER YEAR (WY)

MEAN	1.07	1.56	1.81	1.55	1.64	1.72	1.55	1.20	1.02	1.15	1.09	1.08
MAX	2.30	3.57	4.10	3.02	4.92	3.78	3.67	2.07	1.89	2.12	2.39	2.21
(WY)	1992	1971	1988	1969	1969	1968	1989	1969	1971	1994	1991	1994
MIN	.089	.12	.26	.16	.17	.63	.39	.34	.23	.16	.14	.14
(WY)	1985	1985	1986	1986	1986	1985	1984	1984	1984	1984	1985	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1967 - 1995		
ANNUAL TOTAL	649.77		608.36				
ANNUAL MEAN	1.78		1.67		1.39		
HIGHEST ANNUAL MEAN					2.13		1969
LOWEST ANNUAL MEAN					.41		1986
HIGHEST DAILY MEAN	28	Mar 24	8.6	Feb 27	67	Feb 1	1969
LOWEST DAILY MEAN	.17	Jan 2	.54	Jul 13	.03	Oct 14	1988
ANNUAL SEVEN-DAY MINIMUM	.31	Jun 8	.80	Jul 11	.07	Nov 18	1984
ANNUAL RUNOFF (AC-FT)	1290		1210		1010		
10 PERCENT EXCEEDS	2.2		2.1		2.1		
50 PERCENT EXCEEDS	1.8		1.6		1.1		
90 PERCENT EXCEEDS	.66		1.0		.30		



16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: April 1984 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since April 1984.

REMARKS.--Water-quality samples also were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water years 1994 and 1995 was not completed at the time of this publication.

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
12...	1415	2.2	165	7.3	25.0	20.0	0.80	756	8.8	98	--
NOV											
15...	0950	2.8	180	7.8	23.5	20.5	43	759	8.8	98	1900
DEC											
19...	0950	2.1	155	7.2	23.0	20.5	2.3	764	8.6	95	--
JAN											
10...	1020	1.8	142	8.0	22.5	19.5	1.2	757	8.8	97	--
FEB											
14...	1330	2.3	160	7.9	23.0	20.0	3.0	756	8.7	97	550
MAR											
16...	1000	1.5	150	7.7	25.0	20.0	0.60	760	8.7	96	--
APR											
11...	1145	1.5	150	7.6	26.0	20.0	0.50	759	8.4	93	--
MAY											
23...	1400	1.7	160	7.9	25.5	21.0	0.80	761	9.0	101	2100
JUN											
14...	1335	1.7	150	7.8	28.0	20.5	0.60	760	8.8	98	--
JUL											
11...	1440	0.72	160	7.6	--	21.5	0.90	762	8.4	95	--
SEP											
13...	0900	0.85	152	7.8	27.0	--	1.3	756	8.8	--	2300

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
15...	0950	52	12	5.3	12	32	0.7	2.5	48	10	16
SEP											
13...	0900	42	8.3	5.2	13	40	0.9	0.80	46	2.6	15

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
15...	0950	<0.10	24	122	112	0.17	62	0.170	0.170	0.30	0.180
FEB											
14...	1330	--	--	--	--	--	2	0.200	0.200	<0.20	0.030
MAY											
23...	1400	--	--	--	--	--	<1	0.150	0.150	<0.20	<0.010
SEP											
13...	0900	<0.10	29	102	102	0.14	5	0.100	0.100	<0.20	0.030

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

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KAHEOHE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
NOV												
15...	0950	2500	<10	2	<100	2.0	<10	<1	11	2	<3.0	5
SEP												
13...	0900	110	10	<1	<100	<2.0	<10	<1	1	<1	<3.0	<1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV											
15...	3000	160	3	<10	<4	80	10	<0.10	<1	<10	5
SEP											
13...	160	9.0	<1	<10	<4	<10	2.0	<0.10	1	<10	<1

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	ALDRIN, TOTAL (UG/L)
NOV											
15...	<1.0	<1	<1	<1	<1.0	61	8	10	4.4	<1	<0.010
SEP											
13...	<1.0	<1	<1	<1	<1.0	51	<6	<10	1.1	<1	<0.010

DATE	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)
NOV											
15...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP											
13...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDOSULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV										
15...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP										
13...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARATHION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV										
15...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010
SEP										
13...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE

LOCATION.--Lat 21°23′47″, long 157°48′23″, Hydrologic Unit 20060000, on left bank 300 ft downstream from Luluku Stream, 1.0 mi southwest of Castle High School, and 1.9 mi northwest of the intersection of State Highways 61 and 83.

DRAINAGE AREA.--3.81 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1976 to current year.

REVISED RECORDS.-- WDR HI-92-1: 1991(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 116.39 ft above mean sea level (levels by Corps of Engineers).

REMARKS.--Records good. Flow regulated by a flood-control dam upstream.

AVERAGE DISCHARGE.--18 years (water years 1978-95), 11.1 ft^3/s (8,040 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,650 ft^3/s, Dec. 31, 1987, gage height, 5.72 ft, from rating curve extended above 200 ft^3/s; minimum, 0.25 ft^3/s on several days in October 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 27	2315	*615	*4.03				

Minimum discharge, 1.7 ft^3/s, Dec. 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

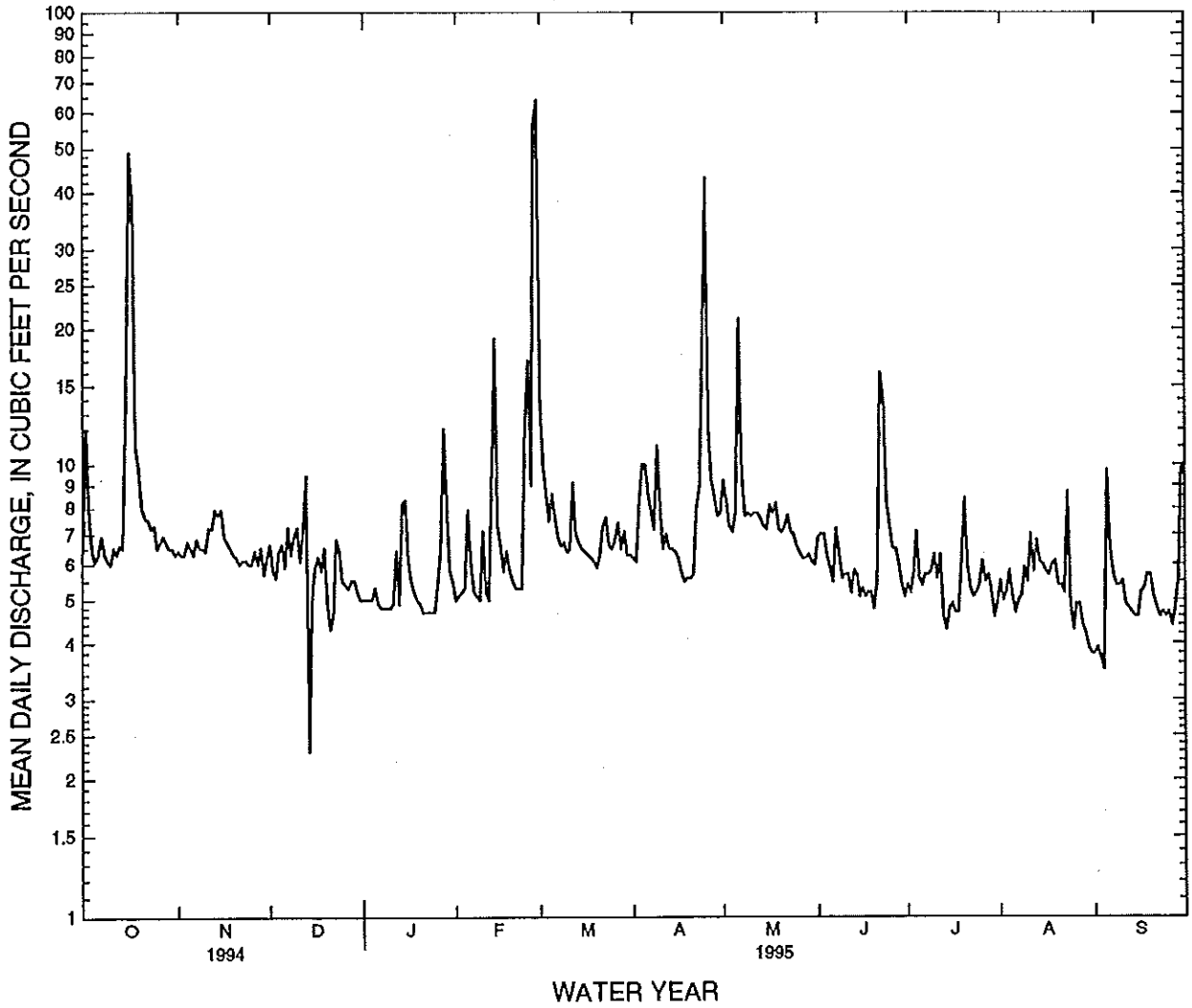
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	6.4	6.6	5.0	5.0	14	6.2	9.2	6.9	5.4	5.5	3.8
2	12	6.3	5.8	5.0	5.1	10	6.1	8.3	7.0	5.2	5.0	3.9
3	7.7	6.3	5.6	5.0	5.2	8.7	8.3	7.3	7.0	5.7	5.2	3.7
4	6.4	6.7	6.4	5.0	5.3	7.5	10	7.1	6.3	7.1	5.8	3.5
5	6.1	6.5	6.6	5.3	7.9	8.6	10	7.8	5.9	5.6	5.1	9.7
6	6.3	6.3	5.9	4.9	6.0	7.6	8.6	21	5.5	5.4	4.7	6.5
7	6.9	6.8	7.2	4.8	5.2	6.9	7.8	9.6	7.2	5.7	5.0	5.7
8	6.3	6.5	6.3	4.8	5.1	6.6	7.2	7.7	6.3	5.7	5.1	5.4
9	6.1	6.5	6.9	4.8	5.0	6.7	11	7.8	5.6	5.8	5.9	5.4
10	6.0	6.4	7.2	4.8	7.1	6.4	7.9	7.7	5.7	6.3	5.5	5.5
11	6.5	7.2	6.1	4.9	5.2	6.5	6.5	7.8	5.7	5.6	7.0	4.9
12	6.3	7.2	7.1	6.4	5.0	9.1	7.0	7.8	5.2	6.3	5.8	4.8
13	6.6	7.9	9.4	4.9	9.1	7.0	6.5	7.6	5.8	4.6	6.8	4.7
14	6.5	7.7	2.3	8.2	19	6.7	6.5	7.3	5.7	4.3	6.1	4.6
15	14	7.9	5.2	8.3	7.3	6.5	6.4	7.2	5.1	4.8	6.0	4.6
16	49	6.9	5.9	6.1	6.6	6.4	6.2	8.1	5.3	4.9	5.8	5.2
17	39	6.7	6.2	5.5	5.8	6.3	5.8	7.8	5.1	4.7	5.7	5.3
18	11	6.5	5.8	5.2	6.4	6.2	5.5	8.2	5.2	4.7	6.0	5.7
19	9.9	6.3	6.5	5.0	5.8	6.1	5.6	7.2	5.2	6.1	6.1	5.7
20	8.0	6.2	4.9	4.9	5.5	5.9	5.6	7.1	4.8	8.4	5.4	5.1
21	7.6	6.0	4.3	4.7	5.3	6.3	5.7	7.3	5.5	6.0	5.4	4.8
22	7.5	6.1	4.6	4.7	5.3	7.3	8.0	7.7	16	5.3	5.2	4.6
23	7.2	6.1	6.8	4.7	5.3	7.6	8.9	7.1	14	5.1	8.7	4.7
24	7.3	6.0	6.4	4.7	12	6.6	19	7.0	8.3	5.2	4.9	4.6
25	6.5	6.0	5.5	4.7	17	6.5	43	6.6	7.3	5.4	4.3	4.7
26	6.7	6.4	5.4	5.4	9.0	6.8	12	6.4	6.5	6.1	4.9	4.4
27	6.9	6.0	5.3	6.5	57	7.4	9.2	6.2	6.5	5.5	4.9	4.8
28	6.7	6.5	5.5	12	64	6.5	8.5	6.2	6.0	5.7	4.4	5.6
29	6.5	5.7	5.5	8.1	---	7.1	7.7	6.3	5.4	5.2	4.2	9.8
30	6.5	6.2	5.2	5.8	---	6.3	7.8	6.1	5.1	4.6	3.9	10
31	6.3	---	5.0	5.5	---	6.3	---	6.0	---	4.9	3.8	---
TOTAL	302.7	196.2	183.4	175.6	307.5	224.4	274.5	242.5	197.1	171.3	168.1	161.7
MEAN	9.76	6.54	5.92	5.66	11.0	7.24	9.15	7.82	6.57	5.53	5.42	5.39
MAX	49	7.9	9.4	12	64	14	43	21	16	8.4	8.7	10
MIN	6.0	5.7	2.3	4.7	5.0	5.9	5.5	6.0	4.8	4.3	3.8	3.5
AC-FT	600	389	364	348	610	445	544	481	391	340	333	321

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1995, BY WATER YEAR (WY)

MEAN	8.54	11.1	12.9	14.9	13.1	13.9	12.9	10.9	9.07	8.15	7.70	7.54
MAX	16.8	29.6	37.2	53.4	35.9	34.3	49.1	23.0	25.7	19.9	24.0	16.9
(WY)	1983	1987	1988	1988	1979	1982	1989	1981	1982	1982	1982	1982
MIN	2.91	3.90	4.56	4.05	3.83	4.03	5.32	4.53	3.59	3.19	2.91	2.94
(WY)	1985	1985	1978	1977	1978	1978	1985	1984	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1977 - 1995	
ANNUAL TOTAL	4261.5		2605.0			
ANNUAL MEAN	11.7		7.14		11.1	
HIGHEST ANNUAL MEAN					22.0	1982
LOWEST ANNUAL MEAN					4.36	1984
HIGHEST DAILY MEAN	333	Mar 24	64	Feb 28	723	Jan 1 1988
LOWEST DAILY MEAN	2.3	Dec 14	2.3	Dec 14	.29	Oct 10 1984
ANNUAL SEVEN-DAY MINIMUM	5.3	Dec 14	3.8	Aug 29	.30	Oct 10 1984
ANNUAL RUNOFF (AC-FT)	8450		5170		8040	
10 PERCENT EXCEEDS	15		8.6		17	
50 PERCENT EXCEEDS	7.7		6.2		7.4	
90 PERCENT EXCEEDS	6.1		4.8		4.5	



16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1976 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: November 1976 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since November 1976.

REMARKS.--Water-quality samples also were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water years 1994 and 1995 was not completed at the time of this publication.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
11...	0945	7.1	175	7.8	27.0	25.0	0.60	762	8.3	101	--
NOV											
15...	1005	9.4	185	7.9	26.0	23.0	110	762	8.3	97	2500
DEC											
19...	1315	6.6	185	8.5	25.0	22.0	2.6	764	9.1	104	--
JAN											
10...	1235	4.8	183	8.2	27.0	21.5	1.3	761	9.5	108	--
FEB											
15...	1000	6.8	175	7.9	23.0	21.0	2.8	763	9.3	104	200
MAR											
16...	0930	5.7	168	7.9	24.5	23.0	1.6	762	9.0	105	--
APR											
12...	1330	7.4	190	7.9	23.5	23.0	1.6	760	8.6	101	--
MAY											
23...	1100	7.0	190	8.3	26.0	25.0	2.0	764	8.9	108	75
JUN											
16...	1000	5.3	186	8.0	26.0	24.0	1.6	763	8.4	100	--
JUL											
13...	1000	4.7	183	7.8	26.5	26.0	2.1	762	9.0	111	--
SEP											
12...	0930	4.8	180	8.0	24.0	26.0	3.4	758	8.8	109	180

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
15...	1005	54	10	7.0	13	34	0.8	1.7	54	8.1	18
SEP											
12...	0930	50	7.5	7.5	14	38	0.9	0.90	55	5.2	19

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
15...	1005	<0.10	19	118	109	0.16	134	--	--	<0.20	0.090
FEB											
15...	1000	--	--	--	--	--	6	0.310	0.310	<0.20	0.020
MAY											
23...	1100	--	--	--	--	--	2	0.220	0.220	<0.20	0.010
SEP											
12...	0930	<0.10	22	111	110	0.15	<1	0.250	0.250	<0.20	0.010

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

16272200 KAHOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
NOV												
15...	1005	5500	40	<1	<100	2.0	<10	<1	25	5	<3.0	12
SEP												
12...	0930	170	30	<1	<100	5.0	<10	<1	1	<1	4.0	1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV											
15...	8100	44	3	<10	<4	160	9.0	<0.10	<1	<10	15
SEP											
12...	340	49	<1	<10	<4	30	10	<0.10	<1	10	1

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	ALDRIN, TOTAL (UG/L)
NOV											
15...	<1.0	<1	<1	<1	<1.0	69	<6	20	4.3	<1	<0.010
SEP											
12...	<1.0	<1	<1	<1	<1.0	67	<6	<10	3.1	<1	<0.010

DATE	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)
NOV											
15...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP											
12...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDOSULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV										
15...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP										
12...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARATHION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV										
15...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010
SEP										
12...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE

LOCATION.--Lat 21°24′21", long 157°48′31", Hydrologic Unit 20060000, on right bank, 1.8 mi west of Castle High School, 1.2 mi northwest of Hawaiian Memorial Park Cemetary, and 2.4 mi northwest of Pali Golf Course.

DRAINAGE AREA.--0.40 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1987 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 115 ft above mean sea level, from topographic map.

REMARKS.--Records good except those above 21 cfs, which are poor.

AVERAGE DISCHARGE.--8 years (water years 1988-95), 2.43 ft^3/s (1,760 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 207 ft^3/s, Dec. 31, 1987, gage height, 5.18 ft, from rating curve extended above 21 ft^3/s; minimum, 1.5 ft^3/s, July 18, 19, 1989.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2030	*94	*3.70	No peak greater than base discharge.			

Minimum discharge, 1.6 ft^3/s for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	1.8	2.0	1.8	2.4	2.6	1.8	2.0	1.9	1.8	1.8	1.6
2	2.2	1.9	2.0	1.8	2.3	2.6	1.8	1.9	1.9	1.8	1.8	1.6
3	2.0	1.9	1.9	1.8	2.3	2.4	2.1	1.9	2.0	1.8	1.7	1.6
4	2.0	1.8	2.0	1.9	2.2	2.3	2.2	1.9	1.9	2.0	1.7	1.6
5	2.0	1.8	2.0	1.9	2.9	2.3	2.1	2.0	1.9	1.8	1.7	1.9
6	2.0	1.8	1.9	1.8	2.2	2.1	2.0	2.6	2.0	1.8	1.7	1.7
7	2.0	1.8	2.1	1.8	2.1	2.0	1.9	1.9	2.2	1.8	1.7	1.6
8	1.9	e1.7	2.1	1.8	2.1	1.9	1.9	1.9	e1.9	1.8	1.7	1.6
9	1.8	1.7	2.1	1.8	2.1	1.9	1.9	1.9	1.9	1.7	1.7	1.6
10	1.8	1.7	2.1	1.8	2.2	1.9	1.9	1.8	1.9	1.7	1.7	1.7
11	1.9	1.7	2.0	1.9	1.9	1.9	1.8	1.8	1.9	1.7	1.8	1.6
12	1.7	1.7	1.9	1.9	1.9	2.3	1.8	1.8	1.9	1.9	1.8	1.6
13	1.7	1.8	1.9	1.8	2.8	1.9	1.7	1.8	1.9	1.8	1.9	1.6
14	1.7	1.8	1.9	2.4	2.7	1.9	1.8	1.8	1.8	1.8	1.8	1.6
15	3.1	1.9	1.9	2.1	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.6
16	5.3	1.8	1.9	1.9	1.9	2.1	1.7	1.9	1.8	1.8	1.7	1.6
17	2.3	1.8	2.0	1.9	1.9	2.0	1.8	1.9	1.8	1.8	1.8	1.6
18	2.1	1.8	1.9	1.8	2.5	1.8	1.7	1.9	1.8	1.8	1.7	1.6
19	1.6	1.8	1.9	1.9	2.2	1.8	1.8	1.8	1.8	1.9	1.8	1.6
20	1.6	1.8	1.9	1.9	2.2	e1.8	1.8	1.8	1.8	2.0	1.7	1.6
21	1.6	1.8	1.8	1.8	2.1	1.8	1.8	1.8	1.8	1.9	1.7	1.6
22	1.7	1.8	1.9	1.8	2.1	e1.9	1.9	1.9	2.9	1.8	1.6	1.6
23	1.7	1.9	1.9	1.8	2.1	e1.9	2.0	1.8	2.4	1.8	e2.2	1.6
24	1.8	1.9	1.8	1.8	2.3	1.9	3.1	1.8	1.9	1.8	1.9	1.6
25	2.0	1.9	1.9	1.8	3.4	1.9	3.4	1.8	1.9	1.8	1.8	1.6
26	2.2	1.9	1.9	1.9	2.3	1.9	2.2	1.8	1.9	1.8	1.8	1.6
27	2.0	1.9	1.8	2.3	5.2	2.0	2.1	1.8	1.8	1.8	1.8	1.6
28	2.0	1.9	1.9	3.3	3.1	1.9	2.1	1.8	1.8	1.8	1.7	1.6
29	2.0	1.9	1.9	2.1	---	2.1	2.0	1.9	1.8	1.8	1.7	1.9
30	1.8	1.9	1.8	2.2	---	1.9	2.0	1.9	1.8	1.8	1.7	1.9
31	1.8	---	1.9	2.2	---	1.9	---	1.9	---	1.8	1.7	---
TOTAL	63.3	54.6	59.9	60.7	67.3	62.5	59.9	58.3	57.8	56.2	54.6	49.1
MEAN	2.04	1.82	1.93	1.96	2.40	2.02	2.00	1.88	1.93	1.81	1.76	1.64
MAX	5.3	1.9	2.1	3.3	5.2	2.6	3.4	2.6	2.9	2.0	2.2	1.9
MIN	1.6	1.7	1.8	1.8	1.9	1.8	1.7	1.8	1.8	1.7	1.6	1.6
AC-FT	126	108	119	120	133	124	119	116	115	111	108	97

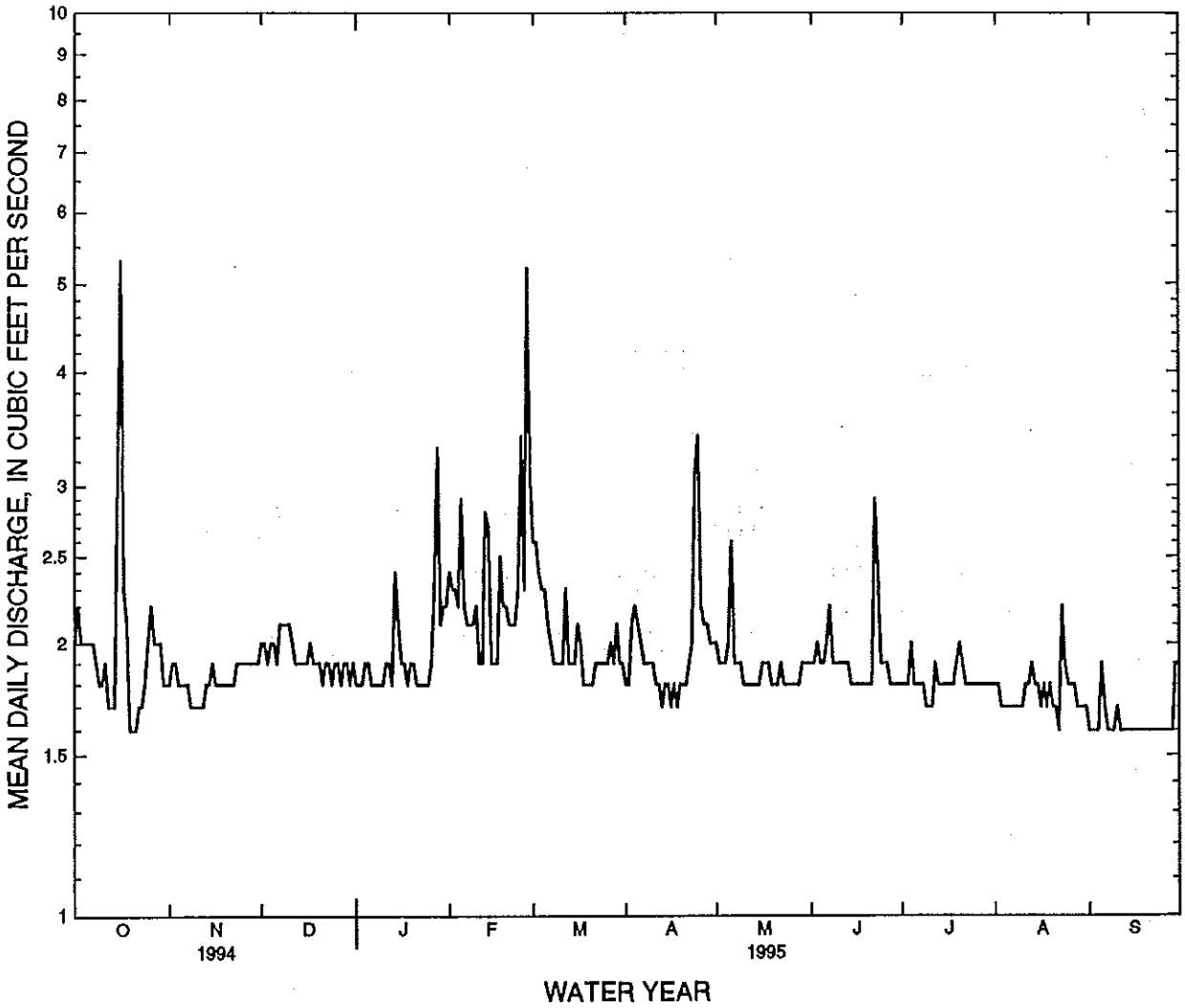
e Estimated

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1995, BY WATER YEAR (WY)

MEAN	2.37	2.47	2.80	2.62	2.79	2.67	2.65	2.16	2.08	2.19	2.14	2.18
MAX	3.07	3.45	4.99	4.31	3.57	3.78	5.44	2.46	2.31	2.64	2.50	2.85
(WY)	1992	1991	1988	1988	1994	1991	1989	1988	1988	1990	1989	1988
MIN	1.90	1.82	1.93	1.96	2.37	2.02	1.92	1.88	1.92	1.81	1.76	1.64
(WY)	1988	1995	1995	1995	1993	1995	1992	1995	1990	1995	1995	1995

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1988 - 1995	
ANNUAL TOTAL	828.7		704.2			
ANNUAL MEAN	2.27		1.93		2.43	
HIGHEST ANNUAL MEAN					2.87	1989
LOWEST ANNUAL MEAN					1.93	1995
HIGHEST DAILY MEAN	18	Mar 24	5.3	Oct 16	30	Apr 8 1989
LOWEST DAILY MEAN	1.6	Oct 19	1.6	Oct 19	1.5	Jul 18 1989
ANNUAL SEVEN-DAY MINIMUM	1.7	Oct 19	1.6	Sep 11	1.6	Sep 11 1995
ANNUAL RUNOFF (AC-FT)	1640		1400		1760	
10 PERCENT EXCEEDS	2.5		2.2		2.9	
50 PERCENT EXCEEDS	2.0		1.9		2.2	
90 PERCENT EXCEEDS	1.8		1.7		1.8	



16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1988 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1990 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since August 1984.

REMARKS.--Water-quality samples also were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water years 1994 and 1995 was not completed at the time of this publication.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
12...	1025	1.7	205	7.3	25.0	22.0	1.7	760	8.5	98	--
NOV											
15...	1400	2.0	205	7.6	26.5	23.5	6.0	761	8.0	94	3000
DEC											
20...	0940	1.7	195	7.5	22.5	21.5	3.4	766	8.4	95	--
JAN											
10...	1115	1.7	185	8.1	24.0	22.0	3.4	759	8.7	100	--
FEB											
13...	0950	1.9	200	7.9	24.0	21.0	4.8	756	8.8	100	1800
MAR											
16...	1445	1.9	175	8.0	27.0	24.0	3.3	761	8.1	96	--
APR											
11...	1455	1.9	200	8.1	27.0	23.0	3.3	762	8.1	95	--
MAY											
24...	0955	1.7	200	8.0	24.0	21.5	4.0	763	8.6	97	5100
JUN											
16...	1245	1.8	172	7.7	26.0	25.0	2.5	763	7.9	96	--
JUL											
11...	0930	1.7	200	8.0	25.5	21.5	3.0	761	8.6	98	--
SEP											
11...	0930	1.6	198	7.9	24.0	22.0	4.0	760	8.3	95	2900

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
15...	1400	60	13	6.6	16	36	0.9	1.5	65	6.0	20
SEP											
11...	0930	53	11	6.2	15	38	0.9	1.1	63	4.7	19

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
15...	1400	<0.10	30	135	132	0.18	13	--	--	<0.20	0.040
FEB											
13...	0950	--	--	--	--	--	10	0.090	0.090	<0.20	0.020
MAY											
24...	0955	--	--	--	--	--	9	0.060	0.060	<0.20	<0.010
SEP											
11...	0930	<0.10	32	127	127	0.17	3	0.050	0.050	<0.20	0.020

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

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
NOV												
15...	1400	320	20	<1	<100	3.0	<10	<1	3	<1	<3.0	2
SEP												
11...	0930	180	30	<1	<100	3.0	<10	<1	2	<1	<3.0	1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV											
15...	880	140	<1	<10	<4	40	22	<0.10	<1	<10	<1
SEP											
11...	560	130	<1	<10	<4	30	12	<0.10	<1	<10	1

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	ALDRIN, TOTAL (UG/L)
NOV											
15...	<1.0	<1	<1	<1	<1.0	69	9	<10	1.5	<1	<0.010
SEP											
11...	<1.0	<1	<1	<1	<1.0	62	10	<10	2.5	<1	<0.010

DATE	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)
NOV											
15...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP											
11...	<0.100	0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDOSULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV										
15...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP										
11...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARATHION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV										
15...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010
SEP										
11...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA

LOCATION.--Lat 21°24'46", long 157°49'33", Hydrologic Unit 20060000, on left bank, 1.7 mi west of Kaneohe Post Office, and 1.8 mi southwest of Heeia.

DRAINAGE AREA.--0.97 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1914 to October 1919, July 1939 to September 1977, October 1982 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 935: 1940. WSP 1319: 1916-19(M). WSP 1569: Drainage area. WSP 1719: 1942-43, 1946(M), 1947, 1949, 1951, 1954(M), 1955, 1957-59. WSP 1937: 1940-45(M), 1947(M), 1948-50(P), 1951, 1952(P), 1953(M), 1955-57(P), 1958-59, 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 271.9 ft above mean sea level (levels by city and county of Honolulu). Prior to Apr. 28, 1914, nonrecording gage and Apr. 28, 1914, to Oct. 25, 1919, water-stage recorder, at same site at different datums.

REMARKS.--Records fair. Honolulu Board of Water Supply has diverted ground water from tunnel in drainage area since 1943.

AVERAGE DISCHARGE (since diversion from tunnel began).--47 years (water years 1944-77, 1983-95), 2.23 ft^3/s, (1,620 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,740 ft^3/s, May 2, 1965, gage height, 7.94 ft, from rating curve extended above 57 ft^3/s on basis of slope-area measurements at gage heights 3.87 ft, 3.88 ft, and 7.94 ft; minimum, 0.20 ft^3/s, July 20, 1957, Sept. 17, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 340 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 27	2300	*160	*2.63	No peak geater than base discharge.			

Minimum discharge, 1.1 ft^3/s, Apr. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

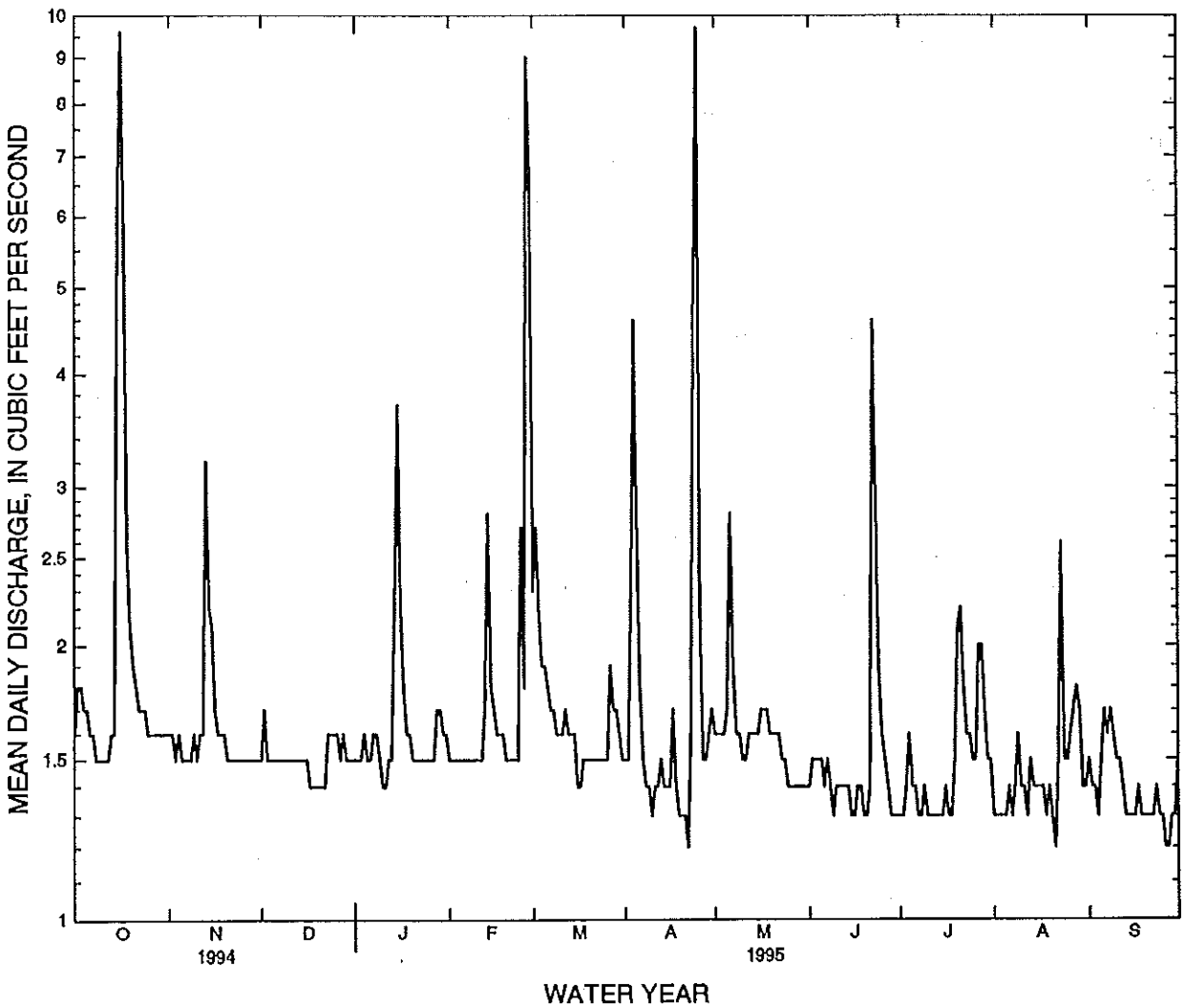
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.6	1.5	1.5	1.5	2.3	1.5	1.6	1.4	1.3	1.3	1.5
2	1.8	1.6	1.7	1.5	1.5	2.7	1.5	1.6	1.5	1.3	1.3	1.4
3	1.8	1.5	1.5	1.5	1.5	2.2	2.3	1.6	1.5	1.4	1.3	1.4
4	1.7	1.6	1.5	1.6	1.5	1.9	4.6	1.6	1.5	1.6	1.3	1.3
5	1.7	1.5	1.5	1.5	1.5	1.9	2.7	1.7	1.5	1.4	1.3	1.5
6	1.6	1.5	1.5	1.5	1.5	1.8	1.8	2.8	1.4	1.4	1.4	1.7
7	1.6	1.5	1.5	1.6	1.5	1.7	1.5	1.9	1.5	1.3	1.3	1.6
8	1.5	1.5	1.5	1.6	1.5	1.7	1.4	1.6	1.4	1.3	1.4	1.7
9	1.5	1.6	1.5	1.5	1.5	1.6	1.4	1.6	1.3	1.4	1.6	1.6
10	1.5	1.5	1.5	1.4	1.5	1.6	1.3	1.5	1.4	1.3	1.4	1.5
11	1.5	1.6	1.5	1.4	1.5	1.6	1.4	1.5	1.4	1.3	1.4	1.5
12	1.5	1.6	1.5	1.5	1.5	1.7	1.4	1.6	1.4	1.3	1.3	1.4
13	1.6	3.2	1.5	1.5	1.7	1.6	1.5	1.6	1.4	1.3	1.5	1.3
14	1.6	2.2	1.5	2.2	2.8	1.6	1.4	1.6	1.4	1.3	1.4	1.3
15	5.9	2.1	1.5	3.7	1.8	1.6	1.4	1.6	1.3	1.3	1.4	1.3
16	9.6	1.7	1.5	2.2	1.7	1.4	1.4	1.7	1.3	1.4	1.4	1.3
17	5.6	1.6	1.4	1.8	1.6	1.4	1.7	1.7	1.4	1.3	1.4	1.4
18	2.6	1.6	1.4	1.6	1.6	1.5	1.4	1.7	1.4	1.3	1.3	1.3
19	2.1	1.6	1.4	1.6	1.6	1.5	1.3	1.6	1.3	1.5	1.4	1.3
20	1.9	1.5	1.4	1.5	1.5	1.5	1.3	1.6	1.3	2.1	1.3	1.3
21	1.8	1.5	1.4	1.5	1.5	1.5	1.3	1.6	1.4	2.2	1.2	1.3
22	1.7	1.5	1.4	1.5	1.5	1.5	1.2	1.6	4.6	1.8	1.5	1.3
23	1.7	1.5	1.6	1.5	1.5	1.5	1.6	1.5	2.8	1.6	2.6	1.4
24	1.7	1.5	1.6	1.5	1.5	1.5	4.8	1.5	1.9	1.6	1.5	1.3
25	1.6	1.5	1.6	1.5	2.7	1.5	9.7	1.4	1.6	1.5	1.5	1.3
26	1.6	1.5	1.6	1.5	1.8	1.5	2.4	1.4	1.5	1.5	1.6	1.2
27	1.6	1.5	1.5	1.5	9.0	1.9	1.5	1.4	1.4	2.0	1.7	1.2
28	1.6	1.5	1.6	1.7	6.8	1.7	1.5	1.4	1.3	2.0	1.8	1.3
29	1.6	1.5	1.5	1.7	---	1.7	1.6	1.4	1.3	1.7	1.7	1.3
30	1.6	1.5	1.5	1.6	---	1.6	1.7	1.4	1.3	1.5	1.4	1.5
31	1.6	---	1.5	1.6	---	1.5	---	1.4	---	1.5	1.4	---
TOTAL	68.3	49.1	46.6	51.3	58.6	52.2	61.5	49.7	47.1	46.7	45.3	41.7
MEAN	2.20	1.64	1.50	1.65	2.09	1.68	2.05	1.60	1.57	1.51	1.46	1.39
MAX	9.6	3.2	1.7	3.7	9.0	2.7	9.7	2.8	4.6	2.2	2.6	1.7
MIN	1.5	1.5	1.4	1.4	1.5	1.4	1.2	1.4	1.3	1.3	1.2	1.2
AC-FT	135	97	92	102	116	104	122	99	93	93	90	83

16275000 HAIKU STREAM NEAR HEEIA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1995, BY WATER YEAR (WY)

MEAN	1.94	2.75	2.72	2.60	2.54	3.31	2.56	2.36	1.37	1.55	1.59	1.45
MAX	11.6	15.7	9.72	9.68	10.7	16.5	13.0	27.3	2.34	3.25	4.24	3.62
(WY)	1959	1966	1988	1949	1955	1958	1989	1965	1989	1989	1967	1992
MIN	.32	.33	.64	.94	.86	.60	.50	.51	.38	.41	.56	.36
(WY)	1946	1946	1960	1977	1963	1946	1946	1961	1946	1945	1961	1945

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1944 - 1995	
ANNUAL TOTAL	960.7		618.1			
ANNUAL MEAN	2.63		1.69		2.23	
HIGHEST ANNUAL MEAN					4.82	1965
LOWEST ANNUAL MEAN					.67	1946
HIGHEST DAILY MEAN	89	Mar 24	9.7	Apr 25	620	May 2 1965
LOWEST DAILY MEAN	1.2	Jan 2	1.2	Apr 22	.29	Jul 13 1945
ANNUAL SEVEN-DAY MINIMUM	1.2	Jan 9	1.3	Sep 21	.29	Oct 19 1945
ANNUAL RUNOFF (AC-FT)	1910		1230		1610	
10 PERCENT EXCEEDS	2.7		1.9		2.6	
50 PERCENT EXCEEDS	1.6		1.5		1.5	
90 PERCENT EXCEEDS	1.5		1.3		.85	



16275000 HAIKU STREAM NEAR HEEIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1982 to September 1985, October 1986 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: December 1983 to September 1984, July 1987 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since December 1983.

REMARKS.--Water-quality samples also were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water years 1994 and 1995 was not completed at the time of this publication.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
11...	1245	1.5	150	8.0	25.0	21.5	0.10	756	8.7	99	--
NOV											
17...	0956	1.7	155	7.4	23.0	20.5	0.40	758	8.9	99	160
DEC											
21...	1200	1.4	140	7.3	19.5	20.0	0.20	758	8.7	96	--
JAN											
11...	1240	1.4	145	7.7	22.5	19.5	0.20	754	8.8	97	--
FEB											
15...	1355	1.8	155	7.9	22.0	20.0	0.40	755	9.3	103	210
MAR											
17...	1200	1.5	145	7.8	22.5	20.0	0.20	757	8.7	96	--
APR											
11...	1120	1.3	150	7.7	23.0	20.0	0.30	757	8.8	97	--
MAY											
24...	1345	1.3	147	7.5	23.0	20.5	0.30	758	8.7	97	3400
JUN											
14...	1345	1.4	150	8.0	24.0	20.0	0.40	758	8.4	93	--
JUL											
12...	1345	1.3	150	7.6	25.5	21.0	0.60	756	8.6	97	--
SEP											
12...	1000	1.4	149	7.4	--	20.0	0.20	754	8.6	96	200

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
17...	0956	45	8.9	5.6	12	36	0.8	0.90	49	3.1	16
SEP											
12...	1000	42	7.9	5.3	11	36	0.7	0.70	48	3.0	15

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
17...	0956	<0.10	26	100	103	0.14	6	0.140	0.140	<0.20	<0.010
FEB											
15...	1355	--	--	--	--	--	<1	0.130	0.130	<0.20	<0.010
MAY											
24...	1345	--	--	--	--	--	1	0.120	0.120	<0.20	0.040
SEP											
12...	1000	<0.10	27	92	99	0.13	<1	0.080	0.080	<0.20	0.010

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

16275000 HAIKU STREAM NEAR HEEIA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
NOV												
17...	0956	30	<10	<1	<100	<2.0	<10	<1	1	<1	<3.0	<1
SEP												
12...	1000	10	10	<1	<100	<2.0	<10	<1	<1	<1	<3.0	<1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV											
17...	90	35	<1	<10	<4	10	3.0	<0.10	<1	<10	<1
SEP											
12...	60	16	<1	<10	<4	<10	1.0	<0.10	<1	10	<1

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	ALDRIN, TOTAL (UG/L)
NOV											
17...	<1.0	<1	<1	<1	<1.0	51	<6	<10	0.60	<1	<0.010
SEP											
12...	<1.0	<1	<1	<1	<1.0	49	<6	<10	1.5	<1	<0.010

DATE	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)
NOV											
17...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP											
12...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDOSULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV										
17...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP										
12...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARATHION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV										
17...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010
SEP										
12...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

16283200 KAHALUU STREAM NEAR AHUIMANU

LOCATION.--Lat 21°26′32″, long 157°50′47″, Hydrologic Unit 20060000, on left bank, 1.1 mi west of Valley of the Temples Memorial Park, 1.3 mi south of Kahaluu School, and 2.7 mi northwest of Heeia Elementary School.

DRAINAGE AREA.--0.99 mi^2.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 150 ft above mean sea level, from topographic map. Honolulu Board of Water Supply).

REMARKS.--Records poor. Honolulu Board of Water Supply has diverted ground water from tunnel in drainage area since 1947. At times, farmers upstream of gage pump and/or divert small amount of water from the stream.

AVERAGE DISCHARGE.--12 years (water years 1984-95), 3.50 ft^3/s (2,530 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 728 ft^3/s, Sep. 18, 1994, gage height, 6.05 ft; minimum, D.58 ft^3/s on several days in September, October, November 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 180 ft^3/s and maximum(*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Aug. 20	0430	*133	*3.19	No peak greater than base discharge.			

Minimum discharge, 1.D ft^3/s, May 31, Sep. 6, 8, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

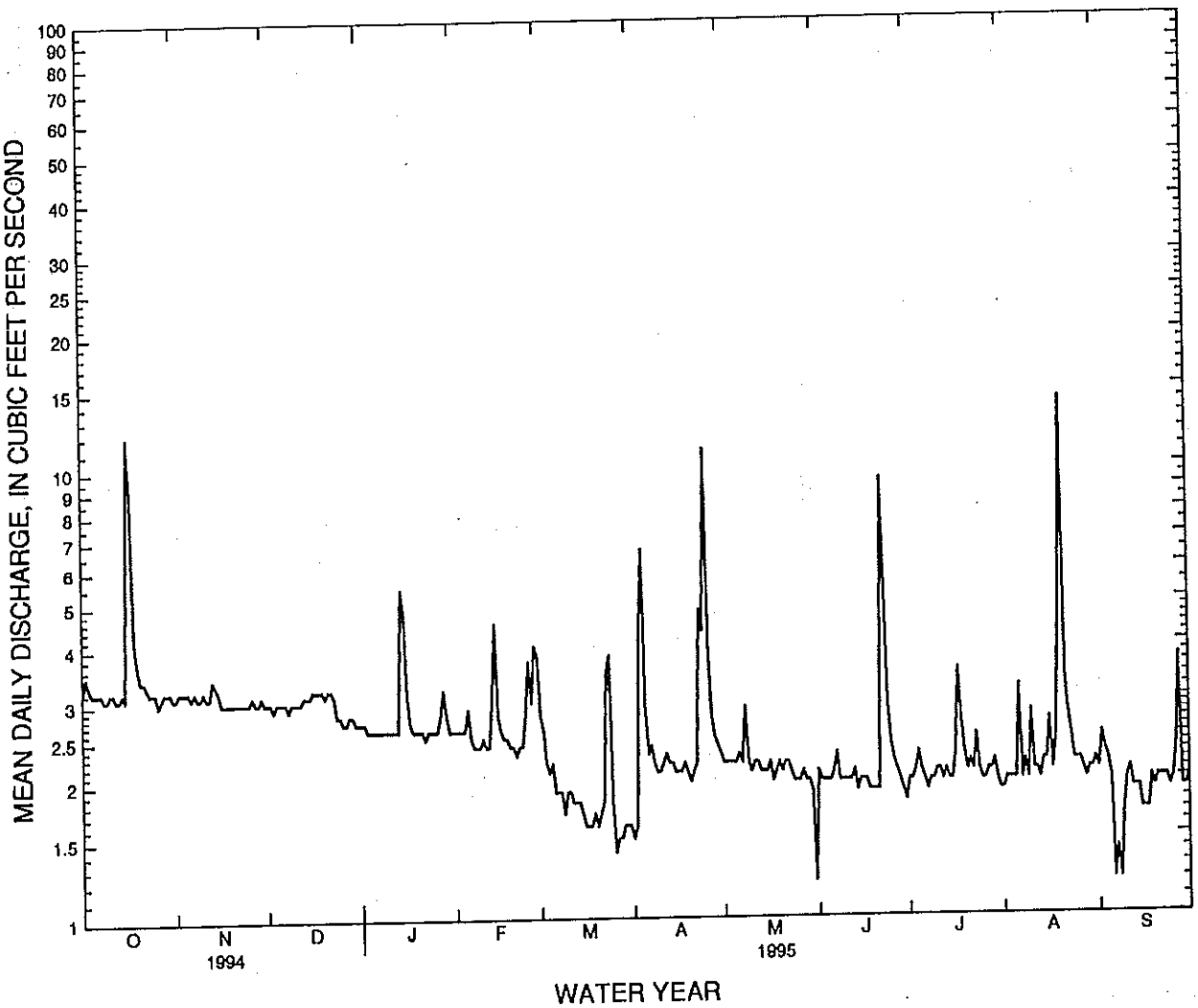
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	3.1	3.0	2.7	2.6	2.8	1.5	2.2	2.1	2.0	1.9	2.1
2	3.5	3.2	3.0	2.7	2.6	2.6	1.6	2.2	2.0	2.0	2.0	2.5
3	3.3	3.2	2.9	2.6	2.6	2.2	4.4	2.2	2.0	2.1	2.0	2.3
4	3.2	3.2	3.0	2.6	2.6	2.1	6.6	2.2	2.0	2.3	2.0	2.2
5	3.2	3.2	3.0	2.6	2.9	2.2	2.9	2.2	2.0	2.1	2.0	2.0
6	3.2	3.1	3.0	2.6	2.5	1.9	2.3	2.3	2.1	2.0	3.2	1.2
7	3.2	3.2	3.0	2.6	2.4	1.9	2.4	2.2	2.3	1.9	2.0	1.4
8	3.1	3.1	2.9	2.6	2.4	1.9	2.2	2.9	2.0	2.0	2.2	1.2
9	3.1	3.1	3.0	2.6	2.4	1.7	2.1	2.2	2.0	2.0	2.0	1.7
10	3.2	3.2	3.0	2.6	2.5	1.9	2.1	2.1	2.0	2.1	2.8	2.0
11	3.2	3.1	3.0	2.6	2.4	1.9	2.2	2.2	2.0	2.1	2.1	2.1
12	3.1	3.1	3.0	2.6	2.4	1.8	2.3	2.2	2.0	2.0	2.1	1.9
13	3.1	3.4	3.1	2.6	3.0	1.8	2.2	2.1	2.1	2.1	2.0	1.9
14	3.2	3.3	3.1	5.4	4.5	1.8	2.2	2.1	1.9	2.0	2.2	1.9
15	3.1	3.2	3.1	4.7	2.8	1.7	2.1	2.1	2.0	2.0	2.2	1.7
16	12	3.0	3.2	3.1	2.6	1.6	2.1	2.2	2.0	2.3	2.7	1.7
17	9.0	3.0	3.2	2.7	2.5	1.6	2.1	2.0	2.0	3.5	2.1	1.7
18	4.2	3.0	3.2	2.6	2.5	1.6	2.2	2.1	1.9	2.7	2.5	2.0
19	3.7	3.0	3.2	2.6	2.4	1.7	2.1	2.2	1.9	2.3	4.6	1.9
20	3.4	3.0	3.1	2.6	2.4	1.6	2.0	2.1	1.9	2.1	14	2.0
21	3.4	3.0	3.2	2.6	2.3	1.7	2.1	2.2	1.9	2.2	3.4	2.0
22	3.3	3.0	3.2	2.5	2.4	1.8	2.2	2.2	9.4	2.1	2.8	2.0
23	3.2	3.0	3.1	2.6	2.4	3.5	4.8	2.1	5.1	2.5	2.5	2.0
24	3.2	3.0	2.8	2.6	2.8	3.8	4.3	2.0	2.9	2.1	2.2	1.9
25	3.2	3.0	2.8	2.6	3.7	1.8	11	2.0	2.4	2.0	2.2	2.0
26	3.0	3.1	2.7	2.6	3.0	1.4	4.0	2.0	2.2	2.0	2.2	2.4
27	3.1	3.0	2.7	2.8	4.0	1.5	2.8	2.1	2.1	2.1	2.1	3.7
28	3.2	3.0	2.8	3.2	3.8	1.5	2.5	2.0	2.0	2.1	2.0	1.9
29	3.2	3.1	2.8	2.8	---	1.6	2.4	2.0	1.9	2.2	2.1	1.9
30	3.2	3.0	2.7	2.6	---	1.6	2.3	1.9	1.8	2.0	2.1	2.0
31	3.1	---	2.7	2.6	---	1.6	---	1.2	---	1.9	2.2	---
TOTAL	115.3	92.9	92.5	87.2	77.4	60.1	88.0	65.7	71.9	66.8	84.4	59.2
MEAN	3.72	3.10	2.98	2.81	2.76	1.94	2.93	2.12	2.40	2.15	2.72	1.97
MAX	12	3.4	3.2	5.4	4.5	3.8	11	2.9	9.4	3.5	14	3.7
MIN	3.0	3.0	2.7	2.5	2.3	1.4	1.5	1.2	1.8	1.9	1.9	1.2
AC-FT	229	184	183	173	154	119	175	130	143	132	167	117

16283200 KAHALUU STREAM NEAR AHUIMANU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1995, BY WATER YEAR (WY)

MEAN	3.34	3.84	4.01	3.69	3.95	4.45	3.64	3.16	2.76	3.11	2.83	3.19
MAX	6.69	10.5	9.56	8.65	7.55	11.8	10.6	5.52	4.78	5.89	5.78	5.81
(WY)	1992	1991	1988	1988	1989	1991	1989	1988	1991	1989	1991	1992
MIN	.66	1.24	1.09	.95	1.03	1.03	.92	.85	.73	.74	.67	.67
(WY)	1985	1986	1986	1986	1986	1984	1985	1984	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1984 - 1995	
ANNUAL TOTAL	1548.6		961.4			
ANNUAL MEAN	4.24		2.63		3.50	
HIGHEST ANNUAL MEAN					5.97	1991
LOWEST ANNUAL MEAN					1.07	1984
HIGHEST DAILY MEAN	65	Mar 24	14	Aug 20	97	Mar 19 1991
LOWEST DAILY MEAN	1.9	Jan 15	1.2	May 31	.58	Sep 22 1984
ANNUAL SEVEN-DAY MINIMUM	2.0	Jan 10	1.5	Mar 26	.59	Nov 5 1984
ANNUAL RUNOFF (AC-FT)	3070		1910		2530	
10 PERCENT EXCEEDS	4.6		3.2		5.0	
50 PERCENT EXCEEDS	3.2		2.4		3.0	
90 PERCENT EXCEEDS	2.7		1.9		.91	



16283600 SOUTH FORK WAIHEE STREAM NEAR HEEIA

LOCATION.--Lat 21°26'47", long 157°52'12", Hydrologic Unit 20060000, on left bank 0.2 mi upstream from confluence with North Fork, 3.0 mi southwest of Waiahole School, and 4.0 mi northwest of Heeia.

DRAINAGE AREA.--0.03 mi^2.

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 615.74 ft above mean sea level (levels by Honolulu Board of Water Supply).

REMARKS.--Records fair. Honolulu Board of Water Supply pumps water from wells in drainage area.

AVERAGE DISCHARGE.--33 years (water years 1963-95), 1.27 ft^3/s (921 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 430 ft^3/s, Oct. 28, 1981, gage height, 4.68 ft, from rating curve extended above 4.8 ft^3/s; no flow, July 7, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 47 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Aug. 23	0515	*45	*2.10	No peak greater than base discharge.			

Minimum discharge, 0.26 ft^3/s, Apr. 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	.58	.44	.73	.80	.85	.65	.70	.60	.56	.51	.51
2	.80	.69	.40	.74	.80	.80	.74	.70	.60	.56	.51	.51
3	.80	.71	.59	.66	.80	.80	1.6	.68	.58	.56	.51	.51
4	.75	.75	.47	.79	.80	.80	1.2	.65	.56	.73	.57	.51
5	.75	.63	.48	.81	.83	.77	.82	.65	.55	.59	.51	.51
6	.75	.33	.60	.77	.83	.75	.76	.67	.59	.56	.49	.51
7	.78	.28	.68	.80	.80	.75	.79	.70	.60	.56	.47	.51
8	.75	.53	e.70	.80	.80	.75	.80	.67	.60	.56	.47	.51
9	.78	.78	e.85	.80	.80	.70	.73	.62	.60	.56	.65	.51
10	.80	.77	.84	.80	.81	.65	.70	.59	.58	.56	.52	.51
11	.81	.72	.70	.78	.80	.65	.70	.65	.56	.56	.55	.51
12	.80	.81	.63	.74	.80	.65	.70	.67	.56	.60	.52	.51
13	.80	.84	.64	.76	.88	.65	.35	.70	.56	.56	.65	.51
14	.80	.82	.66	.98	1.0	.65	.32	.70	.56	.56	.51	.51
15	.80	.81	.80	.87	.85	.61	.33	.69	.56	.56	.51	.51
16	1.2	.87	.71	.78	.85	.56	.34	.70	.56	.53	.51	.51
17	1.2	.81	.53	.80	.85	.59	.34	.70	.56	.51	.53	.51
18	.90	.75	.58	.80	.85	.70	.38	.70	.56	.51	.55	.51
19	.83	.66	.56	.80	.81	.70	e.56	.63	.56	.54	.50	.51
20	.80	.54	.68	.80	.80	.72	e.70	.69	.56	.77	.47	.49
21	.75	.57	.80	.80	.80	.71	e.70	.71	.56	.56	.60	.47
22	.70	.58	.79	.80	.77	.74	.69	.65	1.4	.56	.49	.47
23	.66	.50	.71	.84	.75	1.4	.79	.65	.84	.53	1.8	.47
24	.75	.67	.65	.85	.81	.91	.68	.60	.56	.55	.56	.47
25	.80	.58	.48	.85	.97	.47	.89	.52	.56	.56	.56	.47
26	.55	.41	.37	.85	.79	.47	.60	.46	.56	.66	.57	.47
27	.71	.37	.37	.91	.83	.46	.62	.42	.56	.56	.54	.47
28	.75	.40	.45	.96	.88	.59	.70	.44	.56	.54	.51	.47
29	.75	.47	.54	.86	---	.59	.68	.56	.56	.51	.51	.48
30	.72	.40	.69	.80	---	.65	.68	.59	.56	.51	.51	.65
31	.60	---	.70	.80	---	.65	---	.60	---	.51	.51	---
TOTAL	24.36	18.63	19.09	25.13	23.16	21.74	20.54	19.66	18.18	17.55	17.67	15.07
MEAN	.79	.62	.62	.81	.83	.70	.68	.63	.61	.57	.57	.50
MAX	1.2	.87	.85	.98	1.0	1.4	1.6	.71	1.4	.77	1.8	.65
MIN	.55	.28	.37	.66	.75	.46	.32	.42	.55	.51	.47	.47
AC-FT	48	37	38	50	46	43	41	39	36	35	35	30

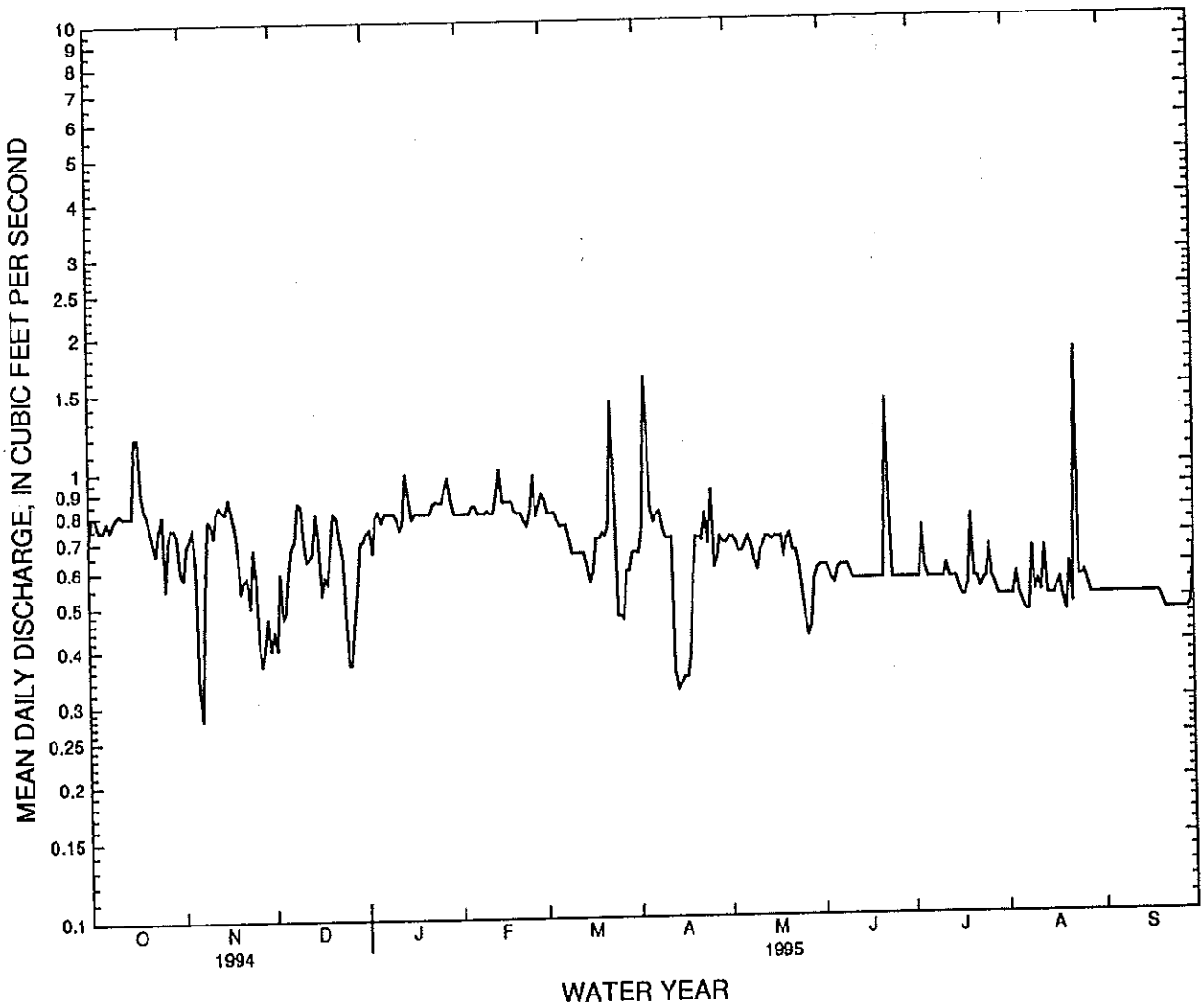
e Estimated

16283600 SOUTH FORK WAIHEE STREAM NEAR HEEIA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

MEAN	1.28	1.31	1.27	1.27	1.27	1.32	1.27	1.28	1.19	1.26	1.28	1.26
MAX	2.47	2.85	2.49	2.39	2.97	2.96	2.79	3.57	2.60	2.62	3.17	2.47
(WY)	1969	1966	1969	1968	1969	1968	1968	1965	1968	1971	1971	1968
MIN	.36	.29	.28	.31	.28	.25	.24	.29	.27	.41	.32	.28
(WY)	1990	1990	1990	1983	1983	1983	1983	1989	1989	1981	1989	1989

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1962 - 1995	
ANNUAL TOTAL	254.76		240.78			
ANNUAL MEAN	.70		.66		1.27	
HIGHEST ANNUAL MEAN					2.52	1968
LOWEST ANNUAL MEAN					.37	1990
HIGHEST DAILY MEAN	10	Mar 24	1.8	Aug 23	33	May 2 1965
LOWEST DAILY MEAN	.19	Sep 3	.28	Nov 7	.00	Jul 8 1977
ANNUAL SEVEN-DAY MINIMUM	.20	Sep 2	.37	Apr 13	.20	Sep 2 1994
ANNUAL RUNOFF (AC-FT)	505		478		921	
10 PERCENT EXCEEDS	.81		.83		2.2	
50 PERCENT EXCEEDS	.63		.65		1.1	
90 PERCENT EXCEEDS	.33		.48		.42	



16283700 NORTH FORK WAIHEE STREAM NEAR HEEIA

LOCATION.--Lat 21°26'46", long 157°52'18", Hydrologic Unit 20060000, on left bank 0.3 mi upstream from confluence with South Fork, 2.8 mi southwest of Waiahole School, and 4.3 mi northwest of Heeia.

DRAINAGE AREA.--0.03 mi^2.

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 639.00 ft above mean sea level (levels by Honolulu Board of Water Supply).

REMARKS.--Records good except for estimated daily discharges, which are fair. Honolulu Board of Water Supply pumps water from wells in South Fork Waihee which affects the low flow at this station.

AVERAGE DISCHARGE.--33 years (water years 1963-95), 1.49 ft^3/s (1,080 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 376 ft^3/s, Feb. 4, 1965, gage height, 3.38 ft, from rating curve extended above 19 ft^3/s; no flow July 7, 8, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 45 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Aug. 23	0515	*44	*1.72	No peak greater than base discharge.			

Minimum discharge, 0.98 ft^3/s for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.2	1.1	e1.1	e1.1	.98
2	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.6	1.2	1.1	e1.1	e1.1	.98
3	1.2	1.3	e1.3	e1.3	e1.3	1.3	2.1	1.2	1.1	e1.1	e1.1	.98
4	1.2	1.3	e1.3	e1.3	e1.3	1.3	1.4	1.2	1.1	e1.2	e1.1	.98
5	1.2	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.2	1.1	e1.1	e1.1	.98
6	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.2	1.1	e1.1	e1.1	.98
7	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.2	1.1	e1.1	e1.0	.98
8	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.2	1.1	e1.1	e1.0	.98
9	1.3	1.3	e1.4	e1.3	e1.3	1.3	1.3	1.2	1.3	e1.1	e1.1	.98
10	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.2	1.1	e1.1	e1.0	.98
11	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.2	1.1	e1.1	e1.0	.98
12	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.5	1.1	1.1	e1.1	e1.0	.98
13	1.3	1.4	e1.3	e1.3	e1.3	1.3	1.3	1.1	1.1	e1.1	e1.1	.98
14	1.3	1.3	e1.3	e1.4	e1.5	1.3	1.3	1.1	1.1	e1.1	e1.0	.98
15	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.1	e1.1	e1.1	e1.0	.98
16	2.1	1.4	e1.3	e1.3	e1.3	1.3	1.3	1.1	e1.1	e1.1	e1.0	.98
17	1.6	1.3	e1.3	e1.3	e1.3	1.3	1.3	1.1	e1.1	e1.1	e1.0	.98
18	1.4	1.3	e1.3	e1.3	e1.3	1.3	1.2	1.1	e1.1	e1.1	e1.1	.98
19	1.3	1.3	e1.3	e1.3	e1.3	1.3	1.2	1.1	e1.1	e1.1	1.1	.98
20	1.3	e1.3	e1.3	e1.3	e1.3	1.3	1.2	1.1	e1.1	e1.2	1.0	.98
21	1.3	e1.3	e1.3	e1.3	e1.3	1.3	1.2	1.1	e1.1	e1.1	1.1	.98
22	1.3	e1.3	e1.3	e1.3	e1.3	1.3	1.2	1.1	e1.7	e1.1	1.0	.98
23	1.3	e1.3	e1.3	e1.3	e1.3	1.8	1.7	1.1	e1.1	e1.1	e1.9	.98
24	1.3	e1.3	e1.3	e1.3	e1.3	1.5	1.3	1.1	e1.1	e1.1	e1.0	.98
25	1.3	e1.3	e1.3	e1.3	e1.3	1.3	2.0	1.1	e1.1	e1.1	1.0	.98
26	1.3	e1.3	e1.3	e1.3	e1.3	1.3	1.5	1.1	e1.1	e1.1	1.0	.98
27	1.3	e1.3	e1.3	e1.3	e1.3	1.3	1.2	1.1	e1.1	e1.1	.98	.98
28	1.3	e1.3	e1.3	e1.4	1.4	1.3	1.2	1.1	e1.1	e1.1	.98	.98
29	1.3	e1.3	e1.3	e1.3	---	1.3	1.2	1.1	e1.1	e1.1	.98	.99
30	1.3	e1.3	e1.3	e1.3	---	1.3	1.2	1.1	e1.1	e1.1	.98	1.1
31	1.3	---	e1.3	e1.3	---	1.3	---	1.1	---	e1.1	.98	---
TOTAL	41.1	39.2	40.4	40.5	36.7	41.0	40.8	35.2	33.8	34.3	32.90	29.53
MEAN	1.33	1.31	1.30	1.31	1.31	1.32	1.36	1.14	1.13	1.11	1.06	.98
MAX	2.1	1.4	1.4	1.4	1.5	1.8	2.1	1.2	1.7	1.2	1.9	1.1
MIN	1.2	1.3	1.3	1.3	1.3	1.3	1.2	1.1	1.1	1.1	.98	.98
AC-FT	82	78	80	80	73	81	81	70	67	68	65	59

e Estimated

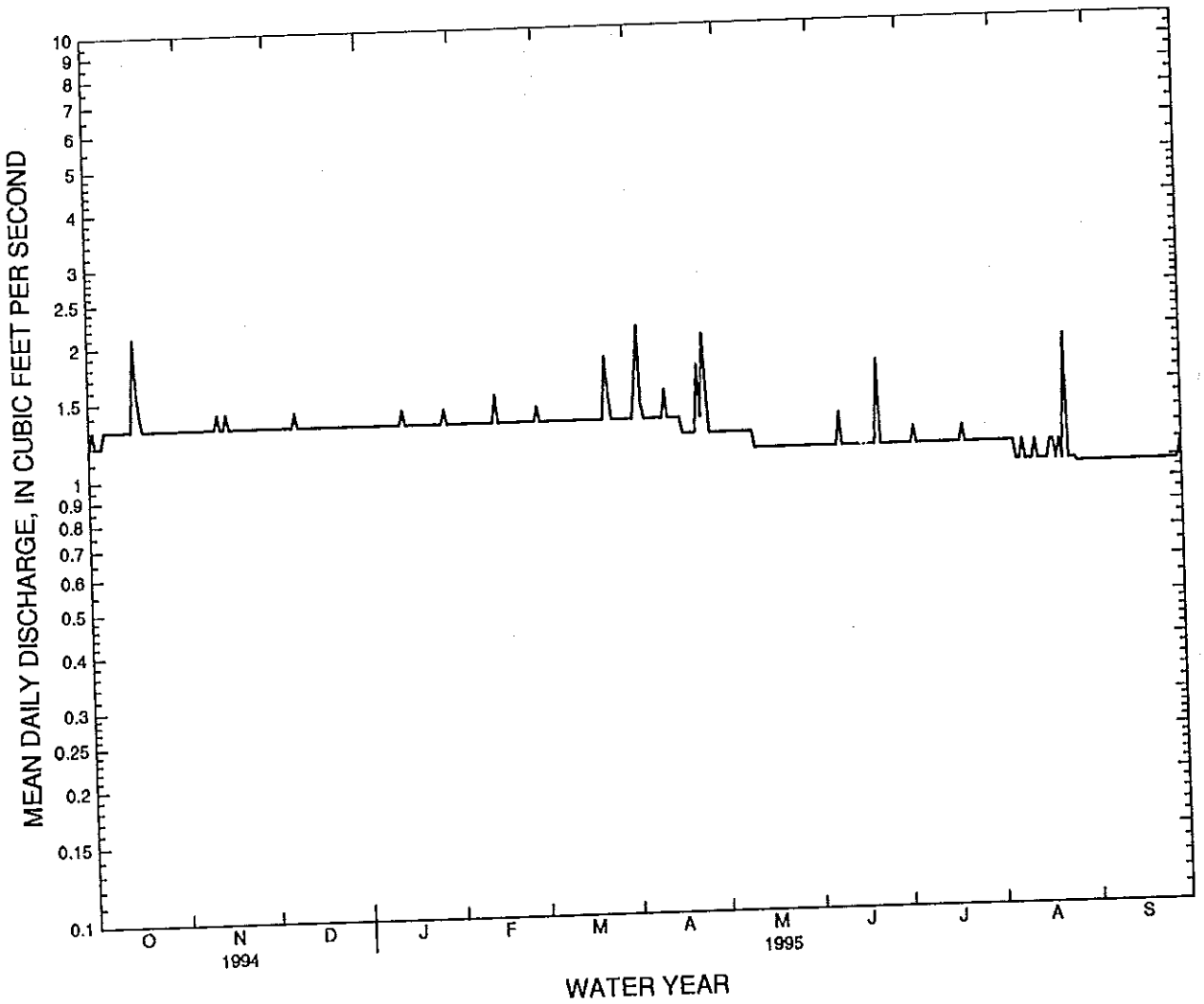
HAWAII, ISLAND OF OAHU

16283700 NORTH FORK WAIHEE STREAM NEAR HEEIA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1995, BY WATER YEAR (WY)

MEAN	1.50	1.51	1.47	1.47	1.50	1.49	1.48	1.50	1.45	1.49	1.50	1.50
MAX	2.35	2.82	2.43	2.39	3.42	2.74	2.64	3.40	2.40	2.47	2.55	2.48
(WY)	1970	1966	1966	1970	1965	1968	1968	1965	1969	1965	1965	1969
MIN	.82	.82	.76	.72	.61	.56	.43	.58	.64	.80	.70	.78
(WY)	1990	1990	1990	1983	1983	1983	1983	1990	1990	1990	1990	1989

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1962 - 1995	
ANNUAL TOTAL	436.89		445.43			
ANNUAL MEAN	1.20		1.22		1.49	
HIGHEST ANNUAL MEAN					2.42	1965
LOWEST ANNUAL MEAN					.76	1990
HIGHEST DAILY MEAN	6.5	Mar 24	2.1	Oct 16	32	May 2 1965
LOWEST DAILY MEAN	.80	Mar 16	.98	Aug 27	.00	Jul 7 1977
ANNUAL SEVEN-DAY MINIMUM	.80	Mar 16	.98	Aug 27	.35	Apr 25 1983
ANNUAL RUNOFF (AC-FT)	867		884		1080	
10 PERCENT EXCEEDS	1.3		1.3		2.2	
50 PERCENT EXCEEDS	1.2		1.3		1.4	
90 PERCENT EXCEEDS	.86		1.0		.83	



HAWAII, ISLAND OF OAHU

16284200 WAIHEE STREAM NEAR KAHALUU

LOCATION.--Lat 21°27'04", long 157°51'36", Hydrologic Unit 20060000, on right bank, 0.2 mi downstream from forest-reserve boundary, 1.0 mi south of Kahaluu School, and 1.6 mi west of Ahuimanu sewage treatment plant.

DRAINAGE AREA.--0.97 mi^2.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 170 ft above mean sea level, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. Honolulu Board of Water Supply diverts water from tunnel and wells in drainage area.

AVERAGE DISCHARGE.--21 years (water years 1975-95), 6.30 ft^3/s (4,560 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,530 ft^3/s, Mar. 21, 1991, gage height, 7.93 ft, from rating curve extended above 100 ft^3/s on basis of slope area measurement at gage height 7.93 ft; minimum, 1.1 ft^3/s, Apr. 7, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 280 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 17	0015	360	5.29	Aug. 23	0530	*636	*6.14

Minimum discharge, 4.1 ft^3/s, Sep. 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.1	6.0	6.0	6.0	5.9	6.2	5.5	5.5	4.9	4.9	4.9	4.9
2	6.4	6.1	5.9	6.0	5.9	6.1	5.7	5.5	4.9	4.9	4.9	4.9
3	6.1	6.1	5.8	5.9	5.9	5.9	11	5.5	4.9	4.9	4.9	4.8
4	6.1	6.2	e5.8	5.9	5.8	5.8	10	5.5	4.9	5.5	5.2	4.7
5	6.1	6.1	e5.8	5.9	5.9	5.7	7.2	5.5	4.9	5.1	4.9	4.7
6	6.1	6.1	e5.8	5.9	5.9	5.7	6.5	5.5	5.0	4.9	4.8	4.7
7	6.1	6.1	e6.4	5.9	5.8	5.6	6.3	5.4	5.1	4.9	4.7	4.7
8	6.0	6.0	e6.3	5.9	5.8	5.6	6.0	5.3	4.9	4.8	4.7	4.7
9	6.0	6.0	e6.2	5.9	5.7	5.6	5.9	5.3	4.9	4.8	5.6	4.7
10	6.0	6.1	6.2	5.9	5.7	5.5	5.7	5.3	4.9	4.8	4.9	4.8
11	6.0	5.9	6.0	5.9	e5.7	5.5	5.7	5.3	4.9	4.8	5.0	4.7
12	6.0	6.0	5.9	5.9	e6.0	5.6	6.4	5.3	4.9	5.1	4.8	4.6
13	6.0	6.1	5.9	5.8	e6.2	5.6	5.8	5.2	4.9	4.9	e5.3	4.6
14	6.0	6.2	5.9	8.0	e7.3	5.6	5.7	5.2	4.8	4.8	e4.8	4.6
15	6.0	6.1	5.9	7.6	e5.9	5.6	5.6	5.2	4.7	4.7	4.8	4.6
16	9.5	6.2	6.0	6.4	e5.9	5.6	5.5	5.2	4.7	4.7	4.7	4.6
17	16	6.2	6.0	6.1	e5.9	5.6	5.5	5.2	4.7	4.6	5.0	4.6
18	6.9	6.1	6.0	6.0	e5.9	5.6	5.5	5.1	4.7	4.7	5.1	4.6
19	6.5	6.1	6.0	6.0	e5.9	5.6	5.5	5.0	4.7	4.8	5.1	4.6
20	6.2	6.1	6.0	6.0	e5.9	5.5	5.3	5.0	4.7	5.9	5.0	4.5
21	6.1	6.1	6.0	6.0	e5.9	5.5	5.3	5.1	4.8	5.1	5.3	4.3
22	6.1	6.1	6.0	5.9	e5.9	5.5	5.2	5.0	11	4.9	5.0	4.3
23	6.1	6.0	6.0	5.9	e6.8	7.8	7.4	5.0	8.6	4.9	23	4.3
24	6.0	6.0	6.0	5.9	e5.8	7.6	6.4	5.0	5.9	5.0	6.7	4.4
25	6.1	5.9	6.0	5.8	6.8	6.2	12	5.0	5.4	4.9	5.8	4.5
26	6.1	6.0	6.0	5.8	6.3	5.6	7.3	5.0	5.2	5.6	5.6	4.5
27	6.1	5.9	6.0	5.9	6.3	5.6	6.2	5.0	5.1	5.0	5.2	4.5
28	6.0	5.9	6.0	6.1	6.6	5.5	5.8	4.9	4.9	5.0	5.1	4.5
29	6.0	5.9	6.0	6.1	---	5.5	5.7	4.9	4.7	4.9	4.9	4.6
30	6.1	5.9	6.0	5.9	---	5.5	5.5	4.9	4.7	4.9	4.9	5.1
31	6.1	---	6.0	5.9	---	5.5	---	4.9	---	4.9	4.9	---
TOTAL	202.9	181.5	185.8	188.1	169.3	179.3	193.1	160.7	157.3	153.6	175.5	138.6
MEAN	6.55	6.05	5.99	6.07	6.05	5.78	6.44	5.18	5.24	4.95	5.66	4.62
MAX	16	6.2	6.4	8.0	7.3	7.8	12	5.5	11	5.9	23	5.1
MIN	6.0	5.9	5.8	5.8	5.7	5.5	5.2	4.9	4.7	4.6	4.7	4.3
AC-FT	402	360	369	373	336	356	383	319	312	305	348	275

e Estimated

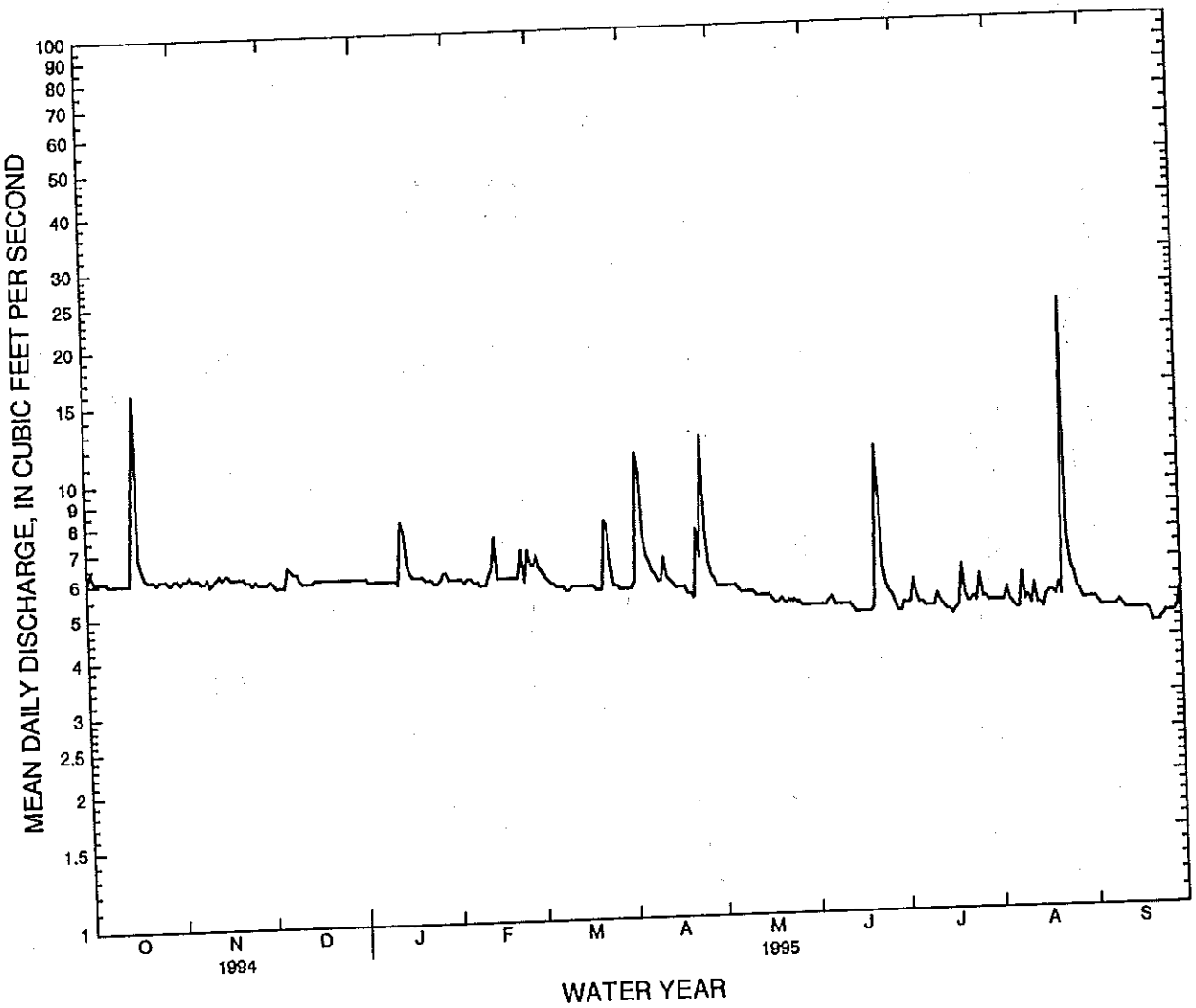
HAWAII, ISLAND OF OAHU

16284200 WAIHEE STREAM NEAR KAHALUU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1995, BY WATER YEAR (WY)

MEAN	5.95	6.54	6.66	6.79	6.74	7.58	6.40	5.96	5.71	5.81	5.75	5.70
MAX	9.81	14.3	15.5	12.1	13.2	17.7	15.1	8.46	8.88	9.95	10.6	9.43
(WY)	1983	1991	1988	1988	1979	1991	1989	1981	1982	1989	1982	1982
MIN	2.70	4.08	3.60	3.71	3.05	2.85	2.72	3.18	3.36	2.40	2.61	2.74
(WY)	1976	1978	1976	1977	1977	1977	1977	1977	1976	1977	1976	1976

SUMMARY STATISTICS FOR 1994 CALENDAR YEAR			FOR 1995 WATER YEAR		WATER YEARS 1975 - 1995	
ANNUAL TOTAL	2745.9		2085.7			
ANNUAL MEAN	7.52		5.71		6.30	
HIGHEST ANNUAL MEAN					9.36	1982
LOWEST ANNUAL MEAN					3.32	1977
HIGHEST DAILY MEAN	125	Mar 24	23	Aug 23	149	Mar 19 1991
LOWEST DAILY MEAN	4.5	Jan 2	4.3	Sep 21	1.3	Apr 15 1977
ANNUAL SEVEN-DAY MINIMUM	4.5	Jan 1	4.4	Sep 20	1.4	Apr 12 1977
ANNUAL RUNOFF (AC-FT)	5450		4140		4560	
10 PERCENT EXCEEDS	7.4		6.2		7.6	
50 PERCENT EXCEEDS	6.1		5.7		5.6	
90 PERCENT EXCEEDS	5.8		4.7		3.8	



16294900 WAIKANE STREAM AT ALTITUDE 75 FT, AT WAIKANE

LOCATION.--Lat 21°30'00", long 157°51'34", Hydrologic Unit 20060000, on right bank, 0.3 mi downstream from Waikeekee Stream, 0.7 mi west of Waikane, and 1.2 mi northwest of Waiahole School.

DRAINAGE AREA.--2.22 mi^2.

PERIOD OF RECORD.--December 1959 to current year.

REVISED RECORDS.--WSP 1937: Drainage area, WDR HI-94-1: 1993 (M).

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 75 ft above mean sea level, from topographic map.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--35 years (water years 1961-95), 8.89 ft^3/s (6,440 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,800 ft^3/s, Feb. 4, 1965, gage height, 10.76 ft, from rating curve extended above 120 ft^3/s on basis of slope-area measurements at gage heights 4.88 ft, 9.46 ft, and 10.76 ft; minimum, 0.76 ft^3/s, Oct. 27, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2300	*3.510	*8.59	Aug. 23	0530	1,840	6.75

Minimum discharge, 1.9 ft^3/s, Feb. 12, Jun. 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	3.6	3.8	2.5	2.3	3.7	3.1	6.7	2.8	3.1	3.6	3.2
2	6.4	3.5	3.0	2.4	2.3	3.4	3.1	6.2	2.8	2.6	3.4	3.2
3	4.7	3.4	2.8	2.4	2.2	3.3	19	5.9	2.7	2.6	3.0	3.1
4	4.2	3.5	2.9	2.4	2.2	2.9	23	5.5	2.6	5.2	2.9	3.0
5	3.9	3.4	3.4	2.6	3.1	4.5	14	5.4	2.6	3.5	2.8	3.4
6	3.9	3.2	2.8	2.3	2.6	3.7	8.1	6.9	2.5	2.9	2.6	3.0
7	3.7	3.7	2.8	2.3	2.3	3.0	6.3	5.6	3.0	2.6	2.6	2.9
8	3.5	3.3	2.7	2.3	2.2	2.8	5.4	5.0	2.7	2.6	2.7	3.0
9	3.4	3.1	2.9	2.2	2.2	2.7	5.0	4.8	2.5	2.5	6.6	2.9
10	3.3	4.1	3.3	2.2	2.3	2.6	4.6	4.5	2.4	2.9	9.6	3.6
11	3.3	3.3	2.8	2.2	2.2	2.6	4.3	4.4	2.3	3.1	14	2.9
12	3.3	3.5	2.6	2.2	2.1	2.6	4.6	4.3	2.3	4.5	5.6	2.8
13	3.3	7.8	2.6	2.2	2.2	2.6	4.5	4.2	2.6	3.3	8.8	2.7
14	3.3	11	2.6	17	4.4	2.5	4.0	4.0	2.6	3.0	4.6	2.6
15	11	5.3	2.6	8.8	2.6	2.4	3.9	3.9	2.2	2.7	4.7	2.6
16	105	4.5	2.7	4.8	2.5	2.4	3.6	4.0	2.2	2.6	4.4	3.9
17	31	4.0	3.1	3.6	2.3	2.3	3.6	4.1	2.3	2.5	4.3	4.5
18	8.0	3.8	2.9	3.1	8.3	2.3	3.4	7.0	2.1	2.4	4.0	2.9
19	6.0	3.3	2.8	2.9	3.2	2.3	3.4	4.2	2.0	4.0	7.2	2.8
20	5.4	3.1	2.6	2.8	2.7	2.2	3.3	3.7	2.0	12	4.2	2.6
21	5.0	3.1	2.6	2.6	2.4	2.3	3.2	3.5	2.1	5.8	3.9	2.5
22	4.7	3.0	2.5	2.5	2.3	2.4	18	6.0	53	3.8	3.4	2.4
23	4.6	2.9	4.3	2.5	2.3	5.4	51	4.1	12	3.2	75	2.3
24	4.4	2.8	3.3	2.4	3.0	14	16	3.6	4.8	6.5	7.8	2.3
25	4.4	2.7	2.8	2.4	11	4.3	62	3.4	3.7	3.8	5.4	2.3
26	4.2	4.6	2.6	2.3	6.3	3.2	19	3.3	3.2	6.0	4.7	2.1
27	4.5	3.0	2.6	2.4	4.0	4.3	12	3.1	3.1	3.9	4.2	2.3
28	3.9	3.2	2.9	4.0	3.9	3.4	10	3.0	2.8	4.4	3.9	2.9
29	3.8	3.4	2.7	3.3	---	6.6	8.3	3.0	2.7	3.5	3.7	5.2
30	3.7	3.1	2.9	2.6	---	4.2	7.4	3.0	2.8	3.2	3.6	14
31	3.6	---	2.6	2.4	---	3.4	---	2.8	---	3.2	3.4	---
TOTAL	268.2	116.2	89.5	102.6	91.4	110.3	337.1	139.1	139.4	117.9	220.6	99.9
MEAN	8.65	3.87	2.89	3.31	3.26	3.56	11.2	4.49	4.65	3.80	7.12	3.33
MAX	105	11	4.3	17	11	14	62	7.0	53	12	75	14
MIN	3.3	2.7	2.5	2.2	2.1	2.2	3.1	2.8	2.0	2.4	2.6	2.1
AC-FT	532	230	178	204	181	219	669	276	276	234	438	198

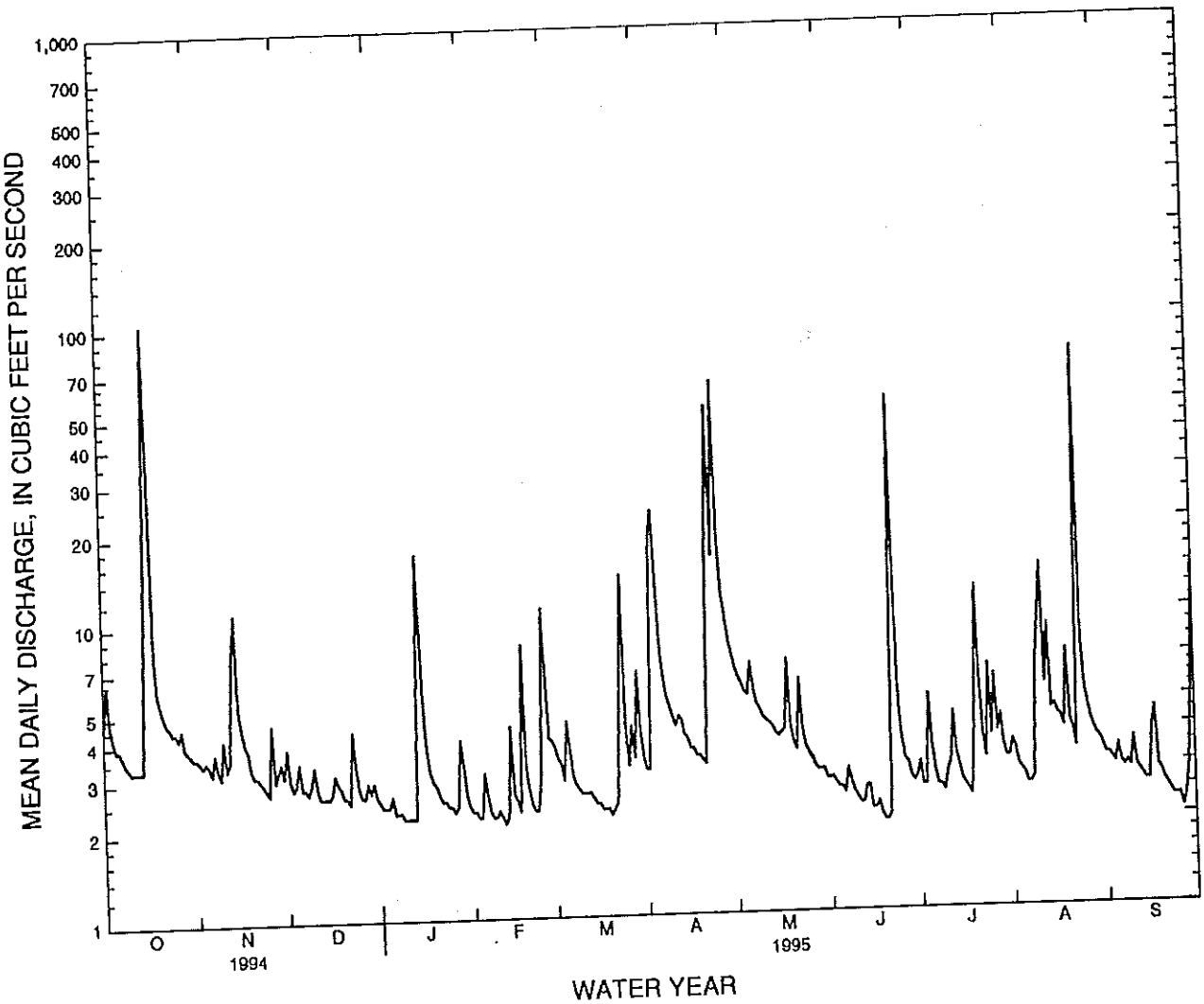
HAWAII, ISLAND OF OAHU

16294900 WAIKANE STREAM AT ALTITUDE 75 FT, AT WAIKANE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1995, BY WATER YEAR (WY)

MEAN	6.99	11.5	9.84	11.1	12.5	13.2	10.6	8.71	5.43	6.31	5.47	5.48
MAX	31.0	55.7	44.1	45.6	65.5	53.1	49.3	29.3	16.2	30.2	25.0	22.1
(WY)	1992	1966	1988	1988	1994	1982	1963	1965	1977	1987	1967	1986
MIN	1.55	2.13	2.23	1.67	1.77	2.03	2.88	2.19	1.83	1.76	1.57	1.38
(WY)	1985	1963	1978	1977	1978	1978	1985	1991	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1960 - 1995		
ANNUAL TOTAL	5339.3		1832.2				
ANNUAL MEAN	14.6		5.02		8.89		
HIGHEST ANNUAL MEAN					16.7		1982
LOWEST ANNUAL MEAN					3.33		1984
HIGHEST DAILY MEAN	644	Mar 24	105	Oct 16	868	Feb 4	1965
LOWEST DAILY MEAN	2.3	Jan 10	2.0	Jun 19	1.1	Oct 17	1975
ANNUAL SEVEN-DAY MINIMUM	2.6	Aug 24	2.1	Jun 15	1.3	Sep 19	1984
ANNUAL RUNOFF (AC-FT)	10590		3630		6440		
10 PERCENT EXCEEDS	19		6.8		14		
50 PERCENT EXCEEDS	4.5		3.2		4.2		
90 PERCENT EXCEEDS	2.7		2.3		2.1		



HAWAII, ISLAND OF OAHU

16296500 KAHANA STREAM AT ALTITUDE 30 FT, NEAR KAHANA

LOCATION.--Lat 21°32′37″, long 157°53′07″, Hydrologic Unit 20060000, on right bank 600 ft upstream from Kawa Stream, 1.1 mi southwest of Kahana, and 2.2 mi southwest of Swanzy Beach Park in Kaaawa.

DRAINAGE AREA.--3.74 mi^2.

PERIOD OF RECORD.--December 1958 to current year.

REVISED RECORDS.--WSP 1937: 1959-60.

GAGE.--Water-stage recorder and concrete-masonry control. Elevation of gage is 30 ft above mean sea level, from topographic map.

REMARKS.--Records fair. Waiahole tunnel diverts water from tributaries and tunnels upstream of station. Elevation of the Waihole tunnel is 800 ft, from topographic map. Recording rain gage located 50 ft from the streamgage at an elevation of 80 ft.

AVERAGE DISCHARGE.--36 years (water years 1960-95), 37.3 ft^3/s (27,020 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,250 ft^3/s, Mar. 20, 1991, gage height, 8.60 ft, from rating curve extended above 530 ft^3/s on basis of computation of peak flow over submerged weir; minimum, 10 ft^3/s, Sept. 17, 18, 20, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2300	2,720	5.98	Aug. 23	0900	*3,100	*6.32

Minimum discharge, 10 ft^3/s, Mar. 19-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	24	63	18	13	14	19	21	15	20	25	23
2	93	32	29	18	13	14	17	20	15	20	23	23
3	37	24	27	18	13	14	48	19	15	22	20	23
4	30	30	30	18	13	13	59	18	14	56	24	20
5	28	27	37	18	13	18	41	18	14	37	22	40
6	27	25	27	17	13	14	28	20	14	24	20	23
7	32	50	36	17	13	13	24	17	26	22	20	21
8	25	26	27	17	13	13	21	16	16	21	20	20
9	24	24	28	17	12	12	20	16	15	20	38	19
10	23	48	31	17	12	12	18	15	14	20	39	21
11	24	49	26	17	12	12	18	16	13	30	52	19
12	25	29	25	17	12	12	37	17	13	36	26	19
13	27	51	24	17	13	12	26	16	15	23	51	19
14	40	52	24	169	16	12	19	15	16	23	25	18
15	66	37	23	69	13	12	17	15	14	24	24	18
16	201	83	24	31	12	12	15	18	13	23	24	29
17	129	46	25	23	12	12	16	17	13	21	22	44
18	60	57	24	20	28	11	15	24	13	20	21	20
19	41	34	22	19	13	11	15	16	13	26	47	19
20	36	31	21	18	12	11	22	15	13	88	25	19
21	34	29	20	17	12	11	16	34	15	67	29	20
22	31	29	20	16	12	19	83	82	306	30	22	18
23	30	28	45	16	12	90	137	60	86	26	246	17
24	28	26	25	16	13	160	40	24	39	39	45	17
25	27	25	22	15	31	66	114	20	30	27	32	17
26	29	57	21	15	17	27	44	19	27	54	33	17
27	29	27	20	15	14	24	33	18	24	29	27	17
28	26	32	20	16	14	19	31	17	22	46	25	21
29	26	41	20	15	---	38	25	16	21	27	24	49
30	24	29	21	14	---	21	22	18	21	24	22	96
31	24	---	19	13	---	19	---	15	---	24	21	---
TOTAL	1301	1102	826	743	396	748	1040	672	885	969	1094	746
MEAN	42.0	36.7	26.6	24.0	14.1	24.1	34.7	21.7	29.5	31.3	35.3	24.9
MAX	201	83	63	169	31	160	137	82	306	88	246	96
MIN	23	24	19	13	12	11	15	15	13	20	20	17
AC-FT	2580	2190	1640	1470	785	1480	2060	1330	1760	1920	2170	1480

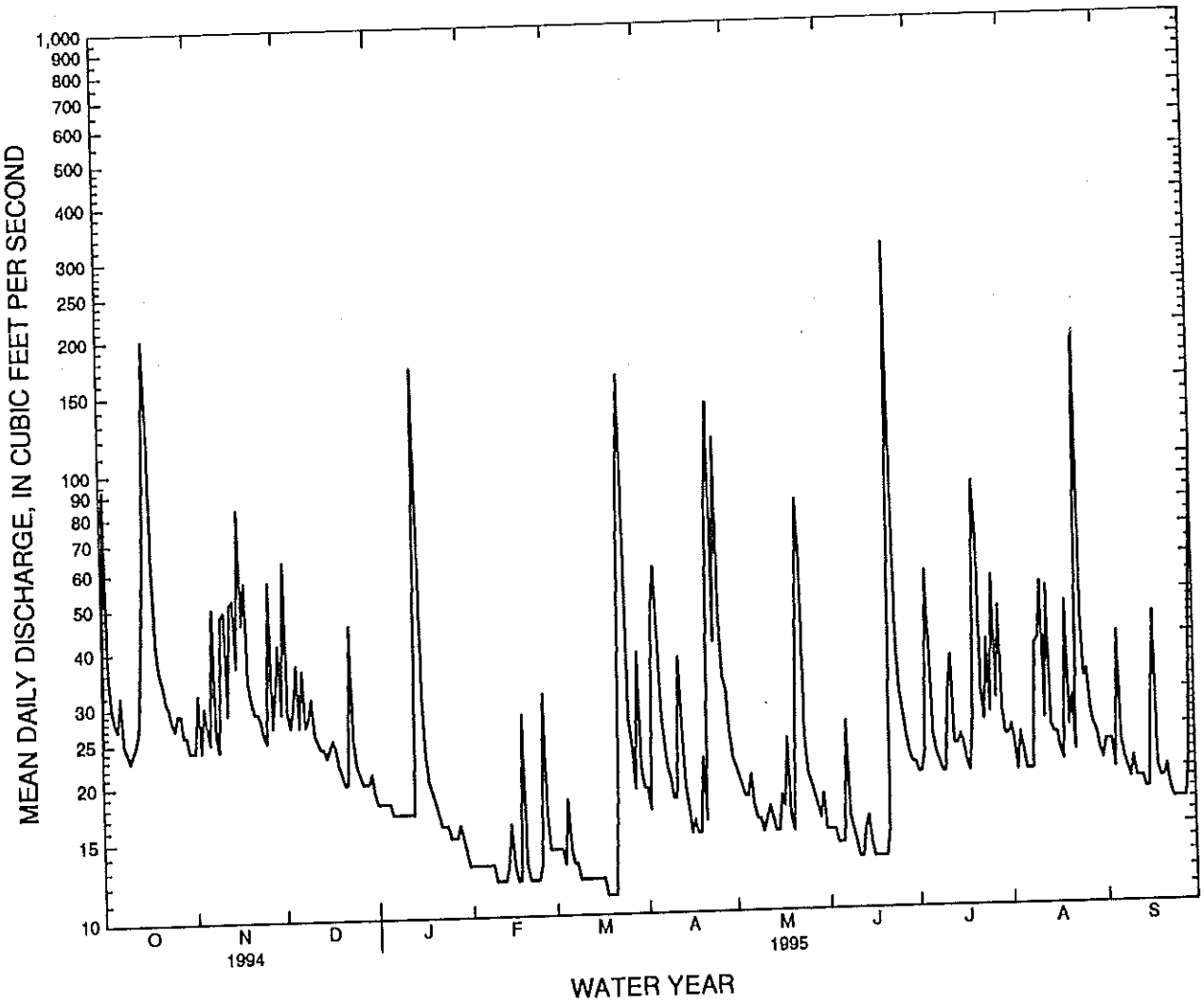
HAWAII, ISLAND OF OAHU

16296500 KAHANA STREAM AT ALTITUDE 30 FT, NEAR KAHANA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1995, BY WATER YEAR (WY)

MEAN	32.8	44.9	38.7	36.7	37.5	45.9	46.5	40.0	27.4	32.8	31.0	30.4
MAX	55.1	170	101	94.9	141	176	137	102	56.5	90.5	73.7	84.7
(WY)	1992	1991	1988	1988	1969	1982	1963	1965	1978	1987	1978	1994
MIN	12.6	14.5	14.5	12.9	13.2	15.4	19.3	18.1	14.3	15.0	13.6	13.3
(WY)	1985	1963	1978	1977	1978	1984	1992	1973	1984	1984	1984	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1959 - 1995	
ANNUAL TOTAL	17180		10522			
ANNUAL MEAN	47.1		28.8		37.3	
HIGHEST ANNUAL MEAN					67.2	1982
LOWEST ANNUAL MEAN					20.1	1984
HIGHEST DAILY MEAN	882	Mar 24	306	Jun 22	1750	Apr 15 1963
LOWEST DAILY MEAN	16	Jan 12	11	Mar 18	11	Sep 16 1961
ANNUAL SEVEN-DAY MINIMUM	18	Jan 6	11	Mar 15	11	Oct 16 1984
ANNUAL RUNOFF (AC-FT)	34080		20870		27020	
10 PERCENT EXCEEDS	76		48		59	
50 PERCENT EXCEEDS	27		22		23	
90 PERCENT EXCEEDS	19		13		15	



HAWAII, ISLAND OF OAHU

16302000 PUNALUU DITCH NEAR PUNALUU

LOCATION.--Lat 21°33'41", long 157°54'10", Hydrologic Unit 20060000, on right bank 800 ft downstream from intake, 1.5 mi west of Kahana, and 1.7 mi southwest of Punaluu.

PERIOD OF RECORD.--May 1953 to current year.

REVISED RECORDS.--WSP 1719: 1954-55, WDR HI-91-1: 1990 (Maximum and minimum daily discharges).

GAGE.--Water-stage recorder. Elevation of gage is 200 ft above mean sea level, from topographic map.

REMARKS.--Records good. Ditch diverts water from Punaluu Stream for irrigation in Punaluu Valley.

AVERAGE DISCHARGE.--42 years (water years 1954-95), 7.97 ft^3/s (5,770 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 54 ft^3/s, Oct. 31, 1964; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 19 ft^3/s, Apr. 26; minimum daily, 5.6 ft^3/s, July 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	17	13	14	11	12	e12	13	8.2	13	9.6	13
2	11	13	13	15	13	11	e13	13	12	12	12	14
3	13	14	12	16	14	11	e18	12	13	12	14	14
4	14	15	9.8	16	14	13	e17	13	12	12	12	14
5	11	15	7.9	15	13	14	e13	15	14	11	14	13
6	16	15	15	13	9.8	15	e12	15	13	8.4	13	15
7	16	11	15	14	12	14	12	16	9.6	9.9	14	13
8	14	12	12	15	14	13	10	14	12	14	11	11
9	12	15	13	14	12	12	9.0	11	12	15	12	11
10	11	14	10	13	8.2	11	8.2	13	9.4	9.7	12	13
11	15	15	12	11	11	9.2	12	13	12	10	10	14
12	15	16	12	12	14	7.3	12	11	12	11	13	13
13	13	15	13	15	12	12	11	10	12	12	12	12
14	11	12	14	11	12	13	13	9.4	11	10	10	11
15	12	11	13	13	13	14	13	8.6	8.1	15	11	9.9
16	16	11	14	16	14	e13	10	11	11	12	13	9.4
17	13	15	14	14	12	e12	8.7	14	12	10	10	12
18	17	14	15	15	11	e12	7.9	14	9.6	9.4	13	13
19	17	15	12	14	12	e13	11	14	12	10	13	10
20	17	16	13	14	12	e12	15	13	12	10	11	12
21	15	13	15	15	12	e9.3	14	11	12	13	11	12
22	14	14	13	13	9.4	e13	12	12	10	13	9.4	12
23	12	13	14	14	11	e18	11	13	13	12	10	12
24	15	13	15	14	12	e9.0	15	14	16	e11	15	12
25	15	14	15	12	13	e10	12	12	16	e10	15	12
26	13	13	13	11	13	e10	19	11	13	e11	15	13
27	11	13	13	12	13	e12	15	13	11	13	13	9.7
28	14	10	15	9.1	11	e7.3	15	13	8.8	13	12	8.3
29	16	12	15	8.4	---	e11	17	11	7.2	11	10	11
30	15	13	16	12	---	e11	16	9.7	11	12	13	10
31	14	---	15	13	---	e13	---	9.0	---	12	12	---
TOTAL	432	409	411.7	413.5	338.4	367.1	383.8	381.7	344.9	357.4	375.0	359.3
MEAN	13.9	13.6	13.3	13.3	12.1	11.8	12.8	12.3	11.5	11.5	12.1	12.0
MAX	17	17	16	16	14	18	19	16	16	15	15	15
MIN	11	10	7.9	8.4	8.2	7.3	7.9	8.6	7.2	8.4	9.4	8.3
AC-FT	857	811	817	820	671	728	761	757	684	709	744	713

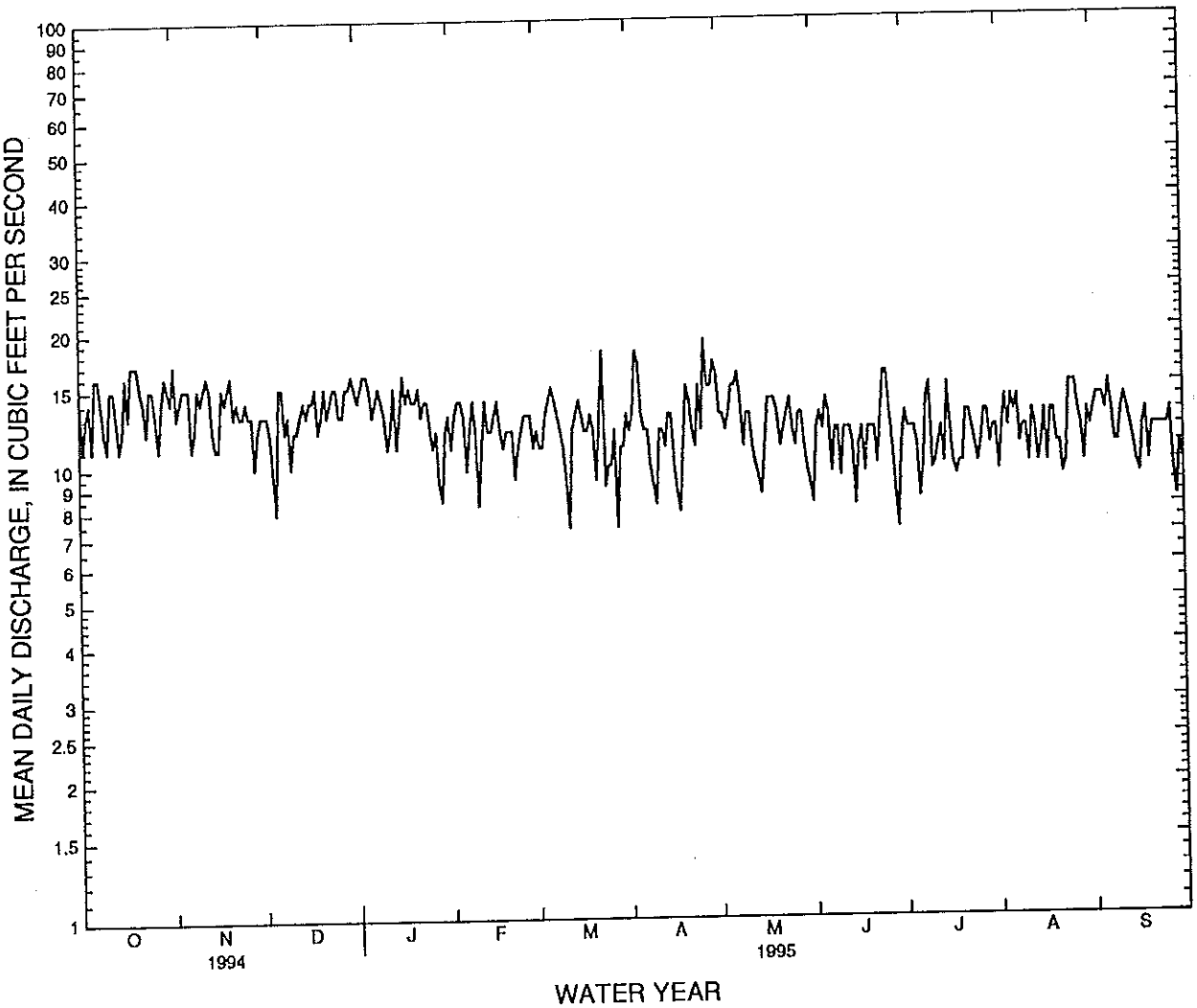
e Estimated

16302000 PUNALUU DITCH NEAR PUNALUU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1995, BY WATER YEAR (WY)

MEAN	8.96	7.25	5.71	5.54	5.54	6.51	8.15	8.58	9.55	9.96	10.2	9.98
MAX	26.4	15.3	16.0	17.6	21.7	16.1	19.0	21.2	22.6	22.0	23.9	21.3
(WY)	1965	1988	1988	1960	1964	1964	1961	1964	1963	1963	1958	1958
MIN	.002	.000	.001	.003	.011	.046	.015	.027	.020	.003	.002	.001
(WY)	1981	1981	1981	1981	1981	1979	1979	1981	1979	1980	1974	1980

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1953 - 1995	
ANNUAL TOTAL	4990.5		4573.8			
ANNUAL MEAN	13.7		12.5		7.97	
HIGHEST ANNUAL MEAN					15.2	1964
LOWEST ANNUAL MEAN					.23	1981
HIGHEST DAILY MEAN	26	Feb 18	19	Apr 26	54	Oct 31 1964
LOWEST DAILY MEAN	5.4	Sep 18	7.2	Jun 29	.00	Dec 7 1963
ANNUAL SEVEN-DAY MINIMUM	10	Jan 7	10	Mar 24	.00	Jan 5 1969
ANNUAL RUNOFF (AC-FT)	9900		9070		5770	
10 PERCENT EXCEEDS	16		15		17	
50 PERCENT EXCEEDS	14		13		6.0	
90 PERCENT EXCEEDS	11		9.9		.17	



16303000 PUNALUU STREAM NEAR PUNALUU

LOCATION.--Lat 21°33′33″, long 157°54′06″, Hydrologic Unit 20060000, on left bank at Punaluu ditch diversion dam, 1.4 mi west of Kahana, and 1.8 mi southwest of Punaluu.

DRAINAGE AREA.--2.78 mi^2.

PERIOD OF RECORD.--May 1953 to current year.

REVISED RECORDS.--WSP 1569: Drainage area. WRD Hawaii 1974: 1971-72(P), 1973(M). WDR HI-78-1: 1954(M), 1955-70(P).

GAGE.--Gage destroyed by flood of Mar. 20-21, 1991 was restored and water-stage recorder installed on Mar. 29, 1993. Masonry control and elevation of gage is 212 ft above mean sea level, from topographic map. Prior to Mar. 29, 1993, datum 2.00 ft higher.

REMARKS.--Records good up to 20 cfs and fair above that. Records do not include flow of Punaluu ditch (see station 16302000).

AVERAGE DISCHARGE.--42 years (water years 1954-95), 17.3 ft^3/s (12,570 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft^3/s, Mar. 20, 1991, gage height, 10.02 ft, from rating curve extended above 170 ft^3/s on basis of slope-area measurements at gage heights 7.77 ft and 9.60 ft; no flow at times. (Datum was lowered 2.0 ft after the flood of Mar. 20, 1991).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 930 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2230	*1,430	*6.16

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No other peak greater than base discharge.			

Minimum discharge, 0.25 ft^3/s, June 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

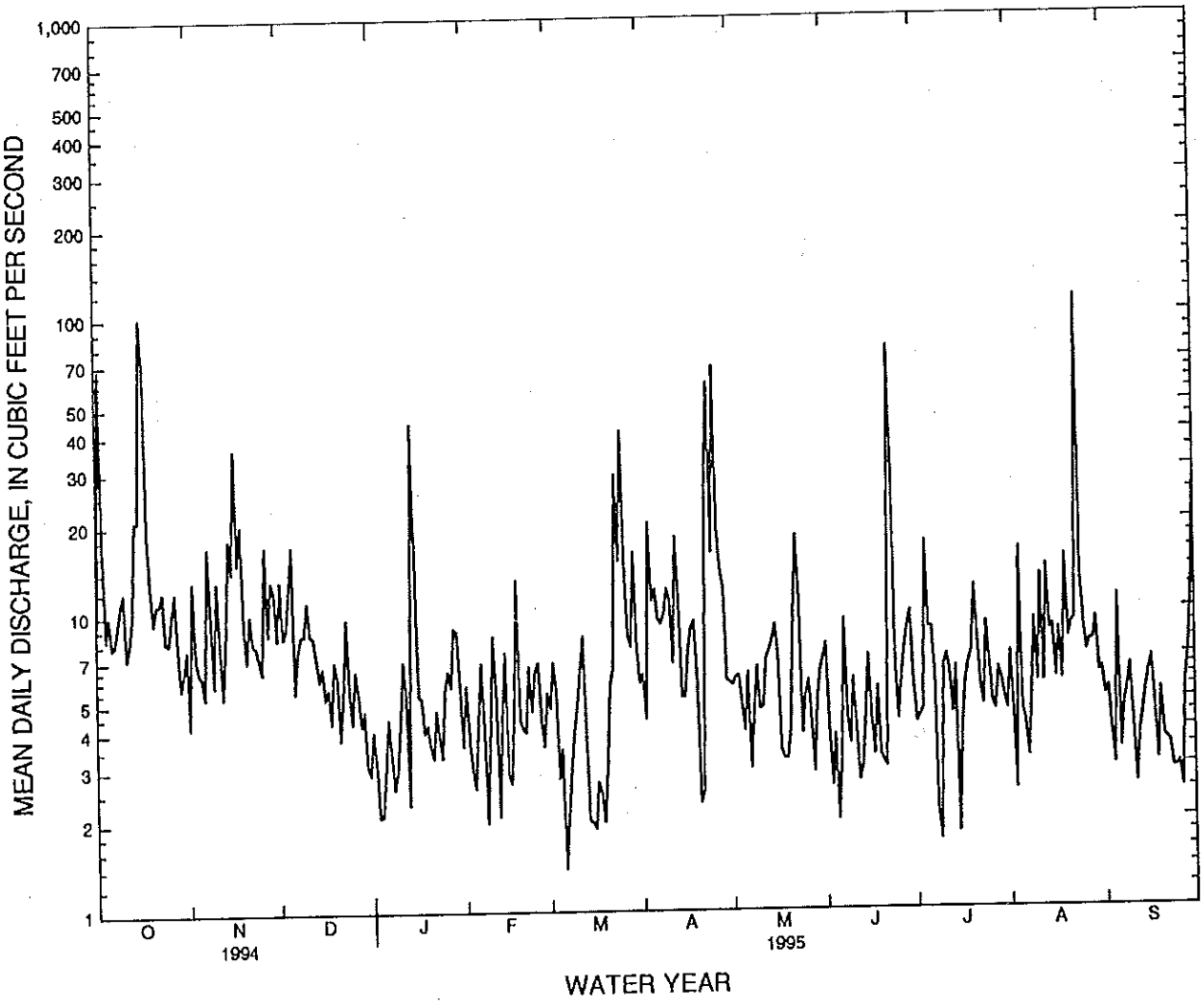
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	4.2	13	4.0	5.7	4.8	6.2	5.7	7.7	4.2	7.1	5.1
2	68	13	8.4	3.1	3.9	6.8	4.4	6.0	4.0	4.4	4.5	5.4
3	17	7.2	8.8	2.1	3.0	5.5	20	6.1	2.6	4.6	2.5	3.9
4	8.4	6.4	12	2.1	2.6	2.8	11	4.9	3.8	17	16	3.0
5	10	6.2	17	3.0	4.3	3.5	12	4.0	2.0	8.7	4.6	11
6	7.9	5.3	5.5	4.4	6.8	1.4	9.5	6.2	3.3	8.7	4.2	3.4
7	8.1	17	7.5	3.4	4.2	2.1	9.2	3.0	9.3	6.1	3.2	4.8
8	9.4	9.8	8.5	2.6	2.0	3.0	9.9	4.6	4.4	2.1	5.1	5.4
9	11	5.8	8.5	3.0	3.9	4.0	12	6.5	3.6	1.7	9.2	6.4
10	12	13	11	4.3	8.4	4.9	11	4.7	5.9	6.5	5.7	4.2
11	7.2	7.9	8.5	6.9	5.3	6.4	6.8	4.8	4.1	7.0	13	2.6
12	8.1	5.3	8.4	5.3	2.1	8.3	18	6.9	2.7	6.2	5.7	3.8
13	10	8.5	7.2	2.3	4.5	4.1	11	7.4	3.0	4.5	14	4.4
14	21	18	6.0	44	7.4	2.0	5.2	8.0	4.4	6.4	8.5	5.3
15	21	14	6.6	16	2.9	2.0	5.2	9.0	7.0	1.8	8.8	6.1
16	101	36	5.2	5.3	2.7	1.9	7.4	7.0	4.3	4.0	5.9	6.8
17	70	15	5.6	5.2	4.9	2.7	8.8	3.4	3.3	5.7	8.5	4.7
18	19	20	4.3	4.0	13	2.5	9.3	3.2	5.5	6.6	5.8	3.1
19	13	9.2	6.9	4.2	4.4	2.0	5.8	3.2	3.3	7.2	15	5.3
20	9.5	7.0	6.1	3.6	4.1	3.1	2.3	4.0	3.1	12	8.0	3.7
21	11	10	3.8	3.3	4.0	5.7	2.5	9.9	3.0	8.3	8.9	3.6
22	11	8.0	5.4	4.7	6.6	6.5	27	18	77	5.6	9.2	3.5
23	12	7.8	9.6	3.9	4.7	29	59	11	33	4.8	112	2.9
24	8.2	7.1	5.5	3.3	6.4	15	16	3.9	7.1	9.0	13	2.9
25	8.1	6.4	4.3	5.6	6.8	41	67	5.3	4.3	6.7	9.0	3.0
26	10	17	6.4	6.4	4.4	15	19	5.8	5.9	4.9	7.2	2.5
27	12	8.6	5.4	5.7	3.6	8.3	14	4.2	7.5	4.6	7.8	5.6
28	7.7	13	4.2	8.9	5.4	7.7	12	2.9	8.8	6.3	7.8	7.1
29	5.7	12	4.7	8.7	---	16	5.9	5.1	9.9	5.8	9.2	11
30	6.4	8.3	3.1	5.6	---	7.6	5.8	6.3	5.7	5.1	6.1	27
31	7.6	---	2.9	3.6	---	5.8	---	7.0	---	4.6	6.3	---
TOTAL	540.8	327.0	220.3	188.5	138.0	231.4	413.2	188.0	249.5	191.1	351.8	167.5
MEAN	17.4	10.9	7.11	6.08	4.93	7.46	13.8	6.06	8.32	6.16	11.3	5.58
MAX	101	36	17	44	13	41	67	18	77	17	112	27
MIN	5.7	4.2	2.9	2.1	2.0	1.4	2.3	2.9	2.0	1.7	2.5	2.5
AC-FT	1070	649	437	374	274	459	820	373	495	379	698	332

16303000 PUNALUU STREAM NEAR PUNALUU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1995, BY WATER YEAR (WY)

MEAN	14.1	20.4	21.2	21.1	22.0	22.6	22.3	17.6	11.5	12.3	11.6	10.6
MAX	38.7	74.7	64.5	40.9	76.3	73.1	84.6	64.9	35.4	39.0	36.9	29.9
(WY)	1959	1991	1965	1988	1969	1982	1963	1965	1982	1974	1982	1994
MIN	.28	4.58	.23	3.32	.58	3.19	2.37	1.00	.000	.000	.31	.49
(WY)	1958	1960	1960	1960	1964	1993	1954	1961	1953	1953	1961	1961

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1953 - 1995		
ANNUAL TOTAL	6396.7		3207.1				
ANNUAL MEAN	17.5		8.79		17.3		
HIGHEST ANNUAL MEAN					35.4		1982
LOWEST ANNUAL MEAN					7.27		1961
HIGHEST DAILY MEAN	338	Mar 24	112	Aug 23	1010	Apr 15	1963
LOWEST DAILY MEAN	2.2	Jan 4	1.4	Mar 6	.00	Jun 1	1953
ANNUAL SEVEN-DAY MINIMUM	3.4	Aug 5	2.3	Mar 14	.00	Jun 1	1953
ANNUAL RUNOFF (AC-FT)	12690		6360		12570		
10 PERCENT EXCEEDS	23		14		30		
50 PERCENT EXCEEDS	8.7		6.1		12		
90 PERCENT EXCEEDS	4.8		3.0		2.3		



HAWAII, ISLAND OF OAHU

16304200 KALUANUI STREAM NEAR PUNALUU

LOCATION.--Lat 21°35'22", long 157°54'38", Hydrologic Unit 20060000, on right bank, 0.8 mi downstream from Sacred Falls, 1.6 mi west of Punaluu Beach Park, and 1.7 mi south of cemetery in Hauula.

DRAINAGE AREA.--1.11 mi^2.

PERIOD OF RECORD.--May 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 110 ft above mean sea level, from topographic map.

REMARKS.--Records good. No diversion upstream of station.

AVERAGE DISCHARGE.--28 years (water years 1968-95), 4.43 ft^3/s (3,210 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,390 ft^3/s, Jan. 6, 1982, gage height, 11.90 ft, from rating curve extended above 14 ft^3/s on basis of slope-area measurements at gage heights 8.85 ft and 10.0 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft^3/s and maximum(*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 16	2200	*355	*7.94

Minimum discharge, no flow for Mar. 19-22.

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.74	.65	13	.40	.17	2.1	1.5	1.2	.33	.66	4.6	2.5
2	17	6.5	3.1	.33	.16	2.1	8.3	1.3	.32	.46	2.6	2.2
3	2.4	1.8	1.1	.30	.15	1.7	26	1.2	.29	1.7	1.3	1.4
4	.87	2.1	.94	.29	.14	.35	21	.85	e.24	18	25	.97
5	.69	1.4	4.7	.73	.55	.25	7.8	.72	e.60	5.1	3.2	6.9
6	.63	1.3	2.3	.49	.85	.36	4.0	11	.47	1.1	1.4	1.1
7	2.9	8.1	2.8	.28	.28	.25	2.4	1.8	8.2	.83	3.7	.81
8	.67	2.4	3.5	.24	.18	.19	1.5	.87	1.1	.68	2.0	.70
9	.50	.75	2.0	.22	.14	.17	1.3	.67	.65	.57	13	.65
10	.43	4.2	7.6	.21	.15	.15	.99	.56	.46	1.7	8.6	2.6
11	3.8	5.8	4.1	.19	.26	.14	.84	1.7	.31	3.1	6.9	.84
12	6.1	2.2	1.6	.29	.16	.13	3.3	4.8	.43	4.1	3.1	.55
13	1.7	1.0	1.0	.30	.10	.17	2.6	1.3	2.6	2.8	7.1	.46
14	2.6	10	.86	20	5.8	.18	1.3	.87	3.7	13	4.0	.41
15	10	8.4	.97	6.9	.48	.15	1.5	2.0	.89	2.3	5.6	.36
16	28	9.5	.75	1.5	.23	.11	.97	8.2	.61	1.3	3.6	.40
17	17	8.2	2.1	1.3	.21	.07	.95	2.0	.42	1.1	7.2	.68
18	5.7	9.1	3.4	.62	.95	.04	.93	1.6	.33	.87	5.7	.34
19	2.1	3.0	1.9	.42	.40	.01	.69	.93	.34	6.6	13	.33
20	1.4	1.7	2.5	.35	.22	.00	.75	.68	.31	12	5.2	.28
21	1.5	1.4	.77	.30	.17	.00	2.4	13	.41	7.4	3.0	.25
22	1.7	2.6	.61	.27	.15	12	37	3.9	49	1.6	2.3	.24
23	1.0	1.9	.48	.24	.12	21	40	1.1	9.9	1.4	37	.22
24	.83	1.0	8.4	.21	7.2	16	23	.80	2.1	4.8	4.9	.21
25	.88	.89	2.0	.21	6.4	11	51	.67	1.1	2.1	2.8	.22
26	.71	6.6	.74	.20	1.5	1.4	5.6	.55	.87	8.6	3.0	.24
27	5.0	2.5	.58	.24	.43	1.1	4.0	.45	.87	3.2	2.2	1.8
28	.77	1.4	.46	.25	.28	5.4	6.9	.41	.83	9.0	2.6	1.3
29	.86	6.9	3.7	.52	---	16	1.8	.46	.53	2.2	3.3	21
30	.59	5.8	2.1	.26	---	1.8	1.4	.43	.52	1.6	1.6	12
31	.48	---	.51	.22	---	4.0	---	.46	---	3.3	1.6	---
TOTAL	119.55	119.09	80.57	38.28	27.83	98.32	261.72	66.48	88.73	123.17	191.1	61.96
MEAN	3.86	3.97	2.60	1.23	.99	3.17	8.72	2.14	2.96	3.97	6.16	2.07
MAX	28	10	13	20	7.2	21	51	13	49	18	37	21
MIN	.43	.65	.46	.19	.10	.00	.69	.41	.24	.46	1.3	.21
AC-FT	237	236	160	76	55	195	519	132	176	244	379	123

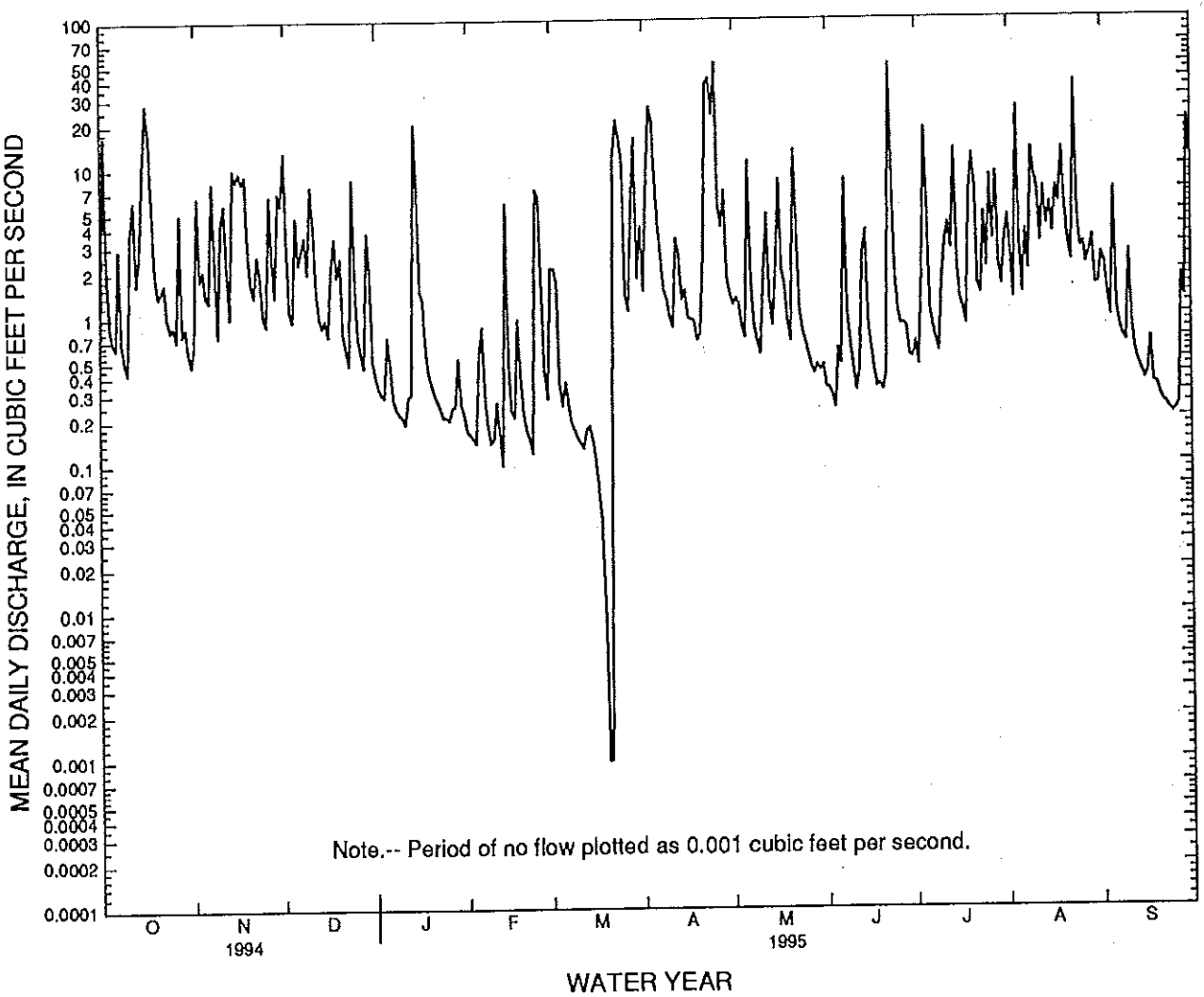
e Estimated

16304200 KALUANUI STREAM NEAR PUNALUU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1995, BY WATER YEAR (WY)

MEAN	3.42	5.87	5.16	5.14	4.84	5.92	5.86	3.80	2.75	4.08	3.41	3.16
MAX	7.68	19.0	17.7	17.9	19.7	32.2	19.3	7.93	7.72	11.7	8.37	9.34
(WY)	1992	1991	1988	1988	1979	1982	1989	1988	1987	1982	1991	1994
MIN	.27	1.66	.48	.26	.41	.14	.87	.85	.61	.21	.53	.22
(WY)	1985	1981	1977	1986	1983	1983	1979	1991	1981	1971	1984	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1967 - 1995	
ANNUAL TOTAL	2137.36		1276.80			
ANNUAL MEAN	5.86		3.50		4.43	
HIGHEST ANNUAL MEAN					9.94	1982
LOWEST ANNUAL MEAN					2.04	1984
HIGHEST DAILY MEAN	127	Mar 24	51	Apr 25	230	Feb 1 1969
LOWEST DAILY MEAN	.15	Jan 3	.00	Mar 20	.00	Jul 24 1971
ANNUAL SEVEN-DAY MINIMUM	.47	Mar 13	.05	Mar 15	.00	Sep 14 1975
ANNUAL RUNOFF (AC-FT)	4240		2530		3210	
10 PERCENT EXCEEDS	12		8.5		9.7	
50 PERCENT EXCEEDS	2.0		1.3		1.4	
90 PERCENT EXCEEDS	.64		.22		.25	



16325000 KAMANANUI STREAM AT PUPUKEA MILITARY ROAD, NEAR MAUNAWAI

LOCATION.--Lat 21°37′25″, long 158°01′04″, Hydrologic Unit 20060000, on left bank 75 ft upstream from Pupukea Military Road, and 3.5 mi southeast of Maunawai.

DRAINAGE AREA.--3.13 mi^2.

PERIOD OF RECORD.--June 1963 to current year. Occasional low-flow measurements, water years 1961 and 1963.

REVISED RECORDS.--WDR HI-94-1: 1992-93 (M).

GAGE.--Water-stage recorder and combination pipe culvers and paved road control. Elevation of gage is 590 ft above mean sea level, from topographic map.

REMARKS.--Records fair. No diversion upstream of station. Recording rain gage located at station.

AVERAGE DISCHARGE.--32 years (water years 1964-95), 10.3 ft^3/s (7,490 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,810 ft^3/s, revised, Nov. 20, 1990, gage height, 11.34 ft, from rating curve extended above 42 ft^3/s on basis of slope-area measurements at gage heights 10.06 ft, and 11.34 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 950 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Aug. 23	0930	*674	*6.61	No peak greater than base discharge.			

Minimum discharge, 0.13 ft^3/s, Mar. 18, 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

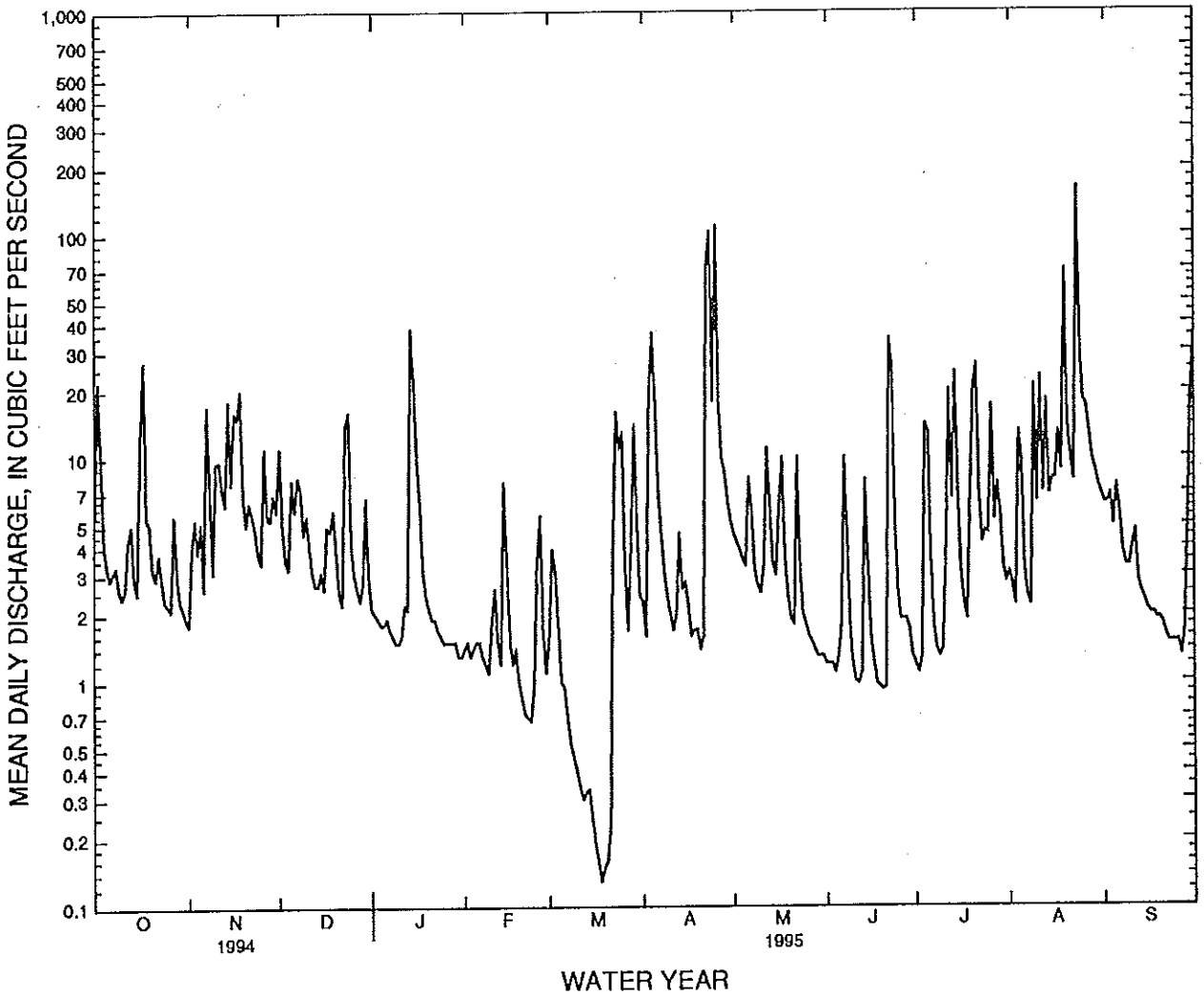
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	1.8	11	2.1	1.4	1.6	2.3	4.6	1.2	1.2	3.1	6.3
2	22	3.9	5.0	2.0	1.5	3.9	1.6	4.2	1.2	1.1	2.7	6.3
3	10	5.3	3.5	1.9	1.3	3.1	19	3.9	1.2	1.3	2.2	6.8
4	4.2	3.8	3.2	1.8	1.4	1.8	36	3.5	1.1	14	13	5.0
5	3.3	5.1	7.9	1.8	1.5	1.0	18	3.3	1.3	13	9.6	7.5
6	2.9	2.6	5.8	1.9	1.5	.94	7.1	8.1	1.8	3.4	3.2	5.7
7	3.1	17	8.1	1.7	1.3	.69	4.6	5.9	10	1.8	2.4	3.8
8	3.3	7.3	7.3	1.6	1.2	.53	3.1	3.2	4.5	1.4	2.2	3.3
9	2.6	3.1	4.6	1.5	1.1	.46	2.4	2.7	1.7	1.3	21	3.3
10	2.4	9.5	5.5	1.5	1.8	.40	2.0	2.5	1.2	1.4	6.4	4.0
11	2.6	9.6	4.0	1.6	2.6	.34	1.7	3.3	1.0	3.6	23	4.7
12	4.3	7.3	3.1	2.2	1.5	.30	2.0	11	.98	20	7.1	2.8
13	5.0	6.2	2.7	2.1	1.2	.32	4.6	6.0	1.1	6.6	18	2.5
14	2.9	18	2.7	38	7.8	.33	2.6	3.4	7.9	24	6.9	2.3
15	2.5	7.7	3.1	22	3.4	.25	2.8	3.0	3.4	7.5	8.0	2.1
16	12	16	2.6	9.9	1.5	.19	2.2	6.0	1.6	3.2	8.0	2.0
17	27	15	4.9	6.3	1.2	.16	1.6	10	1.2	2.3	13	2.0
18	5.4	20	4.7	3.1	1.4	.13	1.7	3.5	.97	1.9	8.8	1.9
19	5.1	6.9	5.8	2.4	1.0	.15	1.7	2.4	.95	6.8	69	1.9
20	3.2	5.0	3.8	2.1	.85	.16	1.4	1.9	.92	21	14	1.8
21	2.9	6.3	2.5	1.9	.72	.24	1.6	1.8	.94	26	10	1.6
22	3.7	5.6	2.2	1.9	.69	3.7	73	10	34	7.0	7.9	1.5
23	2.9	4.8	14	1.7	.67	16	103	3.2	26	4.2	160	1.5
24	2.3	3.7	16	1.6	.94	11	18	2.0	5.5	4.7	31	1.5
25	2.2	3.4	4.2	1.5	3.4	13	109	1.8	2.6	4.6	18	1.5
26	2.1	11	3.0	1.5	5.5	3.3	18	1.6	1.9	17	17	1.3
27	5.5	5.4	2.6	1.5	1.7	1.7	10	1.5	1.9	5.3	13	1.7
28	3.0	5.3	2.3	1.5	1.1	4.1	8.6	1.4	1.9	7.7	9.8	5.0
29	2.3	6.8	2.8	1.5	---	14	6.4	1.3	1.7	5.6	8.8	18
30	2.1	5.8	6.6	1.3	---	5.3	5.2	1.3	1.3	3.3	7.5	36
31	1.9	---	2.8	1.3	---	2.4	---	1.3	---	2.8	6.9	---
TOTAL	160.2	229.2	158.3	124.7	51.17	91.49	471.2	119.6	122.96	225.0	531.5	145.6
MEAN	5.17	7.64	5.11	4.02	1.83	2.95	15.7	3.86	4.10	7.26	17.1	4.85
MAX	27	20	16	38	7.8	16	109	11	34	26	160	36
MIN	1.9	1.8	2.2	1.3	.67	.13	1.4	1.3	.92	1.1	2.2	1.3
AC-FT	318	455	314	247	101	181	935	237	244	446	1050	289

16325000 KAMANANUI STREAM AT PUPUKEA MILITARY ROAD, NEAR MAUNAWAI--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY)

MEAN	6.84	15.9	13.0	14.6	12.8	16.1	14.2	8.27	4.73	7.95	5.65	4.07
MAX	16.3	68.6	44.8	75.8	64.2	77.3	53.6	30.5	20.1	20.2	19.7	10.8
(WY)	1966	1966	1965	1988	1969	1968	1989	1965	1978	1982	1982	1994
MIN	.000	2.27	.91	.45	.073	1.07	.79	.95	1.00	.76	.57	.000
(WY)	1985	1990	1977	1986	1978	1983	1992	1966	1992	1971	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1963 - 1995		
ANNUAL TOTAL	4451.2		2430.92				
ANNUAL MEAN	12.2		6.66		10.3		
HIGHEST ANNUAL MEAN					22.1		1982
LOWEST ANNUAL MEAN					4.09		1984
HIGHEST DAILY MEAN	483	Mar 24	160	Aug 23	620	Nov 20	1990
LOWEST DAILY MEAN	1.3	Jan 12	.13	Mar 18	.00	Aug 27	1971
ANNUAL SEVEN-DAY MINIMUM	1.7	Aug 5	.18	Mar 15	.00	Oct 15	1971
ANNUAL RUNOFF (AC-FT)	8830		4820		7490		
10 PERCENT EXCEEDS	18		14		19		
50 PERCENT EXCEEDS	5.1		3.1		3.3		
90 PERCENT EXCEEDS	2.1		1.2		.62		



16330000 KAMANANUI STREAM AT MAUNAWAI

LOCATION.--Lat 21°38'20", long 158°03'27", Hydrologic Unit 20060000, on right bank, 0.5 mi upstream from Kamehameha Highway, 4.9 mi northeast of Waialua School, and 7.3 mi southwest of Kahuku School.

DRAINAGE AREA.--12.36 mi^2, revised, including that of Elehaha Stream which is mostly diverted into Kamananui Stream since June 14, 1975.

PERIOD OF RECORD.--February 1958 to current year.

REVISED RECORDS.--WSP 1937: 1958-60. WRD Hawaii 1974: 1971(P), 1972-73(M). WDR HI-81-1: Drainage area.

GAGE.--Gage destroyed by flood of Nov. 20, 1990 was restored and water-stage recorder installed on Feb. 25, 1993. Control rebuilt about 75 ft downstream of gage. Elevation of gage is 20 ft above mean sea level, from topographic map. Prior to May 18, 1966, datum 2.00 ft higher.

REMARKS.--Records fair. Small diversion upstream of station.

AVERAGE DISCHARGE.--37 years (water years 1959-95), 18.5 ft^3/s (13,430 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft^3/s, Nov. 20, 1990, gage height, 15.84 ft, from rating curve extended above 150 ft^3/s on basis of slope-area measurements at gage heights 5.68 ft, 11.46 ft, and 15.84 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Aug. 23	1000	*2,080	*6.53	No other peak greater than base discharge.			

Minimum discharge, 0.02 ft^3/s, Mar. 14-22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

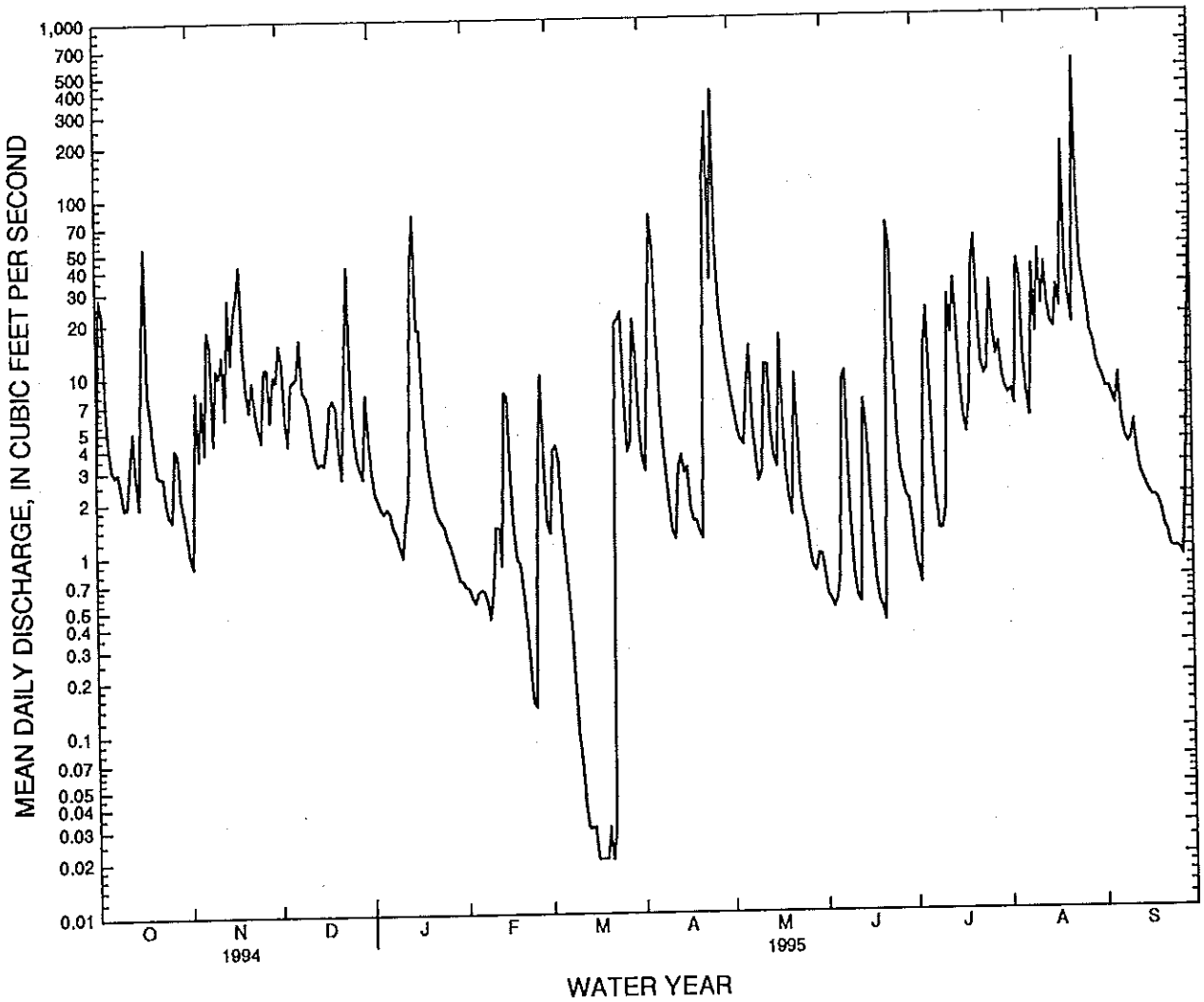
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	1.0	15	2.9	.66	1.3	3.4	7.4	.75	.95	7.3	8.9
2	28	.88	12	2.2	.65	3.8	2.9	5.9	.57	.79	7.7	7.7
3	23	8.3	5.7	2.0	.58	4.0	19	4.7	.54	.66	6.4	7.8
4	7.0	3.5	4.2	1.8	.54	3.2	77	4.2	.49	13	41	7.0
5	4.1	7.5	9.1	1.7	.61	1.5	49	4.0	.54	22	33	6.3
6	3.1	3.8	9.4	1.8	.63	1.0	16	8.2	.72	8.0	11	9.2
7	2.9	18	9.9	1.7	.62	.63	7.3	14	9.0	3.2	7.1	5.2
8	3.0	15	16	1.4	.55	.40	4.0	5.2	10	1.9	5.5	4.2
9	2.4	4.3	8.3	1.3	.44	.20	2.7	3.5	2.8	1.3	38	3.8
10	1.9	11	7.8	1.1	.63	.10	1.8	2.5	1.3	1.3	16	4.0
11	1.9	10	6.9	.97	1.4	.07	1.3	2.8	.72	1.7	46	5.0
12	3.2	13	4.9	1.6	1.4	.04	1.2	11	.56	26	23	3.4
13	5.0	5.9	3.6	2.1	.87	.03	3.0	11	.52	16	39	2.7
14	2.8	27	3.2	39	7.9	.03	3.5	4.7	6.9	32	23	2.4
15	1.9	12	3.3	79	7.5	.03	2.8	3.4	5.0	17	18	2.2
16	13	22	3.2	18	2.5	.02	3.0	3.0	2.6	8.8	17	2.0
17	54	28	4.2	18	1.3	.02	1.8	16	1.2	5.6	29	1.9
18	8.1	42	6.9	6.8	.93	.02	1.5	5.6	.69	4.5	22	1.9
19	6.0	15	7.3	4.1	.88	.02	1.5	2.9	.53	6.9	186	1.8
20	4.0	8.5	6.6	2.9	.62	.03	1.3	2.0	.48	40	36	1.6
21	2.9	6.5	3.8	2.3	.42	.02	1.2	1.6	.41	56	24	1.3
22	2.8	9.3	2.7	1.8	.26	.03	131	9.7	67	21	18	1.2
23	2.8	6.4	11	1.6	.15	19	290	4.7	51	11	545	1.0
24	2.0	5.2	41	1.5	.14	20	34	2.2	12	9.4	92	.98
25	1.7	4.4	9.5	1.4	2.9	22	386	1.6	4.8	10	38	.98
26	1.6	11	4.9	1.2	9.8	8.1	53	1.4	2.9	31	30	.96
27	4.0	11	3.5	1.1	3.5	3.7	24	.99	2.4	17	23	.89
28	3.7	5.7	3.0	.95	1.5	4.2	17	.82	2.0	12	16	2.7
29	2.1	10	2.7	.83	---	20	12	.78	1.9	14	14	18
30	1.7	9.4	7.8	.72	---	13	9.3	.96	1.4	9.4	11	65
31	1.3	---	4.5	.71	---	5.2	---	.95	---	7.9	9.7	---
TOTAL	204.9	335.58	241.9	204.48	49.88	131.69	1161.5	147.70	191.72	410.30	1432.7	182.01
MEAN	6.61	11.2	7.80	6.60	1.78	4.25	38.7	4.76	6.39	13.2	46.2	6.07
MAX	54	42	41	79	9.8	22	386	16	67	56	545	65
MIN	1.3	.88	2.7	.71	.14	.02	1.2	.78	.41	.66	5.5	.89
AC-FT	406	666	480	406	99	261	2300	293	380	814	2840	361

16330000 KAMANANUI STREAM AT MAUNAWAI--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1995, BY WATER YEAR (WY)

MEAN	12.3	28.1	22.0	26.3	23.1	32.8	28.9	15.2	6.90	12.8	10.1	5.80
MAX	56.7	168	107	143	106	155	168	62.8	52.9	52.7	68.0	19.9
(WY)	1959	1991	1988	1988	1969	1982	1989	1965	1978	1989	1958	1994
MIN	.006	.51	.67	.094	.022	1.23	.64	.95	.33	.52	.20	.006
(WY)	1985	1963	1977	1986	1978	1983	1992	1984	1959	1971	1971	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1958 - 1995		
ANNUAL TOTAL	8542.11		4694.36				
ANNUAL MEAN	23.4		12.9		18.5		
HIGHEST ANNUAL MEAN					50.3		1982
LOWEST ANNUAL MEAN					4.81		1984
HIGHEST DAILY MEAN	1540	Mar 24	545	Aug 23	1940	Jan 1	1988
LOWEST DAILY MEAN	.80	Aug 30	.02	Mar 16	.00	Jun 21	1959
ANNUAL SEVEN-DAY MINIMUM	1.5	Aug 5	.02	Mar 15	.00	Jul 23	1959
ANNUAL RUNOFF (AC-FT)	16940		9310		13430		
10 PERCENT EXCEEDS	33		24		31		
50 PERCENT EXCEEDS	6.6		3.8		3.9		
90 PERCENT EXCEEDS	2.0		.63		.31		



HAWAII, ISLAND OF OAHU

16345000 OPAEULA STREAM NEAR WAHIAWA

LOCATION.--Lat 21°33′55″, long 158°00′10″, Hydrologic Unit 200600000, on left bank, 4.3 mi northeast of Leilehua High School in Wahiawa, and 8.1 mi east of Waialua School.

DRAINAGE AREA.--2.98 mi^2.

PERIOD OF RECORD.--August 1959 to current year.

REVISED RECORDS.--WSP 1937: 1960.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 1,120 ft above mean sea level, from topographic map.

REMARKS.--Records good. No diversion upstream of station.

AVERAGE DISCHARGE.--36 years (water years 1960-95), 13.9 ft^3/s (10,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,540 ft^3/s, July 17, 1974, gage height, 11.94 ft from rating curve extended above 110 ft^3/s on basis of slope-area measurements at gage heights 6.74 ft and 10.12 ft; maximum gage height, 13.20 ft, Nov. 20, 1990; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Aug. 23	1000	*1.360	*7.32

No other peak greater than base discharge.

Minimum discharge, 0.09 ft^3/s, Mar. 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

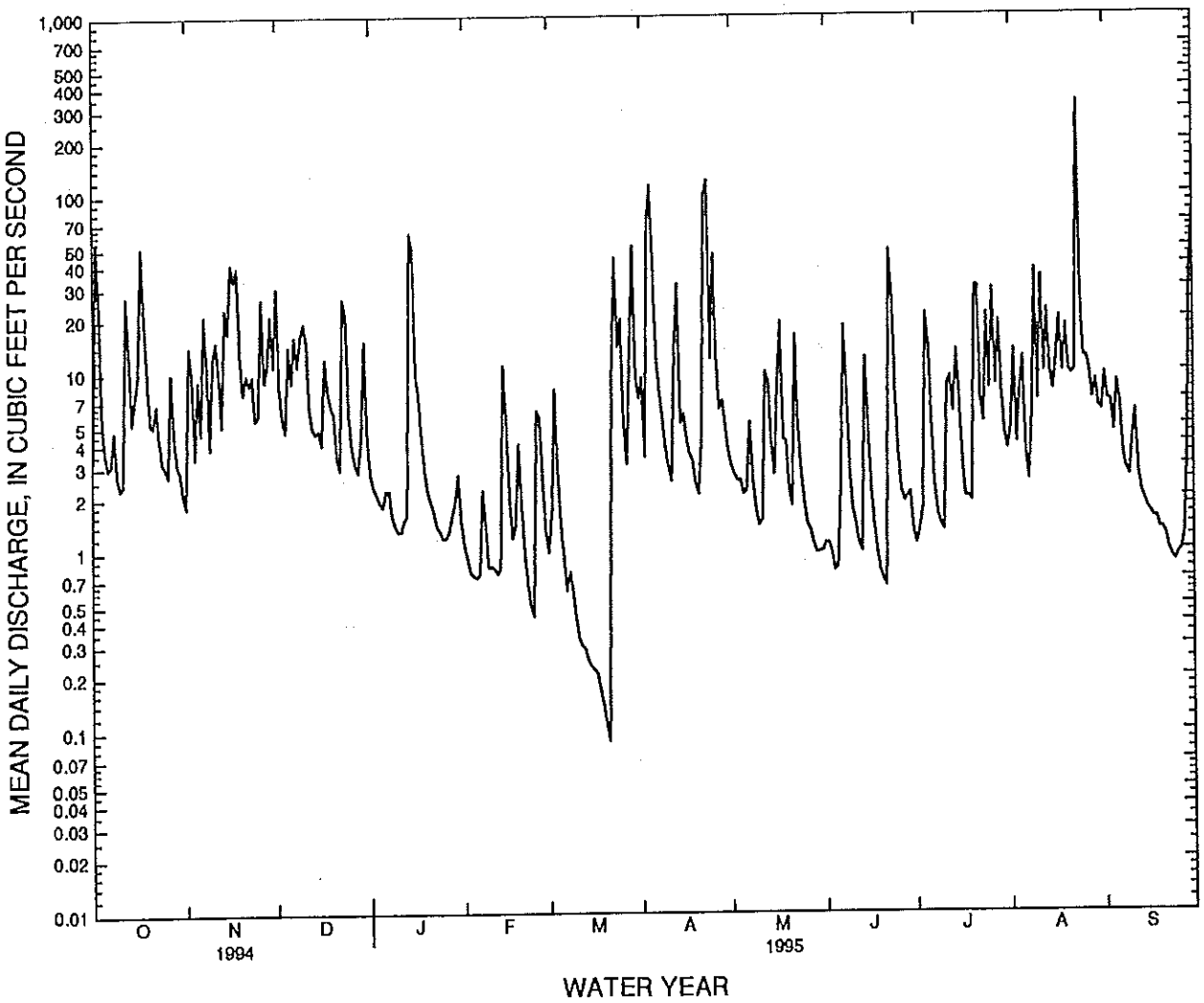
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	1.8	30	2.7	1.1	1.0	9.4	3.0	1.1	1.1	4.8	9.6
2	55	14	8.2	2.3	.93	1.7	3.4	2.7	1.1	1.3	13	6.8
3	25	10	5.6	2.1	.77	8.1	72	2.5	.99	1.7	4.0	6.8
4	5.4	3.4	4.7	1.9	.74	2.8	112	2.5	.78	21	8.0	4.6
5	3.6	9.1	14	1.8	.72	1.4	38	2.1	.81	14	12	8.7
6	3.0	4.6	8.9	2.2	.75	.91	12	2.2	2.2	4.9	3.6	6.5
7	3.1	21	16	2.2	2.2	.61	7.8	5.2	18	2.3	2.5	3.4
8	4.8	11	11	1.6	1.4	.77	5.6	2.5	8.6	1.6	5.3	2.8
9	2.7	3.8	16	1.4	.83	.61	3.8	1.7	2.9	1.4	37	2.6
10	2.3	12	19	1.3	.83	.43	3.0	1.4	1.7	1.3	6.9	4.2
11	2.4	15	15	1.3	.81	.33	2.5	1.5	1.4	8.4	34	5.9
12	27	9.9	6.4	1.5	.76	.30	14	10	1.1	9.3	10	2.7
13	13	5.1	4.9	1.6	.81	.29	31	8.7	1.0	5.9	22	2.1
14	5.3	23	4.6	61	11	.25	5.2	4.1	12	13	10	1.9
15	7.3	17	4.8	50	5.4	.23	5.8	2.7	5.3	7.1	7.9	1.7
16	10	41	4.0	9.9	2.0	.22	4.2	8.7	2.3	3.2	12	1.6
17	51	33	12	7.5	1.2	.21	3.5	19	1.4	2.0	20	1.5
18	20	39	8.0	4.4	1.4	.17	3.2	4.2	1.0	2.0	10	1.5
19	10	13	6.5	2.9	4.0	.14	2.4	4.1	.78	1.9	18	1.3
20	5.3	7.7	5.9	2.2	1.8	.11	2.1	2.2	.69	30	10	1.3
21	5.1	9.8	3.4	1.9	1.0	.09	4.5	1.8	.64	30	9.6	1.2
22	6.7	8.6	2.9	1.7	.67	9.8	100	16	48	6.9	10	1.0
23	4.4	9.7	26	1.4	.50	44	120	5.0	28	5.2	323	.91
24	3.2	5.5	21	1.3	.44	14	12	2.8	8.1	21	29	.86
25	3.0	5.8	5.9	1.2	6.1	20	46	1.9	3.6	8.0	12	.94
26	2.7	26	3.8	1.2	5.6	5.1	12	1.4	2.2	29	12	.99
27	10	9.0	3.1	1.3	2.5	3.1	6.2	1.3	1.9	8.5	10	1.2
28	4.5	11	2.8	1.6	1.3	14	6.9	1.1	2.0	19	7.0	3.6
29	3.1	21	4.4	1.9	---	51	5.0	.98	2.1	7.8	8.8	33
30	2.8	11	15	2.7	---	9.6	3.6	.99	1.3	4.5	6.3	76
31	2.1	---	4.3	1.5	---	7.2	---	1.0	---	3.7	6.0	---
TOTAL	307.1	411.8	298.1	179.5	57.56	198.47	657.1	125.27	162.99	277.0	684.7	197.20
MEAN	9.91	13.7	9.62	5.79	2.06	6.40	21.9	4.04	5.43	8.94	22.1	6.57
MAX	55	41	30	61	11	51	120	19	48	30	323	76
MIN	2.1	1.8	2.8	1.2	.44	.09	2.1	.98	.64	1.1	2.5	.86
AC-FT	609	817	591	356	114	394	1300	248	323	549	1360	391

16345000 OPAEULA STREAM NEAR WAHIAWA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1995, BY WATER YEAR (WY)

MEAN	11.1	18.5	16.2	15.6	14.2	21.4	21.4	12.6	7.27	11.9	8.89	7.77
MAX	30.7	71.9	52.6	54.1	66.9	90.0	75.7	43.7	24.9	29.3	31.0	24.9
(WY)	1982	1991	1988	1988	1969	1982	1989	1965	1978	1989	1982	1994
MIN	.057	2.90	1.29	.37	.32	.35	1.57	1.75	2.02	.95	1.51	.52
(WY)	1985	1963	1977	1977	1978	1983	1966	1966	1975	1971	1984	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1959 - 1995		
ANNUAL TOTAL	6081.2		3556.79				
ANNUAL MEAN	16.7		9.74		13.9		
HIGHEST ANNUAL MEAN					29.7		1982
LOWEST ANNUAL MEAN					7.24		1984
HIGHEST DAILY MEAN	630	Mar 24	323	Aug 23	825	Feb 1	1969
LOWEST DAILY MEAN	1.2	Jan 12	.09	Mar 21	.00	Jan 24	1977
ANNUAL SEVEN-DAY MINIMUM	2.1	Aug 5	.17	Mar 15	.00	Oct 24	1984
ANNUAL RUNOFF (AC-FT)	12060		7050		10070		
10 PERCENT EXCEEDS	35		21		28		
50 PERCENT EXCEEDS	6.4		4.1		4.6		
90 PERCENT EXCEEDS	2.3		.94		.90		



HAWAII, ISLAND OF MOLOKAI

16400000 HALAWA STREAM NEAR HALAWA
(National stream-quality accounting network station)

LOCATION.--Lat 21°09'31", long 156°45'53", Hydrologic Unit 20050000, on right bank 600 ft downstream from Hipuapua Stream, and 1.5 mi west of Halawa.

DRAINAGE AREA.--4.62 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1917 to July 1932, November 1937 to current year.

REVISED RECORDS.--WSP 1319: 1928, 1929(M), 1930-31, 1938-50(M), drainage area. WSP 1719: 1954.

GAGE.--Water-stage recorder. Elevation of gage is 210 ft above mean sea level, from topographic map. Prior to June 25, 1923, at site 350 ft upstream of gage at different datum. June 25, 1923 to July 18, 1932, and Nov. 17, 1937 to Feb. 3, 1965, at present site at datum 2.00 ft higher.

REMARKS.--Records fair. No diversion upstream.

AVERAGE DISCHARGE.--71 years (water years 1918-31, 1939-95), 29.9 ft^3/s (21,640 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,900 ft^3/s, Feb. 4, 1965, gage height, 19.91 ft, from floodmarks, from rating curve extended above 163 ft^3/s on basis of slope-area measurement of peak flow; minimum, 0.76 ft^3/s, about Nov. 23, 1962.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 27	2300	*1,470	*7.63	No peak greater than base discharge.			

Minimum discharge, 1.9 ft^3/s, Feb. 24.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

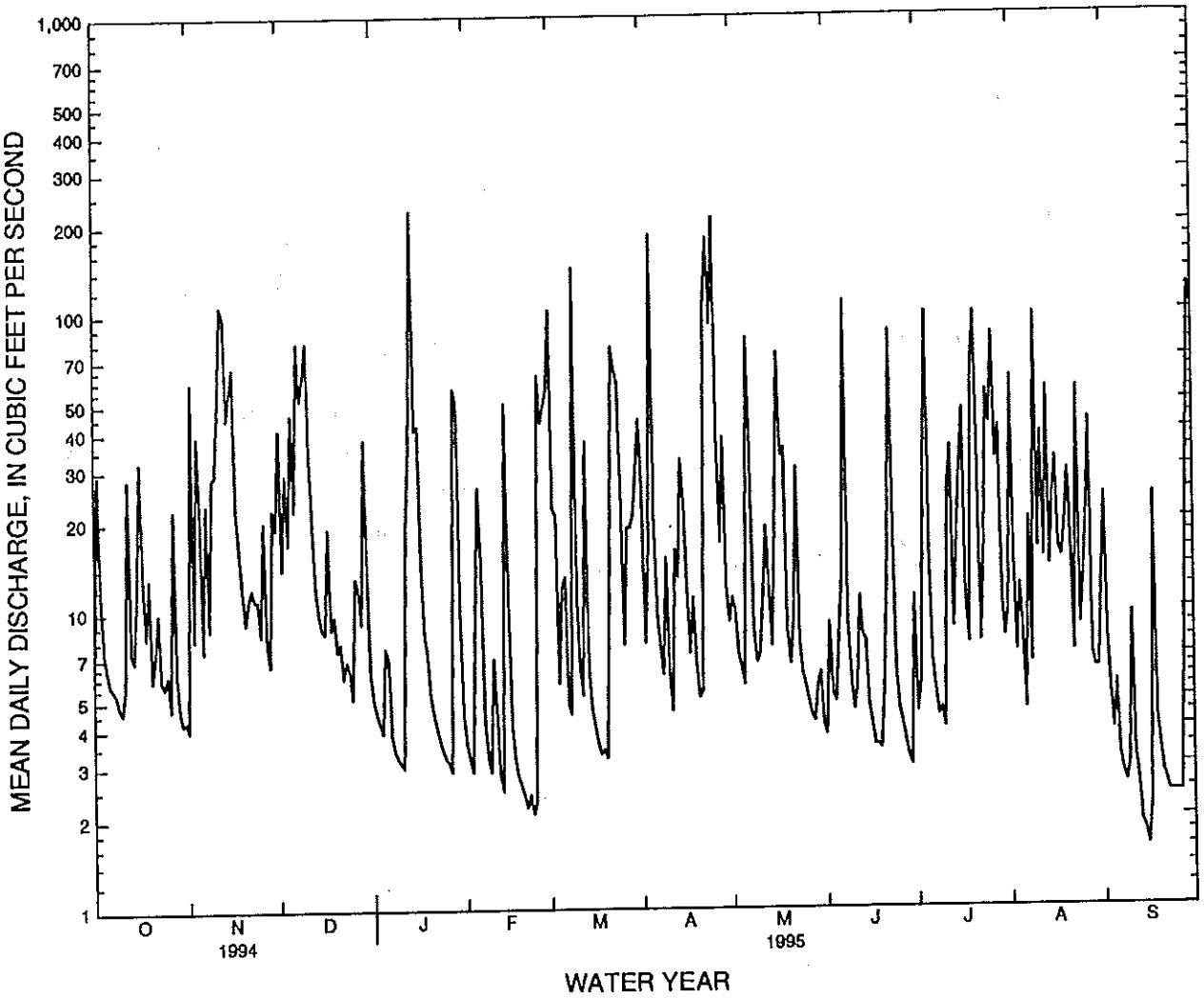
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	4.0	41	5.0	3.6	103	26	11	3.8	4.5	60	24
2	29	59	14	4.5	3.2	22	7.8	10	9.0	5.6	15	8.0
3	12	8.1	29	4.2	2.9	21	16	7.1	5.2	28	7.2	5.2
4	7.4	39	17	3.9	9.2	5.7	184	6.4	4.9	99	12	3.9
5	6.4	20	46	7.5	26	12	20	5.6	8.3	15	8.3	5.6
6	5.7	7.4	22	6.9	15	13	9.7	82	13	6.6	4.6	3.2
7	5.5	23	80	3.8	4.3	4.8	7.5	35	109	5.3	20	2.8
8	5.3	8.8	52	3.4	3.2	4.5	6.1	8.8	9.2	4.4	6.6	2.6
9	4.8	28	62	3.2	2.9	143	15	6.7	5.8	4.6	97	3.0
10	4.6	29	80	3.1	6.9	11	6.2	7.1	4.6	4.0	16	9.6
11	5.6	50	33	3.0	4.5	6.3	4.6	11	5.5	25	39	3.2
12	28	107	20	19	2.8	5.2	16	19	11	35	15	2.6
13	7.3	98	12	36	2.5	37	13	12	8.2	8.7	55	1.9
14	6.9	45	9.8	223	50	6.6	32	7.6	7.8	18	14	1.8
15	12	55	8.8	41	11	4.7	23	20	4.8	30	24	1.6
16	32	66	8.5	42	4.2	4.1	12	73	4.1	47	32	2.2
17	13	22	19	15	3.2	3.6	7.2	33	3.5	11	16	24
18	8.3	16	8.8	8.5	2.8	3.3	11	35	3.5	7.7	15	4.3
19	13	12	9.7	7.2	2.6	3.4	6.7	8.6	3.4	67	19	3.5
20	5.9	9.2	7.4	5.2	2.4	3.2	5.1	6.6	5.4	99	29	2.8
21	7.1	11	7.8	4.5	2.2	12	5.3	9.3	13	32	17	2.6
22	10	12	6.0	4.1	2.4	77	109	30	86	7.8	7.2	2.4
23	5.9	11	6.8	3.7	2.1	65	179	7.9	22	16	55	2.4
24	5.6	11	6.3	3.4	2.3	58	92	6.1	6.3	54	8.9	2.4
25	6.1	8.4	5.1	3.2	62	25	210	5.5	4.6	42	13	2.4
26	4.7	20	13	3.1	43	7.7	38	4.9	4.1	84	21	2.4
27	22	7.8	12	2.9	49	19	17	4.4	3.6	32	43	8.0
28	6.1	6.6	9.2	56	55	19	38	4.2	3.2	41	7.0	36
29	4.6	22	38	50	---	21	12	5.5	3.0	11	6.3	122
30	4.2	19	14	10	---	29	9.2	6.1	11	8.1	6.3	104
31	4.3	---	6.1	4.5	---	44	---	4.1	---	9.9	12	---
TOTAL	300.7	835.3	704.3	590.8	381.2	794.1	1138.4	493.5	386.8	863.2	701.4	400.4
MEAN	9.70	27.8	22.7	19.1	13.6	25.6	37.9	15.9	12.9	27.8	22.6	13.3
MAX	32	107	80	223	62	143	210	82	109	99	97	122
MIN	4.2	4.0	5.1	2.9	2.1	3.2	4.6	4.1	3.0	4.0	4.6	1.6
AC-FT	596	1660	1400	1170	756	1580	2260	979	767	1710	1390	794

16400000 HALAWA STREAM NEAR HALAWA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 1995, BY WATER YEAR (WY)

MEAN	26.7	36.2	36.5	33.8	29.9	37.7	40.7	27.2	18.5	25.7	25.1	20.6
MAX	100	97.8	84.7	118	114	134	157	85.2	59.2	58.2	69.8	58.2
(WY)	1942	1951	1947	1921	1932	1942	1989	1963	1961	1954	1938	1992
MIN	2.04	5.80	8.56	5.31	2.98	5.48	11.7	4.26	4.93	6.00	1.19	2.85
(WY)	1918	1920	1977	1977	1978	1970	1990	1920	1966	1917	1971	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1917 - 1995	
ANNUAL TOTAL	11966.4		7590.1			
ANNUAL MEAN	32.8		20.8		29.9	
HIGHEST ANNUAL MEAN					47.4	1965
LOWEST ANNUAL MEAN					17.4	1975
HIGHEST DAILY MEAN	507	Mar 24	223	Jan 14	1240	Feb 4 1965
LOWEST DAILY MEAN	3.8	Jan 12	1.6	Sep 15	.86	Sep 1 1971
ANNUAL SEVEN-DAY MINIMUM	5.0	Mar 4	2.4	Feb 18	.90	Aug 26 1971
ANNUAL RUNOFF (AC-FT)	23740		15050		21640	
10 PERCENT EXCEEDS	83		54		65	
50 PERCENT EXCEEDS	14		8.8		14	
90 PERCENT EXCEEDS	6.0		3.2		4.8	



16400000 HALAWA STREAM NEAR HALAWA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-74, 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT												
18...	1315	7.0	52	7.4	24.5	22.0	1.4	754	8.2	95	90	210
FEB												
14...	1245	39	52	6.7	21.0	18.0	6.2	753	8.0	86	4400	3900
JUN												
27...	1210	3.7	58	7.6	27.0	24.0	0.60	755	8.2	98	110	560
AUG												
15...	1325	81	44	7.1	25.0	22.0	1.7	756	8.2	95	140	1000

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)
OCT												
18...	7	1.1	1.1	6.2	63	1	0.50	6.7	1.7	10	<0.10	5.5
FEB												
14...	6	0.81	0.96	6.3	67	1	0.50	3.9	1.3	11	<0.10	4.7
JUN												
27...	8	1.2	1.2	6.7	63	1	0.50	8.6	1.8	11	<0.10	6.6
AUG												
15...	6	0.84	0.88	5.6	66	1	0.40	5.6	1.4	8.0	<0.10	5.7

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)
OCT											
18...	27	30	0.04	--	<0.050	<0.015	0.20	0.040	0.010	0.010	80
FEB											
14...	33	28	0.05	--	<0.050	<0.015	<0.20	0.030	0.030	0.010	150
JUN											
27...	31	35	0.04	0.070	0.070	0.030	<0.20	0.020	<0.010	<0.010	60
AUG											
15...	33	26	0.05	--	<0.050	0.030	<0.20	<0.010	<0.010	<0.010	90

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

16400000 HALAWA STREAM NEAR HALAWA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	BARIUM, DIS-SOLVED (UG/L AS BA)	COBALT, DIS-SOLVED (UG/L AS CO)	IRON, DIS-SOLVED (UG/L AS FE)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)
OCT											
18...	<2.0	<3.0	97	<4	2.0	20	<1.0	<1	<1.0	17	<6
FEB											
14...	<2.0	<3.0	190	<4	2.0	<10	<1.0	<1	<1.0	15	<6
JUN											
27...	<2.0	<3.0	49	<4	3.0	<10	<1.0	<1	<1.0	19	<6
AUG											
15...	<2.0	<3.0	120	<4	4.0	<10	<1.0	<1	<1.0	14	<6

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	DATE	TIME	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT					JUN				
18...	1315	2	0.04	--	27...	1210	2	0.02	--
FEB					AUG				
14...	1245	7	0.74	--	15...	1325	5	1.1	--

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

16403900 KAWAINUI STREAM NEAR PELEKUNU

LOCATION.--Lat 21°07'59", long 156°52'38", Hydrologic Unit 20050000, on right bank 900 ft upstream from confluence with Kapuhi stream, 2.1 mi south of former village of Pelekunu, and 5.7 mi north of Kamalo.

DRAINAGE AREA.--1.17 mi^2.

PERIOD OF RECORD.--August 1968 to December 1979. Destroyed by flood of January 1980. Low-flow partial record site from 1980 to 1994. Station re-established October 1994.

GAGE.--Water-stage recorder. Elevation of gage is 770 ft above mean sea level, from topographic map.

REMARKS.--Records good. No diversion upstream of station.

AVERAGE DISCHARGE.--12 years (water years 1968-80, 1995), 8.09 ft^3/s (5,860 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,800 ft^3/s, Dec. 6, 1979, gage height, 9.01 ft, from floodmarks; minimum, 0.70 ft^3/s, Sep. 22, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 1	1030	*258	*4.36	No peak greater than base discharge.			

Minimum discharge, 1.4 ft^3/s, Sep. 25, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.0	2.1	21	3.4	8.1	40	7.2	5.9	3.1	1.6	11	6.0
2	e7.0	8.1	13	3.1	6.5	13	6.2	5.3	3.5	1.6	7.6	4.2
3	e4.2	3.5	13	2.9	5.7	9.2	5.8	4.7	2.6	2.4	6.1	3.5
4	e3.3	10	13	2.8	5.4	6.9	32	4.3	2.9	3.6	6.7	3.4
5	e2.8	7.0	15	3.6	8.6	9.2	15	4.0	6.2	1.9	4.4	3.1
6	e2.5	4.9	14	2.9	9.6	8.6	10	6.3	4.8	1.7	4.1	3.0
7	e2.4	7.6	26	2.6	5.6	6.2	7.8	5.2	12	1.7	6.4	2.8
8	2.2	5.2	22	2.4	4.8	5.6	6.6	3.7	5.6	1.1	4.2	2.6
9	2.2	7.1	22	2.3	4.3	6.6	6.3	3.3	4.9	1.1	8.1	2.8
10	2.1	8.6	37	2.2	8.0	5.1	5.3	3.2	3.5	1.8	6.5	2.8
11	2.8	9.5	20	2.1	4.3	4.5	4.8	4.3	5.3	2.4	8.1	2.4
12	3.8	12	15	4.9	3.9	6.7	10	5.6	4.0	4.4	6.7	2.1
13	2.8	13	11	4.2	4.0	7.6	6.0	4.6	4.8	1.9	6.8	2.0
14	2.2	12	9.1	12	26	4.5	7.9	3.7	3.3	2.1	5.6	1.9
15	2.0	13	8.9	7.8	10	4.0	8.5	7.3	2.8	1.1	5.8	1.8
16	14	18	8.4	6.9	7.4	3.6	6.6	11	2.6	2.7	5.9	1.8
17	6.8	15	9.9	5.2	6.2	3.4	6.0	8.7	2.2	1.9	5.2	1.7
18	4.4	13	6.7	4.4	5.6	3.2	6.3	6.4	2.3	1.6	4.2	1.7
19	3.8	10	6.2	3.8	5.1	3.3	4.8	5.2	2.0	2.4	3.6	1.6
20	3.0	7.4	5.4	3.3	4.4	2.9	5.1	4.9	2.8	6.9	3.9	1.1
21	3.9	7.6	4.9	3.1	4.0	5.5	4.8	4.7	2.4	7.2	3.5	1.1
22	4.1	7.2	4.5	2.8	3.6	11	16	4.2	2.0	3.3	3.0	1.5
23	2.7	6.0	5.3	2.6	3.3	7.3	21	3.5	2.7	5.6	5.9	1.5
24	2.5	7.4	4.2	2.5	3.2	6.1	13	3.7	1.9	11	3.9	1.4
25	2.7	5.8	3.9	2.4	4.5	4.9	16	3.3	1.8	14	5.9	1.4
26	3.4	7.0	4.2	2.5	3.6	4.2	13	3.0	1.8	20	8.6	1.4
27	5.2	4.9	4.1	2.8	3.2	5.2	9.7	2.8	1.7	12	12	2.6
28	2.7	5.9	3.7	36	6.9	10	9.0	2.7	1.6	9.0	6.8	3.7
29	2.3	9.5	8.0	52	---	11	7.1	3.4	1.1	6.5	5.6	1.2
30	2.2	9.1	5.0	17	---	12	6.4	3.0	1.9	6.1	5.2	8.6
31	2.2	---	3.8	11	---	9.8	---	2.3	---	6.7	6.0	---
TOTAL	111.2	257.4	348.2	217.5	175.8	241.1	284.2	144.2	100.1	147.3	187.3	76.7
MEAN	3.59	8.58	11.2	7.02	6.28	7.78	9.47	4.65	3.34	4.75	6.04	2.56
MAX	14	18	37	52	26	40	32	11	12	20	12	8.6
MIN	2.0	2.1	3.7	2.1	3.2	2.9	4.8	2.3	1.1	1.1	3.0	1.1
AC-FT	221	511	691	431	349	478	564	286	199	292	372	152

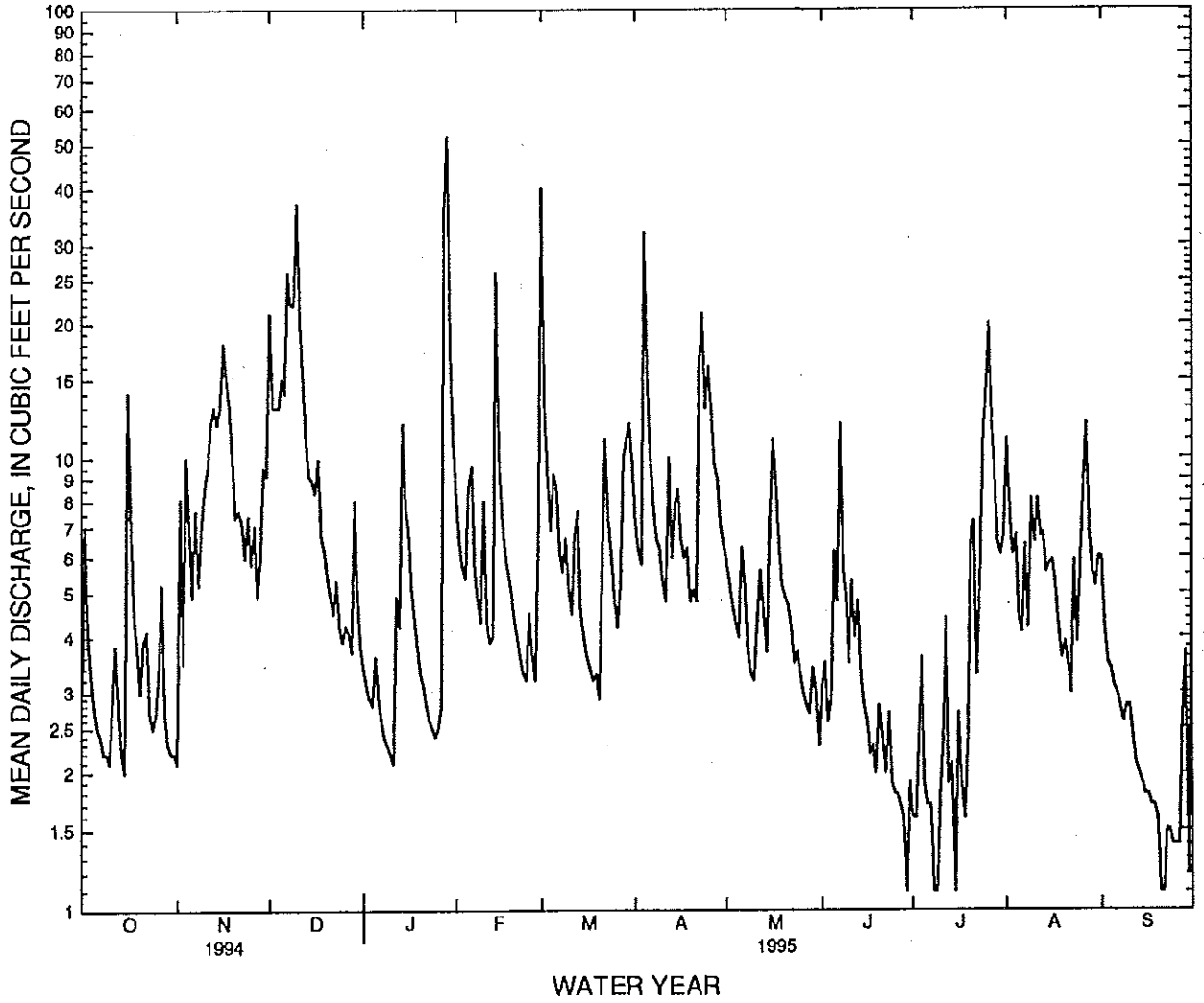
e Estimated

16403900 KAWAINUI STREAM NEAR PELEKUNU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1995, BY WATER YEAR (WY)

MEAN	3.53	10.4	10.2	13.4	12.8	11.5	11.7	6.80	4.40	5.15	4.16	2.92
MAX	7.73	26.2	22.9	29.4	39.3	16.5	16.5	11.7	7.96	8.29	7.11	6.77
(WY)	1979	1971	1969	1971	1979	1972	1977	1978	1978	1978	1978	1978
MIN	1.72	3.59	3.26	1.93	1.61	2.13	6.63	2.77	2.12	2.09	1.36	1.45
(WY)	1972	1978	1977	1977	1978	1970	1978	1972	1972	1971	1971	1974

SUMMARY STATISTICS	FOR 1995 WATER YEAR		WATER YEARS 1968 - 1995	
ANNUAL TOTAL	2291.0			
ANNUAL MEAN	6.28		8.09	
HIGHEST ANNUAL MEAN			11.8	1969
LOWEST ANNUAL MEAN			6.24	1978
HIGHEST DAILY MEAN	52	Jan 29	296	Nov 29 1968
LOWEST DAILY MEAN	1.1	Jun 29	.75	Sep 22 1968
ANNUAL SEVEN-DAY MINIMUM	1.3	Sep 20	.95	Nov 17 1968
ANNUAL RUNOFF (AC-FT)	4540		5860	
10 PERCENT EXCEEDS	12		15	
50 PERCENT EXCEEDS	4.8		4.8	
90 PERCENT EXCEEDS	2.0		1.6	



16404200 PILIPILILAU STREAM NEAR PELEKUNU

LOCATION.--Lat 21°08′08″, long 156°53′09″, Hydrologic Unit 20050000, on right bank 500 ft downstream from left-bank tributary, 1.9 mi south of former village of Pelekunu, and 5.8 mi north of Kamalo.

DRAINAGE AREA.--0.49 mi^2.

PERIOD OF RECORD.--August 1968 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,000 ft above mean sea level, from topographic map.

REMARKS.--Records good, except for estimated daily discharges which are fair. No diversions upstream of station.

AVERAGE DISCHARGE.--27 years (water years 1969-95), 1.60 ft^3/s (1,160 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 835 ft^3/s, Jan. 25, 1982, gage height, 4.25 ft, from rating curve extended above 6.2 ft^3/s on basis of slope-area measurement at gage height, 4.25 ft; minimum, 0.50 ft^3/s, Sept. 2-8, 21-29, 1975, Nov. 26 to Dec. 3, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 1	0700	*49	*2.62	No peak greater than base discharge.			

Minimum discharge, 0.52 ft^3/s on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	.61	1.4	.68	.80	6.3	1.0	1.2	.84	.64	.80	.58
2	.76	.89	.89	.68	.76	2.6	.94	1.2	.84	.64	.68	.55
3	.68	.64	1.2	.68	.76	1.6	4.5	e1.3	.80	.68	.64	.55
4	.68	.76	.89	.66	.76	1.3	5.2	e1.2	.80	.68	.64	.55
5	.64	.72	.94	.85	1.2	2.7	1.8	e1.1	.84	.64	.64	.55
6	.64	.64	.99	.64	1.5	1.7	1.5	e2.6	.84	.64	.61	.55
7	.64	.76	2.8	.61	.76	1.3	1.3	e2.3	.94	.64	.64	.52
8	.64	.64	2.0	.61	.76	1.3	1.2	e1.6	.80	.64	.61	.55
9	.64	.72	2.0	.58	.72	1.3	1.3	e1.3	.80	.64	.80	.55
10	.64	.84	3.8	.58	1.5	1.0	1.0	e1.2	.76	.68	.68	.55
11	.64	.72	1.7	.58	.80	1.0	.94	e1.3	.80	.68	.76	.52
12	.68	.80	1.2	.89	.76	1.5	1.3	e1.5	.76	.68	.68	.52
13	.64	1.2	.99	.72	1.1	1.3	1.0	e1.3	.76	.64	.64	.52
14	.64	.94	.94	1.2	5.6	1.0	1.3	e1.1	.72	.64	.64	.52
15	.64	.80	.94	.76	1.5	.99	2.0	e1.4	.72	.64	.68	.52
16	.91	1.7	.89	.64	1.2	.99	1.2	e1.8	.72	.68	.68	.52
17	.72	1.2	.89	.61	.99	.94	1.1	e1.3	.68	.64	.64	.52
18	.68	1.4	.80	.58	.99	.94	1.1	e1.1	.72	.64	.64	.55
19	.64	.84	.76	.58	.89	.94	1.0	e1.0	.72	.68	.61	.52
20	.64	.76	.72	.58	.89	.89	.99	e.94	.72	.72	.61	.52
21	.68	.80	.72	.58	.84	.94	1.0	e.92	.68	.68	.58	.52
22	.68	.76	.72	.55	.80	.99	4.7	e.88	.68	.64	.58	.52
23	.64	.76	.76	.55	.80	.89	2.1	e.82	.68	.72	.66	.52
24	.64	.76	.72	.55	.80	.84	1.6	e.82	.64	.76	.58	.52
25	.64	.72	.72	.55	1.3	.84	2.9	e.86	.64	1.0	.61	.52
26	.64	.76	.72	.55	.89	.84	1.7	e.84	.64	1.1	.72	.52
27	.68	.72	.72	.58	1.0	1.2	1.6	e.82	.64	.76	.94	.58
28	.64	.76	.72	5.0	1.8	1.6	1.7	e.80	.64	.76	.61	.58
29	.61	.89	.94	4.8	---	1.4	1.3	e.80	.64	.72	.58	.80
30	.61	.84	.76	1.2	---	2.8	1.3	e.82	.68	.72	.58	.64
31	.61	---	.72	.94	---	1.2	---	e.82	---	.68	.58	---
TOTAL	20.54	25.35	34.96	29.56	32.47	45.13	51.57	36.94	22.14	21.70	20.34	16.45
MEAN	.66	.84	1.13	.95	1.16	1.46	1.72	1.19	.74	.70	.66	.55
MAX	.91	1.7	3.8	5.0	5.6	6.3	5.2	2.6	.94	1.1	.94	.80
MIN	.61	.61	.72	.55	.72	.84	.94	.80	.64	.64	.58	.52
AC-FT	41	50	69	59	64	90	102	73	44	43	40	33

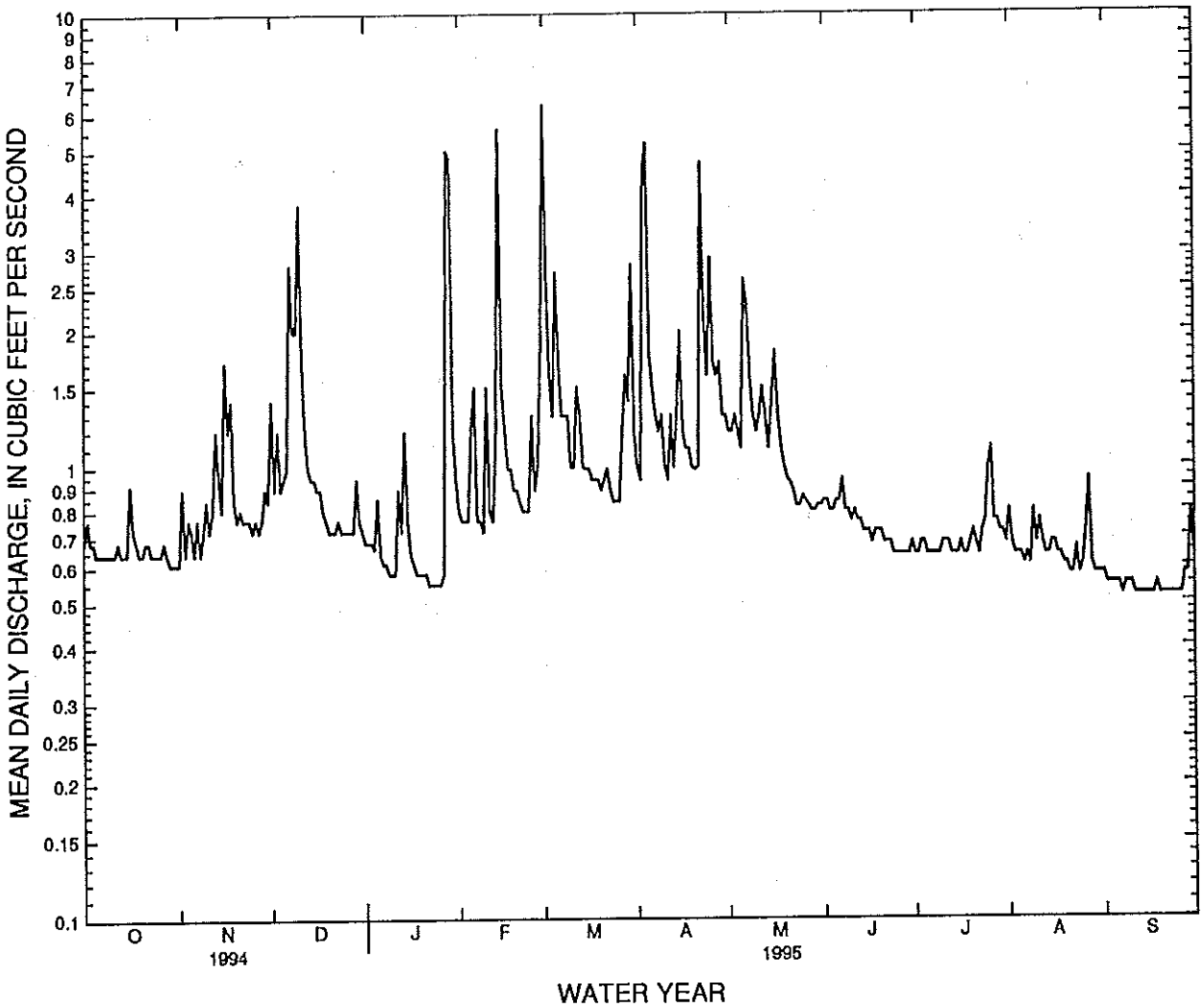
e Estimated

16404200 PILIPILILAU STREAM NEAR PELEKUNU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1995, BY WATER YEAR (WY)

MEAN	.90	1.57	1.80	2.57	2.08	2.28	2.40	1.70	1.13	1.03	.90	.81
MAX	1.68	4.85	3.92	6.55	5.56	4.41	12.1	5.92	2.22	1.90	1.56	1.38
(WY)	1994	1979	1969	1982	1979	1980	1989	1987	1987	1980	1980	1992
MIN	.58	.60	.58	.64	.58	1.02	.75	.77	.69	.60	.58	.53
(WY)	1978	1978	1976	1977	1978	1975	1978	1975	1975	1975	1975	1975

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1968 - 1995		
ANNUAL TOTAL	536.59		357.15				
ANNUAL MEAN	1.47		.98		1.60		
HIGHEST ANNUAL MEAN					2.69		1982
LOWEST ANNUAL MEAN					.77		1978
HIGHEST DAILY MEAN	27	Mar 24	6.3	Mar 1	152	Apr 8	1989
LOWEST DAILY MEAN	.61	Oct 29	.52	Sep 7	.50	Sep 3	1975
ANNUAL SEVEN-DAY MINIMUM	.63	Oct 26	.52	Sep 11	.50	Sep 21	1975
ANNUAL RUNOFF (AC-FT)	1060		708		1160		
10 PERCENT EXCEEDS	2.3		1.5		2.7		
50 PERCENT EXCEEDS	.99		.76		1.0		
90 PERCENT EXCEEDS	.70		.58		.65		



HAWAII, ISLAND OF MOLOKAI

16405100 MOLOKAI TUNNEL AT EAST PORTAL

LOCATION.--Lat 21°08'38", long 156°55'16", Hydrologic Unit 20050000, on left bank 100 ft downstream from the east portal, 5.3 mi southeast of Kalaupapa, and 7.5 mi northeast of Kaunakakai.

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 989 ft above mean sea level, from tunnel plans.

REMARKS.--Records good except for period of estimated discharge, which are fair. Tunnel diverts water from Waikolu Stream and two tributaries; diversion is augmented by water pumped from two wells and from the stream at elevation 728 ft in Waikolu Valley near the east portal. Water is used for irrigation in west-central Molokai.

AVERAGE DISCHARGE.--29 years (water years 1967-95), 4.55 ft^3/s (3,300 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 41 ft^3/s, Mar. 19, 1986; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 22 ft^3/s, Dec. 7; minimum daily, 1.3 ft^3/s, Aug. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.0	13	3.9	3.4	19	5.3	e4.0	e3.5	2.2	10	3.6
2	3.8	6.5	6.8	3.7	2.7	9.4	4.1	e3.5	e3.7	2.6	6.2	2.1
3	3.8	5.2	11	3.5	2.5	8.0	7.0	e3.4	e3.6	2.7	3.9	1.9
4	3.9	8.9	5.7	2.7	2.8	5.0	21	e3.6	e3.8	3.1	4.0	1.7
5	3.8	7.8	11	4.5	5.2	9.5	7.9	e4.0	e5.6	3.1	3.7	3.3
6	3.8	4.7	9.0	4.8	11	9.9	5.5	e5.2	e6.0	2.4	3.7	4.2
7	3.8	7.5	22	3.5	4.6	6.0	4.0	e5.6	e11	2.6	2.7	3.3
8	3.7	6.3	14	3.5	3.0	4.0	2.8	e4.3	e8.0	2.2	3.5	3.1
9	3.7	6.4	14	3.1	2.7	5.7	3.0	e3.8	e4.5	2.2	9.3	2.2
10	3.8	11	17	3.0	10	4.7	3.7	e3.6	e4.0	2.4	6.9	2.2
11	3.8	8.4	10	2.6	5.6	3.9	3.2	e4.5	e3.8	2.4	8.3	3.3
12	3.8	10	6.7	6.5	4.1	7.0	5.8	e7.8	e3.6	3.6	4.7	3.0
13	3.8	9.3	5.1	9.3	3.2	9.1	5.6	e6.0	e3.8	3.3	4.3	3.1
14	3.8	7.6	4.4	13	19	5.2	5.1	e4.5	e3.8	2.7	3.4	4.0
15	3.8	6.8	4.6	8.8	7.1	4.1	11	e6.6	e4.5	2.4	3.7	3.2
16	3.8	16	5.0	6.0	4.7	4.3	6.9	e6.6	e5.0	2.4	5.2	2.1
17	4.7	12	8.5	4.7	3.3	3.4	4.6	e6.0	e4.2	2.6	7.1	2.1
18	3.0	12	5.1	3.9	3.1	3.3	4.5	e4.6	e4.2	2.7	3.6	3.0
19	3.9	6.2	4.5	3.3	4.2	2.8	3.3	e4.0	e6.5	2.7	2.8	3.1
20	4.4	4.6	4.1	3.4	2.9	2.6	3.4	e3.6	e11	7.8	2.1	3.2
21	3.7	5.1	3.9	3.4	2.8	2.4	3.8	e3.6	e6.2	7.4	1.3	3.3
22	5.8	4.7	3.8	3.3	2.4	6.2	18	e3.7	e11	4.0	2.0	4.9
23	4.6	5.2	3.9	3.3	2.5	5.2	13	e3.7	e6.0	4.6	2.7	5.7
24	3.7	5.4	4.0	2.9	2.6	3.7	7.5	e3.7	e4.1	8.1	2.8	5.7
25	3.7	5.7	3.8	2.9	3.4	2.5	12	e3.7	e2.8	11	2.4	5.6
26	3.8	6.9	3.8	2.9	4.8	2.1	e8.0	e3.5	e8.6	15	5.5	5.4
27	4.2	5.0	4.0	2.8	3.6	3.9	e5.2	e3.5	e16	5.9	10	5.7
28	3.6	4.0	4.2	11	6.4	13	e6.8	e3.4	e7.4	6.1	3.8	5.5
29	3.2	7.5	9.3	19	---	6.8	e6.0	e3.4	2.7	3.5	2.9	10
30	3.1	5.2	7.2	9.1	---	16	e5.0	e3.3	2.2	2.6	2.8	12
31	3.1	---	4.4	4.6	---	7.0	---	e3.5	---	5.6	3.2	---
TOTAL	119.2	214.9	233.8	162.9	133.6	195.7	203.0	134.2	171.1	131.9	138.5	121.5
MEAN	3.85	7.16	7.54	5.25	4.77	6.31	6.77	4.33	5.70	4.25	4.47	4.05
MAX	5.8	16	22	19	19	19	21	7.8	16	15	10	12
MIN	3.0	3.0	3.8	2.6	2.4	2.1	2.8	3.3	2.2	2.2	1.3	1.7
AC-FT	236	426	464	323	265	388	403	266	339	262	275	241

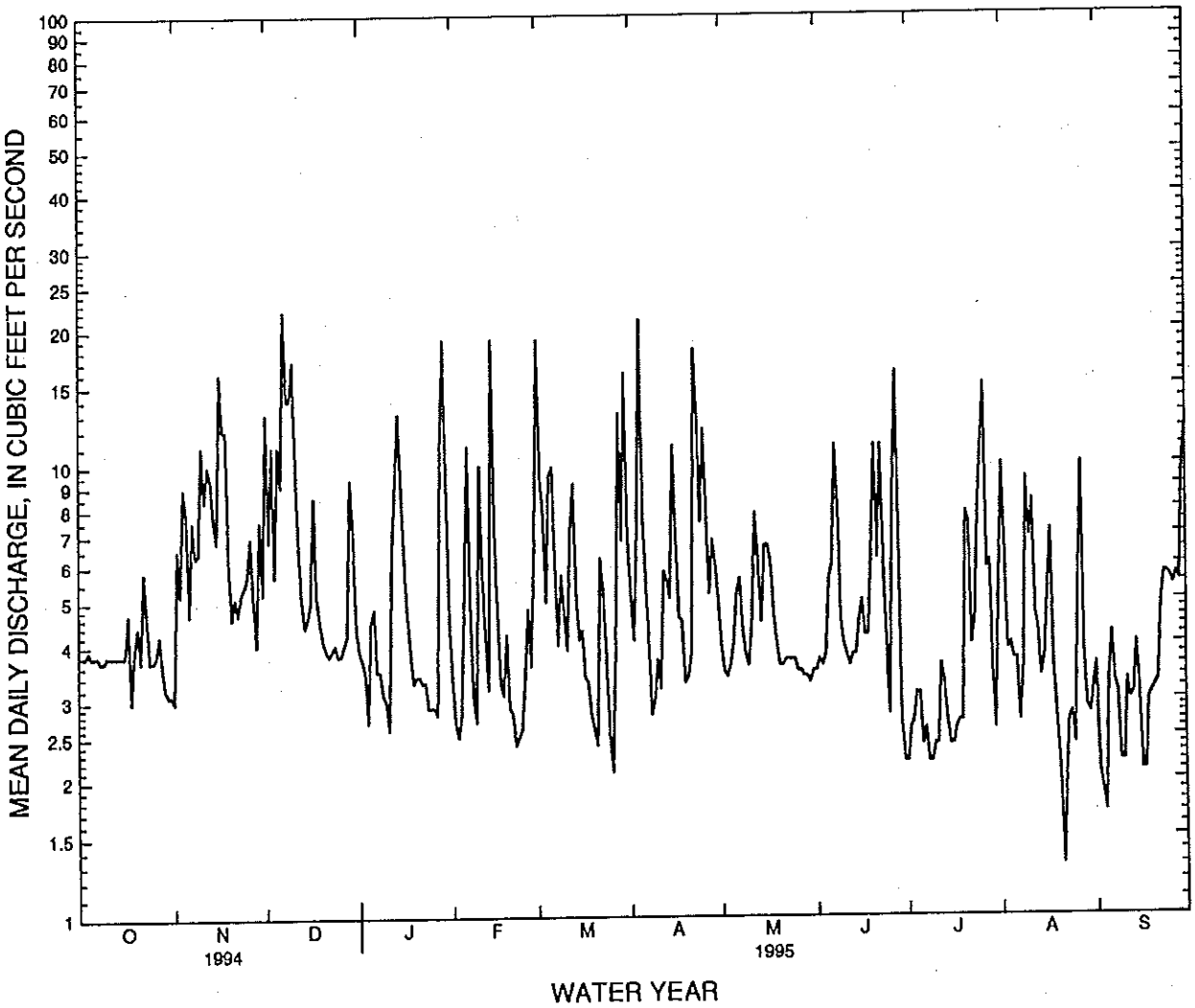
e Estimated

16405100 MOLOKAI TUNNEL AT EAST PORTAL--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1995, BY WATER YEAR (WY)

MEAN	3.81	5.32	5.18	4.95	4.73	5.44	5.45	4.44	3.92	4.28	3.70	3.21
MAX	7.34	10.2	10.6	12.5	12.5	13.8	12.8	12.3	8.37	9.89	7.22	5.81
(WY)	1986	1988	1991	1987	1990	1986	1986	1987	1986	1986	1985	1994
MIN	1.80	1.86	.41	.086	.010	.009	.001	.037	.016	.055	.004	.24
(WY)	1972	1992	1968	1968	1968	1968	1967	1967	1974	1974	1974	1974

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1966 - 1995		
ANNUAL TOTAL	2644.9		1960.3				
ANNUAL MEAN	7.25		5.37		4.55		
HIGHEST ANNUAL MEAN					8.19		1987
LOWEST ANNUAL MEAN					1.31		1974
HIGHEST DAILY MEAN	28	Jan 19	22	Dec 7	41	Mar 19	1986
LOWEST DAILY MEAN	3.0	Jul 28	1.3	Aug 21	.00	Mar 30	1967
ANNUAL SEVEN-DAY MINIMUM	3.4	Oct 26	2.3	Aug 19	.00	Mar 30	1967
ANNUAL RUNOFF (AC-FT)	5250		3890		3300		
10 PERCENT EXCEEDS	13		10		9.5		
50 PERCENT EXCEEDS	5.7		4.0		3.2		
90 PERCENT EXCEEDS	3.8		2.7		.99		



HAWAII, ISLAND OF MOLOKAI

16405300 MOLOKAI TUNNEL AT WEST PORTAL

LOCATION.--Lat 21°07'27", long 156°59'50", Hydrologic Unit 20050000, on left bank 50 ft upstream from the west portal, 2.5 mi northeast of Kaunakakai, and 4.7 mi south of Kalaupapa.

PERIOD OF RECORD.--July 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 970 ft above mean sea level, from tunnel plans.

REMARKS.--Records fair. Tunnel diverts water from Waikolu Stream and two tributaries; diversion is augmented by water pumped from two wells and from the stream at elevation 728 ft in Waikolu Valley near the east portal and one well in the tunnel near east portal. Water is used for irrigation in west-central Molokai.

AVERAGE DISCHARGE.--30 years (water years 1966-95), 7.12 ft^3/s (5,160 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 39 ft^3/s, Apr. 8, 9, 1986, Jan. 2, 26, 1988, and Mar. 3, 1989; minimum daily, 1.8 ft^3/s, Oct. 15, 1967, Aug. 27, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 33 ft^3/s (estimated), Feb. 14; minimum daily, 2.2 ft^3/s (estimated), Aug. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.0	e5.6	e28	e7.0	e6.0	22	8.3	6.8	5.4	3.8	12	e5.9
2	e7.0	e12	e10	e6.6	e4.7	11	6.9	6.0	6.1	4.0	9.0	e3.5
3	e7.0	e10	e24	e6.2	e4.4	13	7.7	5.3	6.1	e4.7	6.0	e3.1
4	e7.2	e16	e9.6	e4.8	e5.0	7.4	27	6.0	5.2	e5.2	6.8	e3.3
5	e7.0	e15	e16	e7.9	e9.0	11	11	5.8	8.8	e5.2	6.1	e6.0
6	e7.0	e8.9	e11	e8.6	e19	14	8.0	8.0	10	e4.1	5.8	e7.0
7	e7.0	e14	e28	e6.2	e8.2	9.1	7.1	9.0	12	e4.3	5.7	e5.4
8	e6.9	e12	e22	e6.2	e5.2	6.6	5.4	7.1	8.6	e3.7	5.6	e5.0
9	e6.8	e12	e19	e5.5	e4.7	8.3	5.2	6.4	6.9	e3.7	11	e3.7
10	e7.0	e20	e31	e5.2	e17	7.2	5.8	6.1	5.8	e4.0	8.4	e3.7
11	e7.0	e16	e15	e4.6	e10	6.6	6.0	6.4	5.4	e4.0	10	e5.6
12	e7.0	e18	e11	e11	e7.4	9.2	7.5	13	e6.0	e5.9	7.4	e5.0
13	e7.0	e17	e9.2	e17	e5.6	13	9.0	11	e6.2	e5.5	6.3	e5.8
14	e7.0	e14	e8.2	e23	e33	8.3	6.8	7.8	e6.2	e4.5	5.6	e6.5
15	e7.0	e13	e7.8	e15	e12	6.9	13	11	e7.4	e4.0	5.7	e5.0
16	e7.1	e28	7.2	e10	e8.0	6.9	10	11	e8.1	e4.0	6.8	e3.5
17	e8.6	e22	e13	e8.4	6.1	5.8	7.7	11	e7.0	e4.4	9.5	e3.6
18	e5.4	e22	e9.0	e7.0	5.7	5.8	7.2	7.7	e7.0	e4.5	e6.0	e5.0
19	e6.4	e11	e7.6	e6.8	6.8	5.6	6.4	7.2	e11	e4.6	e4.5	e5.2
20	6.9	e8.4	e7.6	e6.0	5.7	5.3	6.1	6.1	e18	e13	e3.3	e5.4
21	e7.2	e9.0	e7.4	e6.0	5.6	4.9	6.2	6.0	e10	e12	e2.2	e5.6
22	e11	e8.4	e7.2	e5.8	5.1	8.6	20	6.1	e18	e6.8	e3.6	e8.8
23	e9.0	e9.4	e7.2	e5.8	5.4	8.2	17	6.1	e10	e8.4	e4.5	e9.6
24	e6.9	e9.6	e7.4	e5.2	5.4	6.6	10	6.1	e6.6	10	e4.5	e9.4
25	e6.9	e10	e7.2	e5.1	5.7	5.9	14	6.1	e4.7	12	e4.1	e9.2
26	e7.2	e12	e7.2	e5.1	7.6	4.7	9.6	5.9	e14	18	e11	e9.4
27	e8.8	e10	e7.4	e5.0	6.2	5.8	8.6	5.8	e25	8.3	e17	e9.4
28	e6.6	e8.8	e7.6	e19	8.9	15	11	5.8	e12	8.3	e6.2	e12
29	e6.0	e12	e16	e32	---	10	11	5.8	e6.6	5.8	e4.8	e18
30	e6.8	e10	e13	e17	---	18	8.9	5.4	4.3	4.9	e5.0	e20
31	e6.8	---	e8.0	e8.0	---	10	---	5.6	---	7.4	e5.4	---
TOTAL	222.5	394.1	389.8	287.0	233.4	280.7	288.4	223.4	268.4	199.0	209.8	208.6
MEAN	7.18	13.1	12.6	9.26	8.34	9.05	9.61	7.21	8.95	6.42	6.77	6.95
MAX	11	28	31	32	33	22	27	13	25	18	17	20
MIN	5.4	5.6	7.2	4.6	4.4	4.7	5.2	5.3	4.3	3.7	2.2	3.1
AC-FT	441	782	773	569	463	557	572	443	532	395	416	414

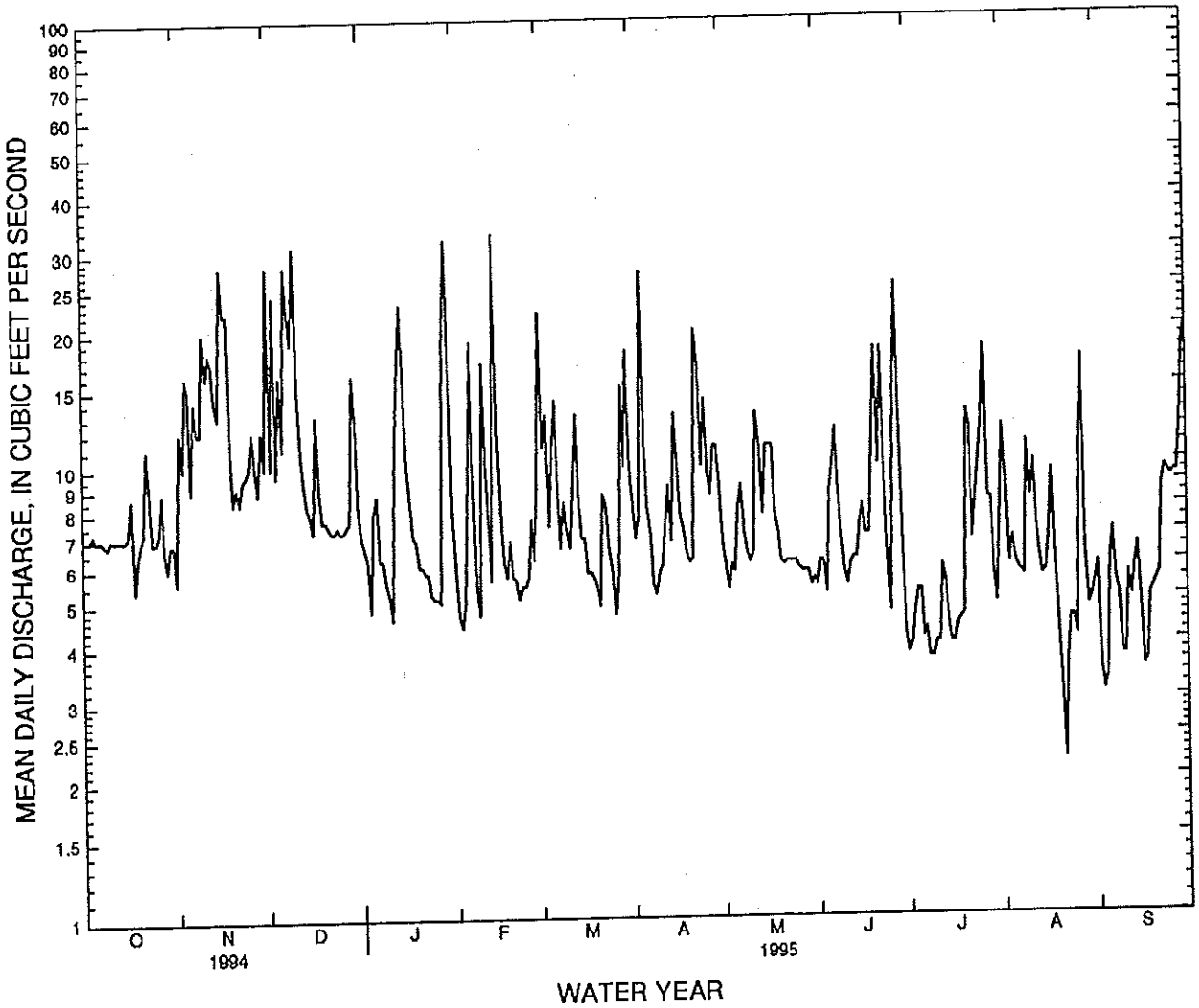
e Estimated

16405300 MOLOKAI TUNNEL AT WEST PORTAL--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY)

MEAN	6.22	7.74	7.54	7.27	7.27	8.04	8.10	7.15	6.66	6.97	6.31	5.78
MAX	9.10	13.3	13.8	14.4	15.9	15.5	15.6	15.8	11.7	13.2	10.2	9.21
(WY)	1986	1988	1991	1988	1990	1986	1986	1987	1986	1986	1985	1987
MIN	2.60	2.60	2.83	2.61	2.25	2.55	2.61	2.69	2.32	2.30	2.21	2.33
(WY)	1966	1966	1966	1966	1974	1967	1974	1974	1974	1974	1974	1974

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1965 - 1995		
ANNUAL TOTAL	3828.1		3205.1				
ANNUAL MEAN	10.5		8.78		7.12		
HIGHEST ANNUAL MEAN					11.4		1987
LOWEST ANNUAL MEAN					3.46		1974
HIGHEST DAILY MEAN	34	Mar 23	33	Feb 14	39	Apr 8	1986
LOWEST DAILY MEAN	4.5	Jul 28	2.2	Aug 21	1.8	Oct 15	1967
ANNUAL SEVEN-DAY MINIMUM	5.3	Aug 11	3.8	Aug 19	1.9	May 3	1976
ANNUAL RUNOFF (AC-FT)	7590		6360		5160		
10 PERCENT EXCEEDS	18		15		12		
50 PERCENT EXCEEDS	8.8		7.0		5.8		
90 PERCENT EXCEEDS	6.4		4.8		3.0		



HAWAII, ISLAND OF MOLOKAI

16405500 WAIKOLU STREAM AT ALTITUDE 900 FT, NEAR KALAUPAPA

LOCATION.--Lat 21°08'43", long 156°55'18", Hydrologic Unit 20050000, on right bank 1.8 mi southwest of Haupu Bay, 2.3 mi upstream from mouth, and 5.2 mi southeast of Kalaupapa.

DRAINAGE AREA.--1.99 mi^2.

PERIOD OF RECORD.--May 1956 to October 1961, July 1962 to current year.

REVISED RECORDS.--WSP 1719: 1959. WSP 2137: 1965(P).

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above mean sea level, from topographic map. Prior to July 1, 1962, at site 200 ft upstream of gage at datum 6.14 ft higher.

REMARKS.--Records fair. Since Nov. 16, 1960, water diverted upstream at times, either into or from Molokai tunnel.

AVERAGE DISCHARGE (since Molokai tunnel diversion began).--34 years (water years 1961, 1963-95), 6.35 ft^3/s (4,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,570 ft^3/s, Jan. 25, 1982, gage height, 6.64 ft, from rating curve extended above 43 ft^3/s on basis of slope-area measurement at gage height 5.25 ft; no flow at times since 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 31, 1961, reached a stage of 13.62 ft, from floodmarks, former site and datum, discharge, 6,220 ft^3/s, by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 590 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 1	1145	*431	*3.39	No peak greater than base discharge.			

Minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.64	1.0	5.3	.35	.55	54	.50	.08	.15	.01	2.5	.00
2	e.64	1.2	.75	.35	.45	6.9	.32	.12	.13	.02	.36	.00
3	e.62	.35	6.4	.35	.35	3.5	16	.13	.09	.04	.01	.00
4	e.60	1.7	.55	.35	e.35	.43	90	.17	.08	.02	.00	.00
5	e.60	.90	2.0	.45	e1.0	11	2.3	.22	.19	.02	.00	.00
6	e.60	.35	1.9	.35	e1.6	5.4	.46	4.2	.48	.02	.00	.00
7	e.58	1.7	24	.25	e.39	.42	.40	2.9	3.8	.02	.00	.00
8	e.62	.55	8.0	.35	.35	.36	.35	.26	.22	.02	.00	.00
9	e.60	.79	6.7	.25	.35	1.5	.32	.20	.05	.03	1.9	.00
10	e.60	3.1	26	.25	e.90	.36	.30	.20	.04	.03	.76	.00
11	e.60	.90	3.3	.25	e.50	.44	.29	.32	.03	.03	1.8	.00
12	e.60	2.4	.90	1.8	.35	1.1	1.1	3.0	.04	.05	.08	.00
13	e.58	5.5	.45	2.0	e.90	5.3	.73	.89	.04	.08	.00	.00
14	e.56	1.4	.45	8.6	e4.5	.42	1.9	.29	.03	.10	.00	.00
15	e.56	.90	.45	2.0	e.80	.33	8.8	2.5	.01	.14	.00	.00
16	e.56	9.9	.55	.35	.41	.28	3.0	4.1	.01	.21	.82	.00
17	e.58	17	1.4	.25	.59	.31	.38	2.0	.00	.16	1.0	.00
18	e.80	7.1	.45	.25	.71	.33	.35	.34	.00	.21	.03	.00
19	e1.2	1.0	.35	.25	.70	.40	.29	.25	.00	.31	.01	.00
20	.55	1.0	.35	.25	.70	.31	.28	.24	.00	1.8	.01	.00
21	.55	.90	.35	.25	.69	.29	.35	.24	.00	.26	.10	.00
22	.65	.90	.35	.35	.71	1.2	35	.21	.00	.06	.10	.00
23	.65	.55	.35	.35	.69	.46	13	.20	.00	.08	.01	.00
24	.65	.55	.35	.25	.64	.27	1.2	.19	.00	.57	.03	.00
25	.65	.65	.35	.35	5.4	.26	7.6	.20	.00	5.9	.03	.00
26	.65	.90	.35	.45	1.4	.25	1.7	.19	.00	8.7	.81	.00
27	.75	.65	.35	.55	.33	1.6	.50	.19	.00	.20	3.5	.00
28	.90	.65	.35	e3.8	1.6	12	3.3	.18	.01	.07	.10	.00
29	.90	1.3	4.8	e6.0	---	9.1	.35	.19	.01	.05	.03	.92
30	.90	.75	.90	1.4	---	24	.11	.18	.03	.07	.01	.12
31	.90	---	.35	.45	---	2.7	---	.17	---	.03	.00	---
TOTAL	20.84	66.54	99.10	33.50	27.91	145.22	191.18	24.55	5.44	19.31	14.00	1.04
MEAN	.67	2.22	3.20	1.08	1.00	4.68	6.37	.79	.18	.62	.45	.035
MAX	1.2	17	26	8.6	5.4	54	90	4.2	3.8	8.7	3.5	.92
MIN	.55	.35	.35	.25	.33	.25	.11	.08	.00	.01	.00	.00
AC-FT	41	132	197	66	55	288	379	49	11	38	28	2.1

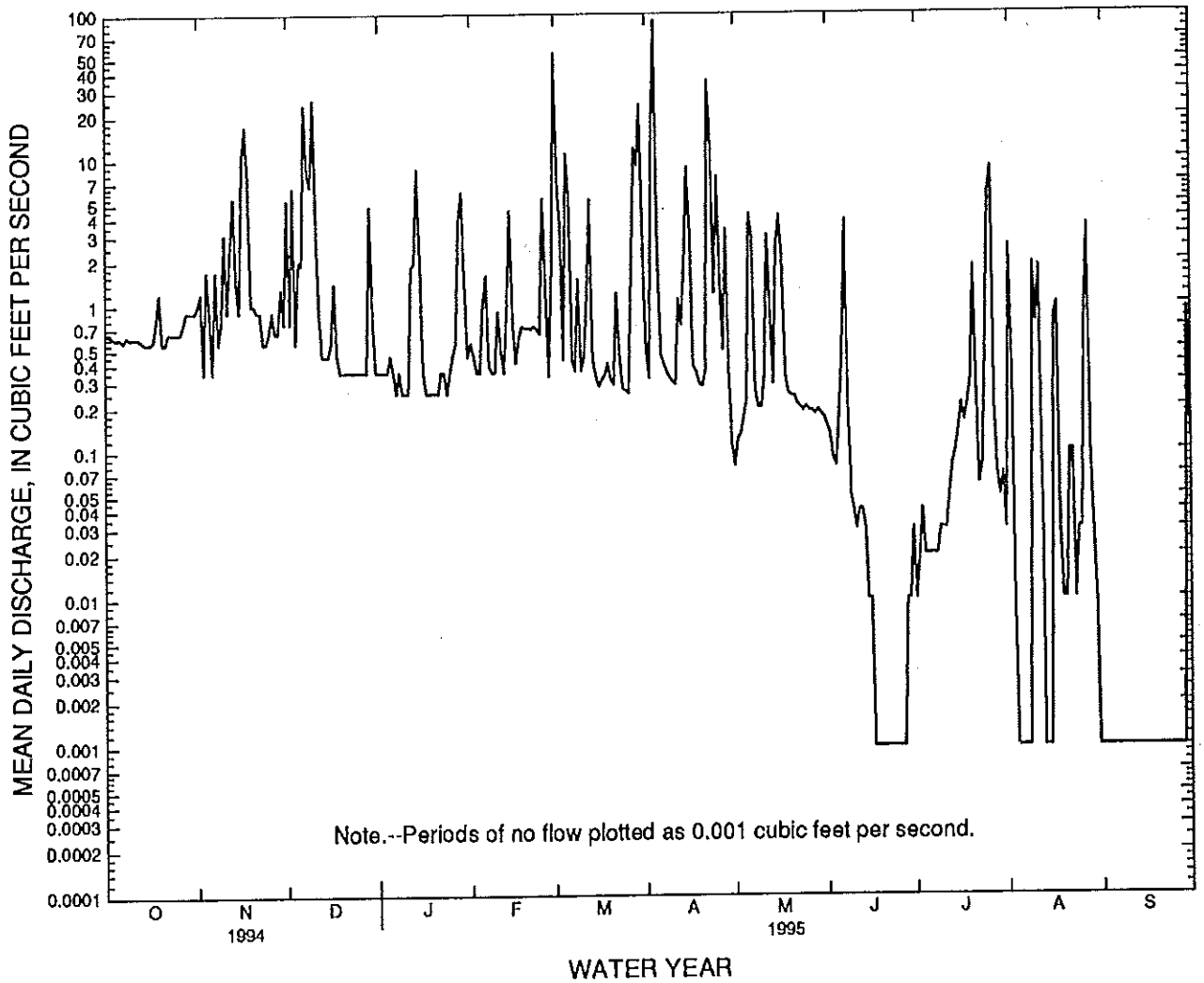
e Estimated

16405500 WAIKOLU STREAM AT ALTITUDE 900 FT, NEAR KALAUPAPA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1995, BY WATER YEAR (WY)

MEAN	3.44	8.98	9.53	11.7	9.31	9.28	10.0	4.99	2.52	3.02	2.17	1.53
MAX	16.7	30.5	31.0	40.5	30.6	22.6	64.8	23.6	10.5	11.0	7.52	6.81
(WY)	1966	1971	1966	1982	1979	1968	1989	1987	1961	1964	1961	1963
MIN	.000	.77	.37	.96	.81	1.31	.98	.68	.000	.23	.050	.035
(WY)	1985	1985	1976	1986	1978	1983	1992	1984	1985	1984	1985	1995

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1961 - 1995		
ANNUAL TOTAL	1304.40		648.63				
ANNUAL MEAN	3.57		1.78		6.35		
HIGHEST ANNUAL MEAN					11.8		1965
LOWEST ANNUAL MEAN					1.26		1985
HIGHEST DAILY MEAN	138	Mar 24	90	Apr 4	847	Apr 8	1989
LOWEST DAILY MEAN	.11	Jan 12	.00	Jun 17	.00	Sep 12	1984
ANNUAL SEVEN-DAY MINIMUM	.15	Jan 8	.00	Jun 17	.00	Sep 12	1984
ANNUAL RUNOFF (AC-FT)	2590		1290		4600		
10 PERCENT EXCEEDS	5.4		3.5		11		
50 PERCENT EXCEEDS	.78		.35		1.4		
90 PERCENT EXCEEDS	.45		.00		.36		



16408000 WAIKOLU STREAM BELOW PIPELINE CROSSING, NEAR KALAUPAPA

LOCATION.--Lat 21°09′45", long 156°55′54", Hydrologic Unit 20050000, on left bank 0.7 mi upstream from mouth, and 4.4 mi southeast of Molokai Lighthouse near Kalaupapa.

DRAINAGE AREA.--3.68 mi^2.

PERIOD OF RECORD.--July 1919 to November 1930, August 1931 to July 1932, September 1937 to January 1948, July 1948 to current year. Prior to August 1931, published as "at pipeline crossing, near Kalaupapa."

REVISED RECORDS.--WSP 1155: 1932(M), 1938-44(M), 1946-48(M). WSP 1319: 1923(M), 1930(M), 1932, 1938-40, 1945(M), 1974-81(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 252 ft above mean sea level (hand levels by Bureau of Reclamation). Prior to Nov. 19, 1930, at site 500 ft upstream of gage at different datums. Aug. 14, 1931, to July 20, 1932, and Sept. 20, 1937, to Jan. 26, 1948, at present site at datum 1.49 ft higher, and July 30, 1948, to June 30, 1962, at present site at datum 1.00 ft higher.

REMARKS.--Records good. Diversion upstream for domestic use in Kalaupapa, and since Nov. 16, 1960, water has been diverted upstream to Molokai tunnel.

AVERAGE DISCHARGE (since Molokai tunnel diversion began).--35 years (water years 1961-95), 17.9 ft^3/s (12,970 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,210 ft^3/s, Apr. 8, 1989, gage height, 8.50 ft, from rating curve extended above 26 ft^3/s on basis of slope-area measurement at gage height 6.68 ft; minimum, 2.0 ft^3/s, Nov. 1, 2, 1926, June 5, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,200 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 1	1200	*800	*4.10	No peak greater than base discharge.			

Minimum discharge, 4.1 ft^3/s on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	6.4	11	6.0	7.2	94	6.9	5.6	6.7	5.7	7.9	5.3
2	7.0	7.0	6.4	5.8	7.3	15	6.1	5.9	6.3	5.3	6.1	5.6
3	6.8	6.4	16	5.6	7.2	15	26	6.3	6.2	5.2	5.3	5.6
4	6.7	7.1	6.1	6.1	7.3	6.8	193	5.3	6.5	5.5	5.1	5.6
5	6.7	7.1	6.8	6.2	9.0	23	14	5.4	6.5	5.1	5.4	5.4
6	6.6	5.9	6.4	5.6	20	16	7.7	23	6.1	5.4	5.4	5.4
7	6.5	6.9	40	5.5	6.8	6.9	7.3	18	11	5.2	5.1	5.4
8	6.6	6.5	20	5.4	7.3	6.4	8.0	8.5	5.9	5.4	5.2	5.3
9	6.5	6.5	14	5.6	7.2	11	7.7	6.9	6.3	5.5	10	5.4
10	6.5	9.4	45	5.7	11	6.7	6.5	6.6	6.5	5.4	5.8	5.4
11	6.5	6.6	12	6.0	6.6	6.3	6.3	6.7	6.6	5.1	7.6	5.2
12	6.4	8.9	7.3	7.6	5.9	6.5	6.9	9.0	6.3	5.1	6.0	5.3
13	6.2	12	6.7	7.4	6.3	14	7.7	6.3	6.0	5.0	5.7	5.2
14	6.2	9.6	6.4	18	60	6.2	8.1	6.2	6.2	5.1	5.3	5.2
15	6.2	6.6	6.5	10	11	5.8	20	8.7	6.2	5.2	5.3	5.2
16	6.2	17	7.8	5.9	7.6	5.5	14	11	6.2	5.3	7.9	5.5
17	6.1	13	9.9	5.7	7.2	5.5	6.3	9.2	6.2	5.0	9.5	5.4
18	6.6	15	6.5	5.8	7.5	5.4	6.1	6.3	6.3	4.9	6.6	5.4
19	7.3	6.7	6.2	6.0	7.4	6.0	7.0	6.0	6.2	5.2	6.0	5.2
20	6.2	6.4	6.0	5.6	7.2	6.2	6.3	5.9	6.1	6.8	5.8	5.1
21	6.4	6.2	5.8	5.4	6.6	6.8	6.5	5.8	6.1	5.0	5.7	5.3
22	6.2	6.7	5.7	5.3	6.9	9.0	89	5.7	6.2	4.5	5.4	5.2
23	6.1	6.3	5.8	5.4	6.4	6.3	46	5.6	6.1	4.9	5.4	5.4
24	6.4	6.4	5.6	5.6	6.4	6.2	10	5.5	6.0	4.8	5.4	5.4
25	6.2	6.1	5.5	5.6	14	6.3	20	5.5	5.9	12	5.6	5.2
26	6.5	5.9	5.6	5.7	11	6.6	10	5.5	5.9	20	6.1	5.2
27	7.2	5.6	5.5	6.0	7.4	9.5	6.7	5.4	5.9	6.0	15	5.3
28	7.0	5.8	5.3	50	10	20	12	5.3	5.8	5.5	5.7	5.3
29	7.0	5.8	20	72	---	20	6.6	5.4	5.7	5.5	5.4	6.0
30	7.0	5.9	10	9.3	---	46	5.7	5.7	6.2	5.5	5.7	5.7
31	7.0	---	6.6	6.9	---	11	---	5.8	---	5.1	5.5	---
TOTAL	203.8	231.7	328.4	312.7	285.7	415.9	584.4	228.0	190.1	185.2	197.9	161.1
MEAN	6.57	7.72	10.6	10.1	10.2	13.4	19.5	7.35	6.34	5.97	6.38	5.37
MAX	7.3	17	45	72	60	94	193	23	11	20	15	6.0
MIN	6.1	5.6	5.3	5.3	5.9	5.4	5.7	5.3	5.7	4.5	5.1	5.1
AC-FT	404	460	651	620	567	825	1160	452	377	367	393	320

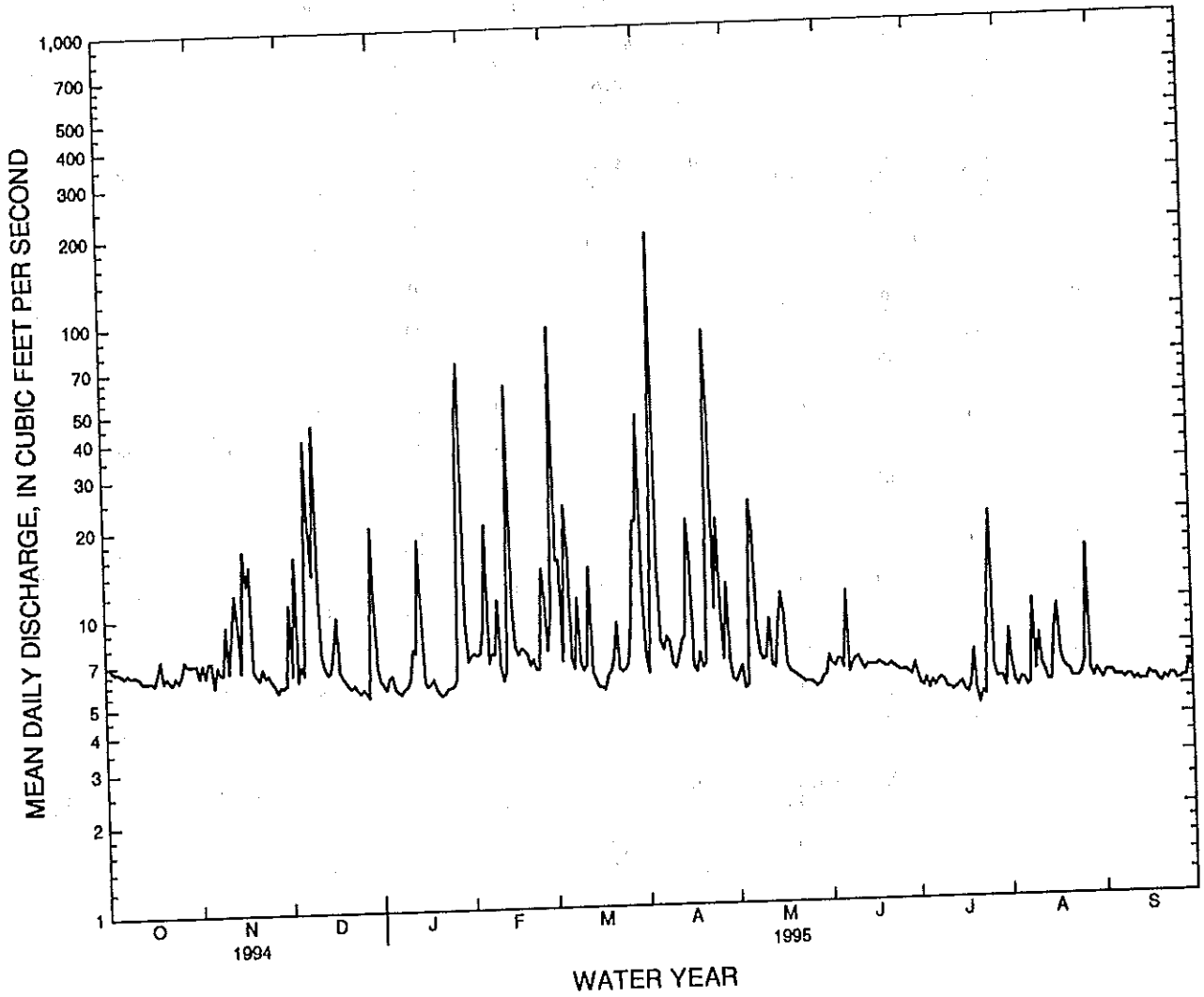
HAWAII, ISLAND OF MOLOKAI

16408000 WAIKOLU STREAM BELOW PIPELINE CROSSING, NEAR KALAUPAPA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 1995, BY WATER YEAR (WY)

MEAN	12.6	20.2	23.5	23.7	21.2	24.7	26.2	17.6	12.4	12.3	12.1	9.73
MAX	35.9	58.5	65.2	92.4	72.8	116	235	105	26.9	34.9	40.4	28.8
(WY)	1962	1962	1955	1988	1955	1942	1989	1987	1938	1958	1958	1931
MIN	3.20	5.07	2.93	5.91	5.59	7.69	7.13	4.77	3.15	3.43	2.91	3.60
(WY)	1985	1976	1976	1977	1985	1983	1978	1984	1985	1984	1985	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1919 - 1995	
ANNUAL TOTAL	5619.6		3324.9			
ANNUAL MEAN	15.4		9.11		17.9	
HIGHEST ANNUAL MEAN					37.9	1989
LOWEST ANNUAL MEAN					6.12	1985
HIGHEST DAILY MEAN	292	Mar 24	193	Apr 4	3810	Apr 8 1989
LOWEST DAILY MEAN	5.3	Dec 28	4.5	Jul 22	2.0	Oct 6 1985
ANNUAL SEVEN-DAY MINIMUM	5.6	Dec 22	5.1	Jul 12	2.2	Dec 27 1984
ANNUAL RUNOFF (AC-FT)	11150		6590		12980	
10 PERCENT EXCEEDS	18		12		28	
50 PERCENT EXCEEDS	9.5		6.2		11	
90 PERCENT EXCEEDS	6.4		5.3		6.0	



HAWAII, ISLAND OF MOLOKAI

16414000 KAUNAKAKAI GULCH AT KAUNAKAKAI

LOCATION.--Lat 21°06′21″, long 157°00′34″, Hydrologic Unit 20050000, on left bank 0.6 mi upstream from Molokai Ranch pipeline crossing, 1.3 mi northeast of Kaunakakai Post Office, and 1.7 mi upstream from mouth.

DRAINAGE AREA.--6.57 mi^2.

PERIOD OF RECORD.--December 1949 to current year. Prior to July 1958, published as Kaunakakai Stream at Kaunakakai.

REVISED RECORDS.--WSP 1289: 1950-51. WSP 1569: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 240 ft above mean sea level, from topographic map.

REMARKS.--Records good. Flow has been augmented by occasional spillage from Molokai tunnel since May 1965.

AVERAGE DISCHARGE.--45 years (water years 1951-95), 1.85 ft^3/s (1,340 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,060 ft^3/s, Oct. 31, 1961, gage height, 9.30 ft, from rating curve extended above 620 ft^3/s on basis of slope-area measurements at gage heights 7.22 ft and 9.30 ft; no flow most of the time each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 280 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 1	1345	*366	*4.89

Minimum discharge, no flow for many days.

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No other peak greater than base discharge.			

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

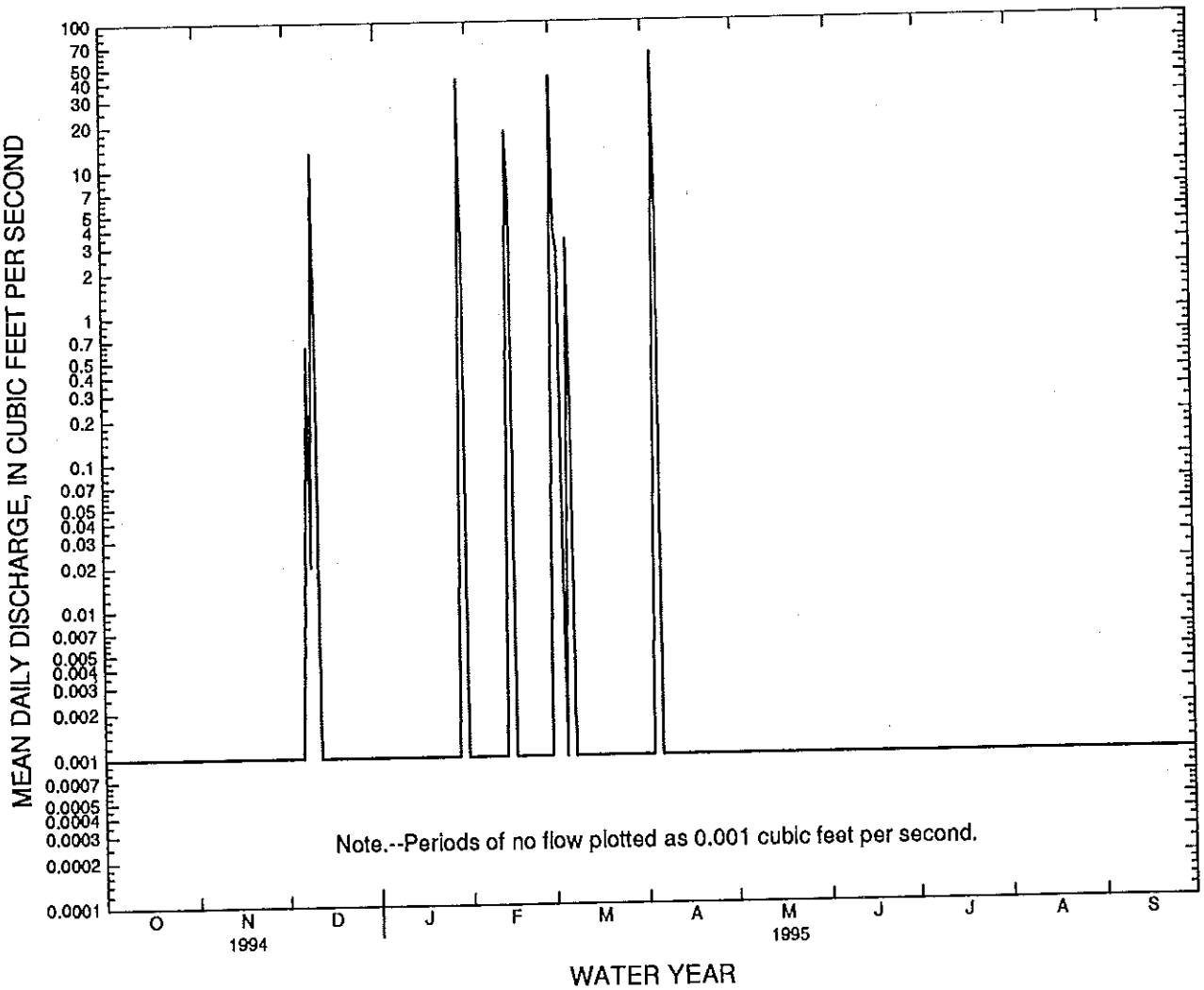
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	42	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	3.8	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	2.6	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.03	61	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	5.4	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	3.3	.00	.00	.00	.00	.00	.00
7	.00	.00	.01	.00	.00	.18	.00	.00	.00	.00	.00	.00
8	.00	.00	.62	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	13	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.37	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	18	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	6.3	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	41	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	2.5	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	0.00	14.02	43.50	24.30	51.91	66.40	0.00	0.00	0.00	0.00	0.00
MEAN	.000	.000	.45	1.40	.87	1.67	2.21	.000	.000	.000	.000	.000
MAX	.00	.00	13	41	18	42	61	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	28	86	48	103	132	.00	.00	.00	.00	.00

16414000 KAUNAKAKAI GULCH AT KAUNAKAKAI--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1995, BY WATER YEAR (WY)

MEAN	.58	3.33	3.87	5.23	2.58	3.12	2.50	.67	.031	.071	.30	.058
MAX	7.09	25.4	16.5	29.7	15.5	26.8	46.2	17.5	.74	1.39	6.56	1.02
(WY)	1962	1951	1956	1982	1979	1951	1989	1987	1966	1966	1950	1966
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1951	1952	1953	1953	1953	1952	1952	1950	1950	1950	1951	1950

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1950 - 1995	
ANNUAL TOTAL	516.90		200.13			
ANNUAL MEAN	1.42		.55		1.85	
HIGHEST ANNUAL MEAN					6.01	1989
LOWEST ANNUAL MEAN					.002	1953
HIGHEST DAILY MEAN	171	Mar 25	61	Apr 4	643	Apr 8 1989
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Jan 1 1950
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Jan 1 1950
ANNUAL RUNOFF (AC-FT)	1030		397		1340	
10 PERCENT EXCEEDS	.00		.00		.32	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	



HAWAII, ISLAND OF MOLOKAI

16419500 PAPIO GULCH AT HALAWA

LOCATION.--Lat 21°08'55", long 156°44'16", Hydrologic Unit 20050000, on left bank 200 ft downstream from wooden bridge on Highway 45, and 0.8 mi south of Halawa.

DRAINAGE AREA.--0.94 mi^2.

PERIOD OF RECORD.--July 1963 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft above mean sea level, from topographic map.

REMARKS.--Records fair except for estimated daily discharges which are poor. Diversion upstream of station for domestic use at Puu O Hoku Ranch.

AVERAGE DISCHARGE.--32 years (water years 1964-95), 0.87 ft^3/s (634 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,720 ft^3/s, Apr. 13, 1965, gage height, 11.25 ft, from rating curve extended above 37 ft^3/s on basis of slope-area measurements at gage heights 4.60 ft, 7.15 ft, and 11.25 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 210 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Apr. 25	1345	*60	*2.67	No peak greater than base discharge.			

Minimum discharge, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	.08	.23	.01	.10	5.2	.36	.18	.06	.00	.03	e.18
2	.24	.29	.12	.01	.08	.92	.18	.23	.06	.00	.41	e.09
3	.42	.24	.18	.01	.06	1.1	.10	.14	.05	.00	.06	e.05
4	.18	.12	.14	.00	.06	.32	.73	.12	.00	.34	.02	e.03
5	.12	.26	e.28	.00	.23	.29	.39	.10	.00	.15	.01	e.04
6	.12	.14	e.20	.00	.52	.38	.18	.37	.00	.01	.01	e.03
7	.14	.10	e.45	.00	.16	.26	.12	.73	.83	.01	.00	e.02
8	.16	.10	e.40	.00	.06	.21	.10	.20	.20	.00	.00	e.01
9	.18	.05	e.46	.00	.03	6.0	.35	.12	.04	.00	1.2	e.02
10	.18	.10	e.52	.00	.06	.70	.35	.10	.01	.00	.20	e.06
11	.16	.46	e.23	.00	.08	.38	.12	.12	.01	.00	.23	e.03
12	.18	1.2	e.13	.00	.06	.32	.06	.16	.01	.00	.18	e.02
13	.14	.66	.10	.00	.04	.35	.08	.14	.00	.00	.28	e.01
14	.12	.80	.08	2.0	1.1	.32	.16	.12	.00	.00	e.18	e.00
15	.10	.91	.04	.79	.52	.23	.36	.10	.00	.00	e.25	e.01
16	.10	.46	.02	.38	.18	.20	.16	.22	.00	.00	e.30	e.15
17	.13	.29	.01	.16	.12	.18	.10	.18	.00	.00	e.18	e.04
18	.08	.18	.02	.06	.08	.14	.05	.14	.00	.00	e.15	e.03
19	.06	.14	.03	.05	.06	.16	.04	.12	.00	.16	e.21	e.02
20	.03	.12	.04	.04	.06	.18	.04	.04	.00	1.6	e.26	e.02
21	.04	.10	.03	.03	.07	.18	.04	.05	.00	.23	e.10	e.02
22	.10	.10	.02	.02	.15	.20	.08	.06	.00	.08	e.09	e.02
23	.06	.08	.01	.01	.03	.26	3.5	.06	.00	.03	e.40	e.02
24	.08	.06	.01	.01	.12	.23	2.3	.05	.00	.33	e.12	e.02
25	.06	.08	.01	.01	.10	.23	10	.04	.00	.18	e.19	e.02
26	.05	.06	.00	.00	2.7	.16	1.4	.06	.00	1.2	e.35	e.02
27	.03	.10	.03	.00	.42	.12	.46	.06	.00	.33	e.38	e.06
28	.02	.06	.03	2.2	.32	.12	.42	.06	.00	.18	e.10	e.32
29	.04	.08	.08	2.9	---	.20	.29	.05	.00	.14	e.07	e.90
30	.05	.06	.16	.39	---	.26	.18	.08	.00	.05	e.08	e.84
31	.06	---	.04	.14	---	.95	---	.06	---	.04	e.13	---
TOTAL	3.59	7.48	4.10	9.22	7.57	20.75	22.70	4.26	1.27	5.06	6.17	3.10
MEAN	.12	.25	.13	.30	.27	.67	.76	.14	.042	.16	.20	.10
MAX	.42	1.2	.52	2.9	2.7	6.0	10	.73	.83	1.6	1.2	.90
MIN	.02	.05	.00	.00	.03	.12	.04	.04	.00	.00	.00	.00
AC-FT	7.1	15	8.1	18	15	41	45	8.4	2.5	10	12	6.1

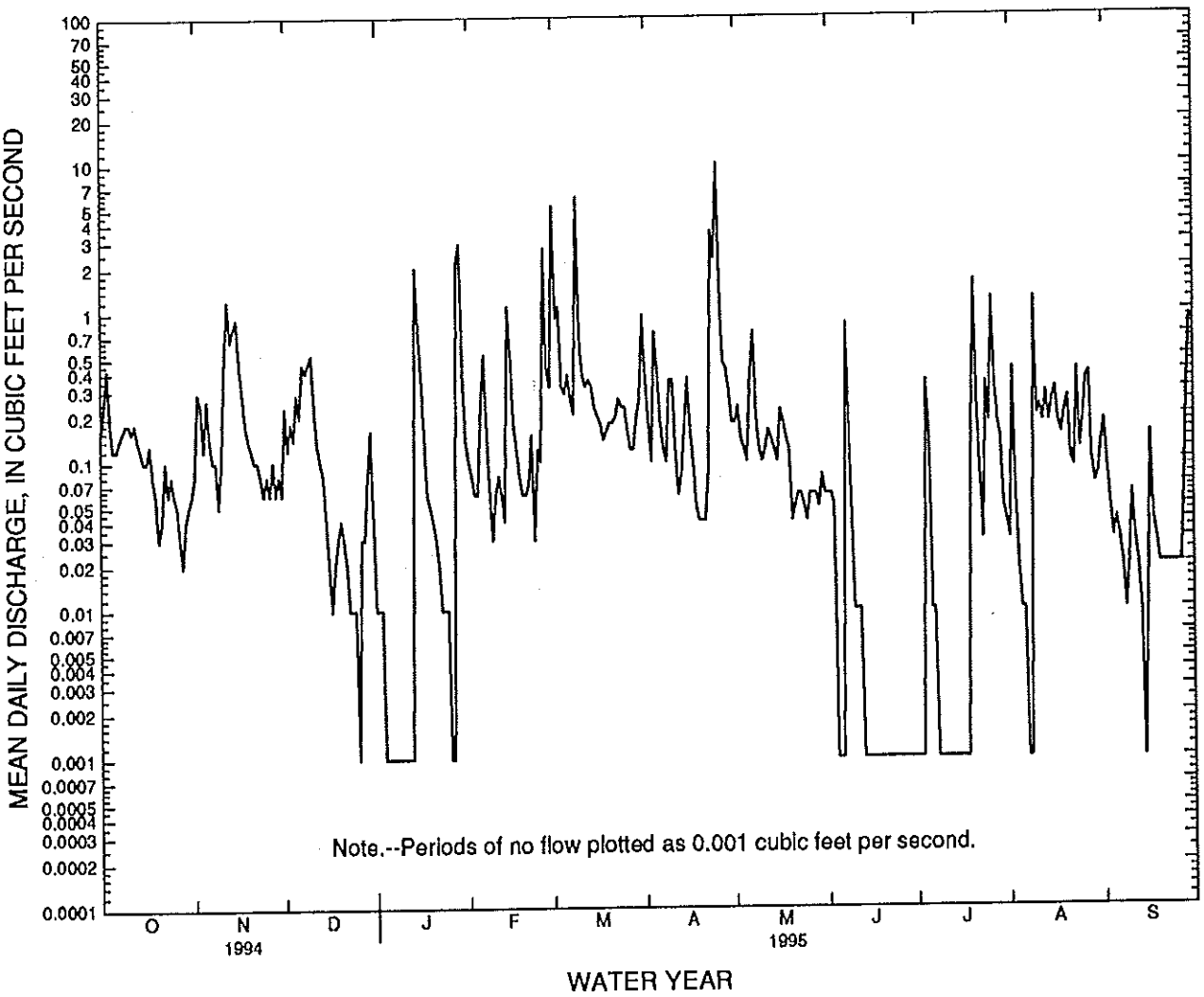
e Estimated

16419500 PAPIO GULCH AT HALAWA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1995, BY WATER YEAR (WY)

MEAN	.53	1.17	1.14	1.31	1.27	1.48	1.52	.71	.32	.45	.31	.30
MAX	2.63	7.56	6.12	4.84	5.88	6.42	10.3	3.99	1.43	1.56	1.21	2.24
(WY)	1986	1971	1965	1988	1965	1968	1989	1987	1982	1993	1980	1992
MIN	.000	.000	.000	.000	.000	.007	.003	.000	.000	.000	.000	.000
(WY)	1972	1972	1972	1977	1973	1973	1975	1975	1964	1972	1964	1964

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1963 - 1995		
ANNUAL TOTAL	260.88		95.27				
ANNUAL MEAN	.71		.26		.87		
HIGHEST ANNUAL MEAN					2.32		1989
LOWEST ANNUAL MEAN					.063		1973
HIGHEST DAILY MEAN	33	Mar 24	10	Apr 25	164	Apr 13	1965
LOWEST DAILY MEAN	.00	Dec 26	.00	Dec 26	.00	Jul 5	1963
ANNUAL SEVEN-DAY MINIMUM	.02	Dec 21	.00	Jan 4	.00	Aug 3	1963
ANNUAL RUNOFF (AC-FT)	517		189		634		
10 PERCENT EXCEEDS	1.2		.43		1.6		
50 PERCENT EXCEEDS	.38		.10		.24		
90 PERCENT EXCEEDS	.08		.00		.00		



16501200 OHEO GULCH AT DAM NEAR KIPAHULU

LOCATION.--Lat 20°40′17″, long 156°03′17″, Hydrologic Unit 20020000, on right bank 31 ft upstream from dam, 1,000 ft downstream from the confluence of Palikea and Pipiwai Streams, 0.8 mi upstream from mouth, and 1.0 mi north from Kipahulu Church.

DRAINAGE AREA.--8.06 mi^2.

PERIOD OF RECORD.--July 1, 1988 to current year. Forty-eight years of records are available for the right branch drainage, 1.3 mi upstream (Palikea Stream, 16501000) for periods prior to Sep. 30, 1983.

REVISED RECORDS.--WDR HI-94-1: 1989-93 (P).

GAGE.--Water-stage recorder. Elevation of the gage is 420 ft above mean sea level, from topographic map.

AVERAGE DISCHARGE.--7 years (water years 1989-95), 62.5 ft^3/s (45,280 acre-ft/yr).

REMARKS.--Records good except for estimated daily discharges which are fair. No diversion upstream of station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,700 ft^3/s, Sep. 18, 1994 from rating curve extended on the basis of flow over dam computation; minimum, no flow, Feb. 24-29, Mar. 1-12, 29, 30, Apr. 14-17, 26-28, May 11-13, 1992.

EXTREMES FOR CURRENT PERIOD.--Peak discharges greater than base discharge of 2,680 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 13	2030	4,720	7.95	Nov. 16	0430	*7,280	*9.43

Minimum discharge, no flow, May 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e12	13	239	.80	3.8	1.5	6.3	1.4	1.2	1.9	17	95
2	e12	143	39	.71	2.6	.99	2.0	1.2	3.6	1.9	13	86
3	e12	13	88	.66	1.8	.95	1.6	1.1	1.5	2.0	5.4	11
4	e11	284	44	.63	1.6	.72	1.5	1.1	2.0	11	9.7	8.3
5	e12	54	92	.60	2.6	3.9	1.4	1.9	8.1	2.8	6.1	81
6	e12	100	133	.65	1.9	1.6	1.3	.99	4.8	4.6	3.9	109
7	e11	249	599	.64	1.2	.87	1.2	.81	76	3.2	6.9	9.3
8	e10	48	275	.58	1.0	.75	1.1	.57	6.3	2.3	4.1	5.7
9	e10	318	152	.62	.93	4.1	1.0	.41	5.9	2.2	12	4.8
10	e11	259	129	.59	.83	1.2	.88	.24	2.7	3.3	5.1	4.1
11	e17	205	117	.48	.77	.86	.84	.12	52	5.3	19	3.7
12	139	159	13	.42	.66	1.1	85	43	17	52	58	3.5
13	18	331	4.6	.41	.64	.90	18	54	5.5	11	111	3.3
14	50	169	3.6	126	69	.80	2.8	5.7	3.0	5.3	8.0	3.1
15	13	258	100	231	8.7	.72	96	46	2.3	3.3	6.1	2.7
16	187	1650	11	215	2.5	.64	33	42	1.8	5.2	5.1	2.7
17	122	537	8.9	33	1.5	.57	9.6	20	1.6	4.3	4.1	4.0
18	371	458	3.7	3.5	1.2	.50	155	4.6	1.4	3.4	3.1	2.5
19	75	288	2.7	1.9	1.1	.45	5.3	2.5	1.5	9.2	2.8	2.1
20	56	54	2.1	1.3	1.1	1.2	2.5	1.7	2.8	32	2.5	1.9
21	29	83	1.7	1.1	.99	3.9	2.0	3.1	4.2	73	3.7	1.9
22	105	63	1.5	1.0	.82	12	3.8	10	8.6	6.3	5.8	1.9
23	6.8	27	1.4	.88	.80	134	4.6	4.2	3.4	4.7	170	1.9
24	3.3	278	1.3	.62	.78	192	7.9	2.5	17	124	55	1.8
25	3.2	211	1.2	.51	.95	14	34	3.3	23	94	19	1.7
26	2.5	347	1.4	.59	2.8	16	5.1	1.8	5.1	181	57	1.7
27	26	55	1.9	.42	.79	4.6	2.8	1.6	3.2	39	98	14
28	11	195	1.4	3.7	1.0	2.9	2.0	2.9	2.5	76	38	36
29	7.1	301	2.0	857	---	2.5	1.7	2.5	2.1	12	32	84
30	24	186	1.6	67	---	2.3	1.5	2.8	3.3	43	50	243
31	80	---	.98	4.7	---	2.2	---	1.5	---	9.3	60	---
TOTAL	1458.9	7336	2072.98	1557.01	114.36	410.72	491.72	265.54	273.4	828.5	891.4	831.6
MEAN	47.1	245	66.9	50.2	4.08	13.2	16.4	8.57	9.11	26.7	28.8	27.7
MAX	371	1650	599	857	69	192	155	54	76	181	170	243
MIN	2.5	13	.98	.41	.64	.45	.84	.12	1.2	1.9	2.5	1.7
AC-FT	2890	14550	4110	3090	227	815	975	527	542	1640	1770	1650

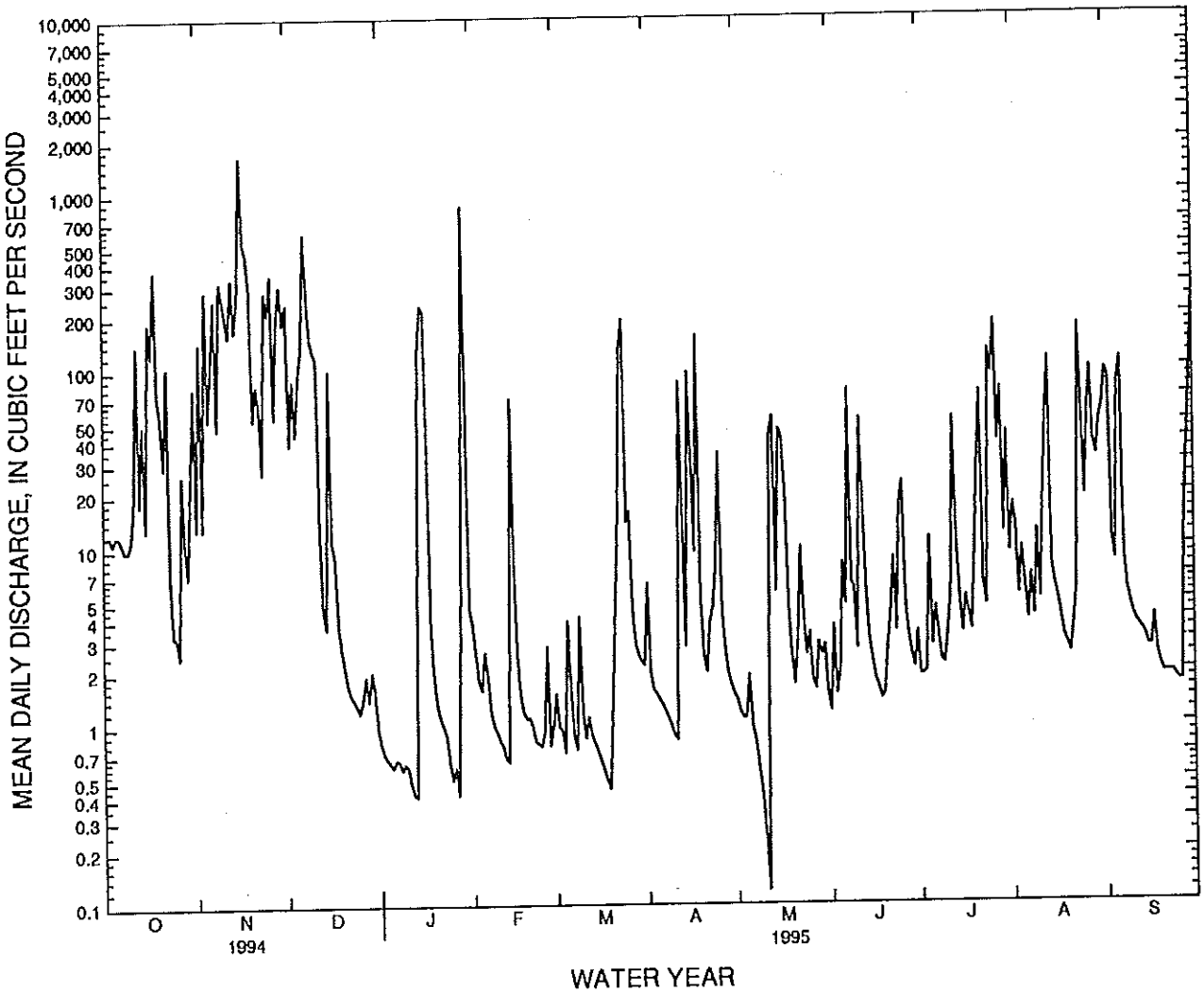
e Estimated

16501200 OHEO GULCH AT DAM NEAR KIPAHULU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1995, BY WATER YEAR (WY)

MEAN	57.3	110	105	67.8	55.4	95.6	43.9	29.9	30.4	52.1	38.2	49.8
MAX	145	334	203	218	163	320	116	99.1	66.5	114	82.4	131
(WY)	1990	1991	1993	1989	1994	1991	1989	1989	1990	1993	1991	1994
MIN	6.03	11.2	5.28	11.1	2.90	10.2	6.56	3.03	9.11	15.2	10.4	12.5
(WY)	1993	1992	1990	1992	1992	1992	1992	1992	1995	1988	1988	1988

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1988 - 1995	
ANNUAL TOTAL	32611.90		16532.13			
ANNUAL MEAN	89.3		45.3		62.5	
HIGHEST ANNUAL MEAN					102	1991
LOWEST ANNUAL MEAN					22.3	1992
HIGHEST DAILY MEAN	1680	Mar 24	1650	Nov 16	2220	Nov 19 1990
LOWEST DAILY MEAN	.39	Jan 18	.12	May 11	.00	Feb 25 1992
ANNUAL SEVEN-DAY MINIMUM	.50	Jan 12	.53	Jan 7	.00	Feb 25 1992
ANNUAL RUNOFF (AC-FT)	64690		32790		45310	
10 PERCENT EXCEEDS	241		133		165	
50 PERCENT EXCEEDS	18		4.1		6.9	
90 PERCENT EXCEEDS	1.4		.82		1.1	



HAWAII, ISLAND OF MAUI

16508000 HANAWI STREAM NEAR NAHIKU

LOCATION.--Lat 20°48'37", long 156°07'00", Hydrologic Unit 20020000, on left bank 200 ft upstream from Koolau ditch intake and trail, 1.9 mi southwest of Nahiku, and 4.5 mi southeast of Keanae.

DRAINAGE AREA.--3.49 mi^2.

PERIOD OF RECORD.--January 1914 to January 1916, November 1921 to current year. Monthly discharge only April to June 1915, published in WSP 1319.

REVISED RECORDS.--WSP 1045: 1922-43(M). WSP 1569: Drainage area. WSP 1719: 1915(M), 1922, 1924-25, 1927, 1930-35, 1937, 1939-40, 1942-43.

GAGE.--Water-stage recorder. Datum of gage is 1,318 ft above mean sea level (by vertical angles). Prior to Nov. 1, 1921, at site 50 ft downstream of gage at datum 0.12 ft lower.

REMARKS.--Records good. No diversion upstream of station.

AVERAGE DISCHARGE.--73 years (water years 1923-95), 24.1 ft^3/s (17,420 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 5,570 ft^3/s, Jan. 18, 1916, gage height, 11.6 ft, present site and datum, from rating curve extended above 814 ft^3/s by physical model of stetion site; minimum, 0.90 ft^3/s, Oct. 28 to Nov. 1, 1984.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 16	0400	*2,140	*7.27	No other peak greater than base discharge.			

Minimum discharge, 1.8 ft^3/s, Mar. 16-19, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	3.7	68	5.4	3.0	2.2	4.1	4.3	6.0	3.0	36	22
2	5.0	7.8	39	5.1	2.9	2.2	2.9	4.4	9.0	2.9	15	16
3	4.9	4.6	53	4.8	2.9	2.2	13	4.4	6.8	3.6	8.6	9.0
4	4.7	40	15	4.6	3.0	2.1	53	3.1	31	5.2	7.1	8.9
5	4.9	24	18	4.5	2.9	2.1	5.5	2.8	30	3.2	5.8	7.9
6	5.0	36	13	4.4	2.8	2.1	3.5	8.1	10	4.3	5.1	6.8
7	4.6	30	64	4.1	2.7	2.1	2.8	9.2	18	4.4	6.6	6.3
8	4.4	16	95	4.0	2.7	2.0	2.6	4.4	7.7	3.7	5.6	6.1
9	4.3	38	76	3.8	2.6	2.1	2.5	3.3	13	3.7	12	5.9
10	4.6	77	74	3.7	2.7	2.1	2.4	3.0	8.4	6.5	9.0	5.6
11	7.0	72	76	3.6	2.5	2.0	2.3	5.3	60	10	17	5.4
12	8.3	23	17	3.9	2.5	2.0	5.9	23	15	31	65	5.3
13	5.2	40	12	15	2.5	2.0	3.4	28	8.4	13	48	5.1
14	4.7	38	10	181	2.7	2.0	2.6	9.8	6.6	8.3	12	5.0
15	4.0	52	36	110	2.6	1.9	81	35	5.7	5.1	9.8	4.8
16	3.8	451	16	76	2.4	1.9	40	23	5.0	4.5	9.4	4.7
17	3.7	120	13	16	2.4	1.8	7.8	20	4.5	5.9	9.7	4.5
18	50	178	10	8.3	2.3	1.8	87	8.5	4.3	5.4	6.8	4.3
19	15	175	9.3	6.5	2.7	2.0	6.3	6.2	4.1	37	6.0	4.1
20	8.2	36	8.6	5.5	2.7	2.1	4.0	5.2	4.0	31	5.4	4.0
21	6.6	21	8.1	4.9	2.3	6.3	3.3	5.2	3.9	36	5.9	3.8
22	11	12	7.6	4.5	2.3	18	89	4.6	3.6	10	27	3.7
23	5.8	10	7.2	4.2	2.3	4.6	124	4.1	3.5	12	70	3.6
24	6.2	66	6.8	3.9	2.3	6.4	21	3.9	3.4	38	23	3.5
25	8.1	74	6.6	3.7	2.3	3.4	37	5.9	3.3	38	9.2	3.4
26	5.0	71	6.5	3.6	2.6	2.8	19	4.5	3.2	51	25	3.4
27	12	19	6.3	3.4	2.2	2.8	8.0	4.3	3.2	73	67	7.6
28	8.1	25	6.0	3.3	2.2	6.2	5.3	16	3.1	29	29	35
29	5.0	114	9.5	3.2	---	5.7	4.6	11	3.0	14	13	42
30	4.3	98	8.1	3.1	---	6.9	3.9	8.9	4.1	18	18	14
31	4.0	---	5.9	3.1	---	9.3	---	6.0	---	9.3	16	---
TOTAL	233.6	1972.1	801.5	511.1	72.0	113.1	647.7	285.4	291.8	520.0	603.0	261.7
MEAN	7.54	65.7	25.9	16.5	2.57	3.65	21.6	9.21	9.73	16.8	19.5	8.72
MAX	50	451	95	181	3.0	18	124	35	60	73	70	42
MIN	3.7	3.7	5.9	3.1	2.2	1.8	2.3	2.8	3.0	2.9	5.1	3.4
AC-FT	463	3910	1590	1010	143	224	1280	566	579	1030	1200	519

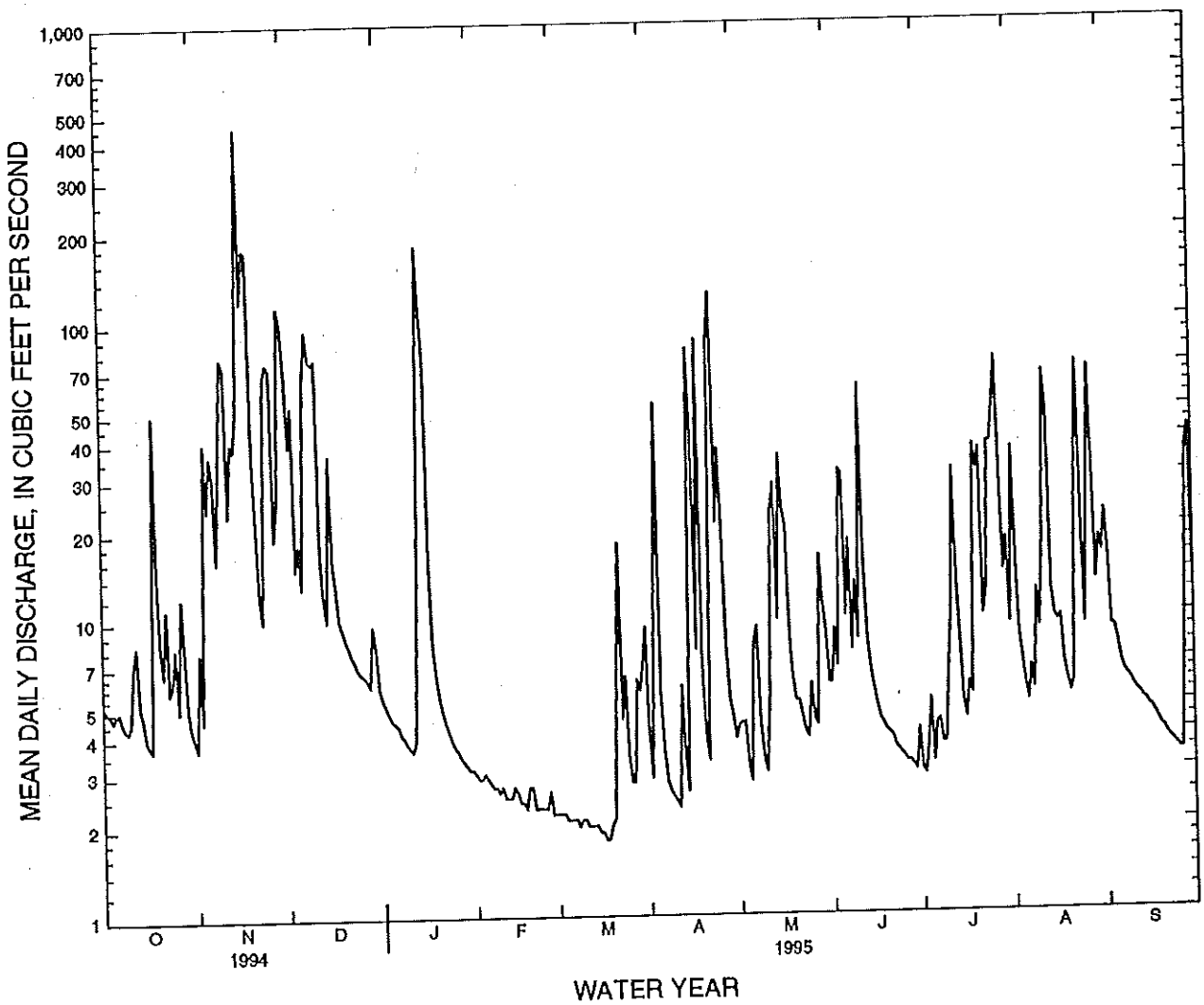
HAWAII, ISLAND OF MAUI

16508000 HANAWI STREAM NEAR HAHIKU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1995, BY WATER YEAR (WY)

MEAN	14.8	29.9	32.5	30.8	30.8	41.5	36.7	20.5	10.7	15.8	17.2	11.9
MAX	101	110	129	123	182	235	161	68.2	33.5	53.1	66.2	52.3
(WY)	1942	1991	1947	1979	1969	1980	1989	1987	1987	1914	1957	1914
MIN	1.15	2.99	2.71	1.87	2.25	2.10	2.75	2.82	2.16	2.42	2.40	1.88
(WY)	1985	1990	1981	1977	1983	1983	1992	1945	1981	1926	1973	1974

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1914 - 1995		
ANNUAL TOTAL	13222.9		6313.0				
ANNUAL MEAN	36.2		17.3		24.1		
HIGHEST ANNUAL MEAN					52.6		1969
LOWEST ANNUAL MEAN					7.59		1926
HIGHEST DAILY MEAN	1060	Mar 24	451	Nov 16	1610	Jan 25	1948
LOWEST DAILY MEAN	3.7	Oct 17	1.8	Mar 17	.90	Oct 31	1984
ANNUAL SEVEN-DAY MINIMUM	4.3	Jan 10	1.9	Mar 12	.96	Oct 25	1984
ANNUAL RUNOFF (AC-FT)	26230		12520		17420		
10 PERCENT EXCEEDS	81		41		52		
50 PERCENT EXCEEDS	10		5.9		7.3		
90 PERCENT EXCEEDS	5.2		2.6		2.8		



16509000 HANAWI STREAM BELOW GOVERNMENT ROAD, NEAR NAHIKU

LOCATION.--Lat 20°49′15", long 156°06′25", Hydrologic Unit 20020000, on right bank about 0.8 mi downstream from Hanawi stream highway bridge, 0.7 mi southwest of Nahiku and 6.4 mi southeast of Keanae school.

DRAINAGE AREA.--5.03 mi^2 (revised).

PERIOD OF RECORD.--July 1932 to July 1947, Mar. 1992 to current year. Records at same site collected by East Maui Irrigation Co. Jan. 1927 to June 1932.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 500 ft above mean sea level (by barometer).

REMARKS.--Records fair. Entire flow of stream above station up to 39 ft^3/s is diverted by East Maui Irrigation Co. ditch at altitude 1,300 ft for irrigation in central Maui. Maui Land and Pineapple Co. pumps from the stream at the highway bridge.

AVERAGE DISCHARGE.--18 years (water years 1932-47, 1993-95), 40.0 ft^3/s (28,980 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--1932-47: Maximum discharge 11,100 ft^3/s, Mar. 21, 1937, gage height 9.54 ft, from rating curve extended above 43 ft^3/s; minimum, 12.7 ft^3/s, Feb. 25, 26, 1936. Flood that destroyed shelter Apr. 6 or 7, 1938, probably reached a higher stage than 9.54 ft, the maximum given.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 1,300 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 16	0445	*1,290	*6.03

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peak greater than base discharge.			

Minimum discharge, 16 ft^3/s, July 3, 7, 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e26	e19	64	20	18	18	18	20	18	16	32	21
2	e25	e39	33	20	18	18	19	20	19	16	24	21
3	e25	e24	51	19	18	18	20	19	19	16	21	21
4	e24	e26	25	18	19	18	46	18	28	18	21	21
5	e25	27	24	17	18	18	19	18	27	17	20	21
6	e25	30	24	17	17	18	18	21	19	17	20	20
7	e23	27	59	18	17	18	18	22	21	17	20	19
8	e22	24	85	18	16	18	18	21	20	16	19	19
9	e24	32	64	17	16	18	18	20	20	16	20	19
10	e28	62	61	17	17	18	17	20	19	17	20	19
11	e36	64	61	16	16	18	17	20	47	17	20	18
12	e42	32	25	17	16	18	18	21	22	22	57	18
13	e27	61	24	19	16	18	18	25	21	20	46	18
14	e24	47	23	151	17	18	18	22	20	19	23	18
15	e20	49	32	100	17	18	67	30	20	18	22	18
16	e19	333	24	66	17	18	31	24	19	18	21	18
17	e19	131	23	25	17	18	19	24	19	18	21	17
18	e80	147	23	22	17	18	65	22	19	17	21	17
19	e60	157	23	21	19	18	19	21	18	39	20	17
20	e42	39	22	21	19	18	19	20	17	31	20	17
21	e34	27	22	20	18	18	19	20	17	34	20	17
22	e55	23	22	20	18	23	97	19	17	22	30	17
23	e29	22	22	19	18	20	118	18	17	21	59	16
24	e32	56	22	19	18	21	32	18	17	34	25	16
25	e42	56	22	19	19	19	46	19	16	32	21	16
26	e25	60	22	18	19	19	27	18	16	44	27	17
27	e45	23	21	18	18	19	23	18	16	70	53	17
28	e35	29	20	18	18	19	21	19	16	33	28	25
29	e25	101	20	18	---	19	21	19	16	25	21	32
30	e21	85	21	18	---	19	21	19	17	23	21	21
31	e20	---	20	18	---	19	---	18	---	22	21	---
TOTAL	979	1852	1004	844	491	575	927	633	597	745	814	571
MEAN	31.6	61.7	32.4	27.2	17.5	18.5	30.9	20.4	19.9	24.0	26.3	19.0
MAX	80	333	85	151	19	23	118	30	47	70	59	32
MIN	19	19	20	16	16	18	17	18	16	16	19	16
AC-FT	1940	3670	1990	1670	974	1140	1840	1260	1180	1480	1610	1130

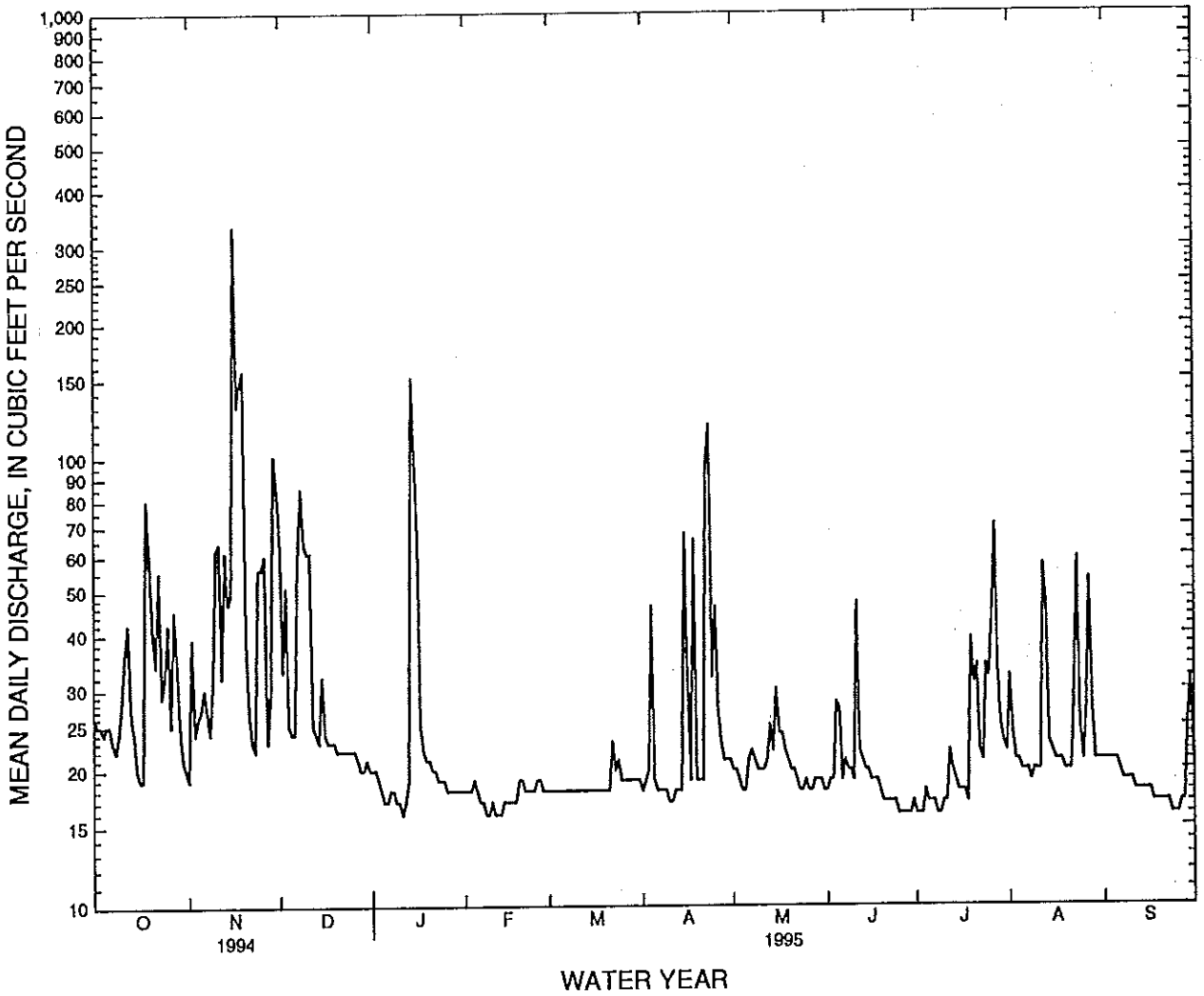
e Estimated

16509000 HANAWI STREAM BELOW GOVERNMENT ROAD, NEAR NAHIKU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1995, BY WATER YEAR (WY)

MEAN	29.4	34.5	56.4	46.5	42.7	64.2	49.7	38.5	24.5	29.0	33.1	27.1
MAX	115	61.7	241	132	138	244	255	150	65.7	56.7	113	48.5
(WY)	1942	1995	1937	1937	1937	1942	1938	1938	1941	1937	1940	1940
MIN	17.9	18.0	15.7	17.1	13.8	17.3	17.6	16.5	16.4	16.5	18.6	17.4
(WY)	1936	1944	1936	1945	1936	1934	1992	1945	1940	1945	1944	1945

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1932 - 1995	
ANNUAL TOTAL	14209		10032			
ANNUAL MEAN	38.9		27.5		40.0	
HIGHEST ANNUAL MEAN					85.0	1937
LOWEST ANNUAL MEAN					21.3	1944
HIGHEST DAILY MEAN	937	Mar 24	333	Nov 16	2320	Apr 7 1938
LOWEST DAILY MEAN	15	Mar 4	16	Jan 11	13	Feb 22 1936
ANNUAL SEVEN-DAY MINIMUM	15	Mar 4	16	Jun 25	13	Feb 22 1936
ANNUAL RUNOFF (AC-FT)	28180		19900		28980	
10 PERCENT EXCEEDS	65		46		49	
50 PERCENT EXCEEDS	21		20		20	
90 PERCENT EXCEEDS	17		17		17	



HAWAII, ISLAND OF MAUI

16518000 WEST WAILUAIKI STREAM NEAR KEANAE

LOCATION.--Lat 20°49′16″, long 156°08′37″, Hydrologic Unit 20020000, on left bank 500 ft upstream from Koolau ditch crossing and trail bridge, and 2.8 mi south of Keanae Post Office.

DRAINAGE AREA.--3.66 mi^2.

PERIOD OF RECORD.--January 1914 to December 1915, May 1916 to October 1917, November 1921 to current year. Monthly discharge only for some periods, published in WSP 1319.

REVISED RECORDS.--WSP 1569. Drainage area. WSP 2137: 1915-16(M), 1923-25(M), 1929-31(M), 1934-35(M), 1937-39(M), 1941-43(M), 1946-47(M), 1948(P), 1949(M), 1952-53(M), 1955-56(M), 1959-60(M), 1960(P), 1961(M), 1963(M).

GAGE.--Water-stage recorder. Datum of gage is 1,343.1 ft above mean sea level (by vertical angles). Prior to Oct. 3, 1974, at present site at datum 0.50 ft higher.

REMARKS.--Records good. No diversion upstream of station. Water is diverted by Koolau ditch, 500 ft downstream, for domestic supply and irrigation of sugarcane in central Maui.

AVERAGE DISCHARGE.--75 years (water years 1915, 1917, 1923-95), 35.4 ft^3/s (25,630 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,900 ft^3/s, Jan. 14, 1923, gage height, 13.5 ft, from floodmarks, from rating curve extended above 660 ft^3/s by logarithmic plotting; minimum, 0.5 ft^3/s, July 26, 1922.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,900 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 14	2200	*1,380	*6.87

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No peak greater than base discharge.			

Minimum discharge, 0.90 ft^3/s, Mar. 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	4.1	72	4.8	3.4	1.8	5.4	14	12	3.5	43	27
2	8.2	7.3	41	4.4	3.2	1.8	3.5	16	15	3.1	25	19
3	7.1	4.4	63	4.2	3.0	1.8	31	13	11	5.0	15	13
4	7.1	37	23	4.0	3.5	1.6	94	9.5	34	6.5	12	12
5	7.2	30	20	4.9	4.0	1.5	11	8.3	38	3.3	9.8	10
6	8.6	37	16	5.9	2.9	1.6	6.9	25	15	6.3	8.7	9.3
7	7.3	25	42	3.9	2.7	1.5	5.2	25	28	6.2	11	8.0
8	6.2	15	67	3.6	2.6	1.3	4.0	11	13	4.5	8.4	7.3
9	6.2	33	79	3.4	2.5	1.3	3.5	9.3	24	4.5	23	6.7
10	7.8	67	92	3.2	2.7	1.5	3.2	8.6	13	11	17	6.1
11	11	76	89	3.1	2.6	1.2	3.1	13	75	14	33	5.8
12	8.5	32	25	5.3	2.2	1.0	9.5	26	24	42	94	5.3
13	4.7	74	18	30	2.2	1.4	3.9	31	14	18	65	4.9
14	4.3	44	15	233	4.2	1.4	3.2	14	11	10	17	4.6
15	4.1	51	36	125	4.3	1.1	86	39	9.6	6.9	15	4.4
16	4.7	250	19	67	2.6	1.0	56	29	8.2	6.0	16	4.2
17	3.6	56	14	22	2.2	.96	22	31	7.3	8.1	16	3.9
18	42	79	11	11	2.1	1.0	87	15	6.9	7.1	10	3.7
19	18	85	10	8.9	2.8	1.3	22	11	6.2	54	8.9	3.5
20	8.9	34	9.3	7.4	2.5	1.8	10	9.9	6.0	46	7.9	3.4
21	6.5	23	8.5	6.6	2.0	9.4	9.0	17	5.6	48	9.2	3.2
22	8.7	18	7.8	5.9	2.0	21	125	12	4.9	16	32	3.1
23	5.5	15	7.2	5.4	1.8	4.8	183	9.4	4.6	22	59	3.0
24	8.5	43	6.7	5.0	2.0	12	39	8.2	4.3	50	24	2.9
25	9.8	50	6.2	4.7	2.0	3.4	52	12	4.0	42	14	2.8
26	5.6	38	6.4	4.3	2.5	2.3	26	7.8	3.8	62	32	3.1
27	18	20	6.2	4.1	1.9	3.4	16	8.4	3.5	94	83	19
28	8.5	19	5.6	3.9	1.8	17	13	34	3.3	41	36	54
29	5.9	93	13	3.8	---	9.2	11	16	3.1	21	20	66
30	5.0	86	8.2	3.7	---	15	10	20	6.4	30	23	19
31	4.6	---	5.3	3.5	---	14	---	11	---	16	22	---
TOTAL	270.0	1445.8	842.4	605.9	74.2	139.36	954.4	514.4	414.7	708.0	809.9	338.2
MEAN	8.71	48.2	27.2	19.5	2.65	4.50	31.8	16.6	13.8	22.8	26.1	11.3
MAX	42	250	92	233	4.3	21	183	39	75	94	94	66
MIN	3.6	4.1	5.3	3.1	1.8	.96	3.1	7.8	3.1	3.1	7.9	2.8
AC-FT	536	2870	1670	1200	147	276	1890	1020	823	1400	1610	671

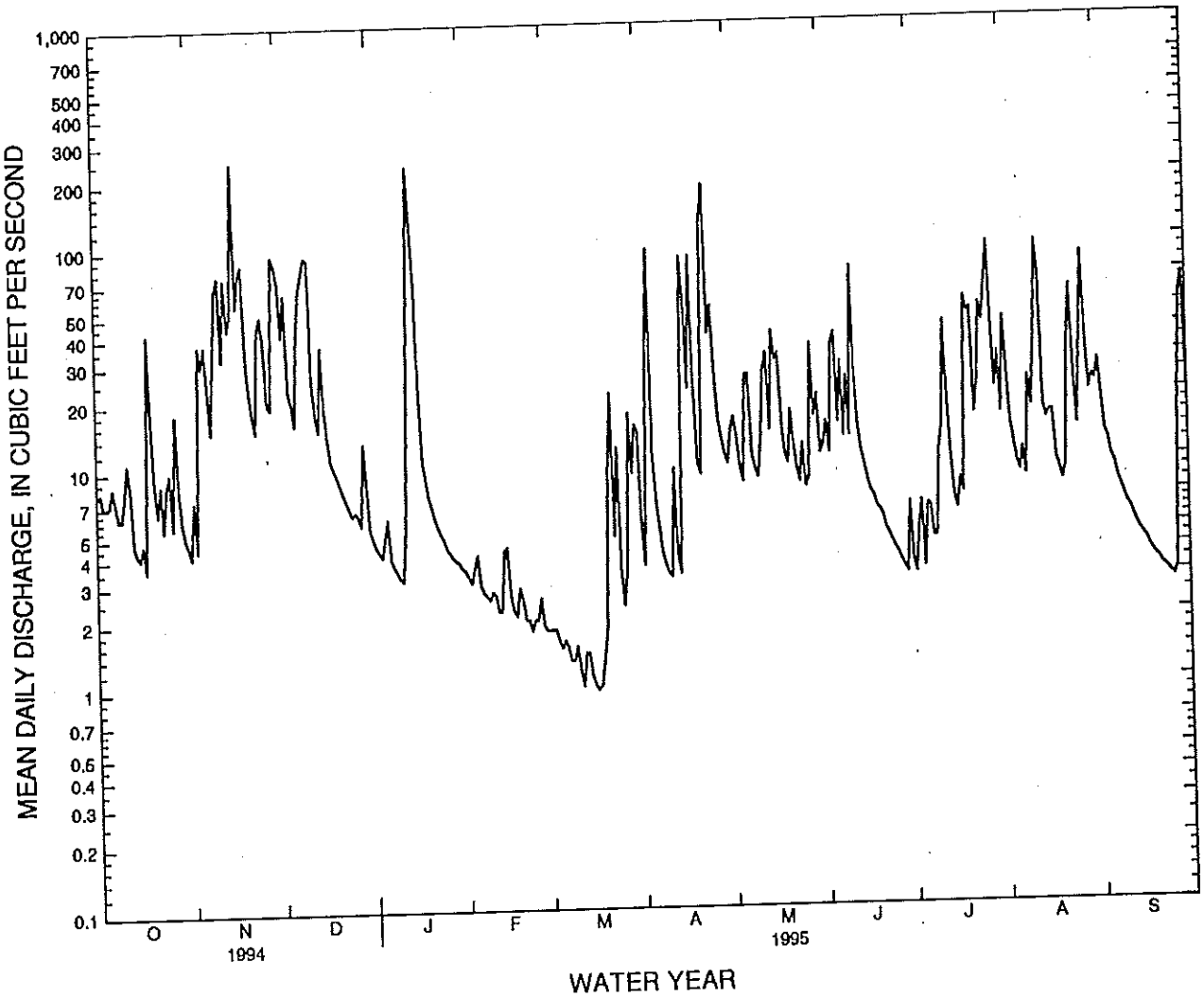
HAWAII, ISLAND OF MAUI

16518000 WEST WAILUAIKI STREAM NEAR KEANAE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1995, BY WATER YEAR (WY)

MEAN	23.7	46.4	49.4	42.6	46.5	56.9	55.4	30.1	16.5	25.2	26.5	18.6
MAX	133	198	200	192	222	303	221	88.4	58.1	99.4	111	101
(WY)	1942	1922	1937	1979	1932	1942	1989	1914	1941	1914	1914	1914
MIN	.88	4.06	2.82	2.01	2.65	2.04	4.17	3.86	2.37	1.72	2.85	1.68
(WY)	1985	1992	1981	1977	1995	1926	1992	1945	1981	1922	1973	1974

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1914 - 1995	
ANNUAL TOTAL	15656.9		7117.26			
ANNUAL MEAN	42.9		19.5		35.4	
HIGHEST ANNUAL MEAN					67.3	1980
LOWEST ANNUAL MEAN					14.5	1981
HIGHEST DAILY MEAN	1470	Mar 24	250	Nov 16	2260	Jan 26 1948
LOWEST DAILY MEAN	3.6	Oct 17	.96	Mar 17	.62	Jul 23 1922
ANNUAL SEVEN-DAY MINIMUM	4.8	Mar 4	1.1	Mar 12	.71	Oct 25 1984
ANNUAL RUNOFF (AC-FT)	31060		14120		25630	
10 PERCENT EXCEEDS	85		50		79	
50 PERCENT EXCEEDS	15		8.9		10	
90 PERCENT EXCEEDS	6.2		2.6		3.3	



HAWAII, ISLAND OF MAUI

16587000 HONOPOU STREAM NEAR HUELO

LOCATION.--Lat 20°53′20″, long 156°15′20″, Hydrologic Unit 20020000, on left bank 75 ft upstream from Wailoa ditch intake, 2.2 mi southwest of Huelo, and 2.5 mi west of Kailua.

DRAINAGE AREA.--0.64 mi^2.

PERIOD OF RECORD.--December 1910 to current year. Monthly discharge only for some periods, published in WSP 1319.

REVISED RECORDS.--WSP 1219: 1914(M), 1916-50(M). WSP 1249: 1948-50(P). WSP 1569: Drainage area.

GAGE.--Water-stage recorders and concrete control. Datum of gage is 1,208 ft above mean sea level (by vertical angles). Prior to June 19, 1914, nonrecording gage at same site and datum.

REMARKS.--Records good. No diversion upstream of station.

AVERAGE DISCHARGE.--84 years (water years 1912-95), 4.83 ft^3/s (3,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,710 ft^3/s, Nov. 18, 1930, gage height, 7.28 ft from rating curve extended above 110 ft^3/s by test of physical model of station site; minimum, 0.02 ft^3/s, several days in 1933, 1934.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 270 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 13	2030	*558	*3.51

Date	Time	Discharge (ft^3/s)	Gage height (ft)
No other peak greater than base discharge.			

Minimum discharge, 0.35 ft^3/s, Mar. 11-13, 15-19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

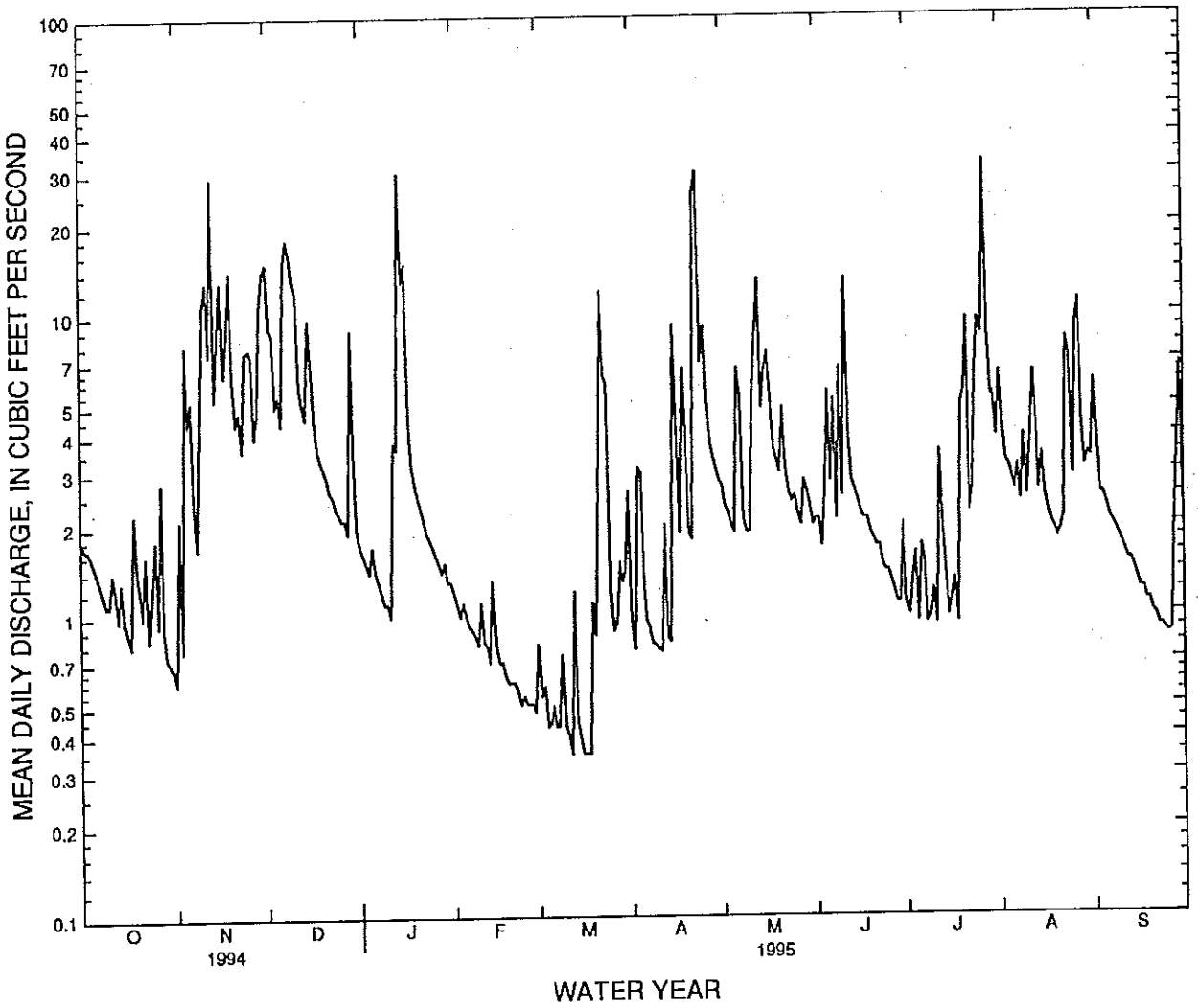
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	.60	15	1.7	1.2	.80	.98	2.7	2.1	1.1	6.3	5.9
2	1.7	2.1	9.2	1.6	1.1	.54	.77	2.3	2.1	1.0	4.0	3.5
3	1.7	.77	8.7	1.5	1.0	.58	3.1	2.2	1.7	1.3	3.2	2.5
4	1.6	8.0	5.0	1.4	1.1	.43	3.0	2.0	2.6	1.6	3.1	2.5
5	1.5	4.4	5.4	1.7	1.0	.44	1.4	1.9	5.5	.95	2.8	2.3
6	1.4	5.2	4.4	1.4	.93	.50	.97	6.6	2.8	1.7	2.6	2.1
7	1.3	2.4	15	1.3	.90	.43	.91	5.4	5.2	1.5	3.1	2.0
8	1.2	1.7	18	1.2	.86	.43	.81	2.1	2.1	.94	2.4	1.9
9	1.1	4.8	16	1.1	.80	.74	.80	1.9	6.6	.98	3.9	1.8
10	1.1	11	13	1.1	1.1	.43	.77	1.9	2.5	1.2	2.5	1.7
11	1.4	13	12	1.0	.82	.40	.76	5.5	13	.93	4.0	1.6
12	1.2	7.5	6.0	3.8	.79	.35	2.0	8.7	4.0	3.5	6.3	1.5
13	.98	29	5.1	3.6	.70	1.2	.84	13	2.8	1.9	4.5	1.5
14	1.3	5.3	4.6	30	1.3	.45	.82	4.9	2.6	1.4	2.6	1.4
15	.97	8.4	9.7	13	.80	.40	9.2	6.6	2.4	.99	3.4	1.3
16	.88	13	6.8	15	.70	.35	4.3	7.5	2.2	1.1	2.5	1.2
17	.80	6.4	4.5	4.8	.70	.35	1.9	5.2	2.1	1.3	2.2	1.2
18	2.2	9.0	3.6	3.2	.63	.35	6.6	3.6	2.1	.94	2.0	1.1
19	1.4	14	3.3	2.8	.60	1.1	3.7	3.3	1.9	5.0	1.9	1.1
20	1.2	6.2	3.1	2.5	.60	.86	1.9	3.0	1.8	5.5	1.8	1.0
21	1.0	4.4	2.9	2.3	.60	2.9	1.8	4.9	1.7	9.6	1.9	.97
22	1.6	4.8	2.6	2.1	.57	12	26	3.1	1.7	2.2	2.1	.90
23	.84	3.6	2.5	1.9	.51	6.3	30	2.6	1.5	2.6	8.2	.90
24	1.2	7.6	2.3	1.8	.54	5.9	7.0	2.4	1.4	6.3	7.2	.87
25	1.8	7.8	2.2	1.7	.51	1.2	9.1	2.5	1.4	9.6	2.9	.85
26	.94	7.4	2.1	1.6	.51	.89	5.1	2.2	1.3	8.6	9.3	.87
27	2.8	4.0	2.1	1.5	.51	.95	3.9	2.0	1.2	32	11	2.0
28	.90	4.7	1.9	1.4	.48	1.5	3.4	2.8	1.1	8.5	4.4	3.7
29	.73	11	9.0	1.5	---	1.3	3.1	2.6	1.1	5.3	3.1	6.7
30	.70	14	3.2	1.3	---	1.4	2.8	2.3	2.0	5.4	3.4	2.2
31	.67	---	1.9	1.3	---	2.6	---	2.0	---	3.9	3.3	---
TOTAL	39.91	222.07	201.1	112.1	21.86	48.07	137.73	119.7	82.5	128.83	121.9	59.06
MEAN	1.29	7.40	6.49	3.62	.78	1.55	4.59	3.86	2.75	4.16	3.93	1.97
MAX	2.8	29	18	30	1.3	12	30	13	13	32	11	6.7
MIN	.67	.60	1.9	1.0	.48	.35	.76	1.9	1.1	.93	1.8	.85
AC-FT	79	440	399	222	43	95	273	237	164	256	242	117

16587000 HONOPOU STREAM NEAR HUELO--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1995, BY WATER YEAR (WY)

MEAN	2.73	5.50	6.14	5.52	5.36	7.13	7.64	5.16	2.81	3.55	4.02	2.74
MAX	15.9	21.4	20.0	20.9	24.5	33.0	43.4	24.3	9.97	12.6	18.1	14.6
(WY)	1942	1991	1947	1921	1969	1942	1989	1916	1914	1914	1982	1992
MIN	.15	.25	1.04	.61	.62	.79	.58	.84	.52	.41	.40	.25
(WY)	1985	1963	1981	1977	1983	1992	1992	1933	1962	1981	1973	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1911 - 1995	
ANNUAL TOTAL	2841.68		1294.83			
ANNUAL MEAN	7.79		3.55		4.83	
HIGHEST ANNUAL MEAN					9.88	1914
LOWEST ANNUAL MEAN					1.73	1981
HIGHEST DAILY MEAN	269	Mar 24	32	Jul 27	305	Apr 7 1989
LOWEST DAILY MEAN	.60	Nov 1	.35	Mar 12	.11	Oct 27 1984
ANNUAL SEVEN-DAY MINIMUM	.92	Oct 28	.47	Mar 6	.11	Oct 26 1984
ANNUAL RUNOFF (AC-FT)	5640		2570		3500	
10 PERCENT EXCEEDS	14		8.4		10	
50 PERCENT EXCEEDS	3.6		2.0		2.5	
90 PERCENT EXCEEDS	1.3		.77		.74	



HAWAII, ISLAND OF MAUI

16599500 OPANA TUNNEL AT KAILIILI

LOCATION.--Lat 20°51′04″, long 156°16′17″, Hydrologic Unit 20D20000, on left bank at tunnel outlet, 0.3 mi north of Kailiili, and 2.7 mi east of Makawao.

PERIOD OF RECORD.--May 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 2,340 ft above mean sea level, from topographic map.

REMARKS.--Records good. Tunnel diverts water from Opana Gulch for agricultural and domestic use in the Kokomo, Makawao, and Pukalani areas.

AVERAGE DISCHARGE.--30 years (water years 1966-95), 3.22 ft^3/s (2,330 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18 ft^3/s, Mar. 31, 1982, Apr. 12, 1986, Mar. 23, 1994; minimum daily, 0.11 ft^3/s, Nov. 5-10, 1973, Oct. 5, 6, 25, 26, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 9.5 ft^3/s, Dec. 10; minimum daily, 0.26 ft^3/s, Mar. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

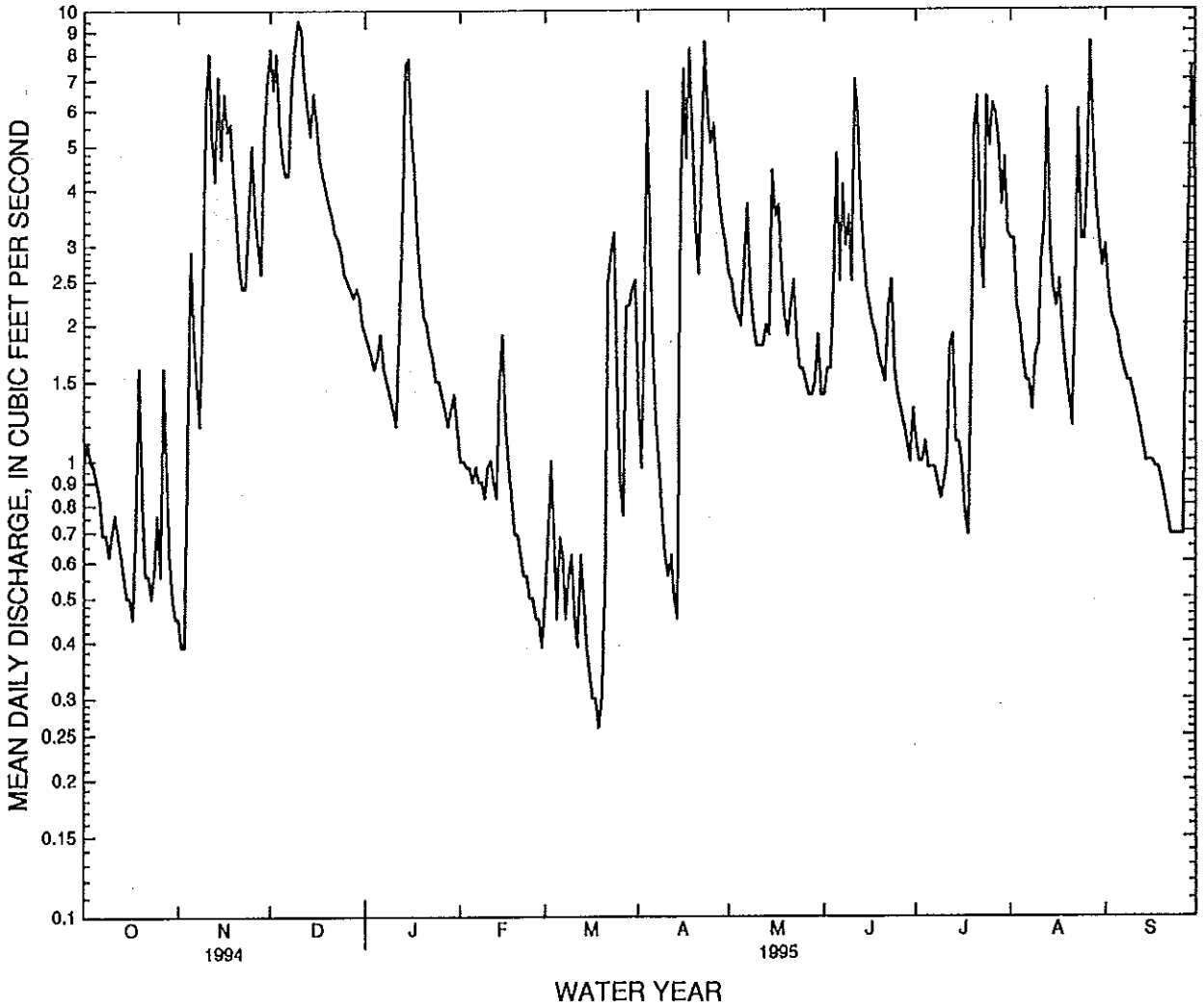
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.45	8.2	1.9	1.0	.50	1.4	2.6	1.4	1.1	3.1	3.0
2	1.1	.39	6.7	1.8	1.0	.69	.97	2.5	1.6	1.0	3.1	2.4
3	1.0	.39	8.0	1.7	.97	1.0	1.9	2.2	1.6	1.0	2.2	2.1
4	.97	1.1	5.6	1.6	.97	.69	6.6	2.1	2.5	1.1	2.0	2.0
5	.90	2.9	4.7	1.7	.90	.45	3.0	2.0	4.8	.97	1.7	1.9
6	.83	1.9	4.3	1.9	.97	.68	1.7	2.7	2.5	.97	1.5	1.7
7	.69	1.5	4.3	1.6	.90	.62	1.2	3.7	4.1	.97	1.5	1.6
8	.69	1.2	6.8	1.5	.90	.45	.97	2.4	3.0	.90	1.3	1.5
9	.62	2.3	8.3	1.4	.83	.56	.76	2.0	3.5	.83	1.7	1.5
10	.69	6.1	9.5	1.3	.97	.62	.62	1.8	2.5	.90	1.8	1.4
11	.76	8.0	9.1	1.2	1.0	.45	.56	1.8	7.0	1.0	2.8	1.3
12	.69	5.2	7.1	1.9	.90	.39	.62	1.8	5.9	1.8	3.4	1.2
13	.62	4.2	6.1	3.3	.83	.62	.50	2.0	3.7	1.9	6.7	1.1
14	.56	7.1	5.3	7.6	1.5	.50	.45	1.9	2.9	1.1	3.0	1.0
15	.50	4.7	6.5	7.8	1.9	.39	3.6	4.4	2.4	1.1	2.4	1.0
16	.50	6.5	5.7	5.3	1.2	.34	7.4	3.5	2.2	.97	2.2	1.0
17	.45	5.4	4.7	4.4	.97	.30	4.7	3.7	2.0	.76	2.5	.97
18	.74	5.6	4.3	3.1	.83	.30	8.2	2.6	1.9	.69	1.9	.97
19	1.6	4.3	4.0	2.5	.69	.26	5.3	2.1	1.7	1.7	1.6	.90
20	.83	3.5	3.7	2.1	.69	.30	3.3	1.9	1.6	5.6	1.4	.83
21	.56	2.7	3.5	2.0	.62	.52	2.6	2.2	1.5	6.4	1.2	.76
22	.56	2.4	3.2	1.8	.56	2.5	4.5	2.5	2.2	3.1	2.3	.69
23	.50	2.4	3.1	1.7	.56	2.9	8.5	1.9	2.5	2.4	6.0	.69
24	.58	3.4	2.9	1.5	.50	3.2	5.9	1.6	1.6	6.4	3.1	.69
25	.76	5.0	2.6	1.5	.50	1.5	5.1	1.6	1.4	5.0	3.1	.69
26	.56	3.6	2.5	1.4	.45	.90	5.6	1.5	1.3	6.2	4.3	.69
27	1.6	3.0	2.4	1.3	.45	.76	4.5	1.4	1.2	5.9	8.5	1.8
28	.97	2.6	2.3	1.2	.39	2.2	3.7	1.4	1.1	5.1	5.1	3.8
29	.62	5.3	2.4	1.3	---	2.2	3.3	1.5	1.0	3.7	3.7	7.5
30	.50	6.9	2.3	1.4	---	2.4	3.0	1.9	1.3	4.7	3.1	4.3
31	.45	---	2.0	1.2	---	2.5	---	1.4	---	3.2	2.7	---
TOTAL	23.40	110.03	152.1	71.9	23.95	31.69	100.45	68.6	73.9	78.46	90.9	50.98
MEAN	.75	3.67	4.91	2.32	.86	1.02	3.35	2.21	2.46	2.53	2.93	1.70
MAX	1.6	8.0	9.5	7.8	1.9	3.2	8.5	4.4	7.0	6.4	8.5	7.5
MIN	.45	.39	2.0	1.2	.39	.26	.45	1.4	1.0	.69	1.2	.69
AC-FT	46	218	302	143	48	63	199	136	147	156	180	101

16599500 OPANA TUNNEL AT KAILIILI--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1995, BY WATER YEAR (WY)

MEAN	1.85	3.33	3.97	3.79	3.70	4.75	5.23	3.58	2.10	2.60	2.19	1.58
MAX	5.40	7.97	9.19	7.55	9.04	11.1	9.35	7.42	5.99	6.40	4.98	5.69
(WY)	1984	1968	1971	1989	1969	1982	1968	1987	1986	1982	1969	1992
MIN	.14	.25	.65	.22	.36	.51	.27	1.28	.54	.40	.19	.15
(WY)	1985	1992	1977	1977	1978	1983	1992	1992	1981	1981	1974	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1965 - 1995		
ANNUAL TOTAL	1388.63		876.36				
ANNUAL MEAN	3.80		2.40		3.22		
HIGHEST ANNUAL MEAN					5.34		1969
LOWEST ANNUAL MEAN					1.45		1981
HIGHEST DAILY MEAN	18	Mar 23	9.5	Dec 10	18	Mar 31	1982
LOWEST DAILY MEAN	.39	Nov 2	.26	Mar 19	.11	Nov 5	1973
ANNUAL SEVEN-DAY MINIMUM	.54	Oct 28	.34	Mar 14	.11	Nov 4	1973
ANNUAL RUNOFF (AC-FT)	2750		1740		2330		
10 PERCENT EXCEEDS	7.8		5.6		7.7		
50 PERCENT EXCEEDS	2.9		1.8		2.2		
90 PERCENT EXCEEDS	1.1		.56		.39		



HAWAII, ISLAND OF MAUI

16604500 IAO STREAM AT KEPANIWAI PARK, NEAR WAILUKU

LOCATION.--Lat 20°53′08″, long 156°32′32″, Hydrologic Unit 20020000, on left bank of Maniania and Waikapu ditch intake, 0.3 mi upstream from Kepaniwai Park, 0.5 mi downstream from Iao Valley State Park, and 2.3 mi west of Wailuku Post Office.

DRAINAGE AREA.--5.98 mi^2.

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 780 ft above mean sea level, from topographic map.

REMARKS.--Records fair. No appreciable diversion upstream of station.

AVERAGE DISCHARGE.--12 years (water years 1984-95), 68.2 ft^3/s (49,380 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 6,260 ft^3/s, Jan. 28, 1988, gage height, 9.0 ft, from rating curve extended above 181 ft^3/s on basis of slope-area measurements at gage heights 6.48 ft and 9.0 ft; minimum, 11 ft^3/s for several days in October and November 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known, 7,540 ft^3/s, Dec. 3, 1950, from rating curve based on model study of site 2.3 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 13	2030	*3,820	*7.10	July 14	1900	2,560	5.86
Jan. 29	1010	1,100	3.99				

Minimum discharge, 13 ft^3/s, Sep. 26, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	19	62	24	72	112	41	28	22	18	172	51
2	e57	36	72	23	54	51	33	28	22	19	94	40
3	50	22	91	22	41	46	48	27	19	86	61	36
4	39	129	60	21	37	31	106	25	38	96	67	37
5	34	53	49	24	34	30	48	24	89	36	47	37
6	32	43	47	21	52	40	36	31	82	71	41	29
7	e32	43	100	20	29	26	32	28	123	59	99	27
8	27	31	103	20	27	23	26	24	39	28	47	25
9	26	54	82	19	25	21	25	23	40	26	215	26
10	26	88	113	19	48	21	23	23	29	30	110	26
11	37	81	66	18	28	21	22	69	147	47	154	25
12	29	107	38	23	25	23	110	60	51	74	131	23
13	25	276	33	88	23	23	30	92	32	42	119	23
14	24	146	30	345	208	22	26	49	27	264	e70	22
15	24	126	65	206	84	21	66	64	26	133	e75	22
16	25	119	76	217	46	20	30	122	22	114	e90	21
17	26	76	53	92	37	19	23	43	25	96	e80	21
18	40	57	32	53	32	19	24	29	59	73	e60	20
19	24	48	30	39	28	26	24	25	28	162	e57	20
20	19	35	27	31	26	24	35	22	24	184	e57	20
21	32	32	26	28	23	81	36	25	26	198	e60	20
22	36	38	24	26	23	260	248	22	48	79	78	20
23	24	30	24	25	21	80	259	20	28	66	132	20
24	25	37	23	24	20	36	139	19	21	97	76	19
25	30	36	22	23	31	28	130	25	20	116	55	19
26	35	35	34	25	27	27	86	20	21	186	64	19
27	73	27	31	30	19	63	55	19	20	255	151	78
28	26	31	25	92	20	93	42	24	17	160	74	86
29	22	58	126	404	---	38	36	43	17	86	51	172
30	19	60	42	263	---	116	31	34	73	80	52	70
31	19	---	26	116	---	75	---	22	---	62	41	---
TOTAL	966	1973	1632	2381	1140	1516	1870	1109	1235	3043	2680	1074
MEAN	31.2	65.8	52.6	76.8	40.7	48.9	62.3	35.8	41.2	98.2	86.5	35.8
MAX	73	276	126	404	208	260	259	122	147	264	215	172
MIN	19	19	22	18	19	19	22	19	17	18	41	19
AC-FT	1920	3910	3240	4720	2260	3010	3710	2200	2450	6040	5320	2130

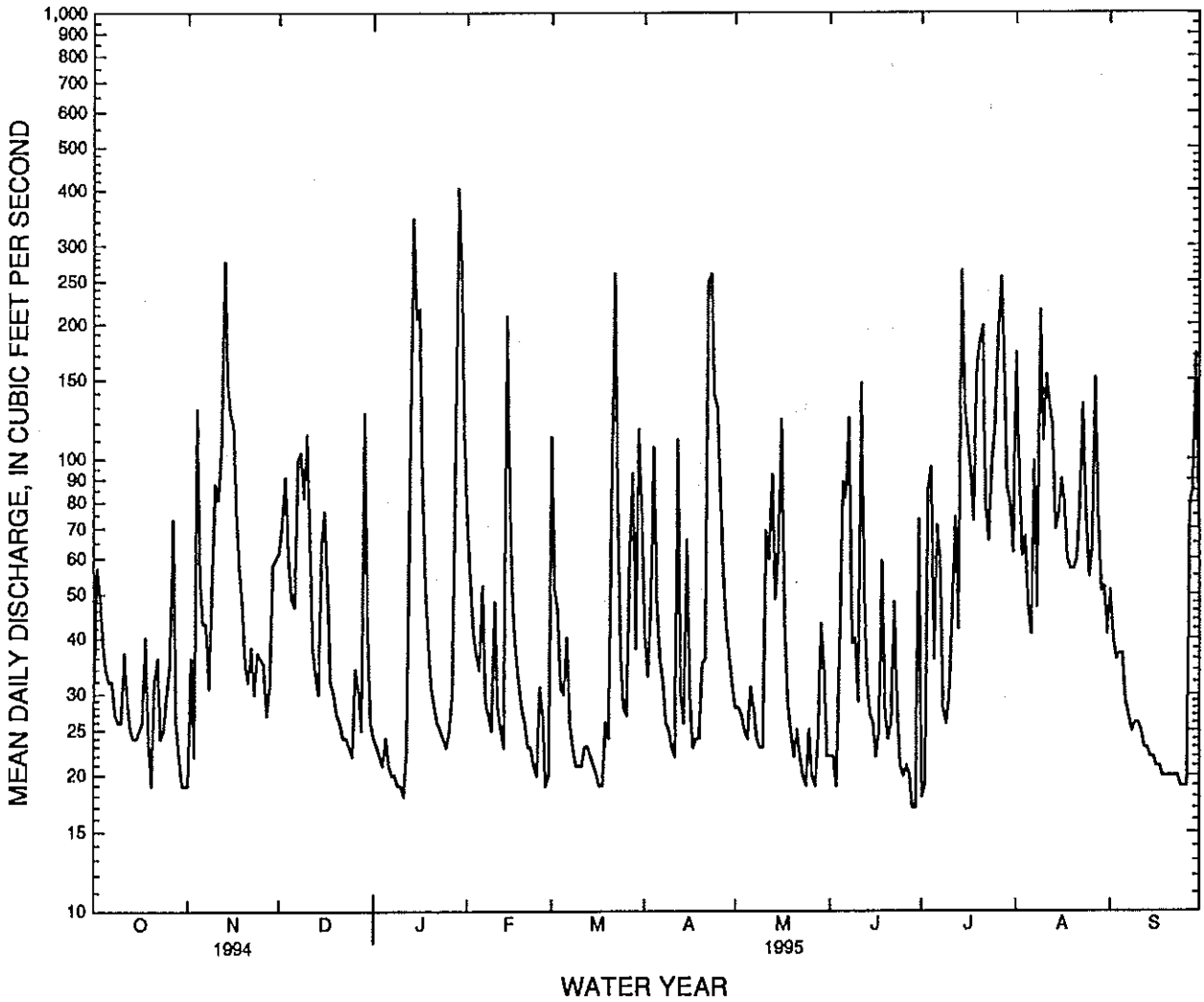
e Estimated

16604500 IAO STREAM AT KEPANIWAI PARK, NEAR WAILUKU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1995, BY WATER YEAR (WY)

MEAN	56.5	66.7	65.2	71.1	60.1	86.2	89.4	68.5	57.3	75.0	64.1	50.0
MAX	103	132	97.5	149	108	176	230	136	99.7	137	97.0	133
(WY)	1984	1988	1988	1988	1994	1994	1989	1987	1987	1994	1993	1992
MIN	11.9	20.5	18.3	25.4	32.1	30.4	20.8	27.9	24.4	25.2	26.0	15.8
(WY)	1985	1985	1985	1985	1993	1987	1992	1984	1985	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1983 - 1995	
ANNUAL TOTAL	32250		20619			
ANNUAL MEAN	88.4		56.5		68.2	
HIGHEST ANNUAL MEAN					93.4	1994
LOWEST ANNUAL MEAN					41.4	1985
HIGHEST DAILY MEAN	805	Mar 24	404	Jan 29	913	Apr 10 1986
LOWEST DAILY MEAN	16	Jan 16	17	Jun 28	11	Oct 7 1984
ANNUAL SEVEN-DAY MINIMUM	18	Jan 10	20	Sep 20	11	Oct 16 1984
ANNUAL RUNOFF (AC-FT)	63970		40900		49380	
10 PERCENT EXCEEDS	184		117		138	
50 PERCENT EXCEEDS	58		35		42	
90 PERCENT EXCEEDS	25		21		21	



16614000 WAIHEE RIVER AT DAM NEAR WAIHEE

LOCATION.--LAT 20°56'21", long 156°32'59", Hydrologic Unit 20020000, on right bank at dam 8 ft upstream from the abandoned Waihee canal intake, 2.6 mi southwest from Waihee Point, and 4.4 mi northwest from Wailuku Post Office.

DRAINAGE AREA.--4.20 mi^2.

PERIOD OF RECORD.--November 1910 to December 1913, November 1983 to current year. Low-flow records not equivalent prior to Dec. 31, 1913, due to Waihee canal diverted water upstream.

GAGE.--Water-stage recorder. Elevation of gage is 605 ft above mean sea level, from topographic map.

REMARKS.--Records good, except for the period of no gage height record, which are poor. No diversion upstream of station.

AVERAGE DISCHARGE.--11 years (water years 1985-95), 83.9 ft^3/s (60,790 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,660 ft^3/s, Jan. 28, 1988, gage height, 8.95 ft, from rating curve extended above 280 ft^3/s on basis of slope-area measurements at gage heights 6.70 ft and 8.95 ft; minimum, 14 ft^3/s, July 13, 1995.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 13	2030	*7,090	*6.93	No other peak greater than base discharge.			

Minimum discharge, 14 ft^3/s, July 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	50	64	41	45	74	43	41	e42	38	157	55
2	73	88	76	40	44	44	40	44	e42	48	55	47
3	72	54	70	40	44	44	69	50	e37	140	43	44
4	63	111	61	40	49	41	88	44	e52	107	65	52
5	62	60	52	43	47	41	49	45	e90	46	43	54
6	61	57	49	41	47	45	42	68	e82	85	40	44
7	66	55	69	39	44	40	43	61	e120	62	80	43
8	58	51	76	39	43	40	40	45	e60	43	42	43
9	58	59	75	39	43	41	39	44	e50	41	251	46
10	58	70	89	39	45	41	39	44	e45	47	79	43
11	63	83	55	39	43	39	40	e62	e150	68	102	42
12	60	116	46	47	43	39	101	e56	e90	55	124	41
13	59	558	44	126	42	41	42	e97	e56	35	82	41
14	58	64	43	519	93	39	43	e50	e48	290	49	41
15	59	65	64	128	48	39	62	e68	e45	47	52	40
16	103	62	81	90	43	39	43	e125	e43	51	63	40
17	60	61	54	55	42	39	40	e80	49	48	56	40
18	57	55	44	50	42	39	43	e52	70	40	42	39
19	56	49	44	47	42	49	42	e45	42	163	40	39
20	54	46	42	46	42	42	70	e42	32	148	40	39
21	62	45	42	46	44	73	52	e47	59	144	41	39
22	61	52	41	45	42	177	314	e40	114	44	90	39
23	56	45	42	44	41	54	238	e38	48	56	98	39
24	56	47	41	44	41	44	96	e37	40	83	55	38
25	59	46	40	44	89	40	96	e47	39	102	51	38
26	68	52	50	44	52	41	47	e38	38	128	71	39
27	88	45	51	44	42	66	41	e37	37	285	161	103
28	54	49	43	61	41	59	40	e47	37	92	72	95
29	52	48	95	252	---	43	39	e82	37	45	52	174
30	51	54	47	54	---	99	38	e56	95	60	55	66
31	51	---	42	47	---	55	---	e42	---	48	47	---
TOTAL	1918	2297	1732	2273	1323	1607	2019	1674	1789	2689	2298	1543
MEAN	61.9	76.6	55.9	73.3	47.2	51.8	67.3	54.0	59.6	86.7	74.1	51.4
MAX	103	558	95	519	93	177	314	125	150	290	251	174
MIN	51	45	40	39	41	39	38	37	32	35	40	38
AC-FT	3800	4560	3440	4510	2620	3190	4000	3320	3550	5330	4560	3060

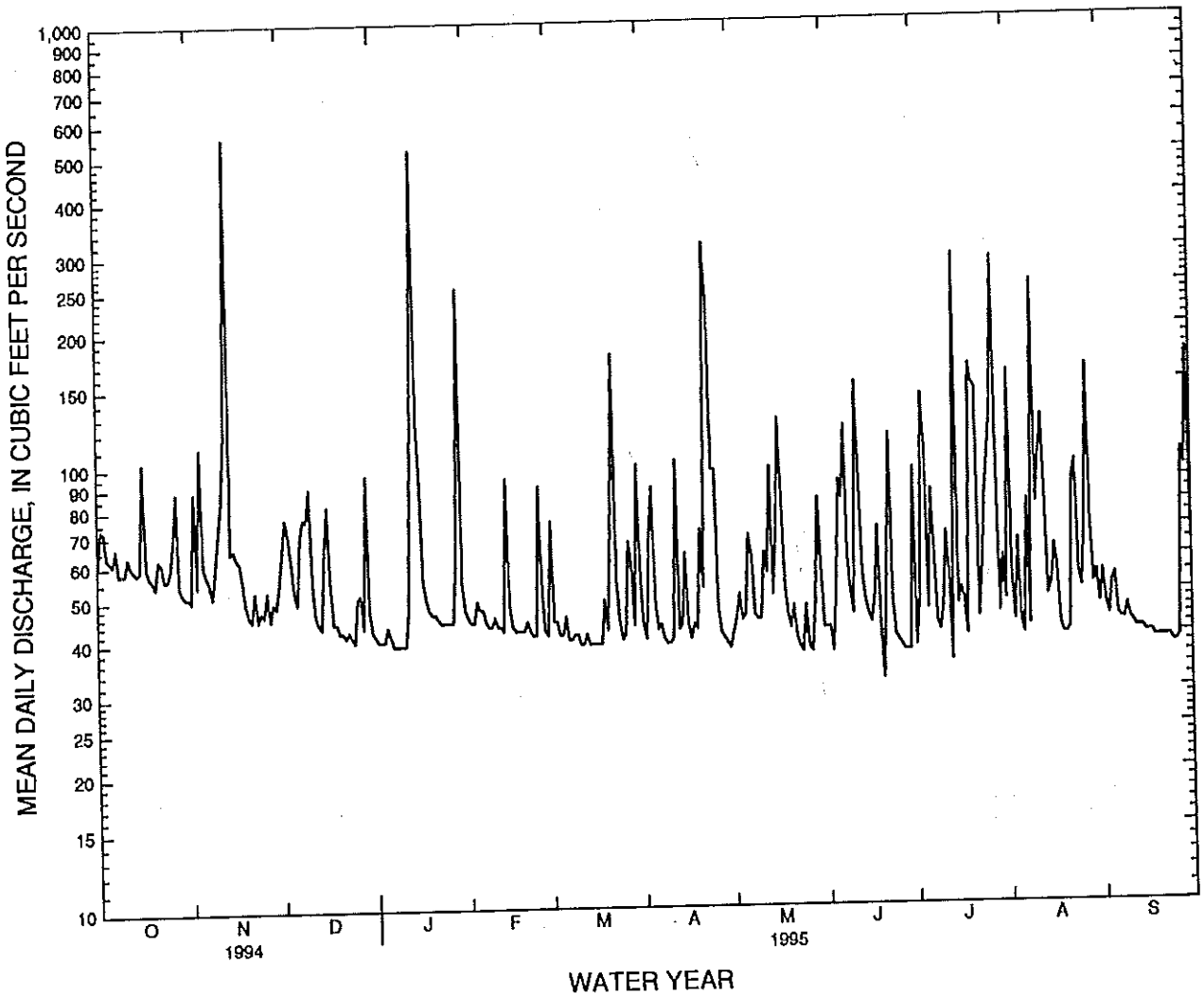
e Estimated

16614000 WAIHEE RIVER AT DAM NEAR WAIHEE--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1995, BY WATER YEAR (WY)

MEAN	72.8	84.9	73.7	79.0	68.0	95.5	98.3	85.0	74.5	93.9	80.7	75.5
MAX	91.7	150	109	186	106	179	276	143	118	136	99.6	160
(WY)	1986	1991	1988	1988	1988	1994	1989	1987	1987	1994	1991	1992
MIN	27.4	36.8	31.3	29.4	42.2	43.7	36.6	45.0	43.4	54.8	46.1	32.9
(WY)	1985	1985	1985	1985	1993	1992	1992	1992	1984	1984	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1984 - 1995	
ANNUAL TOTAL	36700		23162			
ANNUAL MEAN	101		63.5		83.9	
HIGHEST ANNUAL MEAN					106	1994
LOWEST ANNUAL MEAN					57.5	1985
HIGHEST DAILY MEAN	1150	Mar 23	558	Nov 13	1160	Jan 28 1988
LOWEST DAILY MEAN	40	Dec 25	32	Jun 20	22	Jan 18 1985
ANNUAL SEVEN-DAY MINIMUM	42	Dec 19	39	Sep 19	23	Jan 18 1985
ANNUAL RUNOFF (AC-FT)	72790		45940		60790	
10 PERCENT EXCEEDS	165		96		141	
50 PERCENT EXCEEDS	70		48		56	
90 PERCENT EXCEEDS	50		39		39	



HAWAII, ISLAND OF MAUI

16618000 KAHAKULOA STREAM NEAR HONOKOHAU
(Hydrologic Benchmark network station)

LOCATION.--Lat 20°58′54″, long 156°33′26″, Hydrologic Unit 20020000, on right bank 0.5 mi downstream from Kapuna Stream, 1.3 mi south of Kahakuloa, 2.0 mi west of Puu Makawana, and 4.3 mi southeast of Honokohau.

DRAINAGE AREA.--3.47 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1939 to August 1943, September 1947 to November 1970, December 1974 to current year. Records for January 1913 to December 1914 (fragmentary) at site 1.0 mi upstream not equivalent owing to difference in drainage areas.

REVISED RECORDS.--WSP 1319: 1948, 1949(M). WSP 1569: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 330 ft above mean sea level, from topographic map.

REMARKS.--Records good. No diversion upstream of station.

AVERAGE DISCHARGE.--46 years (water years 1940-42, 1948-70, 1976-95), 18.0 ft^3/s (13,040 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,220 ft^3/s, Jan. 28, 1988, gage height, 9.93 ft from floodmarks, from rating curve extended above 510 ft^3/s, on basis of slope-area measurements at gage heights 6.70 ft, 8.48 ft, and 9.93 ft; minimum, 2.7 ft^3/s, Jan. 22, 28, 29, Feb. 10, 12, 13, 1985.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 13	2030	*1,546	*7.08

No other peak greater than base discharge.

Minimum discharge, 3.6 ft^3/s, Sep. 25-27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

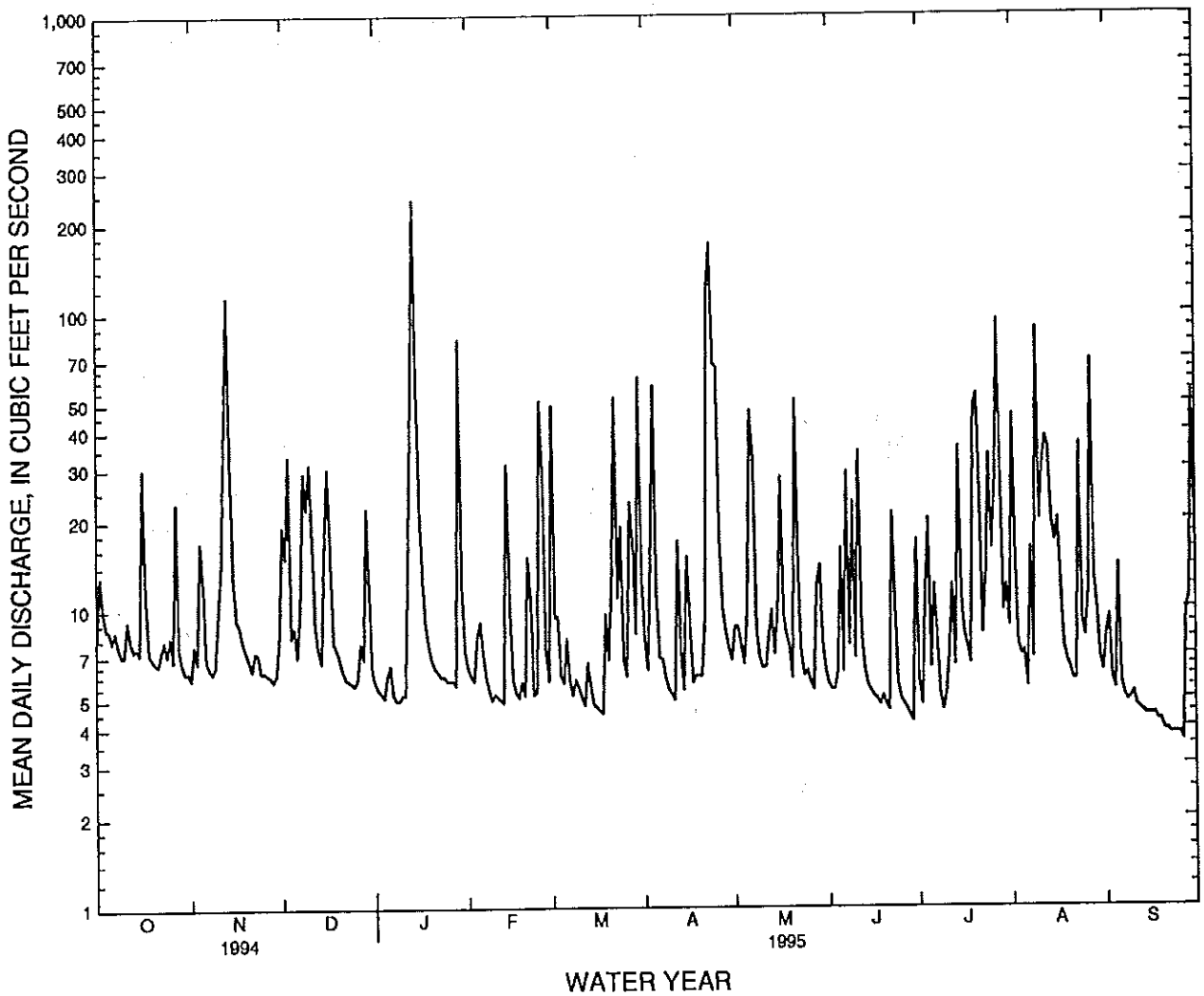
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	5.9	19	5.7	6.4	49	8.0	8.7	5.6	5.8	45	8.2
2	13	7.6	15	5.4	6.0	9.4	6.3	8.7	5.4	4.8	14	9.4
3	10	6.7	33	5.3	5.8	9.5	17	7.7	5.4	11	7.6	5.8
4	8.7	17	8.1	5.1	8.1	6.0	57	6.6	6.2	20	7.0	5.4
5	8.6	12	8.7	6.0	9.1	5.7	11	9.6	16	6.4	7.2	14
6	7.9	6.8	7.0	6.5	7.2	8.0	6.9	47	6.2	12	5.5	5.7
7	8.5	6.4	10	5.2	6.0	5.8	6.8	33	29	8.0	16	5.1
8	7.6	6.2	29	5.0	5.4	5.2	5.9	8.7	7.6	5.2	6.9	4.9
9	7.1	6.5	22	5.0	5.0	5.8	5.4	6.9	23	4.6	88	5.0
10	7.1	9.5	31	5.2	5.2	5.5	5.2	6.4	6.9	5.2	20	5.2
11	9.2	14	17	5.2	5.1	5.1	5.0	6.4	34	7.1	31	4.7
12	7.9	39	8.8	14	5.0	4.8	17	8.1	8.7	12	38	4.6
13	7.4	114	7.3	51	4.9	6.6	7.3	9.9	6.3	6.5	35	4.5
14	7.5	30	6.7	242	31	5.5	5.4	7.1	5.6	35	20	4.4
15	7.2	13	17	58	11	4.8	15	10	5.3	11	17	4.4
16	30	9.3	30	22	5.9	4.7	9.1	28	5.1	8.3	20	4.4
17	11	8.8	16	13	5.3	4.6	5.7	9.5	5.0	7.5	12	4.4
18	7.2	7.8	7.8	8.9	5.1	4.5	6.0	8.2	4.8	6.6	7.5	4.2
19	6.9	7.3	7.4	7.6	5.7	9.6	6.0	7.5	5.1	48	6.7	4.2
20	6.7	6.8	6.9	6.8	5.2	6.8	6.0	5.9	4.8	53	6.3	3.9
21	6.6	6.3	6.3	6.4	15	12	9.3	51	4.6	26	5.8	3.9
22	7.3	7.2	5.9	6.2	11	52	120	13	21	8.3	5.8	3.8
23	7.9	7.1	5.8	6.0	5.2	11	171	7.0	9.9	13	36	3.8
24	7.1	6.2	5.7	6.0	5.3	19	68	6.0	5.6	33	9.2	3.8
25	8.1	6.2	5.6	5.8	51	6.7	66	6.2	5.0	16	8.1	3.8
26	6.8	6.1	5.9	5.8	30	6.0	17	5.7	4.8	25	11	3.6
27	23	6.0	7.7	5.8	7.3	23	10	5.4	4.6	94	69	9.7
28	7.4	5.8	6.9	5.6	5.8	17	8.4	12	4.4	30	13	11
29	6.6	6.1	22	82	---	8.3	7.4	14	4.2	9.9	10	54
30	6.2	8.1	12	12	---	61	6.8	7.6	17	12	6.9	17
31	6.2	---	6.2	7.3	---	13	---	6.2	---	8.8	6.2	---
TOTAL	280.7	399.7	397.7	631.8	279.0	395.9	695.9	378.0	277.1	554.0	591.7	226.8
MEAN	9.05	13.3	12.8	20.4	9.96	12.8	23.2	12.2	9.24	17.9	19.1	7.56
MAX	30	114	33	242	51	61	171	51	34	94	88	54
MIN	6.2	5.8	5.6	5.0	4.9	4.5	5.0	5.4	4.2	4.6	5.5	3.6
AC-FT	557	793	789	1250	553	785	1380	750	550	1100	1170	450

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1995, BY WATER YEAR (WY)

MEAN	15.4	20.5	18.8	18.0	17.6	25.4	24.4	17.5	12.1	16.5	16.9	11.9
MAX	49.6	51.2	37.5	71.2	50.2	133	121	54.5	28.1	34.4	37.2	40.4
(WY)	1942	1979	1955	1988	1969	1942	1989	1987	1987	1989	1957	1992
MIN	3.20	4.41	4.88	4.82	5.09	5.78	7.02	5.21	4.99	6.32	6.09	4.18
(WY)	1985	1963	1985	1977	1978	1961	1992	1975	1962	1975	1976	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1939 - 1995		
ANNUAL TOTAL	8610.8		5108.3				
ANNUAL MEAN	23.6		14.0		18.0		
HIGHEST ANNUAL MEAN					30.8		1942
LOWEST ANNUAL MEAN					11.0		1981
HIGHEST DAILY MEAN	314	Mar 23	242	Jan 14	696	Mar 10	1942
LOWEST DAILY MEAN	5.5	Jan 15	3.6	Sep 26	2.7	Jan 28	1985
ANNUAL SEVEN-DAY MINIMUM	5.8	Jan 9	3.8	Sep 20	2.8	Feb 6	1985
ANNUAL RUNOFF (AC-FT)	17080		10130		13040		
10 PERCENT EXCEEDS	50		30		35		
50 PERCENT EXCEEDS	12		7.2		9.0		
90 PERCENT EXCEEDS	6.7		5.0		5.3		



WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV										
01...	1245	6.0	90	7.9	25.0	20.5	0.30	751	8.9	100
JAN										
10...	1230	5.0	92	8.1	20.5	18.0	0.30	751	8.8	94
FEB										
09...	1035	5.0	92	7.9	19.5	17.0	0.20	750	6.9	73
MAY										
24...	1120	5.7	79	8.1	26.0	21.5	0.20	757	8.8	100
JUL										
11...	1210	4.8	82	8.3	24.5	21.5	0.30	754	8.5	97
AUG										
29...	1200	9.0	63	7.7	25.0	21.0	0.40	754	8.3	94

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)	HARD-NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3
NOV											
01...	K20	620	23	0	4.4	2.9	8.0	42	0.7	1.0	32
JAN											
10...	K7	260	23	0	4.5	2.9	8.3	43	0.8	0.80	33
FEB											
09...	5	280	22	0	4.3	2.8	7.9	42	0.7	0.90	31
MAY											
24...	35	1000	20	0	3.7	2.5	7.6	45	0.7	0.80	27
JUL											
11...	K30	840	21	0	4.0	2.6	7.6	43	0.7	0.90	28
AUG											
29...	62	1400	13	0	2.5	1.7	5.7	47	0.7	0.70	19

DATE	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3	ALKA-LINITY LAB (MG/L AS CACO3)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)
NOV										
01...	0	27	26	1.5	11	<0.10	21	64	66	0.09
JAN										
10...	0	27	26	1.6	10	<0.10	22	65	67	0.09
FEB										
09...	0	26	25	1.4	10	<0.10	20	67	63	0.09
MAY										
24...	0	23	22	1.5	9.6	<0.10	17	53	56	0.07
JUL										
11...	0	25	23	1.5	9.4	<0.10	19	57	59	0.08
AUG										
29...	0	16	15	1.2	8.0	<0.10	13	42	42	0.06

< Actual value is known to be less than the value shown
K Results based on colony count outside the acceptance range (non-ideal colony count)

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	PHOSPHORUS DISSOLVED (MG/L AS P)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P)	ALUMINUM, DISSOLVED (UG/L AS AL)	BARIUM, DISSOLVED (UG/L AS BA)	COBALT, DISSOLVED (UG/L AS CO)
NOV										
01...	--	<0.050	<0.015	<0.20	0.010	<0.010	<0.010	<10	9.0	<3.0
JAN										
10...	0.080	0.080	0.020	<0.20	<0.010	0.040	0.030	--	--	--
FEB										
09...	0.140	0.140	<0.015	<0.20	0.020	0.020	0.020	10	<2.0	<3.0
MAY										
24...	0.060	0.060	0.030	<0.20	<0.010	<0.010	0.020	40	<2.0	3.0
JUL										
11...	0.070	0.070	0.020	<0.20	0.020	0.020	0.020	--	--	--
AUG										
29...	--	<0.050	<0.015	<0.20	0.020	0.020	0.020	40	<2.0	<3.0

DATE	TIME	IRON, DISSOLVED (UG/L AS FE)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, DISSOLVED (UG/L AS MN)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)
NOV										
01...	1245	<3.0	<4	<1.0	20	<1.0	<1	<1.0	29	<6
FEB										
09...	1035	5.0	<4	<1.0	<10	<1.0	<1	<1.0	29	<6
MAY										
24...	1120	19	<4	<1.0	10	<1.0	<1	<1.0	27	<6
AUG										
29...	1200	21	<4	<1.0	<10	<1.0	<1	<1.0	19	<6

DATE	TIME	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L)	RA-226 2 SIGMA WATER, DISS, (PCI/L)	URANIUM NATURAL DISSOLVED (UG/L AS U)	URANIUM NATURAL 2 SIGMA WATER, DISS, (UG/L)
JAN					
10...	1230	0.10	0.020	0.07	<1.0
JUL					
11...	1210	0.04	0.020	0.02	0.0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	TIME	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV				
01...	1245	2	0.03	--
JAN				
10...	1230	0	0.0	--
FEB				
09...	1035	0	0.0	--
MAY				
24...	1120	0	0.0	--
JUL				
11...	1210	2	0.03	--
AUG				
29...	1200	1	0.02	--

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

16620000 HONOKOHAU STREAM NEAR HONOKOHAU

LOCATION.--Lat 20°57'45", long 156°35'22", Hydrologic Unit 20020000, on left bank 1,250 ft upstream from intake of Honokohau ditch, and 4.1 mi southeast of Honokohau.

DRAINAGE AREA.--4.11 mi^2.

PERIOD OF RECORD.--September, November, and December 1911 (combined flow of stream and ditch below point of diversion), March 1913 to September 1920, May 1922 to November 1988, Oct. 1990 to current year. Record since Oct. 1990 equivalent to earlier records.

REVISED RECORDS.--WSP 1937: Drainage area. WDR HI-79-1: 1927-48(M), 1949-78(P).

GAGE.--Water-stage recorders. Elevation of gage is 870 ft above mean sea level, from topographic map. Prior to Mar. 7, 1913, nonrecording gage at site just below Honokohau ditch intake at different datum. Prior to Oct. 1, 1990, at site 250 ft downstream of gage at datum 26.67 ft lower.

REMARKS.--Records fair. No diversion upstream of station. All medium and low flow, together with the inflow from two development tunnels downstream of station, is diverted into Honokohau ditch.

AVERAGE DISCHARGE.--77 years (water years 1914-19, 1923-88, 1991-95), 39.5 ft^3/s (28,590 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Prior to Oct. 1990. Maximum discharge, 7,260 ft^3/s, Jan. 28, 1988 (gage-height, 8.38 ft for datum and site then in use, from rating curve extended above 3,200 ft^3/s, on basis of slope-area measurement at gage height 8.38 ft; minimum, 8.4 ft^3/s, May 1, 1945, Jan. 5, 1946.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 13	1915	*1,306	*4.46	No other peak greater than base discharge.			

Minimum discharge, 11.1 ft^3/s on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	17	51	16	15	47	16	14	14	14	89	33
2	28	50	38	15	14	17	13	14	16	13	28	22
3	e25	21	58	15	14	16	19	14	14	67	19	18
4	e23	105	37	15	14	13	50	13	18	63	28	20
5	22	32	33	16	15	12	22	15	54	19	18	21
6	23	27	25	e17	17	16	15	31	38	36	16	18
7	24	25	58	15	14	14	14	24	86	25	49	17
8	22	21	71	15	14	12	14	15	18	15	20	17
9	20	33	55	15	14	e14	13	14	30	13	124	18
10	20	49	71	15	14	e13	13	13	15	17	38	17
11	26	54	38	14	14	12	13	24	87	26	64	16
12	e22	66	22	20	13	11	85	28	20	51	56	16
13	e21	153	19	67	13	e14	20	49	15	23	46	16
14	22	38	18	262	72	12	15	24	14	95	26	16
15	21	55	53	83	22	11	48	44	13	24	25	16
16	47	48	46	123	14	11	22	56	12	27	29	16
17	23	33	33	32	13	11	16	19	15	22	26	16
18	e21	32	20	21	13	11	20	15	42	18	18	16
19	e20	24	18	19	13	16	20	14	18	72	18	16
20	19	21	17	18	13	16	35	13	13	91	18	16
21	31	19	17	17	13	48	25	20	19	105	19	16
22	28	27	16	17	12	150	130	16	36	19	62	16
23	20	21	16	16	12	33	98	13	21	26	74	16
24	20	22	16	16	13	15	35	13	13	55	33	16
25	26	24	16	16	14	13	48	14	12	75	33	15
26	21	32	23	16	17	12	22	14	12	88	55	15
27	54	21	24	16	13	27	17	13	11	95	104	67
28	21	27	18	16	12	40	15	13	11	42	34	65
29	19	38	67	182	---	16	15	21	11	21	24	115
30	18	45	26	23	---	54	14	21	35	34	27	38
31	17	---	17	16	---	31	---	14	---	23	21	---
TOTAL	745	1180	1037	1164	451	738	902	625	733	1314	1241	740
MEAN	24.0	39.3	33.5	37.5	16.1	23.8	30.1	20.2	24.4	42.4	40.0	24.7
MAX	54	153	71	262	72	150	130	56	87	105	124	115
MIN	17	17	16	14	12	11	13	13	11	13	16	15
AC-FT	1480	2340	2060	2310	895	1460	1790	1240	1450	2610	2460	1470

e Estimated

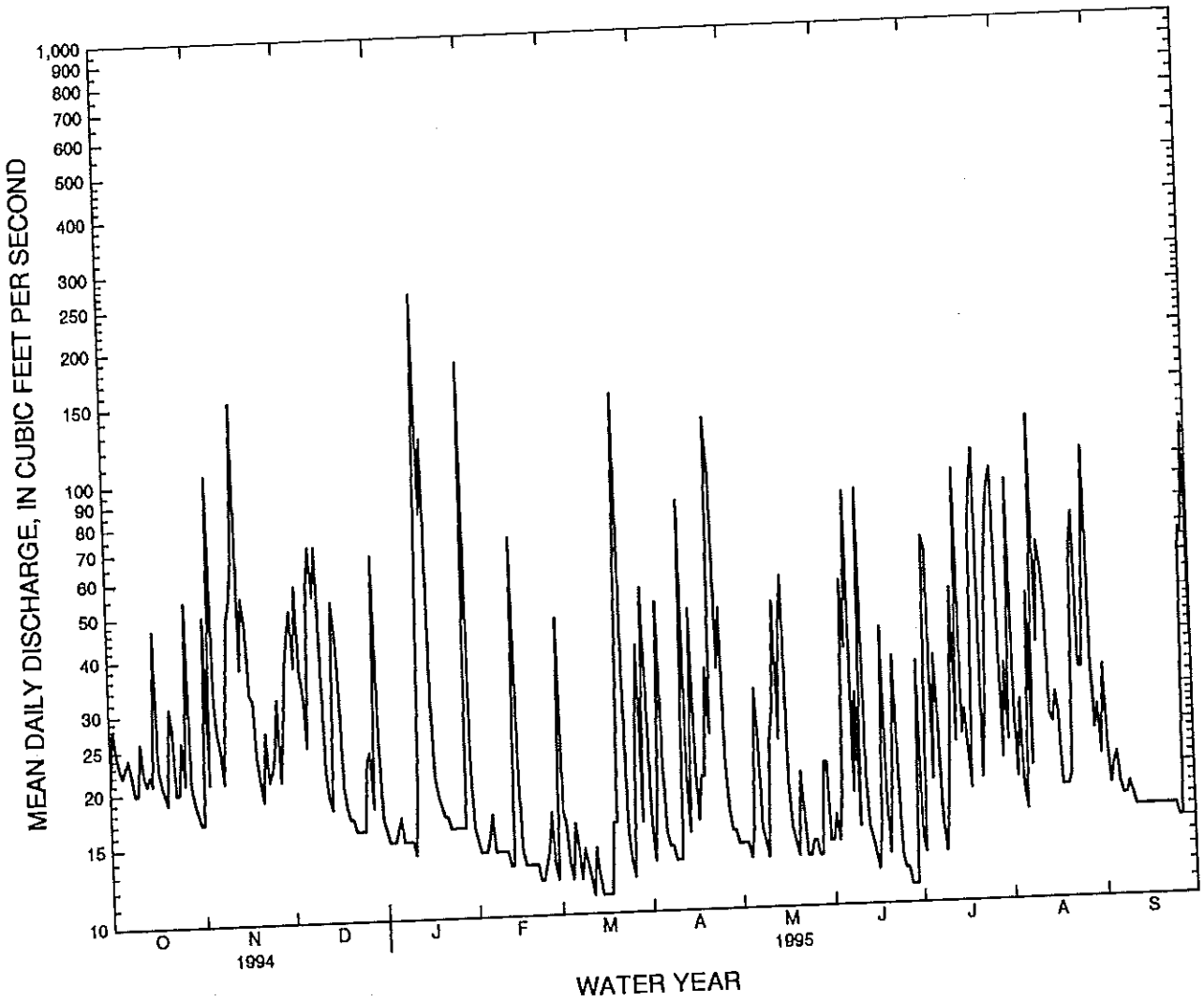
HAWAII, ISLAND OF MAUI

16620000 HONOKOHAU STREAM NEAR HONOKOHAU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 1995, BY WATER YEAR (WY)

MEAN	31.6	41.3	41.3	35.9	37.1	44.3	49.2	41.7	34.5	40.4	41.5	30.6
MAX	94.8	110	97.5	98.6	132	144	120	130	81.1	116	103	122
(WY)	1915	1915	1955	1916	1932	1942	1980	1916	1916	1914	1914	1914
MIN	10.8	11.8	13.0	12.3	13.5	13.4	12.9	12.2	14.2	16.2	14.5	12.1
(WY)	1985	1963	1936	1944	1963	1926	1992	1945	1962	1926	1971	1984

SUMMARY STATISTICS FOR 1994 CALENDAR YEAR			FOR 1995 WATER YEAR		WATER YEARS 1913 - 1995	
ANNUAL TOTAL	17347		10870			
ANNUAL MEAN	47.5		29.8		39.5	
HIGHEST ANNUAL MEAN					68.3	1914
LOWEST ANNUAL MEAN					24.1	1926
HIGHEST DAILY MEAN	502	Mar 23	262	Jan 14	781	Apr 7 1938
LOWEST DAILY MEAN	16	Dec 22	11	Mar 12	8.0	Aug 10 1920
ANNUAL SEVEN-DAY MINIMUM	17	Dec 19	12	Mar 12	8.5	Feb 6 1985
ANNUAL RUNOFF (AC-FT)	34410		21560		28590	
10 PERCENT EXCEEDS	89		60		79	
50 PERCENT EXCEEDS	30		20		24	
90 PERCENT EXCEEDS	21		13		13	



HAWAII, ISLAND OF HAWAII

16700000 WAIAKEA STREAM NEAR MOUNTAIN VIEW

RECORDS BEING REVIEWED

HAWAII, ISLAND OF HAWAII

16700900 OLAA FLUME SPRING NEAR KAUMANA

RECORDS BEING REVIEWED

HAWAII, ISLAND OF HAWAII

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA

LOCATION.--Lat 19°42'02", long 155°10'36", Hydrologic Unit 20010000, on right bank 3 ft downstream from tunnel entrance, 2.7 mi southwest of Piihonua, and 5.8 mi southwest of Hilo Post Office.

PERIOD OF RECORD.--February 1981 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 1,700 ft above mean sea level, from topographic map.

REMARKS.--Water year 1991: Records fair. No diversion upstream.

Water year 1992: Records good, except for estimated periods which are poor. No diversion upstream.

Water year 1993: Records good, except for estimated periods which are poor. No diversion upstream.

Water year 1994: Records good. No diversion upstream.

Water year 1995: Records good. No diversion upstream.

AVERAGE DISCHARGE.--Water year 1991: 10 years (water years 1982-91), 4.81 ft^3/s (3,490 acre-ft/yr).

Water year 1992: 11 years (water years 1982-92), 4.62 ft^3/s (3,350 acre-ft/yr).

Water year 1993: 12 years (water years 1982-93), 4.84 ft^3/s (3,510 acre-ft/yr).

Water year 1994: 13 years (water years 1982-94), 4.83 ft^3/s (3,500 acre-ft/yr).

Water year 1995: 14 years (water years 1982-95), 4.79 ft^3/s (3,470 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 52 ft^3/s, Dec. 28, 1992, Jan. 1-6, 1993; minimum daily, 0.03 ft^3/s, Mar. 23, 24, 31, 1983.

EXTREMES FOR CURRENT YEAR.--Water year 1991: Maximum daily discharge, 18 ft^3/s, Mar. 14; minimum daily, 1.6 ft^3/s, Feb. 11-13.

Water year 1992: Maximum daily discharge, 14 ft^3/s, Sep. 4; minimum daily, 0.19 ft^3/s, Mar. 15.

Water year 1993: Maximum daily discharge, 52 ft^3/s, Dec. 28, Jan. 1-6; minimum daily, 0.73 ft^3/s, Feb. 24-Mar. 1.

Water year 1994: Maximum daily discharge, 18 ft^3/s, Aug. 12; minimum daily, 1.5 ft^3/s, Jan. 19.

Water year 1995: Maximum daily discharge, 15 ft^3/s, Nov. 16; minimum daily, 0.67 ft^3/s, Mar. 20.

REVISIONS.--The maximum daily discharge for water year 1982 has been revised. Daily discharges, in cubic feet per second, for water years 1982, 1984, and 1989 have also been revised. These figures supersede those published in annual reports for water years 1982, 1984, and 1989.

Water year 1982: Maximum daily discharge, 20 ft^3/s, Dec. 25, 1981; minimum daily discharge, 2.3 ft^3/s, Mar. 8, 9, 1982.

Water year 1984: Maximum daily discharge, 10 ft^3/s, Oct. 8, 1983; minimum daily discharge, 0.65 ft^3/s, Jan. 22, 1984.

Water year 1989: Maximum daily discharge, 15 ft^3/s, Jan. 15, 1989; minimum daily discharge, 1.5 ft^3/s, Oct. 18, 1988.

HAWAII, ISLAND OF HAWAII

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	4.3	9.4	5.4	5.6	2.4	9.0	5.8	4.3	3.8	16	8.2
2	7.3	4.0	11	5.2	5.4	2.7	6.9	7.0	4.1	7.2	15	11
3	5.9	6.5	7.8	5.1	5.2	2.4	6.3	5.7	4.4	6.3	14	10
4	6.2	5.3	7.1	4.9	4.9	2.3	6.3	5.4	4.0	6.9	13	9.5
5	5.7	5.1	6.5	4.8	4.7	2.2	5.8	5.3	4.0	6.5	12	9.0
6	5.6	4.9	6.0	4.7	4.5	2.1	5.6	5.2	4.0	5.7	10	8.5
7	5.6	5.7	6.0	4.5	4.4	2.0	5.4	5.3	3.9	5.3	11	8.0
8	5.3	6.0	6.7	4.4	4.3	1.8	5.2	6.1	4.3	5.4	14	7.5
9	5.2	5.3	5.7	4.3	4.1	1.7	5.1	7.0	4.1	6.1	11	7.0
10	5.0	4.9	5.4	4.1	4.0	3.0	4.9	7.1	4.1	7.8	9.0	7.5
11	5.1	4.7	5.2	4.1	3.9	3.3	4.8	6.3	3.8	5.7	7.2	7.0
12	5.2	4.5	5.1	4.0	3.8	3.9	4.7	6.1	3.6	5.8	7.0	7.0
13	5.2	4.5	4.9	3.9	3.8	12	4.7	5.3	3.8	5.5	6.5	6.5
14	4.9	4.3	4.8	3.9	3.6	6.7	4.9	5.4	4.0	7.2	6.1	6.0
15	4.8	4.1	4.7	3.9	3.6	6.3	4.7	5.2	3.6	6.5	6.1	5.5
16	4.5	4.0	4.5	3.8	3.5	8.0	5.7	4.9	3.5	12	6.1	5.5
17	4.3	3.9	4.4	3.8	3.5	9.0	7.2	6.0	7.0	13	6.1	5.0
18	4.2	3.9	4.3	4.7	3.4	6.9	6.1	5.6	7.2	9.8	6.0	5.0
19	4.1	3.6	4.1	4.0	3.2	6.0	5.3	5.8	5.5	7.4	5.8	4.5
20	4.0	3.4	4.1	3.8	3.0	5.8	5.3	5.3	4.9	6.0	6.8	4.5
21	3.9	3.3	4.0	6.9	2.9	5.8	5.7	5.4	4.7	7.1	6.0	4.0
22	3.9	3.3	4.3	6.6	2.8	6.0	5.1	5.2	4.5	7.2	6.1	4.0
23	3.7	4.3	4.4	5.1	2.8	12	4.8	5.1	4.3	5.8	8.5	4.0
24	3.7	12	4.7	4.9	2.7	8.0	4.7	4.9	4.1	5.5	8.5	3.5
25	3.6	6.7	19	6.7	2.7	7.6	4.5	4.8	3.9	5.3	9.0	3.5
26	3.4	5.8	13	17	2.5	6.3	5.3	4.8	3.8	5.2	8.0	3.5
27	3.3	7.4	8.4	16	2.5	6.1	4.7	4.8	3.6	5.2	8.0	3.0
28	5.8	7.4	6.5	10	2.4	7.8	6.5	4.7	4.3	5.0	8.5	3.0
29	5.7	6.1	6.0	6.7	---	6.7	7.4	4.4	4.0	5.0	9.2	3.0
30	5.3	11	5.8	6.1	---	8.2	6.7	4.5	3.9	4.5	9.8	3.0
31	4.7	---	5.6	5.8	---	11	---	4.3	---	5.5	8.5	---
TOTAL	151.4	160.2	199.4	179.1	103.7	176.0	169.3	168.7	129.2	201.2	278.8	177.2
MEAN	4.88	5.34	6.43	5.78	3.70	5.68	5.64	5.44	4.31	6.49	8.99	5.91
MAX	7.3	12	19	17	5.6	12	9.0	7.1	7.2	13	16	11
MIN	3.3	3.3	4.0	3.8	2.4	1.7	4.5	4.3	3.5	3.8	5.8	3.0
AC-FT	300	318	396	355	206	349	336	335	256	399	553	351

WTR YR 1982 TOTAL 2094.2 MEAN 5.74 MAX 19 MIN 1.7 AC-FT 4150

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	4.9	3.5	.76	5.4	4.3	4.0	5.3	4.0	3.7	3.1	4.3
2	5.8	4.8	3.4	.71	5.1	4.2	4.0	5.7	3.8	4.0	3.3	4.0
3	5.6	4.7	3.1	.70	4.9	3.8	4.0	5.2	3.8	3.5	3.9	4.0
4	5.4	4.5	3.0	.65	4.7	4.0	5.2	5.2	3.6	3.5	3.5	3.9
5	5.6	4.4	3.0	1.1	4.5	4.2	4.3	5.1	3.5	3.5	4.7	3.9
6	5.2	4.3	2.9	2.2	4.4	4.0	4.8	4.9	3.3	3.1	4.4	3.8
7	7.2	4.3	2.8	1.4	4.3	3.9	5.7	4.9	3.1	2.5	3.9	3.4
8	9.2	4.1	2.7	1.4	6.1	3.8	5.8	4.8	3.0	3.5	3.8	3.2
9	6.0	4.0	2.5	1.3	5.1	3.6	6.5	4.7	3.0	3.6	3.8	3.1
10	7.6	3.9	2.4	1.3	4.7	3.4	8.4	4.5	2.9	3.4	4.0	3.0
11	6.0	3.9	2.3	1.1	4.5	3.3	6.7	4.5	3.0	3.2	3.9	2.9
12	5.7	4.1	2.3	1.0	4.4	3.1	5.7	4.4	3.7	3.3	3.8	2.8
13	5.5	4.9	2.2	.93	4.3	3.0	5.6	4.2	3.8	3.1	3.8	2.6
14	5.2	4.3	2.1	.92	4.3	2.8	6.7	4.1	3.1	3.0	3.5	2.5
15	5.1	4.1	2.1	.92	5.1	2.7	5.7	4.0	3.4	2.8	3.5	2.3
16	6.9	4.1	2.0	.90	5.6	2.5	5.3	4.0	5.4	2.7	4.0	2.2
17	5.5	4.0	1.9	.81	4.7	2.3	5.6	4.0	4.7	2.5	3.5	2.0
18	5.2	4.0	1.8	.76	4.7	2.1	6.5	4.3	4.4	2.4	3.3	1.8
19	5.1	4.1	1.6	.71	4.5	2.0	7.4	4.4	4.4	2.3	3.1	1.7
20	5.1	4.8	1.6	.70	6.9	1.9	6.9	4.9	4.2	2.1	3.0	1.5
21	4.9	4.4	1.5	.65	5.6	1.6	6.3	5.3	4.1	2.3	2.9	1.4
22	4.8	4.3	1.2	.61	5.2	1.5	6.1	4.4	4.1	2.1	3.3	1.4
23	5.7	4.1	1.3	3.0	4.9	1.4	7.6	4.5	3.9	2.1	6.5	1.2
24	7.4	4.1	.98	5.7	4.9	1.2	7.4	4.7	4.0	2.0	4.8	.99
25	6.0	4.4	.93	4.5	4.9	1.1	6.0	4.3	3.9	1.8	4.5	.87
26	5.6	4.3	1.1	5.2	4.7	.98	5.7	4.3	3.9	1.8	4.9	.96
27	9.0	4.0	.98	4.8	4.7	.87	5.7	4.1	3.8	3.3	5.3	.94
28	5.7	3.9	.98	5.6	4.4	.98	5.5	4.1	3.6	3.1	4.7	.93
29	5.6	3.8	.98	6.1	4.3	4.3	5.8	4.4	3.4	2.5	4.7	.83
30	5.3	3.8	.98	5.8	---	4.0	5.5	4.3	3.2	2.8	4.5	.80
31	5.1	---	.90	6.9	---	4.0	---	4.1	---	3.1	4.3	---
TOTAL	184.6	127.3	61.03	69.13	141.8	86.83	176.4	141.6	112.0	88.6	124.2	69.22
MEAN	5.95	4.24	1.97	2.23	4.89	2.80	5.88	4.57	3.73	2.86	4.01	2.31
MAX	9.2	4.9	3.5	6.9	6.9	4.3	8.4	5.7	5.4	4.0	6.5	4.3
MIN	4.8	3.8	.90	.61	4.3	.87	4.0	4.0	2.9	1.8	2.9	.80
AC-FT	366	252	121	137	281	172	350	281	222	176	246	137

CAL YR 1983 TOTAL 1361.39 MEAN 3.73 MAX 10 MIN .03 AC-FT 2700
WTR YR 1984 TOTAL 1382.71 MEAN 3.78 MAX 9.2 MIN .61 AC-FT 2740

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.8	4.8	9.8	4.9	4.7	4.3	6.1	5.7	4.2	5.6	4.9
2	3.6	3.6	4.6	7.6	4.8	4.5	4.8	5.6	5.4	4.1	5.4	5.6
3	3.6	3.6	4.5	7.6	5.1	4.4	6.9	5.3	5.4	4.5	5.3	4.7
4	3.6	5.8	4.4	6.4	5.2	4.4	4.8	5.1	5.7	5.6	5.1	5.0
5	3.6	5.6	4.3	6.0	4.8	4.8	5.7	4.8	7.2	5.8	5.1	4.6
6	3.6	5.4	4.2	5.6	5.4	5.3	4.8	4.8	7.2	8.7	5.6	4.5
7	3.5	4.9	4.0	7.8	4.8	6.7	4.7	4.4	8.4	5.7	5.1	4.3
8	3.3	5.1	3.9	8.0	4.8	4.8	4.7	5.6	6.7	5.8	4.9	4.4
9	3.0	5.3	3.9	7.8	5.1	4.5	4.4	5.6	6.0	5.3	4.8	4.5
10	2.9	5.4	3.9	12	5.1	4.5	4.2	5.5	5.6	5.1	4.8	4.2
11	2.8	7.6	5.2	8.8	5.1	4.3	4.1	5.4	5.3	5.2	4.7	4.0
12	2.9	5.6	4.2	7.8	4.9	4.3	4.0	5.1	7.8	4.9	4.6	4.0
13	2.4	5.3	4.0	12	4.7	4.1	3.8	10	5.6	9.0	4.9	4.2
14	2.9	6.7	3.8	13	4.5	4.0	5.2	7.2	5.6	8.3	4.9	4.0
15	2.3	5.5	3.6	14	4.5	3.9	4.8	10	6.3	7.1	4.5	4.0
16	1.8	5.2	3.6	12	4.4	3.9	4.0	8.5	5.5	6.0	4.9	4.3
17	1.6	4.9	3.3	9.3	4.3	3.8	3.8	7.1	5.3	5.5	4.5	5.4
18	1.5	4.8	3.4	7.1	4.3	3.8	3.6	6.7	5.4	5.2	4.4	4.6
19	2.3	4.7	3.8	6.1	4.1	3.9	3.6	6.3	4.9	8.2	4.4	4.7
20	2.7	4.8	3.6	5.8	4.1	3.9	5.1	7.4	4.9	10	6.5	4.5
21	3.1	4.8	3.9	6.5	4.0	3.9	5.4	6.0	4.7	7.1	7.4	4.3
22	3.1	6.7	3.9	6.3	3.9	3.8	6.1	6.0	4.5	11	5.5	4.1
23	2.6	7.0	3.8	6.1	5.6	3.6	7.2	7.6	4.5	8.0	5.1	4.0
24	2.5	6.6	3.9	5.8	7.0	3.6	6.1	7.0	4.4	7.6	4.9	4.0
25	2.8	6.0	4.5	5.6	6.9	3.5	5.5	9.7	4.4	7.6	4.6	3.9
26	2.7	5.7	9.5	5.3	5.5	3.5	5.0	7.1	4.4	6.7	4.4	4.0
27	3.4	5.4	5.6	5.1	5.2	3.5	5.1	6.3	4.4	6.0	4.4	4.4
28	6.0	5.2	6.7	5.2	5.1	3.5	6.7	5.7	4.3	5.7	4.3	4.4
29	4.4	4.8	8.0	5.1	---	3.4	9.2	9.7	4.3	7.4	4.1	4.3
30	4.2	5.1	11	5.1	---	3.3	10	7.6	4.4	7.3	4.1	3.9
31	3.8	---	11	5.1	---	3.3	---	6.5	---	6.1	4.0	---
TOTAL	96.3	160.9	152.8	235.7	138.1	127.4	157.6	205.7	164.2	204.7	152.8	131.7
MEAN	3.11	5.36	4.93	7.60	4.93	4.11	5.25	6.64	5.47	6.60	4.93	4.39
MAX	6.0	7.6	11	14	7.0	6.7	10	10	8.4	11	7.4	5.6
MIN	1.5	3.6	3.3	5.1	3.9	3.3	3.6	4.4	4.3	4.1	4.0	3.9
AC-FT	191	319	303	468	274	253	313	408	326	406	303	261

CAL YR 1988 TOTAL 1623.9 MEAN 4.44 MAX 12 MIN 1.5 AC-FT 3220
WTR YR 1989 TOTAL 1927.9 MEAN 5.28 MAX 14 MIN 1.5 AC-FT 3820

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.5	e7.5	e5.5	e5.0	3.0	3.8	6.2	5.4	5.6	4.1	5.5	4.2
2	e5.5	e8.0	e5.0	e4.5	3.0	3.6	5.6	5.0	5.3	3.9	4.3	4.0
3	e7.0	e7.0	e4.5	e4.0	2.8	3.6	5.9	4.8	5.0	3.9	4.8	5.2
4	e6.5	e7.0	e4.0	e4.0	2.5	3.5	5.3	4.6	4.7	3.8	6.2	6.5
5	e6.0	e6.5	e3.5	e3.5	2.3	3.4	7.1	4.4	4.7	3.6	4.7	5.0
6	e5.5	e6.5	e3.5	e3.5	2.0	3.6	6.0	4.3	4.4	3.8	4.5	4.7
7	e5.5	e7.0	e3.0	e4.5	1.9	4.1	5.4	4.2	7.0	4.6	6.8	4.6
8	e5.0	e6.5	e3.0	e4.5	2.0	4.5	5.7	4.1	5.0	3.7	10	4.4
9	e5.0	e6.0	e9.5	e4.0	2.0	13	5.4	4.6	4.8	3.5	7.1	4.3
10	e4.5	e6.0	e8.0	4.3	1.8	9.2	5.6	4.6	4.5	4.3	5.7	5.4
11	e7.0	e5.5	e8.5	4.2	1.6	8.0	5.7	4.0	4.7	5.9	5.2	4.8
12	e6.5	e6.0	e8.5	4.2	1.6	12	5.3	3.9	4.8	4.2	5.0	4.4
13	e7.0	e5.5	e9.0	5.2	1.6	15	5.6	3.9	4.3	5.2	5.2	4.1
14	e7.5	e10	e10	5.3	3.4	18	4.9	6.2	5.5	5.1	4.6	4.0
15	e7.5	e9.5	e12	4.8	3.1	15	5.2	5.0	7.5	4.8	4.4	4.0
16	e8.0	e10	e14	4.4	2.5	16	5.3	4.5	4.6	4.7	4.2	4.0
17	e8.0	e10	e12	4.2	2.9	15	5.2	4.6	4.3	4.2	5.3	3.8
18	e9.0	e15	e12	4.1	2.9	11	4.8	4.3	4.3	4.1	5.6	3.6
19	e9.5	e14	e10	4.0	2.9	12	5.0	4.2	4.0	4.0	4.5	4.1
20	e9.0	e15	e9.0	3.9	6.1	9.3	4.6	4.1	3.9	4.1	4.3	4.4
21	e8.5	e14	e8.5	3.8	5.2	7.5	4.5	4.0	3.8	3.9	4.1	4.2
22	e8.5	e13	e15	3.7	4.8	6.9	4.4	3.9	3.8	3.8	4.4	7.2
23	e8.0	e12	e12	3.6	4.6	6.1	4.7	3.9	3.6	3.7	4.1	6.3
24	e8.0	e10	e10	3.5	4.2	5.6	6.5	3.9	4.1	3.6	4.4	4.7
25	e7.5	e8.5	e9.0	3.4	4.1	5.4	5.2	4.0	5.9	3.3	4.1	4.3
26	e7.0	e8.0	e8.5	3.3	4.1	5.2	6.7	4.6	6.3	3.5	4.6	4.1
27	e6.5	e7.5	e8.0	3.2	4.0	6.0	5.8	5.7	4.8	3.2	5.4	3.9
28	e6.5	e7.0	e7.0	3.4	3.9	6.1	6.3	5.3	4.6	3.1	6.0	3.8
29	e6.0	e7.0	e6.5	3.1	---	6.3	5.8	6.6	4.5	3.1	5.1	3.6
30	e7.5	e6.5	e5.5	3.1	---	5.6	6.9	6.7	4.2	6.2	4.7	3.5
31	e7.0	---	e5.0	3.1	---	5.5	---	6.2	---	4.1	4.4	---
TOTAL	216.0	262.0	249.5	123.3	86.8	249.8	166.6	145.5	144.5	127.0	159.2	135.1
MEAN	6.97	8.73	8.05	3.98	3.10	8.06	5.55	4.69	4.82	4.10	5.14	4.50
MAX	9.5	15	15	5.3	6.1	18	7.1	6.7	7.5	6.2	10	7.2
MIN	4.5	5.5	3.0	3.1	1.6	3.4	4.4	3.9	3.6	3.1	4.1	3.5
AC-FT	428	520	495	245	172	495	330	289	287	252	316	268

CAL YR 1990 TOTAL 2153.7 MEAN 5.90 MAX 15 MIN 2.1 AC-FT 4270
WTR YR 1991 TOTAL 2065.3 MEAN 5.66 MAX 18 MIN 1.6 AC-FT 4100

e Estimated

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	.96	6.4	3.8	1.1	.32	.56	.96	e.35	4.7	5.4	e4.7
2	3.2	.92	13	3.8	1.0	.32	.67	1.0	e.35	4.1	5.3	e6.8
3	3.1	.97	6.3	3.7	.98	.32	1.2	1.0	e.35	3.9	4.9	e10
4	3.0	.92	6.6	3.5	.95	.28	1.3	1.0	e.45	4.1	4.7	e14
5	2.9	.90	5.0	3.4	.90	.27	1.2	1.0	e.60	4.0	4.5	e11
6	2.8	.90	5.1	3.3	.90	.27	1.2	1.5	e.80	4.1	4.3	e9.0
7	2.7	.85	4.8	3.3	1.0	.27	1.2	1.4	e.80	4.3	4.1	e7.2
8	2.9	.81	4.5	3.2	.92	.23	1.2	1.2	e.90	3.8	4.0	e6.2
9	2.6	1.2	4.2	3.1	.93	.23	1.2	1.1	e1.4	6.1	3.8	e6.4
10	2.4	1.2	4.4	3.0	.89	.23	1.1	1.0	e1.8	6.5	3.7	e5.9
11	2.3	1.3	5.1	2.9	.83	.23	1.1	.97	2.6	4.8	5.4	e5.6
12	2.1	1.3	4.1	2.8	.69	.23	1.5	.94	2.8	4.4	4.8	e5.2
13	1.9	1.2	4.2	2.6	.69	.23	1.2	1.1	2.8	4.2	4.5	e4.8
14	1.8	1.1	4.2	2.4	.73	.21	1.1	1.1	2.9	4.1	4.1	e9.2
15	1.7	1.1	4.6	2.3	.73	.19	.99	1.1	3.7	4.1	4.0	e8.0
16	1.6	1.0	4.0	2.1	.73	.21	.87	1.0	3.4	3.9	5.6	e5.6
17	1.5	.98	3.8	1.9	.72	.36	.85	1.0	3.4	3.8	4.9	e6.0
18	1.5	.96	3.7	1.7	.66	.31	.85	.96	3.3	4.7	e4.6	e5.5
19	1.5	2.1	3.5	1.5	.66	.33	.79	.91	4.4	4.8	e4.6	e5.2
20	1.5	1.9	3.4	1.4	.60	.37	.76	.89	5.2	5.9	e4.8	e4.8
21	1.4	2.1	3.3	1.3	.59	.37	.72	.83	3.9	6.2	e6.2	e4.5
22	1.3	2.3	3.2	1.2	.54	.37	.66	.77	3.7	4.7	e5.6	e4.3
23	1.3	3.5	3.1	1.1	.50	.37	.63	.74	3.7	4.4	e5.5	e4.1
24	1.2	2.8	3.0	1.0	.48	.37	.59	.76	4.1	4.3	e5.4	e4.0
25	1.2	3.0	2.9	.94	.44	.59	.54	.69	4.7	4.4	e5.2	e4.4
26	1.2	2.8	5.5	.88	.42	.76	.48	.66	3.9	7.7	e5.6	e5.2
27	1.2	2.7	3.9	.80	.38	.57	.48	.60	3.9	9.1	e5.2	e4.8
28	1.3	2.6	4.1	.73	.37	.48	.62	.54	4.9	5.7	e5.2	e4.5
29	1.2	2.8	5.0	.91	.34	.56	1.2	.50	4.1	5.1	e6.2	e4.2
30	1.1	7.3	4.0	.96	---	.63	1.0	e.45	4.6	5.2	e5.6	e3.9
31	1.0	---	3.7	1.1	---	.60	---	e.40	---	6.7	e5.1	---
TOTAL	59.9	54.47	142.6	66.62	20.67	11.08	27.76	28.07	83.80	153.8	152.8	185.0
MEAN	1.93	1.82	4.60	2.15	.71	.36	.93	.91	2.79	4.96	4.93	6.17
MAX	3.5	7.3	13	3.8	1.1	.76	1.5	1.5	5.2	9.1	6.2	14
MIN	1.0	.81	2.9	.73	.34	.19	.48	.40	.35	3.8	3.7	3.9
AC-FT	119	108	283	132	41	22	55	56	166	305	303	367

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1992, BY WATER YEAR (WY)

MEAN	4.50	4.94	4.71	4.08	3.04	4.25	5.17	4.87	4.25	4.56	5.15	4.70
MAX	6.97	8.73	8.05	7.60	6.28	10.1	10.5	6.64	5.89	6.60	8.99	6.37
(WY)	1991	1991	1991	1989	1990	1985	1986	1989	1987	1989	1982	1990
MIN	.39	1.82	1.37	2.15	.41	.074	.93	.91	1.57	.61	3.86	2.31
(WY)	1985	1992	1990	1992	1986	1983	1992	1992	1981	1981	1987	1984

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1981 - 1992	
ANNUAL TOTAL	1594.77		986.57			
ANNUAL MEAN	4.37		2.70		4.62	
HIGHEST ANNUAL MEAN					5.74	1982
LOWEST ANNUAL MEAN					2.70	1992
HIGHEST DAILY MEAN	18	Mar 14	14	Sep 4	23	Apr 10 1986
LOWEST DAILY MEAN	.81	Nov 8	.19	Mar 15	.03	Mar 23 1983
ANNUAL SEVEN-DAY MINIMUM	.90	Nov 2	.22	Mar 10	.04	Mar 18 1983
ANNUAL RUNOFF (AC-FT)	3160		1960		3350	
10 PERCENT EXCEEDS	6.2		5.4		7.0	
50 PERCENT EXCEEDS	4.2		1.9		4.5	
90 PERCENT EXCEEDS	1.6		.48		1.1	

e Estimated

HAWAII, ISLAND OF HAWAII

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e4.1	4.0	19	52	e1.6	.73	1.1	6.7	2.8	3.8	5.9	4.1
2	e3.8	5.3	18	52	e1.4	.75	1.1	5.6	2.3	3.9	7.5	4.1
3	e3.6	4.5	18	52	1.3	1.7	1.1	5.6	1.9	3.7	5.4	3.8
4	e3.6	3.9	19	52	1.3	1.8	.98	4.9	1.8	4.6	5.3	3.7
5	e3.7	3.7	20	52	1.3	1.8	.96	5.0	1.7	3.7	5.0	3.6
6	e3.1	3.9	20	52	1.3	2.2	.95	4.7	1.7	3.6	5.0	3.5
7	e2.5	3.9	21	e26	1.2	3.1	1.1	4.4	1.6	3.4	5.4	3.4
8	e2.2	3.6	21	e20	1.2	3.8	1.5	5.2	2.0	3.3	4.8	3.3
9	e4.0	5.3	24	e15	1.2	3.7	1.3	4.6	2.6	3.4	5.4	3.4
10	e2.3	4.4	26	e13	1.5	3.3	1.3	5.1	2.9	3.3	8.4	3.4
11	e2.2	4.2	32	e10	1.9	3.4	1.3	4.4	3.5	3.0	6.3	4.1
12	e2.1	4.2	27	e9.0	1.7	3.2	1.3	6.4	4.0	2.9	6.8	3.8
13	e2.0	4.2	27	e7.6	1.6	3.0	1.3	4.8	3.5	7.4	7.0	3.9
14	2.6	4.8	27	e6.4	1.6	2.9	1.1	4.3	3.0	5.6	6.0	3.8
15	2.4	5.4	27	e5.6	1.4	2.8	.96	4.2	3.5	4.5	5.1	3.7
16	2.4	5.3	34	e4.8	1.4	2.7	.96	4.0	4.2	4.1	5.0	3.6
17	2.3	6.0	32	e4.2	1.2	2.6	.96	3.9	4.1	4.8	4.8	3.6
18	2.1	6.1	32	e3.6	1.2	2.1	.96	3.7	4.0	5.4	4.8	3.5
19	1.8	9.0	32	e3.2	1.2	1.7	.90	3.6	3.8	7.9	e5.4	3.4
20	1.7	7.6	32	e3.4	1.0	1.7	3.5	3.4	3.7	6.5	e4.2	3.7
21	1.5	8.9	34	e3.6	.89	1.5	5.3	3.4	3.6	9.5	4.1	3.5
22	1.4	8.2	41	e3.8	.82	1.3	7.4	3.5	3.4	10	4.1	3.4
23	1.3	8.2	39	e3.4	.77	1.2	5.9	3.6	3.3	9.5	5.3	3.3
24	1.6	8.2	44	e3.1	.73	1.2	4.7	3.4	3.1	14	6.0	3.5
25	2.3	8.2	43	e2.9	.73	1.2	4.5	3.3	3.6	7.9	4.9	3.7
26	3.8	10	43	e2.5	.73	1.1	4.5	3.1	4.0	9.8	4.5	3.6
27	4.1	11	47	e2.4	.73	.99	4.3	2.9	3.8	8.1	4.4	3.5
28	4.9	14	52	e2.2	.73	.93	4.7	2.9	3.9	7.0	5.9	3.3
29	4.2	30	49	e2.0	---	.87	4.3	2.8	4.6	6.9	4.5	3.2
30	3.7	21	49	e1.8	---	.94	7.1	2.6	4.1	6.0	4.3	4.4
31	3.6	---	49	e1.7	---	1.0	---	2.4	---	6.1	4.2	---
TOTAL	86.9	227.0	998	473.2	33.63	61.21	77.33	128.4	96.0	183.6	165.7	108.8
MEAN	2.80	7.57	32.2	15.3	1.20	1.97	2.58	4.14	3.20	5.92	5.35	3.63
MAX	4.9	30	52	52	1.9	3.8	7.4	6.7	4.6	14	8.4	4.4
MIN	1.3	3.6	18	1.7	.73	.73	.90	2.4	1.6	2.9	4.1	3.2
AC-FT	172	450	1980	939	67	121	153	255	190	364	329	216

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1993, BY WATER YEAR (WY)

MEAN	4.36	5.16	7.00	5.01	2.90	4.07	4.97	4.82	4.17	4.66	5.17	4.62
MAX	6.97	8.73	32.2	15.3	6.28	10.1	10.5	6.64	5.89	6.60	8.99	6.37
(WY)	1991	1991	1993	1993	1990	1985	1986	1989	1987	1989	1982	1990
MIN	.39	1.82	1.37	2.15	.41	.074	.93	.91	1.57	.61	3.86	2.31
(WY)	1985	1992	1990	1992	1986	1983	1992	1992	1981	1981	1987	1984

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1981 - 1993	
ANNUAL TOTAL	2041.50		2639.77			
ANNUAL MEAN	5.58		7.23		4.84	
HIGHEST ANNUAL MEAN					7.23	1993
LOWEST ANNUAL MEAN					2.70	1992
HIGHEST DAILY MEAN	52	Dec 28	52	Dec 28	52	Dec 28 1992
LOWEST DAILY MEAN	.19	Mar 15	.73	Feb 24	.03	Mar 23 1983
ANNUAL SEVEN-DAY MINIMUM	.22	Mar 10	.73	Feb 24	.04	Mar 18 1983
ANNUAL RUNOFF (AC-FT)	4050		5240		3510	
10 PERCENT EXCEEDS	11		20		7.1	
50 PERCENT EXCEEDS	3.4		3.8		4.4	
90 PERCENT EXCEEDS	.48		1.2		1.1	

e Estimated

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	3.4	4.5	3.6	3.5	3.7	4.5	5.0	3.9	5.7	3.7	7.3
2	3.3	3.4	4.6	3.5	3.3	3.6	4.3	5.0	3.8	4.6	3.6	6.4
3	6.8	3.4	5.7	3.5	3.2	3.5	4.1	4.4	3.6	4.5	6.1	6.9
4	5.0	3.8	5.6	3.3	5.8	3.2	5.5	4.2	3.7	4.3	4.6	6.8
5	4.4	3.7	5.5	3.2	6.4	3.1	4.2	4.0	4.8	5.1	3.9	5.7
6	4.0	4.5	6.0	3.1	5.3	3.0	4.6	3.8	5.4	4.4	4.0	5.1
7	3.8	4.2	4.9	3.0	4.4	2.9	6.5	3.6	4.0	5.4	3.8	4.7
8	3.8	4.8	5.0	2.9	4.7	2.8	5.4	3.5	3.8	5.2	3.7	4.3
9	3.6	5.6	4.5	2.8	5.1	2.7	6.1	3.4	3.6	4.3	3.6	4.6
10	3.6	4.1	4.3	2.7	6.2	2.6	5.9	3.4	3.4	4.2	3.5	4.1
11	3.5	3.9	4.1	2.6	7.2	2.5	5.0	3.3	3.3	4.0	6.0	4.2
12	3.7	3.7	4.8	2.5	6.3	3.9	6.1	3.7	3.1	3.8	18	5.5
13	4.1	3.5	4.7	2.4	4.9	4.3	5.4	4.7	3.1	3.8	8.2	4.8
14	3.3	3.5	4.3	2.2	4.6	4.4	4.6	3.9	4.1	4.9	5.9	4.5
15	3.1	4.0	4.9	2.0	4.4	4.4	4.3	4.9	3.6	11	4.8	4.1
16	3.0	3.9	4.9	1.7	4.3	4.4	4.2	4.0	3.4	5.9	4.4	3.9
17	3.4	7.4	8.6	1.6	8.2	4.5	4.0	3.8	3.3	6.6	4.1	9.9
18	3.0	6.4	6.1	1.6	6.2	4.3	4.4	3.6	5.1	8.7	4.2	11
19	2.9	5.4	11	1.5	5.0	4.5	4.2	3.4	8.8	5.8	3.9	16
20	2.8	4.6	7.5	3.0	5.6	6.2	5.4	3.5	5.3	5.3	3.6	11
21	2.8	4.4	6.4	6.0	4.8	8.3	5.4	3.9	4.5	6.8	3.5	7.3
22	2.7	4.1	5.5	4.8	4.4	9.6	5.4	3.9	5.6	5.6	3.5	6.2
23	4.0	3.9	5.1	4.5	4.2	10	5.6	4.1	5.2	5.8	7.5	5.5
24	3.3	3.8	4.9	4.6	4.0	13	4.9	3.8	4.3	5.3	5.7	5.1
25	3.0	3.5	4.6	4.9	4.4	9.3	4.7	3.9	5.0	5.5	4.8	4.8
26	3.1	3.4	4.4	4.6	4.9	6.7	5.4	3.8	5.6	5.0	5.6	4.6
27	2.9	3.5	4.2	4.2	4.0	5.7	4.7	3.6	5.8	4.6	6.5	4.5
28	2.7	4.0	4.0	4.0	3.8	5.3	5.1	3.9	5.2	4.4	4.5	4.4
29	2.6	4.4	3.9	3.8	---	5.2	4.6	4.0	4.8	4.1	4.3	4.3
30	4.3	5.3	3.8	3.7	---	4.8	4.8	3.8	6.5	3.9	3.9	4.1
31	3.5	---	3.7	3.6	---	6.2	---	4.0	---	3.8	7.3	---
TOTAL	109.4	127.5	162.0	101.4	139.1	158.6	149.3	121.8	135.6	162.3	160.7	181.6
MEAN	3.53	4.25	5.23	3.27	4.97	5.12	4.98	3.93	4.52	5.24	5.18	6.05
MAX	6.8	7.4	11	6.0	8.2	13	6.5	5.0	8.8	11	18	16
MIN	2.6	3.4	3.7	1.5	3.2	2.5	4.0	3.3	3.1	3.8	3.5	3.9
AC-FT	217	253	321	201	276	315	296	242	269	322	319	360

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1994, BY WATER YEAR (WY)

MEAN	4.30	5.09	6.86	4.88	3.05	4.15	4.97	4.75	4.19	4.71	5.17	4.72
MAX	6.97	8.73	32.2	15.3	6.28	10.1	10.5	6.64	5.89	6.60	8.99	6.37
(WY)	1991	1991	1993	1993	1990	1985	1986	1989	1987	1989	1982	1990
MIN	.39	1.82	1.37	2.15	.41	.074	.93	.91	1.57	.61	3.86	2.31
(WY)	1985	1992	1990	1992	1986	1983	1992	1992	1981	1981	1987	1984

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1981 - 1994	
ANNUAL TOTAL	1726.77		1709.3			
ANNUAL MEAN	4.73		4.68		4.83	
HIGHEST ANNUAL MEAN					7.23	1993
LOWEST ANNUAL MEAN					2.70	1992
HIGHEST DAILY MEAN	52	Jan 1	18	Aug 12	52	Dec 28 1992
LOWEST DAILY MEAN	.73	Feb 24	1.5	Jan 19	.03	Mar 23 1983
ANNUAL SEVEN-DAY MINIMUM	.73	Feb 24	1.9	Jan 13	.04	Mar 18 1983
ANNUAL RUNOFF (AC-FT)	3430		3390		3500	
10 PERCENT EXCEEDS	6.6		6.4		7.1	
50 PERCENT EXCEEDS	3.7		4.3		4.4	
90 PERCENT EXCEEDS	1.2		3.2		1.2	

HAWAII, ISLAND OF HAWAII

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

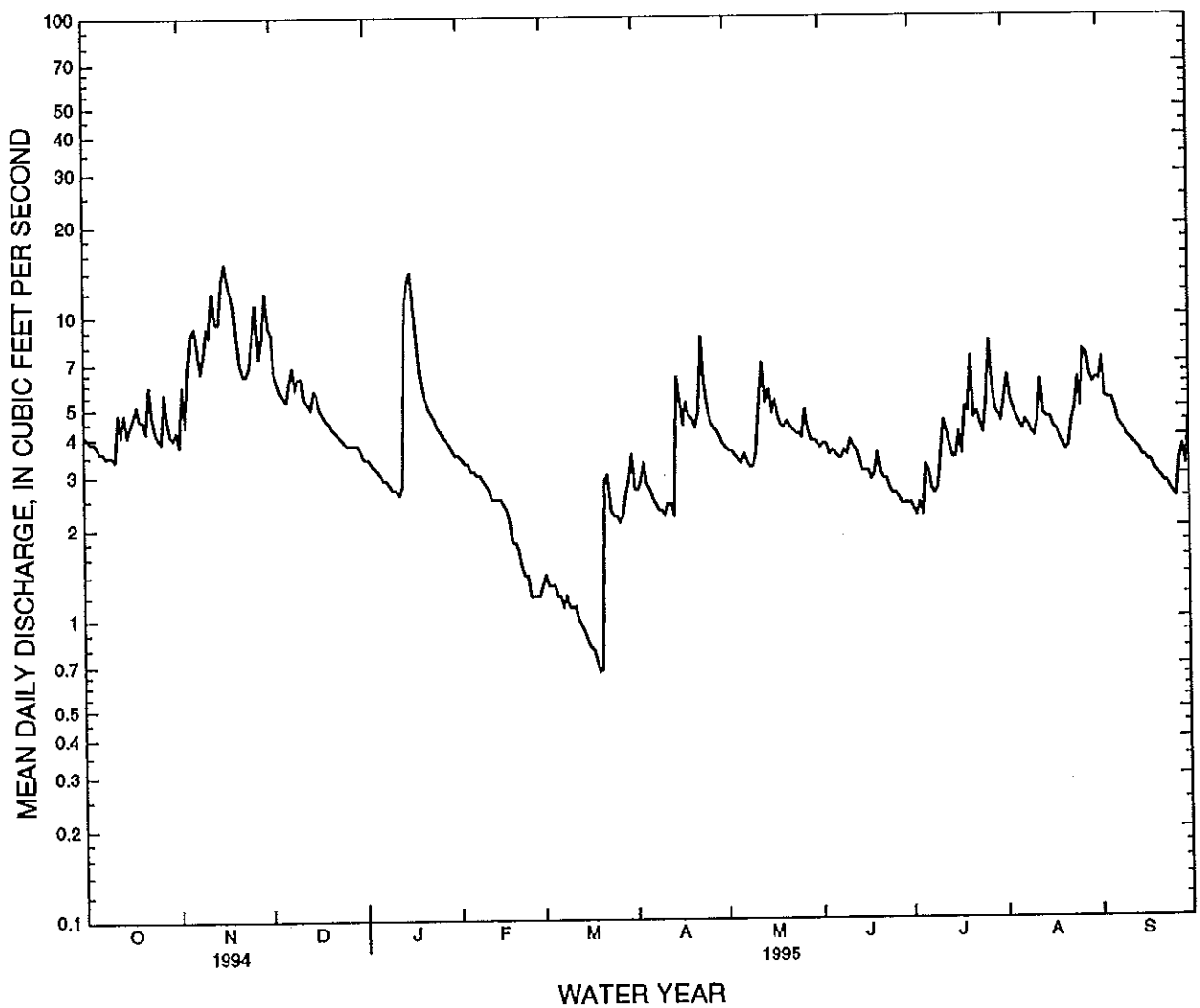
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	3.8	8.8	3.4	3.5	1.3	2.7	3.7	3.7	2.4	5.3	6.1
2	4.0	5.9	6.6	3.4	3.4	1.4	2.7	3.6	3.8	2.3	6.3	7.2
3	3.9	4.4	6.1	3.3	3.3	1.3	2.9	3.6	3.8	2.2	5.3	5.4
4	3.9	6.8	5.7	3.2	3.3	1.3	3.3	3.5	3.5	2.4	4.9	5.3
5	3.8	8.8	5.5	3.1	3.1	1.3	2.8	3.4	3.6	2.2	4.6	5.3
6	3.6	9.2	5.3	3.0	3.1	1.2	2.7	3.3	3.5	3.2	4.4	5.0
7	3.6	7.9	6.1	2.9	3.0	1.2	2.5	3.5	3.4	3.1	4.2	4.5
8	3.5	6.6	6.8	2.9	3.0	1.1	2.4	3.3	3.4	2.7	4.5	4.3
9	3.5	7.5	5.8	2.8	2.9	1.2	2.3	3.2	3.6	2.6	4.3	4.2
10	3.5	9.2	6.3	2.7	2.8	1.1	2.3	3.2	3.5	2.7	4.1	4.0
11	3.4	8.6	6.3	2.7	2.7	1.1	2.2	3.5	3.9	3.5	4.0	3.9
12	4.8	12	5.4	2.6	2.5	1.1	2.4	5.1	3.7	4.5	4.5	3.8
13	4.1	9.6	5.2	2.8	2.5	1.0	2.4	7.0	3.6	4.1	6.1	3.7
14	4.8	9.6	5.0	11	2.5	.96	2.2	5.2	3.3	3.7	4.7	3.6
15	4.1	13	5.7	13	2.5	.91	6.3	5.7	3.1	3.4	4.6	3.4
16	4.4	15	5.6	14	2.4	.85	5.3	4.8	3.1	3.4	4.6	3.4
17	4.7	13	5.0	11	2.3	.81	4.4	5.3	3.1	4.1	4.3	3.3
18	5.1	12	4.8	8.6	2.1	.79	5.2	4.7	2.9	3.5	4.2	3.3
19	4.6	11	4.6	6.7	1.8	.73	4.7	4.4	3.0	5.0	4.0	3.1
20	4.6	8.6	4.5	5.8	1.8	.67	4.6	4.3	3.5	4.8	3.8	3.0
21	4.2	7.0	4.3	5.3	1.7	.68	4.3	4.5	3.0	7.3	3.6	2.9
22	5.9	6.5	4.2	5.0	1.5	2.9	4.8	4.3	2.9	4.6	3.7	2.8
23	4.7	6.5	4.1	4.8	1.4	3.0	8.5	4.2	2.9	4.8	4.5	2.8
24	4.2	6.9	4.0	4.6	1.4	2.3	5.9	4.1	2.7	4.4	4.9	2.7
25	4.0	8.6	3.9	4.3	1.2	2.2	5.0	4.1	2.6	4.1	6.2	2.6
26	3.9	11	3.8	4.2	1.2	2.2	4.5	4.0	2.6	5.2	5.0	2.5
27	5.6	7.4	3.8	4.0	1.2	2.1	4.3	4.9	2.5	8.2	7.6	3.3
28	4.6	8.5	3.8	3.9	1.2	2.2	4.2	4.2	2.4	5.9	7.4	3.7
29	4.1	12	3.8	3.8	---	2.6	4.0	3.9	2.4	4.9	6.3	3.2
30	4.0	9.3	3.7	3.6	---	2.9	3.8	3.9	2.4	4.7	6.0	4.5
31	4.2	---	3.5	3.5	---	3.5	---	3.8	---	4.5	6.2	---
TOTAL	131.4	266.2	158.0	155.9	65.3	47.90	115.6	130.2	95.4	124.4	154.1	116.8
MEAN	4.24	8.87	5.10	5.03	2.33	1.55	3.85	4.20	3.18	4.01	4.97	3.89
MAX	5.9	15	8.8	14	3.5	3.5	8.5	7.0	3.9	8.2	7.6	7.2
MIN	3.4	3.8	3.5	2.6	1.2	.67	2.2	3.2	2.4	2.2	3.6	2.5
AC-FT	261	528	313	309	130	95	229	258	189	247	306	232

16700950 LYMAN SPRINGS NO. 2 NEAR PIIHONUA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1995, BY WATER YEAR (WY)

MEAN	4.29	5.36	6.73	4.89	3.00	3.98	4.90	4.72	4.13	4.66	5.16	4.67
MAX	6.97	8.87	32.2	15.3	6.28	10.1	10.5	6.64	5.89	6.60	8.99	6.37
(WY)	1991	1995	1993	1993	1990	1985	1986	1989	1987	1989	1982	1990
MIN	.39	1.82	1.37	2.15	.41	.074	.93	.91	1.57	.61	3.86	2.31
(WY)	1985	1992	1990	1992	1986	1983	1992	1992	1981	1981	1987	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1981 - 1995	
ANNUAL TOTAL	1866.0		1561.20			
ANNUAL MEAN	5.11		4.28		4.79	
HIGHEST ANNUAL MEAN					7.23	1993
LOWEST ANNUAL MEAN					2.70	1992
HIGHEST DAILY MEAN	18	Aug 12	15	Nov 16	52	Dec 28 1992
LOWEST DAILY MEAN	1.5	Jan 19	.67	Mar 20	.03	Mar 23 1983
ANNUAL SEVEN-DAY MINIMUM	1.9	Jan 13	.78	Mar 15	.04	Mar 18 1983
ANNUAL RUNOFF (AC-FT)	3700		3100		3470	
10 PERCENT EXCEEDS	7.5		6.8		7.0	
50 PERCENT EXCEEDS	4.5		3.9		4.4	
90 PERCENT EXCEEDS	3.4		2.2		1.2	



HAWAII, ISLAND OF HAWAII

16704000 WAILUKU RIVER AT PIIHONUA

RECORDS BEING REVIEWED

HAWAII, ISLAND OF HAWAII

16713000 WAILUKU RIVER AT HILO

LOCATION.--Lat 19°43'43", long 155°05'40", Hydrologic Unit 20010000, on right bank 500 ft upstream from Wailuku bridge, and 0.2 mi west of Hilo Post Office.

DRAINAGE AREA.--256 mi^2, of which 81 mi^2 probably is noncontributing.

PERIOD OF RECORD.--March 1977 to September 1979, June 1980 to November 1987, October 1988 to September 1995 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 80 ft above mean sea level, from topographic map.

REMARKS.--Records poor. Hilo Electric Light Co. diverts water upstream for Hydro-power use.

AVERAGE DISCHARGE.--Water year 1991: 12 years (water years 1978, 1979, 1981-87, 1989-91), 488 ft^3/s (353,800 acre-ft/yr).

Water year 1992: 13 years (water years 1978, 1979, 1981-87, 1989-92), 467 ft^3/s (338,200 acre-ft/yr).

Water year 1993: 14 years (water years 1978, 1979, 1981-87, 1989-93), 461 ft^3/s (334,200 acre-ft/yr).

Water year 1994: 15 years (water years 1978, 1979, 1981-87, 1989-94), 477 ft^3/s (345,400 acre-ft/yr).

Water year 1995: 16 years (water years 1978, 1979, 1981-87, 1989-95), 483 ft^3/s (349,700 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 79,800 ft^3/s, Dec. 13, 1987, gage height, 38.66 ft, from floodmarks and from rating curve extended above 6,840 ft^3/s on basis of slope-area measurements at gage heights 23.30 ft, 34.57 ft, and 38.66 ft; minimum daily, 4.6 ft^3/s, July 17, 1981.

EXTREMES FOR CURRENT YEAR.--Water year 1991: Maximum discharge, 51,000 ft^3/s, Nov. 20, 1990, gage height, unknown; minimum daily, 14 ft^3/s, Feb. 12, 13, 1991.

Water year 1992: Maximum discharge, 16,000 ft^3/s, Sep. 4, 1992, gage height, unknown; minimum daily, 9.4 ft^3/s, Nov. 18, 1991.

Water year 1993: Maximum discharge, 24,000 ft^3/s, July 24, 1993, gage height, unknown; minimum daily, 6.0 ft^3/s, Apr. 19, 1993.

Water year 1994: Maximum discharge, 55,000 ft^3/s, Aug. 12, 1994, gage height, 30.69 ft (HWM); minimum daily, 25 ft^3/s, Mar. 11, 1994.

Water year 1995: Maximum discharge, 45,000 ft^3/s, Nov. 16, 1994, gage height, unknown; minimum daily, 9.8 ft^3/s, Apr. 10, 1995.

REVISIONS.--The maximum annual discharge for water years 1977, 1983, 1984, 1987, 1989, and 1990 have been revised. Daily discharges, in cubic feet per second, for all daily discharges greater than 1,100 cubic feet per second for water years 1977 to 1990 have also been revised, except for Feb. 20, 1979. These figures supersede those published in the annual reports for water years 1977 to 1990. All daily discharges for water years 1977 to 1990 have been downgraded to poor.

Maximum for Water Years 1977, 1983, 1984, 1987, 1989, 1990:

Water Year	Date	Discharge (ft^3/s)	Gage height (ft)	Water Year	Date	Discharge (ft^3/s)	Gage height (ft)
1977	Aug. 12, 1977	20,000	Unknown	1987	Nov. 13, 1986	30,000	Unknown
1983	Aug. 12, 1983	7,200	Unknown	1989	July 22, 1989	40,000	Unknown
1984	Apr. 28, 1984	5,600	Unknown	1990	Jan. 19, 1990	44,000	Unknown

HAWAII, ISLAND OF HAWAII

16713000 WAILUKU RIVER AT HILO--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
DAILY MEAN VALUES

Nov.	13	1520	Feb.	27	1500	Mar.	11	3910	Apr.	19	1350
	19	4160		28	12100		12	2350		20	1300
	20	4820	Mar.	1	21400		13	1890	May	8	1740
	21	1590		2	4420		14	1550		9	1720
	22	1140		3	1750		22	2730		10	1980
	23	1620		5	1260		23	4240		11	1620
Dec.	9	7320		6	12200		24	1660		12	1570
	10	1860		7	5520		29	1300	Aug.	8	6170
	19	2320		8	3540		30	1120		9	1780
	20	1500		9	2710	Apr.	17	1350	Sep.	19	2200
Feb.	26	1980		10	2940		18	2210			

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	797	22390	25059	1402	17661.5	87240	17453	19820	1939	3458	16510	9578
MEAN	25.7	746	808	45.2	631	2814	582	639	64.6	112	533	319
MAX	85	4820	7320	186	12100	21400	2210	1980	340	480	6170	2200
MIN	16	15	70	14	8.6	500	175	235	20	17	91	26
AC-FT	1580	44410	49700	2780	35030	173000	34620	39310	3850	6860	32750	19000

CAL YR 1984 TOTAL 98941 MEAN 270 MAX 7320 MIN 12 AC-FT 196200
WTR YR 1985 TOTAL 223307.5 MEAN 612 MAX 21400 MIN 8.6 AC-FT 442900

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
DAILY MEAN VALUES

Mar.	23	2310	Apr.	10	27800	Apr.	29	2020	June	20	1150
Apr.	3	5840		11	16100	May	7	1280	July	4	1540
	4	3760		12	3370		10	1360		5	1530
	5	2340		13	1910		11	1180		23	1450
	6	2960		14	1730		12	2030	Aug.	14	2870
	7	1710		15	1240		13	1410		15	1640
	8	5080		28	3730	June	19	1260	Sep.	27	1780
	9	9000									

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	11698	1450	2902	1402	415.5	8716	97881	20508	12305	18572	10519	6019
MEAN	377	48.3	93.6	45.2	14.8	281	3263	662	410	599	339	201
MAX	843	268	866	210	20	2310	27800	2030	1260	1540	2870	1780
MIN	136	17	14	12	7.9	10	230	139	130	175	45	19
AC-FT	23200	2880	5760	2780	824	17290	194100	40680	24410	36840	20860	11940

CAL YR 1985 TOTAL 191111.5 MEAN 524 MAX 21400 MIN 8.6 AC-FT 379100
WTR YR 1986 TOTAL 192387.5 MEAN 527 MAX 27800 MIN 7.9 AC-FT 381600

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
DAILY MEAN VALUES

Nov.	7	1640	Nov.	15	1500	Jan.	12	4310	June	5	1140
	10	2270		19	1150		13	1350		16	1620
	11	2480		20	5450	Apr.	2	1410	July	20	1990
	12	6100		21	1500	May	4	2660		21	1840
	13	8060		22	2340		5	1410		22	1280
	14	3010		23	1120						

MONTH	TOTAL	MEAN	MAX	MIN	AC-FT
Nov. 1886	47745	1591	8060	148	94700
Jan. 1987	10075	325	4310	26	19980
Apr. 1987	5326	178	1410	22	10560
May 1987	12749	411	2660	27	25290
June 1987	16875	562	1620	262	33470
July 1987	14508	468	1990	87	28780
CAL YR 1986	234290.5	642	27800	7.9	464700
WTR YR 1987	132652	363	8060	12	263100

HAWAII, ISLAND OF HAWAII

16713000 WAILUKU RIVER AT HILO--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
DAILY MEAN VALUES

Oct. 1	3500	Oct. 3	1210	Nov. 21	14300	Nov. 23	1450
2	2480	Nov. 20	2970	22	2680	24	1250

MONTH	TOTAL	MEAN	MAX	MIN	AC-FT
Oct. 1987	13657	441	3500	29	27090
Nov. 1987	28731	958	14300	28	56990

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

Nov. 4	1430	Jan. 13	7900	May 14	3250	July 5	1210
11	2190	14	6570	15	2480	6	4120
23	2200	15	6680	16	1820	13	2580
Dec. 26	2920	16	3820	17	1760	14	3060
29	1660	17	1740	23	1820	15	1370
30	4400	18	1240	24	1340	19	2240
31	4950	22	1470	25	4970	20	5590
Jan. 1	1970	Feb. 24	1530	26	1990	21	1940
3	1200	25	1480	29	2610	22	13200
7	2030	Apr. 22	1310	30	1980	23	2320
8	2650	23	2610	31	1170	24	1390
9	2450	29	3120	June 6	3210	25	1310
10	11700	30	4080	7	2090	29	1470
11	2510	May 1	1150	8	1290	30	1440
12	1350	13	4890	12	1230	Aug. 21	1670

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	2808	18930	18114	65555	8960	4197	21394	42959	18798	52190	9260	5695
MEAN	90.6	631	584	2115	320	135	713	1386	627	1684	299	190
MAX	536	2200	4950	11700	1530	938	4080	4970	3210	13200	1670	643
MIN	24	57	32	224	23	24	83	255	71	45	65	39
AC-FT	5570	37550	35930	130000	17770	8320	42430	85210	37290	103500	18370	11300

WTR YR 1989 TOTAL 268860 MEAN 737 MAX 13200 MIN 23 AC-FT 533300

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

Oct. 1	1280	Feb. 4	2770	Mar. 10	1710	Sep. 5	1870
Jan. 19	14500	5	1660	11	1980	6	1610
20	6170	6	1990	12	1190	17	1250
21	1620	7	2960	21	1810	18	2410
31	1150	8	1140	May 22	1120	19	3900
Feb. 1	4670	Mar. 7	2560	25	1160	20	5150
2	8380	8	6030	June 17	1530	21	1410
3	7700	9	1870				

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	11838	3145	1334	35803	36202	22612	1556	10049	11566	9790	7203	28335
MEAN	382	105	43.0	1155	1293	729	51.9	324	386	316	232	944
MAX	1280	669	204	14500	8380	6030	181	1810	1530	1090	700	5150
MIN	49	20	16	39	27	28	18	21	24	76	64	110
AC-FT	23480	6240	2650	71020	71810	44850	3090	19930	22940	19420	14290	56200

CAL YR 1989 TOTAL 245325 MEAN 672 MAX 13200 MIN 16 AC-FT 486600
WTR YR 1990 TOTAL 179433 MEAN 492 MAX 14500 MIN 16 AC-FT 355900

HAWAII, ISLAND OF HAWAII

16713000 WAILUKU RIVER AT HILO--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	564	1200	349	173	19	34	851	820	805	177	595	262
2	592	860	340	138	18	68	568	552	620	136	376	204
3	680	592	270	112	18	59	628	421	498	110	417	230
4	906	446	230	97	17	52	428	334	385	83	1240	2740
5	725	435	200	100	31	47	968	270	349	66	620	548
6	605	470	171	74	39	73	920	216	258	58	394	364
7	463	1820	148	79	18	139	608	177	873	224	1120	268
8	364	725	214	73	17	196	735	139	662	85	4160	260
9	272	477	2590	55	16	5430	840	177	456	53	1870	210
10	224	370	1330	37	15	2410	636	340	334	76	875	360
11	1370	289	600	28	15	2040	608	157	322	645	580	280
12	791	407	750	31	14	9110	530	104	310	316	428	214
13	875	842	2820	237	16	15800	544	79	216	358	400	151
14	560	4030	2240	301	124	12700	585	566	335	622	286	110
15	880	3160	1160	178	150	8980	568	460	827	418	230	105
16	1300	1980	850	95	61	6240	470	262	428	379	214	85
17	1130	3390	750	63	32	6120	388	280	295	260	308	61
18	1840	23400	1440	42	35	2580	325	198	262	214	751	44
19	3160	13000	1050	32	44	3970	340	188	190	196	334	46
20	1400	43000	800	26	882	2590	295	133	144	175	255	157
21	810	4760	1000	24	764	1660	235	104	111	128	200	71
22	580	2350	7520	23	242	1540	202	95	118	103	250	1370
23	512	1570	1390	25	213	1230	176	87	82	72	300	1030
24	533	1120	1560	28	82	900	682	70	79	59	300	340
25	556	890	885	26	47	648	581	65	409	45	350	218
26	370	982	632	26	32	526	1550	180	941	52	375	153
27	328	800	502	22	25	797	1250	431	470	34	600	114
28	255	620	400	38	23	875	885	394	334	27	1550	87
29	292	512	334	35	---	1040	1210	940	295	30	725	66
30	2680	407	262	22	---	680	1440	1160	216	678	512	50
31	850	---	218	20	---	552	---	1170	---	226	346	---
TOTAL	26467	114904	33005	2260	3009	89086	20046	10569	11624	6105	20961	10198
MEAN	854	3830	1065	72.9	107	2874	668	341	387	197	676	340
MAX	3160	43000	7520	301	882	15800	1550	1170	941	678	4160	2740
MIN	224	289	148	20	14	34	176	65	79	27	200	44
AC-FT	52500	227900	65470	4480	5970	176700	39760	20960	23060	12110	41580	20230

CAL YR 1990 TOTAL 337492 MEAN 925 MAX 43000 MIN 18 AC-FT 669400
WTR YR 1991 TOTAL 348234 MEAN 954 MAX 43000 MIN 14 AC-FT 690700

HAWAII, ISLAND OF HAWAII

16713000 WAILUKU RIVER AT HILO--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	18	e800	146	63	20	19	21	e11	372	728	433
2	38	17	e2500	117	46	19	22	21	11	210	578	929
3	40	22	1050	105	47	18	37	20	11	161	421	1860
4	41	18	827	86	41	21	109	19	11	146	345	5060
5	49	16	450	64	41	19	52	e25	12	114	270	e3500
6	40	15	388	45	44	18	33	e50	16	83	235	e1700
7	32	13	328	32	77	18	25	e36	16	37	216	e900
8	47	14	214	24	57	17	21	26	17	24	201	e500
9	56	24	153	20	42	17	20	21	65	230	156	e550
10	31	35	177	22	37	17	18	18	88	865	128	e450
11	23	28	512	30	34	17	21	17	213	361	460	e340
12	21	21	236	23	30	16	21	17	98	212	639	e260
13	20	15	236	22	37	16	23	22	99	153	353	e200
14	20	12	313	21	41	16	20	29	61	131	236	e2500
15	25	11	296	20	36	18	18	25	144	95	193	828
16	25	10	190	18	32	19	17	22	117	66	e500	717
17	21	9.8	139	16	29	21	16	e21	91	81	e400	857
18	20	9.4	102	19	27	21	15	e20	74	151	319	552
19	18	38	76	71	26	21	15	e19	101	293	280	448
20	17	109	54	66	24	20	15	e18	343	570	376	364
21	16	41	41	60	24	19	14	e17	175	1130	934	299
22	17	24	30	56	23	18	13	e16	112	400	696	241
23	15	73	33	52	22	17	12	e15	129	250	516	206
24	15	53	32	48	22	17	12	e14	115	171	495	200
25	17	62	27	46	21	21	12	e13	222	165	437	170
26	15	45	757	46	20	29	12	e13	168	1590	599	582
27	24	25	234	44	19	29	12	e12	120	2180	481	e350
28	40	25	245	41	19	23	13	e12	184	1230	512	e250
29	24	24	421	40	19	19	18	e12	139	628	786	e210
30	21	e1500	240	39	---	18	22	e12	208	877	618	e180
31	20	---	158	59	---	19	---	e11	---	2690	531	---
TOTAL	865	2327.2	11259	1498	1000	598	677	614	3171	15666	13639	25636
MEAN	27.9	77.6	363	48.3	34.5	19.3	22.6	19.8	106	505	440	855
MAX	57	1500	2500	146	77	29	109	50	343	2690	934	5060
MIN	15	9.4	27	16	19	16	12	11	11	24	128	170
AC-FT	1720	4620	22330	2970	1980	1190	1340	1220	6290	31070	27050	50850

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1992, BY WATER YEAR (WY)

MEAN	299	712	392	531	360	791	654	407	311	469	462	354
MAX	854	3830	1247	2115	1780	2874	3263	1386	770	1684	1903	944
(WY)	1991	1991	1982	1989	1979	1991	1986	1989	1980	1989	1982	1990
MIN	25.7	48.3	20.9	19.2	14.8	15.1	22.6	19.8	14.3	9.59	60.6	27.6
(WY)	1985	1986	1981	1981	1986	1983	1992	1992	1981	1981	1987	1979

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1977 - 1992	
ANNUAL TOTAL	188309.2		76950.2			
ANNUAL MEAN	516		210		467	
HIGHEST ANNUAL MEAN					954	1991
LOWEST ANNUAL MEAN					161	1981
HIGHEST DAILY MEAN	15800	Mar 13	5060	Sep 4	43000	Nov 20 1990
LOWEST DAILY MEAN	9.4	Nov 18	9.4	Nov 18	4.6	Jul 17 1981
ANNUAL SEVEN-DAY MINIMUM	13	Nov 12	11	May 29	6.3	Jul 13 1981
ANNUAL RUNOFF (AC-FT)	373500		152600		338200	
10 PERCENT EXCEEDS	928		537		995	
50 PERCENT EXCEEDS	178		40		142	
90 PERCENT EXCEEDS	20		15		19	

e Estimated

HAWAII, ISLAND OF HAWAII

16713000 WAILUKU RIVER AT HILO--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e100	e180	e1500	e600	e27	e9.0	e11	e1500	e35	255	e470	128
2	e88	e450	e1200	e470	e26	e20	e9.8	e700	e31	248	e400	94
3	74	e400	e900	e380	e24	e40	e9.0	e600	e28	231	1000	78
4	74	e270	e700	e310	e23	e80	e9.0	e450	e25	350	624	80
5	78	e180	e1500	e250	e22	e70	e9.0	e400	e27	241	504	55
6	47	e150	e900	e210	e21	e60	e9.0	e320	e30	212	418	41
7	30	e150	e800	e180	e20	e70	e25	e250	e25	178	365	29
8	24	e130	e600	e160	e19	e120	e60	e450	e30	164	377	24
9	85	e400	e1000	e140	e30	e200	e45	e350	e50	159	313	51
10	22	e450	e1500	e120	e45	e150	e40	e400	e35	180	388	58
11	21	e250	e4000	e110	e50	e110	e30	e300	e40	139	1890	201
12	19	e200	e2000	e100	e42	e80	e20	e600	e100	125	1300	251
13	18	e150	e1000	e94	e35	e60	e14	e550	e50	315	1170	349
14	54	e170	e700	e86	e30	e52	e9.5	e350	e30	728	1260	112
15	20	e500	e500	e80	e25	e45	e8.7	e200	e33	226	835	126
16	17	e250	e1300	e76	e20	e40	e8.0	e150	e70	174	619	160
17	e16	e400	e1000	e72	e17	e48	e7.3	e100	e150	224	445	144
18	e15	e250	e500	e68	e15	e54	e6.6	e70	273	292	406	138
19	e14	e700	e450	e64	e15	e45	e6.0	e50	202	1190	459	133
20	e13	e400	e400	e60	e15	e40	e150	e48	184	1740	411	174
21	e12	e600	e450	e70	e15	e35	e500	e45	139	4180	250	151
22	e11	e350	e1500	e80	e15	e30	e1500	e50	122	4430	221	128
23	e35	e290	e1300	e75	e13	e35	e800	e45	109	2260	367	112
24	e90	e240	e2000	e60	e13	e28	e500	e40	110	10400	404	125
25	e70	e200	e1500	e50	e12	e23	e300	e45	118	e2500	443	189
26	e300	e300	e800	e42	e11	e20	e300	e35	223	e1000	250	148
27	e150	e250	e1000	e35	e10	e20	e250	e35	173	e2500	223	87
28	e500	e1500	e1300	e33	e9.6	e20	e350	e30	185	e1300	483	75
29	e400	e9000	e1100	e32	---	e20	e250	e28	285	e800	246	64
30	e200	e3500	e700	e30	---	e20	e600	e27	279	e670	188	211
31	e150	---	e500	e28	---	e15	---	e25	---	e560	152	---
TOTAL	2747	22260	34600	4165	619.6	1659.0	5836.9	8243	3191	37971	16881	3716
MEAN	88.6	742	1116	134	22.1	53.5	195	266	106	1225	545	124
MAX	500	9000	4000	600	50	200	1500	1500	285	10400	1890	349
MIN	11	130	400	28	9.6	9.0	6.0	25	25	125	152	24
AC-FT	5450	44150	68630	8260	1230	3290	11580	16350	6330	75320	33480	7370

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1993, BY WATER YEAR (WY)

MEAN	285	714	444	503	336	742	623	397	298	517	467	339
MAX	854	3830	1247	2115	1780	2874	3263	1386	770	1684	1903	944
(WY)	1991	1991	1982	1989	1979	1991	1986	1989	1980	1989	1982	1990
MIN	25.7	48.3	20.9	19.2	14.8	15.1	22.6	19.8	14.3	9.59	60.6	27.6
(WY)	1985	1986	1981	1981	1986	1983	1992	1992	1981	1981	1987	1979

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1977 - 1993	
ANNUAL TOTAL	122106		141889.5			
ANNUAL MEAN	334		389		461	
HIGHEST ANNUAL MEAN					954	1991
LOWEST ANNUAL MEAN					161	1981
HIGHEST DAILY MEAN	9000	Nov 29	10400	Jul 24	43000	Nov 20 1990
LOWEST DAILY MEAN	11	May 31	6.0	Apr 19	4.6	Jul 17 1981
ANNUAL SEVEN-DAY MINIMUM	11	May 29	8.6	Apr 13	6.3	Jul 13 1981
ANNUAL RUNOFF (AC-FT)	242200		281400		334200	
10 PERCENT EXCEEDS	869		1000		1000	
50 PERCENT EXCEEDS	82		140		142	
90 PERCENT EXCEEDS	16		19		19	

e Estimated

HAWAII, ISLAND OF HAWAII

16713000 WAILUKU RIVER AT HILO--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	215	581	93	126	138	453	494	291	1490	187	4150
2	73	245	427	133	111	111	355	621	333	738	139	1720
3	1050	108	678	120	104	90	287	447	248	518	549	2440
4	433	98	1240	108	345	77	691	343	222	383	587	1740
5	372	88	1030	95	1230	75	386	267	373	585	263	1070
6	191	277	1020	84	767	61	417	209	647	403	293	803
7	136	360	767	82	484	45	791	185	486	488	275	675
8	96	223	634	73	500	35	673	143	317	761	196	511
9	77	762	456	64	503	27	1190	117	234	385	162	513
10	69	300	351	57	420	26	902	91	184	344	131	499
11	95	196	281	52	1040	25	662	76	139	249	702	537
12	55	132	423	47	1280	164	954	143	121	196	19800	1470
13	184	98	650	43	830	294	945	570	96	155	2060	1080
14	62	86	380	40	640	355	578	222	264	373	1040	673
15	48	123	447	36	431	483	421	426	289	5580	665	614
16	66	125	544	32	381	586	321	336	159	1310	542	438
17	95	667	3490	37	1850	546	252	259	102	842	427	1830
18	57	1380	1130	34	1930	387	318	219	433	4260	441	6110
19	37	1150	7060	32	751	467	251	169	2860	936	356	9380
20	26	546	1600	97	594	1080	572	186	1230	622	289	2570
21	27	380	1130	853	423	2890	793	402	626	943	370	1220
22	38	270	723	524	309	e3340	824	299	531	1060	295	840
23	212	187	559	407	242	3280	902	292	738	991	2860	653
24	170	163	442	673	191	7080	714	379	395	1240	2200	507
25	79	108	345	909	246	3090	492	287	641	767	859	421
26	67	85	276	525	361	1400	1450	296	963	566	716	361
27	57	94	225	362	223	873	1120	235	1150	464	1050	313
28	44	129	183	256	169	660	863	250	747	349	613	319
29	34	260	145	209	---	611	553	206	862	306	550	250
30	697	438	117	175	---	463	564	289	1630	236	407	212
31	320	---	91	147	---	827	---	419	---	205	2270	---
TOTAL	5070	9293	27425	6399	16481	29586	19694	8877	17311	27745	41294	43919
MEAN	164	310	885	206	589	954	656	286	577	895	1332	1464
MAX	1050	1380	7060	909	1930	7080	1450	621	2860	5580	19800	9380
MIN	26	85	91	32	104	25	251	76	96	155	131	212
AC-FT	10060	18430	54400	12690	32690	58680	39060	17610	34340	55030	81910	87110

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1994, BY WATER YEAR (WY)

MEAN	277	689	473	483	352	756	625	390	315	539	518	405
MAX	854	3830	1247	2115	1780	2874	3263	1386	770	1684	1903	1464
(WY)	1991	1991	1982	1989	1979	1991	1986	1989	1980	1989	1982	1994
MIN	25.7	48.3	20.9	19.2	14.8	15.1	22.6	19.8	14.3	9.59	60.6	27.6
(WY)	1985	1986	1981	1981	1986	1983	1992	1992	1981	1981	1987	1979

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1977 - 1994	
ANNUAL TOTAL	124070.5		253094			
ANNUAL MEAN	340		693		477	
HIGHEST ANNUAL MEAN					954	1991
LOWEST ANNUAL MEAN					161	1981
HIGHEST DAILY MEAN	10400	Jul 24	19800	Aug 12	43000	Nov 20 1990
LOWEST DAILY MEAN	6.0	Apr 19	25	Mar 11	4.6	Jul 17 1981
ANNUAL SEVEN-DAY MINIMUM	8.6	Apr 13	36	Jan 13	6.3	Jul 13 1981
ANNUAL RUNOFF (AC-FT)	246100		502000		345400	
10 PERCENT EXCEEDS	698		1230		1020	
50 PERCENT EXCEEDS	126		380		157	
90 PERCENT EXCEEDS	20		77		20	

e Estimated

HAWAII, ISLAND OF HAWAII

16713000 WAILUKU RIVER AT HILO--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	290	2980	52	32	33	60	134	91	e20	368	920
2	196	690	1300	44	29	32	30	114	129	e18	1020	1260
3	134	563	948	39	24	32	22	100	129	e16	762	685
4	139	1020	721	34	20	30	34	92	72	e21	468	564
5	84	2940	649	30	19	29	28	56	73	e50	344	603
6	64	2450	540	91	17	28	e22	28	62	e45	333	738
7	51	2690	867	83	17	29	e18	51	51	e48	251	400
8	38	1450	1840	79	16	27	e14	34	64	e45	205	350
9	32	1200	997	74	31	27	e12	29	56	e40	186	272
10	34	e4500	1010	70	70	26	e9.8	33	47	e40	161	223
11	28	e4000	1280	67	69	26	13	71	105	e80	105	190
12	216	e6000	745	69	66	25	17	646	118	e150	219	162
13	174	e3000	557	73	61	25	39	2380	72	e350	1170	174
14	352	e2500	449	2110	55	27	29	979	48	e200	437	97
15	297	e5500	710	8070	58	24	517	943	42	e140	347	58
16	319	e14000	776	9320	55	24	1210	574	37	e100	277	49
17	289	e8000	458	3160	51	24	559	571	28	e150	204	37
18	380	4560	361	1240	49	24	863	419	21	81	e170	32
19	446	3510	302	788	48	23	674	293	26	320	e150	30
20	400	2250	255	599	46	23	400	228	48	662	e130	30
21	257	1410	225	482	44	22	241	230	46	1570	e120	28
22	589	1120	192	393	41	77	205	382	34	596	e130	27
23	614	1070	167	298	39	116	1420	387	41	445	e230	27
24	334	1730	143	204	39	72	992	217	26	330	388	26
25	278	2920	128	167	41	51	708	169	19	241	1020	26
26	192	4240	114	134	49	38	472	151	18	296	502	33
27	518	1720	106	109	37	36	336	218	e18	1180	1400	72
28	591	1820	91	88	34	39	272	171	e17	1220	1800	333
29	383	6860	81	70	---	58	214	120	e16	636	1040	70
30	331	2380	80	55	---	114	166	115	e20	479	835	209
31	417	---	62	44	---	126	---	88	---	342	847	---
TOTAL	8388	96383	19134	28136	1157	1287	9596.8	10023	1574	9911	15619	7725
MEAN	271	3213	617	908	41.3	41.5	320	323	52.5	320	504	257
MAX	614	14000	2980	9320	70	126	1420	2380	129	1570	1800	1260
MIN	28	290	62	30	16	22	9.8	28	16	16	105	26
AC-FT	16640	191200	37950	55810	2290	2550	19040	19880	3120	19660	30980	15320

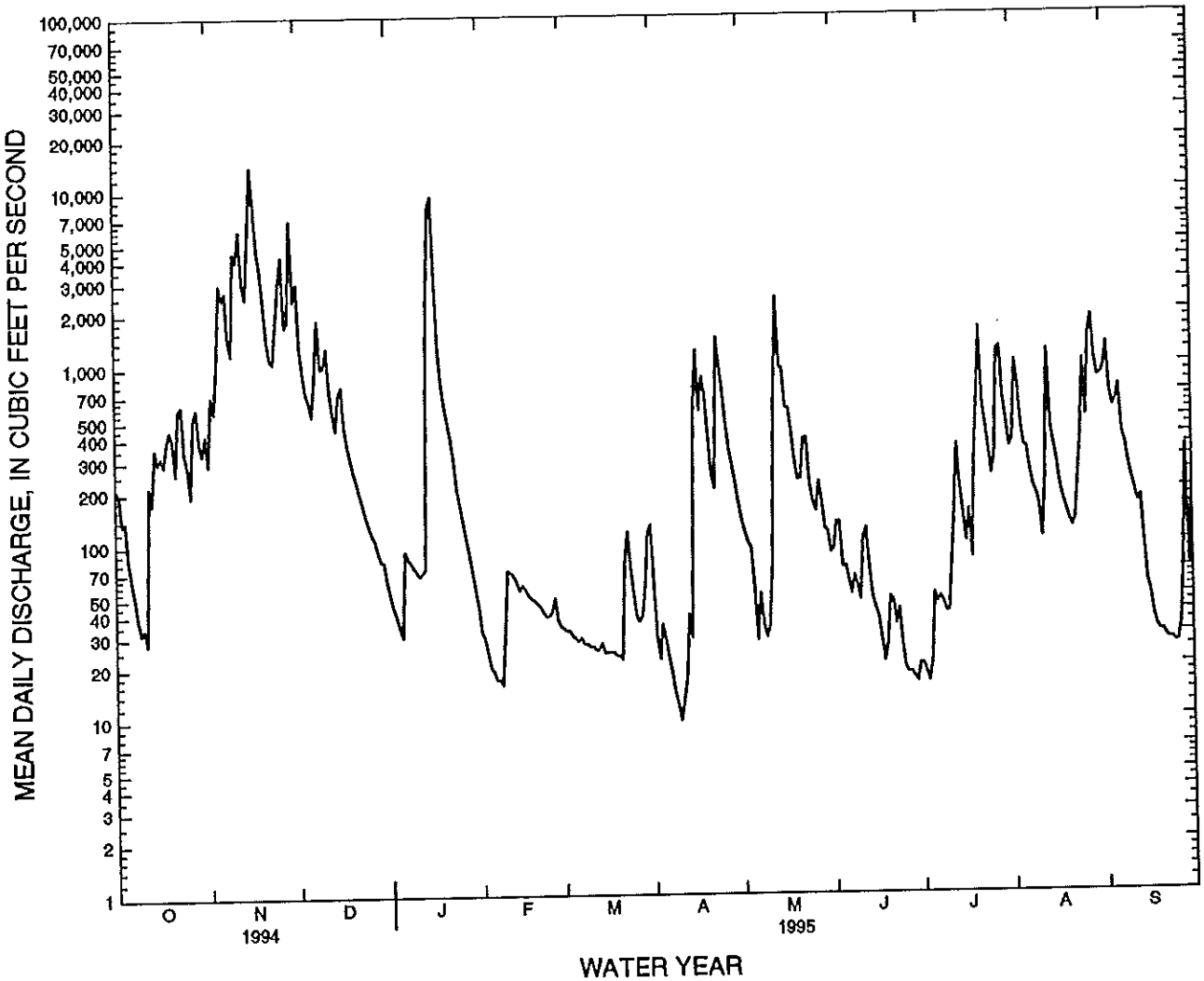
e Estimated

16713000 WAILUKU RIVER AT HILO--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1995, BY WATER YEAR (WY)

MEAN	277	837	482	510	333	714	607	386	300	527	517	397
MAX	854	3830	1247	2115	1780	2874	3263	1386	770	1684	1903	1464
(WY)	1991	1991	1982	1989	1979	1991	1986	1989	1980	1989	1982	1994
MIN	25.7	48.3	20.9	19.2	14.8	15.1	22.6	19.8	14.3	9.59	60.6	27.6
(WY)	1985	1986	1981	1981	1986	1983	1992	1992	1981	1981	1987	1979

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1977 - 1995	
ANNUAL TOTAL	335211		208933.8			
ANNUAL MEAN	918		572		483	
HIGHEST ANNUAL MEAN					954	1991
LOWEST ANNUAL MEAN					161	1981
HIGHEST DAILY MEAN	19800	Aug 12	14000	Nov 16	43000	Nov 20 1990
LOWEST DAILY MEAN	25	Mar 11	9.8	Apr 10	4.6	Jul 17 1981
ANNUAL SEVEN-DAY MINIMUM	36	Jan 13	15	Apr 6	6.3	Jul 13 1981
ANNUAL RUNOFF (AC-FT)	664900		414400		349700	
10 PERCENT EXCEEDS	2120		1270		1030	
50 PERCENT EXCEEDS	438		134		153	
90 PERCENT EXCEEDS	92		26		20	



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16717000 HONOLII STREAM NEAR PAPAIKOU

LOCATION.--Lat 19°46′00″, long 155°09′16″, Hydrologic Unit 20010000, on left bank 0.7 mi downstream from Pohakupaa Stream, 4.1 mi west of Papaikou, and 4.8 mi northwest of Hilo Post Office.

DRAINAGE AREA.--11.6 mi^2.

PERIOD OF RECORD.--June 1911 to March 1913 (published as "at Kaiwiki, near Hilo"), February 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,540 ft above mean sea level, from topographic map. Prior to Aug. 27, 1911, nonrecording gage and Aug. 27, 1911 to Mar. 24, 1913, water-stage recorder, at site 0.5 mi upstream at different datum.

REMARKS.--Water year 1991: Records good. No diversion upstream. During period 1911-13, Honolii ditch diverted an average of about 3.2 ft^3/s upstream for fluming cane and domestic use.

Water year 1992: Records good except for estimated periods which are poor. No diversion upstream. During period 1911-13, Honolii ditch diverted an average of about 3.2 ft^3/s upstream for fluming cane and domestic use.

Water year 1993: Records good except for estimated periods which are poor. No diversion upstream. During period 1911-13, Honolii ditch diverted an average of about 3.2 ft^3/s upstream for fluming cane and domestic use.

Water year 1994: Records good except for estimated periods which are poor. No diversion upstream. During period 1911-13, Honolii ditch diverted an average of about 3.2 ft^3/s upstream for fluming cane and domestic use.

Water year 1995: Records good. No diversion upstream. During period 1911-13, Honolii ditch diverted an average of about 3.2 ft^3/s upstream for fluming cane and domestic use.

AVERAGE DISCHARGE.--Water year 1991: 25 years (water years 1912, 1968-91), 132 ft^3/s (95,880 acre-ft/yr).

Water year 1992: 26 years (water years 1912, 1968-92), 130 ft^3/s (94,130 acre-ft/yr).

Water year 1993: 27 years (water years 1912, 1968-93), 129 ft^3/s (93,590 acre-ft/yr).

Water year 1994: 28 years (water years 1912, 1968-94), 131 ft^3/s (94,900 acre-ft/yr).

Water year 1995: 29 years (water years 1912, 1968-95), 132 ft^3/s (95,450 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,600 ft^3/s May 23, 1978, gage height, 20.00 ft, from floodmarks and from rating curve extended above 4,610 ft^3/s on basis of slope-area measurement at gage height 20.00 ft; minimum, 0.8 ft^3/s Jan. 31, 1912.

EXTREMES FOR CURRENT YEAR.--Water year 1991. Peak discharges greater than base discharge of 4,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 20	0300	9,630	15.39	Dec. 22	0730	6,930	13.75
Dec. 18	1730	4,760	11.88	Mar. 12	2300	*11,600	16.33

Minimum discharge, 11 ft^3/s, Feb. 11.

Water year 1992: Peak discharges greater than base discharge of 4,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Sep. 04	0100	*4,930	*12.04	No other peak greater than base discharge.			

Minimum discharge, 3.8 ft^3/s, Jun. 3, 4.

Water year 1993: Peak discharges greater than base discharge of 4,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 29	1830	*8,720	*14.91	Jul. 24	0130	8,410	14.73
Jul. 21	2200	4,500	11.62				

Minimum discharge, 7.5 ft^3/s, Mar. 1, 2.

Water year 1994: Peak discharges greater than base discharge of 4,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 19	0530	7,200	13.96	Aug. 12	0830	*15,600	*17.84
Mar. 24	1530	5,450	12.52	Aug. 31	2100	5,920	12.93
Jul. 15	1300	4,910	12.02	Sep. 18	1630	5,030	12.13

Minimum discharge, 11. ft^3/s, Jan. 16, 17.

Water year 1995: Peak discharges greater than base discharge of 4,600 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 16	1330	*12,800	*16.81	Jan. 16	1600	6,540	13.45
Nov. 29	1330	6,130	13.11				

Minimum discharge, 7.3 ft^3/s, Mar. 16-21.

REVISIONS.--The peak discharges above base of 4,600 ft^3/s and maximum (*) for water years 1967 to 1990 and minimum discharge for water years 1988 to 1990 have been revised. Daily discharges, in cubic feet per second, for water years 1988 to 1990 have also been revised. These figures supersede those published in annual reports for water years 1977 to 1990.

EXTREMES FOR WATER YEARS 1967-1990.--Peak discharges above base of 4,600 and maxmium (*):

Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)	Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)
1967	July 7, 1967	1815	6,780	13.68	1978	May 23, 1978	1730	*22,600	*20.00
	Aug. 3, 1967	0030	*13,100	*16.95		July 6, 1978	0915	5,560	12.66
	Aug. 8, 1967	0445	11,000	16.11	1979	Nov. 20, 1978	2245	5,520	12.62
1968	Nov. 26, 1967	1015	*8,090	*14.57		Jan. 15, 1979	2300	5,780	12.85
	Dec. 7, 1967	0345	5,380	12.50		Jan. 23, 1979	0100	4,850	12.00
	Apr. 24, 1968	1200	7,440	14.16		Feb. 5, 1979	1100	*7,440	*14.16
1969	Jan. 30, 1969	0100	6,310	13.30		Feb. 20, 1979	1230	6,600	13.53
	Feb. 19, 1969	0845	7,260	14.04	1980	Nov. 17, 1979	0230	*16,000	*18.00
	Feb. 21, 1969	2045	5,410	12.52		Mar. 6, 1980	1530	4,960	12.11
	Mar. 4, 1969	0115	*7,630	*14.28		Mar. 17, 1980	1430	14,200	17.37
	Aug. 15, 1969	0215	6,060	13.09		Mar. 23, 1980	2330	12,300	16.64
1970	Apr. 23, 1970	0745	8,400	14.76		Sep. 21, 1980	0800	9,690	15.46
	Apr. 27, 1970	0100	7,470	14.18	1981	Aug. 4, 1981	--	*10,500	*15.85
	May 26, 1970	0900	6,150	13.17	1982	Dec. 25, 1981	1500	9,670	15.45
	Aug. 26, 1970	0515	*10,500	*15.86		Jan. 26, 1982	2100	11,000	16.08
1971	Dec. 2, 1970	2215	*7,440	*14.16		Mar. 31, 1982	1900	6,680	13.60
	Dec. 19, 1970	2315	5,130	12.27		July 16, 1982	2200	*15,900	*17.98
	Dec. 27, 1970	0230	5,110	12.25		Aug. 1, 1982	1500	8,330	14.72
1972	Dec. 14, 1971	1345	*5,610	*12.70		Aug. 10, 1982	1530	5,350	12.47
1973	Oct. 3, 1972	1630	9,280	15.25		Aug. 23, 1982	2300	5,720	12.80
	Nov. 11, 1972	0315	4,740	11.90	1983	Aug. 12, 1983	--	*4,940	*12.09
	Mar. 17, 1973	0515	4,710	11.87	1984	Oct. 24, 1983	--	*5,000	*12.14
	Mar. 30, 1973	2130	*9,690	*15.46	1985	Nov. 19, 1984	1800	5,620	12.71
1974	Nov. 12, 1973	0745	4,750	11.91		Mar. 1, 1985	0230	*8,550	*14.85
	Nov. 20, 1973	0615	*10,200	*15.70		Mar. 6, 1985	2000	5,240	12.37
	Dec. 1, 1973	1315	6,000	13.04	1986	Apr. 3, 1986	2030	*22,000	*19.85
	Jan. 23, 1974	2345	7,750	14.36		Apr. 10, 1986	1300	11,000	16.10
	Mar. 19, 1974	1945	6,090	13.12	1987	Nov. 10, 1986	2100	6,530	13.48
	Apr. 19, 1974	2100	7,370	14.11		Nov. 13, 1986	1900	6,910	13.78
	Apr. 22, 1974	1600	4,610	11.75		Nov. 20, 1986	0100	*7,100	*13.92
1975	Nov. 18, 1974	0930	4,870	12.02		Sep. 11, 1987	1500	6,150	13.17
	Dec. 15, 1974	2245	4,950	12.10	1988	Nov. 20, 1987	2230	11,800	16.44
	Dec. 20, 1974	2045	7,380	14.12		Dec. 13, 1987	0745	*15,400	*17.80
	Jan. 5, 1975	1015	6,000	13.04		Dec. 18, 1987	1230	5,550	12.65
	Jan. 8, 1975	1245	*11,000	*16.09		Aug. 6, 1988	2000	5,660	12.75
1976	Oct. 19, 1975	0030	9,370	15.30	1989	Dec. 31, 1988	0400	5,940	12.99
	Jan. 5, 1976	0515	*10,100	*15.67		Jan. 10, 1989	2000	5,720	12.80
1977	Oct. 21, 1976	2400	*5,960	*13.01		May 25, 1989	1700	5,670	12.76
	Feb. 27, 1977	0445	5,010	12.15		July 6, 1989	0630	11,200	16.16
	Mar. 20, 1977	0615	4,650	11.81		July 22, 1989	1330	*12,700	*16.80
	Apr. 2, 1977	1600	5,020	12.16	1990	Jan. 19, 1990	2200	*12,800	*16.82
	Aug. 12, 1977	0800	4,890	12.04					

Water year 1988: Minimum discharge, 10 ft^3/s, Aug. 2, 1988.

Water year 1989: Minimum discharge, 8.7 ft^3/s, Oct. 20-22, 1988.

Water year 1990: Minimum discharge, 9.4 ft^3/s, Dec. 26-28, 1989.

HAWAII, ISLAND OF HAWAII

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1400	128	78	36	27	73	219	273	45	20	13	14
2	783	236	64	66	25	57	200	147	43	15	14	13
3	195	94	54	64	24	45	155	141	31	18	40	13
4	97	74	52	49	24	41	132	169	32	28	25	13
5	71	53	38	52	24	37	216	146	59	79	25	25
6	60	50	76	42	24	43	253	109	41	28	1500	138
7	48	44	95	40	36	35	169	120	50	23	706	52
8	40	43	223	32	84	58	101	120	41	50	129	23
9	37	37	90	30	139	104	76	88	47	181	70	17
10	33	40	62	32	78	45	225	65	58	47	44	14
11	31	79	94	31	101	32	277	54	54	48	138	13
12	30	60	940	27	62	27	89	55	43	34	126	13
13	29	42	4530	25	69	23	69	67	29	26	77	13
14	33	67	208	25	51	21	60	49	24	36	48	10
15	36	41	145	25	156	134	50	46	21	28	41	13
16	30	35	127	28	343	85	43	42	20	21	41	13
17	27	31	103	106	95	45	38	37	29	18	102	17
18	26	30	1600	41	82	35	36	35	43	27	47	13
19	27	31	451	28	57	29	32	30	24	22	32	13
20	45	1660	151	25	43	26	29	27	23	25	42	11
21	54	3360	111	25	37	27	29	28	23	76	30	25
22	248	635	96	25	58	59	76	30	18	30	28	18
23	219	200	76	26	271	118	49	49	17	22	27	15
24	131	245	75	30	203	481	75	44	15	26	21	13
25	105	134	57	32	110	307	52	27	15	23	18	29
26	169	151	58	28	838	203	62	22	14	16	16	132
27	96	106	96	41	275	105	173	22	14	16	16	226
28	79	96	63	90	171	284	145	384	14	17	16	121
29	95	79	54	62	110	291	453	277	16	23	15	72
30	78	136	45	37	---	580	150	74	33	27	15	41
31	71	---	43	28	---	929	---	56	---	16	16	---
TOTAL	4423	8017	9955	1228	3617	4379	3733	2833	936	1066	3478	1143
MEAN	143	267	321	39.6	125	141	124	91.4	31.2	34.4	112	38.1
MAX	1400	3360	4530	106	838	929	453	384	59	181	1500	226
MIN	26	30	38	25	24	21	29	22	14	15	13	10
AC-FT	8770	15900	19750	2440	7170	8690	7400	5620	1860	2110	6900	2270

CAL YR 1987 TOTAL 49854 MEAN 137 MAX 4530 MIN 12 AC-FT 98890
WTR YR 1988 TOTAL 44808 MEAN 122 MAX 4530 MIN 10 AC-FT 88880

HAWAII, ISLAND OF HAWAII

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	19	48	753	27	30	148	118	153	26	96	115
2	20	17	36	157	25	25	177	74	105	26	102	263
3	17	19	35	266	72	23	179	60	110	44	83	101
4	15	597	28	124	74	58	64	49	69	277	76	177
5	14	261	25	109	55	93	154	48	710	372	62	99
6	25	113	22	64	216	110	101	64	1020	1140	133	62
7	16	48	20	713	272	300	88	49	606	100	80	53
8	14	41	18	866	86	86	96	196	240	128	58	53
9	13	69	17	940	46	50	54	242	90	66	48	53
10	11	156	16	2180	35	39	46	141	73	61	50	43
11	10	630	31	319	48	32	39	143	61	87	57	41
12	13	75	20	116	48	37	36	96	266	77	49	103
13	20	48	15	1850	30	30	32	1280	105	979	46	143
14	25	236	15	1900	53	26	154	1220	70	710	60	55
15	30	63	14	1810	27	22	174	640	226	238	52	49
16	14	58	13	539	22	36	70	326	84	110	54	90
17	13	125	11	181	19	106	48	280	72	79	53	200
18	10	148	13	117	17	80	47	172	78	60	41	118
19	9.4	48	23	92	17	40	66	112	52	1130	60	96
20	9.4	59	48	94	17	86	316	244	42	1270	359	102
21	8.7	108	129	246	15	37	224	133	46	244	699	62
22	29	380	82	266	15	23	502	172	37	2490	129	48
23	19	577	30	101	212	20	838	514	35	277	78	41
24	19	214	34	103	699	18	156	458	28	172	63	36
25	15	157	188	70	621	17	81	1150	25	224	53	34
26	13	110	983	51	88	26	55	357	30	172	47	50
27	13	110	70	41	49	23	66	115	29	101	41	76
28	128	77	179	162	37	15	312	80	23	94	39	62
29	60	53	464	48	---	13	1140	810	62	609	35	87
30	39	84	1430	35	---	14	936	372	40	387	39	48
31	22	---	2380	30	---	26	---	168	---	160	35	---
TOTAL	689.5	4700	6437	14343	2942	1541	6399	9883	4587	11910	2877	2560
MEAN	22.2	157	208	463	105	49.7	213	319	153	384	92.8	85.3
MAX	128	630	2380	2180	699	300	1140	1280	1020	2490	699	263
MIN	8.7	17	11	30	15	13	32	48	23	26	35	34
AC-FT	1370	9320	12770	28450	5840	3060	12690	19600	9100	23620	5710	5080

CAL YR 1988 TOTAL 34239.5 MEAN 93.6 MAX 2380 MIN 8.7 AC-FT 67910
WTR YR 1989 TOTAL 68868.5 MEAN 189 MAX 2490 MIN 8.7 AC-FT 136600

HAWAII, ISLAND OF HAWAII

16717000 KONOLII STREAM NEAR PAPAIKOU--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	600	48	16	297	1510	346	25	30	54	59	74	83
2	190	43	15	312	1930	130	20	52	47	111	66	73
3	208	40	15	226	1440	200	48	34	43	71	60	47
4	692	116	15	135	536	147	61	30	54	52	63	59
5	175	242	14	97	341	95	48	42	79	46	48	746
6	108	140	13	63	580	365	37	42	90	40	43	344
7	89	82	16	43	806	1080	35	34	59	35	40	88
8	64	65	26	32	150	1660	28	186	59	72	70	63
9	77	102	28	71	97	405	21	76	41	66	47	133
10	94	106	22	66	75	395	19	84	35	103	36	147
11	60	55	18	46	61	418	18	125	30	84	32	130
12	47	47	15	120	57	208	17	62	28	140	70	141
13	44	44	14	101	46	105	15	43	27	75	202	204
14	50	39	13	109	40	77	15	75	71	84	53	208
15	65	35	13	81	40	62	22	88	101	63	103	110
16	49	32	13	77	32	60	19	48	307	58	102	108
17	37	30	11	52	30	51	16	40	710	52	115	499
18	47	28	11	84	27	44	15	89	263	329	63	1100
19	37	25	10	3660	25	39	14	186	144	484	61	1020
20	48	26	10	1270	22	35	21	339	250	198	81	1240
21	72	26	10	210	21	30	21	717	200	138	55	175
22	53	25	10	160	19	28	91	295	154	94	48	108
23	487	23	10	210	18	25	37	147	112	81	83	101
24	156	22	9.4	182	50	23	136	380	316	139	304	117
25	184	20	9.4	238	156	22	80	362	277	111	188	73
26	125	20	9.4	192	104	20	62	128	144	78	133	62
27	85	18	9.4	139	60	19	48	167	259	84	136	100
28	106	18	42	167	139	18	40	110	118	118	94	74
29	120	16	51	150	---	52	31	78	88	242	63	117
30	74	16	29	246	---	29	26	97	66	110	51	127
31	55	---	30	400	---	25	---	68	---	94	43	---
TOTAL	4298	1549	527.6	9236	8412	6213	1086	4254	4226	3511	2627	7597
MEAN	139	51.6	17.0	298	300	200	36.2	137	141	113	84.7	253
MAX	692	242	51	3660	1930	1660	136	717	710	484	304	1240
MIN	37	16	9.4	32	18	18	14	30	27	35	32	47
AC-FT	8530	3070	1050	18320	16690	12320	2150	8440	8380	6960	5210	15070

CAL YR 1989 TOTAL 63416.6 MEAN 174 MAX 2490 MIN 9.4 AC-FT 125800
WTR YR 1990 TOTAL 53536.6 MEAN 147 MAX 3660 MIN 9.4 AC-FT 106200

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	266	48	39	16	19	238	150	165	57	309	62
2	132	143	58	35	15	18	110	94	143	50	121	54
3	153	97	44	30	15	17	140	70	116	44	165	144
4	230	77	41	28	15	16	81	60	89	40	352	520
5	174	106	39	26	14	17	285	58	83	36	127	107
6	120	116	36	26	14	47	244	48	63	60	94	72
7	96	593	36	35	14	109	118	43	362	96	593	61
8	77	129	61	40	14	150	202	37	146	48	1280	69
9	61	88	1790	30	13	2000	252	62	109	39	402	60
10	53	73	420	26	13	640	172	95	78	48	128	105
11	606	69	117	25	13	425	133	50	76	242	90	92
12	179	133	357	30	13	2580	116	39	81	94	74	76
13	210	184	1410	119	13	2970	132	36	58	130	87	54
14	117	1460	953	66	94	3140	101	263	86	174	62	46
15	162	854	224	47	69	1710	105	186	228	121	53	47
16	415	395	196	40	35	1390	94	79	95	112	55	41
17	242	1010	198	30	22	1400	88	110	70	77	127	36
18	803	3630	699	25	30	331	72	63	69	68	222	31
19	776	2180	314	23	23	936	86	68	52	65	86	30
20	234	4770	240	21	395	533	82	49	46	69	71	64
21	116	526	352	19	314	257	63	46	44	50	58	39
22	94	238	1460	18	119	272	69	53	55	48	288	242
23	105	121	147	18	75	216	90	42	41	41	137	98
24	121	96	248	18	42	138	246	39	49	39	74	47
25	138	84	104	17	31	90	226	51	182	35	72	37
26	87	139	79	17	29	77	434	89	266	48	100	32
27	89	95	63	17	25	204	304	168	119	35	321	30
28	66	70	55	36	21	226	220	177	92	30	344	27
29	103	59	49	25	---	238	254	354	88	41	185	25
30	858	51	44	18	---	133	352	365	62	297	108	23
31	133	---	41	17	---	108	---	304	---	82	75	---
TOTAL	6884	17852	9923	961	1506	20407	5109	3348	3213	2416	6260	2371
MEAN	222	595	320	31.0	53.8	658	170	108	107	77.9	202	79.0
MAX	858	4770	1790	119	395	3140	434	365	362	297	1280	520
MIN	53	51	36	17	13	16	63	36	41	30	53	23
AC-FT	13650	35410	19680	1910	2990	40480	10130	6640	6370	4790	12420	4700

CAL YR 1990 TOTAL 81821 MEAN 224 MAX 4770 MIN 14 AC-FT 162300
WTR YR 1991 TOTAL 80250 MEAN 220 MAX 4770 MIN 13 AC-FT 159200

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	e10	273	54	22	e5.8	19	11	4.1	128	112	112
2	25	e12	946	45	12	e5.6	17	11	4.1	46	92	448
3	23	14	190	40	12	e5.6	40	9.1	3.9	30	56	726
4	22	e12	171	35	10	5.5	78	7.2	4.0	38	52	1470
5	20	e10	63	27	14	5.4	27	11	4.1	29	51	874
6	19	e9.0	110	23	25	5.3	16	49	4.8	28	47	371
7	18	e8.5	80	20	72	5.3	12	38	4.7	47	54	189
8	25	13	43	18	21	5.3	9.5	18	6.8	31	59	112
9	29	21	32	16	14	5.2	8.0	11	42	202	40	193
10	21	32	57	15	11	5.2	7.2	9.2	68	325	33	150
11	18	20	171	14	10	5.2	8.1	7.8	113	120	224	85
12	17	15	49	13	12	5.1	12	9.4	43	65	199	65
13	16	e13	83	13	24	5.0	12	34	45	54	95	59
14	15	e10	92	15	e17	5.1	9.1	21	30	58	63	856
15	e14	e8.0	92	14	e13	5.0	7.7	15	75	46	46	159
16	e14	e7.0	44	15	e11	5.5	7.2	11	45	36	216	131
17	e13	e10	33	12	e9.7	6.0	6.7	8.7	28	54	148	190
18	e13	13	27	11	e8.8	8.5	6.4	7.3	21	95	79	108
19	e13	83	23	11	e8.0	8.9	6.8	6.5	33	154	69	79
20	e12	58	20	11	e7.5	11	6.0	5.9	114	276	139	64
21	e12	27	18	10	e7.0	10	5.5	5.4	41	322	396	57
22	e12	20	16	9.7	e6.6	8.0	5.1	5.1	22	85	167	48
23	e12	62	18	9.5	e6.4	6.6	4.9	4.9	44	49	127	42
24	14	34	21	9.5	e6.2	6.1	4.7	5.2	46	36	130	46
25	18	51	20	9.2	e6.0	16	4.5	4.9	80	51	198	52
26	14	28	492	9.2	e6.0	35	4.4	4.7	40	920	224	211
27	17	21	93	9.2	e6.0	19	4.4	4.4	28	870	134	97
28	18	18	132	9.1	e5.9	12	4.9	4.4	56	302	135	57
29	13	26	185	9.1	e5.8	8.8	8.7	4.3	36	114	237	44
30	e12	1020	70	9.0	---	8.6	13	4.2	72	257	147	38
31	e11	---	44	38	---	11	---	4.1	---	663	143	---
TOTAL	536	1685.5	3708	553.5	389.9	260.6	375.8	352.7	1158.5	5531	3912	7133
MEAN	17.3	56.2	120	17.9	13.4	8.41	12.5	11.4	38.6	178	126	238
MAX	36	1020	946	54	72	35	78	49	114	920	396	1470
MIN	11	7.0	16	9.0	5.8	5.0	4.4	4.1	3.9	28	33	38
AC-FT	1060	3340	7350	1100	773	517	745	700	2300	10970	7760	14150

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1992, BY WATER YEAR (WY)

MEAN	83.7	184	156	140	113	226	204	98.0	67.6	107	115	81.0
MAX	222	595	625	648	752	1349	772	319	163	384	420	253
(WY)	1991	1991	1971	1975	1969	1980	1986	1989	1987	1989	1982	1990
MIN	9.70	18.7	10.5	5.64	4.80	6.71	12.5	11.4	8.61	9.66	13.9	8.81
(WY)	1985	1986	1984	1981	1980	1983	1992	1992	1981	1981	1973	1979

SUMMARY STATISTICS FOR 1991 CALENDAR YEAR			FOR 1992 WATER YEAR		WATER YEARS 1911 - 1992		
ANNUAL TOTAL	51520.5		25596.5				
ANNUAL MEAN	141		69.9		130		
HIGHEST ANNUAL MEAN					220		1991
LOWEST ANNUAL MEAN					53.1		1981
HIGHEST DAILY MEAN	3140	Mar 14	1470	Sep 4	5780	Jan 8	1975
LOWEST DAILY MEAN	7.0	Nov 16	3.9	Jun 3	.80	Jan 31	1912
ANNUAL SEVEN-DAY MINIMUM	11	Nov 1	4.1	May 30	1.0	Feb 22	1980
ANNUAL RUNOFF (AC-FT)	102200		50770		94130		
10 PERCENT EXCEEDS	272		155		265		
50 PERCENT EXCEEDS	58		20		42		
90 PERCENT EXCEEDS	14		5.5		11		

e Estimated

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	23	153	e119	e9.4	7.8	11	527	25	59	89	30
2	e31	139	175	e80	e9.2	9.9	10	154	19	69	137	26
3	e29	91	102	e48	e9.1	67	10	170	15	52	243	24
4	e34	45	122	e40	e9.1	76	9.9	82	13	110	86	25
5	e29	32	376	e35	e9.0	50	11	121	26	48	63	23
6	e24	35	140	e30	9.0	30	15	62	21	39	55	21
7	e21	33	139	e28	8.8	61	38	47	15	32	60	19
8	e19	28	76	e25	9.0	210	50	227	30	29	73	18
9	e18	200	261	e23	9.6	207	23	136	44	32	55	36
10	e16	104	405	e21	30	97	30	154	34	35	107	38
11	e15	38	1130	e19	27	73	20	76	35	25	744	82
12	e15	32	261	e18	20	36	20	174	78	22	429	50
13	e13	25	94	e16	14	27	16	128	59	179	316	77
14	34	63	60	e15	12	22	13	51	31	195	347	31
15	17	227	47	16	11	19	12	40	44	46	128	23
16	14	63	222	20	9.8	20	11	33	102	52	71	21
17	e12	121	207	21	9.2	31	10	28	136	99	52	19
18	e11	65	61	19	8.8	32	9.6	26	126	175	47	20
19	e10	120	51	16	8.5	22	9.3	27	64	611	97	20
20	e10	64	48	16	8.4	21	166	31	48	541	61	34
21	e9.6	173	503	17	8.6	18	520	30	33	1600	42	29
22	e9.4	55	602	22	12	16	778	34	26	1320	39	21
23	14	47	357	20	12	17	243	30	23	520	128	20
24	44	36	653	15	10	15	89	22	22	2860	117	22
25	36	30	337	13	9.4	13	62	26	42	267	103	44
26	171	92	109	13	9.1	12	63	21	63	153	43	35
27	77	83	334	12	8.8	11	76	18	51	720	52	27
28	293	379	302	11	8.2	13	198	16	55	292	156	21
29	160	2990	209	e10	---	12	96	15	113	146	48	24
30	44	499	89	e10	---	12	480	14	82	149	36	69
31	28	---	66	e9.6	---	11	---	14	---	102	32	---
TOTAL	1293.0	5932	7691	777.6	319.0	1268.7	3099.8	2534	1475	10579	4056	949
MEAN	41.7	198	248	25.1	11.4	40.9	103	81.7	49.2	341	131	31.6
MAX	293	2990	1130	119	30	210	778	527	136	2860	744	82
MIN	9.4	23	47	9.6	8.2	7.8	9.3	14	13	22	32	18
AC-FT	2560	11770	15260	1540	633	2520	6150	5030	2930	20980	8050	1880

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1993, BY WATER YEAR (WY)

MEAN	82.2	184	159	136	110	219	200	97.5	67.0	116	115	79.3
MAX	222	595	625	648	752	1349	772	319	163	384	420	253
(WY)	1991	1991	1971	1975	1969	1980	1986	1989	1987	1989	1982	1990
MIN	9.70	18.7	10.5	5.64	4.80	6.71	12.5	11.4	8.61	9.66	13.9	8.81
(WY)	1985	1986	1984	1981	1980	1983	1992	1992	1981	1981	1973	1979

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1911 - 1993		
ANNUAL TOTAL	34583.0		39974.1				
ANNUAL MEAN	94.5		110		129		
HIGHEST ANNUAL MEAN					220		1991
LOWEST ANNUAL MEAN					53.1		1981
HIGHEST DAILY MEAN	2990	Nov 29	2990	Nov 29	5780	Jan 8	1975
LOWEST DAILY MEAN	3.9	Jun 3	7.8	Mar 1	.80	Jan 31	1912
ANNUAL SEVEN-DAY MINIMUM	4.1	May 30	9.0	Feb 2	1.0	Feb 22	1980
ANNUAL RUNOFF (AC-FT)	68600		79290		93590		
10 PERCENT EXCEEDS	218		227		263		
50 PERCENT EXCEEDS	32		35		42		
90 PERCENT EXCEEDS	5.5		11		11		

e Estimated

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	297	218	23	e19	27	62	140	84	476	e37	772
2	21	127	147	21	18	25	47	159	98	119	e36	484
3	304	44	303	e20	18	22	55	84	63	76	234	597
4	82	36	424	e20	153	21	235	58	65	58	132	317
5	85	41	315	e19	455	33	71	43	134	178	e47	148
6	36	128	328	19	176	23	98	34	267	82	e72	105
7	e27	115	169	23	e96	19	191	32	126	200	e68	91
8	e23	94	173	20	e113	18	235	27	61	181	e44	59
9	e21	324	86	18	108	17	351	26	43	80	e38	89
10	e24	72	65	16	206	18	185	23	36	70	e35	91
11	e31	41	52	15	346	17	138	21	30	46	389	107
12	e34	33	149	e14	405	139	378	93	32	39	4890	444
13	e36	28	198	e13	233	206	264	175	27	34	239	176
14	21	28	80	e13	130	270	100	56	106	98	84	95
15	27	65	137	e12	76	389	66	137	76	1510	56	83
16	31	52	172	12	105	301	50	98	45	156	57	55
17	57	317	1040	12	684	239	42	64	35	156	44	526
18	30	656	247	13	379	151	90	64	238	857	69	1550
19	22	299	1870	16	103	219	74	40	1170	100	48	1530
20	19	87	351	106	76	468	292	72	233	69	40	435
21	19	56	193	439	49	1090	263	181	83	316	51	115
22	22	43	e80	225	38	863	285	85	149	233	51	e74
23	91	41	e72	141	33	999	314	95	222	272	1050	e60
24	54	58	e61	282	31	1900	156	107	76	237	554	e48
25	28	31	e44	316	62	933	130	111	237	146	101	e42
26	28	29	e38	124	90	173	521	81	380	104	108	e38
27	24	44	e34	64	42	96	246	63	382	79	204	e34
28	21	65	31	40	32	83	205	80	165	e50	79	e54
29	19	200	28	31	---	111	81	60	393	e52	67	e34
30	356	282	26	e25	---	72	116	109	474	e43	45	29
31	93	---	e24	e21	---	144	---	145	---	e40	819	---
TOTAL	1714	3733	7155	2133	4276	9086	5341	2563	5530	6157	9788	8282
MEAN	55.3	124	231	68.8	153	293	178	82.7	184	199	316	276
MAX	356	656	1870	439	684	1900	521	181	1170	1510	4890	1550
MIN	19	28	24	12	18	17	42	21	27	34	35	29
AC-FT	3400	7400	14190	4230	8480	18020	10590	5080	10970	12210	19410	16430

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1994, BY WATER YEAR (WY)

MEAN	81.2	182	162	133	111	222	199	96.9	70.9	118	122	85.8
MAX	222	595	625	648	752	1349	772	319	184	384	420	276
(WY)	1991	1991	1971	1975	1969	1980	1986	1989	1994	1989	1982	1994
MIN	9.70	18.7	10.5	5.64	4.80	6.71	12.5	11.4	8.61	9.66	13.9	8.81
(WY)	1985	1986	1984	1981	1980	1983	1992	1992	1981	1981	1973	1979

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1911 - 1994	
ANNUAL TOTAL	37660.1		65758			
ANNUAL MEAN	103		180		131	
HIGHEST ANNUAL MEAN					220	1991
LOWEST ANNUAL MEAN					53.1	1981
HIGHEST DAILY MEAN	2860	Jul 24	4890	Aug 12	5780	Jan 8 1975
LOWEST DAILY MEAN	7.8	Mar 1	12	Jan 15	.80	Jan 31 1912
ANNUAL SEVEN-DAY MINIMUM	9.0	Feb 2	13	Jan 12	1.0	Feb 22 1980
ANNUAL RUNOFF (AC-FT)	74700		130400		94900	
10 PERCENT EXCEEDS	222		381		269	
50 PERCENT EXCEEDS	35		80		43	
90 PERCENT EXCEEDS	11		22		11	

e Estimated

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

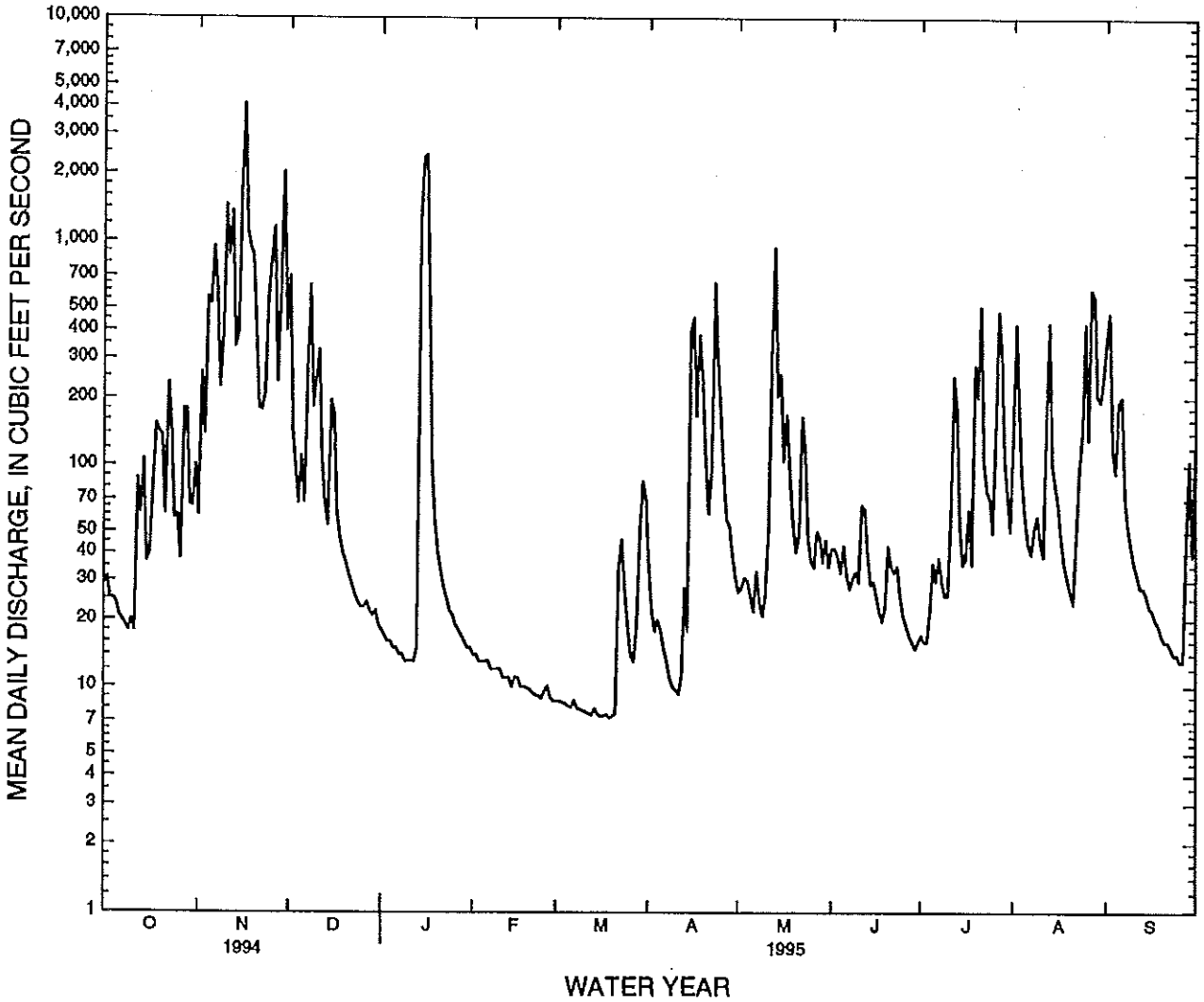
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	60	701	18	14	8.6	35	27	42	17	134	349
2	31	261	141	17	14	8.6	22	28	42	16	424	477
3	25	140	98	16	13	8.5	18	31	39	16	178	118
4	25	563	68	16	13	8.4	20	30	33	22	85	93
5	24	526	110	15	13	8.2	18	26	43	36	58	191
6	21	944	69	15	13	8.1	15	22	32	30	44	202
7	20	612	260	14	12	8.6	13	33	28	38	40	73
8	19	225	636	14	12	8.0	11	24	31	30	51	52
9	18	382	185	13	12	7.9	10	21	33	26	59	43
10	20	1440	242	13	12	7.8	9.7	26	30	26	45	36
11	18	868	327	13	11	7.7	9.3	50	66	59	39	32
12	87	1360	109	13	11	7.6	11	325	64	250	159	28
13	61	341	69	15	11	7.5	28	938	40	177	431	28
14	106	391	54	1200	10	7.9	18	205	29	53	101	26
15	37	1680	195	2360	11	7.5	399	256	30	36	81	23
16	40	4080	171	2410	11	7.4	454	106	26	38	66	22
17	81	1110	62	526	10	7.4	168	169	22	63	47	20
18	154	933	47	97	10	7.5	383	89	20	36	36	19
19	142	861	40	55	9.9	7.3	239	55	23	279	31	17
20	137	404	36	40	9.7	7.4	108	41	43	202	27	16
21	61	181	32	33	9.4	7.6	61	49	35	508	24	16
22	235	179	29	28	9.2	34	95	165	33	104	46	15
23	144	212	26	25	9.1	46	650	116	35	77	95	14
24	58	552	24	22	8.9	28	284	47	26	71	139	14
25	60	806	23	21	9.5	19	166	37	21	50	428	13
26	38	1150	23	19	10	14	94	35	19	141	132	13
27	179	239	24	18	9.0	13	57	50	17	485	608	42
28	179	564	22	17	8.6	19	53	47	16	306	561	105
29	67	2020	21	16	---	51	39	37	15	105	205	39
30	66	401	22	15	---	85	31	46	16	75	194	120
31	101	---	19	15	---	70	---	35	---	51	244	---
TOTAL	2283	23485	3885	7109	306.3	544.5	3519.0	3166	949	3423	4812	2256
MEAN	73.6	783	125	229	10.9	17.6	117	102	31.6	110	155	75.2
MAX	235	4080	701	2410	14	85	650	938	66	508	608	477
MIN	18	60	19	13	8.6	7.3	9.3	21	15	16	24	13
AC-FT	4530	46580	7710	14100	608	1080	6980	6280	1880	6790	9540	4470

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1995, BY WATER YEAR (WY)

MEAN	81.0	202	160	136	108	215	197	97.1	69.6	118	123	85.5
MAX	222	783	625	648	752	1349	772	319	184	384	420	276
(WY)	1991	1995	1971	1975	1969	1980	1986	1989	1994	1989	1982	1994
MIN	9.70	18.7	10.5	5.64	4.80	6.71	12.5	11.4	8.61	9.66	13.9	8.81
(WY)	1985	1986	1984	1981	1980	1983	1992	1992	1981	1981	1973	1979

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1911 - 1995	
ANNUAL TOTAL	82809		55737.8			
ANNUAL MEAN	227		153		132	
HIGHEST ANNUAL MEAN					220	1991
LOWEST ANNUAL MEAN					53.1	1981
HIGHEST DAILY MEAN	4890	Aug 12	4080	Nov 16	5780	Jan 8 1975
LOWEST DAILY MEAN	12	Jan 15	7.3	Mar 19	.80	Jan 31 1912
ANNUAL SEVEN-DAY MINIMUM	13	Jan 12	7.4	Mar 15	1.0	Feb 22 1980
ANNUAL RUNOFF (AC-FT)	164300		110600		95450	
10 PERCENT EXCEEDS	526		400		272	
50 PERCENT EXCEEDS	91		36		43	
90 PERCENT EXCEEDS	22		10		11	



16720000 KAWAINUI STREAM NEAR KAMUELA

LOCATION.--Lat 20°05'18", long 155° 40'58", Hydrologic Unit 20010000, on left bank 250 ft upstream from Upper Hamakua ditch intake, and 4.5 mi north of Kamuela.

DRAINAGE AREA.--1.58 mi^2.

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,060 ft above mean sea level, from topographic map.

REMARKS.--Records good except for daily discharges less than or equal to 3.0 ft^3/s, which are poor. No diversion upstream.

AVERAGE DISCHARGE.--Water year 1991: 27 years (water years 1965-91), 15.0 ft^3/s (10,850 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,160 ft^3/s, Nov. 18, 1979, gage height, 10.03 ft, from rating curve extended above 53 ft^3/s on basis of computations of peak flow over dam and slope-area measurement at gage height 10.03 ft; minimum, 0.01 ft^3/s, Jan. 23-28, Feb. 20-21, 1977, Dec. 16-19, Feb. 23, 24, 1980 (revised).

EXTREMES FOR CURRENT YEAR.--Water year 1991: Peak discharges greater than base discharge of 440 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 23	1630	498	5.23	Mar. 12	2400	678	5.84
Jan. 27	2400	*1,000	*6.72	Aug. 7	1730	542	5.39

Minimum daily discharge, 0.14 ft^3/s, Feb. 12.

REVISIONS.--The annual minimum discharge for water years 1965 to 1990 have been revised to report daily minimum discharge and not instantaneous minimum discharge. Daily discharges, in cubic feet per second, for the periods July 11, 1970 to Aug. 10, 1970, Feb. 28, 1971, Apr. 1, 1979 to Aug. 6, 1979, Nov. 16-23, 1984, and water year 1990 have also been revised. These figures supersede those published in annual reports for water years 1965 to 1990.

Water year 1965: Minimum daily discharge, 0.09 ft^3/s, Sep. 28-30, 1965.

Water year 1966: Minimum daily discharge, 0.03 ft^3/s, Oct. 5, 6, 1965.

Water year 1967: Minimum daily discharge, 0.18 ft^3/s, Feb. 7, 1967, June 14, 1967.

Water year 1968: Minimum daily discharge, 0.16 ft^3/s, Oct. 10, 1967.

Water year 1969: Minimum daily discharge, 0.08 ft^3/s, Jan. 20, 1969.

Water year 1970: Minimum daily discharge, 0.13 ft^3/s, Feb. 9, 1970.

Water year 1971: Minimum daily discharge, 0.26 ft^3/s, Feb. 12, 14, 1971.

Water year 1972: Minimum daily discharge, 0.10 ft^3/s, Mar. 18, 19, 1972.

Water year 1973: Minimum daily discharge, 0.21 ft^3/s, Oct. 20, 1972.

Water year 1974: Minimum daily discharge, 0.02 ft^3/s, Sep. 23, 27-29, 1974.

Water year 1975: Minimum daily discharge, 0.02 ft^3/s, Oct. 9, 10, 18, 1974.

Water year 1976: Minimum daily discharge, 0.05 ft^3/s, Jan. 30, 1976.

Water year 1977: Minimum daily discharge, 0.01 ft^3/s, Jan. 23-28, 1977, Feb. 20, 21, 1977.

Water year 1978: Minimum daily discharge, 0.08 ft^3/s, Dec. 3, 1977.

Water year 1979: Minimum daily discharge, 0.42 ft^3/s, Sep. 16, 1979.

Water year 1980: Minimum daily discharge, 0.01 ft^3/s, Dec. 16-19, 1979, Feb. 23, 24, 1980.

Water year 1981: Minimum daily discharge, 0.08 ft^3/s, Jan. 14-16, 1981, July 10, 1981.

Water year 1982: Minimum daily discharge, 0.17 ft^3/s, Feb. 27, 1982.

Water year 1983: Minimum daily discharge, 0.07 ft^3/s, Mar. 11-14, 1983.

Water year 1984: Minimum daily discharge, 0.23 ft^3/s, Sep. 30, 1984.

Water year 1985: Minimum daily discharge, 0.12 ft^3/s, Oct. 30, 31, 1984, Nov. 2, 1984.

Water year 1986: Minimum daily discharge, 0.16 ft^3/s, Mar. 8, 1986.

Water year 1987: Minimum daily discharge, 0.56 ft^3/s, Oct. 1, 1986.

Water year 1988: Minimum daily discharge, 0.79 ft^3/s, Oct. 17, 1987.

Water year 1989: Minimum daily discharge, 0.32 ft^3/s, Mar. 22, 1989.

Water year 1990: Minimum daily discharge, 0.12 ft^3/s, Dec. 26, 28, 1989.

16720000 KAWAINUI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
DAILY MEAN VALUES

July 11	7.6	July 19	9.4	July 27	18	Aug. 4	13
12	20	20	5.7	28	8.9	5	52
13	5.7	21	2.3	29	2.8	6	24
14	3.1	22	4.8	30	2.4	7	27
15	5.2	23	33	31	2.2	8	20
16	41	24	12	Aug. 1	1.5	9	5.9
17	29	25	4.6	2	1.7	10	2.7
18	27	26	6.5	3	4.9		

MONTH	TOTAL	MEAN	MAX	MIN	AC-FT
July 1970	853.2	27.5	102	2.2	1690
Aug. 1970	938.5	30.3	156	1.5	1860
WTR YR 1970	6157.26	16.9	271	.13	12210

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
DAILY MEAN VALUES

Feb. 28 .90

MONTH	TOTAL	MEAN	MAX	MIN	AC-FT
Feb. 1971	63.89	2.28	14	.26	127
CAL YR 1970	7586.49	20.8	271	.13	15050
WTR YR 1971	4525.56	12.4	192	.26	8980

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.89	1.8	4.2	8.1	14	.48	12	.98	3.6	e5.0	8.2
2	3.8	.83	1.5	2.2	3.1	5.2	1.1	5.8	.82	3.3	e6.5	13
3	2.0	1.3	1.2	1.5	1.8	2.5	7.3	26	.82	26	e9.0	5.8
4	27	.98	.89	1.2	1.3	1.7	40	14	.82	27	e12	2.1
5	20	.77	75	1.0	3.2	1.3	9.2	3.3	.67	9.2	e8.5	1.4
6	4.0	17	237	.90	26	1.6	20	2.4	.54	10	e6.0	1.1
7	6.4	4.4	18	.76	3.4	1.1	13	3.6	.48	11	2.5	4.3
8	60	1.8	12	.66	1.8	1.5	4.7	2.5	.54	10	1.8	29
9	23	1.2	58	.60	1.5	154	2.4	1.9	.60	7.0	1.4	3.9
10	8.5	.86	26	.60	118	71	1.4	3.1	2.2	4.0	1.2	1.7
11	5.5	8.0	18	53	53	8.6	.90	2.2	43	3.5	1.1	1.2
12	5.4	30	32	162	33	2.8	.67	2.2	85	2.5	.90	.91
13	2.5	28	50	277	35	4.3	.54	4.5	26	1.6	1.3	.74
14	1.7	17	57	261	44	20	.60	17	7.2	2.5	25	.60
15	1.3	45	19	228	51	29	2.5	33	4.2	6.0	74	.49
16	2.1	26	6.0	166	20	43	1.5	22	4.2	5.6	30	.42
17	1.3	11	6.1	52	24	14	1.1	11	8.5	5.2	6.8	16
18	1.1	7.3	15	11	29	3.5	.73	3.1	34	5.8	2.4	2.2
19	.99	3.5	26	11	7.0	4.5	2.2	1.9	60	6.8	1.5	1.1
20	2.0	52	27	97	11	37	1.9	1.3	30	5.2	1.1	.70
21	6.2	39	11	40	7.3	17	2.6	1.1	19	6.5	.92	.60
22	1.8	5.5	4.7	313	2.5	6.4	2.5	7.7	42	45	.78	.57
23	17	2.6	5.9	118	5.8	2.7	11	5.5	77	34	.68	3.5
24	15	1.6	3.0	29	86	1.7	2.8	2.7	26	42	.74	4.8
25	7.5	5.3	2.1	16	138	1.2	11	2.2	65	e24	.74	1.4
26	20	7.8	3.4	8.7	19	.93	6.4	7.6	81	e12	.62	28
27	9.8	17	3.9	6.9	37	.71	2.0	2.8	56	e14	.50	4.1
28	3.0	15	3.1	18	26	.62	1.1	1.5	39	e11	.64	1.9
29	1.9	8.1	2.7	11	---	.56	1.1	1.1	36	e7.0	1.4	1.9
30	1.3	2.6	2.3	4.1	---	.48	2.6	1.5	9.6	e5.0	1.2	1.4
31	1.1	---	5.3	41	---	.43	---	1.1	---	e3.5	.71	---
TOTAL	264.49	362.33	734.89	1937.32	796.8	453.33	155.32	207.6	761.17	359.8	206.93	143.03
MEAN	8.53	12.1	23.7	62.5	28.5	14.6	5.18	6.70	25.4	11.6	6.68	4.77
MAX	60	52	237	313	138	154	40	33	85	45	74	29
MIN	.99	.77	.89	.60	1.3	.43	.48	1.1	.48	1.6	.50	.42
AC-FT	525	719	1460	3840	1580	899	308	412	1510	714	410	284

CAL YR 1978 TOTAL 5874.48 MEAN 16.1 MAX 237 MIN .26 AC-FT 11650
WTR YR 1979 TOTAL 6383.01 MEAN 17.5 MAX 313 MIN .42 AC-FT 12660

e Estimated

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
DAILY MEAN VALUES

Nov. 16.....	5.2	Nov. 18.....	27	Nov. 20.....	46	Nov. 22.....	4.6
17.....	5.2	19.....	169	21.....	13	23.....	13

MONTH	TOTAL	MEAN	MAX	MIN	AC-FT
Nov. 1985	409.60	13.7	169	.12	812
CAL YR 1984	3879.68	10.6	169	.12	7700
WTR YR 1985	4949.42	13.6	243	.12	9820

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.82	.48	.30	1.5	34	118	12	.43	13	32	6.0	.82
2	.74	.43	.27	8.4	36	63	5.6	.61	13	67	6.0	.61
3	1.2	.33	.21	14	36	68	28	20	8.4	22	6.8	18
4	.61	.28	.21	22	20	59	15	20	10	6.2	6.4	29
5	11	.28	.19	7.4	29	54	10	41	6.8	3.6	3.2	38
6	20	.30	.17	3.2	48	44	4.4	33	7.6	1.9	3.2	12
7	2.3	.34	.21	1.3	42	73	1.6	47	10	1.3	17	3.0
8	1.2	.37	.23	8.4	5.2	83	.97	61	17	6.0	6.0	1.6
9	12	.43	37	73	2.4	17	.67	10	13	3.8	4.4	10
10	4.0	.34	12	13	1.7	10	.54	12	6.8	3.2	4.4	37
11	1.0	.24	1.8	42	1.2	17	.43	13	6.0	13	3.2	6.1
12	.67	.21	.89	40	.89	21	.34	5.2	6.4	35	5.2	18
13	.48	.19	1.8	4.8	.67	15	.27	4.8	5.2	5.2	6.8	10
14	.43	.17	2.0	1.9	.67	8.4	.24	4.8	7.5	4.4	4.4	18
15	.36	.17	.97	2.9	.61	17	.28	4.4	8.4	3.8	8.4	13
16	.32	.54	.67	3.0	.48	21	.48	4.4	65	4.4	13	35
17	.26	14	.48	92	.48	8.4	.61	3.8	51	10	6.8	77
18	.31	6.4	.37	60	.67	6.8	.89	3.8	32	44	3.2	52
19	5.3	2.1	.29	21	.61	5.2	24	17	16	26	3.2	34
20	19	4.5	.24	28	1.1	3.2	36	35	52	17	4.4	6.7
21	16	5.2	.24	5.6	.89	2.6	26	93	20	6.8	2.6	5.2
22	5.6	2.4	.21	2.9	.67	2.0	63	21	25	4.4	2.0	4.3
23	19	2.9	.17	4.2	.48	1.5	13	13	30	4.8	27	2.4
24	13	6.0	.15	1.7	48	1.0	6.9	26	52	10	43	10
25	20	1.6	.13	1.2	61	.67	2.2	35	42	35	28	2.2
26	13	.89	.12	.89	28	.37	1.2	17	18	8.4	30	1.3
27	4.1	.67	.13	5.3	8.4	.27	.82	40	35	13	29	6.5
28	2.0	.48	.12	12	60	.24	.61	35	29	15	11	31
29	1.2	.43	3.0	13	---	14	.48	13	59	17	4.2	43
30	.89	.34	6.2	121	---	9.3	.37	26	24	8.4	1.8	22
31	.67	---	2.8	62	---	26	---	10	---	6.8	1.1	---
TOTAL	177.46	53.01	73.57	677.59	469.12	769.95	256.90	670.24	689.1	439.4	301.7	547.73
MEAN	5.72	1.77	2.37	21.9	16.8	24.8	8.56	21.6	23.0	14.2	9.73	18.3
MAX	20	14	37	121	61	118	63	93	65	67	43	77
MIN	.26	.17	.12	.89	.48	.24	.24	.43	5.2	1.3	1.1	.61
AC-FT	352	105	146	1340	930	1530	510	1330	1370	872	598	1090

CAL YR 1989 TOTAL 5314.46 MEAN 14.6 MAX 254 MIN .12 AC-FT 10540
WTR YR 1990 TOTAL 5125.77 MEAN 14.0 MAX 121 MIN .12 AC-FT 10170

16720000 KAWAINUI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	2.4	.67	.48	1.0	.54	62	18	8.3	6.1	32	1.5
2	4.7	1.4	.54	.43	.67	.43	20	4.2	9.3	4.8	8.4	1.1
3	29	1.0	.48	.37	.37	.37	33	2.2	8.4	2.4	14	12
4	25	.82	.54	.36	.35	.48	16	7.8	4.0	1.5	26	36
5	20	.74	1.6	.35	.32	1.9	97	20	3.3	1.0	14	8.4
6	5.2	.74	13	2.9	.26	7.5	56	6.7	5.5	.82	55	3.6
7	2.0	.61	3.4	10	.22	33	20	15	56	.82	257	5.2
8	1.3	.48	73	5.2	.20	63	30	19	11	.67	15	17
9	.89	.43	345	3.2	.19	88	5.4	5.3	6.6	.67	8.3	9.3
10	.89	.37	37	13	.17	29	2.3	2.3	3.3	22	10	36
11	95	.34	6.0	11	.15	39	1.7	3.6	2.1	46	5.5	24
12	14	.30	13	5.2	.14	162	1.8	3.2	3.2	6.6	33	22
13	13	.31	42	4.8	17	252	8.2	6.5	6.9	16	18	20
14	31	100	46	4.4	48	235	4.3	76	13	15	5.3	4.6
15	46	49	6.3	3.2	13	139	5.5	52	18	27	2.6	5.5
16	42	14	2.3	3.8	4.6	123	4.4	10	5.6	20	2.0	10
17	20	10	1.4	5.6	1.7	178	3.8	18	4.5	6.2	5.9	7.9
18	32	106	28	4.4	.97	25	3.7	7.3	14	17	11	3.7
19	13	54	17	3.8	1.4	22	4.9	6.0	6.0	19	6.3	2.1
20	3.2	16	34	3.2	8.4	9.3	3.6	2.2	2.0	9.3	6.1	1.8
21	1.6	7.8	10	3.2	14	6.0	2.2	1.4	1.2	3.7	3.3	1.3
22	1.2	2.3	14	2.0	7.1	2.8	2.8	1.0	.97	5.0	2.0	1.0
23	14	86	20	10	2.2	1.7	4.3	.89	.89	2.4	1.6	.97
24	13	35	29	5.2	1.2	1.2	37	.74	1.4	9.3	1.4	.89
25	17	4.9	17	4.4	2.3	.89	38	.74	27	14	1.3	.74
26	6.1	2.1	2.6	4.4	1.1	.89	18	9.3	55	35	3.4	.61
27	4.4	1.3	1.3	196	.74	17	20	40	15	5.2	64	.54
28	1.7	1.3	1.1	93	.54	20	42	47	27	2.8	43	.54
29	17	.89	1.0	4.4	---	16	30	63	14	40	13	.61
30	46	.74	.74	1.5	---	30	58	35	10	67	3.8	.54
31	5.4	---	.61	1.0	---	24	---	18	---	9.3	2.0	---
TOTAL	535.58	501.27	768.58	410.79	128.29	1529.00	635.9	502.37	343.46	416.58	674.2	239.44
MEAN	17.3	16.7	24.8	13.3	4.58	49.3	21.2	16.2	11.4	13.4	21.7	7.98
MAX	95	106	345	196	48	252	97	76	56	67	257	36
MIN	.89	.30	.48	.35	.14	.37	1.7	.74	.89	.67	1.3	.54
AC-FT	1060	994	1520	815	254	3030	1260	996	681	826	1340	475

CAL YR 1990 TOTAL 6627.16 MEAN 18.2 MAX 345 MIN .24 AC-FT 13140
WTR YR 1991 TOTAL 6685.46 MEAN 18.3 MAX 345 MIN .14 AC-FT 13260

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

LOCATION.--Lat 20°05′13″, long 155° 40′59″, Hydrologic Unit 20010000, on right bank 0.2 mi upstream from Upper Hamakua ditch intake, and 4.4 mi north of Kamuela.

DRAINAGE AREA.--0.45 mi^2.

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR HI-80-1: 1969-79(P).

GAGE.--Water-stage recorder. Elevation of gage is 4,090 ft above mean sea level, from topographic map.

REMARKS.--Records poor. No diversion upstream.

AVERAGE DISCHARGE.--Water year 1991: 23 years (water years 1969-91), 3.69 ft^3/s (2,670 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,470 ft^3/s, Nov. 18, 1979, gage height, 8.32 ft, from rating curve extended above 33 ft^3/s on basis of slope-area measurement at gage height 8.32 ft; minimum, 0.00 ft^3/s (revised), Nov. 14, 1968, July 5-11, 1981, Mar. 10-16, 1983, Oct. 16-20, 22, 1984, Nov. 2, 1984 (revised).

EXTREMES FOR CURRENT YEAR.--Water year 1991: Peak discharges greater than base discharge of 120 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 23	1630	126	2.76	Mar. 12	2330	266	3.62
Dec. 9	0200	164	3.03	Aug. 7	1730	301	3.79
Jan. 17	2400	*470	*4.49				

Minimum daily discharge, 0.20 ft^3/s, Feb. 6-12.

REVISIONS.--Published figures for discharge for water years 1968 to 1990 have been revised. These figures supersede those published in the annual reports for 1968 to 1990. All daily discharges for water years 1968 to 1990 have been downgraded to poor.

EXTREMES FOR WATER YEARS 1969-1990.--Peak discharges above base of 120 ft^3/s and maxmium (*):

Water Year	Date	Time	Discharge (ft^3/s)	Gage height (ft)
1969	Dec. 16, 1968	1415	187	3.18
	Mar. 17, 1969	2315	*284	*3.71
	Aug. 15, 1969	0300	144	2.90
1970	Dec. 5, 1969	0145	299	3.78
	Jan. 6, 1970	1315	249	3.53
	Apr. 23, 1970	1330	*325	*3.90
	July 10, 1970	0100	239	3.48
	Aug. 25, 1970	2300	181	3.14
1971	Nov. 5, 1970	1430	*558	*4.83
	Dec. 5, 1970	0915	187	3.18
	Dec. 19, 1970	2230	254	3.56
	Dec. 27, 1970	2230	200	3.26
	Jan. 5, 1971	1530	185	3.17
	Jan. 19, 1971	1645	207	3.30
	Apr. 18, 1971	2045	253	3.55
1972	Mar. 4, 1972	2300	212	3.33
	Apr. 10, 1972	0100	223	3.39
	Aug. 18, 1972	2215	143	2.89
	Aug. 31, 1972	1500	500	4.60
1973	Mar. 7, 1973	--	*117	2.69
1974	Nov. 12, 1973	0845	225	3.40
	Jan. 7, 1974	1400	214	3.34
	Jan. 26, 1974	1545	440	4.38
	Mar. 19, 1974	1500	*729	*5.47
	Apr. 16, 1974	0415	158	2.99
1975	Oct. 20, 1974	1500	*772	*5.63
	Nov. 11, 1974	1945	156	2.98
	Nov. 21, 1974	1600	249	3.53
1976	Oct. 18, 1975	2015	182	3.15
	Jan. 16, 1976	0530	*380	*4.14
1977	Apr. 20, 1977	1830	*228	*3.42
	Aug. 6, 1977	1400	150	2.94
	Aug. 11, 1977	2400	153	2.96
1978	Jan. 1, 1978	1830	*140	*2.87
	May 21, 1978	1430	139	2.86
1979	Dec. 6, 1978	0130	*767	*5.61
	Jan. 13, 1979	2300	258	3.58
	Jan. 22, 1979	1100	400	4.22
	Feb. 10, 1979	1330	338	3.96
	Feb. 25, 1979	1700	592	4.96
1980	Nov. 18, 1979	0200	*1,470	*8.32
	Jan. 9, 1980	1200	877	6.05
1980	Mar. 14, 1980	0700	174	3.10
	Mar. 17, 1980	0400	571	4.88
	Mar. 23, 1980	2230	603	5.00
	Apr. 2, 1980	0130	256	3.57
1981	Oct. 30, 1980	--	*176	*3.11
1982	Nov. 24, 1981	0830	176	3.11
	Dec. 7, 1981	2200	123	2.74
	Jan. 9, 1982	0030	*767	*5.61
	Jan. 27, 1982	0330	197	3.24
	Feb. 11, 1982	2030	561	4.84
1983	Dec. 18, 1982	1800	*334	*3.94
	May 31, 1983	1330	238	3.47
1984	Oct. 24, 1983	1830	210	3.32
	Dec. 26, 1983	0900	*390	*4.18
	Jan. 29, 1984	1900	156	2.98
1985	Dec. 9, 1984	0730	122	2.73
	Mar. 6, 1985	1730	*182	*3.15
1986	Nov. 19, 1985	0200	130	2.79
	Feb. 16, 1986	0300	155	2.97
	Mar. 20, 1986	2300	390	4.18
	Mar. 23, 1986	1700	*584	*4.93
	Apr. 5, 1986	1700	212	3.33
	Apr. 8, 1986	1200	446	4.40
	Apr. 10, 1986	1100	407	4.25
	May 6, 1986	1530	295	3.76
1987	Dec. 3, 1986	0200	136	2.84
	Dec. 6, 1986	0530	245	3.51
	Jan. 10, 1987	0630	189	3.19
	Jan. 18, 1987	2230	*249	*3.53
	Apr. 1, 1987	0230	158	2.99
	Apr. 22, 1987	0300	238	3.47
1988	Nov. 21, 1987	0130	*669	*5.25
1989	Feb. 3, 1989	0900	571	4.88
	Apr. 7, 1989	2000	*916	*6.20
	Apr. 14, 1989	0400	130	2.79
	Apr. 28, 1989	1700	290	3.74
	May 29, 1989	2200	207	3.30
	June 5, 1989	2300	228	3.42
	Aug. 20, 1989	0400	126	2.76
1990	Mar. 7, 1990	2130	126	2.76
	Sep. 17, 1990	0330	*159	*3.00

Water year 1969: Minimum daily discharge, 0.00 ft^3/s, Nov. 14, 1968.

Water year 1970: Minimum daily discharge, 0.03 ft^3/s, Feb. 9, 1970.

Water year 1971: Minimum daily discharge, 0.03 ft^3/s, Sep. 18, 19, 1971.

Water year 1972: Minimum daily discharge, 0.04 ft^3/s, Mar. 27, 28, 1972.

Water year 1973: Minimum daily discharge, 0.12 ft^3/s, Oct. 20, 1972.

Water year 1974: Minimum daily discharge, 0.03 ft^3/s, Apr. 3, 1974.

Water year 1975: Minimum daily discharge, 0.05 ft^3/s, Oct. 5, 17, 1974.

Water year 1976: Minimum daily discharge, 0.10 ft^3/s, Jan. 2, 1976, Feb. 5, 1976.

Water year 1977: Minimum daily discharge, 0.05 ft^3/s, Feb. 21, 1977.

Water year 1978: Minimum daily discharge, 0.07 ft^3/s, Feb. 22, 1978.

Water year 1979: Minimum daily discharge, 0.08 ft^3/s, May 31, 1979.

Water year 1980: Minimum daily discharge, 0.04 ft^3/s, Feb. 20, 23, 24, 1980.

Water year 1981: Minimum daily discharge, 0.00 ft^3/s, July 5-11, 1981.

Water year 1982: Minimum daily discharge, 0.03 ft^3/s, Oct. 12, 1981.

Water year 1983: Minimum daily discharge, 0.00 ft^3/s, Mar. 10-16, 1983.

Water year 1984: Minimum daily discharge, 0.01 ft^3/s, Dec. 24, 1983.

Water year 1985: Minimum daily discharge, 0.00 ft^3/s, Oct. 16-20, 1984, Oct. 22, 1984 to Nov. 2, 1984.

Water year 1986: Minimum daily discharge, 0.06 ft^3/s, Mar. 6-8, 1986.

Water year 1987: Minimum daily discharge, 0.15 ft^3/s, Feb. 11-13, 1987.

Water year 1988: Minimum daily discharge, 0.06 ft^3/s, Oct. 16, 17, 1987.

Water year 1989: Minimum daily discharge, 0.04 ft^3/s, Oct. 26, 1988.

Water year 1990: Minimum daily discharge, 0.03 ft^3/s, Dec. 28, 1989.

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1967 TO SEPTEMBER 1968
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	.22	.34	.71	1.6
2	---	---	---	---	---	---	---	---	.18	.22	1.3	.84
3	---	---	---	---	---	---	---	---	.18	.18	2.3	.56
4	---	---	---	---	---	---	---	---	2.6	.16	2.5	.25
5	---	---	---	---	---	---	---	---	2.3	.13	3.0	.16
6	---	---	---	---	---	---	---	---	1.0	.08	1.0	.13
7	---	---	---	---	---	---	---	---	.39	.06	2.3	.10
8	---	---	---	---	---	---	---	---	.84	.06	.56	.08
9	---	---	---	---	---	---	---	---	2.6	.04	.39	.06
10	---	---	---	---	---	---	---	---	5.2	.04	6.4	.06
11	---	---	---	---	---	---	---	---	1.3	.08	6.7	.16
12	---	---	---	---	---	---	---	---	.50	.08	4.5	.44
13	---	---	---	---	---	---	---	---	.34	2.5	2.5	.13
14	---	---	---	---	---	---	---	---	4.5	12	8.1	.10
15	---	---	---	---	---	---	---	---	1.0	6.7	1.3	6.2
16	---	---	---	---	---	---	---	---	1.8	.84	.63	1.8
17	---	---	---	---	---	---	---	---	5.8	4.3	.44	.39
18	---	---	---	---	---	---	---	---	4.3	3.5	.39	.18
19	---	---	---	---	---	---	---	---	8.3	3.2	.28	.18
20	---	---	---	---	---	---	---	---	1.1	2.3	.22	2.0
21	---	---	---	---	---	---	---	---	.84	1.8	.18	1.1
22	---	---	---	---	---	---	---	---	4.0	3.2	.44	.34
23	---	---	---	---	---	---	---	---	3.0	2.3	1.6	.56
24	---	---	---	---	---	---	---	---	3.9	1.9	.39	2.6
25	---	---	---	---	---	---	---	---	3.2	1.1	.56	2.3
26	---	---	---	---	---	---	---	---	3.9	.44	.44	3.3
27	---	---	---	---	---	---	---	---	3.5	.56	.25	.79
28	---	---	---	---	---	---	---	---	3.7	3.0	.16	2.5
29	---	---	---	---	---	---	---	---	1.1	3.5	1.8	4.5
30	---	---	---	---	---	---	---	---	.50	2.1	.79	1.3
31	---	---	---	---	---	---	---	---	---	.84	5.0	---
TOTAL	---	---	---	---	---	---	---	---	72.09	57.55	57.13	34.71
MEAN	---	---	---	---	---	---	---	---	2.40	1.86	1.84	1.16
MAX	---	---	---	---	---	---	---	---	8.3	12	8.1	6.2
MIN	---	---	---	---	---	---	---	---	.18	.04	.16	.06
AC-FT	---	---	---	---	---	---	---	---	143	114	113	69

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1968 TO SEPTEMBER 1969
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.39	.03	.39	.16	3.3	29	30	2.8	.18	3.9	4.0	14
2	.39	.02	1.0	.13	7.8	3.9	23	2.0	.44	4.7	1.1	8.6
3	.25	.02	3.5	10	59	3.7	7.6	5.9	4.5	.79	3.9	5.2
4	.16	.02	14	4.7	9.5	6.4	7.3	4.3	3.2	.50	1.1	7.6
5	.10	.02	5.5	4.7	1.9	7.3	4.7	1.0	.56	.34	2.1	1.8
6	.06	.02	5.8	12	.63	33	7.3	.63	.28	10	10	1.1
7	.13	.01	2.0	2.8	.39	2.8	9.5	.34	.25	8.1	6.4	.71
8	.06	.01	.56	1.3	.28	3.5	12	.28	.18	7.3	1.0	.92
9	.03	.02	.34	12	.22	9.5	5.8	.34	.13	3.9	.50	.63
10	.03	.04	.25	3.0	.18	2.0	3.0	.34	.18	3.7	5.5	.71
11	.02	.03	.18	.63	.18	1.0	37	.34	11	2.8	3.9	.56
12	.02	.01	1.5	.34	.16	.63	48	.34	5.0	1.8	5.0	.44
13	.02	.01	54	.22	.16	.50	19	.28	1.3	1.0	21	.39
14	.03	.00	18	.71	21	.44	12	.28	.50	14	38	1.5
15	.03	.01	1.9	.25	30	.44	9.5	.50	.28	2.6	51	.56
16	.03	.02	21	.25	25	7.8	18	1.3	.25	1.4	5.5	.44
17	.03	.18	4.5	.16	7.0	14	14	.63	.22	3.0	12	.39
18	.03	.06	3.5	.10	12	10	7.0	.44	.13	4.3	7.6	3.9
19	.08	.56	.92	.08	13	3.3	10	.39	.13	16	2.0	4.7
20	4.5	.50	.79	.08	8.1	2.3	17	.34	.16	20	2.6	1.5
21	1.1	.34	1.1	3.9	19	1.1	7.0	.28	.10	1.6	.92	7.8
22	.79	.28	.50	.39	7.8	1.9	14	.34	2.6	2.8	1.0	4.0
23	.34	.50	.56	.18	9.5	1.0	2.0	2.8	.56	6.2	2.5	2.1
24	.16	.18	.34	.13	5.8	5.5	.92	3.0	.28	10	7.6	1.5
25	.08	1.8	2.0	.13	10	17	.50	2.6	.28	3.9	3.3	2.0
26	.04	.71	1.1	.08	23	1.8	.34	10	.34	1.1	4.3	8.1
27	.02	.22	.44	.06	5.5	1.0	4.3	3.3	.50	.56	1.4	3.7
28	.06	3.9	.39	.08	16	.79	7.8	.56	.56	.39	2.6	6.2
29	.06	7.3	.50	17	---	.34	7.6	.34	4.5	5.8	3.3	4.3
30	.10	1.1	.28	8.3	---	.39	3.0	.28	5.0	3.2	6.2	2.0
31	.04	---	.22	7.0	---	6.4	---	.22	---	11	3.3	---
TOTAL	9.18	17.92	147.06	90.86	296.40	178.73	349.16	46.49	43.59	156.68	220.62	97.35
MEAN	.30	.60	4.74	2.93	10.6	5.77	11.6	1.50	1.45	5.05	7.12	3.24
MAX	4.5	7.3	54	17	59	33	48	10	11	20	51	14
MIN	.02	.00	.18	.06	.16	.34	.34	.22	.10	.34	.50	.39
AC-FT	18	36	292	180	588	355	693	92	86	311	438	193

WTR YR 1969 TOTAL 1654.04 MEAN 4.53 MAX 59 MIN .00 AC-FT 3280

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	.09	1.0	.84	.35	7.1	17	16	.76	25	.57	1.4
2	.79	.07	.34	.33	.24	6.9	6.8	1.9	2.9	11	.80	2.6
3	.50	.14	.19	2.6	.18	1.9	8.6	.79	1.4	12	1.5	1.2
4	.39	.10	3.7	14	.15	.92	8.6	.61	1.6	13	3.8	7.3
5	.34	.22	20	.92	.10	.42	12	.52	.68	10	14	4.1
6	.28	17	.69	21	.07	1.1	3.3	.57	.53	18	6.3	5.9
7	.34	6.0	.74	1.9	.06	8.6	6.4	6.4	1.9	7.1	6.4	2.3
8	.63	1.2	1.3	.47	.04	1.8	6.4	18	2.9	5.8	4.8	1.4
9	.44	.42	1.4	.55	.03	.60	3.0	16	1.5	16	1.4	.79
10	.28	.24	9.5	.28	3.3	.47	3.9	21	1.0	23	.65	.63
11	.22	.17	2.8	.22	1.0	.28	6.0	6.5	1.8	1.6	.84	.50
12	.22	.13	.59	6.4	.30	1.9	6.1	6.5	3.9	4.7	4.6	.50
13	.22	.10	9.5	.59	.17	4.0	6.9	1.5	5.0	1.3	2.1	.44
14	.18	.09	18	11	.12	6.4	5.2	.92	4.5	.77	2.1	.50
15	.16	.06	5.2	2.4	3.9	4.3	10	8.0	6.2	1.4	3.7	.44
16	.13	.05	1.3	1.0	1.0	1.7	7.6	4.9	1.9	8.4	2.0	.45
17	.13	.16	.49	1.1	.34	.68	8.3	6.9	19	8.2	10	8.6
18	.13	.08	.33	.37	.18	5.7	1.9	12	13	6.1	10	3.4
19	.10	.05	.25	.25	.13	6.9	9.5	5.2	4.6	2.3	12	2.1
20	.25	.04	.48	.19	.09	5.5	2.0	6.2	.84	1.0	3.8	.75
21	.56	.05	.25	.16	.06	1.7	1.4	2.0	1.4	.64	1.8	3.4
22	1.1	.11	.19	.64	.07	6.4	8.6	1.3	3.6	1.4	6.9	7.7
23	.34	.12	.16	7.1	1.5	17	83	.65	3.7	8.1	7.4	1.7
24	7.0	.06	.16	1.7	.70	5.2	12	.51	2.4	3.0	5.4	.71
25	1.6	.07	.14	.45	2.3	1.3	2.5	.47	6.6	1.4	50	.62
26	.44	1.3	.14	.80	1.7	.63	11	13	1.3	2.1	37	.58
27	.25	.79	.17	.92	1.5	2.7	11	12	.84	4.5	8.6	.49
28	.34	.22	1.7	.76	.79	2.4	1.6	11	12	2.1	16	.45
29	.39	10	2.7	1.4	---	.75	11	2.3	4.9	.79	6.7	.32
30	.22	2.3	2.6	2.0	---	2.0	30	2.2	1.8	.63	5.7	.23
31	.13	---	.78	1.0	---	8.5	---	2.0	---	.54	3.3	---
TOTAL	23.10	41.43	86.79	83.34	20.37	115.75	311.6	187.84	114.45	201.87	240.16	61.50
MEAN	.75	1.38	2.80	2.69	.73	3.73	10.4	6.06	3.81	6.51	7.75	2.05
MAX	7.0	17	20	21	3.9	17	83	21	19	25	50	8.6
MIN	.10	.04	.14	.16	.03	.28	1.4	.47	.53	.54	.57	.23
AC-FT	46	82	172	165	40	230	618	373	227	400	476	122

CAL YR 1969 TOTAL 1631.20 MEAN 4.47 MAX 59 MIN .04 AC-FT 3240
WTR YR 1970 TOTAL 1488.20 MEAN 4.08 MAX 83 MIN .03 AC-FT 2950

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	13	10	1.1	.25	.20	5.2	1.1	.71	.22	.63	.71
2	.23	3.6	6.6	1.1	.25	.17	1.1	.76	5.2	.18	1.8	1.1
3	.19	.92	5.2	.68	.22	.16	1.1	.92	2.3	.17	1.3	3.5
4	.32	6.8	2.8	.56	.22	.16	2.0	.92	.67	.16	.56	.84
5	4.3	26	40	10	.18	4.1	4.9	2.7	3.9	.16	.44	.25
6	3.0	2.1	21	11	.18	1.1	1.0	3.7	2.1	1.0	.34	.25
7	1.7	1.1	8.5	2.2	.18	2.6	.66	2.5	4.0	1.7	.28	.22
8	.84	.61	1.7	.84	.16	5.0	.66	1.1	.84	8.6	.28	.79
9	.84	7.4	.73	10	.16	1.9	3.4	.50	1.3	2.4	.25	1.0
10	.66	17	.66	1.5	.16	.65	1.5	.44	10	3.5	.22	.28
11	.58	2.8	.66	.71	.15	.46	6.6	.39	2.2	4.0	.22	.18
12	.49	2.1	1.1	.56	.13	7.6	8.6	.34	.60	8.1	.22	.16
13	.41	2.6	.67	.44	.14	3.9	4.1	.34	.40	38	3.5	.13
14	.22	7.4	.48	.44	.16	1.4	2.4	.34	.37	7.5	1.4	.13
15	.28	3.1	.40	.39	.62	2.2	5.6	.34	.29	1.4	.56	.10
16	.37	1.5	.39	.39	.46	1.1	16	.34	.25	.92	5.0	.06
17	.25	.66	12	.44	.22	.60	3.9	.39	.24	.65	1.3	.06
18	.24	.50	5.1	.44	.17	.38	21	.44	.56	.66	1.3	.03
19	.24	.41	16	12	.16	.28	12	.39	.92	.51	.44	.03
20	7.5	2.6	12	2.5	.48	.23	3.8	.44	.40	.83	.25	.04
21	6.1	8.0	3.6	.63	2.0	.22	2.3	.50	.29	.63	.22	.50
22	7.6	1.3	3.0	.44	2.4	.22	2.4	.50	.25	.47	.18	.39
23	9.5	.70	5.2	.34	1.9	.22	2.0	1.0	.23	.45	.16	.10
24	7.0	2.7	4.5	.28	2.0	.22	1.8	5.0	.28	3.5	.16	.08
25	1.8	2.7	50	.25	2.0	7.8	2.0	2.6	3.9	4.0	.16	.08
26	2.3	.69	34	.22	.54	57	1.0	1.1	4.7	.71	.13	.18
27	1.5	.52	21	.25	.31	13	1.1	.44	2.2	.44	.10	.10
28	.81	.42	14	24	.24	4.4	2.1	1.9	1.3	1.0	.08	1.1
29	.52	1.4	7.6	3.5	---	2.6	1.9	1.8	.43	4.3	.10	.39
30	1.1	1.0	8.6	.50	---	4.6	1.0	4.3	.26	21	.22	.63
31	2.0	---	1.7	.34	---	1.8	---	1.6	---	1.9	.28	---
TOTAL	63.12	121.63	299.19	88.04	16.04	126.27	123.12	39.13	51.09	119.06	22.08	13.41
MEAN	2.04	4.05	9.65	2.84	.57	4.07	4.10	1.26	1.70	3.84	.71	.45
MAX	9.5	26	50	24	2.4	57	21	5.0	10	38	5.0	3.5
MIN	.19	.41	.39	.22	.13	.16	.66	.34	.23	.16	.08	.03
AC-FT	125	241	593	175	32	250	244	78	101	236	44	27

CAL YR 1970 TOTAL 1820.82 MEAN 4.99 MAX 83 MIN .03 AC-FT 3610
WTR YR 1971 TOTAL 1082.18 MEAN 2.96 MAX 57 MIN .03 AC-FT 2150

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.25	2.7	.41	.23	.18	.22	1.4	.34	2.8	.42	4.8
2	.39	3.3	4.0	.30	.19	.16	2.5	1.1	.28	4.0	.36	.92
3	.34	1.7	1.3	.51	.17	.15	2.0	.77	.25	3.0	.45	1.5
4	.16	.39	.65	3.4	.16	17	2.0	.60	.24	2.1	.84	8.1
5	1.6	.22	.38	.58	8.6	21	6.6	4.3	.22	2.0	.92	1.4
6	11	.16	.28	.44	1.2	1.4	2.0	1.2	.22	4.0	2.2	.58
7	1.9	1.0	.29	1.9	.66	.43	1.3	.82	.18	12	.71	.44
8	.34	6.8	.25	4.2	.76	.29	26	1.4	.19	5.8	.52	.38
9	.28	7.0	.27	1.3	3.9	.22	40	1.1	1.2	1.9	.41	.34
10	.63	2.5	4.5	.49	7.5	.18	71	.59	1.5	.79	.35	.72
11	.50	5.2	12	.34	1.1	.16	5.2	.45	.49	.79	.39	1.6
12	.84	5.7	2.0	.26	.60	.16	3.2	.39	.28	1.3	1.9	.57
13	.92	3.0	.84	.26	1.2	.15	1.4	.36	.22	3.4	5.0	.43
14	.33	2.4	12	.49	.92	.13	.62	.41	1.0	11	14	.39
15	.22	.79	12	.78	.62	.12	.44	.52	.43	.78	3.0	.34
16	.17	.46	1.6	.39	.32	.10	.36	.34	.35	1.2	.76	.30
17	.18	7.1	.57	.24	.24	.10	.33	.25	2.6	.73	8.6	.28
18	.18	19	.37	.22	7.5	.10	.35	.25	3.4	1.4	62	.28
19	1.6	6.4	5.3	.27	5.7	.08	2.6	.23	2.5	.64	14	.25
20	1.3	1.4	8.6	.40	1.5	.09	6.3	1.3	.63	.56	6.4	.25
21	3.6	.60	4.1	.74	.64	.68	2.5	1.3	.33	1.0	2.2	.92
22	4.4	.81	1.6	2.7	.34	.22	3.5	1.3	.28	.50	.80	.48
23	.63	6.2	.55	.49	.27	.14	8.2	3.1	.25	.51	.52	.32
24	.28	6.3	.37	6.7	.24	.09	2.6	2.1	.21	.62	.41	.31
25	1.4	3.2	.34	5.0	9.5	.07	3.3	2.0	.73	2.5	.34	.26
26	1.3	1.4	.32	.72	1.2	.05	6.4	1.3	3.3	24	.30	.25
27	1.4	.55	3.3	1.5	.42	.04	3.8	.52	13	14	.35	1.9
28	.40	.79	3.0	2.5	.27	.04	1.1	.35	10	5.3	.34	3.3
29	.25	2.0	1.6	.79	.22	13	7.5	.37	1.3	2.9	.71	6.8
30	.18	3.8	6.0	.62	---	1.9	3.0	.61	1.8	.84	.61	3.5
31	.19	---	.72	.34	---	.42	---	.39	---	.52	28	---
TOTAL	38.21	100.42	91.80	39.28	56.17	58.85	216.32	31.12	47.72	112.88	157.81	41.91
MEAN	1.23	3.35	2.96	1.27	1.94	1.90	7.21	1.00	1.59	3.64	5.09	1.40
MAX	11	19	12	6.7	9.5	21	71	4.3	13	24	62	8.1
MIN	.16	.16	.25	.22	.16	.04	.22	.23	.18	.50	.30	.25
AC-FT	76	199	182	78	111	117	429	62	95	224	313	83

CAL YR 1971 TOTAL 828.67 MEAN 2.27 MAX 57 MIN .03 AC-FT 1640
WTR YR 1972 TOTAL 992.49 MEAN 2.71 MAX 71 MIN .04 AC-FT 1970

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1972 TO SEPTEMBER 1973
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	.99	.33	1.7	4.4	7.6	2.7	4.4	2.2	5.7	.43	.18
2	.71	12	.28	1.2	1.4	4.2	1.5	1.7	3.7	4.6	.38	.21
3	7.8	16	1.6	2.3	.99	6.7	.63	5.1	3.0	4.2	.33	.33
4	3.2	14	.49	.91	.55	8.6	.71	4.2	1.9	12	.33	.33
5	2.5	21	.43	.38	.38	2.7	.83	2.0	5.1	7.8	.38	.49
6	1.7	5.6	.38	.28	.33	25	.55	1.2	1.7	3.0	1.2	1.7
7	.99	22	.28	1.4	.55	35	.43	3.7	1.5	5.8	1.2	3.8
8	.55	5.1	1.1	.99	1.2	2.5	2.5	2.3	3.2	12	.55	.55
9	.43	2.0	6.8	.38	21	2.3	7.8	2.5	.71	13	.43	.28
10	.38	4.6	.91	.24	3.2	6.4	19	2.0	.83	3.9	.28	.21
11	.33	19	.43	.21	.71	3.6	4.6	2.0	.55	3.2	.49	.18
12	.28	1.7	.33	.18	.43	1.2	9.5	2.0	2.5	2.9	.91	.14
13	.28	1.2	.21	.14	1.2	.83	4.9	1.4	3.4	1.4	.91	1.2
14	.24	3.9	.18	.21	.91	5.8	2.3	.91	1.7	4.6	.75	.99
15	.21	11	6.9	.14	.49	13	8.4	.71	3.0	6.4	.38	.33
16	.28	31	.63	.18	.63	8.6	3.0	.71	12	1.4	.38	1.2
17	.24	8.6	.28	2.0	.33	28	3.2	7.3	6.9	1.4	.43	.71
18	.21	6.9	.21	.83	.28	6.7	1.4	16	.99	.63	.28	.28
19	.18	2.0	4.2	.91	.24	21	.63	12	.63	.49	2.2	.18
20	.12	.71	.99	6.7	7.3	8.6	.63	1.7	.43	.43	1.5	.28
21	.63	.63	.38	.91	23	9.5	.83	1.2	.38	2.0	1.2	.49
22	4.2	.91	1.7	.38	1.2	2.5	1.4	1.4	1.2	2.2	.91	1.7
23	3.4	1.2	7.6	.28	1.7	6.7	3.2	2.7	.63	1.4	.38	9.5
24	2.3	.91	1.4	2.5	2.5	31	4.4	3.0	.71	.71	.28	6.4
25	.71	.49	.55	2.5	10	3.2	1.7	.83	.43	.91	1.2	3.0
26	5.4	.43	6.1	2.5	9.5	.99	2.5	.49	.33	.91	.49	1.7
27	3.7	.49	3.4	36	2.7	5.7	7.6	.38	.28	.55	.99	1.4
28	.63	.38	.63	21	1.2	2.9	1.7	.99	.24	3.2	.49	1.2
29	.33	.38	.43	11	---	10	3.4	1.5	.28	1.2	.33	10
30	1.4	.33	.33	6.4	---	17	3.7	2.5	.83	.49	.63	2.3
31	1.2	---	.71	7.6	---	10	---	6.7	---	.55	.24	---
TOTAL	49.63	195.45	50.19	112.35	98.32	297.82	105.64	95.52	61.25	108.97	20.88	51.26
MEAN	1.60	6.51	1.62	3.62	3.51	9.61	3.52	3.08	2.04	3.52	.67	1.71
MAX	7.8	31	7.6	36	23	35	19	16	12	13	2.2	10
MIN	.12	.33	.18	.14	.24	.83	.43	.38	.24	.43	.24	.14
AC-FT	98	388	100	223	195	591	210	189	121	216	41	102

CAL YR 1972 TOTAL 1057.33 MEAN 2.89 MAX 71 MIN .04 AC-FT 2100
WTR YR 1973 TOTAL 1247.28 MEAN 3.42 MAX 36 MIN .12 AC-FT 2470

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	.36	.62	.30	.43	.10	.04	.82	.18	.98	5.1	1.8
2	.65	.28	1.9	.41	.28	.07	.04	.75	.17	.75	1.5	2.0
3	.43	.25	.90	.82	.21	.11	.03	.47	.18	.46	2.7	1.2
4	.32	.23	2.3	2.8	.17	.13	.40	.43	.23	1.1	1.5	.54
5	.25	.20	1.1	1.6	.14	.09	.11	.36	.29	3.4	1.8	.38
6	.25	.20	2.3	.75	.12	5.4	.07	.33	.46	2.8	.82	.33
7	.34	.17	1.1	41	.12	1.5	2.2	.75	1.5	2.8	.56	.30
8	.32	.20	3.8	13	.23	3.9	4.6	.82	2.6	3.6	.38	.29
9	.34	.17	6.6	6.4	1.2	2.8	.82	4.2	1.8	2.3	.90	.29
10	.22	.17	2.8	1.3	.35	.49	1.3	9.2	3.5	1.2	5.3	.29
11	3.1	1.5	.65	.56	7.9	.25	1.2	1.1	4.5	.98	24	.29
12	1.5	42	.82	.35	1.9	.19	7.3	.75	1.7	.50	3.3	.28
13	1.9	24	.51	.27	4.6	1.1	1.9	1.6	.63	.35	2.3	.25
14	5.2	1.2	.40	.21	1.7	.48	2.5	1.5	3.6	.29	.82	.23
15	4.4	.67	.36	.17	.60	.46	8.3	.56	3.1	.27	.56	.24
16	2.8	.46	.32	.17	.37	.51	45	1.6	1.2	.31	.98	.25
17	1.2	.43	.29	.15	.25	.24	8.3	5.1	.57	1.1	2.5	.23
18	8.3	.32	.26	.15	.20	.58	11	3.3	.43	.63	1.4	.21
19	6.0	.26	.25	.17	.17	24	3.9	8.3	.40	.40	5.0	.21
20	5.5	2.3	.22	.14	.15	1.8	11	6.8	.62	.29	2.8	.18
21	2.6	1.5	.20	.12	.18	.44	16	3.6	.82	.25	1.8	.18
22	1.4	3.7	.18	.12	.13	.21	5.8	1.6	.45	.22	4.9	.15
23	1.9	6.4	.17	.13	.11	.15	2.4	.66	2.0	.18	1.9	.15
24	.90	16	.17	7.2	.09	.19	.90	.44	2.8	2.8	.82	.17
25	.98	3.6	.15	1.9	.18	.16	.46	.37	1.3	3.4	.51	.16
26	.82	3.3	.15	13	.18	.98	.35	.29	.52	3.4	.41	.15
27	1.4	5.9	.14	1.7	.17	.27	.39	.27	.46	8.3	.38	.15
28	.82	3.6	2.6	.53	.15	.15	.90	.25	.49	.82	.34	.13
29	8.3	1.9	1.2	2.4	---	.11	.47	.22	.35	.40	.67	.13
30	1.5	.90	1.6	2.0	---	.07	.49	.21	.29	.90	7.9	.20
31	.53	---	.50	.98	---	.06	---	.21	---	2.3	3.9	---
TOTAL	66.07	122.17	34.56	100.80	22.28	46.99	138.17	56.86	37.14	47.48	87.75	11.36
MEAN	2.13	4.07	1.11	3.25	.80	1.52	4.61	1.83	1.24	1.53	2.83	.38
MAX	8.3	42	6.6	41	7.9	24	45	9.2	4.5	8.3	24	2.0
MIN	.22	.17	.14	.12	.09	.06	.03	.21	.17	.18	.34	.13
AC-FT	131	242	69	200	44	93	274	113	74	94	174	23

CAL YR 1973 TOTAL 1174.81 MEAN 3.22 MAX 42 MIN .14 AC-FT 2330
WTR YR 1974 TOTAL 771.63 MEAN 2.11 MAX 45 MIN .03 AC-FT 1530

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	2.0	.23	.62	.59	18	.49	1.8	.29	6.2	15	1.1
2	.10	.75	.17	.38	.46	1.1	.46	3.9	.29	2.6	2.3	.66
3	.07	.47	.15	.49	.31	2.6	.67	1.5	.33	4.3	1.1	.66
4	.06	.51	.13	7.4	.25	2.9	2.7	1.5	1.9	4.6	1.9	.58
5	.05	.62	.12	7.5	.63	10	4.9	4.8	3.3	2.3	3.1	.43
6	.08	.90	.10	6.5	1.2	3.5	5.4	2.8	4.3	.82	1.3	.35
7	.08	1.1	.48	15	.44	3.4	3.5	8.3	2.3	.98	.75	.90
8	.08	.54	1.1	20	.28	2.3	1.4	5.0	.98	2.5	.49	.90
9	.07	.34	2.0	1.6	.21	2.8	.67	3.3	1.1	1.8	4.9	.63
10	.06	.54	.66	.66	.67	7.1	.49	.75	1.4	.75	4.8	.63
11	.07	15	.60	.45	10	5.8	.43	.49	2.1	2.2	7.4	.40
12	.13	8.3	.64	2.4	2.7	13	.38	.43	5.0	8.3	1.5	.33
13	.12	1.9	1.1	1.5	1.4	7.0	.33	.43	2.5	12	3.1	.28
14	.09	2.8	.48	.82	.90	11	.43	.37	2.3	14	6.7	.25
15	.07	1.5	2.1	.51	.98	7.3	2.5	.67	2.4	3.4	8.3	.24
16	.06	.90	6.8	.46	3.3	4.5	1.9	.66	2.4	2.9	2.3	4.2
17	.05	.90	1.1	.39	9.2	3.7	1.7	1.2	1.1	4.2	6.6	5.4
18	.07	.98	.41	.33	9.2	7.1	5.1	2.6	.90	7.9	4.8	.75
19	.10	1.6	.25	.29	2.8	6.4	4.9	2.8	.55	1.5	7.2	.45
20	20	3.0	9.2	.28	.82	1.9	17	5.4	.43	.62	3.1	.44
21	3.7	10	10	.25	.48	.98	17	2.2	.37	.55	3.9	.35
22	1.7	1.7	17	.25	.34	1.6	5.1	.75	.36	.63	1.4	.28
23	.67	.63	3.8	.20	2.4	1.2	6.4	.51	.32	1.6	2.2	.30
24	.43	.41	2.3	1.1	1.1	.67	10	.40	.36	.82	1.1	.31
25	1.1	.29	2.4	22	.48	.54	2.8	.63	3.9	.67	.75	.29
26	2.8	.23	10	2.7	7.7	.48	1.8	.90	1.5	.57	.56	.25
27	23	.19	4.4	.63	14	.43	2.0	.63	.63	.67	.48	.30
28	3.7	.18	1.3	.37	33	.40	3.3	.47	.45	.56	.82	.32
29	1.9	.22	.82	.26	---	1.5	3.3	.41	.45	.48	4.0	.23
30	5.0	.36	.51	.53	---	1.8	3.2	.36	.67	1.5	9.2	.20
31	2.9	---	.60	1.2	---	.82	---	.33	---	7.3	6.8	---
TOTAL	68.53	58.86	80.95	97.07	105.84	131.82	110.25	56.29	44.88	99.22	117.85	22.41
MEAN	2.21	1.96	2.61	3.13	3.78	4.25	3.67	1.82	1.50	3.20	3.80	.75
MAX	23	15	17	22	33	18	17	8.3	5.0	14	15	5.4
MIN	.05	.18	.10	.20	.21	.40	.33	.33	.29	.48	.48	.20
AC-FT	136	117	161	193	210	261	219	112	89	197	234	44

CAL YR 1974 TOTAL 757.17 MEAN 2.07 MAX 45 MIN .03 AC-FT 1500
WTR YR 1975 TOTAL 993.97 MEAN 2.72 MAX 33 MIN .05 AC-FT 1970

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.38	3.0	.11	.34	.39	7.9	5.6	.82	3.2	.57	1.0
2	11	.33	1.3	.10	.17	9.7	4.3	2.1	.60	2.8	.57	7.3
3	8.8	.29	1.0	.60	.12	5.6	15	1.2	.55	6.1	.50	3.1
4	4.0	.29	2.4	1.2	.11	3.4	20	1.6	.51	3.9	.50	1.5
5	2.5	.25	4.1	.89	.10	4.4	4.4	2.3	.49	3.0	1.9	1.3
6	4.3	.25	1.3	1.2	8.8	8.8	2.3	3.5	.44	4.3	6.0	.96
7	4.9	.22	1.6	1.9	3.7	5.0	1.6	1.9	.59	30	2.6	.96
8	2.9	.21	.60	15	.89	5.4	2.0	1.7	1.5	21	1.9	.60
9	3.5	11	.60	4.9	.54	3.9	16	1.2	.96	9.7	.96	1.8
10	.82	2.1	.48	2.3	.42	3.0	7.9	1.9	.67	3.1	.74	2.5
11	.55	6.8	.32	.82	.28	6.6	3.5	4.3	.60	1.6	3.0	2.6
12	.44	3.8	.28	2.4	.25	2.2	2.3	4.4	.55	2.6	5.3	1.6
13	.36	.74	.25	8.8	.28	.82	1.5	8.8	1.7	1.9	4.6	.74
14	.46	.45	.22	7.6	7.9	.52	1.3	4.2	3.8	1.9	3.3	.57
15	5.9	.67	.21	1.9	3.0	.42	.96	1.7	4.0	6.2	2.3	.49
16	12	8.8	.60	43	.74	4.0	1.0	1.4	6.4	2.0	1.9	.44
17	7.3	3.2	3.7	4.9	2.5	14	.89	2.0	6.0	1.2	1.0	.55
18	14	.74	.82	1.1	1.6	2.3	1.3	.89	11	.74	.60	.38
19	3.4	4.5	.47	.55	.89	.82	2.3	1.1	13	.96	15	.33
20	1.4	9.7	.34	.40	.74	3.7	3.1	2.3	11	7.2	8.8	.29
21	.82	1.9	.26	.32	3.7	3.5	2.7	4.0	5.9	14	1.6	.27
22	.46	.74	.21	.32	11	2.3	14	2.6	4.2	4.6	1.0	.26
23	.35	.47	.19	.28	11	3.8	12	1.4	3.4	11	.60	.29
24	.53	2.3	.17	.24	4.9	5.4	4.1	1.0	2.1	8.8	.57	.38
25	1.1	1.2	.15	.20	2.9	3.0	1.9	.74	1.8	3.0	.57	.28
26	5.6	.53	.15	.18	1.4	2.5	.89	.82	4.3	1.6	.57	2.1
27	9.7	.39	.13	.16	.74	5.5	.67	.67	4.4	1.5	.60	4.1
28	4.1	.82	.13	.17	.43	7.9	.57	.58	2.3	.96	11	2.1
29	2.2	1.0	.15	.17	.47	3.5	3.1	1.9	2.8	.74	3.0	3.5
30	.74	2.3	.17	.14	---	5.4	4.9	3.1	7.4	.60	1.6	1.4
31	.46	---	.12	.58	---	11	---	1.3	---	.57	1.6	---
TOTAL	114.74	66.37	25.42	102.43	69.91	138.77	144.38	72.20	103.78	160.77	84.75	43.69
MEAN	3.70	2.21	.82	3.30	2.41	4.48	4.81	2.33	3.46	5.19	2.73	1.46
MAX	14	11	4.1	43	11	14	20	8.8	13	30	15	7.3
MIN	.15	.21	.12	.10	.10	.39	.57	.58	.44	.57	.50	.26
AC-FT	228	132	50	203	139	275	286	143	206	319	168	87

CAL YR 1975 TOTAL 992.16 MEAN 2.72 MAX 33 MIN .12 AC-FT 1970
WTR YR 1976 TOTAL 1127.21 MEAN 3.08 MAX 43 MIN .10 AC-FT 2240

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.67	1.1	.44	.51	.39	3.1	.74	1.9	2.1	.74	9.7	1.6
2	.49	.67	.40	.50	.30	2.8	.55	1.4	4.4	.89	5.2	.74
3	.44	11	.39	.44	4.4	6.0	3.1	1.2	3.7	3.6	9.7	2.3
4	.32	3.5	.39	.39	1.4	11	9.7	1.2	3.0	7.9	3.6	2.0
5	.28	3.0	.96	.39	.74	11	29	1.6	1.5	6.9	9.7	1.3
6	.24	8.8	.74	.26	1.3	11	47	2.7	2.3	7.6	49	.67
7	3.4	8.8	8.8	.18	1.7	18	54	4.7	1.4	12	12	1.7
8	2.2	18	6.2	.18	1.3	4.9	32	3.0	.89	21	3.2	.82
9	2.4	9.7	3.9	.17	.58	1.5	21	1.8	.67	7.4	1.6	.74
10	6.2	24	6.3	.15	.36	.89	19	1.1	.55	13	.82	.74
11	2.5	3.8	3.5	.15	.24	.96	15	.82	.58	7.4	5.7	.89
12	3.6	1.5	2.3	.15	.19	.74	4.8	.67	1.0	13	11	.56
13	1.1	.96	3.5	.12	.15	2.6	3.0	.60	1.7	12	.82	.60
14	.67	1.1	1.1	.12	.12	3.3	2.7	.55	3.5	6.6	.54	.74
15	1.0	.74	.74	.12	.11	4.5	1.9	.51	2.0	3.3	.40	.48
16	2.1	15	25	.12	.10	1.3	3.1	.53	1.3	7.6	.32	1.3
17	.96	20	2.7	.10	.08	.74	1.3	.60	1.0	24	.29	5.7
18	.57	4.6	1.3	.11	.08	9.7	.89	.51	1.3	8.8	.27	1.7
19	1.7	3.0	.82	.10	.06	3.2	.74	.48	3.6	6.5	.32	.60
20	4.3	6.5	.60	.10	.06	12	19	.46	8.8	2.7	2.3	.43
21	2.0	4.1	.51	.09	.05	16	6.4	.96	14	4.4	7.9	.34
22	3.1	1.3	.45	.08	.06	22	3.4	2.9	4.4	3.0	7.6	.34
23	1.6	1.6	.44	.08	.06	15	1.6	1.6	5.3	1.5	5.7	1.2
24	.82	.89	.46	.08	1.2	14	1.0	2.0	2.9	1.2	2.3	1.1
25	1.6	2.7	4.2	.08	3.0	1.6	4.9	8.8	1.6	1.2	2.3	.53
26	3.1	1.5	2.3	.06	5.3	.89	2.6	4.0	1.1	2.0	.60	.38
27	11	.89	6.6	.06	16	.60	2.7	5.1	.82	9.7	.67	.32
28	2.4	.67	1.4	.07	2.7	1.3	3.6	9.7	.74	8.8	8.8	.28
29	.89	.55	.89	6.5	---	1.6	16	3.6	.67	3.0	4.2	.25
30	2.9	.51	.67	1.9	---	1.8	7.9	7.2	.74	4.2	11	.25
31	3.0	---	.53	.67	---	1.4	---	4.7	---	5.0	8.8	---
TOTAL	67.55	160.48	88.53	14.03	42.03	185.42	318.62	76.89	77.56	216.93	186.35	30.60
MEAN	2.18	5.35	2.86	.45	1.50	5.98	10.6	2.48	2.59	7.00	6.01	1.02
MAX	11	24	25	6.5	16	22	54	9.7	14	24	49	5.7
MIN	.24	.51	.39	.06	.05	.60	.55	.46	.55	.74	.27	.25
AC-FT	134	318	176	28	83	368	632	153	154	430	370	61

CAL YR 1976 TOTAL 1237.24 MEAN 3.38 MAX 43 MIN .10 AC-FT 2450
WTR YR 1977 TOTAL 1464.99 MEAN 4.01 MAX 54 MIN .05 AC-FT 2910

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	3.4	.15	36	.20	13	2.3	2.5	.45	3.1	4.3	11
2	.17	8.7	.15	11	.17	8.7	3.0	2.7	.93	3.6	2.7	6.1
3	.17	8.7	.14	2.6	.15	.72	3.4	.86	.42	7.1	1.6	2.1
4	.22	3.8	.14	1.6	.12	.33	2.6	.51	.30	4.0	4.3	3.7
5	.43	.72	.14	.59	.12	.21	3.2	.37	.24	15	7.8	7.3
6	.40	.40	.12	.44	.10	.16	5.7	.31	.21	22	12	1.9
7	1.6	.32	.08	.28	.10	12	5.2	.24	.48	5.0	7.8	1.4
8	.93	1.1	.08	.20	.42	7.3	1.3	1.3	.44	7.5	6.0	3.0
9	.41	1.4	.08	.16	.72	1.6	.53	1.6	.38	6.6	2.7	5.5
10	.31	.53	.13	.13	.24	.53	.38	1.5	.30	9.6	3.1	3.8
11	.24	.59	.12	.12	.17	.34	.31	5.1	1.1	14	6.0	1.4
12	2.8	1.3	.09	.12	.15	4.4	.28	2.7	6.0	12	2.7	1.8
13	.86	2.4	.08	.10	.13	1.2	.41	4.2	4.0	8.7	3.5	2.7
14	.37	4.4	.72	.10	.12	.49	1.2	7.8	2.3	1.9	4.3	1.4
15	.38	4.5	.66	.10	.13	1.3	.53	7.4	2.4	1.1	5.2	1.0
16	9.6	1.4	3.0	.10	.17	19	1.4	4.4	6.9	.53	17	3.5
17	7.6	.59	11	.10	.13	3.7	.49	1.4	2.8	3.7	23	2.8
18	.93	.37	24	.10	.10	11	.34	.66	5.8	11	1.9	2.6
19	.53	.28	14	.11	.10	12	.26	.45	13	17	1.2	3.6
20	1.1	.24	3.0	7.4	.09	8.7	.23	.35	3.8	23	1.2	1.9
21	2.7	.21	2.0	6.5	.08	2.7	.22	6.2	2.2	11	7.8	3.4
22	8.7	.21	1.5	1.1	.07	3.4	.18	1.9	6.5	3.3	6.9	2.6
23	3.0	.21	.59	.44	3.7	.86	.18	.66	29	3.1	7.8	1.4
24	4.1	.18	.34	7.7	.59	.47	.35	.42	4.5	1.9	3.5	1.1
25	3.2	.17	.25	2.3	.27	.40	1.5	.93	2.1	3.5	6.0	1.1
26	1.6	.17	.20	8.7	.17	.93	4.5	1.8	4.0	6.0	6.7	.93
27	4.3	.17	.17	2.1	.15	1.0	3.1	.66	11	7.8	5.1	.86
28	7.8	.15	.14	2.1	.12	3.8	11	.53	7.8	6.0	1.9	.66
29	6.7	.15	.12	.72	---	.86	5.5	.37	4.3	12	4.8	.66
30	3.7	.15	.12	.37	---	1.3	4.4	.33	7.5	4.3	4.1	.72
31	1.5	---	.15	.25	---	1.9	---	.28	---	3.5	1.5	---
TOTAL	76.53	46.91	63.46	93.63	8.78	124.30	63.99	60.43	131.15	238.83	174.4	81.93
MEAN	2.47	1.56	2.05	3.02	.31	4.01	2.13	1.95	4.37	7.70	5.63	2.73
MAX	9.6	8.7	24	36	3.7	19	11	7.8	29	23	23	11
MIN	.17	.15	.08	.10	.07	.16	.18	.24	.21	.53	1.2	.66
AC-FT	152	93	126	186	17	247	127	120	260	474	346	163

CAL YR 1977 TOTAL 1335.33 MEAN 3.66 MAX 54 MIN .05 AC-FT 2650
WTR YR 1978 TOTAL 1164.34 MEAN 3.19 MAX 36 MIN .07 AC-FT 2310

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.93	.66	1.1	1.6	2.7	3.5	.19	1.1	e.70	e.80	e3.0	.53
2	1.7	.66	.93	1.2	1.2	2.7	.40	.43	e.65	e.60	e4.0	4.4
3	1.1	.93	.86	.86	.86	1.2	2.7	e5.8	e.55	e10	e5.5	2.8
4	7.8	.72	.66	.86	.53	.86	6.1	e4.0	e.45	e12	e9.0	1.6
5	4.9	.72	13	.53	1.2	.53	2.1	e1.5	e.38	e8.0	e6.0	.93
6	1.4	4.4	66	.43	6.0	.53	4.5	e.50	e.33	e6.5	e3.2	.72
7	2.9	1.5	3.8	.37	1.2	.40	2.8	e2.0	e.30	e5.7	.86	.93
8	15	.93	3.9	.34	.86	.53	1.1	e1.3	e.25	e8.0	.66	5.4
9	5.4	.72	11	.31	.53	29	.66	e1.0	e.35	e4.5	.53	2.5
10	2.2	.66	3.1	.31	23	9.6	.42	e1.8	e.50	e3.0	.49	1.1
11	2.0	3.5	4.7	9.6	9.6	2.7	.31	e1.4	e11	e2.0	.49	.72
12	1.9	8.7	3.5	29	6.0	1.2	.26	e.80	e20	e1.3	.43	.66
13	1.3	7.0	11	71	6.5	1.9	.24	e1.4	e10	e.80	.49	.49
14	1.1	6.2	9.6	56	7.8	3.5	.21	e4.0	e4.5	e2.0	5.6	.49
15	1.1	7.3	2.2	42	9.6	5.2	.66	e9.0	e2.0	e5.0	15	.49
16	1.5	5.1	1.4	23	5.2	7.8	.32	e5.0	e3.5	e4.5	7.5	.43
17	.93	3.8	1.6	7.8	5.6	3.5	.21	e3.0	e5.0	e4.0	1.9	2.6
18	.86	2.2	2.8	3.5	6.0	1.2	.33	e1.5	e11	e4.5	.93	2.3
19	.86	1.6	4.9	3.5	2.7	1.9	.24	e1.2	e24	e5.4	.66	.93
20	1.6	15	5.6	12	3.5	6.9	.24	e1.0	e16	e2.0	.49	.66
21	2.0	4.4	1.6	7.8	2.7	3.5	.33	e.75	e10	e5.0	.49	.49
22	1.1	1.6	1.5	103	1.2	2.7	1.7	e.90	e7.0	e20	.49	.43
23	6.3	1.1	1.5	23	1.9	1.2	1.4	e2.5	e25	e14	.49	.43
24	4.2	.93	.93	6.0	17	.53	.43	e1.5	e10	e18	.53	.49
25	3.3	1.9	.86	3.5	29	.46	1.7	e1.0	e19	e15	.66	2.5
26	6.1	3.5	1.5	2.7	4.3	.40	.66	e1.6	e30	e8.0	.53	1.1
27	2.5	3.3	1.4	1.9	6.9	.31	.28	e1.2	e23	e11	.49	5.1
28	1.3	3.9	1.3	3.5	6.0	.28	.24	e.90	e15	e7.0	.49	2.8
29	1.1	1.7	1.2	2.7	---	.22	.37	e.70	e8.0	e4.0	1.1	1.4
30	.86	1.1	.86	1.6	---	.19	1.4	e.90	e2.0	e2.0	.93	.93
31	.72	---	1.6	7.8	---	.16	---	e.80	---	e1.5	.66	---
TOTAL	85.96	95.73	165.90	427.71	169.58	94.60	32.50	60.48	260.46	196.10	73.59	46.35
MEAN	2.77	3.19	5.35	13.8	6.06	3.05	1.08	1.95	8.68	6.33	2.37	1.54
MAX	15	15	66	103	29	29	6.1	9.0	30	20	15	5.4
MIN	.72	.66	.66	.31	.53	.16	.19	.43	.25	.60	.43	.43
AC-FT	171	190	329	848	336	188	64	120	517	389	146	92

CAL YR 1978 TOTAL 1325.03 MEAN 3.63 MAX 66 MIN .07 AC-FT 2630
WTR YR 1979 TOTAL 1708.96 MEAN 4.68 MAX 103 MIN .16 AC-FT 3390

e Estimated

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.72	.21	1.4	.10	11	27	12	.44	.41	9.3	4.2
2	.72	.49	7.3	.79	.10	1.0	65	9.3	.41	.79	2.1	.79
3	.86	.37	9.3	.47	.16	1.6	20	5.7	.79	1.4	2.3	.55
4	.53	.28	4.7	.47	.09	3.7	9.3	22	17	1.1	5.3	1.5
5	.66	.28	1.6	.44	.09	33	4.4	12	3.3	.55	2.2	4.7
6	.53	.33	.67	.37	.07	31	5.1	7.5	3.7	7.2	1.6	1.0
7	.49	.28	.45	.27	.05	9.3	2.8	4.1	1.8	2.7	1.5	.67
8	.66	.93	.32	.23	.05	23	2.3	3.7	1.1	.49	2.7	.55
9	3.0	1.1	.25	149	.05	32	1.4	5.7	2.5	.92	.55	.33
10	1.5	.53	.23	21	.05	10	.98	4.1	4.9	2.2	.39	.92
11	.66	.43	.30	49	1.0	2.3	15	5.3	27	6.4	.32	2.7
12	.43	.37	.35	2.0	.27	3.1	45	9.3	17	2.0	.29	1.0
13	.37	2.3	.25	.79	1.5	20	25	7.5	22	2.5	.28	13
14	.33	29	.20	.44	8.4	45	21	1.5	9.3	1.3	.27	4.9
15	.53	38	.17	.32	4.0	12	14	2.2	7.5	1.9	.33	5.7
16	.49	73	.16	.32	5.7	13	3.5	3.3	5.7	1.1	1.8	1.6
17	7.8	219	.16	.27	.79	31	1.6	2.9	4.1	.98	1.5	1.1
18	2.8	297	.13	.32	.27	2.8	3.1	1.1	5.3	.98	1.1	.79
19	2.2	6.7	.13	.32	.14	10	2.8	7.5	2.5	1.5	3.3	.49
20	1.6	5.3	.21	.23	.04	17	2.6	9.3	1.1	.55	17	2.1
21	1.6	12	.21	.19	.06	5.8	5.8	4.9	.79	2.8	7.5	17
22	.93	2.5	.17	.23	.05	73	6.2	2.5	.79	3.7	.67	3.3
23	1.1	1.4	8.4	1.0	.04	130	21	1.1	1.1	2.0	.34	.67
24	1.4	.61	3.3	.37	.04	113	10	.79	.79	3.1	.79	.35
25	.53	.37	8.4	.32	.05	35	4.8	.49	2.5	4.5	.44	.31
26	.86	.27	5.9	.23	.06	25	16	1.5	3.3	6.3	.32	.27
27	1.7	.32	6.1	.19	.12	6.2	3.5	1.1	1.1	7.2	.26	.31
28	.93	.37	1.9	.19	7.0	11	2.5	.79	.47	2.5	5.9	.92
29	1.9	.27	9.3	.16	9.3	19	7.5	.49	.44	1.6	3.1	.86
30	1.4	.24	2.6	.16	---	3.9	17	.43	.41	3.2	15	.55
31	1.3	---	1.2	.13	---	10	---	.49	---	1.5	8.4	---
TOTAL	40.91	694.76	74.57	231.62	39.64	743.7	366.18	150.58	149.13	75.37	96.85	73.13
MEAN	1.32	23.2	2.41	7.47	1.37	24.0	12.2	4.86	4.97	2.43	3.12	2.44
MAX	7.8	297	9.3	149	9.3	130	65	22	27	7.2	17	17
MIN	.33	.24	.13	.13	.04	1.0	.98	.43	.41	.41	.26	.27
AC-FT	81	1380	148	459	79	1480	726	299	296	149	192	145

CAL YR 1979 TOTAL 2171.61 MEAN 5.95 MAX 297 MIN .13 AC-FT 4310
WTR YR 1980 TOTAL 2736.44 MEAN 7.48 MAX 297 MIN .04 AC-FT 5430

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.42	.86	.17	.01	.01	3.3	.16	24	.40	.05	.16	.61
2	.39	.33	.12	.01	.01	4.8	.07	2.8	.98	.02	.23	.61
3	.34	.28	.08	.01	.01	4.5	1.6	.61	.61	.01	5.3	2.0
4	.25	.23	.06	.01	.01	2.0	1.2	.23	.31	.01	7.5	.98
5	.12	.19	.04	.10	.13	.86	.79	.16	.67	.00	2.0	1.6
6	.15	.18	.04	.06	.08	.86	.32	.10	4.7	.00	.79	.61
7	.37	.16	.03	.03	.02	.98	.37	.07	.92	.00	.44	.27
8	15	1.2	.03	.02	4.3	1.2	.23	.07	10	.00	4.2	.16
9	4.9	7.5	.03	.02	1.3	2.3	.16	.07	1.2	.00	9.3	.10
10	3.3	1.8	.02	.02	.28	.98	.09	.04	.49	.00	7.5	.05
11	7.5	18	.02	.02	.11	.41	.07	.03	.61	.00	5.8	.03
12	33	5.6	.02	.02	.03	.37	.03	.03	.61	.01	7.5	.03
13	7.5	.92	.01	.02	.05	.28	.02	.03	.40	.29	1.2	.03
14	1.8	.33	.06	.02	.03	.23	.02	.02	.67	.16	.67	.02
15	.92	.41	.34	.02	.02	.19	.01	.02	.92	.07	.44	.01
16	1.3	.44	.44	.02	.01	.19	.01	.01	.36	.86	.32	.01
17	6.8	4.9	.28	1.1	.01	.23	.01	.10	.28	.19	.27	.01
18	2.1	12	.17	.09	.01	.24	.01	.27	1.2	.16	1.7	.05
19	1.9	4.9	.44	.03	.01	.39	.10	.13	.34	.44	6.2	.44
20	.49	1.5	.31	.21	.01	.33	.23	2.3	.26	4.2	2.6	1.9
21	.79	.49	.25	.07	5.7	.23	.61	.86	.27	9.3	.79	.37
22	1.5	.44	.12	.05	7.3	.16	.23	.34	.09	1.4	1.0	.19
23	3.3	1.1	.06	.03	.92	.12	.61	.21	.06	2.9	2.8	.49
24	.73	1.1	.04	.02	13	.12	3.1	.13	.05	3.1	.98	.61
25	.36	.49	.03	.01	4.9	.12	2.9	.03	.03	1.6	.61	.37
26	.32	.49	.03	.01	6.7	.35	.79	.06	.02	.79	.27	2.6
27	.28	.79	.02	.01	10	1.5	.32	.04	.02	.44	.27	13
28	2.3	.41	.02	.01	15	1.9	.19	.03	.03	.37	.27	2.3
29	7.5	.34	.02	.01	---	.86	.10	.47	.03	.27	.32	.61
30	8.4	.28	.02	.01	---	.27	5.7	.40	.10	.19	.32	.27
31	20	---	.02	.01	---	.27	---	1.5	---	.19	.49	---
TOTAL	134.03	67.66	3.34	2.08	69.96	30.54	20.05	35.16	26.63	27.02	72.24	30.33
MEAN	4.32	2.26	.11	.067	2.50	.99	.67	1.13	.89	.87	2.33	1.01
MAX	33	18	.44	1.1	15	4.8	5.7	24	10	9.3	9.3	13
MIN	.12	.16	.01	.01	.01	.12	.01	.01	.02	.00	.16	.01
AC-FT	266	134	6.6	4.1	139	61	40	70	53	54	143	60

CAL YR 1980 TOTAL 2131.23 MEAN 5.82 MAX 149 MIN .01 AC-FT 4230
WTR YR 1981 TOTAL 519.04 MEAN 1.42 MAX 33 MIN .00 AC-FT 1030

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	.19	8.8	.13	.27	3.0	.89	6.8	.60	6.8	13	3.3
2	5.6	.55	7.1	.10	.23	3.2	.55	5.5	.38	30	4.1	3.4
3	.77	.89	12	.55	.19	2.0	.72	1.3	.32	9.7	4.5	2.1
4	.60	.77	7.1	.60	.13	4.0	2.7	.89	.27	14	5.8	.89
5	.38	.23	4.1	.27	.77	1.4	1.6	1.1	.23	13	2.1	.72
6	.16	.14	3.9	.16	2.8	.55	.77	.27	.19	5.5	1.3	.89
7	.13	11	21	.13	2.1	2.2	.77	.27	.19	2.1	2.6	2.8
8	.08	8.8	16	21	.77	4.8	.60	1.6	.16	4.8	1.7	5.0
9	.05	3.0	5.8	19	5.0	4.8	.95	5.2	.32	8.0	7.1	2.4
10	.05	1.0	3.3	1.1	6.0	6.7	1.3	8.0	.60	19	20	11
11	.04	2.6	1.3	.44	92	4.1	.89	13	.42	2.8	8.0	1.1
12	.03	8.8	.77	.23	3.4	8.0	.77	4.4	.27	4.8	16	.72
13	.07	4.6	1.3	.13	.60	38	3.1	3.7	1.9	5.2	6.3	1.3
14	.13	.55	1.9	.23	.32	3.1	2.7	4.1	.77	21	1.3	2.6
15	.77	.30	1.1	.07	.27	2.6	1.1	1.1	.77	15	.72	8.0
16	.19	.19	.60	.05	.23	.72	12	.55	1.3	6.3	.44	4.8
17	.13	.15	.44	.03	.19	.95	4.4	.38	1.3.	4.8	.77	1.7
18	.08	.13	.32	.03	.19	2.4	2.7	2.7	1.3	12	4.4	1.6
19	.08	.10	.32	.07	.19	.60	1.9	6.3	.72	5.2	1.6	2.1
20	.07	.09	.32	.03	.17	.32	2.0	1.5	.32	1.1	1.1	.72
21	.05	.09	.27	4.5	.17	.27	2.1	4.4	.19	11	1.3	.55
22	.19	2.2	.27	3.4	.17	5.9	5.8	3.1	.16	2.0	8.8	.55
23	.10	3.7	.23	1.5	.13	29	1.6	1.1	.13	.77	13	5.0
24	.13	85	.19	.89	.13	11	4.1	.60	.07	.55	8.0	1.3
25	4.1	6.8	4.3	25	.13	7.1	5.2	2.8	.07	.42	3.4	3.7
26	1.0	2.0	2.8	57	.10	2.3	13	2.8	5.2	.32	11	1.7
27	.41	3.7	.77	50	.10	.77	8.0	.95	13	.27	9.7	.95
28	5.7	13	.44	18	.23	.55	19	1.9	12	.23	11	1.3
29	2.3	1.3	.27	1.6	---	.38	30	1.3	5.5	.55	3.4	3.1
30	.44	.89	.19	6.1	---	.89	18	3.7	4.5	.60	4.4	1.5
31	.29	---	.16	.89	---	2.4	---	1.3	---	18	9.7	---
TOTAL	24.84	162.76	107.36	213.23	116.98	154.00	149.21	92.61	53.15	225.81	186.53	76.79
MEAN	.80	5.43	3.46	6.88	4.18	4.97	4.97	2.99	1.77	7.28	6.02	2.56
MAX	5.7	85	21	57	92	38	30	13	13	30	20	11
MIN	.03	.09	.16	.03	.10	.27	.55	.27	.07	.23	.44	.55
AC-FT	49	323	213	423	232	305	296	184	105	448	370	152

CAL YR 1981 TOTAL 608.97 MEAN 1.67 MAX 85 MIN .00 AC-FT 1210
WTR YR 1982 TOTAL 1563.27 MEAN 4.28 MAX 92 MIN .03 AC-FT 3100

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.16	.44	.23	1.1	.01	4.8	21	5.0	3.8	3.8	.68
2	1.7	.13	.27	.23	.18	.01	2.8	13	2.5	4.1	1.9	1.3
3	.83	.10	.19	.15	.09	.01	1.2	9.3	6.3	3.5	1.2	3.0
4	.35	.10	.13	.15	.07	.01	.44	15	1.7	9.3	6.1	.89
5	.24	.10	.13	.19	.05	.01	.24	4.0	3.3	4.5	3.4	1.4
6	.24	.16	.10	.17	.03	.01	.17	4.5	3.9	18	1.7	2.3
7	.95	.13	2.6	.15	.02	.01	.12	18	2.6	9.3	1.8	9.3
8	3.1	.08	.72	.15	.02	.01	3.7	4.5	4.4	8.5	.99	4.8
9	5.8	.07	.55	.12	.01	.01	1.4	1.6	2.1	3.9	.57	4.8
10	4.0	.13	.27	.11	.01	.00	.49	1.3	3.9	4.0	.44	3.4
11	5.0	.38	.44	.10	.01	.00	.49	3.2	1.6	3.0	2.2	3.5
12	11	1.3	1.1	.09	.01	.00	2.5	2.5	1.0	2.8	8.5	2.5
13	5.5	9.7	.44	.08	.01	.00	1.8	8.5	1.4	7.6	3.8	5.6
14	2.1	17	.89	.12	.01	.00	7.6	6.1	1.9	11	1.2	1.4
15	.95	3.4	.77	.73	.01	.00	12	2.3	.62	4.6	.63	.99
16	.49	2.6	12	.19	.01	.00	2.8	3.2	2.5	4.9	.57	2.1
17	.14	1.3	1.3	.10	1.3	.23	8.5	3.1	2.5	3.3	.73	7.6
18	1.8	.55	45	.08	.79	3.2	2.8	1.4	2.2	3.1	1.8	17
19	.35	.27	30	.07	.18	3.0	5.2	.60	3.9	1.7	.89	4.0
20	.35	.55	4.1	.05	.08	.57	5.9	.33	1.1	.79	.49	1.7
21	.24	6.5	5.8	.05	.05	.20	3.8	.55	2.8	1.3	1.7	1.8
22	2.5	1.1	3.2	.04	.03	.10	7.6	1.7	4.1	1.5	.99	.99
23	.72	.44	3.5	.03	.02	1.7	5.1	1.7	3.2	2.6	.73	.73
24	.49	5.0	4.5	.03	.01	3.0	3.8	1.4	1.7	6.4	5.1	.57
25	.27	1.1	1.3	.02	.01	3.2	2.5	3.2	1.3	7.6	2.5	4.5
26	.23	.77	9.3	.02	.01	1.3	2.1	1.9	2.6	5.3	2.5	2.8
27	.32	.44	2.6	.02	.01	2.5	4.2	1.9	1.8	6.4	3.0	7.6
28	.38	1.3	.94	.02	.01	1.2	9.3	.79	4.4	4.1	11	4.6
29	.27	8.0	.38	.01	---	1.6	12	.73	7.6	1.6	3.0	19
30	.23	.95	.23	.02	---	.49	20	.57	4.2	1.4	1.3	5.1
31	.16	---	.19	.17	---	.50	---	18	---	4.3	.94	---
TOTAL	52.00	63.81	133.38	3.69	4.14	22.88	135.35	155.87	88.12	154.19	75.47	125.95
MEAN	1.68	2.13	4.30	.12	.15	.74	4.51	5.03	2.94	4.97	2.43	4.20
MAX	11	17	45	.73	1.3	3.2	20	21	7.6	18	11	19
MIN	.14	.07	.10	.01	.01	.00	.12	.33	.62	.79	.44	.57
AC-FT	103	127	265	7.3	8.2	45	268	309	175	306	150	250

CAL YR 1982 TOTAL 1517.50 MEAN 4.16 MAX 92 MIN .03 AC-FT 3010
WTR YR 1983 TOTAL 1014.85 MEAN 2.78 MAX 45 MIN .00 AC-FT 2010

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1983 TO SEPTEMBER 1984
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	1.1	.12	.08	.73	.12	.63	.50	.32	4.1	.58	1.6
2	1.9	5.5	.10	.07	1.8	3.3	.35	1.1	.23	3.3	.46	.94
3	1.0	2.1	.09	.05	3.8	2.2	.94	1.8	.19	.68	.30	.38
4	.94	1.7	.09	.04	1.6	3.0	7.6	1.1	.20	1.1	1.5	.26
5	.94	6.3	.07	7.6	.37	.44	.68	.53	.63	3.7	13	.19
6	1.0	.94	.07	3.3	.21	.20	14	.37	.63	.94	3.0	.15
7	9.3	.49	.07	.89	.17	.14	8.5	.28	.55	.57	.79	.13
8	15	.38	.12	1.1	7.6	.10	6.3	.24	2.0	1.4	.34	.12
9	2.4	.32	.09	.28	2.3	.08	2.3	.23	2.6	1.9	.21	.15
10	6.0	.28	.12	.14	.84	.07	8.5	.27	3.8	.89	1.8	.32
11	1.6	.26	.57	.09	.35	.06	4.6	.73	2.1	.45	1.6	.19
12	.99	7.6	.13	.42	.22	.05	1.3	.63	4.2	.63	6.5	.12
13	.68	6.3	.08	4.1	.48	.09	1.5	.32	6.3	4.6	1.8	.09
14	1.6	1.2	.10	.84	2.3	.12	22	.26	1.5	.68	.68	.11
15	5.0	1.0	.22	1.9	6.7	.18	5.5	.35	1.6	.37	.94	.10
16	30	.53	.94	.41	3.0	.60	6.8	.59	3.2	.33	1.8	.09
17	2.8	.37	.20	.18	1.1	.28	20	5.5	3.0	.26	.59	.07
18	1.0	.27	.09	.11	.49	.12	9.3	4.8	.84	.18	.30	.07
19	3.0	.22	.07	.08	5.4	.09	3.2	2.1	.68	.16	.20	.06
20	1.3	.19	.05	.06	12	.08	1.6	4.4	.63	.20	.15	.06
21	1.1	.15	.04	.05	3.6	.06	1.6	2.5	1.1	.15	.16	.05
22	.84	.13	.03	.05	.94	.63	2.0	1.4	2.2	.12	1.7	.03
23	1.7	.50	.02	.03	1.7	.89	3.8	2.5	3.0	.12	3.3	.03
24	22	.73	.01	.03	1.3	.42	1.3	4.4	4.3	.19	1.2	.05
25	3.6	1.5	.94	.09	.84	.48	.56	1.5	1.6	.13	.62	.06
26	5.9	1.3	63	.27	.79	2.0	.38	1.6	.84	.10	3.6	.05
27	28	.35	3.2	.12	.36	3.3	.34	.56	2.8	2.9	7.6	.03
28	2.3	.20	.73	2.3	.22	7.6	.42	.45	1.1	3.0	1.1	.03
29	1.9	.14	.30	24	.15	11	3.7	2.5	.52	.68	.51	.03
30	1.8	.15	.15	6.6	---	3.2	1.0	1.3	.94	.40	.31	.03
31	1.1	---	.10	8.5	---	2.5	---	.50	---	1.2	1.3	---
TOTAL	160.89	42.20	71.91	63.78	61.36	43.40	140.70	45.31	53.60	35.43	57.94	5.59
MEAN	5.19	1.41	2.32	2.06	2.12	1.40	4.69	1.46	1.79	1.14	1.87	.19
MAX	30	7.6	63	24	12	11	22	5.5	6.3	4.6	13	1.6
MIN	.68	.13	.01	.03	.15	.05	.34	.23	.19	.10	.15	.03
AC-FT	319	84	143	127	122	86	279	90	106	70	115	11

CAL YR 1983 TOTAL 1040.66 MEAN 2.85 MAX 63 MIN .00 AC-FT 2060
WTR YR 1984 TOTAL 782.11 MEAN 2.14 MAX 63 MIN .01 AC-FT 1550

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1984 TO SEPTEMBER 1985
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.00	2.6	.25	.53	11	4.9	3.7	1.6	3.3	3.9	1.6
2	.03	.00	.94	.23	.35	3.9	14	11	.94	3.5	3.2	1.7
3	.02	.01	.49	.25	.27	2.3	1.7	2.0	.94	3.5	4.8	4.8
4	.01	.01	.73	3.0	.20	4.0	.99	.94	.63	8.5	3.8	1.4
5	.01	.24	.63	5.4	.15	10	.79	1.6	1.1	5.7	3.4	.84
6	.01	.06	.44	1.1	.13	67	.73	1.1	1.8	1.5	6.6	1.1
7	.01	.02	4.6	.57	.12	32	.57	1.8	.73	2.6	17	.89
8	.01	.84	5.0	.38	.10	24	.99	14	.48	1.6	19	.84
9	.01	2.9	46	.30	.09	3.3	2.9	3.3	1.6	.73	6.8	.50
10	.01	1.6	3.0	.19	.08	10	2.5	5.9	1.1	.49	2.4	.40
11	.01	7.6	1.1	.12	.07	10	1.6	8.5	.68	.42	1.0	.33
12	.01	4.5	.57	.12	.07	4.0	.99	6.0	.48	.31	4.0	.31
13	.01	2.1	.38	.12	.06	7.6	.79	4.4	.79	.24	4.3	.28
14	.01	.73	.23	4.5	.05	17	2.0	1.3	.50	.23	6.4	.28
15	.01	.73	.14	3.3	.05	5.1	2.1	1.1	.36	1.4	4.1	.28
16	.00	1.2	.11	.84	.05	4.1	13	.68	.28	3.7	4.8	.24
17	.00	1.0	.09	.38	.07	4.1	6.6	.49	.22	4.0	9.3	2.5
18	.00	5.6	.15	.24	.06	3.6	4.8	.40	.19	10	1.1	5.4
19	.00	37	1.8	.18	.05	4.4	2.3	.33	.15	1.6	.68	21
20	.00	7.6	3.0	.15	.05	4.7	2.0	.33	1.0	.79	.48	5.1
21	.01	2.3	.84	.15	.05	7.6	1.3	.33	3.2	2.5	.50	3.4
22	.00	1.1	.40	.14	3.5	10	1.2	.35	.73	3.6	1.6	2.3
23	.00	2.5	.28	.20	3.1	3.8	2.8	7.6	.39	2.4	1.3	1.2
24	.00	1.2	.30	.15	3.8	1.4	2.4	4.6	.27	6.3	.68	1.1
25	.00	.73	10	.12	10	.99	.89	2.8	.22	6.8	.46	.68
26	.00	.57	12	.12	15	.79	.55	1.7	.23	2.1	2.6	.84
27	.00	.44	3.6	.12	5.8	.68	.79	7.6	.68	3.5	8.5	1.0
28	.00	.33	1.0	.12	12	.60	1.8	6.8	.63	3.1	5.9	3.9
29	.00	.28	.53	.12	---	1.7	1.8	4.4	.53	4.1	8.5	5.2
30	.00	2.1	.35	3.0	---	1.6	.79	1.8	4.0	8.5	4.5	6.1
31	.00	---	.28	1.1	---	1.3	---	2.4	---	4.1	2.5	---
TOTAL	0.20	85.29	101.58	26.96	55.85	262.56	80.57	109.25	26.45	101.11	144.10	75.51
MEAN	.006	2.84	3.28	.87	1.99	8.47	2.69	3.52	.88	3.26	4.65	2.52
MAX	.03	37	46	5.4	15	67	14	14	4.0	10	19	21
MIN	.00	.00	.09	.12	.05	.60	.55	.33	.15	.23	.46	.24
AC-FT	.4	169	201	53	111	521	160	217	52	201	286	150

CAL YR 1984 TOTAL 694.18 MEAN 1.90 MAX 46 MIN .00 AC-FT 1380
WTR YR 1985 TOTAL 1069.43 MEAN 2.93 MAX 67 MIN .00 AC-FT 2120

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	1.5	41	15	.18	.09	8.8	8.3	1.9	1.6	2.6	.81
2	1.5	.73	5.9	15	.15	.09	3.7	4.0	.93	1.4	4.8	.53
3	.79	.61	3.3	7.6	.15	.09	13	5.8	7.2	8.7	6.0	.53
4	.56	.49	2.0	1.3	.15	.07	15	3.9	6.6	6.7	5.0	1.5
5	.51	.41	.99	.84	.20	.07	19	2.5	5.6	3.3	4.0	.51
6	1.5	.34	.63	.63	.34	.06	15	15	1.6	2.3	2.8	.35
7	1.3	.33	.47	15	.15	.06	16	3.1	4.5	9.3	4.1	.30
8	5.7	.28	.38	16	.13	.06	100	.87	2.6	9.3	6.3	.26
9	5.6	.28	.33	23	.12	.15	65	.52	8.4	8.6	4.5	10
10	2.1	.23	.33	4.0	.10	.31	131	.64	4.0	5.0	2.1	2.0
11	8.5	.23	.30	1.3	.10	.13	36	1.9	2.0	1.7	.77	.52
12	2.6	.20	.28	.94	13	.15	8.0	2.2	.70	2.2	1.6	.37
13	1.4	.19	.28	.73	2.0	.55	6.1	.78	6.8	2.8	3.4	.75
14	.84	.19	.34	.61	.63	2.5	5.3	.49	7.9	.90	9.0	.60
15	.73	1.1	.28	.44	10	1.9	4.4	.41	12	1.8	5.3	.36
16	.55	9.3	2.1	.35	21	.79	1.3	1.9	6.9	4.3	4.1	.27
17	1.3	.99	.63	.32	1.2	.54	.69	4.5	1.4	2.2	1.6	.21
18	4.1	.53	.38	.28	.53	.38	.69	2.4	6.8	1.1	.84	.19
19	1.7	13	.31	.28	.38	1.4	1.1	2.7	31	2.8	.49	.17
20	1.1	1.2	.27	.27	.28	26	1.1	3.3	5.7	1.6	.36	.16
21	1.1	.63	.23	.99	.22	51	4.0	.80	3.9	.85	.29	.15
22	.84	1.3	.20	1.5	.18	41	4.8	.58	1.8	2.3	2.1	.15
23	1.6	1.3	.19	.63	.15	43	4.8	.54	2.4	1.5	8.6	.14
24	3.5	.68	.18	.42	.12	4.7	3.8	.41	5.8	.65	5.8	.13
25	1.7	1.3	.35	.55	.12	1.1	2.8	.34	17	.50	1.1	.15
26	3.6	5.1	.31	.37	.12	.58	3.3	.36	6.3	.51	.50	.13
27	5.8	1.8	1.8	.31	.10	3.8	6.8	1.4	4.5	1.4	2.7	.13
28	5.6	1.0	4.9	.24	.10	4.3	11	1.5	2.6	2.7	1.8	.14
29	1.5	.73	12	.23	---	14	7.9	6.6	3.1	.75	2.8	.13
30	1.8	.84	2.3	.19	---	17	9.3	28	1.7	.53	5.1	.11
31	1.2	---	2.3	.19	---	10	---	5.3	---	.49	2.3	---
TOTAL	81.62	46.81	85.26	109.51	51.90	225.87	509.68	111.04	173.63	89.78	102.75	21.75
MEAN	2.63	1.56	2.75	3.53	1.85	7.29	17.0	3.58	5.79	2.90	3.31	.72
MAX	11	13	41	23	21	51	131	28	31	9.3	9.0	10
MIN	.51	.19	.18	.19	.10	.06	.69	.34	.70	.49	.29	.11
AC-FT	162	93	169	217	103	448	1010	220	344	178	204	43

CAL YR 1985 TOTAL 1096.05 MEAN 3.00 MAX 67 MIN .05 AC-FT 2170
WTR YR 1986 TOTAL 1609.60 MEAN 4.41 MAX 131 MIN .06 AC-FT 3190

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	5.8	10	1.1	.33	.17	52	12	1.8	8.5	7.8	.20
2	.26	2.6	35	14	.29	2.3	14	14	.61	5.8	1.8	.19
3	.20	.64	30	2.4	.25	2.2	6.9	5.8	.43	9.3	.62	.17
4	2.0	.42	6.6	.58	.20	.45	1.4	11	.35	11	.45	.18
5	3.4	.32	1.7	.93	.21	.30	.55	9.2	1.5	13	.36	.20
6	14	.28	26	.43	.20	.20	1.9	4.9	4.5	3.4	.31	.17
7	15	.35	2.1	.29	.19	.18	1.1	21	2.8	1.9	.37	.17
8	2.5	.28	.83	.25	.17	2.7	.45	3.5	2.9	3.4	.93	.18
9	.97	2.1	2.1	.20	.17	1.1	.37	.94	3.3	8.9	.56	.55
10	.54	1.6	2.2	47	.16	.40	.44	.59	6.1	3.9	4.1	.42
11	.38	6.6	8.3	54	.15	.27	.42	.48	15	3.5	4.2	1.5
12	.32	12	3.2	42	.15	.19	.77	.41	5.7	3.3	8.1	2.5
13	.47	4.5	1.1	2.6	.15	.17	1.5	.33	5.8	8.6	1.4	7.9
14	4.7	5.8	1.6	7.1	.30	.17	4.1	.31	1.8	28	.49	1.1
15	3.4	6.1	.93	6.2	.36	.97	15	.32	15	4.5	.37	.50
16	5.2	4.1	.65	4.2	.76	2.3	9.0	.29	17	1.7	.43	.37
17	2.3	4.5	1.9	.83	17	1.5	4.0	.25	3.9	1.5	.37	.36
18	.55	.93	1.1	27	10	3.5	5.6	.23	1.3	1.7	.35	4.7
19	.48	11	.53	7.3	5.0	5.4	4.8	.20	2.1	4.6	.31	3.3
20	7.0	10	.38	.65	3.3	3.0	4.9	.20	14	23	.50	1.3
21	2.3	3.0	4.4	.53	.69	3.2	3.4	.20	7.2	4.7	2.7	.51
22	.57	3.4	1.4	4.4	.39	2.2	24	.20	6.7	2.1	1.5	.33
23	.37	1.3	3.0	.93	.29	3.2	.97	.26	4.9	.72	.49	.60
24	.28	2.0	.93	.73	.22	1.4	.49	23	.80	.51	.35	.78
25	4.1	.97	1.4	10	1.6	.72	.36	4.1	.78	.42	.71	.44
26	21	1.6	.53	6.1	.46	.53	.70	9.2	6.4	.38	1.6	.31
27	4.7	5.9	.33	.93	.27	.64	11	3.6	8.5	.97	.56	.25
28	4.9	6.4	.29	.48	.19	.81	6.7	2.9	2.1	3.3	.36	.20
29	.79	11	.25	2.6	---	.57	1.6	4.9	8.1	2.0	.28	.19
30	.44	17	.25	.65	---	2.0	.60	4.5	9.3	2.9	.25	.32
31	.36	---	.93	.43	---	4.0	---	7.7	---	2.8	.20	---
TOTAL	103.69	132.49	149.93	246.84	43.45	46.74	179.02	146.51	160.67	170.30	42.82	29.89
MEAN	3.34	4.42	4.84	7.96	1.55	1.51	5.97	4.73	5.36	5.49	1.38	1.00
MAX	21	17	35	54	17	5.4	52	23	17	28	8.1	7.9
MIN	.20	.28	.25	.20	.15	.17	.36	.20	.35	.38	.20	.17
AC-FT	206	263	297	490	86	93	355	291	319	338	85	59

CAL YR 1986 TOTAL 1782.02 MEAN 4.88 MAX 131 MIN .06 AC-FT 3530
WTR YR 1987 TOTAL 1452.35 MEAN 3.98 MAX 54 MIN .15 AC-FT 2880

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	6.3	1.3	8.2	.27	.48	5.4	3.7	1.8	3.1	.39	.12
2	5.5	8.0	2.6	26	.23	.35	6.8	3.2	5.2	1.7	1.8	.19
3	1.4	.72	3.2	9.8	.20	.44	6.2	1.4	6.3	1.3	1.2	.16
4	.53	.34	1.1	5.8	.17	.68	5.1	.67	14	1.7	4.9	.13
5	.36	.24	1.6	2.0	.17	.98	6.3	3.2	6.1	6.0	8.1	15
6	1.9	2.0	14	3.2	.17	1.5	14	1.2	1.3	5.1	23	3.6
7	1.6	2.8	14	1.8	.47	.74	3.3	1.8	2.5	5.4	7.1	1.1
8	.47	1.1	8.5	.51	2.2	2.0	.69	3.7	1.3	14	3.7	.45
9	.30	.47	1.1	18	1.9	1.4	4.0	.85	.98	9.8	1.3	.26
10	.17	8.4	1.1	7.2	1.3	.51	13	.47	.61	2.0	.52	4.4
11	.12	12	.52	4.3	5.7	.37	8.6	.45	.98	5.2	.46	3.8
12	.10	2.3	4.8	2.4	2.3	.28	.98	8.3	.79	13	2.5	1.3
13	.09	.85	25	.98	3.4	.24	.41	5.4	3.0	3.0	3.0	.38
14	.08	2.4	2.4	.45	.85	5.2	.27	1.2	.98	6.1	1.3	.24
15	.08	3.0	.66	.35	.45	20	.20	2.3	.43	3.1	.53	.16
16	.06	3.2	.42	9.8	1.9	2.5	.16	1.1	4.3	1.4	1.2	.14
17	.06	1.8	.33	3.4	.64	.70	.46	1.3	5.3	2.1	5.0	.12
18	.10	9.8	.42	.67	.43	.47	.71	.44	2.1	6.7	.75	.19
19	2.3	6.7	.42	.51	.35	.48	.50	.32	1.6	3.7	.40	.14
20	3.6	28	.47	.35	.27	.49	.27	.39	9.8	2.6	.39	.13
21	2.9	70	.38	.27	.23	.38	6.7	5.7	3.5	4.5	.35	2.2
22	8.3	22	.28	.21	.98	.54	5.6	6.4	4.5	1.6	.89	.98
23	11	6.4	.24	1.7	5.6	.60	.53	9.8	3.8	.56	.40	1.1
24	4.6	4.3	.20	1.2	1.4	.63	.51	1.6	6.3	.46	.28	.98
25	6.6	2.6	.67	2.3	12	.41	1.6	.47	4.1	.42	.18	.98
26	4.9	4.3	2.8	12	20	.33	8.9	.75	3.5	.34	.12	2.3
27	2.0	2.8	1.1	13	5.8	.29	5.9	.89	8.0	.34	.21	2.4
28	3.3	3.6	.47	5.6	2.3	.29	12	8.2	3.2	6.3	.23	.98
29	5.0	2.4	.28	1.6	1.1	.78	13	7.2	3.8	4.3	.20	.70
30	3.4	2.3	.24	.53	---	.89	4.1	1.3	3.1	6.4	.16	.32
31	4.0	---	.20	.34	---	7.6	---	.89	---	.80	.14	---
TOTAL	90.82	221.12	90.80	144.47	72.78	52.55	136.19	84.59	113.17	123.02	70.70	44.95
MEAN	2.93	7.37	2.93	4.66	2.51	1.70	4.54	2.73	3.77	3.97	2.28	1.50
MAX	16	70	25	26	20	20	14	9.8	14	14	23	15
MIN	.06	.24	.20	.21	.17	.24	.16	.32	.43	.34	.12	.12
AC-FT	180	439	180	287	144	104	270	168	224	244	140	89

CAL YR 1987 TOTAL 1468.98 MEAN 4.02 MAX 70 MIN .06 AC-FT 2910
WTR YR 1988 TOTAL 1245.16 MEAN 3.40 MAX 70 MIN .06 AC-FT 2470

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.45	.64	1.5	.12	.16	2.7	1.8	3.9	.75	2.2	5.7
2	.13	.52	.32	.64	.12	.13	4.0	.53	1.6	.50	4.3	4.5
3	.11	.35	.23	3.7	34	.12	1.9	.33	.87	1.3	3.0	1.8
4	.10	1.4	.17	1.8	8.9	11	.39	.38	2.6	5.6	2.7	2.3
5	1.7	2.3	.14	2.5	5.1	3.6	12	.40	20	4.5	3.8	1.3
6	1.3	.36	.13	.62	1.6	9.8	6.8	.30	24	8.1	3.1	2.4
7	.33	.21	.25	.77	.68	12	65	.23	8.3	1.8	2.1	2.3
8	.20	8.7	.16	11	.31	4.1	20	4.9	3.5	1.8	2.1	1.7
9	.14	2.0	.14	3.7	.50	.98	4.6	5.7	2.3	1.5	1.8	2.2
10	.11	7.3	.38	12	7.8	1.2	1.8	4.3	1.3	4.8	1.2	3.6
11	.19	8.7	7.2	2.1	9.8	.53	.57	2.4	1.1	8.1	.86	3.3
12	.98	2.4	1.9	.46	4.1	.36	.33	2.6	13	8.5	.89	1.5
13	.53	5.2	.38	3.3	.76	.26	.30	21	3.1	34	.61	.58
14	.34	4.8	.22	26	.33	.20	44	7.9	9.8	21	2.3	.88
15	.18	1.9	.15	17	.24	2.7	8.9	3.3	15	4.8	2.4	.67
16	.13	.89	1.5	3.8	.18	3.2	3.4	6.6	7.2	2.5	2.0	.48
17	.10	.38	2.8	2.1	.16	.46	1.3	4.2	7.6	2.1	1.3	1.4
18	.09	.45	.38	1.8	.17	.22	1.5	3.6	5.4	5.4	.89	1.3
19	.08	1.2	.21	4.2	.20	.16	1.5	6.0	1.2	36	4.1	2.1
20	.08	.79	.17	2.1	.23	.14	2.5	12	4.9	4.0	41	1.1
21	.06	9.8	.17	.98	.18	.12	5.7	3.9	2.6	2.5	3.8	.74
22	.06	17	.17	2.6	.31	.12	9.8	4.3	1.3	9.8	2.8	.57
23	.06	9.8	.13	.65	2.4	.15	7.3	8.8	.67	2.6	2.2	.47
24	.07	4.9	2.3	.51	16	.12	2.1	6.8	.46	1.7	1.3	.42
25	.06	1.3	12	.27	8.5	.35	.51	22	.43	5.9	.55	.98
26	.04	.49	8.8	.23	1.1	.18	.28	6.6	.41	4.3	.38	1.5
27	.13	2.4	.78	.20	.36	.19	.50	2.3	.38	2.6	.30	3.9
28	3.0	1.1	.98	.18	.20	.49	53	3.4	.33	8.3	.26	2.1
29	1.7	1.7	1.7	.16	---	2.6	35	14	5.4	8.9	.24	2.4
30	.79	4.2	3.2	.14	---	2.1	12	12	2.3	5.8	.32	.76
31	.48	---	2.8	.14	---	7.2	---	12	---	2.4	.29	---
TOTAL	13.45	102.99	50.50	107.15	104.35	64.94	309.68	184.57	150.95	211.85	95.09	54.95
MEAN	.43	3.43	1.63	3.46	3.73	2.09	10.3	5.95	5.03	6.83	3.07	1.83
MAX	3.0	17	12	26	34	12	65	22	24	36	41	5.7
MIN	.04	.21	.13	.14	.12	.12	.28	.23	.33	.50	.24	.42
AC-FT	27	204	100	213	207	129	614	366	299	420	189	109

CAL YR 1988 TOTAL 1009.36 MEAN 2.76 MAX 26 MIN .04 AC-FT 2000
WTR YR 1989 TOTAL 1450.47 MEAN 3.97 MAX 65 MIN .04 AC-FT 2880

16720300 KAWAIKI STREAM NEAR KAHUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.48	.34	.20	.40	7.9	35	4.1	2.0	4.9	8.6	3.2	2.6
2	.45	.28	.17	2.0	5.9	20	2.8	1.6	4.9	20	3.2	2.5
3	.50	.24	.17	3.2	8.9	21	8.9	2.2	3.5	6.5	3.6	7.8
4	.44	.20	.16	5.2	4.2	18	5.3	11	4.6	3.5	3.1	8.2
5	3.9	.20	.14	2.3	5.7	15	3.4	8.6	2.6	3.4	1.6	11
6	4.0	.28	.14	.89	7.4	14	2.3	12	3.1	3.2	1.5	4.2
7	1.2	.26	.16	.42	15	24	1.6	9.8	4.9	3.2	8.3	2.3
8	.57	.31	.10	.32	1.9	28	1.2	22	7.2	3.2	3.3	1.9
9	3.0	.45	11	21	.74	4.3	.79	4.0	4.1	1.8	2.0	3.6
10	1.2	.33	3.1	4.6	.55	2.5	.61	4.1	2.6	1.6	1.9	9.8
11	.50	.24	.64	7.9	.52	4.7	.53	4.9	2.5	4.4	1.6	2.6
12	.37	.20	.34	14	.52	6.7	.49	2.6	2.7	12	2.3	5.7
13	.30	.17	.30	2.1	.44	3.7	.47	2.6	2.3	2.7	4.4	3.6
14	.25	.17	.35	1.9	.42	2.1	.46	2.6	3.2	2.0	1.8	5.2
15	.24	.14	.22	1.6	.42	4.1	.42	2.6	3.8	1.8	4.9	5.2
16	.21	.31	.16	1.2	.42	6.6	.48	2.4	18	2.3	6.3	9.8
17	.20	4.4	.12	16	.39	2.6	.66	2.0	12	4.6	3.3	18
18	.22	2.5	.10	21	.32	2.2	.89	2.0	7.9	14	1.3	12
19	2.3	.98	.09	4.6	.26	1.7	7.0	8.3	4.4	7.6	1.5	6.9
20	6.1	2.0	.07	7.8	.26	.89	12	16	14	6.0	2.2	3.0
21	4.5	2.3	.06	2.2	.27	.71	6.4	29	5.8	3.0	.89	3.1
22	2.5	1.1	.06	.75	.20	.61	20	8.6	8.0	2.0	1.3	2.3
23	6.0	1.3	.06	1.3	.17	.54	3.7	3.1	8.9	2.1	7.9	2.2
24	4.7	2.6	.04	.65	8.2	.52	3.3	8.9	15	6.7	11	4.2
25	5.5	.80	.04	.42	7.7	.48	3.3	13	11	11	7.3	1.6
26	4.1	.45	.04	.33	17	.43	3.2	6.6	5.5	5.0	8.6	1.6
27	1.8	.35	.04	.45	3.2	.32	3.2	17	11	7.3	8.2	3.1
28	1.2	.28	.03	3.2	7.7	.29	2.8	13	7.3	7.8	4.1	11
29	.65	.23	.54	2.6	---	5.5	2.3	4.2	16	8.5	2.7	12
30	.46	.20	1.4	26	---	4.0	2.1	12	6.0	5.0	2.6	6.4
31	.38	---	.63	18	---	7.2	---	4.5	---	4.1	2.6	---
TOTAL	58.22	23.61	20.67	174.33	106.60	237.69	104.70	243.2	207.7	174.9	118.49	173.4
MEAN	1.88	.79	.67	5.62	3.81	7.67	3.49	7.85	6.92	5.64	3.82	5.78
MAX	6.1	4.4	11	26	17	35	20	29	18	20	11	18
MIN	.20	.14	.03	.32	.17	.29	.42	1.6	2.3	1.6	.89	1.6
AC-FT	115	47	41	346	211	471	208	482	412	347	235	344

CAL YR 1989 TOTAL 1386.03 MEAN 3.80 MAX 65 MIN .03 AC-FT 2750
WTR YR 1990 TOTAL 1643.51 MEAN 4.50 MAX 35 MIN .03 AC-FT 3260

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	1.7	.85	.52	.33	.46	17	5.4	3.6	3.3	9.8	2.4
2	1.9	1.5	.76	.52	.28	.32	7.1	2.7	4.1	2.8	4.3	2.4
3	8.1	1.3	.66	.52	.24	.28	8.9	2.6	3.7	2.6	6.9	4.7
4	7.2	.98	.56	.52	.24	.30	7.1	3.9	2.7	2.5	8.5	7.4
5	5.7	.87	.98	.52	.50	1.4	28	6.6	2.5	2.3	4.9	3.4
6	2.3	.85	4.5	1.3	.20	3.5	14	2.8	2.8	2.3	15	3.0
7	1.2	.85	2.5	3.7	.20	11	5.8	4.9	15	2.3	72	3.3
8	.89	.80	24	2.9	.20	18	7.9	5.4	3.9	2.2	4.5	4.7
9	.81	.68	107	1.6	.20	18	3.1	3.5	3.0	1.7	3.5	3.4
10	.53	.66	8.9	4.7	.20	6.1	2.7	3.5	2.6	8.1	3.8	8.6
11	23	.66	2.4	4.2	.20	16	2.6	3.2	2.2	13	3.1	6.6
12	4.6	.58	2.8	2.7	.20	48	2.6	2.3	2.1	2.8	8.8	4.4
13	4.5	.52	7.3	2.1	7.6	74	4.4	3.3	3.3	6.2	5.5	4.6
14	8.9	32	9.8	1.9	12	71	3.5	21	5.1	4.8	3.1	1.9
15	13	14	2.7	1.6	3.7	40	3.3	14	7.2	8.4	2.9	1.8
16	12	4.7	1.8	1.8	3.0	34	3.0	4.4	3.2	5.7	2.8	3.0
17	6.4	4.1	1.8	3.2	2.7	50	2.9	5.5	2.8	2.8	2.8	2.5
18	8.7	29	8.0	2.5	2.3	6.2	2.8	3.8	3.8	6.4	4.0	.98
19	4.2	14	5.0	2.0	1.7	5.7	2.9	3.7	2.8	5.6	3.3	.67
20	2.2	4.9	8.9	1.9	3.1	3.5	2.3	3.3	2.4	4.1	3.1	.42
21	1.9	3.1	3.6	1.9	4.3	3.0	2.1	3.3	2.2	2.3	2.8	.33
22	1.9	2.0	5.1	1.4	3.7	2.6	2.0	3.1	2.1	2.7	2.7	.33
23	5.8	21	7.3	4.3	3.2	2.6	2.5	2.9	1.7	2.6	2.6	.33
24	4.5	9.8	8.9	2.8	1.7	2.4	11	2.6	.87	4.3	2.6	.37
25	5.0	2.3	5.3	2.2	1.3	2.4	12	2.3	9.8	6.5	2.6	.33
26	3.1	1.8	1.3	2.1	.98	2.3	5.3	4.9	14	9.8	1.5	.33
27	2.3	1.6	.98	57	.84	7.2	5.7	12	5.2	2.8	18	.33
28	1.6	.98	.76	35	.74	6.3	12	13	7.4	2.4	8.8	.33
29	5.9	.98	.65	2.3	---	5.6	8.0	17	4.8	13	3.6	.30
30	12	.85	.56	.75	---	9.8	14	8.0	4.0	20	2.4	.28
31	2.3	---	.52	.42	---	7.4	---	4.9	---	4.1	2.4	---
TOTAL	165.73	159.06	236.18	150.87	55.85	459.36	206.5	179.8	130.87	160.4	222.6	73.43
MEAN	5.35	5.30	7.62	4.87	1.99	14.8	6.88	5.80	4.36	5.17	7.18	2.45
MAX	23	32	107	57	12	74	28	21	15	20	72	8.6
MIN	.53	.52	.52	.42	.20	.28	2.0	2.3	.87	1.7	1.5	.28
AC-FT	329	315	468	299	111	911	410	357	260	318	442	146

CAL YR 1990 TOTAL 2101.98 MEAN 5.76 MAX 107 MIN .17 AC-FT 4170
WTR YR 1991 TOTAL 2200.65 MEAN 6.03 MAX 107 MIN .20 AC-FT 4360

16720500 UPPER HAMAKUA DITCH BELOW KAWAIKI STREAM, NEAR KAMUELA

LOCATION.--Lat 20°05'15", long 155°40'42", Hydrologic Unit 20010000, on right bank 800 ft downstream from Kawaiki Stream intake, and 4.4 mi north of Kamuela.

PERIOD OF RECORD.--January 1964 to current year. Records for Nov. 18, 1979 to Oct. 23, 1980, published in the annual reports for water years 1980 and 1981, were in error and were deleted from the record.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 4,020 ft above mean sea level, from topographic map.

REMARKS.--Records fair for discharges less than 4 ft^3/s and very poor for discharges of 4 ft^3/s and greater. Ditch diverts from Kawainui and Kawaiki Streams for irrigation in vicinity of Kamuela. Rain gage located at station monitoring total rainfall between service dates.

AVERAGE DISCHARGE.--Water year 1991: 25 years (water years 1965-79, 1982-91), 7.76 ft^3/s (5,620 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 49 ft^3/s, Nov. 2, 1967; minimum daily, 0.04 ft^3/s, Mar. 11-14, 1983 (revised).

EXTREMES FOR CURRENT YEAR.--Water year 1991: Maximum daily discharge, 24 ft^3/s, Dec. 9, 1990; minimum daily, 0.45 ft^3/s, Feb. 7-11, 1991.

REVISIONS.--Daily discharges, in cubic feet per second, for the period Nov. 18, 1979 to Oct. 23, 1980 have been deleted. There is no record during this period. These figures supersede those published in the annual report for water years 1980 and 1981.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.5	---	---	---	---	---	---	---	---	---	---
2	1.8	2.0	---	---	---	---	---	---	---	---	---	---
3	1.5	1.5	---	---	---	---	---	---	---	---	---	---
4	1.0	1.0	---	---	---	---	---	---	---	---	---	---
5	.90	1.5	---	---	---	---	---	---	---	---	---	---
6	1.0	1.0	---	---	---	---	---	---	---	---	---	---
7	.85	3.0	---	---	---	---	---	---	---	---	---	---
8	.80	4.0	---	---	---	---	---	---	---	---	---	---
9	5.0	2.5	---	---	---	---	---	---	---	---	---	---
10	2.5	2.0	---	---	---	---	---	---	---	---	---	---
11	1.5	1.5	---	---	---	---	---	---	---	---	---	---
12	1.0	1.5	---	---	---	---	---	---	---	---	---	---
13	.90	4.0	---	---	---	---	---	---	---	---	---	---
14	.90	17	---	---	---	---	---	---	---	---	---	---
15	2.0	17	---	---	---	---	---	---	---	---	---	---
16	5.0	17	---	---	---	---	---	---	---	---	---	---
17	10	18	---	---	---	---	---	---	---	---	---	---
18	5.0	---	---	---	---	---	---	---	---	---	---	---
19	5.0	---	---	---	---	---	---	---	---	---	---	---
20	4.0	---	---	---	---	---	---	---	---	---	---	---
21	3.5	---	---	---	---	---	---	---	---	---	---	---
22	3.0	---	---	---	---	---	---	---	---	---	---	---
23	3.5	---	---	---	---	---	---	---	---	---	---	---
24	3.0	---	---	---	---	---	---	---	---	---	---	---
25	2.0	---	---	---	---	---	---	---	---	---	---	---
26	4.0	---	---	---	---	---	---	---	---	---	---	---
27	3.0	---	---	---	---	---	---	---	---	---	---	---
28	2.0	---	---	---	---	---	---	---	---	---	---	---
29	5.0	---	---	---	---	---	---	---	---	---	---	---
30	3.5	---	---	---	---	---	---	---	---	---	---	---
31	3.0	---	---	---	---	---	---	---	---	---	---	---
TOTAL	88.15	---	---	---	---	---	---	---	---	---	---	---
MEAN	2.84	---	---	---	---	---	---	---	---	---	---	---
MAX	10	---	---	---	---	---	---	---	---	---	---	---
MIN	.80	---	---	---	---	---	---	---	---	---	---	---
AC-FT	175	---	---	---	---	---	---	---	---	---	---	---

DISCHARGE, CUBIC FEET PER SECOND, OCTOBER 1, 1980 TO OCTOBER 23,1980
DAILY MEAN VALUES

Oct.	1..... ---	7..... ---	13..... ---	19..... ---
	2..... ---	8..... ---	14..... ---	20..... ---
	3..... ---	9..... ---	15..... ---	21..... ---
	4..... ---	10..... ---	16..... ---	22..... ---
	5..... ---	11..... ---	17..... ---	23..... ---
	6..... ---	12..... ---	18..... ---	

16720500 UPPER HAMAKUA DITCH BELOW KAWAIKI STREAM, NEAR KAMUELA--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	4.8	1.8	1.6	e1.0	1.3	20	16	14	13	17	2.4
2	6.7	3.1	1.5	1.4	e.75	1.0	16	7.4	14	11	12	1.9
3	16	2.5	1.4	1.4	e.65	.89	20	4.1	14	7.7	12	7.8
4	14	1.9	1.4	1.3	e.60	1.2	17	8.3	7.0	5.0	16	20
5	14	1.8	3.6	1.2	e.55	3.4	21	18	6.0	3.2	14	12
6	8.3	1.8	15	3.4	.50	13	20	12	10	1.4	17	4.7
7	4.1	1.6	6.9	16	.45	20	19	17	20	1.8	21	7.1
8	2.9	1.4	20	11	.45	20	19	18	15	.50	13	17
9	2.3	1.3	24	4.3	.45	21	10	9.6	12	.57	10	14
10	2.1	1.1	18	9.1	.45	20	4.8	4.3	5.6	16	11	20
11	18	.94	12	15	.45	20	3.8	6.7	4.1	20	8.9	20
12	17	.89	16	6.5	.50	22	4.1	6.2	6.6	11	15	17
13	16	1.0	19	e3.2	3.8	23	14	6.1	12	10	14	16
14	18	19	19	e3.0	19	22	8.4	21	16	17	8.4	5.9
15	19	19	12	e2.5	17	21	11	20	18	18	5.2	8.6
16	19	15	5.3	e2.5	8.6	21	10	13	10	18	3.6	13
17	17	7.8	3.6	e3.5	3.5	21	8.8	17	7.8	10	9.2	12
18	18	20	9.8	e3.0	2.3	19	7.8	14	15	12	12	4.8
19	15	19	18	e2.5	3.5	19	10	11	9.8	16	9.5	3.4
20	5.9	15	17	e2.0	14	15	7.2	4.3	3.6	14	9.5	3.0
21	3.5	12	14	e2.0	18	12	4.8	3.0	2.5	6.2	6.2	2.1
22	2.9	4.8	16	e1.5	13	5.8	5.6	2.4	2.1	8.3	3.6	1.8
23	6.7	12	11	e8.0	4.4	3.9	6.0	1.9	2.3	4.6	2.8	1.5
24	16	18	18	e3.5	2.9	2.9	20	1.7	3.0	12	2.4	1.4
25	17	9.3	16	e3.0	4.6	2.4	19	2.1	17	16	2.3	1.2
26	12	4.3	5.6	e2.5	2.5	2.4	18	11	20	20	4.5	1.0
27	8.6	3.1	3.6	e20	1.7	11	18	20	18	8.6	16	.94
28	3.6	3.0	3.2	e18	1.3	19	19	20	20	5.6	21	.94
29	8.5	2.4	3.0	e2.5	---	18	19	21	17	11	14	1.0
30	18	2.0	2.4	e1.5	---	17	20	20	16	19	4.8	.89
31	10	---	1.9	e1.0	---	19	---	18	---	12	3.0	---
TOTAL	351.1	209.83	320.0	157.9	126.90	418.19	401.3	355.1	338.4	329.47	318.9	223.37
MEAN	11.3	6.99	10.3	5.09	4.53	13.5	13.4	11.5	11.3	10.6	10.3	7.45
MAX	19	20	24	20	19	23	21	21	20	20	21	20
MIN	2.1	.89	1.4	1.0	.45	.89	3.8	1.7	2.1	.50	2.3	.89
AC-FT	696	416	635	313	252	829	796	704	671	654	633	443

CAL YR 1990 TOTAL 3501.51 MEAN 9.59 MAX 24 MIN .67 AC-FT 6950
WTR YR 1991 TOTAL 3550.46 MEAN 9.73 MAX 24 MIN .45 AC-FT 7040

e Estimated

16724800 UPPER HAMAKUA DITCH ABOVE ALAKAHI STREAM, NEAR KAMUELA

LOCATION.--Lat 20°04'31", long 155° 40'26", Hydrologic Unit 20010000, on right bank 0.1 mi upstream from Alakahi Stream, and 3.6 mi north of Kamuela.

PERIOD OF RECORD.--April 1968 to current year.

REVISED RECORDS.--WDR HI-94-1: 1982-90.

GAGE.--Stevens digital water-stage recorder and concrete, Columbus-type control. Elevation of gage is 3,890 ft above mean sea level, from topographic map.

REMARKS.--Records good except for periods of estimated records which are poor. Ditch diverts from Kawainui and Kawaiki Streams for irrigation in vicinity of Kamuela.

AVERAGE DISCHARGE.--27 years (water years 1969-95), 5.29 ft^3/s (3,830 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 41 ft^3/s, Aug. 18, 1972; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 25 ft^3/s, Jan. 15; no flow, Mar. 15-18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.41	17	2.0	.37	.01	6.2	.29	16	7.2	12	15
2	.11	.67	12	1.1	.71	.01	2.6	.19	12	7.1	19	13
3	.07	6.5	14	.66	.21	.80	2.3	.39	5.7	10	15	6.0
4	.05	11	11	.40	.10	4.2	6.7	.79	15	15	9.5	7.3
5	.03	12	16	.34	.38	.54	6.9	.31	12	8.9	11	7.0
6	.03	14	14	2.5	.89	.20	4.9	.33	10	11	9.8	3.3
7	.02	14	13	1.0	.48	.01	2.2	9.3	15	9.1	19	2.0
8	.02	14	18	.49	.17	.01	.95	5.3	11	7.5	15	1.3
9	e.02	11	13	.27	.05	.01	.34	3.4	11	4.6	19	2.1
10	e.02	21	14	.15	.02	.01	.07	8.0	16	4.1	11	1.1
11	e.03	21	13	.07	.04	.01	.01	12	19	6.5	7.0	.61
12	e.21	18	9.4	.31	.01	.01	.02	15	14	14	16	.29
13	e4.5	14	6.1	13	.01	.01	.04	19	8.2	11	15	.11
14	e8.5	13	4.1	20	.01	.01	.01	13	5.2	7.6	7.5	.03
15	e6.0	14	11	25	.02	.00	5.0	16	11	7.6	4.6	.02
16	e2.0	13	12	21	.02	.00	12	15	8.3	9.4	3.4	.02
17	e.80	11	9.0	14	.02	.00	7.3	13	4.2	14	2.7	.02
18	e.80	7.6	5.7	7.7	.01	.00	4.1	5.7	7.5	5.5	1.9	.02
19	e1.2	5.4	4.2	5.0	.01	.01	5.8	2.8	12	16	1.3	.02
20	e1.4	4.8	5.6	3.1	.01	.02	6.5	1.5	13	17	.90	.02
21	e1.0	7.4	2.9	2.0	.01	1.5	5.3	.89	12	19	.73	.02
22	10	13	1.8	1.3	.01	12	14	.51	8.9	10	.63	.02
23	9.6	10	1.2	.96	.01	8.7	16	.26	7.1	12	.58	.02
24	5.2	12	.85	.67	.01	3.5	13	.17	3.3	6.3	5.7	.04
25	8.8	12	.59	.44	.01	1.1	12	4.0	1.9	5.0	15	.05
26	4.6	12	1.1	.28	.01	.31	8.1	4.1	1.1	11	11	.05
27	13	8.4	1.1	.16	.01	.03	3.9	7.2	.67	19	19	6.1
28	7.6	5.6	.70	.08	.01	8.5	1.9	8.2	.37	16	19	11
29	3.4	19	5.1	.03	---	13	.98	9.9	.20	7.9	10	10
30	1.5	18	11	.14	---	13	.54	11	6.7	7.2	11	7.5
31	.78	---	4.2	.11	---	11	---	13	---	4.0	10	---
TOTAL	91.49	343.78	252.64	124.26	3.62	78.51	149.66	200.53	268.34	310.5	303.24	94.06
MEAN	2.95	11.5	8.15	4.01	.13	2.53	4.99	6.47	8.94	10.0	9.78	3.14
MAX	13	21	18	25	.89	13	16	19	19	19	19	15
MIN	.02	.41	.59	.03	.01	.00	.01	.17	.20	4.0	.58	.02
AC-FT	181	682	501	246	7.2	156	297	398	532	616	601	187

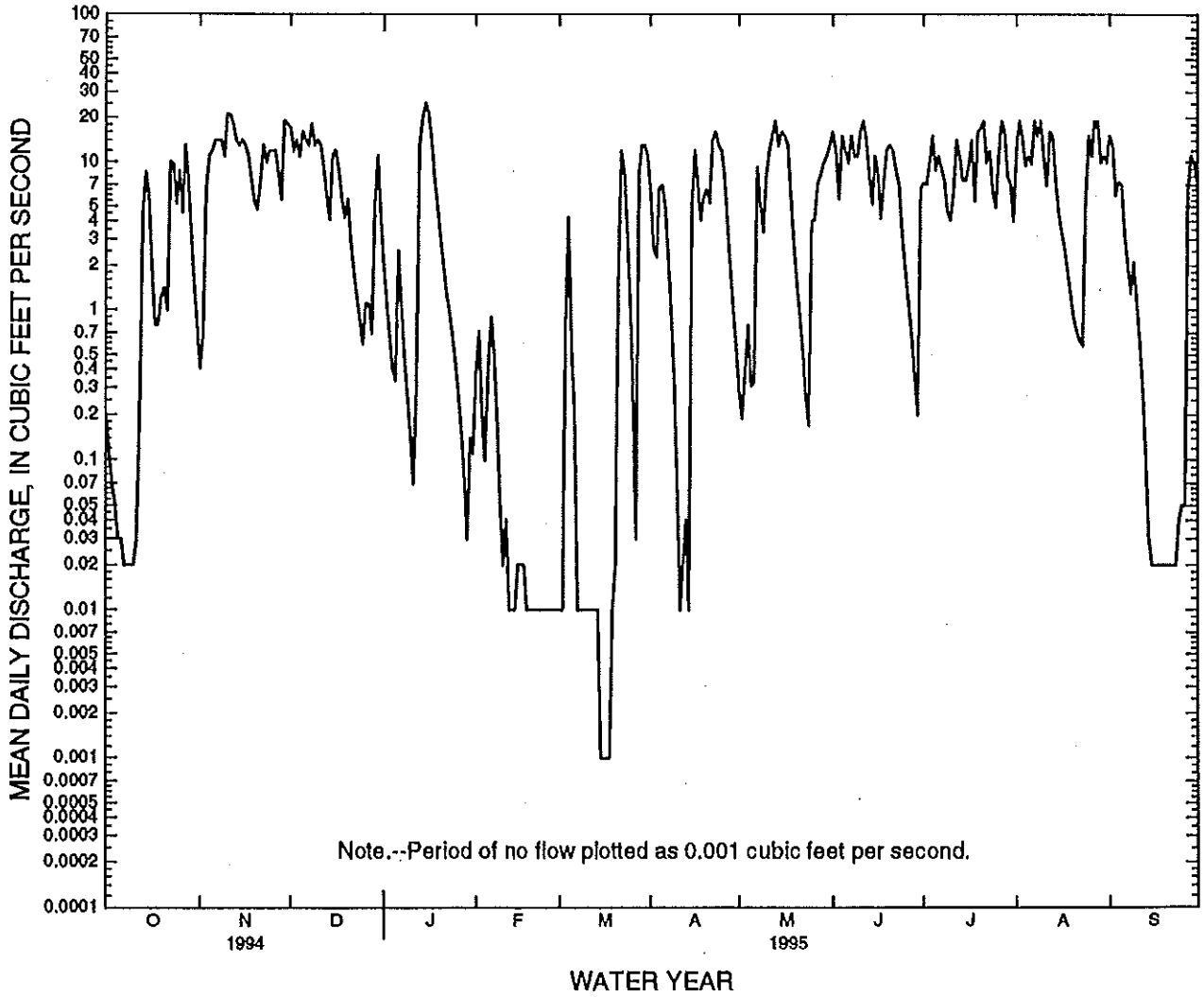
e Estimated

16724800 UPPER HAMAKUA DITCH ABOVE ALAKAHI STREAM, NEAR KAMUELA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1995, BY WATER YEAR (WY)

MEAN	3.32	4.74	4.37	3.90	2.86	5.93	7.51	5.56	6.20	8.01	6.75	4.02
MAX	9.75	12.0	12.0	10.6	14.5	23.2	17.7	14.0	13.8	15.8	15.7	10.5
(WY)	1984	1973	1971	1979	1969	1973	1970	1970	1993	1982	1982	1992
MIN	.000	.95	.17	.088	.062	.76	.44	1.00	.55	.49	.55	.33
(WY)	1985	1990	1981	1981	1980	1984	1992	1992	1980	1980	1980	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1968 - 1995		
ANNUAL TOTAL	3376.73		2220.63				
ANNUAL MEAN	9.25		6.08		5.29		
HIGHEST ANNUAL MEAN					9.22		1994
LOWEST ANNUAL MEAN					1.85		1980
HIGHEST DAILY MEAN	40	Mar 25	25	Jan 15	41	Aug 18	1972
LOWEST DAILY MEAN	.02	Oct 7	.00	Mar 15	.00	Oct 11	1968
ANNUAL SEVEN-DAY MINIMUM	.02	Oct 5	.00	Mar 12	.00	Oct 11	1968
ANNUAL RUNOFF (AC-FT)	6700		4400		3830		
10 PERCENT EXCEEDS	19		15		13		
50 PERCENT EXCEEDS	8.5		4.6		3.1		
90 PERCENT EXCEEDS	.61		.02		.01		



16725000 ALAKAHI STREAM NEAR KAMUELA

LOCATION.--Lat 20°04'27", long 155° 40'25", Hydrologic Unit 20010000, on right bank 25 ft upstream from upper Hamakua ditch intake, and 3.5 mi north of Kamuela.

DRAINAGE AREA.--0.87 mi^2.

PERIOD OF RECORD.--January 1964 to current year.

REVISED RECORDS.--WDR HI-94-1: 1964-90.

GAGE.--Stevens digital and graphic water-stage recorders. Elevation of gage is 3,900 ft above mean sea level, from topographic map.

REMARKS.--Records fair. Parker Ranch pipeline diverts from tributary 0.4 mi upstream for ranch use in Kamuela area.

AVERAGE DISCHARGE.--31 years (water years 1965-95), 7.75 ft^3/s (5,610 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft^3/s, Nov. 18, 1979, gage height, 12.80 ft, from rating curve extended above 28 ft^3/s on basis of computations of peak flow over dam and slope-area measurement at gage height 12.80 ft; minimum, 0.03 ft^3/s on several days in 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 180 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 15	2000	*257	*5.25	No other peaks greater than base discharge.			

Minimum discharge, 0.24 ft^3/s, Mar. 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

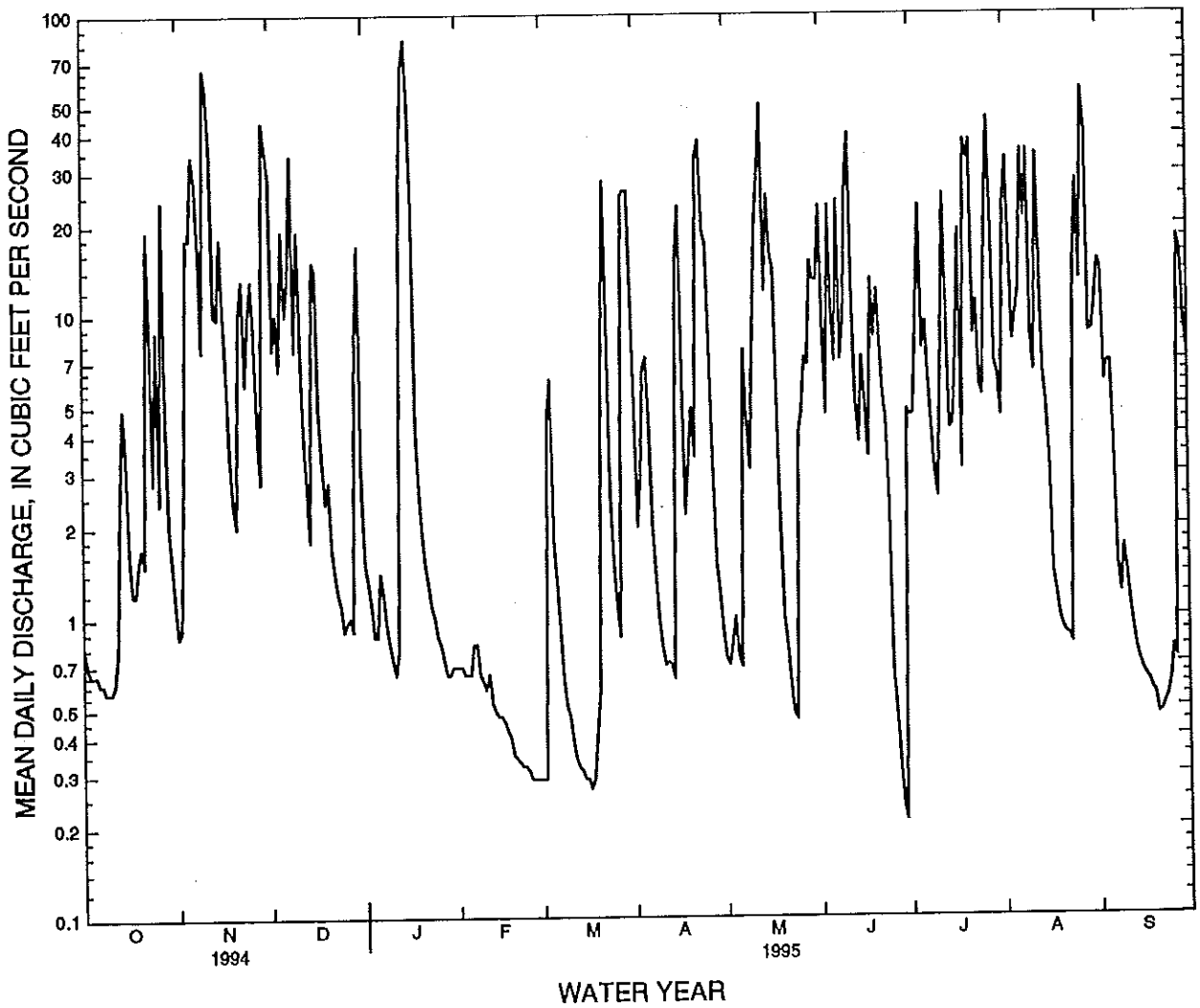
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.78	.87	29	1.5	.69	.29	5.1	.74	23	4.6	23	15
2	.69	.91	7.7	1.3	.69	.29	2.0	.70	9.2	4.7	33	14
3	.65	2.9	10	1.1	.65	4.7	2.9	.82	4.7	9.9	16	6.0
4	.65	18	6.6	.87	.65	6.1	6.6	1.0	23	23	8.2	6.9
5	.65	18	19	.87	.65	1.8	7.2	.75	10	7.7	10	6.9
6	.61	34	10	1.4	.82	1.3	4.3	.69	7.0	9.4	12	3.7
7	.61	28	13	1.2	.82	.90	2.0	7.6	24	6.1	35	1.5
8	.57	17	34	.96	.65	.63	1.4	4.5	7.1	4.2	21	1.2
9	.57	7.6	7.6	.82	.62	.51	1.0	3.1	9.5	3.0	35	1.7
10	.57	66	19	.73	.58	.47	.80	8.1	28	2.5	8.4	1.4
11	.61	56	8.1	.65	.65	.39	.70	20	40	6.9	6.5	1.1
12	.78	35	4.2	.78	.52	.34	.71	30	11	25	34	.91
13	2.4	10	2.8	27	.49	.32	.70	50	5.2	10	14	.78
14	4.9	9.8	1.8	67	.47	.31	.63	12	3.8	4.2	6.4	.71
15	3.4	18	15	83	.47	.29	15	25	7.2	4.3	5.0	.66
16	1.6	10	14	49	.45	.29	23	16	5.1	7.2	3.3	.63
17	1.2	6.2	4.8	23	.42	.27	6.6	14	3.4	19	1.4	.61
18	1.2	3.4	3.3	4.3	.40	.29	2.2	5.2	13	3.1	1.2	.57
19	1.5	2.4	2.4	2.7	.35	.41	3.2	2.0	8.4	38	1.0	.55
20	1.7	2.0	2.8	1.9	.34	.56	4.9	1.0	12	33	.92	.47
21	1.5	10	1.7	1.5	.33	6.8	3.4	.80	7.8	38	.88	.48
22	19	13	1.4	1.3	.32	28	34	.60	5.3	8.6	.87	.51
23	8.3	5.9	1.2	1.1	.32	9.1	38	.48	4.4	11	.82	.54
24	2.8	9.6	1.1	1.0	.31	2.5	19	.46	2.3	5.8	14	.61
25	8.8	13	.91	.87	.29	1.5	17	4.0	.67	5.4	28	.79
26	2.4	8.4	.96	.82	.29	1.1	7.6	4.7	.49	20	13	.73
27	24	4.2	1.0	.73	.29	.87	3.2	7.2	.34	45	56	18
28	4.9	2.8	.91	.65	.29	25	1.5	6.8	.24	21	41	16
29	2.0	44	8.2	.65	---	26	1.2	15	.21	6.9	8.7	9.5
30	1.5	36	17	.69	---	26	.90	13	4.8	6.3	8.8	7.6
31	1.1	---	2.7	.69	---	12	---	13	---	4.6	11	---
TOTAL	101.94	492.98	252.18	280.08	13.82	159.33	216.74	269.24	281.15	398.4	458.39	120.05
MEAN	3.29	16.4	8.13	9.03	.49	5.14	7.22	8.69	9.37	12.9	14.8	4.00
MAX	24	66	34	83	.82	28	38	50	40	45	56	18
MIN	.57	.87	.91	.65	.29	.27	.63	.46	.21	2.5	.82	.47
AC-FT	202	978	500	556	27	316	430	534	558	790	909	238

16725000 ALAKAHI STREAM NEAR KAMUELA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1995, BY WATER YEAR (WY)

MEAN	4.78	8.07	7.26	7.90	5.48	10.2	11.5	7.04	7.65	10.1	8.26	4.87
MAX	13.5	26.5	16.7	26.4	18.6	37.9	31.6	16.8	21.7	18.7	15.9	17.8
(WY)	1984	1980	1971	1979	1969	1980	1986	1990	1994	1978	1970	1992
MIN	.31	1.07	.54	.46	.40	1.27	.82	2.03	2.04	2.38	1.72	.087
(WY)	1985	1969	1981	1981	1993	1983	1992	1966	1985	1981	1971	1965

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1964 - 1995	
ANNUAL TOTAL	4757.11		3044.30			
ANNUAL MEAN	13.0		8.34		7.75	
HIGHEST ANNUAL MEAN					13.4	1994
LOWEST ANNUAL MEAN					3.39	1981
HIGHEST DAILY MEAN	98	Mar 25	83	Jan 15	338	Nov 18 1979
LOWEST DAILY MEAN	.50	Mar 10	.21	Jun 29	.03	May 22 1965
ANNUAL SEVEN-DAY MINIMUM	.55	Mar 4	.29	Feb 24	.04	Sep 22 1965
ANNUAL RUNOFF (AC-FT)	9440		6040		5610	
10 PERCENT EXCEEDS	36		24		19	
50 PERCENT EXCEEDS	5.9		3.2		3.2	
90 PERCENT EXCEEDS	.83		.50		.58	



16726000 UPPER HAMAKUA DITCH ABOVE WAIMEA RESERVOIR DIVERSION, NEAR KAMUELA

LOCATION.--Lat 20°03'31", long 155° 37'40", Hydrologic Unit 20010000, on left bank 500 ft upstream from diversion intake leading to Waimea Reservoir, and 3.7 mi northeast of Kamuela Post Office.

PERIOD OF RECORD.--October 1974 to September 1983, September 1992 to September 1994 (discharge measurements only), October 1994 to current year.

REVISED RECORDS.--WDR HI-94-1: 1981.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 3,020 ft above mean sea level, from topographic map.

REMARKS.--Records for 1975-1983 poor. Records for 1984-1990, published in WDR: HI-84-1 to HI-90-1 are unreliable and should not be used. Ditch diverts from Kawainui, Kawaiki, and Alakahi Streams for use in vicinity of Kamuela. Records for current year good, except for periods of no gage height record which is poor.

AVERAGE DISCHARGE.--10 years (water years 1975-83, 1995), 9.76 ft^3/s (7,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 48 ft^3/s, Apr. 6, 1977; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 27 ft^3/s, Apr. 23; minimum daily discharge, 0.10 ft^3/s, Feb. 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.0	16	5.0	e1.1	.15	12	2.2	18	10	18	16
2	2.0	1.9	12	3.3	e1.2	.13	7.4	2.3	13	9.1	23	13
3	1.8	9.7	12	2.4	e1.0	e.60	4.7	2.8	9.4	13	17	8.5
4	1.7	15	11	1.9	e1.0	e1.0	11	e4.1	17	16	12	9.1
5	1.6	16	16	2.0	e1.0	e.70	12	e2.6	14	12	14	9.4
6	1.5	16	13	6.8	e1.3	e.40	11	5.1	13	14	13	7.1
7	1.4	17	3.7	3.3	e1.3	e.25	5.8	22	17	10	22	5.2
8	1.3	16	e6.0	2.1	e1.1	e.20	3.2	15	13	8.2	16	3.9
9	1.1	14	e10	1.6	e.98	e.15	2.0	11	14	6.7	19	5.8
10	1.0	20	e14	1.3	.89	e.15	1.4	16	18	6.2	13	4.0
11	1.1	20	e10	1.1	.87	e.15	1.1	19	19	8.7	13	2.9
12	1.2	19	e7.0	3.7	.74	e.15	1.1	18	15	16	21	2.1
13	3.3	15	e4.5	24	.51	e.15	.96	20	10	11	15	1.7
14	11	13	e3.5	23	.60	e.15	.75	15	8.2	6.7	9.4	1.4
15	10	10	e14	22	.69	e.15	6.0	18	12	5.8	7.9	1.3
16	4.0	5.6	13	13	.63	e.15	13	16	9.6	8.6	7.2	1.2
17	2.4	3.8	9.5	e9.0	.58	e.15	11	14	7.7	16	6.0	1.2
18	2.3	2.2	8.4	e6.0	.50	e.15	7.3	e9.2	9.5	8.6	4.7	1.1
19	4.1	1.7	8.0	e5.0	.27	.23	7.5	e6.0	13	20	3.7	1.0
20	5.0	1.3	11	e3.5	.15	e.25	8.9	e4.0	14	22	3.0	.95
21	4.7	5.3	6.6	e2.7	.10	e6.0	11	e3.0	11	19	2.8	.93
22	16	14	4.4	e2.2	.14	17	22	e2.7	9.8	11	2.8	.95
23	16	10	3.4	e1.8	.16	11	27	e2.6	8.8	12	2.6	1.0
24	12	12	2.7	e1.6	.18	8.3	22	e2.6	7.2	8.7	10	1.1
25	16	11	2.3	e1.3	.15	3.5	17	e6.0	5.1	8.2	18	1.4
26	11	11	2.5	e1.1	.15	1.8	15	e8.0	3.7	14	11	1.2
27	17	9.5	2.7	e1.0	.15	1.2	11	e10	2.7	25	20	7.7
28	14	8.8	2.2	e.90	.15	9.8	5.7	e10	1.6	17	20	16
29	8.6	19	7.3	e.90	---	17	3.6	e15	.63	10	12	15
30	4.6	20	16	e1.0	---	17	2.4	e13	11	9.1	11	14
31	2.9	---	9.7	e1.1	---	14	---	15	---	7.9	12	---
TOTAL	182.9	339.8	262.4	155.60	17.59	112.01	264.81	310.2	325.93	370.5	380.1	156.13
MEAN	5.90	11.3	8.46	5.02	.63	3.61	8.83	10.0	10.9	12.0	12.3	5.20
MAX	17	20	16	24	1.3	17	27	22	19	25	23	16
MIN	1.0	1.3	2.2	.90	.10	.13	.75	2.2	.63	5.8	2.6	.93
AC-FT	363	674	520	309	35	222	525	615	646	735	754	310

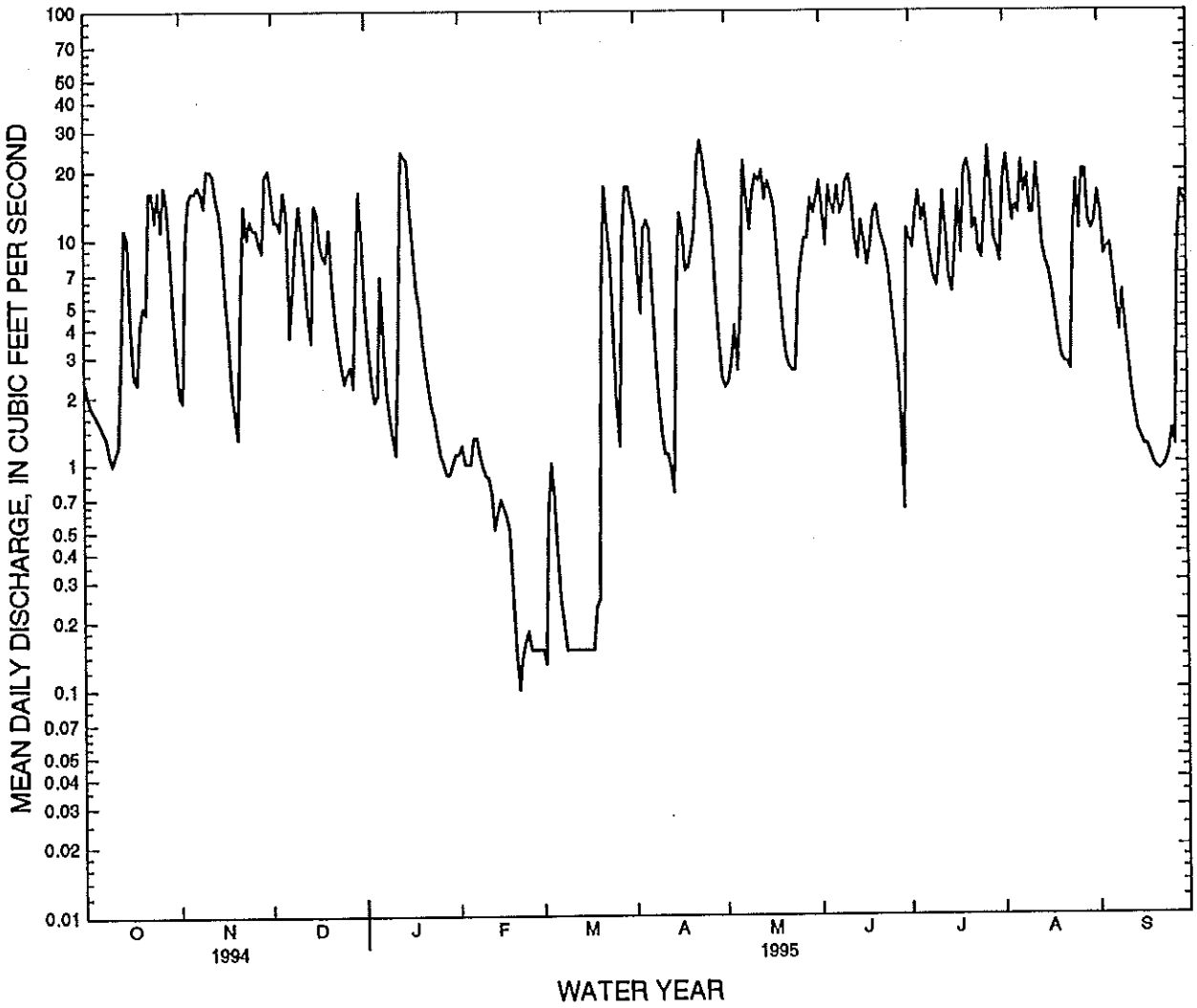
e Estimated

16726000 UPPER HAMAKUA DITCH ABOVE WAIMEA RESERVOIR DIVERSION, NEAR KAMUELA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1995, BY WATER YEAR (WY)

MEAN	7.12	10.2	7.77	5.66	4.99	12.3	13.3	11.1	9.14	14.6	12.2	8.17
MAX	12.9	17.4	12.6	9.93	11.4	19.7	21.7	20.2	15.6	26.0	19.6	16.9
(WY)	1976	1977	1979	1978	1975	1982	1977	1983	1983	1978	1978	1982
MIN	1.18	6.17	.79	.31	.63	3.61	2.76	2.65	3.03	2.84	2.23	2.95
(WY)	1975	1978	1981	1981	1995	1995	1981	1981	1981	1981	1979	1981

SUMMARY STATISTICS	FOR 1995 WATER YEAR		WATER YEARS 1975 - 1995		
ANNUAL TOTAL	2877.97				
ANNUAL MEAN	7.88		9.76		
HIGHEST ANNUAL MEAN			14.1		1982
LOWEST ANNUAL MEAN			3.80		1981
HIGHEST DAILY MEAN	27	Apr 23	48	Apr 6	1977
LOWEST DAILY MEAN	.10	Feb 21	.00	Oct 1	1974
ANNUAL SEVEN-DAY MINIMUM	.15	Feb 20	.00	Oct 1	1974
ANNUAL RUNOFF (AC-FT)	5710		7070		
10 PERCENT EXCEEDS	17		24		
50 PERCENT EXCEEDS	7.1		6.3		
90 PERCENT EXCEEDS	.72		.50		



16727000 UPPER HAMAKUA DITCH ABOVE PUUKAPU RESERVOIR, NEAR KAMUELA

LOCATION.--Lat 20°02'53", long 155°37'17", Hydrologic Unit 20010000, on right bank 25 ft downstream from pipe railed bridge, and 4.0 mi northeast of Kamuela Post Office.

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 2,890 ft above mean sea level, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Ditch diverts above into Waimea Reservoir for use in vicinity of Kamuela.

AVERAGE DISCHARGE.--18 years (water years 1978-95), 1.73 ft^3/s (1,250 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 42 ft^3/s, Apr. 16, 1985; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 8.1 ft^3/s, Mar.29; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	e.00	.00	6.7	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	e.00	.00	3.6	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	e.00	.00	.79	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	e.00	.00	2.7	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.04	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00
16	.07	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00
22	.00	.00	.00	.00	.00	.76	.00	.00	.04	.00	.00	.00
23	.00	.00	.00	.00	.00	1.5	.00	.00	.00	.00	.00	.00
24	.03	.00	.00	e.00	.00	5.3	.00	.00	.00	.00	.00	.00
25	.03	.00	.00	e.00	.00	1.3	.00	.00	.00	.00	.00	.00
26	.00	.14	.00	e.00	.00	.16	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	e.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	e.00	.00	2.0	.00	.00	.00	.00	.07	.41
29	.00	.00	.00	e.00	---	8.1	.00	.00	.00	.00	.00	1.3
30	.00	.00	.00	e.00	---	7.4	.00	.00	.00	.00	.00	7.6
31	.00	---	.00	e.00	---	5.5	---	.00	---	.00	.00	---
TOTAL	0.23	0.15	0.00	0.01	0.00	32.02	13.79	0.00	0.18	0.00	0.07	9.31
MEAN	.007	.005	.000	.000	.000	1.03	.46	.000	.006	.000	.002	.31
MAX	.07	.14	.00	.01	.00	8.1	6.7	.00	.14	.00	.07	7.6
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.5	.3	.00	.02	.00	64	27	.00	.4	.00	.1	18

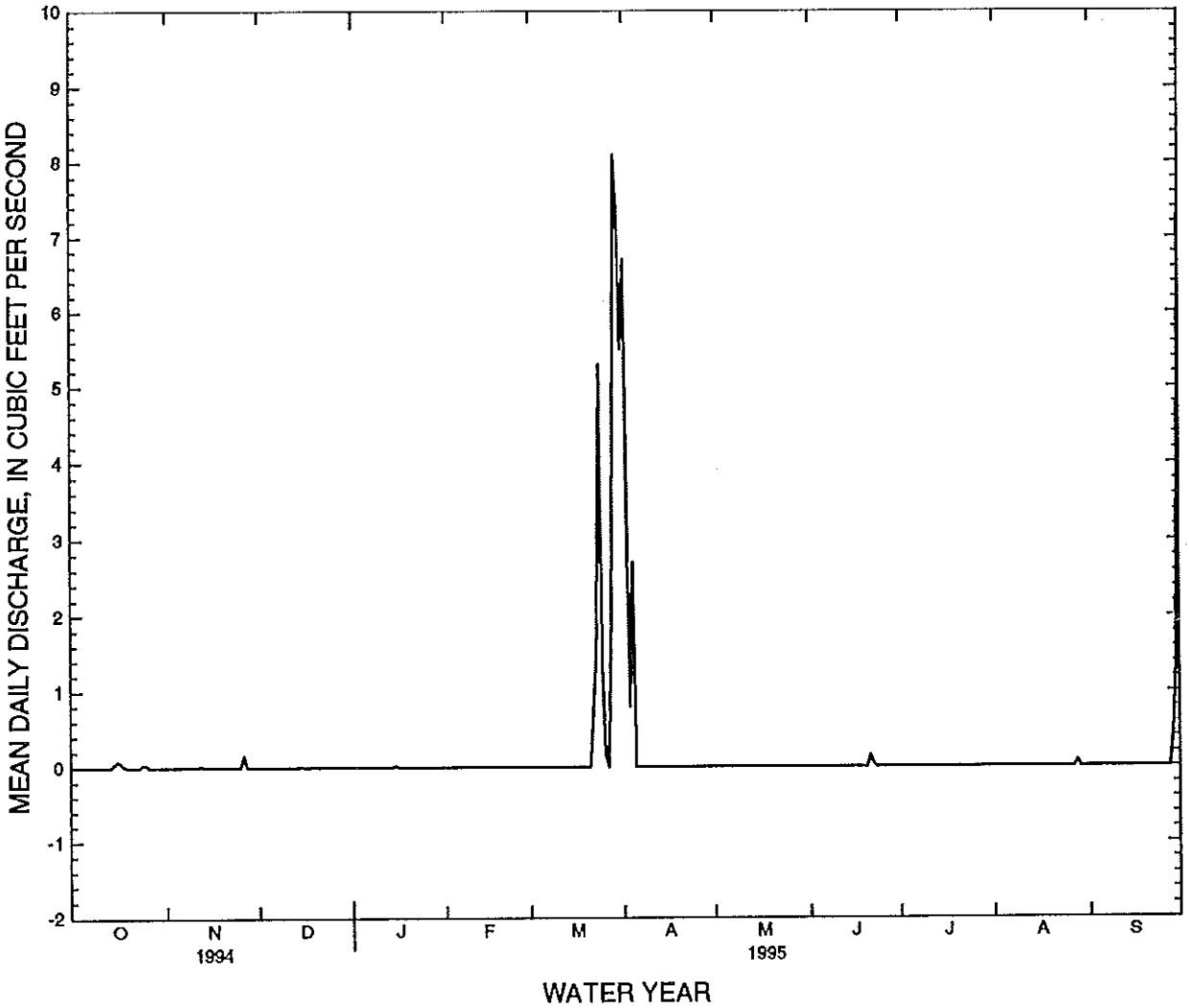
e Estimated

16727000 UPPER HAMAKUA DITCH ABOVE PUUKAPU RESERVOIR, NEAR KAMUELA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1995, BY WATER YEAR (WY)

MEAN	1.42	2.40	1.63	1.56	.98	2.51	2.65	1.72	1.86	1.79	1.56	.65
MAX	6.36	10.1	5.46	8.23	4.56	15.2	13.9	9.55	11.6	9.04	10.8	4.44
(WY)	1986	1988	1988	1987	1988	1985	1986	1986	1986	1978	1985	1985
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1985	1990	1989	1989	1993	1989	1993	1983	1983	1980	1984	1984

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1978 - 1995	
ANNUAL TOTAL	71.41		55.76			
ANNUAL MEAN	.20		.15		1.73	
HIGHEST ANNUAL MEAN					6.79	1986
LOWEST ANNUAL MEAN					.007	1990
HIGHEST DAILY MEAN	10	Apr 5	8.1	Mar 29	42	Apr 16 1985
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Oct 1 1977
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1977
ANNUAL RUNOFF (AC-FT)	142		111		1250	
10 PERCENT EXCEEDS	.05		.00		6.0	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	



HAWAII, ISLAND OF HAWAII

16756000 KOHAKOHAU STREAM NEAR KAMUELA

RECORDS BEING REVIEWED

16758000 WAIKOLOA STREAM AT MARINE DAM, NEAR KAMUELA

LOCATION.--Lat 20°02'48", long 155°39'58", Hydrologic Unit 20010000, on right bank 160 ft upstream from Marine Dam, 0.4 mi east of Puu Ohu, and 1.6 mi north of Kamuela.

DRAINAGE AREA.--1.18 mi^2.

PERIOD OF RECORD.--May 1947 to current year.

REVISED RECORDS.--WSP 1569: Drainage area. WSP 1937: 1948(M), 1949-51(P), 1952(M), 1954(M), 1955, 1956-57(P), 1958-60.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 3,460 ft above mean sea level, from topographic map.

REMARKS.--Records poor. Diversion upstream for livestock and domestic use. Published annual minimum discharges and all flow less than 3.0 ft^3/s for water years 1967 through 1991 are frequently biased high and are rated poor. True discharges may be as much as 0.2 ft^3/s lower.

AVERAGE DISCHARGE.--Water year 1991: 44 years (water years 1948-91), 9.23 ft^3/s (6,680 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,410 ft^3/s, Nov. 18, 1979, gage height, 6.84 ft, from rating curve extended above 120 ft^3/s on basis of computations of flow over dam at gage heights 5.46 ft and 5.96 ft; minimum, 0.59 ft^3/s, Oct. 3-6, 1965.

EXTREMES FOR CURRENT YEAR.--Water year 1991: Peak discharges greater than base discharge of 180 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 9	0230	215	3.44	Mar. 12	2200	246	3.55
Jan. 28	0030	*1,410	*5.40	Aug. 7	1800	436	4.09

Minimum discharge, 1.6 ft^3/s, Feb. 10-13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	4.2	2.6	2.6	2.5	2.2	38	15	8.2	10	22	3.5
2	6.4	3.7	2.5	2.2	2.3	2.0	11	6.2	9.6	8.0	11	3.1
3	14	3.4	2.2	2.2	2.1	2.1	17	5.4	9.4	5.5	18	11
4	14	3.1	2.1	2.1	2.0	2.1	16	9.1	6.2	4.3	21	19
5	16	2.9	2.6	2.2	1.9	2.1	67	21	5.6	3.8	15	7.2
6	8.0	2.7	8.0	3.0	1.9	2.8	36	7.2	6.7	3.5	31	4.4
7	5.5	2.4	5.3	5.3	1.8	9.6	17	9.7	27	3.5	178	4.6
8	4.7	2.0	76	4.8	1.7	26	20	15	12	3.1	19	9.3
9	4.1	2.0	175	3.1	1.7	32	7.5	6.7	8.7	3.1	14	6.2
10	3.7	2.1	26	10	1.7	11	5.2	4.8	5.9	23	12	16
11	26	1.9	7.3	8.5	1.6	34	4.6	4.7	5.3	29	7.8	11
12	13	1.8	5.5	4.1	1.6	76	4.4	4.4	6.8	8.3	22	8.1
13	12	1.8	9.2	3.0	7.5	121	9.3	7.2	6.6	14	16	12
14	20	45	11	2.6	24	146	5.7	48	13	12	7.8	4.9
15	41	29	5.7	2.8	4.6	95	5.6	46	26	16	5.3	4.3
16	34	10	3.9	5.2	3.2	71	5.0	14	9.6	14	4.6	6.3
17	17	5.4	3.3	6.5	2.4	96	4.5	16	10	6.9	6.0	5.9
18	23	64	20	3.1	2.1	22	4.3	12	10	14	8.2	4.2
19	12	31	12	2.5	2.2	15	4.3	9.5	5.3	15	6.2	4.2
20	7.0	15	14	2.3	3.8	11	4.1	5.4	3.9	9.8	7.3	4.4
21	5.4	8.7	8.5	2.3	5.1	8.2	3.9	4.8	3.4	5.9	4.9	3.5
22	4.8	4.5	9.6	2.4	4.7	5.8	3.5	4.5	3.2	7.5	4.0	3.3
23	10	25	12	8.1	2.8	4.6	5.0	3.9	3.4	5.9	3.5	2.9
24	12	20	27	3.9	2.6	4.0	22	3.7	3.4	11	3.5	2.6
25	9.4	7.6	19	2.5	3.3	3.5	14	3.7	20	11	3.2	2.4
26	7.4	4.8	5.2	2.2	2.5	3.5	9.3	11	35	18	2.9	2.4
27	6.1	3.7	3.8	120	2.2	6.8	8.4	20	11	6.4	26	2.3
28	4.8	3.3	3.7	129	2.1	8.3	19	27	16	5.2	23	2.5
29	6.7	2.9	3.4	6.7	---	10	19	38	13	37	10	2.7
30	24	2.7	3.2	3.8	---	15	31	17	12	67	4.8	2.4
31	6.2	---	2.8	2.9	---	15	---	11	---	14	3.9	---
TOTAL	389.2	316.6	492.4	361.9	97.9	863.6	421.6	411.9	316.2	395.7	521.9	176.6
MEAN	12.6	10.6	15.9	11.7	3.50	27.9	14.1	13.3	10.5	12.8	16.8	5.89
MAX	41	64	175	129	24	146	67	48	35	67	178	19
MIN	3.7	1.8	2.1	2.1	1.6	2.0	3.5	3.7	3.2	3.1	2.9	2.3
AC-FT	772	628	977	718	194	1710	836	817	627	785	1040	350

CAL YR 1990 TOTAL 4782.9 MEAN 13.1 MAX 175 MIN 1.0 AC-FT 9490
WTR YR 1991 TOTAL 4765.5 MEAN 13.1 MAX 178 MIN 1.6 AC-FT 9450

HAWAII, ISLAND OF HAWAII

16759000 HAUANI GULCH NEAR KAMUELA

RECORDS BEING REVIEWED

16764000 HILEA GULCH TRIBUTARY NEAR HONUAPO

RECORDS BEING REVIEWED

As the number of streams on which streamflow information is likely to be desired far exceeds the number of continuous-record stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than continuous-record stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to these events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in three tables. The first is a table of discharge measurements at low-flow partial-record stations, the second is a table of annual maximum stage and discharge at crest-stage stations, and the third is a table of discharge measurements at miscellaneous sites.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potential of the stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1995

Station No.	Station name	Location	Drainage area mi^2	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Island of Molokai				
16403400	Kapuhi Stream at altitude 1,000 ft, near Pelekunu	Lat 21°07′50″, long 156°53′02″, 500 ft upstream from Kawailena Stream, 2.2 mi south of former village of Pelekunu, and 5.4 mi north of Kamalo.	0.51	1968-95	10-06-94 01-03-95 05-31-95 08-22-95	0.96 0.95 0.74 0.70
16403500	Kawailena Stream near Pelekunu	Lat 20°07′52″, long 156°53′05″, 800 ft upstream from mouth, 2.2 mi south of former village of Pelekunu, and 5.5 mi north of Kamalo.	0.65	1968-95	10-06-94 01-03-95 05-31-95 08-22-95	1.42 1.67 1.49 1.09
16403600	Kapuhi Stream near Pelekunu	Lat 21°07′57″, long 156°52′56″, on left bank 400 ft downstream from Kawailena Stream, 2.1 mi south of former village of Pelekunu, and 5.6 mi north of Kamalo.	1.20	1968-70≠, 1974-95	10-06-94 01-03-95 05-31-95 08-22-95	2.70 2.97 2.79 2.18
16403700	Kawainui Stream at altitude 1,000 ft, near Pelekunu	Lat 20°07′46″, long 156°52′31″, 400 ft upstream from Kawaipoko Stream, 2.4 mi south of former village of Pelekunu, and 5.4 mi north of Kamalo.	0.79	1968-95	10-07-94 01-03-95 05-31-95 08-22-95	3.57 2.43 1.84 2.29
16403800	Kawaipoko Stream near Pelekunu	Lat 21°07′48″, long 156°52′30″, 300 ft upstream from mouth, 2.4 mi south of former village of Pelekunu, and 5.4 mi north of Kamalo.	0.26	1968-95	10-07-94 01-03-95 05-31-95 08-22-95	0.40 0.47 0.33 0.69

≠ Operated as a continuous-record gaging station

Crest-stage partial-record stations

Prior to 1973, crest-stage partial-record station records for the State of Hawaii were published in an annual progress report entitled "An Investigation of Floods in Hawaii." The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1992-94

Station name and number	Location	Drainage area mi^2	Period of record	Water year maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record max Date	Gage height (ft)	Discharge (ft^3/s)
			Island of Oahu						
16249000 Waimanalo Str at Waimanalo	Lat 21°21′12", long 157°43′52", on right bank 40 ft upstream from Highway 72 and 2.3 mi northeast of Waimanalo Post Office.	2.16	1967-70≠, 1971-92	10-15-91	2.53	-	a11-26-70	10.0	4,560
			1967-70≠, 1971-93	12-30-92	3.87	1,800	a11-26-70	10.0	4,560
			1967-70≠, 1971-94	11-03-93	3.50	e1,800	a11-26-70	10.0	4,560
16249100 Keelepulu Str tributary at Kailua	Lat 21°21′44", long 157°44′22", 30 ft upstream from Kalanianaole Highway, 1.6 mi northwest of Waimanalo School, and 2.4 mi south of Kailua Post Office.	0.16	1963-92	10-15-91	-	e50	12-31-87	7.53	a467
			1963-93	12-30-92	6.31	355	12-31-87	7.53	a467
			1963-94	11-03-93	2.99	102	12-31-87	7.53	a467

Annual maximum discharge at crest-stage partial-record stations during water year 1993-94

Station name and number	Location	Drainage area mi^2	Period of record	Water year maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record max Date	Gage height (ft)	Discharge (ft^3/s)
			Island of Oahu						
16210500 Kaukonahua Str at Waialua	Lat 21°33′56", long 158°07′26", 0.2 mi upstream from Highway 99, 0.4 mi southeast of Waialua High School, and 1.3 mi southwest of Weed Circle.	38.7	1963, 1968-93	12-26-92	-	e1,800	a04-15-63	26.4	15,600
			1963, 1968-94	03-24-94	21.95	e2,000	a04-15-63	26.4	15,600

Annual maximum discharge at crest-stage partial-record stations during water year 1995

Station name and number	Location	Drainage area mi^2	Period of record	Water year 1995 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record max Date	Gage height (ft)	Discharge (ft^3/s)
			Island of Kauai						
16038000 Waimea River at Waimea	Lat 21°57′23", long 159°39′59", 150 ft upstream from highway bridge at Waimea and 0.2 mi upstream from mouth.	86.5	1944-95b	10-03-94	5.98	-	02-07-49	11.40	-
16052000 Hanapepe River at Hanapepe	Lat 21°54′47", long 159°35′33", 400 ft upstream from bridge on Highway 50 and 0.5 mi upstream from mouth.	26.6	1950-95b	09-30-95	6.05	-	04-15-63	11.30	-
16052500 Lawai Str nr Koloa	Lat 21°54′11", long 159°30′21", on right bank at private road bridge, 0.9 mi upstream from mouth, and 2.4 mi southwest of Koloa.	6.62	1962-63, 1964-72≠ 1973-95	10-03-94	6.54	2,470	01-31-75	11.37	5,810
16055000 Huleia Str nr Lihue	Lat 21°57′20", long 159°25′23", at highway bridge, 3.7 mi southwest of Lihue, and 4.5 mi upstream from mouth.	17.6	1912-15≠, 1962-67, 1968-70≠, 1971-95	10-03-94	15.17	9,260	11-28-70	22.40	26,800

≠ Operated as a continuous-record gaging station
a Revised
b Gage height only
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995

Station name and number	Location	Drainage area mi²	Period of record	Water year 1995 maximum Date	Gage height (ft)	Discharge (ft³/s)	Period of record max Date	Gage height (ft)	Discharge (ft³/s)
	Island of Kauai--Continued								
16071800 Wailua Riv nr Kapaa	Lat 22°03′00″, long 159°20′26″, at State Park 600 ft upstream from highway bridge, 850 ft upstream from mouth, and 2.5 mi southwest of Kapaa.	52.6	1962-95b	09-30-95	5.68	-	11-26-70	8.57	-
16073500 Konohiki Str nr Kapaa	Lat 22°04′01″, long 159°20′21″, at culvert on private road, 1.8 mi upstream from mouth, and 2.4 mi southwest of Kapaa High School.	3.38	1964-67, 1970-95	10-18-94	7.03	68	12-14-91	16.92	2,530
16080000 Kapaa Str at Kapahi ditch intake nr Kapaa	Lat 22°06′15″, long 159°22′29″, on right bank at Kapahi ditch intake, 3.8 mi northwest of Kapaa, and 4.3 mi northwest of Wailua.	3.86	1936-85≠, 1986-95	10-03-94	2.77	1,600	12-14-91	5.66	9,660
16081200 Akulikuli Str nr Kapaa	Lat 22°06′25″, long 159°22′07″, at Kahuna road crossing, 800 ft upstream from mouth, and 3.5 mi northwest of Kapaa armory.	0.40	1964-95	10-03-94	4.73	320	12-14-91	11.40	1,550
16084500 Kapaa Str at old highway crossing nr Kealia	Lat 22°06′28″, long 159°19′52″, at abutment of old highway bridge, 100 ft upstream from road crossing, 1.4 mi northwest of Kealia, and 2.1 mi upstream from mouth.	14.0	1962-95	10-03-94	8.14	1,390	12-14-91	23.11	30,330
16085000 Homaikawaa Str nr Kealia	Lat 22°07′23″, long 159°18′12″, at culvert on Highway 56, 1.6 mi southeast of Anahola School, and 1.6 mi north of Kealia.	0.85	1964-95	Destroyed by flood of 12-14-91.			12-14-91	-	e3,800
16097900 Puukumu Str nr Kilauea	Lat 22°13′01″, long 159°25′18″, at culvert on Highway 56, 0.8 mi northwest of Kilauea School, and 0.9 mi upstream from mouth.	0.91	1964-68, 1971-95	10-03-94	-	e20	04-07-71	17.27	1,430
16104200 Hanalei Riv at Highway 56 bridge nr Hanalei	Lat 22°12′50″, long 159°28′43″, at highway bridge, 1.6 mi northeast of Hanalei, and 2.4 mi upstream from mouth.	21.0	1963-95b	09-30-95	12.22	-	12-14-91	13.31	-
16130000 Nahomalu Valley nr Mana	Lat 22°02′41″, long 159°45′17″, on left bank 1.1 mi northeast of Mana, and 5.3 mi northwest of Kekaha School.	3.81	1962-63, 1964-71≠, 1972-95	02-17-95	4.37	224	04-15-72	7.15	2,120
	Island of Oahu								
16210500 Kaukonahua Str at Waialua	Lat 21°33′56″, long 158°07′26″, 0.2 mi upstream from Highway 99, 0.4 mi southeast of Waialua High School, and 1.3 mi southwest of Weed Circle.	38.7	1963, 1968-95	08-23-95	-	e<1,825	04-15-63	26.4	15,600
16211200 Poamoho Str at Waialua	Lat 21°34′00″, long 158°06′40″, at culvert crossing of Kaheaka Road, 0.2 mi upstream from Highway 83, and 1.1 mi east of Waialua High School.	12.7	1967-95	08-23-95	12.02	e1,500	04-19-74	24.0	7,340

≠ Operated as a continuous-record gaging station
< Actual value is known to be less than the value shown
b Gage height only
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location	Drainage area mi^2	Period of record	Water year 1995 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record max Date	Gage height (ft)	Discharge (ft^3/s)
	Island of Oahu--Continued								
16211300 Makaleha Str nr Waialua	Lat 21°33′49″, long 158°09′21″, 1.0 mi southwest of Dillingham Ranch and 1.9 mi southwest of sugar mill at Waialua.	4.15	1958-63, 1964-65≠ 1966-95	08-23-95	-	e<400	11-13-65	7.41	3,640
16211400 Manini Gulch at Kaena	Lat 21°34′50″, long 158°15′12″, 180 ft upstream from Highway 99, 1.7 mi west of Camp Erdman, and 2.0 mi east of Kaena Point.	1.08	1974-95	10-03-94	-	<40	01-01-88	19.61	1,000
16211500 Makua Str at Makua	Lat 21°31′59″, long 158°13′49″, on left bank 20 ft upstream from old concrete highway ford, 140 ft downstream from Farrington Highway box culvert, 0.1 mi north of Makua cemetery, and 4.5 mi southeast of Kaena Point lighthouse.	4.24	1958-95	10-03-94	5.91	e220	02-07-76	8.00	3,220
16211700 Makaha Str at Makaha	Lat 21°28′47″, long 158°12′31″, 0.9 mi upstream from Farrington Highway and 1.1 mi north of junction of Farrington Highway and Makhaha Valley Road.	5.25	1966-95	10-03-94	7.11	e250	02-07-76	16.40	4,310
16211800 Kaupuni Str at altitude 372 ft, nr Waianae	Lat 21°28′20″, long 158°09′26″, at abandoned diversion dam, 2.6 mi northeast of Waianae cemetery, and 2.8 mi northeast of junction of Waianae Valley Road and Farrington Highway.	3.58	1961-72≠, 1973-95	10-03-94	3.96	574	01-06-82	7.82	3,640
16212200 Maiiiiii Str nr Waianae	Lat 21°27′34″, long 158°08′05″, at bridge at Lualualei Naval Reservation and 3.4 mi east of cemetery nr Waianae.	1.51	1958-95	10-03-94	-	e<100	01-06-82	7.20	2,460
16212300 Nanakuli Str at Nanakuli	Lat 21°23′08″, long 158°08′11″, 0.7 mi upstream from Highway 90 and 0.6 mi northeast of Nanakuli Post Office.	3.98	1968-95	10-03-94	-	e<200	02-07-76	26.20	3,320
16212450 Kaloi Gulch tributary nr Honouliuli	Lat 21°22′41″, long 158°03′45″, at culvert on private road, 1.8 mi west of Honouliuli, and 2.8 mi northwest of Ewa Post Office.	1.70	1968-95	10-03-94	-	e<50	01-08-80	7.45	724
16212500 Honouliuli Str nr Waipahu	Lat 21°22′40″, long 158°02′10″, at bridge on Farrington Highway and 1.8 mi west of Waipahu Post Office.	11.0	1956-95	10-03-94	-	e<50	01-06-82	10.28	3,500
16212601 Waikele Str at Wheeler Field	Lat 21°28′44″, long 158°03′07″, at culvert 0.3 mi west of east-west runway at Wheeler Field and 1.9 mi southwest of Wahiawa Post Office.	6.35	1958, 1960-95	01-14-95	0.73	e50	01-06-82	22.50	1,850
16212700 Waikakalaua Str nr Wahiawa	Lat 21°27′50″, long 158°01′38″, 0.2 mi downstream from Kamehameha Highway and 2.4 mi south of Wahiawa Post Office.	7.49	1958-95	08-23-95	2.92	267	04-15-63	16.50	4,830
16212750 Huliwai Gulch nr Kunia Camp	Lat 21°26′43″, long 158°03′47″, 200 ft upstream from Highway 75 and 1.2 mi south of Kunia Camp.	0.84	1974-95	08-23-95	8.97	e80	02-10-79	8.36	600
16223000 Waimalu Str nr Aiea	Lat 21°23′48″, long 157°56′56″, 1,300 ft upstream from bridge on Moanalua Road and 1.2 mi northwest of Aiea High School.	5.97	1952-70≠, 1973-95	04-23-95	2.31	689	01-05-68	6.82	8,020

≠ Operated as a continuous-record gaging station
< Actual value is known to be less than the value shown
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location	Drainage area mi²	Period of record	Water year 1995 maximum Date	Gage height (ft)	Dis-charge (ft³/s)	Period of record max Date	Gage height (ft)	Dis-charge (ft³/s)
	Island of Oahu--Continued								
16224500 Kalauao Str at Moanalua Road, at Aiea	Lat 21°23'07", long 157°56'22", on left bank at downstream side of Moanalua Road bridge, 0.4 mi northwest of Aiea Post Office, and 2.3 mi southeast of Pearl City Post Office.	2.59	1957-82≠, 1984-95	04-23-95	-	e500	05-14-63	6.63	2,580
16228000 Moanalua Str nr Honolulu	Lat 21°22'53", long 157°52'22", on left bank 1.8 mi northeast of Tripler Hospital and 5.0 mi norht of Honolulu Post Office.	2.73	1927-78≠, 1979-95	08-23-95	3.03	165	11-18-30	11.58	4,580
16228200 Moanalua Str nr Aiea	Lat 21°22'37", long 157°53'03", on right bank 1.1 mi northeast of Tripler Hospital and 2.9 mi east of Aiea sugar refinery.	3.34	1969-95	08-23-95	3.40	290	03-18-80	9.97	4,860
16228600 Moanalua Str at Tripler Hospital	Lat 21°21'52", long 157°54'05", on right bank 0.5 mi west of Tripler Hospital and 1.6 mi northeast of Aliamanu School.	4.44	1971-95	08-23-95	13.02	e850	03-08-80	21.0	6,200
16228900 Kaiihi Str nr Kaneohe	Lat 21°22'35", long 157°49'32", on right bank 800 ft downstream from Likelike Highway and 2.8 mi southwest of Castle High School in Kaneohe.	0.60	1967-71≠, 1972-95	02-27-95	-	e200	01-08-80	5.60	1,700
16235400 Waolani Str at Honolulu	Lat 21°20'00", long 157°51'04", at Wyllie Street bridge and 1.8 mi northeast of Honolulu Post Office.	1.28	1958-95	02-28-95	4.40	1,450	05-14-63	6.14	2,500
16237500 Pauoa Str at Honolulu	Lat 21°19'18", long 157°51'03", at Lusitana Street bridge and 1.1 mi northeast of Honolulu Post Office.	1.43	1958-95	02-28-95	1.02	557	05-14-63	4.65	2,200
16247100 Manoa-Palolo Drainage Canal at Moiliili	Lat 21°17'24", long 157°49'17", on left bank at Kaimuki High School, 0.3 mi downstream from confluence of Manoa and Palolo Streams, and 0.6 mi upstream from point of discharge into Ala Wai Canal.	10.6	1968-95	02-28-95	6.11	1,838	12-18-67	12.6	10,100
16247500 Wailupe Gulch at Aina Haina	Lat 21°17'46", long 157°45'29", at Ani Street bridge and 1.0 mi upstream from Kalanianaole Highway in Aina Haina.	2.35	1958-95	10-16-94	1.77	511	12-18-67	5.72	3,600
16247900 Kuliouou Valley at Kuliouou	Lat 21°17'50", long 157°43'35", at Kuliouou, 300 ft downstream of single-lane wooden bridge, and 0.6 mi upstream from Highway 72.	1.18	1958-59, 1970-95	02-28-95	-	<90	12-31-87	36.55	4,700
16248800 Inoaole Str at Waimanalo	Lat 21°29'31", long 157°42'40", 30 ft upstream from culvert on Hihimanu Street and 0.8 mi northwest of Waimanalo Post Office.	1.21	1958-95	02-28-95	-	e<200	05-07-81	7.55	1,600
16249000 Waimanalo Str at Waimanalo	Lat 21°21'12", long 157°43'52", on right bank 40 ft upstream from Highway 72 and 2.3 mi northeast of Waimanalo Post Office.	2.16	1967-70≠, 1971-95	02-28-95	3.84	e1,000	a11-26-70	10.0	4,560
16249100 Kaelepulu Str tributary at Kailua	Lat 21°21'44", long 157°44'22", 30 ft upstream from Kalanianaole Highway, 1.6 mi northwest of Waimanalo School, and 2.4 mi south of Kailua Post Office.	0.16	1963-95	02-28-95	1.96	43	12-31-87	7.53	a467

≠ Operated as a continuous-record gaging station
< Actual value is known to be less than the value shown
a Revised
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location	Drainage area mi²	Period of record	Water year 1995 maximum Date	Gage height (ft)	Discharge (ft³/s)	Period of record max Date	Gage height (ft)	Discharge (ft³/s)
	Island of Oahu--Continued								
16264800 Kawainui Canal at Kailua	Lat 21°24′15″, long 157°45′28″, at head of canal and 1.2 mi northwest of Kailua Post Office.	11.0	1957-60, 1963-64, 1967-95b	02-28-95	2.16	-	01-12-75	5.82	-
16265000 Kawa Str at Kaneohe	Lat 21°24′32″, long 157°47′36″, 50 ft upstream from bridge on Kaneohe Bay Drive at Kaneohe, 0.2 mi northeast of Castle High School, and 0.6 mi upstream from mouth.	1.19	1965, 1968-74, 1977-95	10-16-94	6.23	539	02-01-69	17.90	5,290
16274499 Keaahala Str at Kamehameha Highway, at Kaneohe	Lat 21°25′12″, long 157°48′15″, 35 ft upstream from bridge on Kamehameha Highway in Kaneohe.	0.62	1959-95	10-16-94	-	e<150	05-02-65	11.50	2,750
16279500 Heeia Str at Kaneohe	Lat 21°25′17″, long 157°49′01″, 60 ft downstream from culvert on Kahekili Highway, 0.7 mi west of Kaneohe Post Office, and 0.8 mi southwest of Heeia.	1.80	1965-66, 1968-95	04-27-95	-	e450	05-02-65	9.50	5,600
16283480 Ahuimanu Str nr Kahaluu	Lat 21°27′04″, long 157°50′13″, at bridge on Ahuimanu Road and 0.8 mi south of Kahaluu.	2.31	1963-95	08-20-95	4.69	e350	02-01-69	11.8	7,300
16304500 Kaluanui Str at Hauula	Lat 21°35′57″, long 157°54′24″, on left downstream wingwall of concrete bridge, 1.2 mi southeast of cemetery in Hauula, and 1.4 mi northeast of Sacred Falls.	2.12	1958-95	10-16-94	5.15	e650	01-06-82	6.95	4,920
16310501 Malaekahana Str at altitude 30 ft, nr Kahuku	Lat 21°39′47″, long 157°57′11″, at abandoned plantation railroad bridge, 1.1 mi southwest of junction of plantation road and Highway 83, and 1.2 mi south of Kahuku Hospital.	4.05	1958-95	10-16-94	2.88	e280	04-15-63	12.10	4,640
16311000 Oio Str nr Kahuku	Lat 21°41′32″, long 157°59′48″, 0.6 mi southwest of junction of plantation road and Highway 83 and 2.7 mi west of Kahuku Hospital.	2.13	1958-95	10-16-94	-	e40	05-02-65	8.13	1,390
16317800 Kaunala Gulch nr Sunset Beach	Lat 21°40′59″, long 158°02′12″, on downstream left bank wingwall of road bridge on Highway 83 nr Sunset Beach and 2.9 mi northeast of Waimea.	1.98	1973-95	08-23-95	3.35	40	11-20-90	6.01	450
16318000 Paumalu Gulch at Sunset	Lat 21°40′19″, long 158°02′28″ 0.4 mi upstream from Highway 83 at Sunset Beach and 2.2 mi northeast of Waimea.	2.59	1968-95	08-23-95	-	e<30	04-19-74	4.97	982
16331000 Waimea Gulch nr Kawailoa Camp	Lat 21°37′29″, long 158°04′58″, at culvert on Ashley Road, 0.1 mi upstream from Highway 83, and 1.1 mi north of Kawailoa Camp.	2.23	1968-95	08-23-95	-	e<20	03-18-80	11.2	2,030
16340000 Anahulu River nr Haleiwa	Lat 21°35′28″, long 158°04′45″, 1.7 mi southeast of junction of Emerson Road and Kamehameha Highway and 2.5 mi east of Waialua School at Haleiwa.	13.5	1958-95	08-23-95	6.74	2,320	04-19-74	15.8	15,900
16350000 Opaeula Str nr Haleiwa	Lat 21°35′09″, long 158°06′01″, 0.6 mi upstream from Kamehameha Highway and 2.1 mi northeast of Waialua.	5.96	1956-95	08-23-95	12.03	962	04-19-74	20.7	7,600

< Actual value is known to be less than the value shown
b Gage height only
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location	Drainage area mi²	Period of record	Water year 1995 maximum Date	Gage height (ft)	Dis-charge (ft³/s)	Period of record max Date	Gage height (ft)	Dis-charge (ft³/s)
			Island of Molokai						
16411320 Kakaako Gulch abv Kamakahi Gulch, nr Mauna Loa	Lat 21°10′11", long 157°11′56", 0.1 mi upstream from Kamakahi Gulch, 1.7 mi downstream from Highway 46, and 2.5 mi northeast of Mauna Loa.	1.40	1964-95	03-02-95	-	e<1	11-12-65	4.80	670
16411400 Kakaako Gulch nr Mauna Loa	Lat 21°10′39", long 157°12′31", on left bank 1.0 mi downstream from Kamakahi Gulch, and 3.0 mi north of Mauna Loa School.	5.34	1963-72≠, 1973-95	03-02-95	-	e17	02-11-89	8.47	2,860
16411600 Kaunala Gulch nr Mauna Loa	Lat 21°07′01", long 157°15′43", at Sand Haul Road, 3.2 mi east east of Laau Point lighthouse, and 3.3 mi southwest of Mauna Loa.	0.28	1964-95	03-02-95	-	e<1	12-25-84	3.87	151
16411640 Halena Gulch nr Mauna Loa	Lat 21°05′53", long 157°13′47", 2.7 mi southwest of Mauna Loa and 5.5 mi east of Laau Point.	2.07	1965-95	03-02-95	1.72	138	01-11-74	8.20	2,920
16411800 Kaluapeelua Gulch at Hoolehua	Lat 21°09′55", long 157°04′22", 0.4 mi south of Hoolehua and 2.1 mi west of Kualapuu.	1.46	1964-95	No flow.			12-08-73	3.30	86
16413500 Manawainui Gulch nr Kualapuu	Lat 21°07′42", long 157°03′25", at bridge on Highway 46, 0.5 mi south of Holomua School, and 2.3 misouthwest of Kualapuu.	10.4	1965-95	03-01-95	-	e190	04-04-89	-	3,620
16415400 Wawaia Gulch at Kamalo	Lat 21°03′25", long 156°52′20", at Highway 45, 0.3 mi upstream from mouth, and 0.5 mi northeast of Kamalo.	2.12	1964-95	01-14-95	1.41	471	04-13-65	2.61	1,250
16419000 Pohakupili Gulch nr Halawa	Lat 21°07′59", long 156°44′15", at Highway 45, 0.5 mi upstream from mouth, and 1.9 mi south of Halawa.	0.48	1964-95	02-27-95	3.65	27	11-04-66	8.93	989
			Island of Maui						
16500100 Kepuni Gulch nr Kahiki-nui House	Lat 20°37′21", long 156°15′16", on right bank 120 ft upstream from bridge on Highway 31, 400 ft upstream from Kamole Gulch, 1.1 mi east of Kahikinui House, and 8.5 mi west of Kaupo.	1.91	1963-72≠, 1973-95	No flow.			09-18-94	13.68	2,320
16500300 Hawelewele Gulch nr Kaupo	Lat 20°38′01", long 156°11′08", 700 ft upstream from Piilani Highway 31 and 3.9 mi west of Kaupo.	11.3	1967-95	11-16-94	8.15	2,220	01-08-80	15.10	13,600
16500800 Kukuiula Gulch nr Kipahulu	Lat 20°39′18", long 156°04′44", at Highway 31, 1.3 mi west of Kipahulu, and 3.2 mi east of Kaupo.	0.76	1963-68≠, 1969-95	11-16-94	9.74	1,790	03-31-82	13.76	5,950
16502400 Pukuilua Gulch nr Hana	Lat 20°42′00", long 156°00′14", at Highway 31, 0.4 mi southwest of Puuiki, and 4.0 mi south of Hana.	0.48	1963-95	11-16-94	4.18	215	01-23-65	9.30	788

≠ Operated as a continuous-record gaging station
< Actual value is known to be less than the value shown
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location	Drainage area mi²	Period of record	Water year 1995 maximum Date	Gage height (ft)	Discharge (ft³/s)	Period of record max Date	Gage height (ft)	Discharge (ft³/s)
	Island of Maui--Continued								
16502800 Moomoonui Gulch at Hana	Lat 20°44′37″, long 155°59′18″, at Highway 31 just downstream from Moomooiki Gulch and 1.0 mi south of Hana.	0.90	1963-95	11-16-94	13.62	1,190	11-26-92	14.71	2,480
16502900 Kawaipapa Gulch at Hana	Lat 20°46′08″, long 156°00′04″, 1,000 ft upstream from Highway 36 and 0.3 mi northwest of Hana Hospital.	5.83	1965-95	11-16-94	10.26	11,500	08-01-82	11.03	16,880
16603300 Unnamed gulch at Maliko Bay	Lat 20°56′26″, long 156°21′04″, at Hana Highway, 0.5 mi west of Maliko Bay, and 1.3 mi north of Hamakuapoko.	0.43	1963-95	No flow.			03-27-79	17.28	171
16603700 Kalialinui Gulch tributary nr Pukalani	Lat 20°49′02″, long 156°19′44″, at Lower Kula Road and 1.4 mi south of Pukalani.	1.17	1967-95	11-13-94	-	e<0.5	01-09-80	7.35	414
16603800 Kaluapulani Gulch tributary nr Pukalani	Lat 20°48′52″, long 156°18′32″, at Haleakala Highway, 1.5 mi west of Olinda Prison Camp, and 2.3 mi southeast of Pukalani.	0.45	1963-95	11-13-94	-	e<1	07-23-64	9.90	306
16603850 Kalialinui Gulch nr Kahului	Lat 20°52′47″, long 156°26′06″, 600 ft upstream from Hansen Road, 0.5 mi northeast of Puunene Hospital, and 2.5 mi southeast of Kahului Post Office.	17.9	1967-95	No flow.			01-28-71	8.33	1,330
16607000 Iao Str at Wailuku	Lat 20°53′38″, long 156°30′27″, 560 ft upstream from Market Street bridge at Wailuku and 1.9 mi upstream from mouth.	8.24	1951≠, 1952-95	11-13-94	5.88	4,960	12-03-50	6.21	7,540
16616500 Unnamed gulch at Maluhia Camp	Lat 20°57′26″, long 156°31′41″, at Kahekili Highway, 0.6 mi east of Maluhia Camp, and 1.8 mi norhtwest of Waihee.	0.12	1964-95	No flow.			01-12-75	7.29	e97
16619700 Poelua Gulch nr Kahakuloa	Lat 21°00′58″, long 156°34′58″, at Highway 30 (bypass), 1.3 mi southeast of Nakalele Point lighthouse and 2.2 mi northwest of Kahakuloa.	1.18	1965-95	01-14-95	6.33	152	03-16-68	15.22	1,760
16630200 Honokowai Str at Honokowai	Lat 20°56′58″, long 156°41′07″, 0.5 mi southeast of Honokowai, and 1.1 mi northwest of Puukolii.	5.59	1962-63, 1965-95	11-13-94	-	e170	08-01-82	11.0	4,520
16638500 Kahoma Str at Lahaina	Lat 20°53′12″, long 156°40′36″, 0.2 mi west of Kelawea, 0.6 mi northeast of Lahaina, 0.6 mi downstream from Kanaha Str, and 0.9 mi upstream from mouth.	5.22	1963-89≠ 1990-95a	11-13-94	-	e110	07-11-65	11.03	2,490
16643300 Kauaula Str nr mouth, nr Lahaina	Lat 20°52′09″, long 156°39′43″, 0.7 mi upstream from Honoapiilani Highway (bypass) and 1.3 mi southeast of Lanhaina Lighthouse.	4.12	1960, 1962, 1964-95	11-13-94	3.73	308	05-13-60	7.9	2,660
16646200 Olowalu Str at Olowalu	Lat 20°49′23″, long 156°37′15″, on downstream side of center pier of plantation road bridge, 0.6 mi northeast of Olowalu, and 5.5 mi southeast of Lahaina.	4.08	1962-72≠, 1973-95	11-13-94	3.88	457	03-24-67	5.40	1,300

≠ Operated as a continuous-record gaging station
< Actual value is known to be less than the value shown
a At a different datum
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location	Drainage area mi^2	Period of record	Water year 1995 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record max Date	Gage height (ft)	Discharge (ft^3/s)
	Island of Maui--Continued								
16647500 Malalowaiaole Gulch nr Maalaea	Lat 20°46′56″, long 156°31′32″, at Honoapiilani Highway, 200 ft upstream from mouth, 0.2 mi north of McGregor Point, and 1.2 mi southwest of Maalaea.	0.64	1964-95	No flow.			01-10-80	12.95	350
16650500 Waikapu Str nr Kihei	Lat 20°49′02″, long 156°29′00″, at railroad bridge beside Lower Maalaea Road, 2.5 mi northeast of Maalaea, and 2.5 mi northwest of Kihei.	6.97	1963-95	01-29-95	-	e260	11-04-88	8.69	1,170
16658500 Waiakoa Gulch tributary nr Waiakoa	Lat 20°44′56″, long 156°19′22″, at Upper Kula Road, 1.0 mi southeast of Waiakoa, and 1.0 mi northeast of junction of Lower and Upper Kula Roads.	0.98	1964-95	No flow.			01-28-71	8.23	409
16659000 Waiakoa Gulch at Kihei	Lat 20°47′14″, long 156°27′41″, 0.3 mi northeast of Kihei and 0.4 mi upstream from mouth.	10.1	1963-95	No flow.			01-28-71	9.66	1,560
16660000 Kulanihakoi Gulch nr Kihei	Lat 20°46′06″, long 156°27′03″, on right bank 0.5 mi northeast of Lihue Cemetery, 0.8 mi upstream from mouth, and 1.3 mi southeast of Kihei.	14.4	1963-70≠, 1971-95	No flow.			01-28-71	9.40	4,460
16663500 Kamaole Gulch at Kamaole	Lat 20°43′36″, long 156°27′02″, at Kihei Road, 350 ft upstream from mouth, and 0.2 mi south of Kamaole.	4.28	1972-95	No flow.			03-17-82	9.01	291
16664000 Liilioholo Gulch at Kamaole	Lat 20°43′04″, long 156°26′55″, on upstream side of Kihei Road, 300 ft upstream from mouth, and 0.8 mi south of Kamaole.	4.12	1972-95	No flow.			02-11-82	13.73	526
	Island of Hawaii								
16701300 Waiakea Str at Hilo	Lat 19°42′38″, long 155°05′02″, 0.3 mi upstream from Kinoole Street bridge and 1.3 mi southeast of Hilo Post Office.	35.8	1968-91, 1993-95	11-16-94	5.72	812	08-12-94	10.90	3,670
16701400 Palai Str at Hilo	Lat 19°40′56″, long 155°04′04″, at Highway 11, 300 ft south of Palai Street intersection, and 3.5 mi southeast of Hilo Post Office.	5.08	1965-90, 1994-95	Records being reviewed.					
16717400 Kalaoa Mauka Str nr Hilo	Lat 19°48′07″, long 155°06′03″, at culvert on Highway 19, 1.0 mi north of Papaikou, and 5.1 mi north of Hilo Post Office.	0.24	1963-95	Records being reviewed.					
16717600 Alia Str nr Hilo	Lat 19°50′38″, long 155°06′21″, on left bank 10 ft downstream from culvert on Highway 19 at Pepeekeo 2.0 mi south of Honomu, and 8.0 mi north of Hilo.	0.58	1962-72≠, 1973-90, 1994-95	11-16-94	unknown	390	02-20-79	17.1	2,850

≠ Operated as a continuous-record gaging station
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location	Drainage area mi^2	Period of record	Water year 1995 maximum Date	Gage height (ft)	Discharge (ft^3/s)	Period of record max Date	Gage height (ft)	Discharge (ft^3/s)
	Island of Hawaii--Continued								
16717650 Kapehu Str nr Pepeekeo	Lat 19°51′52″, long 155°06′11″, at culvert on Highway 19, 1.0 mi southeast of Honomu, 2.2 mi north of Pepeekeo, and 9.4 mi north of Hilo.	1.09	1963-90, 1994-95	11-16-94	7.97	738	02-20-79	29.93	3,320
16717800 Pohakupuka Str nr Papaaloa	Lat 19°57′20″, long 155°11′20″, right bank 200 ft downstream from Highway 19, 2.8 mi northwest of Honohina, and 3.0 mi southwestof Papaaloa.	2.76	1963-80≠, 1983-95				Records being reviewed.		
16717850 Keehia Gulch nr Ookala	Lat 20°01′08″, long 155°18′45″, at culvert on Highway 19, 1.7 mi west of Ookala, and 4.1 mi southeast of Paauilo.	0.62	1963-91, 1993-95	01-15-95	5.23	194	03-18-80	9.10	500
16717920 Ahualoa Gulch at Honokaa	Lat 20°05′12″, long 155°29′17″, at Highway 24, 1.1 mi northwest of Honokaa Hospital, and 1.5 mi upstream from mouth.	2.27	1963-90 1995	01-15-95	2.38	-	11-18-79	17.68	3,160
16717950 Honokaia Gulch tributary nr Honokaa	Lat 20°02′58″, long 155°32′19″, at culvert 4.8 mi southwest of Honokaa Hospital, and 5.5 mi southeast of Kukuihaele.	2.42	1963-95	No peak above base elevation of 1.03 ft. or base discharge of 10.5 cfs.			01-14-79	7.65	385
16752600 Hapahapai Gulch at Kapaau	Lat 20°14′00″, long 155°48′00″, at Highway 27, 300 ft east of Kapaau Post Office.	1.52	1963-90, 1995	01-15-95	7.38	183	01-09-80	11.42	426
16755800 Luahine Gulch nr Waimea	Lat 20°03′11″, long 155°44′35″, on culvert 5.1 mi northwest of Waimea and 5.7 mi east of Kawaihae.	0.32	1963-90 1994-95	01-15-95	2.17	44	04-07-89	5.33	277
16756500 Keanuiomano Str nr Kamuela	Lat 201′48″, long 155°42′05″, on left bank 150 ft upstream from Highway 25 at Waiaka and 2.0 mi west of Kamuela.	4.3	1964-72≠, 1973-90, 1995	01-15-95	4.67	-	04-20-68	10.02	3,540
16759040 Paiakuli Reservoir tributary nr Waimea	Lat 20°02′16″, long 155°38′08″, at Highway 19, 2.1 mi west of Puukapu Reservoir, and 2.6 norhteast of Waimea.	0.27	1963-91, 1994-95	No peaks above base discharge of 56 cfs.			12-26-83	3.70	400
16759060 Kamakoa Gulch nr Waimea	Lat 19°57′32″, long 155°41′02″, at bridge, 1.4 mi north of Saddle Road Junction, and 4.5 mi south of Waimea	50.6	1963-91, 1994-95	11-10-94	4.62	306	04-20-68	6.71	1,210
16759080 Popoo Gulch nr Waikii	Lat 19°52′11″, long 155°43′51″, at bridge on Highway 19, 2.0 mi north of Keamuku, and 5.2 mi west of Waikii.	33.1	1963-90, 1995	11-10-94	4.48	732	11-28-73	9.20	3,720
16759180 Keopu Str nr Kailua	Lat 19°38′54″, long 155°58′15″, at county road bridge, 1.9 mi east of Kailua, and 2.3 mi northwest of Holualoa Post Office.	2.61	1962, 1965-90, 1995	09-06-95	8.62	e477	02-11-82	11.82	e800
16759300 Waiaha Str at Luawai, nr Holualoa	Lat 19°38′12″, long 155°55′45″, on right bank at Luawai, 1.8 mi northeast of Holualoa School and 4.2 mi southeast of Honokohau School.	8.74	1961-71≠, 1972-90, 1995	09-06-95	3.60	180	02-11-82	9.06	3,550

≠ Operated as a continuous-record gaging station
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1995--Continued

Station name and number	Location	Drainage area mi²	Period of record	Water year 1995 maximum Date	Water year 1995 maximum Gage height (ft)	Water year 1995 maximum Discharge (ft³/s)	Period of record max Date	Period of record max Gage height (ft)	Period of record max Discharge (ft³/s)
			Island of Hawaii--Continued						
16762000 Alapai Gulch at Naalehu	Lat 19°04'00", long 155°35'19", at debris catchment outlet of Naalehu Watershed Protection Project and 0.2 mi upstream from Highway 11 at Naalehu.	2.87	1963-95			Records being reviewed.			
16767000 Ninole Gulch nr Punaluu	Lat 19°10'44", long 155°33'46", on right bank 300 ft downstream from forest-reserve boundary, 4.6 mi northwest of Punaluu, and 6.0 mi north of Honuapo.	15.5	1966-82≠, 1983-95			Records being reviewed.			
16770000 Hionamoa Gulch at Pahala	Lat 19°11'45", long 155°29'11", at bridge, 0.6 mi southwest of Pahala and 4.1 mi north of Punaluu.	9.41	1963-90, 1994-95			Records being reviewed.			
16770500 Paauau Gulch at Pahala	Lat 19°12'39", long 155°28'48", on right bank 100 ft downstream from bridge on Wood Valley Road and 0.7 mi north of Pahala.	1.74	1962-79≠, 1980-95			Records being reviewed.			

≠ Operated as a continuous-record gaging station

Discharge measurements made at miscellaneous sites during water year 1995

Station No.	Station name	Location	Measured previously (water years)	Measurements	
				Date	Discharge (ft^3/s)
		Island of Maui			
16588000	Wailoa ditch at Honopou, near Huelo	Lat 20°53′20″, long 156°15′19″, on right bank 100 ft downstream from intake at Honopou Stream, 0.5 mi west of Lupi, and 2.2 mi southwest of Huelo.	1924-87≠, 1988-94	10-21-94	100
				11-18-94	295
				06-08-95	222
				07-17-95	161
				09-11-95	111
16589000	New Hamakua ditch at Honopou, near Huelo	Lat 20°53′28″, long 156°15′22″, on right bank 15 ft upstream from tunnel portal, 600 ft downstream from Honopou Stream crossing and 2.1 mi southwest of Huelo.	1919-85≠, 1986-94	10-20-94	2.16
				11-18-94	156
				03-30-95	0.93
				06-08-95	3.58
				07-17-95	1.11
16592000	Lowrie ditch at Honopou Gulch, near Huelo	Lat 20°54′57″, long 156°15′08″, on left bank 0.2 mi downstream from siphon across Honopou Stream, 1.6 mi west of Huelo, and 2.7 mi northwest of Kailua.	1911-26≠, 1931-85≠, 1986-94	10-20-94	18.7
				10-20-94	22.9
				11-16-94	69.1
				03-10-95	6.40
				06-08-95	19.8
				07-17-95	15.2
16594000	Haiku ditch at Honopou Gulch, near Kailua	Lat 20°55′07″, long 156°14′58″, on right bank on west side of Honopou Gulch, 160 ft below Hana Highway, 2.5 mi northwest of Kailua, and 5.0 mi east of Haiku.	1911≠, 1914≠, 1916-28≠, 1931-85≠, 1986-94	10-20-94	1.94
				11-21-94	7.67
				03-10-95	1.26
				06-08-95	2.06
				07-17-95	0.99

≠ Operated as a continuous-record gaging station

Water-quality partial-record stations are particular sites where chemical-quality, and/or sediment data are collected systematically over a period of years for use in hydrologic analyses. A schematic diagram showing water-quality stations in Kamooalii Stream basin, Kaneohe, Oahu is shown in figure 15 and the data are listed in downstream order.

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU

16227100 - HALAWA STREAM BELOW H1 (LAT 21°22'17" LONG 157°55'57")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
12...	1000	0.26	825	9.3	28.0	29.0	1.0	763	13.0	169	--
NOV											
14...	0945	13	170	8.4	--	24.0	35	762	9.4	112	2000
DEC											
20...	1005	0.68	555	8.8	23.5	21.5	1.8	766	11.6	131	--
JAN											
11...	1035	0.15	810	9.6	22.0	24.0	0.70	764	13.6	162	--
FEB											
14...	1000	12	173	7.9	22.0	22.0	71	761	9.8	112	6000
MAR											
17...	0945	1.1	1500	8.7	27.0	24.0	0.40	767	12.7	151	--
APR											
12...	1055	1.8	1250	9.2	26.0	25.5	0.40	764	11.0	135	--
MAY											
23...	1020	0.34	380	10.1	28.0	31.5	1.7	766	10.8	146	2300
JUN											
14...	0940	0.04	750	9.3	27.0	27.5	1.0	765	11.5	145	--
JUL											
11...	1105	0.03	385	10.0	28.0	32.5	1.9	764	13.5	186	--
SEP											
14...	1015	0.20	490	9.1	30.5	32.0	--	763	10.4	142	1200

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
14...	0945	44	9.6	4.8	13	38	0.9	1.2	41	6.2	21

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
14...	0945	<0.10	13	89	94	0.12	34	--	<0.050	<0.20	0.040
FEB											
14...	1000	--	--	--	--	--	55	0.290	0.290	0.40	0.120
MAY											
23...	1020	--	--	--	--	--	4	--	<0.050	1.1	<0.010

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)
NOV												
14...	0945	1900	300	<1	<100	<2.0	<10	<1	6	2	<3.0	4

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

16227100 - HALAWA STREAM BELOW H1--Continued

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)
NOV 14...	1600	120	<1	<10	<4	60	15	<0.10	<1	10	4

DATE	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVI-METRIC (MG/L)	ALDRIN, TOTAL (UG/L)
NOV 14...	<1.0	<1	<1	<1	<1.0	48	<6	<10	3.9	<1	<0.010

DATE	CHLOR-DANE, TECH-NICAL TOTAL (UG/L)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DISUL-FOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)
NOV 14...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDO-SULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)
NOV 14...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARA-THION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV 14...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

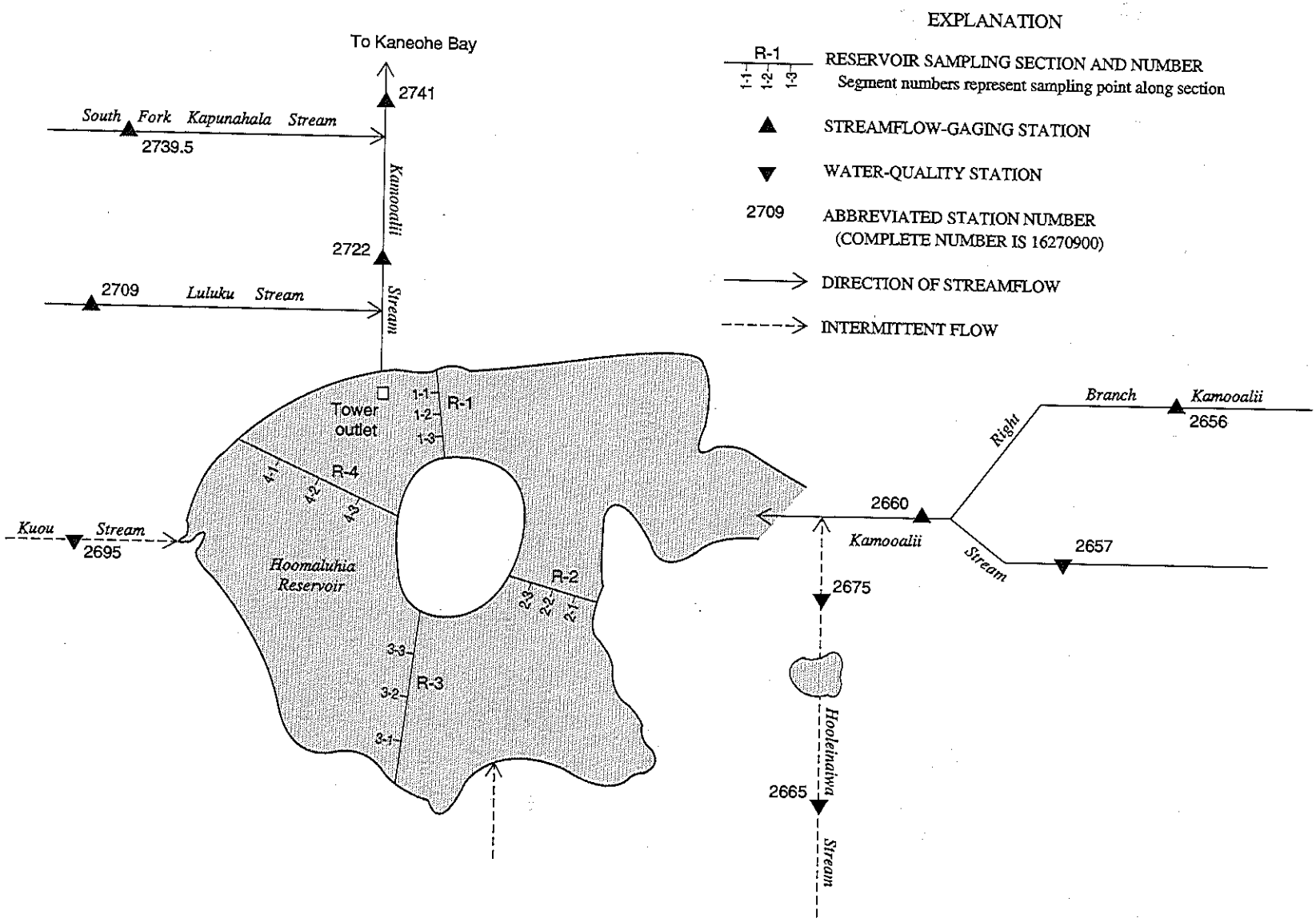


Figure 15. Diagram showing water-quality stations in Kamooalii Stream basin, Kaneohe, Oahu.

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

16265700 - KAMOOALII STREAM AT ALTITUDE 200 FT, NEAR KANEOHE (LAT 21°23'12" LONG 157°47'56")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 11...	1400	0.68	215	7.1	25.5	23.0	0.40	756	--	--
NOV 17...	1245	0.53	229	6.8	--	22.0	0.80	759	6.6	76
DEC 19...	1445	0.36	220	6.2	22.5	21.5	0.50	761	6.1	69
JAN 10...	1445	0.24	215	6.7	23.0	21.5	0.40	757	5.5	63
FEB 14...	1155	0.49	205	6.8	25.5	21.5	2.5	757	6.2	71
MAR 16...	1135	0.32	223	7.0	24.0	22.0	0.30	760	8.8	101
APR 11...	1410	0.38	235	6.9	24.0	22.0	0.50	760	7.3	84
MAY 23...	1445	0.72	218	7.4	26.5	22.5	1.1	762	7.4	86
JUN 14...	1530	0.47	225	6.9	24.5	22.5	0.60	760	7.1	82
JUL 13...	1345	0.41	224	6.5	24.5	22.5	0.70	758	6.4	74
SEP 19...	0930	0.19	218	6.7	24.5	22.0	0.50	758	4.7	54

DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)
NOV 17...	1245	120	<1	0.360	0.360	<0.20	0.010	--
FEB 14...	1155	1000	2	0.310	0.310	<0.20	0.060	--
MAY 23...	1445	340	<1	0.200	0.200	<0.20	<0.010	--
SEP 19...	0930	440	4	--	--	<0.20	0.030	0.040

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

16266500 - HOOLEINAIWA STREAM AT ALTITUDE 220 FT, NEAR KANEOHE (LAT 21°23'06" LONG 157°48'16")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT										
11...	1315	0.05	165	6.5	24.5	23.0	0.30	756	6.5	76
NOV										
17...	1240	0.10	152	6.8	24.0	22.5	0.90	758	6.7	78
DEC										
19...	1440	0.05	150	6.8	23.0	22.0	1.5	762	6.5	74
JAN										
10...	1515	0.01	150	6.8	20.5	21.5	1.0	755	6.5	74
FEB										
13...	1100	0.04	150	6.6	22.5	20.0	1.6	753	8.9	99
MAR										
16...	1415	0.13	150	6.2	26.0	23.0	0.50	760	7.2	84
APR										
12...	1130	0.19	159	6.8	23.0	21.5	0.30	758	6.4	73
MAY										
24...	1345	0.20	155	6.6	24.0	22.0	3.5	763	6.8	78
JUN										
15...	1430	0.13	157	7.0	25.5	22.5	0.30	760	8.5	99
JUL										
11...	1400	0.14	160	6.9	26.0	22.5	0.50	758	6.8	79
SEP										
19...	1055	0.36	250	7.4	26.0	24.5	0.60	757	6.2	75

DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV							
17...	1240	120	<1	0.150	0.150	<0.20	<0.010
FEB							
13...	1100	K65	<1	0.100	0.100	<0.20	<0.010
MAY							
24...	1345	1100	3	0.070	0.070	<0.20	<0.010
SEP							
19...	1055	210	5	--	<0.050	<0.20	<0.010

< Actual value is known to be less than the value shown
K Results based on colony count outside acceptance range (non-ideal colony count)

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

16267500 - HOOLEINAIWA STREAM ABOVE CONFLUENCE WITH KAHOOALII STR, NR KANEOHE (LAT 21°23'18" LONG 157° 48'18")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT 11...	1025	0.50	200	6.3	24.5	23.5	1.7	758	6.4	76
NOV 17...	1345	0.48	190	7.3	25.0	22.5	2.7	760	6.6	76
DEC 20...	1245	0.40	190	7.0	27.5	23.0	2.4	764	7.0	81
JAN 10...	1400	0.12	192	7.5	22.5	21.5	1.8	756	7.5	86
FEB 13...	1400	0.38	199	6.7	23.5	21.0	3.1	753	7.4	84
MAR 16...	1245	0.62	200	7.4	31.0	23.0	1.6	761	7.2	84
APR 12...	1020	0.62	195	7.3	24.0	22.0	3.3	760	6.9	79
MAY 24...	1110	0.53	189	7.1	26.0	23.0	1.5	763	6.8	79
JUN 15...	1220	0.48	192	7.1	28.0	24.0	1.8	762	8.2	98
JUL 11...	1135	0.55	190	7.5	27.0	24.5	1.8	760	7.3	88
SEP 19...	0930	0.08	160	6.8	25.0	22.5	2.9	756	5.4	63

DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)
NOV 17...	1345	20	<1	0.090	0.090	<0.20	<0.010	--
FEB 13...	1400	K58	3	0.060	0.060	<0.20	<0.010	--
MAY 24...	1110	150	<1	0.060	0.060	<0.20	<0.010	--
SEP 19...	0930	150	5	0.060	0.060	<0.20	0.020	<0.010

< Actual value is known to be less than the value shown
K Results based on colony count outside acceptance range (non-ideal colony count)

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

16269500 - KUOU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE (LAT 21°23'30" LONG 157°48'44")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
OCT										
11...	1455	0.02	330	6.8	24.0	23.5	0.70	755	6.4	76
NOV										
17...	1135	0.01	350	7.3	23.5	22.0	2.8	759	7.5	86
DEC										
20...	1230	0.01	322	7.3	27.5	21.5	0.30	763	8.3	94
JAN										
11...	1450	0.01	325	7.3	22.5	20.5	0.30	754	8.0	90
FEB										
13...	1135	0.00	318	7.4	22.5	20.5	0.80	757	7.6	85
MAR										
16...	1250	0.48	350	7.5	25.0	22.0	0.80	759	7.4	85
APR										
11...	1500	0.21	340	7.3	24.5	22.0	0.30	757	5.5	63
MAY										
24...	1230	0.03	350	7.4	25.5	23.0	0.40	760	8.3	97
JUN										
14...	1515	0.02	318	7.3	25.5	23.0	0.40	759	7.8	91
JUL										
11...	1500	0.02	310	7.3	--	23.5	1.2	762	7.0	83
SEP										
19...	1030	0.02	313	7.0	25.0	24.0	1.5	757	7.0	84

DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)
NOV								
17...	1135	1000	2	0.360	0.360	<0.20	<0.010	--
FEB								
13...	1135	210	<1	0.270	0.270	<0.20	<0.010	--
MAY								
24...	1230	900	<1	0.220	0.220	<0.20	<0.010	--
SEP								
19...	1030	1800	4	--	--	<0.20	0.020	0.020

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

16274100 - KAHEOHE STREAM BELOW KAM HWY (LAT 21°24'54" LONG 157°48'03")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE AIR (DEG C)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)
OCT											
12...	1025	11	196	9.2	31.0	27.5	2.8	762	9.6	122	--
NOV											
17...	0930	11	202	8.3	25.0	23.0	3.2	764	9.0	105	1900
DEC											
21...	1420	8.8	195	8.6	23.0	24.0	4.7	764	9.4	111	--
JAN											
11...	1410	8.6	187	9.2	23.0	23.0	3.0	760	9.5	111	--
FEB											
14...	1010	25	199	8.6	23.5	22.5	4.7	757	10.1	118	K20000
MAR											
17...	1020	14	187	8.8	25.0	23.0	1.9	764	10.3	120	--
APR											
11...	1015	10	200	8.7	24.0	24.0	2.0	765	9.8	116	--
MAY											
24...	1015	10	194	8.9	26.5	26.0	3.2	766	9.9	122	2100
JUN											
14...	1035	9.3	190	9.0	26.5	25.5	3.3	766	9.2	112	--
JUL											
12...	1010	13	189	8.4	26.0	25.5	6.4	763	9.6	117	--
SEP											
18...	1020	9.1	190	8.8	27.0	27.0	5.7	761	9.1	115	3000

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
NOV											
17...	0930	61	12	7.6	16	36	0.9	1.2	61	6.4	20
SEP											
18...	1020	56	10	7.4	16	38	0.9	1.0	59	5.8	19

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)
NOV											
17...	0930	<0.10	24	114	126	0.16	12	0.440	0.440	<0.20	0.010
FEB											
14...	1010	--	--	--	--	--	6	0.340	0.340	<0.20	0.030
MAY											
24...	1015	--	--	--	--	--	6	0.150	0.150	<0.20	<0.010
SEP											
18...	1020	<0.10	24	117	120	0.16	20	0.190	0.190	<0.20	0.040

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)
NOV												
17...	0930	240	30	<1	<100	4.0	<10	<1	2	<1	<3.0	1
SEP												
18...	1020	300	20	<1	<100	4.0	<10	<1	2	<1	<3.0	2

< Actual value is known to be less than the value shown
K Results based on colony count outside the acceptance range (non-ideal colony count)

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

16274100 - KANEOHE STREAM BELOW KAM HWY--Continued

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
NOV											
17...	520	97	<1	<10	<4	40	6.0	<0.10	<1	<10	<1
SEP											
18...	610	70	1	<10	<4	50	5.0	0.20	<1	<10	1

DATE	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	ALDRIN, TOTAL (UG/L)
NOV											
17...	<1.0	<1	<1	<1	<1.0	78	<6	<10	1.7	<1	<0.010
SEP											
18...	<1.0	<1	<2	<1	<1.0	75	<6	<10	2.8	<1	<0.010

DATE	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)
NOV											
17...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.020	<0.010	<0.010	<0.010
SEP											
18...	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.030	<0.010	<0.010	<0.010

DATE	ENDOSULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)
NOV										
17...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP										
18...	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010

DATE	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARATHION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV										
17...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010
SEP										
18...	<0.010	<0.100	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212335157482601 HOOMALUHIA RES SEC 1-1 NR KANEOHE, OAHU, HI (LAT 21°23'35" LONG 157°48'26")

DATE	TIME	DEPTH AT SAMPLE LOC-ATION, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV								
16...	0942	1.00	184	7.3	24.0	760	6.7	79
16...	0943	3.00	186	7.3	24.0	760	6.7	79
16...	0944	5.00	186	7.3	24.0	760	6.6	79
16...	0945	7.00	186	7.3	24.0	760	6.5	77
16...	0946	8.00	186	7.3	24.0	760	6.4	76
MAR								
20...	0945	1.00	186	7.4	24.0	764	8.3	98
20...	0946	3.00	188	7.5	24.0	764	8.3	98
20...	0947	5.00	186	7.5	23.5	764	8.4	99
20...	0948	7.00	188	7.4	23.5	764	8.4	99
20...	0949	8.00	186	7.4	23.5	764	8.5	100
JUN								
15...	1050	1.00	200	7.8	26.0	--	7.0	85
15...	1052	3.00	200	7.8	25.5	--	6.9	84
15...	1053	5.00	202	7.8	25.5	--	6.9	84
15...	1054	7.00	202	7.8	25.5	--	6.9	84
15...	1056	8.00	202	7.7	25.5	--	6.8	83
SEP								
20...	1125	1.00	192	7.5	28.0	759	5.8	74
20...	1127	3.00	194	7.5	27.5	759	6.1	77
20...	1128	5.00	194	7.6	27.5	759	5.7	72
20...	1130	7.00	194	7.5	27.0	759	4.8	60
20...	1131	8.00	198	7.3	27.0	759	3.9	49

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212335157482602 HOOMALUHIA RES SEC 1-2 NR KANEOHE, OAHU, HI (LAT 21°23'35" LONG 157°48'26")

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV								
16...	0948	1.00	184	7.2	24.0	760	6.7	80
16...	0949	3.00	186	7.2	24.0	760	6.8	81
16...	0950	5.00	186	7.2	24.0	760	6.8	80
16...	0951	7.00	186	7.2	24.0	760	6.7	80
16...	0952	9.00	188	7.2	24.0	760	6.2	74
MAR								
20...	0953	1.00	186	7.6	24.0	764	8.3	98
20...	0954	3.00	186	7.6	24.0	764	8.3	98
20...	0956	5.00	188	7.6	24.0	764	8.3	98
20...	0957	7.00	190	7.5	23.5	764	8.4	99
20...	0958	9.00	194	7.3	23.5	764	8.6	100
JUN								
15...	1040	1.00	200	7.8	26.0	--	7.0	86
15...	1043	3.00	200	7.8	26.0	--	7.0	85
15...	1045	5.00	202	7.8	25.5	--	6.8	83
15...	1047	7.00	202	7.8	25.5	--	6.9	84
15...	1048	9.00	202	7.7	25.5	--	6.6	81
SEP								
20...	1108	1.00	190	7.5	28.0	759	6.0	78
20...	1109	3.00	192	7.5	27.5	759	6.0	77
20...	1111	5.00	192	7.5	27.5	759	5.8	74
20...	1112	7.00	194	7.4	27.0	759	4.3	54
20...	1114	9.00	196	7.3	27.0	759	4.0	51

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212335157482603 - HOOMALUHIA RES SEC 1-3 NR KANEOHE (LAT 21°23'35" LONG 157°48'26")

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
NOV										
16...	0956	1.00	186	7.2	24.0	1.2	760	6.9	82	30
16...	0957	3.00	186	7.2	24.0	--	760	6.8	81	--
16...	0958	5.00	186	7.2	24.0	--	760	6.9	82	--
16...	0959	7.00	186	7.2	24.0	2.0	760	6.8	81	37
16...	1000	9.00	186	7.2	24.0	--	760	6.5	78	--
16...	1001	11.00	194	7.2	23.5	5.3	760	5.3	63	56
16...	1010	--	186	7.2	24.0	2.1	760	6.8	81	--
MAR										
20...	1000	1.00	186	7.6	24.0	1.2	764	8.3	98	--
20...	1002	3.00	186	7.6	24.0	--	764	8.3	98	--
20...	1004	5.00	188	7.6	24.0	--	764	8.3	98	--
20...	1005	7.00	190	7.4	23.5	1.2	764	8.5	100	--
20...	1006	9.00	194	7.3	23.5	--	764	8.6	101	--
20...	1007	11.00	198	7.2	23.0	1.2	764	8.7	101	--
JUN										
15...	1025	1.00	200	7.8	26.0	1.0	--	7.0	--	--
15...	1030	3.00	200	7.8	26.0	--	--	7.0	85	--
15...	1034	5.00	200	7.7	25.5	--	--	6.8	82	--
15...	1036	7.00	202	7.7	25.5	1.1	--	6.5	79	--
15...	1037	9.00	202	7.6	25.5	--	--	6.3	76	--
15...	1039	11.0	204	7.5	24.5	1.2	--	5.6	67	--
SEP										
20...	1116	1.00	192	7.6	28.0	1.1	759	6.1	78	--
20...	1117	3.00	194	7.6	27.5	--	759	6.1	77	--
20...	1119	5.00	192	7.6	27.5	--	759	6.1	77	--
20...	1120	7.00	194	7.5	27.0	1.3	759	5.1	65	--
20...	1121	9.00	196	7.3	27.0	--	759	4.3	54	--
20...	1123	11.0	200	7.3	26.0	1.6	759	4.4	55	--
20...	1124	--	192	7.6	28.0	1.4	759	6.1	78	6

DATE	TIME	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)
NOV											
16...	1010	56	8.5	8.4	15	36	0.9	1.2	57	5.8	20
SEP											
20...	1124	54	7.7	8.3	16	39	1	0.90	58	5.1	20

DATE	TIME	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)
NOV											
16...	0956	--	--	--	--	--	1	0.450	0.450	<0.20	<0.010
16...	0959	--	--	--	--	--	2	0.450	0.450	<0.20	<0.010
16...	1001	--	--	--	--	--	7	0.480	0.480	<0.20	<0.010
16...	1010	<0.10	19	107	112	0.15	--	--	--	--	--
SEP											
20...	1116	--	--	--	--	--	8	0.300	0.300	<0.20	<0.010
20...	1120	--	--	--	--	--	7	0.310	0.310	<0.20	<0.010
20...	1123	--	--	--	--	--	10	0.350	0.350	<0.20	0.020
20...	1124	<0.10	20	111	113	0.15	2	--	--	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212335157482603 - HOOMALUHIA RES SEC 1-3 NR KANEOHE--Continued

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
NOV												
16...	1010	140	20	<1	<100	7.0	<10	<1	<1	<1	<3.0	<1
SEP												
20...	1124	60	<10	<1	<100	6.0	<10	<1	<1	<1	<3.0	1

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)
NOV												
16...	370	74	<1	<10	<4	60	34	<0.10	<1	<10	1	<1.0
SEP												
20...	120	23	<1	<10	<4	30	31	<0.10	<1	<10	1	<1.0

DATE	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L)	ALDRIN, TOTAL (UG/L)	CHLORDANE, TECHNICAL TOTAL (UG/L)
NOV											
16...	<1	<1	<1	<1.0	80	<6	<10	1.7	<1	<0.010	<0.100
SEP											
20...	<1	<1	<1	<1.0	77	<6	<10	2.2	3	<0.010	<0.100

DATE	CHLORPYRIFOS TOTAL RECOVER (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	ENDOSULFAN, I TOTAL (UG/L)
NOV											
16...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
SEP											
20...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALATHION, TOTAL (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)
NOV											
16...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100
SEP											
20...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100

DATE	PARATHION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PERTHANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOTAL TRITHION (UG/L)	2,4,5-T TOTAL (UG/L)
NOV								
16...	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010
SEP								
20...	<0.010	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212331157482501 HOOMALUHIA RES SEC 2-1 NR KANEOHE, OAHU, HI (LAT 21°23'31" LONG 157°48'25")

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV								
16...	1121	1.00	184	7.6	24.0	760	6.9	82
16...	1122	3.00	184	7.6	24.0	760	6.8	81
16...	1123	5.00	184	7.6	24.0	760	6.8	81
16...	1124	7.00	184	7.6	24.0	760	6.8	81
16...	1125	8.00	184	7.6	24.0	760	6.8	81
MAR								
20...	1132	1.00	188	7.6	24.0	764	8.2	97
20...	1133	3.00	188	7.6	24.0	764	8.2	97
20...	1134	5.00	188	7.6	24.0	764	8.2	97
20...	1135	7.00	188	7.6	24.0	764	8.2	98
20...	1136	8.00	188	7.6	24.0	764	8.3	98
JUN								
15...	1245	1.00	202	7.8	26.5	--	7.2	89
15...	1247	3.00	200	7.8	26.0	--	7.3	90
15...	1249	5.00	200	7.8	26.0	--	7.3	90
15...	1250	7.00	202	7.8	26.0	--	7.2	89
15...	1252	8.00	202	7.5	25.0	--	6.3	76
SEP								
20...	1359	1.00	192	7.6	29.0	759	6.1	79
20...	1400	3.00	194	7.6	28.5	759	6.2	81
20...	1401	5.00	194	7.6	28.0	759	6.5	83
20...	1403	7.00	194	7.4	27.5	759	4.9	62
20...	1405	8.00	198	7.3	27.0	759	4.6	58

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212331157482502 - HOOMALUHIA RES SEC 2-2 NR KANEOHE (LAT 21°23'31" LONG 157°48'25")

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV								
16...	1126	1.00	184	7.6	24.0	760	6.9	82
16...	1127	3.00	184	7.6	24.0	760	6.9	82
16...	1128	5.00	184	7.6	24.0	760	6.8	81
16...	1129	7.00	184	7.6	24.0	760	6.8	81
16...	1130	9.00	184	7.6	24.0	760	6.6	78
16...	1131	11.0	198	7.5	23.5	760	4.6	55
MAR								
20...	1122	1.00	190	7.6	24.0	764	8.2	97
20...	1123	3.00	190	7.6	24.0	764	8.2	97
20...	1125	5.00	190	7.5	24.0	764	8.2	98
20...	1126	7.00	192	7.5	24.0	764	8.2	98
20...	1127	9.00	192	7.5	24.0	764	8.3	98
20...	1129	11.0	202	7.3	23.0	764	8.7	101
JUN								
15...	1230	1.00	200	7.8	26.5	--	7.3	90
15...	1232	3.00	200	7.8	26.5	--	7.2	90
15...	1234	5.00	200	7.8	26.0	--	7.3	90
15...	1236	7.00	202	7.8	26.0	--	7.3	90
15...	1238	9.00	202	7.5	25.0	--	6.1	73
15...	1242	11.0	204	7.4	24.5	--	5.2	62
SEP								
20...	1351	1.00	194	7.6	28.5	759	6.2	81
20...	1352	3.00	194	7.6	28.5	759	6.2	81
20...	1353	5.00	194	7.6	28.0	759	6.4	82
20...	1355	7.00	194	7.5	27.5	759	5.7	72
20...	1356	9.00	200	7.3	26.0	759	4.7	58
20...	1358	11.0	200	7.2	25.5	759	3.9	48

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212331157482503 HOOMALUHIA RES SEC 2-3 NR KANEOHE, OAHU, HI (LAT 21°23'31" LONG 157°48'25")

DATE	TIME	DEPTH AT SAMPLE LOC-ATION, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV								
16...	1132	1.00	184	7.5	24.0	760	6.9	82
16...	1133	3.00	184	7.5	24.0	760	6.8	81
16...	1134	5.00	184	7.5	24.0	760	6.8	81
16...	1135	7.00	184	7.5	24.0	760	6.8	80
16...	1136	9.00	184	7.5	24.0	760	6.6	79
MAR								
20...	1117	1.00	190	7.5	24.0	764	8.2	97
20...	1118	3.00	190	7.5	24.0	764	8.2	97
20...	1119	5.00	190	7.5	24.0	764	8.2	97
20...	1120	7.00	190	7.5	24.0	764	8.2	98
20...	1121	9.00	190	7.5	24.0	764	8.2	98
JUN								
15...	1218	1.00	200	7.8	26.5	--	7.2	89
15...	1220	3.00	200	7.8	26.5	--	7.2	90
15...	1222	5.00	200	7.8	26.0	--	7.3	90
15...	1224	7.00	200	7.8	26.0	--	7.2	88
15...	1228	9.00	204	7.5	25.0	--	5.9	71
SEP								
20...	1342	1.00	194	7.6	28.5	759	6.2	81
20...	1344	3.00	194	7.6	28.5	759	6.2	80
20...	1345	5.00	194	7.6	28.0	759	6.2	79
20...	1346	7.00	194	7.6	27.5	759	6.0	76
20...	1348	9.00	200	7.2	26.0	759	4.0	50

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212329157483101 HOOMALUHIA RES SEC 3-1 NR KANEOHE, OAHU, HI (LAT 21°23'29" LONG 157°48'31")

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
NOV									
16...	1038	1.00	184	7.5	24.0	760	6.9	82	--
16...	1039	3.00	184	7.5	24.0	760	6.9	82	--
16...	1040	5.00	184	7.5	24.0	760	6.9	82	--
16...	1041	7.00	184	7.5	24.0	760	6.9	82	--
16...	1042	8.00	184	7.5	24.0	760	6.9	82	--
MAR									
20...	1103	1.00	188	7.6	24.0	764	8.2	97	--
20...	1104	3.00	188	7.6	24.0	764	8.2	97	--
20...	1105	5.00	188	7.6	24.0	764	8.2	97	--
20...	1107	7.00	188	7.6	24.0	764	8.2	97	--
20...	1108	8.00	188	7.6	24.0	764	8.2	97	--
JUN									
15...	1140	1.00	202	7.9	26.5	--	7.3	90	--
15...	1142	3.00	200	7.9	26.0	--	7.3	90	--
15...	1144	5.00	202	7.8	26.0	--	7.3	89	--
15...	1146	7.00	202	7.8	26.0	--	7.2	89	--
15...	1148	8.00	202	7.8	26.0	--	7.3	89	--
SEP									
20...	1158	1.00	192	7.6	28.5	759	6.0	78	--
20...	1159	3.00	194	7.6	28.0	759	6.1	79	--
20...	1200	5.00	194	7.6	28.0	759	6.2	79	17
20...	1201	7.00	194	7.6	27.5	759	5.8	74	--
20...	1202	8.00	194	7.5	27.5	759	5.4	68	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212329157483102 - HOOMALUHIA RES SEC 3-2 NR KANEOHE (LAT 21°23'29" LONG 157°48'31")

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV									
16...	1032	1.00	184	7.5	24.0	1.5	760	6.9	82
16...	1033	3.00	184	7.5	24.0	--	760	6.9	82
16...	1034	5.00	184	7.5	24.0	1.9	760	6.9	82
16...	1035	7.00	184	7.5	24.0	--	760	6.8	81
16...	1036	9.00	184	7.5	24.0	--	760	6.8	81
16...	1037	<10.0	184	7.5	24.0	17	760	6.8	81
MAR									
20...	1055	1.00	188	7.6	24.0	1.2	764	8.2	97
20...	1056	3.00	188	7.6	24.0	--	764	8.2	97
20...	1058	5.00	188	7.6	24.0	1.2	764	8.2	97
20...	1059	7.00	188	7.6	24.0	--	764	8.2	98
20...	1100	10.0	188	7.6	23.0	1.2	764	8.3	97
JUN									
15...	1150	1.00	200	7.8	26.5	1.2	--	7.2	89
15...	1152	3.00	202	7.8	26.0	--	--	7.3	89
15...	1154	5.00	202	7.8	26.0	1.0	--	7.2	89
15...	1158	7.00	202	7.8	26.0	--	--	7.2	89
15...	1200	9.00	200	7.8	26.0	--	--	7.2	89
15...	1202	10.0	200	7.8	26.0	1.5	--	7.2	89
SEP									
20...	1151	1.00	194	7.6	28.0	1.1	759	6.0	77
20...	1152	3.00	194	7.6	28.0	--	759	6.2	79
20...	1153	5.00	192	7.6	27.5	0.80	759	6.3	80
20...	1154	7.00	192	7.6	27.5	--	759	6.0	75
20...	1155	9.00	194	7.3	27.0	--	759	4.1	53
20...	1156	10.0	198	7.2	26.5	21	759	3.1	39

DATE	TIME	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)
NOV								
16...	1032	11	2	0.350	0.350	<0.20	--	<0.010
16...	1034	1	<1	0.360	0.360	<0.20	--	<0.010
16...	1037	30	23	0.360	0.360	0.20	0.56	0.060
SEP								
20...	1151	9	8	0.290	0.290	<0.20	--	<0.010
20...	1152	9	--	--	--	--	--	--
20...	1153	9	8	0.290	0.290	<0.20	--	<0.010
20...	1154	9	--	--	--	--	--	--
20...	1155	9	--	--	--	--	--	--
20...	1156	9	42	0.310	0.310	0.30	0.61	0.040

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212329157483103 HOOMALUHIA RES SEC 3-3 NR KANEOHE, OAHU, HI (LAT 21°23'29" LONG 157°48'31")

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)
NOV									
16...	1023	1.00	182	7.4	24.0	760	6.9	83	--
16...	1024	3.00	184	7.4	24.0	760	6.9	82	--
16...	1025	5.00	184	7.4	24.0	760	6.9	82	--
16...	1026	7.00	184	7.4	24.0	760	6.9	82	--
16...	1027	9.00	184	7.4	24.0	760	6.9	82	--
16...	1028	11.0	186	7.4	24.0	760	6.9	81	--
MAR									
20...	1047	1.00	188	7.6	24.0	764	8.2	97	--
20...	1048	3.00	188	7.6	24.0	764	8.2	97	--
20...	1049	5.00	188	7.6	24.0	764	8.2	98	--
20...	1050	7.00	188	7.6	24.0	764	8.2	98	--
20...	1051	9.00	190	7.6	24.0	764	8.3	98	--
20...	1052	11.0	190	7.6	24.0	764	8.3	98	--
JUN									
15...	1208	1.00	202	7.8	26.5	--	7.2	90	--
15...	1210	3.00	202	7.8	26.5	--	7.2	90	--
15...	1212	5.00	202	7.8	26.0	--	7.2	89	--
15...	1214	7.00	202	7.8	26.0	--	7.2	89	--
15...	1215	9.00	202	7.8	26.0	--	7.3	89	--
15...	1217	11.0	200	7.8	26.0	--	7.2	88	--
SEP									
20...	1142	1.00	192	7.6	28.5	759	5.8	75	19
20...	1143	3.00	192	7.6	28.0	759	6.2	79	--
20...	1144	5.00	194	7.6	27.5	759	6.3	80	--
20...	1145	7.00	194	7.6	27.5	759	5.7	73	--
20...	1146	9.00	196	7.3	27.0	759	4.3	54	--
20...	1147	11.0	200	7.2	26.5	759	3.5	44	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212335157483001 HOOMALUHIA RES SEC 4-1 NR KANEOHE, OAHU, HI (LAT 21°23'35" LONG 157°48'30")

DATE	TIME	DEPTH AT SAMPLE LOC-ATION, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV								
16...	1210	1.00	184	7.5	24.0	760	6.8	81
16...	1211	3.00	184	7.5	24.0	760	6.8	81
16...	1212	5.00	184	7.5	24.0	760	6.8	81
16...	1213	7.00	184	7.5	24.0	760	6.7	80
16...	1214	8.00	186	7.5	24.0	760	6.7	79
MAR								
20...	1030	1.00	188	7.6	24.0	764	8.2	98
20...	1032	3.00	190	7.6	24.0	764	8.2	98
20...	1033	5.00	188	7.6	24.0	764	8.2	98
20...	1036	7.00	190	7.6	24.0	764	8.2	98
20...	1037	9.00	206	7.5	24.0	764	8.3	98
JUN								
15...	1105	1.00	198	7.8	26.0	--	7.1	87
15...	1107	3.00	200	7.8	26.0	--	7.1	<87
15...	1109	5.00	200	7.8	25.5	--	7.1	87
15...	1111	7.00	200	7.8	25.5	--	7.0	86
15...	1113	8.00	200	7.8	25.5	--	7.0	85
SEP								
20...	1324	1.00	194	7.6	29.0	759	6.1	80
20...	1326	3.00	194	7.4	28.0	759	4.9	63
20...	1328	5.00	194	7.6	27.5	759	6.3	80
20...	1329	7.00	196	7.5	27.5	759	5.3	67
20...	1330	8.00	198	7.3	27.5	759	4.0	51

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212335157483002 - HOOMALUHIA RES SEC 4-2 NR KANEOHE (LAT 21°23'35" LONG 157°48'30")

DATE	TIME	DEPTH AT SAMPLE LOC-ATION, TOTAL (FEET)	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV								
16...	1215	1.00	184	7.5	24.0	760	6.8	81
16...	1216	3.00	184	7.5	24.0	760	6.9	82
16...	1217	5.00	184	7.5	24.0	760	6.8	81
16...	1218	7.00	184	7.5	24.0	760	6.8	80
16...	1219	9.00	184	7.5	24.0	760	6.7	80
MAR								
20...	1022	1.00	188	7.6	24.0	764	8.3	98
20...	1023	3.00	188	7.6	24.0	764	8.3	98
20...	1024	5.00	186	7.6	24.0	764	8.3	98
20...	1025	7.00	186	7.6	24.0	764	8.3	98
20...	1026	8.00	186	7.6	24.0	764	8.3	98
JUN								
15...	1115	1.00	200	7.8	26.0	--	7.1	87
15...	1117	3.00	202	7.8	26.0	--	7.1	88
15...	1119	5.00	200	7.8	26.0	--	7.1	87
15...	1121	7.00	200	7.8	25.5	--	7.0	85
15...	1123	9.00	202	7.8	25.5	--	7.0	85
SEP								
20...	1316	1.00	194	7.6	28.5	759	6.2	80
20...	1317	3.00	192	7.6	28.5	759	6.2	80
20...	1318	5.00	194	7.6	27.0	759	6.3	80
20...	1319	7.00	194	7.5	27.5	759	5.8	73
20...	1321	9.00	198	7.3	27.0	759	3.9	49

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212335157483003 HOOMALUHIA RES SEC 4-3 NR KANEOHE, OAHU, HI (LAT 21°23'35" LONG 157°48'30")

DATE	TIME	DEPTH AT SAMPLE LOCATION, TOTAL (FEET)	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)
NOV								
16...	1219	1.00	184	7.5	24.0	760	6.9	82
16...	1220	3.00	184	7.5	24.0	760	6.9	82
16...	1221	5.00	184	7.5	24.0	760	6.8	81
16...	1222	7.00	184	7.5	24.0	760	6.8	81
16...	1223	9.00	184	7.5	24.0	760	6.7	80
16...	1224	11.0	186	7.5	24.0	760	6.3	75
MAR								
20...	1013	1.00	188	7.6	24.0	764	8.3	98
20...	1014	3.00	188	7.6	24.0	764	8.3	98
20...	1015	5.00	188	7.6	24.0	764	8.3	98
20...	1016	7.00	188	7.6	24.0	764	8.3	98
20...	1017	9.00	190	7.6	24.0	764	8.3	98
20...	1018	11.0	192	7.2	23.0	764	8.7	101
JUN								
15...	1125	1.00	200	7.8	26.0	--	7.1	87
15...	1127	3.00	202	7.8	26.0	--	7.1	87
15...	1129	5.00	200	7.8	26.0	--	7.1	87
15...	1131	7.00	200	7.8	25.5	--	7.1	86
15...	1133	9.00	202	7.8	25.5	--	7.0	85
15...	1135	11.0	202	7.7	25.5	--	6.4	78
SEP								
20...	1305	1.00	194	7.6	28.5	759	6.2	80
20...	1307	3.00	194	7.6	28.0	759	6.4	82
20...	1309	5.00	194	7.6	27.5	759	6.1	78
20...	1310	7.00	194	7.4	27.5	759	5.5	70
20...	1311	9.00	198	7.3	27.0	759	4.7	59
20...	1313	11.0	200	7.2	26.5	759	3.7	46

WATER-QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

212336157482601 - HOOMALUHIA RESERVOIR AT OUTLET, NEAR KANEOHE (LAT 21°23'36" LONG 157°48'26")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)
NOV					
16...	1400	184	24.0	6.2	73
16...	1500	184	24.0	5.6	67
16...	1600	184	24.0	5.6	63
16...	1700	186	24.0	5.7	67
16...	1800	186	24.0	5.7	67
16...	1900	186	24.0	5.4	64
16...	2000	186	24.0	5.7	67
16...	2100	186	24.0	5.1	60
16...	2200	186	24.0	5.2	62
16...	2300	186	23.5	5.4	64
16...	2400	186	23.5	5.6	66
17...	0100	186	23.5	5.8	69
17...	0200	186	23.5	5.0	60
17...	0300	186	23.5	5.4	64
17...	0400	186	23.5	5.6	66
17...	0500	186	23.5	5.3	62
17...	0600	186	23.5	5.0	59
17...	0700	186	23.5	4.9	57
17...	0800	186	23.5	5.1	60
17...	0900	186	23.5	5.1	60
17...	1000	186	23.5	5.7	67
17...	1100	186	23.5	5.3	63
17...	1200	186	23.5	5.4	64
17...	1300	186	23.5	5.4	63
17...	1400	186	23.5	5.5	64
SEP					
20...	1600	192	27.5	6.6	84
20...	1700	194	28.0	6.5	83
20...	1800	194	28.0	6.9	88
20...	1900	194	28.0	6.8	88
20...	2000	194	28.5	6.8	88
20...	2100	194	28.0	6.6	85
20...	2200	194	28.0	6.2	80
20...	2300	194	28.0	6.0	77
20...	2400	194	28.0	6.0	77
21...	0100	194	28.0	5.8	75
21...	0200	194	28.0	5.9	76
21...	0300	194	28.0	6.5	83
21...	0400	193	30.0	6.5	83
21...	0500	192	28.0	6.5	83
21...	0600	192	27.5	6.4	82
21...	0700	194	27.5	6.4	81
21...	0800	194	27.5	6.2	79
21...	0900	194	27.5	6.2	80
21...	1000	193	27.5	6.3	81
21...	1100	193	27.5	6.4	82
21...	1200	194	27.5	6.0	77
21...	1300	194	28.0	6.3	80
21...	1400	194	28.0	6.5	84
21...	1500	194	28.0	6.6	85

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214125157572201 - KII POND C AT KAHUKU (LAT 21°41'25" LONG 157°57'22")

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	ALACHLOR, WATER, DISS, REC, (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV 22...	1415	1200	7.6	24.5	766	6.2	74	0.90	0.230	<0.050	<0.010	--
DEC 28...	--	--	--	--	--	--	--	--	--	--	--	<0.200

DATE	AMETRYN WATER, DISS, REC, (UG/L)	ATRAZINE, WATER, DISS, REC (UG/L)	BENZENE TOTAL (UG/L)	BENZENE O-DICHLORO-WATER UNFLTRD REC (UG/L)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L)	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE 1,2,4-TRICHLORO-WAT UNF REC (UG/L)	BENZENE 1,3-DICHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DICHLORO-WATER UNFLTRD REC (UG/L)
NOV 22...	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
DEC 28...	--	--	--	--	--	--	--	--	--	--	--

DATE	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT	BROMOBENZENE WATER, WHOLE, TOTAL (UG/L)	BROMOFORM TOTAL (UG/L)	CARBONTETRACHLORIDE TOTAL (UG/L)	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	CHLOROBENZENE TOTAL (UG/L)	CHLORODIBROMOMETHANE TOTAL (UG/L)
NOV 22...	<0.200	<0.200	96.0	<0.200	<0.200	<0.200	<0.100	--	<0.010	<0.200	<0.200
DEC 28...	--	--	--	--	--	--	--	<2.00	--	--	--

DATE	CHLOROETHANE TOTAL (UG/L)	2-CHLOROETHYL-VINYL-ETHER TOTAL (UG/L)	CHLOROFORM TOTAL (UG/L)	CIS-1,2-DICHLOROETHENE WATER TOTAL (UG/L)	CIS 1,3-DICHLOROPROPENE TOTAL (UG/L)	CYANAZINE, WATER, DISS, REC (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	P,P'-DDD, RECOVER IN BOTTOM MATERIAL (UG/KG)	DDE, TOTAL (UG/L)	P,P'-DDE, RECOVER IN BOTTOM MATERIAL (UG/KG)	P,P'-DDT UNFILT RECOVER (UG/L)	P,P'-DDT, RECOVER IN BOTTOM MATERIAL (UG/KG)
NOV 22...	<2.00	<1.00	<0.200	<0.200	<0.200	<0.200	<0.010	--	<0.010	--	<0.010	--
DEC 28...	--	--	--	--	--	--	--	0.300	--	0.700	--	0.300

DATE	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L)	DEF TOTAL (UG/L)	DEISOPROPYL ATRAZIN WATER, DISS, REC (UG/L)	DIAZINON, TOTAL (UG/L)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG)	DIBROMO CHLOROPROPANE WATER WHOLE TOT.REC (UG/L)	DIBROMOMETHANE WATER WHOLE RECOVER (UG/L)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)	DICHLOROBROMOMETHANE TOTAL (UG/L)	DICHLORODIFLUOROMETHANE TOTAL (UG/L)	1,1-DICHLOROETHANE TOTAL (UG/L)	1,2-DICHLOROETHANE TOTAL (UG/L)
NOV 22...	<0.050	<0.010	<0.050	<0.010	--	<1.00	<0.200	<0.200	<0.200	<2.00	<0.200	<0.200
DEC 28...	--	--	--	--	<0.200	--	--	--	--	--	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214125157572201 - KII POND C AT KAHUKU--Continued

DATE	1,1-DICHLOROETHYLENE TOTAL (UG/L)	1,2-DICHLOROPROPANE TOTAL (UG/L)	1,3-DICHLOROPROPANE WAT. WH TOTAL (UG/L)	2,2-DI CHLOROPROPANE WAT, WH TOTAL (UG/L)	1,1-DI CHLOROPROPENE, WAT, WH TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	ENDOSULFAN, I TOTAL (UG/L)	ENDOSULFAN I TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV												
22...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	--	<0.010	<0.010	<0.010	<0.010	--
DEC												
28...	--	--	--	--	--	--	<0.200	--	--	--	--	<0.200

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHANE, 1112-TETRACHLOROWAT UNF REC (UG/L)	ETHANE, 1,1,2,2 TETRACHLOROWAT UNF REC (UG/L)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	ETHYLBENZENE TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	FREON-113 WATER UNFLTRD REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV												
22...	<0.010	--	<0.200	<0.200	<0.00	<0.010	--	<0.200	<0.010	<0.200	<0.010	--
DEC												
28...	--	<0.200	--	--	--	--	<0.200	--	--	--	--	<0.200

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	HEXACHLOROBUTADIENE TOTAL (UG/L)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG)	MALATHION, TOTAL (UG/L)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	METHANE BROMOCHLOROWAT UNFLTRD REC (UG/L)	METHOXYCHLOR, TOTAL (UG/L)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYLBROMIDE TOTAL (UG/L)
NOV												
22...	<0.010	--	<0.200	<0.200	<0.010	--	<0.010	--	<0.200	<0.010	--	<2.00
DEC												
28...	--	<0.200	--	--	--	<0.200	--	<0.200	--	--	<0.200	--

DATE	METHYLCHLORIDE TOTAL (UG/L)	METHYLENE CHLORIDE TOTAL (UG/L)	METHYL PARATHION, TOTAL (UG/L)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TERTBUTYL ETHER WAT UNF REC (UG/L)	METOLACHLOR WATER DISSOLV (UG/L)	METRIBUZIN SENCOR WATER DISSOLV (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOTTOM MATERIAL (UG/KG)	NAPHTHALENE TOTAL (UG/L)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L)
NOV												
22...	<2.00	<0.200	<0.010	--	<0.200	<0.050	<0.050	<0.010	--	<0.200	<0.200	<0.200
DEC												
28...	--	--	--	<0.200	--	--	--	--	<0.200	--	--	--

DATE	PARATHION, TOTAL (UG/L)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG)	PCNS UNFILT RECOVER (UG/L)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG)	PERTHANE TOTAL (UG/L)	PERTHANE IN BOTTOM MATERIAL (UG/KG)	PHORATE TOTAL (UG/L)	PROMETON, WATER, DISS, REC (UG/L)	PROMETRYN, WATER, DISS, REC (UG/L)	PROPAZINE WATER DISS REC (UG/L)
NOV												
22...	<0.010	--	<0.100	--	<0.100	--	<0.100	--	<0.010	<0.050	<0.050	<0.050
DEC												
28...	--	<0.200	--	<2.00	--	<2.00	--	<2.00	--	--	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214125157572201 - KII POND C AT KAHUKU--Continued

DATE	SILVEX, TOTAL (UG/L)	SIMAZINE, WATER, DISS, REC (UG/L)	STYRENE TOTAL (UG/L)	TETRACHLOROETHYLENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L)	TOXAPHENE, TOTAL (UG/L)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L)
NOV											
22...	<0.010	<0.050	<0.200	<0.200	<0.200	<0.00	<0.200	<1.00	--	<0.200	<0.200
DEC											
28...	--	--	--	--	--	--	--	--	<20.0	--	--

DATE	1,2,3-TRICHLOROBENZENE WAT, WH REC (UG/L)	TRICHLOROETHYLENE TOTAL (UG/L)	1,1,1-TRICHLOROETHANE TOTAL (UG/L)	1,1,2-TRICHLOROETHANE TOTAL (UG/L)	TRICHLOROFLUOROMETHANE TOTAL (UG/L)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L)	TOTAL TRITHION (UG/L)	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	VINYL CHLORIDE TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)
NOV											
22...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	--	<0.010	<2.00	<0.200
DEC											
28...	--	--	--	--	--	--	--	<0.200	--	--	--

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

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214127157572801 - KII POND D AT KAHUKU (LAT 21°41'27" LONG 157°57'28")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ALA-CHLOR, WATER, DISS, REC, (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV												
22...	1225	2540	8.3	23.0	767	6.6	77	1.7	0.240	<0.050	<0.010	--
DEC												
28...	--	--	--	--	--	--	--	--	--	--	--	<0.200

DATE	AMETRYN WATER, DISS, REC, (UG/L)	ATRA-ZINE, WATER, DISS, REC (UG/L)	BENZENE TOTAL (UG/L)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L)	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L)
NOV												
22...	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
DEC												
28...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L)	BROMO-FORM TOTAL (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)
NOV												
22...	<0.200	<0.00	<0.200	<0.200	<0.200	<0.100	--	<0.010	<0.200	<0.200	<2.00	<1.00
DEC												
28...	--	--	--	--	--	--	<2.00	--	--	--	--	--

DATE	CHLORO-FORM TOTAL (UG/L)	CIS-1,2 -DI-CHLORO-ETHENE WATER TOTAL (UG/L)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	CYANA-ZINE, WATER, DISS, REC (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	P,P'-DDD, RECOVER IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)	P,P'-DDE, RECOVER IN BOT-TOM MA-TERIAL (UG/KG)	P,P'-DDT UNFILT RECOVER (UG/L)	P,P'-DDT, RECOVER IN BOT-TOM MA-TERIAL (UG/KG)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L)	DEF TOTAL (UG/L)
NOV												
22...	<0.200	<0.200	<0.200	<0.200	<0.010	--	<0.010	--	<0.010	--	<0.050	<0.010
DEC												
28...	--	--	--	--	--	0.300	--	0.500	--	0.200	--	--

DATE	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)
NOV												
22...	<0.050	<0.010	--	<1.00	<0.200	<0.200	<0.200	<2.00	<0.200	<0.200	<0.200	<0.200
DEC												
28...	--	--	<0.400	--	--	--	--	--	--	--	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214127157572801 - KII POND D AT KAHUKU--Continued

DATE	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DISUL-FOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	ENDO-SULFAN, I TOTAL (UG/L)	ENDO-SULFAN I TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN WATER UNFLTRD REC (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV												
22...	<0.200	<0.200	<0.200	<0.010	--	<0.010	<0.010	<0.010	<0.010	--	<0.010	--
DEC												
28...	--	--	--	--	<0.200	--	--	--	--	<0.200	--	<0.200

DATE	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHYL-BENZENE TOTAL (UG/L)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L)	FREON-113 WATER UNFLTRD REC (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
NOV												
22...	<0.200	<0.200	<0.00	<0.010	--	<0.200	<0.010	<0.200	<0.010	--	<0.010	--
DEC												
28...	--	--	--	--	<0.400	--	--	--	--	<0.200	--	<0.200

DATE	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)
NOV												
22...	<0.200	<0.200	<0.010	--	<0.010	--	<0.200	<0.010	--	<2.00	<2.00	<0.200
DEC												
28...	--	--	--	<0.200	--	<0.400	--	--	<0.200	--	--	--

DATE	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L)	METO-LACHLOR WATER DISSOLV (UG/L)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPHTH-ALENE TOTAL (UG/L)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L)	PARA-THION, TOTAL (UG/L)
NOV											
22...	<0.010	--	<0.200	<0.050	<0.050	<0.010	--	<0.200	<0.200	<0.200	<0.010
DEC											
28...	--	<0.400	--	--	--	--	<0.200	--	--	--	--

DATE	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCNS UNFILT RECOVER (UG/L)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PER-THANE TOTAL (UG/L)	PER-THANE IN BOT-TOM MA-TERIAL (UG/KG)	PHORATE TOTAL (UG/L)	PRO-METON, WATER, DISS, REC (UG/L)	PRO-METRYN, WATER, DISS, REC (UG/L)	PROP-AZINE WATER DISS REC (UG/L)
NOV											
22....	--	<0.100	--	<0.100	--	<0.100	--	<0.010	<0.050	<0.050	<0.050
DEC											
28....	<0.400	--	<2.00	--	<2.00	--	<2.00	--	--	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214127157572801 - KII POND D AT KAHUKU--Continued

DATE	SILVEX, TOTAL (UG/L)	SI-MAZINE, WATER, DISS, REC (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCCENT	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG//KG)	1,2-TRANSDI CHLORO-ETHENE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)
NOV											
22...	<0.010	<0.050	<0.200	<0.200	<0.200	97.00	<0.20	<1.00	---	<0.200	<0.200
DEC											
28...	--	--	--	--	--	---	-	--	<20.0	--	--

DATE	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	1233-TRI CHLLORO-PROPANE WATER WHOLE TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)
NOV											
22...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	--	<0.010	<2.00	<0.200
DEC											
28...	--	--	--	--	--	--	--	<0.400	--	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214205157582801 - PUNAMANO NORTH POND NEAR KAHUKU (LAT 21°42'05" LONG 157°58'28")

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	ALACHLOR, WATER, DISS, REC, (UG/L)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG)
NOV												
22...	1625	1570	7.1	23.0	765	5.1	60	0.50	0.080	<0.050	<0.010	--
DEC												
28...	1000	--	--	--	--	--	--	--	--	--	--	<0.300
28...	1100	--	--	--	--	--	--	--	--	--	--	<0.100

DATE	TIME	AMETRYN WATER, DISS, REC, (UG/L)	ATRAZINE, WATER, DISS, REC (UG/L)	BENZENE TOTAL (UG/L)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L)	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L)
NOV												
22...	1625	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	TIME	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L)	BROMO-FORM TOTAL (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)
NOV												
22...	1625	<0.200	<0.200	<0.00	<0.200	<0.200	<0.200	<0.100	--	<0.010	<0.200	<0.200
DEC												
28...	1000	--	--	--	--	--	--	--	<3.00	--	--	--
28...	1100	--	--	--	--	--	--	--	<1.00	--	--	--

DATE	CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	CYANA-ZINE, WATER, DISS, REC (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	P,P'-DDD, RECOVER IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)	P,P'-DDE, RECOVER IN BOT-TOM MA-TERIAL (UG/KG)	P,P'-DDT UNFILT RECOVER (UG/L)	P,P'-DDT, RECOVER IN BOT-TOM MA-TERIAL (UG/KG)
NOV												
22...	<0.200	<1.00	<0.200	<0.200	<0.200	<0.200	<0.010	--	<0.010	--	<0.010	--
DEC												
28...	--	--	--	--	--	--	--	<0.300	--	<0.300	--	<0.300
28...	--	--	--	--	--	--	--	0.100	--	0.400	--	<0.100

DATE	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L)	DEF TOTAL (UG/L)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L)	DI-AZINON, TOTAL (UG/L)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)
NOV												
22...	<0.050	<0.010	<0.050	<0.010	--	<1.00	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
DEC												
28...	--	--	--	--	<0.200	--	--	--	--	--	--	--
28...	--	--	--	--	<0.200	--	--	--	--	--	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214205157582801 - PUNAMANO NORTH POND NEAR KAHUKU--Continued

DATE	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DISUL-FOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	ENDO-SULFAN, I TOTAL (UG/L)	ENDO-SULFAN I TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV												
22...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	--	<0.010	<0.010	<0.010	<0.010	--
DEC												
28...	--	--	--	--	--	--	<0.300	--	--	--	--	<0.300
28...	--	--	--	--	--	--	<0.100	--	--	--	--	<0.100

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT	ETHION, TOTAL (UG/L)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHYL-BENZENE TOTAL (UG/L)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L)	FREON-113 WATER UNFLTRD REC (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
NOV												
22...	<0.010	--	<0.200	<0.200	83.0	<0.010	--	<0.200	<0.010	<0.200	<0.010	--
DEC												
28...	--	<0.300	--	--	--	--	<0.200	--	--	--	--	<0.300
28...	--	<0.100	--	--	--	--	<0.200	--	--	--	--	<0.100

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL-BROMIDE TOTAL (UG/L)
NOV												
22...	<0.010	--	<0.200	<0.200	<0.010	--	<0.010	--	<0.200	<0.010	--	<0.200
DEC												
28...	--	<0.300	--	--	--	<0.300	--	<0.200	--	--	<0.300	--
28...	--	<0.100	--	--	--	<0.100	--	<0.200	--	--	<0.100	--

DATE	METHYL-CHLO-RIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L)	METO-LACHLOR WATER DISSOLV (UG/L)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	NAPHTH-ALENE TOTAL (UG/L)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L)
NOV												
22...	<0.200	<0.200	<0.010	--	<0.200	<0.050	<0.050	<0.010	--	<0.200	<0.200	<0.200
DEC												
28...	--	--	--	<0.200	--	--	--	--	<0.300	--	--	--
28...	--	--	--	<0.200	--	--	--	--	<0.100	--	--	--

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214205157582801 - PUNAHANO NORTH POND NEAR KAHUKU--Continued

DATE	PARA-THION, TOTAL (UG/L)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCNS UNFILT RECOVER (UG/L)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PER-THANE TOTAL (UG/L)	PER-THANE IN BOT-TOM MA-TERIAL (UG/KG)	PHORATE TOTAL (UG/L)	PRO-METON, WATER, DISS, REC (UG/L)	PRO-METRYN, WATER, DISS, REC (UG/L)	PROP-AZINE WATER DISS REC (UG/L)
NOV												
22...	<0.010	--	<0.100	--	<0.100	--	<0.100	--	<0.010	<0.050	<0.050	<0.050
DEC												
28...	--	<0.200	--	<3.00	--	<3.00	--	<3.00	--	--	--	--
28...	--	<0.200	--	<1.00	--	<1.00	--	<1.00	--	--	--	--

DATE	SILVEX, TOTAL (UG/L)	SI-MAZINE, WATER, DISS, REC (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	1,2-TRANSDI CHLORO-ETHENE TOTAL (UG/L)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)
NOV											
22...	<0.010	<0.050	<0.200	<0.200	<0.200	99.0	<0.200	<1.00	--	<0.200	<0.200
DEC											
28...	--	--	--	--	--	--	--	--	<30.0	--	--
28...	--	--	--	--	--	--	--	--	<10.0	--	--

DATE	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	123-TRI CHLORO-PROPANE WATER WHOLE TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	2,4,5-T TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)
NOV											
22...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	--	<0.010	<0.200	<0.200
DEC											
28...	--	--	--	--	--	--	--	<0.200	--	--	--
28...	--	--	--	--	--	--	--	<0.200	--	--	--

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

220057159210301. Local number 2-0021-01

LOCATION.--Lat 22°00'57", long 159°21'04", Hydrologic Unit 20070000, 1.0 mi southwest of Wailua County Golf Course, and 1.3 mi north of Hanamaulu Park. Owner: State of Hawaii, DOWALD.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water table, depth 276 ft, casing diameter 8-in, cased to 196 ft.

DATUM.--Elevation of land surface datum is 166 ft. Measuring point: Top of 4-in galvanized coupling, 166.70 ft above mean sea level.

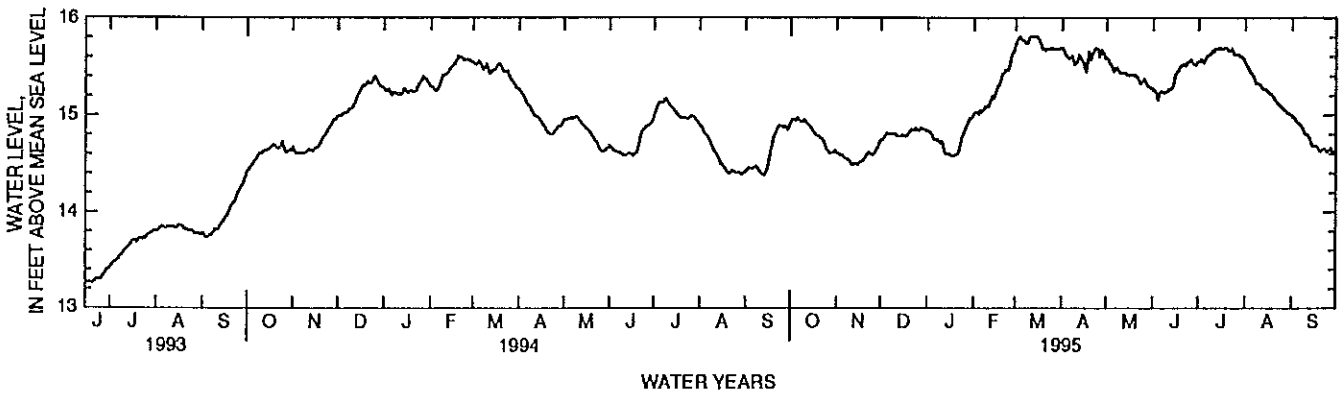
PERIOD OF RECORD.--Occasional measurements June 1980 to June 1993.
Water-Level recorder, June 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.86 ft above mean sea level, Mar. 3, 1995; lowest measured, 12.65 ft above mean sea level, Oct. 28, 1991.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.92	14.60	14.74	14.83	15.01	15.73	15.69	15.58	15.25	15.55	15.53	14.99
2	14.95	14.60	14.75	14.83	15.02	15.77	15.67	15.57	15.26	15.55	15.51	14.97
3	14.95	14.59	14.77	14.81	15.03	15.79	15.62	15.53	15.23	15.57	15.48	14.96
4	14.94	14.59	14.79	14.79	15.01	15.80	15.61	15.51	15.16	15.54	15.45	14.93
5	14.95	14.58	14.81	14.75	15.05	15.77	15.59	15.46	15.23	15.55	15.43	14.92
6	14.96	14.56	14.80	14.74	15.03	15.77	15.58	15.45	15.24	15.59	15.41	14.91
7	14.94	14.55	14.80	14.75	15.05	15.76	15.60	15.48	15.24	15.61	15.38	14.89
8	14.93	14.54	14.80	14.73	15.07	15.74	15.60	15.48	15.23	15.62	15.33	14.86
9	14.93	14.54	14.80	14.71	15.09	15.74	15.53	15.44	15.24	15.63	15.32	14.82
10	14.94	14.51	14.80	14.73	15.08	15.79	15.53	15.43	15.24	15.66	15.32	14.80
11	14.93	14.49	14.79	14.71	15.10	15.81	15.55	15.43	15.27	15.65	15.31	14.80
12	14.91	14.49	14.78	14.62	15.14	15.81	15.61	15.43	15.26	15.68	15.28	14.78
13	14.89	14.50	14.78	14.60	15.19	15.81	15.60	15.43	15.28	15.68	15.27	14.75
14	14.88	14.50	14.78	14.60	15.17	15.81	15.56	15.42	15.31	15.68	15.26	14.70
15	14.86	14.49	14.79	14.60	15.20	15.81	15.55	15.41	15.40	15.69	15.26	14.68
16	14.83	14.51	14.78	14.59	15.25	15.79	15.49	15.41	15.43	15.68	15.24	14.68
17	14.81	14.52	14.78	14.58	15.30	15.77	15.45	15.41	15.45	15.68	15.22	14.68
18	14.79	14.52	14.79	14.58	15.31	15.72	15.57	15.41	15.48	15.69	15.22	14.67
19	14.78	14.54	14.81	14.59	15.36	15.68	15.65	15.41	15.51	15.69	15.20	14.64
20	14.78	14.56	14.83	14.59	15.42	15.68	15.56	15.40	15.51	15.68	15.18	14.63
21	14.76	14.59	14.85	14.60	15.43	15.67	15.62	15.39	15.52	15.66	15.15	14.64
22	14.75	14.60	14.84	14.63	15.46	15.68	15.65	15.36	15.51	15.66	15.13	14.65
23	14.73	14.61	14.85	14.70	15.46	15.68	15.68	15.33	15.53	15.68	15.11	14.65
24	14.69	14.60	14.86	14.77	15.46	15.68	15.68	15.33	15.54	15.64	15.10	14.63
25	14.65	14.59	14.84	14.81	15.52	15.69	15.68	15.35	15.56	15.62	15.08	14.62
26	14.63	14.60	14.84	14.84	15.60	15.68	15.60	15.37	15.56	15.62	15.07	14.65
27	14.61	14.62	14.86	14.88	15.64	15.68	15.67	15.33	15.53	15.62	15.05	14.66
28	14.61	14.65	14.86	14.92	15.67	15.68	15.66	15.30	15.52	15.61	15.04	14.62
29	14.61	14.68	14.85	14.96	---	15.68	15.62	15.29	15.52	15.60	15.02	14.61
30	14.61	14.73	14.85	14.96	---	15.68	15.58	15.28	15.54	15.59	15.01	14.61
31	14.63	---	14.84	14.98	---	15.69	---	15.28	---	15.57	15.00	---
MEAN	14.81	14.57	14.81	14.73	15.25	15.74	15.60	15.41	15.38	15.63	15.24	14.75
MAX	14.96	14.73	14.86	14.98	15.67	15.81	15.69	15.58	15.56	15.69	15.53	14.99
MIN	14.61	14.49	14.74	14.58	15.01	15.67	15.45	15.28	15.16	15.54	15.00	14.61

WTR YR 1995 MAX 15.86 MAR. 3 MIN 14.47 NOV. 10-15



HAWAII, ISLAND OF KAUAI--Continued

220018159444702. Local number 2-0044-13

LOCATION.--Lat 22°00′18″, long 159°44′47″, Hydrologic Unit 20070000, 1.8 mi northeast of Kokole Point, and 2.8 mi northwest of Kekaha School. Owner: Kekaha Sugar Co.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 206 ft; casing diameter 12-in, cased to 165 ft.

DATUM.--Elevation of land surface datum is 8 ft. Measuring point: Top of standpipe 10.61 ft above mean sea level. From July 27, 1977 to Sep. 10, 1981, before standpipe was extended, measuring point elevation at top of standpipe was at 9.11 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements July 1977 to current year.
WATER QUALITY: Occasional measurements October 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.23 ft above mean sea level, Oct. 13, 1992 and Feb. 16, 1993; lowest measured, 8.33 ft above mean sea level, Mar. 29, 1984.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	10.08	DEC 5	10.07	MAR 7	10.20	APR 7	10.08	JUN 19	9.61	AUG 15	9.68

220019159444801. Local number 2-0044-14.

LOCATION.--Lat 22°00'19", long 159°44'48", Hydrologic Unit 20070000, 1.8 mi northeast of Kokole Point, and 2.8 mi northwest of Kekaha School. Owner: Kekaha Sugar Co.

AQUIFER.--Waimea Canyon Volanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 245 ft, casing diameter 12-in, cased to 164 ft.

DATUM.--Elevation of land-surface datum is 8 ft. Measuring point: Top of standpipe, 11.49 ft above mean sea level. Prior to June 1979, nonrecording gage at datum 0.25 ft lower.

REMARKS.--No record December 8, 1993 to January 31, 1994.

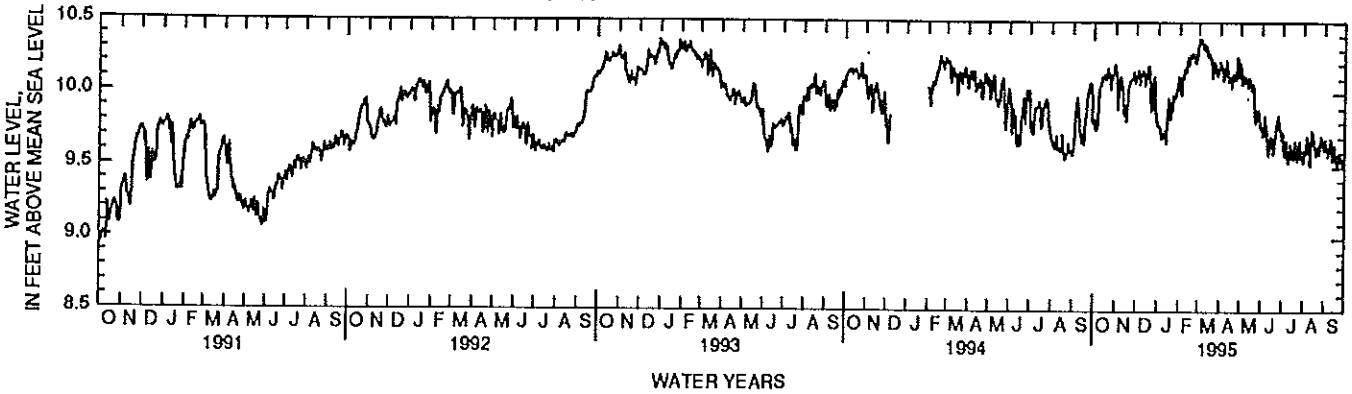
PERIOD OF RECORD.--Occasional measurements, 1937 to 1962 (measured by Kekaha Sugar Co.).
Water-level recorder, June 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.07 ft above mean sea level, Dec. 20, 1937; lowest measured, 7.52 ft above mean sea level, Aug. 15, 1947.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.83	10.18	10.12	9.78	10.11	10.34	10.22	10.21	9.78	9.74	9.54	9.66
2	9.78	10.13	10.13	9.78	10.02	10.38	10.21	10.12	9.75	9.69	9.62	9.69
3	9.76	10.01	10.15	9.78	10.01	10.38	10.18	10.07	9.72	9.62	9.62	9.66
4	9.76	9.90	10.16	9.76	10.00	10.37	10.17	10.13	9.78	9.58	9.60	9.62
5	9.77	9.95	10.13	9.73	10.12	10.38	10.13	10.11	9.85	9.60	9.69	9.64
6	9.81	10.08	10.07	9.70	10.12	10.35	10.10	10.08	9.80	9.68	9.71	9.58
7	9.97	10.10	10.12	9.70	10.11	10.32	10.18	10.12	9.79	9.68	9.67	9.63
8	10.01	10.12	10.13	9.71	10.16	10.35	10.13	10.12	9.76	9.58	9.65	9.63
9	10.05	10.09	10.14	9.72	10.17	10.31	10.14	10.10	9.65	9.54	9.63	9.67
10	10.06	10.06	10.15	9.75	10.15	10.30	10.23	10.09	9.61	9.54	9.54	9.69
11	10.07	10.03	10.16	9.75	10.16	10.32	10.20	10.05	9.59	9.58	9.52	9.67
12	10.10	9.90	10.12	9.68	10.22	10.33	10.14	10.05	9.62	9.66	9.67	9.59
13	10.12	9.86	10.06	9.67	10.25	10.29	10.09	10.11	9.70	9.65	9.75	9.55
14	10.12	9.88	10.08	9.86	10.20	10.26	10.10	10.11	9.71	9.60	9.74	9.58
15	10.11	9.90	10.13	9.93	10.21	10.27	10.12	10.08	9.71	9.57	9.73	9.65
16	10.13	9.82	10.15	9.97	10.25	10.28	10.12	10.06	9.70	9.57	9.70	9.64
17	10.12	9.86	10.16	9.95	10.27	10.25	10.10	10.03	9.64	9.56	9.64	9.57
18	10.10	10.01	10.19	9.92	10.27	10.25	10.05	10.06	9.60	9.58	9.62	9.54
19	10.12	10.05	10.19	9.83	10.25	10.24	10.13	10.07	9.63	9.68	9.59	9.53
20	10.16	10.06	10.12	9.88	10.27	10.20	10.14	10.05	9.70	9.66	9.61	9.52
21	10.17	10.09	9.96	9.89	10.28	10.12	10.10	9.90	9.71	9.60	9.64	9.58
22	10.15	10.09	9.89	9.94	10.28	10.21	10.11	9.84	9.78	9.56	9.61	9.60
23	10.13	10.10	9.89	9.99	10.27	10.22	10.10	9.81	9.82	9.55	9.66	9.57
24	10.07	10.10	10.04	9.97	10.22	10.21	10.10	9.88	9.81	9.58	9.60	9.59
25	10.04	10.10	10.08	9.98	10.23	10.20	10.18	9.82	9.85	9.67	9.64	9.54
26	10.10	10.12	10.12	9.98	10.25	10.18	10.25	9.89	9.79	9.68	9.69	9.55
27	10.11	10.15	10.08	10.00	10.28	10.14	10.24	9.89	9.76	9.64	9.71	9.54
28	10.14	10.11	9.92	10.03	10.33	10.13	10.12	9.87	9.75	9.59	9.69	9.52
29	10.14	10.08	9.86	10.05	---	10.14	10.14	9.84	9.73	9.56	9.68	9.56
30	10.18	10.09	9.82	10.09	---	10.15	10.12	9.78	9.69	9.56	9.66	9.56
31	10.20	---	9.79	10.12	---	10.19	---	9.77	---	9.57	9.62	---
MEAN	10.04	10.03	10.07	9.87	10.19	10.26	10.14	10.00	9.73	9.61	9.65	9.60
MAX	10.20	10.18	10.19	10.12	10.33	10.38	10.25	10.21	9.85	9.74	9.75	9.69
MIN	9.76	9.82	9.79	9.67	10.00	10.12	10.05	9.77	9.59	9.54	9.52	9.52

WTR YR 1995 MAX 10.49 MAR. 2 MIN 9.35 JULY 10



220016159442701. Local number, 2-0044-15.

LOCATION.--Lat 22°00'16", long 159°44'27", Hydrologic Unit 20070000, 2.5 mi Northwest from Kekaha School, and 1.8 mi Northeast of Kokole Point. Owner: Kekaha Sugar Co.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well; depth 63.1 ft, 12 ft concrete casing, cased to 63.1 ft.

DATUM.--Elevation of land-surface datum is 50 ft. Measuring point is the south top of concrete ring at 57.84 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements 1973 to current year.
WATER QUALITY: Occasional measurements 1973 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.73 ft above mean sea level, Jan. 24, 1978; lowest measured, 4.89 ft above mean sea level, Jun. 6, 1988.

REMARKS.--Water used for irrigation of sugar cane.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	9.64	DEC 5	9.77	MAR 7	9.98	APR 7	9.79	JUN 19	7.24	AUG 15	8.52

220134159205401. Local number 2-0120-02.

LOCATION.--Lat 22°01'34", long 159°20'54", Hydrologic unit 20070000, 0.3 mi southwest of Wailua County Golf Course, and 1.6 mi south southwest of Wailua River Mouth. Owner: State of Hawaii, DOWALD.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well; depth 312 ft, casing diameter 6-in, cased to 60 ft.

DATUM.--Elevation of land-surface datum is 11 ft. Measuring point is the top of 10-in plastic pipe, 11.36 ft above mean sea level. Prior to June 24, 1980, measuring point was the top of 6-in steel casing, 11.93 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements 1973 to 1980, 1987 to current year.
WATER QUALITY: Occasional measurements 1982 to 1987.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.79 ft above mean sea level, Feb. 21, 1974; lowest measured, 8.08 ft above mean sea level, Oct. 12, 1978.

REMARKS.--Well affected by pumping of nearby well.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	10.31	DEC 12	11.08	FEB 27	>11.36	APR 3	>11.36	JUN 26	11.74	SEP 8	10.13

> Actual value is known to be greater than the value shown

220148159453502. Local number, 2-0145-11.

LOCATION.--Lat 22°01'48", long 159°43'35", Hydrologic Unit 20070000, 1.0 mi Southeast from Mana Camp, and 3.3 mi north of Kokole Point. Owner: Kekaha Sugar Co.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well; depth 31.5 ft, probably obstructed; casing diameter 12-in, cased depth unknown.

DATUM.--Elevation of land-surface datum is 29 ft. Measuring point is the top of steel pipe 29.23 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.30 ft above mean sea level, Oct. 13, 1992; lowest water level measured, 14.48 ft above mean sea level, Dec. 6, 1993.

REMARKS.--Water level affected by pumping of nearby wells.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	23.03	DEC 5	22.63	MAR 7	23.19	APR 7	21.18	JUN 19	16.59	AUG 15	15.50

220354159205601. Local number, 2-0320-01

LOCATION.--Lat 22°03'54", long 159°20'56", Hydrologic unit 20070000, 0.6 mi east of Sleeping Giant Mountain, and 1.3 mi northwest of Wailua River bridge. Owner: Kauai County, Department of Water.

AQUIFER.--Koloa Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 240 ft, casing diameter 8-in, cased to 193 ft.

DATUM.--Elevation of land-surface datum is 155 ft. Measuring point: Top edge of steel pump-base at breather hole, 155.98 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Ocasional measurements, February 1960, June 1973 to current year.
WATER QUALITY: 1960, 1966, 1972-80, 1985-89, 1991, 1993.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.04 ft above mean sea level, Feb. 17, 1960; lowest measured, 0.55 ft below mean sea level, Aug. 11, 1995.

REMARKS.--Water used for public supply. Water level affected by pumping of nearby well.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	4.68	DEC 8	2.95	MAR 3	2.00	APR 5	.69	JUN 16	1.39	AUG 11	-.55

HAWAII, ISLAND OF KAUAI--Continued

220354159205602. Local number, 2-0320-03.

LOCATION.--Lat 22°03′54″, long 159°20′56″, Hydrologic Unit 20070000, 0.6 mi east of Sleeping Giant Mountain, and 1.3 mi northwest of Wailua River bridge. Owner: Kauai County, Dept. of Water.

AQUIFER.--Koloa Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 302 ft; casing diameter 14-in, cased to 168 ft.

DATUM.--Elevation of land-surface datum is 156 ft. Measuring point is the top edge of steel pump base at breather hole, 156.94 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements, Aug. 1976 to current year.
Water quality: Occasional measurements, 1972, 1976 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.91 ft above mean sea level, Nov. 19, 1982; lowest water level measured, 0.28 ft above mean sea level, Aug. 11, 1995.

REMARKS.--Water is used for public supply. Water level affected by pumping of nearby well.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	4.24	DEC 8	3.21	MAR 3	2.29	APR 5	1.00	JUN 16	1.70	AUG 11	.28

220341159453901. Local number, 2-0345-04.

LOCATION.--Lat 22°03′41″, long 159°43′39″, Hydrologic Unit 20070000, 1.7 mi north northeast from Mana Camp, and 1.7 mi east southeast from Nohili Point. Owner: Kekaha Sugar Co.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artisian well; depth 66 ft, concrete casing, diameter 12 ft, cased to 66 ft.

DATUM.--Elevation of land-surface datum 57 ft. Measuring point is the top of concrete ring (south side) at 60.80 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1972 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.90 ft above mean sea level, Jan. 31, 1974; lowest measured, 2.20 ft above mean sea level, Jun. 19, 1995.

REMARKS.--Water is used for irrigation of sugar cane.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	2.86	DEC 5	4.12	MAR 7	5.16	APR 7	3.50	JUN 19	2.20	AUG 15	2.28

HAWAII, ISLAND OF KAUAI--Continued

220621159232101. Local number 2-0623-04.

LOCATION.--Lat 22°06'11", long 159°23'21", Hydrologic Unit 20070000, 1.3 mi northeast of Kapahi Reservoir, and at the end of Kahuna Road. Owner: Kauai County, Dept. of Water.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled well; depth 1,023 ft, casing diameter 12-in, cased to 168 ft above mean sea level.

DATUM.--Elevation of land surface datum is 518 ft. Measuring point: Top of 3/4-in pipe on concrete pump base, 516.35 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements Apr. 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 470.60 ft above mean sea level, Apr. 8, 1994; lowest measured, 410.57 ft above mean sea level, Aug. 11, 1995.

REMARKS.--Water used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	468.47	DEC 8	431.89	MAR 3	442.36	APR 5	431.40	JUN 16	440.68	AUG 11	410.57

220825159185301. Local number 2-0818-03.

LOCATION.--Lat 22°08'25", long 159°18'53", Hydrologic Unit 20070000, 1.3 mi southwest of Kahala Point, and 0.2 mi south of Anahola School. Owner: Kauai County, Dept. of Water.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 466 ft, casing diameter 12-in, cased to 290 ft above mean sea level.

DATUM.--Elevation of land surface datum is 267 ft. Measuring point: Top of west side of 4 1/2-in pipe at 268.99 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements Oct. 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.03 ft above mean sea level, Feb. 14, 1992; lowest measured, 10.69 ft above mean sea level, Aug. 11. 1995.

REMARKS.--Water for future public supply. Water level affected by nearby wells.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	11.27	DEC 8	11.53	MAR 3	11.29	APR 5	10.99	JUN 16	10.74	AUG 11	10.69

221038159203801. Local number, 2-1020-03.

LOCATION.--Lat 22°10′38", long 159°20′38", Hydrologic Unit 20070000, 2.6 mi south of Kulikoa Point, and 2.6 mi northwest of Kuaehu Point. Owner: Amfac Properties Development Corp.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water table well; depth 700 ft.

DATUM.--Elevation of land-surface datum 358 ft. Measuring point is the top of temporary metal girder over well opening, elevation 358.52 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1972 to 1991.

REVISED RECORDS.--WRD HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.56 ft above mean sea level, Mar. 30, 1990; lowest measured, 66.17 ft above mean sea level, Nov. 6, 1973.

REMARKS.--Pump is in process of being replaced. Well unused at this time.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 14	100.14	DEC 8	98.18	FEB 27	95.61	APR 3	94.21	JUN 22	92.54	AUG 8	91.82

221150159264501. Local number, 2-1126-01.

LOCATION.--Lat 22°11′50", long 159°26′45", Hydrologic Unit 20070000, 1.2 mi south of Princeville Airport terminal, and 4.0 mi east southeast of Puupoa Point. Owner: Princeville Hanalei.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 763 ft; casing diameter 14-in, cased to 435 ft.

DATUM.--Elevation of land-surface datum 348 ft. Measuring point is the top of 3/4-in pipe, in 1-in hole on southside of pump base, after removing airline connection, 349.64 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1977 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.36 ft above mean sea level, June 3, 1974; lowest water level measured, 4.12 ft below mean sea level, Nov. 17,1992.

REMARKS.--Water used for public supply and irrigation of golf course. Water level affected by nearby well.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 14	7.74	DEC 16	8.24	MAR 8	7.09	APR 14	6.42	JUN 23	5.74	AUG 8	5.25

221247159324801. Local number, 2-1232-01.

LOCATION.--Lat 22°12'47", long 159°32'48", Hydrologic Unit 20070000, 0.9 mi southwest of Kolokoko Point, and 1.5 mi southeast of Haena Point. Owner: Kauai County, Dept. of Water.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water table well; depth 188 ft; casing diameter 6-in, cased to 140 ft.

DATUM.--Elevation of land-surface datum is 65 ft. Measuring point is the top of 1-in pipe 0.06 ft above flange, 66.56 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1975 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.48 ft above mean sea level, June 3, 1974; lowest measured, 4.69 ft above mean sea level, Aug. 6, 1993.

REMARKS.--Water used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	8.46	DEC 8	6.13	MAR 3	6.85	APR 5	7.28	JUN 16	6.22	AUG 11	5.53

221318159335901. Local number, 2-1333-01.

LOCATION.--Lat 22°13'18", long 159°33'59", Hydrologic Unit 20070000, .6 mi south southwest of Haena Point, and 1.2 mi east southeast of Kailiu Point. Owner: Kauai County, Dept. of Water.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 159 ft; casing diameter 8-in, cased to 104 ft.

DATUM.--Elevation of land-surface datum 83 ft. Measuring point is the top of unthreaded hole after removing 1-in pipe, 0.22 ft above hole on pump base, 82.45 ft above mean sea level. New measuring point used from Jun. 16, 1995 inspection after pump was replaced. Top of pump base after removing plug, elevation 82.05 ft above mean sea level from levels of Dec. 12, 1995.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1972 to current year.

REVISED RECORDS.--WRD HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.35 ft above mean sea level, Dec. 8, 1989; lowest water level measured, 1.45 ft above mean sea level, Aug. 26, 1986.

REMARKS.--Water used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	8.91	DEC 8	8.90	MAR 3	8.98	APR 5	8.62	JUN 16	8.40	AUG 11	8.25

215434159263301. Local number, 2-5426-03.

LOCATION.--Lat 21°54'34", long 159°26'33", Hydrologic Unit 20070000, 0.6 mi northeast of Koloa Mill, and 2.6 mi north of Makahuena Point. Owner: Grove Farm Co. Inc.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 318 ft; casing diameter 12-in, cased to 176 ft.

DATUM.--Elevation of land-surface datum is 221 ft. Measuring point is the top of 1-in hole on southwest side of flange, 222.30 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements of water level 1972 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.83 ft above mean sea level, Jan. 10, 1974; lowest water level measured, 15.48 ft above mean sea level, Jun. 16, 1982.

REMARKS.--Water used for irrigation and washing of sugar cane at mill.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	23.89	DEC 21	24.67	MAR 6	24.65	APR 24	23.80	JUN 26	23.80	AUG 21	23.65

215454159274201. Local number, 2-5427-01.

LOCATION.--Lat 22°54'54", long 159°27'42", Hydrologic Unit 20070000, 0.1 mi west of the southwest corner of Waita Reservoir, and 2.7 mi northeast of Kaulala Point. Owner: Kauai County, Dept. of Water.

AQUIFER.--Koloa Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 456 ft; casing diameter 12-in, cased to 263 ft.

DATUM.--Elevation of land surface datum is 245 ft. Measuring point is the top of 1/2-in pipe on pump base 246.77 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1972 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-94 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.04 ft above mean sea level, July 15, 1974; lowest water level measured, 27.97 ft above mean sea level, Oct. 6, 1988.

REMARKS.--Water used for public supply. Water level affected by nearby well.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	34.08	DEC 7	34.51	MAR 2	35.00	APR 4	34.15	JUN 21	34.25	AUG 10	34.36

215536159263501. Local number, 2-5526-01.

LOCATION.--Lat 21°55′36", long 159°26′35", Hydrologic Unit 20070000, 3.7 mi north of Makahuena Point, and 2.5 mi southeast of Knudsen Gap. Owner: McBryde Sugar Co.

AQUIFER.--Koloa Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 1010 ft; casing diameter 20-in, cased to 400 ft.

DATUM.--Elevation of land-surface is 355 ft. Measuring point is the top of 1-in hole on top of pipe flange, southeast side of pump, 355.28 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1977 to current year.
Water quality: Occasional measurements 1977 to 1994.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 108.83 ft above mean sea level, Jun. 4, 1992; lowest measured, 25.28 ft above mean sea level, Apr. 5, 1984.

REMARKS.--Water used for sugar cane irrigation.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	94.52	DEC 7	96.48	MAR 2	99.50	APR 4	100.08	JUN 21	101.96	AUG 10	102.92

215522159342601. Local number, 2-5534-03.

LOCATION.--Lat 21°55′22", long 159°34′26", Hydrologic Unit 20070000, 1.9 mi north from Weli Point, and 2.9 mi northeast from Puolo Point. Owner: Kauai County, Dept. of Water.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 108 ft; casing diameter 9-in, cased to 108 ft.

DATUM.--Elevation of land surface datum 78 ft. Measuring point is the top of 3/4-in galvanized pipe on northwest side of pump base 78.78 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1972 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.91 ft above mean sea level, Feb. 1, 1990; lowest water level measured, 12.62 ft above mean sea level, May 20, 1986.

REMARKS.--Water used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	16.24	DEC 7	16.71	MAR 2	18.05	APR 4	16.98	JUN 21	14.58	AUG 10	16.65

215607159344301. Local number 2-5634-01.

LOCATION.--Lat 21°56'07", long 159°34'43", Hydrologic Unit 20070000, 2.7 mi north of Weli Point, and 3.3 mi northeast of Puolo Point. Owner: State of Hawaii.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 508 ft, casing diameter 8-in, cased to 507 ft.

DATUM.--Elevation of land-surface datum is 439 ft. Measuring point: Top of casing 440.62 ft above mean sea level.

REMARKS.--No record January 8, 1993 to February 11, 1993.

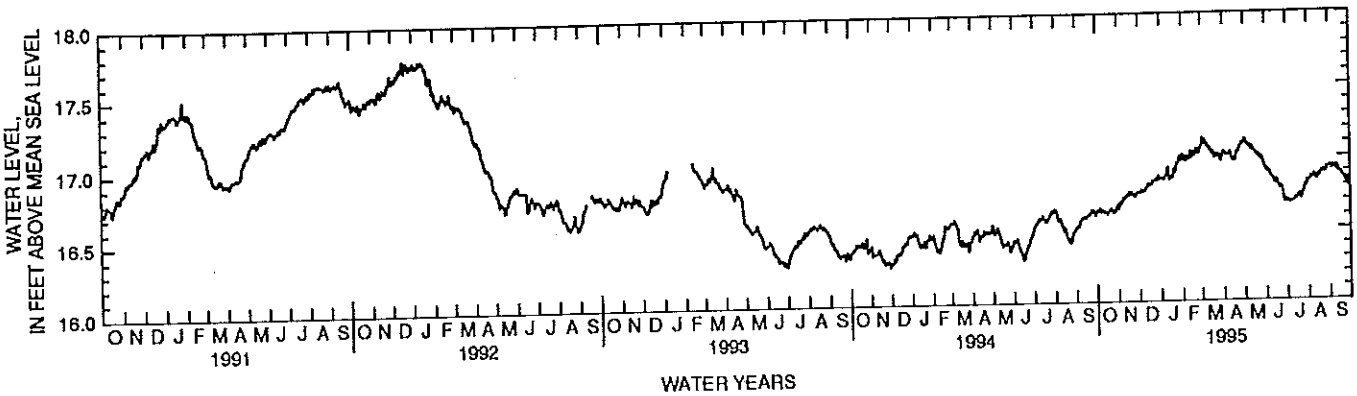
PERIOD OF RECORD.--Water level recorder, February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.83 ft above mean sea level, Jan. 15, 16, 1992; lowest measured, 15.87 ft above mean sea level, Nov. 1, 1989.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.64	16.65	16.76	16.86	17.02	17.08	17.03	17.10	16.91	16.70	16.83	16.93
2	16.64	16.68	16.77	16.86	17.01	17.13	17.03	17.12	16.91	16.69	16.83	16.92
3	16.63	16.67	16.76	16.86	17.01	17.12	17.03	17.11	16.90	16.70	16.84	16.92
4	16.64	16.69	16.78	16.86	16.98	17.10	17.02	17.09	16.91	16.69	16.84	16.91
5	16.65	16.70	16.78	16.85	17.01	17.12	17.02	17.08	16.90	16.68	16.86	16.93
6	16.65	16.69	16.77	16.86	16.99	17.09	17.02	17.08	16.89	16.69	16.86	16.93
7	16.64	16.70	16.77	16.87	16.98	17.10	17.02	17.08	16.89	16.69	16.85	16.93
8	16.63	16.71	16.77	16.88	17.00	17.09	17.02	17.08	16.87	16.69	16.85	16.93
9	16.64	16.73	16.78	16.88	17.01	17.07	17.02	17.06	16.86	16.69	16.85	16.91
10	16.64	16.72	16.79	16.92	16.99	17.07	17.03	17.06	16.86	16.69	16.87	16.91
11	16.64	16.73	16.79	16.93	17.00	17.07	17.03	17.05	16.85	16.69	16.86	16.92
12	16.63	16.74	16.80	16.86	17.03	17.06	17.01	17.07	16.84	16.70	16.85	16.93
13	16.63	16.74	16.81	16.85	17.04	17.05	16.99	17.06	16.82	16.71	16.84	16.92
14	16.63	16.75	16.82	16.86	17.00	17.04	16.98	17.04	16.82	16.71	16.85	16.89
15	16.63	16.74	16.82	16.87	17.00	17.03	16.99	17.04	16.82	16.71	16.86	16.89
16	16.62	16.76	16.81	16.86	17.02	17.04	16.98	17.04	16.83	16.71	16.87	16.89
17	16.63	16.76	16.82	16.86	17.04	17.04	16.98	17.03	16.84	16.72	16.86	16.89
18	16.63	16.76	16.82	16.87	17.03	17.02	16.98	17.02	16.81	16.73	16.88	16.88
19	16.64	16.75	16.82	16.90	17.02	17.00	17.02	17.02	16.80	16.74	16.89	16.87
20	16.65	16.75	16.84	16.92	17.04	17.00	17.03	17.01	16.80	16.73	16.89	16.86
21	16.65	16.76	16.84	16.90	17.05	17.00	17.03	17.02	16.78	16.71	16.90	16.86
22	16.65	16.75	16.84	16.91	17.06	17.02	17.04	17.01	16.79	16.72	16.89	16.86
23	16.65	16.75	16.84	16.94	17.05	17.01	17.06	16.99	16.78	16.73	16.89	16.84
24	16.63	16.74	16.85	16.96	17.03	17.02	17.07	17.00	16.79	16.75	16.90	16.83
25	16.63	16.74	16.84	16.96	17.04	17.02	17.08	16.99	16.78	16.75	16.90	16.82
26	16.63	16.74	16.84	16.97	17.06	17.00	17.08	17.00	16.73	16.78	16.89	16.85
27	16.63	16.76	16.86	17.00	17.07	16.99	17.10	16.98	16.70	16.80	16.90	16.85
28	16.65	16.76	16.87	17.01	17.08	16.98	17.10	16.97	16.69	16.80	16.92	16.81
29	16.65	16.76	16.86	17.01	---	17.00	17.09	16.94	16.69	16.79	16.92	16.79
30	16.67	16.76	16.86	16.98	---	17.01	17.10	16.93	16.70	16.81	16.92	16.79
31	16.68	---	16.85	16.99	---	17.03	---	16.93	---	16.83	16.92	---
MEAN	16.64	16.73	16.81	16.91	17.02	17.05	17.03	17.03	16.82	16.73	16.87	16.88
MAX	16.68	16.76	16.87	17.01	17.08	17.13	17.10	17.12	16.91	16.83	16.92	16.93
MIN	16.62	16.65	16.76	16.85	16.98	16.98	16.98	16.93	16.69	16.68	16.83	16.79

WTR YR 1995 MAX 17.17 MAR. 2 MIN 16.60 OCT. 12, 13, 15-18, 24-27



215845159232101. Local number, 2-5823-01.

LOCATION.--Lat 21°58′45″, long 159°23′21″, Hydrologic Unit 20070000, 3.5 mi northwest of Ninini Point, and 2.4 mi west from Lihue Airport terminal. Owner: Kauai County, Department of Water.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled well; depth 36 ft; casing diameter 6 ft, cased to 36 ft. Lateral tunnels connected to well extends 450 ft upstream and 502 ft downstream of well.

DATUM.--Elevation of land surface is 214.5 ft. Measuring point is the top of eight inch plastic pipe, 216.65 ft above mean sea level.

REMARKS.--No record January 5, 1993 to February 19, 1993, July 1, 1994 to August 15, 1994, June 16, 1995 to August 15, 1995.

PERIOD OF RECORD.--Water level recorder, July 14, 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 202.32 ft above mean sea level, Dec. 4, 1992; lowest measured, 198.29 ft above mean sea level, Sep. 18, 1994.

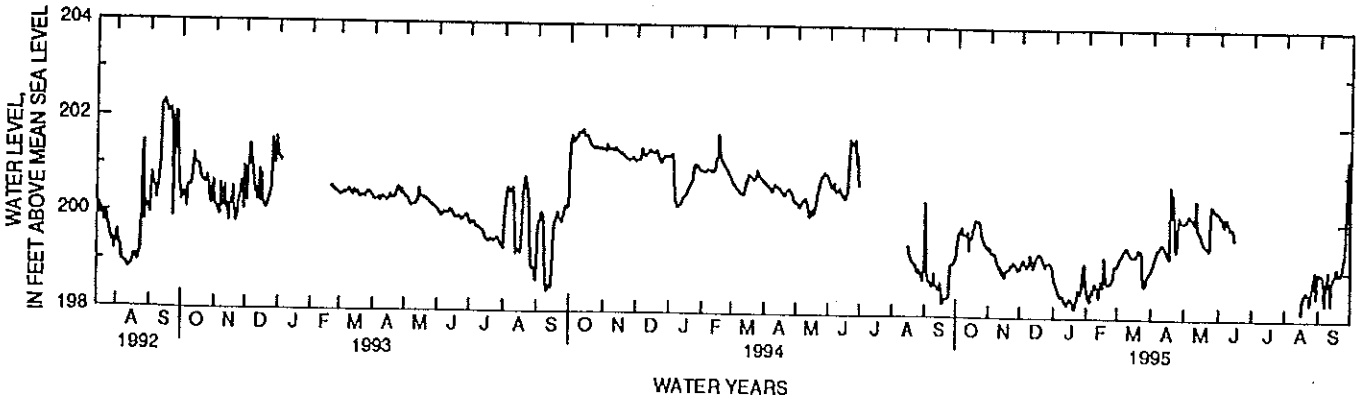
REMARKS.--Water used for public supply; well pumping frequently.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	199.29	199.41	199.02	198.80	198.57	199.11	199.04	200.03	200.19	---	---	198.98
2	199.54	199.46	199.10	198.74	198.45	199.16	199.10	200.04	200.15	---	---	198.97
3	199.74	199.35	199.18	198.69	198.40	199.25	199.18	200.06	200.12	---	---	198.96
4	199.77	199.34	199.19	198.62	198.37	199.27	199.26	200.12	200.10	---	---	198.95
5	199.74	199.33	199.19	198.56	198.57	199.32	199.33	200.15	199.99	---	---	198.92
6	199.86	199.33	199.08	198.51	198.59	199.37	199.42	200.13	199.95	---	---	198.44
7	199.73	199.31	199.06	198.45	198.52	199.40	199.46	200.10	200.10	---	---	198.35
8	199.72	199.21	199.07	198.44	198.69	199.45	199.46	200.06	200.10	---	---	198.77
9	199.73	199.13	199.08	198.46	198.69	199.46	199.51	200.03	200.03	---	---	198.91
10	199.71	199.08	199.28	198.43	198.66	199.46	199.55	200.00	199.98	---	---	199.02
11	199.69	199.01	199.28	198.35	198.62	199.42	199.53	200.46	199.88	---	---	198.63
12	199.77	199.06	199.18	198.33	198.45	199.35	199.51	199.92	199.89	---	---	198.35
13	199.41	198.93	199.04	198.29	198.57	199.32	199.47	199.84	199.90	---	---	198.75
14	199.64	198.97	199.10	198.28	198.78	199.30	199.40	199.81	199.88	---	---	198.86
15	199.63	198.87	199.18	198.36	198.67	199.29	199.36	199.78	199.68	---	---	198.94
16	199.68	198.86	199.25	198.39	198.66	199.31	199.32	199.68	---	---	198.15	198.94
17	199.87	198.97	199.30	198.36	199.26	199.29	199.28	199.61	---	---	198.40	199.07
18	199.86	198.97	199.31	198.37	198.94	199.30	200.73	199.57	---	---	198.52	199.08
19	200.01	198.99	199.31	198.27	198.75	199.36	200.31	199.53	---	---	198.49	198.97
20	199.99	199.00	199.30	198.20	198.71	199.43	200.59	199.51	---	---	198.58	198.97
21	200.00	199.02	199.25	198.23	198.72	199.43	200.28	199.50	---	---	198.59	198.97
22	200.00	199.08	199.18	198.33	198.74	199.39	199.50	199.49	---	---	198.54	198.99
23	199.98	199.08	199.13	198.40	198.73	199.40	199.43	199.46	---	---	198.55	199.08
24	199.91	199.10	199.07	198.58	198.79	198.86	199.43	200.19	---	---	198.35	199.28
25	199.71	199.13	199.11	198.52	198.86	198.70	200.02	200.35	---	---	198.51	199.32
26	199.65	199.12	199.13	198.50	199.05	198.69	200.12	200.33	---	---	198.67	199.69
27	199.60	199.09	199.14	198.57	199.10	198.75	200.06	200.30	---	---	198.81	201.12
28	199.54	199.04	199.14	198.88	199.08	198.90	200.02	200.26	---	---	198.92	201.33
29	199.50	199.01	199.12	199.11	---	198.91	200.02	200.24	---	---	199.00	200.93
30	199.48	199.04	199.08	199.11	---	198.95	200.02	200.24	---	---	198.50	199.28
31	199.45	---	198.97	198.70	---	198.99	---	200.22	---	---	198.88	---
MEAN	199.72	199.11	199.16	198.51	198.71	199.21	199.66	199.97	---	---	---	199.16
MAX	200.01	199.46	199.31	199.11	199.26	199.46	200.73	200.46	---	---	---	201.33
MIN	199.29	198.86	198.97	198.20	198.37	198.69	199.04	199.46	---	---	---	198.35

WTR YR 1995 MAX 201.82 APR. 21 MIN 197.88 AUG. 17



215803159401201. Local number, 2-5840-01.

LOCATION.--Lat 21°58'03", long 159°40'12", Hydrologic Unit 20070000, 0.7 mi north of Waimea Recreational Pier State Park, and 2.4 mi east northeast of Oomano Point. Owner: Kauai County, Dept. of Water.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 190 ft; casing diameter 8-in, cased to 167 ft.

DATUM.--Elevation of land surface is 167 ft. Measuring point is the top of 1-in hole on pump base, 168.08 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1973 to current year.
Water quality: Occasional measurements 1972-89, 1994 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.10 ft above mean sea level, Jan. 26, 1989; lowest measured, 6.58 ft above mean sea level, Jul. 19 1990.

REMARKS.--Water used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	8.95	DEC 12	8.78	MAR 2	9.00	APR 4	9.09	JUN 21	8.40	AUG 10	8.60

215843159422901. Local number, 2-5842-03.

LOCATION.--Lat 21°58'43", long 159°42'28", Hydrologic Unit 20070000, 1.0 mi north of Oomano Point, and 3.5 mi east of Kokole Point. Owner: Kekaha Sugar Co.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well; depth 27 ft; diameter 15 ft; uncased.

DATUM.--Elevation of land surface is 46 ft. Measuring point is the top of H-Beam on east side of pump base, 22.96 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Recording station 1973-79. Occasional measurements 1979 to current year.
Water quality: Occasional measurements 1972 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.45 ft above mean sea level, Jan. 16, 1974; lowest measured, 4.94 ft above mean sea level, Jan. 23, 1981.

REMARKS.--Water used for irrigation and for cleaning sugar cane at mill. Pump is run almost continuous when mill is in operation.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	a---	DEC 5	a---	MAR 7	a---	APR 7	a---	JUN 19	a---	AUG 15	a---

a No measurement made, well pumping. Chloride sample taken

215857159430101. Local number, 2-5843-01.

LOCATION.--Lat 21°58'57", long 159°43'01", Hydrologic Unit 20070000, 2.7 mi east northeast from Kokole Point, and 1.4 mi north northwest of Oomano Point. Owner: Kauai County, Dept. of Water.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well; depth 53 ft, casing diameter 15 ft, cased to 10 ft.

DATUM.--Elevation of land surface is 57 ft. Measuring point is the top west side of concrete shaft 57.70 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972, 1985 to current year.
Water quality: One measurement in 1972.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.52 ft above mean sea level, Feb. 5, 1990; lowest measured, 7.82 ft above mean sea level, Apr. 25, 1988.

REMARKS.--Well used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	9.13	DEC 12	8.66	MAR 2	8.23	APR 4	8.63	JUN 21	8.35	AUG 10	8.35

215958159214301. Local number 2-5921-01.

LOCATION.--Lat 21°59'58", long 159°21'43", Hydrologic Unit 20070000, 1.0 mi west of Hanamaulu Beach Park, and 3.3 mi south southwest of Lydgate State Park. Owner: Kauai County, Department of Water.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 540 ft, casing diameter 14-in, cased to 315 ft.

DATUM.--Elevation of land-surface datum is 302 ft. Measuring point: Top of I-beam, elevation 302.68 ft, above mean sea level.

PERIOD OF RECORD.--Occasional measurements, July 1980 to September 1985. Water-level recorder, October 1985 to July 1992. Occasional measurements, Oct. 1992 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.69 ft above mean sea level, Nov. 26, 1985; lowest measured, 13.58 ft above mean sea level, Jun. 6, 1992.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	15.28	DEC 12	15.54	FEB 27	16.07	APR 3	16.28	JUN 22	16.61	AUG 17	15.88

215901159235201. Local number, 2-5923-07.

LOCATION.--Lat 21°59′01", long 159°23′52", Hydrologic Unit 20070000, 4.2 mi northwest of Ninini Point, and 3.4 mi west from Lihue Airport terminal. Owner: Kauai County, Dept. of Water.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled well; depth 200 ft, casing diameter 12-in, cased to 200 ft.

DATUM.--Elevation of land surface is 364 ft. Measuring point is the top of pump base opening, after removing copper fittings, 365.48 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1985 to current year.
Water quality: Occasional measurements 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 226.86 ft above mean sea level, Dec. 8, 1989; lowest water level measured, 213.17 ft above mean sea level, Jun. 7, 1991.

REMARKS.--Water used for public supply. Water level affected by nearby well.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	217.70	DEC 8	215.75	MAR 3	216.19	APR 5	217.53	JUN 16	214.44	AUG 11	213.55

215906159395601. Local number, 2-5939-01.

LOCATION.--Lat 21°59′06", long 159°39′56", Hydrologic Unit 20070000, 2.3 mi north northeast of Waimea Recreational Pier State Park, and 3.2 mi northeast from Oomano Point. Owner: Kauai County, Dept. of Water.

AQUIFER.--Waimea Canyon Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well; depth 40 ft, 6.5 ft diameter, uncased.

DATUM.--Elevation of land surface is 42 ft. Measuring point is the top west side of concrete base 41.61 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1972 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.43 ft above mean sea level, Jan. 14, 1988; lowest water level measured, 8.71 ft below mean sea level, Mar 9, 1981.

REMARKS.--Water is used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	9.39	DEC 7	10.07	MAR 2	9.61	APR 4	10.07	JUN 21	9.21	AUG 10	9.48

215937159434201. Local number, 2-5943-01.

LOCATION.--Lat 21°59'37", long 159°43'42", Hydrologic Unit 20070000, 2.2 mi northeast of Kokole Point, and 2.4 mi northwest of Oomano Point. Owner: Kekaha Sugar Co.

AQUIFER.--Koloa Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well. Well is a 45 degree inclined Maui type shaft from 59 ft to 16 ft elevation and a vertical sump 10 ft in diameter and 15 ft deep with a lateral tunnel extending into the hillside at the bottom of the shaft.

DATUM.--Elevation of land surface is 60 ft. Measuring point is the top of I-beam supporting pump platform, 13.61 ft above mean sea level.

PERIOD OF RECORD.--
Water level: Occasional measurements 1972 to current year.
Water quality: Occasional measurements 1972 to current year.

REVISED RECORDS.--WDR HI-94-1: 1988-93 (The minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.62 ft above mean sea level, Oct. 16, 1989; lowest water level measured, 8.15 ft above mean sea level, Jul. 22, 1981.

REMARKS.--Water used for irrigation of sugar cane.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	9.37	DEC 5	9.26	MAR 7	9.61	APR 7	8.66	AUG 15	8.43

211646157465202. Local number, 3-1646-02.

LOCATION.--Lat 21°16′46″, long 157°46′52″, Hydrologic Unit 20060000, at Waialae Golf Course. Owner: Bishop Estate.

AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.

WELL CHARACTERISTICS.--Drilled well, depth 131 ft, casing diameter 4-in, cased to 100 ft.

DATUM.--Elevation of land-surface datum is 18 ft. Measuring point is top of casing, 13.84 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--Occasional measurements, September 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.63 ft above mean sea level, Jan. 27, 1983; lowest, 7.00 ft above mean sea level, June 10, 1986, July 23, 1986.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 6	8.08	SEP 26	7.75

211832157515501. Local number, 3-1851-19 Tube A.

LOCATION.--Lat 21°18′32″, long 157°51′55″, Hydrologic Unit 20060000, corner of Richards and Halekawila Streets, adjacent to Ala Moana Boulevard. Owner: Hawaiian Electric Company.

AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, 1/2-inch galvanized pipe at 1,043 feet depth. Tube A is the pipe closer to Richards Street.

DATUM.--Elevation of land-surface datum is 6 ft. Measuring point: Chiseled square inside of wooden cover of well, elevation 5.80 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, April 1969, March 1973 to current year.
WATER QUALITY: 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.16 ft above mean sea level, Aug. 13, 1974; lowest, 5.53 ft above mean sea level, Sep. 25, 1990.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 6	6.23	MAR 7	8.20	JUN 7	6.16	SEP 20	a---

a Unable to read water level, no flow

211832157515501. Local number, 3-1851-19 Tube B.

LOCATION.--Lat 21°18′32", long 157°51′55", Hydrologic Unit 20060000, corner of Richards and Halekawila Streets, adjacent to Ala Moana Boulevard. Owner: Hawaiian Electric Company.

AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, 1/2-inch galvanized pipe at 988 feet depth. Tube B is the pipe furthest from Richards Street.

DATUM.--Elevation of land-surface datum is 6 ft. Measuring point: Chiseled square inside of wooden cover of well, elevation 5.80 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, April 1969, March 1973 to current year.
WATER QUALITY: 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.16 ft above mean sea level, Feb. 3, 1983; lowest, 13.54 ft above mean sea level, Oct. 20, 1993.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 6	15.98	MAR 7	17.06	JUN 7	16.05	SEP 20	14.52

211828157515801. Local number, 3-1851-22.

LOCATION.--Lat 21°18′28", long 157°51′58", Hydrologic Unit 20060000, northeast corner of the mini-park at the intersection of Richards Street and Ala Moana Boulevard. Owner: State of Hawaii.

AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, 3-in PVC pipe, depth 1,142 ft, bottom 60 ft slotted.

DATUM.--Elevation of land-surface datum is 7 ft. Measuring point: Edge of manhole cover, 7.30 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Water level recorder, June 1983 to Nov. 1986
Occasional measurements, Dec. 1982 to current year.
WATER QUALITY: 1982, 1987.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.74 ft above mean sea level, Apr. 12,1991; lowest, 15.97 ft, above mean sea level, Sep. 11-13, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 7	20.35	MAR 7	21.04	JUN 7	20.26	SEP 20	18.58

HAWAII, ISLAND OF OAHU--Continued

211907157594701. Local number, 3-1959-05.

LOCATION.--Lat 21°19′06", long 157°59′46", Hydrologic Unit 20060000, 600 ft northwest of Ewa Beach Park, and 1.2 mi southeast of Campbell High School. Owner: Hawaii Institute of Geophysics.

AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,110 ft, 5-in. PVC casing, bottom 12 ft perforated.

DATUM.--Elevation of land surface datum is 6 ft. Measuring point: Top of 5-in. PVC casing, 6.40 ft above mean sea level.

REMARKS.--October 2, 1990 to December 31, 1990, September 19, 1993 to October 21, 1993, February 16, 1994 to March 3, 1994, June 9, 1994 to July 26, 1994.

REMARKS.--Geophysical log and water-quality records are available in files of district office.

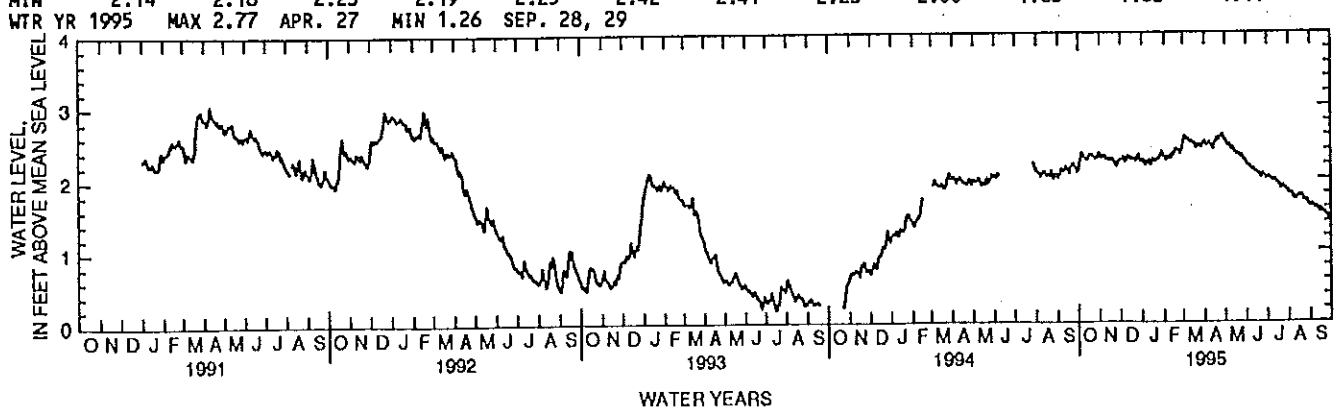
PERIOD OF RECORD.--Water-level recorder, December 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 5.38 ft above mean sea level, Jan. 17, 1969; lowest, 2.81 ft below mean sea level, Aug. 25, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.14	2.32	2.26	2.24	2.30	2.50	2.50	2.52	2.21	2.01	1.80	1.62
2	2.19	2.31	2.26	2.26	2.29	2.55	2.49	2.51	2.19	2.01	1.80	1.62
3	2.25	2.29	2.26	2.25	2.28	2.57	2.46	2.48	2.18	2.02	1.79	1.64
4	2.30	2.29	2.28	2.22	2.25	2.55	2.45	2.47	2.18	2.01	1.79	1.64
5	2.34	2.31	2.29	2.20	2.30	2.56	2.46	2.45	2.18	2.01	1.79	1.62
6	2.35	2.31	2.25	2.19	2.29	2.53	2.47	2.45	2.16	2.00	1.79	1.61
7	2.33	2.30	2.23	2.21	2.27	2.53	2.48	2.46	2.16	1.99	1.77	1.60
8	2.31	2.30	2.23	2.23	2.29	2.54	2.49	2.45	2.14	1.98	1.73	1.59
9	2.30	2.30	2.25	2.23	2.30	2.52	2.47	2.42	2.13	1.97	1.72	1.58
10	2.29	2.27	2.28	2.24	2.29	2.50	2.46	2.41	2.12	1.98	1.72	1.60
11	2.28	2.27	2.30	2.25	2.28	2.50	2.45	2.39	2.13	1.98	1.73	1.60
12	2.27	2.27	2.28	2.20	2.32	2.51	2.43	2.41	2.12	1.98	1.72	1.58
13	2.27	2.27	2.28	2.19	2.34	2.50	2.41	2.42	2.10	1.97	1.73	1.57
14	2.27	2.27	2.29	2.20	2.31	2.49	2.42	2.39	2.10	1.95	1.74	1.55
15	2.28	2.25	2.28	2.23	2.32	2.48	2.47	2.36	2.09	1.94	1.74	1.53
16	2.31	2.26	2.26	2.26	2.36	2.49	2.49	2.36	2.09	1.94	1.75	1.54
17	2.32	2.27	2.28	2.26	2.39	2.49	2.50	2.36	2.08	1.93	1.76	1.57
18	2.31	2.27	2.27	2.24	2.39	2.47	2.51	2.34	2.07	1.91	1.76	1.54
19	2.31	2.26	2.27	2.25	2.38	2.43	2.54	2.32	2.06	1.90	1.76	1.53
20	2.32	2.25	2.28	2.24	2.39	2.43	2.55	2.32	2.06	1.89	1.76	1.53
21	2.32	2.26	2.27	2.25	2.39	2.42	2.54	2.34	2.04	1.86	1.74	1.53
22	2.31	2.23	2.25	2.26	2.38	2.44	2.52	2.33	2.03	1.88	1.71	1.52
23	2.30	2.21	2.25	2.26	2.38	2.45	2.55	2.30	2.02	1.89	1.69	1.51
24	2.29	2.19	2.28	2.26	2.34	2.45	2.56	2.30	2.04	1.89	1.69	1.50
25	2.28	2.18	2.29	2.28	2.36	2.45	2.58	2.30	2.06	1.87	1.69	1.49
26	2.28	2.18	2.31	2.30	2.38	2.44	2.58	2.31	2.04	1.86	1.70	1.49
27	2.29	2.23	2.32	2.33	2.40	2.43	2.59	2.29	2.03	1.86	1.70	1.46
28	2.30	2.24	2.29	2.35	2.46	2.43	2.58	2.26	2.03	1.85	1.69	1.41
29	2.29	2.26	2.25	2.36	---	2.46	2.55	2.25	2.01	1.83	1.65	1.41
30	2.31	2.25	2.24	2.32	---	2.47	2.52	2.24	2.00	1.83	1.64	1.42
31	2.35	---	2.23	2.29	---	2.49	---	2.23	---	1.83	1.63	---
MEAN	2.29	2.26	2.27	2.25	2.34	2.49	2.50	2.37	2.09	1.93	1.73	1.55
MAX	2.35	2.32	2.32	2.36	2.46	2.57	2.59	2.52	2.21	2.02	1.80	1.64
MIN	2.14	2.18	2.23	2.19	2.25	2.42	2.41	2.23	2.00	1.83	1.63	1.41

WTR YR 1995 MAX 2.77 APR. 27 MIN 1.26 SEP. 28, 29



212012157541301. Local number, 3-2054-03.

LOCATION.--Lat 21°20'12", long 157°54'13", Hydrologic Unit 20060000, 600 ft north of Keehi Lagoon Beach Park, and 1.3 miles east of the main terminal of Honolulu International Airport.

AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.

WELL CHARACTERISTICS.--Drilled artesian well, 6-in. PVC casing inside a 12-in steel casing, and grouted. A 12-in standpipe, 10 ft tall, is attached at the top of the well. Well is 668 ft deep and is cased to 602 ft.

DATUM.--Elevation of land-surface datum is 11 ft. Measuring point: Top of 12-in standpipe, elevation, 21.40 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, April 1969, January 1974 to current year.
WATER QUALITY: 1965, 1969, 1972, 1973.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.07 ft above mean sea level, Feb. 3, 1983; lowest, 16.74 ft above mean sea level, Sep. 20, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 6	19.98	MAR 7	20.24	JUN 7	19.71	SEP 20	18.93

212154158015201. Local number, 3-2101-03.

LOCATION.--Lat 21°21'54", long 158°01'52", Hydrologic Unit 20060000, 0.4 mi southeast of Honouliuli, and 0.5 mi north of Ewa Hospital. Owner: State of Hawaii.

AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 355 ft, 6-in. PVC casing, cased to 165 ft. Well was modified in January 1958 and May 1982.

DATUM.--Elevation of land-surface datum is 15 ft. Measuring point: Top of horizontal flange below petcock, 13.31 ft above mean sea level.

REMARKS.--Water-quality records for 1910-16, 1920-21, 1923-75, 1978-81, are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, April 1910 to June 1921, September 1923 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.16 ft above mean sea level, April 1918; lowest observed, less than 11.2 ft, above mean sea level (below petcock then in use), Sep. 2, and Oct. 19, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 8	18.18	MAR 7	18.43	MAY 10	17.21	JUN 8	17.81	SEP 27	16.90

212132158035701. Local number, 3-2103-01.

LOCATION.--Lat 21°21'32", long 158°03'57", Hydrologic Unit 20060000, 1 mile east of Makakilo, and 2 miles north of Barbers Point Naval Air Station. owner: U.S. Navy.

AQUIFER.--Basalt of Waianae Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled well, depth 206 ft, casing diameter 6-in, cased to 17 ft.

DATUM.--Elevation of land-surface datum is 210 ft. Measuring point: Top of 6-in pipe. Elevation : 211.70 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Water level recorder, Sep. 1966 to Dec. 1971.
Occasional measurements, August 1942 to December 1942, January 1953 to September 1967, September 1972 to current year.
WATER QUALITY: 1942, 1953-68.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.81 ft above mean sea level, Feb. 20, 1957; lowest, 14.25 ft above mean sea level, July 5, 1978, Sep. 20, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

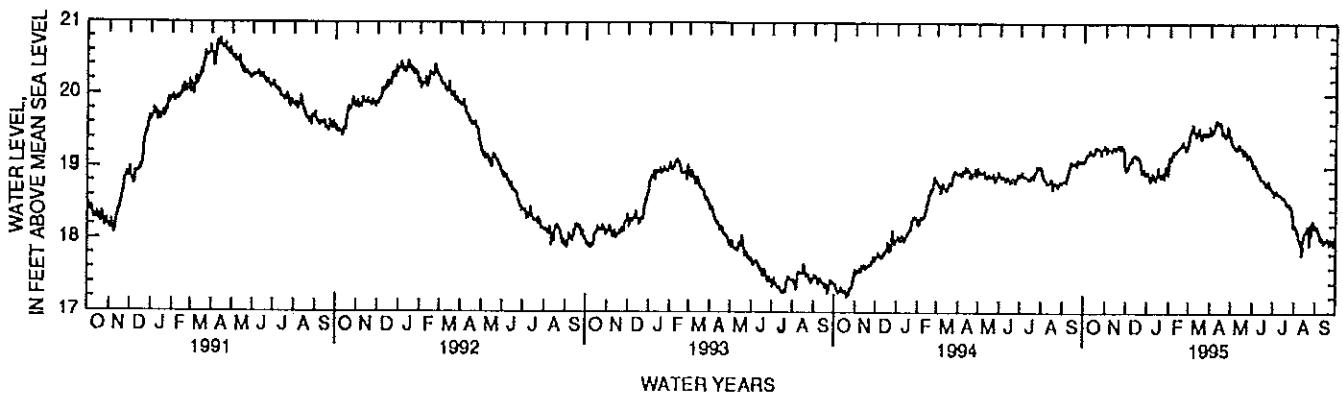
DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 23	14.84	MAR 31	14.98	JUN 9	14.66	SEP 21	14.62

212123157535501. Local number, 3-2153-05 Fresh Water Well.
LOCATION.--Lat 21°21′23″, long 157°53′55″, Hydrologic Unit 20060000, 0.4 mi northwest of Moanalua Elementary School, and 0.5 mi southwest of Tripler Hospital, in Moanalua. Owner: Honolulu Board of Water Supply.
AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.
WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,246 ft, 6-in. PVC casing, cased to 24 ft, perforated from 24 to 1,246 ft. Well was modified and deepened August 1980. The well is a combination of a 3-in PVC (salt water) and a 6-in PVC (fresh water), encased in a 12-in steel casing.
DATUM.--Elevation of land-surface datum is 35 ft. Measuring point: Top of 3-in. PVC casing, 37.90 ft above mean sea level.
REMARKS.--Geophysical logs are available in files of district office. Prior to October 1993, unpublished records in files of the U.S. Geological Survey.
PERIOD OF RECORD.--Water-level recorder, March 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 22.53 ft above mean sea level, Jan. 9, 1983; lowest 16.56 ft above mean sea level, July 24, 1987.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.08	19.28	18.99	18.91	19.09	19.35	19.56	19.40	19.05	18.67	18.20	18.17
2	19.10	19.28	18.97	18.94	19.14	19.44	19.50	19.37	19.03	18.68	18.20	18.14
3	19.12	19.21	18.99	18.90	19.13	19.48	19.47	19.33	19.01	18.63	18.18	18.14
4	19.16	19.28	18.99	18.88	19.11	19.49	19.50	19.32	19.04	18.67	18.16	18.18
5	19.17	19.26	19.05	18.84	19.18	19.53	19.50	19.32	19.04	18.68	18.11	18.11
6	19.19	19.25	19.07	18.82	19.16	19.51	19.50	19.29	19.01	18.68	18.10	18.09
7	19.18	19.25	19.08	18.85	19.22	19.59	19.54	19.28	18.98	18.65	18.04	18.09
8	19.18	19.25	19.10	18.86	19.21	19.55	19.59	19.27	18.96	18.64	17.99	18.01
9	19.21	19.25	19.08	18.92	19.21	19.50	19.63	19.26	18.93	18.63	17.97	18.00
10	19.23	19.23	19.13	18.91	19.23	19.47	19.64	19.29	18.92	18.64	17.95	18.01
11	19.22	19.23	19.15	18.86	19.22	19.47	19.65	19.26	18.91	18.64	17.96	18.03
12	19.20	19.26	19.15	18.83	19.25	19.44	19.64	19.31	18.90	18.62	17.80	17.99
13	19.19	19.28	19.16	18.84	19.25	19.48	19.60	19.31	18.86	18.61	17.99	17.96
14	19.20	19.28	19.17	18.86	19.27	19.52	19.60	19.28	18.84	18.60	18.01	17.99
15	19.19	19.26	19.16	18.90	19.27	19.52	19.62	19.26	18.84	18.59	18.06	17.99
16	19.22	19.28	19.14	18.96	19.28	19.54	19.63	19.27	18.83	18.59	18.09	17.98
17	19.27	19.25	19.14	18.99	19.28	19.50	19.59	19.26	18.83	18.58	18.10	17.98
18	19.25	19.28	19.15	18.92	19.31	19.46	19.48	19.22	18.82	18.57	18.13	18.02
19	19.26	19.29	19.15	18.91	19.33	19.41	19.47	19.19	18.81	18.55	18.14	17.98
20	19.27	19.30	19.13	18.87	19.35	19.42	19.51	19.20	18.79	18.53	18.17	18.00
21	19.26	19.30	19.10	18.86	19.36	19.43	19.48	19.25	18.76	18.49	18.19	17.93
22	19.25	19.30	19.09	18.90	19.32	19.47	19.46	19.22	18.75	18.49	18.11	17.95
23	19.26	19.25	18.98	18.89	19.30	19.49	19.44	19.21	18.76	18.49	17.93	17.98
24	19.25	19.28	18.93	18.93	19.27	19.48	19.43	19.16	18.81	18.49	18.12	18.01
25	19.23	19.30	18.96	18.86	19.25	19.46	19.45	19.14	18.78	18.50	18.21	17.95
26	19.19	19.27	18.96	18.94	19.27	19.45	19.52	19.14	18.75	18.45	18.08	17.99
27	19.21	19.27	18.97	19.01	19.26	19.48	19.56	19.18	18.73	18.46	18.23	17.92
28	19.25	19.27	18.94	18.98	19.32	19.49	19.54	19.17	18.72	18.46	18.25	17.98
29	19.26	19.12	18.90	19.02	---	19.46	19.44	19.15	18.71	18.35	18.16	17.99
30	19.26	18.98	18.91	18.91	---	19.46	19.45	19.14	18.68	18.28	18.20	18.04
31	19.29	---	18.91	18.92	---	19.47	---	19.11	---	18.17	18.21	---
MEAN	19.21	19.25	19.05	18.90	19.24	19.48	19.53	19.24	18.86	18.55	18.10	18.02
MAX	19.29	19.30	19.17	19.02	19.36	19.59	19.65	19.40	19.05	18.68	18.25	18.18
MIN	19.08	18.98	18.90	18.82	19.09	19.35	19.43	19.11	18.68	18.17	17.80	17.92

WTR YR 1995 MAX 19.74 APR. 9 MIN 17.58 AUG. 12



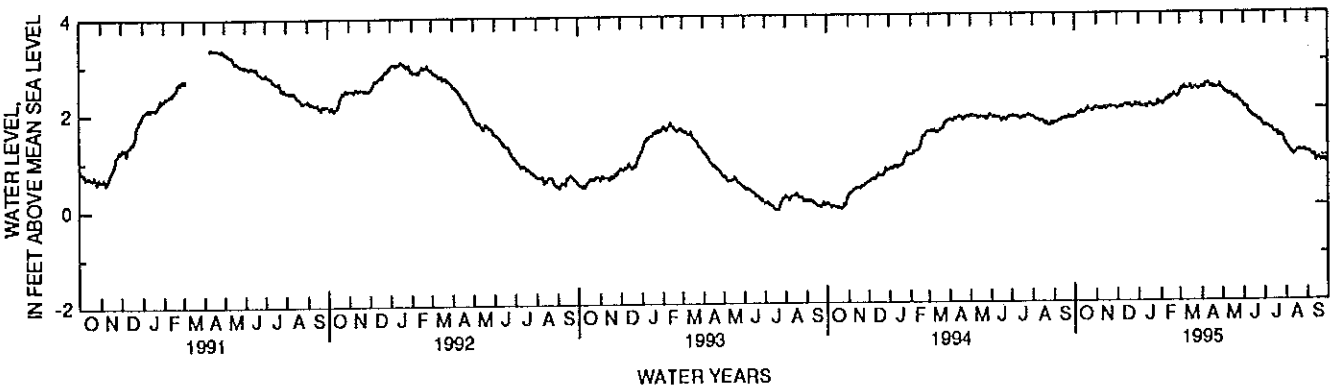
HAWAII, ISLAND OF OAHU--Continued

212123157535503. Local number, 3-2153-05 Salt Water well.
LOCATION.--Lat 21°21'23", long 157°53'55", Hydrologic Unit 20060000, 0.4 mi northwest of Moanalua Elementary School, and 0.5 mi southwest of Tripler Hospital, in Moanalua. Owner: Honolulu Board of Water Supply.
AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.
WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,246 ft, 3-in. PVC casing, cased to 46 ft,where it becomes 3/4-in PVC pipe; two 5/8-in holes at elevation 1,190 ft. Well was modified and deepened August 1980, and used to monitor water level (salt). The well is a combination of a 3-in PVC (salt water) and a 6-in PVC (fresh water), encased in a 12-in steel casing.
DATUM.--Elevation of land-surface datum is 35 ft. Measuring point: Top of 6-in PVC casing, 37.90 ft above mean sea level.
REMARKS.--Geophysical logs are available in files of district office. Prior to October 1993, unpublished records in files of the U.S. Geological Survey. No record March 5, 1991 to April 8, 1991.
PERIOD OF RECORD.--Water-level recorder, March 1981 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.45 ft above mean sea level, Jan. 9, 1983; lowest, 1.45 ft below mean sea level, Oct. 24, 1981.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.84	2.02	2.02	2.07	2.14	2.34	2.45	2.42	2.04	1.62	1.23	1.08
2	1.85	2.03	2.03	2.10	2.13	2.40	2.45	2.39	2.03	1.62	1.20	1.08
3	1.86	2.02	2.03	2.08	2.11	2.41	2.43	2.38	2.02	1.63	1.19	1.08
4	1.90	2.02	2.04	2.05	2.08	2.40	2.43	2.35	2.03	1.62	1.18	1.08
5	1.92	2.02	2.05	2.04	2.13	2.41	2.44	2.34	2.03	1.62	1.14	1.07
6	1.93	2.00	2.05	2.04	2.13	2.42	2.48	2.33	2.02	1.62	1.13	1.05
7	1.92	2.01	2.05	2.05	2.14	2.44	2.51	2.33	2.00	1.60	1.11	1.04
8	1.90	2.00	2.05	2.05	2.18	2.45	2.51	2.32	1.93	1.59	1.08	1.00
9	1.94	2.01	2.04	2.05	2.19	2.42	2.51	2.29	1.89	1.58	1.06	.99
10	1.96	2.00	2.06	2.07	2.19	2.42	2.52	2.28	1.88	1.58	1.07	1.01
11	1.95	2.01	2.07	2.07	2.18	2.42	2.50	2.28	1.88	1.57	1.06	1.03
12	1.94	2.03	2.08	2.03	2.23	2.41	2.48	2.31	1.88	1.56	1.03	1.00
13	1.92	2.04	2.08	2.04	2.24	2.43	2.46	2.31	1.84	1.54	1.04	.95
14	1.92	2.04	2.09	2.05	2.20	2.44	2.44	2.27	1.83	1.50	1.06	.90
15	1.93	2.00	2.10	2.08	2.22	2.44	2.45	2.25	1.82	1.50	1.07	.91
16	1.95	2.03	2.07	2.10	2.25	2.47	2.47	2.26	1.82	1.49	1.10	.92
17	1.99	2.04	2.06	2.10	2.25	2.45	2.45	2.25	1.81	1.50	1.11	.95
18	1.99	2.04	2.08	2.08	2.25	2.42	2.43	2.22	1.80	1.49	1.11	.96
19	2.00	2.04	2.08	2.10	2.25	2.40	2.43	2.21	1.80	1.49	1.11	.93
20	2.03	2.04	2.09	2.06	2.29	2.41	2.45	2.21	1.78	1.44	1.12	.92
21	1.99	2.05	2.07	2.05	2.31	2.41	2.44	2.23	1.76	1.41	1.12	.89
22	2.00	2.04	2.05	2.06	2.29	2.43	2.43	2.23	1.75	1.42	1.11	.92
23	2.00	2.04	2.05	2.07	2.27	2.43	2.43	2.20	1.74	1.44	1.10	.92
24	2.00	2.04	2.05	2.06	2.24	2.44	2.43	2.18	1.75	1.44	1.11	.92
25	1.97	2.04	2.06	2.06	2.25	2.42	2.44	2.17	1.75	1.42	1.11	.90
26	1.97	2.04	2.08	2.07	2.28	2.41	2.45	2.16	1.73	1.41	1.10	.92
27	1.98	2.04	2.11	2.12	2.27	2.41	2.50	2.14	1.69	1.41	1.11	.90
28	2.00	2.04	2.11	2.16	2.30	2.41	2.47	2.12	1.66	1.39	1.12	.89
29	2.01	2.03	2.08	2.15	---	2.41	2.42	2.11	1.65	1.31	1.10	.89
30	2.02	2.02	2.07	2.09	---	2.42	2.42	2.10	1.62	1.27	1.09	.92
31	2.04	---	2.07	2.11	---	2.43	---	2.08	---	1.26	1.08	---
MEAN	1.96	2.03	2.07	2.07	2.21	2.42	2.46	2.25	1.84	1.49	1.11	.97
MAX	2.04	2.05	2.11	2.16	2.31	2.47	2.52	2.42	2.04	1.63	1.23	1.08
MIN	1.84	2.00	2.02	2.03	2.08	2.34	2.42	2.08	1.62	1.26	1.03	.89

WTR YR 1995 MAX 2.59 APR. 27 MIN .84 SEP. 24-26, 28, 29

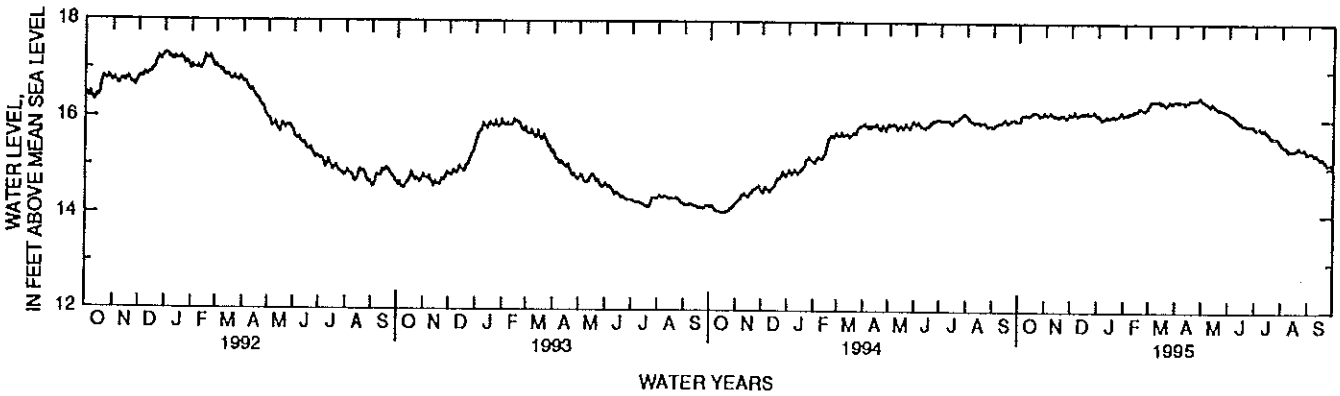


212238157561101. Local number, 3-2256-10.
LOCATION.--Lat 21°22′38″, long 157°56′11″, Hydrologic Unit 20060000, 0.4 mi southwest of Aiea School, and 0.5 mi east of McGrew Point. Owner: U.S. Navy.
AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.
WELL CHARACTERISTICS.--Drilled artesian well, depth 173 ft, casing diameter 12 in., cased to 143 ft.
DATUM.--Elevation of land-surface datum is 10 ft. Measuring point: Top of 10-inch stilling pipe for water-level recorder, 26.15 ft above mean sea level.
REMARKS.--Water-quality records for 1923, 1928-30, 1934-68, 1972, 1974-75 are available in files of district office.
PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, January 1928 to February 1931, September 1934 to August 1966. Water-level recorder, September 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.90 ft above mean sea level, Jan. 16, 1928; lowest, 12.97 ft above mean sea level, Oct. 5, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.96	16.12	16.09	16.08	16.11	16.31	16.39	16.40	16.14	15.83	15.50	15.32
2	15.96	16.12	16.11	16.09	16.11	16.35	16.39	16.39	16.12	15.82	15.49	15.32
3	15.98	16.10	16.10	16.07	16.12	16.38	16.38	16.38	16.11	15.82	15.48	15.33
4	16.06	16.11	16.13	16.05	16.10	16.38	16.37	16.37	16.10	15.83	15.46	15.34
5	16.08	16.11	16.16	16.02	16.14	16.39	16.37	16.35	16.10	15.83	15.45	15.34
6	16.08	16.12	16.13	16.01	16.15	16.38	16.38	16.34	16.09	15.84	15.45	15.32
7	16.09	16.13	16.10	16.03	16.14	16.38	16.38	16.34	16.06	15.83	15.44	15.30
8	16.08	16.11	16.09	16.04	16.14	16.39	16.38	16.34	16.05	15.81	15.39	15.28
9	16.09	16.11	16.09	16.03	16.15	16.38	16.37	16.31	16.02	15.80	15.37	15.27
10	16.10	16.09	16.11	16.04	16.16	16.38	16.36	16.29	16.00	15.79	15.39	15.29
11	16.09	16.09	16.12	16.07	16.15	16.38	16.34	16.31	16.00	15.80	15.39	15.29
12	16.09	16.09	16.12	16.05	16.19	16.39	16.36	16.33	15.99	15.81	15.37	15.27
13	16.08	16.09	16.11	16.05	16.19	16.38	16.36	16.33	15.95	15.79	15.38	15.25
14	16.10	16.08	16.13	16.04	16.18	16.36	16.36	16.31	15.96	15.76	15.38	15.23
15	16.10	16.07	16.13	16.06	16.18	16.35	16.37	16.29	15.93	15.74	15.38	15.21
16	16.12	16.06	16.13	16.07	16.21	16.37	16.39	16.28	15.92	15.74	15.39	15.20
17	16.13	16.07	16.13	16.06	16.23	16.36	16.41	16.27	15.91	15.72	15.39	15.21
18	16.13	16.09	16.12	16.06	16.24	16.34	16.40	16.26	15.91	15.69	15.40	15.21
19	16.14	16.08	16.14	16.08	16.24	16.32	16.41	16.24	15.91	15.66	15.41	15.19
20	16.14	16.08	16.15	16.07	16.23	16.32	16.42	16.22	15.91	15.65	15.43	15.16
21	16.14	16.10	16.14	16.06	16.22	16.31	16.42	16.23	15.89	15.65	15.44	15.14
22	16.14	16.08	16.11	16.07	16.22	16.33	16.42	16.23	15.89	15.63	15.42	15.12
23	16.13	16.09	16.11	16.07	16.22	16.35	16.42	16.22	15.88	15.64	15.40	15.10
24	16.11	16.07	16.12	16.08	16.20	16.36	16.42	16.20	15.89	15.64	15.39	15.08
25	16.09	16.05	16.12	16.09	16.22	16.38	16.42	16.20	15.90	15.64	15.39	15.08
26	16.08	16.05	16.14	16.10	16.23	16.37	16.43	16.20	15.89	15.63	15.39	15.09
27	16.09	16.07	16.15	16.12	16.25	16.35	16.44	16.19	15.88	15.62	15.40	15.10
28	16.10	16.08	16.16	16.15	16.29	16.35	16.45	16.18	15.89	15.61	15.40	15.08
29	16.09	16.12	16.13	16.15	---	16.37	16.43	16.17	15.87	15.57	15.36	15.07
30	16.10	16.11	16.10	16.12	---	16.37	16.42	16.16	15.84	15.55	15.33	15.11
31	16.14	---	16.08	16.09	---	16.38	---	16.15	---	15.53	15.32	---
MEAN	16.09	16.09	16.12	16.07	16.19	16.36	16.40	16.27	15.97	15.72	15.41	15.21
MAX	16.14	16.13	16.16	16.15	16.29	16.39	16.45	16.40	16.14	15.84	15.50	15.34
MIN	15.96	16.05	16.08	16.01	16.10	16.31	16.34	16.15	15.84	15.53	15.32	15.07

WTR YR 1995 MAX 16.45 APR. 27, 28 MIN 15.01 SEP. 24



212300158004801. Local number, 3-2300-06.

LOCATION.--Lat 21°23'00", long 158°00'48", Hydrologic Unit 20060000, next to Waikele canal in Waipahu. Owner: Honolulu Board of Water Supply.

AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled well, depth 241 ft, 10-in steel pipe casing, cased to 104 ft.

DATUM.--Elevation of land-surface datum is 12 ft. Measuring point: Top of 10-in blind flange, elevation: 16.78 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, January 1974 to current year.
WATER QUALITY: 1972, 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.15 ft above mean sea level, Dec. 8, 1982; lowest, 12.68 ft above mean sea level, Sep. 20, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	a>16.78	MAY 10	a>16.78	JUN 8	a>16.78	SEP 28	a>16.78

212340158001901. Local number, 3-2300-18.

LOCATION.--Lat 21°23'40", long 158°00'19", Hydrologic Unit 20060000, 700 ft south of August Ahrens School, and 1,400 ft northeast of L'Orange Park, Waipahu. Owner: Honolulu Board of Water Supply.

AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled basal-water table well, depth 1,090 ft, casing diameter 12 in., cased to 38 ft. Well was deepened May 1980 and modified February 1984. Prior to May 1980, well depth 205 ft.

DATUM.--Elevation of land-surface datum is 26 ft. Measuring point: Top of casing, 27.73 ft above mean sea level.

REMARKS.--Geophysical logs are available in files of district office.

PERIOD OF RECORD.--
WATER LEVEL: Water-level recorder, November 1982 to July 1983, March 1984 to November 30, 1987.
Occasional measurements, October 1987 to current year.
WATER QUALITY: 1930, 1942-45, 1947-49, 1951-54, 1968, 1983, 1985-86, 1991, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level 22.40 ft above mean sea level, Jan. 4, 1983; lowest 14.01 ft above mean sea level, Sept. 14, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 8	17.84	MAR 7	18.14	MAY 10	18.15	JUN 8	17.85	SEP 28	16.95

> Actual value is known to be greater than the value shown
a Water level higher than the flange, unable to measure

212501158080701. Local number, 3-2508-02.

LOCATION.--Lat 21°25′01″, long 158°08′07″, Hydrologic Unit 20060000, 2.2 mi northeast from the intersection of Farrington Highway and Lualualei Naval Ammunition Depot, 0.4 mi southeast of entrance to Lualualei Naval Ammunition Depot, located inside the Depot. Owner: Honolulu Board of Water Supply.

AQUIFER.--Basalt of Waianae Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Located at the bottom of a 30-degree inclined 6.8 ft by 7.8 ft shaft, 340 feet long.

DATUM.--Elevation of land-surface datum is 180 ft. Measuring point: Top of concrete above well, elevation; 13.16 feet above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, October 1972 to current year.
WATER QUALITY: 1971-84.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.40 ft above mean sea level, Oct. 3, 1972; lowest, 10.15 ft above mean sea level, Mar. 8, 1994.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 8	10.37	APR 4	10.38	JUN 9	10.43	SEP 21	10.47

212659158004102. Local number, 3-2600-04.

LOCATION.--Lat 21°26′59″, long 158°00′41″, Hydrologic Unit 20060000, 30 ft south of Waiahole ditch, and 1.1 mi east southeast of Kipapa School in Mililani. Owner: Honolulu Board of Water Supply.

AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 815 ft, casing diameter 16-in, cased to 705 ft.

DATUM.--Elevation of land-surface datum is 665 ft. Measuring point: Top of 16-inch casing, 666.62 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Water-level recorder, October 1983 to September 10, 1987.
Occasional measurements, October 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.49 ft above mean sea level, Apr. 5, 1989; lowest 16.74 ft above mean sea level, Sept.14, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 1	a---	MAR 30	a---	JUN 9	a---	SEP 27	a---

a Unable to make a measurement

HAWAII, ISLAND OF OAHU--Continued

212813158080201. Local number, 3-2808-01.

LOCATION.--Lat 21°28′13″, long 158°08′04″, Hydrologic Unit 20060000, inside Lualualei Naval Ammunition Depot, 1000 ft west from the intersection of Kolekole Road and Radford Street, at Building 492, 3.3 miles north from the entrance of the depot. Owner: U.S. Navy.

AQUIFER.--Basalt of Waianae Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Depth 535 ft, cased to 182 ft, diameter is 12-in to 185 ft, then 3-in to 535 ft.

DATUM.--Elevation of land-surface datum is 347 ft. Measuring point: On pump 2 ft above base. Remove 1/2-in nipple, elevation 437.45 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, June 1973 to current year.
WATER QUALITY: 1972-88.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 441.81 ft above mean sea level, Feb. 28, 1983; lowest, 420.78 ft above mean sea level, Oct. 24, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 8	430.99	APR 4	430.16	JUN 6	429.26	SEP 21	428.97

212927158014801. Local number, 3-2901-07.

LOCATION.--Lat 21°29'27", long 158°01'48", Hydrologic Unit 20060000, across the main gate of Wheeler AFB, and 1,200 ft south of Wahiawa bridge on Kaukonohua Stream. Owner: U.S. Army.

AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Dug high-level water-table well, size 8 ft x 8 ft, length of 30-degree inclined shaft 1,148 ft.

DATUM.--Elevation of land-surface datum is 850 ft. Measuring point: Top of pump chamber floor at recorder, 287.00 ft above mean sea level.

REMARKS.--Water-level recorder is located on the pump chamber floor at the bottom of shaft. Water from this well is used for public supply.

PERIOD OF RECORD.--
WATER LEVEL: Water-level recorder, November 1938 to current year.
WATER QUALITY: 1966-72, 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 284.40 ft above mean sea level, May 12, 1969; lowest, 269.52 ft above mean sea level, Dec. 5, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	275.46	275.72	275.39	275.88	276.12	276.16	275.73	275.28	274.90	274.42	273.92	273.40
10	275.45	275.75	275.91	275.56	276.16	276.10	275.63	275.20	274.02	274.12	273.43	273.28
15	275.54	275.85	275.87	275.89	276.12	276.03	275.51	275.09	274.67	274.02	273.92	273.20
20	275.69	275.71	275.78	276.00	276.15	275.49	275.55	275.06	274.63	273.87	273.58	273.05
25	275.21	275.74	275.76	275.66	276.09	275.52	275.10	274.98	273.88	273.98	273.76	272.57
EOM	275.38	275.73	275.82	276.04	276.16	275.87	275.35	274.83	274.40	273.87	272.98	272.85

Note: Well being pumped throughout the year.

NONPUMPING VALUES

Water levels are read after all pumps in the pump chamber are turned off for two hours.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	275.57	JAN 3	275.99	MAR 1	276.18	MAY 1	275.47	JUN 19	274.72	SEP 9	273.66
NOV 1	275.83	JAN 28	276.31	APR 3	275.94	JUN 5	274.93	AUG 7	273.98	SEP 11	273.67
DEC 1	275.86	FEB 1	276.27								

213224158135901. Local number, 3-3213-06.

LOCATION.--Lat 21°32′24″, long 158°13′59″, Hydrologic Unit 20060000, along Farrington Highway, 1.2 mi north of Makua Cave, and 1 mi southeast of Yokohama Bay. Owner: U.S. Air Force.

AQUIFER.--Basalt of Waianae Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled well, depth 50 ft, cased to 21 ft with 6-in black steel pipe.

DATUM.--Elevation of land-surface datum is 26 ft. Measuring point: Top of 6-in casing, elevation: 26.47 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, October 1972 to current year.
WATER QUALITY: 1967, 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.92 ft above mean sea level, Jan. 2, 1975; lowest, 6.49 ft above mean sea level, July 15, 1976.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 31	6.95	MAY 9	6.85	JUN 9	6.81	SEP 21	6.89

213327157524401. Local number, 3-3352-01.

LOCATION.--Lat 21°33′27″, long 157°52′44″, Hydrologic Unit 20060000, at mouth of Kahana Valley, and 700 ft southwest of Kamehameha Highway, Kahana. Owner: Mary E. Foster Estate.

AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 441 ft, casing diameter 10-in, cased to 177 ft.

DATUM.--Elevation of land-surface datum is 6 ft. Measuring point: Top of "T", 7.31 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, April 1935 to 1990, 1992 to current year.
WATER QUALITY: 1935 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.3 ft above mean sea level, Mar. 29, 1966; lowest measured, 12.61 ft above mean sea level, July 5, 1984.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	14.93	MAR 6	14.12	JUN 7	15.64	SEP 27	13.72

213438158091101. Local number, 3-3409-16.

LOCATION.--Lat 21°34′36", long 158°09′12", Hydrologic Unit 20060000, 1.6 mi west of Waialua High School, 2.6 mi east of Mokuleia Beach Park along Farrington Highway. Owner: J. Mendonca.

AQUIFER.--Basalt of Waianae Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 518 ft, cased to 440 ft, diameter 10-in to 8-in.

DATUM.--Elevation of land-surface datum is 8 ft. Measuring point: Chiseled 1 1/2-in square on concrete, 3.7 ft in front of door of well shelter, elevation: 8.48 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, December 1924 to current year.
WATER QUALITY: 1924-84.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.3 ft above mean sea level, Jan. 16, 1969; lowest, 16.75 ft above mean sea level, Aug. 6, 1929.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	18.49	MAR 30	17.98	JUN 12	18.08

213446158104901. Local number, 3-3410-08.

LOCATION.--Lat 21°34′46", long 158°10′49", Hydrologic Unit 20060000, 0.5 mi east of Dillingham Airfield, and 1.1 mi southeast of Mokuleia Beach Park. Owner: Waialua Sugar Company, Inc.

AQUIFER.--Basalt of Waianae Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 447 ft, casing diameter 1 inch, cased to 410 ft, perforated from 410 to 447 ft.

DATUM.--Elevation of land-surface datum is 12 ft. Measuring point: Top of 12-inch stilling well, 20.53 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Water-level recorder, January 1963 to February 1972.
Occasional measurements, January 1929 to December 1962, March 1972 to current year.
WATER QUALITY: 1929 to 1985, 1989 to 1991, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level 19.98 ft above mean sea level, Jan. 5, 1969; lowest 16.08 ft above mean sea level, Aug.6, 1929.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	18.62	MAR 14	18.44	JUN 12	18.41

214053157570401. Local number, 3-4057-05.

LOCATION.--Lat 21°40'53", long 157°57'04", Hydrologic Unit 20060000, 0.4 mi northeast of Kahuku Hospital, and 500 ft north of Kahuku High School.

AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 397 ft, 12-in metal casing, cased to 172 ft.

DATUM.--Elevation of land-surface datum is 9 ft. Measuring point: Top of 10-in stand pipe, elevation; 16.01 ft above mean sea level.

REMARKS.--Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

PERIOD OF RECORD.--
WATER LEVEL: Water-level recorder, August 1958 to December 1990.
Occasional measurements, March 1911 to May 1918, Mar 1921, January 1926 to August 1958, December 1990 to current year.
WATER QUALITY: 1908, 1911-16, 1924-78.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.12 ft above mean sea level, Jan. 1916; lowest, 8.00 ft above mean sea level, Oct. 5, 1962.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	13.19	MAR 6	12.87	JUN 7	12.66	SEP 26	12.82

214125158013401. Local number, 3-4101-03.

LOCATION.--Lat 21°41'25", long 158°01'34", Hydrologic Unit 20060000, 1,500 ft northeast of UH agriculture experiment Station in Waialee, and 1.9 mi northeast of Sunset Beach. Owner: State of Hawaii.

AQUIFER.--Basalt of Koolau Volcanic Series, Tertiary age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 61 ft, casing diameter 8 in., cased to 36 ft.

DATUM.--Elevation of land-surface datum is 22 ft. Measuring point: Top of 4-in. pipe, 21.89 ft above mean sea level.

REMARKS.--Water-quality records for 1929-74 are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, February 1929 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.60 ft above mean sea level, Nov. 14, 1932; lowest measured, 10.97 ft above mean sea level, July 1, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	13.69	MAR 6	13.71	JUN 7	13.45	SEP 26	13.57

210425156483001. Local number, 4-0448-02.

LOCATION.--Lat 21°04'25", long 156°48'30", Hydrologic Unit 20050000, 100 ft north of Highway 45, and 0.8 mi west of Pukoo. Owner: P. Friel.

AQUIFER.--East Molokai Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Dug basal water-table well, size 4 ft x 6 ft, depth 22 ft.

DATUM.--Elevation of land-surface datum is 19 ft. Measuring point: Top of 2" x 2" steel plate bolted to top of concrete wall of well, 21.23 ft above mean sea level.

REMARKS.-- Water-quality records for 1970-1973 are available in files of district office.

PERIOD OF RECORD.--
WATER LEVEL: Water-level recorder, August 1970 to January 1973. Occasional measurements, February 1973 to current year.
WATER QUALITY: 1970-73, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.11 ft above mean sea level, Nov. 26, 1970; lowest measured, 3.67 ft above mean sea level, Feb. 8, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	4.34	DEC 12	4.40	FEB 13	4.21	APR 25	4.47	JUN 26	4.14	AUG 14	4.13

210402156495801. Local number, 4-0449-01.

LOCATION.--Lat 21°04'02", long 156°49'58", Hydrologic Unit 20050000, 1,800 ft north of Ualapue Fishpond, and 0.5 mi northeast of Kilohana School. Owner: County of Maui.

AQUIFER.--East Molokai Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Dug basal water-table well, size 4 ft x 6 ft, depth 42 ft, lined with concrete to 42 ft; two infiltration tunnels, total length 214 ft.

DATUM.--Elevation of land-surface datum is 42 ft. Measuring point: Top of steel plate, 42.42 ft above mean sea level.

REMARKS.--Water from this well is used for public supply.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, 1938-39, 1941-63, November 1972 to current year.
WATER QUALITY: 1948, 1952-56, 1970-91, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.05 ft above mean sea level, Jan. 19, 1950; lowest measured, 2.09 ft above mean sea level, Sept. 16, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	3.44	DEC 12	3.46	FEB 13	3.27	APR 25	3.48	JUN 26	3.29	AUG 14	3.27

210419156570501. Local number, 4-0457-01.

LOCATION.--Lat 21°04'19", long 156°57'05", Hydrologic Unit 20050000, 0.5 mi northwest of Kakahaia Fishpond, and 0.5 mi northeast of Moku. Owner: County of Maui.

AQUIFER.--Basalt of East Molokai Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Dug basal water-table well, size 4 ft x 4 ft, depth 38 ft, lined with concrete to 38 ft; two infiltration tunnels, total length 229 ft.

DATUM.--Elevation of land-surface datum is 38 ft. Measuring point: Top of steel plate, 37.36 ft, above mean sea level.

REMARKS.--Water from this well is used for public supply. Water level taken after pump turned off for one half hour.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, June 1947 to November 1960, January 1962 to February 1963, November 1972 to current year.
WATER QUALITY: 1948, 1954-56, 1960, 1962, 1971, 1973-91, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.78 ft above mean sea level, Feb. 5, 1991; lowest measured, 1.47 ft above mean sea level, June 24, 1955.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	2.06	DEC 12	2.02	FEB 13	1.91	APR 25	2.20	JUN 26	2.01	AUG 14	2.06

210605157012001. Local number, 4-0601-01.

LOCATION.--Lat 21°06'05", long 157°01'20", Hydrologic Unit 20050000, 0.6 mi north of Kaunakakai School, and 0.9 mi east of Kalanianaole Colony. Owner: Molokai Ranch.

AQUIFER.--Basalt of East Molokai Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 59 ft, casing diameter 12-inch, cased to 20 ft.

DATUM.--Elevation of land-surface datum is 51 ft. Measuring point: Top of 15-inch surface casing, 51.95 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, May 1954 to current year.
WATER QUALITY: 1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.30 ft above mean sea level, Jan. 20, 1969; lowest measured, 1.60 ft above mean sea level, Dec. 5, 1964.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	2.85	DEC 15	2.68	FEB 17	2.70	APR 28	2.82	JUN 29	2.79	AUG 17	2.72

210711157000501. Local number, 4-0700-01.

LOCATION.--Lat 21°07'11", long 157°00'05", Hydrologic Unit 20050000, 2.3 mi northeast of Kaunakakai, and 2.4 mi north of Kamiloloa. Owner: Kaluakoi Corporation.

AQUIFER.--East Molokai Volcanic Series.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,080 ft, casing diameter 20-inch, cased to 956 ft, perforated from 956 to 1056 ft.

DATUM.--Measuring point: Top of casing, 979.00 ft, land-surface datum.

REMARKS.--Water-quality records for 1973-75 are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, July 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 975.25 ft below land-surface datum, Apr. 27, 1988; lowest measured, 976.23 ft below land-surface datum, Sept. 10, 1986.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	975.86	FEB 16	976.00	JUN 29	975.92	AUG 17	975.94

203908156041201. Local number, 6-3904-01.

LOCATION.--Lat 20°39′08″, long 156°04′12″, Hydrologic Unit 20020000, 1,300 ft northwest of Kakanoni Point, and 0.7 mi west of Kipahulu School. Owner: Cordelia May.

AQUIFER.--Hana Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 150 ft, casing diameter 4-inch.

DATUM.--Elevation of land-surface datum is 133 ft. Measuring point: Top of 1-inch pipe nipple, 133.61 ft above mean sea level.

REMARKS.--Water-quality records for 1978 are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, July 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.97 ft above mean sea level, Jun. 29, 1988; lowest measured, 0.70 ft above mean sea level, July 2, 1986.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	2.43	DEC 8	2.37	JAN 25	1.83	MAY 4	1.21	JUL 6	2.41	SEP 1	2.33

203912156255901. Local number, 6-3925-01.

LOCATION.--Lat 20°39′12″, long 156°25′59″, Hydrologic Unit 20020000, 0.8 mi east of Keawalai Church, and 0.9 mi southeast of intersection of Kihei and Makena roads. Owner: State of Hawaii.

AQUIFER.--Hana Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 382 ft, casing diameter 8-inch, cased to 343 ft. perforated from 343 to 363 ft.

DATUM.--Elevation of land-surface datum is 352 ft. Measuring point: Top of 2-inch pipe attached to the casing cover, 352.29 ft above mean sea level.

REMARKS.--Water-quality records for 1964 are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, August 1964, June 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.47 ft above mean sea level, Aug. 24, 1964; lowest measured, 0.41 ft below mean sea level, May 4, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 4	0.07	JAN 12	-0.01	MAY 15	-0.31	AUG 9	-0.19

204827156242201. Local number, 6-4824-01.

LOCATION.--Lat 20°48'27", long 156°24'22", Hydrologic Unit 20020000, on Waiakoa Road 1,000 ft south of intersection with Kalaloa gulch, and 4 mi east of Kihei. Owner: state of Hawaii.

AQUIFER.--Kula volcanic series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 647 ft, casing diameter 12-inch, cased to 598 ft, screened from 598 to 638 ft.

DATUM.--Elevation of land-surface datum is 593 ft. Measuring point: Top of 3-inch pipe attached to the steel casing cover, 594.74 ft above mean sea level (levels of 12-10-93).

REMARKS.--Water-quality records for 1971, 1973 are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, March 1971, May 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.20 ft above mean sea level, Jan. 17, 1974; lowest measured, 3.65 ft above mean sea level, Jan. 27, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 15	4.23	JAN 18	4.37	MAY 16	4.25	JUL 12	4.36	AUG 24	4.25

204818156310301. Local number, 6-4831-01.

LOCATION.--Lat 20°48'18", long 156°31'03", Hydrologic Unit 20020000, on sugar plantation road 0.7 mi north of Maalaea, and 0.9 mi southwest of intersection of Honoapiilani Highway and Kihei Road. Owner: State of Hawaii.

AQUIFER.--Wailuku Volcanic Series, Piliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 219 ft, casing diameter 8-inch, cased to 187 ft.

DATUM.--Elevation of land-surface datum is 166 ft. Measuring point: Top of 8-inch casing, 166.60 ft above mean sea level.

REMARKS.--Water-quality records for 1965-67 are available in files of district office.

PERIOD OF RECORD.--Water-level recorder, January to July 1974. Occasional measurements, September 1972 to December 1973, August 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.76 ft above mean sea level, Nov. 30, 1983; lowest measured, 4.74 ft above mean sea level, Mar. 16, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	5.40	DEC 1	5.16	FEB 21	5.35	MAY 12	5.20	JUL 5	5.41	AUG 8	5.29

204909156281401. Local number, 6-4928-02.

LOCATION.--Lat 20°48'27", long 156°28'14", Hydrologic Unit 20020000, at Puunene Airport on Mokulele Highway 2.3 mi north of intersection with Kihei Road, Kihei. Owner: Hawaiian Commercial and Sugar Co.

AQUIFER.--Honomanu Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Dug basal water-table well, 6 ft x 9 ft vertical shaft, depth 53 ft.

DATUM.--Elevation of land-surface datum is 50 ft. Measuring point: Top of angle iron at well, 50.08 ft above mean sea level.

REMARKS.--Water-quality records for 1973 are available in files of district office.

PERIOD OF RECORD.--Water-level recorder, March 1972 to September 1984. Occasional measurements, October 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.09 ft above mean sea level, Jan. 12, 1980; lowest measured, 3.05 ft above mean sea level, Mar. 5, 6, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 4	3.86	JAN 12	3.86	MAR 1	4.00	MAY 16	3.81	JUN 21	3.90	AUG 9	3.88

205140156304501. Local number, 6-5130-01.

LOCATION.--Lat 20°51'40", long 156°30'45", Hydrologic Unit 20020000, 0.5 mi northwest of Waikapu, and 1.0 mi southeast of Wailuku Heights. Owner: State of Hawaii.

AQUIFER.--Wailuku Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 757 ft, casing diameter 8-inch, cased to 569 ft, perforated from 569 to 609 ft.

DATUM.--Elevation of land-surface datum is 551 ft. Measuring point: Top of 6-inch pipe coupling, 551.33 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, June 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.90 ft above mean sea level, Oct. 13, 1982; lowest measured, 11.36 ft above mean sea level, Jan. 27, 1976.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 15	13.34	JAN 18	13.03	MAY 16	13.03	JUL 12	13.18	AUG 24	12.82

205154156303801. Local number, 6-5130-02.

LOCATION.--Lat 20°51'54", long 156°30'38", Hydrologic Unit 20D20000, 0.6 mi northwest of Waikapu, and 1.0 mi southeast of Wailuku Heights. Owner: State of Hawaii.

AQUIFER.--Wailuku Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,020 ft, casing diameter 20-inch, cased to 520 ft, perforated from 520 to 570 ft.

DATUM.--Elevation of land-surface datum is 518 ft. Measuring point: Top of casing, 519.33 ft above mean sea level.

REMARKS.--Water-quality records for 1974 are available in files of district office.

PERIOD OF RECORD.--Water-level recorder, August 1983 to September 1984. Occasional measurements, October 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.03 ft above mean sea level, July 15, 1987; lowest measured, 12.53 ft above mean sea level, July 12, and Aug. 24, 1995.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 15	13.09	JAN 18	13.01	MAY 16	12.70	JUL 12	12.53	AUG 24	12.53

205412156193801. Local number, 6-5419-01.

LOCATION.--Lat 20°54'12", long 156°19'38", Hydrologic Unit 20020000, 0.9 mi south of Haiku Cannery, and 2 mi north west of Kaupakulua between the Haiku-Kokomo road and Haliko Gulch. Owner: State of Hawaii

AQUIFER.--Honomanu Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 150 ft, casing diameter 4-inch, cased to 829 ft, perforated from 829 to 859 ft.

DATUM.--Elevation of land-surface datum is 828 ft. Measuring point: Top of 6-inch pipe coupling, 828.44 ft above mean sea level.

REMARKS.--Water level readings are affected by oil floating on top of the water.

PERIOD OF RECORD.--Occasional measurements, October 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.60 ft above mean sea level, May 2, 1989; lowest measured, 4.36 ft above mean sea level, July 9, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 15	a---	JAN 18	a---	MAY 16	a---	JUL 12	a---	AUG 24	a---

a Pump being installed. Unable to make a measurement

HAWAII, ISLAND OF MAUI--Continued

205419156304401. Local number, 6-5430-03.

LOCATION.--Lat 20°54'19", long 156°30'44", Hydrologic Unit 20020000, 2,000 ft north of Puuohala Village, and 0.5 mi northwest of Wailuku Sugar Mill reservoir. Owner: Wailuku Sugar Co.

AQUIFER.--Wailuku Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 580 ft, 1.5-inch PVC casing, cased to 400 ft, perforated from 400 to 580 ft.

DATUM.--Elevation of land-surface datum is 415 ft. Measuring point: Top of 1-inch galvanized pipe, 416.75 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, August 1982 to February 1984. Occasional measurements, March 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 22.09 ft above mean sea level, Dec. 31, 1982; lowest measured, 11.50 ft above mean sea level, Aug. 7, 1995.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	12.11	JAN 11	12.94	MAY 12	13.97	JUL 6	12.04	AUG 7	11.50

HAWAII, ISLAND OF MAUI--Continued

205405156305401. Local number, 6-5430-05.

LOCATION.--Lat 20°45′59″, long 156°30′56″, Hydrologic Unit 20020000, 1.0 mi southwest of intersection of Malaihi Road and Highway 33, and 1.2 mi south of Waihee. Owner: State of Hawaii.

AQUIFER.--Wailuku Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,400 ft, casing diameter 10-inch, cased to 400 ft.

DATUM.--Elevation of land-surface datum is 380 ft. Measuring point: Top of 10-inch casing, 380.84 ft, above mean sea level.

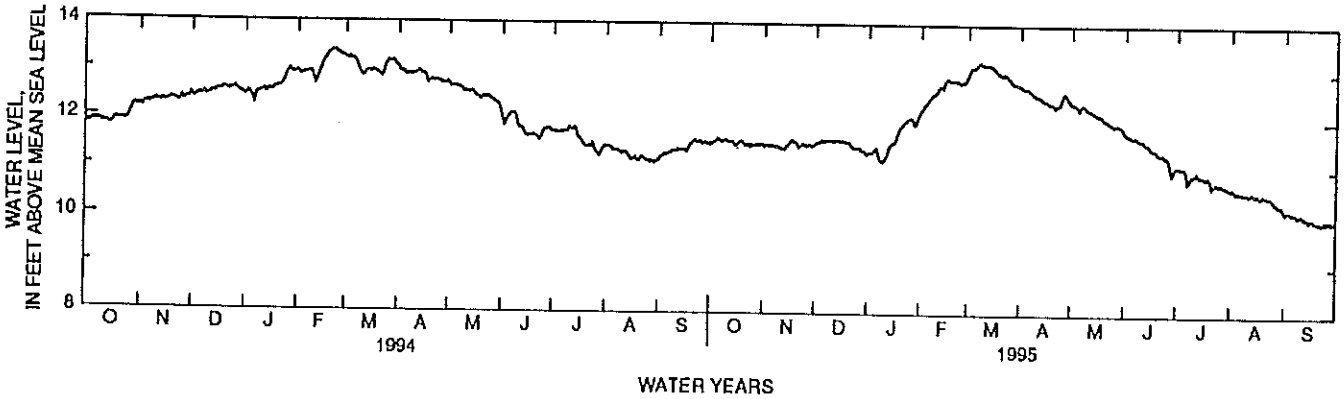
PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, August 1983 to May 1986. Water-level recorder, June 1986 to current year.
WATER QUALITY: 1982, 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.20 ft above mean sea level, Dec. 14, 1989; lowest measured, 9.86 ft above mean sea level, Sep. 22, 23, 27, 1995.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.50	11.46	11.52	11.32	12.20	12.96	12.73	12.37	11.76	11.07	10.62	10.16
2	11.52	11.48	11.53	11.34	12.24	13.07	12.70	12.36	11.74	11.07	10.64	10.18
3	11.54	11.48	11.54	11.33	12.33	13.11	12.68	12.34	11.72	11.06	10.60	10.18
4	11.55	11.47	11.56	11.36	12.34	13.11	12.67	12.32	11.71	11.06	10.57	10.17
5	11.60	11.47	11.58	11.41	12.40	13.12	12.68	12.25	11.68	11.06	10.57	10.15
6	11.58	11.47	11.56	11.42	12.45	13.16	12.64	12.31	11.68	10.98	10.57	10.15
7	11.56	11.46	11.58	11.25	12.50	13.20	12.62	12.34	11.68	10.77	10.56	10.14
8	11.55	11.45	11.58	11.19	12.55	13.21	12.57	12.34	11.67	10.81	10.55	10.10
9	11.58	11.45	11.58	11.16	12.56	13.18	12.55	12.27	11.63	10.91	10.55	10.10
10	11.57	11.43	11.58	11.18	12.58	13.18	12.53	12.26	11.62	10.90	10.55	10.12
11	11.55	11.42	11.57	11.24	12.65	13.16	12.52	12.24	11.61	10.91	10.53	10.11
12	11.55	11.42	11.56	11.30	12.70	13.16	12.50	12.23	11.58	10.96	10.53	10.06
13	11.55	11.41	11.58	11.45	12.71	13.16	12.48	12.20	11.54	10.91	10.55	10.06
14	11.53	11.47	11.58	11.50	12.68	13.16	12.44	12.18	11.54	10.88	10.54	10.04
15	11.49	11.49	11.57	11.53	12.80	13.14	12.43	12.16	11.49	10.90	10.51	10.01
16	11.49	11.54	11.56	11.55	12.85	13.10	12.43	12.13	11.45	10.88	10.52	10.03
17	11.51	11.58	11.57	11.58	12.86	13.06	12.38	12.14	11.43	10.86	10.50	10.03
18	11.55	11.55	11.55	11.70	12.84	13.02	12.37	12.12	11.42	10.85	10.48	9.99
19	11.55	11.54	11.55	11.81	12.83	12.99	12.37	12.07	11.40	10.87	10.51	9.98
20	11.52	11.52	11.55	11.86	12.83	12.97	12.35	12.03	11.35	10.82	10.50	9.97
21	11.49	11.45	11.53	11.90	12.83	12.95	12.30	12.03	11.33	10.67	10.49	9.97
22	11.48	11.46	11.46	11.95	12.82	12.98	12.33	12.00	11.33	10.71	10.47	9.95
23	11.50	11.51	11.44	11.98	12.83	12.96	12.34	11.95	11.33	10.75	10.47	9.96
24	11.45	11.49	11.43	12.01	12.79	12.92	12.37	11.96	11.29	10.73	10.45	9.98
25	11.49	11.49	11.43	12.03	12.80	12.89	12.48	11.93	11.28	10.73	10.42	9.96
26	11.47	11.47	11.43	12.04	12.81	12.85	12.58	11.92	11.24	10.73	10.36	9.98
27	11.48	11.48	11.42	12.04	12.80	12.80	12.58	11.93	11.10	10.71	10.35	9.97
28	11.49	11.49	11.38	11.92	12.90	12.78	12.50	11.92	10.93	10.70	10.30	9.97
29	11.49	11.47	11.37	11.93	---	12.78	12.45	11.91	11.00	10.68	10.29	9.97
30	11.49	11.48	11.36	12.04	---	12.76	12.41	11.88	11.06	10.66	10.29	9.99
31	11.50	---	11.31	12.14	---	12.74	---	11.81	---	10.65	10.22	---
MEAN	11.52	11.48	11.51	11.63	12.66	13.02	12.50	12.13	11.45	10.85	10.49	10.05
MAX	11.60	11.58	11.58	12.14	12.90	13.21	12.73	12.37	11.76	11.07	10.64	10.18
MIN	11.45	11.41	11.31	11.16	12.20	12.74	12.30	11.81	10.93	10.65	10.22	9.95

WTR YR 1995 MAX 13.28 MAR 7 MIN 9.86 SEP 22, 23, 27



HAWAII, ISLAND OF MAUI--Continued

205437156310501. Local number, 6-5431-01.

LOCATION.--Lat 20°54'37", long 156°31'05", Hydrologic Unit 20020000, 0.5 mi southwest of Waiehu Village, and 1.4 mi southwest of intersection of Malaihi Road and Kahekili Highway. Owner: Wailuku Sugar Co.

AQUIFER.--Wailuku Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 555 ft, 1.5-inch PVC casing, cased to 515 ft, perforated from 515 to 555 ft.

DATUM.--Elevation of land-surface datum is 493 ft. Measuring point: Top of 1.5-inch PVC casing, 492.51 ft above mean sea level.

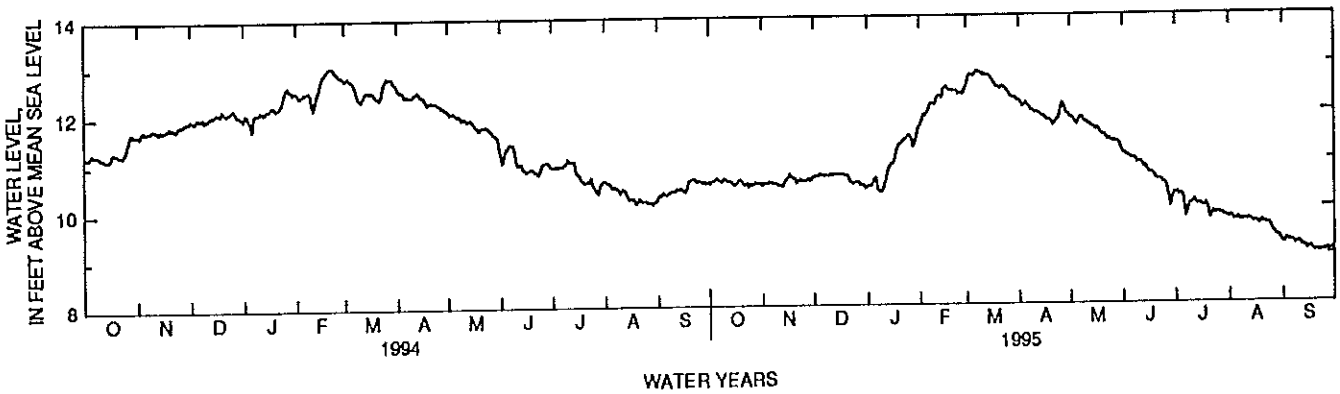
PERIOD OF RECORD.--Water-level recorder, August 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.52 ft above mean sea level, Jan. 2, 1983; lowest measured, 8.87 ft above mean sea level, Sep. 22, 1995.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.56	10.52	10.69	10.47	11.73	12.56	12.21	11.87	11.14	10.28	9.77	9.23
2	10.60	10.56	10.69	10.50	11.81	12.72	12.17	11.87	11.13	10.30	9.80	9.24
3	10.61	10.56	10.71	10.48	11.95	12.76	12.11	11.82	11.09	10.25	9.76	9.30
4	10.62	10.55	10.71	10.53	11.92	12.75	12.13	11.76	11.08	10.26	9.72	9.28
5	10.67	10.57	10.74	10.63	11.99	12.75	12.17	11.74	11.04	10.26	9.72	9.26
6	10.65	10.56	10.72	10.65	12.04	12.79	12.11	11.83	11.03	10.12	9.76	9.27
7	10.62	10.56	10.71	10.41	12.15	12.83	12.09	11.87	11.02	9.81	9.71	9.25
8	10.60	10.55	10.71	10.38	12.18	12.82	12.02	11.86	11.01	9.90	9.72	9.21
9	10.65	10.55	10.71	10.37	12.17	12.79	12.02	11.80	10.94	10.05	9.71	9.22
10	10.65	10.53	10.71	10.40	12.17	12.79	11.98	11.77	10.94	10.07	9.73	9.24
11	10.62	10.51	10.73	10.52	12.28	12.75	11.98	11.76	10.94	10.08	9.71	9.21
12	10.61	10.51	10.72	10.63	12.34	12.76	11.97	11.73	10.90	10.13	9.73	9.15
13	10.61	10.50	10.73	10.82	12.33	12.75	11.96	11.70	10.83	10.08	9.72	9.16
14	10.58	10.59	10.74	10.88	12.29	12.74	11.91	11.68	10.85	10.05	9.69	9.13
15	10.54	10.64	10.73	10.94	12.46	12.71	11.90	11.66	10.78	10.06	9.67	9.09
16	10.54	10.68	10.74	10.94	12.49	12.65	11.90	11.62	10.73	10.05	9.68	9.11
17	10.57	10.73	10.74	11.03	12.51	12.58	11.83	11.65	10.71	10.03	9.67	9.12
18	10.62	10.68	10.73	11.20	12.46	12.54	11.83	11.60	10.71	10.01	9.63	9.07
19	10.63	10.66	10.72	11.31	12.44	12.51	11.82	11.54	10.66	10.05	9.67	9.05
20	10.60	10.65	10.71	11.35	12.44	12.50	11.78	11.51	10.59	9.97	9.68	9.05
21	10.55	10.57	10.69	11.37	12.43	12.48	11.73	11.52	10.58	9.76	9.66	9.05
22	10.53	10.60	10.59	11.41	12.43	12.51	11.77	11.46	10.58	9.84	9.64	9.03
23	10.56	10.63	10.55	11.45	12.43	12.49	11.82	11.41	10.56	9.89	9.64	9.06
24	10.50	10.61	10.54	11.47	12.38	12.46	11.85	11.43	10.51	9.86	9.63	9.06
25	10.55	10.61	10.56	11.51	12.39	12.41	12.00	11.39	10.50	9.87	9.57	9.05
26	10.52	10.61	10.57	11.52	12.39	12.36	12.15	11.38	10.44	9.87	9.47	9.08
27	10.54	10.61	10.57	11.46	12.38	12.31	12.13	11.39	10.27	9.86	9.45	9.08
28	10.56	10.64	10.51	11.31	12.47	12.29	12.01	11.36	10.03	9.86	9.38	9.07
29	10.55	10.61	10.50	11.35	---	12.29	11.95	11.36	10.19	9.82	9.38	9.09
30	10.55	10.65	10.50	11.52	---	12.25	11.92	11.31	10.28	9.80	9.34	9.11
31	10.56	---	10.45	11.67	---	12.23	---	11.21	---	9.80	9.30	---
MEAN	10.58	10.59	10.66	10.98	12.27	12.58	11.97	11.61	10.74	10.00	9.64	9.14
MAX	10.67	10.73	10.74	11.67	12.51	12.83	12.21	11.87	11.14	10.30	9.80	9.30
MIN	10.50	10.50	10.45	10.37	11.73	12.23	11.73	11.21	10.03	9.76	9.30	9.03

WTR YR 1995 MAX 12.96 MAR 7 MIN 8.87 SEP 22



205617156311101. Local number, 6-5631-01.

LOCATION.--Lat 20°56'17", long 156°31'11", Hydrologic Unit 20020000, 2,000 ft southwest of Waihee Farm, and 1.3 mi northwest of Waiehu Golf Course. Owner: Wailuku Sugar Co.

AQUIFER.--Wailuku Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 300 ft, 1.5-inch PVC casing, cased to 260 ft, perforated from 260 to 300 ft.

DATUM.--Elevation of land-surface datum is 248 ft. Measuring point: Top of 1.5-inch PVC pipe, 248.05 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, August 1982 to September 1984. Occasional measurements, October 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.83 ft above mean sea level, Dec. 6, 1982; lowest measured, 13.35 ft above mean sea level, Aug. 7, 1995.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	14.26	DEC 7	13.98	MAY 4	13.99	JUL 6	13.64	AUG 7	13.35

HAWAII, ISLAND OF MAUI--Continued

205651156313201. Local number, 6-5631-02.

LOCATION.--Lat 20°56'51", long 156°31'32", Hydrologic Unit 20020000, 0.9 mi northwest of Waihee School, and 0.9 mi upstream from mouth of Waihee river. Owner: Hawaiian Investments.

AQUIFER.--Wailuku Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 387 ft, casing diameter 16-inch, cased to 290 ft, perforated from 290 to 310 ft.

DATUM.--Elevation of land-surface datum is 281 ft. Measuring point: Top of 16-inch casing, 284.78 ft above mean sea level.

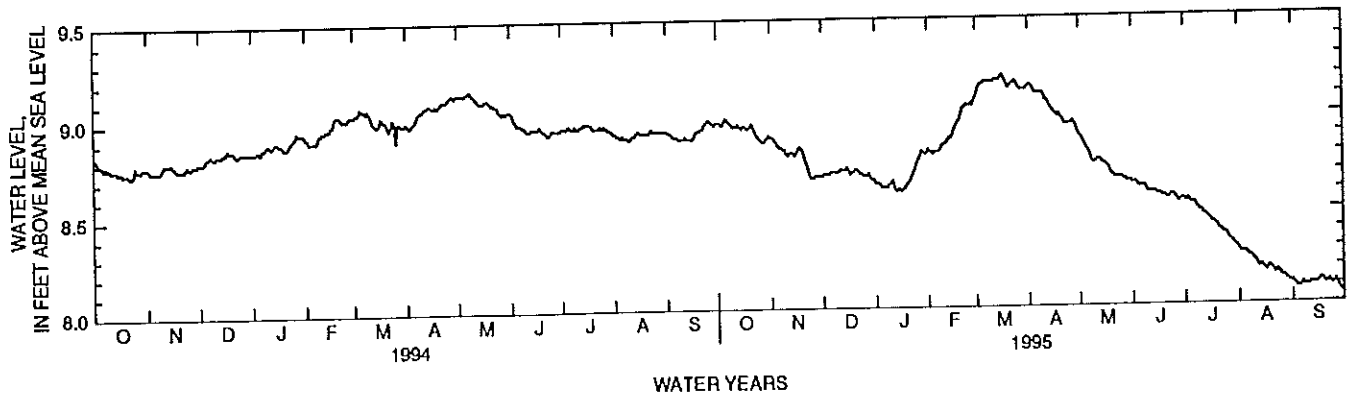
PERIOD OF RECORD.--Water-level recorder, April 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.05 ft above mean sea level, Oct. 22, Nov. 2, 10, 11, 1989. Lowest water level measured, 8.02 ft above mean sea level, Sep. 30, 1995.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.97	8.89	8.69	8.65	8.82	9.10	9.15	8.89	8.64	8.55	8.29	8.11
2	8.97	8.89	8.70	8.65	8.81	9.13	9.15	8.88	8.64	8.54	8.27	8.10
3	8.96	8.88	8.70	8.65	8.81	9.15	9.14	8.86	8.64	8.55	8.27	8.09
4	8.96	8.87	8.70	8.64	8.80	9.16	9.12	8.84	8.63	8.54	8.27	8.08
5	8.98	8.85	8.70	8.63	8.81	9.16	9.11	8.82	8.62	8.53	8.27	8.08
6	8.99	8.84	8.71	8.63	8.81	9.17	9.11	8.81	8.62	8.53	8.26	8.09
7	8.98	8.84	8.71	8.63	8.81	9.17	9.11	8.79	8.62	8.53	8.25	8.10
8	8.97	8.83	8.71	8.63	8.82	9.17	9.11	8.76	8.62	8.51	8.25	8.09
9	8.96	8.83	8.71	8.64	8.84	9.17	9.11	8.75	8.60	8.50	8.24	8.09
10	8.95	8.81	8.71	8.65	8.85	9.17	9.10	8.75	8.59	8.49	8.23	8.09
11	8.95	8.80	8.72	8.66	8.85	9.17	9.07	8.76	8.59	8.49	8.22	8.10
12	8.95	8.81	8.72	8.63	8.86	9.18	9.07	8.76	8.59	8.47	8.20	8.10
13	8.96	8.81	8.72	8.61	8.88	9.18	9.05	8.76	8.59	8.47	8.19	8.10
14	8.95	8.81	8.72	8.61	8.88	9.18	9.03	8.75	8.59	8.46	8.20	8.10
15	8.94	8.80	8.73	8.62	8.89	9.18	9.02	8.74	8.58	8.45	8.19	8.10
16	8.95	8.81	8.72	8.61	8.92	9.20	9.01	8.74	8.58	8.44	8.18	8.11
17	8.95	8.83	8.70	8.62	8.94	9.20	9.00	8.73	8.58	8.43	8.17	8.12
18	8.94	8.84	8.71	8.62	8.96	9.18	8.99	8.72	8.57	8.43	8.19	8.12
19	8.94	8.83	8.71	8.64	8.97	9.16	9.00	8.70	8.57	8.42	8.19	8.11
20	8.95	8.81	8.72	8.65	9.00	9.14	8.98	8.68	8.57	8.41	8.18	8.10
21	8.96	8.78	8.72	8.66	9.03	9.15	8.97	8.68	8.56	8.39	8.17	8.10
22	8.94	8.75	8.71	8.68	9.04	9.16	8.95	8.67	8.56	8.39	8.16	8.11
23	8.92	8.72	8.70	8.70	9.05	9.16	8.95	8.67	8.57	8.38	8.17	8.10
24	8.90	8.69	8.70	8.72	9.05	9.17	8.95	8.67	8.57	8.37	8.16	8.09
25	8.89	8.68	8.69	8.75	9.05	9.16	8.95	8.67	8.57	8.37	8.15	8.10
26	8.88	8.68	8.69	8.77	9.06	9.14	8.95	8.67	8.56	8.35	8.14	8.11
27	8.87	8.69	8.69	8.79	9.05	9.13	8.96	8.66	8.55	8.34	8.14	8.09
28	8.87	8.69	8.70	8.81	9.08	9.13	8.95	8.66	8.54	8.33	8.13	8.07
29	8.88	8.69	8.68	8.81	---	9.13	8.93	8.65	8.55	8.32	8.12	8.06
30	8.89	8.69	8.67	8.80	---	9.13	8.90	8.65	8.55	8.31	8.11	8.05
31	8.90	---	8.67	8.80	---	9.14	---	8.65	---	8.30	8.11	---
MEAN	8.94	8.79	8.70	8.68	8.92	9.16	9.03	8.74	8.59	8.44	8.20	8.10
MAX	8.99	8.89	8.73	8.81	9.08	9.20	9.15	8.89	8.64	8.55	8.29	8.12
MIN	8.87	8.68	8.67	8.61	8.80	9.10	8.90	8.65	8.54	8.30	8.11	8.05

WTR YR 1995 MAX 9.24 MAR 16, 17 MIN 8.02 SEP 30



205856156400101. Local number, 6-5840-01.

LOCATION.--Lat 20°58'56", long 156°40'01", Hydrologic Unit 20020000, on sugar plantation road 0.9 mi east of Kahana, and 1.5 mi southwest of Honokahua. Owner: State of Hawaii.

AQUIFER.--Honolua Volcanic Series, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 274 ft, casing diameter 8-inch, cased to 264 ft, perforated from 264 to 274 ft. Hole was drilled to depth of 284 ft, but plugged back 10 ft with cement.

DATUM.--Elevation of land-surface datum is 257 ft. Measuring point: Top of 9-inch casing, 257.45 ft above mean sea level. Levels of Aug. 11, 1993.

REMARKS.--Water-quality records for 1964, 1980 are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, March 1972 to July 1975. Water-level recorder, August 1975 to June 25, 1993. Occasional measurements, July 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.68 ft above mean sea level, Sept. 20, 1981; lowest, 2.40 ft above mean sea level May 4, 5, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	3.36	DEC 1	3.05	FEB 21	3.12	MAY 11	2.96	JUN 21	3.11	AUG 11	2.95

HAWAII, ISLAND OF HAWAII

190602155325901. Local number, 8-0632-01.

LOCATION.--Lat 19°06'02", long 155°32'59", Hydrologic Unit 20010000, 0.9 mi north of Whittington Park, and 3.3 mi northeast of Naalehu. Owner: Kau Agribusiness (formerly Kau Sugar Company).

AQUIFER.--Ninole Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table, depth 140 ft, casing diameter 14-inch, cased to 105 ft, perforated from 105 to 125 ft.

DATUM.--Elevation of land-surface datum is 102 ft. Measuring point: 0.38 ft above 1-inch hole in pump base, 103.64 ft above mean sea level.

REMARKS.--Water-quality records for 1972 and 1973 are available in files of the district office.

PERIOD OF RECORD.--Occasional measurements, April 1972 to current year.

REVISED RECORDS.--WDR HI-91-1: 1984-90 (The units of the minimum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.39 ft above mean sea level, Oct. 19, 1978; lowest measured, 0.21 ft above mean sea level, June 19, 1989.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	0.99	JAN 25	1.06	MAY 22	1.09	JUL 25	0.84

193017154502101. Local number, 8-3080-02.

LOCATION.--Lat 19°30'17", long 154°50'21", Hydrologic Unit 20010000, 0.5 mi south of intersection of Highway 132 and Highway 137 near Pahoa. Owner: County of Hawaii.

AQUIFER.--Puna Volcanic Series, Holocene age.

WELL CHARACTERISTICS.--Dug basal water-table well, depth 46 ft, casing diameter 66-inch, with two horizontal infiltration tunnels 2 x 50 ft extending in opposite directions from 3 ft above bottom of well.

DATUM.--Elevation of land-surface datum is 39 ft. Measuring point: Top of steel manhole cover at 1-inch hole, 39.50 ft above mean sea level.

REMARKS.--Water from this well is used for public supply and at times, water level affected by pumping.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, March 1972 to current year.
WATER QUALITY: 1972-81, 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.77 ft above mean sea level, Mar. 2, 1989; lowest measured, 1.18 ft above mean sea level, June 3, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	4.46	JAN 20	4.51	MAY 16	4.37	JUL 26	4.34	SEP 22	4.53

HAWAII, ISLAND OF HAWAII--Continued

193339154594801. Local number, 8-3389-01.

LOCATION.--Lat 19°33'39", long 154°59'48", Hydrologic Unit 20010000, 3.5 mi northwest of Pahoa airstrip, and 5.5 mi southeast of Keaau. Owner: County of Hawaii.

AQUIFER.--Puna Volcanic Series, Holocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 475 ft, casing diameter 8-inch, cased to 403 ft, perforated from 403 to 475 ft.

DATUM.--Elevation of land-surface datum is 427 ft. Measuring point: Top of casing, 428.14 ft above mean sea level.

REMARKS.--Water-quality records for 1961 are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, September 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.76 ft above mean sea level, revised, Nov. 27, 1990; lowest measured, 9.92 ft above mean sea level, Jun. 9, 1992.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	20.39	JAN 20	21.53	MAY 16	17.75	JUL 26	17.18	SEP 22	18.04

193502155572301. Local number, 8-3557-05.

LOCATION.--Lat 19°35′02″, long 155°57′23″, Hydrologic Unit 20010000, 5.0 mi south of Kailua Post Office, and 1.4 mi north of Keahou School. Owner: Hawaii County Dept. of Water Supply.

AQUIFER.--Basalt of Hualalai Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Inclined shaft with 2 horizontal infiltration tunnels (north gallery=100 ft, south gallery=600 ft) meeting in a 150 ft long pump chamber which houses 4 pumps and the recorder.

DATUM.--Elevation of land-surface datum is 574 ft. Measuring point: Top of concrete pump base, elevation is 10.09 ft above mean sea level.

REMARKS.--Water-quality records for 1975, 1982 to current year are available in files of the District office. No record October 1, 1993 to March 4, 1994.

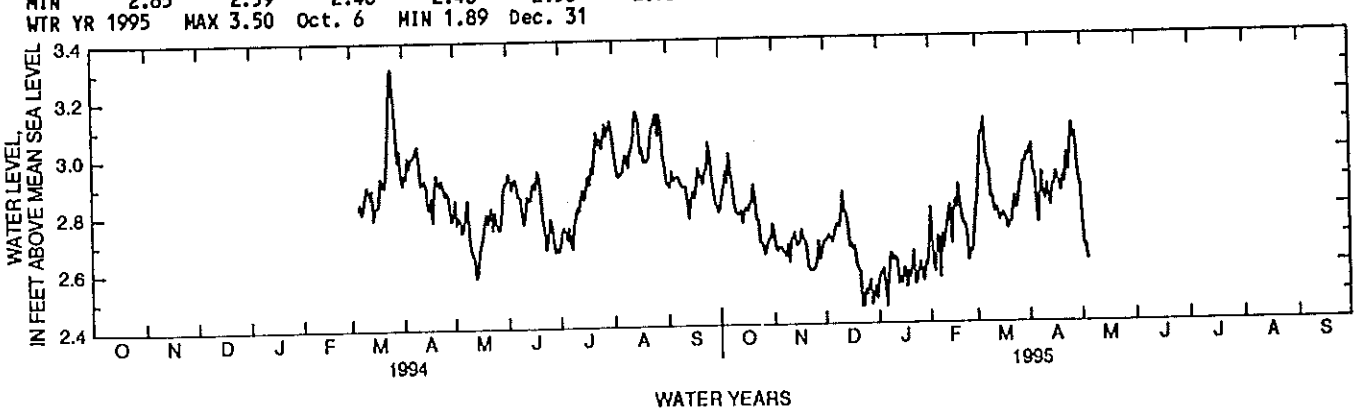
PERIOD OF RECORD.--Water-level recorder Apr. 30, 1991 to May 5, 1995 (discontinued). Prior to Oct. 1994, unpublished records are in the files of the U. S. Geological Survey Hilo field office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.04 ft. above mean sea level, Dec. 13, 1992; lowest, 1.89 ft. above mean sea level, Dec. 31, 1994.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.81	2.72	2.69	2.55	2.80	2.84	3.01	2.76	---	---	---	---
2	2.86	2.67	2.70	2.57	2.67	2.96	3.02	2.67	---	---	---	---
3	2.89	2.66	2.71	2.58	2.60	3.06	2.93	2.67	---	---	---	---
4	2.94	2.67	2.70	2.59	2.58	3.07	2.91	2.62	---	---	---	---
5	2.90	2.67	2.69	2.53	2.70	3.11	2.79	2.62	---	---	---	---
6	3.00	2.66	2.71	2.46	2.70	2.99	2.75	---	---	---	---	---
7	2.94	2.65	2.74	2.57	2.56	2.95	2.87	---	---	---	---	---
8	2.90	2.64	2.75	2.64	2.71	2.93	2.92	---	---	---	---	---
9	2.83	2.68	2.74	2.64	2.66	2.84	2.84	---	---	---	---	---
10	2.80	2.62	2.78	2.62	2.71	2.84	2.83	---	---	---	---	---
11	2.79	2.70	2.86	2.63	2.74	2.79	2.88	---	---	---	---	---
12	2.79	2.70	2.79	2.62	2.80	2.80	2.84	---	---	---	---	---
13	2.80	2.72	2.79	2.54	2.81	2.79	2.81	---	---	---	---	---
14	2.76	2.68	2.75	2.56	2.68	2.76	2.88	---	---	---	---	---
15	2.80	2.68	2.67	2.54	2.79	2.77	2.88	---	---	---	---	---
16	2.81	2.69	2.68	2.59	2.83	2.78	2.92	---	---	---	---	---
17	2.80	2.73	2.66	2.59	2.80	2.77	2.90	---	---	---	---	---
18	2.82	2.70	2.67	2.53	2.88	2.76	2.89	---	---	---	---	---
19	2.83	2.69	2.61	2.58	2.82	2.73	2.86	---	---	---	---	---
20	2.89	2.67	2.59	2.56	2.77	2.75	2.91	---	---	---	---	---
21	2.85	2.60	2.58	2.60	2.75	2.75	2.89	---	---	---	---	---
22	2.77	2.59	2.46	2.65	2.74	2.80	2.99	---	---	---	---	---
23	2.77	2.59	2.46	2.54	2.72	2.84	2.93	---	---	---	---	---
24	2.69	2.59	2.52	2.55	2.62	2.80	3.01	---	---	---	---	---
25	2.69	2.60	2.50	2.59	2.65	2.82	3.09	---	---	---	---	---
26	2.67	2.62	2.53	2.61	2.65	2.88	3.04	---	---	---	---	---
27	2.65	2.69	2.55	2.57	2.71	2.90	3.06	---	---	---	---	---
28	2.68	2.63	2.47	2.55	2.79	2.96	2.97	---	---	---	---	---
29	2.70	2.66	2.50	2.61	---	2.96	2.90	---	---	---	---	---
30	2.70	2.69	2.53	2.60	---	2.99	2.88	---	---	---	---	---
31	2.75	---	2.49	2.69	---	2.98	---	---	---	---	---	---
MEAN	2.80	2.66	2.64	2.58	2.72	2.87	2.91	---	---	---	---	---
MAX	3.00	2.73	2.86	2.69	2.88	3.11	3.09	---	---	---	---	---
MIN	2.65	2.59	2.46	2.46	2.56	2.73	2.75	---	---	---	---	---

WTR YR 1995 MAX 3.50 Oct. 6 MIN 1.89 Dec. 31



194222155035101. Local number, 8-4203-04.

LOCATION.--Lat 19°42′22″, long 155°03′51″, Hydrologic Unit 20010000, 0.5 mi east of Hawaii Technical School, and 1.0 mi south of Hilo airport terminal. Owner: Hawaii Electric Light Company.

AQUIFER.--Kahuku Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 201 ft, casing diameter 16-inch, cased to 63 ft.

DATUM.--Elevation of land-surface datum is 47 ft. Measuring point: Top of 3-inch nipple above casing; 46.54 ft above mean sea level.

REMARKS.--Water-quality records for 1961 are available in files of district office. Water level affected by pumping of nearby industrial wells.

PERIOD OF RECORD.--Occasional measurements, July 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.34 ft above mean sea level, Nov. 26, 1990; lowest measured, 5.80 ft above mean sea level, Mar. 12, 1986.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 17	10.30	JAN 20	8.22	MAY 15	6.43	JUL 26	6.58	SEP 22	7.11

195947155485801. Local number, 8-5948-01.

LOCATION.--Lat 19°59′47″, long 155°48′58″, Hydrologic Unit 20010000, 0.7 mi east of Hapuna Beach Park, and 3.1 mi southeast of Kawaihae. Owner: State of Hawaii.

AQUIFER.--Hamakua Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 268 ft, casing diameter 10-inch, cased to 246 ft, screened from 246 to 266 ft.

DATUM.--Elevation of land-surface datum is 244 ft. Measuring point: Hole in pumpbase, 246.47 ft above mean sea level.

REMARKS.--Water from this well is used for irrigation.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, April 1970, March 1973 to current year.
WATER QUALITY: 1970, 1973 to current year.

REVISED RECORDS.--WDR HI-91-1: 1976-80 (Water level data), 1976-90 (Maximum and minimum water levels for the period of record).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.83 ft above mean sea level, Aug. 29, 1994; lowest measured, 1.38 ft above mean sea level, Sep. 28, 1979.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 25	a---	FEB 2	4.09	MAY 18	b---	JUL 28	4.48

a Bad reading taken. Not reported
b No water level taken. Pump turned on automatically

200132155471101. Local number, 8-6147-01.

LOCATION.--Lat 20°01'32", long 155°47'10", Hydrologic Unit 20010000, on Highway 26, 3.1 mi east of Kawaihae, and 2.8 mi northeast of Hapuna Beach Park. Owner: State of Hawaii.

AQUIFER.--Pololu Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,008 ft, casing diameter 8-inch, cased to 997 ft, perforated from 997 to 1,008 ft. Hole was drilled to 1,040 ft, but was finally plugged back to 1,008 ft.

DATUM.--Elevation of land-surface datum is 982 ft. Measuring point: Top of pipe coupling on casing cover 983.08 ft, revised, Nov. 18, 1986, above mean sea level.

REMARKS.--Water-quality records for 1963-64 are available in files of district office.

PERIOD OF RECORD.--Occasional measurements, June to July 1963, June 1973 to current year.

REVISED RECORDS.--WRD HI-91-1: 1975-90 (Station ID number.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.23 ft above mean sea level, May 1, 1987; lowest measured, 4.66 ft above mean sea level, May 3, 1994.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 2	6.00	FEB 23	4.74	JUN 12	5.18	JUL 28	5.31	SEP 7	5.40

201603155521801. Local number, 8-7652-01.

LOCATION.--Lat 20°16'03", long 155°52'18", Hydrologic Unit 20010000, 0.3 mi west of Upolu Point Airfield, 3.1 mi northwest of Hawi, and 1.9 mi west of Hoea Camp. Owner: Kohala Corporation.

AQUIFER.--Pololu Volcanic Series, Pleistocene age.

WELL CHARACTERISTICS.--Dug basal water-table well, with horizontal infiltration tunnels from pump sump.

DATUM.--Elevation of land-surface datum is 33 ft. Measuring point: Top of 4-inch steel I-beam placed across sump, 7.75 ft above mean sea level.

PERIOD OF RECORD.--
WATER LEVEL: Occasional measurements, March 1973 to current year.
WATER QUALITY: 1973 to current year.

REVISED RECORDS.--WDR HI-91-1: 1988-90 (The maximum water level for the period of record.)

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.09 ft above mean sea level, Aug. 22, 1974; lowest measured, 1.45 ft above mean sea level, July 9, 1975, Jan. 16, 1980.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 25	2.73	JAN 27	2.51	MAY 17	2.18	AUG 1	a---

a No access to well. Stairway found broken

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF KAUAI						
220018159444702	2-0044-13	W34 KEKAHA	22 00 18 N	159 44 47 W	10-20-94	1330	490	21.5	71
					12-07-94	1140	483	22.0	72
					03-07-95	1230	470	23.5	70
					04-07-95	1345	467	22.0	66
					06-21-95	1200	481	22.0	72
					08-15-95	1215	481	23.5	72
220016159442701	2-0044-15	S14 KEKAHA	22 00 16 N	159 44 27 W	10-17-94	0905	1030	23.0	216
					12-05-94	0910	880	22.0	178
					03-07-95	0900	694	22.0	121
					04-07-95	0845	822	22.5	150
					06-19-95	0850	1180	22.5	261
					08-15-95	0850	1240	23.0	273
220136159205501	2-0120-01	W7 WAILUA	22 01 36 N	159 20 55 W	10-19-94	1125	850	26.0	150
					12-12-94	a1240	--	--	--
					12-16-94	a1420	--	--	--
					12-19-94	a1130	--	--	--
					02-27-95	b1210	--	--	--
					04-03-95	b1215	--	--	--
					06-22-95	b1245	--	--	--
					08-17-95	1245	825	23.5	144
220148159453501	2-0145-10	W45F MANA	22 01 48 N	159 45 35 W	10-17-94	1150	620	21.5	99
					12-05-94	c1120	--	--	--
					12-07-94	c1155	--	--	--
					03-07-95	c1100	--	--	--
					04-07-95	c1135	--	--	--
					06-19-95	1135	625	22.0	102
					08-15-95	1140	747	22.0	137
220354159205601	2-0320-01	W9-1A WAIL	22 03 54 N	159 20 56 W	10-07-94	d0905	--	--	--
					08-11-95	d0900	--	--	--
220354159205602	2-0320-03	W9-1B WAIL	22 03 54 N	159 20 56 W	10-07-94	0855	402	24.5	47
					12-08-94	0845	420	23.5	55
					03-03-95	0820	396	23.5	47
					04-05-95	1440	407	26.5	48
					06-16-95	0830	390	24.0	45
					08-11-95	0850	393	24.0	43
220341159453901	2-0345-04	S16 SAKIMA	22 03 41 N	159 45 39 W	10-17-94	0935	1850	22.5	486
					12-05-94	0945	863	22.0	178
					03-07-95	0935	633	22.0	109
					04-07-95	0925	1540	22.0	380
					06-19-95	0945	2070	22.5	537
					08-15-95	0930	2450	22.5	676
220530159450401	2-0545-01	W59 KAULAU	22 05 30 N	159 45 07 W	10-17-94	1015	740	23.5	133
					12-05-94	1015	734	22.5	132
					03-07-95	d1000	--	--	--
					04-07-95	1000	724	23.5	130
					06-19-95	1035	675	25.0	119
					08-15-95	1000	699	25.0	149
					08-15-95	1030	694	24.5	126
220621159232101	2-0623-04	KAPAA	22 06 21 N	159 23 21 W	10-07-94	1310	118	25.5	--
					12-08-94	d1340	--	--	--
					03-03-95	1435	118	24.5	13
					04-05-95	1355	120	23.5	12
					06-16-95	0930	113	23.0	13
					08-11-95	1410	121	24.0	12
220827159185401	2-0818-01	W90A ANAHO	22 08 27 N	159 18 54 W	10-07-94	1000	320	24.5	24
					03-03-95	0930	252	24.0	24
					06-16-95	1030	272	24.0	25

a Pump not used for awhile, unable to collect sample
b Pump dismantled, unable to collect sample
c Pump not being used, unable to collect sample
d Pump not working, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
				HAWAII, ISLAND OF KAUAI--Continued					
220826159185401	2-0818-02	W90B ANAHO	22 08 26 N	159 18 54 W	12-08-94	1300	254	24.0	22
					04-05-95	0930	289	24.0	21
					08-11-95	0940	235	24.0	18
221141159252501	2-1125-01	N1 KILAUEA	22 11 41 N	159 25 25 W	10-07-94	1030	160	24.5	14
					03-03-95	1000	160	22.0	16
					06-16-95	1100	178	23.5	17
221141159252502	2-1125-02	N2 KILAUEA	22 11 41 N	159 25 25 W	12-08-94	1000	159	24.0	15
					04-14-95	1230	159	24.5	14
					08-11-95	1020	155	24.5	13
221150159264501	2-1126-01	KALIHIWAI	22 11 50 N	159 26 45 W	12-16-94	0805	196	22.0	22
					04-14-95	0820	198	22.0	20
					08-08-95	0810	209	23.5	21
221151159265001	2-1126-02	KALIHIWAI	22 11 51 N	159 26 50 W	10-14-94	0845	200	22.0	20
					03-08-95	0815	199	22.0	22
					06-22-95	0810	209	22.5	21
221201159293401	2-1229-03	W73 HANALE	22 12 01 N	159 29 34 W	10-07-94	a1300	--	--	--
					12-08-94	1140	253	23.0	34
					03-03-95	1315	255	24.5	35
					04-05-95	1140	257	23.5	33
					06-16-95	1305	255	23.5	35
					08-11-95	1210	255	23.5	34
221247159324801	2-1232-01	W67 WAINIH	22 12 47 N	159 32 48 W	10-07-94	1120	132	22.5	20
					12-08-94	1110	150	22.5	21
					03-03-95	1240	131	27.5	22
					04-05-95	b1105	--	--	--
					06-16-95	1230	154	23.0	23
					08-11-95	1125	158	23.0	23
221318159335901	2-1333-01	W66 HAENA	22 13 18 N	159 33 59 W	10-07-94	c1150	--	--	--
					12-08-94	c1050	--	--	--
					03-03-95	c1055	--	--	--
					04-05-95	c1040	--	--	--
					06-16-95	b1140	--	--	--
215454159274201	2-5427-01	W16A KOLOA	21 54 54 N	159 27 42 W	12-07-94	0815	237	22.5	27
					04-04-95	0805	235	22.5	25
					08-10-95	0810	236	22.5	25
215455159274201	2-5427-02	W16B KOLOA	21 54 55 N	159 27 42 W	10-11-94	0810	228	22.5	24
					03-02-95	0810	228	22.5	25
					06-21-95	1410	227	23.0	25
215528159303001	2-5530-02	W23 LAWAI	21 55 28 N	159 30 30 W	10-11-94	1335	260	23.0	28
					12-12-94	1105	248	22.5	28
					03-02-95	1255	254	22.5	28
					04-04-95	1430	254	22.5	27
					07-03-95	0915	250	22.5	28
					08-15-95	d1350	--	--	--
					08-21-95	d0820	--	--	--
215535159302601	2-5530-03	W22 LAWAI	21 55 35 N	159 30 26 W	10-11-94	1330	220	24.0	23
					12-12-94	1115	218	22.0	24
					03-02-95	1300	217	23.5	25
					04-04-95	1435	217	23.0	23
					06-26-95	0810	216	23.5	25
					08-15-95	1345	219	24.0	24

a No sample collected, unable to get to the site
b Pump not working, unable to collect sample
c Pump being replaced, unable to collect sample
d Well not used for irrigation

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF KAUAI--Continued						
215522159342601	2-5534-03	W25-1 HANA	21 55 22 N	159 34 26 W	10-11-94	1025	458	23.5	43
					12-07-94	0955	448	23.5	43
					03-02-95	0945	447	23.5	42
					04-04-95	0955	460	25.0	43
					06-21-95	0945	450	23.5	37
					08-10-95	1000	432	23.5	37
215635159355001	2-5635-01	S7 HANAPEP	21 56 35 N	159 35 50 W	10-19-94	0920	690	22.5	127
					12-07-94	1310	673	23.0	127
					03-07-95	1315	657	23.0	119
					04-04-95	1325	662	23.5	121
					06-19-95	1430	647	23.5	117
					08-10-95	1305	636	23.5	113
215803159401201	2-5840-01	W26 WAIMEA	21 58 03 N	159 40 12 W	10-11-94	1125	960	26.5	228
					12-07-94	1215	920	24.0	204
					03-02-95	1045	815	25.0	156
					04-04-95	1140	891	26.0	199
					06-21-95	1255	956	24.5	215
					08-10-95	1115	895	26.0	199
215854159424601	2-5842-02	S11 KEKAHA	21 58 54 N	159 42 46 W	10-17-94	1250	670	24.5	96
					12-05-94	1240	636	24.5	93
					03-07-95	1230	618	24.5	92
					04-07-95	1310	666	24.5	96
					06-19-95	1250	648	24.5	94
					08-15-95	1240	664	25.0	96
215843159422901	2-5842-03	S10 KEKAHA	21 58 43 N	159 42 29 W	10-17-94	1335	1110	24.5	244
					12-05-94	1300	1080	24.5	227
					03-07-95	1245	764	24.5	135
					04-07-95	1325	1110	24.5	236
					06-19-95	1315	1120	25.0	238
					08-15-95	1300	1120	25.0	246
215901159235301	2-5923-01	KILOHANA A	21 59 01 N	159 23 53 W	10-07-94	0825	258	23.5	17
					12-08-94	a0815	--	--	--
					12-12-94	a0750	--	--	--
					03-08-95	1035	239	28.0	18
					04-03-95	1330	242	25.0	17
					06-16-95	0805	241	25.0	19
					08-11-95	0810	168	24.0	17
215901159235201	2-5923-07	KILOHANA I	21 59 01 N	159 23 52 W	10-07-94	0805	167	23.0	17
					12-08-94	0805	163	23.0	19
					03-03-95	0730	162	22.5	20
					04-05-95	0740	166	23.0	19
					06-16-95	0750	168	23.5	18
					08-11-95	0750	168	24.0	18
215906159395601	2-5939-01	S9 WAIMEA	21 59 06 N	159 39 56 W	10-11-94	1205	192	23.5	13
					12-07-94	1050	173	23.0	13
					03-02-95	1115	225	22.5	16
					04-04-95	1035	166	22.5	11
					06-21-95	1115	263	24.0	29
					08-10-95	1155	190	24.5	11
215937159434201	2-5943-01	S13 KEKAHA	21 59 37 N	159 43 42 W	10-17-94	0835	870	25.5	160
					12-05-94	0835	865	23.5	154
					03-07-95	0830	837	24.0	141
					04-07-95	0825	823	24.0	142
					06-19-95	0830	904	24.0	165
					08-15-95	0820	918	24.0	174

a Pump not working, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF OAHU						
211646157465201	3-1646-01	W1-B WAIAL	21 16 46 N	157 46 52 W	12-06-94	0945	680	21.5	--
					06-08-95	0915	940	21.0	--
					09-20-95	1025	750	21.5	--
211832157515501	3-1851-19	W102 TUBEA	21 18 32 N	157 51 55 W	12-06-94	1525	30000	24.0	12600
					03-07-95	0930	29000	23.5	11900
					06-07-95	0900	34000	24.0	13000
					09-20-95	a1525	--	--	--
211832157515502	3-1851-19	W102 TUBEB	21 18 32 N	157 51 55 W	12-06-94	1535	13600	24.5	--
					03-07-95	0855	13600	24.0	--
					06-07-95	0910	15500	23.5	--
					09-20-95	1530	13000	24.0	--
212133158035501	3-2103-03	S14 MAKAKI	21 21 33 N	158 03 55 W	12-08-94	0930	1000	24.0	233
					03-31-95	1140	1000	23.5	250
					06-09-95	0915	1500	23.0	237
					09-21-95	0920	1100	23.0	232
212106157533701	3-2153-02	W153 MOANA	21 21 06 N	157 53 37 W	12-06-94	1255	490	22.0	100
					03-07-95	1020	465	22.0	115
					06-07-95	1100	485	21.5	100
					09-20-95	1315	475	21.5	100
212259157554201	3-2255-35	W189-3A	21 22 59 N	157 55 42 W	12-06-94	1325	1010	22.0	--
					03-07-95	b1055	--	--	--
					06-07-95	1325	990	23.5	--
					09-28-95	1330	850	27.5	--
212238157561102	3-2256-12	W187-C	21 22 39 N	157 56 09 W	01-31-95	c1530	--	--	--
					05-10-95	1020	860	22.5	254
					06-07-95	1410	870	24.0	226
					09-20-95	1420	850	24.0	233
212343158001001	3-2300-11	W238 WAIPH	21 23 43 N	158 00 10 W	12-08-94	1435	700	22.5	--
					03-07-95	1335	710	22.0	--
					05-10-95	1440	750	22.0	--
					06-08-95	1150	740	21.5	--
					09-28-95	1125	660	21.5	--

a No flow, unable to collect sample
b Pump off, unable to collect sample
c No sample collected, unable to get to the site

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SAMPLE DEPTH DIS-TANCE BELOW MSL FEET	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF OAHU--Continued						
212340158001901	3-2300-18 W241		21 23 40 N	158 00 19 W	01-11-95	a1115	400	813	201
					01-11-95	a1140	500	2360	695
					01-11-95	a1200	600	12700	4230
					01-11-95	a1220	650	18700	6370
					01-11-95	a1245	700	23900	8340
					01-11-95	a1310	750	28500	10100
					01-11-95	a1340	800	31800	11400
					01-11-95	a1400	850	36900	13400
					01-11-95	a1430	900	39700	14500
					01-11-95	a1500	950	43700	16200
					01-11-95	a1530	990	44700	16500
					03-17-95	a1035	400	--	204
					03-17-95	a1100	500	--	691
					03-17-95	a1125	600	--	4260
					03-17-95	a1150	650	--	6380
					03-17-95	a1215	700	--	8360
					03-17-95	a1240	750	--	10000
					03-17-95	a1310	800	--	11400
					03-17-95	a1335	850	--	13300
					03-17-95	a1405	900	--	14700
					03-17-95	a1435	950	--	16000
					03-17-95	a1505	990	--	16500
					06-23-95	a0955	400	--	205
					06-23-95	a1015	500	--	696
					06-23-95	a1037	600	--	4000
					06-23-95	a1100	650	--	6250
					06-23-95	a1125	700	--	8120
					06-23-95	a1205	750	--	9900
					06-23-95	a1230	800	--	11200
					06-23-95	a1305	850	--	12900
					06-23-95	a1335	900	--	14700
					06-23-95	a1400	950	--	16000
					06-23-95	a1435	990	--	16600
					09-28-95	a1025	400	--	200
					09-28-95	a1045	500	--	676
					09-28-95	a1105	600	--	3800
					09-28-95	a1140	600	--	6100
					09-28-95	a1205	700	--	8030
					09-28-95	a1230	750	--	9700
					09-28-95	a1255	800	--	11200
					09-28-95	a1320	850	--	12900
					09-28-95	a1350	900	--	14200
					09-28-95	a1415	950	--	16000
					09-28-95	a1445	990	--	16600

a Collected by non-USGS agency

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
HAWAII, ISLAND OF OAHU--Continued									
212358158010901	3-2301-09,10	W247-IJ	21 23 58 N	158 01 09 W	12-08-94	1150	775	22.5	--
					03-07-95	a1405	--	--	--
					03-30-95	1000	725	22.5	--
					06-08-95	a1220	--	--	--
					09-28-95	1040	750	22.5	--
212332157582201	3-2358-02	W201	21 23 32 N	157 58 22 W	12-06-94	1410	1100	21.0	--
					03-07-95	1130	1040	21.0	--
					06-08-95	1050	1180	20.5	--
					09-28-95	0830	1300	20.5	--
212342157584301	3-2358-22	W204-4	21 23 42 N	157 58 43 W	12-06-94	1425	1360	20.5	--
					03-07-95	1310	1450	20.5	--
					05-10-95	1510	1390	--	--
					06-08-95	1115	1580	20.0	--
					09-28-95	1245	1350	20.0	--
212343157584701	3-2358-29	W204-9	21 23 43 N	157 58 47 W	12-06-94	1420	3950	20.5	--
					03-07-95	1300	4050	20.5	--
					05-10-95	1500	3800	20.0	--
					06-08-95	1110	4250	20.0	--
					09-28-95	1240	3000	20.0	--
212336157591801	3-2359-05	W204-11	21 23 36 N	157 59 18 W	12-06-94	1430	2500	22.5	--
					03-07-95	1320	2700	22.0	--
					05-10-95	1450	2480	21.5	--
					06-08-95	1120	2980	21.5	--
					09-28-95	1220	2600	22.0	--
212422157485601	3-2448-01	W416	21 24 22 N	157 48 56 W	11-30-94	b0840	--	--	--
					03-06-95	b0845	--	--	--
					06-07-95	b0915	--	--	--
212556157500301	3-2550-01	W407-16	21 25 56 N	157 50 03 W	11-30-94	0910	130	23.5	20
					03-06-95	0910	135	23.0	20
					06-07-95	0940	130	22.5	19
					09-27-95	0930	135	23.0	19
212506157582301	3-2558-10	S16	21 25 06 N	157 58 23 W	12-07-94	1435	245	21.5	--
					03-07-95	a1230	--	--	--
					03-30-95	0930	242	21.5	--
					06-08-95	1015	250	20.5	--
					09-28-95	0910	230	20.5	--
212617158033801	3-2603-01	W330-8	21 26 17 N	158 03 38 W	12-07-94	1410	360	23.0	--
					03-30-95	1040	355	23.0	64
					06-08-95	1440	350	22.0	47
					09-27-95	1200	330	22.5	48
212656158071801	3-2607-01	W277-97	21 26 56 N	158 07 18 W	12-08-94	1020	365	24.5	--
					04-04-95	0915	360	24.5	--
					06-09-95	1010	380	24.0	--
					09-21-95	1010	380	24.5	--

a No sample collected. Gate locked, unable to get to the site
b No flow, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SAMPLE DEPTH DIS-TANCE BELOW MSL FEET	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM)	CHLO-RIDE, (MG/L AS CL)
HAWAII, ISLAND OF OAHU--Continued									
212614157594301	3-2659-01	WAIPIO-MAUKA MON	21 26 14 N	157 59 43 W	01-12-95	a0945	400	260	54
					01-12-95	a1015	500	262	54
					01-12-95	a1045	600	323	71
					01-12-95	a1115	700	2360	676
					01-12-95	a1150	800	5200	1570
					01-12-95	a1225	900	22600	7930
					01-12-95	a1305	1000	35800	12900
					01-12-95	a1345	1100	41400	15200
					01-12-95	a1420	1200	44600	16600
					01-12-95	a1505	1300	46000	17200
					03-16-95	a1035	400	--	52
					03-16-95	a1105	500	--	52
					03-16-95	a1135	600	--	371
					03-16-95	a1210	700	--	652
					03-16-95	a1245	800	--	1630
					03-16-95	a1315	900	--	8000
					03-16-95	a1350	1000	--	13300
					03-16-95	a1420	1100	--	15400
					03-16-95	a1500	1200	--	16800
					03-16-95	a1540	1300	--	17500
					06-21-95	a1010	400	--	351
					06-21-95	a1035	500	--	52
					06-21-95	a1100	600	--	70
					06-21-95	a1130	700	--	678
					06-21-95	a1155	800	--	1610
					06-21-95	a1225	900	--	8010
					06-21-95	a1300	1000	--	12900
					06-21-95	a1330	1100	--	15300
					06-21-95	a1400	1200	--	16600
					06-21-95	a1440	1300	--	17100
					09-27-95	a1015	400	--	56
					09-27-95	a1040	500	--	55
					09-27-95	a1105	600	--	72
					09-27-95	a1130	700	--	478
					09-27-95	a1155	800	--	1640
					09-27-95	a1220	900	--	8230
					09-27-95	a1250	1000	--	13000
					09-27-95	a1325	1100	--	15200
					09-27-95	a1400	1200	--	16400
					09-27-95	a1435	1300	--	17000

a Collected by non-USGS agency

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF OAHU--Continued						
212803158000701	3-2800-01	W250-4A	21 28 03 N	158 00 06 W	12-01-94	a1310	--	--	--
					03-30-95	1325	150	21.5	20
					06-09-95	1430	152	21.0	17
					09-27-95	a0840	--	--	--
212828158092001	3-2809-06	TU WAIANAE	21 28 27 N	158 09 20 W	03-31-95	1300	380	23.0	--
					05-09-95	1420	380	22.0	--
					06-09-95	1250	390	22.0	--
					09-21-95	1455	400	22.5	--
212859158124301	3-2812-01	S1	21 28 59 N	158 12 43 W	11-28-94	1200	675	25.5	--
					03-31-95	1445	680	25.5	--
					05-09-95	1230	480	24.5	--
					06-09-95	1200	450	25.0	--
					09-21-95	1315	480	26.5	--
212927158014801	3-2901-07	S4	21 29 27 N	158 01 48 W	12-08-94	1350	170	22.5	21
					04-04-95	1300	170	22.5	--
					06-12-95	0830	175	22.0	19
212945158014301	3-2901-09	W330-6	21 29 45 N	158 01 43 W	12-01-94	b0850	--	--	--
					03-06-95	a1500	--	--	--
					06-12-95	a0940	--	--	--
					09-27-95	0925	195	21.5	--
212939158112301	3-2911-02	TU MAKAHA	21 29 39 N	158 11 23 W	11-28-94	1120	255	21.5	27
					03-31-95	1425	260	21.5	27
					05-09-95	1130	250	20.5	27
					06-09-95	1215	260	20.5	27
					09-21-95	1330	260	20.5	26
213224158135901	3-3213-06	W277-101	21 32 24 N	158 13 59 W	11-28-94	1330	850	23.5	199
					03-31-95	1515	840	23.5	205
					05-09-95	1300	830	23.0	208
					06-09-95	1125	900	22.5	200
					09-21-95	1300	900	22.5	200
213243157510001	3-3251-01	W406	21 32 43 N	157 51 00 W	11-30-94	0950	920	23.0	231
					03-06-95	0940	890	23.0	233
					06-07-95	1025	950	22.5	242
					09-27-95	1105	1000	24.0	245
213327157524401	3-3352-01	W405	21 33 27 N	157 52 43 W	11-30-94	1005	245	23.0	35
					03-06-95	1000	240	22.5	35
					06-07-95	1100	240	22.0	34
					09-27-95	1010	251	23.0	34
213429158055501	3-3405-01	W323-1	21 34 29 N	158 05 55 W	03-06-95	1435	385	22.5	--
					06-12-95	1430	385	22.0	--
213427158055501	3-3405-02	W323-2	21 34 27 N	158 05 55 W	11-30-94	1505	415	22.0	--
					03-06-95	a1440	--	--	--
					06-12-95	a1435	--	--	--
					09-06-95	1550	380	21.5	--
213411158074501	3-3407-25	W320	21 34 11 N	158 07 45 W	11-30-94	0905	1710	22.5	--
					03-13-95	c0900	--	--	--
					06-12-95	c1015	--	--	--
					09-06-95	0900	1670	23.0	--
213444158075501	3-3407-30	W318-2	21 34 44 N	158 07 55 W	11-30-94	a1410	--	--	--
					03-06-95	a1415	--	--	--
					03-30-95	1115	3800	24.5	971
					06-12-95	1400	5400	24.5	1580
					09-06-95	1435	5800	25.0	1920

a Pump off, unable to collect sample
b Pump being replaced, unable to collect sample
c Pump broken, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF OAHU--Continued						
213446158104901	3-3410-08 W286		21 34 46 N	158 10 49 W	11-30-94	1045	730	22.0	--
					03-14-95	1455	690	22.0	--
					06-12-95	--	705	21.5	--
					09-06-95	1055	690	22.0	--
213512158061601	3-3506-03 TO 04 W329 A-B	W	21 35 12 N	158 06 16 W	11-30-94	1355	460	21.5	--
					03-14-95	1400	420	22.0	--
					06-12-95	1340	445	21.5	--
					09-06-95	a1420	--	--	--
213636158053701	3-3605-03 W334-C		21 36 36 N	158 05 37 W	11-30-94	1315	1520	21.0	--
					03-14-95	1320	1500	21.5	--
					06-12-95	1245	1750	21.0	--
					09-06-95	1330	1550	20.5	--
213636158053702	3-3605-21 W334-U		21 36 35 N	158 05 40 W	11-30-94	1335	1320	21.0	--
					03-14-95	1340	1240	22.0	--
					06-12-95	1300	1300	21.0	--
					09-06-95	1350	1350	21.0	--
213656157550401	3-3655-01 W394		21 36 56 N	157 55 04 W	11-30-94	1040	235	22.0	35
					03-06-95	1035	230	21.5	35
					06-07-95	1200	230	21.0	34
					09-26-95	1430	237	21.0	34
213902157561601	3-3956-04 W366		21 39 02 N	157 56 16 W	11-30-94	1100	325	22.0	56
					03-06-95	1055	315	22.0	54
					06-07-95	1225	305	21.0	--
					09-26-95	1410	318	21.5	51
214157158000101	3-4100-01 W338		21 41 57 N	158 00 01 W	11-30-94	1245	300	21.5	52
					03-06-95	1220	280	21.5	50
					06-07-95	1305	300	20.5	53
					09-26-95	1110	280	20.5	--
214131158011601	3-4101-08 W337-6		21 41 31 N	158 01 16 W	11-30-94	a1305	--	--	--
					03-06-95	a1255	--	--	--
					06-07-95	1425	218	23.0	--
					09-26-95	a1045	--	--	--
214233157583501	3-4258-04 W345		21 42 33 N	157 58 35 W	11-30-94	1200	1820	24.5	545
					03-06-95	1150	1650	24.0	482
					06-07-95	b1340	--	--	--
					09-26-95	1215	1510	25.0	436

a Pump off, unable to collect sample
b No flow, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF MOLOKAI						
210425156483001	4-0448-02	S8	21 04 25 N	156 48 30 W	10-17-94	1155	350	24.0	--
					12-12-94	1200	357	24.0	20
					02-03-95	1630	348	23.5	20
					04-25-95	1200	356	23.5	21
					06-26-95	1330	347	24.0	18
					08-14-95	1440	344	24.0	19
210402156495801	4-0449-01	S6	21 04 02 N	156 49 58 W	10-17-94	1135	323	20.5	60
					12-12-94	1140	321	20.5	60
					02-13-95	1655	319	20.5	60
					04-25-95	1240	321	20.5	60
					06-26-95	1400	328	20.5	61
					08-14-95	1500	332	20.5	61
210414156565601	4-0456-04	KAWELA PLANTATION	21 04 14 N	156 56 56 W	10-21-94	a0840	834	--	204
					11-07-94	a1120	--	--	217
					12-15-94	a0730	--	--	104
					01-03-95	a1130	--	--	85
					02-16-95	a1040	--	--	145
					04-04-95	a0940	b200	--	26
					05-08-95	a1035	--	--	14
					06-05-95	a0735	--	--	12
					08-15-95	a1325	304	--	57
210429156565106	4-0456-06	KAWELA PLANTATION	21 04 29 N	156 56 51 W	10-21-94	a0825	296	--	56
					11-07-94	a1410	b299	--	58
					12-15-94	a0820	--	--	47
					01-03-95	a1130	--	--	50
					02-16-95	a1025	--	--	47
					04-04-95	a0730	b278	--	55
					05-01-95	a1415	--	--	41
					06-05-95	a0750	--	--	54
					08-15-95	a1345	151	--	12
210419156562108	4-0456-08	KAWELA PLANTATION	21 04 19 N	156 56 21 W	10-21-94	a0800	1710	--	448
					11-07-94	a1330	--	--	471
					12-15-94	a0750	--	--	95
					01-03-95	a1040	--	--	457
					02-16-95	a1000	--	--	49
					04-04-95	a0820	b441	--	96
					05-01-95	a1100	--	--	381
					06-05-95	a0800	--	--	54
					08-15-95	a1400	465	--	100
210426156563509	4-0456-09	KAWELA PLANTATION	21 04 26 N	156 56 35 W	10-21-94	a0815	622	--	136
					11-07-94	a1400	--	--	148
					12-15-94	a0805	--	--	143
					01-03-95	a1115	--	--	144
					02-16-95	a1015	--	--	99
					04-04-95	a0755	b598	--	137
					05-01-95	a1120	--	--	125
					06-05-95	a0810	--	--	76
					08-15-95	a1350	620	--	143
210419156570501	4-0457-01	S4	21 04 19 N	156 57 05 W	10-17-94	1035	396	23.0	86
					12-12-94	1045	347	23.0	72
					02-13-95	1020	400	23.0	87
					04-25-95	1315	387	23.0	83
					06-26-95	1020	428	23.0	94
					08-14-95	1545	416	23.0	92

a Collected by non-USGS agency
b Laboratory Specific conductance

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
HAWAII, ISLAND OF MOLOKAI--Continued									
210433156574201	4-0457-04	KAWELA PLANTATION	21 04 33 N	156 57 42 W	10-21-94	a0850	1280	--	326
					11-07-94	a1100	--	--	341
					12-15-94	a0840	--	--	334
					01-03-95	a0950	--	--	330
					02-16-95	a0940	--	--	324
					04-04-95	a1030	b1240	--	316
					05-01-95	a1300	--	--	321
					06-05-95	a0830	--	--	321
					08-15-95	a1310	1250	--	325
210605157012001	4-0601-01	W11	21 06 06 N	157 01 11 W	10-20-94	1440	324	24.0	26
					12-15-94	1300	310	24.0	27
					02-17-95	1015	294	23.5	28
					04-28-95	1210	304	24.0	20
					06-29-95	1000	312	24.0	23
					08-17-95	1140	320	24.0	26
210856157011201	4-0801-01	W16	21 08 56 N	157 01 12 W	10-05-94	c0900	--	--	--
					11-03-94	1245	260	22.0	35
					11-03-94	1315	263	23.0	36
					11-03-94	1345	660	22.0	161
					11-03-94	1415	681	22.0	168
					11-03-94	1445	709	22.0	177
					11-03-94	1515	710	22.0	183
					11-22-94	c0830	--	--	--
					12-06-94	c0800	--	--	--
					01-09-95	c1030	--	--	--
					02-01-95	c0830	--	--	--
					03-01-95	c0800	--	--	--
					04-01-95	c0800	--	--	--
					05-01-95	c0800	--	--	--
					05-12-95	0900	--	--	111
					05-12-95	0930	--	--	120
					05-12-95	0935	--	--	171
					05-12-95	1000	--	--	173
					05-12-95	1030	--	--	174
					05-12-95	1100	--	--	175
					05-18-95	0930	--	--	114
					05-18-95	1030	--	--	114
					05-18-95	1105	--	--	112
					05-18-95	1235	--	--	113
					05-18-95	1320	--	--	168
					05-18-95	1415	--	--	168
					05-22-95	1020	--	--	103
					05-22-95	1055	--	--	102
					05-22-95	1115	--	--	99
					05-22-95	1210	--	--	99
					05-22-95	1250	--	--	168
					05-22-95	1325	--	--	168
					06-01-95	c0800	--	--	--
					07-01-95	c0800	--	--	--
					08-01-95	c0800	--	--	--
					09-01-95	c0800	--	--	--

a Collected by non-USGS agency
b Laboratory Specific conductance
c Pump broken, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF MOLOKAI--Continued						
210857156010701	4-0801-02		21 08 57 N	157 01 07 W	10-05-94	0830	389	--	84
					11-22-94	0800	--	--	83
					12-06-94	0730	--	--	82
					01-09-95	1000	--	--	76
					02-01-95	0800	a389	--	81
					03-15-95	0805	a388	--	80
					04-05-95	1430	a388	--	80
					05-03-95	0740	386	--	79
					05-15-95	0830	334	20.5	76
					05-15-95	0920	345	21.0	76
					05-15-95	1350	360	21.5	82
					05-16-95	0745	357	20.5	81
					05-16-95	1410	368	21.5	81
					05-17-95	0850	362	21.0	82
					05-19-95	0830	358	20.5	81
					05-20-95	1600	359	21.0	81
					05-22-95	1030	361	21.5	82
					06-02-95	0900	a385	--	80
					07-05-95	0835	a386	--	79
					08-09-95	0755	a382	--	78
					09-16-95	0700	--	--	82
210903157013001	4-0901-01 W17		21 09 03 N	157 01 30 W	11-01-94	0855	--	--	53
					12-01-94	1000	--	--	54
					12-31-94	1035	--	--	53
					02-28-95	1000	a283	--	53
					03-31-95	0935	a283	--	53
					04-20-95	1000	a280	--	52
					07-01-95	1000	a270	--	49
					08-01-95	1000	a235	--	41

a Laboratory Specific conductance

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF MAUI						
203835156065001	6-3806-01	PUNAHOU SPRINGS	20 38 35 N	156 06 50 W	10-11-94	1210	588	20.0	146
					01-25-95	1430	780	19.5	192
					05-03-95	1205	730	20.0	179
					07-06-95	1310	956	21.0	243
					09-01-95	0905	970	21.0	252
203947156261201	6-3926-03	WAILEA 8	20 39 47 N	156 26 13 W	11-04-94	a1410	--	--	--
					01-12-95	1210	2630	19.0	752
					05-15-95	1330	4130	19.0	1160
					06-21-95	1225	5670	19.0	1630
					08-09-95	1000	5060	20.0	1480
204601156001501	6-4600-01	W55	20 46 01 N	156 00 15 W	10-12-94	b0930	--	--	--
					12-08-94	b1505	--	--	--
					01-24-95	b1450	--	--	--
					05-04-95	b1230	--	--	--
					07-06-95	b0915	--	--	--
					09-01-95	1350	419	--	89
204633156003201	6-4600-03	WAKIU B	20 46 36 N	156 00 30 W	10-12-94	0910	118	20.0	15
					12-08-94	1430	131	19.0	19
					01-24-95	1410	153	19.0	28
					05-04-95	1250	526	19.0	130
					07-06-95	0900	672	19.0	174
					09-01-95	1420	720	19.5	193
204635156270101	6-4627-14	W226	20 46 35 N	156 27 01 W	11-04-94	1310	1610	23.5	268
					01-12-95	1035	1600	23.0	251
					05-16-95	1050	1580	23.5	246
					08-09-95	1210	1570	23.5	252
204845156255001	6-4825-01	S15	20 48 45 N	156 25 50 W	11-15-94	b1110	--	--	--
					01-18-95	1215	1110	24.0	166
					05-16-95	1305	1260	23.5	200
					07-12-95	b1220	--	--	--
					08-24-95	1300	1250	24.0	200
204931156371201	6-4937-01	S10	20 49 31 N	156 37 12 W	10-03-94	b1240	--	--	--
					12-01-94	1125	1010	24.0	200
					02-21-95	1150	982	24.0	192
					05-11-95	1040	1190	24.0	253
					07-05-95	1420	1320	24.0	292
					08-08-95	1345	798	24.0	135
205014156212701	6-5021-01	PUKALANI	20 50 14 N	156 21 27 W	11-01-94	c0900	1750	--	584
					11-28-94	b1400	--	--	--
					01-20-95	c1000	2150	--	593
					04-18-95	c0815	2080	--	565
205102156282501	6-5128-02	S16	20 51 02 N	156 28 25 W	11-15-94	b1130	--	--	--
					01-18-95	b1115	--	--	--
					05-16-95	b1245	--	--	--
					07-12-95	b1135	--	--	--
					08-24-95	b1325	--	--	--
205243156243201	6-5224-02	S22	20 52 43 N	156 24 32 W	11-15-94	b0855	--	--	--
					01-18-95	b1305	--	--	--
					05-16-95	b1530	--	--	--
					07-12-95	1325	1310	23.5	254
					08-24-95	b1230	--	--	--

a No sampling point on the pipeline, unable to collect sample.
b Pump off, unable to collect sample
c Collected by non-USGS agency

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF MAUI--Continued						
205329156305502	6-5330-09	W15A	20 53 29 N	156 30 55 W	11-03-94	a1500	--	--	--
					12-07-94	1410	1330	22.5	337
					05-12-95	a1430	--	--	--
					07-10-95	a1140	--	--	--
					08-24-95	a1420	--	--	--
205329156305501	6-5330-10	W15B	20 53 29 N	156 30 55 W	11-03-94	1455	510	22.0	98
					12-07-94	1415	405	22.0	67
					05-12-95	1435	340	22.0	50
					07-10-95	1130	457	22.0	81
					08-24-95	a1425	--	--	--
205330156305401	6-5330-11	W15F	20 53 30 N	156 30 54 W	11-03-94	1505	586	22.0	114
					12-07-94	1420	581	22.0	109
					05-12-95	1440	620	22.0	124
					07-10-95	1135	677	22.5	140
					08-24-95	1430	740	22.5	160
205322156394501	6-5339-01	W291	20 53 22 N	156 39 45 W	10-03-94	a1225	--	--	--
					12-01-94	a1230	--	--	--
					02-21-95	a1315	--	--	--
					05-11-95	1110	593	22.0	97
					06-21-95	a1520	--	--	--
					08-11-95	1100	633	21.0	108
205320156394501	6-5339-02	W292	20 53 20 N	156 39 45 W	10-03-94	1330	685	21.0	134
					12-01-94	1235	690	21.0	132
					02-21-95	a1310	--	--	--
					05-11-95	a1115	--	--	--
					06-21-95	1510	652	21.0	118
					08-11-95	a1105	--	--	--
205343156401101	6-5340-01	S5	20 53 43 N	156 40 11 W	10-03-94	a1400	--	--	--
					12-01-94	1300	949	21.5	216
					02-21-95	1340	962	21.5	216
					05-11-95	a1130	--	--	--
					06-21-95	1415	1670	21.5	423
					08-11-95	a1125	--	--	--
205412156193801	6-5419-01	HAIKU	20 54 12 N	156 19 38 W	11-15-94	b1010	--	--	--
					01-18-95	c1350	--	--	--
					05-16-95	c1450	--	--	--
					07-12-95	c1430	--	--	--
					08-24-95	d1115	--	--	--
205416156244301	6-5424-01	S24	20 54 16 N	156 24 43 W	11-15-94	a0905	--	--	--
					01-18-95	a1320	--	--	--
					05-16-95	a1525	--	--	--
					07-12-95	a1335	--	--	--
					08-24-95	a1140	--	--	--

a Pump off, unable to collect sample
b Only water level measurement made
c Pump being installed, unable to collect sample
d Pump installed, but not working

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SAMPLE DEPTH DIS-TANCE BELOW MSL FEET	SPE-CIFIC CON-DUCT-ANCE (US/CM)	CHLO-RIDE, (MG/L AS CL)
				HAWAII, ISLAND OF MAUI--Continued					
205405156305401	6-5430-05	WAIEHU MONITOR W	20 54 59 N	156 30 54 W	11-22-94	0955	200	207	11
					11-22-94	1020	400	206	11
					11-22-94	1045	500	476	110
					11-22-94	1110	600	566	140
					11-22-94	1140	675	2400	670
					11-22-94	1210	750	30000	11000
					11-22-94	1245	800	46600	17000
					11-22-94	1330	825	48800	18000
					11-22-94	1410	850	49200	18000
					11-22-94	1440	900	50200	19000
					02-27-95	1035	200	209	13
					02-27-95	1015	400	443	a--
					02-27-95	1110	500	424	91
					02-27-95	1130	600	513	121
					02-27-95	1155	675	2330	640
					02-27-95	1225	750	31800	11600
					02-27-95	1250	800	46900	a--
					02-27-95	1325	825	48800	18000
					02-27-95	1355	850	49500	18000
					02-27-95	1425	900	50300	18500
					06-06-95	1015	200	203	9
					06-06-95	1030	400	438	93
					06-06-95	1050	500	452	98
					06-06-95	1110	600	540	124
					06-06-95	1135	675	2420	681
					06-06-95	1200	750	32800	12200
					06-06-95	1225	800	47100	17400
					06-06-95	1255	825	48900	18100
					06-06-95	1320	850	49500	18300
					06-06-95	1350	900	50300	18700
					08-31-95	1015	200	206	10
					08-31-95	1030	400	212	12
					08-31-95	1150	500	485	106
					08-31-95	1235	600	585	134
					08-31-95	1300	675	2580	706
					08-31-95	1320	750	34100	12700
					08-31-95	1430	800	47500	17500
					08-31-95	1500	825	49100	18200
					08-31-95	1525	850	49800	18400
					08-31-95	1555	900	50500	18900

a Sample lost in transit

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
HAWAII, ISLAND OF MAUI--Continued									
205511156222101	6-5522-01	S31	20 55 11 N	156 22 21 W	11-15-94	a0915	--	--	--
					01-18-95	a1330	--	--	--
					05-16-95	a1515	--	--	--
					07-12-95	1445	1190	23.0	253
					08-24-95	a1125	--	--	--
205651156401001	6-5640-01	S36	20 56 51 N	156 40 10 W	10-03-94	a1320	--	--	--
					12-01-94	a1330	--	--	--
					02-21-95	1410	454	20.5	84
					05-11-95	a1150	--	--	--
					06-21-95	1345	1010	21.0	239
					08-11-95	1145	849	22.0	--
205837156384601	6-5838-01	NAPILI A	20 58 37 N	156 38 46 W	10-03-94	b1510	--	--	--
					12-01-94	b1505	--	--	--
					02-21-95	b1520	--	--	--
					05-11-95	b1445	--	--	--
					06-21-95	a1055	--	--	--
					08-11-95	a1340	--	--	--
205838156383101	6-5838-02	NAPILI B	20 58 38 N	156 38 31 W	10-03-94	1520	388	20.0	82
					12-01-94	1515	375	20.0	79
					02-21-95	1525	367	20.0	76
					05-11-95	1505	377	20.0	80
					06-21-95	1115	385	20.0	81
					08-11-95	1350	389	20.0	82
205848156383601	6-5838-04	NAPILI	20 58 48 N	156 38 36 W	10-03-94	1530	815	20.0	202
					12-01-94	1530	778	20.0	188
					02-21-95	1535	577	20.0	133
					05-11-95	a1515	--	--	--
					06-21-95	1130	515	20.0	116
					08-11-95	a1400	--	--	--

a Pump off, unable to collect sample
b Pump being repaired, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF HAWAII						
190347155354301	8-0335-01	NAALEHU W1	19 03 47 N	155 35 43 W	11-18-94	a1245	--	--	--
					01-25-95	1240	145	19.0	11
					05-22-95	1030	145	19.5	8
					07-25-95	a1100	--	--	--
190602155325901	8-0632-01	W10-1	19 06 02 N	155 32 59 W	10-07-94	a1255	--	--	--
					11-18-94	a1415	--	--	--
					12-08-94	a1200	--	--	--
					01-25-95	a1200	--	--	--
					05-22-95	a1055	--	--	--
					07-25-95	a1135	--	--	--
190832155310801	8-0831-01	NINOLE TH1	19 08 32 N	155 31 08 W	11-18-94	a1515	--	--	--
					01-25-95	1125	710	18.0	187
					05-22-95	1121	760	24.5	--
					07-25-95	a1200	--	--	--
190832155310901	8-0831-02	NINOLE A	19 08 32 N	155 31 09 W	10-07-94	1130	790	18.5	--
					11-18-94	a1515	--	--	--
					12-08-94	1120	760	18.5	--
					01-25-95	a1125	--	--	--
					05-22-95	a1121	--	--	--
					07-25-95	a1200	--	--	--
191108155281701	8-1128-02	PALIMA	19 11 08 N	155 28 17 W	11-18-94	a1610	--	--	--
					01-25-95	a1100	--	--	--
					05-22-95	1155	140	20.5	13
					07-25-95	a1220	--	--	--
191114155294801	8-1129-01		19 11 14 N	155 29 48 W	11-18-94	a1545	--	--	--
					01-25-95	a1030	--	--	--
					05-22-95	1240	95	18.5	3
					07-25-95	a1030	--	--	--
191219155291601	8-1229-01	PAHALA	19 12 25 N	155 29 22 W	11-18-94	a1630	--	--	--
					01-25-95	1010	99	17.5	5
					05-22-95	1300	95	17.5	3
					07-25-95	1245	94	17.5	5
192456154571901	8-2487-01	W9-7	19 24 57 N	154 57 18 W	11-17-94	a1420	--	--	--
					01-20-95	a1050	--	--	--
					05-16-95	1300	395	23.5	--
					07-26-95	a1055	--	--	--
					09-22-95	a1010	--	--	--
192457154571801	8-2487-02	KEAUOHANA2	19 24 57 N	154 57 18 W	11-17-94	a1420	--	--	--
					01-20-95	a1045	--	--	--
					05-16-95	a1255	--	--	--
					07-26-95	a1050	--	--	--
					09-22-95	a1010	--	--	--
192646155532001	8-2653-01	KEEI C	19 26 46 N	155 53 20 W	12-02-94	0940	327	18.5	67
					02-03-95	1240	400	19.5	84
					06-12-95	1230	420	19.5	86
					07-27-95	1340	395	19.5	88
192738155534201	8-2753-01	W12-4	19 27 31 N	155 53 41 W	12-02-94	a0920	--	--	--
					02-03-95	1215	770	19.5	191
					06-12-95	a1150	--	--	--
					07-27-95	1325	715	19.5	180
192731155534101	8-2753-02	W12-8	19 27 22 N	155 53 38 W	12-02-94	1000	1480	18.5	387
					02-03-95	1230	1470	19.5	411
					06-12-95	a1210	--	--	--
					07-27-95	b1335	--	--	--

a Pump off, unable to collect sample
b Pump being repaired, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF HAWAII--Continued						
192924154564701	8-2986-01	W9-5B	19 29 24 N	154 56 47 W	11-17-94	a1315	--	--	--
					01-20-95	b1000	--	--	--
					05-16-95	c1240	--	--	--
					07-26-95	1030	123	23.5	6
					09-22-95	0930	142	19.0	7
192923154564701	8-2986-02	W9-5A	19 29 23 N	154 56 47 W	11-17-94	a1320	--	--	--
					01-20-95	1015	123	23.0	7
					05-16-95	a1240	--	--	--
					07-26-95	1025	123	23.0	6
					09-22-95	0935	125	23.5	7
193017154502101	8-3080-02	S9	19 30 17 N	154 50 21 W	11-17-94	a1530	--	--	--
					01-20-95	a1230	--	--	--
					05-16-95	a1340	--	--	--
					07-26-95	a1140	--	--	--
					09-22-95	a1100	--	--	--
193113154555801	8-3185-01	W9-11 HAWN SHORE	19 31 13 N	154 55 58 W	11-18-94	1010	120	21.5	15
					01-20-95	1310	120	21.0	14
					05-16-95	a1415	--	--	--
					07-26-95	1210	125	21.0	15
					09-22-95	1125	125	21.5	16
193339154594801	8-3389-01	W9-4	19 33 39 N	154 59 48 W	11-17-94	a1250	--	--	--
					01-20-95	a0930	--	--	--
					05-16-95	a1150	--	--	--
					07-26-95	a1005	--	--	--
					09-22-95	a0900	--	--	--
193510155570801	8-3557-01	W12-5	19 35 10 N	155 57 08 W	12-02-94	1040	500	19.5	113
					02-03-95	1040	520	20.5	116
					05-18-95	1200	430	20.5	86
					07-27-95	1135	400	20.5	89
193505155570801	8-3557-02	W12-6	19 35 05 N	155 57 08 W	12-02-94	1100	600	20.0	144
					02-03-95	1055	580	20.0	135
					05-18-95	1215	860	20.5	210
					07-27-95	1150	820	20.5	210
193508155570701	8-3557-03	KAHALUU C	19 35 08 N	155 57 07 W	12-02-94	1045	400	20.0	87
					02-03-95	1045	410	20.5	85
					05-18-95	1205	365	20.5	68
					07-27-95	1140	340	20.5	--
193505155570701	8-3557-04	KAHALUU D	19 35 05 N	155 57 07 W	12-02-94	d1110	--	--	--
					02-03-95	e1100	--	--	--
					05-18-95	1220	610	20.5	134
					07-27-95	1200	590	20.5	142
193502155572301	8-3557-05	KAH SHAFT	19 35 02 N	155 57 23 W	11-01-94	1130	1220	20.0	332
					12-29-94	1045	1350	20.0	363
					02-03-95	0915	1250	20.0	355
					05-18-95	1140	1200	20.5	305
					07-27-95	1040	1230	20.5	328
193805155020201	8-3802-03	KEAAU 1	19 38 05 N	155 02 02 W	11-18-94	0925	82	19.0	5
					01-20-95	1350	85	19.0	4
					05-16-95	1120	84	19.0	3
					07-26-95	1320	80	19.0	4
					09-22-95	1245	81	19.0	4

a Pump off, unable to collect sample
b Pump broken, unable to collect sample
c Pump removed, unable to collect sample
d Pump being installed, unable to collect sample
e New pump being repaired, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
			HAWAII, ISLAND OF HAWAII--Continued						
194037155035301	8-4003-01	W8-3	19 40 37 N	155 03 53 W	11-17-94	1155	87	20.5	6
					01-20-95	1415	88	20.5	6
					05-15-95	1440	89	21.0	4
					07-26-95	1335	85	21.0	5
					09-22-95	1310	85	21.0	5
194040155035201	8-4003-02	PANAEWA 2	19 40 40 N	155 03 52 W	11-17-94	1200	86	20.5	--
					01-20-95	1430	87	20.5	--
					05-15-95	1445	87	21.0	--
					07-26-95	1345	85	20.5	--
					09-22-95	1315	84	21.0	--
194039155035601	8-4003-03	PANAEWA 3	19 40 32 N	155 03 54 W	11-17-94	a1205	--	--	--
					01-20-95	a1435	--	--	--
					05-15-95	a1445	--	--	--
					07-26-95	a1350	--	--	--
					09-22-95	1320	83	20.5	--
194222155035101	8-4203-04	W8-2	19 42 22 N	155 03 51 W	11-17-94	a1650	--	--	--
					01-20-95	a1450	--	--	--
					05-15-95	a1410	--	--	--
					07-26-95	a1420	--	--	--
					09-22-95	a1345	--	--	--
194222155034801	8-4203-06	W8-2B	19 42 22 N	155 03 48 W	11-17-94	1115	94	23.0	8
					01-20-95	1500	95	23.5	8
					05-15-95	1410	95	24.5	7
					07-26-95	1445	95	24.5	10
					09-22-95	1345	100	24.5	11
194337155041801	8-4304-01	WAIAKEA DUG WELL	19 43 37 N	155 04 18 W	11-17-94	1030	24000	20.5	8350
					01-20-95	1520	26500	20.5	9170
					05-15-95	1350	8750	20.5	2650
					07-26-95	1405	30000	20.5	10500
					09-22-95	1400	45000	20.5	15700
194818155582301	8-4858-02	KONA VILLAGE	19 48 18 N	155 58 23 W	12-02-94	1215	2370	20.5	491
					02-02-95	a1720	--	--	--
					05-19-95	a1055	--	--	--
					07-27-95	1545	2350	21.0	492
194820155582401	8-4858-03	KONA VILLAGE 3	19 48 20 N	155 58 24 W	12-02-94	a1215	--	--	--
					02-02-95	a1720	--	--	--
					05-19-95	a1056	--	--	--
					07-27-95	b1545	--	--	--
195035155054501	8-5005-01	W7-1	19 50 35 N	155 05 45 W	11-25-94	1755	195	20.5	14
					01-19-95	1535	200	22.5	14
					06-13-95	1030	195	20.0	11
					07-24-95	1510	180	20.0	13
195043155053801	8-5005-02	MAKAI	19 50 43 N	155 05 38 W	11-25-94	1745	188	20.5	16
					01-19-95	1520	195	22.5	16
					06-13-95	1040	300	21.0	34
					07-24-95	1455	275	21.0	36
195049155051601	8-5005-04	SALT WTR 2	19 50 49 N	155 05 16 W	12-01-94	1315	19000	15.0	6100
					01-19-95	1500	18500	18.0	6180
					06-13-95	1055	20500	18.0	6720
					07-24-95	a1525	--	--	--
195546155462001	8-5546-01	WAIKOLOA WATER W	19 55 46 N	155 46 20 W	12-02-94	a1330	--	--	--
					02-02-95	a1500	--	--	--
					05-19-95	0840	585	28.5	94
					07-28-95	1140	560	28.5	96

a Pump off, unable to collect sample
b Pump being repaired, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
HAWAII, ISLAND OF HAWAII--Continued									
195546155480301	8-5548-01	PARKER 1	19 55 46 N	155 48 03 W	12-02-94	a1310	--	--	--
					02-02-95	a1345	--	--	--
					05-18-95	1525	2450	28.5	626
					07-28-95	1120	2400	28.5	649
195724155455301	8-5745-01	PARKER 5	19 57 24 N	155 45 53 W	12-02-94	1350	287	26.5	29
					02-02-95	1420	285	26.5	28
					05-19-95	0945	290	26.5	26
					07-28-95	1200	281	27.0	28
195722155455201	8-5745-02	PARKER 4	19 57 22 N	155 45 52 W	12-02-94	a1420	--	--	--
					02-02-95	a1440	--	--	--
					05-19-95	a1005	--	--	--
					07-28-95	a1220	--	--	--
195728155455401	8-5745-03	WAIKOLOA WELL 1	19 57 28 N	155 45 54 W	12-02-94	1410	277	26.5	27
					02-02-95	1430	300	26.5	26
					05-19-95	0955	280	27.0	25
					07-28-95	1210	273	27.0	26
195857155142301	8-5814-01	LAUPAHOEHO	19 58 57 N	155 14 23 W	11-25-94	a1700	--	--	--
					01-19-95	a1400	--	--	--
					06-13-95	0945	430	19.0	88
					07-24-95	a1340	--	--	--
195929155462501	8-5946-01	LALAMILO A	19 59 30 N	155 46 30 W	11-25-94	1400	500	26.5	97
					02-02-95	1540	510	26.0	95
					05-18-95	1425	535	26.5	94
					07-28-95	1340	502	26.5	94
195912155464201	8-5946-02	LALAMILO B	19 59 14 N	155 46 39 W	11-25-94	a1408	--	--	--
					02-02-95	a1605	--	--	--
					05-18-95	b1420	--	--	--
					07-28-95	b1400	--	--	--
195939155464201	8-5946-03	LALAMILO C	19 59 34 N	155 46 45 W	11-25-94	1415	538	26.5	103
					02-02-95	1550	540	26.0	106
					05-18-95	1450	560	26.5	103
					07-28-95	1355	530	26.5	103
195953155464701	8-5946-04	LALAMILO D	19 59 53 N	155 46 47 W	12-02-94	a1545	--	--	--
					02-02-95	a1600	--	--	--
					05-18-95	1437	535	26.0	96
					07-28-95	1350	515	26.0	101
195947155485801	8-5948-01	HAPUNA PRK	19 59 47 N	155 48 58 W	11-25-94	1505	1850	25.5	507
					02-02-95	1640	1830	25.5	495
					05-18-95	1400	1950	26.5	507
					07-28-95	1420	1950	26.0	515
200132155471101	8-6147-01	W16	20 01 32 N	155 47 11 W	12-02-94	a1610	--	--	--
					02-23-95	a1420	--	--	--
					06-12-95	a1535	--	--	--
					07-28-95	a1500	--	--	--
					09-07-95	a1020	--	--	--
200122155480901	8-6148-01	W14	20 01 22 N	155 48 09 W	11-25-94	a1540	--	--	--
					02-23-95	a1415	--	--	--
					06-12-95	a1530	--	--	--
					07-28-95	a1500	--	--	--
					09-07-95	a1045	--	--	--

a Pump off, unable to collect sample
b Pump broken, unable to collect sample

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	TEMPER-ATURE WATER (DEG C)	CHLO-RIDE, (MG/L AS CL)
HAWAII, ISLAND OF HAWAII--Continued									
200121155480801	8-6148-02	W14B	20 01 21 N	155 48 08 W	11-25-94	a1540	--	--	--
					02-23-95	a1415	--	--	--
					06-12-95	a1530	--	--	--
					07-28-95	a1505	--	--	--
					09-07-95	a1045	--	--	--
201308155451901	8-7345-03	MAKAPALA	20 13 08 N	155 45 19 W	12-01-94	a1535	--	--	--
					01-27-95	a1120	--	--	--
					05-17-95	a1115	--	--	--
					08-01-95	a1040	--	--	--
					09-25-95	a1040	--	--	--
201307155452001	8-7345-04	MAKAPALA	20 13 07 N	155 45 20 W	12-01-94	a1525	--	--	--
					01-27-95	a1115	--	--	--
					05-17-95	a1110	--	--	--
					08-01-95	a1030	--	--	--
					09-25-95	a1035	--	--	--
201319155472301	8-7347-05	TEST WELL-8 HALA	20 13 19 N	155 47 23 W	11-22-94	a1525	--	--	--
					01-27-95	a1140	--	--	--
					05-17-95	a1155	--	--	--
					08-01-95	a1115	--	--	--
					09-25-95	a1145	--	--	--
201406155454401	8-7445-01	KAPAMAIA	20 14 06 N	155 45 44 W	11-22-94	a1436	--	--	--
					01-27-95	a1200	--	--	--
					05-17-95	a1135	--	--	--
					08-01-95	a1100	--	--	--
					09-25-95	a1105	--	--	--
201428155494001	8-7449-03	TEST WELL-H HAWI	20 14 28 N	155 49 40 W	11-25-94	a0950	--	--	--
					01-27-95	a1305	--	--	--
					05-17-95	a1225	--	--	--
					08-01-95	a1210	--	--	--
					09-25-95	a1230	--	--	--
201603155521801	8-7652-01	S1 WAIKANE	20 16 03 N	155 52 18 W	11-25-94	1120	2130	21.5	597
					01-27-95	a1445	--	--	--
					01-27-95	1500	2180	21.5	595
					05-17-95	1430	2200	21.0	590
					08-01-95	b1300	--	--	--

a Pump off, unable to collect sample
b No sample collected. Stairway fell down, unable to get to the site

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU

214119157573000 - COMPOSITE OF KII WELLS 1 TO 3 (LAT 21°41'19" LONG 157°57'30")

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	BAROMETRIC PRESSURE (MM OF HG)	OXYGEN, DISSOLVED (MG/L)	OXYGEN, DISSOLVED (PERCENT SATURATION)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	ALACHLOR, WATER, DISS, REC, (UG/L)	ALDRIN, TOTAL (UG/L)	AMETRYN WATER, DISS, REC, (UG/L)
NOV 22...	1045	650	7.0	22.0	767	7.6	87	<0.20	0.060	<0.050	<0.010	<0.050

DATE	ATRAZINE, WATER, DISS, REC (UG/L)	BENZENE TOTAL (UG/L)	BENZENE O-DICHLORO-WATER UNFLTRD REC (UG/L)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L)	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE 1,2,4-TRICHLORO-WAT UNF REC (UG/L)	BENZENE 1,3-DICHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DICHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L)
NOV 22...	<0.050	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT	BROMOBENZENE WATER, WHOLE, TOTAL (UG/L)	BROMOFORM TOTAL (UG/L)	CARBONTETRACHLORIDE TOTAL (UG/L)	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	CHLOROBENZENE TOTAL (UG/L)	CHLORODIBROMOMETHANE TOTAL (UG/L)	CHLOROETHANE TOTAL (UG/L)	2-CHLOROETHYL-VINYL-ETHER TOTAL (UG/L)	CHLOROFORM TOTAL (UG/L)	CIS-1,2-DICHLOROETHENE WATER TOTAL (UG/L)
NOV 22...	95.0	<0.200	<0.200	<0.200	<0.100	<0.010	<0.200	<0.200	<2.00	<1.00	<0.200	<0.200

DATE	CIS 1,3-DICHLOROPROPENE TOTAL (UG/L)	CYANAZINE, WATER, DISS, REC (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L)	DEF TOTAL (UG/L)	DEISOPROPYL ATRAZIN WATER, DISS, REC (UG/L)	DIAZINON, TOTAL (UG/L)	DIBROMO CHLOROPROPANE WATER WHOLE TOT.REC (UG/L)	DIBROMOMETHANE WATER WHOLE RECOVER (UG/L)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)
NOV 22...	<0.200	<0.200	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200	<0.200

DATE	DICHLOROBROMOMETHANE TOTAL (UG/L)	DICHLORODIFLUOROMETHANE TOTAL (UG/L)	1,1-DICHLOROETHANE TOTAL (UG/L)	1,2-DICHLOROETHANE TOTAL (UG/L)	1,1-DICHLOROETHYLENE TOTAL (UG/L)	1,2-DICHLOROPROPANE TOTAL (UG/L)	1,3-DICHLOROPROPANE WAT. WH TOTAL (UG/L)	2,2-DI CHLOROPROPANE WAT, WH TOTAL (UG/L)	1,1-DI CHLOROPROPENE, WAT, WH TOTAL (UG/L)	DIELDRIN TOTAL (UG/L)	DISULFOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)
NOV 22...	<0.200	<2.00	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	<0.010	<0.010

DATE	2,4-D, TOTAL (UG/L)	ENDOSULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHANE, 1112-TETRACHLORO-WAT UNF REC (UG/L)	ETHANE, 1,1,2,2 TETRACHLORO-WAT UNF REC (UG/L)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT	ETHION, TOTAL (UG/L)	ETHYLBENZENE TOTAL (UG/L)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L)	FREON-113 WATER UNFLTRD REC (UG/L)	HEPTACHLOR, TOTAL (UG/L)	HEPTACHLOR EPOXIDE TOTAL (UG/L)
NOV 22...	<0.010	<0.010	<0.010	<0.200	<0.200	<0.00	<0.010	<0.200	<0.010	<0.200	<0.010	<0.010

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214119157573000 - COMPOSITE OF KII WELLS 1 TO 3--Continued

DATE	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L)	METO-LACHLOR WATER DISSOLV (UG/L)
NOV 22...	<0.200	<0.200	<0.010	<0.010	<0.200	<0.010	<2.00	<2.00	<0.200	<0.010	<0.200	<0.050

DATE	METRI-BUZIN SENCOR WATER DISSOLV (UG/L)	MIREX, TOTAL (UG/L)	NAPHTH-ALENE TOTAL (UG/L)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L)	PARA-THION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PER-THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	PRO-METON, WATER, DISS, REC (UG/L)
NOV 22...	<0.050	<0.010	<0.200	<0.200	<0.200	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050

DATE	PRO-METRYN, WATER, DISS, REC (UG/L)	PROP-AZINE WATER DISS REC (UG/L)	SILVEX, TOTAL (UG/L)	SI-MAZINE, WATER, DISS, REC (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L)	TOX-APHENE, TOTAL (UG/L)	1,2-TRANSDI CHLORO-ETHENE TOTAL (UG/L)
NOV 22...	<0.050	<0.050	<0.010	<0.050	<0.200	<0.200	<0.200	<0.00	<0.200	<1.00	<0.200

DATE	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	123-TRI CHLORO-PROPANE WATER WHOLE TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4,5-T TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)
NOV 22...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	<0.010	<2.00	<0.200

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214146157583401 - PUNAMANO SPRING NEAR KAHUKU (LAT 21°41'46" LONG 157°58'34")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	BARO-METRIC PRES-SURE (MM OF HG)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ALA-CHLOR, WATER, DISS, REC, (UG/L)	ALDRIN, TOTAL (UG/L)	AMETRYN WATER, DISS, REC, (UG/L)
NOV 22...	1520	1190	7.0	23.0	765	5.9	69	<0.20	0.100	<0.050	<0.010	<0.050

DATE	ATRA-ZINE, WATER, DISS, REC (UG/L)	BENZENE TOTAL (UG/L)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L)	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L)
NOV 22...	<0.050	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L)	BROMO-FORM TOTAL (UG/L)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L)	CHLORO-BENZENE TOTAL (UG/L)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L)	CHLORO-ETHANE TOTAL (UG/L)	2-CHLORO-ETHYL-VINYL-ETHER TOTAL (UG/L)	CHLORO-FORM TOTAL (UG/L)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L)
NOV 22...	94.0	<0.200	<0.200	<0.200	<0.100	<0.010	<0.200	<0.200	<2.00	<1.00	<0.200	<0.200

DATE	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	CYANA-ZINE, WATER, DISS, REC (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L)	DEF TOTAL (UG/L)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L)	DI-AZINON, TOTAL (UG/L)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L)	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L)
NOV 22...	<0.200	<0.200	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200	<0.200

DATE	DI-CHLORO-BROMO-METHANE TOTAL (UG/L)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DISUL-FOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)
NOV 22...	<0.200	<2.00	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	<0.010	<0.010

DATE	2,4-D, TOTAL (UG/L)	ENDO-SULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L)	ETHION, TOTAL (UG/L)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT	ETHYL-BENZENE TOTAL (UG/L)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L)	FREON-113 WATER UNFLTRD REC (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)
NOV 22...	<0.010	<0.010	<0.010	<0.200	<0.200	<0.010	98.0	<0.200	<0.010	<0.200	<0.010	<0.010

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF OAHU--Continued

214146157583401 - PUNAMANO SPRING NEAR KAHUKU--Continued

DATE	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL-BROMIDE TOTAL (UG/L)	METHYL-CHLO-RIDE TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L)	METO-LACHLOR WATER DISSOLV (UG/L)
NOV 22...	<0.200	<0.200	<0.010	<0.010	<0.200	<0.010	<2.00	<2.00	<0.200	<0.010	<0.200	<0.050

DATE	METRI-BUZIN SENCOR WATER DISSOLV (UG/L)	MIREX, TOTAL (UG/L)	NAPHTH-ALENE TOTAL (UG/L)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L)	PARA-THION, TOTAL (UG/L)	PCB, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PER-THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	PRO-METON, WATER, DISS, REC (UG/L)
NOV 22...	<0.050	<0.010	<0.200	<0.200	<0.200	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050

DATE	PRO-METRYN, WATER, DISS, REC (UG/L)	PROP-AZINE WATER DISS REC (UG/L)	SILVEX, TOTAL (UG/L)	SI-MAZINE, WATER, DISS, REC (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L)	TOX-APHENE, TOTAL (UG/L)	1,2-TRANSDI CHLORO-ETHENE TOTAL (UG/L)
NOV 22...	<0.050	<0.050	<0.010	<0.050	<0.200	<0.200	<0.200	99.0	<0.200	<1.00	<0.200

DATE	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L)	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)	123-TRI CHLORO-PROPANE WATER WHOLE TOTAL (UG/L)	TOTAL TRI-THION (UG/L)	2,4,5-T TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)
NOV 22...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010	<0.010	<2.00	<0.200

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

QUALITY OF GROUND WATER

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF HAWAII

190423155371501 - 8-0437-01 WAIOHINU EXPLORATORY WELL, WAIOHINU (LAT 19°04'23" LONG 155°37'15")

DATE	TIME	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE LAB (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	HARDNESS TOTAL (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	SODIUM PERCENT	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)
OCT 13...	1100	89	7.4	17.5	23	5.3	2.4	8.0	41	0.7	1.2	26

DATE	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)
OCT 13...	9.1	4.5	0.20	44	90	0.12	<0.20	0.070	<10	<1	<100

DATE	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)
OCT 13...	<10	<1	2	<1	1	<10	6.0	<1	<10	<10	<1.0	<0.10

DATE	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ALDRIN, TOTAL (UG/L)	BENZENE TOTAL (UG/L)	BROMOFORM TOTAL (UG/L)	CARBON-TETRACHLORIDE TOTAL (UG/L)	CHLORDANE, TECHNICAL TOTAL (UG/L)	CHLORPYRIFOS TOTAL RECOVER (UG/L)	CHLOROBENZENE TOTAL (UG/L)
OCT 13...	<1	<1	<1	<1	30	<0.010	<0.200	<0.200	<0.200	<0.100	<0.010	<0.200

DATE	CHLORODIBROMOMETHANE TOTAL (UG/L)	CHLOROFORM TOTAL (UG/L)	P,P'-DDD UNFILT RECOVER (UG/L)	DDE, TOTAL (UG/L)	P,P'-DDT UNFILT RECOVER (UG/L)	DEF TOTAL (UG/L)	DIAZINON, TOTAL (UG/L)	BENZENE O-DICHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,3-DICHLORO-WATER UNFLTRD REC (UG/L)	BENZENE 1,4-DICHLORO-WATER UNFLTRD REC (UG/L)	DICHLOROBROMOMETHANE TOTAL (UG/L)	DICHLORODIFLUOROMETHANE TOTAL (UG/L)
OCT 13...	<0.200	<0.200	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

HAWAII, ISLAND OF HAWAII--Continued

190423155371501 - 8-0437-01 WAIOHINU EXPLORATORY WELL, WAIOHINU--Continued

DATE	1,1-DI-CHLORO-ETHANE TOTAL (UG/L)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DISUL-FOTON UNFILT RECOVER (UG/L)	2, 4-DP TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	ENDO-SULFAN, I TOTAL (UG/L)	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	ETHYL-BENZENE TOTAL (UG/L)
OCT 13...	<0.200	<0.200	<0.200	<0.200	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200

DATE	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METHYL-ENE CHLO-RIDE TOTAL (UG/L)	METHYL PARA-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	PCNS UNFILT RECOVER (UG/L)	PARA-THION, TOTAL (UG/L)	PCB, TOTAL (UG/L)
OCT 13...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.010	<0.010	<0.100	<0.010	<0.100

DATE	PER-THANE TOTAL (UG/L)	PHORATE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	STYRENE TOTAL (UG/L)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L)	TOLUENE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	1,2-TRANSDI CHLORO-ETHENE TOTAL (UG/L)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L)
OCT 13...	<0.100	<0.010	<0.010	<0.200	<0.200	0.200	<1.00	<0.200	<0.200	<0.200	<0.200

DATE	TOTAL TRI-THION (UG/L)	2,4,5-T TOTAL (UG/L)	VINYL CHLO-RIDE TOTAL (UG/L)	XYLENE WATER UNFLTRD REC (UG/L)	ALA-CHLOR, WATER, DISS, REC, (UG/L)	AMETRYN WATER, DISS, REC, (UG/L)	ATRA-ZINE, WATER, DISS, REC (UG/L)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT	CIS-1,2 -DI-CHLORO-ETHENE WATER TOTAL (UG/L)	CYANA-ZINE, WATER, DISS, REC (UG/L)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L)
OCT 13...	<0.010	<0.010	<0.200	<0.200	<0.050	<0.050	<0.050	<0.00	<0.200	<0.200	<0.050

DATE	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT	FREON-113 WATER UNFLTRD REC (UG/L)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L)	METO-LACHLOR WATER DISSOLV (UG/L)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L)	PRO-METON, WATER, DISS, REC (UG/L)	PRO-METRYN, WATER, DISS, REC (UG/L)	PROP-AZINE WATER DISS REC (UG/L)	SI-MAZINE, WATER, DISS, REC (UG/L)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT
OCT 13...	<0.050	92.0	<0.200	<0.200	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.00

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

HAWAII, ISLAND OF KAUAI

220523159341201. State Key Number 1042.0 Waialae Raingage near Waimea, Kauai.

LOCATION.--Lat 22°05′23″, long 159°34′12″, Hydrologic Unit 20070000, on ridge 6.4 mi southeast of Kokee Lodge, and 11.0 mi northeast of Waimea.

PERIOD OF RECORD.--Accumulated-rainfall station, 1910 (revised) to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service accumulation raingage, with a custom-made reduced 1 to 2 ratio raingage catchment. Elevation of gage is 4,000 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 09 to Nov. 14	41.6
Nov. 14 to Mar. 03	39.8
Mar. 03 to May 25	12.2
May 25 to Aug. 30	19.4
Aug. 30 to Nov. 30	38.0

220504159321401. State Key Number 1045.0 Waialeale trail Raingage near Lihue, Kauai.

LOCATION.--Lat 22°05′04", long 159°32′14", Hydrologic Unit 20070000, 14.0 mi west of Kapaa Beach Park, and 8.4 mi south of Hanalei Bay.

PERIOD OF RECORD.--Accumulated-rainfall station, December 3, 1962 to June 21, 1995. Continuous-record station, June 21, 1995 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service accumulation raingage, with a custom-made 1 to 2 reduced ratio raingage catchment. On June 21, 1995, gage was converted to a recording raingage. An electronic data logger (CR10) with a tipping bucket catchment (0.01 inch per tip) was installed. Elevation of gage is 4,560 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch. Recording rainfall in hundreds of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	.24	.23	.02
2	---	---	---	---	---	---	---	---	---	.18	.15	.57
3	---	---	---	---	---	b---	---	---	---	.58	.00	.05
4	---	---	---	---	---	---	---	---	---	1.06	.00	.00
5	---	---	---	---	---	---	---	---	---	.03	.05	.09
6	---	---	---	---	---	---	---	---	---	.03	.01	.01
7	---	---	---	---	---	---	---	---	---	.00	.49	.00
8	---	---	---	---	---	---	---	---	---	.00	.38	.01
9	---	---	---	---	---	---	---	---	---	.66	.95	.01
10	---	---	---	---	---	---	---	---	---	2.18	.83	.01
11	---	---	---	---	---	---	---	---	---	.68	.47	.00
12	---	---	---	---	---	---	---	---	---	.91	.09	.01
13	---	---	---	---	---	---	---	---	---	.39	.31	.00
14	---	---	---	---	---	---	---	---	---	1.44	1.22	.01
15	---	---	---	---	---	---	---	---	---	.08	.54	.13
16	---	---	---	---	---	---	---	---	---	.00	.12	.14
17	---	---	---	---	---	---	---	---	---	.00	2.17	.01
18	---	---	---	---	---	---	---	---	---	.04	.16	.08
19	---	---	---	---	---	---	---	---	---	.18	.42	.16
20	---	---	---	---	---	---	---	---	c---	2.13	.36	.22
21	---	---	---	---	---	---	---	---	.05	1.49	.21	.17
22	---	---	---	---	---	---	---	---	.10	.42	.90	.05
23	---	---	---	---	---	---	---	---	.01	1.26	5.48	.46
24	---	---	---	---	---	---	---	---	.00	2.07	.44	.53
25	---	---	---	---	---	---	---	---	.00	2.31	.13	.28
26	---	---	---	---	---	---	---	---	.18	3.32	.33	.07
27	---	---	---	---	---	---	---	---	.23	.00	.08	.78
28	---	---	a---	---	---	---	---	---	.04	.18	.24	.51
29	---	---	---	---	---	---	---	---	.00	.26	.19	.60
30	---	---	---	---	---	---	---	---	.04	.32	.18	6.29
31	---	---	---	---	---	---	---	---	---	1.00	.26	---
TOTAL	---	---	---	---	---	---	---	---	---	23.44	17.39	11.27

a Total accumulation rainfall from Aug. 9 (0820 hrs) to Dec. 28 (0935 hrs) is 68.4 inches.
b Total accumulation rainfall from Dec. 28 (0935 hrs) to Mar. 3 (1345 hrs) is 20.0 inches.
c Total accumulation rainfall from Mar. 3 (1345 hrs) to Jun. 20 (2400 hrs) is 35.6 inches.

HAWAII, ISLAND OF KAUAI--Continued

220427159300201. State Key Number 1047.0 Mount Waialeale Raingage near Lihue, Kauai.

LOCATION.--Lat 22°04'27", long 159°30'02", Hydrologic Unit 20070000, 9.2 mi south of Hanalei Bay, and 11.6 mi west of Kapaa Beach Park.

PERIOD OF RECORD.--Accumulated-rainfall station, 1910 to May 15, 1949. Continuous-record station, May 15, 1949 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Custom-made 1 to 10 ratio accumulation raingage with a 300 inch capacity. Japanese stripchart tipping bucket rainfall recorder. On May 19, 1995, an electronic data logger (CR10) was installed with a tipping bucket attachment (0.01 inch per tip). Elevation of gage is 5,150 feet above mean sea level from topographic map.

REMARKS.--Records poor from Oct. 1 to May 19, and good from May 20 till Sept. 30.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	.69	1.37	1.30	.70
2	---	---	---	---	---	---	---	---	.58	.66	.40	1.40
3	---	---	---	---	---	b---	---	---	1.20	1.55	.10	.20
4	---	---	---	---	---	---	---	---	.22	4.52	1.40	.00
5	---	---	---	---	---	---	---	---	1.53	1.19	1.60	.53
6	---	---	---	---	---	---	---	---	.76	.25	.10	.01
7	---	---	---	---	---	---	---	---	2.30	.10	1.10	.00
8	---	---	---	---	---	---	---	---	.09	.13	.80	.02
9	---	---	---	---	---	---	---	---	.61	.99	2.00	.27
10	---	---	---	---	---	---	---	---	.19	2.60	2.80	.04
11	---	---	---	---	---	---	---	---	.28	1.47	1.50	.00
12	---	---	---	---	---	---	---	---	.69	2.48	.70	.00
13	---	---	---	---	---	---	---	---	1.47	.97	1.10	.00
14	---	---	---	---	---	---	---	---	.95	3.46	2.00	.00
15	---	---	---	---	---	---	---	---	1.55	1.11	1.00	.54
16	---	---	---	---	---	---	---	---	.38	.59	.20	.28
17	---	---	---	---	---	---	---	---	.09	.11	3.40	.00
18	---	---	---	---	---	---	---	---	.47	.26	.10	.02
19	---	---	---	---	---	---	---	c---	1.13	.36	1.10	.61
20	---	---	---	---	---	---	---	.06	.45	5.49	.90	.26
21	---	---	---	---	---	---	---	.49	.60	4.28	.40	.98
22	---	---	---	---	---	---	---	.15	.62	.72	.70	.24
23	---	---	---	---	---	---	---	.40	.11	1.95	7.30	1.26
24	---	---	---	---	---	---	---	.08	.00	2.62	3.30	1.01
25	---	---	---	---	---	---	---	.05	.00	3.09	.70	.59
26	---	---	---	---	---	---	---	.20	.04	5.21	.60	.17
27	---	---	---	---	---	---	---	.14	.36	.10	.20	1.41
28	---	---	a---	---	---	---	---	.17	.65	1.60	.80	.97
29	---	---	---	---	---	---	---	1.32	.06	.70	.60	1.71
30	---	---	---	---	---	---	---	.37	.11	.60	.50	14.69
31	---	---	---	---	---	---	---	1.06	---	3.10	.80	---
TOTAL	---	---	---	---	---	---	---	---	18.18	53.63	39.50	27.91

a Total accumulation rainfall from Sep. 5 (0001 hrs) to Dec. 28 (0930 hrs) is 197.67 inches.
b Total accumulation rainfall from Dec. 28 (0930 hrs) to Mar. 3 (0900 hrs) is 21.00 inches.
c Total accumulation rainfall from Mar. 3 (0900 hrs) to May 19 (2400 hrs) is 77.03 inches.

220356159281401. State Key Number 1051.0 North Wailua ditch Raingage near Lihue, Kauai.

LOCATION.--Lat 22°03′56″, long 159°28′14″, Hydrologic Unit 20070000, 4.0 mi west of Wailua Reservoir, and 2.0 mi east southeast of Waialeale Raingage.

PERIOD OF RECORD.--Accumulated-rainfall station, 1928 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service non-recording rain gage. Elevation of gage is 1,110 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest hundreds of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Sep. 26 to Oct. 03	7.22
Oct. 03 to Oct. 10	4.78
Oct. 10 to Oct. 17	3.65
Oct. 17 to Oct. 24	4.82
Oct. 24 to Oct. 31	1.23
Oct. 31 to Nov. 07	3.07
Nov. 07 to Nov. 14	4.49
Nov. 14 to Nov. 21	8.60
Nov. 21 to Nov. 28	4.62
Nov. 28 to Dec. 12	6.76
Dec. 12 to Dec. 19	2.10
Dec. 19 to Jan. 04	0.27
Jan. 04 to Jan. 09	0.42
Jan. 09 to Jan. 16	2.57
Jan. 16 to Jan. 23	0.10
Jan. 23 to Jan. 30	2.65
Jan. 30 to Feb. 06	1.25
Feb. 06 to Feb. 13	0.27
Feb. 13 to Feb. 21	10.50
Feb. 21 to Feb. 27	1.75
Feb. 27 to Mar. 06	3.68
Mar. 06 to Mar. 13	0.05
Mar. 13 to Mar. 20	0.20
Mar. 20 to Mar. 27	3.50
Mar. 27 to Apr. 03	3.14
Apr. 03 to Apr. 10	9.00
Apr. 10 to Apr. 17	5.24
Apr. 17 to Apr. 24	5.20
Apr. 24 to May 01	1.05
May 01 to May 08	0.34
May 08 to May 15	2.38
May 15 to May 22	1.25
May 22 to May 29	0.78
May 29 to June 06	1.83
June 06 to June 12	1.35
June 12 to June 19	1.70
June 19 to June 26	0.97
June 26 to July 03	1.58
July 03 to July 10	3.83
July 10 to July 17	5.00
July 17 to July 24	5.56
July 24 to July 31	5.65
July 31 to Aug. 07	0.68
Aug. 07 to Aug. 14	2.38
Aug. 14 to Aug. 21	2.75
Aug. 21 to Aug. 26	4.40
Aug. 26 to Sep. 05	2.03
Sep. 05 to Sep. 11	0.25
Sep. 11 to Sep. 18	1.77
Sep. 18 to Sep. 25	0.55
Sep. 25 to Oct. 02	7.23

HAWAII, ISLAND OF KAUAI--Continued

220443159235601. State Key Number 1068.0 Left Branch Opaekaa Raingage near Kapaa, Kauai.

LOCATION.--Lat 22°04′43", long 159°23′56", Hydrologic Unit 20070000, in USGS streamgage station 16071500 on left bank, 5.0 mi west of Kapaa Beach Park, and 0.7 mi northeast of Wailua Reservoir.

PERIOD OF RECORD.--Continuous-record station, May 1960 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service rain gage with tipping bucket attachment and recorder. Elevation of gage is 470 ft above mean sea level from topographic map.

REMARKS.--Records fair. Rainfall recorded in hundreds of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.04	.18	.00	.00	.00	.64	.00	.00	.39	.05	.02
2	.92	.00	.00	.00	.00	.58	.11	.00	.09	.13	.09	.16
3	3.17	.18	.00	.00	.00	.00	1.38	.00	.04	.27	.02	.10
4	.46	.04	.22	.00	---	.00	.11	.00	.00	.46	.01	.00
5	.00	.18	.09	.14	---	.05	1.06	.22	.18	.08	.10	.10
6	.00	.00	.18	.00	---	.00	.64	.00	.14	.06	.01	.00
7	.63	.00	.45	.00	---	.00	.53	.00	.42	.01	.22	.00
8	.09	.00	.00	.00	---	.00	.00	.00	.02	.07	.12	.00
9	.14	.09	.36	.00	---	.00	1.54	.00	.05	.27	.17	.03
10	.32	.04	.27	.00	---	.00	.05	.00	.00	.44	.37	.01
11	.14	.00	.04	.00	---	.00	.00	.00	.02	.11	.20	.00
12	.27	.14	.22	.00	---	.00	.27	.00	.09	.22	.07	.03
13	.00	.68	.00	.00	---	.00	.09	.00	.18	.09	.03	.00
14	.09	.40	.60	.60	a---	.00	.14	.09	.07	.23	.37	.06
15	.00	.27	.55	.18	.00	.00	.36	.00	.16	.03	.18	.30
16	1.26	.00	.00	.00	.42	.00	.00	.00	.06	.00	.19	.79
17	.58	.18	.23	.00	2.17	.00	.04	.27	.00	.01	.65	.00
18	1.35	.09	.00	.00	.00	.00	.18	.00	.00	.04	.10	.00
19	.04	.14	.00	.00	.00	.00	.09	.00	.24	.15	.20	.09
20	.00	.00	.00	.00	.11	.00	.00	.00	.06	.53	.59	.02
21	.04	.00	.00	.00	.00	.32	.27	.68	.07	.42	.04	.22
22	.04	.18	.32	.00	.00	.32	1.04	.04	.35	.04	.10	.02
23	.14	.00	.74	.00	.00	.48	1.62	.50	.24	.15	.50	.68
24	.00	.04	.00	.00	.00	.00	.76	.00	.00	.44	.08	.22
25	.00	.00	.00	.00	.53	.00	.09	.04	.01	.43	.18	.12
26	.00	.14	.00	.05	.05	.16	.00	.00	.08	.98	.05	.05
27	.04	.00	.00	.00	.32	.74	.00	.00	.18	.01	.04	.35
28	.00	.22	.09	.00	.16	.00	.04	.09	.08	.47	.18	.11
29	.32	.09	.00	.00	---	.00	.00	.09	.00	.13	.15	.72
30	.00	.00	.00	.00	---	.00	.00	.09	.01	.03	.09	.57
31	.09	---	.00	.00	---	1.75	---	.14	---	.33	.14	---
TOTAL	10.31	3.14	4.54	0.97	---	4.40	11.05	2.25	2.84	7.02	5.29	4.77

a Total accumulated rainfall from Feb. 4 (0001 hrs) to Feb. 14 (2400 hrs) is 1.00 inch.

220817159374401. State Key Number 1080.0 Paukahana Raingage near Waimea, Kauai.

LOCATION.--Lat 22°08′17″, long 159°37′44″, Hydrologic Unit 20070000, 2.0 mi east of Kokee lodge, and 7.0 mi south southwest of Kailiu Point.

PERIOD OF RECORD.--Accumulated-rainfall station, 1910 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service accumulation rain gage. Elevation of gage is 3,700 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 12 to Oct. 07	14.4
Oct. 07 to Dec. 14	12.3
Dec. 14 to Feb. 15	10.7
Feb. 15 to Apr. 12	10.5
Apr. 12 to June 14	3.8
June 14 to Aug. 16	4.7
Aug. 16 to Oct. 24	5.5

220739159373001. State Key Number 1082.0 Waiakoali Raingage near Waimea, Kauai.

LOCATION.--Lat 22°07′39″, long 159°37′30″, Hydrologic Unit 20070000, 2.4 mi east southeast of Kokee Lodge, and 7.4 mi south southwest of Kailiu Point.

PERIOD OF RECORD.--Accumulated-rainfall station, 1910 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service accumulation rain gage with a custom made reduced 1 to 2 ratio raingage catchment. Elevation of gage is 3,420 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 12 to Oct. 07	17.0
Oct. 07 to Dec. 14	14.6
Dec. 14 to Feb. 15	11.2
Feb. 15 to Apr. 12	11.0
Apr. 12 to June 14	4.2
June 14 to Aug. 16	5.2
Aug. 16 to Oct. 24	6.6

HAWAII, ISLAND OF KAUAI--Continued

220713159361201. State Key Number 1083.0 Mohihi crossing Raingage near Waimea, Kauai.

LOCATION.--Lat 22°07′13″, long 159°36′12″, Hydrologic Unit 20070000, 3.8 mi east of Kokee Lodge, and 7.5 mi south of Kailiu Point.

PERIOD OF RECORD.--Continuous-record station, 1910 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service rain gage with tipping bucket attachment with recorder. Elevation of gage is 3,420 ft above mean sea level from topographic map.

REMARKS.--Records good. Rainfall recorded in hundreds of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	.00	.10	---	---	---	---	.10	.20	.10	.02	.00
2	3.00	.00	.00	---	---	---	---	.00	.10	.02	.02	.05
3	6.10	.10	.00	---	---	---	---	.00	.10	.18	.04	.02
4	.00	.00	.00	---	---	---	---	.00	.10	.09	.01	.01
5	.00	.00	.10	---	---	---	---	.70	.00	.01	.00	.00
6	.00	.10	.00	---	---	---	---	.00	.10	.00	.00	.00
7	.20	.00	.00	---	---	---	---	.00	.10	.00	.03	.00
8	.00	.00	.00	---	---	---	---	.00	.00	.00	.32	.00
9	.00	.10	.10	---	---	---	---	.00	.00	.17	.50	.00
10	.20	.00	.00	---	---	---	---	.00	.00	.59	.51	.00
11	.00	.00	.00	---	---	---	---	.00	.00	.15	.18	.00
12	.00	.00	.00	---	---	---	c.00	.10	.00	.11	.01	.00
13	.10	.00	.10	---	---	---	.10	.00	.10	.09	.14	.00
14	.00	.10	a.00	---	---	---	.20	.00	.00	.06	.34	.02
15	.00	.00	---	---	b---	---	.20	.00	.02	.01	.07	.03
16	.10	.00	---	---	---	---	.00	.00	.01	.00	.14	.10
17	.00	.30	---	---	---	---	.00	.00	.00	.00	.72	.00
18	.40	.50	---	---	---	---	.70	.00	.00	.01	.01	.23
19	1.80	.80	---	---	---	---	.00	.00	.05	.00	.00	.14
20	.90	.60	---	---	---	---	.00	.10	.03	.17	.00	.00
21	.00	.60	---	---	---	---	.70	.50	.00	.30	.00	.35
22	.00	.30	---	---	---	---	.50	.00	.14	.37	.04	.02
23	.00	.10	---	---	---	---	.30	.00	.01	.22	1.40	.13
24	.00	.00	---	---	---	---	.00	.00	.00	.34	.01	.09
25	.00	.00	---	---	---	---	.00	.00	.00	.44	.05	.10
26	.00	.00	---	---	---	---	.10	.00	.22	.53	.13	.06
27	.00	.00	---	---	---	---	.40	.00	.10	.00	.03	.23
28	.00	.00	---	---	---	---	.10	.10	.27	.08	.09	.11
29	.00	.00	---	---	---	---	.00	.40	.00	.05	.06	.16
30	.10	.00	---	---	---	---	.00	.00	.02	.13	.07	.87
31	.00	---	---	---	---	---	---	.20	---	.14	.01	---
TOTAL	13.70	3.60	---	---	---	---	---	2.20	1.67	4.36	4.95	2.72

a Partial daily record from 0001 hrs to 1200 hrs.
b No record from Dec. 14 (1200 hrs) to Feb. 15 (1200 hrs), catchment was sluggish.
c Partial daily record from 1200 hrs to 2400 hrs. No record from Feb. 15 (1200 hrs) to Apr. 12 (1200 hrs), catchment was plugged.

220927159355001. State Key Number 1084.0 Kilohana Raingage near Hanalei, Kauai.

LOCATION.--Lat 22°09'27", long 159°35'50", Hydrologic Unit 20070000, 4.1 mi east southeast of Kalalau Beach, and 4.9 mi south southwest of Kailiu Point.

PERIOD OF RECORD.--Accumulated-rainfall station, 1910 to May 18, 1995. Continuous-record station, May 18, 1995 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service accumulation rain gage, with a custom-made reduced 1 to 4 ratio raingage catchment. On May 18, 1995, gage was converted to a recording raingage. An electronic data logger (CR10) with a tipping bucket catchment (0.01 inch per tip) was installed. Elevation of gage is 4,000 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch. Recording rainfall read in hundredths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	b---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	e0.0
6	---	---	---	---	---	---	---	---	---	---	---	.00
7	---	---	---	---	---	---	---	---	---	---	---	.00
8	---	---	---	---	---	---	---	---	---	---	---	.01
9	---	---	---	---	---	---	---	---	---	---	---	.00
10	---	---	---	---	---	---	---	---	---	---	---	.00
11	---	---	---	---	---	---	---	---	---	---	---	.00
12	---	---	---	---	---	---	---	---	---	---	---	.02
13	---	---	---	---	---	---	---	---	---	---	---	.00
14	---	---	---	---	---	---	---	---	---	---	---	.03
15	---	---	---	---	---	---	---	---	---	---	---	.64
16	---	---	---	---	---	---	---	---	---	---	---	.17
17	---	---	---	---	---	---	---	---	---	---	---	.01
18	---	---	---	---	---	---	---	c---	---	---	---	.05
19	---	---	---	---	---	---	---	---	---	---	---	.09
20	---	---	---	---	---	---	---	---	---	---	---	.01
21	---	---	---	---	---	---	---	---	---	---	---	.87
22	---	---	---	---	---	---	---	---	---	---	---	.51
23	---	---	---	---	---	---	---	---	---	---	---	.32
24	---	---	---	---	---	---	---	---	---	---	---	.09
25	---	---	---	---	---	---	---	---	---	---	---	.32
26	---	---	---	---	---	---	---	---	---	---	---	.59
27	---	---	---	---	---	---	---	---	---	---	---	.55
28	---	---	a---	---	---	---	---	---	---	---	---	.80
29	---	---	---	---	---	---	---	---	---	---	---	.40
30	---	---	---	---	---	---	---	---	---	---	d---	1.25
31	---	---	---	---	---	---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---	---	---	---	---	---	---

a Total accumulation rainfall Aug. 9 (0825 hrs) to Dec. 28 (0940 hrs) is 23.2 inches.
b Total accumulation rainfall Dec. 28 (0940 hrs) to Mar. 3 (1335 hrs) is 2.0 inches.
c Total accumulation rainfall Mar. 3 (1335 hrs) to May 18 (1000 hrs) is 14.4 inches.
d Total accumulation rainfall May 18 (1000 hrs) to Aug. 30 (0905 hrs) is 21.2 inches.
e Partial daily record from 0935 hrs to 2400 hrs. Total accumulation rainfall Aug. 30 (0905 hrs) to Sep. 5 (0935 hrs) is 0.0 inches.

HAWAII, ISLAND OF KAUAI--Continued

220703159351201. State Key Number 1085.0 Mohihi-Koaie divide Raingage near Waimea, Kauai.

LOCATION.--Lat 22°07′03″, long 159°35′12″, Hydrologic Unit 20070000, 5.0 mi east of Kokee Lodge, and 7.5 mi south of Kailiu Point.

PERIOD OF RECORD.--Accumulated-rainfall station, 1910 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service accumulation raingage. Elevation of gage is 4,000 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 09 to Dec. 28	22.0
Dec. 28 to Mar. 03	1.3
Mar. 03 to May 25	13.6
May 25 to Aug. 30	16.3
Aug. 30 to Dec. 07	22.8

HAWAII, ISLAND OF OAHU

212304157542201. State Key Number 771.9 North Halawa Raingage near Honolulu, Oahu.

LOCATION.--Lat 21°23'04", Long 157°54'22", (Waipahu quadrangle, 1983, 1:24000), Hydrologic Unit 20060000, on right bank, 0.6 mi north of Oahu Prison, 1.0 mi south of Keaiwa Heiau, and 1.7 mi east of Aiea High School.

PERIOD OF RECORD.--Continuous-record station, February 1, 1983 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service raingage with recording tipping-bucket attachment, housed in the shelter for gaging station 16226200. Elevation of gage is 180 ft above mean sea level from topographic map.

REMARKS.--Records fair. Tipping-bucket malfunctioned throughout the entire year. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 30 to Oct. 03	2.5
Oct. 03 to Oct. 17	0.9
Oct. 17 to Nov. 14	0.8
Nov. 14 to Nov. 29	1.3
Nov. 29 to Jan. 23	3.2
Jan. 23 to Feb. 28	4.1
Feb. 28 to Mar. 17	0.8
Mar. 17 to Mar. 20	0.0
Mar. 20 to Apr. 11	1.8
Apr. 11 to Apr. 27	1.4
Apr. 27 to May 12	0.1
May 12 to May 23	0.4
May 23 to June 06	0.0
June 06 to June 14	0.1
June 14 to June 23	0.2
June 23 to July 14	0.6
July 14 to Aug. 24	22.1
Aug. 24 to Oct. 05	6.0

HAWAII, ISLAND OF OAHU--Continued

212253157522201. State Key Number 772.0 Moanalua Raingage near Honolulu, Oahu.

LOCATION.--Lat 21°22′53″, Long 157°52′22″, Hydrologic Unit 20060000, 1.8 mi northeast of Tripler Hospital, and 5.0 mi north of Honolulu Post Office.

PERIOD OF RECORD.--Accumulated-rainfall station, June 1926 (revised) to December 8, 1964. Continuous-record station, December 8, 1964 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service collector attached to a 7 5/16-in rain can with float-type recorder system. Housed with recording crest-gage. Elevation of the gage is 340 ft above mean sea level from topographic map.

REMARKS.--Records good for periods when the recorder was in operation. Rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1.0	.0	.0	.5	.0	.0	.0	.1	.3	.1
2	---	---	.2	.0	.0	.3	.3	.0	.1	.1	.0	.1
3	---	---	.0	.0	.1	.0	.8	.0	.0	.5	.0	.0
4	---	---	.6	.0	.0	.0	1.1	.0	.1	.3	.0	.1
5	---	---	.3	.0	.7	.1	.2	.2	.3	.0	.0	.1
6	---	---	.2	.0	.0	.0	.1	.3	.2	.0	.0	.0
7	---	---	1.4	.0	.0	.0	.1	.0	1.2	.0	.3	.0
8	---	---	.1	.0	.0	.0	.0	.0	.0	.0	.2	.0
9	---	---	.5	.0	.0	.0	.0	.0	.0	.1	.5	.0
10	---	---	.7	.0	.2	.0	.0	.0	.0	.5	.6	.0
11	---	---	.0	.2	.0	.1	.1	.5	.2	.6	.4	.0
12	---	---	.0	.0	.0	.6	1.1	.7	.0	.4	.2	.0
13	---	---	.0	.0	1.3	.0	.0	.1	.3	.3	.6	.0
14	---	---	.1	2.1	.5	.0	.3	.0	.0	.2	.8	.0
15	---	---	.0	.7	.0	.0	.1	.5	.0	.0	.2	.0
16	---	---	.2	.5	.1	.0	.0	.3	.0	.1	.1	.0
17	---	---	.4	.0	.0	.0	.1	.1	.0	.0	.2	.0
18	---	---	.0	.1	.4	.0	.2	.0	.0	.0	.0	.0
19	---	---	.2	.0	.0	.0	.1	.0	.0	.2	.4	.0
20	---	---	.0	.0	.0	.0	.2	.0	.1	1.0	.4	.0
21	---	---	.0	.0	.0	.4	.0	.9	.1	.7	.3	.0
22	---	---	.0	.0	.0	.5	1.6	.0	.4	.1	.3	.0
23	---	---	1.2	.0	.0	.4	.4	.0	.6	.2	1.7	.1
24	---	---	.1	.0	.0	.0	.6	.0	.0	.7	.1	.0
25	---	a---	.0	.0	.2	.0	.1	.0	.0	.8	.4	.1
26	---	---	.0	.5	.0	.1	.0	.0	.0	.7	.2	.0
27	---	---	.0	.1	3.8	.5	.0	.0	.0	.2	.3	.1
28	---	---	.1	.2	.6	.2	.0	.0	.0	.1	.2	1.0
29	---	b.2	.3	.0	---	.4	.0	.2	.0	.0	.0	1.1
30	---	.3	.0	.0	---	.1	.6	.0	.1	.1	.0	.6
31	---	---	.0	.0	---	.1	---	.0	---	.1	.2	---
TOTAL	---	---	7.6	4.4	7.9	4.3	8.1	3.8	3.7	8.1	8.9	3.4

a Total accumulated rainfall from Aug. 22 (1030 hrs) to Nov. 25 (0930 hrs) is 24.1 inches
b Partial daily record from 1000 hrs to 2400 hrs. No record from Nov. 25 (0930 hrs) to Nov. 29 (1000 hrs), recorder being replaced

212346157533701. State Key Number 772.1 North Halawa Raingage near Aiea, Oahu.

LOCATION.--Lat 21°23′46″ (revised), Long. 157°53′37″, Hydrologic Unit 20060000, 2.7 mi above confluence with South Halawa Stream, 2.7 mi northeast of Aiea Post office, and 6.5 mi northwest of Honolulu.

PERIOD OF RECORD.--Continuous-record station, August 6, 1929 to June 30, 1933, June 3, 1953 (revised) to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--A 12-inch collector and 10-inch storage tank with float-type recorder system. Elevation of gage is 320 ft above mean sea level from topographic map.

REMARKS.--Records good except for cumulative totals which are fair. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.7	.0	.0	.2	.0	---	.0	.1	.3	---
2	.4	.1	.3	.0	.0	.2	.6	---	.0	.0	.0	---
3	.1	.0	.0	.0	.0	.0	.7	---	.1	.3	.0	---
4	.0	.5	.4	.0	.0	.0	---	---	.1	.2	.0	---
5	.0	.0	.1	.0	.2	.0	---	---	.1	.0	.0	---
6	.0	.0	.2	.0	.1	.0	---	---	.4	.0	.0	---
7	.1	.3	1.0	.0	.0	.0	---	---	.3	.0	.0	---
8	.0	.0	.2	.0	.0	.0	---	---	.0	.0	.0	---
9	.0	.2	.4	.0	.0	.0	---	---	.0	.0	.5	---
10	.0	.2	.7	.0	.1	.0	---	---	.0	.4	.5	---
11	.2	.3	.0	.2	.0	.0	---	---	.0	.3	.4	---
12	.2	.4	.0	.0	.0	.4	---	a.0	.2	.4	.1	---
13	.1	.6	.0	.0	.8	.0	---	.0	.1	.2	.5	---
14	.0	.1	.1	1.1	.5	.0	---	.0	.2	.1	.3	---
15	.1	.4	.0	1.2	.0	.0	---	.2	.0	.0	.2	---
16	.9	.9	.1	.7	.2	.0	---	.3	.0	.0	.3	---
17	.9	.4	.3	.0	.0	.0	---	.1	.0	.0	.3	---
18	.5	.2	.0	.1	.1	.0	---	.0	.0	.0	.1	---
19	.0	.1	.1	.0	.0	.0	---	.0	.0	.1	.3	---
20	.1	.0	.0	.0	.0	.0	---	.0	.0	.4	.2	---
21	.0	.2	.0	.0	.0	.2	---	.5	.0	.5	.2	---
22	.2	.1	.0	.0	.0	.2	---	.1	.2	.2	.3	---
23	.0	.1	1.1	.0	.0	.2	---	.0	.3	.1	.7	---
24	.1	.1	.0	.0	.0	.0	---	.0	.0	.4	b.1	---
25	.0	.1	.0	.0	.0	.1	---	.0	.0	.5	---	---
26	.2	.3	.0	.2	.0	.1	---	.0	.0	.6	---	---
27	.1	.0	.0	.2	1.6	.3	---	.0	.0	.0	---	---
28	.1	.3	.1	.1	.3	.3	---	.0	.0	.1	---	---
29	.0	.3	.1	.0	---	.2	---	.0	.0	.1	---	---
30	.0	.1	.0	.0	---	.1	---	.0	.2	.1	---	c---
31	.1	---	.0	.0	---	.1	---	.0	---	.0	---	---
TOTAL	4.4	6.3	5.9	3.8	3.9	2.6	---	---	2.2	5.1	---	---

a Partial daily record from 1445 hrs to 2400 hrs. Total accumulated rainfall from Apr. 4 (0001 hrs) to May 12 (1445 hrs) is 4.4 inches
b Partial daily record from 0001 hrs to 1052 hrs
c Total accumulated rainfall from Aug. 24 (1052 hrs) to Oct. 4 (1251 hrs) is 3.0 inches

HAWAII, ISLAND OF OAHU--Continued

212359157502601. State Key Number 772.3 Moanalua Raingage No.1 at altitude 1,000 feet near Honolulu, Oahu.

LOCATION.-- Lat 21°23'59", Long-157°50'26", (Kaneohe quadrangle, 1959, 1:24000), Hydrologic Unit 20060000, 2.7 mi southwest of Kaneohe post office, and 4.2 mi northeast of Tripler Hospital.

PERIOD OF RECORD.--Continuous-record station, June 25, 1968 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service collector and 7 5/16-inch can with recorder. Elevation of gage is 1,000 ft above mean sea level from topographic map.

REMARKS.--Records good except for the period of no record, which is poor. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.2	.6	.0	.1	.5	.0	.0	.2	.3	.4	.0
2	.7	.5	.2	.0	.0	.4	.6	.0	.1	.0	.0	.3
3	.0	.0	.0	.0	.0	.0	2.7	.0	.0	.5	.0	.0
4	.1	.9	.8	.0	.0	.0	2.8	.0	.2	1.4	.8	.0
5	.0	.2	.3	.2	.4	.2	.6	.3	.3	.0	.0	.6
6	.0	---	.2	.0	.0	.0	.4	.8	.3	.0	.0	.0
7	.9	---	1.0	.0	.0	.0	.2	.0	1.2	.0	.6	.0
8	.0	---	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
9	.0	---	.7	.0	.0	.0	.0	.0	.0	.0	1.0	.0
10	.0	---	.6	.0	.4	.0	.0	.1	.0	.2	.9	.1
11	.3	---	.0	.4	.0	.1	.2	.2	.1	.6	1.1	.0
12	.8	---	.0	.0	.0	.7	2.0	.4	.1	.5	.3	.0
13	.6	a---	.0	.0	1.5	.0	.0	.1	.4	.2	1.1	.0
14	.2	.4	.2	3.2	.6	.0	.1	.1	.1	.3	.7	.0
15	2.3	.9	.0	1.2	.0	.0	.1	.1	.0	.0	.1	.0
16	1.6	1.2	.4	.6	.1	.0	.0	.8	.0	.2	.1	.0
17	.2	.2	.5	.0	.1	.0	.1	.1	.0	.0	.7	.1
18	.9	.1	.0	.1	.5	.0	.2	.4	.0	.1	.1	.0
19	.0	.2	.0	.0	.0	.0	.0	.0	.0	1.0	.5	.0
20	.0	.0	.0	.0	.0	.0	.1	.0	.3	1.6	.0	.0
21	.1	.2	.0	.0	.0	.4	.2	1.5	.4	.9	.3	.0
22	.5	.2	.0	.0	.0	2.0	3.6	.1	3.1	.1	.0	.0
23	.0	.0	1.6	.0	.0	3.9	1.3	.0	.8	.2	3.0	.1
24	.0	.1	.1	.0	1.1	2.0	1.8	.0	.0	.7	.3	.0
25	.0	.2	.1	.0	.3	.3	1.2	.0	.0	.8	.2	.0
26	1.0	.8	.0	.5	.0	.2	.0	.0	.0	.9	.4	.0
27	.1	.0	.0	.4	3.9	1.4	.0	.0	.2	1.0	.1	.1
28	.0	.5	.2	.5	.4	.4	.0	.0	.0	.2	.1	.9
29	.0	.6	.6	.0	---	.5	.0	.2	.0	.0	.0	1.9
30	.0	.4	.0	.1	---	.1	.0	.0	.3	.3	.0	1.5
31	.0	---	.0	.0	---	.1	---	.0	---	.2	.2	---
TOTAL	10.3	---	8.1	7.2	9.4	13.2	18.2	5.2	8.1	12.2	13.2	5.6

a Total accumulated rainfall from Nov. 6 (0001 hrs) to Nov. 13 (2400 hrs) is unknown, rain can overflowed

HAWAII, ISLAND OF OAHU--Continued

212329157510501. State key No. 772.6 Moanalua Raingage near Kaneohe, Oahu.

LOCATION--Lat 21°23′29", Long: 157°51′05", (Kaneohe quadrangle, 1959, 1:24000), Hydrologic Unit 20060000, in USGS streamgage station 16227500, on left bank 3.3 mi northeast of Tripler Hospital, and 3.6 mi southwest of Kaneohe post office.

PERIOD OF RECORD.--Continuous-record station, August 29, 1968 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service collector attached to 7 5/16-inch rain can with a digital recorder. Elevation of gage is 660 ft above mean sea level from topographic map.

REMARKS.--Records fair. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.8	.0	.0	.6	.0	.0	.2	---	.4	.0
2	.7	.9	.2	.0	.0	.5	.5	.0	.1	---	.0	.5
3	.0	.0	.0	.0	.0	.0	2.0	.0	.1	---	.0	.0
4	.0	.9	.9	.0	.0	.0	2.6	.0	.1	---	.4	.0
5	.0	.2	.3	.0	.4	.2	.4	.2	.3	---	.0	.4
6	.0	.3	.4	.0	.1	.0	.3	.4	.3	---	.0	.0
7	1.0	1.1	1.2	.0	.0	.0	.2	.0	1.7	---	.5	.0
8	.0	.0	.3	.0	.0	.2	.0	.0	.0	---	.3	.0
9	.0	.3	.6	.0	.1	.0	.0	.0	.0	---	1.0	.0
10	.0	.4	.8	.0	.4	.0	.0	.0	.0	---	.8	.1
11	.3	1.0	.0	.3	.0	.2	.1	.6	.2	---	1.0	.0
12	.6	.6	.1	.1	.0	.6	2.7	.7	.0	---	.2	.0
13	.3	---	.0	.1	1.8	.0	.0	.1	.5	---	1.2	.0
14	.6	---	.2	3.8	.6	.0	.2	.1	.2	c.0	.7	.0
15	1.3	---	.0	1.5	.0	.0	.2	.1	.0	.0	.1	.0
16	.7	---	.6	1.0	.1	.0	.0	1.0	.0	.1	.1	.0
17	.4	---	.5	.0	.0	.0	.1	.2	b.0	.1	.5	.2
18	.7	---	.0	.2	.7	.0	.2	.2	---	.0	.3	.0
19	.0	---	.2	.0	.0	.0	.1	.0	---	.8	.5	.0
20	.3	---	.0	.0	.0	.0	.4	.0	---	1.6	.1	.0
21	.2	---	.0	.0	.0	.6	.2	2.7	---	.9	.2	.0
22	.5	---	.0	.0	.0	1.6	3.3	.0	---	.2	.1	.0
23	.0	---	1.9	.0	.0	1.2	1.6	.0	---	.2	3.8	.0
24	.0	---	.1	.0	.5	.7	1.0	.1	---	.8	.3	.0
25	.0	a.0	.1	.0	.2	.2	.4	.0	---	.7	.4	.0
26	.4	1.2	.0	.8	.0	.2	.0	.0	---	1.1	.4	.0
27	.2	.1	.0	.3	3.2	1.1	.0	.1	---	.7	.1	.1
28	.1	.5	.2	.5	.4	.3	.0	.0	---	.2	.1	1.0
29	.0	.7	.6	.0	---	.6	.0	.4	---	.0	.0	1.6
30	.0	.4	.0	.0	---	.0	.0	.0	---	.2	.0	1.1
31	.0	---	.0	.0	---	.3	---	.0	---	.2	.2	---
TOTAL	8.3	---	10.0	8.6	8.5	9.1	16.5	6.9	---	---	13.7	5.0

a Partial daily record from 1130 hrs to 2400 hrs. Total accumulated rainfall from Nov. 13 (0001 hrs) to Nov. 25 (1130 hrs) is >39.3 inches, rain can overflowed
b Partial daily record from 0001 hrs to 0530 hrs
c Partial daily record from 0930 hrs to 2400 hrs. Total accumulated rainfall from June 17 (0530 hrs) to July 14 (0930 hrs) is 7.5 inches, digital recorder battery failed

HAWAII, ISLAND OF OAHU--Continued

212029157523601. State Key Number 773.3 Kalihi Raingage at Kalihi, Oahu.

LOCATION.--Lat 21°20'29", Long 157°52'36", Hydrologic Unit 20060000, in USGS streamgage station 16229300 on left bank, 0.4 mi northwest of Bishop Museum, and 2.4 mi northwest of Honolulu post office.

PERIOD OF RECORD.--Continuous-record station, July 1962 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service raingage with tipping-bucket counter and recorder. Elevation of gage is 70 ft above mean sea level from topographic map.

REMARKS.--Record poor. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.3	.0	.0	---	---	---	---	---	.1	.0
2	.1	.0	.1	.0	.0	---	---	---	---	---	.0	.1
3	.5	.0	.0	.0	.0	---	---	---	---	---	.0	.0
4	.0	.0	.1	.0	.0	---	---	---	---	---	.0	.0
5	.0	.0	.2	.0	.3	---	---	---	---	---	.0	.1
6	.0	.0	.0	.0	.0	---	---	---	---	---	.0	.0
7	.0	.0	.6	.0	.0	---	---	---	---	---	.0	.0
8	.0	.0	.2	.0	.0	---	---	---	---	---	.1	.0
9	.0	.1	.1	.0	.0	---	---	---	---	---	.2	.0
10	.0	.1	.5	.0	.1	---	---	---	---	---	.1	.0
11	.0	.0	.0	.1	.0	---	---	---	---	---	.1	.0
12	.0	.2	.0	.0	.0	---	---	---	---	---	.0	.0
13	.0	.1	.0	.0	a.0	---	---	---	---	---	.3	.0
14	.0	.1	.0	.2	---	---	---	---	---	---	.3	.0
15	.5	.0	.0	.1	---	---	---	---	---	---	.1	.0
16	.5	.8	.1	.0	---	---	---	---	---	---	.1	.0
17	.0	.1	.2	.0	---	---	---	---	---	---	.1	.0
18	.2	.1	.0	.0	---	---	---	---	---	---	.0	.0
19	.0	.0	.0	.0	---	---	---	---	---	---	.0	.0
20	.0	.1	.0	.0	---	---	---	---	---	---	.2	.0
21	.0	.0	.0	.0	---	---	---	---	---	d.0	.0	.0
22	.0	.1	.0	.0	---	---	---	---	---	.0	.1	.0
23	.0	.0	.6	.0	b---	---	---	---	---	.0	.3	.0
24	.0	.1	.0	.0	---	---	c---	---	---	.1	.0	.0
25	.0	.0	.0	.0	---	---	---	---	---	.3	.1	.0
26	.1	.0	.0	.2	---	---	---	---	---	.2	.0	.0
27	.0	.0	.0	.1	---	---	---	---	---	.0	.1	.1
28	.0	.5	.0	.1	---	---	---	---	---	.0	.0	.3
29	.0	.1	.1	.0	---	---	---	---	---	.0	.0	.3
30	.0	.2	.0	.0	---	---	---	---	---	.2	.0	f.0
31	.0	---	.0	.0	---	---	---	---	---	.0	.2	---
TOTAL	1.9	2.7	3.1	0.8	---	---	---	---	---	---	2.5	---

a Partial daily record from 0001 hrs to 1330 hrs
b Total accumulated rainfall from Feb. 13 (1330 hrs) to Feb. 23 (1230 hrs) is 1.6 inches
c Total accumulated rainfall from Feb. 23 (1230 hrs) to Apr. 24 (1520 hrs) is 8.8 inches
d Partial daily record from 0940 hrs to 2400 hrs. No record from Apr. 24 (1520 hrs) to July 21 (0940 hrs), tipping-bucket counter malfunctioned and the collector was plugged
f Partial daily record from 0001 hrs to 0900 hrs. Total accumulated rainfall from Sep. 30 (0900 hrs) to Oct. 13 (1100 hrs) is 1.3 inches

212342157484401. State Key Number 781.11 Luluku Raingage at altitude 220 ft. near Kaneohe, Oahu.

LOCATION.--Lat 21°23'42", Long 157°48'44", Hydrologic Unit 20060000, in USGS streamgage station 16270900 on right bank, 0.5 mi upstream from mouth, 1.4 mi southwest of Castle High School, and 1.9 mi South of Kaneohe Post office.

PERIOD OF RECORD.--Continuous-record station, April 1984 to current year. Station was relocated 400 ft downstream in 1984. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service tipping-bucket raingage. Elevation of gage is 200 ft above mean sea level (from Corps of Engineers).

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.3	.0	.0	.4	.0	.0	.0	.2	a.0	.0
2	.4	.0	.1	.0	.0	.3	.1	.0	.0	.0	.0	.1
3	.0	.0	.0	.0	.1	.0	.6	.0	.0	.4	.0	.1
4	.0	.2	.3	.0	.0	.0	.4	.0	.0	.4	.1	.0
5	.0	.0	.0	.1	.6	.5	.3	.2	.0	.0	.0	.5
6	.0	.0	.1	.0	.0	.0	.1	1.2	.1	.0	.0	.0
7	.2	.1	.2	.0	.0	.0	.0	.0	.3	.0	.1	.0
8	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.1	.0
9	.0	.1	.2	.0	.0	.0	.0	.0	.0	.0	.2	.0
10	.0	.0	.2	.0	.5	.0	.0	.0	.0	.1	.2	.3
11	.1	.4	.1	.2	.0	.2	.0	.0	.0	.1	.4	.0
12	.0	.1	.0	.2	.0	.6	.3	.1	.0	.4	.2	.0
13	.2	.5	.0	.0	1.2	.0	.0	.0	.1	.0	.3	.0
14	.0	.1	.0	1.1	.5	.0	.1	.0	.0	.0	.3	.0
15	1.7	.4	.0	.1	.0	.0	.0	.0	.0	.0	.2	.0
16	2.6	.0	.1	.2	.0	.0	.0	.2	.0	.1	.1	.0
17	.2	.0	.1	.0	.0	.0	.1	.0	.0	.0	.3	.1
18	.3	.0	.0	.0	.4	.0	.0	.2	.0	.0	.1	.0
19	.0	.0	.2	.0	.0	.0	.0	.0	.0	.5	.3	.1
20	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4	.0	.0
21	.0	.1	.0	.0	.0	.1	.0	.0	.1	.3	.1	.0
22	.0	.1	.0	.0	.0	.4	.5	.1	1.9	---	.0	.0
23	.0	.0	.4	.0	.0	.3	.1	.0	.8	---	.7	.0
24	.1	.0	.1	.0	.5	.0	1.6	.0	.0	---	.2	.0
25	.0	.0	.0	.0	1.1	.2	1.2	.0	.0	---	.1	.0
26	.2	.1	.1	.3	.0	.0	.0	.0	.1	---	.1	.0
27	.0	.0	.0	.5	2.8	.2	.1	.0	.0	---	.1	.1
28	.0	.2	.1	1.0	.4	.0	.0	.0	.0	---	.2	.3
29	.0	.0	.1	.0	---	.3	.0	.1	.0	---	.0	1.0
30	.0	.1	.0	.0	---	.0	.0	.1	.0	---	.0	.4
31	.0	---	.0	.0	---	.1	---	.0	---	---	.0	---
TOTAL	6.0	2.5	2.8	3.7	8.1	3.6	5.5	2.2	3.4	3.9	4.4	3.0

1.0

a Partial daily record from 1310 hrs to 2400 hrs. Total accumulated rainfall from July 22 (0001 hrs) to Aug. 1 (1310 hrs) is 1.0 inch

HAWAII, ISLAND OF OAHU--Continued

212322157474401. State Key Number 781.9 Right Branch Kamooalii Raingage near Kaneohe, Oahu.

LOCATION.--Lat 21°23'22" Long 157°47'44", Hydrologic Unit Code 20060000, in USGS streamgage station 16265600 on left bank, 0.3 mi south of Hawaiian Memorial Park Cemetery, 1.0 mi northwest of Pali Golf Course, and 1.3 mi south of Castle High School.

PERIOD OF RECORD.--Continuous-record station, February 1983 to current year. Prior to 1992, unpublished records in files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service raingage attached to a tipping-bucket counter and recorder. Elevation of gage is 210 ft above mean sea level from topographic map.

REMARKS.--Records fair. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	b---	---	---	e.0	.1	.2	.0	.1	.1	.0
2	---	---	---	---	c---	.2	.0	.0	.0	.0	.1	.1
3	---	---	---	---	---	.0	.5	.0	.0	.1	.0	.0
4	---	---	---	---	---	.0	.4	.0	.0	.1	.0	.0
5	---	---	---	---	---	.2	.1	.1	.0	.1	.0	1.1
6	---	---	---	---	---	.0	.2	1.2	.0	.0	.0	.0
7	---	---	---	---	---	.0	.0	.0	.2	.0	.0	.0
8	---	---	---	---	---	.0	.0	.0	.0	.0	.1	.0
9	---	---	---	---	---	.0	.6	.0	.0	.0	.1	.0
10	---	---	---	---	---	.0	.0	.0	.0	.2	.6	.2
11	---	---	---	---	---	.0	.0	.0	.0	.2	.1	.0
12	---	---	---	---	---	.4	.1	.0	.0	.2	.4	.0
13	---	---	---	---	---	.0	.0	.0	.1	.0	.1	.0
14	a---	---	---	---	---	.0	.0	.0	.1	.0	.1	.0
15	---	---	---	---	---	.0	.0	.0	.0	.0	.1	.0
16	---	---	---	---	---	.0	.0	.2	.0	.0	.1	.0
17	---	---	---	---	---	.0	.0	.1	.0	.0	.2	.0
18	---	---	---	---	---	.0	.0	.1	.0	.0	.0	.0
19	---	---	---	---	---	.0	.0	.0	.0	.5	.1	.0
20	---	---	---	---	---	.0	.0	.0	.0	.5	.0	.0
21	---	---	---	---	---	.1	.0	.0	.0	.0	.0	.0
22	---	---	---	---	---	.2	.6	.0	.8	.0	.0	.0
23	---	---	---	---	---	.1	.1	.0	1.0	.0	.5	.0
24	---	---	---	---	d---	.0	1.6	.0	.4	.0	.1	.0
25	---	---	---	---	---	.1	1.9	.0	.0	.1	.3	.0
26	---	---	---	---	---	.0	.0	.0	.0	.1	.0	.0
27	---	---	---	---	---	.2	.1	.0	.1	.1	.3	.0
28	---	---	---	---	---	.1	.1	.0	.0	.1	.0	.2
29	---	---	---	---	---	.1	.0	.0	.0	.0	.0	1.2
30	---	---	---	---	---	.0	.0	.0	.0	.0	.0	.3
31	---	---	---	---	---	.0	---	.0	---	.0	.0	---
TOTAL	---	---	---	---	---	---	6.4	1.9	2.7	2.4	3.4	3.1

a Total accumulated rainfall from Sep. 6, 1994 (1120 hrs) to Oct. 14 (1206 hrs) is 3.8 inches
b Total accumulated rainfall from Oct. 14 (1206 hrs) to Dec. 1 (1440 hrs) is 5.3 inches
c Total accumulated rainfall from Dec. 1 (1440 hrs) to Feb. 2 (0846 hrs) is 4.3 inches
d Total accumulated rainfall from Feb. 2 (0846 hrs) to Feb. 24 (0851 hrs) is 2.9 inches
e Partial daily record from 1045 hrs to 2400 hrs. Total accumulated rainfall from Feb. 24 (0851 hrs) to Mar. 1 (1045 hrs) is 5.3 inches

HAWAII, ISLAND OF OAHU--Continued

212114157435001. State Key Number 794.3 Waimanalo Raingage at Waimanalo, Oahu.

LOCATION.--Lat 21°21'14" Long 157°43'50", Hydrologic Unit 20060000, in USGS streamgage station 16249000, 260 ft downstream from Kalanianaole Highway, and 2.3 mi northwest of Waimanalo post office.

PERIOD OF RECORD.--Continuous-record station, January 1967 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service raingage attached to a tipping-bucket counter and recorder. Elevation of gage is 20 ft above mean sea level from topographic map.

REMARKS.--Records poor. Tipping-bucket malfunctioned throughout the entire year. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Oct. 03	0.0
Oct. 03 to Oct. 17	2.5
Oct. 17 to Dec. 29	0.0
Dec. 29 to Feb. 28	15.0
Feb. 28 to Apr. 06	1.9
Apr. 06 to May 18	4.6
May 18 to Aug. 28	1.6
Aug. 28 to Nov. 07	3.6

HAWAII, ISLAND OF OAHU--Continued

212813157574001. State Key Number 832.2 Kipapa Raingage near Wahiawa, Oahu.

LOCATION.--Lat 21°28'13", Long 157°57'50", Hydrologic Unit 20060000, on left bank of stream 1700 ft below Forest Reserve Boundary, 4.9 mi southeast of Wahiawa post office, and 6.3 mi northeast of Waipahu. The raingage was housed in the same shelter with USGS streamgage station 16212800, but was relocated to a new shelter 15 ft downstream on Jan 19, 1994.

PERIOD OF RECORD.--Continuous-record station, January 2, 1957 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service collector and 7 5/16-inch storage can with a float-type recorder system. Elevation of gage is 690 ft above mean sea level from topographic map.

REMARKS.--Records good for period when the recorder was in operation and poor for period of no record. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	---	---	---	---	---	---	.0	.1	.1	.2	.0
2	3.3	---	---	---	---	---	---	.0	.0	.0	.0	.1
3	.6	---	---	---	---	---	---	.0	.0	.2	.0	.0
4	.0	---	---	---	---	---	b.0	.0	.1	.1	.2	.0
5	.0	---	---	---	---	---	.2	.0	.4	.0	.0	.1
6	.0	---	---	---	---	---	.1	.0	.3	.0	.0	.0
7	.5	---	---	---	---	---	.1	.0	.5	.0	.1	.0
8	.0	---	---	---	---	---	.0	.0	.0	.1	.1	.0
9	.0	---	---	---	---	---	.0	.0	.1	.1	.4	.0
10	.0	---	---	---	---	---	.0	.0	.0	.6	.3	.1
11	.3	---	---	---	---	---	.0	.5	.2	.1	.2	.0
12	.2	---	---	---	---	---	.8	.5	.0	.4	.0	.0
13	.0	---	---	---	---	---	.0	.0	.7	.1	.2	.0
14	.0	---	---	---	---	---	.9	.0	.2	.3	.3	.0
15	.3	---	---	---	---	---	.2	.6	.0	.0	.4	.0
16	.3	---	---	---	---	---	.0	.1	.0	.0	.1	.0
17	a.1	---	---	---	---	---	.1	.1	.0	.0	.3	.0
18	---	---	---	---	---	---	.2	.1	.1	.0	.1	.0
19	---	---	---	---	---	---	.0	.0	.1	.0	.3	.0
20	---	---	---	---	---	---	.1	.0	.1	.7	.6	.1
21	---	---	---	---	---	---	.1	.6	.0	.5	.3	.0
22	---	---	---	---	---	---	.4	.0	.3	.1	.2	.0
23	---	---	---	---	---	---	.1	.0	.3	.2	1.3	.0
24	---	---	---	---	---	---	.2	.0	.0	.4	.1	.0
25	---	---	---	---	---	---	.2	.0	.0	.7	.1	.0
26	---	---	---	---	---	---	.0	.0	.0	.6	.2	.1
27	---	---	---	---	---	---	.0	.0	.0	.0	.3	.2
28	---	---	---	---	---	---	.0	.0	.0	.0	.0	.6
29	---	---	---	---	---	---	.0	.1	.0	.3	.0	1.1
30	---	---	---	---	---	---	.0	.0	.1	.0	.0	.3
31	---	---	---	---	---	---	---	.0	---	.3	.2	---
TOTAL	---	---	---	---	---	---	---	2.6	3.6	5.9	6.5	2.7

a Partial daily record from 0001 hrs to 1130 hrs
b Partial daily record from 0930 hrs to 2400 hrs No record from Oct. 17 (1130 hrs) to Apr. 4 (0930 hrs), storage can drain was not closed properly

HAWAII, ISLAND OF OAHU--Continued

212650157521001. State Key Number 839.11 Waihee Raingage at ridge crossing near Heeia, Oahu.

LOCATION.--Lat 21°26′50", Long 157°52′10", Hydrologic Unit 20060000, approximately 1,000 ft downstream from USGS streamgage station 16283600.

PERIOD OF RECORD.--Accumulated-rainfall station, October 13, 1963 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service raingage. Elevation of gage is 400 ft above mean sea level from topographic map.

REMARKS.--Records good. Cummulative rainfall read in nearest tenths of an inch.

should have 1 m

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Sep. 09 to Oct. 05	11.1
Oct. 05 to Dec. 09	14.8
Dec. 09 to Feb. 25	12.1
Feb. 25 to Apr. 21	16.0
Apr. 21 to June 01	7.8
June 01 to Aug. 18	22.7
Aug. 18 to Aug. 24	5.6
Aug. 24 to Nov. 06	17.2

HAWAII, ISLAND OF OAHU--Continued

212434157495601. State Key Number 839.3 Haiku Raingage near Heeia, Oahu.

LOCATION.--Lat 21°24′34", Long 157°49′56", approximately 1,600 ft inside of security fence at Haiku, on the right side of roadway.

PERIOD OF RECORD.--Continuous-record station, December 2, 1983 (revised) to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service receiver and 7 5/16-inch storage can with a float-type system attached to a digital recorder. Elevation of gage is 195 ft above mean sea level from topographic map.

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.1	.1	.4	.0	.0	.2	.0	.0	.0	.0	.2	.0
2	.4	.2	.1	.0	.0	.7	.3	.0	.1	.0	.0	.2
3	.0	.0	.0	.0	.0	.0	1.0	.0	.0	.3	.0	.0
4	.0	.1	.3	.0	.0	.0	1.0	.0	.1	1.0	.2	.0
5	.0	.3	.1	.1	.0	.2	.1	.2	.0	.0	.0	.3
6	.0	.0	.0	.0	.3	.0	.2	1.0	.1	.0	.0	.1
7	.1	.2	.4	.0	.2	.0	.1	.0	.7	.0	.1	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
9	.0	.5	.2	.0	.1	.0	.1	.0	.0	.1	.5	.0
10	.0	.2	.3	.0	.4	.0	.0	.0	.0	.1	.4	.2
11	.1	.8	.0	.3	.0	.1	.2	.1	.0	.2	.7	.1
12	.0	.0	.1	.1	.0	.5	.4	.0	.0	.4	.3	.0
13	.0	1.4	.0	.0	1.6	.0	.0	.0	.2	.1	.4	.0
14	.0	.0	.1	1.3	.5	.0	.0	.0	.1	.3	.2	.0
15	3.7	.1	.0	1.1	.0	.0	.1	.1	.0	.0	.3	.0
16	1.7	.0	.1	.3	.2	.1	.0	.2	.0	.1	.0	.4
17	.4	.1	.2	.0	.0	.0	.1	.1	.0	.8	.4	.1
18	.1	.0	.0	.0	.3	.0	.0	.0	.0	.0	.1	.0
19	.1	.0	.1	.0	.0	.0	.0	.0	.0	.7	.3	.1
20	.0	.1	.0	.0	.0	.0	.0	.0	.0	.5	.0	.0
21	.0	.1	.0	.0	.0	.2	.2	.1	.3	.3	.1	.0
22	.0	.0	.0	.0	.0	.1	.9	.2	3.6	.0	.0	.0
23	.3	.0	.3	.0	.0	.5	.2	.0	.4	.2	1.2	.1
24	.0	.0	.1	.0	.7	.0	1.9	.0	.0	.3	.2	.0
25	.0	.3	.0	.0	1.1	.3	1.3	.0	.0	.2	.0	.0
26	.0	.0	.0	.3	.0	.0	.0	.0	.1	.4	.4	.0
27	.0	.1	.0	.3	2.3	.9	.0	.0	.0	.4	.0	.0
28	.0	.0	.1	.7	.2	.1	.0	.0	.0	.2	.1	.6
29	.0	.3	.1	.0	---	.2	.0	.1	.0	.0	.0	.8
30	.1	.1	.0	.1	---	.0	.0	.0	.1	.1	.0	.5
31	.0	---	.0	.0	---	.0	---	.0	---	.1	.0	---
TOTAL	7.1	5.0	3.0	4.6	7.9	4.1	8.1	2.1	5.8	6.8	6.1	3.6

WTR YR 1995 TOTAL 64.2

212647157521201. State Key Number 839.9 South Fork Waihee Raingage near Heeia, Oahu.

LOCATION.--LAT 21°26′47″, Long 157°52′12″, Hydrologic Unit 20060000, 50 ft north of streamgage station 16283600, on side of a hill approximately 40 ft above station.

PERIOD OF RECORD.--Accumulated-rainfall station, October 13, 1963 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

REVISED RECORDS.--WDR HI-94-1: 1993 (Station ID).

GAGE.--Standard 8-inch National Weather Service collector with standard 8-inch can, 24 inches tall. Elevation of gage is 640 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Sep. 08 to Oct. 05	10.0
Oct. 05 to Dec. 09	13.3
Dec. 09 to Feb. 24	11.2
Feb. 24 to Apr. 21	11.8
Apr. 21 to June 01	4.7
June 01 to Aug. 18	13.3
Aug. 18 to Aug. 24	5.2
Aug. 24 to Nov. 06	12.9

HAWAII, ISLAND OF OAHU--Continued

213016158105901. State Key Number 842.1 Makaha Raingage near Makaha, Oahu.

LOCATION.--Lat 21°30′16″, Long 158°10′59″, Hydrologic Unit 20060000, in USGS streamgage station 16211600, on right bank, 1.5 mi northeast of Kaneaki Heiau, and 3.4 mi northeast of Makaha.

PERIOD OF RECORD.--Continuous-record station, July 1959 to current year. Prior to October 1992, unpublished records in files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service collector and 7 5/16-inch, 4 ft tall rain can with a float-type system attached to a digital recorder. The digital recorder takes readings every 30 minutes. Elevation of gage is 957 ft above mean sea level from topographic map.

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.1	.1	.1	.0	.0	.0	.1	.0	.0
2	.7	.1	.1	.0	.0	.6	.2	.0	.0	.0	.0	.0
3	.4	.0	.0	.0	.1	.0	.9	.0	.0	.0	.0	.0
4	.5	.0	.0	.0	.0	.0	.6	.0	.0	.0	.1	.0
5	.5	.0	.1	.0	.3	.3	.1	.2	.0	.1	.0	.0
6	.4	.0	.0	.0	.0	.0	.0	.4	.0	.0	.0	.0
7	.4	.0	.1	.1	.0	.0	.0	.0	.1	.0	.0	.0
8	.2	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0
9	.1	.0	.1	.0	.0	.0	.1	.0	.0	.0	.0	.0
10	.1	.0	.0	.0	.7	.0	.0	.0	.0	.0	.2	.1
11	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.1	.0
12	.1	.1	.0	.0	.0	.2	.0	.0	.0	.0	.0	.3
13	.0	.1	.0	.1	2.0	.0	.0	.0	.1	.0	.0	.0
14	.1	.1	.0	.0	1.1	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0
16	.1	.0	.0	.0	.2	.0	.0	.1	.0	.0	.1	.0
17	.1	.0	.1	.0	.2	.0	.0	.0	.0	.0	.0	.0
18	.1	.0	.1	.1	.2	.0	.1	.0	.1	.0	.0	.0
19	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
21	.0	.0	.0	.0	.0	.0	.1	.1	.0	.0	.1	.0
22	.0	.0	.0	.0	.0	.0	.6	.0	.1	.0	.0	.0
23	.0	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
25	.0	.0	.1	.0	.0	.0	.2	.0	.0	.1	.1	.0
26	.0	.0	.0	.0	.0	.0	.0	.0	.3	.2	.0	.0
27	.1	.0	.0	.1	.2	.2	.3	.0	.2	.0	.0	.0
28	.1	.0	.0	.0	.8	.6	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	---	.4	.0	.0	.0	.0	.0	.2
30	.1	.0	.0	.1	---	.0	.0	.0	.0	.1	.0	.0
31	.0	---	.0	.0	---	.0	---	.0	---	.0	.0	---
TOTAL	4.3	0.4	0.8	0.6	5.9	2.5	3.6	0.8	0.9	0.7	0.9	0.6

CAL YR 1994 TOTAL 40.3
WTR YR 1995 TOTAL 22.0

HAWAII, ISLAND OF OAHU--Continued

213205157571001. State Key Number 882.3 Poamoho Raingage No. 3 near Wahiawa, Oahu.

LOCATION.--Lat 21°32′05″, Long 157°57′10″, Hydrologic Unit 20060000, on right side of Poamoho trail, and 0.2 mi northeast from trail marker.

PERIOD OF RECORD.--Accumulated-rainfall station, July 12, 1967 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--A 3-inch diameter, 5 ft tall aluminum non-recording gage. Elevation of gage is 1,800 ft above mean sea level from topographic map.

REMARKS.--Record poor. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Dec. 30	a---
Dec. 30 to Apr. 05	10.0
Apr. 05 to June 30	22.8
June 30 to Aug. 29	39.1
Aug. 29 to Nov. 22	32.5

a Station vandalized, can missing. No record

HAWAII, ISLAND OF OAHU--Continued

213211157562400. State Key Number 882.4 Poamoho Raingage No. 2 near Wahiawa, Oahu.

LOCATION.--Lat 21°32′11", Long 157°56′24", Hydrologic Unit 20060000, on Poamoho trail 1.0 mi west of junction with Koolau Summit trail, and 5.3 mi northeast of Leilehua High School in Waihawa.

PERIOD OF RECORD.--Continuous-record station, June 8, 1967 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service raingage with a float-type system attached to a graphic recorder. Elevation of gage is 1,960 ft above mean sea level from topographic map.

REMARKS.--Record good. Rainfall recorded in hundredths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.18	1.27	.02	.00	.19	.00	.06	.22	.18	.50	.15
2	3.50	2.60	.25	.00	.00	.60	.51	.02	.13	.82	.10	1.70
3	.10	.20	.00	.00	.00	.05	2.27	.02	.04	.62	.00	.15
4	.15	.90	.78	.00	.02	.02	2.10	.00	.06	1.98	.85	.03
5	.05	.10	.85	.13	.30	.20	.37	.06	.82	.07	.05	.62
6	.05	.25	.50	.00	.08	.05	.35	.12	.51	.04	.03	.00
7	.30	2.45	1.10	.00	.00	.00	.05	.07	1.14	.00	.30	.00
8	.05	.05	.20	.00	.00	.03	.00	.01	.00	.01	.57	.02
9	.02	.55	.40	.00	.00	.07	.05	.00	.18	.09	.77	.13
10	.18	1.87	.77	.00	.27	.03	.02	.12	.00	.51	.75	.27
11	.20	.96	.15	.15	.00	.00	.14	.75	.07	1.65	.73	.00
12	1.57	.37	.03	.15	.00	.20	5.24	1.69	.10	.55	.20	.00
13	.70	.75	.00	.35	.68	.02	.05	.40	.83	.59	1.12	.00
14	.33	.80	.13	5.75	.30	.03	.35	.16	.22	.71	.45	.00
15	.25	.87	.00	1.00	.00	.00	.18	.78	.10	.05	.68	.00
16	1.55	5.48	.57	.75	.07	.02	.03	.77	.05	.40	.65	.10
17	2.45	2.95	.40	.00	.48	.00	.18	.20	.01	.14	.40	.00
18	.68	2.15	.17	.05	.40	.00	.11	.15	.18	.01	.37	.08
19	.07	.50	.36	.02	.00	.15	.01	.00	.01	.95	1.30	.02
20	.75	.05	.00	.00	.00	.03	.57	.05	.16	1.19	.70	.03
21	.65	1.05	.00	.00	.00	.90	.63	1.09	.52	1.21	.60	.05
22	.42	.50	.00	.03	.02	1.88	2.60	.42	2.40	.54	.73	.00
23	.10	.13	3.02	.00	.03	1.24	1.10	.08	.91	.31	10.98	.75
24	.05	.67	.47	.00	.36	1.08	.30	.06	.02	1.35	.20	.25
25	.13	.75	.10	.00	.26	.10	.38	.04	.02	1.25	.34	.42
26	.70	3.15	.06	.15	.08	.30	.02	.03	.12	1.25	.31	.08
27	.20	.20	.02	.10	.00	.63	.06	.00	.23	.05	.59	.45
28	.25	1.02	.18	.17	.06	.57	.04	.00	.02	.75	.11	1.45
29	.05	1.08	.72	.05	---	1.20	.00	.26	.08	.05	.20	2.00
30	.05	.30	.05	.03	---	.02	.02	.16	.27	.15	.20	2.95
31	.07	---	.02	.00	---	.70	---	.13	---	.20	.65	---
TOTAL	15.62	32.88	12.57	8.90	3.41	10.31	17.73	7.70	9.42	17.67	25.43	11.70

WTR YR 1995 TOTAL 173.34

213215157552800. State Key Number 883.12 Poamoho Raingage No. 1 near Wahiawa, Oahu.

LOCATION.--Lat 21°32′15", Long 157°55′28", Hydrologic Unit 20060000, at junction of Poamoho and Koolau summit trails, and 6.2 mi northeast of Leilehua High School in Wahiawa.

PERIOD OF RECORD.--Continuous-record station, June 1967 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service raingage with a float-type system attached to a graphic recorder. Elevation is 2,480 ft above mean sea level from topographic map.

REMARKS.--Records poor. Rainfall recorded in hundredths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	.00	.00	.22	.02	c.00	---	.02	.40	.10
2	---	---	---	.00	.00	.53	.31	---	---	.62	.18	1.05
3	---	a---	---	.00	.00	.05	1.60	---	---	.58	.00	.15
4	---	---	---	.00	.19	.03	1.30	---	---	2.60	1.77	.15
5	---	---	---	.10	.42	.39	.64	---	---	.05	.20	.80
6	---	---	---	.00	.00	.00	.16	---	---	.03	.00	h.00
7	---	---	---	.00	.00	.00	.05	---	---	.00	.20	---
8	---	---	---	.00	.00	.08	.00	---	---	.07	.30	---
9	---	---	---	.00	.16	.05	.00	---	---	.05	.85	---
10	---	---	---	.00	.14	.00	.00	---	---	.35	.70	---
11	---	---	---	.25	.00	.05	.05	---	---	1.15	.84	---
12	---	---	---	.06	.00	.20	3.42	---	---	.67	.11	---
13	---	---	---	1.71	1.10	.00	.00	---	---	.43	1.25	---
14	---	---	---	3.88	.06	.00	.28	---	---	.70	.38	---
15	---	---	---	.83	.00	.00	.00	---	---	.10	.57	---
16	---	---	---	.32	.32	.00	.00	---	---	.40	.60	---
17	---	---	---	.00	1.07	.00	.20	---	---	.10	.42	---
18	---	---	---	.02	.06	.05	.05	---	---	.00	.48	---
19	---	---	---	.00	.00	.03	.15	---	---	1.10	f.08	---
20	---	---	---	.00	.07	.00	.32	---	---	.85	---	---
21	---	---	---	.03	.00	.70	.43	---	---	.80	---	---
22	---	---	---	.00	.00	2.42	2.85	---	---	.40	---	---
23	---	---	---	.00	.05	2.55	1.10	---	---	.22	---	---
24	---	---	---	.00	.80	2.25	1.03	---	---	.95	---	---
25	---	---	---	.05	.40	.10	1.22	---	---	.33	---	---
26	---	---	---	.45	.00	.25	.00	---	---	.80	---	---
27	---	---	---	.17	.12	.75	.25	---	---	.25	---	---
28	---	---	---	.40	.08	.35	.00	---	---	.90	---	---
29	---	---	---	.05	---	.70	.18	---	---	.00	g.10	---
30	---	---	b.04	.10	---	.12	.00	---	d.18	.15	.20	---
31	---	---	.01	.00	---	.95	---	---	---	.20	.40	---
TOTAL	---	---	---	8.42	5.04	12.82	15.61	---	---	14.87	---	---

a No record from Oct. 1 (0001 hrs) to Nov. 3 (1140 hrs), intake was plugged
b Partial daily record from 1200 hrs to 2400 hrs. Total accumulated rainfall from Nov. 3 (1140 hrs) to Dec. 30 (1200 hrs) is 25.6 inches, recorder stopped
c Partial daily record from 0001 hrs to 0230 hrs
d Partial daily record from 1150 hrs to 2400 hrs. Total accumulated rainfall from May 1 (0230 hrs) to June 30 (1150 hrs) is 19.98 inches, recorder stopped
f Partial daily record from 0001 hrs to 0500 hrs
g Partial daily record from 1240 hrs to 2400 hrs. Total accumulated rainfall from Aug. 19 (0500 hrs) to Aug. 29 (1240 hrs) is 12.0 inches, recorder stopped
h Partial daily record from 0001 hrs to 1930 hrs. Total accumulated rainfall from Sep. 6 (1930 hrs) to Nov. 22 (1200 hrs) is 43.35 inches, recorder stopped

HAWAII, ISLAND OF OAHU--Continued

213221157541501. State Key Number 884.3 Punaluu Raingage near Punaluu, Oahu.

LOCATION.--Lat 21°32′21″, Long 157°54′15″, Hydrologic Unit 20060000, 4.9 mi south of Hauula School, and 1.5 mi south of USGS streamgage station on Punaluu ditch 16302000.

PERIOD OF RECORD.--Accumulated-rainfall station, July 14, 1967 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service collector with standard 8-inch can, and an auxiliary 3-inch diameter, 5 feet high measuring can. Elevation of gage is 750 ft above mean sea level from topographic map.

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Sep. 08 to Oct. 06	16.0
Oct. 06 to Dec. 28	23.8
Dec. 28 to Apr. 06	20.5
Apr. 06 to June 01	15.1
June 01 to Aug. 16	21.7
Aug. 16 to Nov. 28	25.2

HAWAII, ISLAND OF OAHU--Continued

213237157530701. State Key Number 886.4 Kahana Raingage at altitude 95 feet near Kahana, Oahu.

LOCATION.--Lat 21°32′37″, Long 157°53′07″, Hydrologic Unit 20060000, on right bank, 600 ft upstream from Kawa Stream, approximately 40 ft bankward from USGS streamgage station 16296500, 1.1 mi southwest of Kahana, and 2.2 mi southwest of Swanzy Beach Park in Kaawa.

PERIOD OF RECORD.-- Accumulated-rainfall station, December 23, 1958 to May 11, 1961, February 19, 1990 to June 17, 1994. Continuous-record station, May 11, 1961 to February 19, 1990, June 17, 1994 to current year. Prior to October 1992, unpublished records in files of the U.S. Geological Survey.

GAGE.--A 3-in x 5 ft tall rain can from Oct. 1, 1993 to June 17, 1994. Rain gage was relocated in new shelter on June 17, 1994. A digital recorder with a float system using an 8-inch receiver and 7 5/16-in diameter by 4-ft tall rain can takes readings at 30 minute intervals. Elevation of gage is 95 ft above mean sea level from topographic map.

REMARKS.--Records good except for the period of no daily record, June 7-29, which is poor.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.3	.0	.0	.2	.0	.0	.0	.1	.3	.0
2	1.3	.2	.2	.0	.0	.6	.0	.0	.0	.1	.0	.2
3	.0	.0	.0	.0	.1	.0	.8	.1	.0	.1	.0	.0
4	.0	.3	.3	.0	.1	.0	.3	.0	.0	.8	.4	.0
5	.0	.0	.2	.2	.5	.7	.1	.1	.1	.0	.0	1.3
6	.0	.1	.0	.0	.0	.0	.3	1.0	.0	.0	.0	.0
7	.1	.5	.2	.0	.0	.0	.1	.0	a.1	.0	.2	.0
8	.0	.1	.0	.0	.0	.0	.0	.0	---	.0	.1	.0
9	.0	.3	.5	.0	.0	.0	.0	.0	---	.0	.4	.0
10	.1	.2	.3	.0	.0	.0	.0	.0	---	.2	.3	.1
11	.2	.2	.0	.0	.0	.0	.0	.1	---	.2	.4	.0
12	.1	.1	.0	.0	.0	.0	.2	.1	---	.4	.1	.0
13	.0	.5	.0	.1	.5	.0	.0	.0	---	.1	.6	.0
14	2.8	.6	.0	1.8	.3	.0	.0	.0	---	.3	.2	.0
15	.2	.0	.0	.2	.0	.0	.1	.1	---	.1	.3	.0
16	4.5	.4	.3	.1	.0	.0	.0	.3	---	.1	.4	.6
17	.2	.5	.2	.0	.3	.0	.1	.4	---	.0	.2	.2
18	.2	.0	.0	.0	.8	.0	.0	.1	---	.0	.2	.0
19	.0	.0	.1	.0	.0	.0	.0	.1	---	.8	.3	.0
20	.0	.0	.0	.0	.0	.0	.0	.0	---	.4	.1	.0
21	.1	.0	.0	.0	.0	.5	.0	.2	---	.3	.1	.0
22	.0	.2	.0	.0	.0	.5	.9	3.6	---	.1	.0	.0
23	.0	.0	.6	.0	.0	2.3	1.6	.0	---	.2	2.5	.0
24	.0	.0	.1	.0	.9	.6	1.2	.0	---	.6	.1	.0
25	.0	.0	.0	.0	1.2	1.1	1.7	.0	---	.4	.2	.1
26	.4	.4	.0	.0	.0	.0	.0	.0	---	.4	.0	.0
27	.0	.0	.0	.0	.3	.3	.3	.0	---	.3	.1	.3
28	.0	.3	.0	.2	.0	.1	.4	.0	---	.1	.0	.6
29	.5	.3	.1	.0	---	.5	.1	.2	b.0	.0	.0	1.0
30	.0	.3	.0	.0	---	.0	.0	.3	.1	.1	.1	.6
31	.0	---	.0	.0	---	.2	---	.1	---	.0	.1	---
TOTAL	10.7	5.5	3.4	2.6	5.0	7.6	8.2	6.8	---	6.2	7.7	5.0

a Partial daily record from 0001 hrs to 0130 hrs
b Partial daily record from 1230 hrs to 2400 hrs. Total accumulated rainfall from June 7 (0130 hrs) to June 29 (1230 hrs) is 4.9 inches, the float tape came off the float wheel

HAWAII, ISLAND OF OAHU--Continued

213000157515401. State Key Number 886.6 Waikane Raingage at altitude 75 ft. at Waikane, Oahu.

LOCATION.--Lat 21°30'00", Long 157°51'54", Hydrologic Unit 20060000, in USGS streamgage station 16294900, 0.3 mi downstream from Waikeekee Stream, 0.7 mi west of Waikane, and 1.2 mi northwest of Waiahole School.

PERIOD OF RECORD.--Continuous-record station, February 18, 1960 (revised) to October 2, 1985, May 17, 1994 to current year. Accumulated-rainfall station, October 2, 1985 to May 17, 1994. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service collector and 7 5/16-inch, 4 ft tall rain can with a float-type system attached to a digital recorder. The digital recorder takes readings every 30 minutes. Elevation of gage is 75 ft above mean sea level from topographic map.

REMARKS.--Records good except for the period of no daily record, Oct. 21 to May 18, which is poor. Cummulative rainfall read in nearest tenths of an inch, Oct. 21 to May 18. Daily record read in nearest tenths of an inch, Oct. 1-21, May 18 to Sep. 30.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	---	---	---	---	---	---	---	.0	.3	.2	.1
2	.4	---	---	---	---	---	---	---	.1	.0	.0	.0
3	.0	---	---	---	---	---	---	---	.0	.1	.0	.0
4	.0	---	---	---	---	---	---	---	.0	.5	.0	.0
5	.0	---	---	---	---	---	c---	---	.0	.0	.1	.1
6	.0	---	---	---	---	---	---	---	.0	.0	.0	.0
7	.0	---	---	---	---	---	---	---	.4	.0	.1	.0
8	.0	---	---	---	---	---	---	---	.0	.0	.1	.0
9	.0	---	---	---	---	---	---	---	.1	.1	.3	.1
10	.0	---	---	---	---	---	---	---	.0	.3	.6	.3
11	.0	---	---	---	---	---	---	---	.0	.2	.6	.0
12	.0	---	---	---	---	---	---	---	.0	.4	.0	.0
13	.0	---	b---	---	---	---	---	---	.3	.1	.6	.0
14	.5	---	---	---	---	---	---	---	.1	.1	.2	.0
15	.8	---	---	---	---	---	---	---	.0	.0	.4	.0
16	2.1	---	---	---	---	---	---	---	.0	.1	.2	.1
17	.2	---	---	---	---	---	---	---	.0	.0	.3	.1
18	.0	---	---	---	---	---	---	d.0	.0	.1	.1	.0
19	.0	---	---	---	---	---	---	.1	.0	.3	.2	.2
20	.0	---	---	---	---	---	---	.0	.1	.5	.0	.0
21	a.0	---	---	---	---	---	---	.0	.0	.1	.1	.0
22	---	---	---	---	---	---	---	.3	1.8	.0	.0	.0
23	---	---	---	---	---	---	---	.0	.1	.0	1.2	.0
24	---	---	---	---	---	---	---	.0	.0	.6	.2	.0
25	---	---	---	---	---	---	---	.1	.0	.1	.1	.1
26	---	---	---	---	---	---	---	.0	.0	.2	.1	.0
27	---	---	---	---	---	---	---	.0	.0	.0	.0	.1
28	---	---	---	---	---	---	---	.0	.0	.1	.1	.5
29	---	---	---	---	---	---	---	.0	.0	.1	.0	.6
30	---	---	---	---	---	---	---	.0	.1	.1	.0	.2
31	---	---	---	---	---	---	---	.0	---	.1	.0	---
TOTAL	---	---	---	---	---	---	---	---	3.1	4.5	5.8	2.5

a Partial daily record from 0001 hrs to 1530 hrs
b Total accumulated rainfall from Oct. 21 (1530 hrs) to Dec. 13 (1000 hrs) is 5.0 inches, recorder overpunched
c Total accumulated rainfall from Dec. 13 (1000 hrs) to Apr. 5 (1530 hrs) is 14.0 inches, recorder overpunched
d Partial daily record from 1100 hrs to 2400 hrs. Total accumulated rainfall from Apr. 5 (1530 hrs) to May 18 (1100 hrs) is 8.0 inches

213725158010401. State Key Number 897.1 Kamananui Raingage at Pupukea Military Road near Maunawai, Oahu

LOCATION.--Lat 21°37′25″, long 158°01′04″, Hydrologic Unit 20060000, on left bank, at USGS streamgage station 16325000, 75.0 ft upstream from Pupukea Military Road, and 3.5 mi southeast of Maunawai.

PERIOD OF RECORD.--Continuous-record station, July 1, 1963 to current year. Prior to October 1992, unpublished records are in the files of the Geological Survey.

GAGE.--Standard 8-inch National Weather Service collector attached to a tipping-bucket counter and graphic recorder. Elevation of gage is 590 ft above mean sea level from topographic map.

REMARKS.--Records fair. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.8	.0	---	---	.0	.0	.1	.0	.4	.0
2	1.3	.2	.1	.0	---	---	.1	.0	.1	.0	.0	.1
3	.0	.0	.0	.0	---	---	1.5	.0	.0	.4	.0	.2
4	.0	.4	.3	.0	---	---	1.0	.0	.0	.8	.6	.0
5	.0	.0	.2	.1	---	---	.1	.0	.3	.0	.0	.2
6	.1	.1	.2	.0	---	---	.0	.3	.3	.0	.0	.0
7	.0	.6	.6	.0	---	---	.0	.0	.9	.0	.1	.0
8	.0	.0	.1	.0	---	---	.0	.0	.0	.1	.4	.0
9	.0	.2	.5	.0	---	---	.0	.0	.0	.1	.6	f.0
10	.1	.3	.2	.0	---	---	.0	.0	.0	.4	.3	---
11	.3	.3	.0	.5	---	---	.0	.8	.2	.3	.7	---
12	.1	.1	.0	.1	---	---	.4	.6	.0	.8	.1	---
13	.0	.5	.0	.0	---	---	.0	.0	.6	.0	.8	---
14	.0	.1	.1	1.5	---	b.0	.4	c.0	.2	1.2	.3	---
15	.8	.4	.0	.1	---	.0	.1	---	.0	.0	.3	---
16	.9	.5	.5	.5	---	.0	.0	---	.0	.0	.6	---
17	.2	.4	.5	.0	---	.0	.1	---	.0	.0	.3	---
18	.1	.5	.1	.0	---	.0	.4	---	.0	.0	.3	---
19	.0	.1	.3	.0	---	.0	.0	d.0	.2	.6	1.6	---
20	.1	.0	.0	.0	---	.0	.3	.0	.1	.4	.0	---
21	.2	.6	.0	.0	---	.3	.3	.3	.1	.6	.4	---
22	.1	.2	.0	.0	---	.3	2.7	.0	1.3	.0	.1	---
23	.1	.0	1.4	.0	---	.3	.6	.0	.4	.1	4.1	---
24	.1	.2	.1	.0	---	.1	1.0	.0	.0	.3	.0	---
25	.1	.0	.0	.0	---	.0	1.4	.0	.0	.2	.2	---
26	.3	.6	.0	.0	---	.1	.0	.0	.0	.4	.1	---
27	.1	.1	.0	.0	---	.4	.0	.0	.1	.0	.3	---
28	.1	.5	.0	a.0	---	.7	.3	.0	.0	.2	.0	---
29	.0	.2	.8	---	---	.6	.0	.1	.0	.0	.0	---
30	.0	.1	.0	---	---	.0	.0	.0	.1	.2	.0	---
31	.0	---	.0	---	---	.3	---	.0	---	.0	.2	---
TOTAL	5.1	7.2	6.8	---	---	---	10.7	---	5.0	7.1	12.8	---

a Partial daily record from 0001 hrs to 0115 hrs
b Partial daily record from 1020 hrs to 2400 hrs. Total accumulated rainfall from Jan. 28 (0115 hrs) to Mar. 14 (1020 hrs) is 5.2 inches, recorder stopped
c Partial daily record from 0001 hrs to 1220 hrs
d Partial daily record from 1100 hrs to 2400 hrs. Total accumulated rainfall from May 14 (1220 hrs) to May 19 (1100 hrs) is 0.5 inches, recorder stopped
f Partial daily record from 0001 hrs to 0400 hrs. Total accumulated rainfall from Sep. 9 (0400 hrs) to Oct. 3 (1230 hrs) is 4.6 inches, recorder stopped

HAWAII, ISLAND OF OAHU--Continued

213608158011101. State Key Number 897.9 Pupukea Road Raingage at altitude 1,160 ft near Haleiwa, Oahu (Formerly published as Pupukea Rd. Raingage at altitude 1,600 ft near Haleiwa, Oahu).

LOCATION.--Lat 21°36'08", Long 158°01'11", Hydrologic Unit 20060000, 4.3 mi southeast of Maunawai, 5.5 mi east of Haleiwa Beach Park, and 400 ft left of the road on the ridge.

PERIOD OF RECORD.--Continuous-record station, November 1, 1967 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service rain collector attached to a 8-inch storage can with a recording float-type system. Elevation of gage is 1,160 ft above mean sea level from topographic map.

REMARKS.--Records good. Rainfall recorded in 0.12 of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.60	.00	.12	.60	.00	.00	.12	.00	.24	.00
2	2.28	.12	.24	.00	.00	.36	.24	.00	.12	.12	.00	.12
3	.00	.00	.00	.00	.00	.00	1.20	.00	.00	.36	.00	.00
4	.00	.48	.36	.00	.00	.00	1.08	.00	.00	.36	.00	.00
5	.00	.00	.24	.12	.12	.24	.24	.00	.36	.00	.00	.00
6	.00	.12	.36	.00	.00	.00	.12	.48	.36	.00	.00	.00
7	.00	.36	.96	.00	.00	.00	.12	.00	.36	.00	.00	.00
8	.00	.00	.24	.00	.00	.12	.00	.00	.00	.00	.48	.00
9	.00	.00	.24	.00	.00	.00	.00	.00	.00	.24	.48	.24
10	.12	.24	.48	.00	.60	.00	.00	.00	.00	.84	.72	.24
11	.12	.24	.00	.36	.00	.00	.00	.60	.12	.12	.36	.00
12	.12	.24	.12	.12	.00	.12	.36	.84	.00	.48	.12	.00
13	.00	.48	.00	.00	.60	.00	.00	.12	.72	.48	.48	.00
14	.00	.12	.12	1.32	.60	.00	.48	.00	.24	.12	.60	.00
15	.12	.36	.00	.00	.00	.00	.12	.48	.00	.00	.24	.00
16	1.08	.36	.36	.72	.12	.00	.00	.24	.00	.00	.48	.00
17	.12	.36	.36	.00	.36	.00	.12	.00	.00	.00	.24	.00
18	.00	.24	.12	.00	.12	.00	.12	.00	.00	.00	.36	.00
19	.12	.00	.24	.00	.00	.00	.12	.12	.00	.36	.72	.00
20	.00	.12	.00	.00	.00	.00	.12	.00	.24	.48	.24	.00
21	.24	.24	.00	.00	.00	.48	.36	.36	.00	.36	.24	.00
22	.24	.12	.00	.00	.00	.36	1.68	.00	.60	.24	.24	.00
23	.00	.00	1.20	.00	.12	.24	.36	.00	.12	.36	4.68	.00
24	.12	.24	.12	.00	.48	.12	.48	.12	.00	.36	.12	.00
25	.24	.00	.00	.00	.00	.00	1.08	.00	.00	.36	.36	.12
26	.36	.24	.00	.00	.00	.12	.00	.00	.36	.36	.24	.24
27	.00	.12	.00	.00	.00	.48	.12	.00	.36	.12	.36	.36
28	.24	.36	.12	.00	.12	.36	.00	.00	.00	.12	.12	.50
29	.00	.24	.48	.00	---	.60	.00	.00	.00	.00	.00	1.30
30	.00	.24	.00	.00	---	.00	.00	.12	.12	.12	.00	.12
31	.00	---	.00	.00	---	.24	---	.12	---	.24	.12	---
TOTAL	5.52	5.64	6.96	2.64	3.36	4.44	8.52	3.60	4.20	6.60	12.24	3.24

CAL YR 1994 TOTAL 82.08
WTR YR 1995 TOTAL 66.96

210843156551801. State Key Number 540.1 Waikolu Raingage at altitude 900 ft, near Kalaupapa, Molokai.

LOCATION.--Lat 21°08′43″, long 156°55′18″, Hydrologic Unit 20050000, on left bank near USGS streamgage station 16405500, 1.8 miles southwest of Haupu Bay, 2.3 miles upstream from mouth, and 5.2 miles southeast of Kalaupapa.

PERIOD OF RECORD.--Accumulated-rainfall station, March 24, 1957 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard raingage with reduced 1:2 catchment. Elevation of gage is 900 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

PERIOD	RAINFALL
Aug. 23 to Oct. 19	4.6
Oct. 19 to Dec. 13	11.0
Dec. 13 to Feb. 15	13.4
Feb. 15 to Apr. 26	29.4
Apr. 26 to June 28	8.6
June 28 to Aug. 16	8.6
Aug. 16 to Oct. 24	8.4

210807156524601. State Key Number 543.1 Pelekunu Raingage at altitude 700 ft near Kalaupapa, Molokai.

LOCATION.--Lat 21°08′07″, long 156°52′46″, Hydrologic Unit 20050000, on Puu Hoi Ridge, 2.0 miles south of former village of Pelekunu, and 5.7 miles north of Kamalo.

PERIOD OF RECORD.--Accumulated-rainfall station, May 20, 1969 (revised) to current year. Prior to October 1992, unpublished records are in the files of the U. S. Geological Survey and at the National Weather Service.

GAGE.--Standard raingage with reduced 1:2 catchment. Elevation of gage is 700 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

PERIOD	RAINFALL
Sep. 15 to Oct. 06	4.4
Oct. 06 to Jan. 04	24.4
Jan. 04 to June 01	36.0
June 01 to Aug. 22	12.6
Aug. 22 to Dec. 06	20.8

HAWAII, ISLAND OF MOLOKAI--Continued

211039157123101. State Key Number 551.5 Kakaako Raingage near Mauna Loa, Molokai.

LOCATION.--Lat 21°10′39", long 157°12′31", Hydrologic Unit 20050000, in the USGS streamgage station 16411400 on left bank, 1.0 miles downstream of Kamakahi gulch, and 3.0 miles north of Mauna Loa school.

PERIOD OF RECORD.--Continuous-record station, October 26, 1964 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service rain gage with tipping-bucket counter and recorder. Elevation of gage is 380 ft above mean sea level from topographic map.

REMARKS.--Records poor. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.1	.0	.0	.3	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
9	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.1	.0
10	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.2	.0	.1	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.1	.0	.0	.0	.1	.0	.0	.0
14	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.3	.0
15	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0
20	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
23	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.6	.0	2.1	.0	.0	.1	.0	.0
26	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
27	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.3	.2	.1	.0	.0	.0	.0	.0	.0
29	.0	.0	.1	.0	---	.0	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	---	.0	.0	.0	.2	.0	.0	.0
31	.0	---	.0	.0	---	.0	---	.0	---	.0	.0	---
TOTAL	0.1	0.0	0.1	0.5	2.1	1.1	2.4	0.5	0.6	0.1	0.8	0.0

WTR YR 1995 TOTAL 8.3

HAWAII, ISLAND OF MAUI

203721156151601. State Key Number 255.0 Kepuni Gulch Raingage near Kaupo, Maui.

LOCATION.--Lat 20°37′21″, long 156°15′16″, Hydrologic Unit 20020000, in USGS streamgage station 16500100 on right bank, 120 ft upstream from bridge on Highway 31, 400 ft upstream from Kamole Gulch, 1.1 miles east of Kahikinui house, and 8.5 miles west of Kaupo.

PERIOD OF RECORD.--Continuous-record station, February 14, 1964 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service rain gage with tipping-bucket counter and recorder. Elevation of gage is 740 ft above mean sea level from topographic map.

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.0	.0	1.4	.0	.0	.0	.0	.0	.2
2	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0
4	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.3	.1	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.2	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.4
12	.2	.0	.0	.2	.0	1.0	.1	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	.6	.0	.0	.0	.0	.0	.0	.0
15	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	.1	2.9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	1.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1	.0
23	.0	.0	.0	.0	.0	1.0	.0	.0	.0	.0	.1	.0
24	.0	.0	.0	.0	.0	1.6	.2	.0	.0	.1	.0	.0
25	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
26	.0	.1	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.8	.7	.0	.0	.0	.0	.0	.0	.1
29	.7	.0	.0	3.8	---	.0	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.1	---	.0	.0	.0	.0	.7	.0	.3
31	.0	---	.0	.3	---	.0	---	.0	---	.0	.0	---
TOTAL	2.5	3.3	0.0	5.6	2.4	5.4	0.4	0.1	0.0	0.8	0.2	1.0

CAL YR 1994 TOTAL 35.7
WTR YR 1995 TOTAL 21.7

HAWAII, ISLAND OF MAUI--Continued

204923156371501. State Key Number 297.0 Olowalu Raingage at Olowalu, Maui.

LOCATION.--Lat 20°49′23″, long 156°37′15″, Hydrologic Unit 20020000, in USGS streamgage station 16646200 on downstream side of center pier of plantation road bridge, 0.6 miles northeast of Olowalu, and 5.5 miles southeast of Lahaina.

PERIOD OF RECORD.--Continuous-record station, April 1, 1964 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service rain gage with tipping-bucket counter and recorder. Elevation of gage is 130 ft above mean sea level from topographic map.

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2	1.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	a.0	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.2	---	.0	.0	.0	.0	.0	.0	.0
13	.0	.1	.0	.0	---	.1	.0	.0	.0	.0	.0	.0
14	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.2	.0
20	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	b.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0	.4	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
28	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	1.3	---	.0	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
31	.0	---	.0	.0	---	.0	---	.0	---	.0	.0	---
TOTAL	1.2	0.1	0.0	1.5	---	0.1	0.6	0.0	0.1	0.0	0.2	0.0

CAL YR 1994 TOTAL 5.4
WTR YR 1995 TOTAL 4.3

a Partial daily record from 0030 hrs to 1000 hrs.
b Partial daily record from 1130 hrs to 2400 hrs. Total accumulated rainfall from Feb. 9 (1000 hrs) to Feb. 21 (1130 hrs) is 0.5 inches.

HAWAII, ISLAND OF MAUI--Continued

204606156270301. State Key Number 311.3 Kulanihakoi Raingage near Kihei, Maui.

LOCATION.--Lat 20°46'06", long 156°27'03", Hydrologic Unit 20020000, in USGS streamgage station 16660000 on right bank, 0.5 miles northeast of Lihue cemetery, 0.8 miles upstream from mouth, and 1.3 miles southeast of Kihei.

PERIOD OF RECORD.--Continuous-record station, January 1, 1963 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-inch National Weather Service rain gage with tipping-bucket counter and recorder. Elevation of gage is 35 ft above mean sea level from topographic map.

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.0	.5	.3	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	.0	.2	.1	.0	.0	.0	.0	.0
6	.0	.0	.0	.1	.0	.4	.0	.0	.0	.0	.0	.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
13	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	.0	.1	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	2.9	---	.0	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
31	.0	---	.0	.0	---	.0	---	.0	---	.0	.0	---
TOTAL	0.0	0.1	0.0	3.1	1.1	1.5	0.3	0.0	0.0	0.0	0.0	0.0

CAL YR 1994 TOTAL 4.6
WTR YR 1995 TOTAL 6.1

HAWAII, ISLAND OF HAWAII

191027155355801. State Key Number 12.13 Hilea Gulch Tributary Raingage near Honuapo, Hawaii.

LOCATION.--Lat 19°10'27", long 155°35'58", Hydrologic Unit 20010000, at USGS streamgage station 16764000, 6.6 mi northwest of Honuapo, and 6.7 mi west of Punaluu.

PERIOD OF RECORD.--Continuous-record station, May 1, 1967 to October 10, 1988. Accumulated-rainfall station, October 10, 1988 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service non-recording rain gage. Elevation of gage is 2,940 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 24 to Nov. 02	20.2
Nov. 02 to Dec. 26	18.6
Dec. 26 to Feb. 21	4.6
Feb. 21 to May 09	12.3
May 09 to July 19	19.0
July 19 to Sep. 15	32.9
Sep. 15 to Dec. 01	18.5

193812155554501. State Key Number 70.7 Waiaha Raingage at Luawai, near Holualoa, Hawaii.

LOCATION.--Lat 19°38'12", long 155°55'45", Hydrologic Unit 20010000, 20 ft downstream of recording crest gage Waiaha Stream at Luawai, near Holualoa (16759300) on right bank, 1.8 mi northeast of Holualoa School, and 4.2 mi southeast of Honokohau School.

PERIOD OF RECORD.--Accumulated-rainfall station, August 11, 1960 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service non-recording rain gage. Elevation of gage is 2,580 ft above mean sea level from topographic map.

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 22 to Nov. 01	4.7
Nov. 01 to Dec. 29	2.7
Dec. 29 to Feb. 03	2.2
Feb. 03 to May 19	7.7
May 19 to July 28	10.0
July 28 to Sep. 18	8.8
Sep. 18 to Dec. 08	3.3

HAWAII, ISLAND OF HAWAII--Continued

194117155174801. State Key Number 83.0 Quarry at Saddle Road Raingage, Hawaii.

LOCATION.--Lat 19°41'17", long 155°17'48", Hydrologic Unit 20010000, 200 ft north of 16 mi marker on Saddle Road west of Hilo, at old quarry site.

PERIOD OF RECORD.--Accumulated-rainfall station, March 1, 1967 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service non-recording rain gage. Elevation of gage is 4,140 ft above mean sea level from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Sep. 21 to Nov. 01	8.2
Nov. 01 to Nov. 15	22.6
Nov. 15 to Nov. 30	>24.0
Nov. 30 to Dec. 21	4.4
Dec. 21 to Dec. 29	0.2
Dec. 29 to Feb. 02	6.7
Feb. 02 to Feb. 23	0.3
Feb. 23 to Apr. 12	4.5
Apr. 12 to May 10	12.1
May 10 to July 18	17.0
July 18 to July 27	5.4
July 27 to Aug. 29	11.4
Aug. 29 to Sep. 12	3.3
Sep. 12 to Oct. 16	7.9

194602155091801. State Key Number 125.12 Honolii Raingage near Papaikou, Hawaii

LOCATION.--Lat 19°46'02", long 155°09'18", Hydrologic Unit 20010000, 15 ft north of USGS stream gaging station 16717000 on left bank, 0.7 mi. downstream from Pohakupaa Stream, 4.1 mi. west of Papaikou, and 4.8 mi. northwest of Hilo Post Office.

PERIOD OF RECORD.--Accumulated-rainfall station, 1990 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Non-standard 8-inch National Oceanic and Atmospheric Administration rain gage. Elevation of gage is 1,540 ft above mean sea level from topographic map.

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Sep. 29 to Oct. 07	0.8
Oct. 07 to Nov. 09	>21.4
Nov. 09 to Nov. 15	>21.4
Nov. 15 to Dec. 01	>21.4
Dec. 01 to Dec. 08	4.8
Dec. 08 to Dec. 23	4.9
Dec. 23 to Jan. 18	>21.4
Jan. 18 to Jan. 23	0.0
Jan. 23 to Feb. 13	0.7
Feb. 13 to May 06	>21.4
May 06 to May 11	3.2
May 11 to June 11	16.4
June 11 to July 18	15.1
July 18 to Aug. 06	>21.4
Aug. 06 to Aug. 19	6.9
Aug. 19 to Sep. 14	>21.4
Sep. 14 to Oct. 04	5.8

> Actual value is known to be more than the value shown.

HAWAII, ISLAND OF HAWAII--Continued

200517155404201. State Key Number 185.4 Upper Hamakua ditch Raingage below Kawaiki Stream near Kamuela, Hawaii.

LOCATION.--Lat 20°05'17", long 155°40'42", Hydrologic Unit 20010000, 15 ft from USGS streamgage station 16720500 on right bank, and 800 ft downstream of Kawaiki Stream.

PERIOD OF RECORD.--Continuous-record station, January 8, 1964 to June 22, 1993. Accumulated-rainfall station, June 22, 1993 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service non-recording rain gage. Elevation of gage is 4,020 ft above mean sea level from topographic map.

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 04 to Oct. 20	>25.1
Oct. 20 to Dec. 14	>24.6
Dec. 14 to Feb. 08	>24.0
Feb. 08 to May 03	>24.2
May 03 to July 11	>40.8
July 11 to Sep. 06	>38.8
Sep. 06 to Dec. 05	40.6

200148155420501. State Key Number 190.4 Keanuiomano Raingage near Kamuela, Hawaii

LOCATION.--Lat 20°01'48", long 155°42'05", Hydrologic Unit 20010000, in USGS streamgage station 16756500 on left bank, 150 ft upstream from junction of State Highway 19 and 25, and 2.0 mi west of Kamuela.

PERIOD OF RECORD.--Continuous-record station, 1963 to March 6, 1993. Accumulated-rainfall station, March 6, 1993 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-inch National Weather Service non-recording rain gage. Elevation of gage is 2,410 ft above mean sea level from topographic map.

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995
INTERMITTENT READINGS

Period	Rainfall
Aug. 05 to Oct. 19	2.1
Oct. 19 to Dec. 22	2.5
Dec. 22 to Feb. 10	1.1
Feb. 10 to May 05	3.9
May 05 to July 13	2.2
July 13 to July 21	0.4
July 21 to Sep. 12	0.7
Sep. 12 to Oct. 13	0.0

> Actual value is known to be more than the value shown

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