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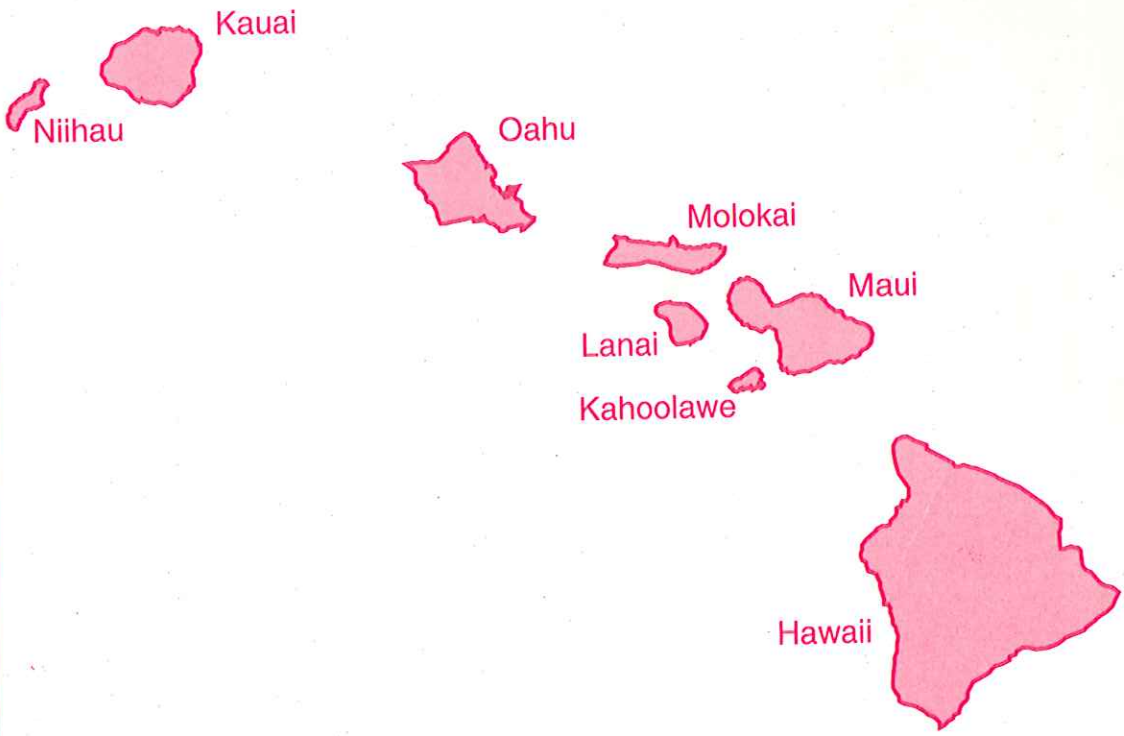
Water Resources Data Hawaii Water Year 1997



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT HI-97-1

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 1997

1996

OCTOBER

S	M	T	W	T	F	S
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1997

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AUGUST

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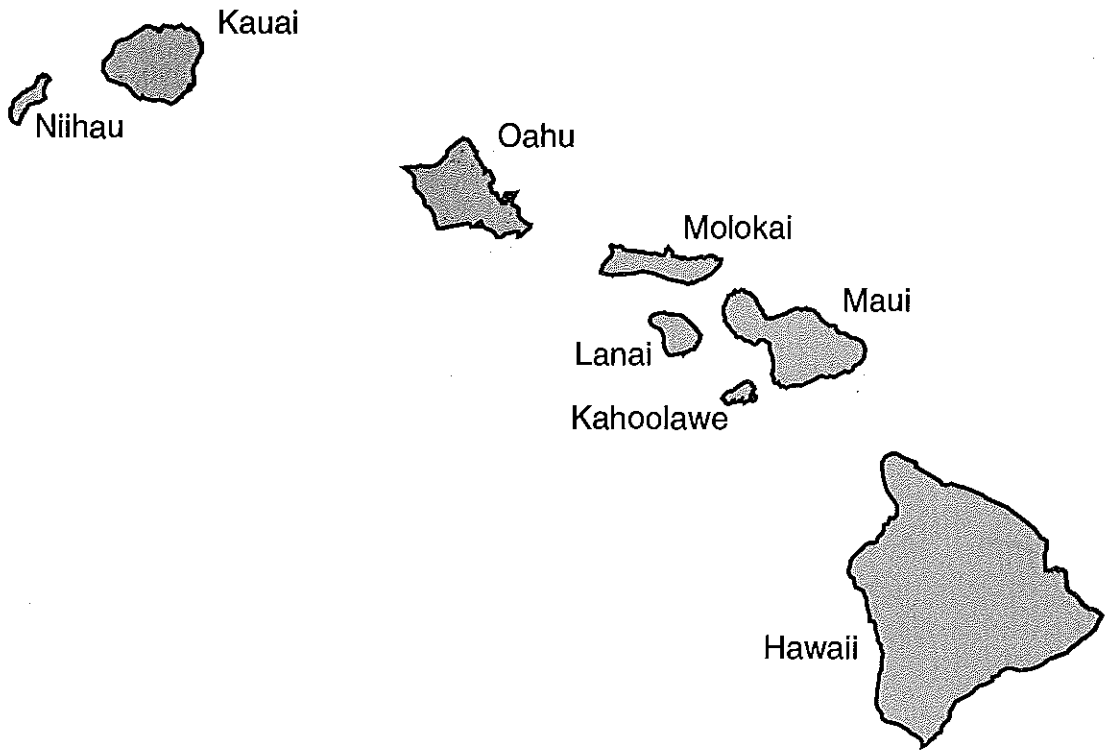
Water Resources Data Hawaii Water Year 1997

by Barry R. Hill, Roy I. Taogoshi, Vaughn E. Kunishige, and Wayne S. Shibata



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT HI-97-1
Prepared in cooperation with the State of Hawaii
Department of Land and Natural Resources,
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UNITED STATES DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY

Thomas J. Casadevall, Acting Director

Prepared in cooperation with the
State of Hawaii
and with other agencies as listed
under cooperation

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Honolulu, Hawaii 96813

1998

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 1997 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.

- Water discharge for 80 gaging stations on streams, springs, and ditches.
- Discharge data for 107 crest-stage partial-record stations and 16 miscellaneous sites.
- Water-quality data for 7 streams, 28 partial-record stations, and 142 wells.
- Water levels for 73 observation wells.
- Rainfall data for 41 rainfall stations.
- Discharge data for 65 miscellaneous sites from water years 1993 through 1995.

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.

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

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

NOTE.--Data for partial-record and miscellaneous sites are published in separate sections of the data report. See references at the end of this list of page numbers for these sections.

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

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

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

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

HAWAII

GROUND-WATER WELLS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

ISLAND OF HAWAII--Continued

RAINFALL STATIONS, BY COUNTY, FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME

Letters after station number designate type of station: (r) recording, and (n) non-recording

HAWAII

DISCONTINUED SURFACE-WATER OR STAGE-ONLY STATIONS

The following continuous record streamflow or stage-only stations in Hawaii have been discontinued or converted to partial-record stations. Daily records were collected and are stored in NWIS 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, 1975–96
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

DISCONTINUED SURFACE-WATER OR STAGE-ONLY STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
ISLAND OF KAUAI--Continued			
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
16091000	Lower Anahola Ditch nr Kealia	--	1937-83, 1985-95
16092000	Lower Anahola Ditch at makai weir nr Kealia	--	1909-10
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 OF 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

DISCONTINUED SURFACE-WATER OR STAGE-ONLY STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
ISLAND OF OAHU--Continued			
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 Spmgs 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
16232000	Nuuanu Stream below res 2 wasteway, nr Honolulu	3.35	1913-96
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
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	1922, 1956-67, 1971-96
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

DISCONTINUED SURFACE-WATER OR STAGE-ONLY STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
ISLAND OF OAHU--Continued			
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 Heeia	--	1914-16
16282000	Lee Ditch nr Heeia	--	1914-16
16283000	Kahaluu Str nr Heeia	0.28	1935-71
16283600	South Fork Waihee Stream near Heeia	0.03	1962-96
16283700	North Fork Waihee Stream near Heeia	0.03	1962-96
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 Waiahole	--	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 Waikane	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 Kahuku	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
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
16403900	Kawainui Stream near Pelekunu	1.17	1968-79, 1980-96
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
16408000	Waikolu Str bl pipeline crossing nr Kalaupapa	3.68	1919-32, 1937-96
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

DISCONTINUED SURFACE-WATER OR STAGE-ONLY STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
ISLAND OF MOLOKAI--Continued			
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
16509000	Hanawi Str below government road, nr Nahiku	5.03	1932-47, 1992-95
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 SURFACE-WATER OR STAGE-ONLY STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
ISLAND 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 Nailiilihaele Str at Haiku-uka	0.20	1932-33
16570000	Nailiihaele 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	New Hamakua Ditch at Nailiilihaele 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	Ninth 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	New 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

DISCONTINUED SURFACE-WATER OR STAGE-ONLY STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
ISLAND OF MAUI--Continued			
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
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			
16700950	Lyman Springs no. 2 nr Piihonua	--	1981-95
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

DISCONTINUED SURFACE-WATER OR STAGE-ONLY STATIONS--Continued

Station number	Station name	Drainage area (mi^2)	Period of record
ISLAND OF HAWAII--Continued			
16710000	Wailuku River nr Hilo	150.00	1911-13, 1918-19
16713000	Wailuku River at Hilo	256	1977-79, 1980-95
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
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, 1963-72
16747000	E Br Honokane nui Str at alt 1,300 ft 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 770 ft nr Honokane	5.41	1901
16749000	W Br Honokane nui Str at alt 1,370 ft nr Honokane	1.81	1901
16749500	W Br Honokane nui Str at alt 775 ft 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 SURFACE-WATER-QUALITY STATIONS

The following continuous water-quality stations in Hawaii have been discontinued. Daily records were collected and are stored in NWIS 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 Wahiawa	4.29	S	1973-82
16213000	Waikele Str nr Waipahu	45.70	C,T	1973-81
			S	1972-93
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
16713000	Wailuku River at Hilo, Hawaii, HI	256.00	S	1977-79, 1980-83
			C,T	1982-84, 1984-85

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INTRODUCTION

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 80 stream-gaging stations, 16 miscellaneous streamflow stations, and 107 crest-stage partial-record streamflow stations; (2) water-quality records for 7 streamflow-gaging stations, and 28 partial-record streamflow stations; (3) water-level records for 73 observation wells; (4) water-quality records for 142 observation wells; (5) accumulated rainfall records for 41 rainfall stations; and (6) discharge data for 65 miscellaneous sites from water years 1993 through 1995.

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 include, 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 were 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 not 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) 202-4700.

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-97-1." 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 on Water Resource Management, Rae Loui, Deputy Director.

Hawaii Board of Land and Natural Resources, Land Division, Dean Uchida, Administrator.

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 Sprague, Director and Chief Engineer.

National Tropical Botanical Garden, Charles Wichman Jr., Assistant Director.

Maui County Board of Water Supply, Dave Craddick, Director.

Hawaii County Department of Water Supply, Milton Pavao, P.E., Manager.

Assistance in the form of fnnds or services was given by the Corps of Engineers, U.S. Army, National Weather Service, and Kauai County Department of Water.

The following organizations aided in collecting records:

East Kauai Water Co., Ltd. and East Maui Irrigation Co., Ltd.

SUMMARY OF HYDROLOGIC CONDITIONS

Surface Water

Runoff during the 1997 water year was normal at the index stations on the islands of Oahu, Maui, and Hawaii, and excessive (upper 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, August, and September.

The annual mean discharge at East Branch of North Fork Wailua River near Lihue, Kauai was 125 percent of the 1961-90 median, 126 percent at Kalihi Stream near Honolulu, Oahu, and 123 percent at Honopou Stream near Huelo, Maui. The annual mean discharge at Honolii Stream near Papaikou, Hawaii was 94 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 1996 peak discharge to peaks for period of record at the index stations are shown in Table 1.

Table 1.--Comparison of peak discharge for 1997 water year with the peak discharge for the period of record at four representative stations

Station Number	Station name	Water year 1997		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	Jan. 19	3,020	Nov. 12, 1955	18,400
16229000	Kalihi Stream near Honolulu, Oahu	Nov. 14	834	Nov. 18, 1930	12,400
16587000	Honopou Stream near Huelo, Maui	July 30	3,030	Nov. 18, 1930	5,710
16717000	Honolii Stream near Papaikou, Hawaii	July 30	10,400	May 23, 1978	22,600

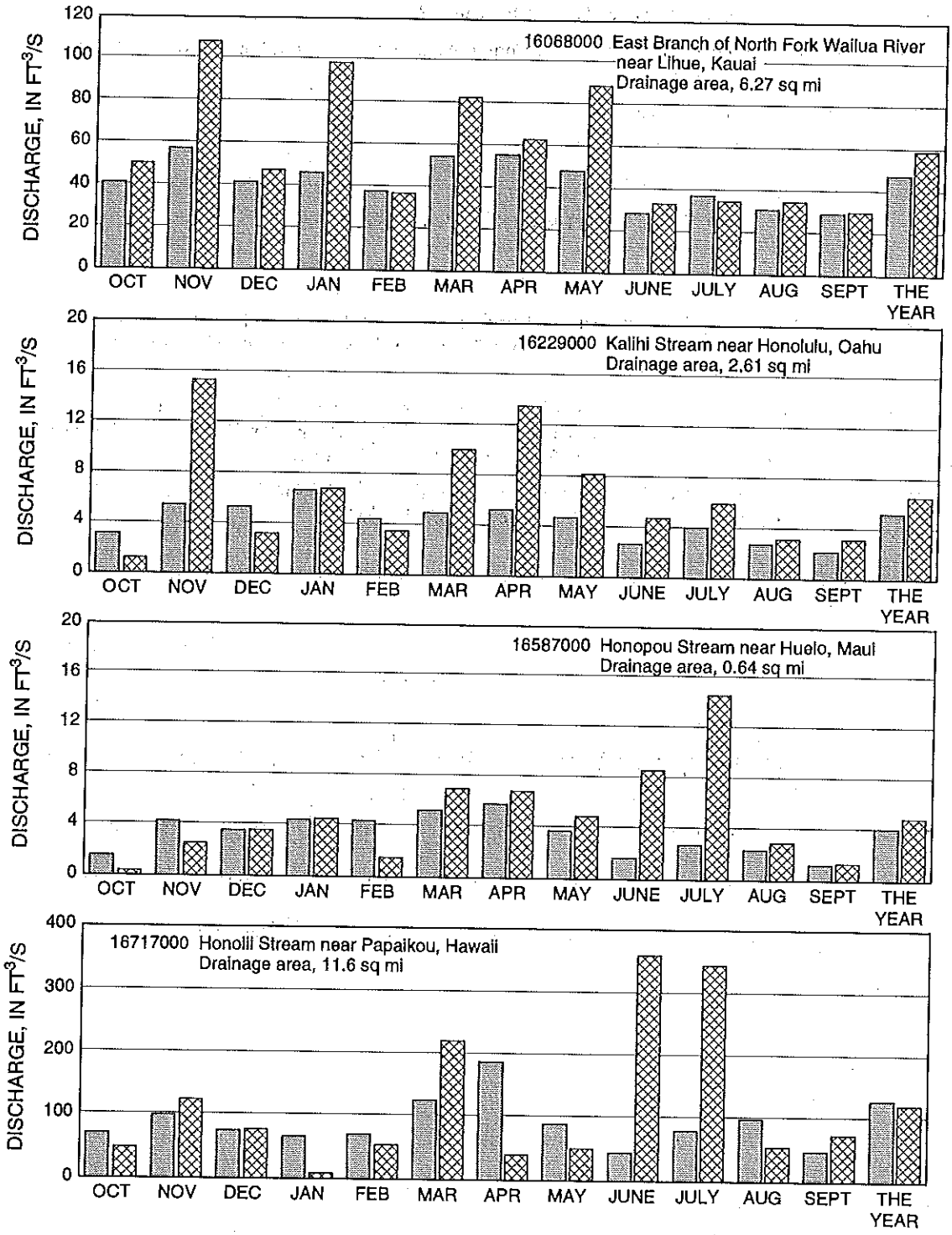

Figure 1. Discharge during 1997 water year compared with median discharge for four representative gaging stations.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 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 human activities.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes uniqne 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 Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemistry of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives; (1) provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 191 precipitation chemistry monitoring sites; (2) provide the mechanism to evaluate the effectiveness of the significant reduction in SO_2 emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred; and (3) provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO_2 and NO_x scheduled to begin in 2000.

Data from the network, as well as information about individual sites, are available through the world wide web at:

http://nadp.nrel.colostate.edu/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, representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 53 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.

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

Additional information about the NAWQA Program is available through the world wide web at:

http://wwwrvares.er.usgs.gov/nawqa/nawqa_home.html

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1997 water year that began October 1, 1996, and ended September 30, 1997. 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 5–14 and 16–25. 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 a streamgage, well, or rain gage, 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 wells 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."

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 2).

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 latitnde in areas less than 19°00″ of latitude, and 60 was added to the minntes 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 3 and 4).

To distinguish wells within a minnte 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 for wells on different islands to have the same 6-digit number, another digit distinguishing each of the islands is added in front of the 6-digit number with a dash separator.

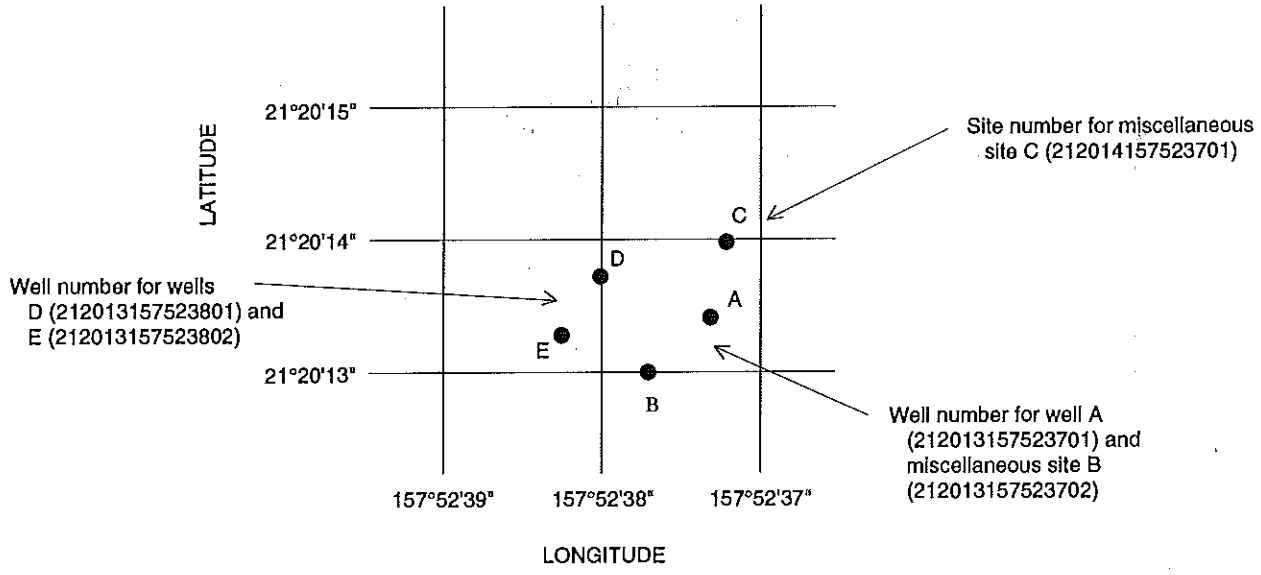

Figure 2. Sketch showing system for numbering wells and miscellaneous sites.

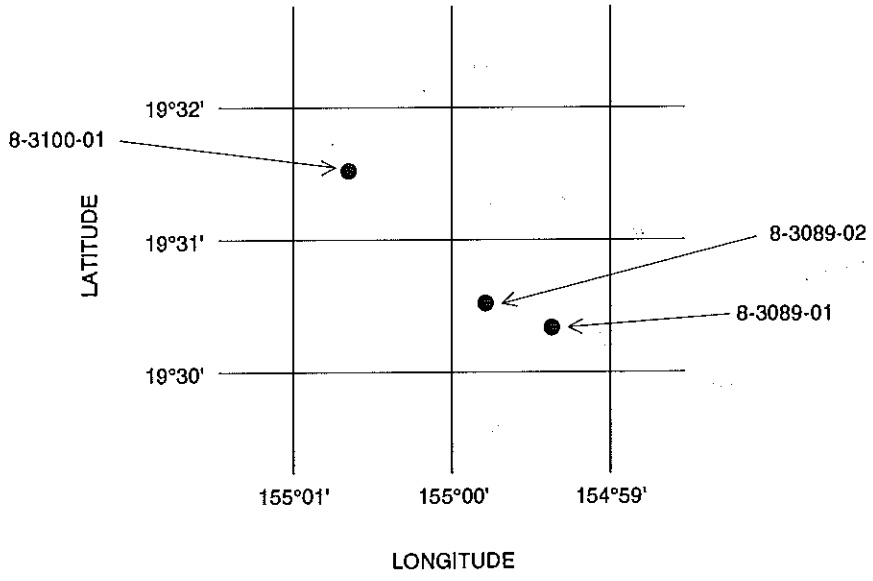

Figure 3. Sketch showing local well-numbering system.

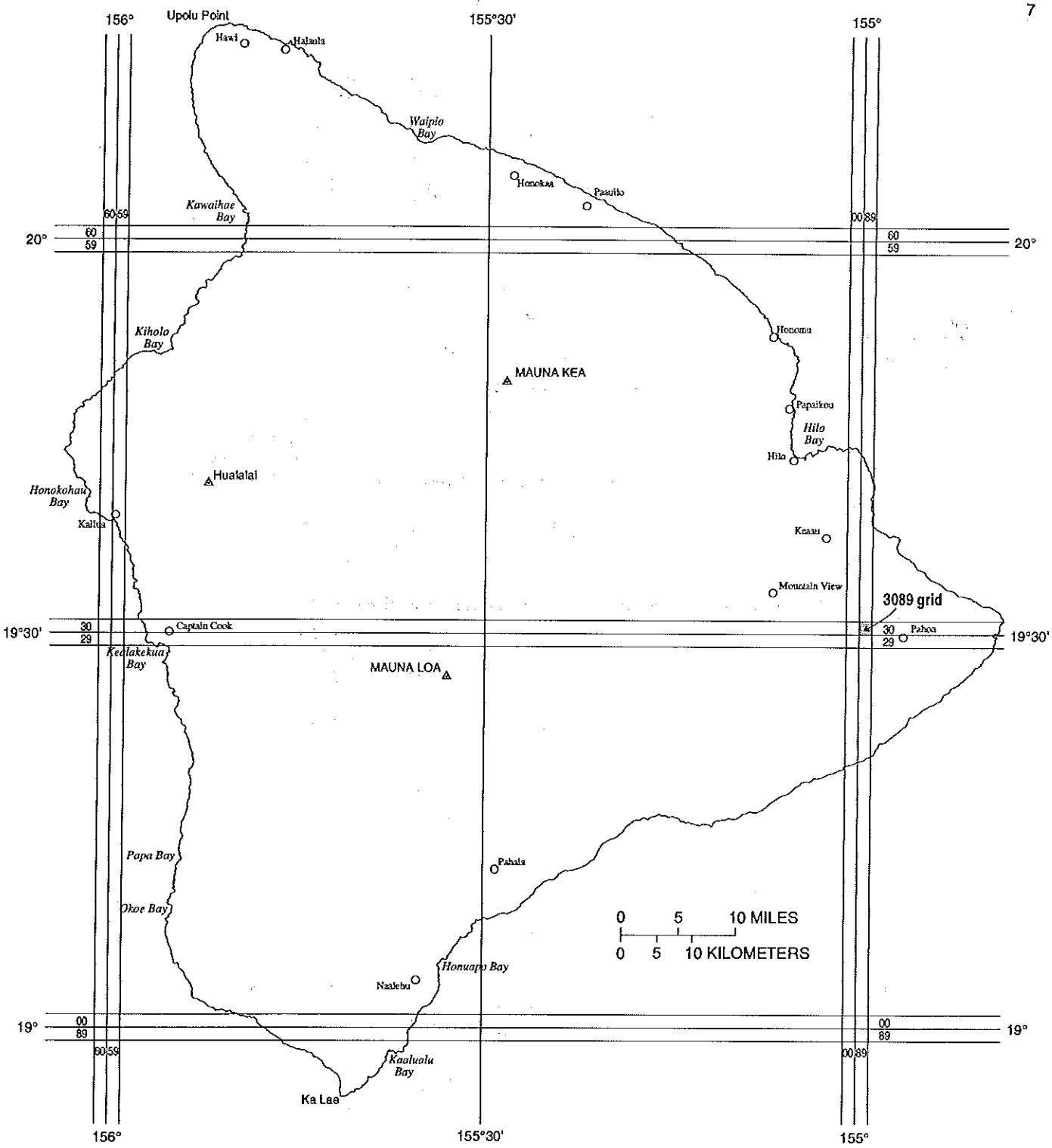

Figure 4. Map of island of Hawaii showing system for determining local well numbers.

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 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 mean 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 5–14.

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 electronic data loggers, 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 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 changiug 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 depositiou 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.

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 do 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 iustantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic 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 artificial control. 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 acre-feet (line headed "AC-FT").

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 published 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 5–9.

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 frequently taken at the time discharge measurements are made 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.

For stations with daily suspended-sediment records, mean daily suspended-sediment concentrations and loads are computed and published for each day of the water year. During periods of unchanging flow and sediment concentration, daily suspended-sediment loads are computed as the product of daily mean streamflow, daily mean suspended-sediment concentrations, and 0.0027, a conversion factor. 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 nsed 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 and chloride 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 valnes 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 device is in operation at a station.

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

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

EXTREMES 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 the U.S. Geological Survey's computerized data system, NWIS, 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 16–20.

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, a 7-digit number based on the local identifier well-numbering system (page 5).

Water-level records are obtained from direct measurements with a steel or electrical tape or from the graph, digital record, or electronic record 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 USGS WATER DATA

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

http://www.water.usgs.gov

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 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 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 or 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 per 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 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 Benchmark Network is a network of 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 ($\mu g/g$) 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) monitors the water quality of large rivers within four of the Nation's largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment 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.

Parameter code is a 5-digit number used in the U.S. Geological Survey's data system, National Water Informtion System (NWIS), to uniquely identify a specific constituent. The codes used in NWIS are the same as those used in the U.S. Environmental Protection Agency's 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	0.004-0.062	Sedimentation
Sand	0.062-2.0	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 total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time. It is commonly computed as the sum of suspended-sediment and bedload discharge, however, this is an approximation of the actual total-sediment discharge.

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 discharge, or 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. Streamflow includes water and all constituents transported by water in the stream.

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 contained 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 in 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.

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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.

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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. Sehneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

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3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.

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3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.

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4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

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4-B1. *Low-flow investigations*, by H.C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

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6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.

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6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages

6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS--TWRI Book 6, Chapter A4. 1992. 108 pages.

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7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, by D.N. Myers and F.D. Wilde: USGS--TWRI Book 9, Chapter A7, 1997. 49 pages.

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Surface-Water Station Records for Kauai

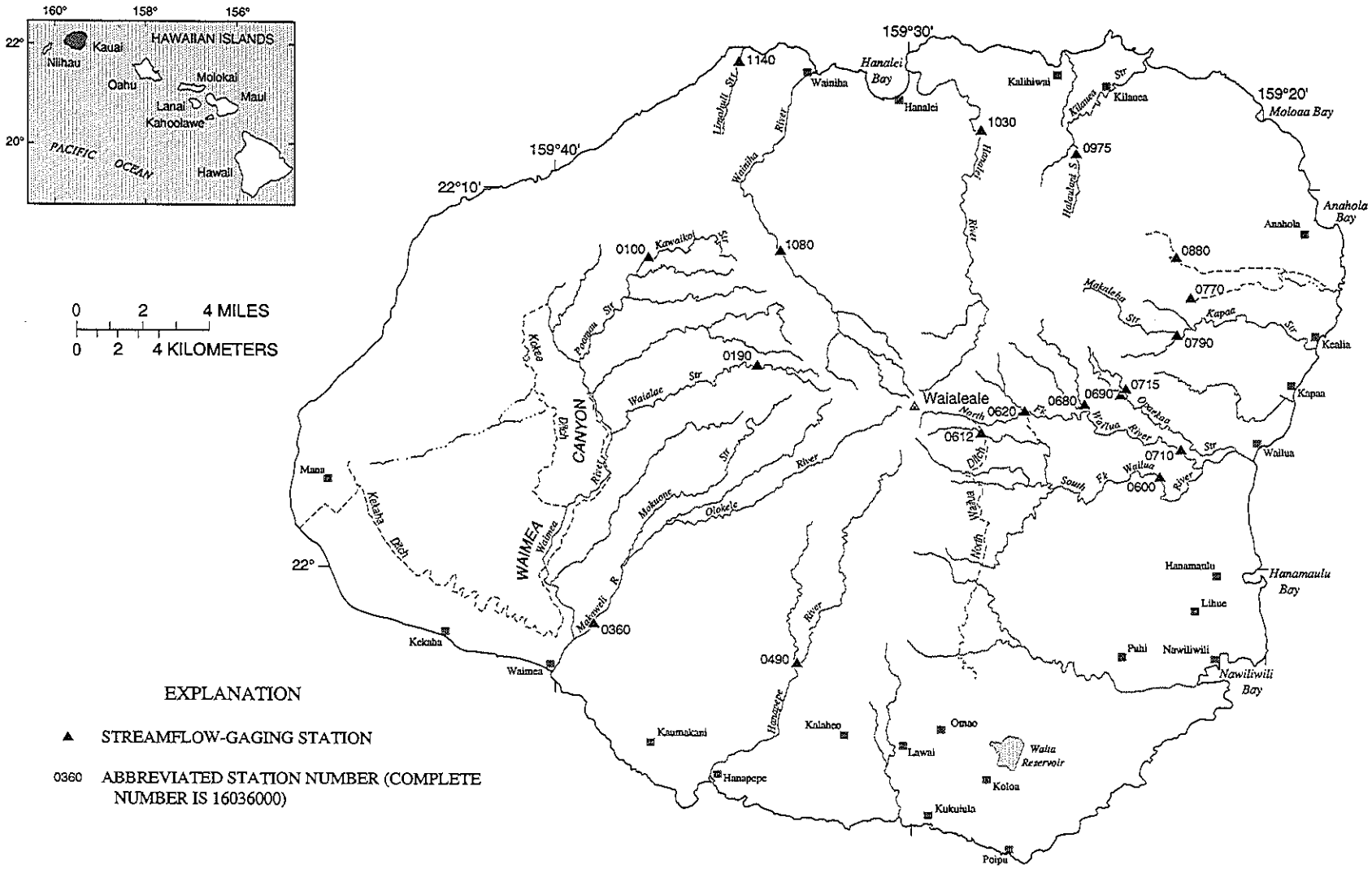


Figure 5. Locations of gaging, water-quality, and partial-record stations on Kauai.

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 computed by Roy Taogoshi. Records good. No diversion upstream.

AVERAGE DISCHARGE.--80 years (water years 1912, 1914, 1920-97), 34.4 ft^3/s (24,900 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft^3/s, January 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, September 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)
Dec. 21	0730	2,460	8.22	Feb. 22	1400	2,240	7.93
Jan. 4	1000	*6,360	*12.19				

Minimum discharge, 2.5 ft^3/s, October 6, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	4.9	11	23	16	36	115	9.8	15	18	5.7	3.8
2	3.8	4.4	9.5	16	14	24	39	13	12	50	5.2	3.6
3	3.3	4.1	11	439	13	20	101	14	11	20	5.3	3.6
4	2.9	4.1	13	1460	12	146	538	148	10	11	5.2	3.4
5	2.7	9.3	20	436	18	247	218	236	9.6	15	4.8	3.3
6	2.6	29	62	72	13	61	208	78	11	10	4.6	3.2
7	6.8	139	142	41	11	30	55	72	11	29	4.4	3.3
8	9.4	197	86	30	10	20	34	225	9.7	11	4.4	3.3
9	4.1	42	32	25	9.8	16	33	55	9.1	8.5	4.1	4.0
10	3.1	21	27	38	9.3	14	59	24	8.9	48	3.8	4.6
11	23	14	17	22	9.0	12	72	88	8.3	33	4.4	4.3
12	78	589	15	18	8.8	12	29	82	7.7	28	5.5	12
13	13	152	14	16	8.4	24	21	45	7.4	12	4.1	15
14	9.8	37	29	15	8.1	16	19	49	7.0	9.8	9.4	6.7
15	13	24	16	14	7.8	26	20	35	6.9	8.3	17	4.4
16	18	75	11	42	7.5	14	16	121	6.7	7.5	12	4.5
17	7.7	273	10	22	7.2	119	14	128	6.6	7.4	6.8	8.7
18	4.8	47	9.4	14	7.0	27	13	58	12	16	21	20
19	3.9	146	8.9	282	6.7	15	12	32	17	23	13	54
20	9.6	41	10	57	6.4	12	12	20	13	10	6.3	24
21	15	24	309	84	6.2	11	11	17	52	7.7	18	11
22	8.1	19	36	43	286	10	11	38	53	41	21	7.7
23	5.0	18	19	21	26	241	10	58	21	97	8.6	12
24	6.8	17	18	17	10	464	41	21	11	14	12	9.7
25	5.8	15	17	15	112	723	70	16	9.2	9.3	8.8	5.4
26	4.2	13	93	14	170	370	25	14	8.1	8.8	6.1	37
27	30	11	354	25	33	127	80	12	9.3	7.1	5.0	9.5
28	80	11	38	98	31	196	37	11	12	6.3	4.4	15
29	11	11	24	189	---	269	14	11	37	6.0	4.1	7.6
30	6.8	10	19	28	---	56	11	95	29	6.2	4.2	5.3
31	5.6	---	32	19	---	35	---	43	---	6.4	4.1	---
TOTAL	403.3	2001.8	1512.8	3635	877.2	3393	1938	1868.8	441.5	585.3	243.3	309.9
MEAN	13.0	66.7	48.8	117	31.3	109	64.6	60.3	14.7	18.9	7.85	10.3
MAX	80	589	354	1460	286	723	538	236	53	97	21	54
MIN	2.6	4.1	8.9	14	6.2	10	10	9.8	6.6	6.0	3.8	3.2
AC-FT	800	3970	3000	7210	1740	6730	3840	3710	876	1160	483	615

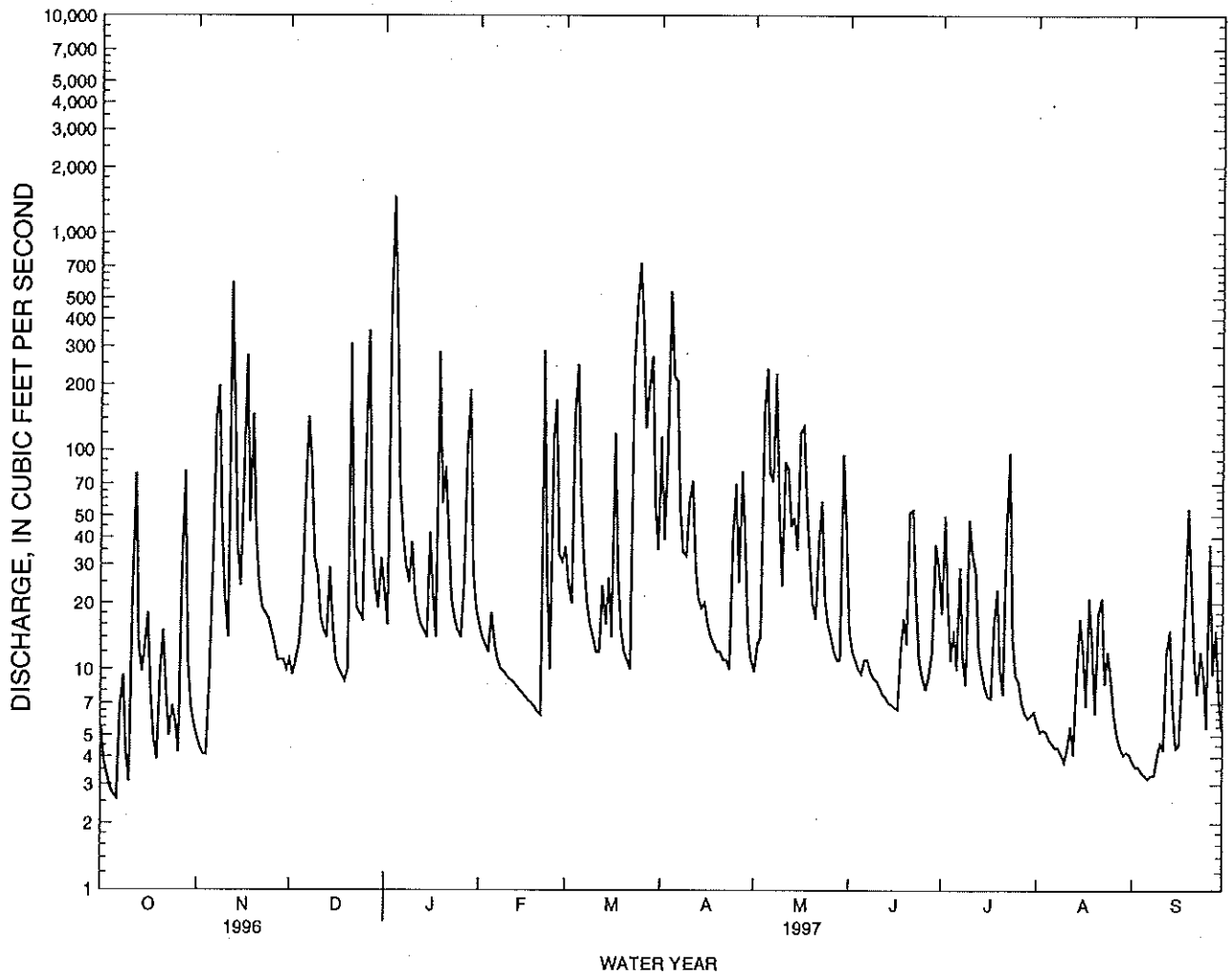
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1997, BY WATER YEAR (WY)

MEAN	21.7	44.0	53.3	54.2	41.9	49.9	45.1	27.2	16.9	23.5	21.6	14.5
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

HAWAII, ISLAND OF KAUAI

16010000 KAWAIKOI STREAM NEAR WAIMEA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1911 - 1997	
ANNUAL TOTAL	11323.7		17209.9			
ANNUAL MEAN	30.9		47.2		34.4	
HIGHEST ANNUAL MEAN					60.7	1982
LOWEST ANNUAL MEAN					15.3	1945
HIGHEST DAILY MEAN	623	Jan 18	1460	Jan 4	2620	Jan 15 1921
LOWEST DAILY MEAN	2.6	Jun 5	2.6	Oct 6	1.1	Sep 21 1953
ANNUAL SEVEN-DAY MINIMUM	3.0	May 31	3.4	Sep 2	1.2	Sep 17 1953
ANNUAL RUNOFF (AC-FT)	22460		34140		24900	
10 PERCENT EXCEEDS	65		105		74	
50 PERCENT EXCEEDS	11		14		13	
90 PERCENT EXCEEDS	3.5		4.7		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.

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 computed by Roy Taogoshi. Records good. No diversion upstream.

AVERAGE DISCHARGE.--56 years (water years 1921-31, 1953-97), 21.5 ft^3/s (15,600 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,530 ft^3/s, January 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 discharge 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)
Dec. 21	0700	1,860	5.39	Mar. 23	0900	1,380	4.67
Jan. 19	1800	1,710	5.18	Apr. 11	0200	*2,050	*5.66

Minimum discharge, 2.3 ft^3/s, October 5-7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	5.8	33	14	6.8	28	108	4.4	7.0	11	6.5	2.9
2	2.6	4.6	16	8.8	5.8	13	21	5.1	6.2	18	4.0	2.6
3	2.5	4.0	39	145	5.1	28	14	6.4	4.8	8.8	4.3	2.5
4	2.4	5.0	16	194	4.7	42	76	45	4.0	6.9	4.3	2.4
5	2.3	37	24	104	4.6	101	48	54	3.8	7.1	3.2	2.4
6	2.3	105	49	23	4.3	36	62	20	5.7	11	2.9	4.5
7	2.8	144	141	14	3.9	74	19	14	5.9	24	2.8	5.8
8	2.8	52	71	9.8	3.7	14	12	16	4.2	6.8	2.7	4.3
9	2.5	22	24	8.1	3.5	9.5	9.6	16	4.3	4.5	2.6	7.2
10	2.4	12	14	7.5	3.4	7.7	8.6	7.5	15	15	2.5	4.4
11	5.2	8.8	10	6.5	3.3	6.6	386	6.3	6.8	15	2.7	3.1
12	25	482	9.3	5.8	3.3	7.1	38	11	4.4	7.8	2.7	3.0
13	7.7	111	22	5.2	3.2	85	15	11	3.5	5.1	2.5	4.8
14	12	22	25	4.8	3.0	14	11	10	3.2	3.8	2.5	3.7
15	26	13	9.1	4.9	3.0	13	9.2	13	3.4	3.3	2.5	3.0
16	77	81	6.8	10	2.9	9.0	7.3	15	3.6	3.3	2.9	17
17	28	36	5.9	7.3	2.8	21	6.1	41	3.5	3.5	3.8	9.3
18	14	20	5.3	5.2	2.8	11	5.5	13	4.3	3.9	10	18
19	5.7	61	5.0	244	2.8	7.2	5.1	8.4	36	4.0	5.4	10
20	22	18	62	33	2.8	5.9	4.9	6.2	10	4.0	3.3	8.4
21	21	10	221	28	2.7	5.3	4.4	5.2	76	3.2	2.8	12
22	7.3	8.1	23	18	4.5	4.9	4.2	33	54	67	4.9	10
23	5.2	6.9	12	8.4	5.8	331	4.0	24	20	113	4.0	4.7
24	20	7.1	15	6.4	3.3	79	4.0	9.9	30	8.8	4.5	3.5
25	7.7	7.8	9.8	5.5	46	189	5.6	7.0	13	5.6	4.9	3.0
26	5.4	13	102	5.5	72	97	6.7	5.7	34	4.8	3.3	13
27	118	8.0	160	10	122	41	27	5.1	16	3.9	2.9	5.7
28	59	21	21	32	80	65	25	4.7	20	3.4	2.7	17
29	11	31	12	80	---	127	7.5	4.5	69	3.1	2.7	5.6
30	6.5	46	9.2	15	---	23	5.2	5.3	38	4.0	7.8	3.6
31	6.9	---	47	8.7	---	13	---	11	---	14	4.4	---
TOTAL	515.8	1403.1	1219.4	1072.4	412.0	1508.2	959.9	438.7	509.6	397.6	119.0	197.4
MEAN	16.6	46.8	39.3	34.6	14.7	48.7	32.0	14.2	17.0	12.8	3.84	6.58
MAX	118	482	221	244	122	331	386	54	76	113	10	18
MIN	2.3	4.0	5.0	4.8	2.7	4.9	4.0	4.4	3.2	3.1	2.5	2.4
AC-FT	1020	2780	2420	2130	817	2990	1900	870	1010	789	236	392

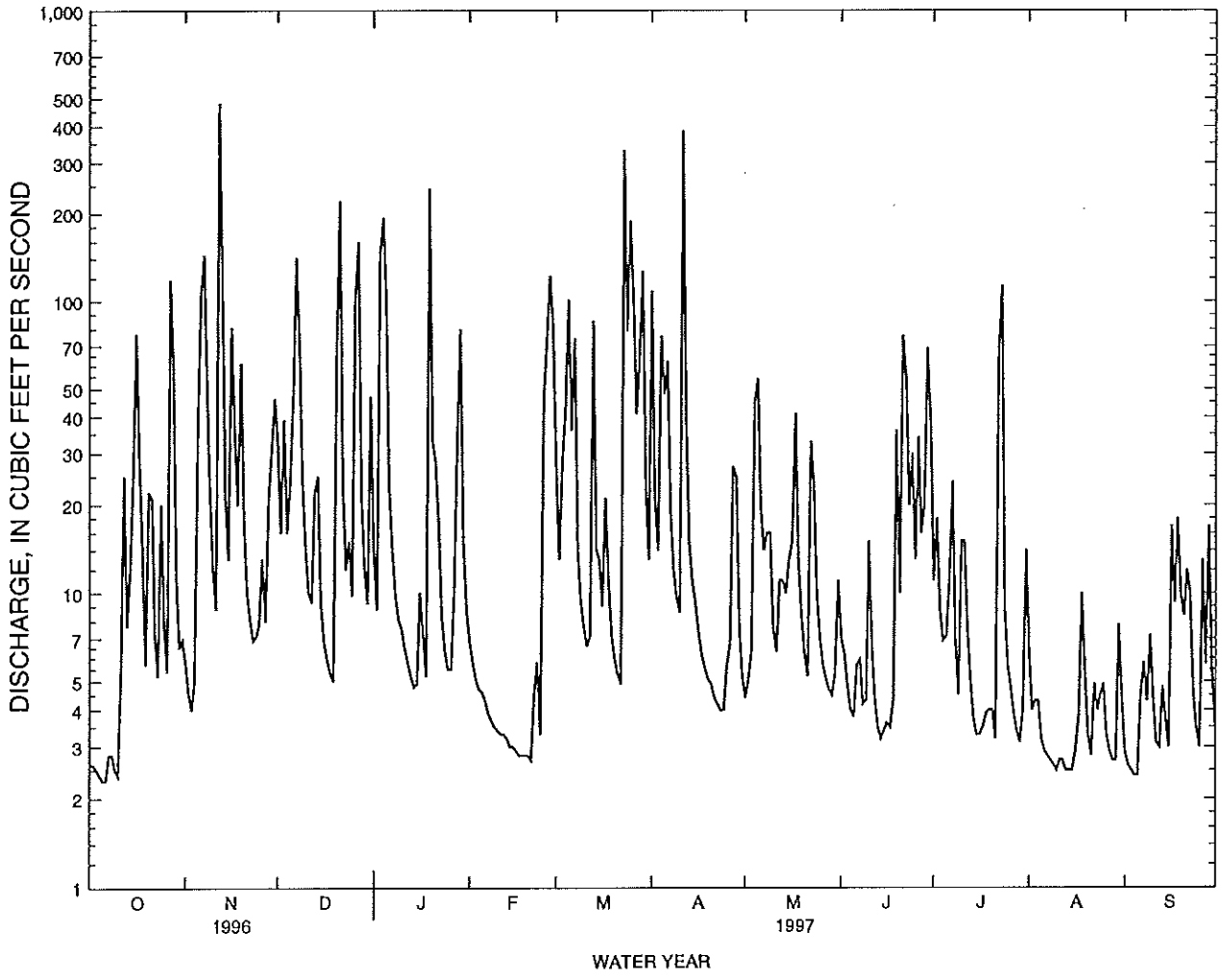
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 1997, BY WATER YEAR (WY)

MEAN	15.8	33.2	34.0	33.6	27.3	28.5	24.2	13.2	9.95	15.3	12.5	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

HAWAII, ISLAND OF KAUAI

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

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1920 - 1997	
ANNUAL TOTAL	7392.7		8753.1			
ANNUAL MEAN	20.2		24.0		21.5	
HIGHEST ANNUAL MEAN					40.9	1982
LOWEST ANNUAL MEAN					8.94	1926
HIGHEST DAILY MEAN	482	Nov 12	482	Nov 12	1440	Dec 1 1957
LOWEST DAILY MEAN	2.2	Jun 6	2.3	Oct 5	.99	May 17 1966
ANNUAL SEVEN-DAY MINIMUM	2.3	May 17	2.5	Oct 1	1.1	May 26 1966
ANNUAL RUNOFF (AC-FT)	14660		17360		15600	
10 PERCENT EXCEEDS	46		63		45	
50 PERCENT EXCEEDS	6.3		7.7		6.6	
90 PERCENT EXCEEDS	2.5		3.0		2.6	



HAWAII, ISLAND OF KAUAI

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 computed by Roy Taogoshi. 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.--54 years (water years 1944-97), 87.3 ft^3/s (63,260 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft^3/s, January 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)
Nov. 12	0730	10,700	11.10	Mar. 23	1030	*12,800	*11.73
Dec. 21	0800	10,300	10.97	Apr. 11	0300	11,500	11.36
Jan. 19	1830	12,500	11.65				

Minimum discharge, 12.0 ft^3/s, September 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	31	145	109	39	110	408	25	39	34	24	16
2	16	23	74	85	35	58	141	29	22	32	19	16
3	14	19	122	519	32	165	96	29	20	30	38	16
4	14	19	66	275	31	117	170	87	19	61	19	16
5	14	107	77	205	29	288	203	124	21	32	17	24
6	14	395	63	78	28	144	337	54	44	43	16	46
7	15	622	163	58	27	235	111	32	23	99	17	20
8	20	312	103	50	26	80	67	46	20	33	16	18
9	15	105	65	46	25	56	56	43	29	22	16	25
10	13	70	52	43	24	50	47	32	44	88	16	18
11	26	51	49	39	24	44	1500	29	24	39	16	17
12	58	2910	53	37	26	42	298	38	20	28	17	16
13	22	679	51	35	24	173	142	36	19	21	16	18
14	32	197	73	35	22	48	136	28	19	19	24	17
15	36	128	49	35	21	42	102	28	21	18	24	20
16	280	517	45	47	21	33	55	39	19	23	42	73
17	183	206	44	34	20	104	46	118	18	19	20	33
18	65	123	43	31	20	52	43	38	20	18	23	54
19	74	152	42	1270	20	36	43	26	55	18	19	24
20	91	97	127	325	20	30	39	23	35	17	16	22
21	83	76	1430	117	19	27	33	23	176	18	28	22
22	44	65	187	92	33	25	32	78	174	202	33	24
23	24	55	106	61	25	2070	30	73	56	429	17	19
24	95	93	102	50	20	328	29	35	42	39	21	17
25	25	64	80	44	35	425	29	28	32	26	19	16
26	20	58	234	41	76	305	44	25	119	24	17	63
27	240	49	439	48	253	142	60	23	87	20	16	16
28	181	107	151	86	217	156	69	23	77	18	16	54
29	61	108	99	175	---	388	32	22	197	17	25	17
30	43	108	86	76	---	118	28	24	165	21	45	13
31	39	---	214	48	---	88	---	60	---	47	18	---
TOTAL	1873	7546	4634	4194	1192	5979	4426	1318	1656	1555	670	770
MEAN	60.4	252	149	135	42.6	193	148	42.5	55.2	50.2	21.6	25.7
MAX	280	2910	1430	1270	253	2070	1500	124	197	429	45	73
MIN	13	19	42	31	19	25	28	22	18	17	16	13
AC-FT	3720	14970	9190	8320	2360	11860	8780	2610	3280	3080	1330	1530

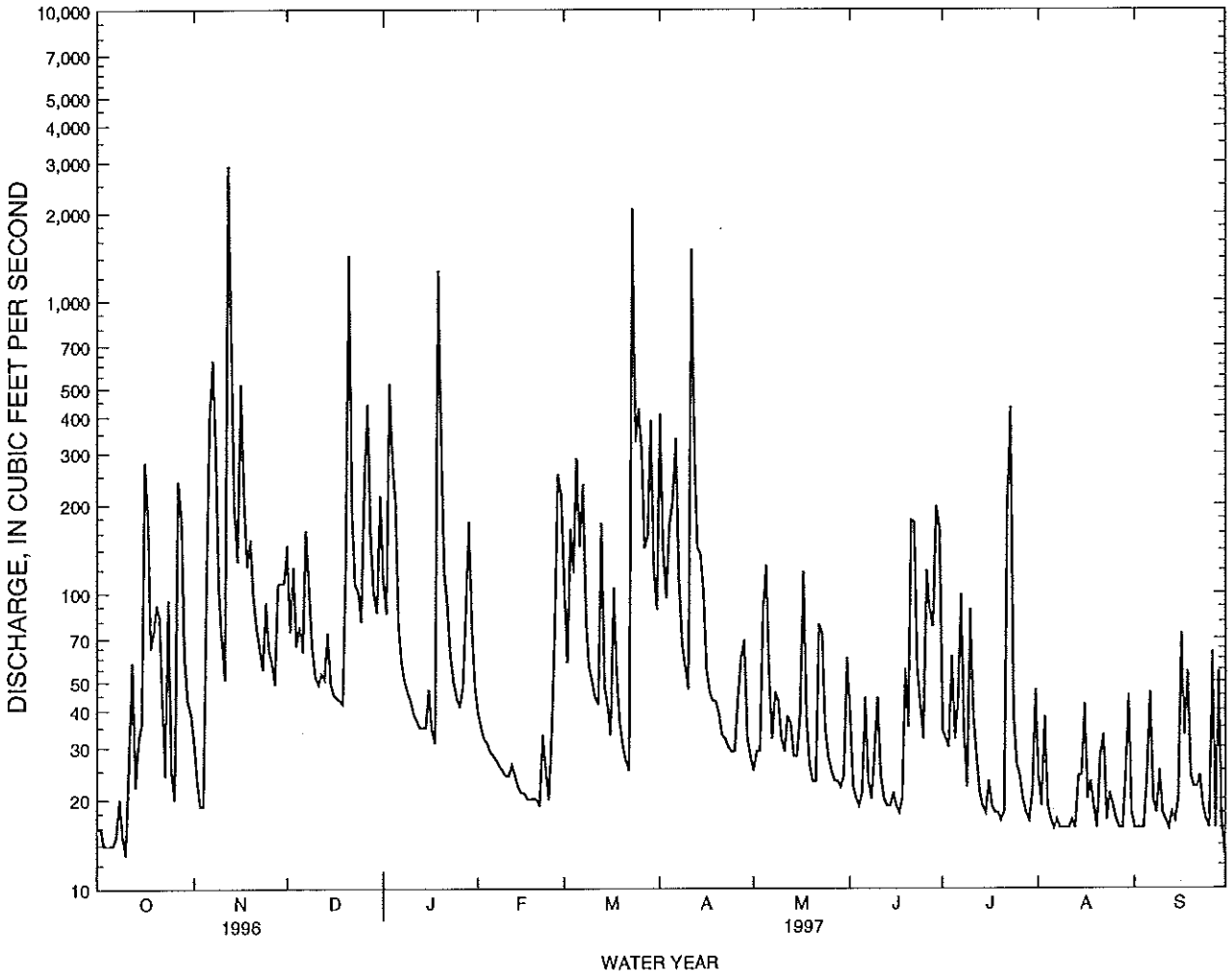
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1997, BY WATER YEAR (WY)

MEAN	60.6	129	144	132	117	132	96.9	56.9	38.6	53.2	52.0	37.4
MAX	311	491	577	441	774	609	419	283	106	222	328	205
(WY)	1995	1991	1993	1989	1956	1982	1963	1965	1996	1989	1950	1994
MIN	11.7	15.2	18.0	9.49	12.0	10.6	11.6	15.1	9.56	10.0	14.2	9.54
(WY)	1960	1951	1977	1945	1978	1959	1992	1996	1951	1984	1944	1962

HAWAII, ISLAND OF KAUAI

16036000 MAKAWELI RIVER NEAR WAIMEA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1943 - 1997	
ANNUAL TOTAL	33154		35813			
ANNUAL MEAN	90.6		98.1		87.3	
HIGHEST ANNUAL MEAN					204	1982
LOWEST ANNUAL MEAN					31.1	1984
HIGHEST DAILY MEAN	2910	Nov 12	2910	Nov 12	5170	Dec 1 1957
LOWEST DAILY MEAN	10	Aug 26	13	Oct 10	4.3	Jul 19 1951
ANNUAL SEVEN-DAY MINIMUM	10	Aug 24	15	Oct 1	5.7	Oct 21 1944
ANNUAL RUNOFF (AC-FT)	65760		71040		63260	
10 PERCENT EXCEEDS	164		191		172	
50 PERCENT EXCEEDS	35		39		27	
90 PERCENT EXCEEDS	13		17		12	



HAWAII, ISLAND OF KAUAI

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 January 22, 1921, nonrecording gage and December 16, 1926, to June 30, 1951, water-stage recorder, at same site at datum 1.00 ft higher.

REMARKS.--Records computed by Roy Taogoshi. 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.--73 years (water years 1918-20, 1928-97), 84.7 ft^3/s (61,360 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft^3/s, April 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)
Nov. 12	0700	6,300	7.74	Mar. 23	1030	3,900	6.40
Dec. 21	0730	6,020	7.60	Apr. 11	0200	7,370	8.24
Jan. 19	1800	*8,970	*8.85				

Minimum discharge, 17 ft^3/s, October 3-7, 9, 10, January 18, 19, February 18-25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	45	100	58	69	72	285	20	75	50	24	22
2	19	39	73	43	66	40	123	25	22	48	26	21
3	18	36	165	235	64	179	73	21	20	28	62	23
4	17	32	85	83	62	118	59	97	19	27	28	25
5	17	69	111	61	45	399	272	69	21	25	24	28
6	17	518	61	40	19	177	725	33	54	76	23	54
7	18	593	74	27	19	263	195	23	22	106	24	25
8	19	217	47	24	19	89	88	39	20	37	24	23
9	18	70	39	23	19	58	59	32	24	24	23	27
10	18	42	37	24	20	48	39	22	31	132	23	23
11	57	36	36	22	20	41	1140	22	20	66	23	22
12	136	1910	48	21	21	38	263	29	20	38	23	25
13	30	501	39	21	19	52	122	31	19	25	23	27
14	31	260	46	21	19	40	112	22	21	23	23	23
15	83	199	31	21	18	96	70	22	26	22	23	26
16	254	509	30	24	18	48	61	30	20	29	54	66
17	76	197	29	19	18	299	43	128	20	22	31	29
18	32	136	29	17	18	73	25	28	24	22	27	45
19	69	128	28	788	17	46	25	21	43	23	23	31
20	309	106	139	217	17	39	25	20	24	22	22	26
21	189	95	1110	90	17	30	24	19	136	23	50	25
22	67	80	166	91	18	20	24	46	126	321	33	26
23	30	42	70	79	17	863	23	35	39	633	26	22
24	221	189	56	73	17	166	23	23	33	58	25	21
25	46	74	41	70	19	190	22	21	29	42	24	21
26	63	57	64	69	39	190	27	20	174	28	23	80
27	230	38	239	57	167	117	44	19	94	23	26	21
28	183	193	74	67	147	137	41	19	91	23	22	38
29	62	155	49	206	---	397	22	19	211	23	27	21
30	40	111	42	95	---	156	21	47	231	25	54	21
31	53	---	141	75	---	109	---	84	---	36	23	---
TOTAL	2441	6677	3299	2761	1028	4590	4075	1086	1709	2080	886	887
MEAN	78.7	223	106	89.1	36.7	148	136	35.0	57.0	67.1	28.6	29.6
MAX	309	1910	1110	788	167	863	1140	128	231	633	62	80
MIN	17	32	28	17	17	20	21	19	19	22	22	21
AC-FT	4840	13240	6540	5480	2040	9100	8080	2150	3390	4130	1760	1760

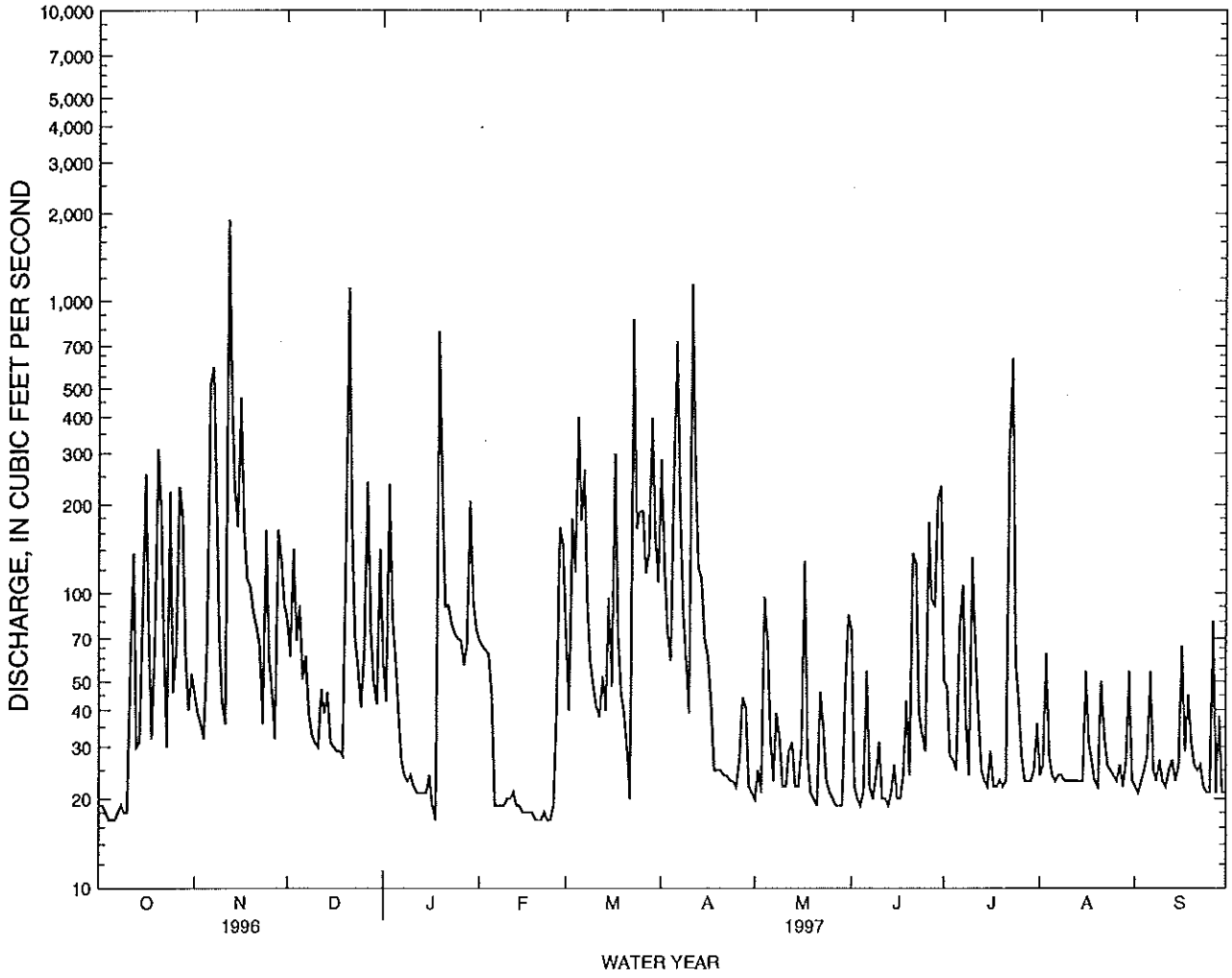
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 1997, BY WATER YEAR (WY)

MEAN	62.0	108	115	110	99.1	116	91.7	66.1	52.4	72.6	72.5	53.8
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

HAWAII, ISLAND OF KAUAI

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

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1917 - 1997	
ANNUAL TOTAL	32758		31519			
ANNUAL MEAN	89.5		86.4		84.7	
HIGHEST ANNUAL MEAN					182	1918
LOWEST ANNUAL MEAN					30.6	1953
HIGHEST DAILY MEAN	1910	Nov 12	1910	Nov 12	10900	Dec 3 1919
LOWEST DAILY MEAN	15	May 17	17	Oct 4	5.3	May 21 1954
ANNUAL SEVEN-DAY MINIMUM	16	May 12	17	Feb 18	6.4	May 10 1954
ANNUAL RUNOFF (AC-FT)	64980		62520		61370	
10 PERCENT EXCEEDS	189		190		174	
50 PERCENT EXCEEDS	37		37		30	
90 PERCENT EXCEEDS	17		20		15	



HAWAII, ISLAND OF KAUAI

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 (from topographic map). Prior to November 18, 1918, at site 0.3 mi upstream at different datum. November 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 computed by Roy Taogoshi. Records good. Lihue and Hanamaulu ditches divert water upstream of station for irrigation of sugarcane in vicinity of Lihue.

AVERAGE DISCHARGE.--80 years (water years 1913-18, 1920, 1922-24, 1926-56, 1959-97), 117 ft^3/s (84,730 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,300 ft^3/s, April 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, August 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)
Nov. 12	0800	12,000	16.40	Jan. 19	1900	*15,600	*17.13
Dec. 21	0830	6,400	14.78				

Minimum discharge, 5.4 ft^3/s, August 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	151	189	108	91	135	653	29	178	134	48	66
2	59	176	188	104	82	89	217	29	54	138	15	48
3	22	151	116	395	21	166	175	33	36	107	60	31
4	18	117	158	692	15	91	292	169	15	83	17	24
5	16	221	100	416	15	253	548	311	19	78	13	38
6	15	786	105	205	14	152	909	284	54	107	15	63
7	14	522	138	159	18	176	410	147	30	192	27	21
8	18	374	102	151	13	99	235	142	16	88	20	15
9	15	228	81	136	12	79	188	144	32	56	18	17
10	16	194	63	160	12	73	157	100	36	198	16	14
11	93	150	56	132	11	70	577	96	32	142	13	26
12	240	2830	91	121	16	70	292	171	36	107	19	88
13	86	758	93	94	42	82	184	194	34	64	13	154
14	73	347	123	52	18	245	221	143	35	52	12	97
15	80	264	95	37	57	630	144	143	49	44	7.1	103
16	493	471	73	21	56	249	122	145	37	69	368	131
17	193	300	50	13	55	348	107	395	30	47	179	92
18	146	206	47	14	38	165	82	196	41	38	204	97
19	222	169	45	1340	9.9	127	55	113	33	39	109	101
20	824	143	343	342	8.5	108	50	64	20	33	22	73
21	499	139	1260	181	20	139	44	54	110	31	45	70
22	276	130	310	155	163	95	40	102	121	211	88	102
23	166	121	175	130	91	1020	46	132	40	508	74	54
24	272	262	140	122	14	268	61	96	33	103	63	30
25	124	322	114	114	7.8	284	70	83	40	78	69	24
26	110	193	213	108	16	276	83	66	226	71	78	113
27	440	171	303	108	155	162	111	50	193	51	75	38
28	273	246	148	159	154	189	98	49	191	46	57	71
29	189	240	116	218	---	387	35	44	272	40	93	31
30	161	197	100	125	---	180	32	65	331	42	167	22
31	179	---	166	100	---	83	---	274	---	79	86	---
TOTAL	5388	10579	5301	6212	1225.2	6490	6238	4063	2374	3076	2090.1	1854
MEAN	174	353	171	200	43.8	209	208	131	79.1	99.2	67.4	61.8
MAX	824	2830	1260	1340	163	1020	909	395	331	508	368	154
MIN	14	117	45	13	7.8	70	32	29	15	31	7.1	14
AC-FT	10690	20980	10510	12320	2430	12870	12370	8060	4710	6100	4150	3680

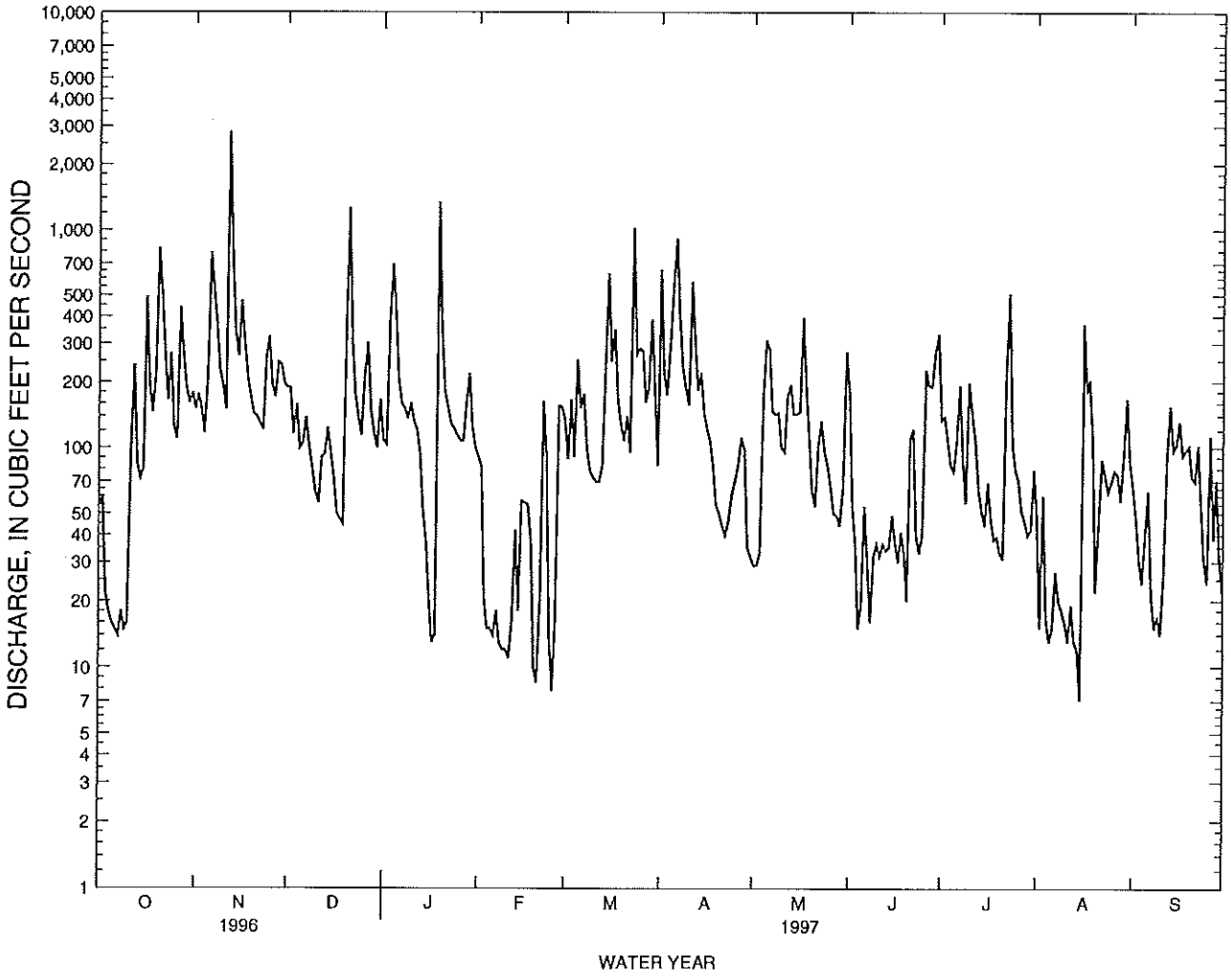
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1997, BY WATER YEAR (WY)

MEAN	93.0	176	172	176	127	150	134	98.8	55.6	75.6	84.1	76.4
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

HAWAII, ISLAND OF KAUAI

16060000 SOUTH FORK WAILUA RIVER NEAR LIHUE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1912 - 1997	
ANNUAL TOTAL	50984.0		54890.3			
ANNUAL MEAN	139		150		117	
HIGHEST ANNUAL MEAN					284	1982
LOWEST ANNUAL MEAN					17.3	1984
HIGHEST DAILY MEAN	2830	Nov 12	2830	Nov 12	13800	Jan 16 1921
LOWEST DAILY MEAN	3.4	Jun 6	7.1	Aug 15	1.8	Sep 17 1953
ANNUAL SEVEN-DAY MINIMUM	4.0	May 14	14	Feb 5	1.8	Sep 16 1953
ANNUAL RUNOFF (AC-FT)	101100		108900		84730	
10 PERCENT EXCEEDS	301		295		266	
50 PERCENT EXCEEDS	75		100		39	
90 PERCENT EXCEEDS	6.4		18		4.8	



HAWAII, ISLAND OF KAUAI

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 computed by Roy Taogoshi. Records good. Ditch diverts water from North Fork Wailua River and Waikoko Stream for power and irrigation in vicinity of Lihue.

AVERAGE DISCHARGE.--32 years (water years 1966-97), 21.9 ft^3/s (15,860 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 40 ft^3/s, November 12; minimum daily, 0.58 ft^3/s, June 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	24	30	26	24	23	29	18	.80	28	26	23
2	24	23	29	26	24	22	23	20	.60	29	26	23
3	22	23	30	33	23	27	26	19	.60	27	28	25
4	21	23	28	38	23	26	30	26	.58	27	25	24
5	20	26	27	33	23	30	29	28	.59	26	25	25
6	20	34	28	26	22	25	33	26	.61	29	24	26
7	21	31	30	25	23	26	28	22	1.2	29	25	24
8	21	27	28	27	22	23	24	25	1.5	27	24	24
9	20	25	27	26	23	23	23	22	1.5	27	23	24
10	21	24	26	28	22	23	22	21	12	32	22	23
11	26	24	25	26	24	22	30	21	26	29	23	23
12	29	40	28	25	25	22	25	26	25	28	22	25
13	25	27	26	25	24	24	24	25	25	26	21	26
14	25	18	26	25	23	25	24	24	24	26	21	24
15	25	16	25	25	22	33	22	23	26	25	21	25
16	31	23	24	25	21	26	21	25	25	27	28	26
17	26	22	24	24	21	26	20	30	24	25	26	25
18	26	15	24	24	22	23	20	24	25	25	27	25
19	29	17	24	34	22	22	19	22	26	25	24	26
20	31	18	36	28	21	23	19	21	25	24	23	25
21	29	26	36	27	22	24	18	20	32	25	26	25
22	26	26	29	25	28	22	18	23	29	31	25	26
23	25	25	27	25	23	33	17	23	27	32	25	24
24	28	33	27	24	21	28	18	21	27	27	24	23
25	25	29	26	24	24	30	20	20	27	26	24	23
26	24	28	31	24	25	26	21	19	32	26	24	26
27	29	28	33	26	27	23	24	18	32	25	23	24
28	26	32	28	28	25	25	22	18	31	25	22	25
29	26	29	27	32	---	29	19	7.2	34	24	25	23
30	24	29	26	26	---	23	20	.62	32	25	28	23
31	25	---	29	25	---	22	---	.89	---	27	24	---
TOTAL	776	765	864	835	649	779	688	638.71	573.98	834	754	733
MEAN	25.0	25.5	27.9	26.9	23.2	25.1	22.9	20.6	19.1	26.9	24.3	24.4
MAX	31	40	36	38	28	33	33	30	34	32	28	26
MIN	20	15	24	24	21	22	17	.62	.58	24	21	23
AC-FT	1540	1520	1710	1660	1290	1550	1360	1270	1140	1650	1500	1450

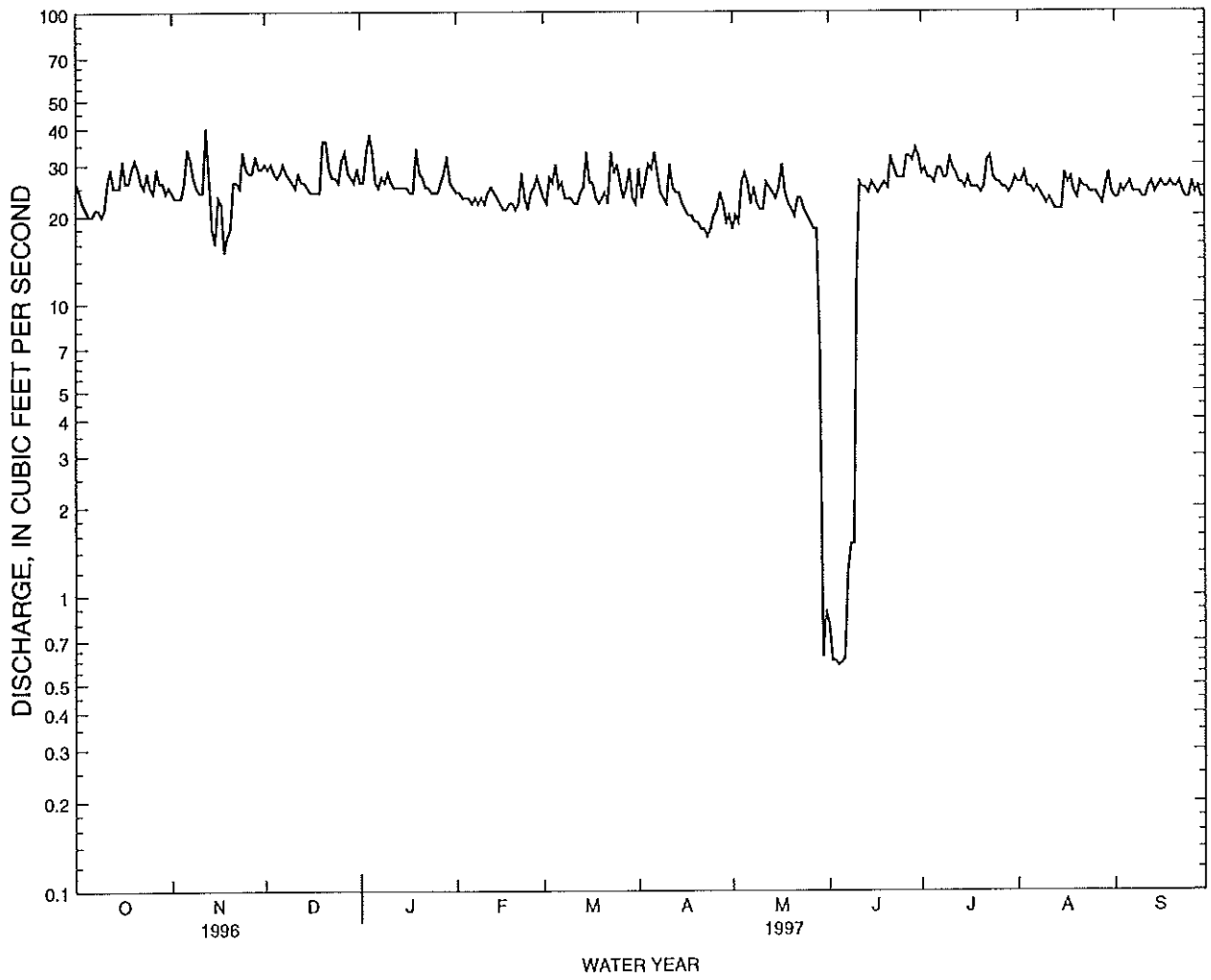
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1997, BY WATER YEAR (WY)

MEAN	22.4	22.9	21.1	20.3	20.7	21.6	22.7	22.3	22.0	22.8	22.6	21.9
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

HAWAII, ISLAND OF KAUAI

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

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1965 - 1997	
ANNUAL TOTAL	8058.1		8889.69			
ANNUAL MEAN	22.0		24.4		21.9	
HIGHEST ANNUAL MEAN					30.3	1969
LOWEST ANNUAL MEAN					6.64	1991
HIGHEST DAILY MEAN	40	Nov 12	40	Nov 12	58	Oct 11 1966
LOWEST DAILY MEAN	6.1	Sep 29	.58	Jun 4	.00	Jan 1 1965
ANNUAL SEVEN-DAY MINIMUM	10	Jul 5	.67	May 31	.00	Jan 1 1965
ANNUAL RUNOFF (AC-FT)	15980		17630		15860	
10 PERCENT EXCEEDS	29		29		29	
50 PERCENT EXCEEDS	22		25		22	
90 PERCENT EXCEEDS	16		20		16	



HAWAII, ISLAND OF KAUAI

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 computed by Roy Taogoshi. Records good. Ditch diverts water from North Fork Wailua River for irrigation of sugarcane in vicinity of Lihue.

AVERAGE DISCHARGE.--60 years (water years 1938-97), 9.59 ft^3/s (6,950 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 7.4 ft^3/s, April 6, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.01	.00	.00	.00	.00	1.4	.00	.57	.03	.00	.00
2	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
3	.00	.00	.00	.45	.00	.00	2.6	.00	.00	.00	.02	.00
4	.00	.00	.00	1.5	.00	.00	5.1	3.4	.12	.06	.00	.00
5	.00	.11	.00	.17	.00	.01	2.6	1.7	.00	.00	.00	.00
6	.00	.55	.00	.06	.00	.03	7.4	1.6	.18	.21	.00	.00
7	.00	.13	.00	.03	.00	.04	2.0	.03	.00	.03	.00	.00
8	.00	.08	.00	.02	.00	.03	.06	1.7	.00	.00	.00	.00
9	.00	.03	.00	.00	.00	.02	.03	.05	.00	.33	.00	.00
10	.00	.03	.00	.00	.00	.00	.03	.03	.00	.56	.00	.00
11	.00	.01	.00	.00	.00	.00	3.3	.03	.00	.02	.00	.00
12	.06	2.4	.00	.00	.00	.00	.00	1.7	.00	.04	.00	.00
13	.00	.42	.00	.00	.00	.00	.53	.23	.00	.00	.00	.00
14	.00	.07	.00	.00	.00	.00	.01	.03	.00	.00	.00	.00
15	.00	.03	.00	.00	.00	.06	.00	.03	.00	.00	.00	.00
16	.90	.06	.00	.00	.00	.05	.00	.87	.00	.00	.93	.08
17	.00	.05	.00	.00	.00	.03	.00	6.1	.00	.00	.00	.05
18	.00	.03	.00	.00	.00	.01	.00	.05	.00	.00	.04	.01
19	.58	.02	.00	1.9	.00	.00	.00	.03	.00	.00	.00	.00
20	.47	.00	.02	.09	.00	.01	.00	.03	.00	.00	.00	.00
21	.19	.00	.27	.05	.00	.15	.00	.01	1.2	.00	.37	.18
22	.05	.00	.08	.03	.00	.01	.00	.04	.03	1.8	.00	.05
23	.03	.00	.06	.03	.00	1.5	.00	.00	.00	2.2	.00	.00
24	.17	.00	.02	.00	.00	.81	.00	.00	.00	.00	.00	.00
25	.03	.00	.00	.00	.00	1.5	.00	.00	.00	.00	.00	.00
26	.02	.00	.02	.00	.00	.22	.00	.00	1.2	.00	.00	.19
27	.33	.00	.03	.00	.00	.03	.00	.00	.41	.00	.00	.00
28	.05	.00	.01	.00	.00	.04	.00	.00	.10	.00	.00	.01
29	.03	.00	.00	.02	---	.56	.00	.00	2.0	.00	.00	.00
30	.03	.00	.00	.03	---	.03	.00	2.2	1.1	.00	.85	.00
31	.03	---	.00	.01	---	.03	---	1.5	---	.02	.00	---
TOTAL	2.97	4.03	0.51	4.39	0.00	5.17	25.09	21.36	6.91	5.30	2.21	0.57
MEAN	.096	.13	.016	.14	.000	.17	.84	.69	.23	.17	.071	.019
MAX	.90	2.4	.27	1.9	.00	1.5	7.4	6.1	2.0	2.2	.93	.19
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	5.9	8.0	1.0	8.7	.00	10	50	42	14	11	4.4	1.1

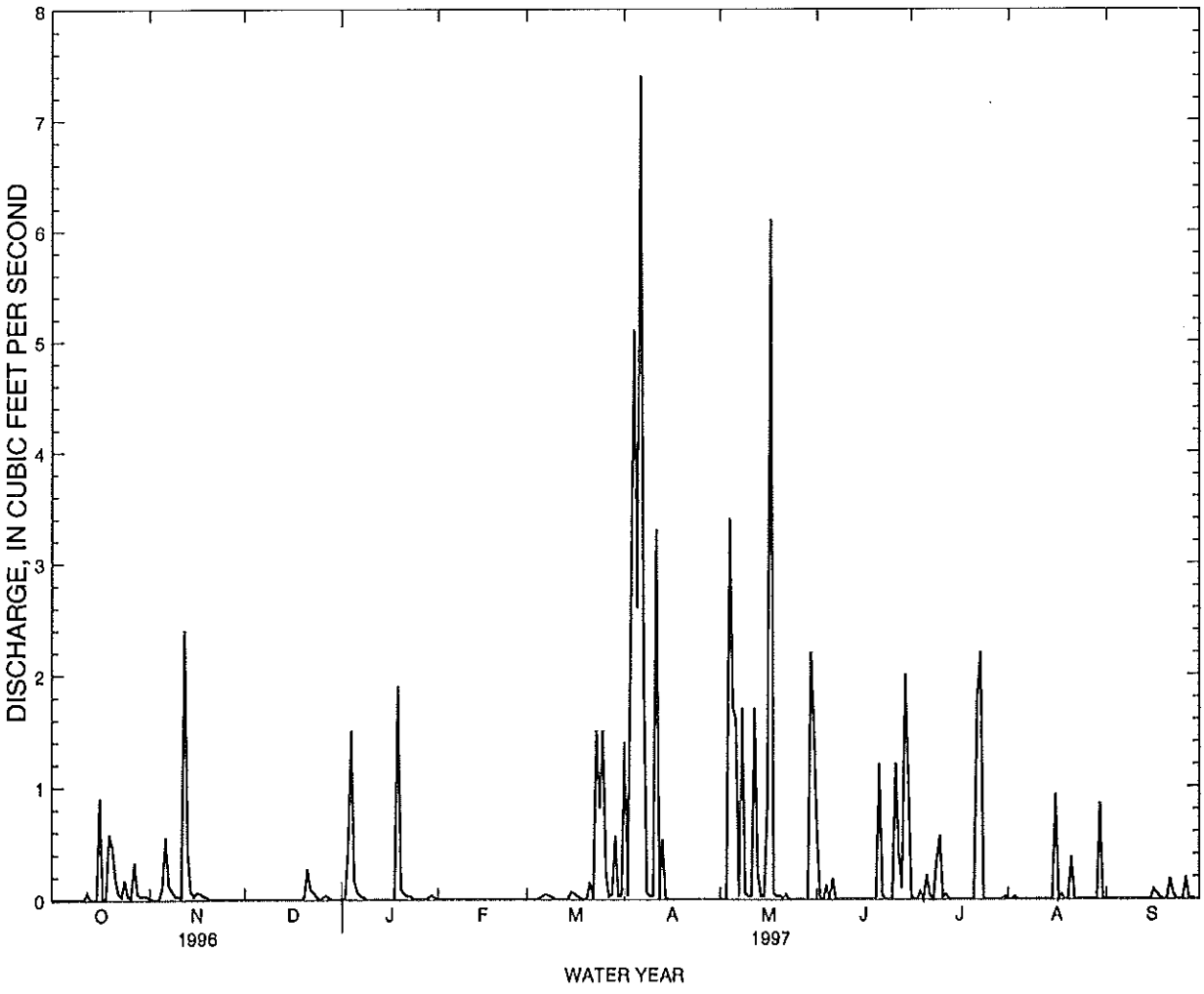
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1997, BY WATER YEAR (WY)

MEAN	12.4	5.98	4.38	6.23	8.56	7.47	8.53	9.52	15.2	11.3	11.3	14.3
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	.002	.000	.000	.000	.000	.000	.000	.000	.000	.014	.000	.000
(WY)	1996	1938	1991	1939	1938	1939	1939	1963	1938	1980	1964	1989

HAWAII, ISLAND OF KAUAI

16062000 STABLE STORM DITCH NEAR LIHUE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1938 - 1997	
ANNUAL TOTAL	451.71		78.51			
ANNUAL MEAN	1.23		.22		9.59	
HIGHEST ANNUAL MEAN					22.1	1984
LOWEST ANNUAL MEAN					.15	1994
HIGHEST DAILY MEAN	18	May 25	7.4	Apr 6	71	Apr 3 1948
LOWEST DAILY MEAN	.00	Jan 1	.00	Oct 1	.00	Oct 1 1937
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 1	.00	Oct 1	.00	Oct 1 1937
ANNUAL RUNOFF (AC-FT)	896		156		6950	
10 PERCENT EXCEEDS	4.0		.54		33	
50 PERCENT EXCEEDS	.03		.00		.28	
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 (from topographic map). Prior to December 31, 1914, nonrecording gage at site 725 ft downstream at different datum. December 31, 1914 to May 10, 1934, water-stage recorder at site 75 ft upstream at present datum.

REMARKS.--Records computed by Clayton Yoshida. Records fair. No diversion upstream.

AVERAGE DISCHARGE.--82 years (water years 1913-14, 1916-17, 1920-97), 48.6 ft^3/s (35,190 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,400 ft^3/s, November 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 12	0700	2,780	6.21	Jan. 19	1830	*3,020	*6.43

Minimum discharge, 18 ft^3/s, August 13-15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	58	41	29	44	50	90	25	51	33	24	25
2	31	50	38	39	40	36	57	27	35	34	24	23
3	26	44	44	211	37	55	111	26	37	30	32	23
4	25	43	35	564	34	44	193	139	30	53	23	24
5	25	89	35	238	34	105	140	183	31	32	22	25
6	24	290	46	101	31	59	196	201	33	35	22	34
7	24	115	62	72	32	59	104	158	29	40	22	24
8	24	125	47	58	28	40	74	342	27	30	21	23
9	23	70	37	50	27	37	63	121	28	26	20	25
10	25	59	34	51	26	35	56	73	27	59	19	23
11	33	53	31	41	25	34	74	67	25	40	19	23
12	55	786	36	37	25	31	52	89	24	40	19	33
13	31	197	32	34	29	96	47	77	24	28	19	43
14	30	103	30	32	25	105	46	80	24	26	18	31
15	30	78	28	30	24	135	40	68	24	25	19	39
16	70	121	26	36	23	71	37	99	23	26	137	41
17	37	159	25	29	23	72	34	225	23	24	73	35
18	32	77	25	26	22	48	33	102	22	24	93	43
19	123	84	25	468	22	41	32	71	23	23	46	40
20	106	58	114	110	21	40	31	59	22	22	33	31
21	76	50	205	75	21	46	29	52	33	22	45	28
22	50	45	61	54	136	34	28	49	36	90	40	28
23	42	43	44	43	41	192	27	46	26	84	30	25
24	76	112	38	38	26	163	39	41	26	33	31	23
25	43	57	33	35	35	284	49	38	27	31	27	23
26	40	52	59	33	42	145	42	35	46	30	27	49
27	164	43	81	48	50	84	50	33	55	26	27	24
28	78	49	41	131	99	95	39	32	51	25	24	37
29	57	48	35	191	---	165	29	30	71	24	34	24
30	49	49	32	65	---	75	27	56	55	24	45	22
31	56	---	31	51	---	60	---	77	---	28	29	---
TOTAL	1542	3207	1451	3020	1022	2536	1869	2721	988	1067	1064	891
MEAN	49.7	107	46.8	97.4	36.5	81.8	62.3	87.8	32.9	34.4	34.3	29.7
MAX	164	786	205	564	136	284	196	342	71	90	137	49
MIN	23	43	25	26	21	31	27	25	22	22	18	22
AC-FT	3060	6360	2880	5990	2030	5030	3710	5400	1960	2120	2110	1770

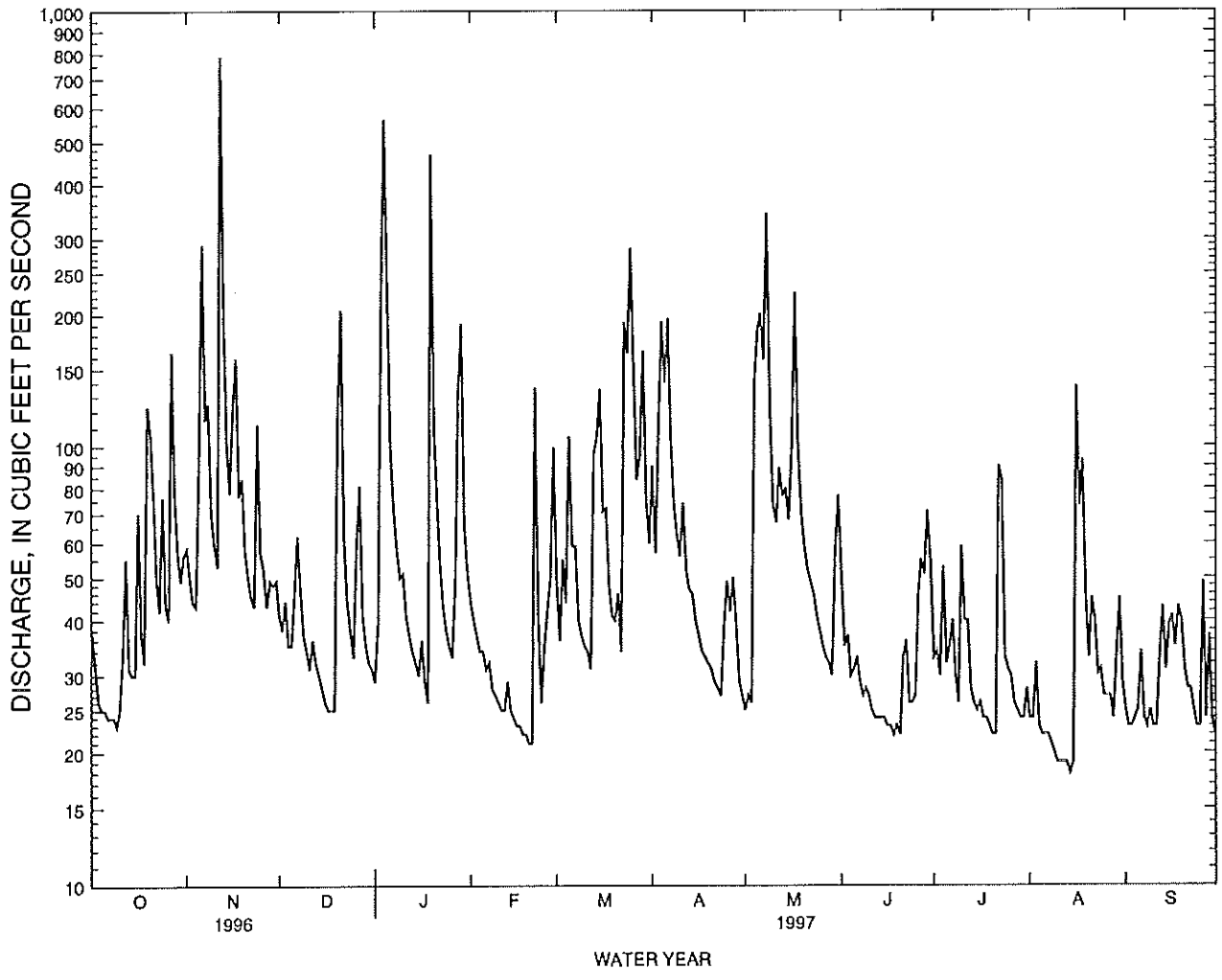
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1997, BY WATER YEAR (WY)

MEAN	41.7	61.6	60.3	59.7	48.6	56.8	57.1	47.3	33.1	38.6	40.1	37.1
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	8.88	11.0	10.6	9.81	13.0	12.3	11.5	11.9
(WY)	1954	1934	1964	1986	1986	1970	1926	1926	1969	1926	1984	1953

HAWAII, ISLAND OF KAUAI

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

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1912 - 1997	
ANNUAL TOTAL	19029		21378			
ANNUAL MEAN	52.0		58.6		48.6	
HIGHEST ANNUAL MEAN					95.5	1982
LOWEST ANNUAL MEAN					21.3	1984
HIGHEST DAILY MEAN	945	Sep 7	786	Nov 12	2570	Feb 13 1994
LOWEST DAILY MEAN	15	Jun 5	18	Aug 14	7.0	Jul 8 1926
ANNUAL SEVEN-DAY MINIMUM	16	Jun 1	19	Aug 9	8.2	Mar 5 1986
ANNUAL RUNOFF (AC-FT)	37740		42400		35190	
10 PERCENT EXCEEDS	82		111		85	
50 PERCENT EXCEEDS	34		37		31	
90 PERCENT EXCEEDS	21		24		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 February 4, 1965. Datum of gage is 462.3 ft above mean sea level (by stadia survey).

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

AVERAGE DISCHARGE.--60 years (water years 1938-97), 16.0 ft^3/s (11,590 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 discharge, 16 ft^3/s, August 29 to September 9: minimum daily, 0.08 ft^3/s, June 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	12	4.1	3.9	3.3	3.7	2.3	2.0	1.7	4.7	11	16
2	15	12	4.1	3.7	3.3	3.7	1.7	2.0	1.6	4.7	10	16
3	14	12	4.0	3.7	3.3	3.7	1.7	2.0	1.5	4.7	10	16
4	14	11	3.9	3.7	3.3	3.7	1.6	2.1	1.2	4.7	5.4	16
5	14	11	3.8	3.9	3.3	3.7	1.6	2.0	.32	4.8	4.6	16
6	14	12	3.7	3.9	3.3	3.6	1.6	2.0	.15	4.9	4.6	16
7	13	12	3.7	3.9	3.3	3.6	1.6	2.0	.14	4.9	4.6	16
8	13	13	3.5	3.9	3.2	3.6	1.7	2.1	.13	4.9	4.6	16
9	13	13	3.4	3.7	3.1	3.5	1.9	2.2	.12	4.9	4.5	16
10	13	13	3.4	3.6	3.1	3.4	2.0	2.2	.10	4.9	4.4	15
11	11	13	3.6	3.6	3.3	3.4	2.0	2.2	.09	4.9	4.4	15
12	11	13	3.6	3.4	3.3	3.4	2.0	2.2	.08	4.9	4.3	15
13	12	13	3.7	3.3	3.3	3.4	1.9	2.2	.09	4.9	4.1	15
14	12	13	3.7	3.3	3.3	3.4	1.8	2.4	.22	4.9	4.1	15
15	12	12	3.8	3.4	3.3	3.4	1.8	2.4	.30	4.9	4.1	15
16	13	12	4.0	3.2	3.4	3.4	1.9	2.4	.31	4.9	4.0	15
17	13	11	4.0	3.3	3.4	3.6	1.9	2.4	.36	4.8	3.9	15
18	13	10	4.0	3.4	3.4	3.6	2.0	2.5	2.3	4.7	3.9	15
19	13	5.3	4.0	3.6	3.5	3.6	2.0	2.5	4.7	4.7	3.9	15
20	13	5.2	4.2	3.7	3.6	3.6	2.0	2.5	4.8	7.2	3.9	15
21	13	5.1	4.2	3.7	3.6	3.4	2.0	2.5	4.9	11	3.9	15
22	13	5.0	4.4	3.6	3.6	3.1	2.0	2.5	5.0	11	4.0	14
23	13	4.9	4.6	3.4	3.6	3.6	2.0	2.5	5.1	11	4.2	15
24	13	4.8	4.6	3.3	3.6	3.6	2.0	2.4	5.1	11	4.3	15
25	13	4.6	4.6	3.3	3.7	3.6	2.0	2.3	4.8	11	4.4	15
26	13	4.6	4.6	3.3	3.7	3.6	2.0	2.3	4.7	11	4.7	15
27	13	4.5	4.6	3.3	3.7	3.0	2.0	2.2	4.7	11	4.7	14
28	13	4.4	4.4	3.3	3.7	2.9	2.0	2.1	4.7	11	9.0	14
29	13	4.2	4.4	3.3	---	2.8	2.0	2.0	4.7	11	16	14
30	13	4.1	4.2	3.1	---	2.7	2.0	1.9	4.7	11	16	13
31	13	---	4.0	3.1	---	2.6	---	1.8	---	11	16	---
TOTAL	404	274.7	124.8	108.8	95.5	105.9	57.0	68.8	68.61	219.9	191.5	453
MEAN	13.0	9.16	4.03	3.51	3.41	3.42	1.90	2.22	2.29	7.09	6.18	15.1
MAX	15	13	4.6	3.9	3.7	3.7	2.3	2.5	5.1	11	16	16
MIN	11	4.1	3.4	3.1	3.1	2.6	1.6	1.8	.08	4.7	3.9	13
AC-FT	801	545	248	216	189	210	113	136	136	436	380	899

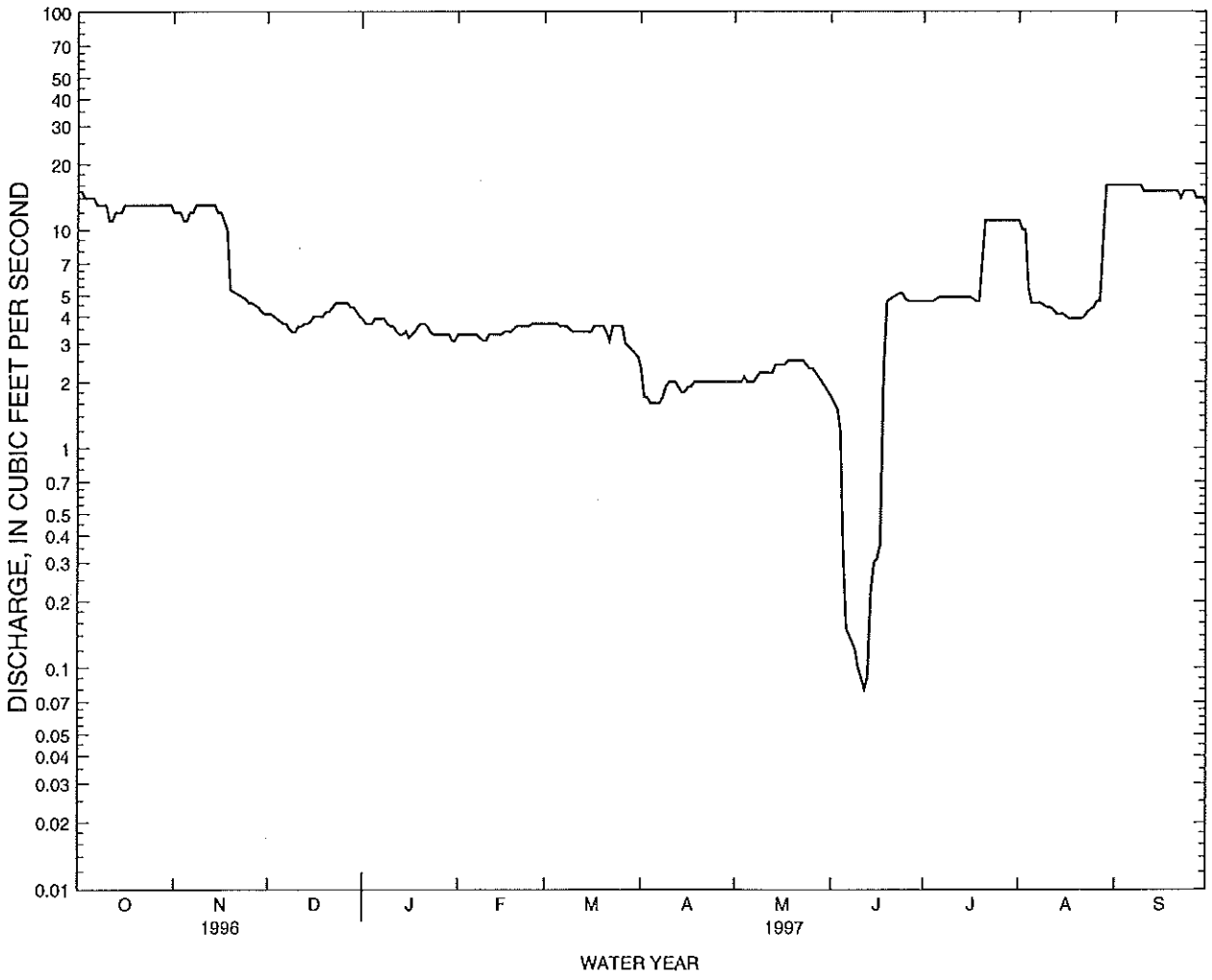
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1997, BY WATER YEAR (WY)

MEAN	18.9	12.2	9.16	10.6	11.8	12.5	13.5	16.6	21.2	22.0	21.8	22.5
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	2.29	7.09	5.72	3.89
(WY)	1969	1965	1955	1968	1969	1956	1963	1965	1997	1997	1954	1946

HAWAII, ISLAND OF KAUAI

16069000 WAILUA DITCH NEAR KAPAA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1937 - 1997	
ANNUAL TOTAL	5465.73		2172.51			
ANNUAL MEAN	14.9		5.95		16.0	
HIGHEST ANNUAL MEAN					32.9	1938
LOWEST ANNUAL MEAN					5.95	1997
HIGHEST DAILY MEAN	27	May 14	16	Aug 29	63	Jun 4 1937
LOWEST DAILY MEAN	.17	Apr 6	.08	Jun 12	.00	May 15 1940
ANNUAL SEVEN-DAY MINIMUM	2.7	Jan 1	.11	Jun 7	.00	May 15 1940
ANNUAL RUNOFF (AC-FT)	10840		4310		11590	
10 PERCENT EXCEEDS	22		14		31	
50 PERCENT EXCEEDS	15		3.9		16	
90 PERCENT EXCEEDS	4.2		2.0		.90	



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 computed by Clayton Yoshida. Records good except for periods of no gage height record which are fair. Wailua ditch (station 16069000) diverts water upstream for irrigation of sugarcane in vicinities of Kapaa and Wailua.

AVERAGE DISCHARGE.--45 years (water years 1953-97), 122 ft^3/s (88,430 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,200 ft^3/s, November 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, October 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 12	0730	5,900	8.44	Jan. 19	1830	*7,150	*9.08

Minimum discharge, 17 ft^3/s, October 9, 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	127	136	75	107	125	330	63	182	86	47	40
2	54	117	121	76	96	91	173	69	113	82	43	35
3	35	98	126	558	89	144	260	69	114	67	71	38
4	31	81	94	1300	86	119	470	300	98	96	43	38
5	30	173	93	603	86	226	371	380	112	68	39	45
6	29	632	105	255	79	154	546	368	125	67	37	62
7	25	294	178	182	86	175	312	266	98	110	38	38
8	19	309	117	144	e71	108	196	520	91	69	36	34
9	17	182	82	138	e64	97	163	241	103	54	35	38
10	20	145	62	144	e53	92	145	153	95	144	34	33
11	45	133	56	118	46	88	290	148	47	99	33	34
12	119	2010	74	110	52	78	158	231	39	96	34	48
13	44	639	62	87	75	170	135	204	33	64	32	70
14	38	318	56	64	46	210	138	175	41	56	32	51
15	34	247	50	60	45	443	96	163	40	52	36	75
16	301	382	47	68	44	205	87	194	37	62	271	83
17	96	424	45	59	43	187	81	465	36	51	138	61
18	73	238	43	53	43	132	77	213	37	45	202	90
19	273	238	41	1060	43	111	74	158	38	46	108	79
20	332	172	338	321	42	102	71	136	37	43	62	60
21	244	135	641	202	41	185	69	122	90	41	83	64
22	137	122	165	148	337	92	68	132	87	170	80	80
23	98	114	110	112	100	715	67	124	45	258	49	59
24	217	302	93	103	63	371	76	107	42	67	45	43
25	99	169	78	94	85	583	112	95	44	55	42	39
26	83	133	221	91	99	330	96	87	114	55	43	99
27	358	109	276	125	140	205	121	e87	122	46	44	44
28	210	167	120	287	204	222	111	e82	121	44	39	75
29	151	146	93	401	---	374	69	e82	174	42	57	43
30	122	142	84	152	---	187	67	160	178	42	128	43
31	133	---	99	118	---	152	---	252	---	60	53	---
TOTAL	3528	8498	3906	7308	2365	6473	5029	5846	2533	2337	2034	1641
MEAN	114	283	126	236	84.5	209	168	189	84.4	75.4	65.6	54.7
MAX	358	2010	641	1300	337	715	546	520	182	258	271	99
MIN	17	81	41	53	41	78	67	63	33	41	32	33
AC-FT	7000	16860	7750	14500	4690	12840	9980	11600	5020	4640	4030	3250

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1997, BY WATER YEAR (WY)

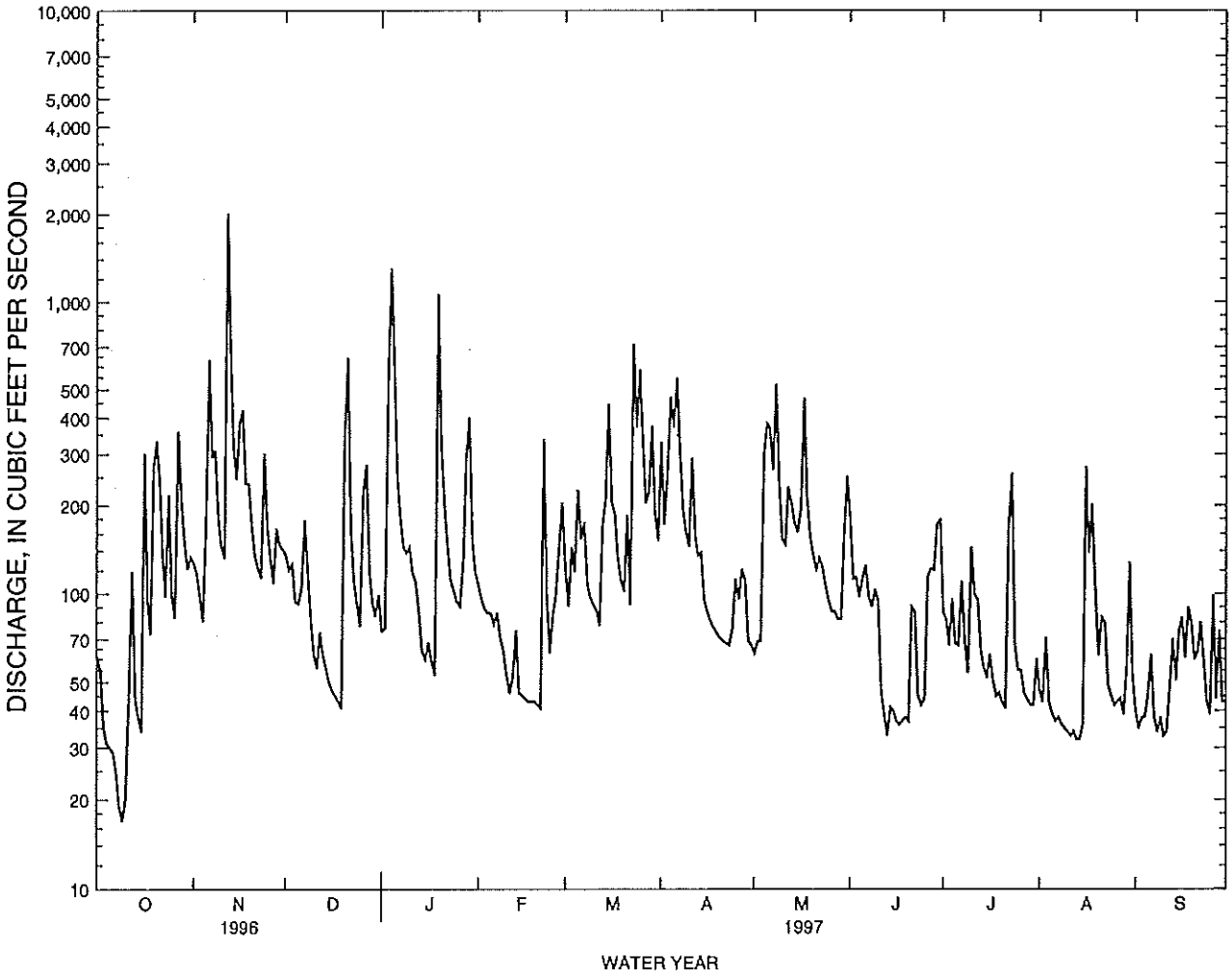
MEAN	100	191	168	149	132	146	153	119	62.6	90.0	87.5	64.2
MAX	255	591	459	529	522	730	475	418	247	230	223	273
(WY)	1983	1991	1993	1956	1979	1982	1971	1967	1980	1980	1958	1994
MIN	2.54	19.1	7.74	6.90	4.43	4.76	15.0	11.8	5.78	5.22	5.80	3.17
(WY)	1954	1977	1984	1986	1978	1978	1966	1992	1957	1953	1984	1953

e Estimated

HAWAII, ISLAND OF KAUAI

16071000 NORTH FORK WAILUA RIVER NEAR KAPAA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1952 - 1997	
ANNUAL TOTAL	41999.4		51498			
ANNUAL MEAN	115		141		122	
HIGHEST ANNUAL MEAN					262	1982
LOWEST ANNUAL MEAN					25.7	1984
HIGHEST DAILY MEAN	2010	Nov 12	2010	Nov 12	7350	Jan 25 1956
LOWEST DAILY MEAN	6.5	Jun 3	17	Oct 9	2.2	Oct 21 1953
ANNUAL SEVEN-DAY MINIMUM	6.9	Jun 1	24	Oct 4	2.4	Oct 20 1953
ANNUAL RUNOFF (AC-FT)	83310		102100		88430	
10 PERCENT EXCEEDS	240		296		256	
50 PERCENT EXCEEDS	68		94		68	
90 PERCENT EXCEEDS	18		39		8.3	



HAWAII, ISLAND OF KAUAI

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 stadia survey).

REMARKS.--Records computed by Roy Taogoshi. Records good. Recording rain gage located at station.

AVERAGE DISCHARGE.--37 years (water years 1961-97), 2.68 ft^3/s (1,940 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,060 ft^3/s, December 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, September 27-30, 1968.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 12	0715	180	3.21	May 8	0200	110	2.68
Jan. 19	1830	*244	*3.60				

Minimum discharge, 0.99 ft^3/s August 12-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	3.0	3.3	2.3	3.6	3.7	10	2.7	3.0	1.7	1.2	1.7
2	1.8	2.8	3.1	2.5	3.4	3.1	5.3	2.8	2.7	1.7	1.2	1.6
3	1.8	2.6	3.1	9.1	3.3	3.2	5.1	2.6	2.7	1.6	1.2	1.6
4	1.7	2.5	2.9	24	3.1	2.8	5.8	4.0	2.6	1.5	1.1	1.6
5	1.7	4.2	2.8	15	3.1	3.4	8.1	5.2	2.6	1.4	1.1	1.6
6	1.7	22	2.9	8.5	2.8	3.1	14	7.6	2.4	1.5	1.1	1.7
7	1.7	8.2	2.9	6.5	3.2	3.3	8.1	9.4	2.3	1.5	1.1	1.5
8	1.7	7.9	2.7	5.6	2.7	2.8	6.4	28	2.3	1.4	1.1	1.4
9	1.6	5.9	2.6	5.1	2.6	2.7	5.9	9.9	2.3	1.3	1.1	1.5
10	1.6	5.2	2.5	4.7	2.4	2.7	5.6	6.8	2.2	1.7	1.0	1.4
11	1.7	4.8	2.5	4.2	2.4	2.9	5.6	5.9	2.1	1.6	1.0	1.5
12	2.2	41	2.7	4.0	2.5	2.6	5.0	5.9	2.1	1.5	.99	1.6
13	1.7	15	2.5	3.7	3.4	2.5	4.8	5.8	2.1	1.4	.99	2.0
14	1.7	9.8	2.4	3.5	2.2	4.9	4.6	5.4	2.1	1.3	.99	1.7
15	1.6	8.1	2.3	3.4	2.1	5.6	4.3	5.0	2.1	1.3	1.2	2.1
16	2.0	13	2.2	3.2	2.1	4.4	4.1	4.9	2.0	1.3	6.5	1.7
17	1.7	11	2.2	2.9	2.1	4.6	3.9	6.8	2.0	1.3	3.2	1.6
18	1.6	8.1	2.2	2.9	2.0	3.7	3.8	5.6	1.9	1.2	4.3	1.7
19	1.9	7.2	2.1	22	2.1	3.4	3.6	5.0	1.9	1.2	3.0	1.6
20	3.5	6.1	2.8	6.7	2.1	3.3	3.5	4.7	1.8	1.2	2.2	1.6
21	3.4	5.6	9.9	4.9	2.1	3.2	3.3	4.3	1.9	1.2	2.2	1.5
22	2.3	5.2	3.6	4.2	7.8	3.1	3.3	4.1	1.8	2.6	2.2	1.5
23	2.1	4.8	2.9	3.8	3.3	8.6	3.3	4.0	1.7	2.5	1.9	1.4
24	3.0	5.6	2.7	3.4	2.6	5.4	3.4	3.7	1.7	1.5	1.8	1.4
25	2.1	4.4	2.5	3.3	2.6	7.8	3.3	3.4	1.8	1.4	1.8	1.4
26	2.1	4.4	2.9	3.1	2.6	7.1	3.1	3.4	1.7	1.5	1.7	1.5
27	7.9	3.9	3.3	3.1	2.7	5.6	3.2	3.2	1.9	1.3	1.7	1.4
28	4.9	3.8	2.6	4.1	6.1	6.2	3.1	3.1	1.7	1.3	1.6	1.6
29	3.7	3.6	2.5	10	---	7.9	2.9	2.9	2.1	1.2	2.0	1.4
30	3.2	3.5	2.4	4.6	---	5.5	2.8	3.2	1.9	1.2	2.5	1.3
31	3.4	---	2.4	4.0	---	5.0	---	3.4	---	1.3	1.8	---
TOTAL	75.1	233.2	90.4	188.3	83.0	134.1	149.2	172.7	63.4	45.6	56.77	47.1
MEAN	2.42	7.77	2.92	6.07	2.96	4.33	4.97	5.57	2.11	1.47	1.83	1.57
MAX	7.9	41	9.9	24	7.8	8.6	14	28	3.0	2.6	6.5	2.1
MIN	1.6	2.5	2.1	2.3	2.0	2.5	2.8	2.6	1.7	1.2	.99	1.3
AC-FT	149	463	179	373	165	266	296	343	126	90	113	93

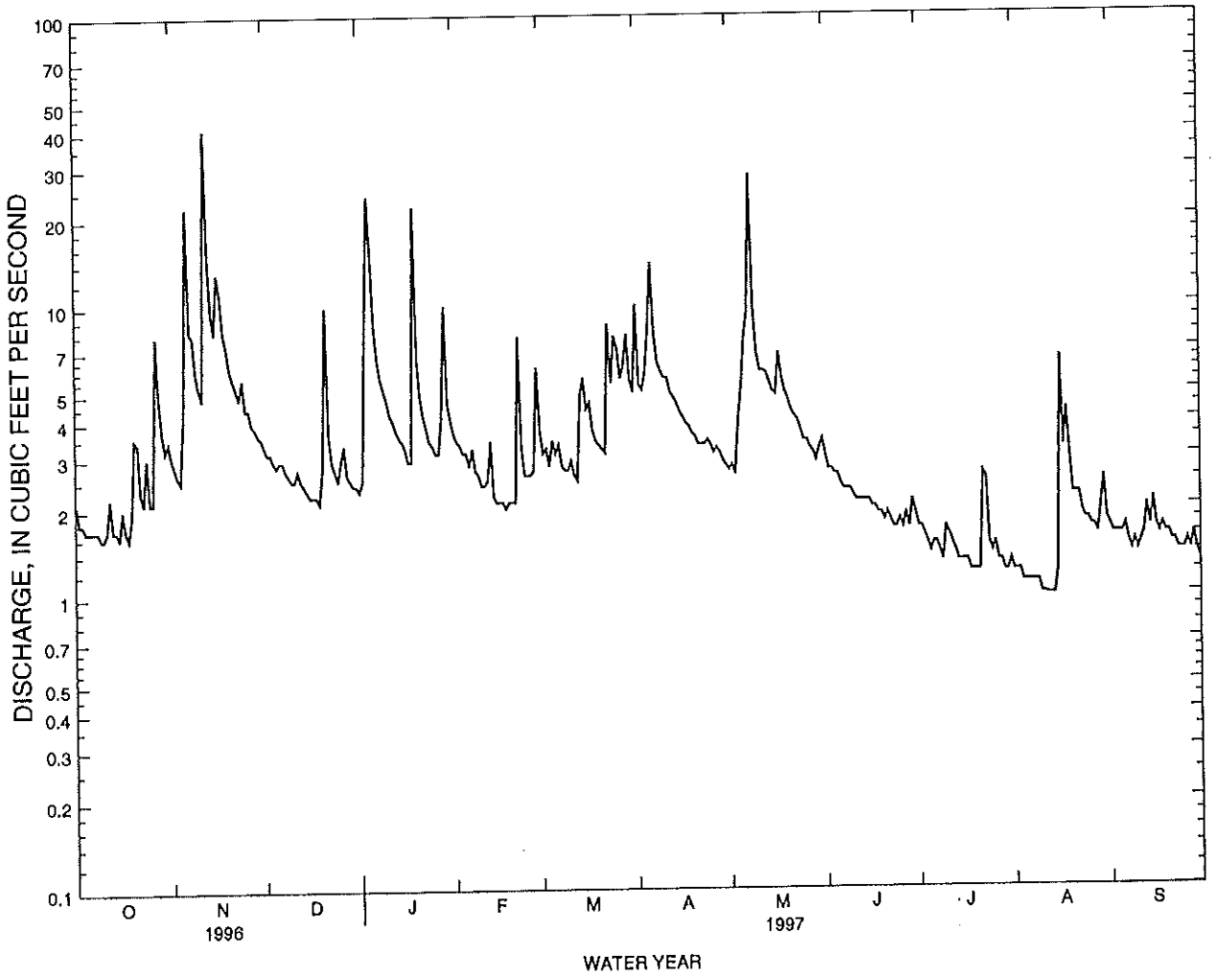
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1997, BY WATER YEAR (WY)

MEAN	2.29	4.10	3.91	3.27	2.65	2.91	3.29	2.87	1.86	1.70	1.67	1.60
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

HAWAII, ISLAND OF KAUAI

16071500 LEFT BRANCH OPAEKAA STREAM NEAR KAPAA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1960 - 1997	
ANNUAL TOTAL	1049.98		1338.87			
ANNUAL MEAN	2.87		3.67		2.68	
HIGHEST ANNUAL MEAN					5.72	1982
LOWEST ANNUAL MEAN					.92	1984
HIGHEST DAILY MEAN	41	Nov 12	41	Nov 12	218	Dec 14 1991
LOWEST DAILY MEAN	.75	Jun 6	.99	Aug 12	.09	Sep 28 1968
ANNUAL SEVEN-DAY MINIMUM	.77	Jun 1	1.0	Aug 8	.10	Jun 6 1968
ANNUAL RUNOFF (AC-FT)	2080		2660		1940	
10 PERCENT EXCEEDS	4.8		6.5		4.6	
50 PERCENT EXCEEDS	2.1		2.7		1.8	
90 PERCENT EXCEEDS	1.1		1.4		.68	



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 computed by Clayton Yoshida. Records good. Ditch diverts water from Makaleha Stream for irrigation of sugarcane in vicinity of Kealia.

AVERAGE DISCHARGE.--60 years (water years 1938-97), 6.04 ft^3/s (4,380 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 7.4 ft^3/s, January 4; minimum daily, 0.02 ft^3/s, July 30, 31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	1.4	1.0	.75	1.4	.31	.62	.41	.53	.16	.03	.65
2	.76	1.4	1.1	.76	1.2	.28	.53	.42	.50	.18	.03	.65
3	.68	1.3	.99	2.7	1.1	.26	.49	.43	.50	.13	.34	.69
4	.84	1.2	.83	7.4	1.1	.26	.61	.46	.51	.15	.31	.69
5	.77	1.7	.71	5.0	1.1	.26	.63	.66	.46	.15	.30	.64
6	.81	6.0	.77	3.2	1.2	.26	.91	1.1	.45	.16	.35	.66
7	.80	3.3	1.1	2.0	1.4	.26	.70	3.0	.44	.16	.30	.62
8	.83	3.5	.75	1.4	1.0	.26	.55	4.1	.41	.12	.31	.53
9	.76	2.7	.75	1.2	.99	.23	.47	1.2	.39	.13	.46	.51
10	.81	2.0	1.1	1.3	.91	.22	.42	.60	.33	.15	.52	.49
11	.81	1.6	1.1	1.2	.93	.28	.41	.43	.33	.15	.46	.49
12	.96	6.6	1.1	1.1	.92	.27	.39	.44	.36	.15	.53	.58
13	.81	4.6	1.3	1.1	1.8	.28	.38	.46	.37	.14	.54	.53
14	.73	2.8	1.4	1.0	1.2	.71	.38	.40	.30	.12	.52	.49
15	.77	2.0	1.3	1.0	1.0	1.0	.39	.36	.28	.12	.46	.62
16	.88	3.3	1.3	.98	1.0	.71	.40	.34	.25	.12	1.6	.53
17	.74	3.5	1.4	.94	.98	.61	.41	.43	.22	.10	1.7	.53
18	.83	2.7	1.4	.90	1.0	.47	.42	1.4	.21	.09	2.0	.52
19	.88	2.2	1.4	3.1	1.0	.38	.42	1.5	.17	.09	1.6	.52
20	1.2	1.8	1.4	3.6	1.0	.30	.41	1.0	.12	.08	1.0	.52
21	1.3	1.6	2.4	2.3	.96	.26	.41	.85	.13	.07	.89	.48
22	.95	1.4	1.7	1.9	1.3	.25	.42	.77	.15	.15	.94	.46
23	.89	1.3	1.2	1.3	.33	.40	.37	.72	.21	.24	.86	.50
24	1.0	1.3	1.0	1.1	.28	.42	.40	.62	.18	.12	.80	.46
25	.93	1.3	.88	1.1	.22	.83	.42	.59	.11	.09	.74	.46
26	.94	1.2	.95	1.0	.18	.82	.42	.57	.10	.09	.73	.46
27	1.9	1.2	1.1	1.0	.21	.52	.42	.55	.12	.07	.67	.41
28	2.2	1.0	.99	1.3	.30	.58	.42	.54	.06	.06	.64	.46
29	1.7	.99	.93	2.9	---	.85	.42	.50	.07	.05	.59	.41
30	1.5	.93	.87	2.0	---	.70	.42	.52	.11	.02	.63	.41
31	1.6	---	.82	1.6	---	.56	---	.57	---	.02	.60	---
TOTAL	31.33	67.82	35.04	58.13	26.01	13.80	14.06	25.94	8.37	3.63	21.45	15.97
MEAN	1.01	2.26	1.13	1.88	.93	.45	.47	.84	.28	.12	.69	.53
MAX	2.2	6.6	2.4	7.4	1.8	1.0	.91	4.1	.53	.24	2.0	.69
MIN	.68	.93	.71	.75	.18	.22	.37	.34	.06	.02	.03	.41
AC-FT	62	135	70	115	52	27	28	51	17	7.2	43	32

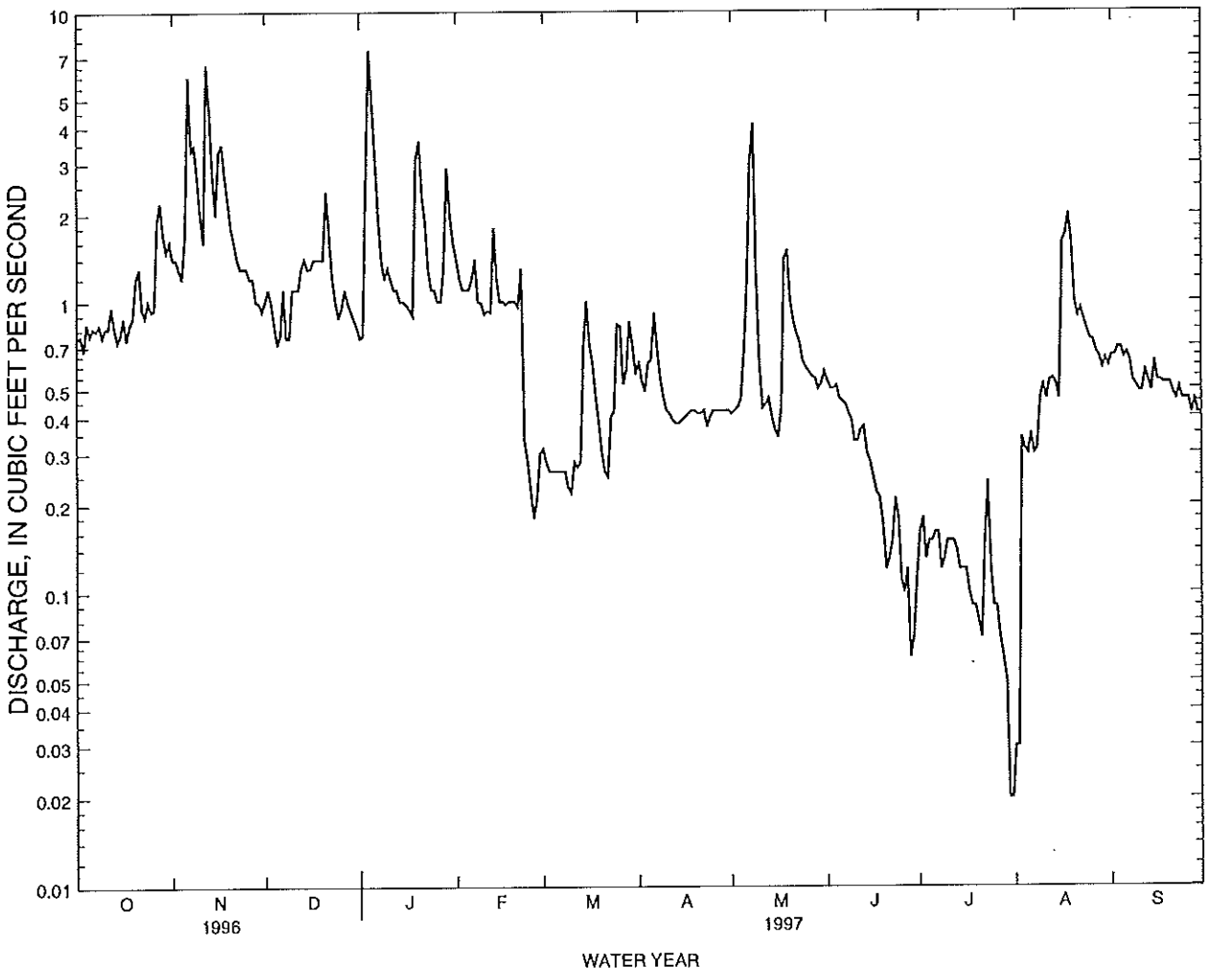
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 1997, BY WATER YEAR (WY)

MEAN	7.67	4.87	3.32	3.35	4.22	4.43	5.13	6.15	8.01	8.57	8.39	7.99
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

HAWAII, ISLAND OF KAUAI

16077000 MAKALEHA DITCH NEAR KEALIA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1937 - 1997	
ANNUAL TOTAL	430.64		321.55			
ANNUAL MEAN	1.18		.88		6.04	
HIGHEST ANNUAL MEAN					10.0	1961
LOWEST ANNUAL MEAN					.042	1994
HIGHEST DAILY MEAN	8.2	Mar 3	7.4	Jan 4	31	Aug 1 1961
LOWEST DAILY MEAN	.00	Sep 16	.02	Jul 30	.00	Jan 11 1958
ANNUAL SEVEN-DAY MINIMUM	.07	Sep 12	.04	Jul 27	.00	Dec 6 1959
ANNUAL RUNOFF (AC-FT)	854		638		4380	
10 PERCENT EXCEEDS	1.9		1.6		13	
50 PERCENT EXCEEDS	.93		.64		6.1	
90 PERCENT EXCEEDS	.45		.15		.11	



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 November 26, 1936, at site 61 ft upstream at datum 2.52 ft higher.

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

AVERAGE DISCHARGE.--79 years (water years 1918-20, 1922-97), 6.19 ft^3/s (4,490 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 11 ft^3/s, November 12, May 8, August 16; minimum daily, 0.10 ft^3/s, January 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.67	5.7	1.1	.35	.23	2.7	2.4	5.0	10	8.1	8.1	8.6
2	.67	5.7	.82	.45	.23	2.6	1.7	5.0	9.6	8.1	8.3	8.2
3	.67	5.6	.72	2.9	.57	2.6	2.1	4.8	9.6	8.1	8.4	8.1
4	.67	5.6	.66	9.1	1.2	2.6	3.2	5.1	9.3	8.1	8.1	8.7
5	.60	6.3	.53	1.7	.93	2.7	2.3	6.7	9.3	8.1	8.0	8.8
6	.61	9.7	.47	.19	.85	2.6	3.5	8.0	9.6	8.5	7.9	9.3
7	.67	4.9	.45	.17	.84	2.6	1.7	9.4	9.3	8.6	7.8	8.7
8	.67	5.5	.41	.21	.73	2.4	1.6	11	8.6	8.5	7.7	8.5
9	.67	4.4	.41	.29	.73	2.2	1.5	4.4	8.3	8.4	7.7	8.8
10	.66	4.3	.41	.35	.70	2.3	1.6	4.1	9.0	8.9	7.7	8.5
11	.62	4.2	.46	.29	.66	2.8	1.7	4.2	8.2	8.8	7.8	8.6
12	.67	11	.47	.29	.72	2.5	1.6	4.5	8.2	8.8	7.8	8.9
13	.47	2.1	.44	.29	.78	3.1	1.6	4.1	8.0	8.3	7.7	9.0
14	.47	1.9	.41	.29	1.9	4.2	1.6	3.9	8.3	8.1	7.7	9.0
15	.47	1.8	.40	.29	3.1	4.5	1.6	3.8	8.3	8.1	7.8	9.1
16	.47	2.5	.37	.26	3.4	2.7	1.6	4.2	8.3	8.4	11	8.9
17	.47	3.1	.44	.23	3.5	2.7	1.6	4.7	8.2	8.2	10	8.7
18	.44	1.6	.61	.29	3.6	2.4	1.6	3.6	8.1	8.2	10	8.7
19	.50	1.6	.60	5.5	3.6	2.4	1.6	3.4	8.1	8.4	9.3	8.6
20	.71	1.5	1.1	.10	3.5	2.3	1.6	3.2	8.3	8.2	8.9	8.4
21	.53	1.4	1.2	.33	3.5	2.2	3.1	3.2	8.7	8.4	9.2	8.2
22	.53	1.4	.17	.73	4.7	2.0	5.0	3.2	8.8	9.2	9.4	7.7
23	.53	1.3	.17	.68	2.6	3.7	5.0	6.3	8.6	8.5	9.1	6.8
24	.54	1.4	.29	.53	2.3	3.3	5.2	8.3	8.2	8.1	9.2	6.6
25	.53	1.3	.29	.51	2.3	6.0	5.4	7.9	8.3	7.9	8.9	6.6
26	.53	1.2	.24	.44	2.2	3.3	5.5	8.4	8.2	8.1	9.1	7.5
27	2.7	1.2	.23	.43	2.3	2.9	5.5	8.5	8.2	7.9	9.1	7.0
28	.47	1.3	.29	.63	2.9	3.1	5.3	8.4	8.0	7.9	8.5	7.2
29	.24	1.3	.35	1.9	---	4.0	5.0	8.7	8.3	8.1	9.2	6.8
30	2.1	1.3	.35	.23	---	2.7	5.0	10	8.2	8.1	9.4	6.6
31	6.0	---	.35	.23	---	2.6	---	10	---	8.5	8.9	---
TOTAL	26.55	102.1	15.21	30.18	54.57	90.7	87.7	186.0	258.1	257.6	267.7	245.1
MEAN	.86	3.40	.49	.97	1.95	2.93	2.92	6.00	8.60	8.31	8.64	8.17
MAX	6.0	11	1.2	9.1	4.7	6.0	5.5	11	10	9.2	11	9.3
MIN	.24	1.2	.17	.10	.23	2.0	1.5	3.2	8.0	7.9	7.7	6.6
AC-FT	53	203	30	60	108	180	174	369	512	511	531	486

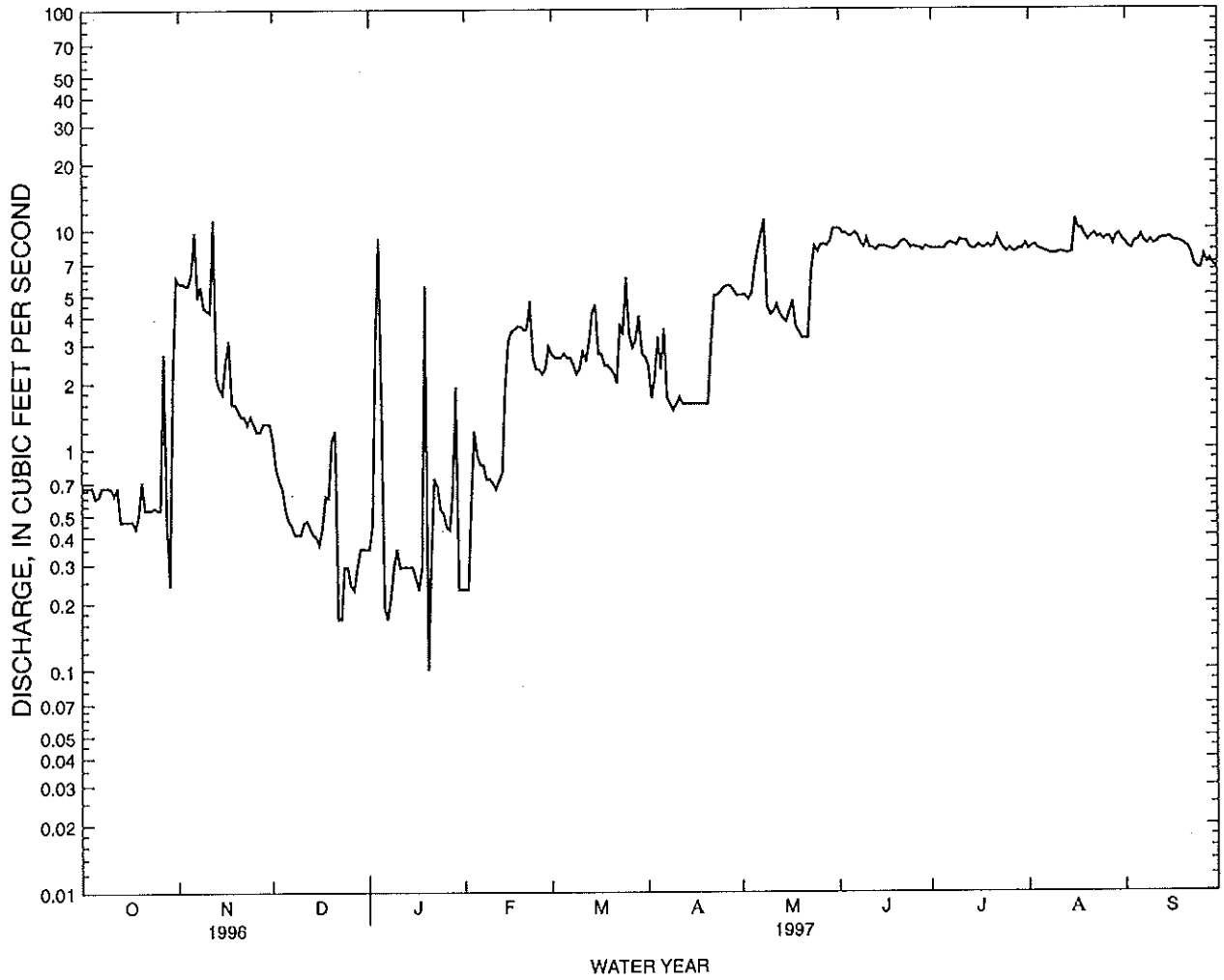
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1918 - 1997, BY WATER YEAR (WY)

MEAN	5.98	5.11	4.56	4.40	4.83	5.61	6.44	7.68	7.57	8.19	8.48	7.03
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

HAWAII, ISLAND OF KAUAI

16079000 KAPAHI DITCH NEAR KEALIA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1918 - 1997	
ANNUAL TOTAL	873.02		1621.51			
ANNUAL MEAN	2.39		4.44		6.19	
HIGHEST ANNUAL MEAN					21.0	1918
LOWEST ANNUAL MEAN					2.23	1965
HIGHEST DAILY MEAN	16	Apr 28	11	Nov 12	94	Oct 25 1926
LOWEST DAILY MEAN	.13	May 9	.10	Jan 20	.00	Jun 4 1922
ANNUAL SEVEN-DAY MINIMUM	.24	Dec 22	.24	Dec 22	.00	Nov 13 1925
ANNUAL RUNOFF (AC-FT)	1730		3220		4490	
10 PERCENT EXCEEDS	5.7		8.9		15	
50 PERCENT EXCEEDS	1.2		3.5		4.5	
90 PERCENT EXCEEDS	.35		.41		.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 benchmark). December 9, 1921 to June 2, 1934, at site 480 ft upstream at different datum.

REMARKS.--Records computed by Clayton Yoshida. Records good. Ditch diverts water from Anahola Stream to Kaneha Reservoir, where it is stored for irrigation. Floods are sometimes diverted upstream by Anahola Diteh wasteway.

AVERAGE DISCHARGE.--73 years (water years, 1923-25, 1928-97), 4.16 ft^3/s (3,020 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 18 ft^3/s, January 4; minimum daily, 0.10 ft^3/s, July 24, 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.84	1.3	.94	.73	.33	.24	1.0	.22	.29	.22	.15	1.6
2	.76	1.7	.91	.94	.33	.22	.76	.22	.27	.25	.19	1.6
3	.73	1.6	.95	9.7	.33	.23	2.2	.22	.27	.22	.20	1.7
4	.72	1.5	.87	18	.43	.22	4.5	.68	.24	.24	.15	1.8
5	.72	2.6	.87	1.9	.54	.42	3.6	.85	.27	.16	.68	1.8
6	.64	10	.94	.90	.33	.23	3.4	2.7	.29	.14	1.3	2.0
7	.64	2.7	.94	.67	.41	.23	1.6	5.9	.27	.22	1.6	1.8
8	.64	4.0	.83	.51	.33	.22	1.3	11	.27	.15	1.5	1.8
9	.64	2.5	.79	.49	.32	.22	1.1	1.2	.28	.18	1.5	1.9
10	.76	2.1	.79	.56	.27	.22	1.0	.80	.27	.30	1.5	1.9
11	.88	2.0	.79	.40	.27	2.3	.84	.88	.22	.23	1.6	2.0
12	1.0	13	1.0	.49	1.3	.13	.40	1.2	.22	.21	1.6	2.2
13	.64	2.2	.77	.41	1.2	.60	.37	.84	.22	.15	1.7	2.0
14	.58	1.4	.72	.33	.39	1.6	.35	.66	.22	.15	1.7	1.8
15	.56	1.1	.72	.33	.33	1.3	.30	.67	.22	.15	1.8	1.9
16	.71	3.1	.72	.94	.33	.68	.27	.93	.22	.19	2.5	1.9
17	.65	1.5	.72	.35	.33	1.1	.27	1.3	.22	.22	2.0	1.8
18	.64	.99	.72	.33	.33	.47	.22	.57	.22	.22	3.1	2.0
19	1.1	1.1	.64	11	.33	.45	.22	.49	.22	.22	1.7	1.9
20	2.0	.91	1.4	1.1	.33	.40	.22	.44	.22	.22	1.6	1.9
21	1.8	.87	1.4	.79	.33	.35	.22	.40	.22	.23	1.8	1.6
22	1.6	.87	.84	.55	.75	.27	.20	.37	.24	.41	1.7	1.7
23	1.4	.87	.72	.44	.30	1.5	.15	.33	.18	.14	1.6	1.4
24	1.7	1.1	.72	.40	.27	.80	.74	.32	.20	.10	1.6	1.4
25	1.3	.94	.72	.33	.31	4.2	.71	.27	.27	.10	1.6	1.5
26	1.2	.92	.77	.33	.24	2.3	.40	.27	.33	.14	1.7	1.8
27	2.3	.87	.96	.33	.30	1.2	.36	.27	.27	.15	1.7	1.4
28	1.7	.97	.65	.67	.52	1.3	.30	.22	.27	.15	1.7	1.7
29	1.5	.99	.64	.95	---	1.8	.27	.22	.36	.15	1.9	1.5
30	1.4	.96	.64	.42	---	.96	.22	.61	.29	.15	1.7	1.6
31	1.7	---	.75	.40	---	.84	---	.57	---	.19	1.5	---
TOTAL	33.45	66.66	25.84	55.69	11.78	27.00	27.49	35.62	7.55	5.95	46.57	52.9
MEAN	1.08	2.22	.83	1.80	.42	.87	.92	1.15	.25	.19	1.50	1.76
MAX	2.3	13	1.4	18	1.3	4.2	4.5	11	.36	.41	3.1	2.2
MIN	.56	.87	.64	.33	.24	.13	.15	.22	.18	.10	.15	1.4
AC-FT	66	132	51	110	23	54	55	71	15	12	92	105

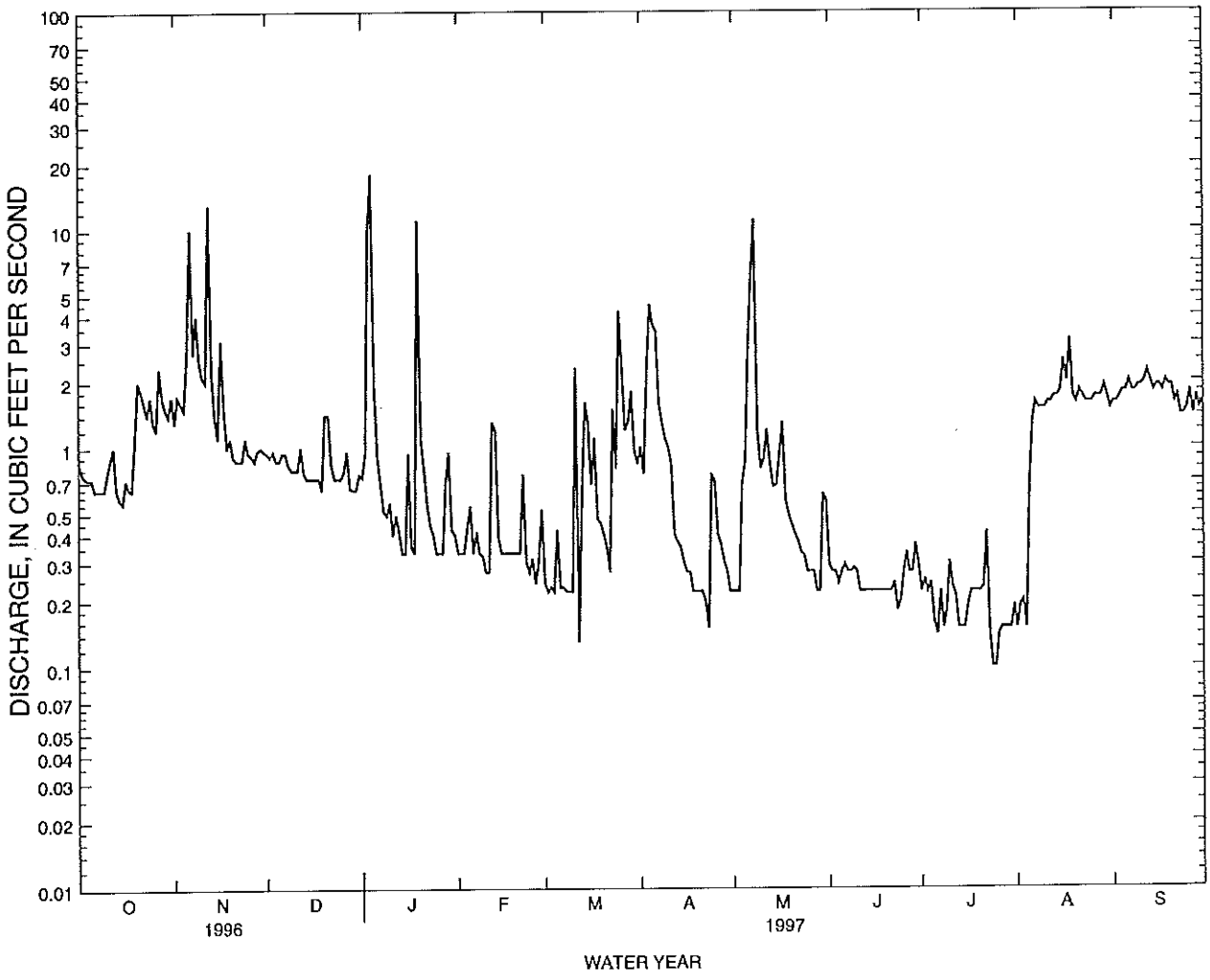
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 1997, BY WATER YEAR (WY)

MEAN	4.51	3.40	2.12	2.27	3.16	3.55	4.58	4.79	4.74	6.17	5.45	4.83
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

HAWAII, ISLAND OF KAUAI

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

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1922 - 1997	
ANNUAL TOTAL	262.57		396.50			
ANNUAL MEAN	.72		1.09		4.16	
HIGHEST ANNUAL MEAN					8.00	1987
LOWEST ANNUAL MEAN					.13	1992
HIGHEST DAILY MEAN	13	Nov 12	18	Jan 4	62	Nov 12 1947
LOWEST DAILY MEAN	.03	Feb 17	.10	Jul 24	.00	Dec 11 1923
ANNUAL SEVEN-DAY MINIMUM	.05	Feb 15	.13	Jul 23	.00	Dec 15 1923
ANNUAL RUNOFF (AC-FT)	521		786		3020	
10 PERCENT EXCEEDS	1.3		1.9		10	
50 PERCENT EXCEEDS	.64		.72		2.8	
90 PERCENT EXCEEDS	.07		.22		.03	



HAWAII, ISLAND OF KAUAI

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 confluence 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. WDR HI-95-1: Drainage area.

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

REMARKS.--Records computed by Clayton Yoshida. Records good.

AVERAGE DISCHARGE.--39 years (water years 1959-97), 12.1 ft^3/s (8,750 acre-ft/yr).

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

EXTREMES FOR CURRENT YEAR.--Peak discharge 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)
Jan. 4	0130	*1,040	*5.62	May 16	1430	656	4.67

Minimum discharge, 4.4 ft^3/s, October 8, 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	7.3	7.3	6.1	7.0	6.5	12	7.4	13	8.6	5.7	6.0
2	6.2	7.3	6.9	9.3	6.6	5.4	8.7	7.8	8.6	12	5.5	5.6
3	5.1	6.7	7.5	174	6.4	6.2	68	7.3	7.8	8.2	5.8	5.4
4	4.9	6.2	6.6	265	7.6	6.0	120	15	7.4	14	5.3	5.3
5	4.8	7.2	6.5	32	20	18	136	36	7.4	9.4	5.3	5.3
6	4.7	53	6.6	15	7.4	8.4	82	34	8.9	9.7	5.1	5.7
7	4.6	27	8.2	11	12	7.2	22	74	7.0	10	5.2	5.1
8	4.5	48	6.6	9.3	7.2	5.9	14	59	7.6	8.0	4.9	5.3
9	4.5	16	6.1	8.9	6.6	5.6	11	16	7.9	13	4.8	5.5
10	4.9	10	5.9	14	6.4	5.5	29	11	7.5	28	4.8	5.8
11	6.4	8.9	5.7	8.5	6.2	5.9	21	36	6.5	13	4.7	6.9
12	16	86	8.3	20	6.0	5.4	11	28	6.2	9.7	4.6	18
13	6.5	18	6.6	11	6.0	6.7	10	18	6.0	8.3	4.6	13
14	5.3	11	5.9	8.4	5.6	28	9.3	17	6.1	7.6	4.6	8.1
15	5.4	9.6	5.6	7.8	5.5	69	8.0	17	6.0	7.0	8.7	9.8
16	7.1	50	5.4	38	5.4	15	7.4	50	5.9	6.9	30	7.7
17	5.9	21	5.4	12	5.3	30	7.0	33	5.9	6.4	14	6.7
18	5.5	11	5.2	8.9	5.5	11	6.8	16	6.2	6.2	33	8.4
19	22	13	5.2	67	5.2	8.2	6.6	11	5.9	6.0	9.7	13
20	15	9.1	16	19	5.1	7.3	6.9	9.7	5.6	5.9	7.1	11
21	9.4	8.2	30	18	5.0	13	6.3	8.9	6.8	5.7	9.8	7.2
22	7.1	7.7	11	13	7.9	6.9	6.0	8.4	6.5	26	7.8	19
23	6.3	7.7	7.8	9.2	5.6	31	5.8	8.1	6.0	16	6.5	8.8
24	7.5	18	6.8	8.4	5.0	18	40	7.5	5.8	7.7	6.7	6.8
25	6.0	9.2	6.2	7.9	5.5	59	18	7.1	6.3	7.0	6.0	6.2
26	5.6	8.3	7.5	7.5	6.0	27	21	6.8	12	6.8	6.2	14
27	26	7.3	18	9.4	7.7	12	25	6.5	11	6.1	5.8	7.7
28	12	8.7	7.5	19	11	27	13	6.3	10	6.1	5.4	11
29	7.7	8.7	6.4	15	---	46	9.1	6.3	15	5.9	8.8	6.7
30	6.8	8.2	6.0	8.4	---	14	8.3	30	14	5.7	15	6.0
31	9.1	---	7.2	7.5	---	10	---	31	---	7.8	6.8	---
TOTAL	250.5	518.3	251.9	868.5	196.7	525.1	749.2	630.1	236.8	298.7	258.2	251.0
MEAN	8.08	17.3	8.13	28.0	7.03	16.9	25.0	20.3	7.89	9.64	8.33	8.37
MAX	26	86	30	265	20	69	136	74	15	28	33	19
MIN	4.5	6.2	5.2	6.1	5.0	5.4	5.8	6.3	5.6	5.7	4.6	5.1
AC-FT	497	1030	500	1720	390	1040	1490	1250	470	592	512	498

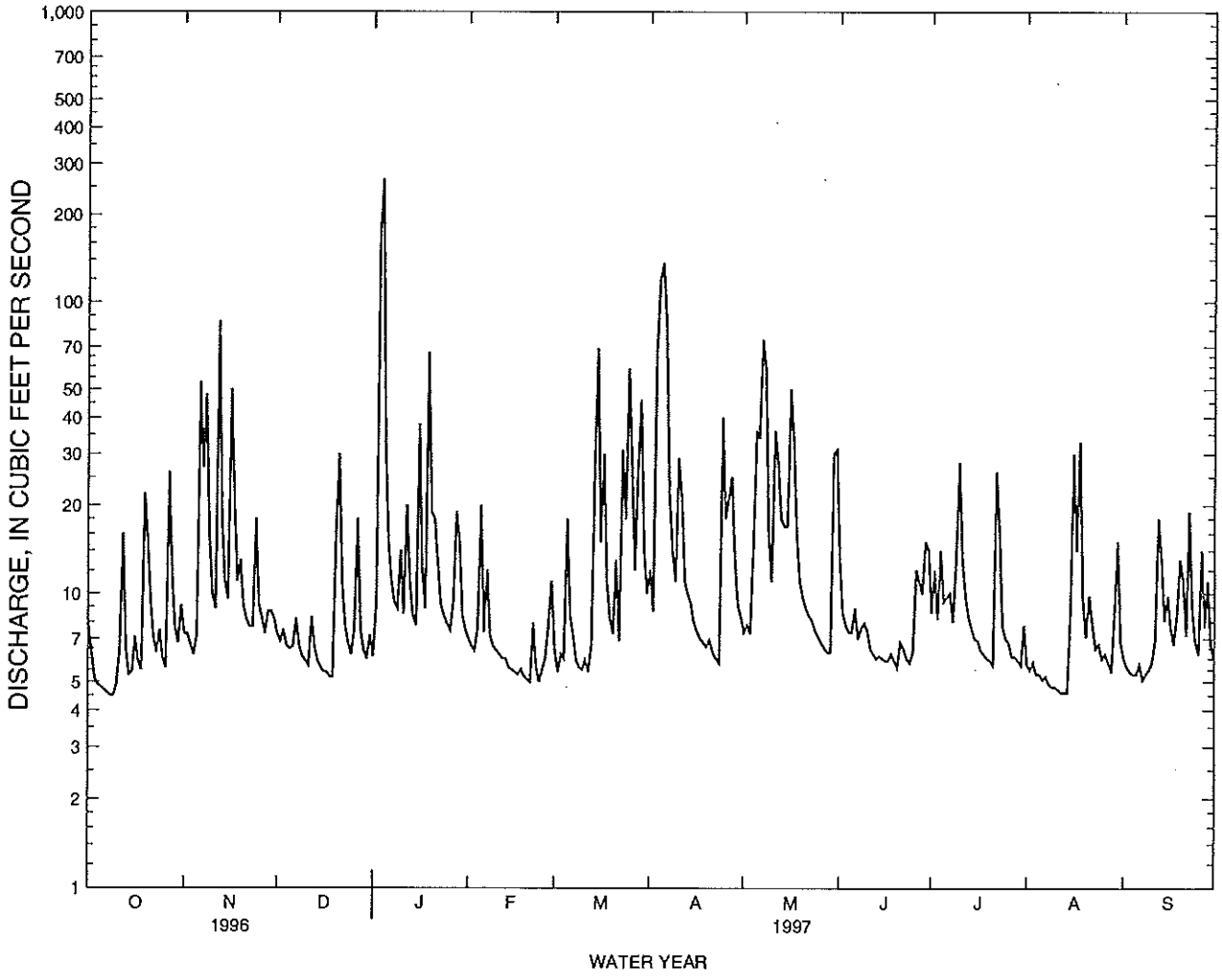
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1997, BY WATER YEAR (WY)

MEAN	10.4	17.0	14.0	11.8	11.6	13.9	15.3	12.2	8.55	11.4	10.4	8.47
MAX	24.6	49.7	43.1	28.4	54.8	42.7	35.1	22.5	29.1	27.1	23.7	15.7
(WY)	1983	1996	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

HAWAII, ISLAND OF KAUAI

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

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1958 - 1997	
ANNUAL TOTAL	4015.2		5035.0			
ANNUAL MEAN	11.0		13.8		12.1	
HIGHEST ANNUAL MEAN					19.6	1982
LOWEST ANNUAL MEAN					7.01	1984
HIGHEST DAILY MEAN	155	Sep 7	265	Jan 4	879	Feb 13 1994
LOWEST DAILY MEAN	4.5	Oct 8	4.5	Oct 8	1.9	Sep 5 1968
ANNUAL SEVEN-DAY MINIMUM	4.7	Oct 4	4.7	Oct 4	2.4	Sep 2 1968
ANNUAL RUNOFF (AC-FT)	7960		9990		8750	
10 PERCENT EXCEEDS	19		27		21	
50 PERCENT EXCEEDS	7.1		7.7		7.5	
90 PERCENT EXCEEDS	5.3		5.4		4.6	



HAWAII, ISLAND OF KAUAI

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). January 1, 1912 to November 20, 1919, nonrecording gage at site 0.2 mi upstream at different datum. January 26 to December 26, 1962, crest-stage gage at present site and datum.

REMARKS.--Records computed by Clayton Yoshida. Records good except for flows greater than 360 ft^3/s, which are poor. Since 1925, Hanalei tunnel (station 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.

AVERAGE DISCHARGE (since diversion to Hanalei tunnel).--34 years (water years 1964-97), 216 ft^3/s (156,200) acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,600 ft^3/s, November 3, 1995, gage height, 15.81 ft, from rating curve extended above 26,600 ft^3/s; minimum, 31 ft^3/s, September 30, October 1, 2, 5, 12, 13, November 3, 1975.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 12	0700	*5,880	*8.36	No other peak greater than base discharge.			

Minimum discharge, 82 ft^3/s, October 6-9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	173	121	250	117	143	159	266	133	239	208	125	114
2	121	127	199	138	132	131	178	142	162	259	122	110
3	95	115	219	1550	125	220	692	132	162	203	143	117
4	89	104	156	2760	126	265	1620	434	140	303	115	131
5	86	153	e200	846	238	550	1190	987	147	192	116	123
6	84	354	e300	335	128	263	1120	875	191	211	112	171
7	91	241	e500	229	125	258	436	1220	141	281	118	121
8	88	740	e300	185	114	161	268	1750	138	187	108	114
9	84	235	e210	171	110	146	230	490	152	184	105	129
10	102	166	e185	225	106	136	243	294	148	353	103	118
11	190	135	e160	150	109	130	1040	454	126	224	103	124
12	332	1530	e200	178	107	120	314	495	123	211	101	209
13	133	444	e180	150	104	190	227	372	118	164	102	196
14	122	233	117	131	99	287	213	374	118	149	100	138
15	145	257	112	124	97	516	166	289	122	140	105	190
16	415	453	106	333	95	221	151	642	116	147	307	212
17	228	874	102	161	94	344	141	863	115	133	189	151
18	175	301	100	130	96	190	134	368	116	140	279	222
19	549	346	100	1030	94	149	129	249	142	136	142	256
20	471	208	363	310	91	138	125	205	121	124	118	212
21	288	167	564	306	90	230	121	e190	261	124	198	169
22	188	148	193	212	693	133	117	e240	205	435	159	287
23	153	145	139	158	159	818	113	e185	150	454	129	171
24	270	495	127	141	112	692	347	e160	176	169	136	140
25	145	234	113	132	168	1330	335	e140	172	157	123	129
26	126	199	323	127	238	712	290	e130	357	143	121	290
27	353	154	482	265	258	363	364	e125	343	130	125	144
28	214	315	177	522	239	477	231	e125	352	127	109	180
29	146	267	139	539	---	769	161	126	440	122	148	131
30	130	280	126	202	---	296	144	385	374	121	233	121
31	158	---	140	163	---	213	---	384	---	158	125	---
TOTAL	5944	9541	6582	12020	4290	10607	11106	12958	5667	6089	4319	4920
MEAN	192	318	212	388	153	342	370	418	189	196	139	164
MAX	549	1530	564	2760	693	1330	1620	1750	440	454	307	290
MIN	84	104	100	117	90	120	113	125	115	121	100	110
AC-FT	11790	18920	13060	23840	8510	21040	22030	25700	11240	12080	8570	9760

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1997, BY WATER YEAR (WY)

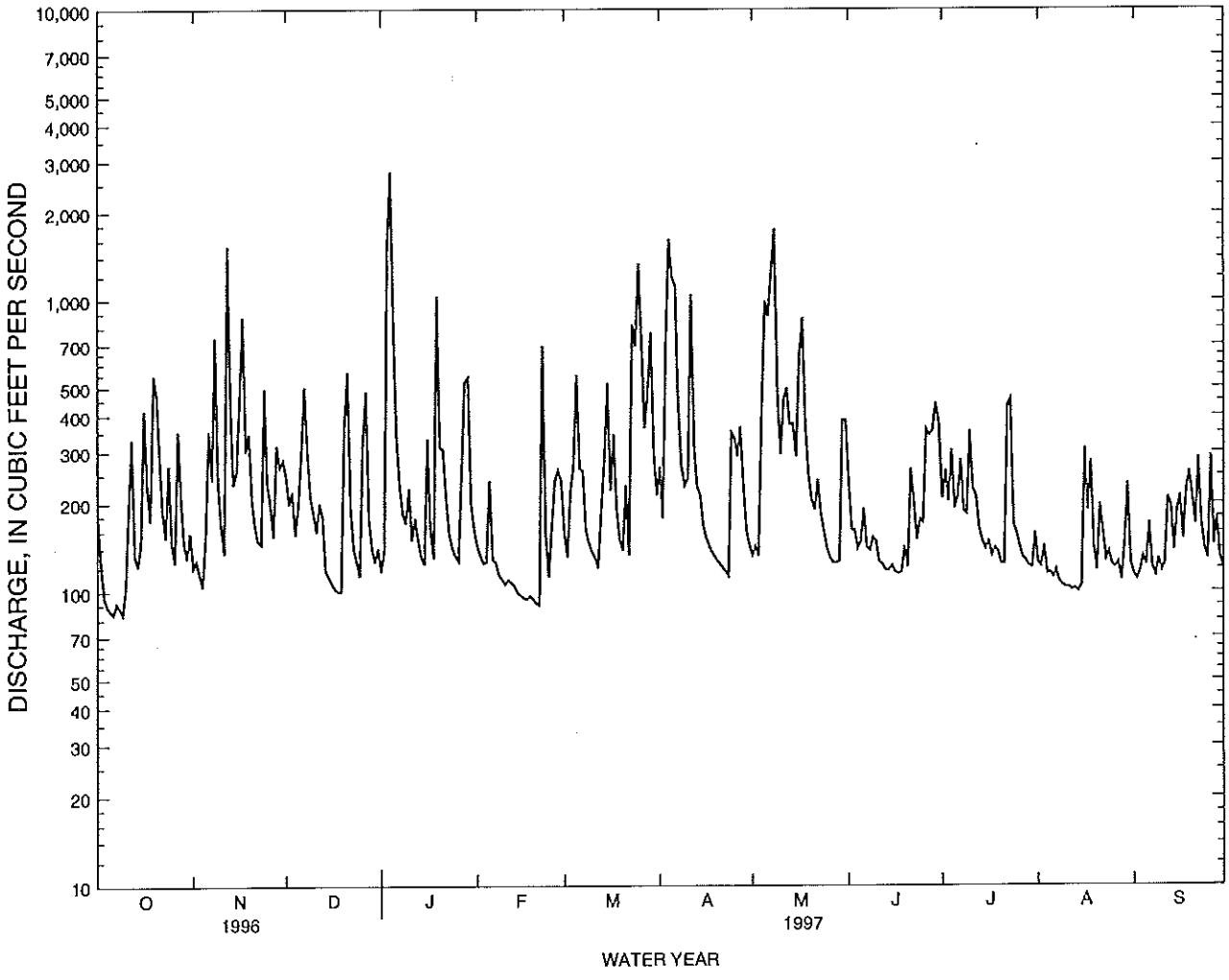
MEAN	182	313	244	221	224	275	293	218	145	187	158	143
MAX	466	793	596	614	617	1096	781	626	568	418	413	523
(WY)	1983	1991	1968	1989	1989	1982	1974	1967	1978	1989	1982	1994
MIN	44.0	72.8	59.6	49.5	42.8	56.4	76.3	73.5	57.5	62.6	42.1	35.7
(WY)	1985	1964	1984	1986	1978	1970	1966	1984	1975	1984	1973	1975

e Estimated

HAWAII, ISLAND OF KAUAI

16103000 HANALEI RIVER NEAR HANALEI--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1962 - 1997	
ANNUAL TOTAL	76946		94043			
ANNUAL MEAN	210		258		216	
HIGHEST ANNUAL MEAN					408	1982
LOWEST ANNUAL MEAN					92.7	1984
HIGHEST DAILY MEAN	2240	Sep 7	2760	Jan 4	8340	May 22 1967
LOWEST DAILY MEAN	81	Jun 5	84	Oct 6	31	Nov 3 1975
ANNUAL SEVEN-DAY MINIMUM	87	May 31	88	Oct 3	33	Sep 19 1975
ANNUAL RUNOFF (AC-FT)	152600		186500		156200	
10 PERCENT EXCEEDS	394		473		420	
50 PERCENT EXCEEDS	148		164		120	
90 PERCENT EXCEEDS	95		111		59	



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.

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

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

REMARKS.--Records computed by Roy Taogoshi. Records fair, except for estimated discharges which are poor. No diversion upstream.

AVERAGE DISCHARGE.--42 years (water years 1953-55, 1959-97), 139 ft^3/s (100,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,100 ft^3/s, April 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, October 21-23, 1984.

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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 4	1100	4,580	5.57	Apr. 11	0200	*6,350	*6.07

Minimum discharge, 39 ft^3/s, October 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e50	52	223	61	64	120	237	63	141	120	75	61
2	49	e46	107	64	60	87	100	101	77	157	84	59
3	44	e44	153	599	57	229	196	80	72	101	117	91
4	42	e46	98	1700	55	225	929	484	65	141	70	98
5	41	87	126	737	62	461	411	591	75	86	72	104
6	40	132	191	132	56	188	649	257	146	161	69	130
7	52	192	422	86	54	295	181	187	79	161	84	94
8	54	225	240	69	54	100	94	303	82	110	66	81
9	49	114	117	64	54	89	91	162	118	88	61	108
10	58	83	88	100	53	81	107	95	134	231	60	79
11	136	70	66	61	63	66	1310	140	72	147	61	78
12	214	1310	118	57	57	63	199	220	70	128	60	102
13	70	299	90	56	53	175	113	175	65	83	59	91
14	103	95	83	54	51	83	106	183	65	74	58	67
15	117	78	58	53	51	149	75	139	87	69	60	118
16	419	173	53	98	50	78	66	297	71	109	131	158
17	161	307	51	67	50	132	63	409	78	81	74	106
18	97	124	50	54	55	84	61	158	77	84	117	147
19	157	269	70	703	56	68	60	103	160	92	69	141
20	96	112	171	152	52	63	59	81	86	70	60	98
21	99	70	402	179	51	60	58	73	349	78	142	77
22	71	59	117	103	409	58	57	117	217	460	99	83
23	67	57	74	71	96	829	56	99	117	475	88	69
24	183	225	77	63	63	658	91	73	138	100	95	62
25	64	73	57	59	259	1350	119	66	106	107	77	60
26	53	106	279	58	339	544	164	63	263	88	74	197
27	243	76	371	104	275	224	205	61	200	70	77	88
28	137	218	102	133	232	285	133	59	177	70	61	139
29	65	152	69	348	---	621	75	60	346	66	98	71
30	55	210	60	97	---	145	73	208	204	78	165	63
31	75	---	109	72	---	91	---	202	---	140	68	---
TOTAL	3161	5104	4292	6254	2831	7701	6138	5309	3937	4025	2551	2920
MEAN	102	170	138	202	101	248	205	171	131	130	82.3	97.3
MAX	419	1310	422	1700	409	1350	1310	591	349	475	165	197
MIN	40	44	50	53	50	58	56	59	65	66	58	59
AC-FT	6270	10120	8510	12400	5620	15270	12170	10530	7810	7980	5060	5790

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1997, BY WATER YEAR (WY)

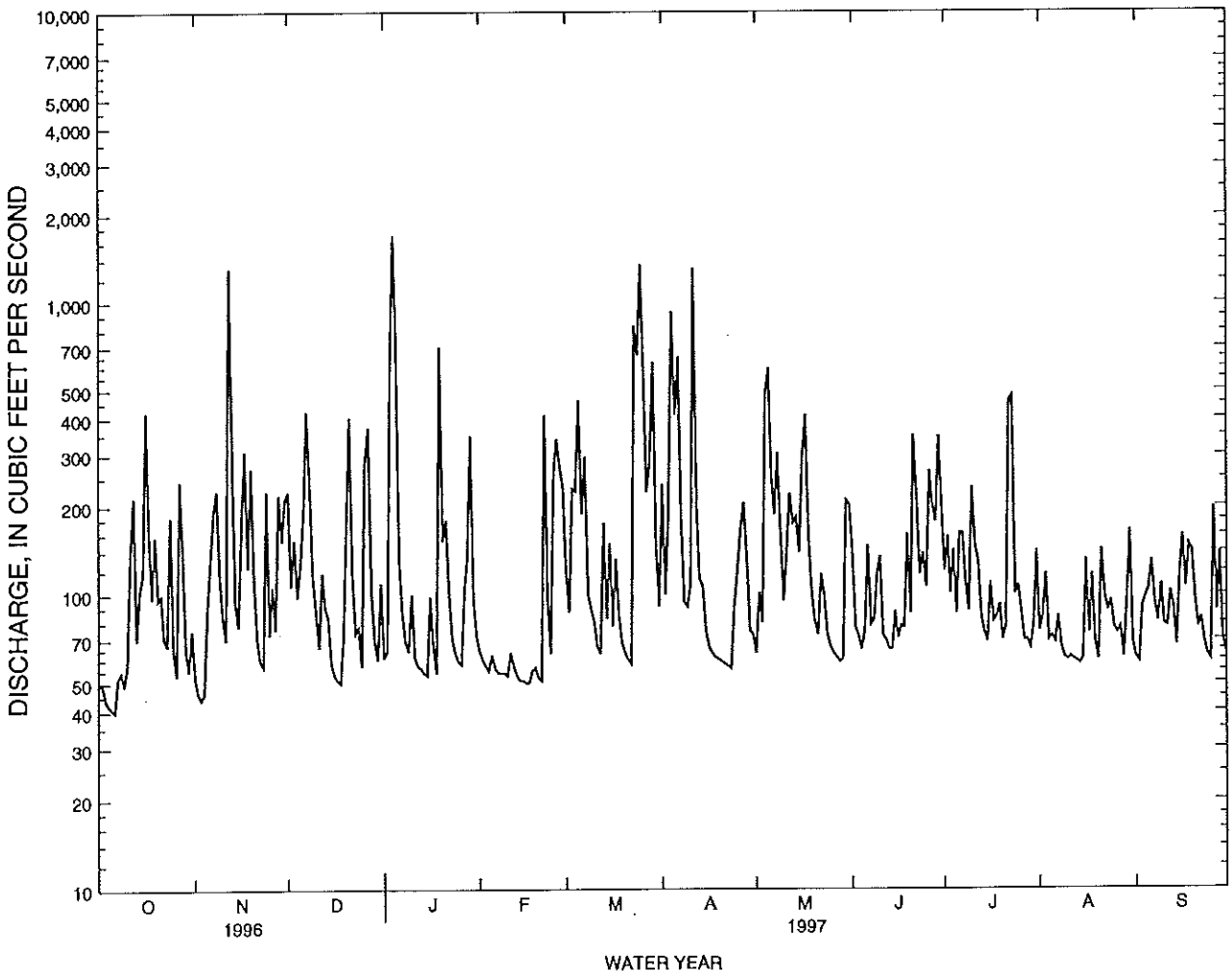
MEAN	113	188	166	145	143	172	174	123	101	132	114	95.5
MAX	228	414	384	371	492	611	504	238	187	315	272	249
(WY)	1983	1991	1968	1989	1969	1982	1971	1967	1978	1989	1982	1994
MIN	42.8	72.7	54.1	44.6	36.5	52.2	52.8	51.9	53.1	50.4	54.6	42.3
(WY)	1985	1964	1984	1986	1978	1970	1992	1966	1993	1984	1965	1965

e Estimated

HAWAII, ISLAND OF KAUAI

16108000 WAINIHA RIVER NEAR HANALEI--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1952 - 1997	
ANNUAL TOTAL	43922		54223			
ANNUAL MEAN	120		149		139	
HIGHEST ANNUAL MEAN					243	1982
LOWEST ANNUAL MEAN					84.8	1984
HIGHEST DAILY MEAN	1310	Nov 12	1700	Jan 4	3650	Nov 21 1974
LOWEST DAILY MEAN	35	Jun 5	40	Oct 6	31	Sep 29 1965
ANNUAL SEVEN-DAY MINIMUM	40	May 31	45	Oct 1	33	Sep 24 1965
ANNUAL RUNOFF (AC-FT)	87120		107600		100400	
10 PERCENT EXCEEDS	224		277		263	
50 PERCENT EXCEEDS	73		90		78	
90 PERCENT EXCEEDS	48		56		49	



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 current year.

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

REMARKS.--Records computed by Clayton Yoshida. Records good, except for estimated periods which are fair. No diversion upstream of station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 760 ft^3/s, January 4, 1997, gage height, 4.60 ft; minimum, 3.5 ft^3/s, June 30, July 1, 2, 1995.

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

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 27	0830	431	3.67	Apr. 5	0900	526	3.97
Jan. 4	0330	*760	*4.60	Apr. 10	1600	607	4.20

Minimum discharge, 4.7 ft^3/s, October 8,9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	e5.7	e5.7	11	6.3	6.1	59	8.3	12	8.2	6.8	6.0
2	6.0	e5.6	e5.6	7.6	5.9	5.8	14	8.0	9.4	8.7	6.7	6.2
3	e5.8	e5.5	e5.6	137	5.6	5.7	38	7.7	8.7	7.9	6.7	6.1
4	e5.5	e5.5	e5.5	238	8.1	9.5	78	11	7.9	8.2	6.7	6.0
5	e5.2	e6.0	5.6	24	24	16	197	21	7.5	7.7	6.6	6.0
6	e5.0	e6.0	5.9	13	7.4	11	125	26	7.8	7.3	6.5	6.2
7	e4.8	e19	7.4	9.9	6.2	7.6	23	62	7.3	8.1	6.5	6.3
8	e4.7	43	5.7	8.8	5.7	6.2	13	94	8.2	7.4	6.5	6.5
9	e4.7	14	5.5	11	5.5	5.8	10	22	8.5	8.3	6.5	6.7
10	e5.5	8.6	5.5	18	5.3	5.5	51	12	8.4	12	6.5	6.8
11	7.2	7.1	5.4	8.9	5.3	5.4	107	48	7.4	10	6.5	6.7
12	21	20	6.8	19	5.9	5.3	14	31	7.1	9.1	6.4	9.3
13	8.4	15	6.1	11	5.5	12	10	17	7.0	8.6	6.4	8.3
14	6.7	9.5	6.0	7.9	5.2	35	9.5	15	6.9	8.3	6.5	7.3
15	6.6	7.6	5.6	9.9	5.1	64	8.4	12	6.8	8.1	7.4	7.1
16	9.2	22	5.4	39	5.1	12	7.9	20	6.7	8.0	6.9	7.3
17	6.7	24	5.4	13	5.0	19	7.5	28	7.3	7.9	6.8	7.4
18	e5.8	9.9	5.3	8.3	5.0	9.7	7.3	12	7.1	8.0	6.6	7.7
19	e5.8	8.2	5.2	18	4.9	7.2	7.2	9.4	9.4	8.2	6.5	9.1
20	e6.4	6.9	5.3	13	4.9	6.3	7.1	8.2	8.3	8.0	6.2	8.4
21	e6.0	6.4	39	14	4.8	6.0	7.0	7.8	10	8.0	7.0	7.7
22	e5.9	6.1	14	10	8.0	5.7	6.9	9.5	10	15	6.6	8.6
23	e5.8	6.5	8.3	7.2	5.2	13	6.9	46	8.5	19	6.3	7.9
24	e5.7	6.4	7.1	6.4	4.9	19	46	11	7.9	8.8	6.4	7.4
25	e5.6	e5.9	6.4	6.1	5.4	52	24	8.8	7.5	8.4	6.4	7.2
26	e5.5	e5.7	17	6.7	9.2	33	17	8.0	7.4	7.7	6.3	11
27	e5.7	e5.6	136	7.4	6.1	15	37	7.5	7.3	7.4	6.3	8.3
28	6.7	6.4	14	14	5.5	26	18	7.2	7.5	7.2	6.2	8.5
29	e5.8	e5.9	8.6	23	---	40	11	7.4	11	7.1	6.2	7.9
30	e5.7	e5.7	7.2	10	---	13	9.0	78	10	7.0	6.2	7.6
31	e5.7	---	20	7.3	---	9.0	---	31	---	6.9	6.0	---
TOTAL	201.8	309.7	392.1	738.4	181.0	486.8	976.7	694.8	246.8	270.5	202.1	223.5
MEAN	6.51	10.3	12.6	23.8	6.46	15.7	32.6	22.4	8.23	8.73	6.52	7.45
MAX	21	43	136	238	24	64	197	94	12	19	7.4	11
MIN	4.7	5.5	5.2	6.1	4.8	5.3	6.9	7.2	6.7	6.9	6.0	6.0
AC-FT	400	614	778	1460	359	966	1940	1380	490	537	401	443

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1997, BY WATER YEAR (WY)

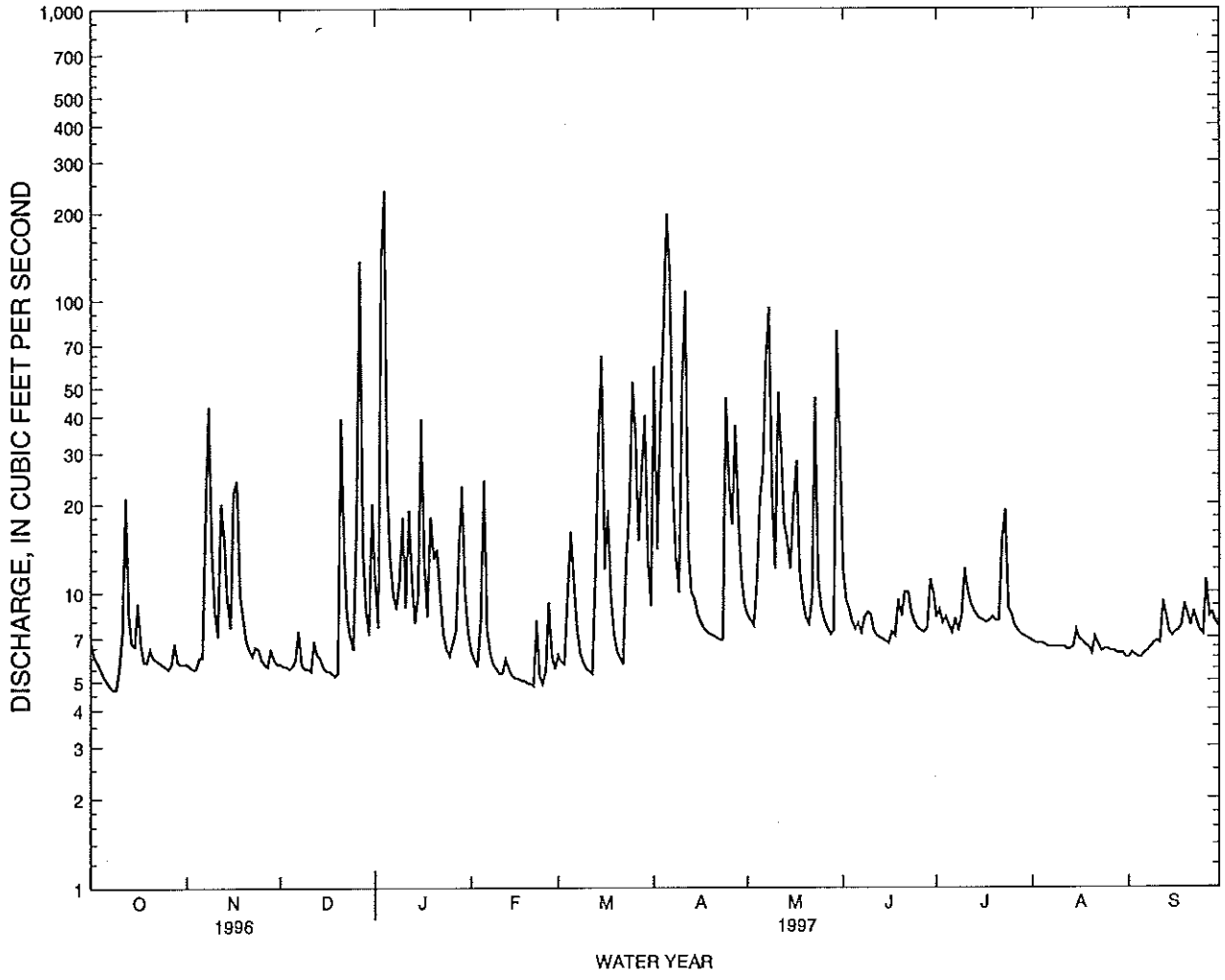
MEAN	8.19	10.2	10.8	12.9	8.30	9.79	18.0	13.4	8.55	8.66	7.44	8.17
MAX	9.62	12.5	12.6	23.8	12.0	15.7	32.6	22.4	12.2	8.74	9.84	9.32
(WY)	1996	1996	1997	1997	1996	1997	1997	1997	1996	1995	1995	1996
MIN	6.51	7.66	7.43	6.04	6.27	5.63	9.58	7.74	5.20	8.51	5.96	7.45
(WY)	1997	1995	1995	1995	1995	1995	1996	1995	1995	1996	1996	1997

e Estimated

HAWAII, ISLAND OF KAUAI

16114000 LIMAHULI STREAM NEAR WAINIHA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1995 - 1997	
ANNUAL TOTAL	3460.7		4924.2			
ANNUAL MEAN	9.46		13.5		10.4	
HIGHEST ANNUAL MEAN					13.5	1997
LOWEST ANNUAL MEAN					7.72	1995
HIGHEST DAILY MEAN	136	Dec 27	238	Jan 4	238	Jan 4 1997
LOWEST DAILY MEAN	4.3	Feb 5	4.7	Oct 8	3.7	Jul 1 1995
ANNUAL SEVEN-DAY MINIMUM	4.5	May 31	5.0	Feb 15	3.9	Jun 26 1995
ANNUAL RUNOFF (AC-FT)	6860		9770		7510	
10 PERCENT EXCEEDS	14		22		16	
50 PERCENT EXCEEDS	6.0		7.4		6.7	
90 PERCENT EXCEEDS	5.0		5.5		5.0	



Surface-Water Station Records for Oahu

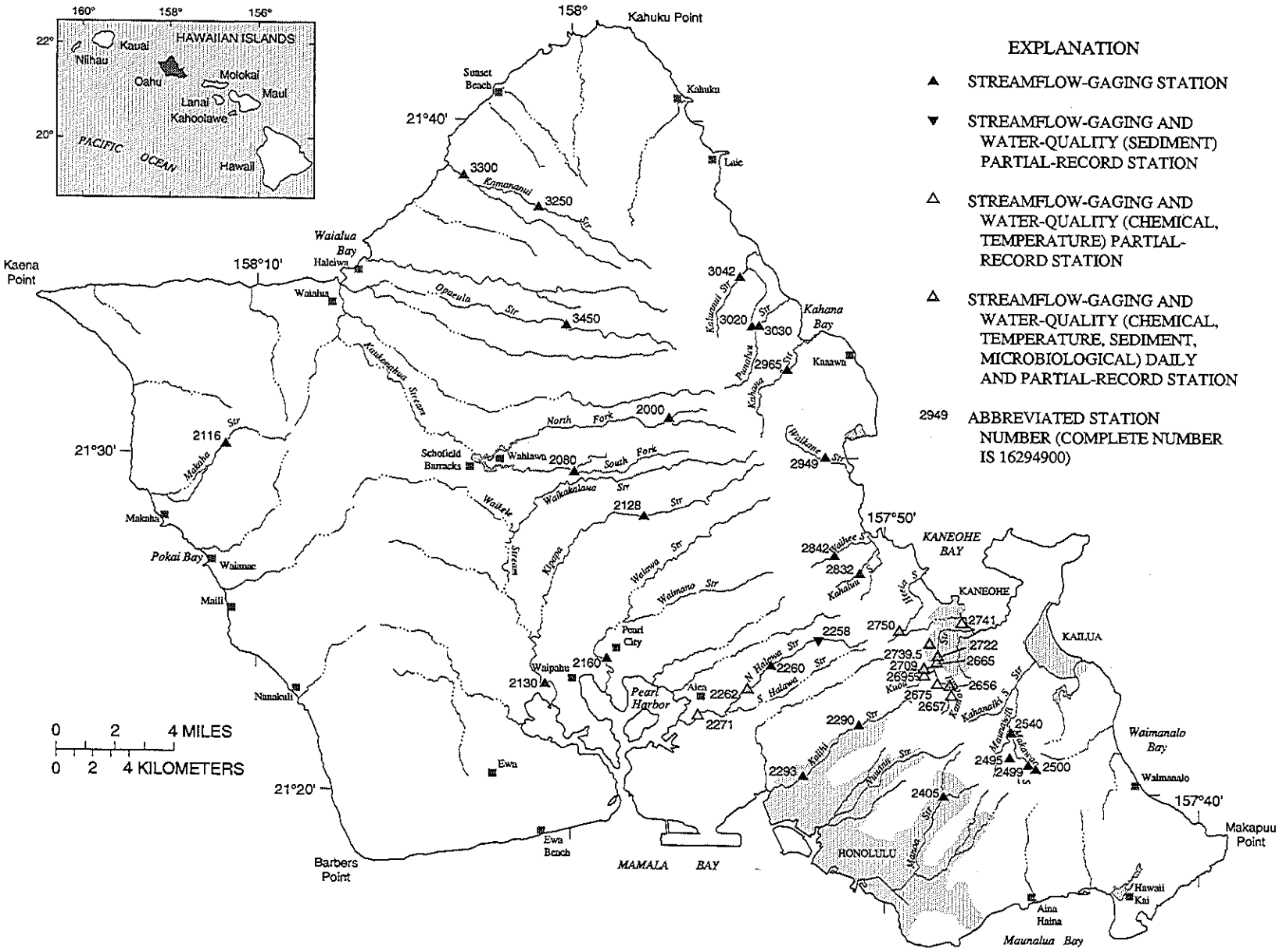


Figure 6. Locations of gaging, water-quality, and partial-record stations on Oahu.

HAWAII, ISLAND OF OAHU

16200000 NORTH FORK KAUKONAHUA STREAM ABOVE RIGHT BRANCH, NEAR WAHIAWA

LOCATION.--Lat 21°31'09", long 157°56'53", Hydrologic Unit 20060000, on left bank 140 ft upstream from Mauka ditch intake and Right Branch, and 4.5 mi northeast of Wahiawa.

DRAINAGE AREA.--1.38 mi^2.

PERIOD OF RECORD.--May 1913 to July 1953, April 1960 to current year. Monthly discharge only for some periods, published in WSP 1319. Prior to August 1953, published as Left Branch of North Fork Kaukonahua Stream near Wahiawa.

REVISED RECORDS.--WSP 1219: 1931-33(M), 1935(M), 1937-38(M). WSP 1319: 1914, 1917-18(M), 1920-23(M), 1925(M), 1927-30(M). WSP 1719: Drainage area.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 1,150 ft above mean sea level (from topographic map).

REMARKS.--Records computed by Ben Shimizu. Records good.

AVERAGE DISCHARGE.--74 years (water years 1914-24, 1927-52, 1961-97), 16.4 ft^3/s (11,850 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,640 ft^3/s, October 28, 1981, gage height, 13.2 ft, from rating curve extended above 68 ft^3/s on basis of slope-area measurement at gage height, 12.46 ft; minimum, 0.12 ft^3/s, March 2, 13, 1941.

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. 19	1845	*2,340	*8.15	Apr. 2	2300	1,820	7.20

Minimum discharge, 1.2 ft^3/s, October 13, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	3.2	9.9	3.7	3.8	10	27	4.5	25	12	7.4	6.7
2	2.2	5.0	7.7	2.7	2.8	23	118	4.6	6.0	11	6.7	8.5
3	2.0	4.2	17	132	2.3	39	127	5.0	3.8	9.6	6.5	6.3
4	1.9	2.3	7.9	18	2.0	57	27	3.8	3.2	15	6.6	5.2
5	1.8	97	12	6.1	1.9	42	42	41	4.1	11	7.2	20
6	1.7	8.5	7.7	4.4	1.9	10	16	37	27	29	12	13
7	1.7	5.6	13	3.7	85	9.5	9.4	11	6.3	10	9.6	5.0
8	1.6	27	5.1	e3.4	3.9	4.9	8.0	7.9	38	10	5.3	10
9	2.3	6.4	4.4	e3.2	2.8	9.2	6.9	5.0	40	56	4.6	5.6
10	1.8	4.2	8.2	e2.9	2.3	6.4	13	4.3	26	51	4.2	4.4
11	1.5	5.9	38	2.6	3.5	18	15	15	7.6	19	4.1	4.3
12	3.6	88	18	2.6	3.7	5.3	8.5	13	13	12	3.8	9.7
13	1.6	32	7.4	3.4	3.6	6.5	48	5.2	25	9.6	3.7	22
14	4.6	90	8.1	2.4	2.1	3.7	10	44	10	8.4	3.4	38
15	2.5	25	5.1	2.2	2.9	3.6	6.5	42	18	8.8	36	12
16	28	47	4.5	2.3	2.0	3.1	5.4	16	15	13	76	35
17	78	16	4.3	2.1	1.7	15	e4.8	25	25	7.8	12	18
18	4.5	9.7	4.0	1.9	4.7	3.4	e4.4	8.2	12	11	8.1	8.4
19	105	9.9	3.9	48	1.9	2.7	4.2	6.4	23	80	4.7	6.6
20	19	7.6	3.6	9.5	1.6	3.0	3.9	5.4	8.2	8.6	4.3	8.0
21	21	5.8	3.5	3.2	1.4	2.5	3.6	5.2	27	17	12	5.7
22	6.1	5.1	3.4	3.5	9.9	2.2	3.4	5.0	9.4	163	6.8	7.1
23	4.3	7.5	3.8	2.1	3.1	40	3.3	5.7	20	24	6.6	5.0
24	9.4	43	3.1	1.9	1.6	29	11	4.3	18	11	11	5.0
25	3.8	9.3	2.7	1.8	2.8	43	20	4.0	17	30	7.0	4.0
26	5.3	6.1	11	1.7	2.0	18	59	3.7	97	20	34	13
27	3.1	6.4	16	1.6	1.6	9.5	54	3.6	64	10	16	6.9
28	2.7	10	3.8	1.8	1.6	41	8.8	3.3	43	9.9	5.9	8.1
29	2.9	5.5	2.9	33	---	31	6.2	3.1	43	9.1	11	5.6
30	4.8	4.7	2.8	6.3	---	8.5	4.9	2.9	16	28	13	4.1
31	9.2	---	9.1	11	---	6.4	---	20	---	14	29	---
TOTAL	340.2	597.9	251.9	325.0	160.4	506.4	679.2	365.1	690.6	728.8	378.5	311.2
MEAN	11.0	19.9	8.13	10.5	5.73	16.3	22.6	11.8	23.0	23.5	12.2	10.4
MAX	105	97	38	132	85	57	127	44	97	163	76	38
MIN	1.5	2.3	2.7	1.6	1.4	2.2	3.3	2.9	3.2	7.8	3.4	4.0
AC-FT	675	1190	500	645	318	1000	1350	724	1370	1450	751	617

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 1997, BY WATER YEAR (WY)

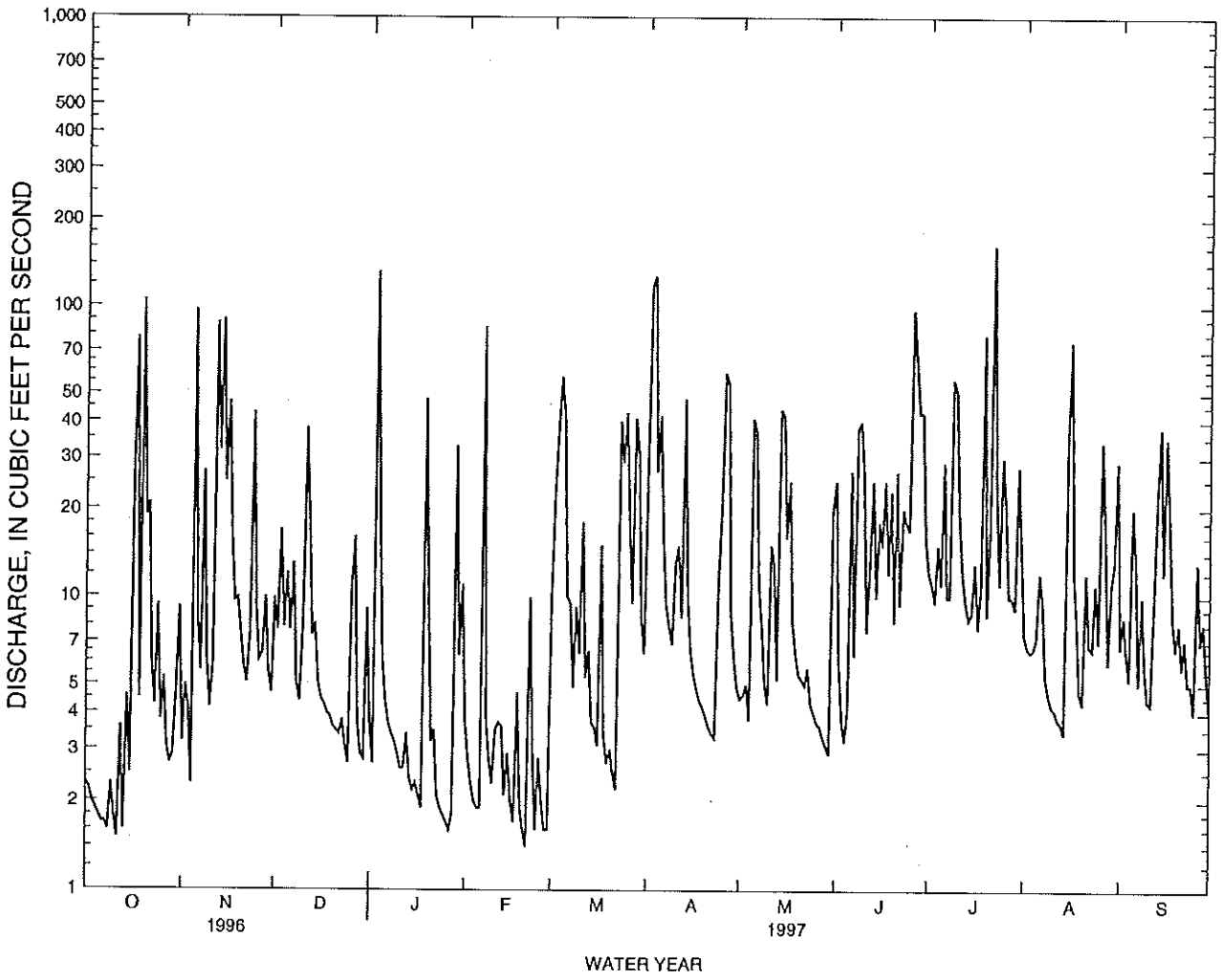
MEAN	13.2	17.5	15.0	14.5	12.7	19.1	20.0	16.3	13.4	18.6	18.3	15.2
MAX	32.7	76.5	48.9	126	117	74.4	58.6	53.3	31.3	48.0	50.1	79.1
(WY)	1942	1966	1988	1921	1932	1982	1963	1927	1963	1930	1931	1914
MIN	2.21	1.31	1.57	.36	.40	.28	1.38	.67	2.63	4.22	1.81	1.95
(WY)	1985	1934	1990	1986	1986	1983	1966	1992	1951	1951	1971	1975

e Estimated

HAWAII, ISLAND OF OAHU

16200000 NORTH FORK KAUKONAHUA STREAM ABOVE RIGHT BRANCH, NEAR WAHIAWA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1913 - 1997	
ANNUAL TOTAL	4210.56		5335.2			
ANNUAL MEAN	11.5		14.6		16.4	
HIGHEST ANNUAL MEAN					29.5	1932
LOWEST ANNUAL MEAN					9.11	1984
HIGHEST DAILY MEAN	184	Jan 25	163	Jul 22	975	Feb 27 1935
LOWEST DAILY MEAN	.86	Feb 21	1.4	Feb 21	.12	Mar 13 1941
ANNUAL SEVEN-DAY MINIMUM	1.1	May 13	1.8	Oct 5	.13	Mar 5 1986
ANNUAL RUNOFF (AC-FT)	8350		10580		11850	
10 PERCENT EXCEEDS	27		38		36	
50 PERCENT EXCEEDS	5.1		6.9		7.1	
90 PERCENT EXCEEDS	1.6		2.3		1.6	



HAWAII, ISLAND OF OAHU

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 computed by Frank Romualdo. Records good. Prior to 1960, water was diverted from reservoirs upstream of station for use at Schofield Barracks.

AVERAGE DISCHARGE.--35 years (water years 1961-62, 1965-97), 21.5 ft^3/s (15,590 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,460 ft^3/s, April 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)
Jan. 3	1250	*1,340	*5.51	Apr. 3	0100	1,150	5.20

Minimum discharge, 1.40 ft^3/s, October 13, 14, 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.1	5.5	12	6.9	7.8	44	11	21	22	13	9.9
2	2.3	4.5	5.5	4.9	5.4	9.4	37	11	6.5	27	11	7.1
3	2.2	2.5	13	224	4.4	34	345	15	7.6	22	11	6.4
4	2.1	1.9	8.0	47	3.8	124	60	9.9	4.3	31	10	5.7
5	2.0	175	15	18	3.5	133	33	82	4.0	19	9.4	5.3
6	1.9	29	11	12	3.3	37	69	100	11	30	8.5	7.2
7	1.8	7.2	27	8.6	67	21	24	31	11	19	12	5.6
8	1.7	51	8.9	7.1	8.7	12	19	19	11	16	8.4	11
9	1.6	17	6.6	6.2	4.7	9.9	17	13	35	129	7.2	8.7
10	1.6	6.2	6.0	5.7	3.8	12	15	11	53	135	6.7	5.6
11	1.6	5.4	28	5.2	3.4	25	38	11	9.2	73	6.4	5.1
12	1.5	104	46	5.0	8.6	23	18	26	8.0	38	6.0	19
13	1.6	138	11	5.1	4.9	15	30	11	14	26	5.7	21
14	1.9	168	13	4.9	3.7	14	16	39	10	21	5.4	62
15	2.5	58	7.3	4.3	2.6	7.9	11	80	11	18	14	32
16	2.1	123	5.8	4.6	2.4	7.7	9.9	26	29	22	41	37
17	54	53	5.3	4.0	2.2	38	8.9	86	36	17	30	32
18	7.4	28	4.8	3.6	2.3	14	8.3	17	28	30	25	15
19	27	20	4.7	32	2.9	7.6	7.8	13	28	110	6.4	19
20	29	21	4.4	68	2.2	5.8	7.2	9.7	15	19	5.2	17
21	6.4	13	4.2	8.0	2.1	7.0	6.7	8.5	30	19	6.9	12
22	5.2	10	4.2	10	2.4	5.3	6.2	7.8	20	174	13	13
23	2.8	9.4	4.5	5.3	11	75	6.1	9.0	20	53	11	9.7
24	2.4	29	4.4	4.2	2.8	40	6.1	7.1	40	22	9.1	13
25	2.4	11	3.6	3.8	2.4	91	36	6.2	48	55	17	6.7
26	3.4	7.9	3.7	3.5	4.5	47	129	5.8	189	36	78	47
27	3.1	6.9	35	3.3	2.8	41	185	5.4	107	19	31	8.9
28	1.9	8.7	11	3.2	2.3	31	27	5.1	72	18	10	12
29	1.6	7.5	4.8	42	---	82	16	4.8	50	15	19	12
30	1.5	6.2	4.0	17	---	23	13	4.5	33	39	26	6.9
31	1.6	---	9.8	9.5	---	16	---	9.4	---	16	25	---
TOTAL	180.6	1124.4	326.0	592.0	177.0	1016.4	1249.2	695.2	961.6	1290	488.3	472.8
MEAN	5.83	37.5	10.5	19.1	6.32	32.8	41.6	22.4	32.1	41.6	15.8	15.8
MAX	54	175	46	224	67	133	345	100	189	174	78	62
MIN	1.5	1.9	3.6	3.2	2.1	5.3	6.1	4.5	4.0	15	5.2	5.1
AC-FT	358	2230	647	1170	351	2020	2480	1380	1910	2560	969	938

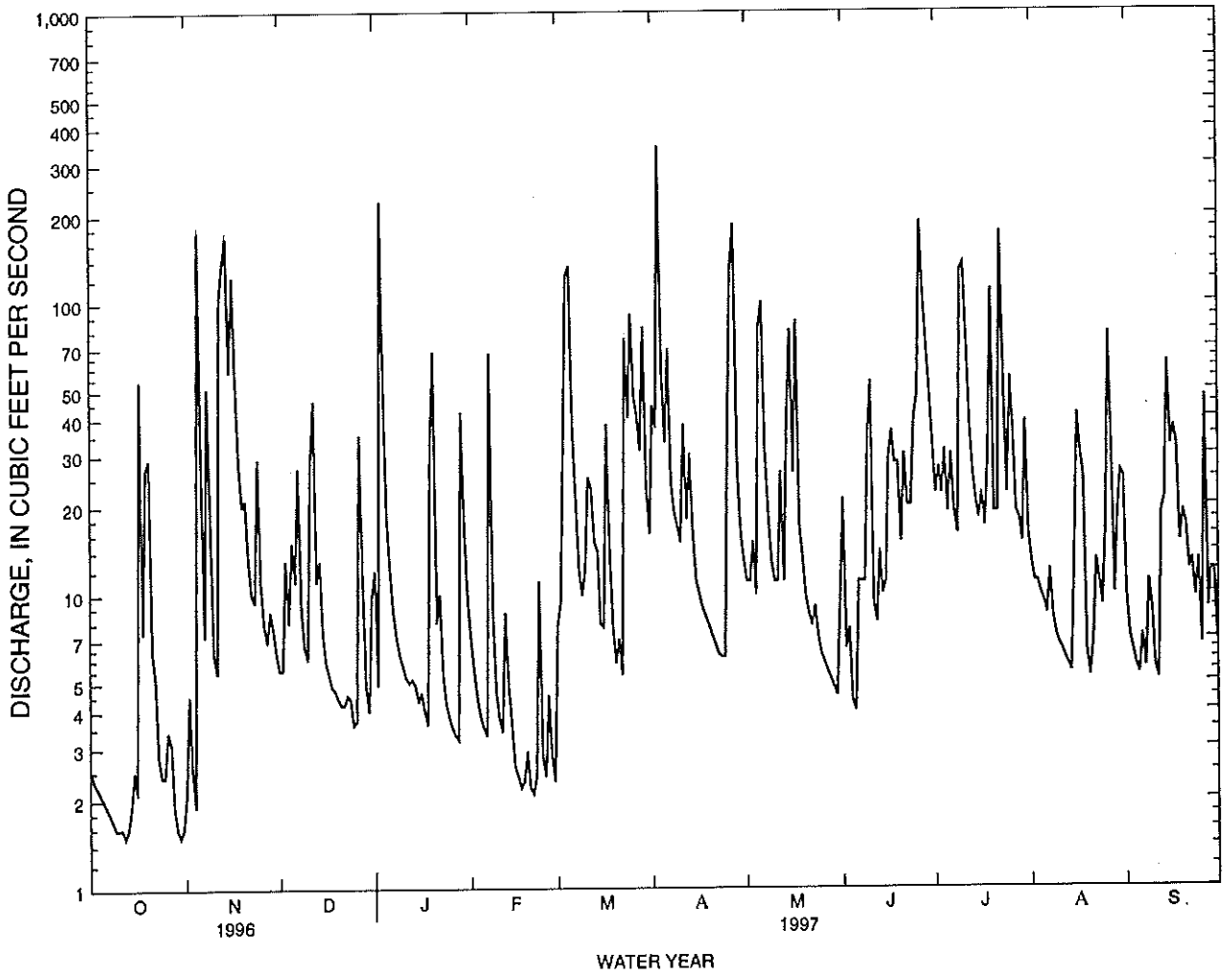
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1997, BY WATER YEAR (WY)

MEAN	17.1	28.4	22.0	19.9	16.8	27.1	30.6	21.1	16.9	26.4	18.6	14.8
MAX	38.0	107	61.7	55.2	99.7	104	90.1	64.9	46.2	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

HAWAII, ISLAND OF OAHU

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

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1961 - 1997	
ANNUAL TOTAL	5988.21		8573.5			
ANNUAL MEAN	16.4		23.5		21.5	
HIGHEST ANNUAL MEAN					37.2	1982
LOWEST ANNUAL MEAN					11.1	1984
HIGHEST DAILY MEAN	237	Jan 25	345	Apr 3	1050	Feb 1 1969
LOWEST DAILY MEAN	.50	Jun 5	1.5	Oct 12	.00	Dec 24 1960
ANNUAL SEVEN-DAY MINIMUM	1.1	Feb 18	1.6	Oct 7	.00	Jan 19 1977
ANNUAL RUNOFF (AC-FT)	11880		17010		15590	
10 PERCENT EXCEEDS	40		53		50	
50 PERCENT EXCEEDS	5.7		11		9.0	
90 PERCENT EXCEEDS	1.4		2.8		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 benchmark).

REMARKS.--Records computed by Ben Shimizu. Records good, except for periods of no gage height record which are poor. Honolulu Board of Water Supply wells upstream of station may influence flows at gage. Recording rain gage located at station.

AVERAGE DISCHARGE.--38 years (water years 1960-97), 1.89 ft^3/s (1,370 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,680 ft^3/s, November 14, 1996, gage height, 9.54 ft, from high-water profile of slope-area measurement; no flow at times.

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)
Nov. 12	2400	345	4.02	Nov. 15	0130	336	3.70
Nov. 14	0100	*2,680	*9.54	Jan. 19	2100	796	5.32

Minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	1.3	5.3	e3.0	1.8	5.0	1.5	1.0	1.2	.39	.16
2	.00	.00	1.2	5.6	e2.7	1.4	13	1.4	.99	.81	.26	.13
3	.00	.00	1.1	33	e2.5	1.2	19	1.3	.99	.53	.24	.10
4	.00	.00	1.1	30	e2.0	1.5	9.3	1.2	.99	.47	.22	.07
5	.00	21	1.3	31	e2.0	1.8	6.1	1.7	.99	.46	.20	.06
6	.00	4.6	1.5	16	e1.8	2.0	5.0	1.9	.95	.45	.16	.04
7	.00	2.7	3.6	9.6	e1.5	1.3	4.0	7.4	.89	.79	.28	.04
8	.00	30	2.9	6.6	e1.3	1.1	3.4	8.8	.89	.75	.10	.03
9	.00	9.8	2.2	4.7	e1.2	1.0	2.9	4.0	.89	.55	.08	.02
10	.00	3.9	1.4	3.7	e1.0	.90	2.6	2.9	.84	1.2	.09	.01
11	.00	2.2	1.8	3.2	e1.0	10	4.2	5.4	.80	.86	.09	.01
12	.00	47	1.5	3.0	e.80	3.6	2.3	4.1	.81	.80	.08	.02
13	.00	86	1.3	3.2	e.80	5.4	2.5	2.8	.80	.71	.09	.03
14	.00	e220	6.4	2.3	e.75	3.5	2.2	6.7	.80	.59	.09	1.7
15	.00	e80	2.0	2.0	e.70	2.6	1.8	5.0	.75	.51	3.4	.61
16	.00	e40	1.5	6.9	e.65	2.1	1.6	3.6	.72	.52	1.2	.51
17	.00	e20	1.3	3.9	e.60	5.4	1.4	2.9	.77	.59	.82	.51
18	.00	e10	1.2	2.5	e.60	3.4	1.4	2.4	.87	.52	.71	.47
19	1.5	e7.0	1.1	79	e.55	2.4	1.3	2.1	1.1	.45	.97	.41
20	.05	e5.0	1.0	48	.54	2.0	1.2	1.8	1.2	.43	.56	.41
21	.00	e4.0	.97	18	.52	1.7	1.2	1.7	.95	.43	.49	.30
22	.00	e4.0	1.5	11	1.2	1.5	1.2	4.9	.93	1.9	.49	.26
23	.00	e3.0	1.8	8.0	1.0	32	1.2	4.3	.94	1.9	.63	.20
24	.00	e5.0	2.2	6.9	.68	33	5.9	2.6	.83	.80	.57	.12
25	.00	e3.0	1.3	e5.0	1.7	41	8.9	2.0	.84	.67	.52	.08
26	.00	e2.5	8.1	e4.0	1.8	15	4.1	1.7	.86	.57	.50	.06
27	.00	2.2	55	e3.0	1.7	9.2	4.2	1.5	1.0	.53	.41	.05
28	.00	2.0	16	e2.5	1.9	6.4	2.8	1.3	.98	.61	.34	.03
29	.00	1.7	7.1	e7.0	---	5.1	2.2	1.2	1.6	.53	.29	.03
30	.00	1.4	6.8	e5.0	---	4.1	1.8	1.1	1.5	.40	.23	.02
31	.00	---	10	e3.5	---	3.4	---	1.1	---	.38	.21	---
TOTAL	1.55	618.00	147.47	373.4	36.49	206.80	123.7	92.3	28.47	21.91	14.71	6.49
MEAN	.050	20.6	4.76	12.0	1.30	6.67	4.12	2.98	.95	.71	.47	.22
MAX	1.5	220	55	79	3.0	41	19	8.8	1.6	1.9	3.4	1.7
MIN	.00	.00	.97	2.0	.52	.90	1.2	1.1	.72	.38	.08	.01
AC-FT	3.1	1230	293	741	72	410	245	183	56	43	29	13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1997, BY WATER YEAR (WY)

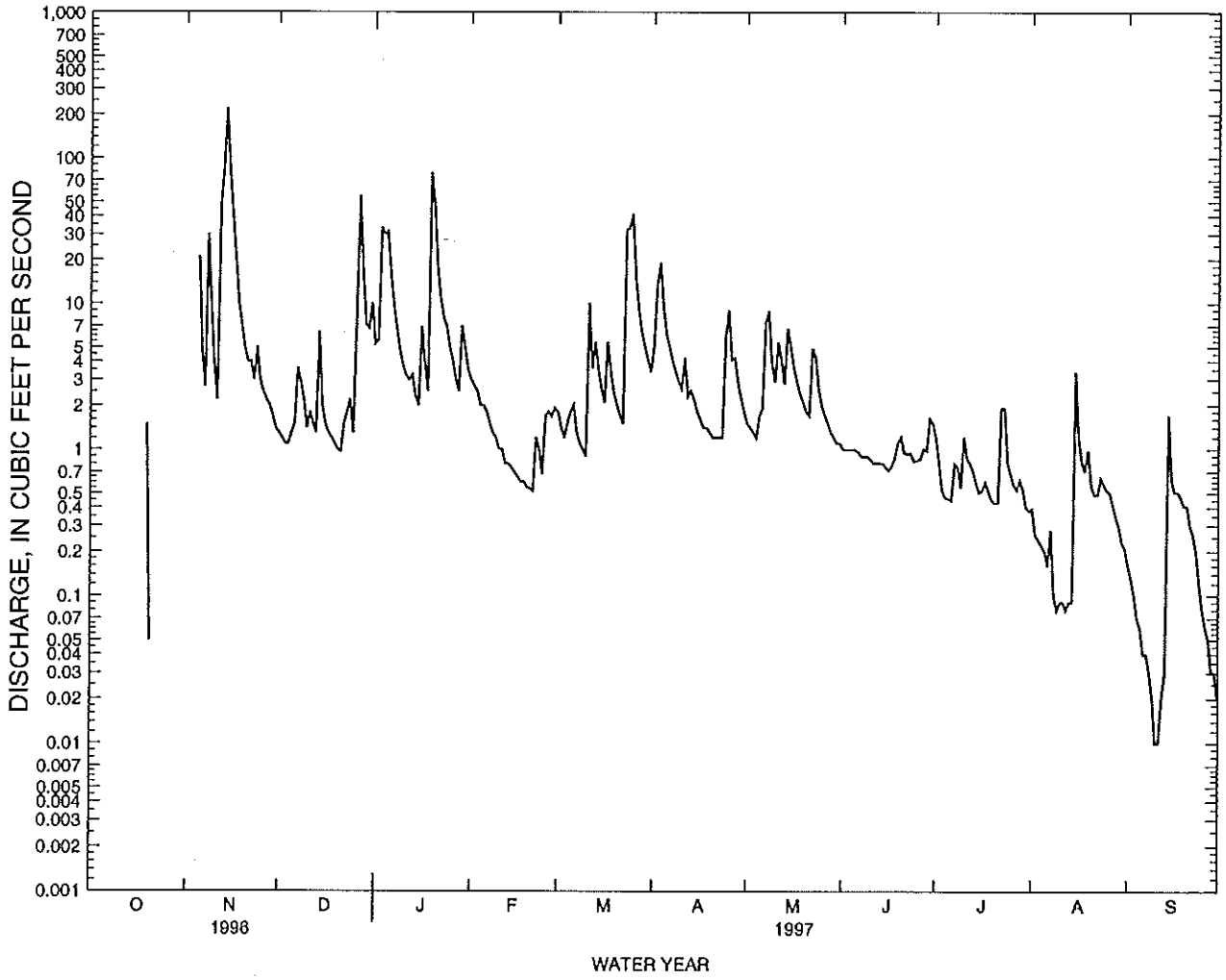
MEAN	.73	2.04	3.00	4.41	3.41	3.24	2.63	1.48	.63	.49	.37	.38
MAX	3.66	20.6	15.0	22.7	16.3	11.5	15.7	5.33	1.72	1.31	1.44	2.19
(WY)	1983	1997	1965	1982	1976	1962	1963	1965	1978	1986	1983	1974
MIN	.000	.000	.038	.22	.25	.18	.13	.13	.013	.005	.000	.000
(WY)	1976	1995	1995	1995	1995	1995	1993	1996	1995	1995	1995	1961

e Estimated

HAWAII, ISLAND OF OAHU

16211600 MAKAHA STREAM NEAR MAKAHA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1959 - 1997	
ANNUAL TOTAL	1051.94		1671.29			
ANNUAL MEAN	2.87		4.58		1.89	
HIGHEST ANNUAL MEAN					4.58	1997
LOWEST ANNUAL MEAN					.25	1995
HIGHEST DAILY MEAN	220	Nov 14	220	Nov 14	283	Feb 7 1976
LOWEST DAILY MEAN	.00	May 28	.00	Oct 1	.00	Sep 25 1960
ANNUAL SEVEN-DAY MINIMUM	.00	Jul 16	.00	Oct 1	.00	Aug 28 1961
ANNUAL RUNOFF (AC-FT)	2090		3320		1370	
10 PERCENT EXCEEDS	4.0		7.2		3.6	
50 PERCENT EXCEEDS	.31		1.2		.58	
90 PERCENT EXCEEDS	.00		.02		.05	



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 computed by Frank Romualdo and Ben Shimizu. 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.--40 years (water years 1958-97), 10.9 ft^3/s (7,920 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,370 ft^3/s, March 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 14	0530	*1,140	*7.36	Jan. 3	1100	1,030	7.12

Minimum discharge, 0.14 ft^3/s, October 4, 5, 9, 10.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	2.1	2.7	8.0	3.4	2.5	12	3.0	2.3	5.2	2.8	2.7
2	.17	1.0	2.8	2.9	2.4	2.0	18	2.6	1.8	4.1	2.4	1.2
3	.16	.60	7.5	146	1.4	7.2	84	2.7	1.1	4.9	2.3	.89
4	.16	.80	4.4	43	.90	17	14	2.4	1.2	11	1.9	.74
5	.15	136	7.4	14	.71	57	8.6	20	2.0	4.4	1.7	.56
6	.17	25	6.4	7.9	.65	13	26	33	3.4	8.6	1.6	1.0
7	.20	7.2	25	5.5	57	6.6	7.0	19	2.2	7.3	1.6	1.1
8	.22	33	7.0	3.8	5.1	3.5	5.7	6.4	8.3	3.5	1.4	5.8
9	.16	11	4.9	2.9	2.4	2.4	8.2	3.7	9.6	13	1.8	2.2
10	.17	4.7	4.1	2.4	1.8	2.2	6.3	2.5	15	36	1.5	1.2
11	.33	3.9	16	2.2	1.5	15	17	2.4	3.3	13	1.1	1.0
12	.26	80	33	2.1	2.3	12	6.9	17	2.7	7.6	.93	1.8
13	.42	104	7.9	2.1	1.7	13	17	5.0	5.9	4.4	.81	15
14	.70	104	11	1.8	1.1	6.2	6.3	40	3.0	3.1	.78	32
15	.87	50	5.2	1.8	.80	7.1	3.9	89	3.4	2.4	2.9	19
16	.46	84	3.5	1.7	.63	4.7	3.0	14	4.6	5.1	26	12
17	23	37	2.7	1.4	.59	19	2.5	24	7.2	2.9	33	8.4
18	3.8	16	2.5	1.1	.61	5.7	2.4	11	6.8	2.0	13	6.8
19	16	12	2.4	15	.56	2.7	2.1	6.2	8.9	47	2.5	5.1
20	19	11	2.2	31	.45	3.6	2.0	4.3	3.3	5.8	1.6	6.1
21	4.2	6.3	2.0	7.6	.38	3.6	1.8	3.4	13	4.6	1.7	5.4
22	2.2	5.1	2.3	9.7	.67	2.0	1.6	2.9	5.8	70	4.8	4.0
23	1.2	4.0	2.4	3.1	6.6	74	1.5	3.2	10	24	1.8	4.0
24	1.1	33	2.0	2.3	1.2	43	1.5	2.6	12	7.7	2.2	2.1
25	.82	6.8	1.7	1.8	6.6	63	36	2.3	6.4	15	1.6	1.8
26	8.1	5.6	2.0	1.6	2.8	36	39	2.0	65	12	2.1	5.5
27	1.8	3.8	35	1.4	1.3	19	45	1.8	20	4.8	3.0	2.7
28	.89	4.2	8.0	1.3	.83	16	9.9	1.7	15	3.7	1.4	4.9
29	.54	3.7	3.1	2.0	---	31	6.2	1.5	17	3.4	1.8	5.8
30	.43	2.8	2.5	5.3	---	10	4.0	1.3	9.6	19	5.1	2.0
31	2.3	---	10	4.5	---	6.7	---	1.2	---	5.0	8.3	---
TOTAL	90.14	798.60	229.6	337.2	106.38	506.7	399.4	332.1	269.8	360.5	135.42	162.79
MEAN	2.91	26.6	7.41	10.9	3.80	16.3	13.3	10.7	8.99	11.6	4.37	5.43
MAX	23	136	35	146	57	74	84	89	65	70	33	32
MIN	.15	.60	1.7	1.1	.38	2.0	1.5	1.2	1.1	2.0	.78	.56
AC-FT	179	1580	455	669	211	1010	792	659	535	715	269	323

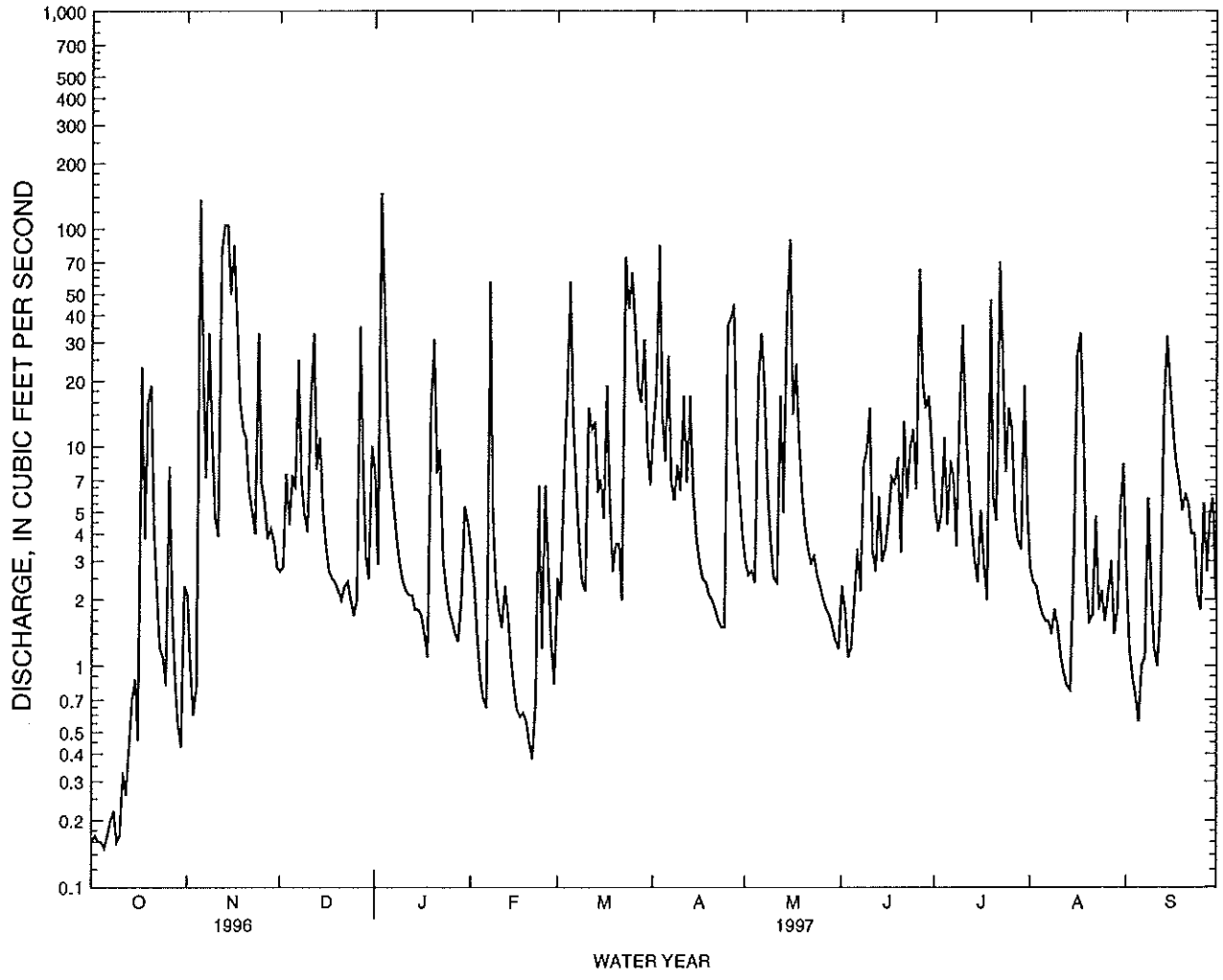
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1997, BY WATER YEAR (WY)

MEAN	10.1	15.2	12.5	11.2	10.1	16.6	15.2	9.34	5.67	10.0	8.39	6.24
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

HAWAII, ISLAND OF OAHU

16212800 KIPAPA STREAM NEAR WAHIAWA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1957 - 1997	
ANNUAL TOTAL	3174.18		3728.63			
ANNUAL MEAN	8.67		10.2		10.9	
HIGHEST ANNUAL MEAN					25.2	1982
LOWEST ANNUAL MEAN					4.50	1984
HIGHEST DAILY MEAN	192	Jan 25	146	Jan 3	852	Apr 15 1963
LOWEST DAILY MEAN	.09	Jun 4	.15	Oct 5	.00	Jun 18 1959
ANNUAL SEVEN-DAY MINIMUM	.16	Sep 30	.17	Oct 1	.00	Jun 18 1959
ANNUAL RUNOFF (AC-FT)	6300		7400		7920	
10 PERCENT EXCEEDS	21		25		25	
50 PERCENT EXCEEDS	2.5		3.7		2.9	
90 PERCENT EXCEEDS	.34		.88		.35	



HAWAII, ISLAND OF OAHU

16213000 WAIKELE STREAM AT WAIPAHU

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.

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 computed by Frank Romualdo and Ben Shimizu. Records good except for periods of no gage height record which are poor.

AVERAGE DISCHARGE.--44 years (water years 1953-59, 1961-97), 41.0 ft^3/s (29,670 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft^3/s, November 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 February 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)
Nov. 5	1745	4,730	7.87	Nov. 16	1715	*5,480	*8.45
Nov. 8	0145	2,370	5.87	Jan. 3	1145	5,200	8.23
Nov. 13	0115	4,300	7.54	Jan. 19	2230	4,600	7.77
Nov. 14	0500	3,140	6.61				

Minimum discharge, 16 ft^3/s on several days in October and November 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	e20	25	40	28	20	101	e22	e18	e27	25	26
2	16	e18	23	27	26	20	85	e20	e18	e24	23	22
3	17	e17	25	1010	25	22	259	e19	e18	e27	22	21
4	16	e16	30	204	23	34	89	e18	e18	31	22	20
5	16	e1040	27	92	22	117	50	e60	e18	30	21	19
6	e16	132	28	57	22	56	68	e80	e20	25	20	19
7	e16	40	56	42	82	35	41	e40	e19	32	20	19
8	e16	268	38	34	40	28	35	e25	e22	25	20	19
9	e16	55	30	31	26	24	35	e22	e25	23	19	23
10	e16	32	25	27	23	23	32	e21	e60	82	19	20
11	e16	25	27	25	22	49	104	e20	e27	56	19	20
12	e16	439	67	25	22	46	42	e40	e21	45	19	20
13	e16	644	38	26	22	47	46	e22	e27	33	19	24
14	e16	742	42	23	21	41	43	e70	e21	28	19	30
15	e16	408	30	22	21	28	32	e300	e20	25	19	80
16	e16	1060	25	24	21	34	28	e40	e20	24	36	30
17	e80	274	23	22	21	163	26	e50	e22	25	35	36
18	e30	110	22	21	20	49	25	e30	e21	23	69	31
19	e40	70	21	415	20	29	24	e23	e30	77	26	27
20	e45	59	21	322	20	25	24	e22	e22	37	22	29
21	e23	43	21	67	19	25	e23	e21	e50	26	21	38
22	e20	36	23	56	19	24	e22	e20	e25	76	22	33
23	e19	31	26	37	22	206	e21	e19	e27	105	21	29
24	e18	56	21	30	21	104	e20	e19	e36	37	20	25
25	e17	41	21	27	20	148	e105	e19	e24	31	21	22
26	e35	30	24	25	34	107	e110	e19	e130	45	21	22
27	e22	27	113	24	23	86	e120	e19	e50	32	23	29
28	e18	30	46	24	21	55	e50	e19	e30	26	23	24
29	e17	27	27	53	---	67	e28	e18	e35	25	21	25
30	e17	26	24	33	---	53	e25	e18	e28	38	20	24
31	e16	---	34	28	---	37	---	e18	---	34	25	---
TOTAL	674	5816	1003	2893	706	1802	1713	1153	902	1174	732	806
MEAN	21.7	194	32.4	93.3	25.2	58.1	57.1	37.2	30.1	37.9	23.6	26.9
MAX	80	1060	113	1010	82	206	259	300	130	105	69	80
MIN	16	16	21	21	19	20	20	18	18	23	19	19
AC-FT	1340	11540	1990	5740	1400	3570	3400	2290	1790	2330	1450	1600

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1997, BY WATER YEAR (WY)

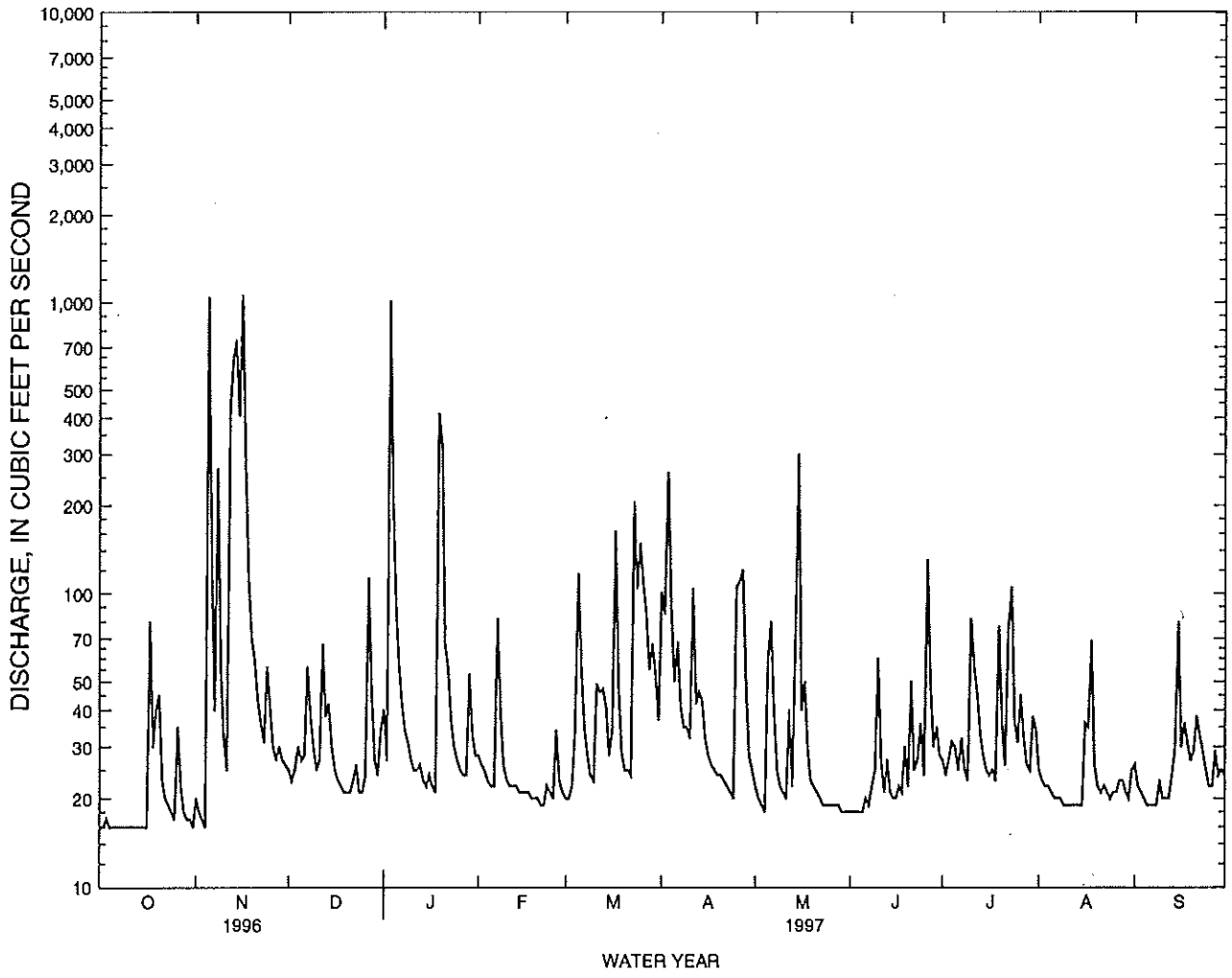
MEAN	33.0	50.9	49.9	61.4	55.2	55.2	50.2	33.1	24.0	29.6	26.3	22.8
MAX	97.8	198	146	222	179	195	235	99.3	51.5	76.8	90.0	68.1
(WY)	1992	1966	1966	1969	1955	1991	1963	1965	1980	1989	1958	1994
MIN	7.22	12.2	13.3	14.7	7.72	6.13	18.4	14.9	10.6	9.08	7.50	6.28
(WY)	1978	1954	1954	1986	1978	1978	1961	1954	1981	1985	1984	1975

e Estimated

HAWAII, ISLAND OF OAHU

16213000 WAIKELE STREAM AT WAIPAHU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1953 - 1997	
ANNUAL TOTAL	16457		19374			
ANNUAL MEAN	45.0		53.1		41.0	
HIGHEST ANNUAL MEAN					77.3	1969
LOWEST ANNUAL MEAN					18.5	1954
HIGHEST DAILY MEAN	1060	Nov 16	1060	Nov 16	2590	Mar 21 1991
LOWEST DAILY MEAN	15	May 12	16	Oct 1	.61	Feb 25 1978
ANNUAL SEVEN-DAY MINIMUM	15	May 12	16	Oct 4	2.5	Feb 24 1978
ANNUAL RUNOFF (AC-FT)	32640		38430		29670	
10 PERCENT EXCEEDS	62		81		64	
50 PERCENT EXCEEDS	22		25		24	
90 PERCENT EXCEEDS	16		19		12	



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 computed by Ben Shimizu. Records poor. Occasional small irrigation diversion and return flow upstream.

AVERAGE DISCHARGE.--45 years (water years 1953-97), 34.5 ft^3/s (24,970 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,900 ft^3/s, October 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)
Nov. 5	1445	10,100	15.31	Jan. 3	1300	*10,300	*15.43
Nov. 12	1730	3,250	10.00	Mar. 23	1430	3,380	10.13
Nov. 13	0245	8,440	14.34	Apr. 3	0500	3,410	10.16
Nov. 14	0630	6,700	13.14	Apr. 11	0215	2,660	9.26
Nov. 16	1830	7,260	13.54				

Minimum discharge, 2.0 ft^3/s, June 3-5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	2.7	e6.0	e8.0	e4.2	e2.2	44	6.3	2.1	11	e8.0	e7.0
2	2.4	2.7	e5.8	e9.0	e4.0	e2.2	49	6.0	2.1	8.4	e6.0	e5.0
3	2.3	2.7	e8.0	e1520	e4.0	e2.2	441	5.1	2.0	9.2	e5.0	e4.5
4	2.3	2.8	e9.5	e150	e3.5	e10	47	5.7	2.0	6.8	e4.5	e4.0
5	2.3	2680	e7.0	e70	e3.5	142	23	12	2.1	6.1	e4.2	e3.7
6	2.3	193	e7.0	e40	e3.2	44	45	41	2.3	7.0	e3.8	e3.0
7	2.3	30	e35	e20	e60	24	17	13	2.3	12	e3.5	e2.8
8	2.1	263	e20	e11	e12	14	11	e7.0	2.3	5.1	e3.2	e2.7
9	2.1	46	e15	e10	e7.0	10	9.8	e6.0	3.3	25	e3.0	e2.6
10	2.1	17	e9.0	e8.0	e6.0	e7.0	8.8	e5.0	15	111	e3.0	e2.5
11	2.1	9.6	e11	e6.5	e5.0	41	333	e4.8	6.2	36	e2.8	e2.5
12	2.1	724	e40	e6.0	e4.2	35	32	e4.8	6.0	23	e2.7	e2.5
13	2.1	1370	e13	e5.2	e4.0	36	59	8.1	7.8	13	e2.6	e7.0
14	2.1	1020	e17	e5.0	e3.8	24	20	38	5.6	8.8	e2.5	64
15	2.1	427	e10	e4.8	e3.5	22	11	237	4.1	5.8	e2.5	101
16	2.1	1370	e8.0	e4.5	e3.2	23	8.4	e25	6.6	7.3	15	23
17	2.1	297	e7.0	e4.3	e3.2	128	6.3	e20	5.6	5.6	168	39
18	2.1	e90	e6.0	e4.0	e3.0	27	e5.5	e10	13	4.2	52	17
19	2.6	e50	e5.5	e120	e2.9	18	e5.0	e7.0	16	128	6.2	11
20	2.6	e40	e5.0	e140	e2.8	e15	e4.5	e6.0	10	16	3.7	11
21	3.1	e30	e5.0	e40	e2.6	e12	e4.0	e4.0	21	7.1	2.8	30
22	2.4	e25	e4.8	e30	e2.5	e11	e3.8	3.3	18	268	2.4	13
23	2.4	e18	e5.5	e12	e2.5	496	e3.5	3.1	25	101	2.9	14
24	2.4	e45	e5.0	e8.0	e2.4	108	e3.2	3.1	37	30	2.2	7.9
25	2.4	e30	e4.7	e6.5	e2.3	166	14	2.6	22	27	2.1	7.4
26	2.4	e20	e6.0	e5.5	e2.3	88	88	2.3	99	30	2.4	14
27	2.7	e12	e50	e5.0	e2.2	54	189	2.2	37	15	4.5	11
28	2.7	e10	e20	e4.5	e2.2	39	38	2.2	34	10	3.2	11
29	2.7	e8.5	e10	e6.0	---	34	16	2.1	26	8.8	3.0	7.7
30	2.7	e7.0	e8.0	e5.0	---	27	8.7	2.1	18	8.2	3.1	6.5
31	2.7	---	e6.5	e4.5	---	25	---	2.1	---	11	14	---
TOTAL	73.2	8843.0	370.3	2273.3	162.0	1686.6	1548.5	496.9	453.4	965.4	344.8	438.3
MEAN	2.36	295	11.9	73.3	5.79	54.4	51.6	16.0	15.1	31.1	11.1	14.6
MAX	3.1	2680	50	1520	60	496	441	237	99	268	168	101
MIN	2.1	2.7	4.7	4.0	2.2	2.2	3.2	2.1	2.0	4.2	2.1	2.5
AC-FT	145	17540	734	4510	321	3350	3070	986	899	1910	684	869

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1952 - 1997, BY WATER YEAR (WY)

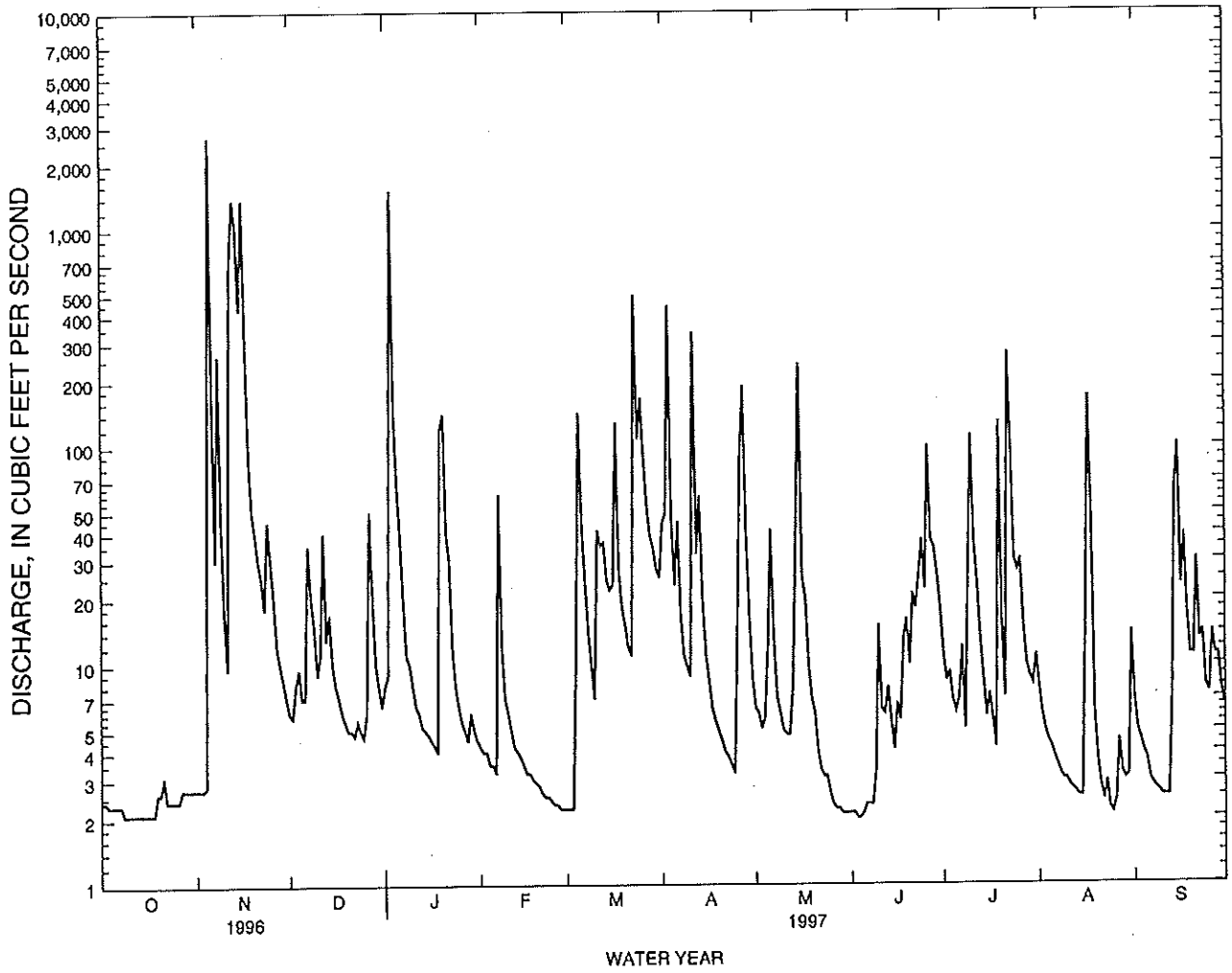
MEAN	29.3	55.7	44.8	45.8	38.8	54.4	41.9	24.1	14.5	27.3	21.7	14.9
MAX	131	295	351	199	208	336	241	131	72.9	149	128	104
(WY)	1967	1997	1988	1969	1955	1980	1974	1965	1987	1970	1982	1992
MIN	1.55	2.54	1.92	1.65	1.66	1.56	1.75	1.55	1.43	1.40	1.28	1.28
(WY)	1985	1990	1984	1986	1986	1993	1992	1996	1984	1984	1984	1984

e Estimated

HAWAII, ISLAND OF OAHU

16216000 WAIAWA STREAM NEAR PEARL CITY

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1952 - 1997	
ANNUAL TOTAL	15142.6		17655.7			
ANNUAL MEAN	41.4		48.4		34.5	
HIGHEST ANNUAL MEAN					80.8	1982
LOWEST ANNUAL MEAN					7.56	1984
HIGHEST DAILY MEAN	2680	Nov 5	2680	Nov 5	5150	Mar 24 1994
LOWEST DAILY MEAN	1.4	May 19	2.0	Jun 3	1.1	May 18 1993
ANNUAL SEVEN-DAY MINIMUM	1.4	May 19	2.1	May 29	1.1	May 25 1993
ANNUAL RUNOFF (AC-FT)	30040		35020		24970	
10 PERCENT EXCEEDS	45		56		48	
50 PERCENT EXCEEDS	3.4		7.0		6.6	
90 PERCENT EXCEEDS	1.6		2.3		2.3	



HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE

LOCATION.--Lat 21°24'33", long 157°52'06", Hydrologic Unit 2006000 (Kaneohe quadrangle, 1968, 1:24,000), on right bank, 4.1 mi west of Kaneohe Post Office, and 4.4 mi east of Aiea High School.

DRAINAGE AREA.--1.64 mi^2.

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

REVISED RECORDS.--WDR HI-95-1: 1992-94 (M).

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

REMARKS.--Records computed by S.T.M. Young. Records good. Suspended sediment data are collected at this site.

AVERAGE DISCHARGE.--6 years (water years 1992-97), 2.79 ft^3/s (2,020 acre ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 470 ft^3/s, October 16, 1991, gage height, 6.94 ft, 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)
Nov. 13	0115	252	5.12	Jan. 3	1130	*329	*5.68
Nov. 14	0500	326	5.66	Mar. 17	0945	315	5.57

Minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.34	.74	.61	.09	2.7	.93	.62	1.2	.57	.45
2	.00	15	.29	.28	.30	.19	29	.79	.68	1.7	.50	1.4
3	.00	3.3	.26	46	.18	.27	30	.83	.67	.92	.43	.72
4	.00	.19	.27	12	.14	8.6	4.5	.67	.58	1.8	.42	.27
5	.00	19	.50	3.5	.14	20	3.0	13	.49	.80	.39	.18
6	.00	4.5	.30	1.6	.17	3.5	6.2	9.6	.85	1.4	.35	.15
7	.00	1.1	3.0	1.0	2.1	1.7	1.7	3.4	.68	.79	.33	.13
8	.00	27	.55	.68	.43	.81	3.2	12	5.9	.66	.33	.14
9	.00	6.0	.29	.49	.20	.49	1.6	2.3	2.7	16	.29	.12
10	.00	1.4	.29	.37	.14	.33	6.6	1.2	2.8	9.3	.26	.11
11	.00	.65	9.7	.29	.35	7.7	11	2.6	1.1	3.6	.27	.15
12	.00	32	6.6	.39	.27	1.5	1.6	5.6	2.6	1.8	.25	.77
13	.00	30	1.7	1.2	.15	3.4	6.6	1.7	1.2	1.4	.27	2.2
14	.01	43	1.3	.31	.14	.82	1.4	27	.87	.98	.22	6.9
15	.00	20	.70	.22	.13	5.3	1.0	28	1.4	.96	.76	1.6
16	.00	32	.40	.52	.10	1.9	.80	13	1.5	1.1	3.3	.84
17	.02	23	.27	.47	.09	29	.68	3.8	2.1	.84	14	1.0
18	.00	6.2	.23	.18	.08	2.7	.59	2.1	1.9	.66	3.3	.66
19	1.8	2.9	.22	11	.05	1.1	.52	1.4	1.4	13	.91	1.3
20	1.1	1.8	.19	6.4	.04	.92	.50	1.1	.93	1.4	.56	1.5
21	.05	1.3	.37	9.0	.03	.53	.45	.99	2.1	.94	1.9	4.0
22	.01	1.0	.23	2.6	7.4	.33	.42	1.1	1.4	28	.80	1.3
23	.00	.85	.30	.96	1.2	27	.38	2.3	2.2	6.1	.46	.53
24	.00	11	.48	.51	.20	16	5.6	.94	2.6	1.8	.30	.25
25	.00	1.9	.29	.29	.17	21	5.5	.78	2.2	10	.23	.16
26	.00	1.2	2.8	.22	.18	6.3	20	.68	9.6	2.9	.82	1.0
27	.00	.95	9.2	.17	.42	3.3	22	.61	3.7	1.4	.39	.41
28	.00	.79	1.6	.16	.14	5.4	4.0	.55	2.5	1.1	.30	5.5
29	.00	.53	.68	1.4	---	2.8	1.9	.52	5.2	.85	.36	1.1
30	.00	.42	.41	2.6	---	1.5	1.2	.50	2.2	1.1	.59	.39
31	.01	---	1.1	2.7	---	1.1	---	.56	---	.76	1.1	---
TOTAL	3.00	288.98	44.86	108.25	15.55	175.58	174.64	140.55	64.67	115.26	34.96	35.23
MEAN	.097	9.63	1.45	3.49	.56	5.66	5.82	4.53	2.16	3.72	1.13	1.17
MAX	1.8	43	9.7	46	7.4	29	30	28	9.6	28	14	6.9
MIN	.00	.00	.19	.16	.03	.09	.38	.50	.49	.66	.22	.11
AC-FT	6.0	573	89	215	31	348	346	279	128	229	69	70

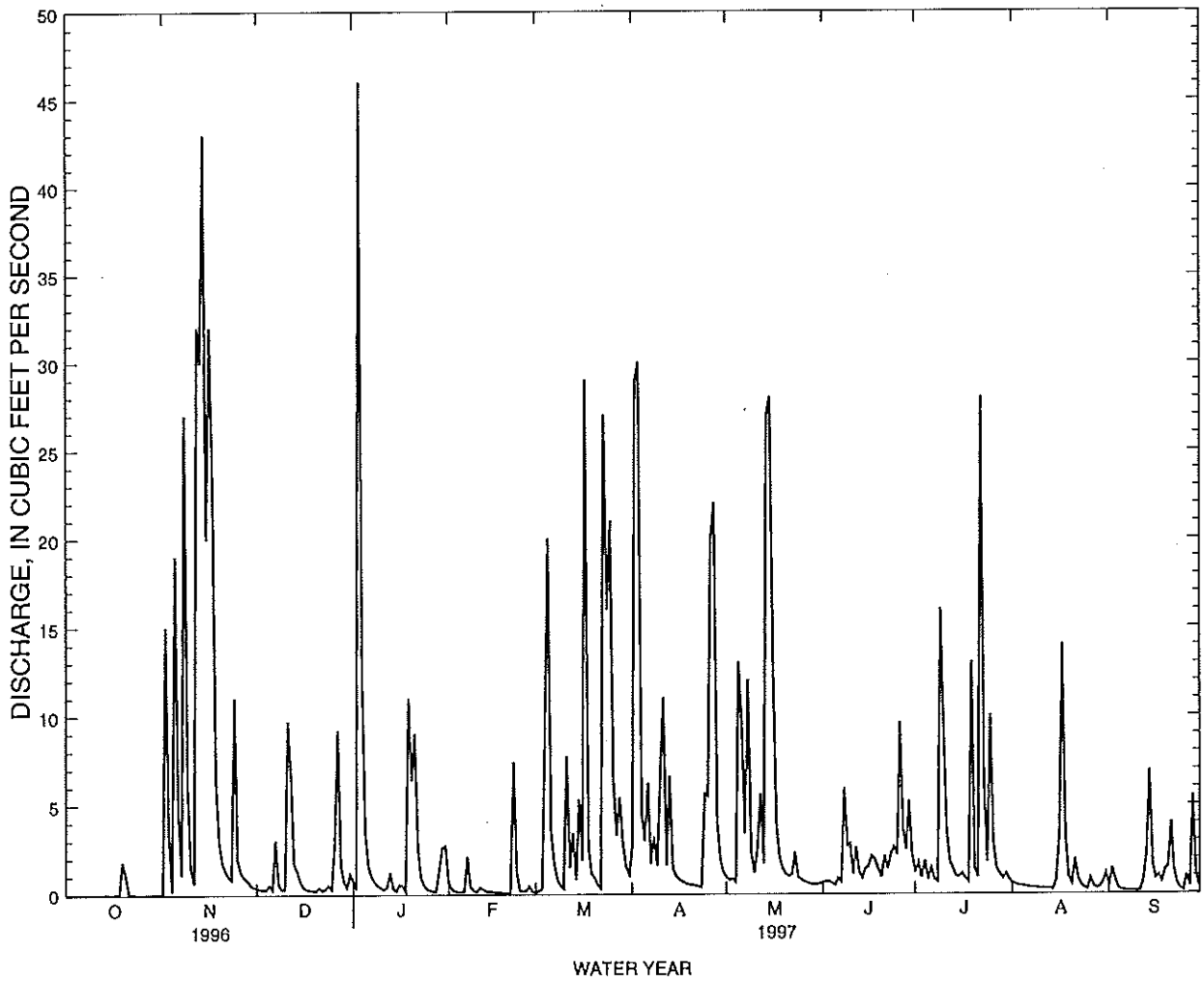
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1997, BY WATER YEAR (WY)

MEAN	2.69	4.66	2.58	3.27	1.96	3.71	2.96	1.17	1.47	3.28	2.38	3.42
MAX	4.48	9.63	6.89	8.09	7.87	12.0	5.82	4.53	2.85	7.07	5.97	12.3
(WY)	1992	1997	1993	1994	1994	1994	1997	1997	1994	1993	1991	1992
MIN	.097	.56	1.28	.81	.25	.20	.018	.033	.11	1.77	.73	.68
(WY)	1997	1992	1994	1992	1993	1993	1992	1992	1992	1996	1996	1995

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1991 - 1997	
ANNUAL TOTAL	811.96		1201.53			
ANNUAL MEAN	2.22		3.29		2.79	
HIGHEST ANNUAL MEAN					4.28	1994
LOWEST ANNUAL MEAN					1.94	1995
HIGHEST DAILY MEAN	60	Jan 25	46	Jan 3	213	Mar 24 1994
LOWEST DAILY MEAN	.00	May 9	.00	Oct 1	.00	Nov 28 1991
ANNUAL SEVEN-DAY MINIMUM	.00	May 9	.00	Oct 1	.00	Jan 24 1992
ANNUAL RUNOFF (AC-FT)	1610		2380		2020	
10 PERCENT EXCEEDS	5.7		9.4		6.4	
50 PERCENT EXCEEDS	.33		.85		.50	
90 PERCENT EXCEEDS	.00		.10		.01	



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.--Samples for water years 1995-97 with concentrations of about 1,000 mg/L and higher were analyzed using method 2540D (Standard Methods, 19th edition, 1995) for total suspended solids.

Water year 1994: Sediment records computed by C.W. Yeung. Records fair.
Water year 1995: Sediment records computed by S.T.M. Young. Records poor.
Water year 1996: Sediment records computed by C.W. Yeung. Records poor.
Water year 1997: Record of "Sediment discharge, suspended (tons/day)" for water year 1997 was not completed at the time of this publication.

EXTREMES FOR PERIOD OF RECORD.--

Water year 1994:
Sediment Concentrations: Maximum daily mean 5,620 mg/L (estimated), September 3, 1992; no flow on many days in 1992, 1994.
Sediment Discharge: Maximum daily, 979 tons (estimated), September 3, 1992; no flow on many days in 1992, 1994.
Water year 1995:
Sediment Concentrations: Maximum daily mean 5,620 mg/L (estimated), September 3, 1992; no flow on many days in 1992, 1994, 1995.
Sediment Discharge: Maximum daily, 979 tons (estimated), September 3, 1992; no flow on many days in 1992, 1994, 1995.
Water year 1996:
Sediment Concentrations: Maximum daily mean 5,620 mg/L (estimated), September 3, 1992; no flow on many days in 1992-96.
Sediment Discharge: Maximum daily, 979 tons (estimated), September 3, 1992; no flow on many days in 1992-96.

EXTREMES FOR CURRENT YEAR.--

Water year 1994:
Sediment Concentrations: Maximum daily mean, 1,310 mg/L, March 30; minimum daily mean, 0 mg/L, December 31, January 1, 2, 12.
Sediment Discharge: Maximum daily, 259 tons March 24; minimum daily, 0.0 tons, December 11, 31, January 1, 2, 12.
Water year 1995:
Sediment Concentrations: Maximum daily mean, 1,330 mg/L (estimated), February 14; minimum daily mean, 1 mg/L, January 23, 24.
Sediment Discharge: Maximum daily, 52 tons (estimated), January 15; minimum daily, 0.0 tons on many days.
Water year 1996:
Sediment Concentrations: Maximum daily mean, 146 mg/L (estimated), November 1; minimum daily mean, 0 mg/L, on many days.
Sediment Discharge: Maximum daily, 37 tons November 1, 13, January 25; minimum daily, 0.0 tons on many days.

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.40	e287	.33	2.2	e441	2.7	5.9	e484	7.9
2	.19	e186	.10	1.3	e300	1.1	1.6	e388	1.7
3	.14	e182	.07	17	e317	24	.65	e304	.54
4	.17	e178	.08	10	e542	15	.46	e238	.30
5	.14	e174	.07	2.0	e419	2.3	.45	e199	.24
6	.10	e170	.05	.92	e353	.88	.29	e190	.15
7	.07	e167	.03	.57	e297	.46	.14	e182	.07
8	.05	e163	.02	8.2	e444	12	.07	e175	.03
9	.15	e183	.09	1.3	e332	1.3	.04	e168	.02
10	.14	e179	.07	.65	e279	.50	.02	e161	.01
11	.13	e173	.06	.43	e198	.23	.01	e155	.00
12	.07	e168	.03	.38	e193	.20	.30	e199	.17
13	.08	e163	.04	.26	e189	.13	2.5	e399	3.1
14	.49	e211	.33	.18	e184	.09	4.4	e330	6.5
15	7.4	e447	10	.20	e195	.11	1.9	e337	2.0
16	.53	e259	.39	.57	e234	.57	.62	e215	.36
17	.45	e312	.41	.61	e303	.51	10	e521	16
18	.25	e238	.17	.32	e199	.17	5.7	e489	8.7
19	.15	226	.10	.24	e190	.13	2.3	e532	3.3
20	.08	e217	.06	.23	e182	.11	.70	e449	.85
21	.05	e163	.02	.14	e174	.07	.42	380	.43
22	.05	e161	.02	.09	e166	.04	.27	e327	.24
23	31	e476	55	.74	e267	.74	.20	e282	.15
24	3.4	e498	4.7	.36	e267	.27	.15	e243	.10
25	16	379	18	.52	e275	.41	.14	e210	.08
26	3.8	e386	3.9	.25	e191	.13	.10	e177	.05
27	1.1	e332	1.1	.25	e194	.14	.12	e188	.06
28	.55	e349	.51	.49	e242	.32	.13	e169	.06
29	.54	e301	.47	.46	252	.32	.11	e157	.05
30	4.1	e436	5.9	1.1	e324	1.1	.05	e85	.02
31	2.7	e330	3.1	---	---	---	.00	0	.00
TOTAL	74.47	---	105.22	51.96	---	66.03	39.74	---	53.18

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.00	0	.00	.56	e251	.38	.68	e218	.40
2	.00	0	.00	.48	e222	.29	.66	e216	.39
3	.02	e60	.02	1.5	e292	1.4	.57	e215	.33
4	.05	e144	.03	4.3	e464	5.5	.56	e214	.33
5	.05	e172	.03	1.6	e348	1.5	.74	e212	.43
6	.27	e308	.26	1.0	e253	.71	.60	e211	.34
7	2.9	e425	4.1	.66	e216	.38	.53	e210	.30
8	.42	e268	.34	.68	e218	.40	.49	e209	.28
9	.11	e171	.05	22	e440	42	.49	e207	.28
10	.07	e87	.02	6.4	e534	9.5	.50	e206	.28
11	.05	e43	.02	2.5	e458	3.1	.47	e205	.26
12	.00	0	.00	29	e604	55	.44	e204	.24
13	.23	e130	.19	14	e512	20	.37	e203	.20
14	.20	e243	.14	56	242	73	.47	e201	.26
15	.10	e172	.05	27	e309	46	.43	e261	.31
16	.07	e167	.03	22	e288	18	.34	e200	.18
17	3.4	e179	3.2	9.1	e427	12	.33	e188	.17
18	44	464	56	3.1	e305	2.5	.30	268	.23
19	7.9	e503	11	2.7	e412	3.1	.31	e235	.20
20	25	e579	41	2.1	e307	1.8	1.6	e352	1.6
21	6.6	e534	9.5	1.4	e220	.81	.80	e253	.55
22	2.0	e469	2.6	1.1	e219	.62	3.7	e469	4.9
23	4.5	e476	6.6	.97	e219	.57	52	752	126
24	41	508	54	.87	663	1.5	213	394	259
25	98	501	190	2.8	e361	3.1	45	210	25
26	6.7	e313	5.5	4.7	e410	5.5	11	e340	12
27	2.9	e393	3.0	1.2	e252	.81	9.8	e382	11
28	1.6	e413	1.8	.77	e219	.45	7.3	284	6.4
29	1.1	e365	1.1	---	---	---	12	e544	19
30	.80	e322	.69	---	---	---	3.4	1310	12
31	.62	e285	.48	---	---	---	2.7	e694	5.3
TOTAL	250.66	---	391.75	220.49	---	309.92	371.58	---	488.16

e Estimated

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1.9	e437	2.3	2.5	e452	3.0	.66	e213	.38
2	1.6	e431	1.9	2.5	e457	3.2	.78	e314	.70
3	1.5	e425	1.7	1.8	e453	2.2	.62	e275	.47
4	2.5	e446	3.1	6.1	e336	5.9	.51	e209	.29
5	1.8	e442	2.2	2.3	e437	2.7	.48	e207	.27
6	1.3	e415	1.4	1.4	e406	1.5	.58	e234	.39
7	1.2	e440	1.4	1.1	e363	1.1	e.52	e285	.45
8	4.2	e481	5.4	.96	e324	.84	e.40	e143	.19
9	9.2	e507	14	.86	e289	.67	e.32	e74	.09
10	9.6	e551	14	.78	e258	.54	e.27	e77	.07
11	4.0	e487	5.4	.71	e231	.44	.38	e139	.14
12	2.4	e465	3.0	.67	e209	.38	.36	e157	.15
13	1.8	e456	2.3	1.1	e326	1.1	.37	e177	.18
14	1.5	e447	1.9	.85	e274	.64	.52	e271	.42
15	1.4	e439	1.6	.83	e337	.76	.49	e239	.32
16	1.2	e430	1.4	.73	e231	.45	.46	329	.41
17	2.1	e441	2.8	.67	e216	.39	1.9	e326	2.2
18	6.5	e513	9.1	.79	e260	.63	7.8	e543	12
19	2.0	e446	2.4	3.0	e470	4.0	17	e587	28
20	7.9	e542	12	1.6	e442	2.0	3.1	e511	4.3
21	3.9	e490	5.2	.91	e368	.91	1.4	e437	1.6
22	2.0	e447	2.4	.71	e294	.57	4.6	e497	6.5
23	1.7	e442	2.0	.73	e238	.47	1.3	e367	1.3
24	1.6	e437	1.9	1.0	e358	1.0	.91	e265	.66
25	1.7	e432	2.0	.76	e251	.52	29	e542	56
26	1.7	e427	2.0	6.1	e393	7.1	5.7	e442	7.3
27	1.5	e423	1.7	3.5	e342	3.0	2.2	e241	1.5
28	32	e638	61	1.6	e424	1.9	1.2	e224	.75
29	4.1	e525	5.9	1.0	e341	.94	.94	209	.53
30	2.3	e440	2.7	.75	e259	.53	.74	e209	.42
31	---	---	---	1.1	e293	.90	---	---	---
TOTAL	118.1	---	176.1	49.41	---	50.28	85.51	---	127.98

e Estimated

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	.77	e281	.60	.44	e132	.15	7.0	e370	6.7
2	1.6	e404	1.8	.43	e42	.05	6.7	e473	9.2
3	.75	e271	.56	.37	e13	.01	9.5	e527	14
4	.54	e208	.30	.38	5	.01	6.9	e536	10
5	.49	e205	.27	.34	e7	.01	2.2	e463	2.8
6	.54	e205	.30	.38	e12	.01	2.1	e446	2.5
7	.97	387	1.0	.35	e19	.02	2.0	e448	2.4
8	.69	e277	.54	.31	e33	.03	4.1	e473	5.3
9	.47	e205	.26	.28	e55	.04	2.6	e403	2.8
10	.57	e205	.32	.26	e91	.06	1.3	e312	1.1
11	.45	e205	.25	.28	e153	.12	.99	e246	.71
12	1.2	e352	1.3	9.4	e447	15	5.6	e328	5.4
13	.52	e217	.31	1.6	e322	1.6	4.7	e490	6.4
14	.41	e202	.23	.43	e202	.23	3.0	e478	4.1
15	7.3	445	10	.27	e193	.14	1.7	e429	2.0
16	1.5	e315	1.4	.25	e188	.13	.92	e316	.79
17	3.0	e329	3.3	.34	e277	.29	.50	e233	.32
18	5.2	e507	7.2	1.4	e310	1.4	54	e450	92
19	1.4	e445	1.7	2.0	e416	2.4	14	118	6.9
20	.76	e366	.76	6.8	e557	11	6.2	e263	5.2
21	.49	e290	.39	1.7	e431	2.0	3.6	e492	4.8
22	.44	e230	.28	.73	e285	.57	2.5	e390	2.6
23	2.1	e337	2.4	6.3	e358	9.1	1.8	81	.41
24	39	e651	77	4.2	e386	4.7	1.2	e250	.84
25	8.0	e611	14	1.3	e380	1.3	1.1	e347	1.0
26	1.8	e458	2.3	.95	726	1.9	.92	e287	.74
27	1.8	e381	2.0	.53	e343	.51	.90	e321	.79
28	.77	e219	.46	.40	e202	.22	.76	e235	.49
29	.59	e211	.34	.30	e197	.16	.61	e213	.35
30	.45	e205	.25	.23	e192	.12	.55	e208	.31
31	.35	e199	.19	23	e403	33	---	---	---
TOTAL	84.92	---	132.01	65.95	---	86.28	149.95	---	192.95
YEAR	1562.74		2179.86						

e Estimated

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.27	e44	.03	.16	e33	.02	7.5	e227	6.6
2	.67	e44	.08	.28	e48	.04	1.2	e93	.31
3	.68	e44	.08	.17	e36	.02	.86	e83	.20
4	.40	e31	.03	1.3	e90	.64	1.9	e95	1.1
5	.30	e34	.03	.70	e99	.23	4.3	e162	2.9
6	.26	e38	.03	.26	e42	.03	1.0	e88	.25
7	.35	e56	.05	4.0	374	6.6	6.7	e210	4.2
8	.27	e48	.04	.80	e177	.50	1.9	e116	.60
9	.22	e38	.02	.37	e50	.06	2.0	148	.83
10	.20	e36	.02	2.2	e133	.98	4.8	e180	3.0
11	.22	e36	.02	4.7	e218	3.7	1.6	e101	.44
12	.59	e62	.12	4.3	e221	3.0	.95	e79	.20
13	.37	e52	.06	12	e249	15	.65	e66	.12
14	.42	e62	.08	4.7	e207	2.8	.55	e61	.10
15	2.8	e125	1.7	6.7	e231	5.1	.44	e55	.07
16	17	e314	33	8.4	e215	7.5	.42	e55	.07
17	19	e256	28	4.0	e196	2.3	1.3	e86	.33
18	6.8	e196	10	2.0	e123	.67	.62	e33	.06
19	3.3	e158	1.9	1.6	e126	.55	.49	e11	.02
20	.95	e85	.22	.91	e88	.22	.37	4	.00
21	.50	e61	.08	.83	e77	.17	.28	e3	.00
22	.43	e71	.08	.59	e60	.10	.25	e3	.00
23	.21	e47	.03	.49	e58	.08	2.0	e105	.65
24	.17	e35	.02	.61	e66	.14	2.5	e131	1.1
25	.13	e30	.01	.47	e78	.10	.73	e71	.14
26	.17	e32	.02	2.6	e164	1.7	.46	e58	.07
27	.29	e53	.04	.70	e71	.14	.32	e52	.05
28	.13	e31	.01	.91	87	.23	.27	e45	.03
29	.10	e27	.01	1.8	e113	.63	.59	e59	.10
30	.10	e28	.01	.92	e81	.20	.39	e56	.06
31	.10	e29	.01	---	---	---	.23	e41	.03
TOTAL	57.40	---	75.83	69.47	---	53.45	47.57	---	23.63

e Estimated

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.18	e36	.02	.14	e31	.01	1.3	e7	.03
2	.15	e34	.02	.13	e31	.01	3.1	232	8.5
3	.15	e33	.01	.13	e30	.01	1.2	e174	.80
4	.14	e31	.01	.10	e29	.01	.28	e58	.05
5	.17	41	.02	.24	e41	.03	.13	e42	.02
6	.16	e35	.02	.21	e39	.02	.07	e31	.01
7	.16	e32	.01	.13	e33	.01	.05	e23	.00
8	.15	e32	.01	.11	e30	.01	.04	e18	.00
9	.14	e31	.01	.09	e27	.01	.03	e15	.00
10	.14	e31	.01	.10	e25	.01	.02	e13	.00
11	.14	e31	.01	.07	e23	.00	.02	e11	.00
12	.17	e37	.02	.06	e21	.00	.04	e16	.00
13	.14	e31	.01	1.8	e91	3.4	.01	e5	.00
14	20	e321	32	6.2	e1330	31	.00	e4	.00
15	23	e558	52	.46	e86	.14	.00	e3	.00
16	5.2	e211	3.2	.29	e41	.04	.00	e3	.00
17	2.3	e119	.82	.18	e49	.03	.00	e3	.00
18	1.1	e54	.16	.21	e30	.02	.00	e3	.00
19	.61	e24	.04	.13	e10	.00	.00	e3	.00
20	.35	e11	.01	.11	e10	.00	.00	e3	.00
21	.24	e5	.00	.10	e10	.00	.01	e8	.00
22	.19	e2	.00	.10	e9	.00	.26	e63	.08
23	.19	1	.00	.09	e9	.00	9.1	332	8.9
24	.18	e1	.00	.17	118	.07	7.7	190	4.9
25	.17	e2	.00	1.4	e100	.49	2.4	e124	.97
26	.23	e11	.01	.42	e96	.13	.57	e57	.09
27	.38	e28	.03	5.7	333	44	2.8	e149	1.8
28	2.0	e110	1.4	7.1	105	8.0	1.2	7	.02
29	1.0	e191	.59	---	---	---	1.8	e97	.63
30	.31	e57	.05	---	---	---	.65	e69	.13
31	.20	e37	.02	---	---	---	.32	e47	.04
TOTAL	59.64	---	90.51	25.97	---	87.45	33.10	---	26.97

e Estimated

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	.13	e33	.01	.33	e47	.04	.03	e15	.00
2	.10	e55	.02	.27	e44	.03	.03	e18	.00
3	15	211	11	.25	e41	.03	.02	e13	.00
4	30	186	19	.18	e35	.02	.01	e9	.00
5	9.2	e131	3.2	.20	e39	.02	.02	e10	.00
6	2.8	e121	.92	4.4	79	1.3	.04	e20	.00
7	1.8	e120	.59	.58	e64	.11	2.9	e137	1.6
8	.90	e117	.28	.22	e42	.03	.40	e61	.08
9	.50	e112	.15	.12	e30	.01	.08	e29	.01
10	.29	e106	.08	.10	e19	.01	.05	e19	.00
11	.17	103	.05	.15	e11	.01	.04	e19	.00
12	6.2	e142	3.8	.36	13	.01	.03	e15	.00
13	2.7	e123	.99	.19	e15	.01	.04	e18	.00
14	.96	e81	.21	.12	e13	.00	.02	e13	.00
15	.67	e66	.12	.10	e11	.00	.00	e4	.00
16	.35	e49	.05	2.3	e94	1.6	.00	e3	.00
17	.23	e49	.03	1.4	e108	.49	.00	e3	.00
18	.15	e39	.02	.52	e60	.09	.00	e3	.00
19	.11	e31	.01	.29	e44	.04	.00	e3	.00
20	.27	e62	.05	.14	e34	.01	.00	e3	.00
21	.12	e39	.01	1.1	e80	.46	.00	e3	.00
22	17	116	6.8	.91	e110	.30	18	127	8.0
23	35	e237	44	.29	e48	.04	6.0	e98	1.8
24	11	109	5.3	.14	e34	.01	.78	e73	.17
25	21	94	5.0	.10	e27	.01	.17	e35	.02
26	3.2	e134	1.2	.08	e24	.01	.07	e24	.01
27	1.4	e113	.43	.07	e22	.00	.04	e18	.00
28	.90	e89	.21	.06	e20	.00	.02	e9	.00
29	.62	e70	.12	.05	e18	.00	.00	e3	.00
30	.43	e55	.07	.04	e17	.00	.02	e9	.00
31	---	---	---	.04	e16	.00	---	---	---
TOTAL	163.20	---	103.72	15.10	---	4.69	28.81	---	11.69

e Estimated

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	JULY			AUGUST			SEPTEMBER		
1	.02	e9	.00	1.5	e111	.51	.40	e56	.06
2	.00	e3	.00	.58	e68	.11	.38	e52	.05
3	.04	e24	.00	.25	e47	.03	.30	e51	.04
4	6.5	e254	6.2	3.1	e162	2.9	.22	e39	.02
5	1.3	e128	.54	.76	e142	.35	.44	e66	.08
6	.23	e42	.03	.19	e41	.02	.22	e54	.03
7	.07	e25	.01	.10	e28	.01	.17	e37	.02
8	.04	e17	.00	.08	e28	.01	.15	e35	.01
9	.03	e14	.00	9.3	e379	16	.14	e35	.01
10	.03	e14	.00	13	e221	16	.14	e32	.01
11	.27	e38	.04	13	e327	12	.13	e30	.01
12	3.0	e140	1.2	3.3	e175	1.7	.12	e29	.01
13	.57	e71	.12	8.3	380	18	.11	e29	.01
14	.23	e40	.03	3.9	e195	2.3	.09	e28	.01
15	.16	e35	.02	2.1	e124	.75	.08	e28	.01
16	.07	e26	.01	1.7	e118	.59	.07	e26	.01
17	.07	e25	.01	5.0	e217	3.7	.07	e23	.00
18	.05	e20	.00	2.5	e154	1.2	.08	e24	.01
19	3.9	e73	4.4	2.9	e150	1.4	.07	e22	.00
20	14	e314	15	2.9	e188	1.6	.06	e21	.00
21	11	e425	15	1.4	e105	.39	.06	e20	.00
22	3.0	e210	1.8	.84	e76	.18	.05	e20	.00
23	.84	e90	.21	29	212	23	.05	e19	.00
24	2.0	e152	.99	4.4	e145	1.7	.05	e22	.00
25	1.0	e92	.28	1.8	e135	.65	.04	e18	.00
26	7.6	e313	7.7	1.8	e116	.59	.04	e18	.00
27	4.3	e238	3.8	1.3	e100	.35	.04	e19	.00
28	5.6	e275	5.2	.82	e77	.17	1.7	e85	1.3
29	1.5	e122	.51	.75	e83	.17	5.2	e147	5.2
30	.90	e100	.24	.52	e68	.10	9.8	e253	7.9
31	1.7	e115	.56	.47	e80	.10	---	---	---
TOTAL	70.02	---	63.90	117.56	---	106.58	20.47	---	14.80
YEAR	708.31		663.22						

e Estimated

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	1.2	e17	.06	52	e146	37	5.2	e45	1.2
2	.42	e8	.01	4.1	e35	.40	1.3	e20	.07
3	.21	e6	.00	5.6	44	1.8	.76	e15	.03
4	.16	e8	.00	3.0	e29	.27	.54	e12	.02
5	.11	e5	.00	1.3	e19	.06	.42	e11	.01
6	.31	e8	.01	.88	e14	.03	4.0	e49	.75
7	1.4	e16	1.2	.71	e13	.03	4.2	e37	.64
8	15	e65	5.5	22	84	8.9	.95	e16	.04
9	1.2	e19	.06	5.8	e47	.85	.67	e13	.02
10	.56	e14	.02	2.0	e25	.14	.48	e11	.01
11	.41	e15	.02	1.2	e21	.07	.37	e9	.01
12	2.0	e22	.14	1.3	e18	.08	.31	e7	.01
13	.58	e13	.02	47	e132	37	2.2	e27	.23
14	.26	e10	.01	16	e80	3.9	2.5	e30	.31
15	.16	e8	.00	7.8	e56	1.5	.56	e14	.02
16	.11	e6	.00	2.4	e25	.16	.36	e12	.01
17	.09	e5	.00	3.5	e34	.43	.45	e11	.01
18	.09	e4	.00	1.5	e20	.08	.32	e10	.01
19	.08	e4	.00	1.0	e17	.05	.26	e9	.01
20	1.0	e18	.08	.89	e14	.03	.19	e8	.00
21	.51	e11	.02	.82	e13	.03	.17	e7	.00
22	.19	e10	.01	.68	e13	.02	.14	e6	.00
23	.10	e6	.00	.57	e12	.02	.14	e5	.00
24	.07	e4	.00	.50	e11	.02	.12	e5	.00
25	.18	e5	.00	.45	e11	.01	.12	e4	.00
26	5.9	e40	1.9	.43	e10	.01	.48	e12	.02
27	1.4	e19	.08	.71	e12	.02	.16	e6	.00
28	18	e50	12	1.8	e22	.13	.11	e5	.00
29	9.8	e66	3.1	.79	e15	.03	.09	e4	.00
30	1.8	e22	.11	6.1	e53	2.0	9.8	e44	2.6
31	25	80	10	---	---	---	7.5	e58	1.7
TOTAL	88.30	---	34.35	192.83	---	95.07	44.87	---	7.73

e Estimated

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.84	e15	.04	.73	e13	.03	1.0	e9	.02
2	.38	e11	.01	.53	e11	.02	5.2	e36	1.4
3	.22	e7	.00	.41	e9	.01	31	e73	9.7
4	.25	e8	.01	.31	e8	.01	8.3	e57	1.7
5	1.9	e23	.12	.24	e6	.00	1.8	e21	.11
6	.70	e14	.03	.19	e5	.00	1.0	e16	.04
7	6.3	e51	1.7	5.5	e26	1.6	.68	e12	.02
8	12	50	3.0	5.6	e50	1.1	.58	e11	.02
9	1.5	e21	.09	.74	e17	.03	.50	e10	.01
10	6.4	50	1.3	.38	e12	.01	.44	e9	.01
11	1.2	e19	.07	.23	e9	.01	.41	e8	.01
12	.57	e12	.02	.14	e7	.00	.39	e8	.01
13	.34	e9	.01	.11	e5	.00	.35	e7	.01
14	.21	e7	.00	.52	e9	.02	.35	e7	.01
15	.15	e6	.00	.50	e10	.02	.32	e6	.01
16	.12	e5	.00	.18	e6	.00	.32	e6	.01
17	.16	e6	.00	.11	e5	.00	.39	e5	.01
18	.36	e9	.01	.09	e4	.00	.32	e5	.00
19	5.0	50	1.5	.07	e4	.00	.26	e5	.00
20	.82	e14	.03	.07	e3	.00	.28	e4	.00
21	.79	e11	.02	.06	e3	.00	.26	e4	.00
22	.40	e9	.01	.05	e3	.00	.26	e4	.00
23	2.6	56	.79	.04	e2	.00	.22	e3	.00
24	1.2	e23	.10	.05	e2	.00	.20	e3	.00
25	60	100	37	1.3	e18	.08	.19	e3	.00
26	4.7	e43	.61	3.8	e30	.34	.17	e3	.00
27	5.0	e33	1.2	4.4	e32	.75	.15	e3	.00
28	11	e79	3.7	21	e53	5.3	.12	e2	.00
29	1.7	e23	.11	2.1	e6	.03	.09	e2	.00
30	3.1	e29	.54	---	---	---	.08	e3	.00
31	1.7	e21	.12	---	---	---	7.9	e43	1.9
TOTAL	131.61	---	52.14	49.45	---	9.36	63.53	---	15.00

e Estimated

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	9.6	e61	2.4	.20	e8	.01	.03	e2	.00
2	2.2	e29	.20	.15	e6	.00	.00	0	.00
3	1.1	e15	.06	.12	e5	.00	.00	0	.00
4	.93	e11	.08	.11	e3	.00	.00	0	.00
5	4.1	e36	.48	.09	e3	.00	.00	0	.00
6	.79	e13	.03	.06	e2	.00	.02	e1	.00
7	.32	e8	.01	.03	e1	.00	1.4	e17	.10
8	.18	e6	.00	.01	e1	.00	.30	e9	.01
9	.12	e5	.00	.00	0	.00	.97	e11	.15
10	1.1	e11	.07	.00	0	.00	.76	8	.04
11	2.8	e28	.23	.00	0	.00	.06	e4	.00
12	.75	e13	.03	.00	0	.00	1.0	e9	.19
13	.29	e10	.01	.00	0	.00	6.2	53	1.8
14	.17	e7	.00	.00	0	.00	.23	e7	.01
15	.11	e5	.00	.00	0	.00	.07	e3	.00
16	.08	e4	.00	.00	0	.00	.05	e3	.00
17	.11	e4	.00	.00	0	.00	.03	e3	.00
18	1.5	e21	.09	.00	0	.00	3.5	27	.36
19	.95	e14	.04	.00	0	.00	.89	e13	.04
20	1.4	e16	.21	.01	e1	.00	.71	e15	.03
21	6.0	e47	1.2	.00	0	.00	.36	e13	.01
22	.82	e25	.06	.00	0	.00	.75	e13	.03
23	.28	19	.02	.00	0	.00	9.2	e57	4.2
24	.17	e10	.01	.01	e1	.00	5.3	e40	.81
25	.10	e5	.00	.19	e5	.01	1.4	e19	.08
26	.13	e4	.00	1.1	e16	.08	.67	e12	.02
27	.13	e4	.00	.37	e8	.01	.44	e10	.01
28	8.6	44	1.8	2.3	e23	.31	.38	e9	.01
29	1.3	e18	.07	.94	e6	.02	19	e76	10
30	.33	e11	.01	.13	e4	.00	11	e69	2.6
31	---	---	---	.05	e2	.00	---	---	---
TOTAL	46.46	---	7.11	5.87	---	0.44	64.72	---	20.50

e Estimated

HAWAII, ISLAND OF OAHU

16225800 NORTH HALAWA STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	2.1	e24	.14	.08	e4	.00	2.2	e22	.17
2	2.6	e28	.23	.06	e3	.00	.33	e8	.01
3	1.1	e17	.05	.41	e9	.03	.16	e5	.00
4	3.6	e36	.50	.42	e11	.01	.08	e5	.00
5	15	e83	5.6	.25	e9	.01	.06	e5	.00
6	3.2	e32	.38	.12	e7	.00	2.9	e27	.45
7	7.5	e56	2.1	.14	e6	.00	13	e86	5.8
8	1.4	e19	.07	.10	e4	.00	6.0	e52	1.1
9	.80	e15	.03	.06	e3	.00	1.2	e18	.06
10	.42	e13	.02	2.0	e26	.23	.53	e12	.02
11	.26	e11	.01	3.6	e40	.56	1.6	e20	.09
12	.22	e9	.01	.96	e15	.04	3.9	e32	.77
13	.17	e7	.00	1.7	e22	.13	2.3	e27	.20
14	.14	e6	.00	.37	e9	.01	.58	e13	.02
15	.38	e8	.01	.12	e6	.00	.24	e8	.01
16	.85	e14	.04	.08	e5	.00	.22	e7	.01
17	.47	e10	.01	.06	e3	.00	.14	e5	.00
18	.97	e15	.05	.04	e3	.00	.10	e4	.00
19	1.4	e18	.07	.03	e2	.00	.08	e3	.00
20	1.1	e16	.05	.01	e1	.00	.07	e3	.00
21	.60	e13	.02	.00	e1	.00	.06	e2	.00
22	.35	e9	.01	.00	0	.00	.05	e2	.00
23	.19	e6	.00	.00	0	.00	.04	e2	.00
24	2.5	e22	.27	.00	0	.00	.03	e1	.00
25	.36	e9	.01	.00	0	.00	.02	e1	.00
26	2.1	e20	.21	.00	0	.00	.01	e1	.00
27	4.2	e33	.51	.00	0	.00	.00	0	.00
28	.62	e11	.02	.00	0	.00	.00	0	.00
29	.19	e7	.00	.00	0	.00	.00	0	.00
30	.10	e5	.00	.00	0	.00	.00	0	.00
31	.08	e4	.00	12	e68	5.2	---	---	---
TOTAL	54.97	---	10.42	22.61	---	6.22	35.90	---	8.71
YEAR	801.12		267.05						

e Estimated

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HAWAII, ISLAND OF OAHU

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 computed by Ben Shimizu. Records fair, except for periods of estimated record, which are poor. Recording rain gage located at station.

AVERAGE DISCHARGE.--47 years (water years 1930-32, 1954-97), 5.41 ft^3/s (3,920 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,650 ft^3/s, February 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)
Jan. 3	1200	*354	*7.93	No other peak greater than base discharge.			

Minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.05	.28	.95	.66	.21	3.8	1.7	.46	e2.0	.24	.18
2	.00	13	.23	.34	.17	.36	26	1.3	.25	e2.8	.21	.32
3	.00	4.4	.28	70	.08	.76	55	1.5	.16	e1.5	.21	.31
4	.00	.51	.45	26	.05	14	11	.85	.25	e1.7	.23	.06
5	.00	30	1.1	9.8	.04	39	6.5	13	.21	e.70	.20	.06
6	.00	12	.50	4.1	.34	11	11	18	.66	e1.3	.20	.05
7	.00	3.9	6.2	2.2	3.0	5.3	3.7	7.3	.27	e.80	.18	.06
8	.00	41	1.4	1.2	.56	2.3	3.5	12	6.2	e.40	.20	.11
9	.00	12	.58	.72	.27	1.3	2.7	4.4	3.1	e18	.16	.07
10	.00	3.7	.57	.43	.15	.73	4.5	2.5	3.9	e13	.13	.04
11	.00	1.7	10	.25	.53	12	48	3.2	1.7	e6.0	.19	.22
12	.00	58	10	.64	.07	4.0	7.0	6.4	3.9	e2.7	e.13	.27
13	.00	65	3.3	.83	.04	5.2	10	1.6	1.9	e1.5	e.12	.59
14	.05	78	2.5	.25	.20	2.1	3.2	30	1.1	e1.0	e.09	6.4
15	.01	40	1.1	.14	.18	4.2	1.8	40	1.4	e.75	.60	2.7
16	.00	67	.62	.45	.03	3.5	1.1	18	2.6	e.85	1.8	1.2
17	.32	39	.33	.09	.02	52	.78	4.5	3.1	e.70	8.3	1.8
18	.01	12	.17	.06	.03	9.7	.59	2.0	3.2	e.60	3.9	1.1
19	.77	6.1	.11	15	.03	3.2	.41	1.1	3.1	8.8	.79	1.0
20	.21	3.5	.08	18	.03	2.1	.29	.80	1.6	1.3	.25	1.3
21	.00	2.0	.60	14	.03	1.0	.18	.64	3.0	.92	1.0	2.6
22	.00	1.4	.14	8.5	7.5	.60	.15	.99	2.3	28	.55	1.5
23	.01	1.1	.49	3.0	2.0	44	.15	1.5	3.3	7.7	.19	.59
24	.06	11	.41	1.4	.21	31	5.2	.60	6.1	3.2	.07	.23
25	.01	2.6	.09	.79	.84	42	11	.42	6.1	7.2	.05	.33
26	.00	1.4	1.3	.43	.71	16	34	.31	18	4.3	.58	.52
27	.00	1.0	12	.25	1.3	10	42	.24	e8.5	1.8	.15	.39
28	.00	.93	3.5	.29	.49	13	11	.19	e5.5	.91	.12	3.4
29	.00	.48	1.2	1.5	---	8.0	4.4	.16	e7.0	.49	.10	.89
30	.08	.40	.70	2.1	---	4.0	2.5	.15	e3.5	.71	.12	.28
31	.45	---	.94	2.7	---	2.3	---	.24	---	.34	.75	---
TOTAL	1.98	513.17	61.17	186.41	19.56	344.86	311.45	175.59	102.36	121.97	21.81	28.57
MEAN	.064	17.1	1.97	6.01	.70	11.1	10.4	5.66	3.41	3.93	.70	.95
MAX	.77	78	12	70	7.5	52	55	40	18	28	8.3	6.4
MIN	.00	.05	.08	.06	.02	.21	.15	.15	.16	.34	.05	.04
AC-FT	3.9	1020	121	370	39	684	618	348	203	242	43	57

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1997, BY WATER YEAR (WY)

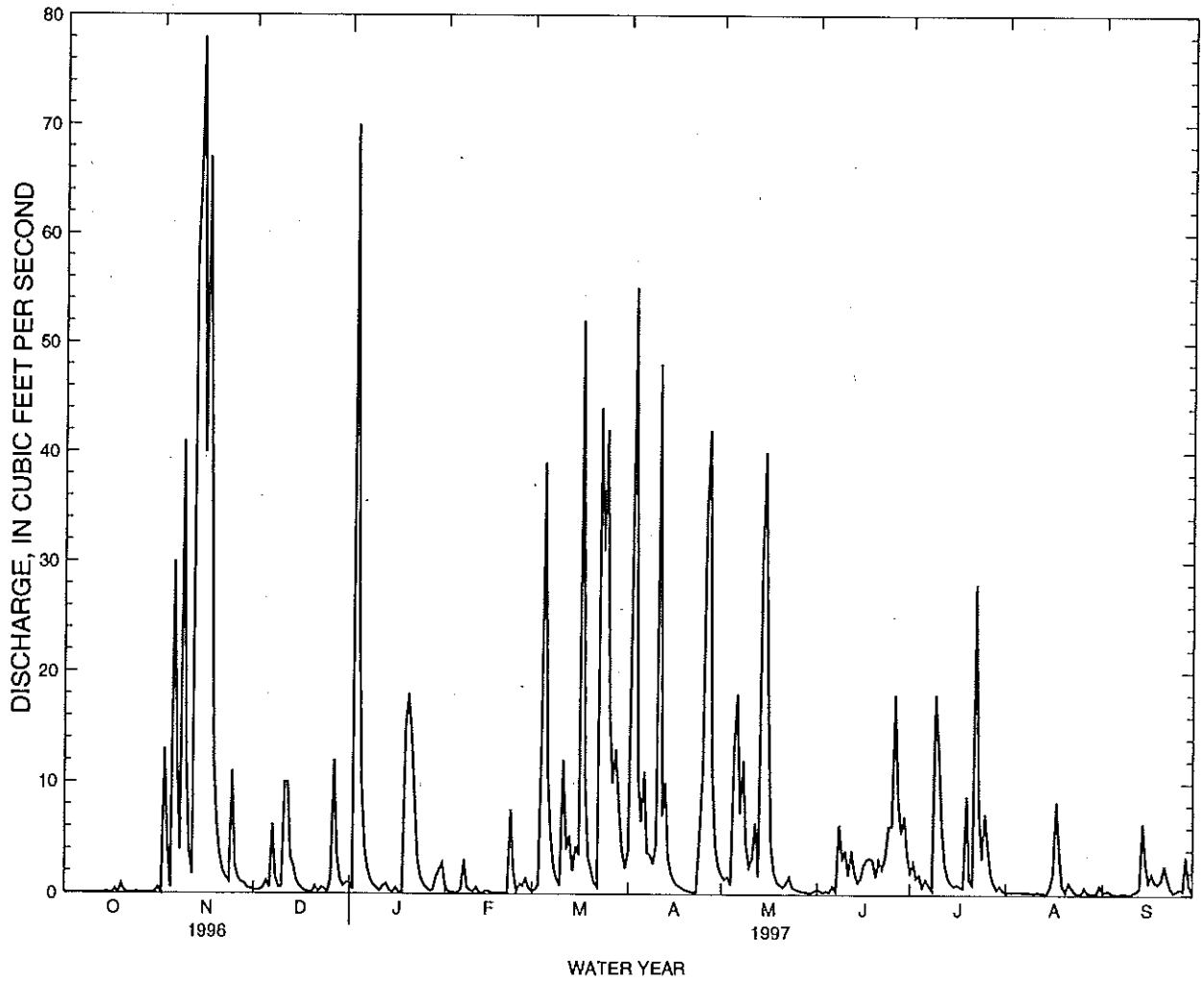
MEAN	3.48	8.05	7.69	6.56	7.95	8.29	7.16	4.83	1.84	3.74	3.71	2.21
MAX	16.3	50.6	35.0	26.0	76.3	37.8	33.3	30.1	7.86	23.0	21.6	17.1
(WY)	1959	1966	1930	1988	1932	1968	1932	1965	1932	1954	1982	1931
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1933	1954	1990	1977	1931	1931	1931	1931	1931	1953	1962	1953

e Estimated

HAWAII, ISLAND OF OAHU

16226000 NORTH HALAWA STREAM NEAR AIEA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1929 - 1997	
ANNUAL TOTAL	1331.86		1888.90			
ANNUAL MEAN	3.64		5.18		5.41	
HIGHEST ANNUAL MEAN					15.7	1932
LOWEST ANNUAL MEAN					1.41	1984
HIGHEST DAILY MEAN	78	Nov 14	78	Nov 14	956	Nov 18 1930
LOWEST DAILY MEAN	.00	Mar 27	.00	Oct 1	.00	Sep 14 1929
ANNUAL SEVEN-DAY MINIMUM	.00	May 6	.00	Oct 1	.00	Sep 14 1929
ANNUAL RUNOFF (AC-FT)	2640		3750		3920	
10 PERCENT EXCEEDS	9.5		12		11	
50 PERCENT EXCEEDS	.35		.94		.40	
90 PERCENT EXCEEDS	.00		.05		.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.

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 computed by S.T.M. Young. Records good.

AVERAGE DISCHARGE.--14 years (water years 1984-97), 5.46 ft^3/s (3,960 acre-ft/yr).

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

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)
Nov. 14	0600	628	10.05	Jan. 3	1215	*849	*10.58

Minimum discharge, no flow on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.09	.57	3.0	.96	.17	4.8	1.9	.54	2.2	.21	.69
2	.02	18	.41	2.8	.34	.34	33	1.2	.13	3.5	.08	.64
3	.01	6.9	.45	99	.19	1.2	84	1.6	.09	1.5	.07	1.0
4	.01	.29	.48	17	.13	15	14	.86	.16	2.0	.04	.23
5	.01	49	1.8	4.4	.11	54	8.0	13	.08	.74	.04	.15
6	.01	18	.79	2.0	.19	11	14	23	.80	1.5	.02	.12
7	.01	4.9	7.3	1.7	2.9	5.6	4.9	7.9	.43	.73	.02	.05
8	.01	63	2.0	1.6	.79	2.7	3.9	14	6.0	.33	.02	.12
9	.01	16	1.0	1.1	.29	1.4	3.8	4.1	2.8	22	.01	.05
10	.01	4.7	.85	.63	.16	.82	4.6	1.9	4.0	17	.02	.04
11	.01	2.4	9.4	.35	.41	15	71	2.7	1.6	6.7	.03	.16
12	.01	101	11	.73	.20	5.0	9.1	6.0	3.7	3.2	.02	.45
13	.01	122	4.0	.83	.08	5.9	13	2.2	1.9	1.8	.02	1.1
14	.07	147	2.9	.36	.10	2.9	4.4	38	1.1	1.2	.02	10
15	.01	67	1.5	.17	.15	4.5	2.5	50	1.2	.87	3.1	4.8
16	.01	126	.87	.50	.08	5.0	1.6	18	2.5	.89	3.8	2.2
17	.20	63	.50	.12	.07	86	1.1	7.0	2.7	.89	22	2.8
18	.01	18	.27	.07	.03	15	.76	3.9	3.1	.54	7.9	1.8
19	.23	8.5	.20	18	.02	5.6	.49	2.3	3.2	16	1.8	1.5
20	.22	5.3	.19	30	.02	3.2	.29	1.6	1.4	2.1	.67	1.7
21	.01	3.4	.95	20	.02	1.9	.22	1.2	2.8	1.2	1.7	3.2
22	.01	2.4	.35	11	6.9	1.1	.15	1.5	2.1	50	1.5	2.8
23	.00	1.8	.96	4.1	2.5	73	.19	3.0	3.1	17	.63	1.0
24	.00	13	1.1	2.0	.28	45	5.1	1.1	6.2	4.3	.24	.14
25	.00	3.8	.32	1.3	.74	66	12	.57	6.0	15	.15	.06
26	.00	2.2	1.1	.71	.89	21	39	.32	18	6.5	1.6	.77
27	.00	1.7	14	.44	1.3	13	59	.16	9.0	2.7	.52	.35
28	.00	1.7	4.8	.45	.52	15	12	.04	5.9	1.8	.42	4.5
29	.00	.88	2.1	1.6	---	10	5.2	.05	8.4	.95	.23	1.7
30	.03	.79	1.2	2.2	---	5.2	3.0	.05	4.6	1.2	.26	.33
31	.14	---	1.3	3.0	---	3.1	---	.05	---	.63	2.0	---
TOTAL	1.08	872.75	74.66	231.16	20.37	494.63	415.10	209.20	103.53	186.97	49.14	44.45
MEAN	.035	29.1	2.41	7.46	.73	16.0	13.8	6.75	3.45	6.03	1.59	1.48
MAX	.23	147	14	99	6.9	86	84	50	18	50	22	10
MIN	.00	.09	.19	.07	.02	.17	.15	.04	.08	.33	.01	.04
AC-FT	2.1	1730	148	459	40	981	823	415	205	371	97	88

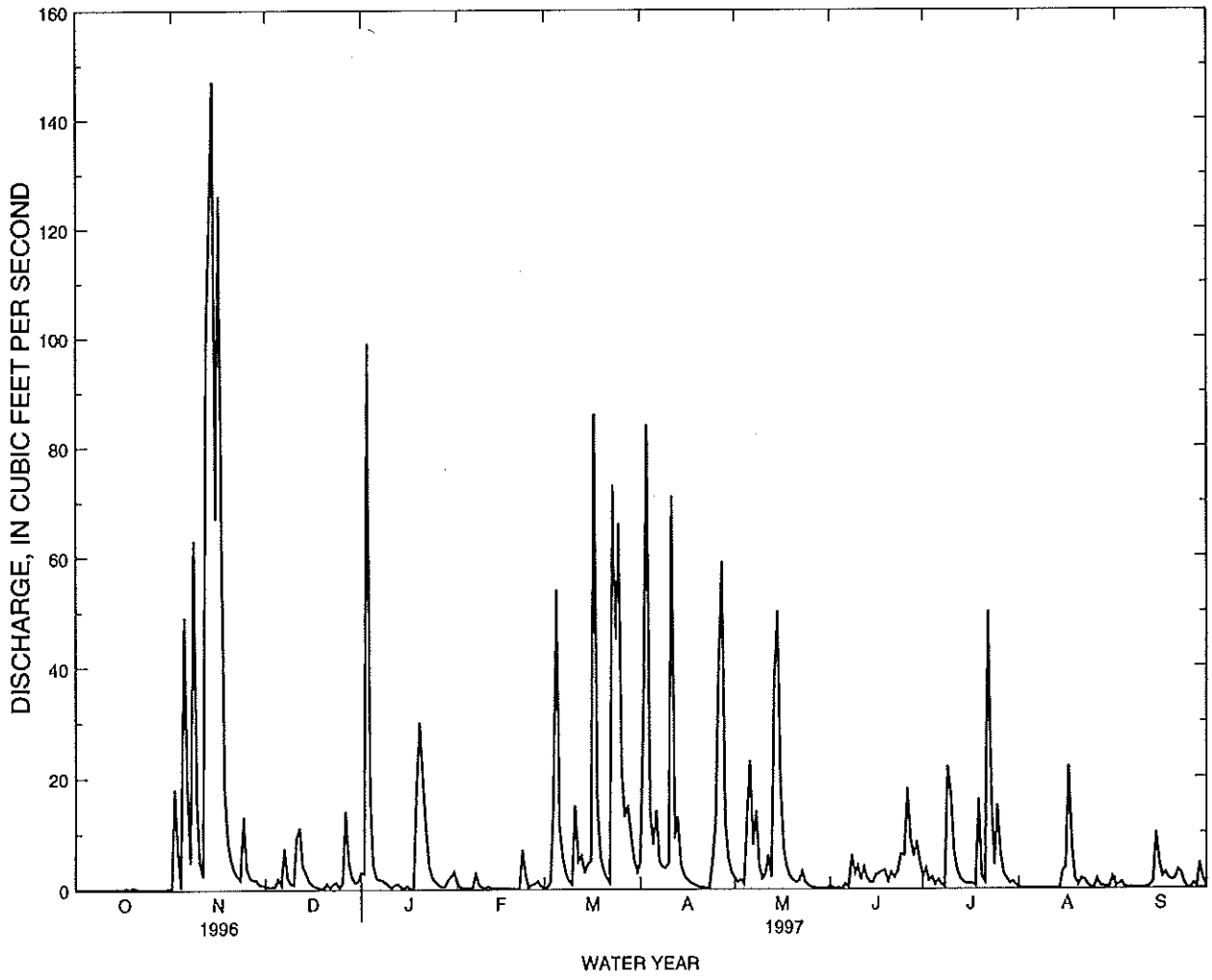
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1997, BY WATER YEAR (WY)

MEAN	3.73	8.50	8.27	6.87	4.44	8.91	6.69	3.06	1.97	4.64	3.02	3.28
MAX	9.71	29.1	40.6	29.6	17.4	31.0	35.3	15.5	7.84	15.0	10.0	12.6
(WY)	1992	1997	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

HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1983 - 1997	
ANNUAL TOTAL	1964.94		2703.04			
ANNUAL MEAN	5.37		7.41		5.46	
HIGHEST ANNUAL MEAN					10.1	1988
LOWEST ANNUAL MEAN					1.43	1984
HIGHEST DAILY MEAN	147	Nov 14	147	Nov 14	476	Mar 24 1994
LOWEST DAILY MEAN	.00	Oct 23	.00	Oct 23	.00	Feb 1 1983
ANNUAL SEVEN-DAY MINIMUM	.00	Oct 23	.00	Oct 23	.00	Feb 1 1983
ANNUAL RUNOFF (AC-FT)	3900		5360		3960	
10 PERCENT EXCEEDS	9.6		17		11	
50 PERCENT EXCEEDS	.41		1.5		.59	
90 PERCENT EXCEEDS	.01		.03		.00	



WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

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.--Samples for water years 1995-97 with concentrations of about 1,000 mg/L and higher were analyzed using method 2540D (Standard Methods, 19th edition, 1995) for total suspended solids.

Water year 1994: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records fair.

Water year 1995: Water-quality samples were collected at this site. Sediment records computed by A.H.M. Okihara. Records fair.

Water year 1996: Water-quality samples were collected at this site. Sediment records computed by A.H.M. Okihara. Records good.

Water year 1997: Water-quality samples were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water year 1997 was not completed at the time of this publication.

EXTREMES FOR PERIOD OF RECORD.--

Water year 1994:
Sediment Concentrations: Maximum daily mean 4,230 mg/L (estimated), April 8, 1989; no flow on many days in 1983-88, 1990, 1992-94.
Sediment Discharge: Maximum daily, 5,310 tons, March 24, 1994; no flow on many days in 1983-88, 1990, 1992-94.

Water year 1995:
Sediment Concentrations: Maximum daily mean 4,230 mg/L (estimated), April 8, 1989; no flow on many days in 1983-88, 1990, 1992-95.
Sediment Discharge: Maximum daily, 5,310 tons, March 24, 1994; no flow on many days in 1983-88, 1990, 1992-95.

Water year 1996:
Sediment Concentrations: Maximum daily mean 4,230 mg/L (estimated), April 8, 1989; no flow on many days in 1983-88, 1990, 1992-95.
Sediment Discharge: Maximum daily, 5,310 tons, March 24, 1994; no flow on many days in 1983-88, 1990, 1992-95.

EXTREMES FOR CURRENT YEAR.--

Water year 1994:
Sediment Concentrations: Maximum daily mean, 2,470 mg/L, March 24; no flow on October 21, 22.
Sediment Discharge: Maximum daily, 5,310 tons, March 24; no flow on October 21, 22.

Water year 1995:
Sediment Concentrations: Maximum daily mean, 1,590 mg/L (estimated), April 23; no flow on September 23-28.
Sediment Discharge: Maximum daily, 636 tons, April 23; no flow on September 23-28.

Water year 1996:
Sediment Concentrations: Maximum daily mean, 1,470 mg/L, March 3; minimum daily mean, 1 mg/L on many days.
Sediment Discharge: Maximum daily, 817 tons, November 1; 0.0 tons on many days.

HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
OCT												
28...	0956	0.0	--	--	--	--	--	--	--	--	--	--
NOV												
12...	1055	2.2	370	7.5	23.0	23.5	2000	755	8.2	98	--	--
DEC												
16...	0910	1.0	329	7.9	18.5	18.0	1.6	759	9.2	98	250	110
JAN												
21...	1130	5.0	287	7.7	24.0	22.0	32	755	8.4	97	230	89
FEB												
12...	1210	0.14	405	7.6	25.0	22.0	0.80	760	8.2	94	--	--
MAR												
10...	1105	0.76	327	7.8	25.0	22.0	0.70	760	8.0	92	--	--
APR												
15...	1130	2.4	266	7.8	26.0	23.5	32	761	8.2	97	200	--
MAY												
27...	1018	0.20	337	8.3	25.0	21.5	0.30	758	8.6	98	--	--
JUN												
09...	1145	2.0	199	8.1	27.0	25.5	5.1	760	8.0	98	950	61
JUL												
14...	1050	1.2	218	8.1	26.0	23.5	0.50	761	8.4	99	--	--
AUG												
12...	1105	0.19	411	7.8	29.0	25.0	--	--	6.4	--	--	--
SEP												
09...	0903	0.06	361	7.7	23.5	22.5	0.50	758	6.8	79	--	--

DATE	TIME	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
DEC												
16...	0910	24	12	22	30	0.9	1.3	99	11	35	<0.10	21
JAN												
21...	1130	19	10	21	34	1	1.4	86	9.4	31	<0.10	20
JUN												
09...	1145	13	6.6	15	34	0.8	1.3	65	6.4	17	<0.10	17

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

HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)
DEC													
16...	0910	182	186	0.25	4	0.060	<0.20	<0.010	--	100	<5.0	<1	<100
JAN													
21...	1130	161	164	0.22	32	0.130	<0.20	<0.010	--	1400	10	<1	<100
APR													
15...	1130	--	--	--	10	0.060	<0.20	0.030	0.03	--	--	--	--
JUN													
09...	1145	110	115	0.15	4	<0.050	<0.20	<0.010	--	250	13	<1	<100

DATE	TIME	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)
DEC													
16...	0910	4.0	<10	<1	<1	<1	<3.0	<1	200	<3.0	<1	<10	<4
JAN													
21...	1130	3.0	<10	<1	6	1	<3.0	5	1800	13	<1	<10	<4
JUN													
09...	1145	<2.0	<10	<1	1	<1	<3.0	1	260	13	<1	<10	<4

DATE	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)
DEC												
16...	120	110	0.30	<1	<10	1	<1.0	<1	<1	<1	<1.0	130
JAN												
21...	70	34	0.30	<1	<10	3	<1.0	<1	<1	<1	<1.0	110
JUN												
09...	24	15	<0.10	<1	<10	1	<1.0	<1	<1	<1	<1.0	69

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

HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L) (00556)	ALDRIN, TOTAL (UG/L) (39330)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)
DEC												
16...	<6	20	0.90	<1	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
JAN												
21...	<6	30	2.3	<1	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
JUN												
09...	<6	<10	4.8	<1	--	--	--	--	--	--	--	--

DATE	TIME	DIELDRIN TOTAL (UG/L) (39380)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)
DEC													
16...	0910	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
JAN													
21...	1130	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHYL PARATHION, TOTAL (UG/L) (39600)	MIREX, TOTAL (UG/L) (39755)	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	SILVEX, TOTAL (UG/L) (39760)	TOXAPHENE, TOTAL (UG/L) (39400)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC												
16...	<0.010	<0.010	<0.010	<0.010	<0.100	<0.100	<0.100	--	<0.010	<1.00	<0.010	<0.010
JAN												
21...	<0.010	<0.010	<0.010	<0.010	<0.100	<0.100	<0.100	<0.050	<0.010	<1.00	<0.010	<0.010

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	1.1	29	.08	3.9	33	.34	6.6	165	3.2
2	.48	28	.03	2.2	39	.23	3.8	127	1.4
3	.21	39	.02	9.0	68	4.3	2.0	56	.31
4	.10	e16	.00	14	137	6.3	1.2	41	.13
5	.05	e12	.00	2.9	54	.44	.81	31	.07
6	.03	e10	.00	1.4	40	.16	.59	22	.04
7	.03	e10	.00	.79	36	.08	.37	18	.02
8	.04	e10	.00	7.0	e77	2.9	.24	12	.01
9	.04	e10	.00	2.8	35	.29	.19	e3	.00
10	.03	e10	.00	1.2	26	.09	.16	e2	.00
11	.03	e11	.00	.80	24	.05	.15	e2	.00
12	.02	e11	.00	.42	18	.02	.16	e2	.00
13	.01	e11	.00	.26	21	.01	1.5	e39	.22
14	.02	e11	.00	.14	20	.01	2.3	e45	1.0
15	5.3	e83	1.9	.07	e14	.00	3.7	e72	.90
16	.44	31	.04	.05	e13	.00	1.0	e34	.10
17	.30	29	.02	.96	e27	.08	9.1	e128	4.3
18	.08	19	.00	.30	23	.02	5.3	e86	1.9
19	.04	56	.01	.17	22	.01	5.0	e108	1.7
20	.01	e10	.00	.07	e14	.00	1.9	e44	.23
21	.00	0	.00	.05	e12	.00	e.90	e32	.08
22	.00	0	.00	.11	e15	.00	e.48	e25	.03
23	16	95	12	.33	e29	.04	e.25	e20	.01
24	2.5	70	.64	1.0	28	.08	e.10	e16	.00
25	12	93	4.1	.66	33	.06	e.04	e12	.00
26	9.2	208	4.7	.54	24	.04	e.03	e11	.00
27	2.4	107	.75	.27	21	.02	e.03	e10	.00
28	1.2	66	.21	.39	16	.02	e.03	e10	.00
29	1.2	68	.22	.64	12	.02	e.02	e10	.00
30	4.1	34	.36	1.4	24	.11	e.01	e9	.00
31	2.9	30	.24	---	---	---	e.01	e9	.00
TOTAL	59.86	---	25.32	53.82	---	15.72	47.97	---	15.65

e Estimated

HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	e.01	e8	.00	.58	e27	.04	.57	e28	.04
2	e.01	e8	.00	.37	e24	.03	.45	e25	.03
3	e.01	e8	.00	1.1	e34	.15	.36	e23	.02
4	e.01	e7	.00	9.1	e95	2.4	.27	e22	.02
5	e.01	e7	.00	5.0	e74	1.0	.41	e26	.03
6	e1.5	e7	.03	3.0	e53	.43	.44	e27	.03
7	e.40	e7	.01	1.8	e45	.22	.22	e26	.02
8	e.01	e7	.00	1.4	e40	.15	.13	e25	.01
9	e.01	e7	.00	18	e397	46	.09	e24	.01
10	e.01	e7	.00	11	e103	3.3	.08	e23	.01
11	e.01	e7	.00	4.5	e69	.85	.06	20	.00
12	e.01	e7	.00	45	e606	152	.04	e16	.00
13	e.01	e7	.00	25	e365	34	.04	e15	.00
14	e.01	e7	.00	134	e837	570	.07	e13	.00
15	e.01	e7	.00	35	e358	167	.07	e12	.00
16	e.01	e7	.00	55	1750	331	.06	e11	.00
17	e.01	e7	.00	35	e424	41	.05	e10	.00
18	e41	e68	7.4	14	e328	13	.05	e9	.00
19	e17	e84	3.9	7.5	e233	4.8	.03	e10	.00
20	e40	e94	10	5.3	e165	2.4	.57	30	.07
21	e22	e47	2.8	2.8	e117	.90	.47	52	.08
22	5.8	27	.41	1.8	e83	.40	5.1	e65	1.2
23	7.2	e76	1.7	1.1	e59	.18	63	350	104
24	36	331	66	.72	e42	.08	476	2470	5310
25	137	1140	531	1.4	e37	.20	121	230	120
26	21	57	3.5	5.6	e61	.94	31	e74	6.5
27	8.3	e57	1.3	1.7	e47	.22	24	e135	8.8
28	4.0	e56	.61	.90	e34	.08	13	e96	3.4
29	2.4	e46	.31	---	---	---	19	e188	11
30	1.5	e38	.16	---	---	---	6.9	e76	1.4
31	.83	e32	.07	---	---	---	4.4	e68	.81
TOTAL	346.08	---	629.20	427.67	---	1372.77	767.93	---	5567.48

e Estimated

HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	3.2	e60	.52	3.1	e52	.43	e.80	e10	.02
2	2.5	e53	.36	3.1	e50	.42	e.50	e10	.01
3	1.9	e47	.25	2.6	e48	.34	e.52	e10	.01
4	2.1	e44	.25	6.6	e133	3.3	e.28	e10	.01
5	2.5	19	.14	3.5	36	.36	e.20	e10	.00
6	1.3	e41	.14	2.2	5	.03	e.16	e11	.00
7	1.1	80	.24	1.4	e6	.02	e.13	e11	.00
8	3.4	54	.51	.96	e7	.02	e.12	e11	.00
9	8.6	e76	3.1	.76	e9	.02	e.10	e11	.00
10	11	e85	2.8	.56	e10	.02	e.08	e11	.00
11	5.1	e38	.53	.32	e12	.01	.05	e12	.00
12	3.1	e36	.31	.21	e14	.01	.08	e14	.00
13	2.1	e35	.20	.25	e19	.02	.15	e21	.01
14	1.5	e33	.13	.85	e27	.06	.05	e10	.00
15	1.1	e31	.09	.60	e14	.02	.05	9	.00
16	.84	e30	.07	.27	11	.01	.04	6	.00
17	.64	e29	.05	.22	e21	.01	.04	e8	.00
18	5.7	e57	.92	.21	e24	.02	7.5	49	1.5
19	2.2	e44	.27	3.0	e41	.45	28	201	16
20	13	e232	11	3.7	32	.36	6.9	89	1.7
21	6.4	e166	3.0	1.6	14	.06	2.7	65	.49
22	3.2	e72	.64	.87	13	.03	7.1	e98	2.2
23	2.1	e40	.23	.59	e23	.04	2.8	47	.36
24	2.1	e30	.18	.56	e21	.04	1.7	37	.17
25	1.5	e23	.09	.52	e24	.04	45	719	233
26	1.5	e17	.07	5.8	e75	1.9	13	69	2.6
27	1.5	e13	.06	5.9	e26	.50	4.6	29	.36
28	45	723	154	2.8	e22	.17	2.5	17	.13
29	10	e206	7.1	1.7	7	.03	1.6	23	.10
30	4.4	e59	.69	1.0	10	.03	.99	18	.05
31	---	---	---	e1.5	e24	.10	---	---	---
TOTAL	150.58	---	187.94	57.25	---	8.87	127.74	---	258.72

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	.85	15	.04	.16	10	.00	13	187	7.8
2	1.7	11	.05	.12	e8	.00	7.0	e187	5.8
3	1.1	10	.03	.07	7	.00	10	e229	8.5
4	.47	8	.01	.06	e6	.00	11	131	5.9
5	.29	6	.01	.05	e6	.00	3.0	31	.26
6	.14	e11	.00	.04	e5	.00	2.5	27	.18
7	.56	16	.03	.04	e5	.00	2.6	48	.33
8	.96	16	.04	.05	e4	.00	4.1	e132	2.0
9	.35	e15	.01	.04	e4	.00	4.1	68	.79
10	.14	e14	.01	.04	e4	.00	2.0	47	.26
11	.11	e13	.00	.04	e3	.00	1.1	43	.12
12	.20	e16	.01	6.1	574	30	5.3	394	6.2
13	.29	e30	.02	2.5	359	3.7	6.4	261	5.0
14	.10	e19	.01	.28	55	.05	3.7	e163	2.1
15	6.3	e60	1.8	.10	e14	.01	3.3	100	1.0
16	2.9	38	.34	.04	e4	.00	1.4	46	.18
17	2.5	e32	.32	.04	e3	.00	.74	28	.06
18	7.3	e90	2.0	.04	e4	.00	74	1050	526
19	2.7	e23	.19	.90	e51	.20	36	486	75
20	1.1	10	.03	6.5	e363	12	8.0	646	14
21	.48	16	.02	3.1	53	.61	6.1	475	7.8
22	.21	19	.01	.88	e59	.15	3.4	299	2.8
23	.36	e20	.04	3.7	e204	5.1	2.8	231	2.0
24	61	392	248	7.7	e72	2.2	1.6	36	.15
25	28	101	10	1.7	e40	.18	1.2	36	.11
26	5.5	35	.55	1.4	e58	.22	.69	29	.06
27	3.7	e39	.42	.61	21	.04	.68	15	.03
28	1.8	23	.11	.23	17	.01	.61	9	.01
29	1.1	19	.06	.11	7	.00	.33	13	.01
30	.65	13	.02	.06	3	.00	.16	11	.01
31	.31	12	.01	23	1060	101	---	---	---
TOTAL	133.17	---	264.19	59.70	---	155.47	216.81	---	674.46
YEAR	2448.58		9175.79						

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.11	e11	.00	.02	e8	.00	19	e215	16
2	.45	14	.02	.04	e7	.00	5.2	24	.35
3	.54	12	.02	.04	e7	.00	3.0	13	.11
4	.31	e13	.01	.04	e11	.00	1.7	e33	.18
5	.11	e12	.00	1.5	45	.20	9.4	e97	4.9
6	.06	e11	.00	.18	35	.02	2.6	26	.16
7	.06	e10	.00	3.9	e65	1.7	17	180	9.0
8	.04	e9	.00	1.9	39	.24	7.6	50	1.1
9	.03	e8	.00	.50	22	.03	5.1	87	1.2
10	.03	e7	.00	3.2	78	.78	12	315	13
11	.02	e7	.00	6.3	e94	2.9	5.9	42	.65
12	.03	6	.00	7.9	e105	3.0	3.1	41	.35
13	.03	e6	.00	16	433	56	1.8	25	.13
14	.04	e7	.00	10	212	7.1	1.3	13	.05
15	.78	e17	.46	12	e146	6.1	.74	83	.15
16	18	399	63	21	223	26	.53	73	.11
17	45	655	247	17	238	11	2.2	56	.34
18	9.6	e276	22	9.9	e127	3.7	1.2	35	.12
19	9.8	564	22	5.7	e64	1.1	.67	19	.03
20	2.6	88	.68	2.8	14	.11	.43	19	.02
21	1.0	46	.13	1.9	12	.06	.21	19	.01
22	.68	43	.08	1.1	18	.05	.12	14	.00
23	.29	22	.02	.88	22	.05	3.5	e80	.88
24	.10	18	.01	.62	e22	.06	7.2	e83	2.0
25	.06	14	.00	1.2	45	.16	2.4	16	.11
26	.02	e13	.00	4.5	e83	1.7	1.1	8	.03
27	.05	e12	.00	1.5	29	.13	.73	11	.02
28	.04	e11	.00	2.0	e38	.22	.42	8	.01
29	.01	e10	.00	3.7	41	.43	.41	8	.01
30	.01	e9	.00	3.0	e67	.46	.82	e22	.05
31	.01	e8	.00	---	---	---	.36	13	.01
TOTAL	89.91	---	355.43	140.32	---	123.30	117.74	---	51.08

e Estimated

HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.14	10	.00	.17	e11	.01	3.5	54	.52
2	.07	e9	.00	.05	e7	.00	3.2	e70	1.4
3	.04	e7	.00	.05	e7	.00	3.5	44	.63
4	.05	e7	.00	.02	e5	.00	.87	17	.04
5	.04	e7	.00	.03	e5	.00	.23	15	.01
6	.04	e5	.00	.03	e5	.00	.32	e17	.02
7	.01	e3	.00	.02	e5	.00	.10	22	.01
8	.01	e3	.00	.03	e5	.00	.08	e12	.00
9	.06	e6	.00	.03	e5	.00	.05	e7	.00
10	.03	e6	.00	.09	e19	.01	.04	e6	.00
11	.02	e5	.00	.02	e5	.00	.04	e5	.00
12	.04	e10	.00	.01	e3	.00	.06	e8	.00
13	.03	e4	.00	.04	e7	.00	.06	e9	.00
14	31	412	109	9.6	76	3.3	.06	e10	.00
15	58	e1040	309	1.3	19	.07	.06	e14	.00
16	21	e295	17	.36	e15	.01	.05	e13	.00
17	10	e110	3.1	.41	e11	.01	.04	e10	.00
18	4.1	e88	.98	.12	7	.00	.04	e7	.00
19	2.2	e78	.47	.06	e5	.00	.04	e6	.00
20	1.2	e69	.23	.04	e4	.00	.04	12	.00
21	.52	e62	.09	.03	e4	.00	.04	e6	.00
22	.20	e55	.03	.03	e3	.00	.04	e6	.00
23	.09	e49	.01	.03	e2	.00	4.6	e93	2.5
24	.07	37	.01	.03	e2	.00	13	e197	13
25	.08	e9	.00	.02	e2	.00	5.4	e87	2.0
26	.02	e9	.00	.01	e1	.00	.80	e26	.06
27	.15	e15	.01	3.3	139	18	2.9	e68	1.0
28	.65	13	.05	21	448	75	2.1	e46	.28
29	2.1	50	.36	---	---	---	2.8	e49	.42
30	.39	24	.02	---	---	---	1.5	e38	.16
31	.12	e17	.01	---	---	---	.66	e26	.05
TOTAL	132.47	---	440.37	36.93	---	96.41	46.22	---	22.10

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	.29	e19	.02	.27	e13	.01	.01	2	.00
2	.29	e16	.02	.15	e13	.01	.02	2	.00
3	21	e378	50	.08	22	.01	.02	2	.00
4	68	e1220	256	.05	e15	.00	.01	2	.00
5	30	e516	49	.04	e11	.00	.02	2	.00
6	11	e243	7.3	2.1	e36	.65	.01	5	.00
7	6.1	e145	2.4	.82	15	.04	1.1	e18	.16
8	3.0	e86	.72	.75	e20	.06	.41	10	.02
9	1.4	e52	.20	.08	e11	.00	.03	13	.00
10	.63	e31	.05	.05	e12	.00	.02	6	.00
11	.25	e18	.01	.06	e13	.00	.02	6	.00
12	7.5	e171	16	.06	14	.00	.01	6	.00
13	8.6	e169	5.9	.05	21	.00	.01	5	.00
14	2.5	e54	.38	.04	41	.01	.02	3	.00
15	2.0	e45	.26	.07	37	.01	.01	3	.00
16	.90	e29	.07	.21	e7	.01	.01	3	.00
17	.40	e20	.02	2.8	e16	.17	.01	3	.00
18	.19	e15	.01	.65	e27	.05	.01	3	.00
19	.11	e12	.00	.17	25	.01	.01	3	.00
20	.17	e11	.01	.06	38	.01	.00	3	.00
21	.14	e11	.01	.41	11	.08	.01	4	.00
22	26	e484	73	2.4	e10	.10	13	205	17
23	83	e1590	636	.43	6	.01	6.6	e90	1.9
24	15	e154	8.5	.10	7	.00	1.1	60	.21
25	36	e579	73	.03	10	.00	.10	e13	.00
26	7.8	e111	2.6	.02	10	.00	.03	e6	.00
27	3.2	e17	.17	.02	4	.00	.03	e6	.00
28	1.6	11	.05	.02	3	.00	.02	e5	.00
29	.90	10	.02	.02	3	.00	.01	e5	.00
30	.43	12	.02	.02	3	.00	.02	e5	.00
31	---	---	---	.02	3	.00	---	---	---
TOTAL	338.40	---	1181.74	12.05	---	1.24	22.68	---	19.29

e Estimated

HAWAII, ISLAND OF OAHU

16226200 NORTH HALAWA STREAM NEAR HONOLULU--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	.02	e5	.00	2.1	18	.10	.49	e26	.04
2	.02	e5	.00	1.1	17	.05	.30	e20	.02
3	.02	e5	.00	.28	7	.01	.23	e14	.01
4	4.0	e69	1.6	1.8	e30	.55	.09	e10	.00
5	2.7	37	.39	1.6	21	.14	.11	e11	.01
6	.24	13	.01	.20	7	.00	.14	31	.01
7	.03	e4	.00	.06	e6	.00	.05	e26	.00
8	.01	e3	.00	.03	e6	.00	.04	e17	.00
9	.01	e3	.00	13	191	24	.03	e11	.00
10	.02	e5	.00	17	245	34	.04	e7	.00
11	.01	e4	.00	29	197	15	.04	e5	.00
12	3.7	e35	.39	10	38	1.2	.02	e3	.00
13	1.6	31	.14	16	109	9.2	.02	e6	.00
14	.84	17	.04	9.4	e92	2.7	.03	e9	.00
15	.25	18	.01	6.1	39	.64	.03	e6	.00
16	.08	e13	.00	4.8	41	.50	.02	e4	.00
17	.04	e9	.00	8.6	e89	2.6	.02	e3	.00
18	.03	e6	.00	6.1	10	.17	.02	e2	.00
19	.03	e5	.00	6.3	e57	2.0	.03	e2	.00
20	18	169	9.7	11	e98	3.5	.03	e2	.00
21	18	97	5.6	5.6	24	.36	.02	e1	.00
22	5.8	52	.82	3.6	16	.15	.00	e1	.00
23	1.9	33	.18	53	338	72	.00	0	.00
24	3.3	e46	.51	14	63	2.5	.00	0	.00
25	2.1	25	.15	5.7	13	.22	.00	0	.00
26	13	e90	5.0	5.4	16	.24	.00	0	.00
27	5.9	e42	1.1	3.9	9	.09	.00	0	.00
28	9.0	e138	4.2	1.9	e6	.03	.00	0	.00
29	3.1	20	.18	1.6	e6	.03	3.8	76	2.6
30	1.5	e10	.04	.73	e5	.01	14	e207	9.0
31	2.2	10	.06	.42	e8	.01	---	---	---
TOTAL	97.45	---	30.12	240.32	---	172.00	19.60	---	11.69
YEAR	1294.09		2504.77						

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	3.0	70	.58	124	1040	817	5.9	e255	5.6
2	.71	30	.07	11	122	4.1	2.1	64	.45
3	.19	e17	.01	33	e438	130	.87	11	.03
4	.05	e12	.00	21	e791	50	.39	10	.01
5	.05	7	.00	5.5	e396	6.2	.12	15	.01
6	1.1	e61	.41	3.0	177	1.5	7.0	e190	6.3
7	1.2	e58	.23	1.8	26	.13	4.8	e102	2.0
8	37	332	66	47	728	174	1.8	12	.06
9	5.0	74	1.1	e16	e592	28	.89	10	.02
10	2.5	31	.22	e7.2	e85	1.8	.50	16	.02
11	1.2	22	.07	e5.2	e40	.56	.41	e29	.04
12	3.5	e87	1.0	e3.1	e37	.31	.07	e6	.00
13	1.8	20	.10	e45	e630	153	.94	e13	.06
14	.63	17	.03	e19	e430	22	2.9	e137	1.3
15	.21	13	.01	e12	e336	12	.59	e35	.07
16	.12	e9	.00	e6.4	e198	3.5	.20	e15	.01
17	.05	e6	.00	e5.4	e191	3.0	.14	e9	.00
18	.04	e4	.00	e3.8	e170	1.8	.16	e11	.01
19	.02	e3	.00	e2.6	e138	.98	.05	e4	.00
20	1.1	e34	.19	e1.2	e92	.34	.02	e1	.00
21	.52	13	.02	e.89	e261	.61	.02	e1	.00
22	.27	11	.01	e.47	e883	1.1	.01	e1	.00
23	.07	e4	.00	.10	e121	.04	.02	e1	.00
24	.03	e2	.00	.05	e7	.00	.01	e1	.00
25	.04	e4	.00	e.17	e6	.00	.01	e1	.00
26	6.7	551	56	e.40	e22	.04	.01	e1	.00
27	4.0	118	1.4	e.50	e15	.02	.02	e1	.00
28	18	381	183	e2.1	e41	.31	e.01	e1	.00
29	31	489	92	.83	e33	.08	e.04	e2	.00
30	4.6	313	3.8	6.5	539	25	e6.2	e110	4.5
31	65	472	103	---	---	---	e12	e251	10
TOTAL	189.70	---	509.25	385.21	---	1437.42	48.20	---	30.49

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	e1.8	e63	.33	3.1	e110	.95	2.0	12	.07
2	e.92	e32	.08	2.1	e80	.48	3.3	120	11
3	e.37	e17	.02	1.2	e42	.14	74	1470	352
4	e.31	e16	.01	.63	e22	.04	28	e726	60
5	e3.6	e86	.90	.22	e12	.01	7.4	220	4.9
6	e1.9	e71	.38	.13	e6	.00	3.9	47	.49
7	e6.9	e199	6.1	2.2	e37	2.5	2.1	87	.48
8	e12	e223	11	8.0	e356	9.8	1.2	74	.26
9	2.8	e90	.73	1.3	e141	.63	.58	22	.04
10	7.2	e118	4.2	.22	e30	.02	.30	12	.01
11	2.7	41	.31	.12	e7	.00	.16	9	.00
12	1.1	30	.09	.15	e11	.01	.09	e6	.00
13	.49	27	.04	.02	e2	.00	.06	e4	.00
14	.15	18	.01	.02	e2	.00	.05	e2	.00
15	.11	10	.00	.55	e22	.03	.02	e2	.00
16	.11	8	.00	.17	e8	.00	.02	e2	.00
17	.06	e4	.00	.03	e3	.00	.02	e2	.00
18	.04	e18	.00	.02	e2	.00	.02	e2	.00
19	5.7	e371	9.4	.05	e3	.00	.02	e2	.00
20	1.3	55	.19	.02	e2	.00	.02	e2	.00
21	.92	59	.15	.02	e1	.00	.02	e2	.00
22	.41	40	.05	.02	e1	.00	.01	e1	.00
23	2.1	e98	1.1	.02	e1	.00	.01	e1	.00
24	1.8	25	.12	.02	e1	.00	.01	e1	.00
25	92	1230	791	4.9	e226	6.9	.01	e1	.00
26	12	258	11	9.9	e314	9.5	.01	e1	.00
27	13	181	24	8.0	e243	7.9	.01	e1	.00
28	32	e622	74	28	e634	60	.01	e1	.00
29	7.7	e215	4.5	4.8	128	2.0	.01	e1	.00
30	6.9	e199	6.3	---	---	---	.01	e1	.00
31	6.2	e193	3.9	---	---	---	7.5	226	9.9
TOTAL	224.59	---	949.91	75.93	---	100.91	130.87	---	439.15

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	12	234	14	.04	e4	.00	.01	e1	.00
2	2.6	37	.26	.02	e3	.00	.01	e1	.00
3	2.0	43	.26	.02	e3	.00	.01	e1	.00
4	1.3	45	.89	.02	e2	.00	.01	e2	.00
5	6.5	199	3.9	.02	e2	.00	.01	e2	.00
6	1.8	24	.13	.02	e2	.00	.03	15	.00
7	.62	10	.02	.02	e1	.00	.08	e13	.00
8	.24	6	.00	.01	e1	.00	.10	e8	.00
9	.08	e4	.00	.01	e1	.00	.04	e3	.00
10	.56	e5	.02	.01	e1	.00	.60	e26	.07
11	4.2	e77	.97	.01	e1	.00	.04	e4	.00
12	1.6	17	.08	.01	e1	.00	.95	e44	.43
13	.57	11	.02	.01	e1	.00	6.1	e265	8.1
14	.19	6	.00	.01	e1	.00	.37	e24	.04
15	.07	e4	.00	.01	e1	.00	.11	e7	.00
16	.05	e2	.00	.01	e1	.00	.12	e6	.00
17	.02	e2	.00	.01	e1	.00	.12	e12	.01
18	1.2	e40	.21	.01	e1	.00	5.2	431	7.3
19	1.4	27	.10	.01	e1	.00	3.0	162	1.6
20	.50	18	.03	.01	e1	.00	2.8	e85	.79
21	7.9	374	10	.01	e1	.00	1.6	42	.16
22	1.8	56	.33	.01	e1	.00	3.0	e148	1.4
23	.51	30	.04	.01	e1	.00	20	713	121
24	.12	35	.01	.01	e1	.00	18	202	13
25	.06	e6	.00	.02	e1	.00	5.3	47	.71
26	.03	e3	.00	.02	e1	.00	2.5	24	.17
27	.02	e2	.00	.02	e1	.00	1.2	17	.06
28	7.0	277	17	.08	e1	.00	.63	12	.02
29	2.1	230	1.9	.36	e18	.02	45	939	365
30	.26	19	.02	.02	e2	.00	32	1060	119
31	---	---	---	.01	e1	.00	---	---	---
TOTAL	57.30	---	50.19	0.86	---	0.02	148.94	---	638.86

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	9.5	192	5.2	e.07	e7	.00	22	e527	42
2	8.0	e173	4.1	e.07	e6	.00	5.5	e165	2.6
3	4.3	57	.66	e.05	e5	.00	3.8	e136	1.6
4	7.2	60	1.2	e.21	e5	.00	2.0	e86	.46
5	39	881	163	e.30	e4	.00	1.7	e73	.35
6	15	588	27	e.09	e3	.00	4.7	e152	3.1
7	19	627	30	e.07	e3	.00	48	e995	201
8	6.3	319	6.3	e.05	e3	.00	27	e626	50
9	3.5	29	.29	.02	e2	.00	8.5	e232	5.7
10	1.8	13	.06	1.4	e55	.40	4.4	e143	1.7
11	1.0	10	.03	3.4	e141	2.0	6.8	e199	3.8
12	.53	8	.01	1.6	e84	.40	7.7	e219	7.5
13	.32	7	.01	1.6	e61	.34	8.0	e229	5.8
14	.18	7	.00	.57	e28	.06	2.4	e81	.55
15	.88	e45	.15	.07	e8	.00	.97	e37	.10
16	3.5	e67	.62	.03	e7	.00	.74	e33	.07
17	2.3	e108	.73	.02	e6	.00	.41	e21	.03
18	3.0	e141	1.2	.02	e6	.00	.33	e18	.02
19	7.0	e227	4.3	.02	e5	.00	.10	e6	.00
20	4.7	e144	1.9	.01	e4	.00	.09	e6	.00
21	2.6	e91	.66	.01	e4	.00	.06	e4	.00
22	1.6	e58	.25	.01	e3	.00	.03	e2	.00
23	.88	e36	.09	.01	e3	.00	.02	e2	.00
24	3.7	411	6.7	.01	e2	.00	.02	e1	.00
25	1.2	e176	.73	.01	e2	.00	.01	e1	.00
26	1.6	e45	.34	.01	e2	.00	.01	e1	.00
27	4.6	e100	1.6	.01	e2	.00	.01	e1	.00
28	1.2	11	.04	.01	e1	.00	.01	e1	.00
29	.27	8	.01	.01	e1	.00	.01	e1	.00
30	.11	10	.00	.01	e1	.00	.01	e1	.00
31	.09	8	.00	58	e1120	300	---	---	---
TOTAL	154.86	---	257.18	67.77	---	303.20	155.33	---	326.38
YEAR	1639.56		5042.96						

e Estimated

HAWAII, ISLAND OF OAHU

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, 1996, 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 October 12, 1923, at datum 2.00 ft lower.

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

AVERAGE DISCHARGE.--83 years (water years 1915-97), 6.51 ft^3/s (4,720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 12,400 ft^3/s, November 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, October 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)
Nov. 14	0600	*834	*7.66	No other peak greater than base discharge.			

Minimum discharge, 0.67 ft^3/s, November 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.2	3.1	2.0	3.2	2.6	8.0	5.6	5.4	3.7	2.6	2.0
2	1.3	1.2	3.2	1.9	2.7	3.1	20	5.4	4.4	3.9	2.1	1.8
3	1.3	1.2	3.3	52	2.4	3.2	42	5.1	3.6	3.7	1.9	1.8
4	1.3	.86	3.1	19	2.5	14	12	4.8	3.6	4.6	1.9	1.7
5	1.2	8.6	3.3	7.8	2.5	30	9.1	6.8	3.2	3.7	1.8	1.6
6	1.1	3.8	2.8	5.4	2.6	8.2	13	6.2	3.4	3.9	1.7	1.6
7	1.2	2.0	4.2	4.4	8.1	6.6	6.7	4.8	3.0	3.1	2.1	1.7
8	1.2	19	3.1	3.7	3.1	4.5	6.5	16	5.4	2.8	2.0	1.8
9	1.2	6.3	2.6	3.4	2.8	3.9	9.4	7.1	3.4	13	2.0	1.5
10	1.1	3.1	2.7	3.4	2.6	3.5	17	5.9	3.2	15	1.9	1.4
11	1.1	2.4	7.1	3.1	2.5	9.5	69	6.4	3.0	6.8	2.4	1.4
12	1.0	64	7.0	3.2	2.4	4.0	9.8	7.4	3.4	5.1	2.0	8.5
13	.96	51	4.5	3.3	2.2	4.7	12	5.9	2.8	4.4	1.7	4.9
14	1.2	86	5.0	2.9	2.2	3.7	7.4	35	2.5	3.9	1.7	4.4
15	1.1	37	3.7	2.6	2.4	7.2	6.8	25	2.8	4.1	2.3	3.0
16	1.3	37	3.2	2.6	2.1	8.8	6.3	21	3.6	3.3	6.9	2.7
17	1.8	33	2.7	2.4	1.8	37	5.8	11	3.0	2.8	22	2.3
18	1.2	20	2.6	2.2	1.8	6.6	5.4	8.4	2.8	2.9	5.8	3.3
19	1.7	13	2.4	14	1.8	4.8	5.2	7.1	3.7	9.9	3.1	2.8
20	1.6	9.5	2.1	13	1.7	4.6	5.0	6.8	2.5	4.0	2.6	2.8
21	1.2	7.4	2.0	18	1.6	4.0	4.8	6.2	5.3	4.8	2.6	2.6
22	1.1	6.0	2.0	6.9	17	3.4	4.7	5.9	3.6	34	2.2	3.1
23	1.1	5.3	2.4	4.7	4.9	37	4.5	5.9	3.9	9.3	2.0	5.2
24	1.1	11	2.2	4.0	2.7	16	5.9	5.6	12	5.2	1.9	12
25	1.1	5.5	1.8	3.6	2.7	24	9.4	5.1	5.6	5.0	1.6	2.9
26	.92	4.8	2.0	3.2	6.2	13	27	4.2	16	4.1	4.6	5.6
27	.75	4.4	4.4	2.8	4.4	9.9	46	3.6	9.9	3.6	2.1	2.5
28	.75	4.0	2.8	2.8	3.3	9.5	10	3.2	5.6	3.2	2.0	2.2
29	.75	3.5	2.1	3.2	---	7.6	6.8	3.2	5.6	2.8	2.2	2.3
30	.85	3.2	2.0	3.1	---	6.0	5.9	3.2	4.2	3.2	2.0	1.9
31	1.8	---	2.0	4.3	---	5.6	---	3.6	---	3.2	2.4	---
TOTAL	36.68	455.26	97.4	208.9	96.2	306.5	401.4	251.4	140.4	183.0	96.1	93.3
MEAN	1.18	15.2	3.14	6.74	3.44	9.89	13.4	8.11	4.68	5.90	3.10	3.11
MAX	1.8	86	7.1	52	17	37	69	35	16	34	22	12
MIN	.75	.86	1.8	1.9	1.6	2.6	4.5	3.2	2.5	2.8	1.6	1.4
AC-FT	73	903	193	414	191	608	796	499	278	363	191	185

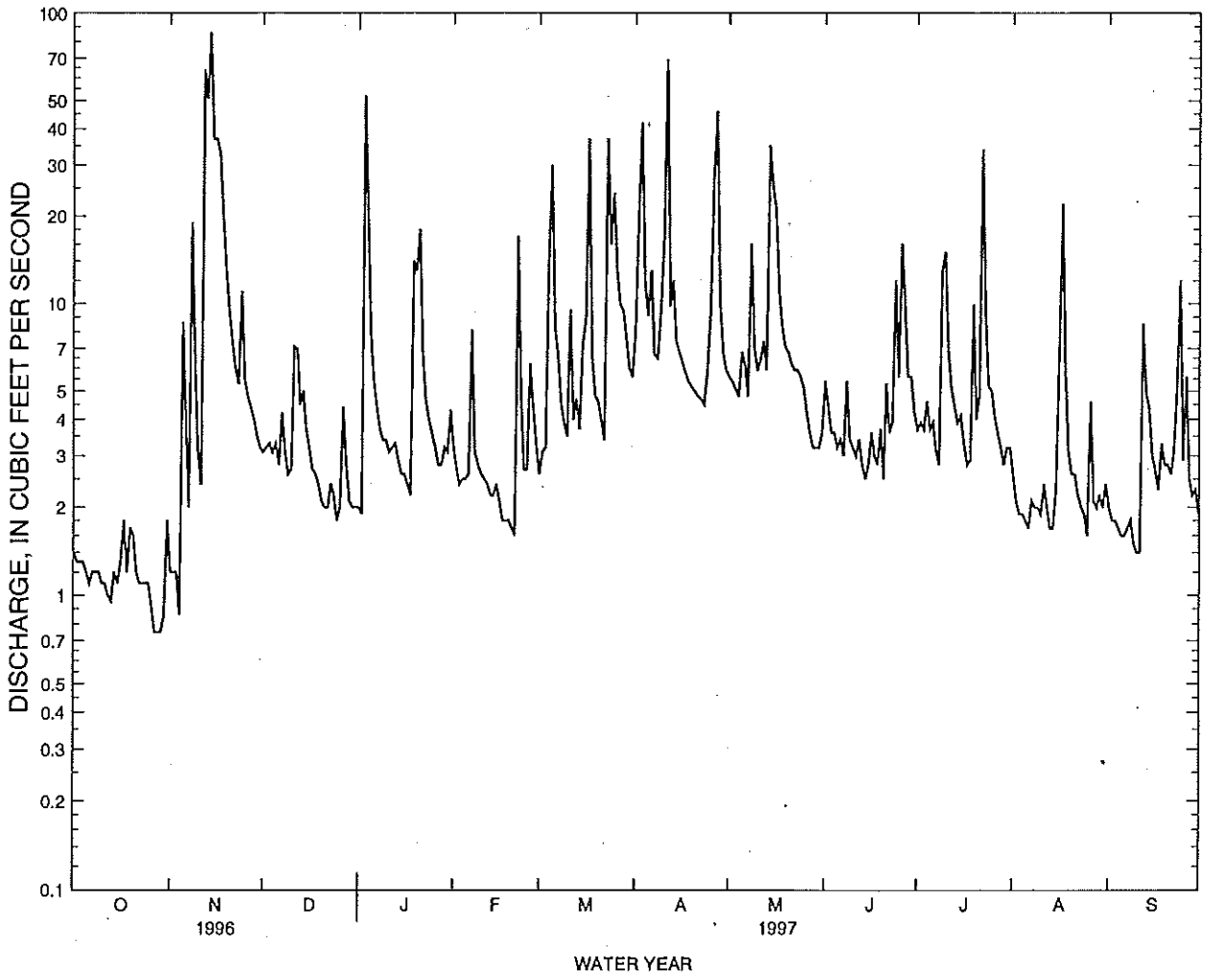
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1997, BY WATER YEAR (WY)

MEAN	4.62	7.38	8.45	9.05	7.24	8.66	8.47	6.54	3.73	4.57	5.12	4.58
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

HAWAII, ISLAND OF OAHU

16229000 KALIHI STREAM NEAR HONOLULU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1914 - 1997	
ANNUAL TOTAL	1690.86		2366.54			
ANNUAL MEAN	4.62		6.48		6.51	
HIGHEST ANNUAL MEAN					13.5	1923
LOWEST ANNUAL MEAN					2.04	1984
HIGHEST DAILY MEAN	86	Nov 14	86	Nov 14	951	Jan 19 1923
LOWEST DAILY MEAN	.56	Aug 30	.75	Oct 27	.11	Jul 29 1966
ANNUAL SEVEN-DAY MINIMUM	.83	Aug 24	.89	Oct 24	.15	May 15 1926
ANNUAL RUNOFF (AC-FT)	3350		4690		4720	
10 PERCENT EXCEEDS	7.9		13		12	
50 PERCENT EXCEEDS	2.3		3.4		2.9	
90 PERCENT EXCEEDS	1.1		1.6		1.0	



HAWAII, ISLAND OF OAHU

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.
SUSPENDED-SEDIMENT DISCHARGE: Water years 1969-74, 1975-93, quarterly.

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. Elevation of gage is 70 ft above mean sea level (from topographic map). August 28, 1961, to June 30, 1962, crest-stage gage at site 600 ft downstream at different datum.

REMARKS.--Records computed by Ben Shimizu. Records fair except for period of no gage height record which is poor.

AVERAGE DISCHARGE.--35 years (water years 1963-97), 10.3 ft^3/s (7,480 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,110 ft^3/s, April 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)
Nov. 14	0600	*2,250	*5.83	Jan. 3	1200	2,160	5.71

Minimum discharge, 0.95 ft^3/s, November 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	2.0	e6.0	2.1	3.3	2.9	17	7.9	6.2	5.6	3.3	1.9
2	1.7	7.5	e5.5	1.7	3.4	4.0	23	7.1	5.0	6.9	3.3	1.9
3	1.6	1.4	e5.0	159	2.9	4.5	72	7.4	3.7	5.0	3.2	1.8
4	1.5	1.1	e4.5	40	2.3	21	22	6.5	4.0	5.4	3.3	1.8
5	1.7	36	e4.0	15	2.2	50	15	8.2	3.8	4.1	3.1	2.1
6	1.8	6.4	3.4	8.4	2.0	15	20	7.9	4.4	5.2	3.0	2.8
7	1.7	4.1	8.6	5.9	6.9	10	11	5.6	3.6	3.8	3.0	2.2
8	1.3	37	3.6	4.8	2.5	6.0	9.6	15	6.9	3.7	2.7	2.6
9	1.4	8.7	2.7	4.0	2.3	4.8	21	7.8	4.6	15	2.5	1.7
10	1.3	3.8	3.1	3.6	2.1	4.5	33	5.9	4.1	21	2.4	1.8
11	1.3	2.8	8.7	3.3	2.4	16	106	6.5	3.5	11	3.0	2.1
12	1.3	153	10	4.7	2.3	5.4	15	8.1	4.5	7.2	2.2	9.8
13	1.3	111	5.6	3.4	2.1	7.1	16	5.8	3.5	5.6	4.9	7.0
14	2.3	242	7.7	2.9	2.2	5.0	10	38	3.1	4.7	2.3	5.1
15	1.5	79	4.1	3.5	2.4	6.1	8.7	27	3.1	4.8	5.5	5.6
16	1.7	91	3.3	2.6	2.1	19	7.5	25	4.1	4.6	12	5.1
17	3.7	41	2.8	2.1	2.0	78	6.8	12	3.3	4.2	28	3.5
18	1.6	e30	2.6	2.1	1.8	e12	6.4	9.5	4.2	4.4	10	5.2
19	3.2	e20	2.4	41	1.8	e8.0	6.0	7.9	6.8	12	4.8	4.4
20	2.0	e14	2.4	25	1.7	e6.0	5.8	6.9	3.5	4.2	3.5	3.6
21	1.7	e12	2.2	30	1.4	e5.0	5.2	6.6	6.7	5.0	2.7	8.7
22	1.7	e10	2.2	12	19	e4.0	5.3	7.6	4.4	48	2.6	8.4
23	1.5	e9.0	4.0	6.7	6.5	e55	5.2	6.4	6.4	15	2.7	5.8
24	2.2	e20	2.8	4.9	2.9	e20	8.0	5.3	24	6.7	2.9	14
25	1.7	e12	1.8	4.1	5.1	e30	17	4.9	11	6.7	3.1	3.7
26	1.6	e8.0	3.0	3.7	13	e20	49	4.7	28	4.9	7.3	8.1
27	1.5	e10	8.4	4.1	9.6	e15	107	4.5	19	4.5	2.5	3.9
28	1.5	e12	3.3	4.0	3.4	e13	20	4.3	10	4.2	2.4	3.6
29	1.5	e8.0	2.3	6.6	---	e10	12	4.2	11	4.0	2.5	3.7
30	1.4	e7.0	2.2	3.5	---	e9.0	9.3	4.2	7.4	4.2	2.4	2.8
31	2.8	---	1.8	4.6	---	e8.5	---	4.6	---	3.3	3.0	---
TOTAL	54.9	999.8	130.0	419.3	111.6	474.8	669.8	283.3	213.8	244.9	140.1	134.7
MEAN	1.77	33.3	4.19	13.5	3.99	15.3	22.3	9.14	7.13	7.90	4.52	4.49
MAX	3.7	242	10	159	19	78	107	38	28	48	28	14
MIN	1.3	1.1	1.8	1.7	1.4	2.9	5.2	4.2	3.1	3.3	2.2	1.7
AC-FT	109	1980	258	832	221	942	1330	562	424	486	278	267

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1997, BY WATER YEAR (WY)

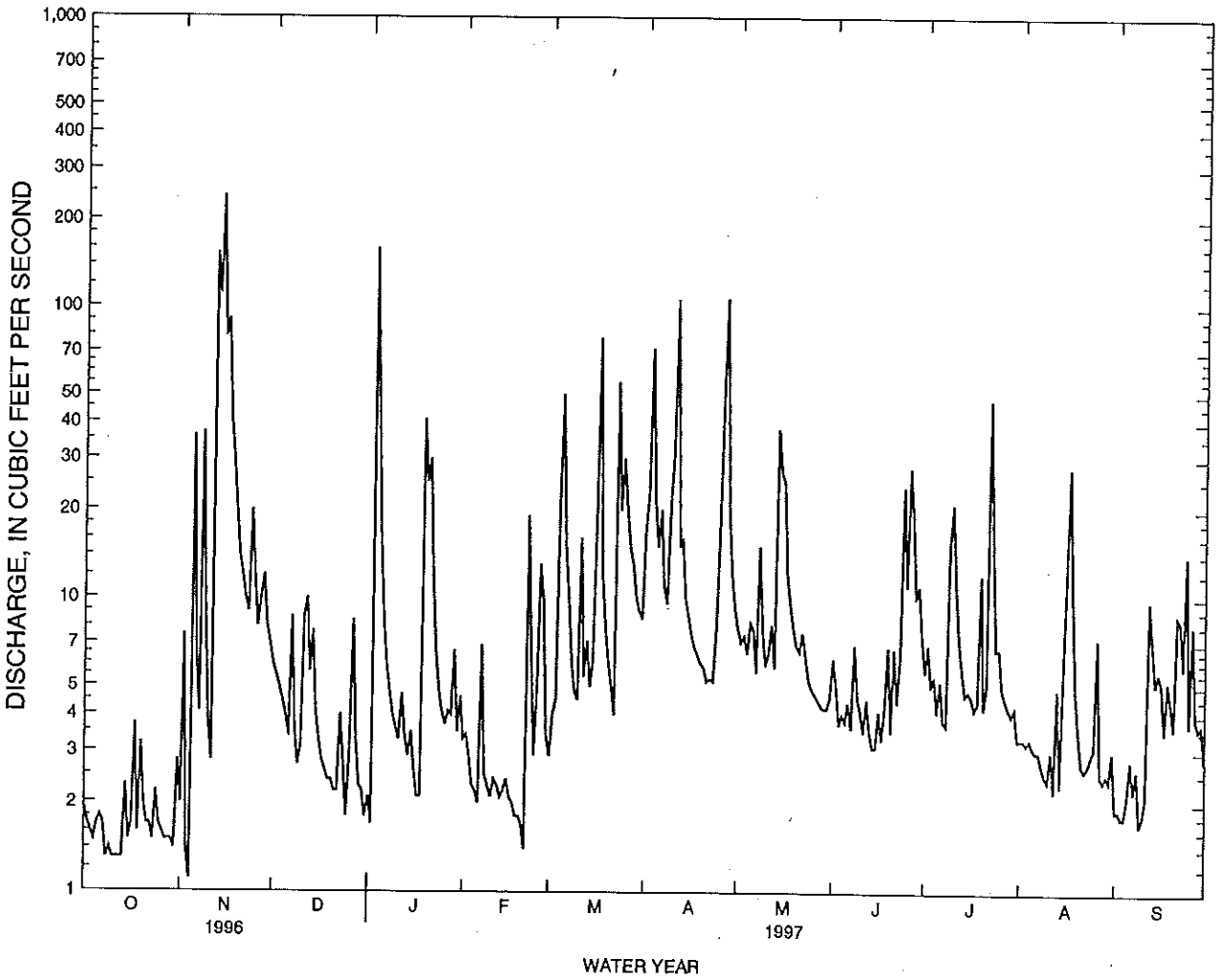
MEAN	6.83	14.1	14.8	13.4	11.1	16.1	13.8	9.68	5.39	7.95	6.15	4.82
MAX	22.2	49.2	56.6	45.8	60.3	73.2	57.6	40.9	19.5	29.3	35.7	20.4
(WY)	1964	1966	1988	1982	1969	1968	1989	1965	1980	1970	1982	1992
MIN	.95	2.15	1.15	.82	.78	1.15	1.65	1.49	.87	1.17	.83	.64
(WY)	1985	1981	1977	1977	1978	1983	1992	1966	1966	1984	1984	1984

e Estimated

HAWAII, ISLAND OF OAHU

16229300 KALIHI STREAM AT KALIHI--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1962 - 1997	
ANNUAL TOTAL	3003.67		3877.0			
ANNUAL MEAN	8.21		10.6		10.3	
HIGHEST ANNUAL MEAN					21.3	1982
LOWEST ANNUAL MEAN					3.13	1984
HIGHEST DAILY MEAN	242	Nov 14	242	Nov 14	781	Feb 1 1969
LOWEST DAILY MEAN	.97	Aug 29	1.1	Nov 4	.23	Jun 28 1966
ANNUAL SEVEN-DAY MINIMUM	1.3	Aug 19	1.4	Oct 7	.36	Oct 14 1984
ANNUAL RUNOFF (AC-FT)	5960		7690		7480	
10 PERCENT EXCEEDS	14		20		18	
50 PERCENT EXCEEDS	3.3		4.7		3.8	
90 PERCENT EXCEEDS	1.4		1.8		1.3	



HAWAII, ISLAND OF OAHU

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 benchmark). Prior to May 20, 1914, nonrecording gage at site 200 ft upstream at different datum. May 20, 1914 to January 16, 1921, water-stage recorder at site 30 ft upstream at different datum. August 18, 1925 to March 15, 1928, water-stage recorder at present site at datum 2.99 ft lower. March 16, 1928 to October 18, 1933, water-stage recorder at present site at datum 0.41 ft higher.

REMARKS.--Records computed by Ben Shimizu. 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.--79 years (water years 1914-20, 1926-97), 4.92 ft^3/s (3,560 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,090 ft^3/s, January 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)
Nov. 14	0615	*363	*3.28	No other peak greater than base discharge.			

Minimum discharge, 1.9 ft^3/s, October 28-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	2.0	3.1	2.6	2.5	2.5	3.9	4.3	5.0	4.9	3.5	2.9
2	2.2	3.9	3.2	2.5	2.4	3.2	11	4.1	4.2	5.4	3.4	3.6
3	2.1	2.3	3.0	16	2.2	2.5	32	4.2	3.7	5.3	3.4	3.0
4	2.1	2.0	3.1	6.6	2.2	8.9	7.2	4.2	3.9	4.8	3.4	2.8
5	2.1	6.6	3.3	3.8	2.2	8.5	6.7	6.7	3.8	4.4	3.3	2.8
6	2.1	3.7	3.0	3.1	2.5	5.1	11	5.5	4.6	5.1	3.4	2.9
7	2.1	2.6	2.9	2.9	5.5	3.6	4.7	4.4	3.8	4.8	3.4	2.7
8	2.1	15	2.7	2.8	2.5	2.9	4.5	6.8	5.8	4.3	3.3	2.9
9	2.1	4.1	2.7	2.7	2.5	2.7	4.9	4.4	4.1	12	3.2	2.8
10	2.1	2.7	3.1	2.6	2.3	3.2	6.5	4.0	5.0	11	3.2	2.7
11	2.1	3.1	13	2.5	2.7	4.9	7.6	6.9	3.8	8.1	3.2	2.8
12	2.0	22	7.5	2.6	2.4	2.9	4.6	6.8	4.1	5.4	3.1	5.1
13	2.0	16	4.0	2.8	2.2	2.6	14	4.5	3.6	4.7	3.2	3.8
14	2.1	34	3.6	2.5	2.3	2.5	4.9	25	3.6	4.4	3.1	3.2
15	2.0	24	3.1	2.5	2.2	3.2	4.1	17	4.1	5.1	4.5	3.7
16	2.2	15	2.9	2.7	2.1	5.1	3.7	12	4.2	5.4	3.4	3.5
17	5.4	12	2.8	2.5	2.1	14	3.5	6.3	4.0	4.2	7.0	6.1
18	2.2	6.6	2.6	2.3	2.1	3.8	3.4	5.4	6.2	4.1	3.8	3.5
19	4.9	5.6	2.6	8.4	2.1	2.9	3.2	5.2	4.9	9.0	3.2	4.0
20	3.0	4.9	2.5	5.3	2.1	2.8	3.2	4.6	4.0	4.2	3.1	8.7
21	2.3	4.4	2.6	3.4	2.0	2.6	3.1	4.4	6.5	4.1	3.4	5.0
22	2.1	4.1	2.5	2.8	3.9	2.5	3.1	5.8	4.9	17	3.2	3.3
23	2.0	4.1	3.1	2.5	2.5	11	3.0	4.7	5.7	6.5	3.1	3.1
24	2.1	7.3	2.7	2.4	2.1	9.8	6.3	4.3	11	4.7	3.0	4.0
25	2.0	4.5	2.5	2.4	2.2	11	8.7	4.1	7.4	6.8	2.9	4.3
26	2.0	3.9	2.6	2.3	2.7	6.7	24	4.0	11	4.5	3.5	6.7
27	2.0	3.8	5.4	2.3	2.9	4.4	20	3.9	11	4.1	3.0	3.7
28	1.9	3.6	2.9	2.3	2.3	5.1	6.7	3.8	6.4	3.9	2.9	3.6
29	1.9	3.6	2.5	2.9	---	4.1	5.3	3.8	7.8	3.8	3.3	3.2
30	2.0	3.2	2.5	2.5	---	3.5	4.5	3.7	5.7	4.0	3.0	3.0
31	2.8	---	2.5	3.6	---	3.2	---	4.6	---	3.6	3.5	---
TOTAL	72.3	230.6	106.5	109.1	69.7	151.7	229.3	189.4	163.8	179.6	105.9	113.4
MEAN	2.33	7.69	3.44	3.52	2.49	4.89	7.64	6.11	5.46	5.79	3.42	3.78
MAX	5.4	34	13	16	5.5	14	32	25	11	17	7.0	8.7
MIN	1.9	2.0	2.5	2.3	2.0	2.5	3.0	3.7	3.6	3.6	2.9	2.7
AC-FT	143	457	211	216	138	301	455	376	325	356	210	225

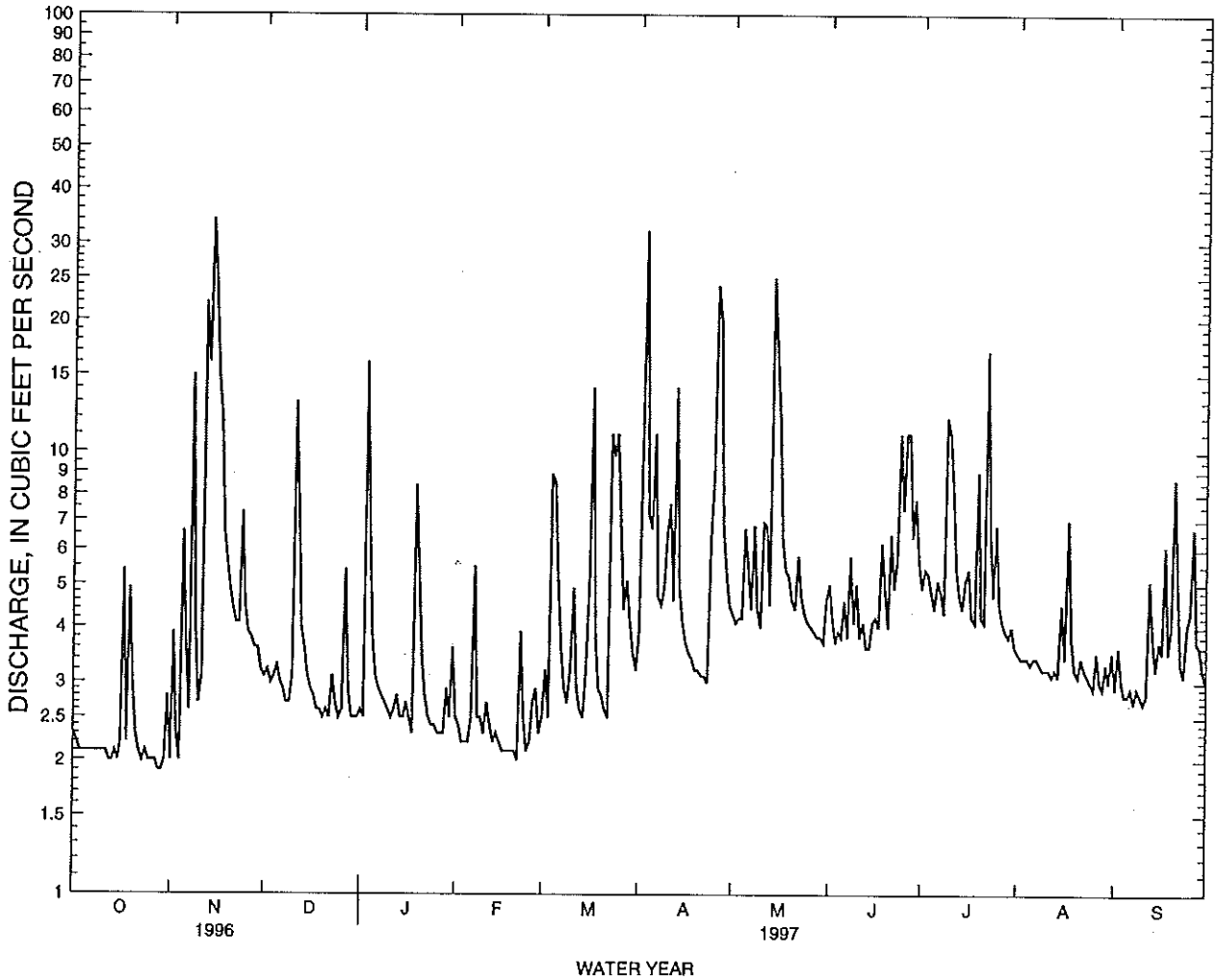
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 1997, BY WATER YEAR (WY)

MEAN	4.19	5.27	5.35	4.89	4.50	5.47	5.72	5.21	4.18	4.96	4.87	4.20
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

HAWAII, ISLAND OF OAHU

16240500 WAIAKEAKUA STREAM AT HONOLULU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1913 - 1997	
ANNUAL TOTAL	1373.5		1721.3			
ANNUAL MEAN	3.75		4.72		4.92	
HIGHEST ANNUAL MEAN					8.23	1988
LOWEST ANNUAL MEAN					1.94	1920
HIGHEST DAILY MEAN	34	Nov 14	34	Nov 14	183	Mar 24 1994
LOWEST DAILY MEAN	1.5	Aug 24	1.9	Oct 28	.62	Feb 26 1920
ANNUAL SEVEN-DAY MINIMUM	1.6	Aug 23	2.0	Oct 23	.75	May 23 1926
ANNUAL RUNOFF (AC-FT)	2720		3410		3560	
10 PERCENT EXCEEDS	5.8		7.7		8.1	
50 PERCENT EXCEEDS	2.7		3.6		3.5	
90 PERCENT EXCEEDS	2.0		2.2		1.7	



HAWAII, ISLAND OF OAHU

16249900 MAUNAWILI DITCH ABOVE ANIANINUI TUNNEL NR KAILUA

LOCATION.--Lat 21°20'50", long 157°46'26", on left bank about 1,000 ft above Aniani Nui Tunnel, 2.5 mi east of Waimanalo Elementary School, and 3.6 mi 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 computed by Ben Shimizu. Records fair.

AVERAGE DISCHARGE.--7 years (water years 1991-97), 1.70 ft^3/s (1,230 acre-ft/yr)

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

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 3.5 ft^3/s, May 8; minimum daily, 0.36 ft^3/s, July 20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.99	.98	.76	.58	.77	1.0	1.3	1.5	.80	1.3	.85	1.2
2	1.2	1.2	.73	.68	.76	.88	1.4	.51	1.1	1.3	1.2	1.2
3	1.1	1.2	.68	1.2	.68	1.1	1.1	.43	1.2	1.2	1.2	1.5
4	.98	1.2	.65	.58	.59	1.3	.96	.52	1.2	1.2	1.1	1.1
5	1.0	1.6	.64	.66	.60	1.2	.89	1.6	1.1	1.2	1.0	1.1
6	e1.2	1.4	.61	.68	.65	1.0	.99	2.2	1.1	1.2	1.0	1.1
7	e1.2	1.1	.76	.72	.65	.86	.81	3.2	1.1	1.3	1.3	.87
8	e.95	1.3	.88	.76	.65	.80	.81	3.5	1.1	1.5	1.2	1.1
9	e1.3	.98	.84	.71	.65	.72	1.1	2.6	1.5	1.3	.85	e1.6
10	1.4	.88	.82	.73	.65	.78	1.2	1.8	1.5	1.2	1.3	e1.4
11	1.2	.86	.83	.74	.65	1.6	1.1	2.7	1.4	1.1	1.2	e1.2
12	.98	1.3	.82	.74	.63	1.1	1.0	2.3	1.4	1.0	1.2	e1.0
13	.83	1.5	.78	.68	.60	1.0	.93	2.3	1.6	.99	1.5	e.95
14	.76	2.4	.82	.80	.58	.86	.90	2.0	1.6	1.3	1.4	e.85
15	.67	2.3	.78	.87	.55	.78	1.2	.82	1.6	1.5	1.1	e1.0
16	.64	1.6	.78	.88	.53	.81	1.6	.65	1.7	1.3	.92	e1.1
17	.64	1.1	.83	.89	.51	1.2	1.4	.65	1.7	1.2	.80	e.95
18	.73	1.2	.87	.96	.51	1.5	1.2	.62	1.7	1.4	.99	e1.0
19	.86	1.2	.61	1.5	1.0	1.7	1.0	2.0	1.7	1.1	.86	e1.2
20	.96	1.4	.48	.66	1.2	1.2	.99	3.0	1.6	.36	1.3	e1.4
21	1.0	1.1	.57	.63	1.2	1.3	1.3	1.6	1.5	.65	1.3	e1.2
22	1.4	1.0	.70	.68	1.2	1.5	2.0	.81	1.4	.40	1.2	e1.1
23	1.6	1.0	.79	.70	1.1	1.6	1.9	.64	1.1	.38	1.1	e.95
24	1.1	1.1	.81	.70	1.3	1.3	2.2	.62	1.1	.46	.97	e1.1
25	.82	.96	.82	.69	1.1	1.2	1.6	.62	1.2	.74	1.2	e1.2
26	.68	.92	.87	.70	1.1	.96	1.7	.70	1.7	.87	.81	e1.0
27	.83	.85	.63	.66	1.3	.94	1.4	.69	1.3	.88	.48	e.90
28	1.2	1.0	.44	.66	1.2	.85	1.2	.68	1.3	.96	.56	e.65
29	1.1	.93	.42	.69	---	.80	1.6	.80	1.2	.97	1.1	e.80
30	.88	.81	.58	.73	---	.74	1.9	.77	1.3	.89	1.4	e1.1
31	.75	---	.68	.77	---	1.1	---	.82	---	.83	1.5	---
TOTAL	30.95	36.37	22.28	23.63	22.91	33.68	38.68	43.65	40.80	31.98	33.89	32.82
MEAN	1.00	1.21	.72	.76	.82	1.09	1.29	1.41	1.36	1.03	1.09	1.09
MAX	1.6	2.4	.88	1.5	1.3	1.7	2.2	3.5	1.7	1.5	1.5	1.6
MIN	.64	.81	.42	.58	.51	.72	.81	.43	.80	.36	.48	.65
AC-FT	61	72	44	47	45	67	77	87	81	63	67	65

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1997, BY WATER YEAR (WY)

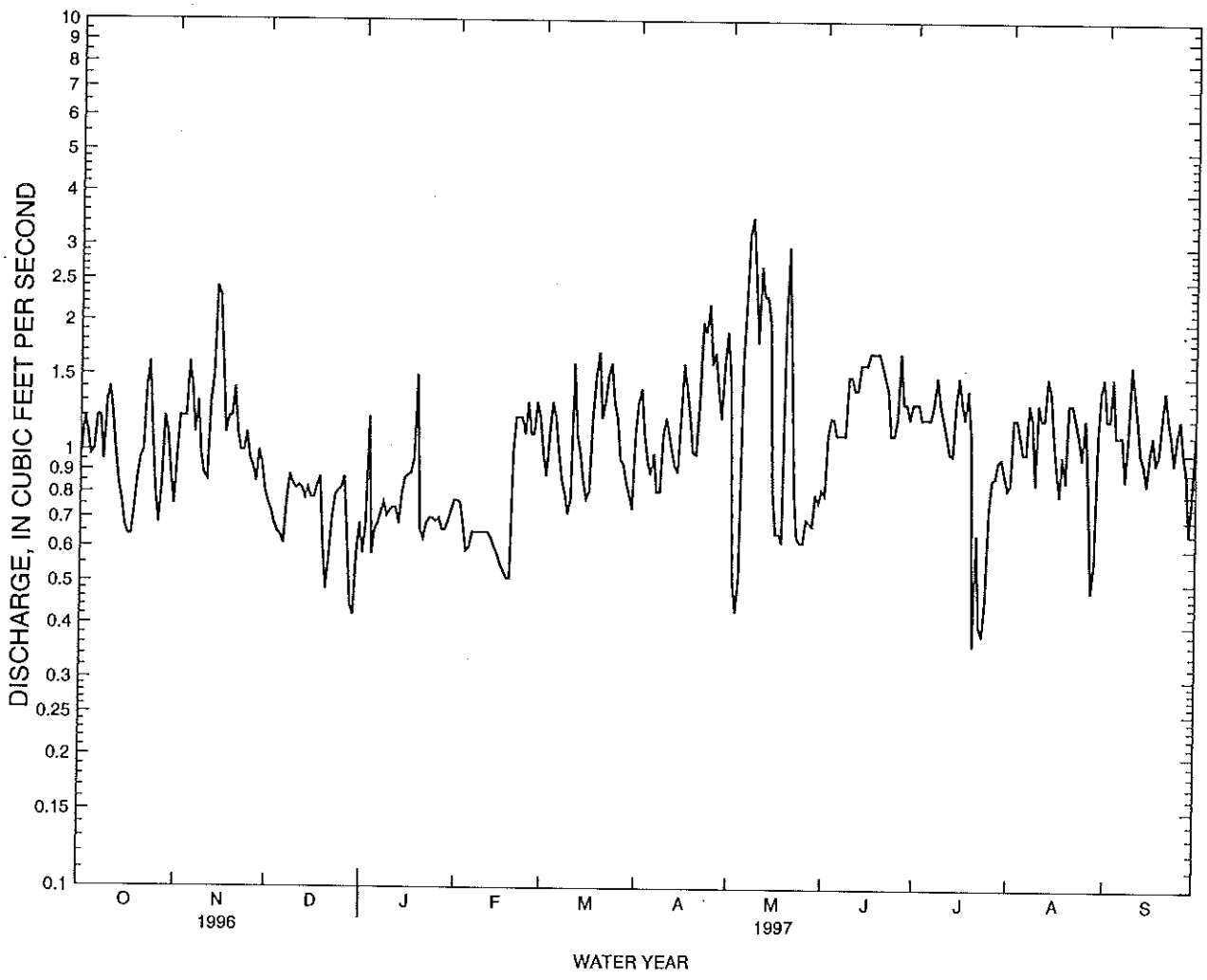
MEAN	1.90	1.92	1.46	1.39	1.59	1.63	1.72	1.96	1.91	1.78	1.89	1.96
MAX	2.69	2.99	2.57	2.22	2.46	2.23	2.26	2.38	2.39	2.80	2.75	3.22
(WY)	1992	1992	1992	1992	1991	1992	1991	1994	1991	1992	1992	1992
MIN	1.00	1.21	.72	.58	.66	.63	1.12	1.41	1.36	1.03	1.09	.91
(WY)	1997	1997	1997	1996	1996	1996	1996	1997	1997	1997	1997	1996

e Estimated

HAWAII, ISLAND OF OAHU

16249900 MAUNAWILI DITCH ABOVE ANIANINUI TUNNEL NR KAILUA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1991 - 1997	
ANNUAL TOTAL	365.70		391.64			
ANNUAL MEAN	1.00		1.07		1.70	
HIGHEST ANNUAL MEAN					2.48	1992
LOWEST ANNUAL MEAN					1.07	1997
HIGHEST DAILY MEAN	2.7	Jun 13	3.5	May 8	5.5	Mar 24 1994
LOWEST DAILY MEAN	.02	Jan 27	.36	Jul 20	.00	Mar 22 1991
ANNUAL SEVEN-DAY MINIMUM	.13	Jan 26	.55	Jul 20	.13	Jan 26 1996
ANNUAL RUNOFF (AC-FT)	725		777		1230	
10 PERCENT EXCEEDS	1.5		1.6		2.7	
50 PERCENT EXCEEDS	.98		1.0		1.8	
90 PERCENT EXCEEDS	.55		.65		.82	



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 January 1, 1958, nonrecording gage at sites about 200 ft upstream at different datums.

REMARKS.--Records computed by George Dayag. 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.--41 years (water years 1914-15, 1959-97), 5.16 ft^3/s (3,740 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,000 ft^3/s, February 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, September 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 14	0630	*675	*5.90	No other peak greater than base discharge.			

Minimum discharge, 1.5 ft^3/s, October 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.1	6.1	6.1	8.1	4.8	10	5.9	7.0	4.6	e3.9	e3.3
2	2.2	3.6	5.8	5.8	7.0	4.7	35	5.8	6.7	4.6	e3.8	e3.2
3	2.3	2.4	5.6	41	6.3	4.1	31	5.9	6.5	4.5	e3.8	e3.2
4	2.4	2.0	5.4	17	6.2	4.7	15	5.9	6.5	4.5	e3.7	e3.1
5	2.2	8.8	5.2	13	6.1	5.4	12	6.8	6.3	4.3	e3.7	e3.0
6	2.3	4.7	5.0	11	5.8	4.8	14	12	6.1	4.3	e3.6	e2.9
7	2.5	3.3	4.6	9.8	5.6	4.7	11	14	6.0	e4.3	e3.5	e2.9
8	2.5	19	4.5	9.4	5.4	4.7	11	13	6.1	e4.4	e3.5	e2.7
9	2.3	8.0	4.4	8.8	5.2	4.7	12	8.4	5.5	e4.4	e3.6	e2.4
10	2.1	5.2	4.7	9.3	5.4	4.3	9.7	7.0	5.6	e4.8	e3.5	2.3
11	2.3	6.1	6.8	8.5	6.1	7.1	9.9	13	5.2	e4.4	e3.5	2.6
12	2.5	47	5.9	8.9	6.1	4.6	8.6	13	5.2	e4.2	e3.4	3.3
13	2.7	38	5.1	8.5	5.9	4.3	8.8	8.4	4.8	e4.3	e3.5	3.0
14	2.8	69	5.0	7.6	5.8	4.2	7.9	33	4.4	e4.2	e3.4	3.0
15	2.8	40	4.7	7.3	5.7	6.3	7.1	22	4.7	e4.3	e3.4	2.6
16	2.9	36	4.7	8.7	5.7	6.4	6.4	17	4.6	e4.0	e4.9	2.5
17	2.9	29	4.9	7.3	5.6	37	6.4	14	4.7	e4.0	e4.6	2.7
18	2.7	20	4.6	6.7	5.4	8.0	6.4	13	4.9	e3.9	e3.5	2.5
19	4.1	15	4.3	31	5.2	5.5	6.3	11	4.7	e4.8	e3.4	2.8
20	3.2	13	4.4	21	4.6	5.5	6.0	9.3	4.6	e4.1	e3.4	5.4
21	2.7	12	4.9	14	4.5	5.2	5.4	9.0	5.2	e7.9	e3.4	11
22	2.2	11	4.7	11	4.9	4.7	5.0	12	4.9	e5.6	e3.4	5.0
23	2.0	10	5.6	9.8	4.7	25	4.8	10	5.0	e4.8	e3.4	3.7
24	2.1	10	5.2	9.4	4.2	12	9.4	9.1	6.9	e4.6	e3.4	4.0
25	2.2	9.1	4.9	8.8	4.1	9.7	6.5	8.5	5.3	e4.2	e3.5	3.2
26	2.2	8.3	5.6	8.4	4.7	8.0	14	8.3	5.2	e4.2	e4.0	4.5
27	2.1	7.7	11	8.1	4.7	8.2	11	7.8	5.0	e4.1	e3.7	3.7
28	1.8	7.1	6.5	8.3	4.5	8.5	7.2	7.4	4.8	e4.0	e3.7	3.6
29	1.8	6.9	5.7	8.9	---	7.3	6.2	7.1	5.1	e4.1	e3.7	3.3
30	2.0	6.5	5.1	8.4	---	7.2	5.9	6.9	4.9	e3.9	e3.7	3.0
31	2.2	---	6.0	9.5	---	6.4	---	7.0	---	e3.9	e3.5	---
TOTAL	75.5	460.8	166.9	351.3	153.5	238.0	309.9	331.5	162.4	138.2	113.0	104.4
MEAN	2.44	15.4	5.38	11.3	5.48	7.68	10.3	10.7	5.41	4.46	3.65	3.48
MAX	4.1	69	11	41	8.1	37	35	33	7.0	7.9	4.9	11
MIN	1.8	2.0	4.3	5.8	4.1	4.1	4.8	5.8	4.4	3.9	3.4	2.3
AC-FT	150	914	331	697	304	472	615	658	322	274	224	207

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 1997, BY WATER YEAR (WY)

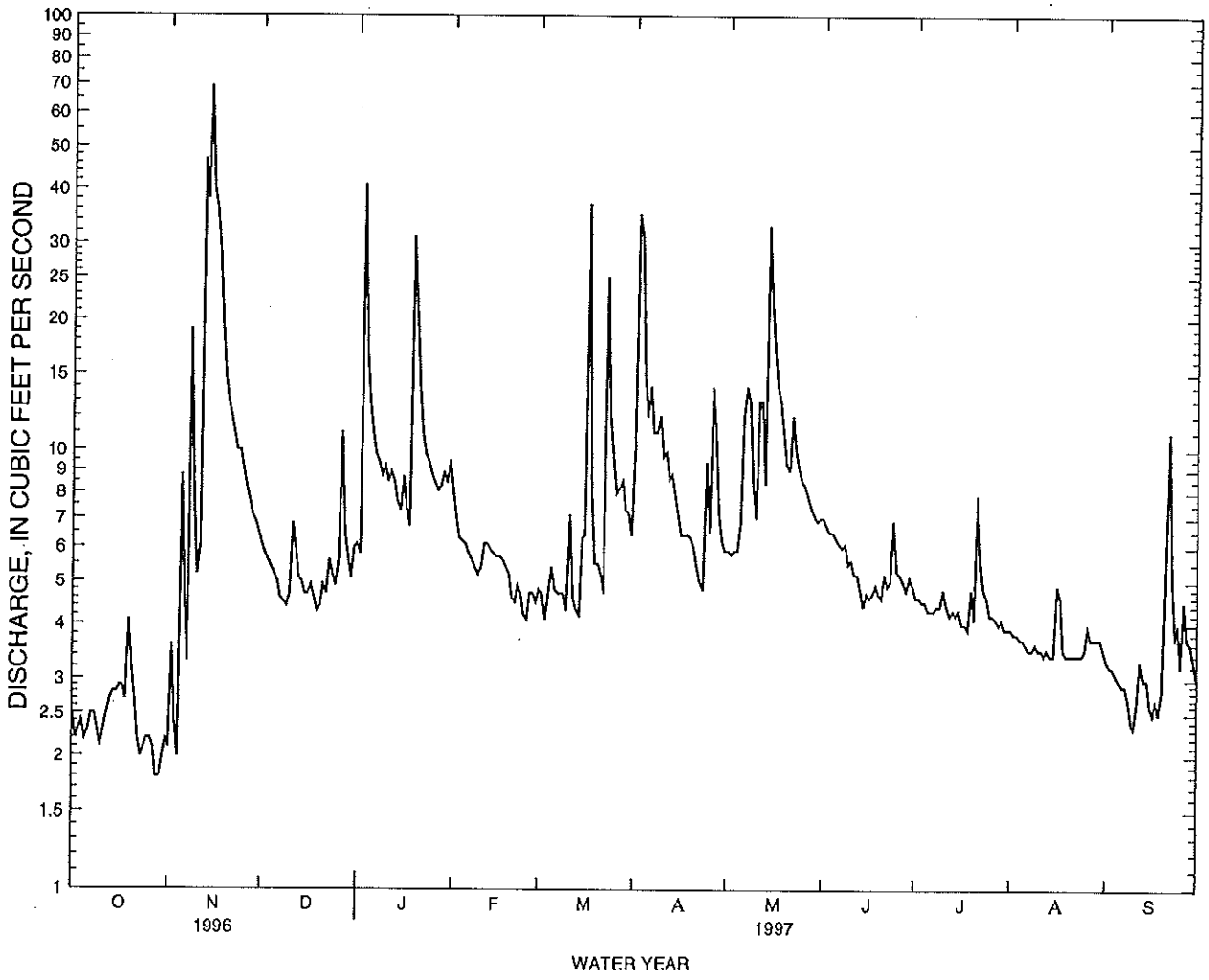
MEAN	3.01	5.74	7.05	8.47	7.14	7.77	6.74	5.45	3.39	2.75	2.61	2.53
MAX	8.43	38.2	34.8	39.2	27.2	24.3	31.4	17.2	11.3	6.66	8.52	15.1
(WY)	1966	1966	1988	1916	1979	1958	1963	1981	1982	1982	1982	1914
MIN	1.06	.99	1.22	1.24	1.11	1.25	1.55	1.40	1.15	1.25	1.18	1.00
(WY)	1976	1963	1978	1973	1978	1978	1973	1973	1973	1959	1984	1975

e Estimated

HAWAII, ISLAND OF OAHU

16254000 MAKAWAO STREAM NEAR KAILUA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1913 - 1997	
ANNUAL TOTAL	2186.7		2605.4			
ANNUAL MEAN	5.97		7.14		5.16	
HIGHEST ANNUAL MEAN					11.1	1982
LOWEST ANNUAL MEAN					1.31	1973
HIGHEST DAILY MEAN	215	Jan 25	69	Nov 14	518	Dec 31 1987
LOWEST DAILY MEAN	1.8	Oct 28	1.8	Oct 28	.50	Sep 8 1964
ANNUAL SEVEN-DAY MINIMUM	2.0	Aug 23	2.0	Oct 23	.67	Sep 8 1964
ANNUAL RUNOFF (AC-FT)	4340		5170		3740	
10 PERCENT EXCEEDS	8.3		12		8.9	
50 PERCENT EXCEEDS	3.8		5.2		2.9	
90 PERCENT EXCEEDS	2.4		2.8		1.4	



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.

PERIOD OF RECORD.--February 1983 to current year (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 210 ft above mean sea level (from topographic map).

REMARKS.--Records computed by Ben Shimizu. Records fair except for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--14 years (water years 1984-97), 1.51 ft^3/s (1,070 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,800 ft^3/s, January 25, 1996, gage height, 11.64 ft from rating curve extended above 100 ft^3/s on basis of slope-area 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)
Nov. 14	0615	*566	*8.37	No peak greater than base discharge.			

Minimum discharge, 0.20 ft^3/s, November 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.40	.27	1.0	1.2	1.3	1.3	7.1	1.4	1.4	e1.4	.93	.86
2	.40	.82	.98	1.3	1.2	1.1	25	1.4	1.5	e1.4	.95	.86
3	.40	.25	.96	32	1.2	.97	13	1.4	1.4	e1.4	.94	.85
4	.42	.24	.92	3.5	1.2	2.0	1.7	1.4	1.5	e1.5	.92	.88
5	.33	7.7	.95	1.2	1.2	3.1	1.8	1.9	1.4	e1.4	.94	.85
6	.33	.29	.89	1.0	1.1	1.2	1.8	4.8	1.4	e1.7	.89	.84
7	.34	.35	1.0	1.0	1.2	1.1	1.5	13	1.4	e1.4	.94	.85
8	.40	5.9	.74	.98	1.1	1.0	1.6	8.7	1.4	e1.3	.90	.81
9	.37	.28	.72	.95	1.1	1.1	1.5	1.8	1.4	1.5	.92	.81
10	.39	.27	.76	1.0	1.0	1.1	2.1	1.6	1.4	1.5	.94	.81
11	.35	.27	1.1	1.1	1.0	7.5	2.0	4.6	1.4	1.3	.93	.82
12	.34	21	.78	2.0	.99	1.1	1.4	3.8	1.6	1.2	.90	1.6
13	.38	13	.76	1.2	1.0	1.9	1.4	1.7	1.4	1.3	.85	.88
14	.37	26	1.2	.93	.99	3.5	1.4	10	1.5	1.2	.87	.84
15	.35	7.2	.71	1.1	1.2	1.9	1.4	4.3	1.5	1.3	.88	.74
16	.26	10	.72	1.3	.98	1.7	1.4	6.3	1.4	1.2	1.2	.77
17	.28	2.2	.73	.98	1.0	35	1.4	1.9	1.5	1.2	1.2	.79
18	.29	1.1	.73	1.0	1.0	1.4	1.4	2.0	1.6	1.2	.84	1.2
19	.91	.98	.75	21	1.0	1.3	1.4	1.8	1.4	1.4	.86	.78
20	.30	.97	.72	2.8	1.1	1.3	1.4	1.7	1.5	1.2	.84	.88
21	.26	.97	.76	12	1.1	1.3	1.4	1.7	1.8	1.2	.83	3.2
22	.27	.98	.74	1.2	1.5	1.2	1.3	3.9	1.4	2.9	.83	.79
23	.25	1.0	.97	1.0	1.0	19	1.4	1.9	1.6	1.1	.83	1.5
24	.26	1.7	.96	1.0	.95	2.2	1.6	1.6	2.0	1.1	.86	2.1
25	.28	.98	.79	1.0	1.0	1.9	1.4	1.6	1.6	1.1	.86	.77
26	.28	.99	1.9	1.0	1.4	1.5	2.1	1.6	2.0	1.0	.98	.80
27	.26	.98	6.3	1.0	1.4	1.5	2.4	1.6	1.5	.95	.82	.78
28	.26	1.0	.92	1.2	1.1	2.2	1.4	1.6	1.5	1.0	.85	.74
29	.23	1.0	.87	2.7	---	1.3	1.4	1.5	1.5	.97	.87	.73
30	.24	.98	1.2	1.4	---	1.2	1.4	1.4	e1.4	.93	.86	.71
31	.26	---	3.2	1.6	---	1.2	---	1.4	---	.93	.87	---
TOTAL	10.46	109.67	35.73	102.64	31.31	105.07	87.5	95.3	45.3	40.18	28.10	29.84
MEAN	.34	3.66	1.15	3.31	1.12	3.39	2.92	3.07	1.51	1.30	.91	.99
MAX	.91	26	6.3	32	1.5	35	25	13	2.0	2.9	1.2	3.2
MIN	.23	.24	.71	.93	.95	.97	1.3	1.4	1.4	.93	.82	.71
AC-FT	21	218	71	204	62	208	174	189	90	80	56	59

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1997, BY WATER YEAR (WY)

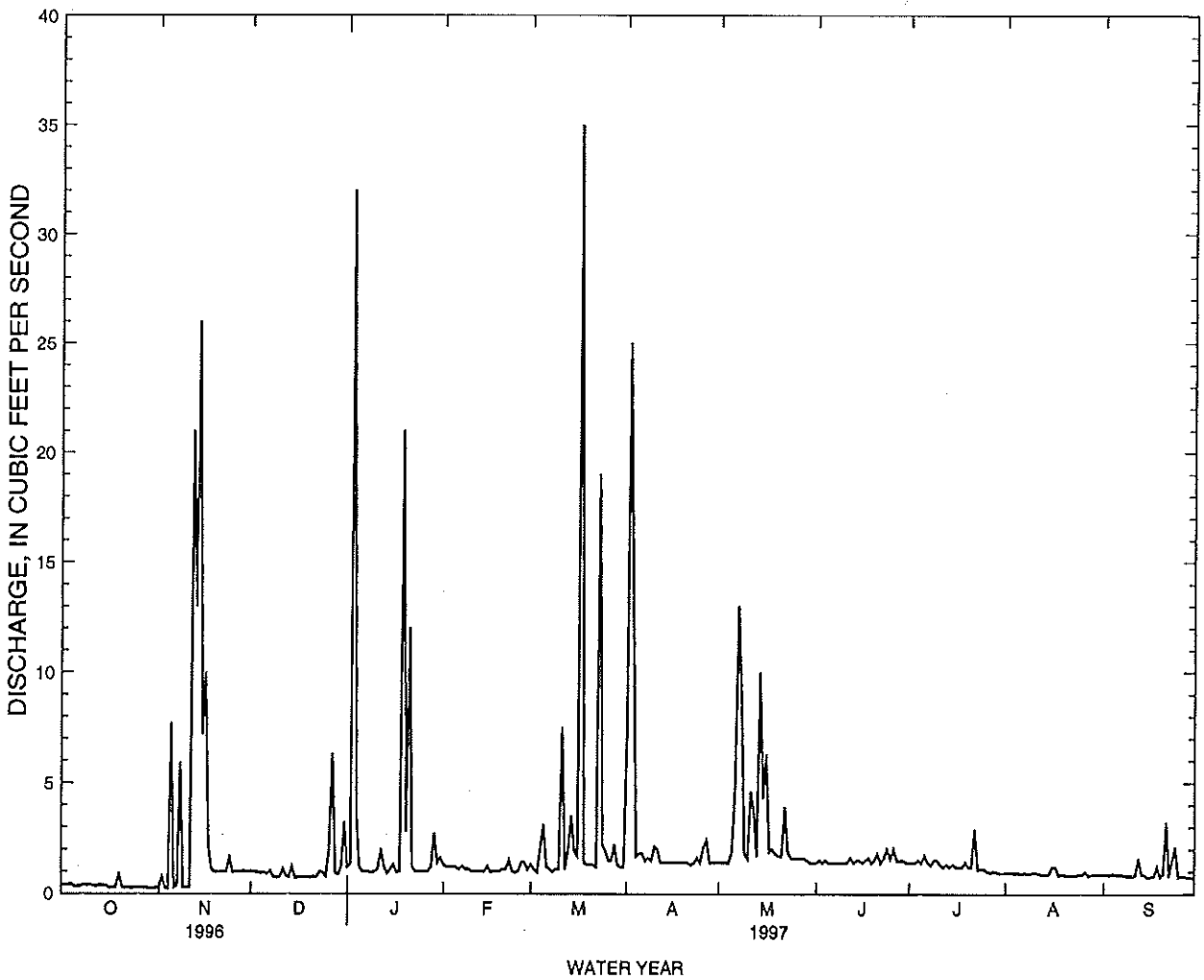
MEAN	1.01	2.36	2.34	1.84	2.18	2.23	1.80	1.05	.87	.78	.59	.98
MAX	2.21	9.43	15.0	6.65	5.57	8.83	11.9	3.07	2.17	1.92	1.10	4.36
(WY)	1990	1987	1988	1996	1994	1991	1989	1997	1989	1989	1989	1986
MIN	.29	.12	.26	.18	.44	.26	.34	.33	.20	.18	.14	.11
(WY)	1996	1985	1994	1985	1984	1995	1992	1984	1995	1984	1984	1984

e Estimated

HAWAII, ISLAND OF OAHU

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1983 - 1997	
ANNUAL TOTAL	599.19		721.10			
ANNUAL MEAN	1.64		1.98		1.51	
HIGHEST ANNUAL MEAN					2.84	1989
LOWEST ANNUAL MEAN					.33	1984
HIGHEST DAILY MEAN	162	Jan 25	35	Mar 17	177	Dec 31 1987
LOWEST DAILY MEAN	.18	Jan 16	.23	Oct 29	.03	Nov 16 1984
ANNUAL SEVEN-DAY MINIMUM	.23	Jan 11	.26	Oct 26	.04	Nov 15 1984
ANNUAL RUNOFF (AC-FT)	1190		1430		1090	
10 PERCENT EXCEEDS	1.3		2.2		1.7	
50 PERCENT EXCEEDS	.49		1.2		.57	
90 PERCENT EXCEEDS	.30		.40		.24	



HAWAII, ISLAND OF OAHU

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)
DEC													
09...	1120	<100	14	<10	--	--	<1	--	<1	--	<1	<3.0	<1
JAN													
13...	1035	--	<0.20	--	<0.20	<2.0	--	<0.30	--	<0.20	--	<0.20	--
13...	1055	<100	14	<10	--	--	<1	--	<1	--	<1	<3.0	2
JUN													
10...	0955	<100	15	<10	--	--	<1	--	<1	--	<1	<3.0	<1

DATE	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)
DEC												
09...	--	340	95	<1	--	<10	<4	100	96	<0.10	<1	<10
JAN												
13...	1.2	--	<3.0	--	<0.30	--	--	--	<0.10	--	--	<0.20
13...	--	450	36	<1	--	<10	<4	120	100	--	<1	<10
JUN												
10...	--	340	85	<1	--	<10	<4	100	98	<0.10	<1	<10

DATE	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	THAL-LIUM, DIS-SOLVED (UG/L AS TL) (01057)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
DEC												
09...	2	<1.0	<1	<1	<1	<1.0	90	--	<6	30	--	0.60
JAN												
13...	--	<0.50	--	--	--	<0.20	<0.10	<0.10	--	--	0.63	--
13...	2	1.0	<1	<1	<1	<1.0	95	--	<6	30	--	1.8
JUN												
10...	2	1.5	<1	<1	<1	<1.0	84	--	<6	30	--	0.60

DATE	TIME	OIL AND GREASE, TOTAL RECOV. GRAVI-METRIC (MG/L) (00556)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)
DEC												
09...	1120	2	<0.010	<0.100	E0.010	<0.010	<0.010	<0.010	<0.030	<0.030	<0.010	--
JAN												
13...	1055	<1	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
JUN												
10...	0955	<1	--	--	--	--	--	--	--	--	--	--

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

HAWAII, ISLAND OF OAHU

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)
DEC												
09...	1120	<0.010	<0.010	<0.010	<0.010	<0.030	<0.030	<0.010	<0.010	<0.010	<0.030	<0.010
JAN												
13...	1055	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	METHYL PARA-THION, TOTAL (UG/L) (39600)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	SILVEX, TOTAL (UG/L) (39760)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC											
09...	<0.030	<0.010	<0.030	<0.100	<0.100	<0.100	<0.100	<0.010	<1.00	<0.030	<0.010
JAN											
13...	<0.010	<0.010	<0.010	<0.100	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

DATE	TIME	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)
JAN		
13...	1035	<0.20

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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.35	1	.00	.54	e8	.02	.28	2	.00
2	.52	1	.00	.41	4	.00	.30	2	.00
3	.43	2	.00	13	e59	8.3	.26	2	.00
4	.32	1	.00	.93	e10	.04	.25	3	.00
5	.32	3	.00	.48	2	.00	.26	3	.00
6	.32	3	.00	.45	1	.00	.24	2	.00
7	.30	1	.00	.48	2	.00	.26	2	.00
8	.28	2	.00	.75	e6	.02	.25	1	.00
9	.25	2	.00	.46	2	.00	.22	2	.00
10	.25	3	.00	.40	1	.00	.22	1	.00
11	.22	2	.00	.36	2	.00	.22	3	.00
12	.23	1	.00	.34	1	.00	.24	2	.00
13	.27	2	.00	.33	1	.00	.25	3	.00
14	.29	e6	.01	.34	3	.00	.27	e5	.01
15	.37	e7	.01	.33	2	.00	.21	3	.00
16	.24	1	.00	.33	1	.00	.26	1	.00
17	.24	2	.00	.27	1	.00	.25	2	.00
18	.47	e7	.02	.29	1	.00	.23	2	.00
19	2.9	e22	.78	.28	2	.00	.24	3	.00
20	.29	e2	.00	.26	3	.00	.22	2	.00
21	.28	1	.00	.24	2	.00	.23	1	.00
22	.30	2	.00	.26	1	.00	.22	1	.00
23	8.4	e56	4.7	.33	9	.01	.24	1	.00
24	.69	e20	.04	.23	7	.00	.22	1	.00
25	9.8	e49	2.8	.23	3	.00	.22	2	.00
26	.62	4	.01	.24	2	.00	.23	2	.00
27	.39	3	.00	.26	1	.00	.21	1	.00
28	.42	1	.00	.26	1	.00	.86	e11	.10
29	.50	14	.02	.24	1	.00	.26	e7	.01
30	1.2	e9	.08	.29	2	.00	.18	1	.00
31	.34	2	.00	---	---	---	.18	2	.00
TOTAL	31.80	---	8.47	23.61	---	8.39	7.98	---	0.12

e Estimated

HAWAII, ISLAND OF OAHU

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.20	1	.00	.33	1	.00	.72	3	.01
2	.19	2	.00	.31	2	.00	.86	2	.01
3	.19	2	.00	.41	7	.01	.75	1	.00
4	.39	e7	.01	.40	8	.01	.81	3	.01
5	.19	1	.00	.35	4	.00	e1.8	e15	.07
6	.19	2	.00	.38	2	.00	e.90	e3	.01
7	1.6	e12	.14	.35	1	.00	e.80	e1	.00
8	.28	10	.01	.31	1	.00	e.70	e2	.00
9	.25	2	.00	.35	3	.00	e.65	e2	.00
10	.26	1	.00	.77	e11	.05	e.60	e2	.00
11	.24	2	.00	.31	2	.00	e1.1	e4	.01
12	.23	3	.00	6.9	e42	3.6	e.70	e2	.00
13	.55	e5	.02	4.4	e28	.77	e.56	e2	.00
14	.26	3	.00	58	e114	50	e.80	e2	.00
15	.24	2	.00	28	e63	23	e.62	e1	.00
16	.26	1	.00	31	e112	30	e.58	e2	.00
17	9.4	e40	3.9	6.0	e33	1.5	e.56	e2	.00
18	6.9	e37	1.3	1.1	e3	.01	e.54	e3	.00
19	.82	e9	.02	.86	e2	.00	e.52	e2	.00
20	1.0	e10	.05	.99	1	.00	e.70	e4	.01
21	.43	2	.00	.97	2	.01	e.50	e5	.01
22	.38	2	.00	.98	1	.00	e1.0	e11	.03
23	.60	e5	.02	.94	1	.00	17	59	6.0
24	20	67	8.0	1.0	1	.00	112	e219	112
25	9.6	e46	2.9	6.8	e29	1.5	8.7	49	2.1
26	.74	4	.01	2.0	10	.13	1.5	e13	.06
27	.57	2	.00	.85	3	.01	1.6	e8	.03
28	.49	2	.00	.76	4	.01	1.5	e23	.08
29	.42	1	.00	---	---	---	2.0	e50	.56
30	.38	2	.00	---	---	---	1.0	e3	.01
31	.38	3	.00	---	---	---	1.1	2	.01
TOTAL	57.63	---	16.38	155.82	---	110.61	163.17	---	121.02

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1.2	2	.01	1.1	1	.00	.97	3	.01
2	1.1	2	.01	1.1	2	.01	.98	3	.01
3	1.2	1	.00	1.0	4	.01	.89	3	.01
4	1.2	2	.01	1.2	e9	.04	.86	3	.01
5	1.0	2	.01	.89	3	.01	.86	3	.01
6	1.1	2	.01	.88	1	.00	.76	5	.01
7	1.2	3	.01	.89	3	.01	.59	5	.01
8	1.2	1	.01	.91	2	.01	.61	5	.01
9	11	e33	5.9	.86	3	.01	.62	3	.00
10	1.4	8	.03	.90	2	.01	.60	4	.01
11	1.2	3	.01	.88	2	.01	.60	2	.00
12	1.2	2	.01	.87	7	.02	.60	1	.00
13	1.3	2	.01	.86	4	.01	.68	1	.00
14	1.4	2	.01	.85	3	.01	.63	2	.00
15	1.2	2	.01	.87	2	.01	.67	14	.03
16	1.2	1	.01	.87	3	.01	.69	16	.03
17	1.9	e14	.11	.86	2	.01	.73	11	.02
18	2.3	e11	.15	.87	3	.01	.84	14	.03
19	1.2	1	.01	1.1	e11	.04	.91	10	.03
20	1.4	5	.02	.86	16	.04	.71	2	.00
21	1.2	3	.01	.84	4	.01	.86	4	.01
22	1.1	3	.01	.84	4	.01	1.1	e9	.03
23	1.2	3	.01	1.2	e7	.03	.86	8	.02
24	1.2	2	.01	.86	6	.01	.84	5	.01
25	1.3	1	.00	.95	e6	.02	2.0	e16	.16
26	1.4	2	.01	1.0	e7	.02	.88	3	.01
27	1.6	8	.03	1.2	5	.02	.79	2	.00
28	9.9	e42	3.9	.97	4	.01	.76	2	.01
29	1.0	3	.01	.93	3	.01	.75	7	.02
30	.96	2	.01	.90	2	.01	.76	7	.01
31	---	---	---	.90	2	.01	---	---	---
TOTAL	56.76	---	10.35	29.21	---	0.44	24.40	---	0.51

e Estimated

HAWAII, ISLAND OF OAHU

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	.74	4	.01	.51	4	.01	.51	3	.00
2	.75	3	.01	.49	3	.00	.49	3	.00
3	.72	2	.00	.49	2	.00	.47	4	.01
4	.71	1	.00	.49	5	.01	.50	e4	.01
5	.73	2	.00	.50	2	.00	.46	e4	.01
6	.66	2	.00	.51	4	.01	.54	9	.01
7	.67	2	.00	.56	9	.01	.52	3	.00
8	.65	2	.00	.50	3	.00	.63	e6	.01
9	.69	2	.00	.46	3	.00	.59	3	.00
10	.71	2	.00	.47	5	.01	.56	2	.00
11	.69	2	.00	.49	3	.00	.61	e3	.01
12	.69	3	.01	1.4	12	.10	.60	9	.02
13	.68	4	.01	.67	3	.01	.57	3	.01
14	.69	4	.01	.67	2	.00	.50	7	.01
15	.78	e5	.01	.50	2	.00	.47	14	.02
16	.66	2	.00	.53	1	.00	.47	8	.01
17	.57	4	.01	.54	4	.01	.51	2	.00
18	.59	7	.01	.59	3	.00	3.0	e29	.61
19	.54	3	.00	.61	4	.01	.88	10	.03
20	.57	2	.00	.74	6	.01	.64	10	.02
21	.55	2	.00	.51	2	.00	.63	3	.01
22	.57	2	.00	.54	3	.01	.69	2	.00
23	.64	3	.01	.55	9	.01	.70	3	.01
24	1.7	e8	.12	.62	6	.01	.77	3	.01
25	.58	5	.01	.59	3	.01	.84	4	.01
26	.53	2	.00	.58	2	.00	.85	4	.01
27	.51	1	.00	.57	e2	.00	.75	3	.01
28	.52	1	.00	.53	e3	.00	.68	13	.03
29	.50	3	.00	.48	3	.00	.58	4	.01
30	.52	5	.01	.46	6	.01	.62	3	.01
31	.50	8	.01	.53	4	.01	---	---	---
TOTAL	20.61	---	0.24	17.68	---	0.25	20.63	---	0.90
YEAR	609.30		277.68						

e Estimated

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.70	e6	.01	.37	2	.00	.32	3	.00
2	3.0	e31	.87	.39	2	.00	.28	2	.00
3	.44	4	.01	.35	1	.00	.25	e3	.00
4	.39	3	.00	.39	2	.00	.35	e7	.01
5	.37	2	.00	.38	e2	.00	.32	3	.00
6	.37	3	.00	.44	e1	.00	.29	2	.00
7	.39	2	.00	.55	1	.00	.41	4	.00
8	.38	e2	.00	.47	1	.00	.33	2	.00
9	.40	e2	.00	.42	1	.00	.40	6	.01
10	.36	2	.00	.49	1	.00	.34	e3	.00
11	.35	4	.00	.70	e13	.03	.28	e3	.00
12	.33	4	.00	.47	e13	.02	.28	3	.00
13	.34	2	.00	.55	e15	.02	.31	3	.00
14	.33	2	.00	.38	e3	.00	.30	4	.00
15	.43	e6	.02	.44	e7	.01	.28	3	.00
16	16	e50	10	.40	3	.00	.26	2	.00
17	2.3	e23	.60	.37	2	.00	.29	e2	.00
18	.89	e7	.05	.32	2	.00	.26	e3	.00
19	.42	3	.00	.35	e2	.00	.30	5	.01
20	.36	4	.00	.33	e2	.00	.24	3	.00
21	.34	1	.00	.33	2	.00	.24	3	.00
22	.34	e1	.00	.35	4	.00	.24	3	.00
23	.32	e2	.00	.32	e4	.00	.38	e12	.02
24	.34	2	.00	.30	e4	.00	.25	e3	.00
25	.30	2	.00	.32	e4	.00	.24	e3	.00
26	.28	1	.00	.34	e4	.00	.25	e4	.00
27	.28	2	.00	.32	e4	.00	.25	4	.00
28	.19	e2	.00	.31	4	.00	.25	4	.00
29	.24	e1	.00	.32	e4	.00	.28	6	.01
30	.19	e1	.00	.29	e3	.00	.30	6	.01
31	.28	1	.00	---	---	---	.23	e5	.00
TOTAL	31.65	---	11.56	11.76	---	0.08	9.00	---	0.07

e Estimated

HAWAII, ISLAND OF OAHU

16265600 RIGHT BRANCH KAMOOALII STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.26	e4	.00	e.24	e3	.00	1.3	19	.20
2	.25	e3	.00	e.25	e2	.00	.46	e6	.02
3	.26	4	.00	.23	3	.00	.27	3	.00
4	.25	9	.01	.24	e3	.00	.21	e3	.00
5	.28	e10	.01	.70	e12	.05	.36	e6	.01
6	.29	4	.00	.31	6	.01	.22	e3	.00
7	.23	e3	.00	.27	3	.00	.19	e3	.00
8	.24	e4	.00	.22	4	.00	.19	e3	.00
9	.24	4	.00	.24	5	.00	.19	e3	.00
10	.22	3	.00	.44	e8	.02	.20	e3	.00
11	.29	4	.01	.22	e5	.00	.21	e3	.00
12	.37	e7	.01	.23	e3	.00	.35	e6	.01
13	.25	3	.00	2.4	e15	.49	.19	2	.00
14	.22	e3	.00	1.9	e21	.27	.20	2	.00
15	.28	e3	.00	.25	e4	.00	.19	2	.00
16	.25	e3	.00	.25	e4	.00	.21	4	.00
17	.22	3	.00	.26	e3	.00	.18	3	.00
18	.22	4	.00	.27	e3	.00	.17	e3	.00
19	.21	4	.00	.24	e3	.00	.16	e3	.00
20	.20	3	.00	.24	e2	.00	.18	3	.00
21	.21	e3	.00	.24	2	.00	.17	3	.00
22	.25	e3	.00	.21	4	.00	.26	7	.01
23	.27	3	.00	.23	3	.00	.29	3	.00
24	.25	3	.00	7.0	e31	2.7	.24	2	.00
25	.25	e4	.00	1.7	e21	.22	.20	e2	.00
26	.35	e9	.01	.30	e8	.01	.18	e3	.00
27	.65	e15	.03	34	e48	38	.27	e10	.01
28	e16	e72	3.1	7.5	e30	2.7	.21	e10	.01
29	e4.9	e44	.59	---	---	---	.22	4	.00
30	e.45	e4	.01	---	---	---	.19	4	.00
31	e.28	e3	.00	---	---	---	.19	3	.00
TOTAL	28.89	---	3.78	60.58	---	44.47	8.05	---	0.27

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	.14	e3	.00	e7.5	e27	.55	e.20	e2	.00
2	.15	e3	.00	e.46	e5	.01	e.16	e2	.00
3	.33	e7	.01	e.26	e2	.00	e.19	e2	.00
4	.37	e8	.01	e.21	e3	.00	.22	e2	.00
5	.41	12	.03	e.29	e3	.00	.23	2	.00
6	.30	5	.01	e1.2	e11	.04	.21	2	.00
7	.21	2	.00	e.36	e2	.00	.23	4	.00
8	.19	2	.00	e.24	e2	.00	.19	2	.00
9	1.9	e19	.45	e.21	e3	.00	.20	2	.00
10	.34	4	.00	e.21	e5	.00	.19	e2	.00
11	e.28	e3	.00	e.27	e2	.00	.17	e3	.00
12	e.26	e3	.00	.22	3	.00	.16	3	.00
13	e.21	e3	.00	.22	e3	.00	.16	2	.00
14	e.21	e2	.00	.23	e2	.00	.17	2	.00
15	e.21	e2	.00	.22	2	.00	.17	3	.00
16	e.21	e2	.00	.25	e8	.01	.16	2	.00
17	e.21	e2	.00	.24	4	.00	.15	e2	.00
18	e.24	e3	.00	.27	e6	.01	.15	e3	.00
19	e.21	e3	.00	.23	2	.00	.16	3	.00
20	e.18	e3	.00	.23	e2	.00	.16	2	.00
21	e.21	e3	.00	.23	e2	.00	.16	2	.00
22	e.51	e3	.01	e.26	e2	.00	.44	e11	.02
23	e.36	e4	.00	e.26	e2	.00	.60	e13	.06
24	e2.0	e6	.03	e.28	e3	.00	.25	e4	.01
25	e11	e33	.99	e.22	e3	.00	.19	e4	.00
26	e.52	e5	.01	e.21	e1	.00	.15	3	.00
27	e.36	e3	.00	e.21	e1	.00	.17	4	.00
28	e.32	e3	.00	e.21	e2	.00	.16	4	.00
29	e.28	e7	.01	e.21	e3	.00	.16	3	.00
30	e.24	e16	.01	e.21	e4	.00	.22	e11	.01
31	---	---	---	e.24	e3	.00	---	---	---
TOTAL	22.36	---	1.57	15.86	---	0.62	6.13	---	0.10

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	.21	4	.00	.27	e4	.00	.14	e3	.00
2	.20	e2	.00	.16	2	.00	.16	e4	.00
3	.23	e7	.01	.14	2	.00	.18	e4	.00
4	.19	5	.00	.14	3	.00	.17	e4	.00
5	.16	3	.00	.16	e3	.00	3.0	e24	.83
6	.16	3	.00	.16	e2	.00	.16	8	.00
7	.13	2	.00	.15	2	.00	.15	4	.00
8	.11	e2	.00	.14	8	.00	.14	3	.00
9	.14	e3	.00	.22	e6	.00	.13	e3	.00
10	.20	8	.00	.23	e4	.01	.18	e3	.00
11	.21	5	.00	.42	e10	.02	.17	3	.00
12	.33	e10	.01	.28	e9	.01	.16	3	.00
13	.21	2	.00	.35	e5	.01	.16	3	.00
14	.23	2	.00	.21	2	.00	.16	3	.00
15	.23	e2	.00	.23	3	.00	.13	3	.00
16	.18	e2	.00	.21	e4	.00	.16	e4	.00
17	.16	2	.00	.28	e5	.01	.18	e3	.00
18	.19	2	.00	.21	e4	.00	.13	4	.00
19	.27	e8	.01	.21	e7	.00	.12	2	.00
20	.37	e10	.02	.14	e3	.00	.12	2	.00
21	.17	11	.01	.15	2	.00	.12	2	.00
22	.17	e8	.00	.18	1	.00	.14	2	.00
23	.17	e5	.00	.46	e8	.04	.18	e2	.00
24	.16	3	.00	.19	e5	.00	.16	e2	.00
25	.18	3	.00	.24	e5	.01	.13	2	.00
26	.20	e4	.00	.19	e5	.00	.10	3	.00
27	.21	e4	.00	.28	e6	.01	.11	2	.00
28	.20	2	.00	.18	2	.00	.25	e5	.01
29	.22	e1	.00	.18	2	.00	1.2	e18	.13
30	.20	e2	.00	.18	2	.00	.41	e7	.02
31	.21	2	.00	.19	e2	.00	---	---	---
TOTAL	6.20	---	0.06	6.73	---	0.12	8.70	---	0.99
YEAR	215.91		63.69						

e Estimated

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.

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 220 ft above mean sea level (from topographic map) (revised). Prior to April 1984, the station was located 400 ft upstream.

REMARKS.--Records computed by A.H.M. Okihara. Records fair. Honolulu Board of Water Supply diverts water from tunnel and well in drainage area.

AVERAGE DISCHARGE.--17 years (water years 1968-71, 1985-97), 1.40 ft^3/s (1,020 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 957 ft^3/s, January 25, 1996 on the basis of slope-area measurement at gage height 4.10 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar. 17	0930	*302	*2.63	No other peak greater than base discharge.			

Minimum discharge, 0.18 ft^3/s on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.85	.76	1.3	1.2	1.5	.89	1.8	1.5	1.5	1.2	1.3	1.0
2	.72	1.9	1.2	1.2	1.3	.95	4.4	1.5	1.5	1.2	1.3	1.1
3	.78	.96	1.4	11	1.2	.85	2.9	1.5	1.1	1.2	1.4	1.1
4	.80	.83	1.4	2.7	1.4	1.6	1.8	1.5	1.2	1.3	1.2	1.1
5	.73	2.6	1.4	1.6	1.2	2.6	2.1	2.5	1.0	1.2	1.2	1.0
6	.86	1.1	1.4	1.4	1.2	1.2	1.9	1.8	1.1	1.7	1.1	1.1
7	.85	1.2	1.4	1.2	1.3	1.1	1.8	1.9	1.2	1.4	.89	1.1
8	.83	3.7	1.4	1.2	1.2	1.0	1.7	4.1	1.1	1.4	.72	1.0
9	.81	1.4	1.2	1.1	1.2	.98	1.5	1.8	1.0	1.8	.67	1.2
10	.70	1.3	1.3	1.2	1.2	.88	1.8	1.9	1.1	1.6	.64	1.0
11	.56	1.2	1.4	1.1	1.2	2.0	1.8	2.0	1.2	1.5	1.1	.98
12	.59	7.5	1.3	1.3	1.0	.83	1.6	2.0	1.1	1.5	1.2	1.9
13	.60	6.9	1.1	1.3	1.1	.97	1.7	1.8	1.2	1.4	1.1	1.3
14	.58	10	1.4	1.3	1.1	.70	1.5	3.6	1.1	1.3	1.2	1.6
15	.61	3.4	1.2	1.2	1.0	1.2	1.4	3.0	1.1	1.3	1.2	1.3
16	.70	4.6	1.1	1.3	1.0	.87	1.3	2.6	1.0	.93	1.5	1.3
17	.87	3.5	1.1	1.2	1.1	8.2	1.4	2.3	1.1	1.1	4.2	1.2
18	.74	2.6	1.0	1.2	1.1	1.8	1.6	2.0	1.1	1.2	1.2	1.4
19	1.0	1.9	.96	4.1	1.0	1.3	1.6	1.7	1.2	1.9	1.1	1.3
20	.76	1.8	.97	1.7	1.0	1.3	1.5	1.5	1.2	1.3	.94	1.5
21	.74	1.6	1.0	2.9	1.1	1.3	1.5	1.5	1.4	1.5	.95	4.9
22	.66	1.5	1.0	1.4	2.4	1.6	1.5	1.7	1.4	2.8	1.0	1.6
23	.70	1.4	1.2	1.3	1.2	5.9	1.4	1.7	1.4	1.4	1.1	1.6
24	.69	2.4	1.2	1.2	1.1	2.2	1.8	1.7	1.4	1.5	1.1	1.4
25	.73	1.5	1.0	1.4	1.0	2.2	1.3	1.7	1.4	1.4	1.0	1.3
26	.69	1.4	1.2	1.4	1.3	2.2	2.1	1.6	1.6	1.3	1.3	1.3
27	.65	1.4	2.0	1.4	1.2	1.9	2.4	1.6	1.7	1.2	1.1	1.3
28	.60	1.4	1.2	1.4	.92	2.0	1.6	1.5	1.4	1.2	1.1	1.2
29	.63	1.4	1.1	1.6	---	1.7	1.6	1.6	1.3	1.2	1.3	1.3
30	.74	1.3	.98	1.5	---	1.5	1.6	1.6	1.3	1.2	1.1	1.2
31	.76	---	1.5	1.7	---	1.4	---	1.6	---	1.1	1.2	---
TOTAL	22.53	74.45	38.31	56.7	33.52	55.12	53.9	60.3	37.4	43.23	37.41	41.58
MEAN	.73	2.48	1.24	1.83	1.20	1.78	1.80	1.95	1.25	1.39	1.21	1.39
MAX	1.0	10	2.0	11	2.4	8.2	4.4	4.1	1.7	2.8	4.2	4.9
MIN	.56	.76	.96	1.1	.92	.70	1.3	1.5	1.0	.93	.64	.98
AC-FT	45	148	76	112	66	109	107	120	74	86	74	82

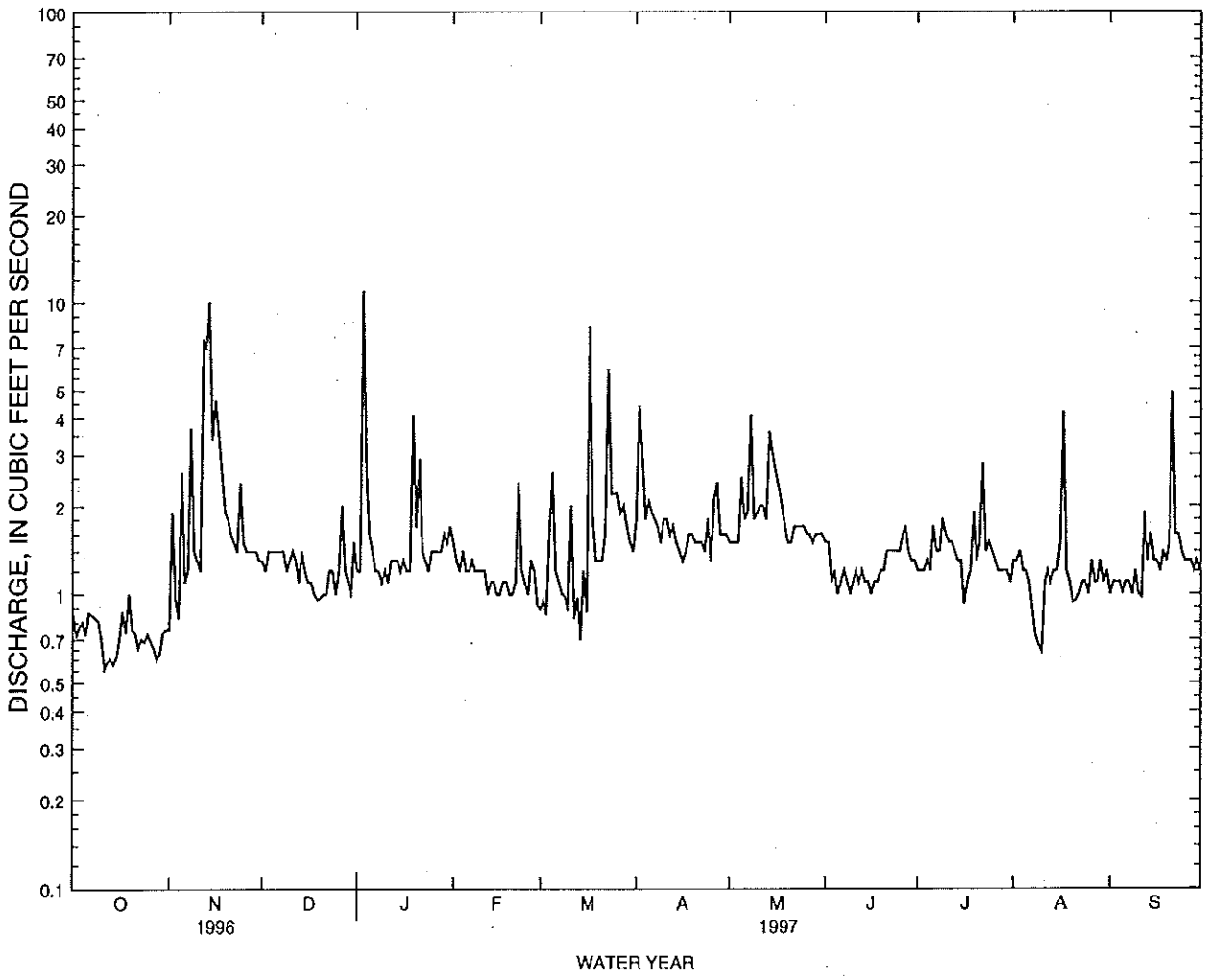
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1997, BY WATER YEAR (WY)

MEAN	1.06	1.64	1.75	1.65	1.60	1.72	1.54	1.23	1.06	1.15	1.09	1.09
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

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1967 - 1997	
ANNUAL TOTAL	512.84		554.45			
ANNUAL MEAN	1.40		1.52		1.40	
HIGHEST ANNUAL MEAN					2.13	1969
LOWEST ANNUAL MEAN					.41	1986
HIGHEST DAILY MEAN	32	Jan 25	11	Jan 3	67	Feb 1 1969
LOWEST DAILY MEAN	.56	Oct 11	.56	Oct 11	.03	Oct 14 1988
ANNUAL SEVEN-DAY MINIMUM	.62	Oct 10	.62	Oct 10	.07	Nov 18 1984
ANNUAL RUNOFF (AC-FT)	1020		1100		1020	
10 PERCENT EXCEEDS	1.8		2.0		2.1	
50 PERCENT EXCEEDS	1.0		1.3		1.1	
90 PERCENT EXCEEDS	.73		.86		.34	



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.--Samples for water years 1995-97 with concentrations of about 1,000 mg/L and higher were analyzed using method 2540D (Standard Methods, 19th edition, 1995) for total suspended solids.

Water year 1994: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records good except for estimated days which are fair.

Water year 1995: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records fair.

Water year 1996: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records poor.

Water year 1997: Water-quality samples were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water year 1997 was not completed at the time of this publication.

EXTREMES FOR PERIOD OF RECORD.--

Water year 1994:
Sediment Concentrations: Maximum daily mean 679 mg/L, December 30, 1992; minimum daily mean, 1 mg/L, April 2, 4, 5, 1991.
Sediment Discharge: Maximum daily, 342 tons, December 31, 1987; minimum daily, 0.00 tons on many days.

Water year 1995:
Sediment Concentrations: Maximum daily mean 679 mg/L, December 30, 1992; minimum daily mean, 1 mg/L, April 2, 4, 5, 1991.
Sediment Discharge: Maximum daily, 342 tons, December 31, 1987; minimum daily, 0.00 tons on many days.

Water year 1996:
Sediment Concentrations: Maximum daily mean 679 mg/L, December 30, 1992; minimum daily mean, 1 mg/L, April 2, 4, 5, 1991.
Sediment Discharge: Maximum daily, 534 tons, January 25, 1996; minimum daily, 0.00 tons on many days.

EXTREMES FOR CURRENT YEAR.--

Water year 1994:
Sediment Concentrations: Maximum daily mean, 541 mg/L (estimated), November 3; minimum daily mean, 4 mg/L on many days.
Sediment Discharge: Maximum daily, 49 tons, March 24; minimum daily, 0.00 tons on many days.

Water year 1995:
Sediment Concentrations: Maximum daily mean, 250 mg/L (estimated), October 16; minimum daily mean, 1 mg/L (estimated), July 13.
Sediment Discharge: Maximum daily, 27 tons, February 27; minimum daily, 0.00 tons (estimated), July 12-14, 27, 30.

Water year 1996:
Sediment Concentrations: Maximum daily mean 423 mg/L (estimated), January 25; minimum daily mean, 3 mg/L, May 14.
Sediment Discharge: Maximum daily, 534 tons (estimated), January 25; minimum daily, 0.01 ton on many days.

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT											
30...	1230	0.74	158	7.8	26.5	21.5	0.30	755	8.5	97	220
NOV											
12...	1400	10	120	7.6	24.0	22.0	34	756	8.5	98	--
DEC											
09...	1100	1.3	174	7.6	23.5	20.0	0.50	761	8.9	98	170
JAN											
14...	1100	--	--	--	23.5	20.5	--	757	--	--	--
14...	1110	1.2	176	7.5	23.5	20.5	0.30	757	8.5	95	180
FEB											
11...	1220	1.1	173	7.4	26.0	21.0	0.20	761	8.5	96	--
MAR											
11...	1135	3.2	137	7.0	23.5	21.0	17	755	8.8	100	--
APR											
15...	1045	1.4	170	7.4	25.5	21.5	0.50	761	8.8	100	260
MAY											
27...	1145	1.6	167	7.6	29.0	21.0	0.30	759	6.9	78	--
JUN											
11...	1050	1.2	163	7.6	26.0	21.5	0.18	763	8.4	95	270
JUL											
14...	1126	1.2	163	7.7	25.0	21.5	0.30	757	8.6	98	--
AUG											
12...	1140	1.2	158	7.3	27.5	21.0	--	759	9.0	101	--
SEP											
09...	1050	1.3	153	7.5	27.0	21.0	0.36	760	9.0	101	--

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC											
09...	1100	52	11	5.9	12	33	0.7	1.0	54	5.6	16
JAN											
14...	1100	--	0.003	<0.001	<0.025	--	--	--	--	--	--
14...	1110	53	11	6.1	12	33	0.7	1.0	54	5.7	17
JUN											
11...	1050	46	9.0	5.6	11	34	0.7	0.88	51	4.0	16

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)
OCT											
30...	1230	--	--	--	--	--	3	0.110	<0.20	0.010	0.01
DEC											
09...	1100	<0.10	25	110	110	0.15	<1	0.200	<0.20	<0.010	--
JAN											
14...	1100	--	0.055	--	--	--	--	--	--	--	--
14...	1110	<0.10	25	116	111	0.16	3	0.230	<0.20	<0.010	--
APR											
15...	1045	--	--	--	--	--	1	0.190	<0.20	0.010	0.01
JUN											
11...	1050	<0.10	26	107	104	0.15	1	0.109	<0.20	0.016	0.02

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

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ANTIMONY, DISSOLVED (UG/L AS SB) (01095)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)
DEC											
09...	1100	10	<5.0	--	<1	<100	<2.0	<10	--	--	<1
JAN											
14...	1100	--	<0.30	<0.20	--	--	<0.20	--	<0.20	<2.0	--
14...	1110	20	<5.0	--	<1	<100	<2.0	<10	--	--	<1
JUN											
11...	1050	30	<5.0	--	<1	<100	<1.0	<10	--	--	<1

DATE	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)
DEC											
09...	--	<1	--	<1	<3.0	<1	--	50	6.0	<1	--
JAN											
14...	<0.30	--	<0.20	--	<0.20	--	0.29	--	<3.0	--	<0.30
14...	--	<1	--	<1	<3.0	<1	--	40	5.0	<1	--
JUN											
11...	--	1	--	<1	<3.0	<1	--	70	5.7	<1	--

DATE	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)
DEC											
09...	<10	<4	10	6.0	<0.10	<1	<10	<1	<1.0	<1	<1
JAN											
14...	--	--	--	<0.10	--	--	<0.20	--	<0.50	--	--
14...	<10	<4	10	5.0	0.30	<1	<10	<1	<1.0	<1	<1
JUN											
11...	<10	<4	<10	3.7	<0.10	<1	<10	<1	<1.0	<1	<1

DATE	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	THALLIUM, DISSOLVED (UG/L AS TL) (01057)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L) (00556)	ALDRIN, TOTAL (UG/L) (39330)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)
DEC											
09...	<1	<1.0	59	--	<6	<10	--	0.50	<1	<0.010	<0.100
JAN											
14...	--	<0.20	<0.10	<0.10	--	--	0.71	--	--	--	--
14...	<1	<1.0	59	--	<6	<10	--	3.6	<1	<0.010	<0.100
JUN											
11...	<1	<1.0	52	--	<6	<10	--	0.70	<1	--	--

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

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)
DEC											
09...	1100	E0.010	<0.010	<0.010	<0.010	<0.030	<0.030	<0.010	--	<0.010	<0.010
JAN											
14...	1110	<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) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)
DEC										
09...	<0.010	<0.010	<0.030	<0.030	<0.010	<0.010	<0.010	<0.030	<0.010	<0.030
JAN										
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) (39755)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	SILVEX, TOTAL (UG/L) (39760)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC										
09...	<0.010	<0.030	<0.100	<0.100	<0.100	<0.100	<0.010	<1.00	<0.030	<0.010
JAN										
14...	<0.010	<0.010	<0.100	<0.100	<0.100	<0.010	<0.010	<1.00	<0.010	<0.010

DATE	TIME	URANIUM NATURAL DIS-SOLVED (UG/L AS U) (22703)
JAN		
14...	1100	<0.20

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

E Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.38	e21	.02	.57	e55	.08	.94	e55	.14
2	.26	e27	.02	.46	e55	.07	.88	e56	.13
3	.27	e28	.02	1.2	541	2.3	.91	e56	.14
4	.29	e30	.02	.85	226	.51	.90	e57	.14
5	.33	e32	.03	.89	e144	.36	.81	e57	.12
6	.40	e34	.04	.52	e111	.16	.80	e58	.12
7	.31	e36	.03	.40	e85	.09	.86	144	.35
8	.20	e38	.02	.48	e65	.08	.77	e150	.31
9	.26	e40	.03	.57	51	.08	.70	e130	.25
10	.25	e42	.03	.65	e49	.09	.67	e113	.21
11	.20	e45	.02	.94	e50	.13	.58	e98	.16
12	.24	e48	.03	.96	e50	.13	.65	e85	.15
13	.22	e51	.03	.88	e50	.12	.59	e74	.12
14	.49	e56	.09	.93	e50	.13	.56	e64	.10
15	.94	e96	.43	1.1	e51	.15	.43	e46	.06
16	.40	e55	.06	1.1	e51	.15	.44	e58	.08
17	.26	e55	.04	.94	e51	.13	.50	e63	.09
18	.29	e55	.04	1.2	e51	.16	.52	e61	.09
19	.46	e55	.07	1.1	e52	.15	.43	e59	.07
20	.29	e55	.04	.90	e52	.13	.38	e57	.06
21	.34	e55	.05	.69	e52	.10	.36	e46	.05
22	.32	e55	.05	.53	e53	.08	.38	e46	.05
23	1.6	e85	.52	.62	e53	.09	.42	e55	.06
24	.67	e55	.10	.43	e53	.06	.43	e55	.06
25	1.7	175	.84	.51	e53	.07	.43	e55	.06
26	.73	117	.25	.51	e54	.08	.39	e55	.06
27	.54	e55	.08	.47	e54	.07	.73	e55	.11
28	.50	e55	.08	.35	e54	.05	1.0	e57	.16
29	.50	e55	.07	.39	e55	.06	.56	e49	.08
30	.64	e59	.10	.88	e55	.13	.24	e30	.02
31	.47	e55	.07	---	---	---	.19	e19	.01
TOTAL	14.75	---	3.32	22.02	---	5.99	18.45	---	3.61

e Estimated

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.20	e16	.01	.76	e55	.11	1.3	7	.03
2	.17	e16	.01	1.1	e55	.16	1.3	4	.02
3	.68	e34	.07	1.2	e55	.17	1.3	4	.01
4	1.1	e62	.18	.97	e55	.14	.94	4	.01
5	.61	e51	.09	.65	e55	.10	1.5	16	.08
6	.17	e24	.01	.56	e55	.08	1.2	e6	.02
7	.53	e52	.08	.86	e55	.13	1.1	7	.02
8	.68	e51	.10	.84	e55	.13	1.5	6	.02
9	.28	e25	.02	.91	e55	.14	.84	5	.01
10	.59	e41	.08	1.2	e55	.18	.82	e5	.01
11	1.0	e55	.15	1.2	e55	.18	1.2	e5	.02
12	1.0	e55	.15	3.4	227	12	1.1	e5	.01
13	1.0	e55	.15	1.9	e103	.59	1.0	e5	.01
14	1.1	e55	.16	14	245	31	.90	e5	.01
15	.77	e55	.11	11	200	48	.94	e4	.01
16	.91	e55	.14	6.0	73	3.7	.87	e4	.01
17	1.2	e58	.19	2.3	30	.27	.83	e4	.01
18	1.5	e60	.24	1.6	10	.04	.83	e4	.01
19	1.3	55	.19	1.6	37	.15	.82	e4	.01
20	1.1	e55	.17	1.6	24	.10	.92	e12	.04
21	.73	e39	.08	1.5	16	.06	.79	e4	.01
22	.35	e27	.03	1.3	16	.06	.86	e5	.01
23	.30	e27	.03	1.3	15	.05	4.7	e103	3.5
24	5.0	211	4.7	1.4	19	.07	28	398	49
25	6.4	70	2.0	1.8	146	1.1	4.6	32	.60
26	1.4	e32	.12	1.5	27	.11	2.4	4	.03
27	1.1	e37	.10	1.3	17	.06	2.0	4	.02
28	.86	e43	.10	1.1	15	.05	1.9	25	.13
29	1.0	e50	.14	---	---	---	2.2	420	2.3
30	1.2	e55	.18	---	---	---	1.8	e22	.11
31	1.3	e55	.19	---	---	---	1.6	e8	.04
TOTAL	35.53	---	9.97	64.85	---	98.93	72.06	---	56.12

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1.5	e8	.03	1.6	e8	.04	.68	e5	.01
2	1.3	e8	.03	1.6	e8	.04	.67	e5	.01
3	1.3	e8	.03	1.5	e8	.03	.66	e5	.01
4	1.2	e8	.03	1.7	e25	.12	.76	e5	.01
5	1.2	e8	.03	1.5	e8	.03	.55	e5	.01
6	1.1	e8	.02	1.5	e8	.03	.45	5	.01
7	1.3	e8	.03	1.4	e8	.03	.32	e5	.00
8	1.3	e14	.05	1.4	e8	.03	.33	e5	.00
9	1.5	e29	.19	1.4	e8	.03	.31	e5	.00
10	1.2	e13	.04	1.4	e8	.03	.29	e5	.00
11	.97	e7	.02	1.4	e8	.03	.30	e5	.00
12	.90	e7	.02	1.2	e7	.02	.30	e5	.00
13	.86	e6	.02	1.0	e5	.01	.31	e5	.00
14	.87	e6	.01	.85	e5	.01	.31	e5	.00
15	.78	e6	.01	.78	e5	.01	1.0	e7	.02
16	.73	e5	.01	.68	e5	.01	.34	e4	.00
17	1.1	e44	.19	.64	e5	.01	.41	e5	.01
18	1.2	e16	.07	.66	e5	.01	.62	e5	.01
19	.90	e15	.04	.69	e5	.01	.49	e5	.01
20	.81	e105	.29	.54	e5	.01	.35	6	.01
21	1.5	e8	.03	.54	e5	.01	.42	7	.01
22	1.6	e8	.04	.51	e5	.01	1.6	11	.05
23	1.5	e8	.03	.59	e5	.01	1.9	10	.05
24	1.4	e8	.03	.54	e5	.01	1.7	8	.03
25	1.5	e8	.03	.57	e5	.01	3.1	71	1.2
26	1.4	e8	.03	.49	e5	.01	1.9	9	.05
27	1.4	e8	.03	.76	e5	.01	1.8	7	.03
28	3.0	e85	1.3	.73	e5	.01	2.0	6	.03
29	1.7	e8	.04	.83	e5	.01	2.2	6	.04
30	1.7	e8	.04	.70	e5	.01	1.9	5	.03
31	---	---	---	.72	e5	.01	---	---	---
TOTAL	38.72	---	2.76	30.42	---	0.65	27.97	---	1.64

e Estimated

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	1.7	4	.02	1.9	e10	.05	2.2	8	.05
2	1.6	5	.02	1.7	9	.04	2.2	7	.04
3	1.8	6	.03	1.7	8	.04	2.2	10	.06
4	1.8	6	.03	2.0	12	.06	2.1	9	.05
5	2.0	8	.04	2.0	10	.05	2.1	8	.05
6	2.1	7	.04	2.0	6	.03	2.1	31	.18
7	2.1	6	.03	2.0	5	.03	2.1	10	.06
8	2.1	7	.04	2.0	6	.04	2.2	13	.08
9	2.1	7	.04	2.0	6	.03	2.2	e15	.09
10	2.2	6	.04	1.9	12	.06	2.4	e14	.09
11	2.3	7	.04	1.9	13	.07	2.6	e14	.10
12	2.2	8	.05	2.1	e26	.17	2.4	e14	.09
13	2.3	8	.05	1.9	10	.05	2.3	e13	.08
14	2.3	9	.06	1.9	7	.04	2.2	e13	.08
15	2.3	e55	.35	1.9	7	.03	2.2	e13	.08
16	2.2	18	.11	1.9	7	.04	2.2	e12	.07
17	2.2	e13	.08	1.9	6	.03	2.1	e12	.07
18	2.2	9	.06	2.0	8	.04	3.6	e129	2.0
19	2.2	11	.07	2.0	8	.05	2.3	e41	.29
20	2.1	24	.14	2.0	7	.04	2.2	8	.05
21	2.1	24	.14	1.9	6	.03	2.1	6	.03
22	2.2	22	.13	2.0	11	.06	2.1	11	.06
23	2.1	29	.16	2.1	e42	.24	2.1	e25	.15
24	3.3	e56	1.2	2.1	12	.07	2.1	13	.07
25	2.1	e24	.14	2.2	8	.05	2.0	e12	.06
26	2.0	e12	.06	2.0	7	.04	2.0	e11	.06
27	2.0	e12	.06	1.9	5	.03	2.0	e10	.05
28	2.0	e11	.06	1.9	5	.02	2.0	e10	.05
29	2.0	e11	.06	1.9	4	.02	2.0	e9	.05
30	2.0	e11	.06	1.8	7	.03	2.0	e8	.04
31	2.0	e11	.06	3.4	71	1.1	---	---	---
TOTAL	65.6	---	3.47	61.9	---	2.68	66.3	---	4.28
YEAR	518.57		193.42						

e Estimated

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	1.9	e8	.04	1.8	e11	.05	2.0	e21	.12
2	2.0	e14	.08	1.9	e11	.06	1.9	e12	.06
3	1.8	e7	.03	2.0	e24	.14	1.9	e12	.06
4	1.7	e7	.03	1.9	e14	.07	2.0	e12	.07
5	1.7	e5	.03	1.9	e14	.07	2.0	e12	.07
6	2.1	5	.03	1.9	e14	.07	2.0	e13	.07
7	2.1	e15	.09	2.1	55	.31	2.1	e13	.07
8	2.1	e12	.07	2.1	11	.06	2.0	e13	.07
9	2.0	e11	.06	2.1	8	.05	2.1	e13	.07
10	2.1	e9	.05	2.1	7	.04	2.2	e13	.08
11	2.1	e8	.05	2.1	9	.05	2.1	e13	.07
12	2.1	e7	.04	2.1	11	.06	2.0	e13	.07
13	2.1	e6	.04	2.3	32	.28	2.1	e13	.08
14	2.1	e6	.03	2.2	13	.08	2.1	e13	.08
15	3.2	e68	1.8	2.2	30	.19	2.1	e13	.08
16	5.4	e250	9.2	2.1	e11	.06	2.1	e14	.08
17	2.5	e78	.63	2.1	6	.03	2.2	e14	.08
18	2.3	e18	.12	2.1	e5	.03	2.1	e14	.08
19	2.2	e14	.08	2.1	e6	.03	2.0	e14	.08
20	2.2	e13	.08	2.1	e8	.04	1.3	e11	.04
21	2.1	e13	.07	2.0	9	.05	.92	e5	.01
22	2.1	e12	.07	1.9	9	.05	1.3	e6	.02
23	2.1	e12	.07	2.0	9	.05	1.8	e22	.12
24	2.1	e11	.07	2.0	e8	.04	1.8	e18	.09
25	1.7	e10	.05	2.1	7	.04	1.8	e13	.06
26	1.7	e11	.05	2.1	9	.05	1.8	e13	.06
27	1.8	e11	.06	2.1	12	.07	1.8	e12	.06
28	2.0	e11	.06	1.9	9	.05	1.8	e11	.06
29	1.9	e12	.06	1.6	e7	.03	1.8	e11	.05
30	1.9	e12	.06	2.1	e15	.09	1.8	e10	.05
31	1.7	11	.05	---	---	---	1.7	e10	.05
TOTAL	66.8	---	13.25	61.0	---	2.29	58.62	---	2.11

e Estimated

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	1.8	e10	.05	1.8	e6	.03	2.4	45	.42
2	1.7	e9	.04	2.0	7	.04	2.0	e24	.13
3	1.7	e9	.04	2.0	7	.04	1.8	8	.04
4	1.7	e8	.04	2.0	7	.04	1.8	6	.03
5	1.7	e8	.04	2.1	e21	.13	1.9	e19	.11
6	1.7	e8	.04	2.0	8	.04	1.7	6	.03
7	1.7	e8	.04	2.0	8	.04	1.7	6	.03
8	1.7	e8	.04	2.0	8	.04	1.5	e5	.02
9	1.7	e8	.04	2.0	7	.04	1.7	e4	.02
10	1.7	e8	.04	2.2	e23	.15	1.5	3	.01
11	1.7	e8	.04	2.0	10	.06	1.6	12	.06
12	1.8	e8	.04	2.0	10	.05	1.8	e24	.14
13	1.7	e8	.04	2.6	e35	.45	1.6	7	.03
14	2.0	e26	.23	2.9	e54	.59	1.5	8	.03
15	1.9	e12	.06	2.1	12	.07	1.5	e8	.03
16	1.8	e9	.05	2.2	12	.07	1.4	4	.02
17	1.7	e8	.04	2.1	12	.07	1.4	e3	.01
18	1.7	e9	.04	2.2	e32	.20	1.3	e3	.01
19	1.6	e10	.04	2.2	e14	.08	1.3	e2	.01
20	1.6	e11	.05	2.2	10	.06	1.2	2	.01
21	1.6	e12	.05	2.3	8	.05	1.3	2	.01
22	1.6	e13	.05	2.3	8	.05	1.3	6	.02
23	1.6	e14	.06	2.0	11	.06	1.4	11	.04
24	1.6	e15	.07	2.2	e30	.20	1.3	7	.03
25	1.6	11	.05	3.6	108	5.3	1.3	5	.02
26	1.7	e8	.04	2.1	38	.22	1.7	5	.02
27	1.4	16	.06	8.6	184	27	1.5	5	.02
28	3.0	46	.80	3.3	36	.77	1.3	e5	.02
29	2.0	e11	.06	---	---	---	1.5	e5	.02
30	2.1	6	.04	---	---	---	1.3	e4	.02
31	2.2	5	.03	---	---	---	1.3	e4	.02
TOTAL	55.0	---	2.35	69.0	---	35.94	47.8	---	1.43

e Estimated

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1.2	4	.01	1.5	e4	.02	1.9	e7	.04
2	1.4	4	.02	1.5	6	.03	2.0	7	.04
3	1.5	e34	.15	1.2	11	.04	1.9	6	.03
4	1.7	e32	.19	1.0	8	.02	1.6	5	.02
5	1.6	e21	.10	1.6	9	.04	1.6	4	.02
6	1.6	9	.04	2.2	e36	.27	1.0	3	.01
7	1.8	9	.04	1.2	5	.02	1.7	e4	.02
8	1.7	4	.02	1.1	5	.01	1.7	e4	.02
9	1.7	e4	.02	1.6	5	.02	1.4	4	.02
10	1.5	e4	.02	1.5	4	.02	1.6	e5	.02
11	1.3	4	.01	1.7	4	.02	1.6	5	.02
12	1.4	e10	.04	1.7	40	.18	1.1	5	.02
13	1.3	6	.02	1.7	5	.02	1.6	5	.02
14	1.5	e6	.02	1.7	7	.03	1.4	5	.02
15	1.7	e6	.03	1.5	12	.05	1.1	7	.02
16	1.7	e7	.03	1.6	7	.03	1.3	5	.02
17	1.6	6	.02	1.7	5	.02	1.3	5	.02
18	1.4	e6	.02	1.6	5	.02	1.2	e5	.02
19	1.6	e6	.03	1.2	6	.02	1.3	4	.02
20	1.6	e5	.02	1.5	8	.03	1.0	3	.01
21	1.4	5	.02	1.6	11	.05	1.4	4	.02
22	1.7	e6	.03	1.5	5	.02	2.5	48	.38
23	1.7	e7	.03	1.6	e5	.02	2.2	e38	.25
24	2.9	e75	1.6	1.6	e5	.02	1.6	e8	.04
25	2.9	e66	.65	1.2	e6	.02	1.8	e8	.04
26	1.6	e13	.06	1.3	e6	.02	1.6	e7	.03
27	1.4	e12	.05	1.2	e5	.02	1.7	e6	.03
28	1.2	e11	.03	1.2	e6	.02	1.8	e5	.02
29	1.2	e8	.03	1.1	e6	.02	1.5	e4	.02
30	1.3	e6	.02	.98	e5	.01	1.3	e4	.02
31	---	---	---	1.6	13	.09	---	---	---
TOTAL	48.1	---	3.37	45.18	---	1.22	46.7	---	1.28

e Estimated

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	1.6	e5	.02	1.5	6	.02	.99	e8	.02
2	1.5	e6	.02	1.5	e5	.02	.90	8	.02
3	1.5	e7	.03	1.6	e5	.02	.91	7	.02
4	1.8	e23	.14	1.8	e6	.03	.86	7	.02
5	1.6	7	.03	1.2	e6	.02	2.4	e9	.03
6	1.5	8	.03	1.2	e7	.02	2.5	5	.01
7	1.4	e9	.03	1.2	e6	.02	1.0	e4	.01
8	1.3	e9	.03	1.5	e6	.03	1.0	e3	.01
9	1.3	e9	.03	1.7	e7	.03	1.2	e5	.02
10	1.3	e9	.03	1.6	e7	.03	.82	e6	.01
11	.90	e5	.02	1.2	e7	.02	.78	e5	.01
12	.68	e2	.00	1.3	e7	.02	.94	e5	.01
13	.54	e1	.00	1.6	e6	.03	.91	e5	.01
14	.58	e2	.00	1.5	e6	.03	.86	e5	.01
15	1.0	e7	.02	1.5	e6	.03	.85	e3	.01
16	1.0	e7	.02	1.3	e6	.02	1.4	e13	.05
17	.93	e6	.02	1.2	e6	.02	1.2	5	.02
18	.92	e6	.02	1.4	e10	.04	1.5	e4	.02
19	1.1	e9	.03	1.2	e9	.03	1.5	e4	.02
20	1.3	16	.06	1.3	e4	.01	1.2	e4	.01
21	1.1	e10	.03	1.3	e4	.01	.98	e4	.01
22	1.0	e8	.02	1.3	e6	.02	.91	e4	.01
23	.88	e6	.02	2.2	49	.65	.97	e5	.01
24	.79	e5	.01	1.0	e9	.02	.81	e5	.01
25	.75	e4	.01	1.0	10	.03	.95	e5	.01
26	.78	e3	.01	1.4	e8	.03	.86	e5	.01
27	.72	e2	.00	1.2	e21	.07	1.1	e5	.02
28	.89	e7	.02	1.1	e8	.03	1.4	e6	.02
29	.97	e6	.02	1.1	10	.03	1.5	e19	.15
30	.76	e2	.00	1.0	e9	.02	1.5	31	.14
31	1.2	e5	.02	.97	e8	.02	---	---	---
TOTAL	33.59	---	0.74	41.87	---	1.42	34.70	---	0.73
YEAR	608.36		66.13						

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	1.4	11	.04	9.5	241	24	2.9	52	.85
2	1.2	10	.03	1.2	e29	.10	1.6	8	.04
3	1.1	e10	.03	1.1	e24	.07	1.6	9	.04
4	1.0	e10	.03	1.1	e20	.06	1.5	8	.03
5	1.1	e11	.03	1.0	e17	.05	1.5	6	.02
6	1.1	e11	.03	1.0	e14	.04	1.4	6	.02
7	1.6	45	.88	1.1	e12	.04	1.2	6	.02
8	1.4	44	.34	2.4	81	1.6	1.2	10	.03
9	1.5	e21	.09	2.6	75	.99	1.3	17	.06
10	1.2	e19	.06	1.6	21	.09	1.2	8	.03
11	1.1	e16	.05	1.5	12	.05	1.2	8	.03
12	.95	e14	.04	1.5	13	.05	1.2	8	.02
13	.94	e12	.03	4.3	47	.98	1.3	7	.03
14	1.3	e11	.04	2.3	13	.08	1.1	8	.02
15	1.3	e9	.03	2.0	13	.07	1.1	8	.02
16	1.3	e8	.03	1.6	12	.05	1.2	7	.02
17	1.2	e7	.02	2.0	18	.09	1.1	16	.05
18	1.3	6	.02	1.8	33	.17	1.1	50	.14
19	1.2	7	.02	1.7	22	.11	1.1	66	.20
20	1.4	e8	.03	1.7	13	.06	1.1	99	.31
21	1.4	e9	.03	1.7	12	.06	1.1	15	.05
22	1.3	e10	.04	1.7	5	.02	1.2	11	.04
23	1.1	e11	.03	1.7	5	.02	1.2	13	.04
24	1.0	e12	.03	1.6	5	.02	1.2	e17	.05
25	1.3	e13	.04	1.7	6	.03	1.2	e22	.07
26	1.1	e14	.04	1.7	9	.04	1.2	25	.08
27	1.2	e16	.05	1.7	34	.17	1.3	21	.08
28	1.5	e28	.21	1.7	11	.05	1.3	22	.08
29	1.2	e17	.07	1.6	7	.03	1.1	e17	.05
30	1.2	e16	.06	2.1	82	.76	2.9	153	2.8
31	1.8	e41	.35	---	---	---	2.6	43	.56
TOTAL	38.69	---	2.82	60.2	---	29.95	43.2	---	5.88

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	2.0	e12	.06	1.1	e10	.03	1.6	e26	.11
2	1.9	11	.06	1.2	e15	.05	2.9	e83	2.4
3	1.8	10	.05	1.2	e12	.04	8.9	e361	26
4	1.8	e28	.18	1.2	e12	.04	1.8	e20	.11
5	2.3	59	1.6	1.1	e13	.04	1.8	4	.02
6	1.3	e15	.05	1.2	e14	.04	2.0	e4	.02
7	1.7	e28	.23	4.2	e138	5.7	1.8	e4	.02
8	1.4	e23	.11	1.2	e15	.05	1.5	e5	.02
9	1.7	e36	.61	1.1	e13	.04	1.6	e6	.03
10	2.5	e74	1.3	1.0	e13	.04	1.7	e7	.03
11	1.5	e23	.09	.86	e13	.03	1.5	e8	.03
12	1.3	e22	.08	1.0	e13	.04	1.5	e9	.04
13	1.3	e20	.07	1.3	e14	.05	1.6	e10	.04
14	1.2	e18	.06	1.3	e14	.05	1.6	e12	.05
15	1.4	e17	.06	1.3	e14	.05	1.5	e14	.06
16	1.3	e18	.07	1.3	e14	.05	1.5	e17	.07
17	1.4	e16	.06	1.5	e14	.06	1.5	e19	.08
18	1.4	e22	.11	1.4	e14	.05	1.5	e23	.09
19	1.5	e31	.22	1.2	e14	.05	1.5	26	.10
20	1.3	e16	.06	1.2	e14	.05	1.3	e23	.08
21	1.3	e15	.05	1.6	e14	.06	1.2	e18	.06
22	1.3	e14	.05	1.3	e14	.05	1.2	e15	.05
23	1.5	e26	.13	1.4	e15	.06	1.2	e12	.04
24	1.9	e50	.62	.90	e15	.04	1.2	e10	.03
25	e32	e423	534	1.0	e15	.04	1.0	8	.02
26	1.7	e32	.15	1.1	e15	.04	1.1	e9	.03
27	12	e243	161	2.1	e63	.93	1.1	e10	.03
28	1.9	e36	.24	2.8	e111	1.5	1.1	e10	.03
29	1.3	e16	.06	1.6	e22	.10	1.0	e11	.03
30	1.3	e18	.08	---	---	---	1.1	e12	.04
31	1.1	e11	.03	---	---	---	1.4	e22	.13
TOTAL	89.3	---	701.54	40.66	---	9.37	53.2	---	29.89

e Estimated

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1.2	5	.02	.65	e5	.01	1.1	e10	.03
2	1.2	e5	.02	.77	5	.01	1.0	e10	.03
3	1.1	6	.02	.75	5	.01	.96	e11	.03
4	1.2	e17	.07	.75	5	.01	.97	e11	.03
5	1.3	6	.02	.65	6	.01	1.0	e11	.03
6	1.2	e5	.02	.73	6	.01	.98	e11	.03
7	1.2	5	.02	.81	7	.01	1.2	e12	.04
8	1.0	4	.01	.92	e11	.04	1.1	e10	.03
9	1.1	5	.02	1.0	8	.02	16	201	87
10	1.1	5	.02	.93	e6	.02	1.4	9	.03
11	1.1	4	.01	.92	e5	.01	1.4	e13	.06
12	1.3	e27	.38	.81	e4	.01	1.1	e14	.04
13	.94	e6	.02	.72	e4	.01	1.0	e13	.03
14	.93	6	.02	.91	3	.01	1.0	e11	.03
15	.94	e6	.02	.82	e4	.01	.94	e10	.03
16	.84	e7	.02	.91	e4	.01	.86	e9	.02
17	.89	e7	.02	1.0	e6	.02	.92	e11	.03
18	.97	e7	.02	.92	e7	.02	1.1	e16	.06
19	.97	e7	.02	.78	e8	.02	.88	e9	.02
20	.86	e8	.02	.99	e12	.04	.99	e12	.04
21	.98	e8	.02	1.1	e8	.02	.93	e10	.03
22	.94	e8	.02	.91	e9	.02	.97	e10	.03
23	.87	e8	.02	.82	e10	.02	1.8	33	.50
24	.87	e9	.02	1.1	e10	.03	1.0	e16	.04
25	.85	e9	.02	1.2	e20	.10	.97	e14	.04
26	.80	e9	.02	1.4	e15	.07	.87	e13	.03
27	.78	e10	.02	1.2	5	.02	.88	e12	.03
28	1.6	e30	.25	1.3	11	.04	.91	e11	.03
29	.92	4	.01	1.1	e10	.03	1.5	e30	.22
30	.75	e4	.01	1.0	e10	.03	.93	e13	.03
31	---	---	---	1.1	e10	.03	---	---	---
TOTAL	30.70	---	1.20	28.97	---	0.72	46.66	---	88.62

e Estimated

HAWAII, ISLAND OF OAHU

16270900 LULUKU STREAM AT ALTITUDE 220 FT, NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	.83	e12	.03	.81	e10	.02	2.1	e35	.21
2	.90	e12	.03	.82	e10	.02	1.4	e18	.07
3	.88	e12	.03	.82	e9	.02	1.3	e14	.05
4	.91	e11	.03	.80	e9	.02	1.0	e12	.04
5	1.6	36	.52	.72	e9	.02	1.4	e30	.18
6	1.7	41	1.1	.75	e9	.02	1.2	e15	.05
7	1.1	e18	.07	.77	e9	.02	1.2	e16	.07
8	.98	e12	.03	.71	e8	.02	1.2	e15	.05
9	.99	e13	.05	.75	e8	.02	.91	e12	.03
10	.89	e8	.02	.71	e8	.02	.97	e11	.03
11	.85	e8	.02	.95	e13	.05	.99	e16	.05
12	.82	e8	.02	.74	e8	.02	.93	e14	.04
13	.78	e8	.02	.77	e9	.02	.90	e14	.03
14	.74	e8	.02	.74	e10	.02	.91	e13	.03
15	.81	e8	.02	.72	e11	.02	.86	e13	.03
16	.80	e8	.02	.81	e12	.03	.92	e12	.03
17	.78	e8	.02	.76	e14	.03	.86	e12	.03
18	.94	13	.05	.78	e15	.03	.87	e11	.03
19	1.1	e17	.08	.73	e17	.03	.84	e11	.03
20	.88	e8	.02	.78	e19	.04	.82	e10	.02
21	.87	e9	.02	.81	e22	.05	.76	e10	.02
22	.93	e10	.04	.77	e24	.05	.78	e10	.02
23	.81	e7	.02	.74	e27	.05	.73	e9	.02
24	.78	e7	.02	.71	e30	.06	.83	e9	.02
25	.72	e7	.01	.77	e34	.07	.71	e9	.02
26	.78	e7	.02	.75	36	.07	.71	e8	.02
27	1.5	e42	.65	.70	e28	.05	.70	e8	.02
28	1.1	e11	.03	.74	e20	.04	.65	e8	.01
29	.99	e11	.03	.72	e14	.03	.70	e7	.01
30	.96	e10	.03	.69	e10	.02	.72	e7	.01
31	.83	e10	.02	6.8	159	8.7	---	---	---
TOTAL	29.55	---	3.09	29.64	---	9.68	28.87	---	1.27
YEAR	519.64		884.03						

e Estimated

HAWAII, ISLAND OF OAHU

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.

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 computed by Leonard Thompson. Records good. Flow regulated by a flood-control dam upstream.

AVERAGE DISCHARGE.--20 years (water years 1978-97), 11.2 ft^3/s (8,120 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,650 ft^3/s, December 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)
Jan. 3	1315	*538	*3.87	No other peak greater than base discharge.			

Minimum daily discharge, 3.7 ft^3/s, October 25. Minimum discharge, 1.0 ft^3/s, October 23, result of maintenance work on dam upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	5.8	12	13	14	12	23	13	14	11	9.0	7.4
2	5.9	11	11	12	13	12	69	13	15	11	9.0	7.6
3	5.7	7.3	12	109	13	11	63	13	14	11	9.0	7.3
4	5.6	5.9	12	31	13	15	23	13	14	12	8.6	7.6
5	5.5	28	12	18	13	27	20	17	14	11	8.5	7.1
6	5.2	13	11	15	12	13	21	22	14	13	8.2	7.1
7	5.4	7.1	12	14	13	12	18	41	13	11	8.2	7.1
8	5.5	35	10	14	12	11	17	48	14	11	8.3	7.0
9	5.7	11	9.9	13	12	11	17	22	12	13	8.2	7.2
10	5.6	6.9	11	13	12	11	18	17	13	14	7.9	7.4
11	5.4	6.4	13	13	11	26	21	19	12	12	8.6	7.5
12	5.5	73	12	15	11	13	16	27	13	11	8.1	14
13	5.3	67	11	15	11	15	16	18	12	11	7.9	11
14	5.8	100	13	12	11	13	15	42	12	10	8.1	10
15	5.7	41	10	12	11	19	15	33	12	11	8.2	8.4
16	6.0	51	9.5	14	10	14	14	33	12	10	11	8.3
17	6.7	36	9.3	12	10	98	14	22	12	10	16	7.8
18	5.9	23	9.0	12	10	17	13	21	12	9.7	12	9.5
19	9.3	19	8.9	45	9.9	13	13	18	12	14	8.8	9.9
20	8.2	18	8.6	44	9.9	13	13	18	12	10	8.8	10
21	6.4	17	9.0	48	10	13	13	17	14	10	8.3	17
22	7.8	12	8.8	22	19	12	13	19	12	21	7.8	12
23	6.3	14	11	15	14	74	12	20	13	13	7.8	11
24	4.7	22	10	14	10	25	15	17	15	11	7.8	17
25	3.7	15	8.8	14	10	22	14	16	13	11	7.7	9.3
26	5.8	14	11	13	14	18	20	16	16	10	9.5	8.9
27	5.3	13	27	13	15	17	22	15	15	9.7	7.8	8.4
28	5.3	12	12	13	11	19	15	15	13	9.6	8.0	8.1
29	5.3	12	10	18	---	16	14	14	13	9.4	9.5	8.0
30	5.3	12	9.5	16	---	14	14	14	11	9.6	7.9	7.8
31	5.7	---	14	16	---	13	---	15	---	9.0	8.1	---
TOTAL	181.5	708.4	348.3	648	334.8	619	591	648	393	350.0	272.6	276.7
MEAN	5.85	23.6	11.2	20.9	12.0	20.0	19.7	20.9	13.1	11.3	8.79	9.22
MAX	9.3	100	27	109	19	98	69	48	16	21	16	17
MIN	3.7	5.8	8.6	12	9.9	11	12	13	11	9.0	7.7	7.0
AC-FT	360	1410	691	1290	664	1230	1170	1290	780	694	541	549

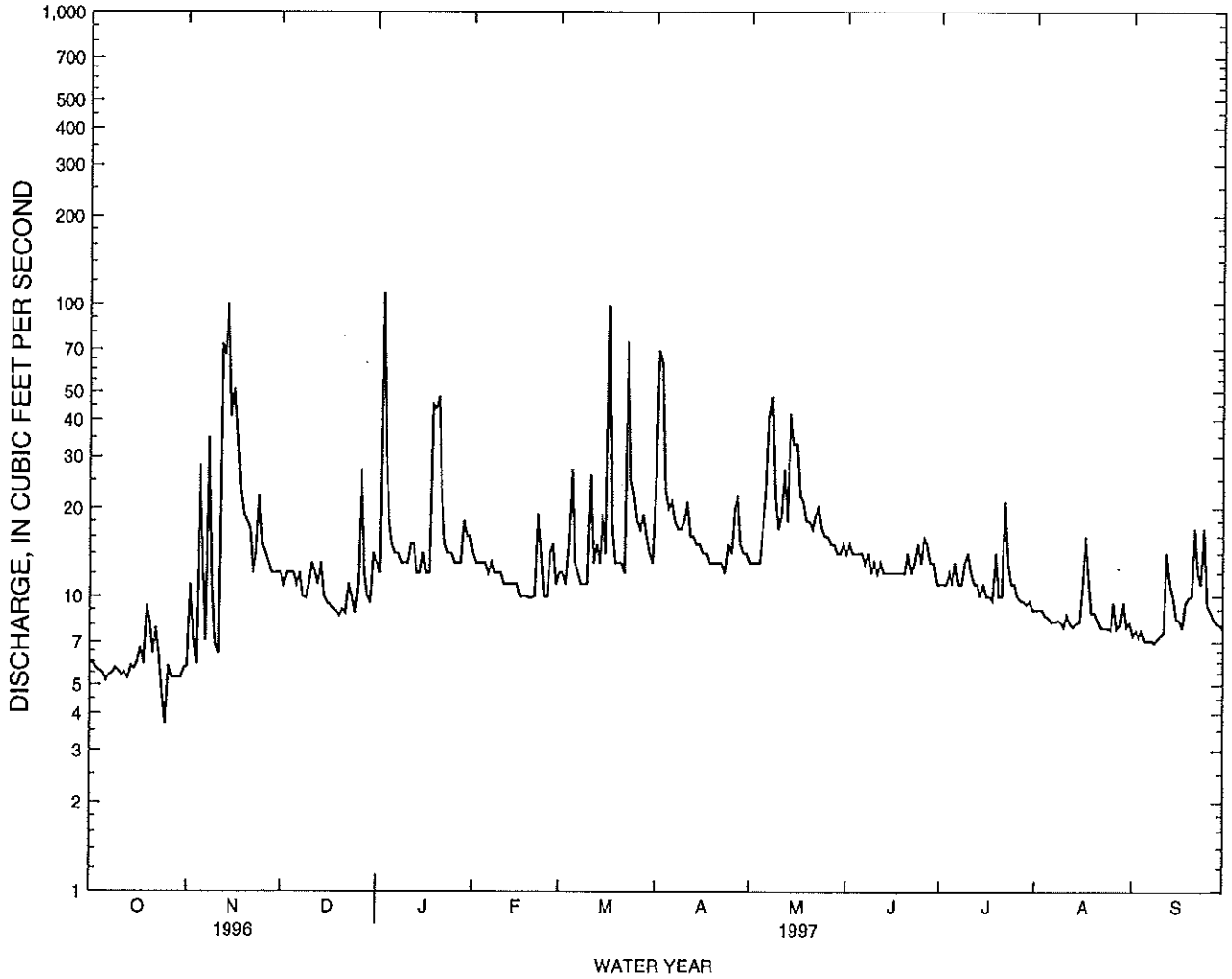
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1997, BY WATER YEAR (WY)

MEAN	8.24	11.6	12.6	15.7	12.9	14.2	13.0	11.2	9.27	8.25	7.71	7.65
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

HAWAII, ISLAND OF OAHU

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1977 - 1997	
ANNUAL TOTAL	4091.8		5371.3			
ANNUAL MEAN	11.2		14.7		11.2	
HIGHEST ANNUAL MEAN					22.0	1982
LOWEST ANNUAL MEAN					4.36	1984
HIGHEST DAILY MEAN	399	Jan 25	109	Jan 3	723	Jan 1 1988
LOWEST DAILY MEAN	3.7	Oct 25	3.7	Oct 25	.29	Oct 10 1984
ANNUAL SEVEN-DAY MINIMUM	4.6	Aug 24	5.1	Oct 24	.30	Oct 10 1984
ANNUAL RUNOFF (AC-FT)	8120		10650		8120	
10 PERCENT EXCEEDS	15		22		17	
50 PERCENT EXCEEDS	7.2		12		7.6	
90 PERCENT EXCEEDS	5.5		7.1		4.5	



HAWAII, ISLAND OF OAHU

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

PERIOD OF RECORD.--November 1976 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: November 1976 to current year. Upstream dam was completed in 1980.

INSTRUMENTATION.--Automatic pumping sediment sampler since November 1976.

REMARKS.--Samples for water years 1995-97 with concentrations of about 1,000 mg/L and higher were analyzed using method 2540D (Standard Methods, 19th edition, 1995) for total suspended solids.

Water year 1995: Water-quality samples were collected at this site. Sediment records computed by B.R. Hill. Records fair.

Water year 1996: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records poor.

Water year 1997: Water-quality samples were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water year 1997 was not completed at the time of this publication.

EXTREMES FOR PERIOD OF RECORD.--

Water year 1995:
Sediment Concentrations: Maximum daily mean 879 mg/L, March 18, 1980; minimum daily mean, 1 mg/L, on several days in 1988, 1990, 1991.
Sediment Discharge: Maximum daily, 1,380 tons, March 18, 1980; minimum daily, 0.01 ton, October 9-11, 1981, August 13, 1993.

Water year 1996:
Sediment Concentrations: Maximum daily mean 879 mg/L, March 18, 1980; minimum daily mean, 1 mg/L, on several days in 1988, 1990, 1991.
Sediment Discharge: Maximum daily, 1,380 tons, March 18, 1980; minimum daily, 0.01 ton, October 9-11, 1981, August 13, 1993.

EXTREMES FOR CURRENT YEAR.--

Water year 1995:
Sediment Concentrations: Maximum daily mean, 110 mg/L, October 16; minimum daily mean, 4 mg/L on many days.
Sediment Discharge: Maximum daily, 66 tons, February 27; minimum daily, 0.05 ton, December 14.

Water year 1996:
Sediment Concentrations: Maximum daily mean 498 mg/L (estimated), January 25; minimum daily mean, 3 mg/L, December 11-13, May 12, July 8.
Sediment Discharge: Maximum daily, 1,090 tons (estimated), January 25; minimum daily, 0.02 ton, December 19-21.

HAWAII, ISLAND OF OAHU

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT											
30...	1020	4.8	192	8.0	26.5	26.0	1.1	758	9.1	113	160
NOV											
12...	1130	19	138	7.8	24.0	24.0	2.8	755	8.2	98	--
DEC											
10...	0930	11	195	7.5	21.5	22.0	2.0	763	9.5	109	--
JAN											
13...	1115	13	186	7.9	22.5	22.5	1.4	760	9.1	105	270
FEB											
11...	1120	10	199	8.0	--	23.5	0.80	764	9.4	110	--
MAR											
10...	1515	10	194	8.1	28.0	25.0	1.8	760	8.6	104	--
APR											
14...	1200	14	187	8.0	26.5	24.0	2.5	761	9.1	108	K110
MAY											
27...	1450	15	195	8.0	27.0	25.0	0.30	759	--	--	--
JUN											
11...	0845	12	201	7.7	26.0	26.0	1.4	765	8.4	103	82
JUL											
14...	0916	11	199	8.0	24.5	25.5	0.80	760	8.4	103	--
AUG											
12...	0950	8.0	198	7.7	26.5	26.5	--	761	8.6	107	--
SEP											
09...	0900	7.2	193	7.7	27.0	25.5	1.0	761	8.6	105	--

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC											
10...	0930	58	10	7.9	14	34	0.8	1.1	57	8.8	19
JAN											
13...	1115	55	9.8	7.4	13	33	0.8	1.5	55	8.4	17
JUN											
11...	0845	60	9.7	8.6	14	34	0.8	0.94	59	6.9	20

K Results based on colony count outside the acceptance range (non-ideal colony count)

HAWAII, ISLAND OF OAHU

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORGANIC TOTAL (MG/L AS P) (00670)
OCT											
30...	1020	--	--	--	--	--	1	0.340	<0.20	0.020	0.02
DEC											
10...	0930	<0.10	20	118	117	0.16	<1	0.370	<0.20	0.020	0.02
JAN											
13...	1115	<0.10	18	115	110	0.16	<1	0.310	<0.20	0.010	0.01
APR											
14...	1200	--	--	--	--	--	<1	0.330	0.20	0.010	0.01
JUN											
11...	0845	<0.10	20	119	118	0.16	4	0.284	<0.20	0.012	0.01

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)
DEC											
10...	0930	200	<5.0	<1	<100	5.0	<10	<1	2	<1	<3.0
JAN											
13...	1115	90	9.3	<1	<100	6.0	<10	<1	<1	<1	<3.0
JUN											
11...	0845	80	<5.0	<1	<100	6.5	<10	<1	<1	<1	<3.0

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UO/L AS MO) (01060)
DEC											
10...	1	630	45	<1	<10	<4	30	6.0	<0.10	<1	<10
JAN											
13...	1	280	65	<1	<10	<4	40	2.0	--	<1	<10
JUN											
11...	<1	240	44	<1	<10	<4	38	5.6	<0.10	<1	<10

DATE	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L) (00556)
DEC											
10...	1	<1.0	<1	<1	<1	<1.0	79	<6	<10	1.1	<1
JAN											
13...	1	<1.0	<1	<1	<1	<1.0	76	<6	<10	1.4	<1
JUN											
11...	<1	<1.0	<1	<1	<1	<1.0	81	<6	<10	2.1	<1

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

HAWAII, ISLAND OF OAHU

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	DISULFOTON UNFILT RECOVER (UG/L) (39011)
DEC											
10...	0930	<0.010	<0.100	--	<0.010	<0.010	<0.010	--	--	0.010	--
JAN											
13...	1115	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHOXYCHLOR, TOTAL (UG/L) (39480)
DEC											
10...	<0.010	<0.010	<0.010	<0.010	--	--	<0.010	<0.010	<0.010	--	<0.010
JAN											
13...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	METHYL PARATHION, TOTAL (UG/L) (39600)	MIREX, TOTAL (UG/L) (39755)	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	SILVEX, TOTAL (UG/L) (39760)	TOXAPHENE, TOTAL (UG/L) (39400)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC											
10...	--	<0.010	--	<0.100	<0.100	<0.100	--	<0.010	<1.00	--	<0.010
JAN											
13...	<0.010	<0.010	<0.010	<0.100	<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

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	6.4	5	.09	6.4	13	.22	6.6	18	.34
2	12	11	.40	6.3	14	.23	5.8	13	.20
3	7.7	10	.22	6.3	10	.17	5.6	e14	.20
4	6.4	10	.18	6.7	15	.26	6.4	14	.24
5	6.1	11	.18	6.5	14	.24	6.6	13	.23
6	6.3	10	.17	6.3	15	.25	5.9	15	.24
7	6.9	14	.26	6.8	11	.20	7.2	12	.23
8	6.3	e8	.13	6.5	11	.20	6.3	12	.21
9	6.1	e9	.15	6.5	9	.16	6.9	17	.32
10	6.0	e10	.17	6.4	11	.19	7.2	12	.23
11	6.5	e12	.20	7.2	18	.35	6.1	10	.16
12	6.3	e13	.22	7.2	12	.23	7.1	13	.32
13	6.6	14	.26	7.9	e12	.27	9.4	e15	.50
14	6.5	14	.25	7.7	17	.34	2.3	e8	.05
15	14	e22	1.1	7.9	49	1.1	5.2	e11	.16
16	49	110	40	6.9	14	.26	5.9	15	.24
17	39	57	8.9	6.7	12	.21	6.2	14	.24
18	11	25	.73	6.5	10	.17	5.8	18	.28
19	9.9	21	.57	6.3	8	.14	6.5	15	.27
20	8.0	16	.35	6.2	11	.18	4.9	10	.13
21	7.6	15	.30	6.0	10	.17	4.3	e11	.13
22	7.5	18	.36	6.1	20	.33	4.6	e14	.17
23	7.2	18	.35	6.1	10	.16	6.8	15	.27
24	7.3	14	.28	6.0	8	.14	6.4	12	.20
25	6.5	e12	.22	6.0	11	.18	5.5	e10	.15
26	6.7	11	.21	6.4	16	.27	5.4	e9	.13
27	6.9	14	.27	6.0	12	.19	5.3	e8	.11
28	6.7	23	.41	6.5	16	.28	5.5	9	.13
29	6.5	16	.28	5.7	30	.45	5.5	15	.23
30	6.5	19	.33	6.2	25	.41	5.2	e15	.21
31	6.3	12	.20	---	---	---	5.0	e15	.20
TOTAL	302.7	---	57.74	196.2	---	7.95	183.4	---	6.72

e Estimated

HAWAII, ISLAND OF OAHU

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	5.0	e14	.19	5.0	e9	.12	14	22	.86
2	5.0	e14	.19	5.1	e11	.15	10	15	.43
3	5.0	e13	.18	5.2	e13	.19	8.7	e19	.44
4	5.0	e13	.17	5.3	e16	.23	7.5	20	.41
5	5.3	e12	.18	7.9	14	.29	8.6	17	.40
6	4.9	e12	.16	6.0	9	.14	7.6	16	.32
7	4.8	e12	.15	5.2	e9	.12	6.9	14	.26
8	4.8	e11	.15	5.1	e8	.11	6.6	13	.24
9	4.8	e11	.14	5.0	e8	.11	6.7	e14	.25
10	4.8	e11	.14	7.1	e10	.20	6.4	e15	.25
11	4.9	e10	.14	5.2	e9	.13	6.5	e16	.28
12	6.4	9	.16	5.0	e9	.12	9.1	23	.58
13	4.9	e8	.11	9.1	e12	.49	7.0	13	.23
14	8.2	e11	.31	19	26	1.6	6.7	21	.39
15	8.3	7	.16	7.3	10	.20	6.5	15	.27
16	6.1	6	.10	6.6	8	.14	6.4	13	.22
17	5.5	10	.15	5.8	9	.14	6.3	22	.37
18	5.2	e10	.14	6.4	4	.07	6.2	21	.35
19	5.0	e10	.13	5.8	e4	.07	6.1	9	.15
20	4.9	e10	.13	5.5	e4	.06	5.9	11	.17
21	4.7	e9	.12	5.3	e4	.06	6.3	8	.14
22	4.7	e9	.12	5.3	e5	.07	7.3	14	.27
23	4.7	e9	.12	5.3	e5	.07	7.6	15	.31
24	4.7	e9	.12	12	e9	.47	6.6	49	.85
25	4.7	9	.11	17	e14	.95	6.5	57	.97
26	5.4	e8	.12	9.0	9	.22	6.8	7	.14
27	6.5	8	.14	57	71	66	7.4	6	.13
28	12	e13	.59	64	58	15	6.5	6	.10
29	8.1	8	.17	---	---	---	7.1	7	.12
30	5.8	6	.10	---	---	---	6.3	8	.13
31	5.5	e8	.11	---	---	---	6.3	15	.25
TOTAL	175.6	---	5.00	307.5	---	87.52	224.4	---	10.28

e Estimated

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	6.2	24	.41	9.2	e7	.19	6.9	e6	.11
2	6.1	27	.45	8.3	e5	.11	7.0	8	.16
3	8.3	19	.42	7.3	e5	.09	7.0	e9	.17
4	10	13	.38	7.1	e4	.08	6.3	e9	.15
5	10	44	1.1	7.8	4	.09	5.9	e9	.14
6	8.6	52	1.2	21	e16	1.2	5.5	e9	.13
7	7.8	8	.17	9.6	6	.17	7.2	9	.18
8	7.2	11	.20	7.7	e6	.13	6.3	e9	.15
9	11	e15	.47	7.8	e7	.15	5.6	e8	.13
10	7.9	6	.13	7.7	e8	.16	5.7	8	.12
11	6.5	4	.08	7.8	9	.18	5.7	e8	.13
12	7.0	21	.41	7.8	e9	.19	5.2	e8	.12
13	6.5	18	.33	7.6	e8	.17	5.8	e9	.14
14	6.5	13	.22	7.3	8	.16	5.7	9	.14
15	6.4	15	.25	7.2	39	.75	5.1	e9	.12
16	6.2	16	.26	8.1	29	.61	5.3	e9	.13
17	5.8	e16	.25	7.8	e10	.22	5.1	e9	.12
18	5.5	12	.18	8.2	7	.16	5.2	e9	.12
19	5.6	15	.22	7.2	e7	.14	5.2	e9	.13
20	5.6	e12	.18	7.1	e10	.18	4.8	e9	.12
21	5.7	6	.10	7.3	13	.25	5.5	9	.13
22	8.0	5	.11	7.7	9	.19	16	e18	.83
23	8.9	5	.12	7.1	e7	.14	14	e18	.71
24	19	e14	1.5	7.0	e7	.14	8.3	13	.29
25	43	e29	3.8	6.6	e7	.13	7.3	10	.19
26	12	15	.48	6.4	e7	.13	6.5	20	.34
27	9.2	12	.29	6.2	e8	.13	6.5	19	.33
28	8.5	e7	.16	6.2	e8	.13	6.0	e18	.28
29	7.7	e7	.15	6.3	e8	.13	5.4	e17	.25
30	7.8	e7	.15	6.1	8	.13	5.1	e17	.23
31	---	---	---	6.0	6	.10	---	---	---
TOTAL	274.5	---	14.17	242.5	---	6.73	197.1	---	6.29

e Estimated

HAWAII, ISLAND OF OAHU

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	5.4	16	.23	5.5	9	.14	3.8	e16	.17
2	5.2	e13	.19	5.0	e9	.13	3.9	e16	.17
3	5.7	11	.17	5.2	e10	.14	3.7	e16	.16
4	7.1	e12	.23	5.8	e10	.16	3.5	e15	.15
5	5.6	14	.21	5.1	e11	.15	9.7	e21	.61
6	5.4	21	.31	4.7	e11	.14	6.5	14	.24
7	5.7	e18	.28	5.0	e11	.15	5.7	e10	.15
8	5.7	e14	.21	5.1	e12	.16	5.4	e10	.15
9	5.8	11	.17	5.9	e12	.19	5.4	e10	.15
10	6.3	e10	.18	5.5	e13	.19	5.5	e10	.15
11	5.6	11	.17	7.0	14	.26	4.9	e10	.14
12	6.3	13	.21	5.8	e15	.23	4.8	e10	.13
13	4.6	e13	.16	6.8	e16	.30	4.7	e11	.13
14	4.3	e13	.15	6.1	16	.26	4.6	e11	.13
15	4.8	e13	.16	6.0	e13	.21	4.6	e11	.13
16	4.9	e12	.16	5.8	14	.22	5.2	e11	.15
17	4.7	e12	.16	5.7	e21	.32	5.3	e11	.16
18	4.7	e12	.15	6.0	24	.39	5.7	e11	.17
19	6.1	13	.22	6.1	e21	.34	5.7	e11	.17
20	8.4	17	.39	5.4	e18	.26	5.1	e11	.15
21	6.0	17	.27	5.4	e15	.22	4.8	e11	.15
22	5.3	e18	.26	5.2	e13	.19	4.6	e11	.14
23	5.1	19	.27	8.7	24	.59	4.7	e12	.15
24	5.2	18	.25	4.9	9	.12	4.6	e12	.14
25	5.4	e17	.25	4.3	e9	.10	4.7	e12	.15
26	6.1	17	.27	4.9	9	.11	4.4	e12	.14
27	5.5	e15	.22	4.9	10	.13	4.8	e12	.15
28	5.7	e13	.21	4.4	e15	.18	5.6	21	.33
29	5.2	e12	.17	4.2	18	.20	9.8	30	.83
30	4.6	e11	.13	3.9	e17	.18	10	24	.69
31	4.9	e10	.13	3.8	e17	.17	---	---	---
TOTAL	171.3	---	6.54	168.1	---	6.53	161.7	---	6.43
YEAR	2605.0		221.90						

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	6.0	e13	.21	62	92	26	31	53	5.8
2	5.2	e9	.13	8.4	13	.29	12	e23	.78
3	5.0	e9	.12	7.1	e13	.26	8.3	e14	.33
4	4.8	e8	.11	7.5	10	.20	7.7	e13	.27
5	4.7	e8	.10	5.8	13	.20	7.1	e12	.23
6	5.1	e9	.13	5.3	12	.17	7.0	10	.19
7	7.7	15	.37	4.9	9	.12	7.7	e10	.21
8	10	35	.95	9.6	e21	.67	7.0	8	.16
9	6.1	31	.51	11	e23	.73	7.2	11	.21
10	5.5	e24	.36	8.3	e14	.32	6.5	8	.14
11	5.3	e20	.29	6.2	8	.13	6.3	3	.05
12	5.2	e21	.29	6.0	e10	.16	6.6	3	.05
13	4.7	e18	.22	24	e36	3.7	8.0	3	.07
14	4.9	e17	.23	16	e21	.93	7.3	7	.13
15	4.9	e17	.22	12	e21	.70	6.8	6	.10
16	4.8	e16	.20	8.5	e15	.35	6.6	13	.23
17	4.5	e15	.19	8.1	e14	.31	8.6	33	.74
18	4.4	15	.18	8.9	e19	.45	18	e8	.99
19	4.0	e14	.15	7.4	e17	.33	1.5	e4	.02
20	4.5	e16	.20	8.3	e17	.40	1.5	e4	.02
21	4.5	e15	.18	8.9	13	.31	1.5	e4	.02
22	3.8	e13	.13	7.7	16	.33	4.8	e6	.07
23	3.7	e13	.13	7.2	17	.33	6.0	e8	.12
24	3.3	e13	.12	6.8	15	.28	5.9	e9	.14
25	3.8	e13	.14	6.6	17	.30	7.1	e12	.26
26	4.5	e16	.20	6.4	23	.40	8.6	e14	.35
27	4.1	e15	.16	7.9	23	.48	6.1	9	.16
28	4.7	e14	.19	7.1	20	.38	5.8	9	.14
29	6.7	e13	.25	6.3	24	.41	5.6	9	.14
30	4.8	e9	.12	9.9	66	1.6	14	e23	1.2
31	12	e21	.80	---	---	---	20	e23	1.6
TOTAL	163.2	---	7.58	310.1	---	41.24	258.1	---	14.92

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	7.7	10	.21	8.7	e16	.39	8.9	e13	.33
2	6.8	13	.24	10	e19	.52	31	e51	5.1
3	6.3	13	.22	8.9	14	.34	101	60	20
4	7.3	e14	.30	8.0	13	.28	20	14	.78
5	19	e35	2.2	7.8	12	.25	14	8	.30
6	9.2	e12	.32	7.8	13	.26	12	e8	.26
7	15	e17	.78	26	e38	6.6	11	8	.26
8	13	e17	.66	24	e34	2.8	11	e6	.17
9	9.1	e11	.30	11	14	.46	11	4	.12
10	17	e37	1.9	8.7	7	.16	10	e4	.12
11	8.9	27	.65	7.5	6	.13	10	5	.13
12	7.9	17	.37	7.5	6	.13	9.8	e5	.14
13	7.6	17	.35	7.7	7	.16	9.7	6	.15
14	7.3	14	.27	7.8	7	.15	9.4	6	.15
15	7.3	13	.25	7.6	27	.55	9.3	10	.24
16	7.2	e13	.25	7.3	23	.45	9.2	10	.25
17	7.2	e13	.25	7.6	15	.31	9.2	10	.25
18	8.3	e15	.35	7.4	8	.17	9.0	7	.18
19	8.8	e18	.44	6.9	6	.11	8.7	6	.14
20	7.1	e12	.23	6.7	7	.12	9.5	6	.15
21	6.9	e12	.22	7.1	8	.15	9.2	6	.15
22	6.7	e12	.22	7.0	9	.18	8.7	5	.12
23	11	e19	.63	6.9	16	.29	8.5	6	.13
24	28	e43	5.6	6.5	e15	.25	8.2	7	.15
25	399	e498	1090	6.6	12	.21	8.1	5	.10
26	18	e93	5.0	8.0	e11	.25	8.0	5	.10
27	31	e101	17	17	e27	1.9	7.7	5	.10
28	30	82	8.6	26	e31	2.8	7.4	5	.10
29	11	37	1.1	9.6	8	.20	7.5	5	.10
30	11	e43	1.3	---	---	---	7.8	5	.11
31	11	e25	.82	---	---	---	11	6	.19
TOTAL	751.6	---	1141.03	289.6	---	20.57	415.8	---	30.57

e Estimated

16272200 KAMOOALII STREAM BELOW LULUKU STREAM NEAR KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	8.4	4	.09	6.8	12	.22	6.0	e7	.12
2	8.0	5	.10	6.7	15	.27	6.0	e7	.12
3	7.8	7	.15	6.7	15	.27	5.8	e7	.12
4	7.7	8	.17	6.9	15	.28	5.9	e8	.12
5	8.3	8	.18	6.4	11	.19	5.9	e8	.13
6	7.8	6	.13	6.1	6	.10	6.3	e10	.17
7	7.6	6	.12	6.5	4	.08	6.8	e14	.26
8	7.1	6	.12	7.1	e6	.12	6.2	e12	.21
9	7.0	6	.11	7.0	10	.19	73	107	45
10	7.3	7	.13	6.3	e7	.13	16	45	2.9
11	7.7	11	.24	6.3	4	.06	8.2	e14	.32
12	7.8	19	.41	6.3	e3	.06	7.0	e13	.24
13	6.9	10	.18	6.3	4	.07	8.3	e14	.32
14	6.7	6	.12	6.3	4	.07	6.0	e11	.18
15	6.7	7	.13	6.2	4	.07	5.6	e10	.16
16	6.4	7	.12	6.0	4	.07	5.6	e10	.15
17	6.5	7	.12	6.0	5	.09	5.7	e11	.17
18	7.5	6	.12	6.0	6	.10	7.0	e12	.22
19	7.2	6	.12	6.0	6	.10	5.6	9	.13
20	6.5	6	.11	6.6	e7	.14	5.9	e11	.17
21	7.2	6	.12	6.7	e7	.14	5.5	e10	.15
22	6.6	8	.14	6.1	e5	.09	5.6	e10	.15
23	6.3	9	.15	5.8	e5	.08	11	e21	.91
24	6.3	9	.15	6.3	e7	.11	6.7	e6	.11
25	6.3	8	.13	7.2	e10	.19	5.6	e6	.09
26	6.3	6	.10	7.3	e9	.18	5.4	e7	.10
27	7.8	6	.15	6.5	e7	.12	5.3	e8	.11
28	29	e46	4.9	6.7	e8	.15	5.3	e9	.13
29	12	10	.37	7.0	e9	.17	11	e20	.73
30	7.5	7	.15	6.3	e7	.12	8.4	17	.39
31	---	---	---	6.3	e7	.12	---	---	---
TOTAL	242.2	---	9.33	200.7	---	4.15	272.6	---	54.08

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	5.9	e11	.17	5.6	e8	.12	28	e58	6.0
2	5.9	e11	.17	5.6	e8	.12	8.9	e18	.43
3	5.9	e10	.17	6.0	e8	.12	7.5	e15	.31
4	5.9	e10	.16	6.1	e7	.12	7.1	e13	.25
5	16	e22	1.4	5.7	e7	.11	18	e31	1.6
6	11	e10	.61	5.8	e7	.11	10	e18	.48
7	14	e7	.38	5.8	e7	.11	10	e19	.50
8	6.6	e3	.05	5.2	e7	.10	9.6	e17	.45
9	6.4	e12	.20	5.3	e7	.10	7.8	e14	.29
10	5.6	e11	.16	6.0	e7	.11	7.4	e13	.26
11	5.6	e10	.16	7.2	e7	.13	8.7	e16	.38
12	6.3	e12	.20	5.6	e5	.08	7.6	e14	.28
13	5.8	e11	.17	5.7	e5	.08	7.3	e13	.26
14	5.7	e11	.16	5.3	e5	.08	6.9	e13	.24
15	5.6	e10	.16	4.9	e6	.07	6.3	e12	.21
16	6.1	e12	.19	5.1	e6	.08	6.5	e12	.21
17	5.8	e10	.16	5.0	e6	.08	6.4	e11	.20
18	6.2	e11	.19	4.8	e6	.08	6.8	e13	.24
19	7.0	14	.26	4.8	e6	.08	6.5	e12	.21
20	5.9	e8	.13	4.7	e7	.08	6.8	e12	.22
21	5.6	e8	.12	4.7	e7	.09	6.5	e11	.20
22	6.1	e8	.14	4.7	e7	.09	6.3	e11	.19
23	5.4	e9	.12	4.7	e7	.09	6.3	e12	.20
24	5.3	e9	.13	4.5	e8	.09	8.6	e16	.38
25	5.2	e9	.12	4.6	e8	.10	6.7	e11	.21
26	5.6	e11	.16	4.7	8	.10	6.4	e11	.19
27	19	e20	1.4	4.7	e8	.10	6.3	e11	.19
28	8.2	e9	.20	4.5	e8	.10	5.9	e11	.18
29	6.1	e8	.13	4.5	e8	.10	6.0	e11	.18
30	6.0	e8	.13	4.5	e8	.10	6.1	e11	.18
31	5.9	e8	.12	54	90	25	---	---	---
TOTAL	221.6	---	8.02	210.3	---	27.92	249.2	---	15.12
YEAR	3585.0		1374.53						

e Estimated

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 Cemetery, and 2.4 mi northwest of Pali Golf Course.

DRAINAGE AREA.--0.40 mi^2.

PERIOD OF RECORD.--October 1987 to September 1996, October 1996 to September 1997 (discharge measurements only), September 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 115 ft above mean sea level (from topographic map).

REMARKS.--Records computed by Michael Wong. Records fair for days with stage data.

AVERAGE DISCHARGE.--9 years (water years 1988-96), 2.38 ft^3/s (1,720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 207 ft^3/s, December 31, 1987, gage height, 5.18 ft, from rating curve extended above 21 ft^3/s; minimum, 1.4 ft^3/s, January 22, 1996.

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)
Mar. 17	0930	unknown	unknown

Minimum discharge is unknown.

INSTANTANEOUS DISCHARGE MEASUREMENTS, IN CUBIC FEET PER SECOND
October 1, 1996 to September 19, 1997

Date	Discharge (ft^3/s)	Date	Discharge (ft^3/s)	Date	Discharge (ft^3/s)
Oct. 30	1.58	Feb. 11	1.98	Jun. 11	2.05
Nov. 13	3.58	Mar. 10	2.11	Jul. 14	2.30
Dec. 10	1.88	Apr. 15	2.26	Aug. 12	2.15
Jan. 14	2.02	May 27	2.38	Sep. 9	1.84

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

SEP 20 . . . 2.1	SEP 23 . . . 1.9	SEP 25 . . . 1.8	SEP 27 . . . 1.8	SEP 29 . . . 1.8
SEP 21 . . . 2.7	SEP 24 . . . 1.8	SEP 26 . . . 1.8	SEP 28 . . . 1.8	SEP 30 . . . 1.8
SEP 22 . . . 2.0				

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

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.--Samples for water years 1995-97 with concentrations of about 1,000 mg/L and higher were analyzed using method 2540D (Standard Methods, 19th edition, 1995) for total suspended solids.

Water year 1994: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records good.

Water year 1995: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records fair.

Water year 1996: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records fair.

Water year 1997: Water-quality samples were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water year 1997 was not completed at the time of this publication.

EXTREMES FOR PERIOD OF RECORD.--

Water year 1994:
Sediment Concentrations: Maximum daily mean 1,010 mg/L, March 19, 1991; minimum daily mean, 5 mg/L, September 5, 1994.
Sediment Discharge: Maximum daily, 117 tons, March 19, 1991; minimum daily, 0.03 ton, September 4, 5, 1994.

Water year 1995:
Sediment Concentrations: Maximum daily mean 1,010 mg/L, March 19, 1991; minimum daily mean, 2 mg/L, on several days in 1995.
Sediment Discharge: Maximum daily, 117 tons, March 19, 1991; minimum daily, 0.01 ton on several days in 1995.

Water year 1996:
Sediment Concentrations: Maximum daily mean 1,010 mg/L, March 19, 1991; minimum daily mean, 2 mg/L, on several days in 1995.
Sediment Discharge: Maximum daily, 117 tons, March 19, 1991; minimum daily, 0.01 ton on several days in 1995.

EXTREMES FOR CURRENT YEAR.--

Water year 1994:
Sediment Concentrations: Maximum daily mean, 652 mg/L, March 24; minimum daily mean, 5 mg/L, September 5, 1994.
Sediment Discharge: Maximum daily, 51 tons, February 15; minimum daily, 0.03 ton, September 4, 5.

Water year 1995:
Sediment Concentrations: Maximum daily mean, 153 mg/L (estimated), October 16; minimum daily mean, 2 mg/L on several days.
Sediment Discharge: Maximum daily, 18 tons (estimated), October 16; minimum daily, 0.01 ton on several days.

Water year 1996:
Sediment Concentrations: Maximum daily mean, 79 mg/L (estimated), August 31; minimum daily mean, 5 mg/L, October 10.
Sediment Discharge: Maximum daily, 8.6 tons (estimated), January 25; minimum daily, 0.02 ton, October 10.

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT											
30...	0915	1.6	193	7.7	26.0	21.5	1.2	759	8.3	94	4100
NOV											
13...	1050	3.6	301	6.8	26.0	23.0	3.8	757	8.1	95	--
DEC											
10...	1125	1.9	200	7.8	--	21.5	4.2	763	8.7	99	1200
JAN											
14...	0945	2.0	214	7.4	21.5	21.0	2.8	759	8.7	98	3200
FEB											
11...	1400	2.0	202	8.1	25.0	22.0	3.1	761	8.8	101	--
MAR											
10...	1350	2.1	208	8.0	27.5	24.0	2.9	761	8.3	99	--
APR											
15...	0905	2.3	207	8.0	24.5	21.5	3.8	762	8.8	100	1600
MAY											
27...	1015	2.4	204	8.0	24.0	23.0	2.6	760	--	--	--
JUN											
11...	1005	2.0	200	7.9	27.0	22.5	3.5	765	8.8	101	1900
JUL											
14...	1311	2.3	199	8.1	27.0	24.5	2.5	758	8.1	98	--
AUG											
12...	1320	2.2	195	8.0	28.0	25.0	--	761	8.4	102	--
SEP											
09...	1250	1.8	194	7.9	29.0	24.5	4.9	760	8.2	99	--

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC											
10...	1125	56	12	6.4	16	38	0.9	1.3	63	5.8	20
JAN											
14...	0945	61	13	6.8	15	34	0.8	1.4	64	8.3	20
JUN											
11...	1005	58	12	6.6	17	39	1	1.2	64	4.9	18

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)
OCT											
30...	0915	--	--	--	--	--	<1	<0.050	<0.20	0.020	0.02
DEC											
10...	1125	<0.10	30	132	130	0.18	4	0.080	<0.20	0.020	0.02
JAN											
14...	0945	<0.10	30	141	134	0.19	3	0.130	<0.20	0.030	0.03
APR											
15...	0905	--	--	--	--	--	5	0.070	<0.20	0.020	0.02
JUN											
11...	1005	<0.10	32	132	132	0.18	15	0.073	<0.20	0.036	0.04

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

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)
DEC											
10...	1125	70	<5.0	<1	<100	3.0	<10	<1	<1	<1	<3.0
JAN											
14...	0945	180	5.2	<1	<100	3.0	<10	<1	2	<1	<3.0
JUN											
11...	1005	200	7.7	<1	<100	2.7	<10	<1	3	<1	<3.0

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)
DEC											
10...	<1	220	84	<1	<10	<4	30	12	<0.10	<1	<10
JAN											
14...	2	650	81	<1	<10	<4	40	19	<0.10	<1	<10
JUN											
11...	1	770	84	<1	<10	<4	32	9.3	<0.10	<1	<10

DATE	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L) (00556)
DEC											
10...	<1	<1.0	<1	<1	<1	<1.0	66	8	<10	1.3	<1
JAN											
14...	<1	<1.0	<1	<1	<1	<1.0	72	7	<10	1.4	<1
JUN											
11...	<1	<1.0	<1	<1	<1	<1.0	64	8	<10	2.0	<1

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	DISULFOTON UNFILT RECOVER (UG/L) (39011)
DEC											
10...	1125	<0.010	<0.100	E0.010	<0.010	<0.010	<0.010	<0.030	<0.030	<0.010	--
JAN											
14...	0945	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

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

E Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)
DEC											
10...	<0.010	<0.010	<0.010	<0.010	<0.030	<0.030	<0.010	<0.010	<0.010	<0.030	<0.010
JAN											
14...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	METHYL PARA-THION, TOTAL (UG/L) (39600)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	SILVEX, TOTAL (UG/L) (39760)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC											
10...	<0.030	<0.010	<0.030	<0.100	<0.100	<0.100	<0.100	<0.010	<1.00	<0.030	<0.010
JAN											
14...	<0.010	<0.010	<0.010	<0.100	<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

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	2.1	e21	.12	1.9	e19	.11	1.9	e14	.07
2	2.1	e21	.12	1.9	e15	.07	1.9	e14	.07
3	2.1	e20	.12	3.1	e63	.79	1.8	e13	.06
4	2.1	e20	.12	2.4	e25	.17	1.8	e13	.06
5	2.1	e20	.12	1.9	e16	.08	1.8	e13	.06
6	2.1	e20	.11	1.8	e15	.08	1.8	e12	.06
7	2.1	e20	.11	1.8	e15	.07	1.9	13	.07
8	2.0	e19	.11	2.0	e16	.09	1.9	19	.10
9	2.0	e19	.10	2.0	13	.07	1.9	26	.13
10	2.1	e19	.11	2.0	e13	.07	1.8	e23	.11
11	2.1	e19	.10	2.1	e13	.08	1.8	e18	.09
12	2.0	e18	.10	2.0	e14	.08	1.9	e17	.09
13	2.1	e18	.10	2.0	e14	.08	2.1	e18	.10
14	2.6	35	.43	2.0	e14	.08	2.0	e17	.10
15	2.8	41	.40	1.9	e14	.08	1.9	e15	.08
16	2.0	e16	.09	1.9	e15	.08	2.0	e18	.10
17	1.9	e15	.08	1.9	e15	.08	2.1	e19	.11
18	2.0	e19	.11	1.8	e14	.07	2.1	e21	.13
19	2.4	25	.23	1.8	e14	.07	2.1	e19	.11
20	2.0	e17	.09	1.8	e14	.07	2.1	e18	.10
21	1.9	e16	.08	1.8	e14	.07	2.1	e18	.10
22	1.9	e15	.07	1.8	e14	.07	2.1	e17	.10
23	3.1	48	.53	1.8	e14	.07	2.1	e17	.10
24	2.0	17	.10	1.8	e14	.07	2.0	e17	.09
25	3.6	67	.82	1.8	e14	.07	2.0	e16	.09
26	2.4	e22	.14	1.8	e15	.07	2.0	e16	.09
27	2.0	e17	.09	1.8	e14	.07	2.0	e15	.08
28	1.9	e16	.08	1.8	e14	.07	2.3	e38	.34
29	1.9	e15	.08	1.7	e15	.07	2.1	e24	.14
30	2.2	e44	.43	1.9	e20	.11	2.0	e18	.10
31	1.8	e16	.08	---	---	---	2.0	e18	.09
TOTAL	67.4	---	5.37	58.0	---	3.11	61.3	---	3.12

e Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	2.0	e17	.09	2.3	e21	.13	2.1	e24	.13
2	2.0	e17	.09	2.3	e21	.13	2.1	e24	.14
3	2.0	e17	.09	2.3	e21	.13	2.1	e25	.14
4	2.1	e19	.11	2.3	e21	.13	2.1	e25	.14
5	2.0	e17	.09	2.4	e21	.14	2.2	e26	.16
6	2.1	e16	.09	2.4	e21	.14	2.0	e26	.15
7	2.2	e16	.09	2.4	e22	.14	2.0	e27	.15
8	2.1	e15	.09	2.4	e22	.14	2.0	e27	.15
9	2.0	e15	.08	2.5	e22	.15	2.1	e28	.16
10	2.0	e15	.08	2.6	e22	.15	2.1	e29	.16
11	2.0	e14	.08	2.5	e22	.15	2.1	e29	.17
12	1.9	e14	.07	4.7	91	4.6	2.0	e30	.16
13	2.0	e18	.10	4.8	58	1.0	2.0	e31	.16
14	2.0	e15	.08	12	352	19	2.0	e31	.17
15	2.0	e15	.08	11	413	51	2.0	e32	.17
16	1.9	e15	.08	8.8	162	6.9	2.0	e33	.17
17	2.4	e24	.18	4.3	57	.73	2.0	e33	.18
18	3.0	e41	.35	3.1	e41	.34	2.0	e34	.18
19	2.6	e23	.17	2.8	e34	.26	2.0	e35	.18
20	2.4	e22	.15	2.7	e29	.21	2.0	e36	.19
21	2.2	e18	.11	2.7	e24	.17	2.0	e36	.20
22	2.0	e17	.09	2.5	e20	.14	2.0	53	.28
23	2.1	e16	.09	2.5	e17	.11	5.7	159	3.6
24	5.4	45	.99	2.3	15	.09	18	652	44
25	4.8	e31	.51	2.8	e35	.33	4.9	98	1.6
26	2.9	30	.23	2.4	e23	.15	2.9	e29	.23
27	2.4	e40	.26	2.2	e23	.14	2.6	e27	.19
28	2.3	e35	.22	2.1	e23	.13	2.6	e26	.18
29	2.3	e30	.19	---	---	---	3.0	e36	.34
30	2.3	e26	.16	---	---	---	2.5	e26	.18
31	2.2	e23	.14	---	---	---	2.5	e25	.17
TOTAL	73.6	---	5.23	100.1	---	86.83	89.6	---	54.18

e Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	2.4	e24	.16	2.3	e21	.13	2.0	e18	.09
2	2.4	e23	.15	2.2	e20	.12	1.9	e18	.09
3	2.4	e22	.15	2.2	e19	.11	1.9	e18	.09
4	2.4	e21	.14	2.4	e24	.16	1.9	e18	.09
5	2.4	e21	.14	2.3	e21	.13	1.9	e18	.09
6	2.4	e21	.14	2.2	e21	.13	1.8	e18	.09
7	2.4	e21	.13	2.2	e21	.12	1.8	e18	.09
8	2.4	e23	.15	2.4	e43	.44	1.8	e18	.09
9	3.5	e53	.97	2.2	e19	.11	1.9	e18	.09
10	2.4	e22	.14	2.2	e19	.11	1.8	e18	.09
11	2.2	e21	.12	2.0	e19	.10	1.8	e18	.09
12	2.2	e20	.12	2.0	e18	.10	1.8	e18	.09
13	2.2	e20	.12	2.1	e18	.10	1.7	e19	.08
14	2.2	e20	.12	2.0	e18	.10	1.8	e19	.09
15	2.2	e20	.12	2.0	e18	.10	1.9	e19	.10
16	2.2	e19	.11	2.0	e18	.10	2.1	e19	.11
17	2.8	e41	.49	2.0	e18	.10	2.2	e19	.11
18	2.6	e31	.25	2.1	e18	.10	2.3	e31	.21
19	2.3	e23	.14	2.1	e18	.10	2.0	e26	.15
20	2.2	e22	.13	2.0	e17	.09	1.9	20	.10
21	2.1	e21	.12	2.0	e17	.09	2.0	19	.10
22	2.1	e20	.12	2.0	e17	.09	2.1	e19	.11
23	2.1	e20	.12	2.2	e22	.14	2.1	10	.06
24	2.2	e19	.11	2.0	e18	.10	2.1	10	.06
25	2.2	e19	.11	2.1	e20	.12	3.1	e57	.92
26	2.1	e19	.11	2.1	e19	.11	2.4	e19	.13
27	2.1	e18	.10	2.0	e17	.09	2.3	e14	.09
28	3.4	107	1.8	2.0	e17	.09	2.3	11	.06
29	2.4	e23	.15	2.0	e17	.09	2.2	9	.05
30	2.3	e22	.14	2.0	e17	.09	2.2	8	.05
31	---	---	---	2.0	e17	.09	---	---	---
TOTAL	71.2	---	6.87	65.3	---	3.65	61.0	---	3.66

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	2.2	10	.06	2.0	15	.08	2.1	16	.09
2	2.1	e13	.08	1.9	12	.06	2.1	10	.06
3	2.1	e17	.10	1.9	12	.06	2.0	e8	.04
4	2.1	e21	.12	1.9	17	.09	2.0	e6	.03
5	2.2	17	.10	1.9	13	.07	1.9	5	.03
6	2.2	11	.07	2.0	11	.06	1.9	8	.04
7	2.2	9	.06	1.9	e11	.06	1.9	9	.05
8	2.2	12	.07	1.9	11	.06	2.2	30	.18
9	2.2	23	.14	1.9	10	.05	2.1	16	.09
10	2.2	17	.11	1.9	10	.05	1.9	32	.17
11	2.2	11	.06	1.9	e13	.07	2.0	53	.28
12	2.2	12	.07	2.3	33	.25	2.0	21	.12
13	2.3	20	.12	1.9	22	.11	2.2	13	.08
14	2.2	16	.10	1.8	10	.05	2.2	11	.06
15	2.4	e25	.18	1.8	11	.05	2.1	11	.06
16	2.2	15	.09	1.8	13	.06	2.0	10	.05
17	2.1	13	.08	1.7	23	.11	2.0	13	.07
18	2.2	13	.07	1.8	9	.05	3.4	59	.54
19	2.1	13	.08	1.9	10	.06	2.3	19	.13
20	2.1	e13	.07	1.9	11	.06	2.1	11	.06
21	2.1	13	.07	1.9	10	.05	1.9	12	.06
22	2.1	15	.09	1.9	11	.06	2.0	16	.09
23	2.1	15	.08	2.0	13	.07	2.3	23	.14
24	2.7	52	.49	2.0	11	.06	2.1	e20	.12
25	2.1	29	.16	2.0	12	.06	2.1	e16	.09
26	1.9	12	.06	2.0	11	.06	2.1	13	.08
27	1.9	13	.07	2.0	11	.06	2.1	19	.11
28	1.9	13	.07	2.0	11	.06	2.1	e19	.10
29	1.9	13	.07	2.0	11	.06	2.0	e15	.08
30	1.9	12	.06	1.9	33	.17	2.1	13	.07
31	1.9	12	.06	3.0	146	1.9	---	---	---
TOTAL	66.2	---	3.11	60.7	---	4.12	63.2	---	3.17
YEAR	837.6		182.42						

e Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	2.0	9	.05	1.8	9	.04	2.0	e15	.09
2	2.2	e15	.12	1.9	11	.06	2.0	12	.06
3	2.0	8	.05	1.9	23	.12	1.9	11	.06
4	2.0	e9	.05	1.8	e25	.13	2.0	13	.07
5	2.0	e10	.05	1.8	e20	.10	2.0	17	.09
6	2.0	11	.06	1.8	16	.08	1.9	17	.09
7	2.0	e14	.08	1.8	24	.11	2.1	19	.11
8	1.9	11	.06	e1.7	e17	.08	2.1	15	.09
9	1.8	e11	.05	1.7	13	.06	2.1	e20	.12
10	1.8	11	.05	1.7	14	.06	2.1	e15	.09
11	1.9	e11	.05	1.7	14	.07	2.0	e13	.07
12	1.7	e10	.05	1.7	30	.14	1.9	12	.06
13	1.7	e10	.04	1.8	38	.18	1.9	e14	.08
14	1.7	9	.04	1.8	23	.11	1.9	17	.09
15	3.1	75	2.4	1.9	e44	.23	1.9	13	.07
16	5.3	e153	18	1.8	20	.10	1.9	12	.06
17	2.3	25	.17	1.8	e15	.07	2.0	e13	.07
18	2.1	e17	.10	1.8	e15	.07	1.9	11	.06
19	1.6	11	.05	1.8	e15	.07	1.9	e17	.09
20	1.6	e11	.05	1.8	15	.07	1.9	12	.06
21	1.6	12	.05	1.8	e15	.07	1.8	13	.06
22	1.7	13	.06	1.8	e15	.07	1.9	13	.06
23	1.7	19	.09	1.9	e14	.07	1.9	e14	.08
24	1.8	e18	.09	1.9	e14	.07	1.8	11	.06
25	2.0	15	.08	1.9	14	.07	1.9	11	.05
26	2.2	e20	.13	1.9	e15	.08	1.9	e12	.06
27	2.0	10	.05	1.9	e16	.08	1.8	e14	.07
28	2.0	e8	.05	1.9	e18	.09	1.9	14	.07
29	2.0	e8	.05	1.9	20	.10	1.9	13	.07
30	1.8	e9	.04	1.9	11	.05	1.8	14	.07
31	1.8	9	.04	---	---	---	1.9	e14	.07
TOTAL	63.3	---	22.30	54.6	---	2.70	59.9	---	2.30

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	1.8	e14	.07	2.4	19	.12	2.6	34	.29
2	1.8	e14	.07	2.3	26	.16	2.6	29	.26
3	1.8	12	.06	2.3	20	.13	2.4	5	.03
4	1.9	10	.05	2.2	21	.13	2.3	4	.03
5	1.9	e22	.11	2.9	33	.34	2.3	25	.17
6	1.8	19	.10	2.2	10	.06	2.1	6	.03
7	1.8	e20	.10	2.1	11	.06	2.0	5	.03
8	1.8	e20	.10	2.1	13	.07	1.9	6	.03
9	1.8	e21	.10	2.1	13	.07	1.9	5	.03
10	1.8	16	.08	2.2	e18	.12	1.9	7	.03
11	1.9	e12	.07	1.9	13	.07	1.9	11	.06
12	1.9	15	.08	1.9	9	.05	2.3	18	.13
13	1.8	13	.07	2.8	19	.22	1.9	13	.07
14	2.4	40	.50	2.7	13	.12	1.9	12	.06
15	2.1	e20	.12	1.9	7	.04	1.9	12	.06
16	1.9	11	.06	1.9	e10	.05	2.1	e18	.12
17	1.9	11	.06	1.9	8	.04	2.0	e13	.08
18	1.8	e11	.06	2.5	26	.24	1.8	7	.04
19	1.9	e11	.06	2.2	8	.05	1.8	2	.01
20	1.9	e11	.06	2.2	6	.03	e1.8	e2	.01
21	1.8	e11	.06	2.1	e7	.04	1.8	e7	.03
22	1.8	e11	.06	2.1	8	.04	e1.9	e12	.06
23	1.8	e11	.06	2.1	6	.04	e1.9	e14	.08
24	1.8	e11	.05	2.3	e17	.13	1.9	3	.02
25	1.8	e11	.05	3.4	25	.59	1.9	e10	.05
26	1.9	11	.06	2.3	7	.04	1.9	e6	.03
27	2.3	e20	.13	5.2	31	1.5	2.0	e15	.08
28	3.3	e34	.47	3.1	e18	.16	1.9	e11	.06
29	2.1	14	.08	---	---	---	2.1	e15	.09
30	2.2	15	.09	---	---	---	1.9	3	.02
31	2.2	16	.10	---	---	---	1.9	3	.02
TOTAL	60.7	---	3.19	67.3	---	4.71	62.5	---	2.11

e Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1.8	3	.02	2.0	e8	.04	1.9	e12	.06
2	1.8	e6	.03	1.9	8	.04	1.9	10	.05
3	2.1	e27	.17	1.9	e7	.04	2.0	e11	.06
4	2.2	e21	.13	1.9	8	.04	1.9	14	.07
5	2.1	e17	.10	2.0	10	.05	1.9	15	.08
6	2.0	13	.07	2.6	e20	.16	2.0	12	.06
7	1.9	6	.03	1.9	9	.05	2.2	35	.25
8	1.9	2	.01	1.9	e9	.04	e1.9	e11	.06
9	1.9	2	.01	1.9	e8	.04	1.9	9	.05
10	1.9	2	.01	1.8	9	.04	1.9	9	.04
11	1.8	4	.02	1.8	11	.05	1.9	e8	.04
12	1.8	14	.07	1.8	11	.05	1.9	e7	.04
13	1.7	7	.03	1.8	e11	.05	1.9	e6	.03
14	1.8	7	.03	1.8	e11	.05	1.8	e6	.03
15	1.8	e6	.03	1.8	11	.05	1.8	5	.03
16	1.7	e5	.03	1.9	e11	.06	1.8	e5	.03
17	1.8	5	.03	1.9	8	.04	1.8	e6	.03
18	1.7	e6	.03	1.9	e11	.06	1.8	e6	.03
19	1.8	e6	.03	1.8	11	.05	1.8	e6	.03
20	1.8	8	.04	1.8	e9	.04	1.8	e7	.03
21	1.8	13	.07	1.8	9	.04	1.8	8	.04
22	1.9	16	.08	1.9	e10	.05	2.9	29	.39
23	2.0	6	.03	1.8	9	.04	2.4	18	.14
24	3.1	31	.48	1.8	9	.04	1.9	11	.06
25	3.4	22	.21	1.8	7	.04	1.9	e9	.05
26	2.2	11	.07	1.8	e7	.04	1.9	8	.04
27	2.1	e14	.08	1.8	e8	.04	1.8	7	.03
28	2.1	11	.07	1.8	8	.04	1.8	e7	.04
29	2.0	8	.04	1.9	e11	.06	1.8	e8	.04
30	2.0	e8	.04	1.9	21	.11	1.8	8	.04
31	---	---	---	1.9	16	.08	---	---	---
TOTAL	59.9	---	2.09	58.3	---	1.62	57.8	---	1.97

e Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	1.8	10	.05	1.8	13	.06	1.6	2	.01
2	1.8	e11	.05	1.8	e12	.06	1.6	2	.01
3	1.8	e16	.08	1.7	e11	.05	1.6	3	.02
4	2.0	51	.34	1.7	e10	.05	1.6	7	.03
5	1.8	8	.04	1.7	e10	.04	1.9	42	.26
6	1.8	e10	.05	1.7	9	.04	1.7	2	.01
7	1.8	14	.07	1.7	13	.06	1.6	2	.01
8	1.8	e13	.06	1.7	e11	.05	1.6	2	.01
9	1.7	e13	.06	1.7	e14	.07	1.6	4	.02
10	1.7	e12	.06	1.7	17	.08	1.7	16	.10
11	1.7	12	.05	1.8	e17	.09	1.6	4	.02
12	1.9	e12	.06	1.8	e11	.06	1.6	2	.01
13	1.8	e10	.05	1.9	e15	.09	1.6	2	.01
14	1.8	9	.04	1.8	27	.16	1.6	2	.01
15	1.8	e10	.05	1.8	e16	.08	1.6	3	.01
16	1.8	e10	.05	1.7	e15	.07	1.6	6	.03
17	1.8	12	.06	1.8	e13	.07	1.6	6	.03
18	1.8	16	.08	1.7	e11	.05	1.6	e7	.03
19	1.9	e16	.08	1.8	e16	.08	1.6	e8	.03
20	2.0	e15	.08	1.7	25	.12	1.6	e8	.04
21	1.9	e15	.08	1.7	12	.06	1.6	e9	.04
22	1.8	15	.08	1.6	9	.04	1.6	e10	.04
23	1.8	13	.07	e2.2	e18	.30	1.6	e11	.05
24	1.8	e16	.08	1.9	e13	.07	1.6	e12	.05
25	1.8	17	.08	1.8	7	.04	1.6	e14	.06
26	1.8	14	.07	1.8	9	.04	1.6	e15	.07
27	1.8	18	.09	1.8	5	.02	1.6	14	.06
28	1.8	19	.09	1.7	2	.01	1.6	16	.07
29	1.8	16	.08	1.7	2	.01	1.9	40	.29
30	1.8	20	.10	1.7	2	.01	1.9	19	.10
31	1.8	17	.08	1.7	2	.01	---	---	---
TOTAL	56.2	---	2.36	54.6	---	2.04	49.1	---	1.53
YEAR	704.2		48.92						

e Estimated

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	1.7	10	.05	5.3	31	1.5	4.8	34	.68
2	1.7	e9	.04	1.8	e21	.10	2.2	e27	.16
3	1.7	e8	.04	2.2	31	.24	1.9	e23	.12
4	1.7	8	.04	2.1	e25	.14	1.7	e20	.09
5	1.7	e8	.04	2.0	e24	.13	1.7	18	.08
6	1.7	8	.04	2.0	e23	.13	1.7	e19	.09
7	2.2	40	.48	2.0	e23	.12	1.8	e21	.10
8	2.3	13	.10	2.7	35	.32	1.8	e21	.10
9	1.8	e7	.03	2.8	e29	.25	1.8	e21	.10
10	1.8	5	.02	2.1	e24	.14	1.7	e21	.10
11	1.7	7	.03	2.0	e23	.13	1.8	e21	.10
12	1.6	8	.04	2.0	e23	.13	1.8	e21	.10
13	1.6	8	.03	2.8	e30	.24	1.8	e21	.10
14	1.6	e8	.03	2.5	e27	.19	1.7	e21	.10
15	1.6	e10	.04	2.2	e27	.16	1.7	e21	.09
16	1.6	e11	.05	2.1	e24	.14	1.6	e20	.09
17	1.6	e13	.06	2.0	e23	.13	1.7	e20	.09
18	1.6	e16	.07	1.9	e23	.12	1.7	e20	.10
19	1.6	e18	.08	1.9	e22	.11	1.7	e20	.09
20	1.7	e20	.10	1.9	e22	.11	1.7	e20	.09
21	1.7	e20	.09	1.8	e21	.10	1.6	e20	.09
22	1.6	e20	.09	1.8	e21	.10	1.7	e20	.09
23	1.6	e20	.09	1.7	e21	.10	1.6	e20	.09
24	1.6	e20	.09	1.8	e21	.10	1.7	e20	.09
25	1.7	e20	.09	1.7	e21	.10	2.1	28	.24
26	1.6	e19	.08	1.8	e21	.10	1.8	e21	.10
27	1.6	e19	.08	1.9	e22	.11	1.8	e21	.10
28	1.8	e20	.13	1.8	e21	.10	1.8	e21	.10
29	1.7	e20	.09	1.8	e21	.10	1.8	e21	.10
30	1.7	e20	.09	2.1	e24	.14	3.3	38	.54
31	2.2	e25	.17	---	---	---	2.9	24	.21
TOTAL	53.3	---	2.50	64.5	---	5.58	60.4	---	4.32

e Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	2.0	e22	.12	1.8	e18	.09	2.2	e22	.13
2	2.0	e22	.12	1.8	e16	.08	e3.3	e30	.29
3	2.0	e22	.12	1.8	e14	.07	e6.2	e34	.99
4	2.3	e25	.17	1.8	e13	.06	e2.1	e13	.07
5	2.5	27	.19	e1.8	e11	.05	e2.2	e9	.05
6	2.1	e24	.14	e2.0	e10	.05	2.0	e16	.09
7	2.7	30	.26	e2.7	e9	.07	1.9	26	.13
8	2.5	e30	.30	e2.1	e15	.09	1.9	e28	.14
9	2.0	e24	.18	1.9	e26	.13	2.0	e27	.14
10	2.3	28	.25	1.8	e25	.12	2.0	e27	.14
11	1.8	e21	.10	1.8	e25	.12	2.0	e26	.15
12	1.7	e21	.10	1.8	e25	.12	2.1	e26	.15
13	1.7	e20	.09	1.8	e24	.12	2.1	e26	.15
14	1.7	e20	.09	1.8	e24	.12	2.1	e25	.14
15	1.6	e20	.09	1.8	e24	.11	2.1	e25	.14
16	1.7	e20	.09	1.8	e23	.11	2.1	e24	.14
17	1.7	e19	.08	1.8	e23	.11	2.1	e24	.14
18	1.8	22	.11	1.8	e23	.11	2.2	e24	.14
19	1.8	e21	.11	1.8	e23	.11	2.1	e23	.13
20	1.7	e21	.10	1.8	e22	.11	2.1	e22	.13
21	1.7	e20	.10	1.8	e22	.11	2.1	e20	.11
22	1.7	e20	.10	1.8	e22	.11	2.0	e19	.10
23	1.9	e22	.11	1.8	e21	.11	2.0	e17	.09
24	e2.7	e50	.47	1.9	e22	.11	2.0	e16	.09
25	e15	e60	8.6	1.8	e21	.10	1.9	15	.08
26	2.8	e30	.23	1.8	e21	.10	2.0	e16	.09
27	e2.9	e31	.27	e2.9	e24	.25	2.0	e18	.10
28	2.6	e22	.16	e2.7	e15	.12	2.0	e19	.11
29	2.2	e10	.06	2.2	e17	.10	2.0	e21	.12
30	2.0	21	.13	---	---	---	2.1	e23	.13
31	1.8	e20	.10	---	---	---	2.7	30	.35
TOTAL	76.9	---	13.14	56.2	---	3.06	69.6	---	4.95

e Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	2.1	e25	.14	1.8	e20	.10	1.8	e15	.07
2	2.2	e24	.14	1.8	e19	.09	1.8	e16	.07
3	2.1	e24	.14	1.8	e18	.09	1.8	e17	.08
4	e2.2	e25	.15	1.8	e16	.08	1.8	e17	.08
5	2.2	e25	.15	1.8	e15	.07	1.8	e18	.09
6	2.2	e25	.14	1.8	e14	.07	1.8	e19	.09
7	2.2	e25	.15	1.8	e13	.06	1.8	e20	.10
8	2.2	e25	.14	1.9	e12	.06	1.8	e20	.10
9	2.2	e24	.14	1.9	e11	.06	e6.0	e41	2.3
10	2.2	e24	.14	1.8	e10	.05	2.1	e23	.14
11	2.3	e24	.15	1.8	e9	.05	2.1	24	.14
12	2.3	32	.22	1.8	e9	.04	1.8	e21	.11
13	2.1	e30	.17	1.8	e8	.04	1.8	e21	.11
14	2.1	e29	.17	1.8	e8	.04	1.8	e21	.10
15	2.0	e29	.16	1.8	7	.04	1.8	e21	.10
16	2.0	e28	.15	1.8	e8	.04	1.8	e21	.10
17	2.0	e27	.15	1.8	e9	.04	1.8	e21	.11
18	2.0	e27	.14	1.8	e10	.05	2.0	e23	.14
19	1.9	e26	.13	1.8	e11	.06	1.8	e20	.10
20	1.9	e25	.13	1.9	e13	.06	1.8	e20	.10
21	1.9	e25	.13	1.9	e14	.07	1.7	e20	.09
22	1.8	e24	.12	1.8	e16	.08	1.8	e20	.10
23	1.8	e24	.12	1.8	e18	.09	2.6	28	.38
24	1.8	e23	.11	1.9	e21	.11	1.8	e21	.10
25	1.8	e22	.11	1.9	e21	.11	1.7	e21	.10
26	1.8	e22	.11	2.0	e23	.12	1.7	e21	.09
27	1.8	e21	.10	1.9	e22	.11	1.7	e20	.09
28	3.4	31	.43	1.9	e22	.11	1.7	e20	.09
29	1.9	e24	.12	1.9	e18	.09	2.0	27	.16
30	1.9	e22	.11	1.8	14	.07	1.8	e21	.10
31	---	---	---	1.8	e15	.07	---	---	---
TOTAL	62.3	---	4.46	56.9	---	2.22	59.5	---	5.53

e Estimated

HAWAII, ISLAND OF OAHU

16273950 SOUTH FORK KAPUNAHALA STREAM AT KANEOHE--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	1.7	e20	.09	1.7	e19	.09	e3.1	e31	.26
2	1.7	e20	.09	1.7	e20	.09	e2.6	e30	.21
3	1.7	e20	.09	1.7	e20	.09	e2.1	e30	.17
4	1.7	e19	.09	1.7	e20	.09	e1.8	e29	.14
5	2.1	28	.22	1.7	e20	.09	e2.0	e29	.16
6	2.1	e24	.19	1.7	e20	.09	e1.8	e28	.14
7	1.8	e21	.10	1.7	e20	.09	e1.9	e28	.14
8	1.7	e20	.09	1.7	e20	.09	e1.7	e27	.12
9	1.7	e19	.09	1.7	e20	.09	e1.6	e27	.12
10	1.7	e19	.09	1.7	e20	.10	e1.7	e27	.12
11	1.7	e18	.08	1.8	e21	.10	e1.7	e26	.12
12	1.7	e17	.08	1.7	e22	.10	e1.7	e26	.12
13	1.7	e17	.08	1.7	e24	.11	e1.7	e25	.11
14	1.6	e16	.07	1.7	e26	.12	e1.7	e25	.11
15	1.7	e16	.07	1.7	e28	.13	e1.7	e24	.11
16	1.6	e15	.07	1.7	e31	.14	e1.7	e24	.11
17	1.6	e15	.06	1.7	e33	.15	e1.7	e24	.11
18	1.7	e16	.07	1.7	e36	.17	e1.7	e23	.11
19	1.7	e22	.10	1.7	e39	.18	e1.7	e23	.11
20	1.7	e19	.09	e1.6	e42	.18	e1.6	e23	.10
21	1.7	e19	.09	e1.6	e42	.18	e1.6	e22	.10
22	1.7	e20	.09	e1.6	e40	.17	e1.6	e22	.10
23	1.6	e19	.08	e1.6	e39	.17	e1.6	e21	.09
24	1.6	e19	.08	e1.6	e37	.16	e1.6	e21	.09
25	1.6	e19	.08	e1.6	e36	.15	e1.6	e21	.09
26	1.7	e20	.09	e1.6	e34	.15	e1.6	e20	.09
27	e2.0	e31	.19	e1.6	e33	.14	e1.6	e20	.09
28	1.7	e21	.10	e1.6	e32	.14	e1.6	e20	.09
29	1.7	e20	.09	e1.6	e31	.13	e1.6	e19	.08
30	1.7	e20	.09	e2.9	e30	.23	e1.6	e19	.08
31	1.6	e20	.09	e5.0	e79	1.1	---	---	---
TOTAL	53.2	---	2.98	56.3	---	5.01	53.2	---	3.59
YEAR	722.3		57.34						

e Estimated

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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.

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 April 28, 1914, nonrecording gage and April 28, 1914 to October 25, 1919, water-stage recorder, at same site at different datums.

REMARKS.--Records computed by Ben Shimizu. Records poor. Honolulu Board of Water Supply has diverted ground water from tunnel in drainage area since 1943.

AVERAGE DISCHARGE (since diversion from tunnel began).--49 years (water years 1944-77, 1983-97), 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, September 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)
Mar. 17	0930	*754	*3.54	No other peaks greater than base discharge.			

Minimum discharge, 1.2 ft^3/s, for several days in October.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.3	2.0	1.8	2.2	1.8	2.7	2.6	2.1	2.1	1.7	1.7
2	1.4	2.6	2.0	1.8	2.0	1.8	12	2.6	2.2	2.1	1.7	1.8
3	1.4	2.3	2.2	31	1.9	1.7	10	2.6	2.2	2.0	1.7	1.8
4	1.3	1.6	2.3	7.7	1.9	2.0	4.4	2.7	2.1	2.1	1.7	1.8
5	1.3	5.3	2.3	4.8	1.9	3.0	3.4	4.8	2.1	2.0	1.7	1.7
6	1.3	3.2	2.1	3.2	1.8	2.5	3.3	4.1	2.1	2.0	1.8	1.7
7	1.3	2.0	2.2	2.5	1.9	2.2	2.9	3.4	2.1	2.0	1.8	1.6
8	1.3	8.4	2.2	e2.2	1.8	2.1	2.8	7.8	2.0	1.9	1.8	1.7
9	1.3	4.5	2.1	e2.2	1.8	2.0	2.6	3.5	2.0	2.7	1.8	1.7
10	1.3	2.8	2.0	e2.1	1.8	2.0	5.2	2.9	2.1	2.8	1.8	1.7
11	1.3	2.0	1.9	e2.0	1.8	2.9	3.4	3.0	2.1	2.4	1.8	1.7
12	1.3	22	1.9	e2.4	1.8	2.1	2.4	3.4	2.3	2.1	1.8	1.7
13	1.3	23	1.9	e2.2	1.7	3.8	3.6	3.1	2.4	2.0	1.9	1.7
14	1.3	29	1.9	e2.1	1.7	2.6	2.3	8.0	2.4	2.0	1.8	1.7
15	1.3	12	1.8	e2.0	1.7	4.0	2.1	6.4	2.3	2.0	1.9	1.7
16	1.3	13	1.7	2.1	1.8	2.5	2.0	3.3	2.2	2.1	2.2	1.7
17	1.3	11	1.7	2.1	1.8	24	1.9	2.7	2.1	2.1	3.2	1.7
18	1.3	6.5	1.6	2.0	1.7	5.3	1.9	2.5	2.1	2.0	2.2	1.7
19	1.4	4.2	1.6	8.4	1.7	3.7	1.9	2.3	2.0	2.9	2.0	1.7
20	1.4	3.3	1.6	5.2	1.7	3.2	1.9	2.2	2.0	2.2	1.9	1.9
21	1.3	2.9	1.7	4.2	1.9	2.9	2.1	2.2	2.1	2.1	1.9	7.6
22	1.3	2.6	1.6	3.2	2.9	2.8	2.1	2.3	2.0	3.2	1.8	2.9
23	1.3	2.5	1.7	2.5	1.8	17	2.2	2.2	2.1	2.4	1.8	2.1
24	1.2	3.5	1.7	2.2	1.7	6.1	2.5	2.2	2.1	2.4	1.7	1.9
25	1.2	2.8	1.6	2.1	1.7	5.8	2.5	2.1	2.0	2.7	1.7	1.8
26	1.2	2.4	1.8	2.0	1.7	4.1	3.2	2.1	2.3	2.3	1.9	1.7
27	1.2	2.3	3.1	2.0	1.8	3.4	4.4	2.1	2.3	2.1	1.8	1.7
28	1.2	2.2	2.5	1.9	1.7	3.3	3.1	2.1	2.2	2.0	1.8	1.8
29	1.3	2.1	1.9	2.1	---	3.2	2.8	2.1	2.3	1.8	1.8	1.7
30	1.3	2.1	1.8	2.2	---	2.9	2.7	2.1	2.2	1.8	1.7	1.7
31	1.3	---	1.9	2.4	---	2.8	---	2.1	---	1.8	1.8	---
TOTAL	40.3	185.4	60.3	116.6	51.6	129.5	100.3	97.5	64.5	68.1	57.9	59.3
MEAN	1.30	6.18	1.95	3.76	1.84	4.18	3.34	3.15	2.15	2.20	1.87	1.98
MAX	1.4	29	3.1	31	2.9	24	12	8.0	2.4	3.2	3.2	7.6
MIN	1.2	1.3	1.6	1.8	1.7	1.7	1.9	2.1	2.0	1.8	1.7	1.6
AC-FT	80	368	120	231	102	257	199	193	128	135	115	118

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1997, BY WATER YEAR (WY)

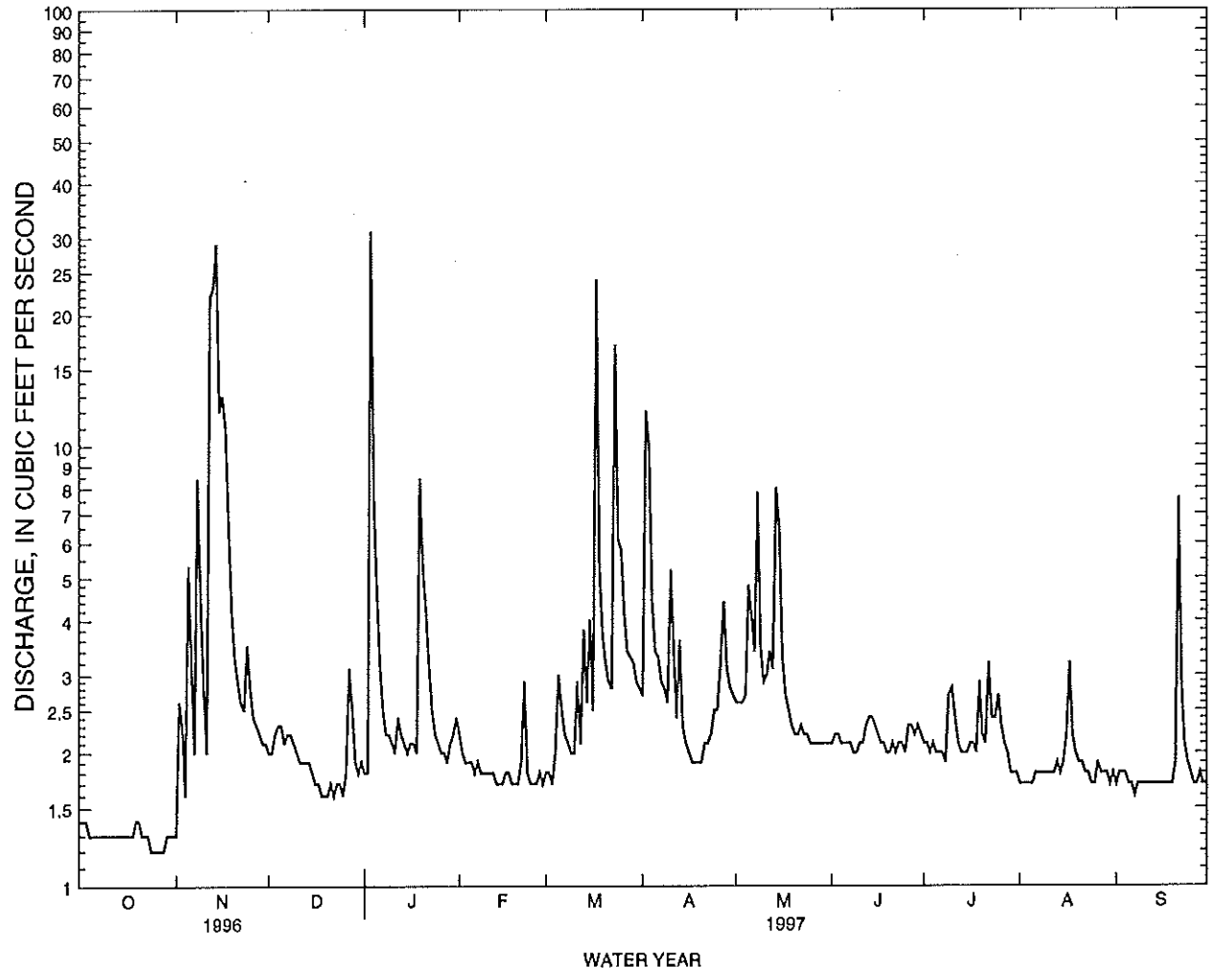
MEAN	1.92	2.81	2.69	2.65	2.52	3.32	2.56	2.35	1.40	1.57	1.59	1.46
MAX	11.6	15.7	9.72	9.68	10.7	16.5	13.0	27.3	2.34	3.25	4.24	3.62
(WY)	1959	1966	1988	1949	1955	1958	1989	1965	1989	1989	1967	1992
MIN	.32	.33	.64	.94	.86	.60	.50	.51	.38	.41	.56	.36
(WY)	1946	1946	1960	1977	1963	1946	1946	1961	1946	1945	1961	1945

e Estimated

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1944 - 1997	
ANNUAL TOTAL	846.1		1031.3			
ANNUAL MEAN	2.31		2.83		2.23	
HIGHEST ANNUAL MEAN					4.82	1965
LOWEST ANNUAL MEAN					.67	1946
HIGHEST DAILY MEAN	48	Jan 25	31	Jan 3	620	May 2 1965
LOWEST DAILY MEAN	1.2	May 14	1.2	Oct 24	.29	Jul 13 1945
ANNUAL SEVEN-DAY MINIMUM	1.2	May 13	1.2	Oct 22	.29	Oct 19 1945
ANNUAL RUNOFF (AC-FT)	1680		2050		1620	
10 PERCENT EXCEEDS	2.8		3.7		2.7	
50 PERCENT EXCEEDS	1.6		2.1		1.5	
90 PERCENT EXCEEDS	1.3		1.6		.87	



HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

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.--Samples for water years 1995-97 with concentrations of about 1,000 mg/L and higher were analyzed using method 2540D (Standard Methods, 19th edition, 1995) for total suspended solids.

Water year 1994: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records good.

Water year 1995: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records good except for estimated days which are poor.

Water year 1996: Water-quality samples were collected at this site. Sediment records computed by C.W. Yeung. Records fair.

Water year 1997: Water-quality samples were collected at this site. Record of "Sediment discharge, suspended (tons/day)" for water year 1997 was not completed at the time of this publication.

EXTREMES FOR PERIOD OF RECORD.--

Water year 1994:

Sediment Concentrations: Maximum daily mean 2,130 mg/L (estimated), April 8, 1989; minimum daily mean, 1 mg/L on many days in 1984, 1988-94.

Sediment Discharge: Maximum daily, 1,800 tons (estimated), April 8, 1989; minimum daily, less than 0.01 ton on many days in 1984, 1988-93.

Water year 1995:

Sediment Concentrations: Maximum daily mean 2,130 mg/L (estimated), April 8, 1989; minimum daily mean, 1 mg/L on many days in 1984, 1988-95.

Sediment Discharge: Maximum daily, 1,800 tons (estimated), April 8, 1989; minimum daily, less than 0.01 ton on many days in 1984, 1988-93.

Water year 1996:

Sediment Concentrations: Maximum daily mean 2,130 mg/L (estimated), April 8, 1989; minimum daily mean, 1 mg/L on many days in 1984, 1988-96.

Sediment Discharge: Maximum daily, 1,800 tons (estimated), April 8, 1989; minimum daily, 0.00 ton on many days in 1996.

EXTREMES FOR CURRENT YEAR.--

Water year 1994:

Sediment Concentrations: Maximum daily mean, 468 mg/L, March 24; minimum daily mean, 1 mg/L, November 17, 20, April 1, August 16.

Sediment Discharge: Maximum daily, 299 tons, February 15; minimum daily, 0.01 ton on many days.

Water year 1995:

Sediment Concentrations: Maximum daily mean, 1,020 mg/L, October 17; minimum daily mean, 1 mg/L, February 15.

Sediment Discharge: Maximum daily, 23 tons (estimated), February 27; minimum daily, 0.01 ton on many days.

Water year 1996:

Sediment Concentrations: Maximum daily mean, 717 mg/L, January 25; minimum daily mean, 1 mg/L on many days.

Sediment Discharge: Maximum daily, 527 tons, January 25; minimum daily, 0.00 ton on many days.

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT											
28...	1120	1.2	145	7.7	26.5	21.0	0.30	757	8.6	97	140
NOV											
15...	0900	12	161	7.6	23.5	22.5	2.2	752	8.7	102	--
DEC											
11...	1120	1.9	150	7.8	--	20.5	0.60	757	9.0	100	68
JAN											
15...	0940	2.0	136	7.8	22.5	20.5	0.30	754	8.9	100	110
FEB											
12...	0855	1.7	156	7.7	22.0	20.5	0.50	759	9.3	104	--
MAR											
11...	0940	16	114	7.3	22.5	20.5	67	753	9.1	102	--
APR											
14...	0925	2.3	153	7.4	22.5	20.5	0.80	756	8.9	100	140
MAY											
27...	1300	2.0	152	7.4	23.5	20.5	0.30	755	9.2	103	--
JUN											
10...	1045	2.0	152	7.6	25.0	21.0	0.37	759	8.7	98	>600
JUL											
15...	1145	2.0	151	7.6	24.0	21.0	0.90	757	8.7	98	--
AUG											
13...	1145	1.6	153	7.7	23.0	20.5	--	767	8.6	95	--
SEP											
09...	1044	1.8	150	7.8	24.5	20.5	0.23	755	8.6	96	--

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC											
11...	1120	42	8.1	5.3	12	38	0.8	0.80	47	3.8	15
JAN											
15...	0940	44	8.3	5.6	12	37	0.8	0.90	48	3.3	15
JUN											
10...	1045	45	8.5	5.7	12	36	0.8	0.83	48	3.3	15

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)
OCT											
28...	1120	--	--	--	--	--	<1	0.090	<0.20	0.010	0.01
DEC											
11...	1120	<0.10	26	100	100	0.14	1	0.090	<0.20	<0.010	--
JAN											
15...	0940	<0.10	26	102	101	0.14	4	0.120	<0.20	0.010	0.01
APR											
14...	0925	--	--	--	--	--	<1	0.080	<0.20	0.020	0.02
JUN											
10...	1045	<0.10	27	102	102	0.14	<1	0.074	<0.20	0.028	0.03

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

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)
DEC											
11...	1120	30	5.6	<1	<100	<2.0	<10	<1	<1	<1	<3.0
JAN											
15...	0940	30	<5.0	<1	<100	<2.0	<10	<1	<1	<1	<3.0
JUN											
10...	1045	30	7.8	<1	<100	<2.0	<10	<1	1	<1	<3.0

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)
DEC											
11...	<1	100	44	<1	<10	<4	<10	5.0	<0.10	<1	<10
JAN											
15...	<1	90	38	<1	<10	<4	10	5.0	0.30	<1	<10
JUN											
10...	<1	160	84	<1	<10	<4	<10	8.6	<0.10	<1	<10

DATE	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L) (00556)
DEC											
11...	<1	<1.0	<1	<1	<1	<1.0	52	<6	<10	0.40	1
JAN											
15...	<1	<1.0	<1	<1	<1	<1.0	53	<6	<10	0.50	<1
JUN											
10...	<1	<1.0	<1	<1	<1	<1.0	55	<6	<10	0.40	<1

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	DISULFOTON UNFILT RECOVER (UG/L) (39011)
DEC											
11...	1120	<0.010	<0.100	<0.030	<0.010	<0.010	<0.010	<0.030	<0.030	<0.010	--
JAN											
15...	0940	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

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

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)
DEC											
11...	<0.010	<0.010	<0.010	<0.010	<0.030	<0.030	<0.010	<0.010	<0.010	<0.030	<0.010
JAN											
15...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	METHYL PARA-THION, TOTAL (UG/L) (39600)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	SILVEX, TOTAL (UG/L) (39760)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC											
11..	<0.030	<0.010	<0.030	<0.100	<0.100	<0.100	<0.100	<0.010	<1.00	<0.030	<0.010
JAN											
15..	<0.010	<0.010	<0.010	<0.100	<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

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	1.5	7	.03	1.6	3	.01	1.4	3	.01
2	1.4	6	.02	1.5	4	.02	1.4	4	.01
3	1.4	15	.06	3.1	e20	.32	1.3	e5	.02
4	1.4	18	.07	2.9	8	.07	1.3	6	.02
5	1.4	14	.05	2.0	3	.02	1.3	6	.02
6	1.4	6	.02	1.7	4	.02	1.3	5	.02
7	1.4	5	.02	1.6	6	.02	1.3	7	.02
8	1.4	7	.03	1.8	e8	.04	1.3	4	.01
9	1.4	6	.02	1.6	3	.02	1.3	5	.02
10	1.4	9	.03	1.6	4	.02	1.3	6	.02
11	1.4	16	.06	1.5	4	.02	1.3	6	.02
12	1.4	10	.04	1.5	3	.01	1.3	4	.01
13	1.4	11	.04	1.5	2	.01	1.3	3	.01
14	1.4	4	.02	1.5	3	.01	1.4	3	.01
15	1.6	e5	.02	1.4	2	.01	1.3	4	.01
16	1.5	4	.02	1.5	2	.01	1.3	3	.01
17	1.4	4	.02	1.4	1	.01	1.4	3	.01
18	1.4	4	.02	1.4	3	.01	1.4	3	.01
19	1.4	e5	.02	1.4	3	.01	1.4	3	.01
20	1.4	e5	.02	1.4	1	.01	1.3	3	.01
21	1.3	e6	.02	1.4	2	.01	1.3	3	.01
22	1.3	e7	.03	1.4	2	.01	1.3	3	.01
23	6.2	e49	1.8	1.4	3	.01	1.3	3	.01
24	2.7	e17	.13	1.4	e2	.01	1.3	3	.01
25	4.3	28	.34	1.4	2	.01	1.3	3	.01
26	2.9	9	.08	1.4	4	.01	1.3	3	.01
27	2.0	5	.03	1.4	e3	.01	1.3	3	.01
28	1.7	7	.03	1.4	2	.01	1.3	3	.01
29	1.6	5	.02	1.4	4	.01	1.3	3	.01
30	1.6	5	.02	1.4	5	.02	1.2	4	.01
31	1.6	5	.02	---	---	---	1.2	4	.01
TOTAL	55.6	---	3.15	47.9	---	0.78	40.7	---	0.39

e Estimated

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	1.3	4	.01	1.7	8	.04	1.9	e4	.02
2	1.2	4	.01	1.6	7	.03	1.8	e4	.02
3	1.2	4	.01	1.7	5	.02	1.8	3	.02
4	1.3	4	.02	1.7	3	.01	1.7	5	.02
5	1.3	5	.02	1.6	3	.01	1.8	7	.03
6	1.2	5	.02	1.6	4	.02	1.7	11	.05
7	1.3	e5	.02	1.6	3	.01	1.6	e6	.03
8	1.3	e6	.02	1.6	3	.01	1.6	3	.01
9	1.2	e6	.02	2.3	e11	.12	1.6	6	.03
10	1.2	e7	.02	2.2	5	.03	1.6	e7	.03
11	1.2	7	.02	1.9	5	.03	1.6	8	.03
12	1.2	7	.02	9.6	e114	16	1.6	e6	.03
13	1.3	7	.02	6.9	e50	1.4	1.6	5	.02
14	1.2	6	.02	33	238	55	1.6	10	.04
15	1.2	6	.02	34	340	299	1.6	7	.03
16	1.2	8	.03	20	e150	22	1.6	12	.05
17	1.4	14	.05	6.2	e35	.60	1.6	7	.03
18	4.4	32	.42	3.8	e26	.27	1.5	4	.02
19	2.5	31	.21	4.1	e29	.66	1.5	5	.02
20	2.5	26	.17	2.9	e18	.14	1.6	e7	.03
21	2.1	14	.08	2.5	e16	.11	1.5	e7	.03
22	1.6	12	.05	2.3	e15	.09	1.6	e8	.04
23	1.6	14	.06	2.2	e14	.08	17	e114	15
24	13	e127	14	2.1	e13	.07	89	468	152
25	22	e109	16	2.7	e18	.16	19	45	3.3
26	3.9	5	.05	3.2	e19	.18	6.3	8	.14
27	2.6	3	.02	2.4	e14	.09	4.6	8	.10
28	2.2	10	.06	2.1	7	.04	3.6	11	.11
29	2.0	15	.08	---	---	---	4.9	17	.27
30	1.9	7	.04	---	---	---	3.3	11	.10
31	1.8	e8	.04	---	---	---	2.9	14	.12
TOTAL	85.3	---	31.63	159.5	---	396.22	186.6	---	171.77

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	2.6	1	.01	2.2	e15	.09	1.5	e9	.04
2	2.3	2	.01	2.1	e13	.08	1.6	e8	.03
3	2.2	3	.02	2.1	e13	.07	1.5	e8	.03
4	2.3	12	.08	2.2	e13	.08	1.6	e7	.03
5	2.1	2	.01	2.2	e12	.07	1.7	e7	.03
6	2.1	4	.02	2.1	e12	.07	1.6	e6	.03
7	2.0	13	.07	2.1	e12	.07	1.6	12	.05
8	2.0	9	.05	2.1	e12	.07	1.5	9	.04
9	5.0	e71	2.7	2.0	e9	.05	1.6	e9	.04
10	3.0	47	.39	1.9	e7	.04	1.5	e8	.04
11	2.4	8	.05	2.0	e7	.04	1.5	e8	.03
12	2.1	5	.03	1.9	e7	.04	1.5	8	.03
13	2.0	2	.01	1.9	e7	.03	1.6	8	.03
14	1.9	2	.01	1.8	e7	.03	1.6	7	.03
15	1.9	2	.01	1.8	e6	.03	1.6	5	.02
16	1.8	2	.01	1.7	e6	.03	1.6	4	.02
17	2.7	e21	.44	1.8	e6	.03	1.6	4	.02
18	2.4	42	.31	1.7	e6	.03	1.7	e6	.03
19	2.0	8	.05	1.8	e6	.03	1.8	e8	.04
20	1.9	5	.02	1.7	e6	.03	1.9	7	.04
21	1.9	6	.03	1.7	e6	.03	1.7	e15	.07
22	1.8	6	.03	1.6	e6	.03	1.6	8	.03
23	1.8	4	.02	1.7	e6	.03	1.6	12	.05
24	1.8	3	.01	1.6	e6	.02	1.6	5	.02
25	1.7	2	.01	1.6	e6	.02	4.5	50	3.5
26	1.7	4	.02	1.6	e5	.02	2.2	81	.50
27	1.7	6	.03	1.6	e5	.02	1.7	14	.07
28	8.4	72	6.4	1.5	e5	.02	1.6	8	.04
29	2.8	e20	.15	1.4	e5	.02	1.6	3	.01
30	2.3	e14	.09	1.5	e5	.02	1.6	5	.02
31	---	---	---	1.5	e5	.02	---	---	---
TOTAL	72.6	---	11.09	56.4	---	1.26	51.8	---	4.96

e Estimated

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	1.6	6	.03	1.6	5	.02	2.1	55	.32
2	1.5	7	.03	1.5	7	.03	1.9	27	.14
3	1.5	5	.02	1.4	7	.03	1.8	96	.47
4	1.5	6	.03	1.5	7	.03	1.8	45	.22
5	1.5	8	.03	1.4	10	.04	1.8	12	.06
6	1.5	9	.03	1.4	4	.01	1.7	19	.09
7	1.5	6	.03	1.4	5	.02	1.6	10	.04
8	1.5	4	.02	1.4	5	.02	1.7	23	.10
9	1.5	e5	.02	1.4	5	.02	1.6	15	.07
10	1.5	5	.02	1.5	4	.02	1.6	14	.06
11	1.5	5	.02	1.5	4	.02	1.7	13	.06
12	1.5	7	.03	1.8	e8	.05	1.8	10	.05
13	1.5	6	.03	1.6	5	.02	2.0	34	.18
14	1.6	e8	.04	1.6	4	.02	1.9	94	.48
15	1.7	8	.03	1.5	2	.01	1.8	30	.15
16	2.0	5	.03	1.5	1	.01	1.8	9	.04
17	1.9	5	.03	1.6	e4	.03	1.7	7	.03
18	1.8	e5	.02	1.5	3	.01	23	91	31
19	1.6	4	.02	1.5	3	.01	6.0	45	1.2
20	1.5	5	.02	1.5	2	.01	2.6	3	.02
21	1.5	3	.01	1.4	5	.02	2.2	6	.04
22	1.5	e4	.02	1.4	16	.06	1.9	10	.05
23	1.6	3	.01	1.5	32	.13	1.8	5	.03
24	5.0	e30	1.7	1.5	20	.08	1.7	11	.05
25	2.5	29	.18	1.5	5	.02	1.7	9	.04
26	1.8	7	.04	1.5	7	.03	1.7	7	.03
27	1.7	7	.03	1.5	12	.05	1.7	7	.03
28	1.7	3	.01	1.6	8	.04	1.8	9	.04
29	1.6	3	.01	1.5	6	.02	1.7	23	.11
30	1.6	4	.02	1.5	6	.02	1.6	15	.06
31	1.6	4	.02	6.0	93	5.1	---	---	---
TOTAL	53.8	---	2.58	51.0	---	6.00	79.7	---	35.26
YEAR	940.9		665.09						

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	1.6	6	.03	1.6	e8	.04	1.5	7	.03
2	1.8	8	.04	1.6	e8	.04	1.7	7	.03
3	1.8	4	.02	1.5	e8	.04	1.5	5	.02
4	1.7	6	.03	1.6	e8	.04	1.5	4	.02
5	1.7	7	.03	1.5	e8	.03	1.5	5	.02
6	1.6	4	.02	1.5	e8	.03	1.5	e5	.02
7	1.6	10	.04	1.5	e8	.03	1.5	e5	.02
8	1.5	6	.03	1.5	e8	.03	1.5	e6	.02
9	1.5	4	.02	1.6	e8	.04	1.5	e6	.02
10	1.5	5	.02	1.5	e8	.03	1.5	6	.02
11	1.5	6	.02	1.6	e8	.04	1.5	e5	.02
12	1.5	9	.04	1.6	e8	.03	1.5	e4	.02
13	1.6	11	.05	3.2	e17	.25	1.5	4	.02
14	1.6	7	.03	2.2	e10	.06	1.5	6	.02
15	5.9	455	9.7	2.1	e11	.08	1.5	7	.03
16	9.6	e91	7.8	1.7	e10	.05	1.5	e9	.04
17	5.6	1020	9.9	1.6	e10	.04	1.4	e11	.04
18	2.6	252	1.8	1.6	e9	.04	1.4	e14	.05
19	2.1	11	.07	1.6	e9	.04	1.4	e17	.07
20	1.9	e9	.05	1.5	e9	.04	1.4	17	.07
21	1.8	e9	.04	1.5	e9	.04	1.4	6	.02
22	1.7	e9	.04	1.5	e9	.03	1.4	4	.02
23	1.7	e9	.04	1.5	e8	.03	1.6	e5	.02
24	1.7	e9	.04	1.5	e8	.03	1.6	e6	.03
25	1.6	e9	.04	1.5	e8	.03	1.6	e7	.03
26	1.6	e9	.04	1.5	e8	.03	1.6	e8	.04
27	1.6	e9	.04	1.5	e8	.03	1.5	10	.04
28	1.6	e9	.04	1.5	e7	.03	1.6	e9	.04
29	1.6	e9	.04	1.5	e7	.03	1.5	e8	.03
30	1.6	e9	.04	1.5	e7	.03	1.5	e7	.03
31	1.6	e9	.04	---	---	---	1.5	e7	.03
TOTAL	68.3	---	30.18	49.1	---	1.33	46.6	---	0.93

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	1.5	6	.03	1.5	e3	.01	2.3	35	.23
2	1.5	5	.02	1.5	e3	.01	2.7	e28	.34
3	1.5	5	.02	1.5	e3	.01	2.2	e20	.12
4	1.6	5	.02	1.5	3	.01	1.9	20	.11
5	1.5	5	.02	1.5	e3	.01	1.9	7	.04
6	1.5	e5	.02	1.5	e3	.01	1.8	9	.04
7	1.6	e6	.02	1.5	e3	.01	1.7	e26	.12
8	1.6	e6	.03	1.5	e3	.01	1.7	30	.14
9	1.5	e6	.03	1.5	3	.01	1.6	37	.16
10	1.4	e7	.03	1.5	e3	.01	1.6	52	.23
11	1.4	7	.03	1.5	e2	.01	1.6	9	.04
12	1.5	5	.02	1.5	3	.01	1.7	7	.03
13	1.5	4	.02	1.7	8	.04	1.6	e5	.02
14	2.2	e15	.15	2.8	6	.05	1.6	5	.02
15	3.7	e67	1.4	1.8	1	.01	1.6	e11	.05
16	2.2	21	.12	1.7	e2	.01	1.4	12	.05
17	1.8	18	.09	1.6	6	.02	1.4	3	.01
18	1.6	e18	.08	1.6	e7	.03	1.5	3	.01
19	1.6	e13	.06	1.6	e9	.04	1.5	7	.03
20	1.5	e10	.04	1.5	e11	.04	1.5	6	.03
21	1.5	e8	.03	1.5	e13	.05	1.5	e10	.04
22	1.5	e6	.03	1.5	e16	.07	1.5	13	.05
23	1.5	e5	.02	1.5	e20	.08	1.5	e7	.03
24	1.5	e5	.02	1.5	24	.10	1.5	4	.02
25	1.5	e4	.02	2.7	e54	1.0	1.5	e5	.02
26	1.5	e4	.02	1.8	41	.19	1.5	e6	.03
27	1.5	3	.01	9.0	e108	23	1.9	e16	.10
28	1.7	e8	.04	6.8	52	1.0	1.7	e8	.04
29	1.7	3	.02	---	---	---	1.7	e8	.04
30	1.6	3	.01	---	---	---	1.6	e8	.03
31	1.6	e3	.01	---	---	---	1.5	e7	.03
TOTAL	51.3	---	2.48	58.6	---	25.85	52.2	---	2.25

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1.5	e7	.03	1.6	e7	.03	1.4	e6	.02
2	1.5	e7	.03	1.6	e7	.03	1.5	e6	.02
3	2.3	e17	.14	1.6	e7	.03	1.5	e6	.02
4	4.6	e44	.69	1.6	e7	.03	1.5	e6	.02
5	2.7	e18	.13	1.7	e7	.03	1.5	e6	.02
6	1.8	e11	.06	2.8	e22	.22	1.4	e6	.02
7	1.5	e7	.03	1.9	e9	.05	1.5	e6	.02
8	1.4	e7	.03	1.6	e8	.03	1.4	e6	.02
9	1.4	e7	.03	1.6	e7	.03	1.3	e6	.02
10	1.3	e7	.02	1.5	e7	.03	1.4	e5	.02
11	1.4	e6	.02	1.5	e7	.03	1.4	e5	.02
12	1.4	e6	.02	1.6	e7	.03	1.4	e5	.02
13	1.5	e6	.02	1.6	e7	.03	1.4	e5	.02
14	1.4	e6	.02	1.6	e7	.03	1.4	e5	.02
15	1.4	e6	.02	1.6	e7	.03	1.3	e5	.02
16	1.4	e6	.02	1.7	e9	.04	1.3	e5	.02
17	1.7	e6	.03	1.7	e7	.03	1.4	e5	.02
18	1.4	e5	.02	1.7	e7	.03	1.4	e5	.02
19	1.3	e5	.02	1.6	e7	.03	1.3	e5	.02
20	1.3	e5	.02	1.6	e7	.03	1.3	6	.02
21	1.3	e5	.02	1.6	e6	.03	1.4	3	.01
22	1.2	e6	.02	1.6	e6	.03	4.6	e39	.96
23	1.6	e10	.07	1.5	e6	.03	2.8	e9	.07
24	4.8	e37	2.2	1.5	e6	.02	1.9	3	.02
25	9.7	e117	3.7	1.4	e6	.02	1.6	3	.01
26	2.4	e31	.23	1.4	e6	.02	1.5	3	.01
27	1.5	e7	.03	1.4	e6	.02	1.4	2	.01
28	1.5	e7	.03	1.4	e6	.02	1.3	3	.01
29	1.6	e7	.03	1.4	e6	.02	1.3	3	.01
30	1.7	e7	.03	1.4	e6	.02	1.3	4	.01
31	---	---	---	1.4	e6	.02	---	---	---
TOTAL	61.5	---	7.76	49.7	---	1.07	47.1	---	1.52

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1994 TO SEPTEMBER 1995

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	1.3	3	.01	1.3	7	.03	1.5	3	.01
2	1.3	2	.01	1.3	3	.01	1.4	3	.01
3	1.4	6	.02	1.3	3	.01	1.4	3	.01
4	1.6	e14	.07	1.3	5	.02	1.3	3	.01
5	1.4	2	.01	1.3	6	.02	1.5	3	.01
6	1.4	2	.01	1.4	e3	.01	1.7	3	.01
7	1.3	4	.02	1.3	2	.01	1.6	3	.01
8	1.3	3	.01	1.4	e2	.01	1.7	3	.01
9	1.4	3	.01	1.6	e6	.03	1.6	3	.01
10	1.3	3	.01	1.4	e7	.03	1.5	3	.01
11	1.3	4	.01	1.4	8	.03	1.5	3	.01
12	1.3	3	.01	1.3	6	.02	1.4	3	.01
13	1.3	4	.01	1.5	e10	.04	1.3	4	.01
14	1.3	5	.02	1.4	5	.02	1.3	4	.01
15	1.3	4	.02	1.4	3	.01	1.3	4	.01
16	1.4	4	.02	1.4	11	.04	1.3	4	.02
17	1.3	5	.02	1.4	3	.01	1.4	4	.02
18	1.3	5	.02	1.3	2	.01	1.3	5	.02
19	1.5	e6	.03	1.4	3	.01	1.3	6	.02
20	2.1	e11	.07	1.3	12	.04	1.3	6	.02
21	2.2	e9	.06	1.2	2	.01	1.3	10	.03
22	1.8	4	.02	1.5	2	.01	1.3	10	.04
23	1.6	4	.02	2.6	e17	.20	1.4	5	.02
24	1.6	4	.02	1.5	3	.01	1.3	5	.02
25	1.5	3	.01	1.5	2	.01	1.3	5	.02
26	1.5	4	.02	1.6	2	.01	1.2	5	.02
27	2.0	e10	.08	1.7	2	.01	1.2	8	.03
28	2.0	e4	.02	1.8	2	.01	1.3	14	.05
29	1.7	4	.02	1.7	2	.01	1.3	14	.05
30	1.5	4	.02	1.4	2	.01	1.5	10	.04
31	1.5	4	.01	1.4	3	.01	---	---	---
TOTAL	46.7	---	0.71	45.3	---	0.71	41.7	---	0.57
YEAR	618.1		75.36						

e Estimated

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	1.5	3	.01	9.3	69	8.3	4.0	e44	1.3
2	1.4	1	.00	1.9	6	.03	2.2	6	.03
3	1.4	1	.00	1.6	6	.03	1.8	7	.04
4	1.3	1	.00	1.5	5	.02	1.6	e6	.03
5	1.2	1	.00	1.4	5	.02	1.6	e5	.02
6	1.3	1	.00	1.4	3	.01	1.6	e5	.02
7	1.5	e5	.04	1.3	3	.01	1.6	e4	.02
8	3.4	e15	.64	2.0	e8	.05	1.6	e3	.01
9	1.7	1	.00	2.8	e12	.15	1.6	3	.01
10	1.4	1	.00	1.9	2	.01	1.5	e3	.01
11	1.4	1	.00	1.6	4	.02	1.5	e2	.01
12	1.4	1	.00	1.5	5	.02	1.5	e2	.01
13	1.3	1	.01	10	30	1.6	1.5	e2	.01
14	1.3	4	.01	3.8	e16	.17	1.5	2	.01
15	1.3	3	.01	3.1	e12	.10	1.5	e2	.01
16	1.3	1	.01	2.3	e8	.05	1.5	e2	.01
17	1.3	3	.01	2.0	e7	.04	1.5	e2	.01
18	1.2	3	.01	1.8	e5	.03	1.5	2	.01
19	1.2	9	.03	1.7	e5	.02	1.5	e2	.01
20	1.3	4	.01	1.7	e4	.02	1.4	e2	.01
21	1.3	4	.01	1.6	3	.01	1.4	e2	.01
22	1.3	4	.01	1.6	e3	.01	1.4	2	.01
23	1.3	2	.01	1.6	e3	.01	1.4	e3	.01
24	1.3	e2	.01	1.6	e2	.01	1.5	2	.01
25	1.3	e2	.01	1.5	2	.01	1.8	e3	.02
26	1.3	2	.01	1.5	e2	.01	1.9	e3	.01
27	1.3	2	.01	1.5	e4	.02	1.7	2	.01
28	2.8	15	.73	1.5	e5	.02	1.7	2	.01
29	2.1	7	.05	1.5	5	.02	1.9	5	.02
30	1.6	4	.02	1.8	e10	.06	4.6	e27	.64
31	2.9	19	.44	---	---	---	3.6	e13	.19
TOTAL	47.6	---	2.10	70.3	---	10.88	56.9	---	2.53

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	2.1	3	.02	2.7	e16	.12	2.5	e13	.09
2	1.8	e3	.01	2.8	e16	.12	3.5	e25	.49
3	1.7	e3	.01	2.7	e16	.12	24	e418	57
4	1.6	e2	.01	2.6	e15	.11	7.8	e43	1.1
5	1.7	e2	.01	2.6	e15	.11	3.5	4	.04
6	1.7	3	.01	2.6	e15	.11	2.6	e2	.01
7	2.1	e11	.07	3.7	e26	.37	2.3	e2	.01
8	3.0	e19	.33	2.5	e13	.09	2.2	e2	.01
9	3.1	64	6.4	2.1	e10	.06	2.1	e2	.01
10	5.2	78	3.6	2.3	e13	.08	2.1	e2	.01
11	2.4	11	.07	2.4	e11	.07	2.0	e2	.01
12	2.0	11	.06	2.2	e10	.06	2.0	e2	.01
13	1.8	8	.04	2.0	e9	.05	1.9	e2	.01
14	1.7	e7	.03	1.9	e9	.05	1.9	e2	.01
15	1.7	e8	.03	1.8	e9	.04	1.9	e2	.01
16	1.7	e8	.04	1.8	e9	.05	1.9	e2	.01
17	1.6	e9	.04	1.9	e9	.05	1.9	e2	.01
18	1.6	e9	.04	1.9	e9	.05	1.8	e2	.01
19	1.7	e10	.05	2.0	e9	.05	1.8	e2	.01
20	1.7	e11	.05	2.0	e9	.05	1.8	e3	.01
21	1.7	11	.05	2.0	e10	.05	1.9	e3	.01
22	1.8	11	.05	2.0	e10	.05	1.8	e3	.01
23	2.3	e15	.19	2.0	e10	.05	1.8	e3	.01
24	1.9	e10	.05	2.0	e10	.05	1.7	e3	.01
25	48	717	527	2.0	e10	.05	1.7	e3	.01
26	3.4	e21	.20	2.1	e10	.05	1.7	e3	.01
27	7.7	e96	49	2.3	e12	.07	1.7	e3	.01
28	4.3	e27	.32	5.4	e32	.52	1.7	e3	.01
29	3.3	e19	.17	3.1	e14	.12	1.6	e3	.01
30	3.2	e18	.17	---	---	---	1.7	e3	.01
31	2.9	e16	.13	---	---	---	1.9	e6	.03
TOTAL	122.4	---	588.25	69.4	---	2.82	90.7	---	59.00

e Estimated

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1.7	e5	.02	1.5	e2	.01	1.3	e1	.01
2	1.9	e5	.02	1.5	e2	.01	1.3	e2	.01
3	1.8	e4	.02	1.6	e2	.01	1.3	e2	.01
4	1.8	e4	.02	1.7	e2	.01	1.3	e2	.01
5	1.9	e4	.02	1.7	e2	.01	1.3	e2	.01
6	1.8	e4	.02	1.7	e1	.01	1.4	e2	.01
7	1.7	e4	.02	1.6	e1	.01	1.4	e2	.01
8	1.7	e4	.02	1.6	e1	.01	1.4	e2	.01
9	1.8	e4	.02	1.5	e1	.01	3.2	e24	.77
10	1.7	e3	.02	1.4	e1	.01	1.8	e9	.05
11	1.7	e3	.02	1.4	e1	.01	1.6	e7	.03
12	1.6	e3	.01	1.4	e1	.00	1.5	e7	.03
13	1.7	e3	.01	1.3	e1	.00	2.4	e16	.21
14	1.8	e3	.01	1.2	e1	.00	1.7	e7	.03
15	1.7	e3	.01	1.2	1	.00	1.5	e7	.03
16	1.6	e3	.01	1.2	e1	.00	1.5	e7	.03
17	1.6	e3	.01	1.2	e1	.00	1.5	e7	.03
18	1.6	e3	.01	1.2	e1	.00	1.5	e7	.03
19	1.5	e2	.01	1.2	e1	.00	1.4	e6	.03
20	1.4	e2	.01	1.3	e1	.00	1.4	e6	.02
21	1.5	e2	.01	1.3	e1	.00	1.4	e6	.02
22	1.5	e2	.01	1.3	e1	.00	1.4	e6	.02
23	1.5	e2	.01	1.3	1	.00	4.8	e86	11
24	1.5	e2	.01	1.3	e1	.00	1.7	e8	.04
25	1.4	2	.01	1.3	e1	.00	1.5	e8	.03
26	1.4	e2	.01	1.3	e1	.00	1.5	e8	.03
27	1.4	e3	.01	1.3	e1	.00	1.6	e7	.03
28	2.4	e6	.06	1.4	e1	.01	1.6	e7	.03
29	1.4	e2	.01	1.4	e1	.01	2.3	e12	.11
30	1.6	e2	.01	1.4	e1	.01	2.1	e10	.06
31	---	---	---	1.3	e1	.01	---	---	---
TOTAL	49.6	---	0.46	43.0	---	0.15	51.6	---	12.74

e Estimated

HAWAII, ISLAND OF OAHU

16275000 HAIKU STREAM NEAR HEEIA--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	1.5	e7	.03	1.5	17	.07	1.4	20	.08
2	1.5	e7	.03	1.6	15	.06	1.3	8	.03
3	1.5	e7	.03	1.6	7	.03	1.3	8	.03
4	1.6	e7	.03	1.5	5	.02	1.3	7	.03
5	2.4	e19	.17	1.6	8	.04	1.3	8	.03
6	2.1	e11	.07	1.6	13	.06	1.4	9	.04
7	2.1	e10	.06	1.5	7	.03	1.7	e9	.04
8	1.7	e8	.04	1.4	4	.02	1.4	e7	.03
9	1.6	e7	.03	1.5	5	.02	1.3	e7	.02
10	1.5	10	.04	1.3	6	.02	1.3	e7	.03
11	1.5	e14	.06	1.5	5	.02	1.3	e7	.02
12	1.5	e13	.05	1.4	4	.02	1.4	e7	.03
13	1.5	e12	.05	1.4	4	.02	1.3	e7	.02
14	1.4	e12	.05	1.4	e6	.02	1.3	e7	.02
15	1.5	e11	.04	1.4	9	.03	1.3	e7	.02
16	1.5	e10	.04	1.3	e11	.04	1.3	e7	.02
17	1.5	e9	.04	1.3	10	.04	1.3	e7	.02
18	1.5	e9	.04	1.3	7	.03	1.3	e7	.02
19	1.5	e8	.03	1.3	14	.05	1.3	e6	.02
20	1.5	e8	.03	1.4	14	.05	1.3	e6	.02
21	1.5	e7	.03	1.3	6	.02	1.3	e6	.02
22	1.5	5	.02	1.3	e5	.02	1.3	e6	.02
23	1.5	12	.05	1.3	8	.03	1.3	e6	.02
24	1.5	60	.24	1.3	17	.06	1.4	e6	.02
25	1.5	24	.10	1.3	23	.08	1.3	e6	.02
26	1.5	12	.05	1.2	21	.07	1.3	e6	.02
27	2.1	e13	.08	1.2	7	.02	1.3	e6	.02
28	1.8	8	.04	1.2	9	.03	1.3	e6	.02
29	1.6	6	.03	1.2	13	.04	1.4	e6	.02
30	1.5	11	.05	1.2	4	.01	1.4	e6	.02
31	1.5	28	.11	2.1	e13	.12	---	---	---
TOTAL	49.9	---	1.76	43.4	---	1.19	40.1	---	0.77
YEAR	734.9		682.65						

e Estimated

HAWAII, ISLAND OF OAHU

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).

REMARKS.--Records computed by George Dayag. Records good. 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.--14 years (water years 1984-97), 3.51 ft^3/s (2,540 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 728 ft^3/s, September 18, 1994, gage height, 6.05 ft; minimum, 0.58 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)
Nov. 14	0445	*385	*4.79	Jan. 3	1115	181	3.59

Minimum discharge, 1.4 ft^3/s, several days in October and November.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	2.1	2.9	3.1	4.1	3.5	6.4	3.8	4.1	3.9	3.6	3.3
2	2.1	2.5	3.0	3.2	3.9	3.6	12	3.8	4.2	3.8	3.6	3.4
3	2.2	2.1	3.0	28	3.8	3.5	19	3.8	4.1	3.7	3.5	3.4
4	2.1	2.1	2.8	8.1	3.6	3.7	6.3	3.8	4.2	3.7	3.5	3.3
5	2.1	8.6	2.9	5.1	3.5	5.6	5.3	4.7	4.1	3.6	3.4	3.2
6	2.1	4.0	2.9	4.2	3.6	3.9	5.1	6.5	4.0	3.7	3.4	3.2
7	2.1	2.9	2.9	3.9	3.8	3.6	4.6	7.3	4.0	3.6	3.4	3.2
8	2.1	7.2	2.8	3.5	3.6	3.6	5.9	9.3	4.5	3.7	3.4	3.1
9	2.1	4.1	2.8	3.4	3.6	3.6	5.0	5.7	4.3	4.8	3.4	2.9
10	2.2	3.0	2.9	3.3	3.6	3.6	5.1	4.7	4.1	4.6	3.4	2.8
11	2.1	2.7	3.2	3.3	3.6	5.4	5.5	4.7	4.1	3.9	3.5	2.7
12	2.1	17	3.4	3.4	3.6	4.2	4.6	5.5	3.9	3.8	3.4	3.0
13	2.0	20	3.1	3.4	3.6	4.2	4.8	4.9	3.8	3.7	3.4	3.2
14	2.1	26	3.2	3.2	3.6	3.7	4.3	7.4	3.8	3.6	3.4	3.6
15	2.1	12	2.9	3.4	3.6	5.5	4.1	14	3.8	3.8	3.4	3.2
16	2.1	19	2.9	3.6	3.6	4.8	4.0	6.6	3.7	3.6	4.4	3.0
17	2.1	9.8	2.8	3.4	3.5	13	4.0	5.4	3.8	3.6	7.1	3.4
18	2.0	5.4	2.9	3.4	3.4	5.1	4.0	4.9	3.8	3.6	3.7	3.2
19	2.2	4.5	2.8	8.4	3.4	4.2	4.0	4.6	3.7	10	3.6	3.3
20	2.5	3.9	2.9	6.6	3.4	4.1	3.9	4.5	3.6	4.0	3.5	3.6
21	2.2	3.6	2.9	5.8	3.4	3.7	3.8	4.5	4.1	3.6	3.4	4.8
22	2.1	3.5	2.9	4.6	3.8	3.5	3.8	4.7	3.7	7.0	3.2	3.6
23	2.2	3.3	3.0	4.0	3.6	14	3.8	4.6	3.9	4.7	3.4	3.3
24	2.1	4.3	3.0	3.8	3.4	6.8	4.2	4.3	3.9	4.0	3.4	3.4
25	2.2	3.4	2.8	3.6	3.6	8.8	4.1	4.2	3.8	4.0	3.3	3.2
26	2.1	3.4	3.7	3.6	3.6	5.4	5.9	4.2	6.0	3.7	3.5	3.3
27	2.1	3.2	5.3	3.6	3.6	4.6	6.4	4.2	4.5	3.6	3.4	3.3
28	2.1	3.1	3.8	3.6	3.4	4.3	4.8	4.2	4.1	3.6	3.3	3.3
29	2.1	3.0	3.3	4.1	---	4.4	4.2	4.2	4.1	3.6	3.4	3.2
30	2.1	3.0	3.0	4.1	---	4.1	3.9	4.2	4.0	3.8	3.4	3.0
31	2.1	---	3.4	4.8	---	4.0	---	4.2	---	3.6	3.4	---
TOTAL	65.9	192.7	96.1	153.5	100.8	156.0	162.8	163.4	121.7	127.9	111.1	98.4
MEAN	2.13	6.42	3.10	4.95	3.60	5.03	5.43	5.27	4.06	4.13	3.58	3.28
MAX	2.5	26	5.3	28	4.1	14	19	14	6.0	10	7.1	4.8
MIN	2.0	2.1	2.8	3.1	3.4	3.5	3.8	3.8	3.6	3.6	3.2	2.7
AC-FT	131	382	191	304	200	309	323	324	241	254	220	195

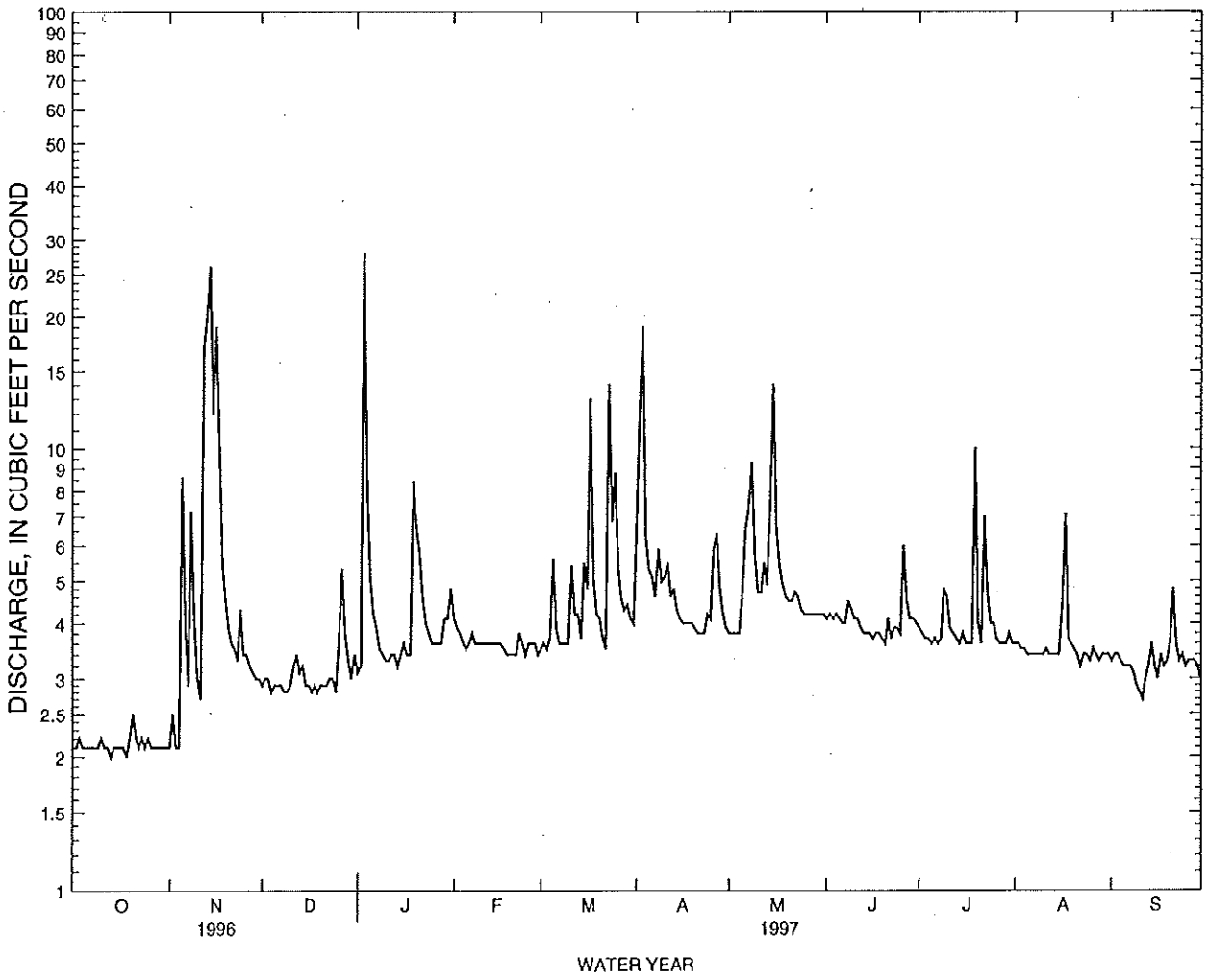
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1997, BY WATER YEAR (WY)

MEAN	3.18	4.01	3.83	3.79	3.86	4.44	3.72	3.26	2.85	3.17	2.86	3.16
MAX	6.69	10.6	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

HAWAII, ISLAND OF OAHU

16283200 KAHALUU STREAM NEAR AHUIMANU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1984 - 1997	
ANNUAL TOTAL	1176.5		1550.3			
ANNUAL MEAN	3.21		4.25		3.51	
HIGHEST ANNUAL MEAN					5.97	1991
LOWEST ANNUAL MEAN					1.07	1984
HIGHEST DAILY MEAN	33	Jan 25	28	Jan 3	97	Mar 19 1991
LOWEST DAILY MEAN	2.0	Aug 25	2.0	Oct 13	.58	Sep 22 1984
ANNUAL SEVEN-DAY MINIMUM	2.1	Aug 23	2.1	Oct 12	.59	Nov 5 1984
ANNUAL RUNOFF (AC-FT)	2330		3080		2540	
10 PERCENT EXCEEDS	3.8		5.5		5.0	
50 PERCENT EXCEEDS	2.7		3.6		3.0	
90 PERCENT EXCEEDS	2.2		2.7		.97	



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 computed by George Dayag. Records good. Honolulu Board of Water Supply diverts water from tunnel and wells in drainage area.

AVERAGE DISCHARGE.--23 years (water years 1975-97), 6.28 ft^3/s (4,550 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,530 ft^3/s, March 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, April 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)
Nov. 13	0100	555	5.93	Nov. 16	1645	371	5.33
Nov. 14	0445	*580	*6.00	Jan. 3	1115	525	5.84

Minimum discharge, 4.6 ft^3/s, several days in October.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	4.8	5.8	5.7	6.1	5.8	8.4	6.1	5.9	5.9	5.8	5.3
2	4.7	4.9	5.7	5.6	6.1	5.8	11	6.0	5.9	5.9	5.7	5.3
3	4.7	4.9	5.7	47	5.9	5.9	19	5.9	5.9	5.9	5.6	5.3
4	4.7	4.9	5.6	11	5.9	6.0	8.6	5.9	5.9	5.9	5.6	5.3
5	4.7	15	5.6	7.8	5.9	7.3	7.2	6.0	5.9	5.9	5.6	5.3
6	4.6	6.8	5.6	6.9	5.8	6.2	6.8	6.2	5.9	6.0	5.6	5.3
7	4.6	5.7	5.8	6.5	7.0	6.0	6.5	6.7	5.9	5.9	5.6	5.3
8	4.6	9.3	5.8	6.2	6.1	5.8	6.5	6.2	6.2	5.9	5.6	5.3
9	4.6	6.7	5.7	6.1	6.0	5.8	6.3	6.1	6.0	7.3	5.5	5.3
10	4.6	5.9	5.6	6.0	5.9	5.8	6.3	6.1	6.0	7.0	5.5	5.2
11	4.6	5.5	5.9	5.9	5.8	6.7	6.3	6.0	5.9	6.2	5.5	5.2
12	4.6	28	6.2	5.8	5.9	6.1	6.1	6.4	6.2	6.0	5.5	7.5
13	4.6	39	5.8	5.9	5.8	6.2	6.3	6.2	6.1	5.9	5.5	5.4
14	4.6	47	5.8	5.8	5.8	6.0	6.1	11	6.1	5.9	5.5	6.6
15	4.6	14	5.7	5.8	5.8	6.8	6.0	16	6.0	6.0	5.4	5.7
16	4.6	31	5.6	5.8	5.8	6.5	5.9	8.9	5.9	5.9	5.8	5.4
17	4.6	17	5.6	5.8	5.8	12	5.9	7.3	5.9	5.9	8.2	5.3
18	4.6	9.7	5.6	5.8	5.8	7.2	5.9	6.7	6.0	5.8	6.3	5.3
19	4.8	7.9	5.6	11	5.8	6.5	5.9	6.5	5.9	8.8	5.6	5.3
20	5.4	7.0	5.5	8.1	5.8	6.3	5.8	6.3	5.9	6.0	5.5	5.7
21	4.7	6.6	5.5	6.8	5.8	6.1	5.8	6.3	6.1	5.9	5.5	5.5
22	4.7	6.3	5.6	6.6	6.1	6.1	5.8	6.3	5.9	9.4	5.5	5.4
23	4.7	6.1	5.6	6.2	5.8	22	5.8	6.3	6.2	6.8	5.5	5.3
24	4.7	7.1	5.6	6.0	5.8	12	6.5	6.1	6.3	6.3	5.5	5.7
25	4.8	6.2	5.6	5.9	5.8	9.8	6.1	6.1	6.3	6.2	5.5	5.4
26	4.9	6.1	5.8	5.9	5.8	7.4	8.3	6.1	7.1	6.1	5.5	5.4
27	4.7	5.9	7.1	5.9	5.8	6.7	8.4	6.1	6.2	5.9	5.4	5.4
28	4.7	5.8	6.0	5.9	5.8	6.4	6.7	6.0	6.1	5.8	5.3	5.4
29	4.7	5.8	5.8	6.1	---	6.2	6.3	5.9	6.0	5.8	5.5	5.3
30	4.7	5.8	5.7	6.1	---	6.1	6.2	5.9	5.9	5.9	5.4	5.3
31	4.7	---	5.7	6.5	---	6.0	---	5.9	---	5.8	5.4	---
TOTAL	145.5	336.7	178.2	242.4	165.5	225.5	212.7	209.5	181.5	193.9	174.9	164.4
MEAN	4.69	11.2	5.75	7.82	5.91	7.27	7.09	6.76	6.05	6.25	5.64	5.48
MAX	5.4	47	7.1	47	7.0	22	19	16	7.1	9.4	8.2	7.5
MIN	4.6	4.8	5.5	5.6	5.8	5.8	5.8	5.9	5.9	5.8	5.3	5.2
AC-FT	289	668	353	481	328	447	422	416	360	385	347	326

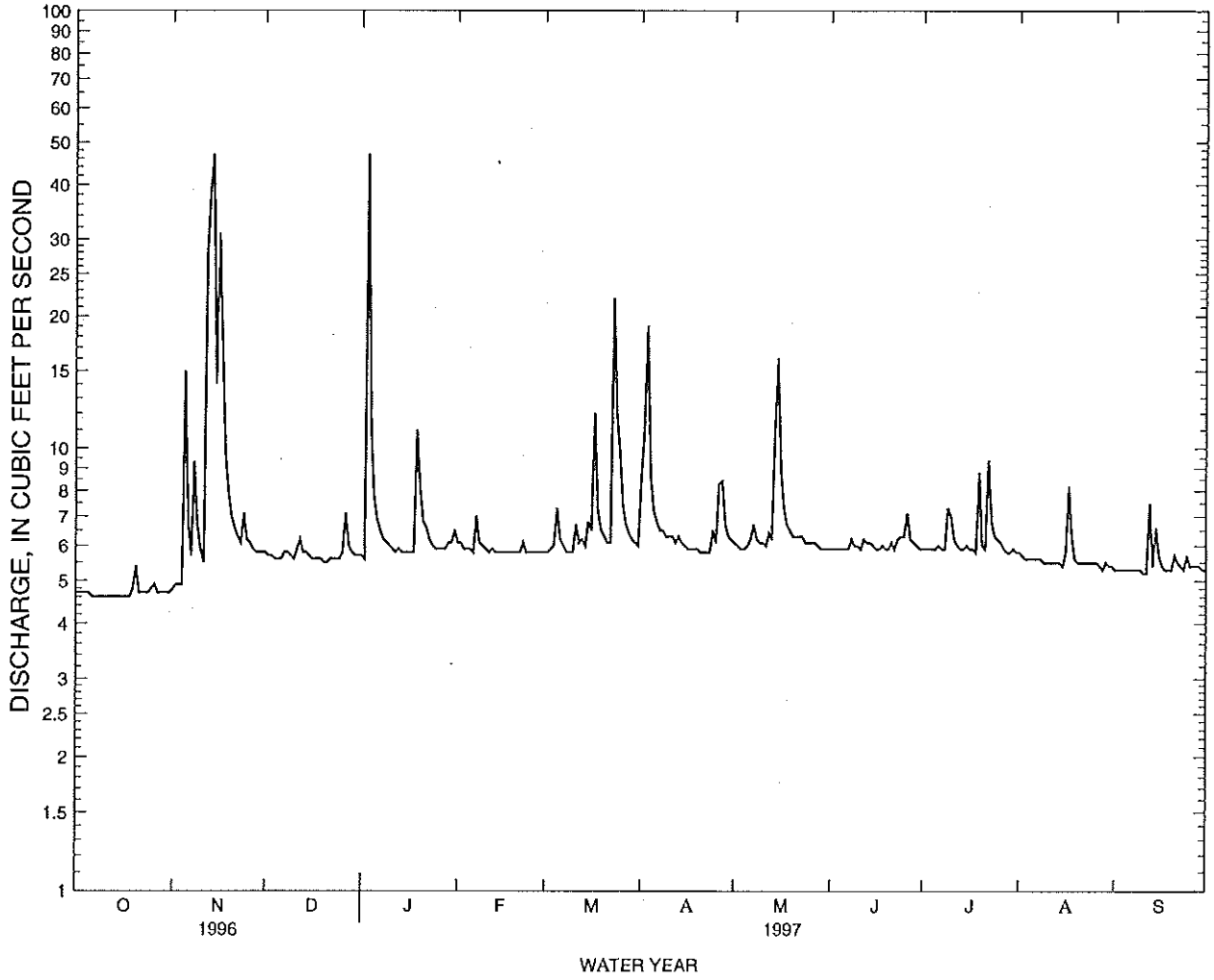
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1997, BY WATER YEAR (WY)

MEAN	5.84	6.72	6.55	6.85	6.64	7.52	6.39	5.95	5.70	5.83	5.72	5.68
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

HAWAII, ISLAND OF OAHU

16284200 WAIHEE STREAM NEAR KAHALUU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1975 - 1997	
ANNUAL TOTAL	2217.9		2430.7			
ANNUAL MEAN	6.06		6.66		6.28	
HIGHEST ANNUAL MEAN					9.36	1982
LOWEST ANNUAL MEAN					3.32	1977
HIGHEST DAILY MEAN	51	Jan 25	47	Nov 14	149	Mar 19 1991
LOWEST DAILY MEAN	4.5	Aug 29	4.6	Oct 6	1.3	Apr 15 1977
ANNUAL SEVEN-DAY MINIMUM	4.6	Aug 24	4.6	Oct 6	1.4	Apr 12 1977
ANNUAL RUNOFF (AC-FT)	4400		4820		4550	
10 PERCENT EXCEEDS	6.3		7.2		7.5	
50 PERCENT EXCEEDS	5.2		5.9		5.6	
90 PERCENT EXCEEDS	4.7		5.3		4.0	



HAWAII, ISLAND OF OAHU

16294900 WAIKANE STREAM AT ALTITUDE 75 FT, AT WAIKANE

LOCATION.--Lat 21°30'00", long 157°51'54", 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 computed by George Dayag. Records fair.

AVERAGE DISCHARGE.--37 years (water years 1961-97), 8.89 ft^3/s (6,440 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,800 ft^3/s, February 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, October 27, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft^3/s and maximum (*): (4.79 ft)

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 13	0100	794	5.00	Jan. 3	1130	1,750	6.63
Nov. 14	0445	991	5.40	Apr. 3	0400	*2,090	7.09

Minimum discharge, 2.20 ft^3/s, for several days in October and November.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	2.3	5.9	6.2	6.8	4.7	16	5.5	5.4	4.2	4.8	4.1
2	2.5	4.0	5.6	5.8	6.0	4.3	53	5.3	5.2	4.0	4.6	3.7
3	2.5	3.4	5.4	177	5.6	3.9	176	5.1	4.9	4.0	4.4	3.5
4	2.5	2.4	5.2	34	5.4	5.3	32	4.9	4.8	4.4	4.4	3.4
5	2.5	36	5.1	18	5.3	12	21	14	4.6	4.0	4.3	3.3
6	2.5	10	5.1	14	5.1	5.4	19	29	4.6	4.2	4.2	3.2
7	2.5	5.0	5.7	11	7.5	4.6	14	32	4.5	3.9	4.1	3.1
8	2.4	30	4.8	9.9	5.3	4.1	12	20	5.4	4.0	4.0	3.6
9	2.4	14	4.5	9.0	5.0	3.9	11	12	5.3	7.3	4.1	3.2
10	2.5	7.4	5.2	9.2	5.0	3.9	9.9	9.2	5.1	12	4.0	3.1
11	2.4	6.6	6.8	8.3	5.2	6.9	8.6	11	4.4	6.2	4.0	3.1
12	2.6	45	12	8.2	5.1	5.5	7.9	22	4.4	5.6	3.9	3.4
13	2.5	87	7.5	7.7	4.8	6.1	14	16	5.2	4.6	3.8	4.0
14	2.5	86	9.2	7.2	4.6	5.0	7.7	37	4.4	4.2	3.7	3.7
15	2.7	35	7.0	6.8	4.4	10	6.8	49	4.3	4.1	3.8	3.4
16	2.7	60	6.3	7.0	4.4	9.4	6.3	20	4.9	4.1	4.7	4.1
17	3.0	48	6.0	6.3	4.3	20	5.9	16	4.6	3.8	23	3.8
18	2.4	28	5.9	6.0	4.2	9.1	5.7	14	4.4	3.6	7.0	3.5
19	2.6	20	5.9	24	4.2	6.7	5.5	12	4.0	13	4.2	3.6
20	3.3	15	5.8	17	4.1	5.9	5.4	10	3.8	4.8	3.9	5.4
21	2.5	13	6.1	11	4.1	5.6	5.1	9.2	4.3	4.8	4.5	4.0
22	2.4	11	5.9	8.8	4.9	5.3	5.0	8.9	3.9	28	4.1	3.5
23	2.3	9.7	6.0	7.3	4.3	46	4.7	8.6	4.4	10	4.0	3.2
24	2.3	11	5.8	6.7	3.9	26	7.6	7.5	4.2	6.5	3.8	3.1
25	2.3	8.6	5.5	6.4	4.8	28	11	7.0	4.3	10	3.6	3.1
26	2.4	7.7	8.2	6.1	4.1	21	21	6.6	18	8.2	3.8	4.6
27	2.5	7.2	16	6.1	4.1	18	19	6.2	6.2	6.2	3.6	3.7
28	2.4	6.9	7.6	5.9	4.2	18	8.6	5.9	5.4	5.8	3.4	3.5
29	2.3	6.4	5.6	7.1	---	16	6.8	5.6	5.8	5.4	4.5	3.5
30	2.3	6.1	5.1	7.1	---	12	5.9	5.5	4.9	5.2	4.3	3.4
31	2.3	---	7.0	7.9	---	11	---	6.0	---	5.0	7.0	---
TOTAL	77.5	632.7	203.7	473.0	136.7	343.6	532.4	421.0	155.6	201.1	151.5	107.8
MEAN	2.50	21.1	6.57	15.3	4.88	11.1	17.7	13.6	5.19	6.49	4.89	3.59
MAX	3.3	87	16	177	7.5	46	176	49	18	28	23	5.4
MIN	2.3	2.3	4.5	5.8	3.9	3.9	4.7	4.9	3.8	3.6	3.4	3.1
AC-FT	154	1250	404	938	271	682	1060	835	309	399	301	214

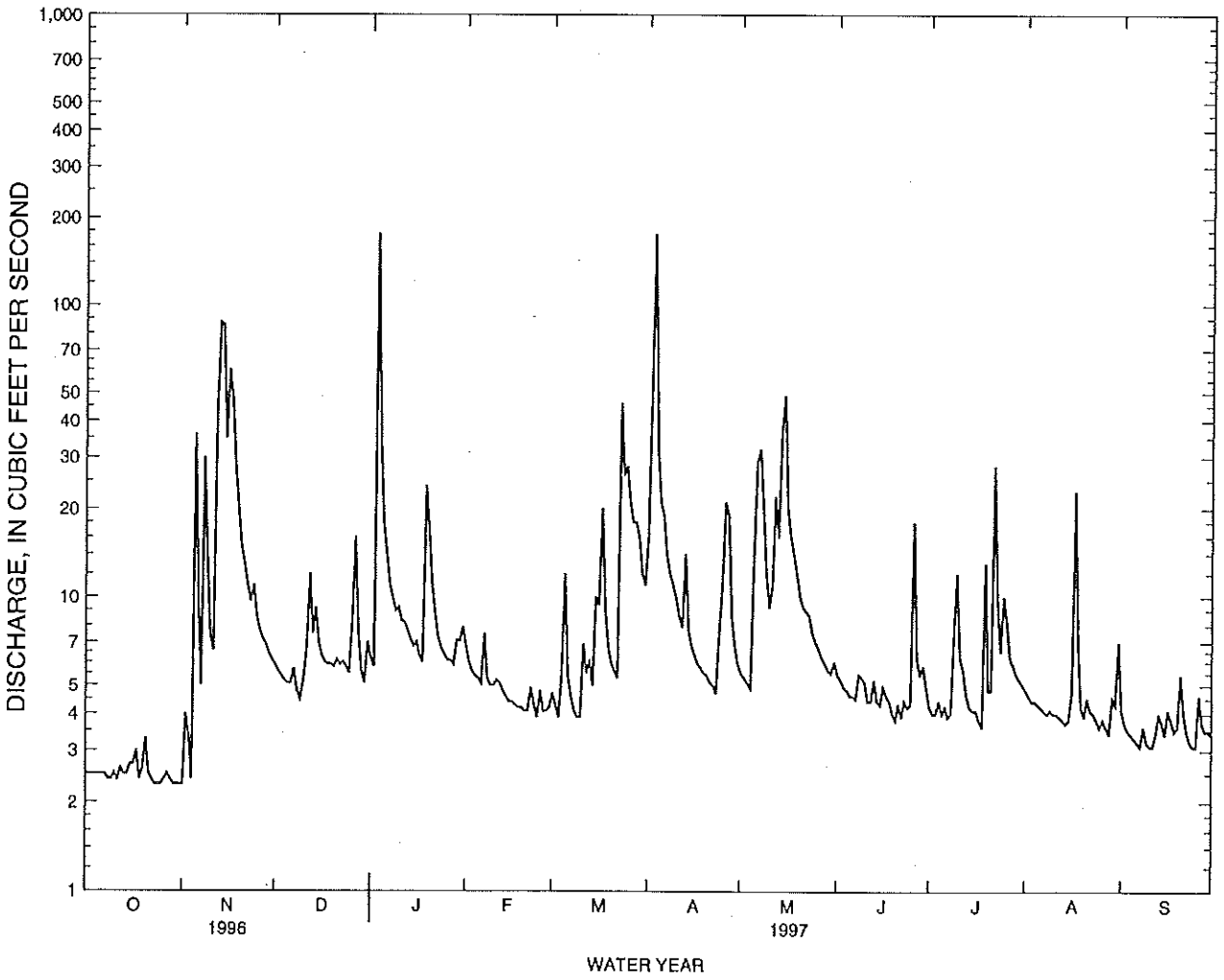
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1997, BY WATER YEAR (WY)

MEAN	6.80	11.7	9.63	11.3	12.2	13.2	10.6	8.71	5.49	6.48	5.43	5.38
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

HAWAII, ISLAND OF OAHU

16294900 WAIKANE STREAM AT ALTITUDE 75 FT, AT WAIKANE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1960 - 1997	
ANNUAL TOTAL	3331.9		3436.6			
ANNUAL MEAN	9.10		9.42		8.89	
HIGHEST ANNUAL MEAN					16.7	1982
LOWEST ANNUAL MEAN					3.33	1984
HIGHEST DAILY MEAN	220	Jan 25	177	Jan 3	868	Feb 4 1965
LOWEST DAILY MEAN	2.3	Oct 23	2.3	Oct 23	1.1	Oct 17 1975
ANNUAL SEVEN-DAY MINIMUM	2.4	Oct 23	2.4	Oct 23	1.3	Sep 19 1984
ANNUAL RUNOFF (AC-FT)	6610		6820		6440	
10 PERCENT EXCEEDS	14		18		14	
50 PERCENT EXCEEDS	5.1		5.4		4.2	
90 PERCENT EXCEEDS	2.7		3.1		2.2	



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 computed by Leonard Thompson. Records good. 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.--38 years (water years 1960-97), 37.0 ft^3/s (26,840 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,250 ft^3/s, March 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, September 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)
Nov. 14	0500	1,770	4.98	Apr. 3	0415	1,780	4.99
Jan. 3	1145	*2,460	*5.70	Aug. 17	1930	2,040	5.28

Minimum discharge, 14 ft^3/s, October 13-15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	20	26	21	23	36	47	22	28	22	25	26
2	16	39	25	20	21	36	77	21	22	22	23	25
3	16	26	25	299	20	21	241	21	20	20	23	24
4	16	21	24	65	20	35	62	20	20	20	22	23
5	16	156	25	39	19	59	51	76	19	19	22	23
6	16	51	24	32	19	26	65	82	20	24	22	24
7	16	31	26	28	145	24	36	65	19	19	22	21
8	15	84	23	26	29	21	33	63	29	19	21	21
9	16	44	22	25	25	21	34	37	31	50	20	20
10	16	33	23	24	23	21	28	31	27	53	19	20
11	15	36	30	23	25	39	27	39	20	29	18	20
12	16	129	51	23	24	25	25	51	21	23	18	25
13	15	177	26	22	22	24	123	41	26	20	18	35
14	15	214	29	21	21	21	38	89	21	19	18	26
15	15	84	24	20	20	30	29	107	22	19	27	23
16	31	117	23	20	20	23	27	52	23	20	51	30
17	73	82	22	19	19	43	25	72	25	18	138	28
18	19	56	22	19	19	25	24	40	22	19	36	24
19	99	45	21	75	19	22	23	34	22	88	24	23
20	49	38	21	46	19	21	22	30	19	21	23	27
21	45	34	20	25	19	20	20	28	23	20	26	34
22	27	31	20	23	19	20	19	27	19	150	24	25
23	23	32	21	21	19	101	19	26	23	43	22	23
24	22	98	19	20	18	45	28	24	20	29	21	22
25	20	41	19	19	19	74	26	22	20	45	21	21
26	19	34	21	19	18	47	63	21	62	36	34	30
27	19	30	55	19	18	37	72	20	46	27	27	22
28	18	30	24	20	19	46	28	20	32	25	22	21
29	18	27	21	34	---	51	24	19	36	25	27	22
30	17	26	19	26	---	33	22	19	26	33	26	20
31	27	---	23	29	---	29	---	57	---	30	59	---
TOTAL	762	1866	774	1122	701	1076	1358	1276	763	1007	899	728
MEAN	24.6	62.2	25.0	36.2	25.0	34.7	45.3	41.2	25.4	32.5	29.0	24.3
MAX	99	214	55	299	145	101	241	107	62	150	138	35
MIN	15	20	19	19	18	20	19	19	19	18	18	20
AC-FT	1510	3700	1540	2230	1390	2130	2690	2530	1510	2000	1780	1440

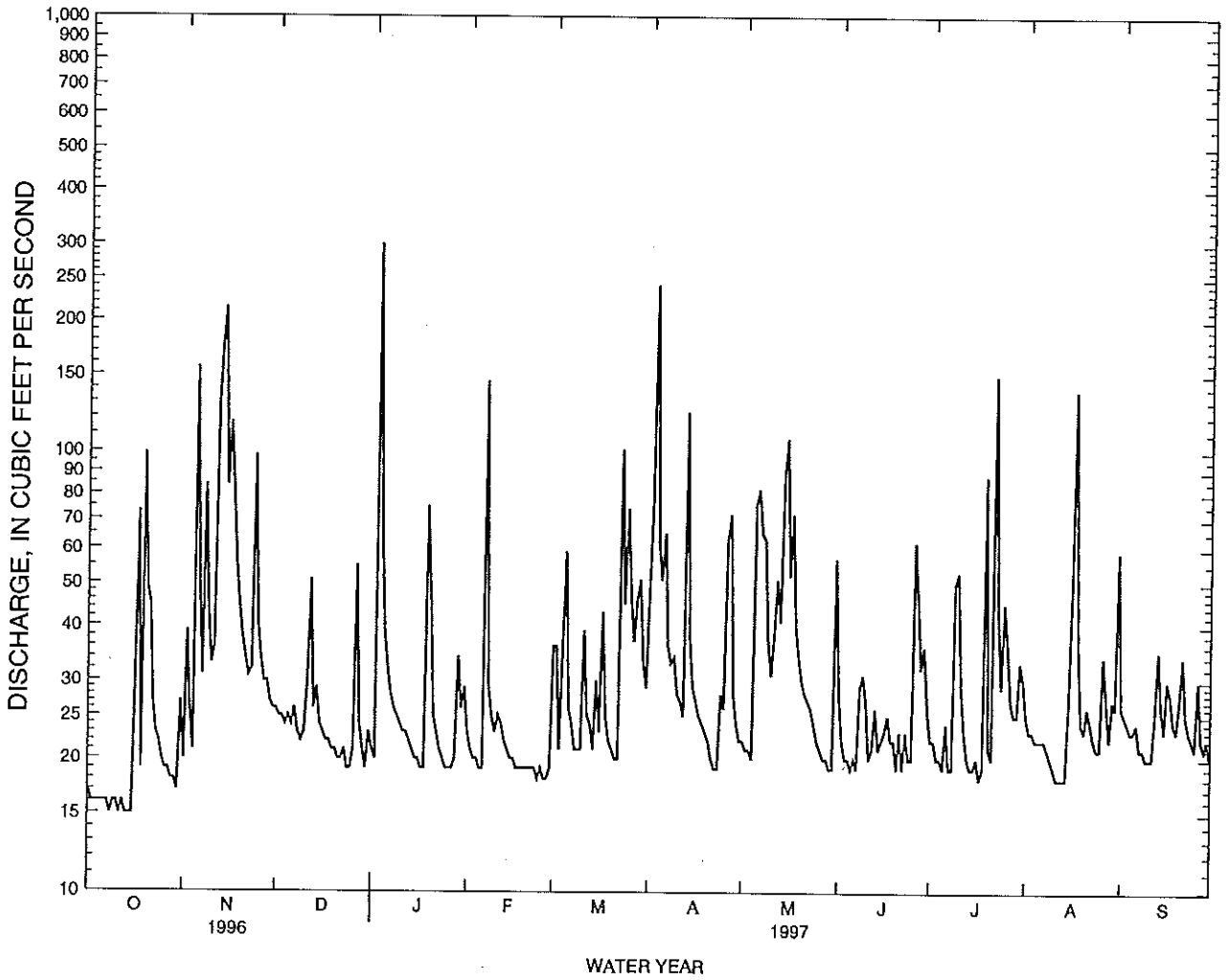
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1997, BY WATER YEAR (WY)

MEAN	32.6	45.5	37.9	37.1	36.9	45.5	46.1	39.5	27.4	32.8	30.6	30.0
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	17.8	14.3	15.0	13.6	13.3
(WY)	1985	1963	1978	1977	1978	1984	1992	1996	1984	1984	1984	1975

HAWAII, ISLAND OF OAHU

16296500 KAHANA STREAM AT ALTITUDE 30 FT, NEAR KAHANA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1959 - 1997	
ANNUAL TOTAL	11640		12332			
ANNUAL MEAN	31.8		33.8		37.0	
HIGHEST ANNUAL MEAN					67.2	1982
LOWEST ANNUAL MEAN					20.1	1984
HIGHEST DAILY MEAN	446	Jan 25	299	Jan 3	1750	Apr 15 1963
LOWEST DAILY MEAN	12	Aug 30	15	Oct 8	11	Sep 16 1961
ANNUAL SEVEN-DAY MINIMUM	13	Aug 29	15	Oct 8	11	Oct 16 1984
ANNUAL RUNOFF (AC-FT)	23090		24460		26840	
10 PERCENT EXCEEDS	53		59		58	
50 PERCENT EXCEEDS	21		24		23	
90 PERCENT EXCEEDS	16		19		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 computed by Ben Shimizu. Records good. Ditch diverts water from Punaluu Stream for irrigation in Punaluu Valley.

AVERAGE DISCHARGE.--44 years (water years 1954-97), 8.10 ft^3/s (5,870 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 54 ft^3/s, October 31, 1964; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 18 ft^3/s, October 21, January 30; minimum daily, 0.33 ft^3/s, April 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	13	4.5	13	10	8.5	11	14	6.9	12	14
2	14	12	14	4.2	12	15	3.8	9.8	17	6.3	10	12
3	13	10	11	5.0	10	12	.33	8.7	14	12	8.7	11
4	13	9.0	13	4.9	9.8	9.6	12	13	12	11	7.8	9.7
5	11	8.1	9.7	12	8.9	13	17	13	8.6	8.2	10	8.8
6	9.5	13	13	17	7.8	13	12	9.1	5.9	7.3	14	12
7	12	14	7.9	14	13	9.3	9.8	7.5	12	6.5	11	14
8	14	7.3	11	11	15	10	7.9	6.4	13	5.7	9.7	11
9	11	5.7	11	9.2	12	17	14	13	13	8.8	7.9	9.4
10	8.5	14	9.1	7.3	9.6	14	16	17	11	7.2	9.5	8.7
11	11	16	13	6.4	7.7	11	15	14	6.2	6.1	14	7.9
12	13	11	9.2	12	11	4.9	14	8.8	11	9.3	15	12
13	10	14	7.5	15	16	12	6.0	7.7	13	14	15	15
14	11	14	5.3	12	13	15	3.2	13	11	12	12	11
15	11	15	11	8.8	11	13	12	6.6	9.6	12	8.4	9.1
16	7.9	9.6	14	9.8	9.3	12	15	4.4	8.6	11	11	6.7
17	9.6	5.0	14	14	11	7.4	14	10	8.0	8.6	14	5.6
18	14	9.2	13	11	16	12	12	11	12	11	6.2	11
19	8.1	15	11	8.5	13	16	14	12	13	9.9	5.4	13
20	13	9.6	9.1	15	11	13	15	13	9.9	12	11	10
21	18	12	6.8	15	13	12	14	9.7	7.5	15	12	8.3
22	16	16	12	9.6	14	12	11	6.8	6.2	5.3	8.0	9.4
23	17	12	15	8.8	14	7.5	9.5	5.2	12	9.7	5.8	8.8
24	14	13	12	8.1	14	2.9	7.8	10	11	13	8.4	7.5
25	12	14	11	7.6	7.4	10	11	15	8.7	11	14	6.7
26	8.0	11	8.0	6.8	5.6	14	9.2	13	6.1	9.5	13	5.6
27	13	14	9.6	11	11	11	5.8	11	5.3	13	11	5.0
28	15	14	10	7.1	13	8.4	13	10	12	14	9.4	4.6
29	13	11	9.0	2.9	---	11	15	9.1	12	11	8.8	4.2
30	14	9.5	6.9	18	---	16	12	13	9.8	3.3	8.1	8.9
31	14	---	5.4	16	---	13	---	13	---	10	12	---
TOTAL	383.6	352.0	325.5	312.5	322.1	357.0	329.83	324.8	313.4	300.6	323.1	280.9
MEAN	12.4	11.7	10.5	10.1	11.5	11.5	11.0	10.5	10.4	9.70	10.4	9.36
MAX	18	16	15	18	16	17	17	17	17	15	15	15
MIN	7.9	5.0	5.3	2.9	5.6	2.9	.33	4.4	5.3	3.3	5.4	4.2
AC-FT	761	698	646	620	639	708	654	644	622	596	641	557

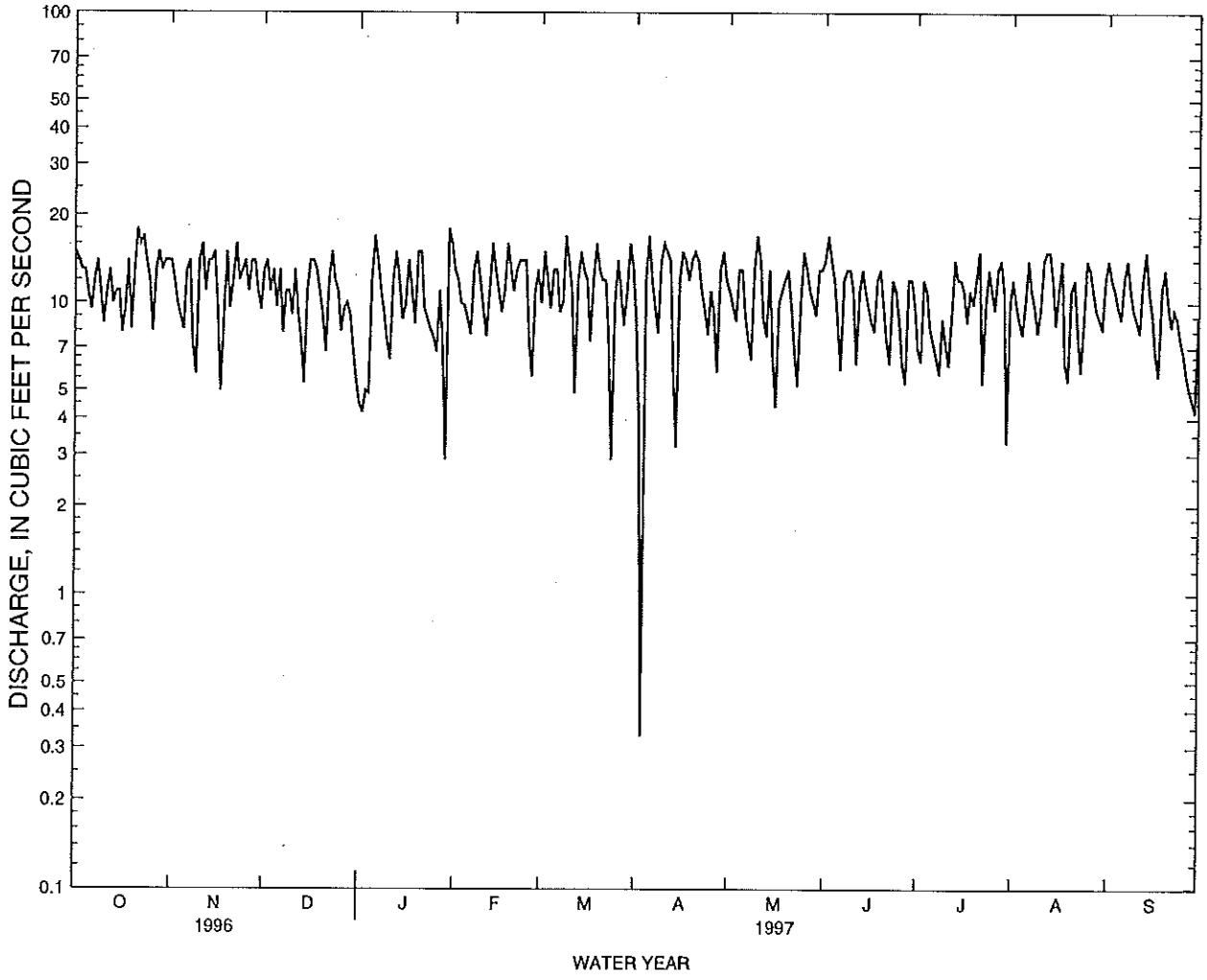
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1997, BY WATER YEAR (WY)

MEAN	9.10	7.46	5.94	5.77	5.76	6.74	8.29	8.67	9.58	9.95	10.2	10.0
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

HAWAII, ISLAND OF OAHU

16302000 PUNALUU DITCH NEAR PUNALUU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1953 - 1997	
ANNUAL TOTAL	3941.5		3925.33			
ANNUAL MEAN	10.8		10.8		8.10	
HIGHEST ANNUAL MEAN					15.2	1964
LOWEST ANNUAL MEAN					.23	1981
HIGHEST DAILY MEAN	18	Mar 5	18	Oct 21	54	Oct 31 1964
LOWEST DAILY MEAN	1.4	Feb 26	.33	Apr 3	.00	Dec 7 1963
ANNUAL SEVEN-DAY MINIMUM	4.5	Feb 24	5.7	Dec 29	.00	Jan 5 1969
ANNUAL RUNOFF (AC-FT)	7820		7790		5870	
10 PERCENT EXCEEDS	14		15		17	
50 PERCENT EXCEEDS	11		11		6.7	
90 PERCENT EXCEEDS	6.5		6.3		.19	



HAWAII, ISLAND OF OAHU

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 March 20-21, 1991 was restored and water-stage recorder installed on March 29, 1993. Masonry control and elevation of gage is 212 ft above mean sea level (from topographic map). Prior to March 29, 1993, datum 2.00 ft higher.

REMARKS.--Records computed by Ben Shimizu. Records fair, except for periods of no gage height which is poor. Records do not include flow of Punaluu ditch (see station 16302000).

AVERAGE DISCHARGE.--44 years (water years 1954-97), 17.2 ft^3/s (12,440 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft^3/s, March 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 March 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 13	0045	981	5.44	Jan. 19	2200	1,300	5.97
Nov. 14	0415	1,450	6.20	Apr. 3	unknown	*3,500	*8.40
Jan. 3	1115	1,180	5.78				

Minimum daily discharge, 2.0 ft^3/s, October 1-2, 8. Minimum discharge, 1.5 ft^3/s, October 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e2.0	10	e9.0	17	13	39	e23	e7.0	9.1	e13	10	7.1
2	e2.0	9.5	e7.0	17	13	6.9	e37	e7.2	6.1	e14	12	8.7
3	e3.0	11	e10	145	13	9.6	e123	e8.3	8.1	e7.0	13	9.9
4	e3.0	11	e8.0	41	13	16	e24	e4.0	10	e8.0	14	11
5	e5.0	63	e11	20	13	17	e15	e28	13	e9.8	10	12
6	e6.5	25	e8.0	9.8	14	10	e25	e34	16	e14	6.2	5.7
7	e4.0	13	e14	11	78	13	e15	e30	10	e12	9.1	4.8
8	e2.0	52	e9.0	12	12	11	e16	e31	11	e12	11	8.7
9	e5.0	34	e9.0	13	12	4.6	e11	e13	10	e23	12	9.9
10	e7.5	16	e11	14	14	6.1	e6.0	e6.0	12	e26	10	11
11	e5.0	12	8.7	14	16	e17	e6.0	e13	15	e17	5.8	11
12	e3.0	51	17	9.1	11	e16	e6.0	e23	11	10	4.4	7.5
13	e6.0	82	13	6.3	5.6	e9.0	e52	e20	9.4	6.6	4.5	6.6
14	e5.0	101	19	8.6	8.6	e4.0	e24	e32	11	8.8	7.4	9.3
15	e5.0	e28	8.6	11	11	e11	e10	e43	12	8.4	20	11
16	e16	e43	5.4	11	11	e8.0	e6.0	e29	13	10	39	16
17	e30	e38	4.6	6.1	9.3	e22	e6.0	29	14	12	25	e16
18	e4.0	e25	5.7	8.0	4.4	e9.0	e7.0	20	9.5	9.7	18	e10
19	e40	e15	7.9	66	6.6	e4.0	e5.0	17	7.7	16	16	e7.0
20	e19	e17	9.6	22	8.5	e6.0	e3.0	15	11	8.7	8.8	e10
21	e12	e13	12	10	6.2	e7.0	e3.0	16	14	5.8	7.1	e12
22	e6.0	e8.0	6.8	13	5.2	e7.0	e6.0	20	14	56	11	e11
23	3.8	e13	4.3	12	5.6	e41	e7.5	21	11	19	e13	e10
24	5.2	e35	6.6	13	5.4	e27	e14	15	11	11	e11	12
25	7.2	e14	7.5	13	12	e30	e9.0	8.8	13	14	e5.0	12
26	15	e14	13	13	13	e17	e27	10	21	13	e8.7	14
27	8.2	e10	22	9.5	8.3	e16	e34	12	28	8.9	e9.3	14
28	3.7	e10	12	14	10	e22	e9.0	14	e13	7.0	e11	14
29	5.2	e11	11	61	---	e21	e4.0	14	e14	10	e12	15
30	4.5	e12	13	13	---	e9.0	e6.0	9.2	e12	44	e13	9.9
31	30	---	16	13	---	e10	---	10	---	15	e17	---
TOTAL	273.8	796.5	319.7	646.4	352.7	446.2	539.5	559.5	369.9	449.7	374.3	317.1
MEAN	8.83	26.5	10.3	20.9	12.6	14.4	18.0	18.0	12.3	14.5	12.1	10.6
MAX	40	101	22	145	78	41	123	43	28	56	39	16
MIN	2.0	8.0	4.3	6.1	4.4	4.0	3.0	4.0	6.1	5.8	4.4	4.8
AC-FT	543	1580	634	1280	700	885	1070	1110	734	892	742	629

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1997, BY WATER YEAR (WY)

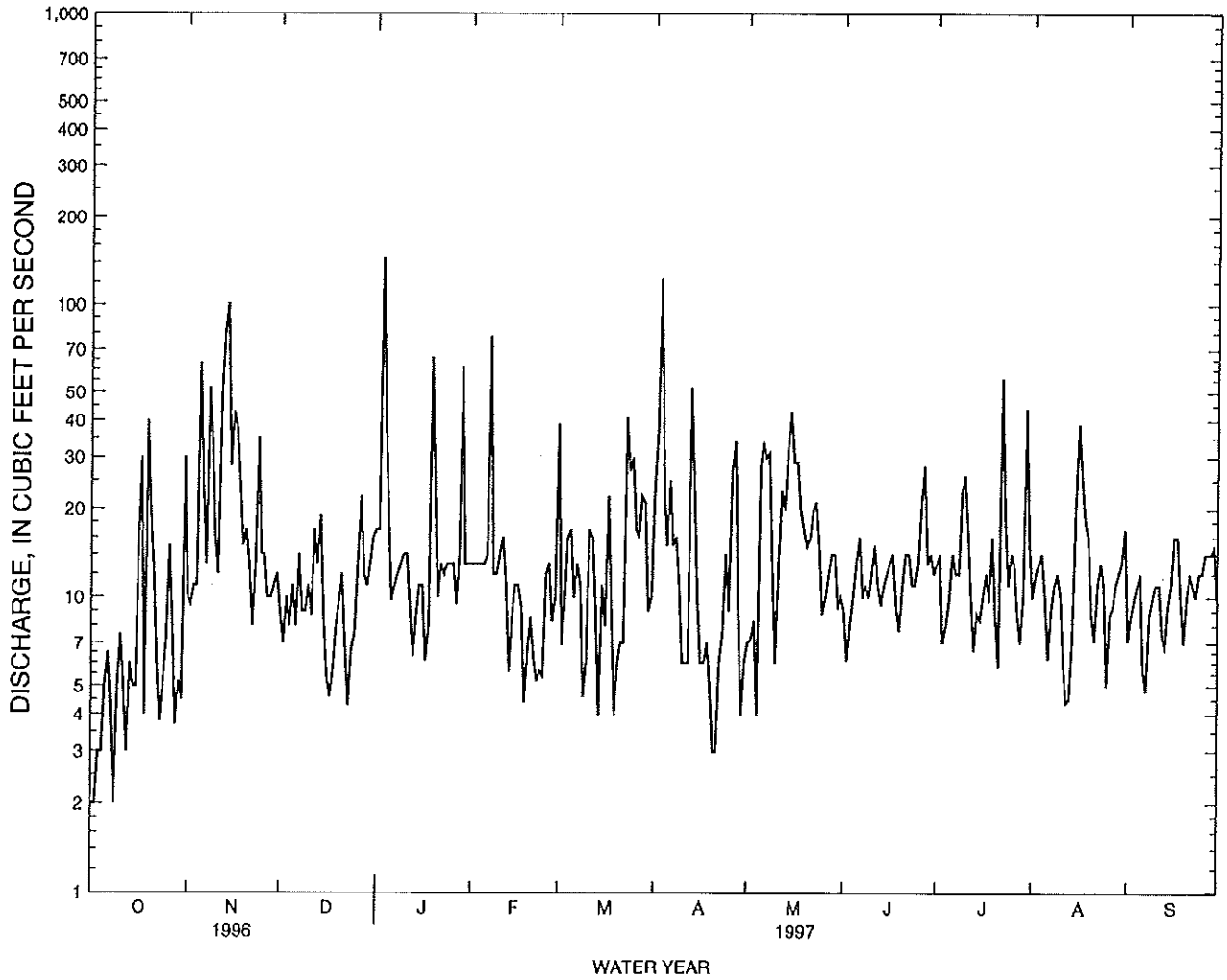
MEAN	13.9	20.5	20.7	21.1	21.7	22.4	22.0	17.4	11.5	12.3	11.5	10.5
MAX	38.7	74.7	64.5	40.9	76.3	73.1	84.6	64.9	35.4	39.0	36.9	30.0
(WY)	1959	1991	1965	1988	1969	1982	1963	1965	1982	1974	1982	1994
MIN	.28	4.58	.23	3.32	.58	3.19	2.37	1.00	.000	.000	.31	.49
(WY)	1958	1960	1960	1960	1964	1993	1954	1961	1953	1953	1961	1961

e Estimated

HAWAII, ISLAND OF OAHU

16303000 PUNALUU STREAM NEAR PUNALUU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1953 - 1997	
ANNUAL TOTAL	4676.6		5445.3			
ANNUAL MEAN	12.8		14.9		17.2	
HIGHEST ANNUAL MEAN					35.4	1982
LOWEST ANNUAL MEAN					7.27	1961
HIGHEST DAILY MEAN	193	Jan 25	145	Jan 3	1010	Apr 15 1963
LOWEST DAILY MEAN	2.0	Oct 1	2.0	Oct 1	.00	Jun 1 1953
ANNUAL SEVEN-DAY MINIMUM	3.3	Sep 28	3.6	Oct 1	.00	Jun 1 1953
ANNUAL RUNOFF (AC-FT)	9280		10800		12440	
10 PERCENT EXCEEDS	21		28		30	
50 PERCENT EXCEEDS	8.8		11		12	
90 PERCENT EXCEEDS	4.2		5.5		2.5	



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 computed by Leonard Thompson. Records poor. No diversion upstream of station.

AVERAGE DISCHARGE.--30 years (water years 1968-97), 4.41 ft^3/s (3,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,390 ft^3/s, January 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 (*) recorded, may have been higher during periods of no gage-height record January 3-4 and April 2-4:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 19	1930	*367	*7.99	Jan. 19	2115	*367	*7.99

Minimum discharge, 0.04 ft^3/s, October 10, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	2.9	1.2	e4.0	4.1	13	e5.5	e3.0	e1.4	e2.2	e1.5	e1.5
2	.13	1.5	1.3	e2.5	1.6	1.4	e25	e2.9	e1.0	e2.1	e1.4	e.74
3	.11	.90	1.0	e70	1.1	7.8	e41	e2.8	e.80	e2.2	e1.3	e.48
4	.09	.56	.92	e28	.82	12	e10	e2.4	e1.2	e1.7	e.90	e.41
5	.08	23	1.7	e23	.67	12	e8.0	e20	e.80	e1.5	e.90	e.39
6	.06	4.4	1.9	e8.0	.70	2.9	e14	e38	e1.3	e1.8	e.90	e.40
7	.10	1.5	3.2	e4.7	13	2.6	e6.0	e25	e1.5	e2.8	e.90	e.42
8	.10	46	1.2	e2.0	1.1	1.2	e5.0	e24	e1.4	e2.0	e.90	e.58
9	.05	6.7	1.0	e1.5	.73	1.0	e4.4	e6.9	e4.0	e3.0	e1.4	e.71
10	.05	2.6	6.9	e.94	.60	1.2	e4.0	e5.0	e6.9	e15	e1.1	e.60
11	.06	4.6	12	.77	.73	10	e3.5	e4.9	e2.6	e5.5	e.80	.48
12	.18	29	7.5	1.8	1.2	2.0	e3.4	e17	e1.4	e3.2	e.79	2.0
13	.18	31	2.0	2.6	.49	3.5	e3.8	e5.0	e2.3	e1.9	e.70	6.0
14	.06	47	4.0	.74	.40	e2.0	e3.2	e20	e2.3	e1.7	e.63	3.8
15	.18	13	1.4	.55	.45	e1.2	e2.8	e39	e1.3	e1.6	e1.9	2.7
16	.14	21	1.0	7.4	.44	e2.3	e2.7	e4.9	e1.2	e1.5	e2.8	1.9
17	7.4	23	.88	2.4	.30	e1.0	e2.4	e5.5	e1.2	e1.4	e1.4	3.4
18	.51	6.0	.87	.82	.30	e.72	e2.1	e2.3	e2.3	e1.4	e1.9	1.2
19	28	4.2	.78	32	.30	e.84	e2.0	e1.7	e1.6	e12	e1.6	1.7
20	7.8	3.5	.62	9.4	.21	e.72	e2.0	e1.3	e1.6	e3.8	e1.1	4.3
21	1.4	2.1	.59	2.0	.19	e1.1	e1.9	e1.1	e1.4	e1.8	e.84	3.1
22	.74	1.7	.93	2.2	1.8	e.66	e1.8	e1.2	e2.2	e9.0	e.84	5.6
23	.45	2.4	.81	.84	1.2	e1.8	e1.8	e1.8	e1.8	e7.0	e1.9	1.3
24	.37	12	.80	.62	.22	e6.1	e1.8	e1.4	e2.8	e3.2	e.89	.84
25	.44	3.0	.50	.49	2.7	e20	e19	e1.3	e1.9	e2.8	e.75	.69
26	6.3	2.4	4.0	.39	1.3	e15	e32	e1.1	e4.5	e2.9	e.90	4.7
27	16	1.5	19	.37	.88	e8.5	e41	e1.0	e3.8	e2.2	e.81	.93
28	1.3	2.2	2.3	1.4	1.7	e5.2	e7.0	e.90	e3.2	e1.8	e.69	.96
29	.79	1.9	1.0	30	---	e5.5	e4.0	e.80	e2.9	e1.6	e.71	1.3
30	.57	1.4	.73	7.8	---	e2.0	e3.2	e.80	e3.0	e2.3	e1.6	.71
31	5.8	---	2.4	8.1	---	e1.4	---	e.90	---	e1.9	e1.1	---
TOTAL	79.59	302.96	84.43	257.33	39.23	146.64	264.3	243.90	65.60	104.8	35.85	53.84
MEAN	2.57	10.1	2.72	8.30	1.40	4.73	8.81	7.87	2.19	3.38	1.16	1.79
MAX	28	47	19	70	13	20	41	39	6.9	15	2.8	6.0
MIN	.05	.56	.50	.37	.19	.66	1.8	.80	.80	1.4	.63	.39
AC-FT	158	601	167	510	78	291	524	484	130	208	71	107

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1997, BY WATER YEAR (WY)

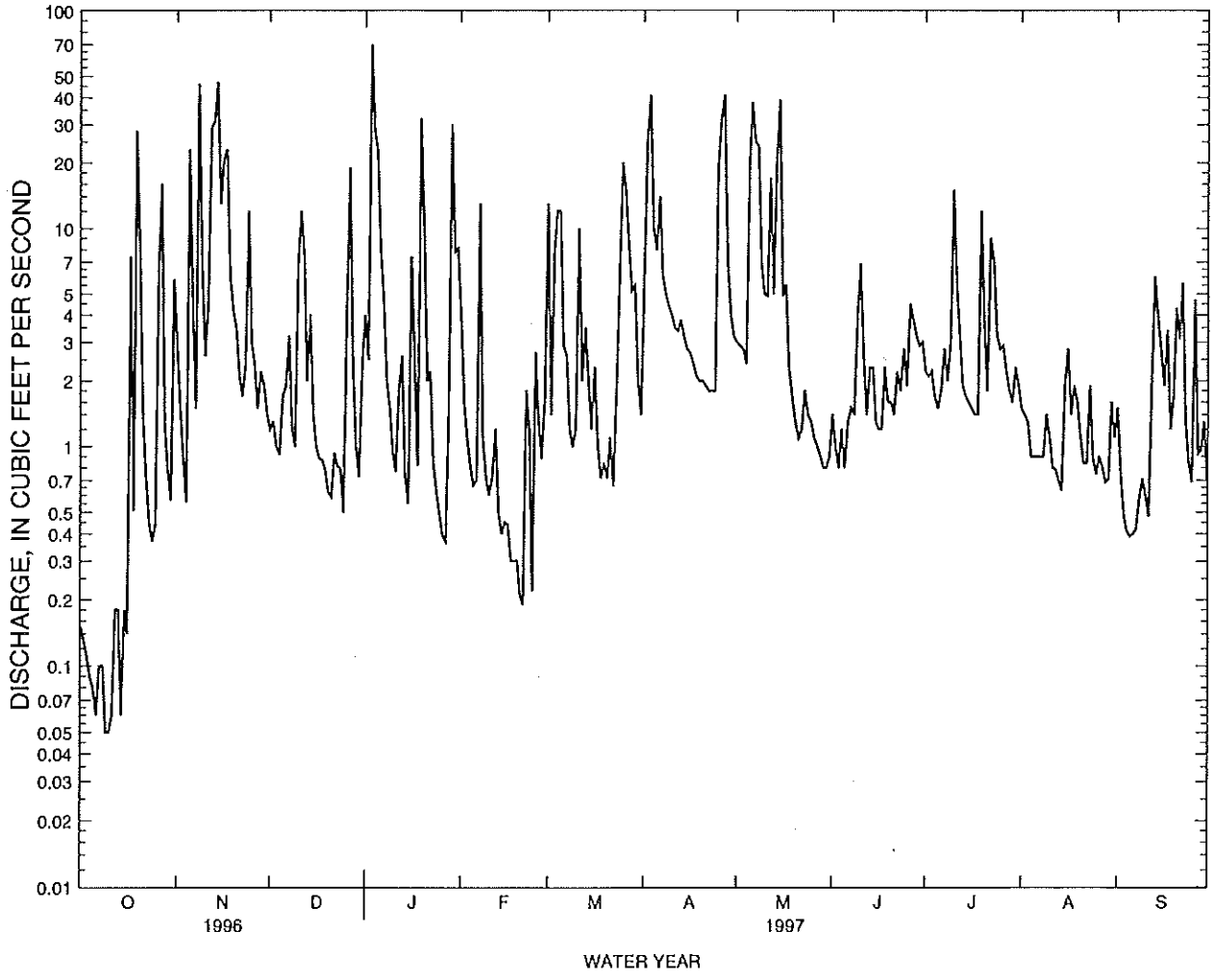
MEAN	3.38	6.09	4.99	5.35	4.67	5.76	5.89	3.86	2.78	4.06	3.28	3.09
MAX	7.68	19.0	17.7	17.9	19.7	32.2	19.3	7.93	7.72	11.7	8.37	9.34
(WY)	1992	1991	1988	1988	1979	1982	1989	1988	1987	1982	1991	1994
MIN	.27	1.66	.48	.26	.41	.14	.87	.85	.61	.21	.53	.22
(WY)	1985	1981	1977	1986	1983	1983	1979	1991	1981	1971	1984	1975

e Estimated

HAWAII, ISLAND OF OAHU

16304200 KALUANUI STREAM NEAR PUNALUU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1967 - 1997	
ANNUAL TOTAL	1424.95		1678.47			
ANNUAL MEAN	3.89		4.60		4.41	
HIGHEST ANNUAL MEAN					9.94	1982
LOWEST ANNUAL MEAN					2.04	1984
HIGHEST DAILY MEAN	100	Jan 25	70	Jan 3	230	Feb 1 1969
LOWEST DAILY MEAN	.05	Oct 9	.05	Oct 9	.00	Jul 24 1971
ANNUAL SEVEN-DAY MINIMUM	.07	Oct 5	.07	Oct 5	.00	Sep 14 1975
ANNUAL RUNOFF (AC-FT)	2830		3330		3200	
10 PERCENT EXCEEDS	9.0		12		9.7	
50 PERCENT EXCEEDS	1.2		1.8		1.4	
90 PERCENT EXCEEDS	.30		.49		.26	



HAWAII, ISLAND OF OAHU

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 culvert and paved road control. Elevation of gage is 590 ft above mean sea level (from topographic map).

REMARKS.--Records computed by Ben Shimizu and Leonard Thompson. Records poor. No diversion upstream of station. Recording rain gage located at station.

AVERAGE DISCHARGE.--34 years (water years 1964-97), 10.4 ft^3/s (7,520 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,810 ft^3/s, revised, November 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)
Nov. 13	0115	1,300	7.90	Jan. 19	2145	*1,760	*8.54
Nov. 14	0430	1,330	7.95				

Minimum discharge, 0.32 ft^3/s, November 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.9	3.2	5.1	4.0	25	23	6.2	12	4.8	2.9	3.1
2	1.1	1.7	3.0	3.1	2.3	4.4	98	5.6	5.1	5.8	2.6	1.5
3	1.0	1.4	2.9	87	1.6	11	132	5.4	3.7	4.8	2.5	1.2
4	.97	.60	2.6	35	1.3	43	33	4.5	3.4	3.5	2.4	1.1
5	.88	31	2.3	29	1.2	61	21	48	3.8	3.7	2.4	1.1
6	.83	15	2.4	10	1.2	12	36	73	7.0	8.2	2.1	1.2
7	.84	3.2	3.7	6.1	49	8.7	15	43	4.3	7.5	2.2	1.2
8	.80	68	3.3	4.8	9.2	5.2	12	41	9.6	4.4	2.2	1.4
9	.76	17	4.0	4.0	5.1	3.7	10	17	24	23	5.1	1.7
10	.75	4.9	2.9	3.7	4.2	3.4	9.3	10	26	43	2.2	1.6
11	.71	3.4	29	3.2	3.9	27	8.4	9.7	6.0	12	2.0	1.5
12	.74	24	32	3.1	3.8	16	7.3	44	4.8	6.3	1.8	2.3
13	.78	116	6.3	4.4	3.3	5.5	8.3	14	12	4.6	1.7	13
14	1.1	223	7.5	3.0	3.0	6.3	7.4	67	5.5	3.9	1.7	5.2
15	1.9	38	4.0	2.4	3.0	6.7	5.6	87	4.2	3.4	9.9	6.8
16	1.3	51	2.9	5.1	2.8	11	5.0	25	4.3	3.7	12	3.5
17	2.2	49	2.3	8.2	2.5	6.5	4.6	27	7.4	3.4	4.2	5.3
18	2.0	21	2.1	2.8	2.4	7.8	4.4	15	7.8	3.6	4.8	2.6
19	1.2	14	2.0	123	2.4	3.7	4.1	11	6.3	50	2.2	5.2
20	10	11	1.9	73	2.2	3.3	3.9	9.2	4.5	6.7	1.7	7.9
21	2.1	7.6	1.9	14	2.1	5.0	3.7	8.0	7.4	4.0	1.6	2.6
22	1.2	6.1	2.3	11	3.2	2.9	3.4	8.6	6.8	39	3.8	4.1
23	.72	5.4	2.4	6.8	4.0	12	3.3	13	5.7	28	4.6	1.8
24	.60	13	2.6	5.2	2.3	34	3.3	7.2	5.7	6.6	2.1	1.3
25	.52	6.1	1.9	4.5	2.4	79	42	5.9	3.6	5.1	2.2	1.0
26	.42	4.5	1.8	4.0	3.6	35	66	5.2	26	5.9	1.8	4.1
27	3.3	3.9	76	3.7	3.1	27	98	4.7	20	4.0	1.7	2.6
28	2.4	4.5	12	29	2.3	18	18	4.4	17	3.5	1.5	1.5
29	1.0	5.2	4.4	14	---	21	9.4	4.1	12	3.1	4.1	2.2
30	.55	3.7	3.2	12	---	12	6.9	4.0	9.0	7.6	2.9	2.3
31	.56	---	3.3	9.0	---	7.6	---	4.1	---	4.4	4.1	---
TOTAL	44.33	755.10	232.1	529.2	131.4	524.7	702.3	631.8	274.9	317.5	99.0	91.9
MEAN	1.43	25.2	7.49	17.1	4.69	16.9	23.4	20.4	9.16	10.2	3.19	3.06
MAX	10	223	76	123	49	79	132	87	26	50	12	13
MIN	.42	.60	1.8	2.4	1.2	2.9	3.3	4.0	3.4	3.1	1.5	1.0
AC-FT	88	1500	460	1050	261	1040	1390	1250	545	630	196	182

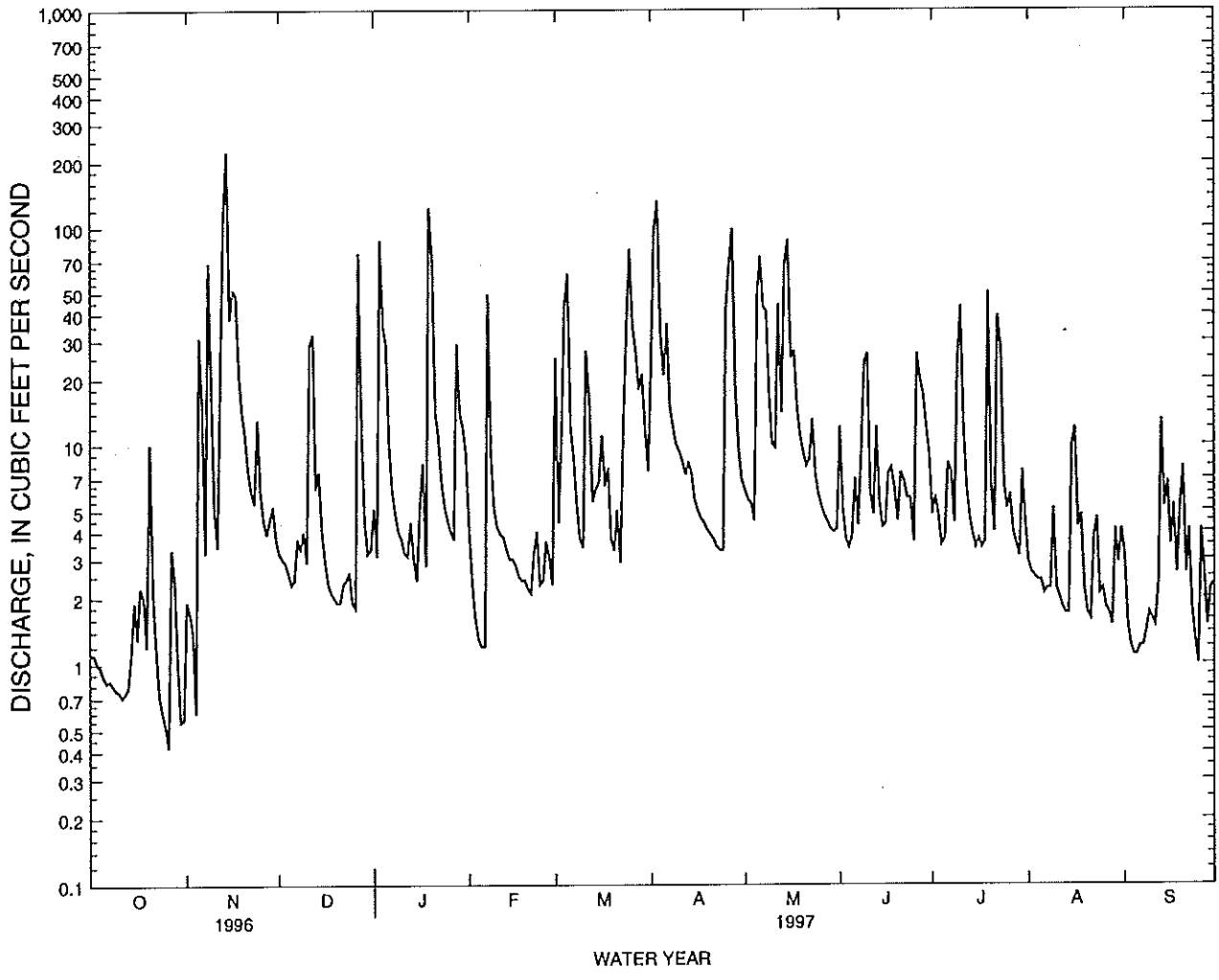
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1997, BY WATER YEAR (WY)

MEAN	6.67	16.2	12.7	15.1	12.5	15.9	14.4	8.47	5.04	8.09	5.49	4.11
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

HAWAII, ISLAND OF OAHU

16325000 KAMANANUI STREAM AT PUPUKEA MILITARY ROAD, NEAR MAUNAWAI--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1963 - 1997	
ANNUAL TOTAL	3925.63		4334.23			
ANNUAL MEAN	10.7		11.9		10.4	
HIGHEST ANNUAL MEAN					22.1	1982
LOWEST ANNUAL MEAN					4.09	1984
HIGHEST DAILY MEAN	223	Nov 14	223	Nov 14	620	Nov 20 1990
LOWEST DAILY MEAN	.42	Oct 26	.42	Oct 26	.00	Aug 27 1971
ANNUAL SEVEN-DAY MINIMUM	.77	Oct 7	.77	Oct 7	.00	Oct 15 1971
ANNUAL RUNOFF (AC-FT)	7790		8600		7520	
10 PERCENT EXCEEDS	19		30		20	
50 PERCENT EXCEEDS	3.7		4.4		3.4	
90 PERCENT EXCEEDS	1.2		1.4		.67	



HAWAII, ISLAND OF OAHU

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 November 20, 1990 was restored and water-stage recorder installed on February 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 computed by Leonard Thompson. Records fair. Small diversion upstream of station.

AVERAGE DISCHARGE.--39 years (water years 1959-97), 18.7 ft^3/s (13,520 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft^3/s, November 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)
Nov. 13	0200	2,380	6.84	Jan. 3	1315	1,320	5.66
Nov. 14	0245	3,950	8.41	Jan. 19	2230	*3,990	*8.44

Minimum discharge, 0.07 ft^3/s, October 11-15, 27.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.33	.13	6.0	9.7	15	25	19	7.5	7.9	8.2	4.1	4.7
2	.28	1.4	5.3	8.0	10	7.9	173	6.7	6.6	6.1	3.2	2.1
3	.26	1.1	4.9	244	6.9	14	343	6.0	4.3	6.5	2.9	e1.3
4	.23	.65	4.5	105	5.6	37	72	5.6	3.5	5.2	2.6	e1.2
5	.18	57	4.0	81	4.8	114	38	32	3.3	4.1	2.3	e1.2
6	.13	41	3.8	34	4.3	21	52	132	4.7	4.9	2.3	e1.3
7	.12	6.5	4.4	21	81	13	27	61	6.0	13	2.3	e1.4
8	.11	196	5.7	16	18	9.5	21	40	5.2	6.0	2.2	e1.6
9	.09	51	5.7	11	8.1	5.8	18	25	19	14	4.0	e2.0
10	.08	11	5.0	9.2	5.9	4.8	14	14	29	56	3.1	e1.8
11	.08	5.6	24	7.5	5.1	41	13	10	11	20	2.2	e1.7
12	.07	36	66	6.4	4.7	35	12	50	5.8	11	1.9	e2.5
13	.07	410	18	7.8	4.4	11	10	20	9.2	7.1	1.8	e15
14	.07	1120	15	7.7	4.0	7.6	11	85	9.1	5.3	1.5	10
15	.29	126	11	5.6	3.7	9.6	8.2	141	5.7	4.5	6.5	9.2
16	.64	215	6.9	6.1	3.4	15	6.9	37	5.0	4.1	14	4.2
17	.38	164	5.3	20	3.2	9.6	6.0	31	5.0	4.0	9.5	5.4
18	2.6	67	4.4	7.7	3.0	12	5.9	21	11	3.8	5.1	5.2
19	1.1	39	3.6	278	3.0	7.3	5.3	16	6.3	55	3.5	2.4
20	15	29	3.3	241	2.9	5.0	5.2	13	6.4	14	2.0	8.4
21	3.5	21	3.3	29	2.7	5.9	4.8	11	4.8	6.6	1.5	4.5
22	1.2	15	3.3	19	2.5	5.0	4.3	10	10	36	1.5	4.6
23	.55	12	4.4	13	4.8	14	4.1	20	6.7	62	5.6	3.4
24	.34	17	4.5	11	3.8	48	4.0	12	11	14	3.1	1.8
25	.19	14	3.8	8.7	3.2	152	36	8.7	5.7	8.2	2.4	1.2
26	.10	8.9	3.1	7.5	3.3	61	76	7.0	21	7.1	2.0	1.1
27	2.4	7.2	190	6.5	3.5	46	154	6.0	19	6.0	1.8	3.8
28	4.5	7.0	46	27	3.3	31	30	5.2	23	4.6	1.5	2.0
29	1.2	8.0	17	31	---	29	15	4.8	16	4.2	1.5	1.5
30	.52	7.7	9.2	39	---	21	9.9	4.0	13	5.3	4.4	2.1
31	.25	---	6.7	21	---	14	---	3.8	---	6.4	2.3	---
TOTAL	36.86	2695.18	498.1	1339.4	224.1	832.0	1198.6	846.3	294.2	413.2	104.6	108.6
MEAN	1.19	89.8	16.1	43.2	8.00	26.8	40.0	27.3	9.81	13.3	3.37	3.62
MAX	15	1120	190	278	81	152	343	141	29	62	14	15
MIN	.07	.13	3.1	5.6	2.5	4.8	4.0	3.8	3.3	3.8	1.5	1.1
AC-FT	73	5350	988	2660	445	1650	2380	1680	584	820	207	215

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 1997, BY WATER YEAR (WY)

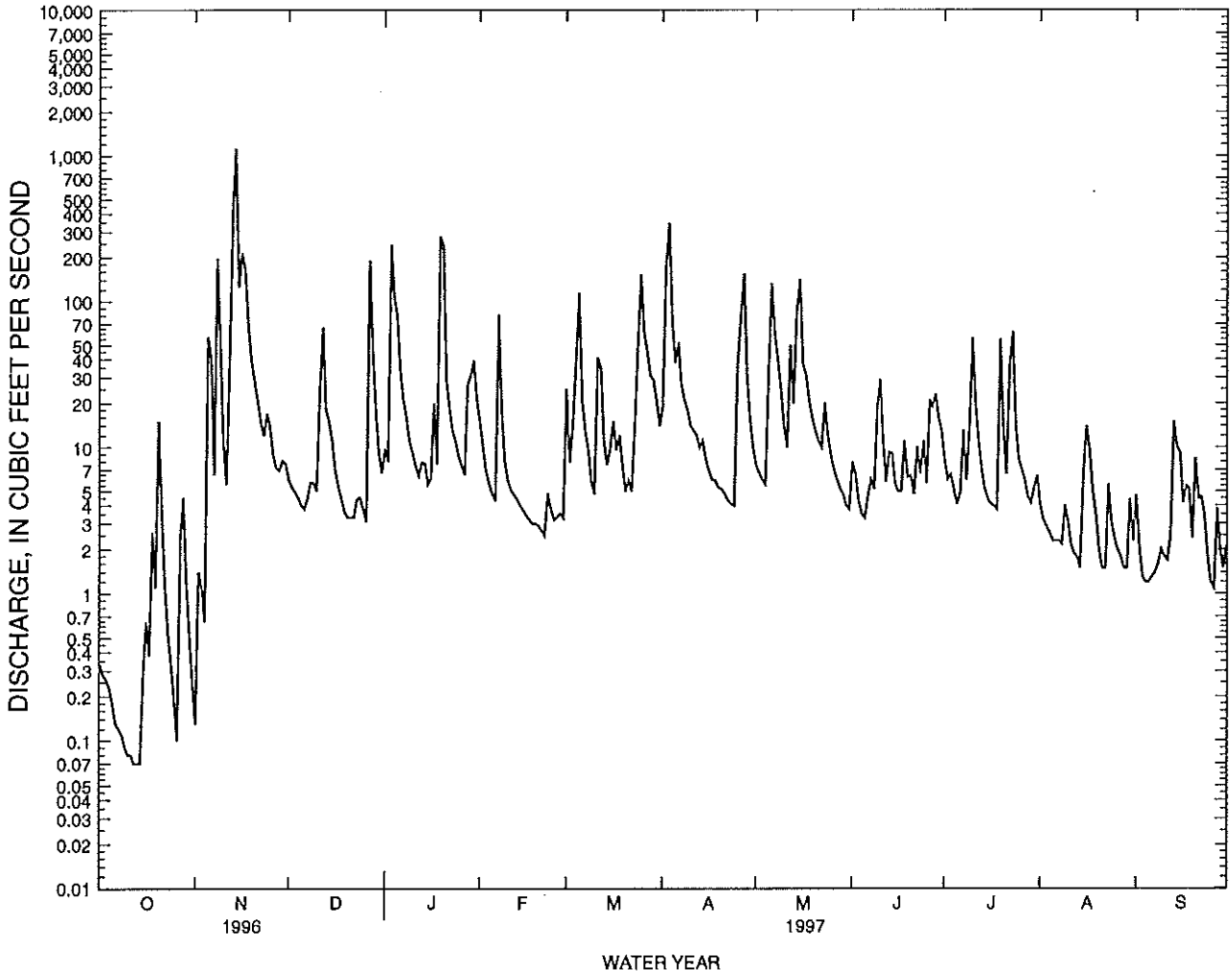
MEAN	12.0	29.8	21.5	27.6	22.6	32.2	28.8	15.2	7.41	12.9	9.79	5.97
MAX	56.7	168	107	143	106	155	168	62.8	52.9	52.7	68.0	19.9
(WY)	1959	1991	1988	1988	1969	1982	1989	1965	1978	1989	1958	1994
MIN	.006	.51	.67	.094	.022	1.23	.64	.95	.33	.52	.20	.006
(WY)	1985	1963	1977	1986	1978	1983	1992	1984	1959	1971	1971	1984

e Estimated

HAWAII, ISLAND OF OAHU

16330000 KAMANANUI STREAM AT MAUNAWAI--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1958 - 1997	
ANNUAL TOTAL	8417.20		8591.14			
ANNUAL MEAN	23.0		23.5		18.7	
HIGHEST ANNUAL MEAN					50.3	1982
LOWEST ANNUAL MEAN					4.81	1984
HIGHEST DAILY MEAN	1120	Nov 14	1120	Nov 14	1940	Jan 1 1988
LOWEST DAILY MEAN	.07	Oct 12	.07	Oct 12	.00	Jun 21 1959
ANNUAL SEVEN-DAY MINIMUM	.08	Oct 8	.08	Oct 8	.00	Jul 23 1959
ANNUAL RUNOFF (AC-FT)	16700		17040		13520	
10 PERCENT EXCEEDS	30		46		31	
50 PERCENT EXCEEDS	4.4		6.4		4.0	
90 PERCENT EXCEEDS	.63		1.4		.34	



HAWAII, ISLAND OF OAHU

16345000 OPAEULA STREAM NEAR WAHIAWA

LOCATION.--Lat 21°33'55", long 158°00'10", Hydrologic Unit 20060000, 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 computed by Ben Shimizu and Leonard Thompson. Records fair except for period of no gage-height record which is poor. No diversion upstream of station.

AVERAGE DISCHARGE.--38 years (water years 1960-97), 13.9 ft^3/s (10,050 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, November 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct. 19	2100	1,940	8.48	Jan. 20	0030	1,460	7.53
Nov. 14	0030	1,650	7.90	Apr. 3	unknown	*2,420	*9.44

Minimum discharge, 1.1 ft^3/s, February 21, 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	10	4.2	7.2	7.0	37	e13	2.4	10	7.6	6.7	6.9
2	4.3	4.6	7.1	4.4	4.4	5.7	e115	2.1	5.6	6.7	4.9	e3.1
3	4.1	2.9	5.0	159	3.4	19	e180	2.1	3.2	7.0	4.5	e2.5
4	3.9	1.9	4.0	28	2.7	30	e50	2.0	2.9	9.5	4.2	e2.0
5	3.7	65	4.0	15	2.3	77	e25	17	5.0	7.9	3.6	e1.9
6	3.5	24	9.2	9.7	2.1	15	e30	39	9.3	9.7	3.3	e2.2
7	3.5	5.8	15	5.3	37	9.0	e18	37	5.7	9.1	4.3	e2.3
8	3.4	60	7.5	4.0	9.2	6.4	e13	24	6.9	6.9	5.0	e2.6
9	3.1	25	5.1	3.4	3.8	4.5	e10	6.5	21	17	3.4	e3.1
10	3.0	7.1	4.5	3.0	3.7	4.9	e9.0	3.2	18	55	3.6	e2.5
11	3.1	6.3	43	2.8	2.8	20	e8.0	3.2	5.9	14	2.8	e2.4
12	3.3	73	41	2.4	2.7	27	e7.0	27	3.9	10	3.0	e3.9
13	3.7	151	8.9	2.6	3.3	7.1	e6.0	9.8	19	6.4	2.7	e23
14	7.3	201	14	3.3	2.2	11	e6.0	72	6.5	5.4	2.2	e17
15	7.6	35	6.4	2.3	1.9	5.4	e4.0	134	6.3	4.5	3.8	e12
16	6.8	72	4.5	2.2	1.7	5.0	e3.5	19	5.1	7.6	41	e6.0
17	21	60	3.7	6.7	1.6	5.9	e3.0	26	4.7	6.7	9.1	e6.9
18	14	22	3.3	3.9	1.5	11	e2.8	10	8.5	4.8	8.9	e5.0
19	171	12	3.0	26	1.4	4.4	e2.5	8.1	8.5	42	4.2	e3.7
20	39	12	2.8	151	1.3	3.0	e2.0	6.3	6.1	7.1	2.6	e14
21	6.9	7.5	2.6	7.2	1.2	e2.8	e1.9	5.4	9.4	4.5	2.3	e6.8
22	3.9	6.0	2.6	7.6	1.1	e2.5	1.8	4.9	10	78	9.5	e7.2
23	2.6	5.3	2.6	4.6	e4.0	e12	1.6	8.5	13	33	7.8	e4.6
24	2.0	24	2.6	2.8	3.6	e40	4.0	5.7	12	6.7	4.7	e2.9
25	1.8	8.5	2.6	2.3	e6.0	e105	34	4.0	6.9	5.6	4.1	e2.2
26	11	5.5	2.3	2.0	7.2	e50	71	3.3	38	14	6.1	e1.7
27	27	4.8	47	1.9	6.3	e33	63	2.9	36	5.7	7.4	e4.5
28	6.3	4.5	13	16	3.3	e25	7.4	2.7	20	4.3	3.8	e3.1
29	3.0	7.4	4.4	62	---	e20	3.9	2.5	19	3.7	3.5	e2.8
30	2.1	4.8	2.9	23	---	e12	2.9	2.3	13	72	8.2	e2.5
31	13	---	3.0	15	---	e9.0	---	2.2	---	9.3	11	---
TOTAL	393.4	928.9	281.8	586.6	128.7	619.6	699.3	495.1	339.4	481.7	192.2	161.3
MEAN	12.7	31.0	9.09	18.9	4.60	20.0	23.3	16.0	11.3	15.5	6.20	5.38
MAX	171	201	47	159	37	105	180	134	38	78	41	23
MIN	1.8	1.9	2.3	1.9	1.1	2.5	1.6	2.0	2.9	3.7	2.2	1.7
AC-FT	780	1840	559	1160	255	1230	1390	982	673	955	381	320

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1997, BY WATER YEAR (WY)

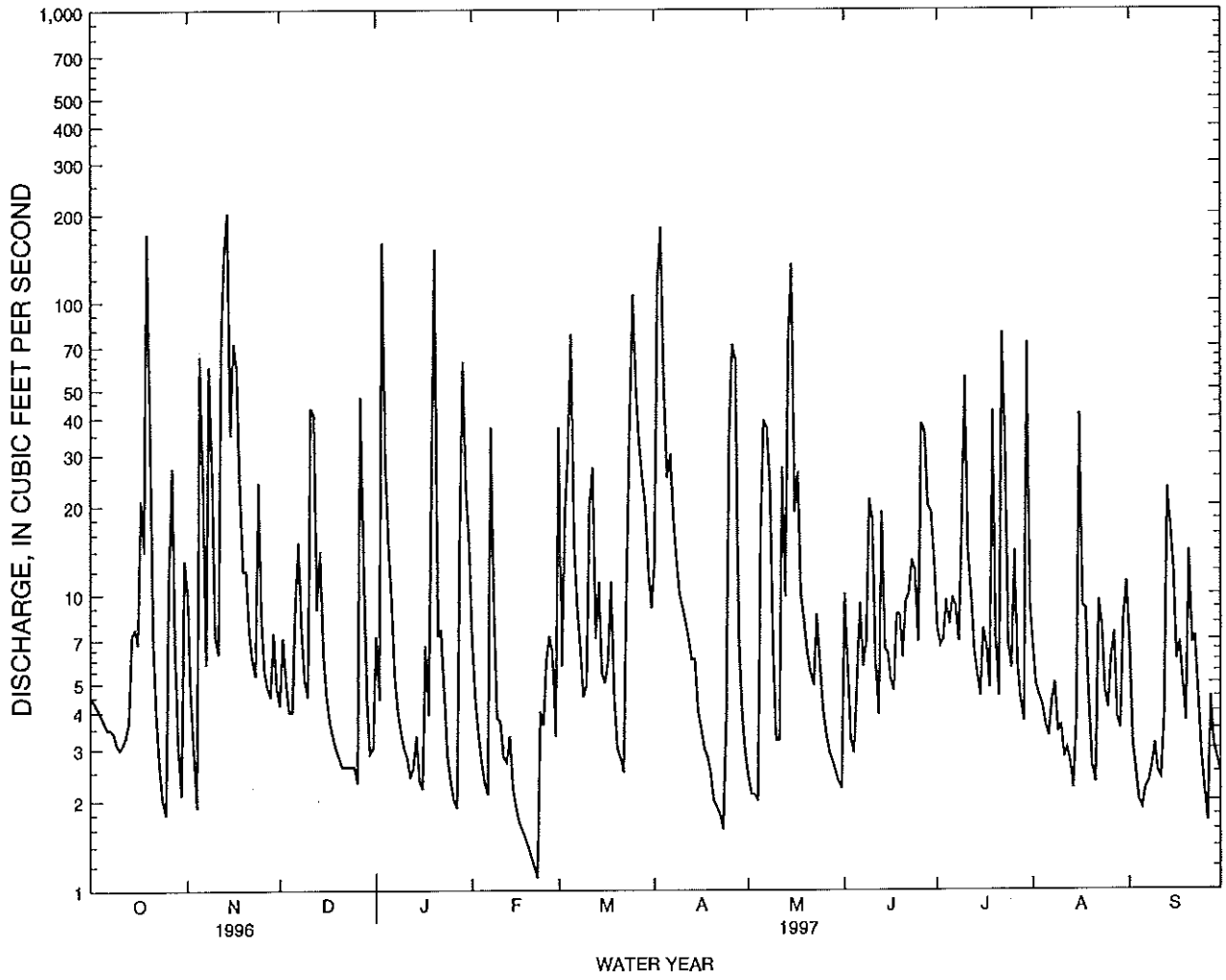
MEAN	11.1	18.9	15.7	16.4	13.9	21.1	21.2	12.5	7.47	11.9	8.68	7.72
MAX	30.7	71.9	52.6	54.1	66.9	90.0	75.7	43.7	24.9	29.3	31.0	24.9
(WY)	1982	1991	1988	1988	1969	1982	1989	1965	1978	1989	1982	1994
MIN	.057	2.90	1.29	.37	.32	.35	1.57	1.75	2.02	.95	1.51	.52
(WY)	1985	1963	1977	1977	1978	1983	1966	1966	1975	1971	1984	1975

e Estimated

HAWAII, ISLAND OF OAHU

16345000 OPAEULA STREAM NEAR WAHIAWA

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1959 - 1997	
ANNUAL TOTAL	5007.78		5308.0			
ANNUAL MEAN	13.7		14.5		13.9	
HIGHEST ANNUAL MEAN					29.7	1982
LOWEST ANNUAL MEAN					7.24	1984
HIGHEST DAILY MEAN	350	Jan 19	201	Nov 14	825	Feb 1 1969
LOWEST DAILY MEAN	.51	Aug 30	1.1	Feb 22	.00	Jan 24 1977
ANNUAL SEVEN-DAY MINIMUM	.65	May 12	1.4	Feb 16	.00	Oct 24 1984
ANNUAL RUNOFF (AC-FT)	9930		10530		10050	
10 PERCENT EXCEEDS	26		36		28	
50 PERCENT EXCEEDS	4.2		5.9		4.6	
90 PERCENT EXCEEDS	1.2		2.3		.93	



Surface-Water Station Records for Molokai

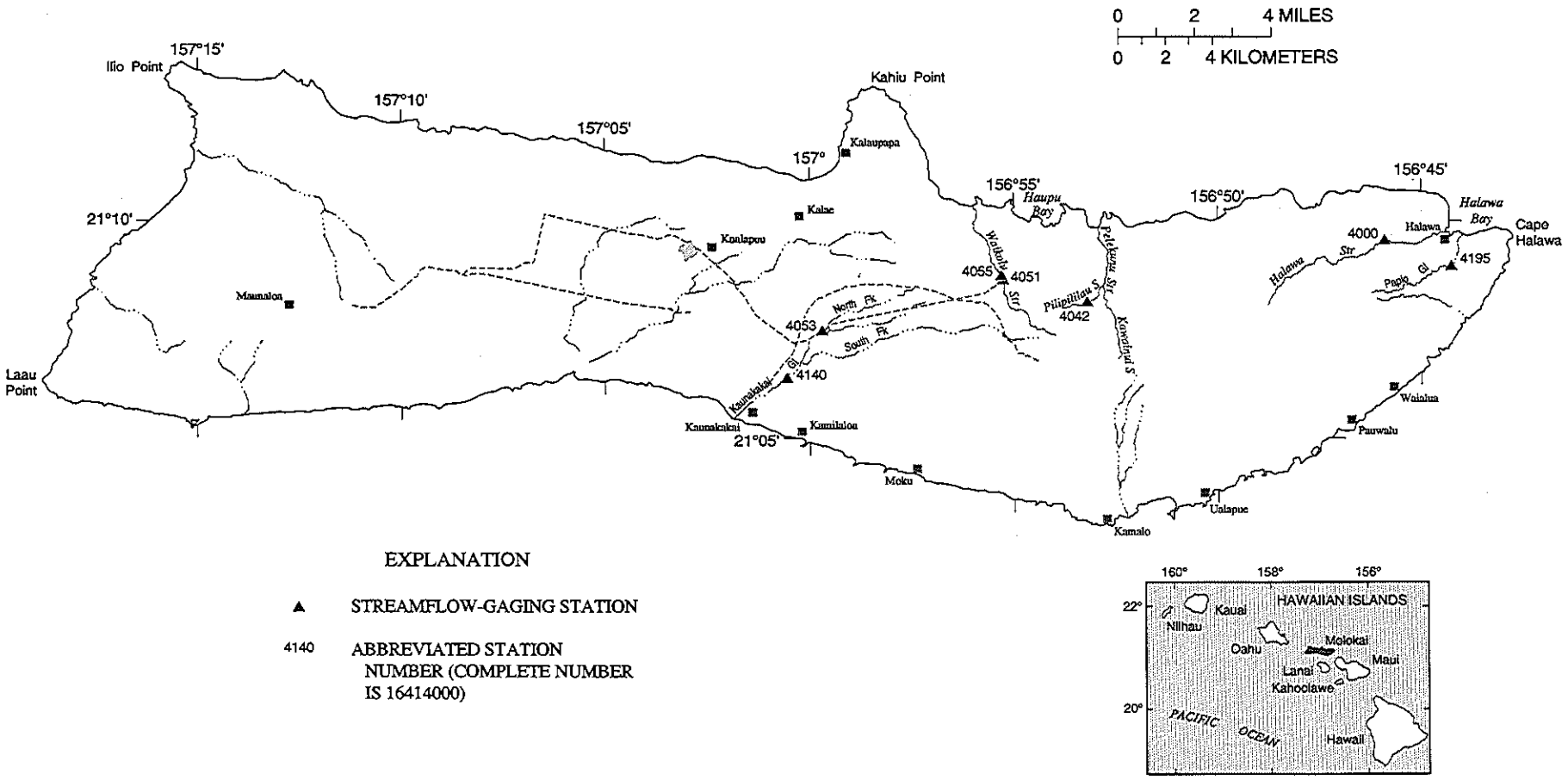


Figure 7. Locations of gaging, water-quality, and partial-record stations on Molokai.

HAWAII, ISLAND OF MOLOKAI

16400000 HALAWA STREAM NEAR HALAWA

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.

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 November 17, 1937 to February 3, 1965, at present site at datum 2.00 ft higher.

REMARKS.--Records computed by Matt Wong. Records fair. No diversion upstream.

AVERAGE DISCHARGE.--73 years (water years 1918-31, 1939-97), 29.8 ft^3/s (21,610 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,900 ft^3/s, February 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 November 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)
Nov. 13	0230	*2,890	*9.66	Jan. 19	2400	2,087	8.63

Minimum discharge, 2.3 ft^3/s, October 9-12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	65	17	75	23	20	9.9	7.0	18	17	11	11
2	2.7	13	14	58	13	41	271	6.5	14	41	9.1	37
3	2.6	4.6	9.8	187	13	38	34	40	7.5	20	9.5	11
4	2.5	3.4	15	e195	10	75	16	44	40	18	8.6	8.2
5	2.4	2.9	48	e54	8.4	57	16	55	10	12	7.5	23
6	2.9	2.7	11	e24	7.8	24	56	92	49	38	8.3	9.5
7	3.2	2.6	105	e16	12	18	12	53	30	15	8.7	6.6
8	2.6	188	32	e13	8.4	10	13	124	62	18	7.5	6.8
9	2.4	56	10	e10	7.2	26	47	41	23	64	6.6	6.4
10	2.3	18	7.6	e8.9	6.8	101	14	25	26	76	5.7	5.3
11	2.3	55	57	e12	7.4	210	12	48	12	49	5.2	5.9
12	2.4	324	33	e8.4	7.2	35	12	174	9.2	24	4.8	11
13	2.5	402	12	e20	6.5	14	29	111	9.5	15	4.7	24
14	3.7	111	77	e7.8	7.4	11	13	367	15	12	4.7	30
15	3.2	32	14	e6.5	6.3	30	13	124	16	26	25	11
16	3.9	45	8.4	215	5.8	25	8.1	51	16	39	10	15
17	7.6	221	6.8	63	5.6	111	6.8	32	26	13	10	38
18	3.8	44	6.1	14	7.1	46	6.1	19	25	20	7.7	22
19	41	31	6.1	120	6.3	21	5.7	101	68	32	4.8	18
20	10	22	5.3	157	5.5	16	5.4	22	16	11	11	49
21	6.0	13	7.0	34	5.5	11	5.1	15	81	11	34	22
22	4.0	11	28	42	24	9.6	4.9	12	52	78	11	33
23	3.0	20	182	15	15	94	4.7	59	43	40	9.5	49
24	3.0	49	23	12	5.5	38	11	13	91	13	13	94
25	3.0	43	9.8	11	17	61	118	11	75	27	9.3	21
26	4.6	20	7.6	9.8	26	29	90	9.4	97	18	20	58
27	4.6	40	162	9.1	9.9	35	39	8.6	74	10	10	43
28	4.2	28	19	8.4	16	16	19	7.8	39	9.0	18	76
29	4.4	13	10	21	---	62	12	7.2	75	15	40	26
30	4.5	9.8	8.0	109	---	15	8.5	6.6	25	126	18	17
31	9.2	---	22	34	---	12	---	18	---	15	39	---
TOTAL	157.3	1890.0	973.5	1569.9	293.6	1311.6	912.2	1704.1	1144.2	922.0	392.2	787.7
MEAN	5.07	63.0	31.4	50.6	10.5	42.3	30.4	55.0	38.1	29.7	12.7	26.3
MAX	41	402	182	215	26	210	271	367	97	126	40	94
MIN	2.3	2.6	5.3	6.5	5.5	9.6	4.7	6.5	7.5	9.0	4.7	5.3
AC-FT	312	3750	1930	3110	582	2600	1810	3380	2270	1830	778	1560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 1997, BY WATER YEAR (WY)

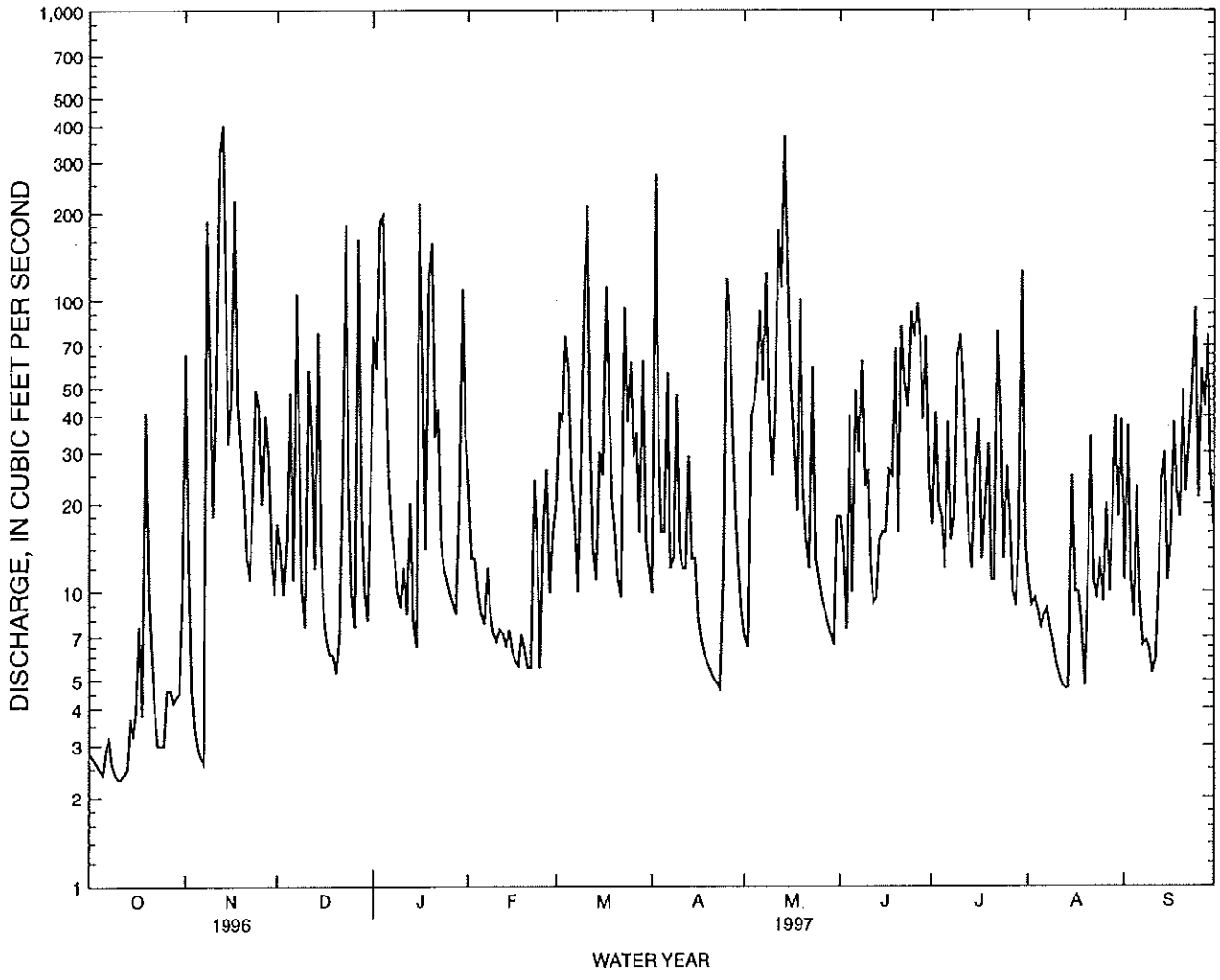
MEAN	26.5	36.5	36.2	33.9	29.7	37.8	40.3	27.4	18.8	25.8	24.8	20.6
MAX	100	97.8	84.7	118	114	134	157	85.2	59.2	58.2	69.8	58.2
(WY)	1942	1951	1947	1921	1932	1942	1989	1963	1961	1954	1938	1992
MIN	2.04	5.80	8.56	5.31	2.98	5.48	11.7	4.26	4.93	6.00	1.19	2.85
(WY)	1918	1920	1977	1977	1978	1970	1990	1920	1966	1917	1971	1975

e Estimated

HAWAII, ISLAND OF MOLOKAI

16400000 HALAWA STREAM NEAR HALAWA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1917 - 1997	
ANNUAL TOTAL	9397.5		12058.3			
ANNUAL MEAN	25.7		33.0		29.8	
HIGHEST ANNUAL MEAN					47.4	1965
LOWEST ANNUAL MEAN					17.4	1975
HIGHEST DAILY MEAN	402	Nov 13	402	Nov 13	1240	Feb 4 1965
LOWEST DAILY MEAN	2.3	Oct 10	2.3	Oct 10	.86	Sep 1 1971
ANNUAL SEVEN-DAY MINIMUM	2.5	Oct 7	2.5	Oct 7	.90	Aug 26 1971
ANNUAL RUNOFF (AC-FT)	18640		23920		21610	
10 PERCENT EXCEEDS	62		76		65	
50 PERCENT EXCEEDS	9.4		15		13	
90 PERCENT EXCEEDS	3.5		4.9		4.8	



HAWAII, ISLAND OF MOLOKAI

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 February 17, 1997 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 1,000 ft above mean sea level (from topographic map).

REMARKS.--Records computed by Matt Wong. Records fair. No diversions upstream of station.

AVERAGE DISCHARGE.--28 years (water years 1969-96), 1.58 ft^3/s (1,140 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 835 ft^3/s, January 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, September 2-8, 21-29, 1975, November 26 to December 3, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 100 ft^3/s and maximum (*) during the period October 1996 to February 17, 1997:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 21	1930	*111	*2.99	No other peak greater than base discharge.			

Minimum discharge during the period October 1996 to February 17, 1997, 0.49 ft^3/s, October 29-31.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.58	.55	.89	5.3	1.9	---	---	---	---	---	---	---
2	.58	.52	.84	3.5	1.9	---	---	---	---	---	---	---
3	.55	.52	.84	7.9	1.9	---	---	---	---	---	---	---
4	.55	.52	.94	16	1.9	---	---	---	---	---	---	---
5	.55	.52	1.0	5.8	1.9	---	---	---	---	---	---	---
6	.55	.52	.99	4.3	1.9	---	---	---	---	---	---	---
7	.55	.55	9.6	3.7	1.8	---	---	---	---	---	---	---
8	.55	2.0	2.9	3.1	1.7	---	---	---	---	---	---	---
9	.55	.70	1.7	2.9	1.7	---	---	---	---	---	---	---
10	.55	.58	1.5	2.5	1.7	---	---	---	---	---	---	---
11	.55	.55	1.4	2.4	1.6	---	---	---	---	---	---	---
12	.58	7.2	1.2	2.4	1.6	---	---	---	---	---	---	---
13	.58	11	1.6	2.3	1.5	---	---	---	---	---	---	---
14	.61	4.5	5.7	2.2	1.5	---	---	---	---	---	---	---
15	.58	1.9	2.2	2.2	1.5	---	---	---	---	---	---	---
16	.58	2.6	1.7	5.8	1.5	---	---	---	---	---	---	---
17	.58	4.7	1.5	3.2	1.5	---	---	---	---	---	---	---
18	.61	2.4	1.4	2.5	---	---	---	---	---	---	---	---
19	.61	2.3	1.3	7.4	---	---	---	---	---	---	---	---
20	.58	1.9	1.2	4.0	---	---	---	---	---	---	---	---
21	.58	1.4	5.1	3.9	---	---	---	---	---	---	---	---
22	.55	1.2	3.1	3.1	---	---	---	---	---	---	---	---
23	.61	1.1	7.6	2.8	---	---	---	---	---	---	---	---
24	.58	.99	3.8	2.5	---	---	---	---	---	---	---	---
25	.52	.94	2.6	2.4	---	---	---	---	---	---	---	---
26	.52	.89	2.7	2.3	---	---	---	---	---	---	---	---
27	.52	.99	9.9	2.3	---	---	---	---	---	---	---	---
28	.52	1.4	3.8	2.2	---	---	---	---	---	---	---	---
29	.49	.89	3.0	2.2	---	---	---	---	---	---	---	---
30	.49	.89	2.9	2.2	---	---	---	---	---	---	---	---
31	.49	---	7.1	2.0	---	---	---	---	---	---	---	---
TOTAL	17.29	56.72	92.00	117.3	---	---	---	---	---	---	---	---
MEAN	.56	1.89	2.97	3.78	---	---	---	---	---	---	---	---
MAX	.61	11	9.9	16	---	---	---	---	---	---	---	---
MIN	.49	.52	.84	2.0	---	---	---	---	---	---	---	---
AC-FT	34	113	182	233	---	---	---	---	---	---	---	---

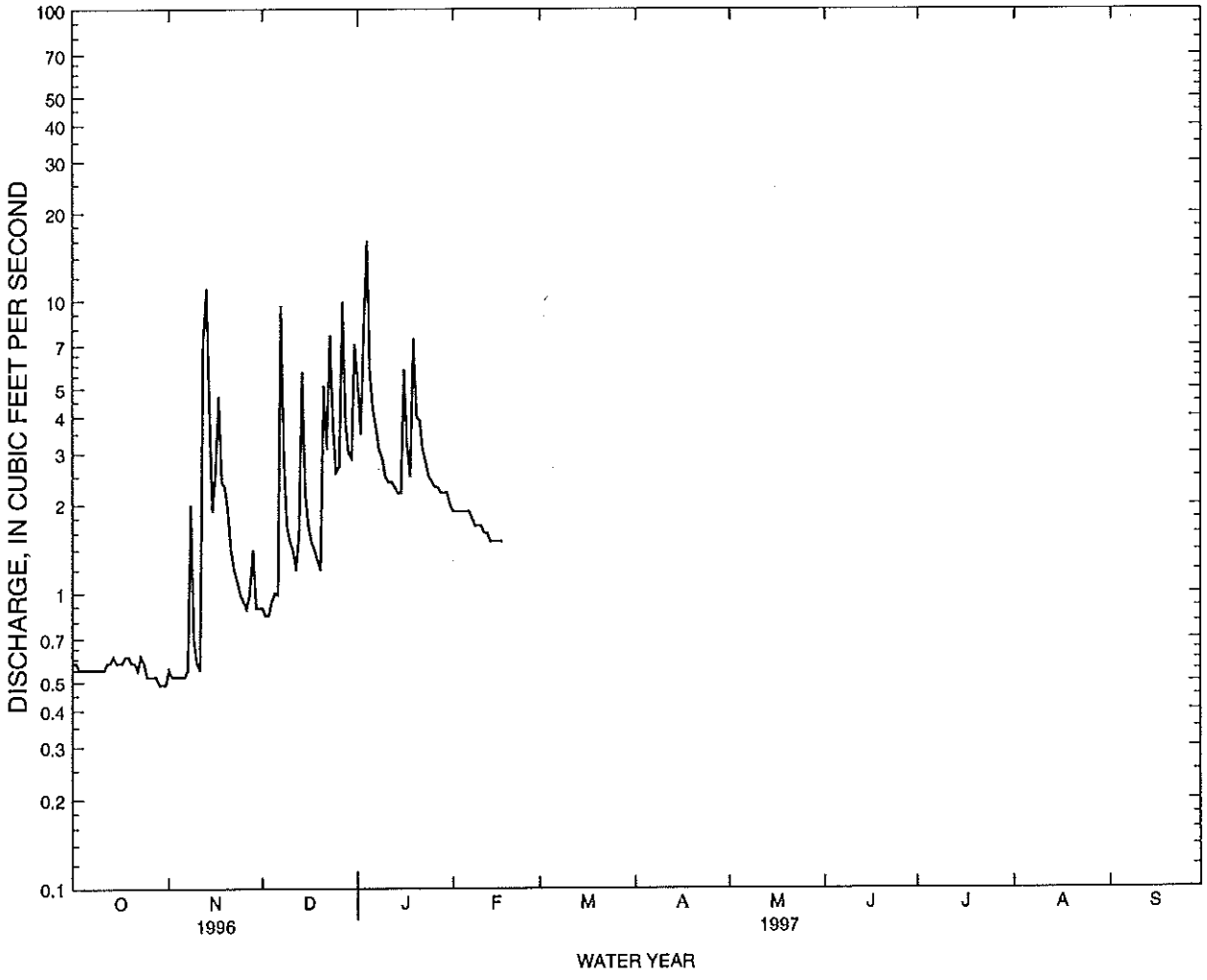
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1997, BY WATER YEAR (WY)

MEAN	.88	1.56	1.80	2.55	2.07	2.29	2.36	1.67	1.12	1.02	.89	.80
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	.56	.60	.58	.64	.58	1.02	.75	.77	.69	.60	.58	.53
(WY)	1997	1978	1976	1977	1978	1975	1978	1975	1975	1975	1975	1975

HAWAII, ISLAND OF MOLOKAI

16404200 PILIPILILAU STREAM NEAR PELEKUNU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		WATER YEARS 1968 - 1997	
ANNUAL TOTAL	478.70			
ANNUAL MEAN	1.31		1.58	
HIGHEST ANNUAL MEAN			2.69	1982
LOWEST ANNUAL MEAN			.77	1978
HIGHEST DAILY MEAN	12	Feb 28	152	Apr 8 1989
LOWEST DAILY MEAN	.49	Oct 29	.49	Oct 29 1996
ANNUAL SEVEN-DAY MINIMUM	.51	Oct 25	.50	Sep 21 1975
ANNUAL RUNOFF (AC-FT)	950		1140	
10 PERCENT EXCEEDS	2.4		2.7	
50 PERCENT EXCEEDS	.84		1.0	
90 PERCENT EXCEEDS	.55		.64	



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 computed by Matt Wong. Records good except for periods of estimated discharge, which are poor. 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.--31 years (water years 1967-97), 4.64 ft^3/s (3,360 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 41 ft^3/s, March 19, 1986; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 26 ft^3/s, December 14, 23, 27, March 17 (estimated), April 25; minimum daily, 1.3 ft^3/s, April 16-20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	4.9	5.8	19	e2.9	e4.5	2.5	3.5	2.5	3.6	e5.6	e1.7
2	4.6	4.8	6.6	8.9	e2.7	e4.5	4.3	3.8	2.7	7.1	e5.0	e1.6
3	4.6	4.8	5.0	17	e2.7	e9.0	5.3	5.5	2.5	5.2	e4.8	e1.6
4	3.0	4.7	5.5	25	e2.7	e17	2.9	7.0	2.4	3.4	e4.5	e1.6
5	2.6	4.7	12	13	e2.7	e8.0	2.6	6.4	2.5	2.8	e4.3	e1.6
6	2.6	4.7	6.8	8.8	e2.7	e8.6	3.7	5.1	5.9	3.0	e4.2	e1.6
7	2.7	4.7	22	7.8	e2.7	e6.2	2.6	3.3	6.6	3.1	e4.3	e1.6
8	2.6	17	18	7.3	e2.7	e5.2	2.4	5.1	6.0	4.4	e4.2	e1.6
9	2.6	12	6.7	6.6	e2.7	e4.5	2.4	5.7	3.9	9.7	e4.1	e1.6
10	2.6	7.0	5.0	6.3	e2.7	e9.0	2.2	6.2	4.5	12	e4.0	e1.6
11	2.7	5.8	6.7	6.1	e2.7	e19	2.1	3.9	3.2	13	e3.9	e1.6
12	2.6	12	8.0	6.0	e2.7	e10	2.1	15	2.6	8.2	e4.0	e1.6
13	2.6	24	6.6	5.9	e2.7	e5.2	2.0	6.1	2.4	5.5	e3.9	e1.5
14	2.5	18	26	3.2	e2.7	e4.8	1.9	19	2.3	4.9	e3.8	e1.5
15	2.7	5.9	11	2.3	e2.7	e4.7	1.4	13	2.3	e5.1	e3.0	e2.6
16	2.6	6.1	7.0	13	e2.7	e4.4	1.3	5.5	2.2	e5.4	e3.9	e5.0
17	2.6	17	6.3	11	e2.7	e26	1.3	3.9	2.9	e4.9	e5.4	e11
18	5.0	9.7	5.8	4.1	e2.7	e23	1.3	3.2	7.5	e4.8	e4.4	e6.4
19	6.0	15	5.7	4.6	e2.7	e5.2	1.3	4.8	16	e5.2	e4.0	e5.6
20	6.0	12	5.5	12	e2.7	e4.8	1.3	4.5	6.1	e5.1	e4.0	e4.8
21	5.8	6.9	9.1	7.7	e4.5	e4.5	1.5	3.2	8.2	e4.9	e4.0	e7.6
22	5.2	5.7	15	8.4	e21	e4.5	1.4	2.7	7.1	e7.2	e4.1	e7.6
23	5.0	5.6	26	3.8	e4.5	e16	1.8	12	4.6	e12	e4.1	e6.0
24	5.8	6.2	17	3.0	e4.5	e11	4.2	4.4	7.7	e6.0	e2.6	e6.2
25	5.7	5.0	8.6	2.7	e14	e6.2	26	3.3	9.3	e7.2	e2.1	e6.8
26	5.6	5.7	6.6	e2.7	e9.5	e4.5	20	2.9	12	e7.2	e1.9	e8.4
27	5.6	11	26	e2.7	e5.2	8.5	10	2.7	8.6	e5.8	e1.6	e6.6
28	5.6	19	11	e2.7	e4.5	5.4	6.4	2.5	8.1	e5.8	e1.6	e7.6
29	5.7	8.5	7.2	e2.7	---	7.2	5.0	2.5	11	e5.8	e1.6	e7.1
30	5.5	6.3	7.4	e2.9	---	3.9	3.4	2.4	5.7	e8.0	e1.6	e5.4
31	4.9	---	18	e3.1	---	2.8	---	2.4	---	e7.0	e1.7	---
TOTAL	128.2	274.7	333.9	230.3	121.9	258.1	126.6	171.5	169.3	193.3	112.2	127.0
MEAN	4.14	9.16	10.8	7.43	4.35	8.33	4.22	5.53	5.64	6.24	3.62	4.23
MAX	6.0	24	26	25	21	26	26	19	16	13	5.6	11
MIN	2.5	4.7	5.0	2.3	2.7	2.8	1.3	2.4	2.2	2.8	1.6	1.5
AC-FT	254	545	662	457	242	512	251	340	336	383	223	252

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1997, BY WATER YEAR (WY)

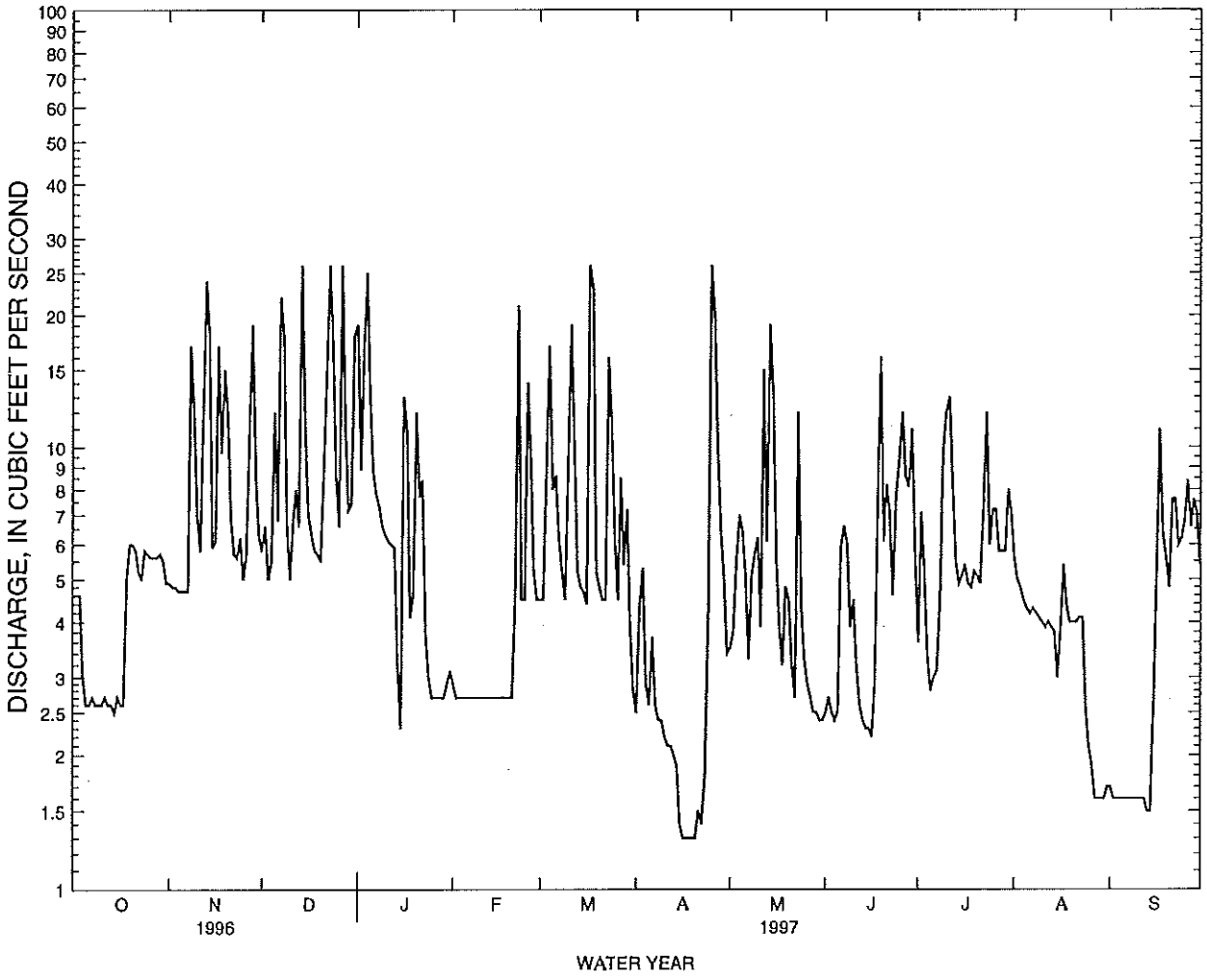
MEAN	3.96	5.50	5.40	5.03	4.80	5.54	5.42	4.46	4.02	4.38	3.72	3.28
MAX	8.05	10.2	10.8	12.5	12.5	13.8	12.8	12.3	8.37	9.89	7.22	5.81
(WY)	1996	1988	1997	1987	1990	1986	1986	1987	1986	1986	1985	1994
MIN	1.80	1.86	.41	.086	.010	.009	.001	.037	.016	.055	.004	.24
(WY)	1972	1992	1968	1968	1968	1968	1967	1967	1974	1974	1974	1974

e Estimated

HAWAII, ISLAND OF MOLOKAI

16405100 MOLOKAI TUNNEL AT EAST PORTAL--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1966 - 1997	
ANNUAL TOTAL	2152.9		2247.0			
ANNUAL MEAN	5.88		6.16		4.64	
HIGHEST ANNUAL MEAN					8.19	1987
LOWEST ANNUAL MEAN					1.31	1974
HIGHEST DAILY MEAN	26	Dec 14	26	Dec 14	41	Mar 19 1986
LOWEST DAILY MEAN	1.4	Mar 12	1.3	Apr 16	.00	Mar 30 1967
ANNUAL SEVEN-DAY MINIMUM	1.8	Mar 12	1.3	Apr 15	.00	Mar 30 1967
ANNUAL RUNOFF (AC-FT)	4270		4460		3360	
10 PERCENT EXCEEDS	11		12		9.6	
50 PERCENT EXCEEDS	4.8		4.9		3.4	
90 PERCENT EXCEEDS	2.7		2.3		.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 computed by Matt Wong. Records fair except for estimated periods, which are poor. 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.--32 years (water years 1966-97), 7.18 ft^3/s (5,200 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 39 ft^3/s, April 8, 9, 1986, January 2, 26, 1988, and March 3, 1989; minimum daily, 1.8 ft^3/s, October 15, 1967, August 27, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 30 ft^3/s, April 25; minimum daily, 3.8 ft^3/s, May 28-31, June 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e7.2	e7.5	e8.4	e22	5.0	e7.6	5.3	6.7	3.9	7.0	8.3	5.0
2	e7.2	e7.4	e9.2	e12	4.4	e7.6	6.3	6.9	4.1	10	8.0	4.7
3	e7.2	e7.4	e7.6	e20	e4.4	e13	8.6	8.3	3.9	8.8	7.9	4.6
4	e5.6	e7.3	e8.1	e28	e4.4	e19	6.0	10	3.8	6.9	7.9	4.6
5	e5.2	e7.3	e15	e26	e4.4	e11	5.4	10	4.0	6.2	7.7	4.6
6	e5.2	e7.3	e9.4	e11	e4.4	e11	6.7	8.7	6.6	6.1	7.6	4.6
7	e5.3	e7.3	e25	e10	e4.4	e10	5.7	6.6	8.8	6.4	7.7	4.6
8	e5.2	e20	e21	e10	e4.4	e8.5	5.3	8.1	8.8	7.7	7.4	4.6
9	e5.2	e15	e9.3	e9.0	e4.4	e7.0	5.3	8.3	6.7	13	7.3	4.6
10	e5.2	e9.6	e7.6	e8.9	e4.4	e12	5.1	10	7.1	16	7.3	4.6
11	e5.3	e8.4	e9.3	e8.7	e4.4	e23	5.1	7.0	6.1	17	7.0	4.6
12	e5.2	e15	e11	e8.6	e4.4	e15	4.9	19	5.4	13	7.2	4.5
13	e5.2	e27	e9.2	e8.5	e4.4	e10	5.0	9.7	5.3	9.4	7.1	4.4
14	e5.1	e21	e29	e5.8	e4.4	e8.0	4.9	21	5.1	8.8	6.8	4.4
15	e5.3	e8.5	e14	e4.9	e4.4	e7.8	4.4	17	5.2	8.7	5.7	5.8
16	e5.2	e8.7	e9.6	12	e4.4	e7.7	4.3	8.8	5.2	9.8	6.6	8.3
17	e5.2	e20	e9.0	14	e4.4	e29	4.2	7.1	5.7	8.5	8.2	15
18	e7.6	e12	e8.4	5.8	e4.4	e16	4.2	6.3	9.9	8.2	7.5	11
19	e8.6	e18	e8.3	4.8	e4.4	e12	4.2	7.7	20	9.5	6.9	9.7
20	e8.6	e15	e8.1	16	e4.4	e8.0	4.2	8.0	9.7	8.9	6.8	7.9
21	e8.4	e9.5	e12	8.0	e10	e7.6	4.6	6.6	11	8.4	6.9	11
22	e7.8	e8.3	e18	12	e24	e7.2	4.2	6.1	10	16	7.0	11
23	e7.6	e8.2	e29	5.8	e8.0	e19	4.9	13	8.0	19	7.0	9.0
24	e8.4	e8.8	e20	4.8	e8.0	e13	5.5	5.5	10	10	5.2	9.5
25	e8.3	e7.6	e11	4.5	e17	e9.4	30	4.4	12	11	4.8	10
26	e8.2	e8.3	e9.2	4.2	e13	e6.6	25	4.0	16	11	4.6	12
27	e8.2	e14	e29	4.2	e9.0	11	14	3.9	12	9.0	4.6	9.6
28	e8.2	e22	e14	4.4	e7.6	8.3	9.8	3.8	11	8.7	4.6	11
29	e8.3	e11	e9.8	6.1	---	9.7	8.2	3.8	14	8.7	4.6	10
30	e8.1	e8.9	e10	6.3	---	7.0	6.6	3.8	9.4	11	4.6	8.5
31	e7.5	---	e21	7.3	---	5.7	---	3.8	---	9.6	4.8	---
TOTAL	208.8	356.3	419.5	313.6	185.2	347.7	217.9	253.9	248.7	312.3	205.6	223.7
MEAN	6.74	11.9	13.5	10.1	6.61	11.2	7.26	8.19	8.29	10.1	6.63	7.46
MAX	8.6	27	29	28	24	29	30	21	20	19	8.3	15
MIN	5.1	7.3	7.6	4.2	4.4	5.7	4.2	3.8	3.8	6.1	4.6	4.4
AC-FT	414	707	832	622	367	690	432	504	493	619	408	444

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1997, BY WATER YEAR (WY)

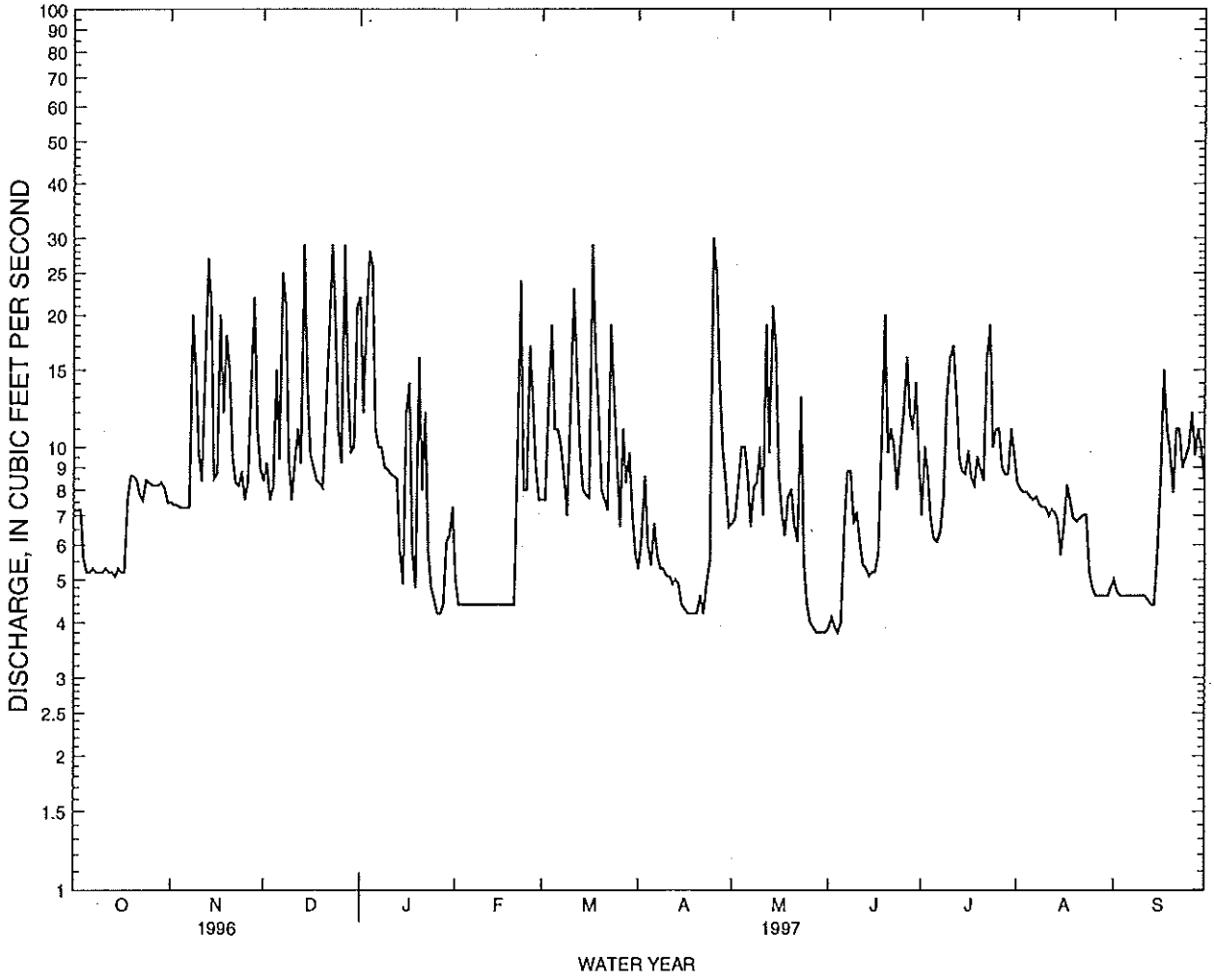
MEAN	6.38	7.91	7.74	7.33	7.30	8.12	8.05	7.13	6.69	7.05	6.29	5.85
MAX	10.6	13.4	13.8	14.4	15.9	15.5	15.6	15.8	11.7	13.2	10.2	9.21
(WY)	1996	1988	1991	1988	1990	1986	1986	1987	1986	1986	1985	1987
MIN	2.60	2.60	2.83	2.61	2.25	2.55	2.61	2.69	2.32	2.30	2.21	2.33
(WY)	1966	1966	1966	1966	1974	1967	1974	1974	1974	1974	1974	1974

e Estimated

HAWAII, ISLAND OF MOLOKAI

16405300 MOLOKAI TUNNEL AT WEST PORTAL--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1965 - 1997	
ANNUAL TOTAL	2802.2		3293.2			
ANNUAL MEAN	7.66		9.02		7.18	
HIGHEST ANNUAL MEAN					11.4	1987
LOWEST ANNUAL MEAN					3.46	1974
HIGHEST DAILY MEAN	29	Dec 14	30	Apr 25	39	Apr 8 1986
LOWEST DAILY MEAN	2.0	Mar 13	3.8	May 28	1.8	Oct 15 1967
ANNUAL SEVEN-DAY MINIMUM	2.3	Mar 13	3.9	May 26	1.9	May 3 1976
ANNUAL RUNOFF (AC-FT)	5560		6530		5200	
10 PERCENT EXCEEDS	12		16		12	
50 PERCENT EXCEEDS	6.5		8.0		5.8	
90 PERCENT EXCEEDS	4.0		4.4		3.1	



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 computed by Matt Wong. Records good up to 50 ft^3/s and fair above that. Since November 16, 1960, water diverted upstream at times, either into or from Molokai tunnel.

AVERAGE DISCHARGE (since Molokai tunnel diversion began).--36 years (water years 1961, 1963-97), 6.21 ft^3/s (4,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,570 ft^3/s, January 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 October 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)
Nov. 12	2100	870	4.20	Jan. 19	2330	1,090	4.51
Dec. 7	0500	851	4.17	Mar. 17	1100	730	3.97
Dec. 21	2230	*1,220	*4.67	Apr. 25	0830	870	4.20
Jan. 4	1500	870	4.20				

Minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	23	.01	.03	.43	.76	1.0	1.0	.76	.64
2	.00	.00	.00	1.5	.00	.04	2.4	.64	1.0	3.3	.76	.64
3	.00	.00	.00	45	.00	1.9	1.5	1.0	1.0	1.4	.76	.64
4	.00	.00	.00	116	.00	17	.43	1.7	1.0	1.0	.76	.64
5	.00	.00	3.1	5.5	.00	6.2	.43	1.5	1.0	.89	.76	.76
6	.00	.00	.00	.38	.00	8.7	.43	1.4	3.0	.89	.76	.76
7	.00	.00	115	.00	.00	1.5	.43	.64	2.5	.89	.76	.76
8	.00	22	9.3	.00	.00	.25	.43	1.7	1.7	1.2	.76	.76
9	.00	1.4	.01	.00	.00	.17	.43	4.8	1.0	5.6	.76	.76
10	.00	.00	.00	.00	.00	.56	.43	3.6	1.2	7.2	.76	.89
11	.00	.00	.00	.00	.00	21	.43	1.5	1.0	10	.76	.89
12	.00	91	.00	.00	.00	.76	.34	25	1.0	2.8	.76	.76
13	.00	93	.00	.00	.00	.34	.34	1.9	1.0	1.2	.76	.76
14	.00	33	44	.00	.00	.25	.34	48	1.0	1.0	.64	.76
15	.00	.25	.35	.00	.00	3.6	.34	10	1.0	1.0	.64	.76
16	.00	10	.00	34	.00	1.7	.34	1.2	.89	1.2	.64	.88
17	.00	30	.00	10	.00	65	.34	1.0	1.0	1.2	.64	3.4
18	.00	1.9	.00	.02	.00	3.5	.34	.89	3.9	1.0	.64	.64
19	.00	9.4	.00	40	.00	.76	.43	4.8	16	1.2	.64	.64
20	.00	3.8	.00	32	.00	.34	.43	1.2	1.9	1.2	.64	.64
21	.00	.00	56	5.1	.00	.34	.43	.89	4.0	1.2	.64	2.7
22	.00	.00	9.5	3.6	23	.25	.43	.89	2.5	13	.64	1.0
23	.00	.00	46	.02	2.0	17	.43	27	1.4	8.6	.64	.53
24	.00	.00	7.4	.00	.04	5.5	2.2	1.2	4.1	1.4	.64	.53
25	.00	.00	.03	.00	14	4.1	221	1.0	7.7	2.5	.64	.64
26	.00	.00	.00	.00	9.9	.76	26	1.0	11	1.5	.64	1.0
27	.00	.48	73	.00	.34	2.2	6.0	1.0	4.9	1.0	.64	.53
28	.00	11	.87	.00	.04	.89	1.4	1.0	3.4	1.0	.64	.76
29	.00	.01	.00	.16	---	1.5	1.0	1.0	6.6	1.0	.64	.76
30	.00	.00	.85	.25	---	.64	.89	1.0	1.7	1.9	.64	.43
31	.00	---	45	.53	---	.43	---	1.0	---	.89	.64	---
TOTAL	0.00	307.24	410.41	317.06	49.33	167.21	270.79	150.21	90.39	79.16	21.40	26.26
MEAN	.000	10.2	13.2	10.2	1.76	5.39	9.03	4.85	3.01	2.55	.69	.88
MAX	.00	93	115	116	23	65	221	48	16	13	.76	3.4
MIN	.00	.00	.00	.00	.00	.03	.34	.64	.89	.89	.64	.43
AC-FT	.00	609	814	629	98	332	537	298	179	157	42	52

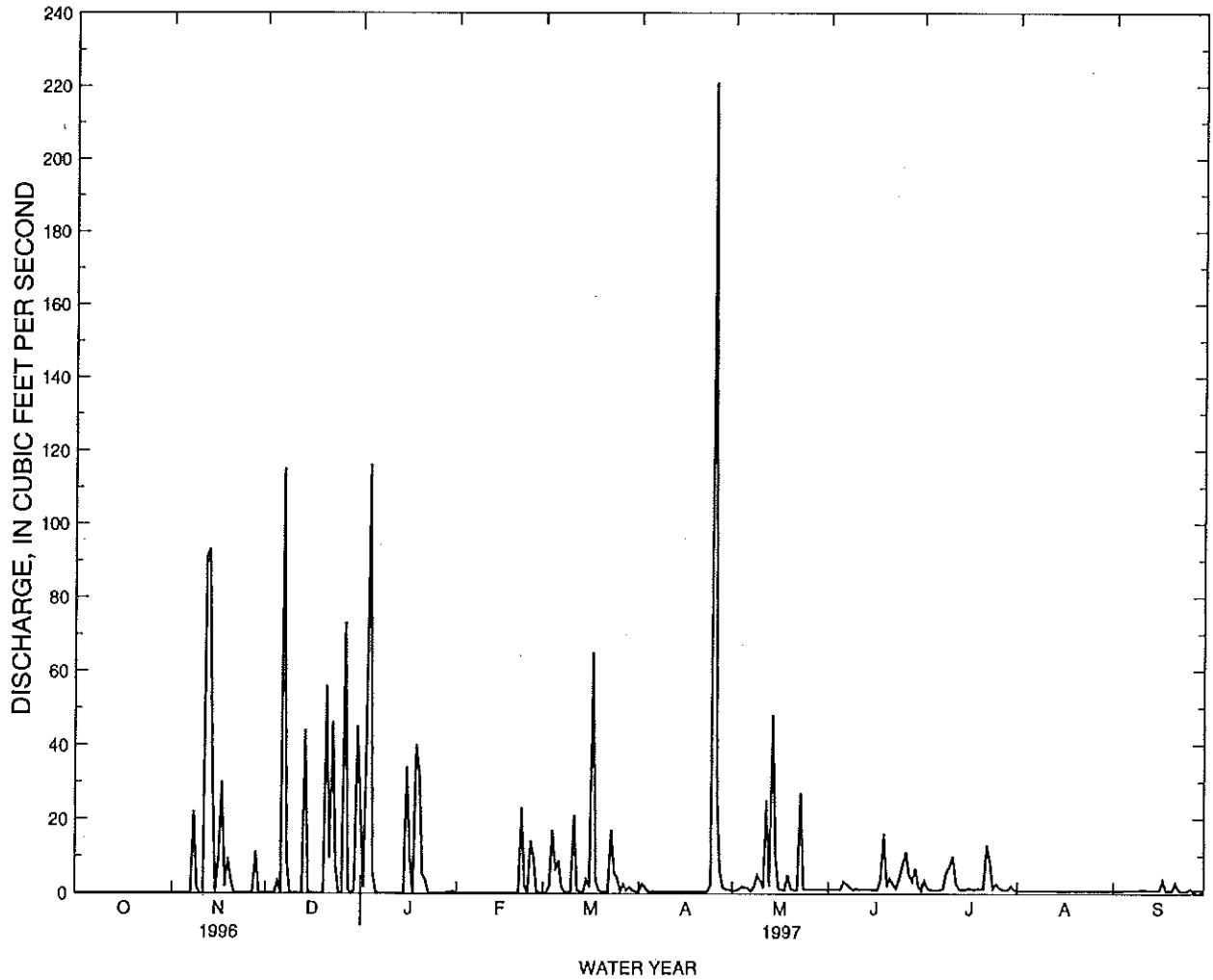
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1997, BY WATER YEAR (WY)

MEAN	3.28	8.82	9.43	11.3	9.15	9.16	9.76	4.85	2.48	2.94	2.07	1.47
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	.78	.81	1.31	.71	.19	.000	.23	.010	.000
(WY)	1985	1985	1976	1996	1978	1983	1996	1996	1985	1984	1996	1996

HAWAII, ISLAND OF MOLOKAI

16405500 WAIKOLU STREAM AT ALTITUDE 900 FT, NEAR KALAUPAPA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1961 - 1997	
ANNUAL TOTAL	1399.77		1889.46			
ANNUAL MEAN	3.82		5.18		6.21	
HIGHEST ANNUAL MEAN					11.8	1965
LOWEST ANNUAL MEAN					1.26	1985
HIGHEST DAILY MEAN	141	Feb 28	221	Apr 25	847	Apr 8 1989
LOWEST DAILY MEAN	.00	Jan 2	.00	Oct 1	.00	Sep 12 1984
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 18	.00	Oct 1	.00	Sep 12 1984
ANNUAL RUNOFF (AC-FT)	2780		3750		4500	
10 PERCENT EXCEEDS	6.0		9.9		11	
50 PERCENT EXCEEDS	.00		.76		1.4	
90 PERCENT EXCEEDS	.00		.00		.21	



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 computed by Matt Wong. Records fair. Flow has been augmented by occasional spillage from Molokai tunnel since May 1965.

AVERAGE DISCHARGE.--47 years (water years 1951-97), 1.88 ft^3/s (1,360 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,060 ft^3/s, October 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 12	2330	528	5.32	Jan. 20	0100	652	5.63
Dec. 7	0900	890	6.12	Mar. 17	1200	504	5.26
Dec. 23	1800	284	4.63	Apr. 25	1000	508	5.27
Jan. 4	1700	*940	*6.22				

Minimum discharge, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	60	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	6.9	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	29	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	168	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	34	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	7.7	.00	.25	.00	.00	.00	.00	.00	.00
7	.00	.00	141	1.4	.00	.17	.00	.00	.00	.00	.00	.00
8	.00	.00	26	.05	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	5.8	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.15	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	7.1	.00	.00	.00	.00	.00	.00
12	.00	21	.00	.00	.00	3.7	.00	.00	.00	.00	.00	.00
13	.00	156	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	42	42	.00	.00	.00	.00	1.2	.00	.00	.00	.00
15	.00	11	13	.00	.00	.00	.00	12	.00	.00	.00	.00
16	.00	.10	.43	.00	.00	.00	.00	.07	.00	.00	.00	.00
17	.00	11	.00	15	.00	52	.00	.00	.00	.00	.00	.00
18	.00	15	.00	.06	.00	10	.00	.00	.00	.00	.00	.00
19	.00	.15	.00	.00	.00	.31	.00	.00	.00	.00	.00	.00
20	.00	.67	.00	80	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.03	.00	2.8	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	36	11	3.8	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	55	.41	11	.23	.00	3.9	.00	.00	.00	.00
24	.00	.00	26	.00	.00	15	.00	.01	.00	.00	.00	.00
25	.00	.00	5.2	.00	6.3	1.2	144	.00	.00	.00	.00	.00
26	.00	.00	.30	.00	9.8	.38	35	.00	.00	.00	.00	.00
27	.00	.00	66	.00	1.1	.00	7.1	.00	.00	.00	.00	.00
28	.00	.00	19	.00	.00	.00	.80	.00	.00	.00	.00	.00
29	.00	.00	1.8	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.06	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	17	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	256.95	454.74	416.32	32.00	90.34	186.90	17.18	0.00	0.00	0.00	0.00
MEAN	.000	8.57	14.7	13.4	1.14	2.91	6.23	.55	.000	.000	.000	.000
MAX	.00	156	141	168	11	52	144	12	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	510	902	826	63	179	371	34	.00	.00	.00	.00

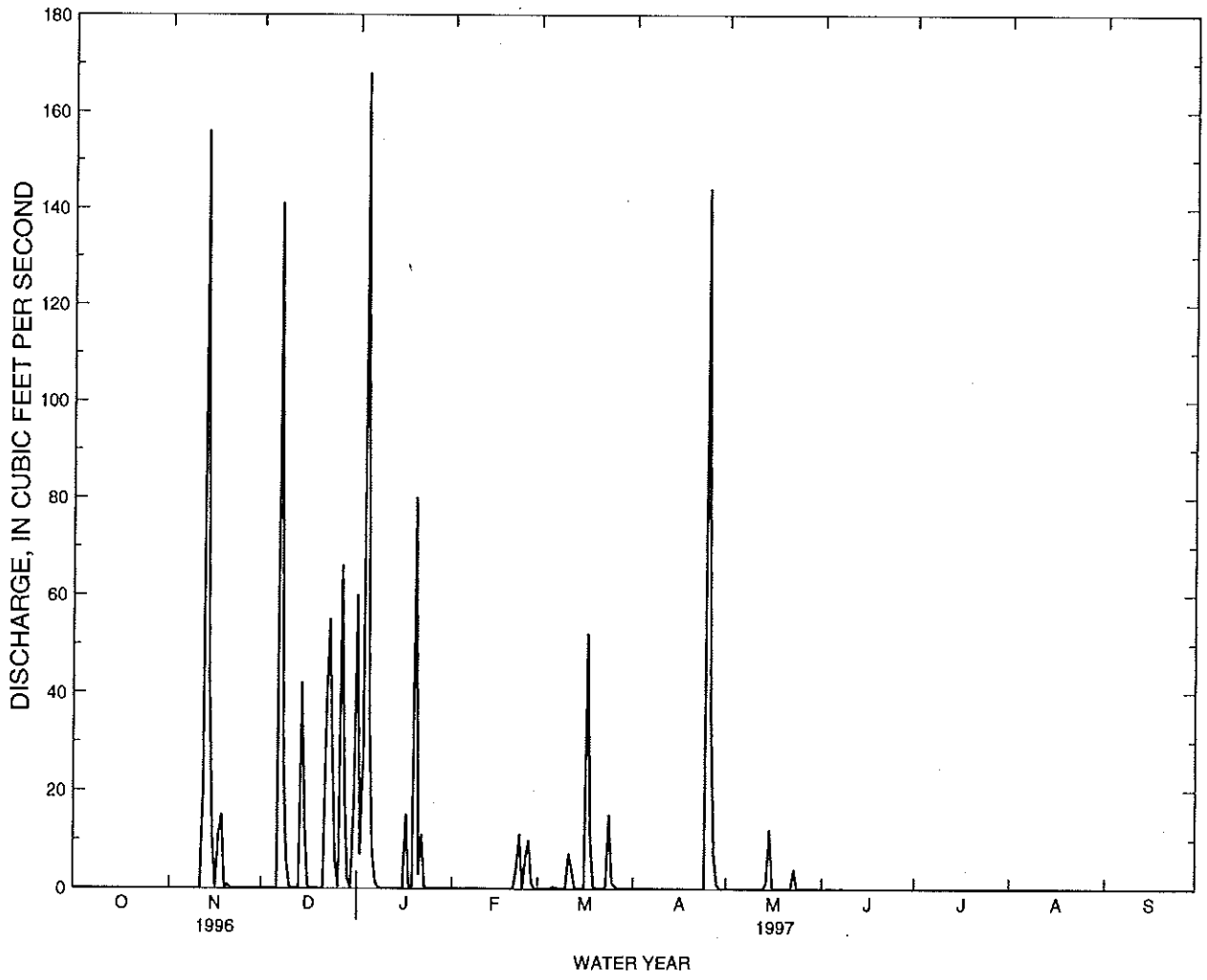
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1997, BY WATER YEAR (WY)

MEAN	.56	3.37	4.04	5.29	2.59	3.19	2.52	.65	.030	.069	.29	.055
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

HAWAII, ISLAND OF MOLOKAI

16414000 KAUNAKAKAI GULCH AT KAUNAKAKAI--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1950 - 1997	
ANNUAL TOTAL	1046.55		1454.43			
ANNUAL MEAN	2.86		3.98		1.88	
HIGHEST ANNUAL MEAN					6.01	1989
LOWEST ANNUAL MEAN					.002	1953
HIGHEST DAILY MEAN	156	Nov 13	168	Jan 4	643	Apr 8 1989
LOWEST DAILY MEAN	.00	Jan 2	.00	Oct 1	.00	Jan 1 1950
ANNUAL SEVEN-DAY MINIMUM	.00	Jan 7	.00	Oct 1	.00	Jan 1 1950
ANNUAL RUNOFF (AC-FT)	2080		2880		1360	
10 PERCENT EXCEEDS	.15		6.0		.31	
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 computed by Matt Wong. Records fair except for estimated daily discharges which are poor. Diversion upstream of station for domestic use at Puu O Hoku Ranch.

AVERAGE DISCHARGE.--34 years (water years 1964-97), 0.87 ft^3/s (629 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,720 ft^3/s, April 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)
Nov. 13	0300	*575	*5.66	No other peak greater than base discharge.			

Minimum discharge, no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.03	e.60	7.6	e.78	e.71	.46	.24	e1.0	e.86	.28	e.50
2	.00	.00	e.50	e1.7	e.42	e1.8	3.4	.24	e.52	e1.5	.21	e1.0
3	.00	.00	e.40	e8.0	e.46	e1.6	1.1	.27	e.38	e1.0	.20	e.44
4	.00	.00	e.56	34	e.35	e2.4	.56	.47	e1.1	e.88	.17	e.33
5	.00	.00	e1.3	8.0	e.32	e1.9	.48	.59	e.40	e.44	.17	e.68
6	.00	.00	e.38	e.80	e.36	e.84	.62	2.3	e1.2	e1.2	.19	e.42
7	.00	.00	e2.5	e.51	e.45	e.60	.45	1.0	e.80	e.50	.18	e.32
8	.00	1.2	e1.0	e.38	e.34	e.38	.42	1.4	e1.3	e.51	.18	e.29
9	.00	1.0	e.33	e.31	e.30	e.66	.41	.63	e.94	e1.0	.18	e.27
10	.00	.05	e.31	e.29	e.28	e1.5	.39	.40	e1.1	e2.4	.16	e.23
11	.00	.00	e2.0	e.37	e.35	e2.9	.38	.34	e.50	e.80	.14	e.30
12	.00	16	e1.1	e.28	e.33	e1.2	.38	5.1	e.41	e.70	.14	e.59
13	.00	49	e.50	e.46	e.29	e.62	.49	1.6	e.42	e.54	.13	e.98
14	.00	3.3	e1.6	e.27	e.36	e.48	.40	13	e.52	e.45	.13	e1.3
15	.00	e1.4	e.50	e.21	e.34	e1.4	.37	3.4	e.70	e.80	.14	e.45
16	.00	e2.0	e.35	e3.7	e.30	e1.0	.33	1.2	e.70	e1.3	e.35	e.58
17	.00	e10	e.28	e.70	e.28	e3.1	.33	.80	e1.0	e.50	e.32	e1.0
18	.00	e2.0	e.25	e.50	e.34	e1.8	.32	.66	e.98	e.70	e.21	e.72
19	.00	e.95	e.23	e2.9	e.31	e1.0	.30	.65	e1.3	e1.2	e.17	e.60
20	.00	e.66	e.20	e3.6	e.28	e.68	.30	.57	e1.0	e.50	e.35	e1.2
21	.00	e.50	e.30	e.54	e.29	e.54	.29	.49	e2.6	e.50	e1.0	e.76
22	.00	e.46	e1.0	e1.2	e.82	e.44	.27	.45	e1.7	e2.5	e.56	e1.3
23	.00	e9.7	e4.0	e.68	e.39	e2.2	.27	1.3	e1.6	e1.0	e.38	e2.3
24	.00	e2.2	e.74	e.52	e.24	e.86	.24	.61	e3.1	e.52	e.49	e3.4
25	.00	e1.3	e.33	e.42	e.53	1.2	.30	.50	e2.8	e1.1	e.36	e.92
26	.00	e.80	e.31	e.37	e.76	.80	.38	.44	e3.2	e.70	e.64	e2.4
27	.00	e1.4	e3.6	e.35	e.37	.68	.58	.40	e2.2	e.48	e.39	e2.0
28	.00	e.93	e.64	e.34	e.45	.58	.39	.36	e1.3	e.43	e.86	e3.5
29	.00	e.48	e.32	e1.2	---	.66	.29	.35	e1.8	e.60	e1.3	e1.1
30	.00	e.40	e.26	e2.6	---	.54	.24	.34	e1.0	2.3	e.62	e.60
31	.00	---	e.70	e1.2	---	.49	---	e.68	---	.59	e1.2	---
TOTAL	0.00	105.76	27.09	84.00	11.09	35.56	15.14	40.78	37.57	28.50	11.80	30.48
MEAN	.000	3.53	.87	2.71	.40	1.15	.50	1.32	1.25	.92	.38	1.02
MAX	.00	49	4.0	34	.82	3.1	3.4	13	3.2	2.5	1.3	3.5
MIN	.00	.00	.20	.21	.24	.38	.24	.24	.38	.43	.13	.23
AC-FT	.00	210	54	167	22	71	30	81	75	57	23	60

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1997, BY WATER YEAR (WY)

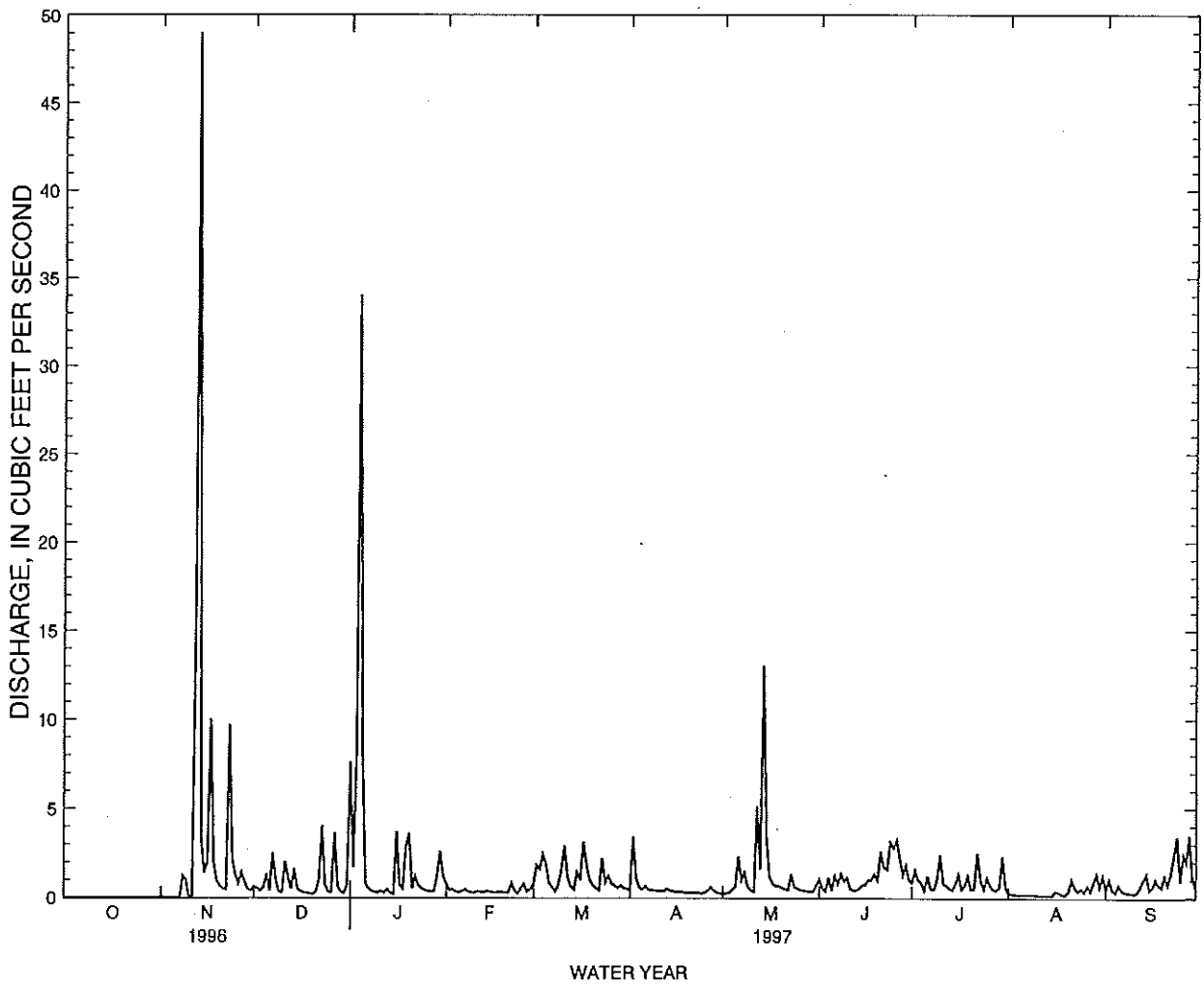
MEAN	.51	1.21	1.11	1.32	1.23	1.47	1.45	.71	.34	.46	.30	.32
MAX	2.63	7.56	6.12	4.84	5.88	6.42	10.3	3.99	1.43	1.56	1.21	2.24
(WY)	1986	1971	1965	1988	1965	1968	1989	1987	1982	1993	1980	1992
MIN	.000	.000	.000	.000	.000	.007	.003	.000	.000	.000	.000	.000
(WY)	1972	1972	1972	1977	1973	1973	1975	1975	1964	1972	1964	1964

e Estimated

HAWAII, ISLAND OF MOLOKAI

16419500 PAPIO GULCH AT HALAWA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1963 - 1997	
ANNUAL TOTAL	226.59		427.77			
ANNUAL MEAN	.62		1.17		.87	
HIGHEST ANNUAL MEAN					2.32	1989
LOWEST ANNUAL MEAN					.063	1973
HIGHEST DAILY MEAN	49	Nov 13	49	Nov 13	164	Apr 13 1965
LOWEST DAILY MEAN	.00	Jan 17	.00	Oct 1	.00	Jul 5 1963
ANNUAL SEVEN-DAY MINIMUM	.00	Aug 1	.00	Oct 1	.00	Aug 3 1963
ANNUAL RUNOFF (AC-FT)	449		848		629	
10 PERCENT EXCEEDS	.92		2.2		1.5	
50 PERCENT EXCEEDS	.09		.50		.24	
90 PERCENT EXCEEDS	.00		.00		.00	



Surface-Water Station Records for Maui

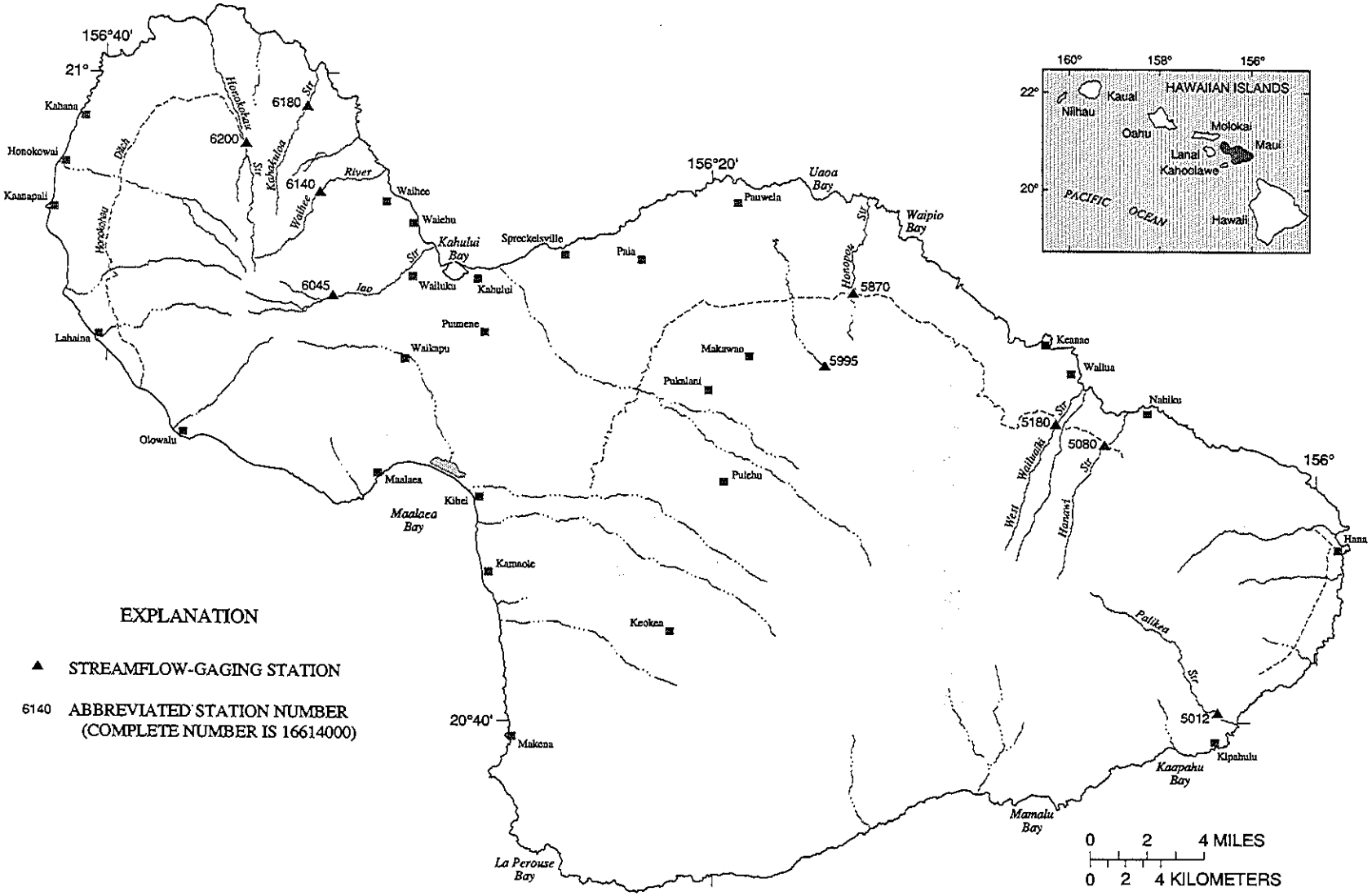


Figure 8. Locations of gaging, water-quality, and partial-record stations on Maui.

HAWAII, ISLAND OF MAUI

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 September 1997 (discontinued). Forty-eight years of records are available for the right branch drainage, 1.3 mi upstream (Palikea Stream, 16501000) for periods prior to September 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).

REMARKS.--Records computed by Matt Wong. Records good except for estimated daily discharges which are poor.

AVERAGE DISCHARGE.--9 years (water years 1989-97), 56.8 ft^3/s (41,150 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,700 ft^3/s, September 18, 1994 from rating curve extended on the basis of flow over dam computation; minimum, no flow, on many days.

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)
Oct. 19	0530	2,940	6.47	Dec. 27	1030	2,810	6.36
Nov. 15	1730	4,210	7.41	Mar. 10	2100	*5,420	*8.25

Minimum discharge, 0.30 ft^3/s, October 12, 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	38	130	483	1.6	13	4.9	3.5	1.6	39	e11	e5.0
2	1.1	17	107	22	.97	111	5.5	2.6	6.6	103	e9.4	e2.0
3	.98	13	67	11	1.1	205	3.5	9.9	.80	78	e16	e1.1
4	.89	101	12	356	1.6	287	2.9	11	3.0	22	e10	e1.4
5	.69	228	64	120	.71	189	2.5	17	.91	24	e8.0	e1.6
6	.97	11	30	13	.60	249	5.5	18	8.6	29	e6.0	e1.3
7	.87	5.7	194	7.5	28	54	2.1	5.3	40	19	e4.5	e1.1
8	.64	5.0	67	5.3	6.6	14	4.1	3.6	118	19	e3.5	e1.3
9	.47	3.2	12	4.0	3.1	107	58	2.3	31	174	e3.1	e1.1
10	.66	2.3	5.9	3.5	1.6	488	7.2	2.0	15	98	e2.7	e1.0
11	.44	4.0	4.8	18	58	233	39	1.7	6.3	e56	e2.4	e1.0
12	.40	4.3	5.7	5.5	11	18	38	1.4	29	e30	e2.1	e.86
13	2.6	285	5.7	4.0	4.5	7.3	143	1.3	18	e18	e1.8	e1.0
14	1.9	89	249	3.5	5.3	4.9	42	56	5.9	e14	e1.7	e28
15	.90	668	18	2.3	3.9	3.8	16	15	3.4	e10	e1.5	e5.0
16	4.3	101	7.6	6.1	1.6	34	5.5	70	2.9	e13	e1.4	e13
17	195	9.9	4.2	14	3.9	131	3.4	18	2.3	e20	e2.0	e35
18	22	6.6	2.9	2.6	6.6	58	2.4	5.5	25	e50	e1.3	e13
19	778	4.1	2.8	8.2	1.6	12	2.2	3.4	259	e70	e1.1	e4.5
20	91	28	4.5	170	3.5	66	1.9	7.6	20	e16	e1.0	e2.2
21	45	6.0	3.2	10	1.8	9.4	1.7	2.5	123	e18	e.95	e1.3
22	9.8	3.7	2.2	6.4	96	5.9	1.4	2.0	161	e220	e.92	e1.0
23	9.9	6.7	509	3.6	46	7.0	2.6	1.6	31	e60	e.90	e1.0
24	43	39	301	2.7	4.5	98	1.2	1.4	70	e15	e.90	e1.2
25	16	76	17	2.2	20	116	265	1.3	186	e50	e20	e1.0
26	22	23	7.6	2.1	56	44	374	1.3	486	e17	e17	e9.0
27	44	197	284	1.8	17	133	82	1.1	209	e12	e7.0	e17
28	7.4	279	16	1.8	13	140	13	.79	187	e10	e4.0	e8.6
29	7.9	25	7.4	1.7	---	111	9.1	.60	497	e50	e3.0	e5.0
30	4.2	28	5.5	1.5	---	12	5.3	.52	118	e500	e5.0	e3.0
31	7.4	---	5.2	1.3	---	6.3	---	.70	---	e30	e15	---
TOTAL	1321.81	2307.5	2152.2	1294.6	400.08	2967.6	1144.9	268.91	2665.31	1884	165.17	168.56
MEAN	42.6	76.9	69.4	41.8	14.3	95.7	38.2	8.67	88.8	60.8	5.33	5.62
MAX	778	668	509	483	96	488	374	70	497	500	20	35
MIN	.40	2.3	2.2	1.3	.60	3.8	1.2	.52	.80	10	.90	.86
AC-FT	2620	4580	4270	2570	794	5890	2270	533	5290	3740	328	334

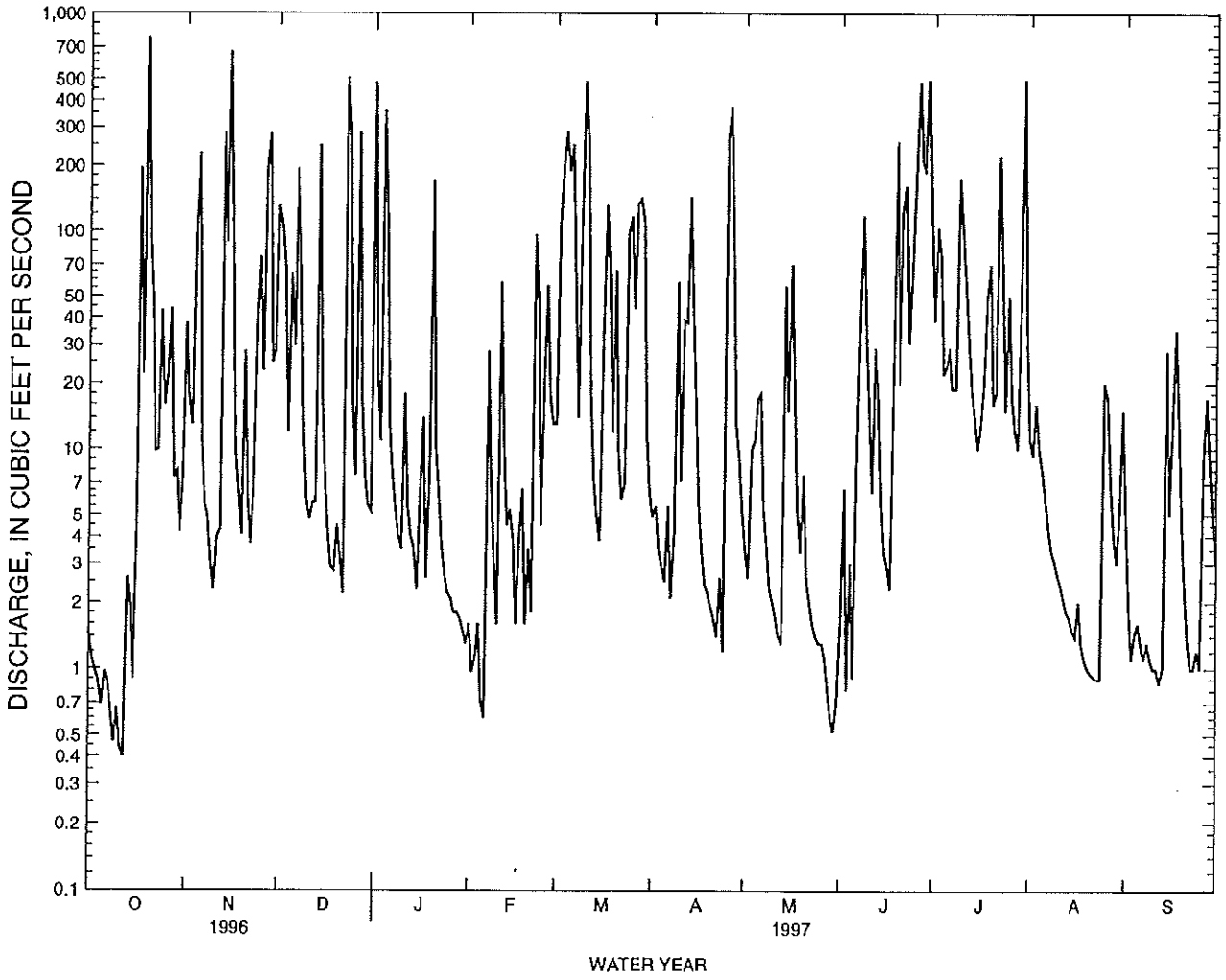
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1997, BY WATER YEAR (WY)

MEAN	53.2	97.7	90.6	59.9	51.9	91.2	40.2	24.7	36.0	50.2	31.9	43.6
MAX	145	334	203	218	163	320	116	99.1	88.8	114	82.4	131
(WY)	1990	1991	1993	1989	1994	1991	1989	1989	1997	1993	1991	1994
MIN	6.03	11.2	5.28	11.1	2.90	10.2	6.56	3.03	9.11	15.2	5.33	5.62
(WY)	1993	1992	1990	1992	1992	1992	1992	1992	1995	1988	1997	1997

e Estimated

16501200 OHEO GULCH AT DAM NEAR KIPAHULU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1988 - 1997	
ANNUAL TOTAL	13336.25		16740.64			
ANNUAL MEAN	36.4		45.9		56.8	
HIGHEST ANNUAL MEAN					102	1991
LOWEST ANNUAL MEAN					22.3	1992
HIGHEST DAILY MEAN	874	Mar 3	778	Oct 19	2220	Nov 19 1990
LOWEST DAILY MEAN	.00	Feb 21	.40	Oct 12	.00	Feb 25 1992
ANNUAL SEVEN-DAY MINIMUM	.00	May 9	.64	Oct 6	.00	Feb 25 1992
ANNUAL RUNOFF (AC-FT)	26450		33210		41150	
10 PERCENT EXCEEDS	91		132		146	
50 PERCENT EXCEEDS	4.8		7.4		6.6	
90 PERCENT EXCEEDS	.69		1.1		1.0	



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 November 1, 1921, at site 50 ft downstream of gage at datum 0.12 ft lower.

REMARKS.--Records computed by Matt Wong. Records good except for estimated daily discharges which are fair. No diversion upstream of station.

AVERAGE DISCHARGE.--75 years (water years 1923-97), 24.0 ft^3/s (17,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 5,570 ft^3/s, January 18, 1916, gage height, 11.6 ft, present site and datum, from rating curve extended above 814 ft^3/s by physical model of station site; minimum, 0.90 ft^3/s, October 28 to November 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)
Feb. 22	1900	1,770	6.57	May 7	1830	2,080	7.17
Mar. 10	2030	*4,230	*10.38	Jul. 30	0200	2,050	7.12

Minimum discharge, 1.8 ft^3/s, November 3, 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	1.9	29	4.1	3.4	4.4	6.2	2.5	25	44	12	9.6
2	2.7	1.9	27	4.2	3.1	3.8	5.5	3.4	33	110	10	5.8
3	2.6	1.9	15	4.8	3.0	5.9	5.0	16	8.4	133	15	4.9
4	2.6	2.0	13	82	2.9	106	4.7	5.4	5.2	40	10	4.5
5	2.5	3.1	25	43	2.8	104	4.5	28	4.3	56	e8.4	5.6
6	2.4	2.0	50	6.4	2.7	131	5.1	15	15	29	e8.2	5.0
7	2.4	1.9	315	5.0	2.7	30	e4.4	51	68	31	e7.0	4.5
8	2.4	6.6	101	4.8	2.6	9.6	e4.3	8.2	29	60	e6.7	4.9
9	2.3	9.2	16	4.3	2.5	13	e4.8	3.2	12	185	e5.8	4.7
10	2.3	4.5	7.1	4.7	2.6	336	e4.1	2.7	12	92	e5.4	4.0
11	2.2	3.4	5.7	4.5	3.3	61	e4.3	7.7	28	62	e5.6	3.9
12	2.2	2.8	5.0	3.8	2.8	17	e4.0	66	58	36	e5.4	3.6
13	2.2	161	4.4	3.7	2.7	11	e3.9	18	15	21	e5.1	3.9
14	2.1	15	6.8	3.5	2.6	8.0	e3.7	150	9.5	17	e5.0	29
15	2.1	47	4.5	3.4	2.7	10	e3.6	72	7.9	15	e4.8	5.9
16	2.1	24	4.4	11	2.7	9.3	e3.5	103	8.8	16	e4.5	11
17	2.5	27	4.4	26	2.5	37	3.4	32	13	20	e6.0	41
18	2.4	16	4.6	5.8	2.6	15	3.3	16	75	51	e5.4	25
19	4.1	46	4.7	4.5	2.5	10	3.3	28	158	64	e4.4	8.3
20	2.8	112	4.8	81	2.5	7.6	3.2	51	37	16	4.5	6.7
21	2.3	7.1	4.7	5.8	2.4	5.6	3.2	11	81	17	4.4	5.3
22	2.1	5.2	4.7	4.6	259	5.1	3.1	5.7	88	191	4.3	4.4
23	2.0	20	56	4.1	51	4.8	3.0	4.3	33	60	4.2	4.4
24	2.5	16	117	3.8	4.4	4.8	2.9	4.2	83	17	4.3	4.7
25	2.5	10	5.9	3.6	57	43	747	4.8	231	51	28	4.1
26	2.3	7.6	4.9	3.4	67	26	357	6.9	248	17	24	9.8
27	2.1	43	55	3.3	22	94	65	8.0	135	13	13	16
28	2.0	43	6.0	3.2	7.9	70	8.7	6.5	111	11	6.7	13
29	2.0	8.7	4.6	3.1	---	46	4.5	4.7	129	29	6.1	7.8
30	2.0	14	4.2	9.6	---	12	2.9	3.7	74	401	8.3	5.1
31	1.9	---	4.0	5.1	---	7.6	---	4.4	---	17	19	---
TOTAL	73.3	663.8	914.4	360.1	525.9	1248.5	1282.1	743.3	1835.1	1922	261.5	266.4
MEAN	2.36	22.1	29.5	11.6	18.8	40.3	42.7	24.0	61.2	62.0	8.44	8.88
MAX	4.1	161	315	82	259	336	747	150	248	401	28	41
MIN	1.9	1.9	4.0	3.1	2.4	3.8	2.9	2.5	4.3	11	4.2	3.6
AC-FT	145	1320	1810	714	1040	2480	2540	1470	3640	3810	519	528

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1997, BY WATER YEAR (WY)

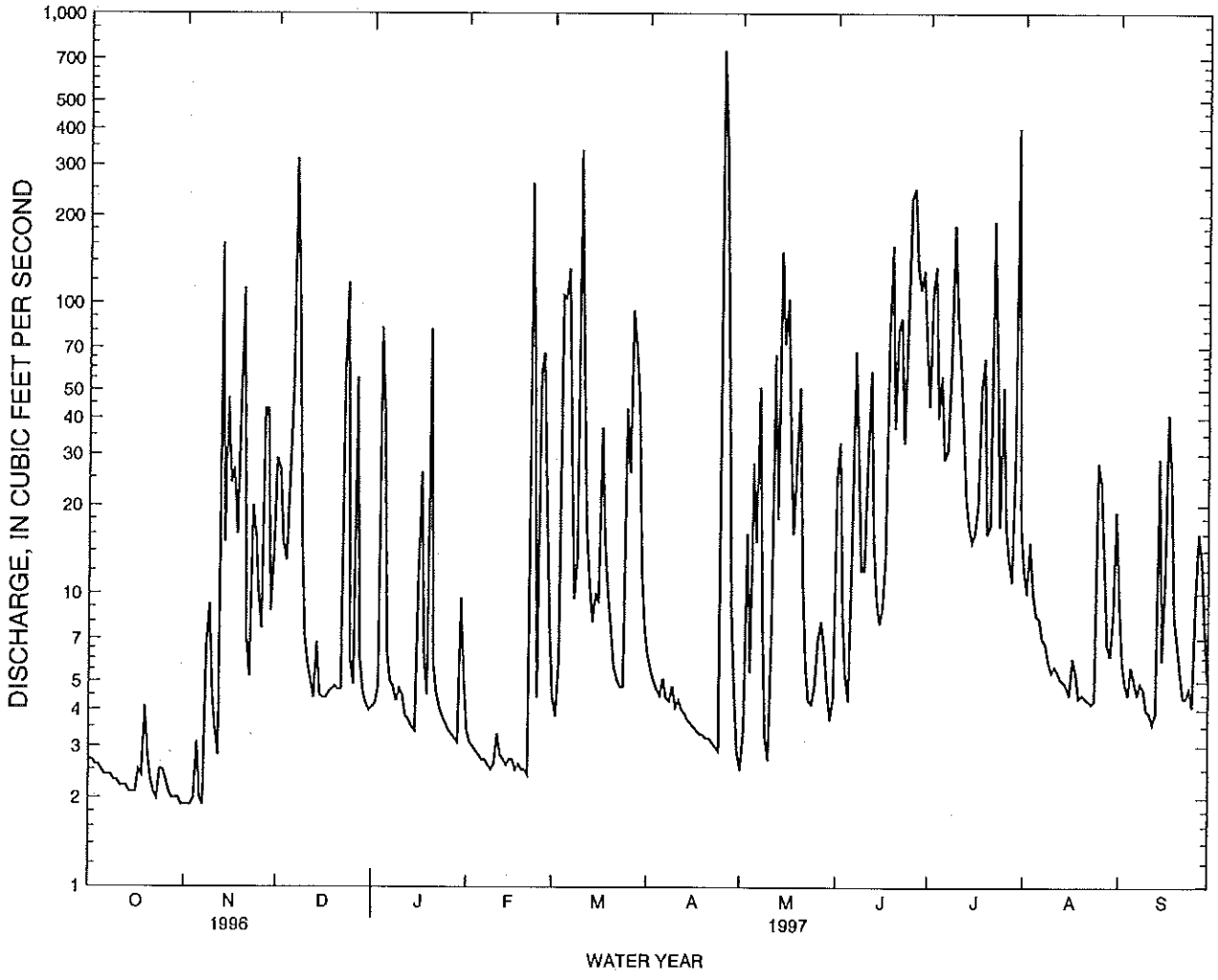
MEAN	14.9	29.5	32.1	30.3	30.9	41.6	36.5	20.3	11.4	16.4	17.0	11.8
MAX	101	110	129	123	182	235	161	68.2	61.2	62.0	66.2	52.3
(WY)	1942	1991	1947	1979	1969	1980	1989	1987	1997	1997	1957	1914
MIN	1.15	2.99	2.71	1.87	2.25	2.10	2.75	2.82	2.16	2.42	2.40	1.88
(WY)	1985	1990	1981	1977	1983	1983	1992	1945	1981	1926	1973	1974

e Estimated

HAWAII, ISLAND OF MAUI

16508000 HANAWI STREAM NEAR NAHIKU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1914 - 1997	
ANNUAL TOTAL	6728.7		10096.4			
ANNUAL MEAN	18.4		27.7		24.0	
HIGHEST ANNUAL MEAN					52.6	1969
LOWEST ANNUAL MEAN					7.59	1926
HIGHEST DAILY MEAN	537	Mar 3	747	Apr 25	1610	Jan 25 1948
LOWEST DAILY MEAN	1.9	Oct 31	1.9	Oct 31	.90	Oct 31 1984
ANNUAL SEVEN-DAY MINIMUM	1.9	Oct 28	1.9	Oct 28	.96	Oct 25 1984
ANNUAL RUNOFF (AC-FT)	13350		20030		17400	
10 PERCENT EXCEEDS	36		69		51	
50 PERCENT EXCEEDS	5.6		5.9		7.2	
90 PERCENT EXCEEDS	2.5		2.5		2.8	



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 October 3, 1974, at present site at datum 0.50 ft higher.

REMARKS.--Records computed by Matt Wong. Records fair except for estimated daily discharges which are poor. 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.--77 years (water years 1915, 1917, 1923-97), 35.1 ft^3/s (25,460 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,900 ft^3/s, January 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 7	0730	2,630	8.58	Jun. 25	2130	2,160	7.99
Feb. 22	1900	2,720	8.69	Jul. 30	0130	*3,160	*9.17

Minimum discharge, 0.74 ft^3/s, November 8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	1.2	16	5.1	5.1	6.9	11	e2.7	e27	52	15	9.1
2	2.6	1.1	18	5.9	4.3	5.7	9.0	e4.0	e36	112	12	6.3
3	2.5	.99	17	8.3	3.8	7.6	8.0	e18	e9.4	139	18	5.4
4	2.4	.94	18	76	3.5	90	7.2	e6.0	e5.8	42	11	4.7
5	2.3	1.1	34	54	3.3	96	6.7	e31	e4.6	48	9.6	6.2
6	2.3	.97	61	12	3.3	134	7.9	e17	e17	28	9.2	5.2
7	2.1	.89	503	8.0	3.3	35	6.1	e58	e74	27	8.0	5.5
8	2.1	7.3	122	7.6	2.9	17	6.0	e20	e22	43	7.3	5.8
9	2.0	14	32	5.9	2.8	17	7.6	e3.5	e13	230	6.7	5.3
10	2.0	6.1	18	6.1	3.4	169	5.4	e3.0	e13	95	6.3	4.3
11	2.0	4.0	13	5.6	3.6	47	5.8	e8.8	e31	52	6.5	4.2
12	1.9	2.6	10	4.6	2.7	19	5.0	e70	e64	35	5.9	3.7
13	2.4	190	9.0	4.4	2.9	14	4.9	e20	e17	23	5.5	4.0
14	2.4	32	9.1	5.0	2.5	10	4.3	e150	14	18	5.4	21
15	2.2	25	9.8	4.1	3.1	17	4.0	e72	12	15	4.9	6.0
16	2.1	11	7.6	25	3.3	17	3.8	e100	12	16	4.6	9.8
17	3.4	26	6.5	46	2.3	59	3.8	e35	17	25	6.2	53
18	2.5	24	6.0	9.9	2.9	23	3.6	e18	76	47	5.6	33
19	3.4	55	5.3	6.9	2.4	17	3.2	e31	174	70	4.4	13
20	2.1	143	4.9	117	2.3	14	2.9	e58	58	19	4.1	18
21	1.7	16	4.6	11	2.2	10	2.8	e15	94	20	4.1	31
22	1.6	11	4.4	8.1	351	8.3	2.7	e6.2	96	169	4.4	12
23	1.7	30	13	6.2	49	7.5	2.6	e4.8	37	58	4.0	9.7
24	2.8	22	91	5.4	8.3	9.5	e2.5	e4.4	80	22	5.1	10
25	2.0	20	12	4.8	72	53	e750	e5.2	300	47	33	7.9
26	1.6	13	7.1	4.5	74	34	e330	e7.8	281	20	28	26
27	1.4	34	16	4.2	15	95	e70	e9.0	139	16	13	23
28	1.3	27	12	3.9	8.9	60	e11	e7.0	132	13	7.5	19
29	1.3	12	6.4	3.6	---	45	e6.0	e5.2	109	31	6.7	17
30	1.2	13	5.2	22	---	19	e4.0	e4.1	67	334	5.8	10
31	1.1	---	4.7	8.7	---	13	---	e4.8	---	23	18	---
TOTAL	65.1	745.19	1096.6	499.8	644.1	1169.5	1297.8	799.5	2031.8	1889	285.8	389.1
MEAN	2.10	24.8	35.4	16.1	23.0	37.7	43.3	25.8	67.7	60.9	9.22	13.0
MAX	3.4	190	503	117	351	169	750	150	300	334	33	53
MIN	1.1	.89	4.4	3.6	2.2	5.7	2.5	2.7	4.6	13	4.0	3.7
AC-FT	129	1480	2180	991	1280	2320	2570	1590	4030	3750	567	772

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1997, BY WATER YEAR (WY)

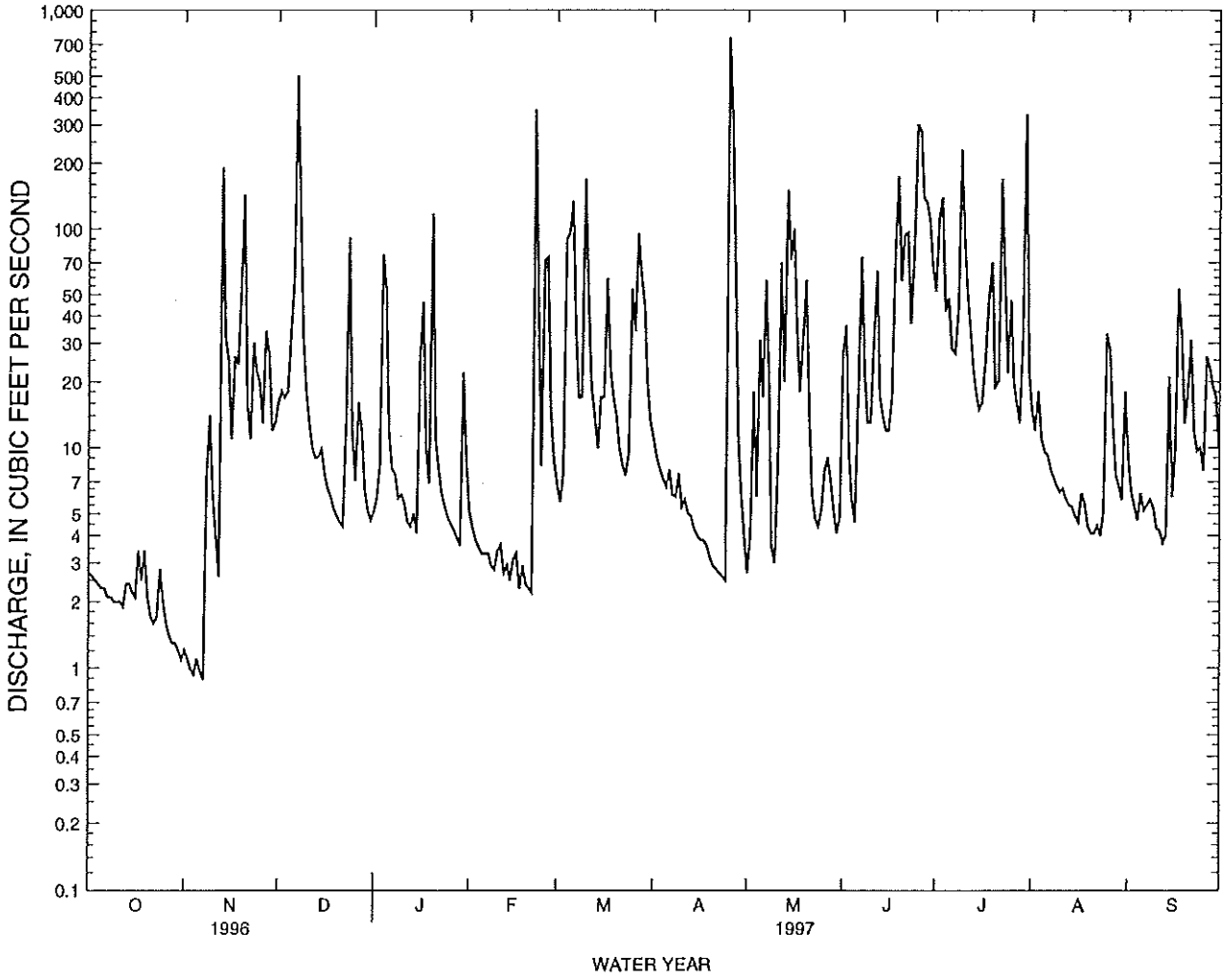
MEAN	23.7	45.7	48.6	41.9	46.3	56.7	54.8	29.8	17.1	25.6	26.0	18.4
MAX	133	198	200	192	222	303	221	88.4	67.7	99.4	111	101
(WY)	1942	1922	1937	1979	1932	1942	1989	1914	1997	1914	1914	1914
MIN	.88	4.06	2.82	2.01	2.65	2.04	4.17	3.86	2.37	1.72	2.85	1.68
(WY)	1985	1992	1981	1977	1995	1926	1992	1945	1981	1922	1973	1974

e Estimated

HAWAII, ISLAND OF MAUI

16518000 WEST WAILUAIKI STREAM NEAR KEANAE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1914 - 1997	
ANNUAL TOTAL	8340.09		10913.29			
ANNUAL MEAN	22.8		29.9		35.1	
HIGHEST ANNUAL MEAN					67.3	1980
LOWEST ANNUAL MEAN					14.5	1981
HIGHEST DAILY MEAN	570	Mar 31	750	Apr 25	2260	Jan 26 1948
LOWEST DAILY MEAN	.89	Nov 7	.89	Nov 7	.62	Jul 23 1922
ANNUAL SEVEN-DAY MINIMUM	1.0	Nov 1	1.0	Nov 1	.71	Oct 25 1984
ANNUAL RUNOFF (AC-FT)	16540		21650		25460	
10 PERCENT EXCEEDS	42		72		77	
50 PERCENT EXCEEDS	8.0		9.1		10	
90 PERCENT EXCEEDS	2.5		2.5		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 computed by Matt Wong. Records good. No diversion upstream of station.

AVERAGE DISCHARGE.--86 years (water years 1912-97), 4.83 ft^3/s (3,500 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,710 ft^3/s, November 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jul. 30	0230	*3,030	*5.79	No other peak greater than base discharge.			

Minimum discharge, 0.23 ft^3/s, October 30, 31, November 1, 3-8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.43	.29	2.3	8.3	2.4	1.7	3.1	4.8	6.7	10	7.1	1.7
2	.43	.30	2.7	3.5	2.2	1.3	3.0	4.4	8.5	10	6.2	1.4
3	.42	.26	2.7	2.9	2.1	1.8	2.8	4.7	3.0	13	5.9	1.3
4	.40	.23	2.3	5.3	1.9	9.8	2.6	3.7	2.7	8.0	4.9	1.3
5	.37	.23	3.1	4.8	1.8	7.2	2.4	4.9	2.5	12	4.5	1.5
6	.35	.23	2.7	3.2	1.8	12	2.3	4.3	4.2	8.7	4.3	1.3
7	.35	.23	17	3.0	1.7	4.4	2.2	3.3	15	8.5	3.7	1.3
8	.35	2.1	5.8	3.5	1.5	3.5	2.1	3.1	7.4	8.9	3.3	1.4
9	.35	1.5	4.3	2.9	1.5	4.2	2.7	2.8	5.1	26	3.0	1.3
10	.35	.43	3.8	2.9	1.5	39	1.9	2.6	4.7	24	2.9	1.1
11	.35	.33	3.4	2.9	1.4	22	1.9	2.5	4.3	15	2.7	1.1
12	.36	.29	3.1	3.5	1.3	9.1	1.7	8.2	6.9	12	2.5	.90
13	.35	10	2.9	4.4	1.2	6.7	1.6	3.3	4.3	9.5	2.4	1.0
14	.42	8.3	4.2	2.7	1.1	5.5	1.5	29	4.1	8.0	2.5	1.4
15	.36	1.7	5.5	2.4	1.3	7.1	1.4	14	3.7	7.0	2.4	.90
16	.36	2.2	2.9	16	1.1	7.7	1.3	6.8	3.5	6.6	2.1	2.0
17	.35	9.3	2.6	8.0	1.0	11	1.3	5.7	3.5	5.9	2.0	3.2
18	.41	3.3	2.4	3.9	1.1	6.0	1.2	4.9	4.5	9.7	1.8	2.0
19	.44	3.7	2.2	3.7	.95	4.7	1.1	4.6	9.5	15	1.8	1.1
20	.35	3.9	2.1	15	.95	4.4	1.0	5.4	5.0	5.7	1.7	1.4
21	.33	2.0	2.0	4.3	.90	4.0	1.0	4.0	7.7	5.5	1.5	1.1
22	.34	1.7	2.0	3.9	2.0	3.6	.97	3.5	8.8	20	1.7	.90
23	.34	4.3	4.1	3.3	1.7	3.6	.90	3.3	5.9	11	1.5	.80
24	.40	3.6	9.1	3.0	.93	3.5	1.3	3.0	6.8	7.3	1.5	.80
25	.35	2.2	2.6	2.9	2.1	5.4	75	2.9	13	10	6.7	.90
26	.35	1.9	2.3	2.7	2.8	3.5	49	2.7	23	6.6	3.3	1.8
27	.32	3.9	3.6	2.5	1.2	4.7	13	2.5	15	5.7	2.1	2.2
28	.29	3.8	2.6	2.4	1.0	7.2	8.0	2.4	39	5.1	1.5	1.7
29	.29	2.3	2.2	2.2	---	6.0	6.4	2.1	18	7.0	1.4	1.1
30	.26	2.2	2.0	7.9	---	3.7	5.4	2.0	13	142	1.3	1.0
31	.23	---	2.1	3.5	---	3.3	---	2.3	---	8.6	2.0	---
TOTAL	11.05	76.72	112.6	141.4	42.43	217.6	200.07	153.7	259.3	452.3	92.2	40.90
MEAN	.36	2.56	3.63	4.56	1.52	7.02	6.67	4.96	8.64	14.6	2.97	1.36
MAX	.44	10	17	16	2.8	39	75	29	39	142	7.1	3.2
MIN	.23	.23	2.0	2.2	.90	1.3	.90	2.0	2.5	5.1	1.3	.80
AC-FT	22	152	223	280	84	432	397	305	514	897	183	81

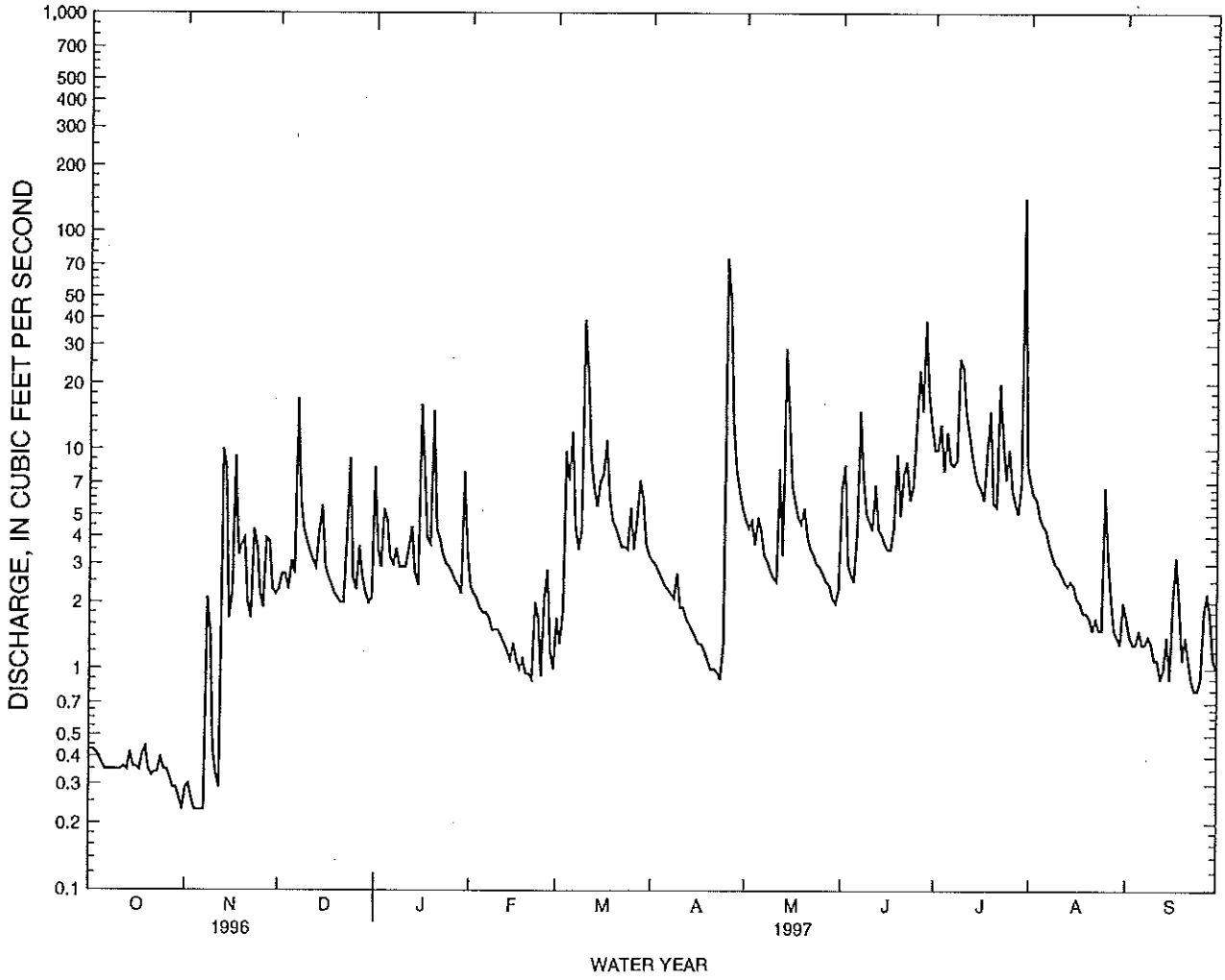
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1997, BY WATER YEAR (WY)

MEAN	2.72	5.44	6.06	5.47	5.22	7.30	7.63	5.08	2.79	3.65	3.99	2.59
MAX	15.9	21.4	20.0	20.9	24.5	33.0	43.4	24.3	9.97	14.6	18.1	14.6
(WY)	1942	1991	1947	1921	1969	1942	1989	1916	1914	1997	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

HAWAII, ISLAND OF MAUI

16587000 HONOPOU STREAM NEAR HUELO--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1912 - 1997	
ANNUAL TOTAL	1612.73		1800.27			
ANNUAL MEAN	4.41		4.93		4.83	
HIGHEST ANNUAL MEAN					9.88	1914
LOWEST ANNUAL MEAN					1.73	1981
HIGHEST DAILY MEAN	279	Mar 31	142	Jul 30	305	Apr 7 1989
LOWEST DAILY MEAN	.23	Oct 31	.23	Oct 31	.11	Oct 27 1984
ANNUAL SEVEN-DAY MINIMUM	.25	Oct 31	.25	Oct 31	.11	Oct 26 1984
ANNUAL RUNOFF (AC-FT)	3200		3570		3500	
10 PERCENT EXCEEDS	6.1		9.5		10	
50 PERCENT EXCEEDS	1.5		2.7		2.4	
90 PERCENT EXCEEDS	.42		.42		.74	



HAWAII, ISLAND OF MAUI

16599500 OPANA TUNNEL AT KAILIILI

LOCATION.--Lat 20°51'04", long 156°16'17", Hydrologic Unit 20020000, 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 computed by Matt Wong. Records good except for period of no gage height record which is fair. Tunnel diverts water from Opana Gulch for agricultural and domestic use in the Kokomo, Makawao, and Pukalani areas.

AVERAGE DISCHARGE.--32 years (water years 1966-97), 3.20 ft^3/s (2,320 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18 ft^3/s, March 31, 1982, April 12, 1986, March 23, 1994; minimum daily, 0.11 ft^3/s, November 5-10, 1973, October 5, 6, 25, 26, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 15 ft^3/s, April 25, 26; minimum daily, 0.14 ft^3/s, October 22, 23, 28-31, November 5-7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	.38	.62	7.8	2.0	4.3	3.7	e5.0	2.1	8.8	6.8	1.3
2	.23	.23	.62	5.6	1.8	4.1	3.3	e4.4	3.1	9.8	6.1	1.3
3	.23	.19	.83	3.7	1.7	2.6	3.1	e4.8	2.2	10	6.1	1.2
4	.23	.16	1.3	8.0	1.6	7.9	2.9	e3.8	1.8	8.6	5.4	1.1
5	.19	.14	3.2	8.5	1.5	9.5	2.7	e4.7	1.7	8.0	4.8	1.1
6	.19	.14	3.9	5.0	1.5	10	2.6	4.3	2.0	7.6	4.5	1.1
7	.19	.14	12	3.5	1.4	7.6	2.5	4.0	5.1	7.6	4.2	1.0
8	.19	.44	10	3.2	1.3	4.8	3.2	3.7	6.1	7.8	3.9	1.0
9	.16	1.2	7.4	2.7	1.2	3.8	3.5	3.5	3.2	11	3.7	1.0
10	.16	.45	3.9	2.5	1.2	5.6	2.5	3.1	3.2	10	3.5	.94
11	.16	.23	2.6	2.3	1.1	9.7	2.3	3.0	6.6	8.6	3.2	.90
12	.16	.19	2.1	2.2	1.0	8.1	2.1	3.7	8.4	8.2	3.1	.88
13	.16	5.8	1.8	2.0	1.0	6.1	2.0	3.7	4.9	7.7	2.9	.85
14	.16	5.4	5.1	1.9	1.0	4.7	1.9	5.9	3.3	7.4	2.8	.89
15	.16	2.5	7.8	1.8	1.0	4.1	1.8	8.9	2.8	7.0	2.6	.82
16	.16	1.7	4.6	4.0	.97	4.5	1.7	6.1	2.7	6.6	2.5	1.0
17	.16	7.4	2.6	8.5	.90	9.9	1.7	4.7	2.8	6.6	2.3	2.6
18	.16	6.6	2.0	4.0	.90	8.9	1.5	3.7	7.3	7.3	2.2	2.2
19	.16	3.8	1.8	2.9	.83	6.4	1.5	3.5	12	8.9	2.1	1.3
20	.16	9.0	1.6	8.8	.83	4.8	1.4	3.7	9.9	6.9	2.0	1.0
21	.16	3.4	1.5	4.7	.83	4.1	1.3	3.2	9.9	6.6	2.0	.97
22	.14	1.9	1.5	3.5	3.4	3.8	1.3	3.0	11	11	1.9	1.2
23	.14	1.5	4.5	2.7	8.1	3.8	1.2	2.9	8.6	9.2	1.8	.98
24	.16	1.3	11	2.5	2.7	5.3	2.0	2.7	8.9	7.8	1.8	.90
25	.16	1.0	6.5	2.3	8.4	7.4	15	2.5	10	8.1	1.9	.88
26	.16	.83	3.6	2.2	9.5	6.4	15	2.4	12	7.6	2.9	2.2
27	.16	.90	6.4	2.0	4.6	7.9	11	2.3	11	7.0	2.1	1.8
28	.14	.90	7.6	2.0	2.6	8.9	8.0	2.1	10	6.4	1.7	1.7
29	.14	.69	4.1	1.9	---	8.1	e6.2	2.0	9.8	6.2	1.5	1.3
30	.14	.62	2.9	2.6	---	5.6	e5.6	2.0	9.1	11	1.4	1.1
31	.14	---	2.5	2.5	---	4.1	---	1.9	---	8.0	1.5	---
TOTAL	5.24	59.13	127.87	117.8	64.86	192.8	114.5	115.2	191.5	253.3	95.2	36.51
MEAN	.17	1.97	4.12	3.80	2.32	6.22	3.82	3.72	6.38	8.17	3.07	1.22
MAX	.23	9.0	12	8.8	9.5	10	15	8.9	12	11	6.8	2.6
MIN	.14	.14	.62	1.8	.83	2.6	1.2	1.9	1.7	6.2	1.4	.82
AC-FT	10	117	254	234	129	382	227	228	380	502	189	72

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1997, BY WATER YEAR (WY)

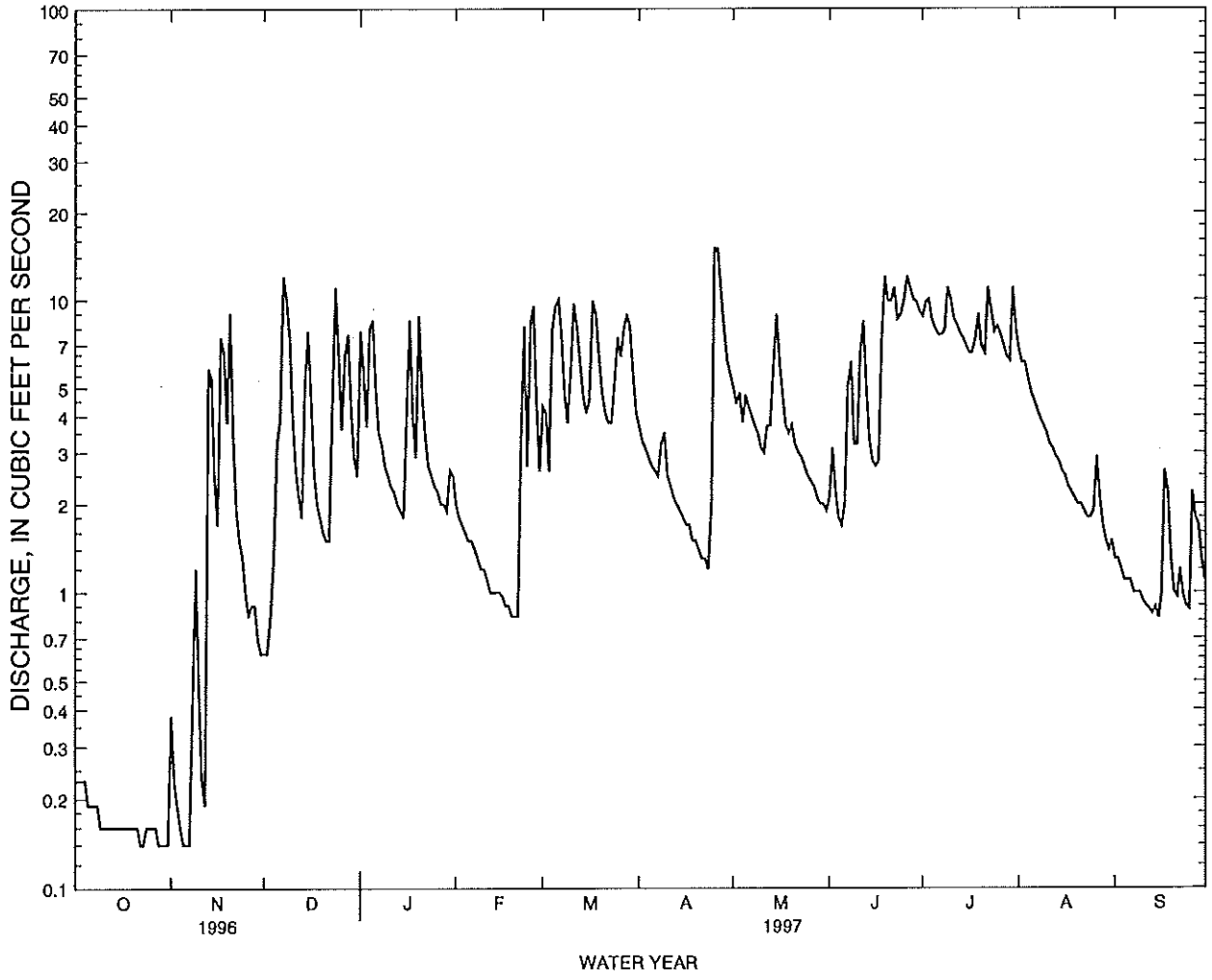
MEAN	1.83	3.25	3.88	3.71	3.66	4.79	5.08	3.53	2.20	2.76	2.16	1.54
MAX	5.40	7.97	9.19	7.55	9.04	11.1	9.35	7.42	6.38	8.17	4.98	5.69
(WY)	1984	1968	1971	1989	1969	1982	1968	1987	1997	1997	1969	1992
MIN	.14	.25	.65	.22	.36	.51	.27	1.28	.54	.40	.19	.15
(WY)	1985	1992	1977	1977	1978	1983	1992	1992	1981	1981	1974	1984

e Estimated

HAWAII, ISLAND OF MAUI

16599500 OPANA TUNNEL AT KAILIILI--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1965 - 1997	
ANNUAL TOTAL	746.40		1373.91			
ANNUAL MEAN	2.04		3.76		3.20	
HIGHEST ANNUAL MEAN					5.34	1969
LOWEST ANNUAL MEAN					1.45	1981
HIGHEST DAILY MEAN	12	Feb 25	15	Apr 25	18	Mar 31 1982
LOWEST DAILY MEAN	.14	Oct 22	.14	Oct 22	.11	Nov 5 1973
ANNUAL SEVEN-DAY MINIMUM	.15	Oct 25	.15	Oct 25	.11	Nov 4 1973
ANNUAL RUNOFF (AC-FT)	1480		2730		2320	
10 PERCENT EXCEEDS	5.5		8.7		7.7	
50 PERCENT EXCEEDS	1.1		2.7		2.2	
90 PERCENT EXCEEDS	.23		.23		.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 computed by Matt Wong. Records fair. No appreciable diversion upstream of station.

AVERAGE DISCHARGE.--14 years (water years 1984-97), 66.9 ft^3/s (48,450 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 6,260 ft^3/s, January 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, May 1996, several days in October and November 1996.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known, 7,540 ft^3/s, December 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)
Jan. 4	1800	*606	*3.07

Minimum discharge, 11 ft^3/s, many days in October and November.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	12	36	249	30	30	35	42	180	43	49	50
2	15	12	34	113	31	29	35	40	146	72	42	45
3	14	12	32	212	28	36	32	57	76	81	45	38
4	14	11	24	348	25	146	30	44	50	45	38	36
5	14	12	26	274	24	92	30	49	55	67	35	50
6	14	11	98	134	25	71	32	36	142	45	46	36
7	13	12	260	91	24	42	29	32	87	74	39	32
8	12	47	194	68	23	44	27	30	114	99	43	37
9	12	22	87	53	23	70	26	28	82	284	39	33
10	12	17	57	94	24	90	27	28	66	265	35	30
11	13	18	73	56	24	73	26	37	56	200	33	29
12	13	79	44	46	23	53	24	114	62	123	33	29
13	12	315	66	42	e24	36	26	50	39	79	31	30
14	12	134	329	36	e22	30	24	257	48	62	58	73
15	11	68	151	32	20	77	24	182	42	80	104	34
16	13	43	79	51	20	95	24	137	38	95	48	81
17	12	56	53	40	19	259	23	116	51	81	76	118
18	14	38	40	30	39	138	23	65	60	107	44	98
19	19	145	33	41	22	87	e24	67	65	170	38	45
20	14	165	28	182	20	65	e24	60	44	86	36	55
21	13	56	31	89	19	46	24	40	87	76	48	44
22	12	44	38	72	107	38	23	34	75	188	52	36
23	12	174	250	46	77	68	23	76	40	98	36	36
24	14	244	262	38	30	192	24	39	62	68	40	36
25	11	128	113	34	149	252	303	33	150	117	111	32
26	11	76	77	34	94	120	322	31	239	76	103	95
27	12	105	277	35	43	100	152	30	155	60	86	58
28	11	86	154	40	36	77	87	28	128	56	56	65
29	11	44	89	29	---	81	65	28	104	66	44	48
30	11	36	70	54	---	49	45	27	57	77	42	47
31	11	---	95	46	---	39	---	62	---	52	52	---
TOTAL	396	2222	3200	2709	1045	2625	1613	1899	2600	3092	1582	1476
MEAN	12.8	74.1	103	87.4	37.3	84.7	53.8	61.3	86.7	99.7	51.0	49.2
MAX	19	315	329	348	149	259	322	257	239	284	111	118
MIN	11	11	24	29	19	29	23	27	38	43	31	29
AC-FT	785	4410	6350	5370	2070	5210	3200	3770	5160	6130	3140	2930

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1997, BY WATER YEAR (WY)

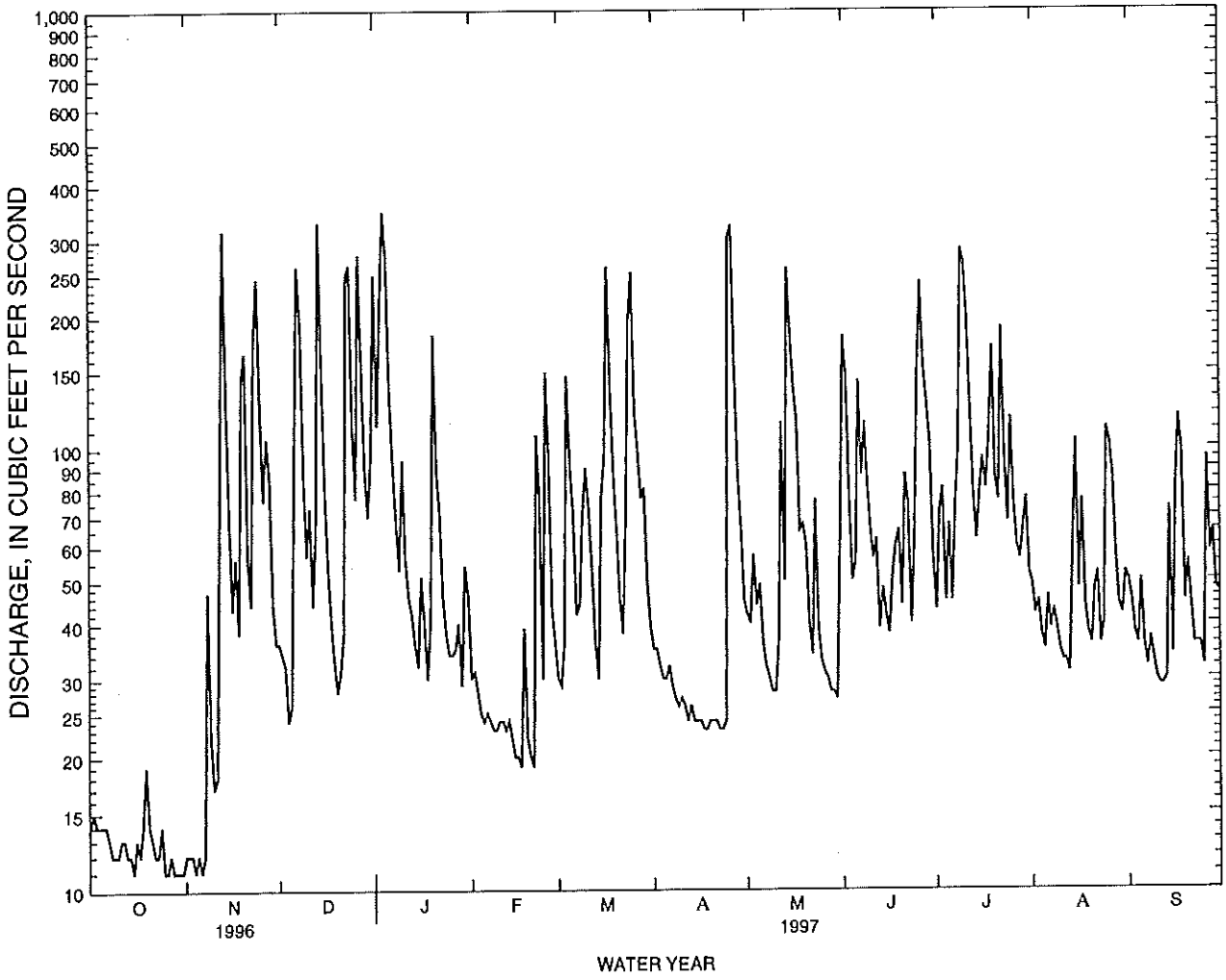
MEAN	52.9	65.8	65.6	70.4	58.6	84.6	87.4	67.0	59.1	74.8	61.4	48.3
MAX	103	132	103	149	108	176	230	136	99.7	137	97.0	133
(WY)	1984	1988	1997	1988	1994	1994	1989	1987	1987	1994	1993	1992
MIN	11.9	20.5	18.3	25.4	32.1	30.4	20.8	27.9	24.4	25.2	26.0	15.8
(WY)	1985	1985	1985	1985	1993	1987	1992	1984	1985	1984	1984	1984

e Estimated

HAWAII, ISLAND OF MAUI

16604500 IAO STREAM AT KEPANIWAI PARK, NEAR WAILUKU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1983 - 1997	
ANNUAL TOTAL	20582		24459			
ANNUAL MEAN	56.2		67.0		66.9	
HIGHEST ANNUAL MEAN					93.4	1994
LOWEST ANNUAL MEAN					41.4	1985
HIGHEST DAILY MEAN	393	Mar 31	348	Jan 4	913	Apr 10 1986
LOWEST DAILY MEAN	11	Oct 15	11	Oct 15	11	Oct 7 1984
ANNUAL SEVEN-DAY MINIMUM	11	Oct 25	11	Oct 25	11	Oct 16 1984
ANNUAL RUNOFF (AC-FT)	40820		48510		48450	
10 PERCENT EXCEEDS	120		146		135	
50 PERCENT EXCEEDS	39		44		42	
90 PERCENT EXCEEDS	13		15		21	



HAWAII, ISLAND OF MAUI

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 December 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 computed by Matt Wong. Records good, except for periods of no gage height record, which are poor. No diversion upstream of station.

AVERAGE DISCHARGE.--13 years (water years 1985-97), 80.9 ft^3/s (58,640 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,660 ft^3/s, January 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)
Dec. 14	0500	2,430	5.21	Mar. 15	2200	*3,990	*6.31

Minimum discharge, 30 ft^3/s, November 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	32	47	72	38	36	43	43	231	e52	e58	e58
2	34	32	41	43	42	41	61	43	132	e100	e54	e52
3	34	32	41	95	37	45	45	62	62	e70	e58	e49
4	34	31	40	216	35	125	42	49	48	e58	e50	e46
5	34	31	47	52	35	72	41	73	67	e70	e46	e60
6	36	31	63	40	40	57	48	46	115	e56	e54	e45
7	34	32	171	38	36	39	41	42	150	e90	e50	e42
8	34	66	79	37	34	38	66	40	67	e130	e67	e48
9	34	60	45	36	34	111	45	39	57	e300	e58	e40
10	33	46	40	146	34	109	73	39	55	e160	e52	e39
11	33	42	59	44	35	55	46	58	52	e120	e48	e39
12	34	108	42	38	35	41	43	199	53	e100	e47	e40
13	34	288	64	37	38	36	59	75	47	e86	e46	e40
14	34	58	304	36	35	34	44	362	52	e80	e80	e80
15	33	42	44	35	34	344	42	169	54	e100	e120	e45
16	38	38	36	85	34	101	40	150	e54	e110	e60	e100
17	33	75	35	57	33	112	40	103	e66	e100	e86	e140
18	42	47	34	38	58	52	40	52	e74	e130	e54	e70
19	63	92	33	58	35	56	40	79	e58	e170	e47	e54
20	36	74	33	180	33	55	39	70	e52	e110	e45	e66
21	34	39	34	59	33	44	39	49	e100	e96	e60	e50
22	33	41	37	43	163	42	39	46	e70	e200	e50	e47
23	33	220	183	37	48	53	39	75	e54	e90	e46	e46
24	35	191	99	36	34	104	38	47	e80	e82	e52	e45
25	38	83	39	35	77	145	335	47	e150	e110	e120	e44
26	34	50	38	35	66	53	293	46	e260	e76	e100	e100
27	33	63	231	36	36	79	59	45	e170	e72	e74	e70
28	33	52	45	40	34	52	48	44	e140	e74	e62	e80
29	33	42	38	36	---	55	48	44	e70	e86	e56	e62
30	33	40	36	118	---	44	44	45	e58	e70	e54	e60
31	33	---	45	57	---	43	---	110	---	e64	e64	---
TOTAL	1093	2078	2123	1915	1226	2273	1920	2391	2698	3212	1918	1757
MEAN	35.3	69.3	68.5	61.8	43.8	73.3	64.0	77.1	89.9	104	61.9	58.6
MAX	63	288	304	216	163	344	335	362	260	300	120	140
MIN	33	31	33	35	33	34	38	39	47	52	45	39
AC-FT	2170	4120	4210	3800	2430	4510	3810	4740	5350	6370	3800	3490

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1997, BY WATER YEAR (WY)

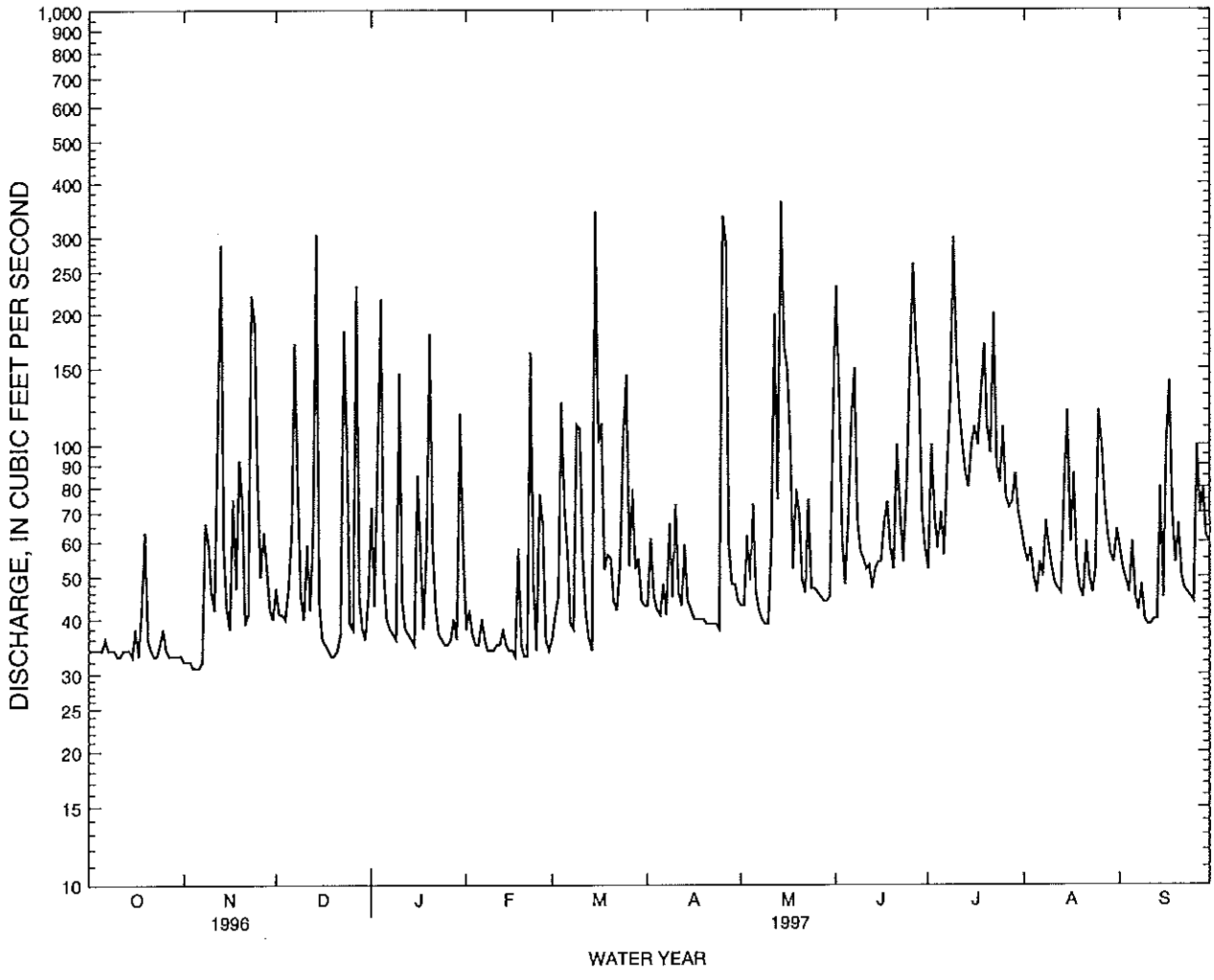
MEAN	69.4	82.8	71.7	76.3	66.8	93.8	94.9	81.3	73.8	92.0	77.2	72.3
MAX	91.7	150	109	186	106	179	276	143	118	136	99.6	160
(WY)	1986	1991	1988	1988	1988	1994	1989	1987	1987	1994	1991	1992
MIN	27.4	36.8	31.3	29.4	42.3	43.7	36.6	41.5	43.4	54.8	46.1	32.9
(WY)	1985	1985	1985	1985	1993	1992	1992	1996	1984	1984	1984	1984

e Estimated

HAWAII, ISLAND OF MAUI

16614000 WAIHEE RIVER AT DAM NEAR WAIHEE--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1984 - 1997	
ANNUAL TOTAL	22245		24604			
ANNUAL MEAN	60.8		67.4		80.9	
HIGHEST ANNUAL MEAN					106	1994
LOWEST ANNUAL MEAN					57.5	1985
HIGHEST DAILY MEAN	510	Mar 31	362	May 14	1160	Jan 28 1988
LOWEST DAILY MEAN	30	Mar 26	31	Nov 4	22	Jan 18 1985
ANNUAL SEVEN-DAY MINIMUM	32	Nov 1	32	Nov 1	23	Jan 18 1985
ANNUAL RUNOFF (AC-FT)	44120		48800		58640	
10 PERCENT EXCEEDS	110		120		135	
50 PERCENT EXCEEDS	42		48		55	
90 PERCENT EXCEEDS	34		34		38	



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.

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 computed by Matt Wong. Records good. No diversion upstream of station.

AVERAGE DISCHARGE.--48 years (water years 1940-42, 1948-70, 1976-97), 17.9 ft^3/s (12,970 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,220 ft^3/s, January 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, January 22, 28, 29, February 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)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 20	0100	729	5.72	Apr. 25	0600	808	5.88
Mar. 15	2230	*891	*6.04				

Minimum discharge, 3.1 ft^3/s, November 3-7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	3.3	7.3	18	8.6	10	6.0	4.9	100	9.1	8.4	21
2	3.8	3.2	6.9	14	9.5	11	36	4.8	68	11	7.9	9.5
3	3.8	3.2	6.8	19	8.9	7.9	13	6.0	13	14	7.9	7.1
4	3.6	3.1	6.8	74	6.6	23	7.3	9.9	8.3	13	7.2	6.2
5	3.6	3.1	8.9	20	6.0	30	6.4	10	6.9	11	6.7	6.4
6	4.0	3.1	19	9.2	5.7	18	7.7	7.8	20	8.7	7.0	6.2
7	4.0	3.1	85	7.4	5.5	7.7	6.0	4.9	32	13	7.0	5.7
8	3.8	24	18	6.9	5.3	6.0	11	5.5	15	22	6.6	5.9
9	3.7	28	7.8	6.1	5.2	11	8.8	5.4	7.8	57	6.5	5.8
10	3.6	13	5.7	51	5.1	62	6.3	4.3	7.5	38	6.1	5.5
11	3.6	13	8.3	16	5.0	25	6.3	12	6.9	21	6.0	5.4
12	3.6	7.4	6.9	7.5	5.0	12	5.5	119	7.4	14	6.0	5.6
13	3.6	118	5.0	8.6	4.8	7.1	5.4	28	6.5	9.5	6.0	5.3
14	3.8	24	161	6.9	5.5	6.0	5.3	168	6.3	7.7	7.8	13
15	3.9	14	14	5.9	4.9	78	5.3	85	6.5	14	13	7.4
16	3.7	8.5	8.3	58	4.8	54	5.1	39	8.2	21	6.6	16
17	3.6	57	6.5	35	4.6	44	5.0	32	13	9.3	15	44
18	3.5	25	5.8	9.0	9.1	14	4.8	10	9.5	48	8.5	24
19	4.8	28	5.4	7.5	5.5	10	4.8	11	16	60	5.9	10
20	4.6	19	5.1	89	4.8	13	4.6	17	8.0	9.6	6.4	11
21	3.6	9.7	5.1	12	4.6	7.9	4.6	7.7	17	8.2	6.8	39
22	3.5	8.6	9.2	14	27	6.7	4.6	6.5	24	72	15	15
23	3.4	59	61	7.4	16	6.3	4.5	14	8.0	20	7.3	8.4
24	3.5	76	49	6.6	5.4	25	4.4	6.9	15	10	6.5	12
25	3.9	19	9.4	6.2	21	40	219	6.2	33	33	33	10
26	5.3	13	6.6	5.9	19	14	95	5.8	45	14	13	54
27	3.7	15	108	5.6	7.6	28	14	5.4	19	9.6	24	19
28	3.4	12	16	5.6	5.4	12	7.7	5.2	52	8.4	7.9	15
29	3.4	8.9	8.5	5.5	---	9.7	6.4	5.0	18	27	7.0	16
30	3.4	7.9	6.8	63	---	7.3	5.5	4.8	17	41	6.1	13
31	3.4	---	6.4	29	---	6.5	---	21	---	10	18	---
TOTAL	116.9	630.1	684.5	629.8	226.4	613.1	526.3	673.0	614.8	664.1	297.1	422.4
MEAN	3.77	21.0	22.1	20.3	8.09	19.8	17.5	21.7	20.5	21.4	9.58	14.1
MAX	5.3	118	161	89	27	78	219	168	100	72	33	54
MIN	3.4	3.1	5.0	5.5	4.6	6.0	4.4	4.3	6.3	7.7	5.9	5.3
AC-FT	232	1250	1360	1250	449	1220	1040	1330	1220	1320	589	838

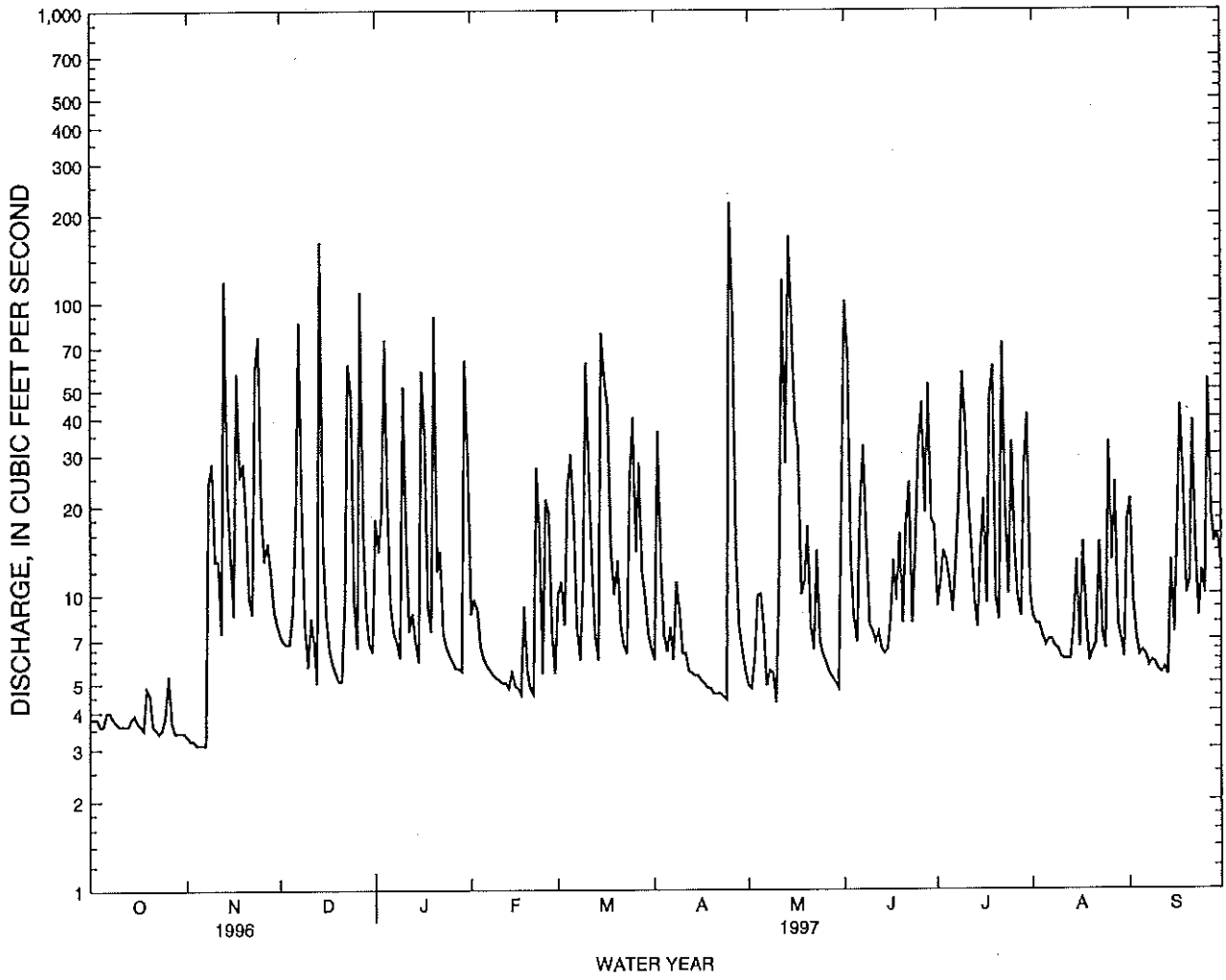
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1997, BY WATER YEAR (WY)

MEAN	15.2	20.5	18.7	18.1	17.5	25.4	24.2	17.4	12.2	16.4	16.6	11.8
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

HAWAII, ISLAND OF MAUI

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1939 - 1997	
ANNUAL TOTAL	5476.0		6098.5			
ANNUAL MEAN	15.0		16.7		17.9	
HIGHEST ANNUAL MEAN					30.8	1942
LOWEST ANNUAL MEAN					11.0	1981
HIGHEST DAILY MEAN	217	Mar 31	219	Apr 25	696	Mar 10 1942
LOWEST DAILY MEAN	2.8	Sep 3	3.1	Nov 4	2.7	Jan 28 1985
ANNUAL SEVEN-DAY MINIMUM	2.9	Aug 29	3.2	Nov 1	2.8	Feb 6 1985
ANNUAL RUNOFF (AC-FT)	10860		12100		12970	
10 PERCENT EXCEEDS	31		39		35	
50 PERCENT EXCEEDS	6.7		7.9		9.0	
90 PERCENT EXCEEDS	3.6		4.4		5.2	



HAWAII, ISLAND OF MAUI

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, October 1990 to current year. Record since October 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 March 7, 1913, nonrecording gage at site just below Honokohau Ditch intake at different datum. Prior to October 1, 1990, at site 250 ft downstream of gage at datum 26.67 ft lower.

REMARKS.--Records computed by Matt Wong. 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.--79 years (water years 1914-19, 1923-88, 1991-97), 39.2 ft^3/s (28,400 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,260 ft^3/s, January 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, January 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)
Dec. 14	0600	1,060	4.30	Jan. 20	0100	*1,130	*4.36

Minimum discharge, 9.8 ft^3/s, November 4-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	10	16	40	15	14	13	16	99	20	21	27
2	11	10	15	17	15	14	17	17	59	31	20	30
3	10	10	16	47	14	26	14	28	20	44	26	23
4	10	9.8	12	105	14	101	13	23	17	23	20	20
5	10	9.8	21	24	14	48	13	25	34	38	20	27
6	11	10	32	16	16	41	17	18	73	23	28	20
7	11	10	119	14	16	20	13	15	108	35	23	19
8	10	30	43	14	14	17	14	15	41	47	20	22
9	10	24	18	14	13	55	14	14	29	172	20	19
10	10	13	13	18	13	76	33	14	27	106	19	19
11	10	12	26	15	13	26	20	15	22	62	19	18
12	10	21	18	13	13	19	15	67	24	33	19	18
13	11	120	12	13	15	14	18	23	18	22	19	18
14	11	20	215	13	15	14	16	141	21	20	88	89
15	11	15	21	13	13	37	14	74	23	35	75	22
16	10	12	15	44	13	45	13	34	21	43	24	50
17	10	37	14	33	12	60	13	26	29	29	36	76
18	13	22	13	15	21	21	13	18	30	61	22	58
19	24	44	13	14	14	16	13	17	40	72	20	23
20	13	44	12	86	14	21	13	21	23	23	21	27
21	10	14	12	21	13	15	13	16	47	29	28	23
22	10	13	14	22	63	14	13	15	44	162	33	21
23	10	53	99	15	26	16	13	26	21	41	21	19
24	14	90	58	14	13	42	13	16	36	22	25	21
25	12	31	16	14	46	80	340	15	104	72	57	19
26	11	21	14	14	48	23	214	15	136	26	51	69
27	11	34	114	14	17	37	32	15	62	22	35	42
28	10	27	20	16	14	24	20	15	89	21	21	34
29	10	14	15	15	---	33	22	14	49	39	20	26
30	10	12	14	25	---	16	18	14	26	66	19	26
31	10	---	17	23	---	14	---	27	---	22	34	---
TOTAL	345	792.6	1057	761	527	999	1007	809	1372	1461	904	925
MEAN	11.1	26.4	34.1	24.5	18.8	32.2	33.6	26.1	45.7	47.1	29.2	30.8
MAX	24	120	215	105	63	101	340	141	136	172	88	89
MIN	10	9.8	12	13	12	14	13	14	17	20	19	18
AC-FT	684	1570	2100	1510	1050	1980	2000	1600	2720	2900	1790	1830

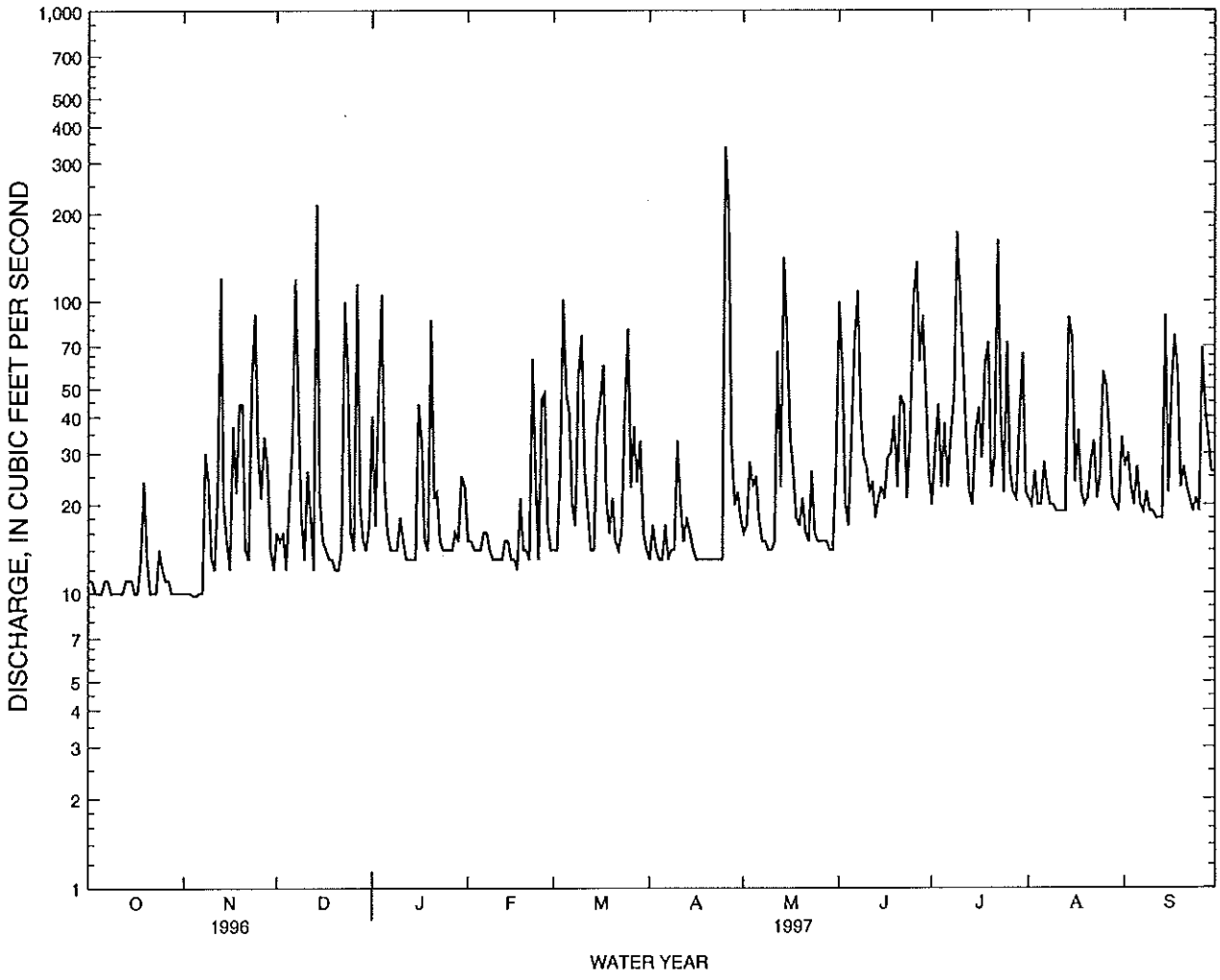
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 1997, BY WATER YEAR (WY)

MEAN	31.4	40.9	41.0	35.6	36.9	44.2	48.9	41.3	34.5	40.3	41.1	30.5
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

HAWAII, ISLAND OF MAUI

16620000 HONOKOHAU STREAM NEAR HONOKOHAU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1913 - 1997	
ANNUAL TOTAL	10175.6		10959.6			
ANNUAL MEAN	27.8		30.0		39.2	
HIGHEST ANNUAL MEAN					68.3	1914
LOWEST ANNUAL MEAN					24.1	1926
HIGHEST DAILY MEAN	580	Mar 31	340	Apr 25	781	Apr 7 1938
LOWEST DAILY MEAN	9.8	Nov 4	9.8	Nov 4	8.0	Aug 10 1920
ANNUAL SEVEN-DAY MINIMUM	9.9	Oct 30	9.9	Oct 30	8.5	Feb 6 1985
ANNUAL RUNOFF (AC-FT)	20180		21740		28400	
10 PERCENT EXCEEDS	55		61		79	
50 PERCENT EXCEEDS	16		20		24	
90 PERCENT EXCEEDS	11		12		13	



Surface-Water Station Records for Hawaii

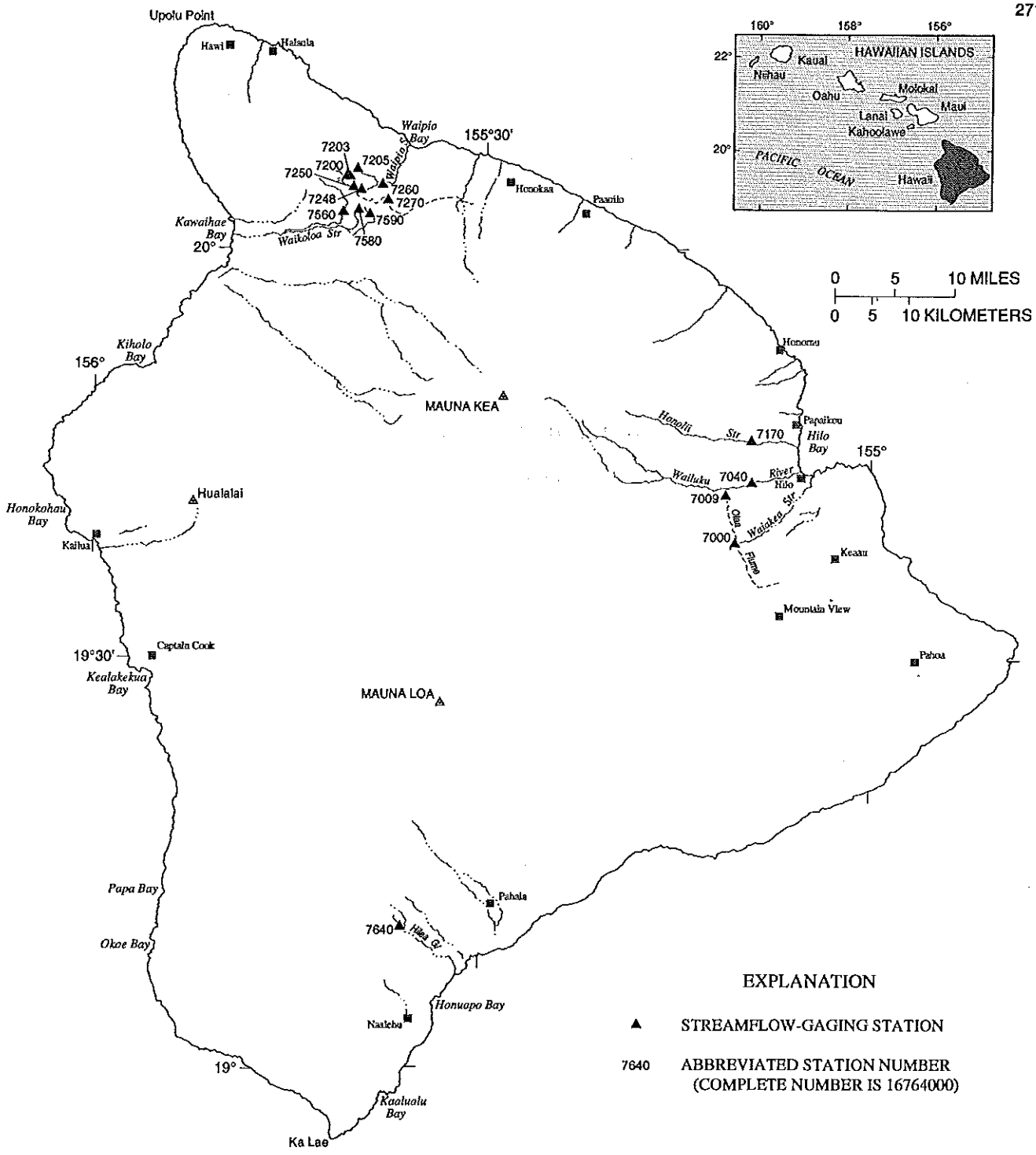


Figure 9. Locations of gaging, water-quality, and partial-record stations on Hawaii.

HAWAII, ISLAND OF HAWAII

16700000 WAIAKEA STREAM NEAR MOUNTAIN VIEW

LOCATION.--Lat 19°38'30", long 155°10'28", Hydrologic Unit 20010000, on left bank 200 ft upstream from Olaa Flume Road, 7.3 mi northwest of Mountain View, and 8.0 mi southwest of Hilo Post Office.

DRAINAGE AREA.--17.4 mi^2.

PERIOD OF RECORD.--September 1930 to September 1995 (discontinued).

REVISED RECORDS.--WSP 2137: 1939(M), 1942(M), 1944-45(M), 1947(M), 1949(P), 1950-51(M), 1952-53(P), 1955(P), 1956(M), 1957-58(P), 1960(M).

GAGE.--Water-stage recorder and combined Parshall flume and concrete-weir control. Datum of gage is 1,934 ft above mean sea level (by stadia survey). Prior to January 21, 1938, at datum 0.23 ft lower.

REMARKS.--Published annual minimum and daily mean discharges for water years 1966 through 1991 are frequently biased and are rated fair. True discharges may be as much as 10 percent higher. No diversion upstream. Large part of flow comes from 3 tunnels.

AVERAGE DISCHARGE.--61 years (water years 1931-91), 11.8 ft^3/s (8,550 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 310 ft^3/s, August 26, 1970, gage height, 4.45 ft, from rating curve extended above 160 ft^3/s; maximum gage height, 4.47 ft, (revised), July 21, 1931; no flow at times each year.

EXTREMES FOR CURRENT YEAR (Water Year 1991).--Peak discharges greater than base discharge of 100 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 22	0700	*159	*3.70

Minimum, 0.52 ft^3/s, February 19.

REVISIONS.--The maximum gage heights for water years 1931 to 1938 and maximum discharges for water years 1939 to 1990 have been revised as shown in the following table. All secondary peaks for water years 1931 to 1990 have been deleted. They supersede figures published in WSP 740, 755, 770, 795, 815, 835, 865, 885, 905, 935, 965, 985, 1015, 1045, 1065, 1095, 1125, 1155, 1185, 1219, 1249, 1289, 1349, 1399, 1449, 1569, 1639, 1719, and the Water Data reports for 1960 to 1990.

MAXIMUM DISCHARGE AND GAGE HEIGHT FOR WATER YEARS 1931 THROUGH 1990

Water year	Date	Discharge (ft^3/s)	Gage height (ft)	Water year	Date	Discharge (ft^3/s)	Gage height (ft)
1931	07/21/31	231	4.47	1961	10/16/60	248	4.40
1932	11/14/31	139	4.09	1962	10/28/61	136	3.77
1933	12/02/32	224	4.45	1963	04/17/63	156	3.68
1934	07/07/34	217	4.42	1964	05/25/64	235	4.12
1935	07/25/35	60	3.50	1965	11/07/64	177	3.81
1936	04/03/36	73	3.67	1966	07/25/66	135	3.53
1937	02/18/37	223	4.44	1967	08/08/67	249	4.19
1938	11/25/37	178	4.27	1968	11/26/67	202	3.95
1939	03/02/39	125	3.69	1969	02/19/69	305	4.43
1940	08/12/40	71	3.15	1970	08/26/70	310	4.45
1941	09/25/41	112	3.59	1971	12/19/70	177	3.81
1942	03/14/42	255	4.43	1972	04/16/72	300	4.41
1943	07/12/43	169	3.98	1973	11/18/72	150	3.64
1944	02/28/44	66	3.08	1974	04/19/74	303	4.42
1945	03/17/45	103	3.52	1975	01/08/75	300	4.41
1946	04/17/46	92	3.40	1976	02/29/76	295	4.39
1947	unknown	152	3.88	1977	03/03/77	140	3.57
1948	03/03/48	72	3.17	1978	04/17/78	96	3.18
1949	01/01/49	200	4.16	1979	02/05/79	293	4.38
1950	04/28/50	134	3.76	1980	11/17/79	298	4.40
1951	08/06/51	110	3.58	1981	09/26/81	112	3.33
1952	11/21/51	253	4.42	1982	08/01/82	298	4.40
1953	03/09/53	221	4.27	1983	06/04/83	70	2.87
1954	11/16/53	98	3.47	1984	10/24/83	64	2.78
1955	12/14/54	246	4.39	1985	03/01/85	113	3.34
1956	08/17/56	244	4.38	1986	04/10/86	118	3.39
1957	08/30/57	113	3.60	1987	11/13/86	128	3.47
1958	10/22/57	122	3.67	1988	12/13/87	293	4.38
1959	08/17/59	93	3.42	1989	07/06/89	125	3.45
1960	05/14/60	139	3.79	1990	01/19/90	115	3.36

HAWAII, ISLAND OF HAWAII

16700000 WAIAKEA STREAM NEAR MOUNTAIN VIEW--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	17	28	16	16	2.1	.90	19	29	20	13	8.4	10
2	17	29	15	14	1.9	.85	18	28	20	12	7.0	9.9
3	20	26	14	13	1.7	.70	17	26	20	11	10	12
4	19	22	13	11	1.5	.60	17	22	19	10	15	16
5	18	20	12	10	1.4	.56	19	20	18	9.4	12	13
6	17	19	11	9.3	1.3	.80	18	19	17	9.7	12	13
7	16	26	9.8	8.5	1.1	1.4	17	17	21	9.6	15	13
8	16	19	11	8.1	1.0	1.3	18	16	18	8.3	27	13
9	14	18	44	7.3	.95	26	18	15	18	7.6	21	12
10	14	17	30	6.4	.90	19	19	14	17	8.1	20	14
11	21	16	32	6.0	.80	19	18	12	17	10	20	13
12	19	19	35	5.7	.65	46	17	11	16	8.7	19	13
13	21	17	52	8.4	.75	56	17	10	15	9.9	18	13
14	21	49	58	6.3	1.3	92	17	12	16	10	16	12
15	23	47	56	6.7	1.2	91	16	14	19	10	15	11
16	28	49	53	6.0	.80	82	16	12	16	11	14	11
17	27	50	49	5.5	.65	69	15	11	17	10	14	9.8
18	36	101	47	5.1	.60	56	14	10	15	9.4	14	9.2
19	42	87	42	4.8	.52	54	13	9.6	14	9.0	12	10
20	33	92	37	4.6	4.5	40	12	8.9	13	8.4	12	9.9
21	30	85	35	4.3	3.1	30	11	8.3	12	7.8	11	9.8
22	29	72	62	4.1	2.4	29	11	9.1	11	7.6	10	17
23	27	52	49	3.9	2.0	29	11	9.2	9.9	7.0	9.4	14
24	23	40	49	3.8	1.7	29	14	8.7	10	6.6	9.3	13
25	22	30	40	3.6	1.5	28	18	9.5	14	6.2	8.4	13
26	19	30	33	3.4	1.4	30	23	11	17	6.0	8.1	13
27	18	29	30	3.4	1.1	22	22	14	15	5.5	9.7	13
28	17	26	28	3.3	1.0	21	22	14	15	5.3	12	12
29	15	21	22	3.0	---	19	23	18	14	5.0	12	11
30	28	18	19	2.7	---	19	30	19	14	7.2	11	9.9
31	20	---	17	2.4	---	18	---	20	---	6.1	11	---
TOTAL	687	1154	1020.8	200.6	39.82	931.11	520	457.3	477.9	265.4	413.3	363.5
MEAN	22.2	38.5	32.9	6.47	1.42	30.0	17.3	14.8	15.9	8.56	13.3	12.1
MAX	42	101	62	16	4.5	92	30	29	21	13	27	17
MIN	14	16	9.8	2.4	.52	.56	11	8.3	9.9	5.0	7.0	9.2
AC-FT	1360	2290	2020	398	79	1850	1030	907	948	526	820	721

CAL YR 1990 TOTAL 6584.65 MEAN 18.0 MAX 101 MIN .85 AC-FT 13060
WTR YR 1991 TOTAL 6530.73 MEAN 17.9 MAX 101 MIN .52 AC-FT 12950

HAWAII, ISLAND OF HAWAII

16700900 OLAA FLUME SPRING NEAR KAUMANA

THE RECORDS FOR WATER YEARS 1992-97 WERE NOT COMPUTED
AT THE TIME OF PUBLICATION

HAWAII, ISLAND OF HAWAII

16704000 WAILUKU RIVER AT PIIHONUA

THE RECORDS FOR WATER YEARS 1992-97 WERE NOT COMPUTED AT THE TIME OF PUBLICATION

HAWAII, ISLAND OF HAWAII

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.

REVISED RECORDS.--WDR HI-95-1: 1967-90 (maximum, 1988-90 (m), 1988-90).

GAGE.--Water-stage recorder. Elevation of gage is 1,540 ft above mean sea level (from topographic map). Prior to August 27, 1911, nonrecording gage and August 27, 1911 to March 24, 1913, water-stage recorder, at site 0.5 mi upstream at different datum.

REMARKS.--Record computed by Dale Nishimoto. 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.--31 years (water years 1912, 1968-97), 130 ft^3/s (94,140 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, January 31, 1912.

EXTREMES FOR CURRENT YEAR.-- 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)
Jun. 26	0915	6,580	13.48	Jul. 30	0300	*10,400	*15.75

Minimum discharge, 5.3 ft^3/s, February 3-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	31	209	12	5.7	93	63	12	31	346	76	122
2	10	399	484	11	5.4	110	72	15	187	126	53	47
3	9.6	240	225	11	5.4	156	51	14	101	97	67	38
4	9.1	129	238	10	5.3	242	36	16	62	83	50	35
5	8.7	197	165	11	5.3	461	31	15	39	256	38	31
6	8.5	66	92	11	5.4	934	26	103	62	105	41	52
7	8.1	142	101	11	6.5	363	23	84	111	79	39	56
8	7.9	55	138	9.5	17	238	21	25	486	136	29	85
9	7.6	41	131	8.9	11	233	25	26	169	1470	25	49
10	7.4	31	62	8.6	68	112	43	19	71	341	22	35
11	7.2	31	44	8.4	69	315	105	15	120	208	20	28
12	7.2	27	36	7.9	27	214	133	22	127	166	19	24
13	7.1	51	39	7.6	17	83	107	55	82	89	18	22
14	7.6	114	45	7.4	12	52	63	123	52	63	17	68
15	17	40	31	7.3	13	39	61	238	48	55	18	188
16	72	49	26	7.2	27	33	40	136	48	57	21	104
17	55	75	22	7.0	22	29	29	144	67	65	21	213
18	34	30	20	6.8	26	31	24	75	100	121	16	124
19	398	23	19	6.8	19	26	20	74	455	95	15	60
20	142	116	17	9.9	117	77	18	49	221	55	17	54
21	58	88	16	14	29	40	16	37	150	47	26	109
22	63	49	16	9.4	21	31	15	35	446	432	19	91
23	139	125	15	7.9	153	29	14	27	128	582	18	54
24	93	191	17	7.1	31	126	13	23	89	93	20	99
25	45	194	26	6.7	30	157	12	24	461	97	153	44
26	31	114	20	6.4	38	201	47	25	2570	150	425	126
27	73	222	16	6.1	528	416	28	23	1250	70	202	50
28	32	559	14	5.8	173	655	21	21	1190	51	52	72
29	36	117	15	5.7	---	833	16	19	1010	1770	49	44
30	33	80	13	5.6	---	212	13	20	536	2900	33	45
31	35	---	12	5.6	---	101	---	21	---	157	53	---
TOTAL	1473.0	3626	2324	260.6	1487.0	6642	1186	1535	10469	10362	1672	2169
MEAN	47.5	121	75.0	8.41	53.1	214	39.5	49.5	349	334	53.9	72.3
MAX	398	559	484	14	528	934	133	238	2570	2900	425	213
MIN	7.1	23	12	5.6	5.3	26	12	12	31	47	15	22
AC-FT	2920	7190	4610	517	2950	13170	2350	3040	20770	20550	3320	4300

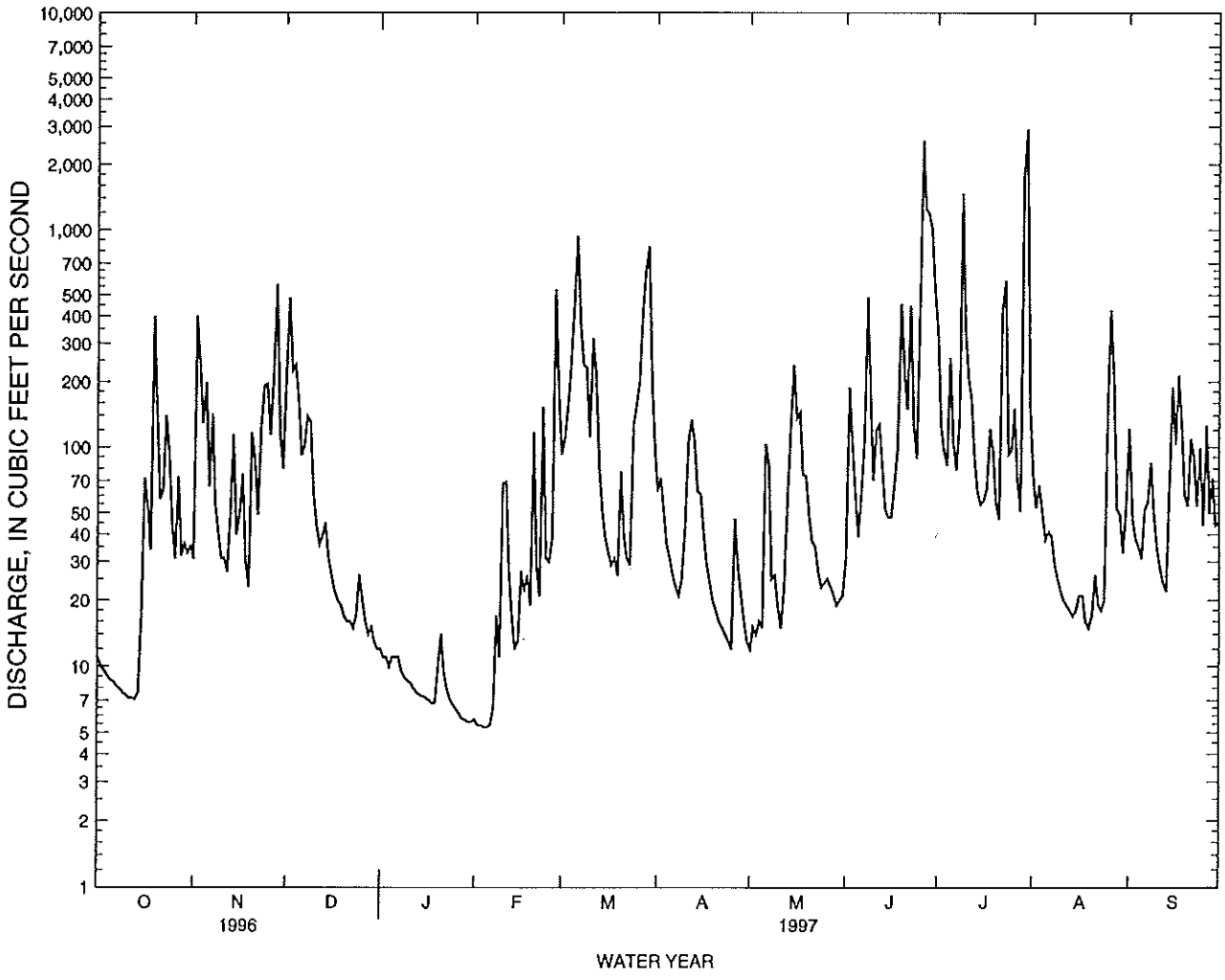
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 1997, BY WATER YEAR (WY)

MEAN	79.3	195	153	130	113	214	189	93.2	77.6	124	118	83.6
MAX	222	783	625	648	752	1349	772	319	349	384	420	276
(WY)	1991	1995	1971	1975	1969	1980	1986	1989	1997	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

HAWAII, ISLAND OF HAWAII

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1911 - 1997	
ANNUAL TOTAL	35532.8		43205.6			
ANNUAL MEAN	97.1		118		130	
HIGHEST ANNUAL MEAN					220	1991
LOWEST ANNUAL MEAN					53.1	1981
HIGHEST DAILY MEAN	3530	Feb 25	2900	Jul 30	5780	Jan 8 1975
LOWEST DAILY MEAN	7.1	Jan 16	5.3	Feb 4	.80	Jan 31 1912
ANNUAL SEVEN-DAY MINIMUM	7.4	Oct 8	5.4	Jan 31	1.0	Feb 22 1980
ANNUAL RUNOFF (AC-FT)	70480		85700		94140	
10 PERCENT EXCEEDS	178		228		266	
50 PERCENT EXCEEDS	30		44		42	
90 PERCENT EXCEEDS	9.6		8.8		11	



HAWAII, ISLAND OF HAWAII

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.

REVISED RECORDS.--WDR HI-95-1: 1965-90 (m), 1970, 1971, 1979, 1984, 1990.

GAGE.--Water-stage recorder. Elevation of gage is 4,060 ft above mean sea level (from topographic map).

REMARKS.--Record computed by Dale Nishimoto. Records fair except for periods of estimated record which are poor. No diversion upstream.

AVERAGE DISCHARGE.--33 years (water years 1965-97), 14.8 ft^3/s (10,720 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,160 ft^3/s, November 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, January 23-28, February 20-21, 1977, December 16-19, February 23, 24, 1980 (revised).

EXTREMES FOR CURRENT YEAR.-- 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)
Jan. 20	0430	*930	*6.54	Mar. 17	2130	733	6.01
Feb. 22	2200	768	6.11	Jul. 9	1000	550	5.42

Minimum discharge, 0.06 ft^3/s, October 13-14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	2.3	2.4	5.3	.18	1.2	2.2	3.0	5.7	31	.88	57
2	.11	1.3	10	3.1	.15	.98	1.2	12	46	14	.76	12
3	.10	.80	7.0	2.0	.13	5.0	.80	15	46	14	2.8	7.7
4	.10	.53	12	2.9	.12	35	.59	27	8.7	7.1	2.9	6.9
5	.09	.38	5.2	25	.10	21	.44	17	5.2	36	1.3	2.8
6	.14	.26	9.8	4.1	.10	39	.37	12	28	27	4.4	3.0
7	.10	.19	118	1.8	.10	18	.38	3.1	64	50	9.8	2.6
8	.09	.17	70	1.1	.10	26	.30	1.6	23	105	2.8	6.0
9	.08	3.3	35	.77	.11	14	.37	1.1	13	223	1.7	7.4
10	.07	3.2	6.5	.59	.13	6.3	21	.66	15	92	.94	2.4
11	.07	3.2	3.6	.47	.12	4.7	29	.45	77	37	.65	1.2
12	.07	1.8	2.4	.37	7.1	4.8	13	1.1	19	29	.51	.88
13	.07	1.5	1.6	.30	6.4	2.0	3.4	5.4	5.7	11	.40	.88
14	.08	3.9	30	.26	3.4	1.1	2.1	8.7	8.8	5.1	.33	.70
15	.13	1.6	20	.23	11	.75	2.6	33	8.4	9.6	.42	1.7
16	.14	.93	4.9	.25	8.8	.57	1.4	11	14	29	.43	e4.3
17	.13	2.3	2.6	16	2.9	71	.88	12	29	69	.40	e32
18	.19	14	1.6	4.2	5.6	39	.58	3.9	17	46	.30	19
19	.62	10	1.1	1.7	3.8	4.1	.44	2.8	18	27	.25	3.9
20	.91	66	.80	120	8.3	4.3	.39	3.4	38	6.6	.57	2.0
21	.56	28	.60	13	3.0	2.0	.30	2.6	17	6.2	1.7	12
22	6.4	7.4	.48	62	75	1.1	.25	1.2	5.5	26	2.5	4.9
23	10	16	3.7	5.2	81	1.1	.19	.69	3.7	32	1.4	11
24	3.4	32	166	2.0	5.5	27	.17	.48	34	5.7	6.6	8.4
25	2.5	18	11	1.1	67	20	4.5	.35	80	43	42	2.2
26	1.3	9.4	3.4	.74	25	14	71	.27	110	25	34	35
27	.75	8.7	64	.54	4.5	13	13	.22	45	4.6	24	12
28	.52	11	25	.38	2.1	60	4.6	.18	38	2.5	15	26
29	4.1	4.0	3.9	.30	---	62	4.7	.19	35	2.2	11	9.4
30	7.0	2.7	1.9	.23	---	21	3.0	.18	27	1.8	3.0	11
31	5.3	---	39	.20	---	5.1	---	.17	---	1.2	7.2	---
TOTAL	45.25	254.86	663.48	276.13	321.74	525.10	183.15	180.74	884.7	1018.6	180.94	306.26
MEAN	1.46	8.50	21.4	8.91	11.5	16.9	6.11	5.83	29.5	32.9	5.84	10.2
MAX	10	66	166	120	81	71	71	33	110	223	42	57
MIN	.07	.17	.48	.20	.10	.57	.17	.17	3.7	1.2	.25	.70
AC-FT	90	506	1320	548	638	1040	363	358	1750	2020	359	607

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1997, BY WATER YEAR (WY)

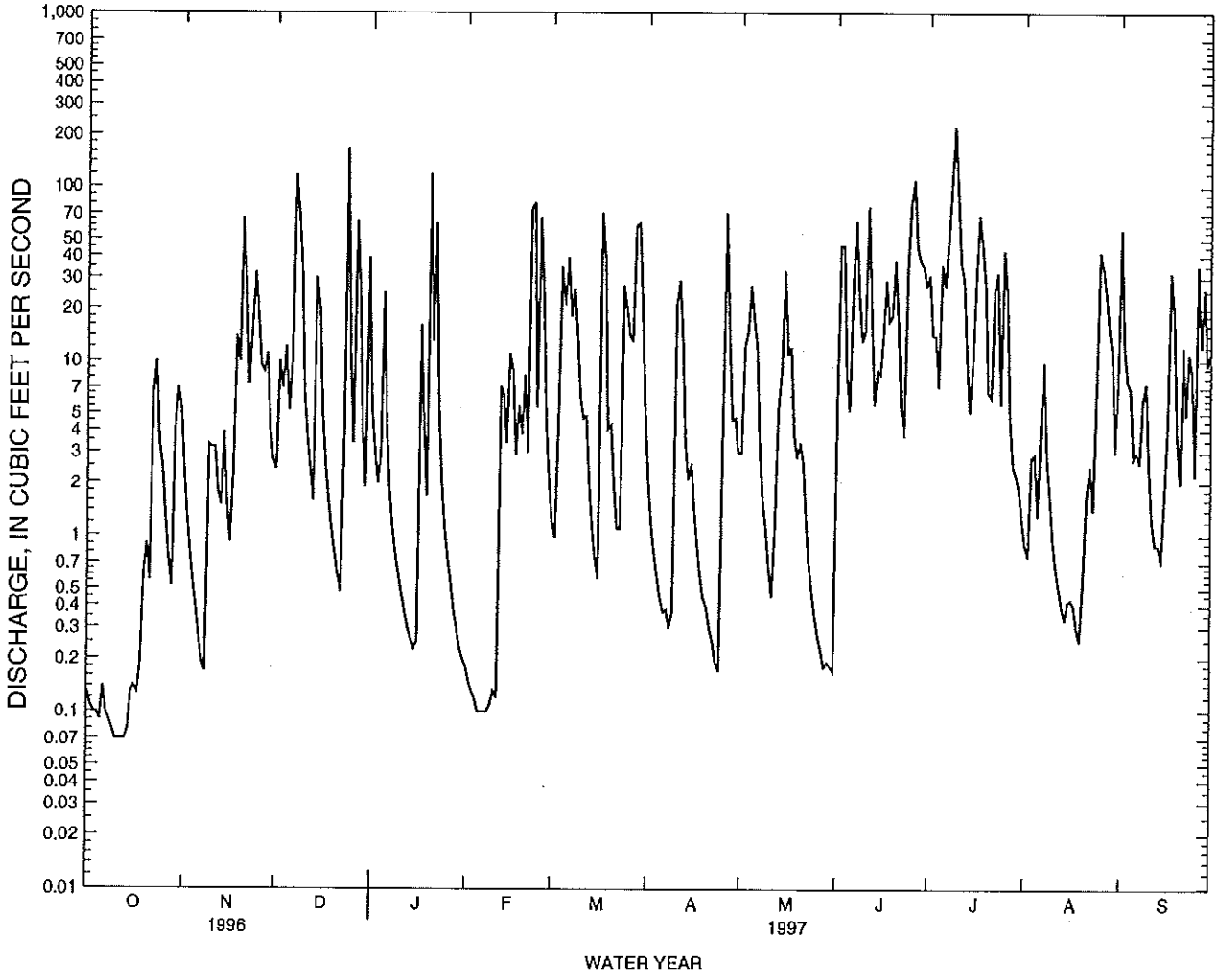
MEAN	8.86	16.0	15.1	15.3	12.1	20.8	22.6	12.2	13.8	18.9	14.4	8.09
MAX	27.3	55.8	41.4	62.5	40.6	98.0	67.5	34.8	31.2	37.0	31.8	27.5
(WY)	1984	1980	1971	1979	1969	1980	1986	1964	1994	1982	1982	1992
MIN	.17	1.77	.51	.34	.51	3.33	1.71	3.17	3.18	4.56	2.70	.27
(WY)	1985	1990	1981	1981	1995	1983	1992	1996	1985	1981	1971	1965

e Estimated

HAWAII, ISLAND OF HAWAII

16720000 KAWAINUI STREAM NEAR KAMUELA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1964 - 1997	
ANNUAL TOTAL	4032.86		4840.95			
ANNUAL MEAN	11.0		13.3		14.8	
HIGHEST ANNUAL MEAN					26.3	1980
LOWEST ANNUAL MEAN					7.33	1981
HIGHEST DAILY MEAN	179	Feb 25	223	Jul 9	612	Nov 18 1979
LOWEST DAILY MEAN	.07	Oct 10	.07	Oct 10	.01	Jan 23 1977
ANNUAL SEVEN-DAY MINIMUM	.08	Oct 8	.08	Oct 8	.01	Jan 22 1977
ANNUAL RUNOFF (AC-FT)	8000		9600		10720	
10 PERCENT EXCEEDS	31		36		40	
50 PERCENT EXCEEDS	2.3		3.8		4.5	
90 PERCENT EXCEEDS	.20		.19		.50	



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), WDR HI-95-1: 1968-90.

GAGE.--Water-stage recorder. Elevation of gage is 4,090 ft above mean sea level (from topographic map).

REMARKS.--
Water year 1992: Records poor. No diversion upstream.
Water year 1993: Records poor. No diversions upstream.
Water year 1994: Records fair. No diversions upstream.
Water year 1995: Records fair. No diversions upstream.
Water year 1996: Records good. No diversions upstream.
Water year 1997: Records fair. No diversions upstream.

AVERAGE DISCHARGE.--
Water year 1992: 24 years (water years 1969-92), 3.66 ft^3/s (2,650 acre-ft/yr).
Water year 1993: 25 years (water years 1969-93), 3.67 ft^3/s (2,660 acre-ft/yr).
Water year 1994: 26 years (water years 1969-94), 3.76 ft^3/s (2,720 acre-ft/yr).
Water year 1995: 27 years (water years 1969-95), 3.75 ft^3/s (2,720 acre-ft/yr).
Water year 1996: 28 years (water years 1969-96), 3.70 ft^3/s (2,680 acre-ft/yr).
Water year 1997: 29 years (water years 1969-97), 3.69 ft^3/s (2,670 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,470 ft^3/s, November 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, November 14, 1968, July 5-11, 1981, March 10-16, 1983, October 16-20, 22, 1984, November 2, 1984.

EXTREMES FOR CURRENT YEAR.--Water year 1992: 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)
Sep. 14	0500	*433	*4.35	No other peaks greater than base discharge.			

Minimum discharge, 0.03 ft^3/s, June 4, 5.

Water year 1993: 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)
Jan. 4	2030	185	3.17	Sep. 23	2130	122	2.73
Jan. 6	2100	*256	*3.57				

Minimum discharge, 0.11 ft^3/s, February 9-11.

Water year 1994: 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)
Oct. 26	0400	170	3.07	Mar. 25	0930	202	3.27
Feb. 10	1700	*212	*3.33				

Minimum discharge, 0.14 ft^3/s, March 9-11.

Water year 1995: 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)
Jan. 15	2000	*218	*3.36	No other peaks greater than base discharge.			

Minimum discharge, 0.05 ft^3/s, March 19.

Water year 1996: 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)
Feb. 24	2300	*238	*3.47	No other peaks greater than base discharge.			

Minimum discharge, 0.02 ft^3/s, February 13, 14.

Water year 1997: 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)
Dec. 24	0530	123	2.74	Mar. 17	2130	225	3.40
Jan. 20	0430	*239	*3.48	Jul. 9	1000	181	3.14
Feb. 22	2130	210	3.32				

Minimum discharge, 0.03 ft^3/s, October 13, 14.

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	.29	.41	.29	7.6	1.5	1.1	.40	.47	.06	1.8	1.7	2.0
2	.25	.35	.28	9.6	.62	.49	2.7	.25	.04	1.6	3.4	18
3	.24	.84	1.3	3.1	5.4	.32	2.8	.16	.04	1.7	1.5	11
4	.24	.80	4.8	1.1	10	.28	1.2	.22	.04	10	2.8	9.4
5	.24	1.2	1.4	.66	14	.25	.57	12	.03	6.9	1.9	28
6	.24	.73	4.5	.51	15	.20	.36	17	.19	3.4	1.9	10
7	2.0	.85	2.3	.43	5.9	.17	.26	3.8	.88	1.5	5.5	2.4
8	2.2	.91	1.0	.38	1.5	.14	.20	.97	2.9	.75	2.1	1.5
9	.82	1.1	.64	.35	.72	.14	.17	.50	11	3.0	1.1	1.3
10	.50	.59	.48	.33	.48	.12	.25	.30	7.9	4.0	.91	.87
11	.42	.44	.42	.29	.44	.11	1.3	.17	3.1	1.5	6.9	.63
12	.36	.35	.38	.28	.71	.11	1.4	.14	1.9	1.6	2.4	.56
13	.33	.30	.31	.28	2.4	.11	.82	.14	1.5	2.1	1.4	12
14	.29	.28	.28	.28	.85	.27	.45	.11	1.3	2.6	.86	63
15	1.2	.24	.28	17	.97	1.3	.28	.11	3.2	2.5	7.1	2.4
16	.93	.21	.27	1.7	.51	1.4	.22	.11	1.9	9.9	11	1.8
17	.59	.22	.96	.73	.34	1.1	.18	.09	1.1	11	3.5	3.9
18	.44	.20	.63	.47	.24	1.6	.15	.09	.82	4.1	1.2	3.5
19	.39	5.2	.50	4.5	.22	3.8	.14	.09	2.5	3.6	2.2	2.3
20	.34	1.9	1.4	1.8	.20	7.7	.19	.09	2.4	20	6.2	.87
21	.33	.88	2.3	.72	.20	1.8	.17	.07	1.0	7.7	16	.63
22	.81	6.5	1.1	.47	.17	.77	.17	.07	1.2	9.5	4.3	.43
23	.67	5.4	10	.36	.17	.47	.15	.07	3.7	5.9	9.3	5.7
24	.51	1.9	1.9	.29	.17	.79	.11	.07	7.3	1.1	8.3	2.4
25	.70	1.9	14	.28	.15	9.1	.09	.07	11	17	6.7	16
26	.68	1.1	40	.25	.14	5.4	.09	.07	15	37	6.7	31
27	.50	.68	5.8	.24	.14	1.1	.09	.04	11	30	3.2	9.7
28	.42	.49	6.2	.24	.14	.68	.08	.05	11	5.0	5.3	1.5
29	.34	.39	6.8	.22	.27	1.2	.27	.07	1.7	1.3	10	.78
30	.29	.33	3.0	1.1	---	1.9	.56	.09	1.1	1.6	3.9	.78
31	.29	---	12	9.8	---	.67	---	.07	---	2.1	2.4	---
TOTAL	17.85	36.69	125.52	65.36	63.55	44.59	15.82	37.55	106.80	211.75	141.67	244.35
MEAN	.58	1.22	4.05	2.11	2.19	1.44	.53	1.21	3.56	6.83	4.57	8.15
MAX	2.2	6.5	40	17	15	9.1	2.8	17	15	37	16	63
MIN	.24	.20	.27	.22	.14	.11	.08	.04	.03	.75	.86	.43
AC-FT	35	73	249	130	126	88	31	74	212	420	281	485

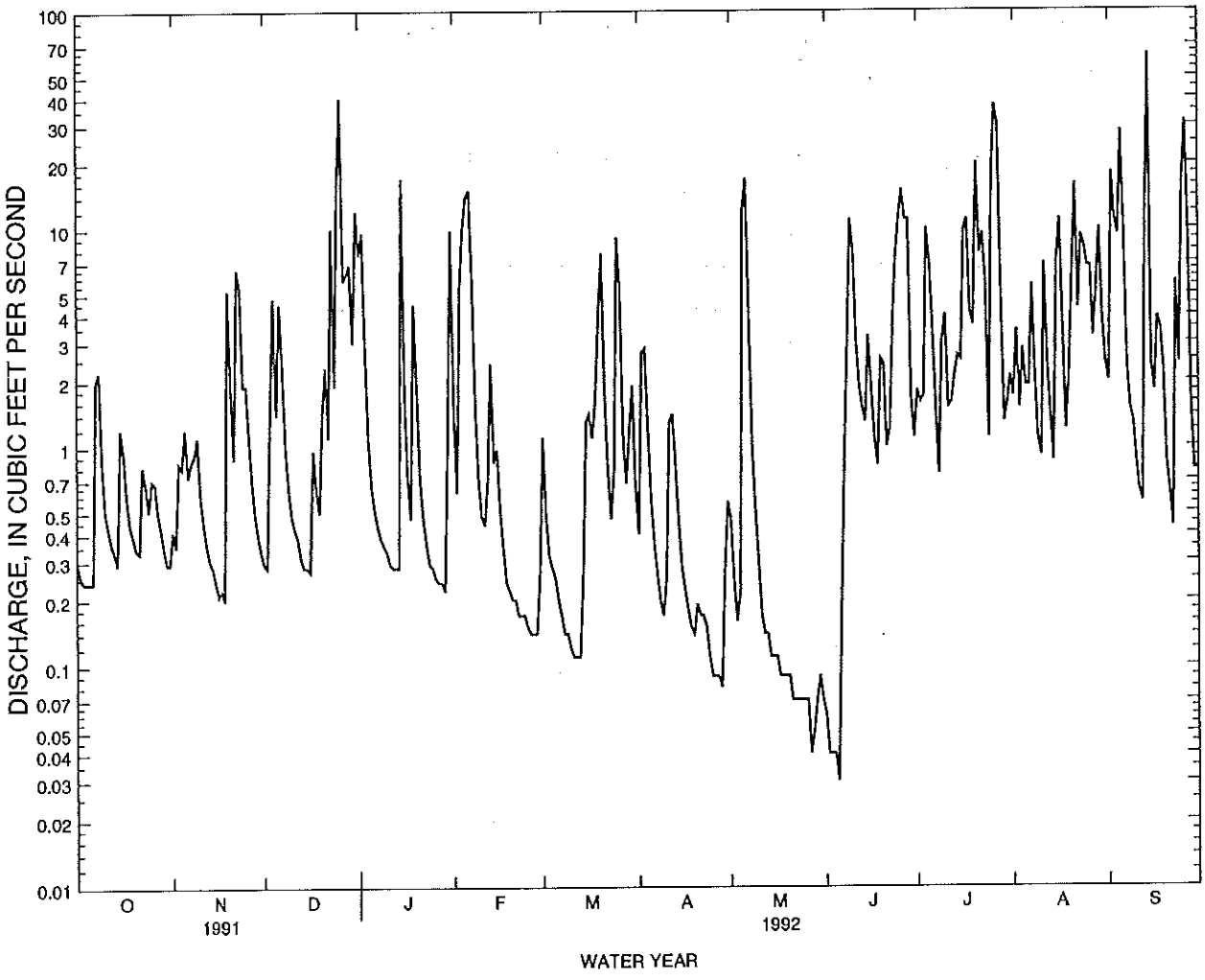
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1992, BY WATER YEAR (WY)

MEAN	2.16	3.98	3.21	3.75	2.58	5.23	5.93	3.17	3.31	4.49	3.70	2.09
MAX	5.35	23.2	9.65	13.8	10.6	24.0	17.0	7.85	8.68	7.70	7.75	8.15
(WY)	1991	1980	1971	1979	1969	1980	1986	1990	1979	1978	1970	1992
MIN	.006	.60	.11	.067	.15	.74	.53	1.00	.88	.87	.67	.19
(WY)	1985	1969	1981	1981	1983	1983	1992	1972	1985	1981	1973	1984

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1968 - 1992	
ANNUAL TOTAL	1819.74		1111.50			
ANNUAL MEAN	4.99		3.04		3.66	
HIGHEST ANNUAL MEAN					7.48	1980
LOWEST ANNUAL MEAN					1.42	1981
HIGHEST DAILY MEAN	74	Mar 13	63	Sep 14	297	Nov 18 1979
LOWEST DAILY MEAN	.20	Feb 6	.03	Jun 5	.00	Nov 14 1968
ANNUAL SEVEN-DAY MINIMUM	.20	Feb 6	.05	May 30	.00	Jul 5 1981
ANNUAL RUNOFF (AC-FT)	3610		2200		2650	
10 PERCENT EXCEEDS	10		9.5		8.7	
50 PERCENT EXCEEDS	2.7		.86		1.2	
90 PERCENT EXCEEDS	.33		.14		.16	



HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

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	.78	.36	2.0	19	.38	.17	.82	12	12	2.0	1.6	.67
2	.56	.30	4.2	2.4	.24	21	.81	8.8	10	7.3	5.3	.56
3	.43	.48	1.8	.97	.17	13	2.3	13	2.4	4.9	12	.45
4	.38	.39	2.4	15	e.17	3.6	2.8	3.5	6.7	12	2.0	.41
5	.33	.42	11	29	e.16	3.2	3.7	11	8.5	1.6	1.5	.33
6	.28	2.1	2.8	38	.14	15	8.2	3.3	6.1	1.0	2.8	.33
7	.28	1.4	2.1	8.9	.14	8.3	19	6.4	4.0	1.1	3.6	.33
8	.28	.64	1.2	3.1	.14	3.6	5.7	11	13	.98	5.6	.33
9	.24	9.5	32	.87	.11	6.5	2.2	8.5	5.5	.80	9.1	.64
10	.24	3.3	27	.63	.11	8.3	3.7	15	7.2	.76	13	.65
11	.24	.79	8.5	.49	.17	6.5	1.1	2.7	7.0	.63	15	1.5
12	.56	.57	3.1	.38	.17	1.5	1.0	1.6	6.1	.56	6.4	3.3
13	.38	4.6	.97	.38	.17	1.1	1.2	1.5	2.8	.49	15	2.2
14	.25	16	.70	.38	.17	2.4	.73	.96	1.3	.43	15	.69
15	.20	22	.49	4.4	.14	5.9	3.0	.88	1.0	2.0	7.2	.45
16	.20	1.9	1.3	9.2	.14	1.5	1.4	1.0	3.0	2.2	21	.36
17	.20	.81	.74	3.1	.14	3.4	.90	1.2	7.2	4.6	2.2	.32
18	.20	.55	.49	1.4	.14	1.7	.56	1.4	12	5.8	1.1	.75
19	.20	.39	.43	1.8	.14	.97	2.4	2.7	5.8	20	5.2	1.3
20	.20	.28	.38	1.3	.24	2.3	34	1.9	2.6	7.6	3.7	3.3
21	.20	.33	1.2	.78	.50	2.4	30	1.2	1.5	24	1.3	1.3
22	.19	1.5	8.5	.56	.49	1.2	24	.82	2.2	18	2.8	.59
23	.67	5.6	2.1	.38	.33	5.6	4.0	.67	2.5	18	7.3	4.9
24	.67	2.5	1.2	e.28	.86	1.6	3.2	1.5	1.5	24	7.4	2.7
25	1.2	1.7	.75	e.28	1.5	.90	2.8	2.6	13	11	3.1	.72
26	4.8	5.1	.60	e.20	.99	.65	2.8	1.4	11	6.1	1.0	.45
27	4.1	1.1	.54	e.20	.38	2.7	1.4	2.4	11	30	.93	.35
28	3.8	.70	.49	e.28	.24	2.4	1.6	3.1	8.3	5.6	1.2	.29
29	1.6	4.1	.49	e3.4	---	.96	2.0	1.6	5.3	5.0	.61	.28
30	.73	3.5	.43	e1.4	---	4.1	15	.89	3.4	9.3	.48	1.9
31	.49	---	.56	.64	---	1.3	---	1.0	---	2.9	.43	---
TOTAL	24.88	92.91	120.46	149.10	8.67	133.75	182.32	125.52	183.9	230.65	174.85	32.35
MEAN	.80	3.10	3.89	4.81	.31	4.31	6.08	4.05	6.13	7.44	5.64	1.08
MAX	4.8	22	32	38	1.5	21	34	15	13	30	21	4.9
MIN	.19	.28	.38	.20	.11	.17	.56	.67	1.0	.43	.43	.28
AC-FT	49	184	239	296	17	265	362	249	365	457	347	64

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1993, BY WATER YEAR (WY)

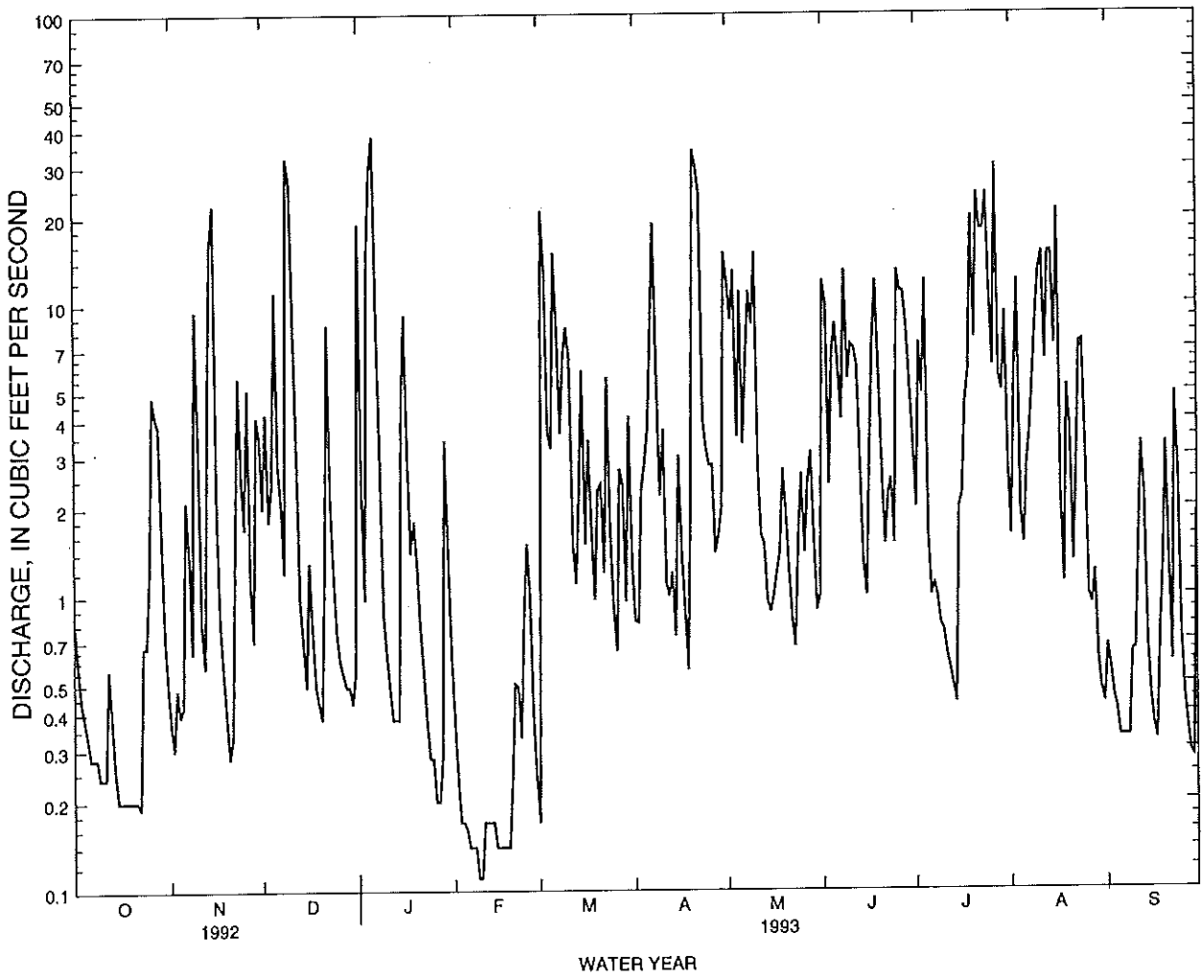
MEAN	2.11	3.95	3.23	3.79	2.49	5.19	5.93	3.21	3.42	4.60	3.78	2.05
MAX	5.35	23.2	9.65	13.8	10.6	24.0	17.0	7.85	8.68	7.70	7.75	8.15
(WY)	1991	1980	1971	1979	1969	1980	1986	1990	1979	1978	1970	1992
MIN	.006	.60	.11	.067	.15	.74	.53	1.00	.88	.87	.67	.19
(WY)	1985	1969	1981	1981	1983	1983	1992	1972	1985	1981	1973	1984

e Estimated

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1968 - 1993	
ANNUAL TOTAL	1169.69		1459.36			
ANNUAL MEAN	3.20		4.00		3.67	
HIGHEST ANNUAL MEAN					7.48	1980
LOWEST ANNUAL MEAN					1.42	1981
HIGHEST DAILY MEAN	63	Sep 14	38	Jan 6	297	Nov 18 1979
LOWEST DAILY MEAN	.03	Jun 5	.11	Feb 9	.00	Nov 14 1968
ANNUAL SEVEN-DAY MINIMUM	.05	May 30	.14	Feb 4	.00	Jul 5 1981
ANNUAL RUNOFF (AC-FT)	2320		2890		2660	
10 PERCENT EXCEEDS	9.6		11		8.8	
50 PERCENT EXCEEDS	.94		1.5		1.3	
90 PERCENT EXCEEDS	.14		.28		.16	



HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

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	.74	1.3	3.7	.27	.23	.36	.45	9.9	1.2	5.9	3.3	10
2	.43	.56	2.0	.24	.21	.27	.45	14	1.4	6.4	5.1	8.5
3	.31	.40	12	.97	3.3	.23	5.4	3.1	1.6	11	14	4.2
4	.28	.31	12	1.1	13	.20	11	6.5	9.1	5.5	3.2	7.2
5	.24	.81	22	.56	27	.19	5.0	7.1	17	14	2.3	4.9
6	.22	5.5	23	5.6	12	.17	5.1	2.4	18	9.1	3.3	4.8
7	.19	4.7	7.1	4.5	8.5	.17	10	.95	5.8	8.6	2.6	3.9
8	.17	4.3	12	.83	3.7	.17	6.6	.66	1.6	7.2	1.8	1.2
9	.19	14	3.6	.47	2.7	.14	2.6	.49	2.6	2.4	1.7	3.8
10	.24	1.5	4.9	.34	12	.14	1.4	.39	2.4	1.3	2.3	11
11	1.2	.62	7.2	.28	9.8	1.4	8.6	.34	.90	3.6	10	8.1
12	4.1	.42	17	.28	5.6	29	37	.36	.78	2.1	17	16
13	3.7	1.3	10	.24	1.2	24	10	3.1	1.2	1.1	5.1	4.5
14	1.2	3.0	3.3	.21	5.1	26	2.1	2.5	10	6.3	1.5	2.3
15	.58	4.3	8.4	.20	2.8	25	2.5	10	6.1	14	3.4	2.2
16	.64	2.8	9.5	.21	3.1	8.8	1.2	4.0	3.6	3.1	3.7	1.5
17	2.7	11	5.9	.86	1.4	11	.81	2.5	14	18	2.5	14
18	1.9	16	2.5	3.0	2.5	9.7	9.4	3.6	28	10	9.5	7.3
19	.78	6.7	26	9.5	.84	13	23	6.1	20	5.9	4.9	2.3
20	.42	1.2	10	24	.52	15	29	3.1	4.8	5.1	2.8	.89
21	.56	1.4	2.6	21	.38	19	29	4.9	8.1	20	1.6	.64
22	2.1	2.7	.93	13	.29	7.0	11	4.4	6.1	10	4.1	.66
23	4.0	12	2.4	5.8	.24	16	11	1.4	6.8	9.8	22	1.4
24	1.8	11	2.8	8.3	.22	14	7.4	1.5	10	5.7	8.3	.67
25	.88	2.3	2.1	8.7	2.3	53	4.1	7.0	15	8.9	1.3	.48
26	18	8.5	.80	5.5	6.0	12	17	2.7	11	11	1.5	.38
27	1.1	12	.53	1.2	1.3	2.5	5.5	2.9	14	2.5	6.0	.36
28	1.4	8.5	.42	.57	.52	2.3	4.9	2.3	11	1.5	1.2	.34
29	1.9	6.4	.36	.39	---	3.8	1.4	2.8	19	2.5	.59	.29
30	6.1	8.6	.30	.32	---	1.0	2.5	7.1	16	1.1	.47	.28
31	3.7	---	.28	.27	---	.62	---	4.5	---	1.2	13	---
TOTAL	61.77	154.12	215.62	118.71	126.75	296.16	265.41	122.59	267.08	214.8	160.06	124.09
MEAN	1.99	5.14	6.96	3.83	4.53	9.55	8.85	3.95	8.90	6.93	5.16	4.14
MAX	18	16	26	24	27	53	37	14	28	20	22	16
MIN	.17	.31	.28	.20	.21	.14	.45	.34	.78	1.1	.47	.28
AC-FT	123	306	428	235	251	587	526	243	530	426	317	246

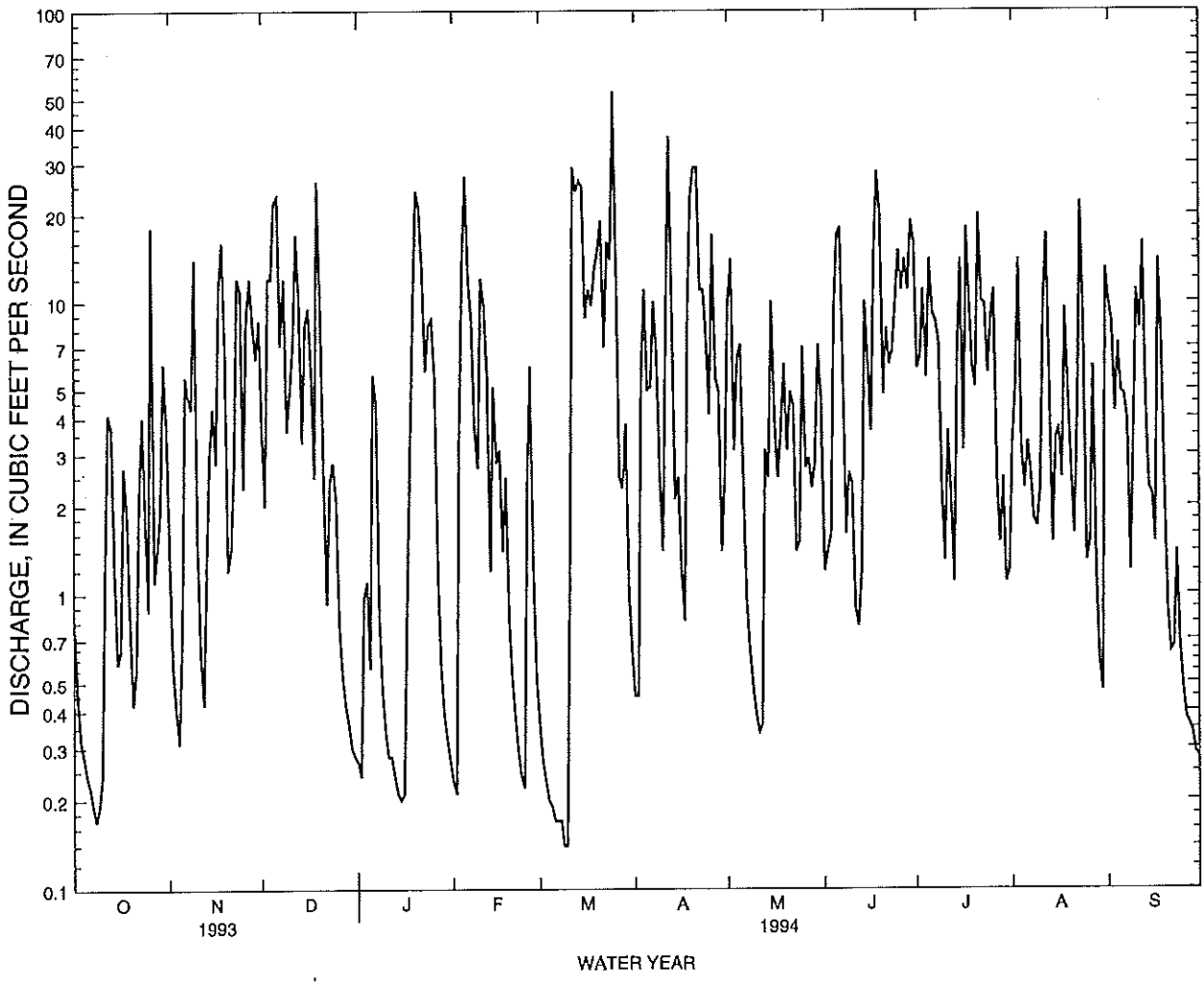
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1994, BY WATER YEAR (WY)

MEAN	2.10	3.99	3.38	3.79	2.57	5.36	6.05	3.23	3.63	4.69	3.83	2.13
MAX	5.35	23.2	9.65	13.8	10.6	24.0	17.0	7.85	8.90	7.70	7.75	8.15
(WY)	1991	1980	1971	1979	1969	1980	1986	1990	1994	1978	1970	1992
MIN	.006	.60	.11	.067	.15	.74	.53	1.00	.88	.87	.67	.19
(WY)	1985	1969	1981	1981	1983	1983	1992	1972	1985	1981	1973	1984

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1968 - 1994	
ANNUAL TOTAL	1652.62		2127.16			
ANNUAL MEAN	4.53		5.83		3.76	
HIGHEST ANNUAL MEAN					7.48	1980
LOWEST ANNUAL MEAN					1.42	1981
HIGHEST DAILY MEAN	38	Jan 6	53	Mar 25	297	Nov 18 1979
LOWEST DAILY MEAN	.11	Feb 9	.14	Mar 9	.00	Nov 14 1968
ANNUAL SEVEN-DAY MINIMUM	.14	Feb 4	.17	Mar 4	.00	Jul 5 1981
ANNUAL RUNOFF (AC-FT)	3280		4220		2720	
10 PERCENT EXCEEDS	12		14		9.3	
50 PERCENT EXCEEDS	2.1		3.1		1.3	
90 PERCENT EXCEEDS	.30		.32		.17	



HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

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	.28	.24	13	.52	.24	.09	1.7	.25	10	2.7	9.1	6.3
2	.24	.45	5.1	.34	.28	.09	.73	.24	4.2	2.9	12	5.8
3	.21	2.8	6.4	.27	.20	2.6	1.0	.30	1.5	4.8	5.9	1.3
4	.20	11	4.2	.23	.17	1.8	2.7	.47	9.6	8.1	2.3	2.0
5	.20	8.6	9.7	.26	.28	.45	2.8	.35	4.6	3.3	3.5	1.8
6	.20	15	5.9	.82	.65	.39	1.6	.46	3.6	4.9	4.0	.77
7	.19	13	7.5	.42	.32	.24	.74	4.4	9.8	3.1	13	.51
8	.17	8.9	15	.28	.22	.16	.46	1.7	3.0	2.4	7.6	.43
9	.17	4.7	4.2	.23	.19	.12	.31	1.4	4.2	1.5	12	.73
10	.18	34	10	.20	.19	.11	.24	3.8	9.3	1.3	2.3	.49
11	.19	24	5.0	.17	.22	.10	.21	8.5	15	3.1	1.3	.37
12	.36	14	2.0	.37	.18	.09	.23	13	4.6	10	12	.29
13	3.1	4.8	.97	13	.14	.07	.27	23	1.8	4.1	5.4	.28
14	3.3	5.1	.57	27	.14	.07	.24	5.2	1.2	3.3	1.4	.22
15	1.7	8.2	7.7	44	.14	.07	10	11	3.9	2.6	.85	.20
16	.58	6.5	6.3	18	.14	.07	12	7.5	2.1	4.1	.65	.20
17	.36	3.3	2.5	7.4	.13	.07	2.3	5.5	1.1	7.1	.57	.20
18	.40	1.5	1.2	1.7	.11	.07	.98	1.4	5.8	1.4	.45	.19
19	1.1	.97	.87	.95	.11	.10	1.6	.77	3.9	15	.41	.17
20	.79	.84	1.3	.54	.11	.22	1.7	.56	6.1	13	.33	.14
21	1.1	5.8	.68	.38	.11	2.8	1.8	.43	3.9	15	.33	.14
22	10	7.2	.41	.31	.11	12	15	.37	2.5	2.4	.35	.16
23	4.9	3.9	.31	.27	.11	4.7	15	.30	1.8	4.3	.36	.17
24	1.6	6.4	.27	.24	.11	1.0	6.7	.29	.91	1.3	6.3	.23
25	5.5	7.6	.23	.20	.11	.52	7.8	2.2	.61	1.4	11	.29
26	1.5	5.8	.34	.20	.11	.34	2.3	1.9	.46	6.9	5.7	.39
27	11	2.2	.36	.17	.10	.24	.93	3.7	.37	15	22	9.7
28	2.6	2.0	.28	.17	.09	10	.53	3.3	.31	7.5	15	7.1
29	.79	20	4.6	.17	---	9.8	.37	6.4	.28	1.7	2.5	4.7
30	.44	15	7.2	.20	---	9.5	.30	5.0	3.3	1.5	3.4	2.7
31	.31	---	1.1	.18	---	5.8	---	6.2	---	.83	4.4	---
TOTAL	53.66	243.80	125.19	119.19	5.01	63.68	92.54	119.89	119.74	156.53	166.40	47.97
MEAN	1.73	8.13	4.04	3.84	.18	2.05	3.08	3.87	3.99	5.05	5.37	1.60
MAX	11	34	15	44	.65	12	15	23	15	15	22	9.7
MIN	.17	.24	.23	.17	.09	.07	.21	.24	.28	.83	.33	.14
AC-FT	106	484	248	236	9.9	126	184	238	238	310	330	95

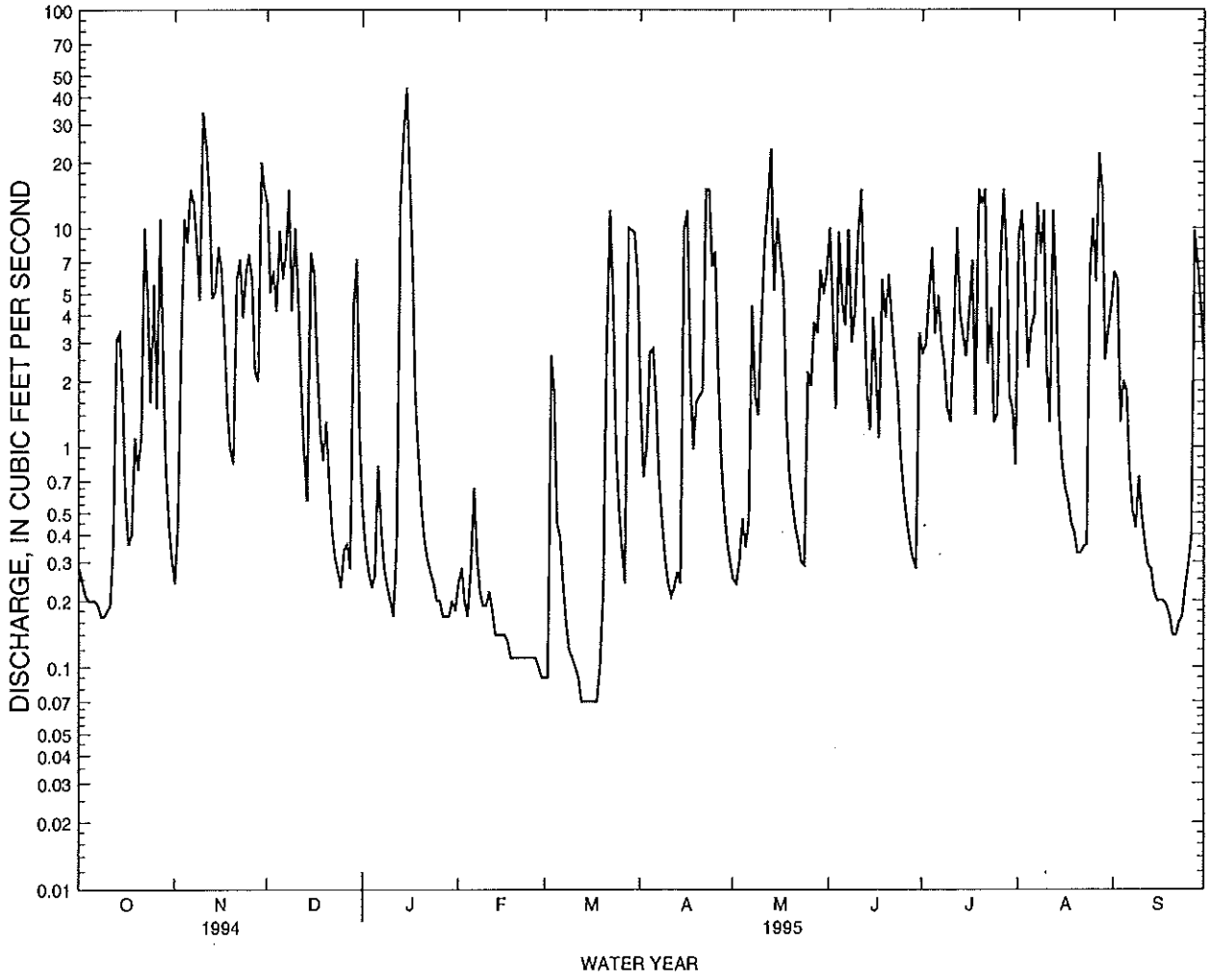
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1995, BY WATER YEAR (WY)

MEAN	2.09	4.14	3.40	3.80	2.48	5.24	5.94	3.26	3.64	4.70	3.88	2.11
MAX	5.35	23.2	9.65	13.8	10.6	24.0	17.0	7.85	8.90	7.70	7.75	8.15
(WY)	1991	1980	1971	1979	1969	1980	1986	1990	1994	1978	1970	1992
MIN	.006	.60	.11	.067	.15	.74	.53	1.00	.88	.87	.67	.19
(WY)	1985	1969	1981	1981	1983	1983	1992	1972	1985	1981	1973	1984

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

SUMMARY STATISTICS	FOR 1994 CALENDAR YEAR		FOR 1995 WATER YEAR		WATER YEARS 1968 - 1995	
ANNUAL TOTAL	2118.30		1313.60			
ANNUAL MEAN	5.80		3.60		3.75	
HIGHEST ANNUAL MEAN					7.48	1980
LOWEST ANNUAL MEAN					1.42	1981
HIGHEST DAILY MEAN	53	Mar 25	44	Jan 15	297	Nov 18 1979
LOWEST DAILY MEAN	.14	Mar 9	.07	Mar 13	.00	Nov 14 1968
ANNUAL SEVEN-DAY MINIMUM	.17	Mar 4	.07	Mar 12	.00	Jul 5 1981
ANNUAL RUNOFF (AC-FT)	4200		2610		2720	
10 PERCENT EXCEEDS	14		10		9.3	
50 PERCENT EXCEEDS	3.3		1.3		1.3	
90 PERCENT EXCEEDS	.28		.17		.17	



HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.77	.11	.60	1.2	3.9	40	2.1	.56	6.3	1.2	.11
2	2.3	.47	.09	.35	.50	4.0	4.4	.72	.38	3.8	4.4	.11
3	2.5	.34	.09	.22	.29	11	1.1	.43	.33	1.1	2.6	.11
4	.91	.28	.09	.17	.21	6.8	.61	.32	.36	4.4	.84	.11
5	.54	.25	.09	.12	.16	2.6	.44	.27	1.0	5.1	.85	.11
6	.39	.22	.08	.11	.12	1.1	.34	.24	.95	12	.55	1.7
7	.32	.26	.07	.09	.09	1.6	.28	.23	3.4	1.4	1.4	1.5
8	.25	.40	.07	.37	.07	.70	.24	.20	2.4	.65	1.2	.87
9	1.4	.28	.09	.35	.07	.47	.54	.20	2.3	.58	.49	.45
10	4.3	2.0	.07	.22	.05	.37	2.8	.17	.72	22	.33	.29
11	3.3	5.8	.07	.20	.04	.37	3.2	.17	.39	17	.43	.27
12	1.4	1.6	.07	.13	.04	.28	1.3	.17	.28	3.5	8.0	.89
13	.98	.63	.07	.11	.03	.24	.66	.16	.21	2.3	10	2.8
14	6.3	.40	.07	.09	.09	.25	3.5	.14	.17	1.3	2.0	2.2
15	4.9	.35	.08	.08	8.9	.47	19	.16	.15	.75	.95	4.4
16	1.2	.26	5.6	.06	8.8	4.4	14	.15	.16	.58	1.4	1.7
17	.90	.24	6.1	.12	1.9	5.6	4.8	.81	1.5	.95	1.6	.63
18	1.7	.24	4.4	1.4	.92	12	3.0	6.4	5.9	.87	.89	1.8
19	6.3	.24	1.1	2.4	.71	6.6	25	5.9	3.4	.64	.60	1.8
20	7.7	.23	.52	.62	9.5	1.3	11	2.1	1.4	.94	.52	.56
21	3.0	.17	.33	.33	11	.61	14	.76	.66	.54	.34	.33
22	5.3	.16	.23	.20	8.3	.41	5.8	.43	.52	.43	.27	.24
23	2.7	.14	.18	.15	22	.33	1.9	.31	.53	.32	.21	.23
24	1.7	.14	.13	.13	24	2.0	.96	.27	2.6	.25	.20	.24
25	6.1	.14	.11	.11	47	1.4	.77	.30	3.9	.22	.17	.20
26	4.1	.12	.20	.11	4.4	.65	.60	.80	1.4	.48	.17	.18
27	1.2	.11	.14	.09	6.6	.41	1.1	.86	2.8	.61	.14	.15
28	.64	.11	.12	.42	12	.35	1.6	1.3	2.9	.49	.12	.13
29	.64	.11	.11	2.2	14	7.8	.79	.79	8.1	.58	.11	.11
30	4.2	.11	.09	8.1	---	7.9	.51	1.5	4.0	1.1	.11	.11
31	2.0	---	.65	13	---	27	---	1.5	---	2.4	.11	---
TOTAL	80.57	16.57	21.22	32.65	182.99	112.91	164.24	29.86	53.37	93.58	42.20	24.33
MEAN	2.60	.55	.68	1.05	6.31	3.64	5.47	.96	1.78	3.02	1.36	.81
MAX	7.7	5.8	6.1	13	47	27	40	6.4	8.1	22	10	4.4
MIN	.25	.11	.07	.06	.03	.24	.24	.14	.15	.22	.11	.11
AC-FT	160	33	42	65	363	224	326	59	106	186	84	48

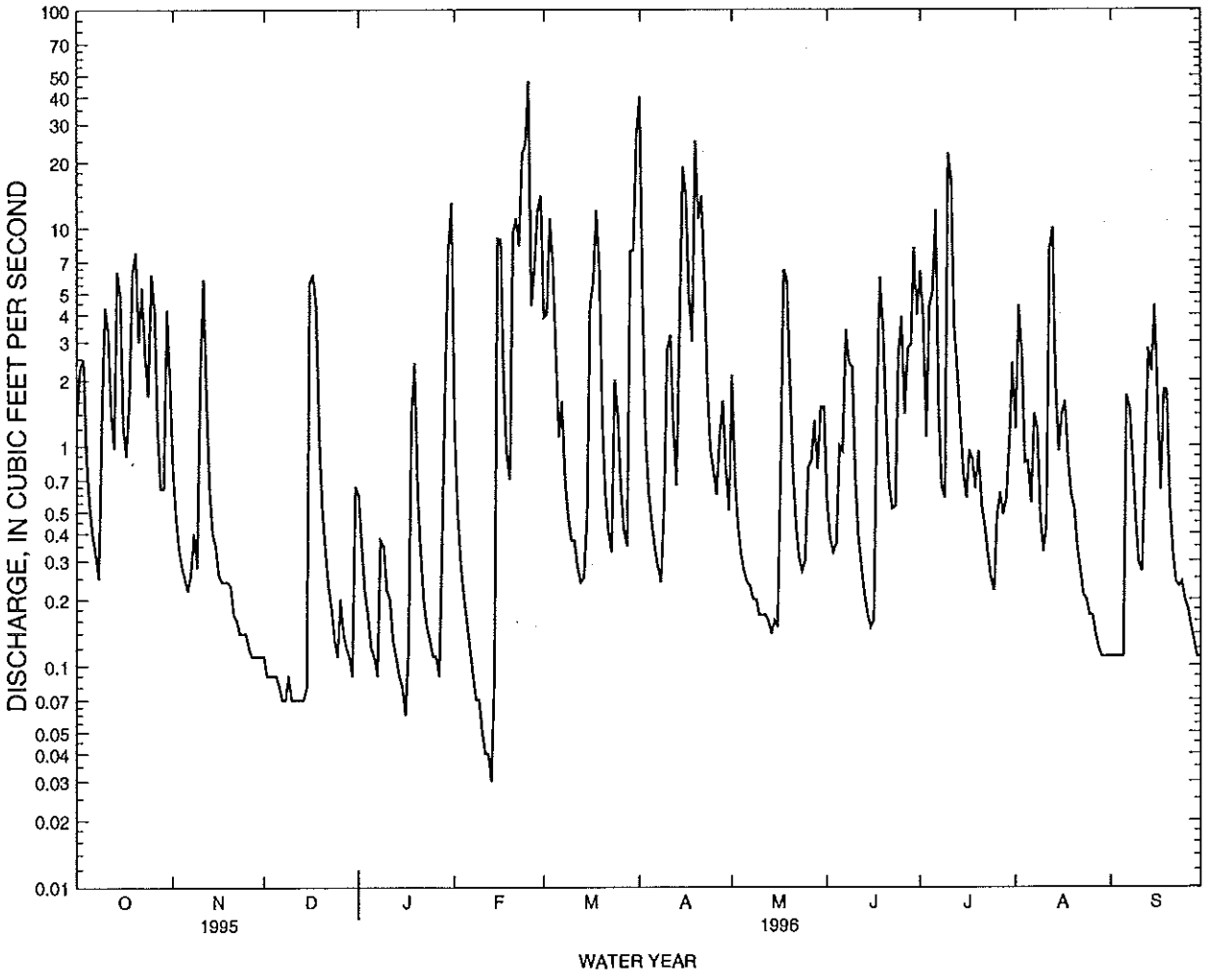
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1996, BY WATER YEAR (WY)

MEAN	2.11	4.02	3.30	3.70	2.62	5.18	5.92	3.18	3.57	4.64	3.80	2.06
MAX	5.35	23.2	9.65	13.8	10.6	24.0	17.0	7.85	8.90	7.70	7.75	8.15
(WY)	1991	1980	1971	1979	1969	1980	1986	1990	1994	1978	1970	1992
MIN	.006	.55	.11	.067	.15	.74	.53	.96	.88	.87	.67	.19
(WY)	1985	1996	1981	1981	1983	1983	1992	1996	1985	1981	1973	1984

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

SUMMARY STATISTICS	FOR 1995 CALENDAR YEAR		FOR 1996 WATER YEAR		WATER YEARS 1968 - 1996	
ANNUAL TOTAL	1009.31		854.49			
ANNUAL MEAN	2.77		2.33		3.70	
HIGHEST ANNUAL MEAN					7.48	1980
LOWEST ANNUAL MEAN					1.42	1981
HIGHEST DAILY MEAN	44	Jan 15	47	Feb 25	297	Nov 18 1979
LOWEST DAILY MEAN	.07	Mar 13	.03	Feb 13	.00	Nov 14 1968
ANNUAL SEVEN-DAY MINIMUM	.07	Mar 12	.06	Feb 7	.00	Jul 5 1981
ANNUAL RUNOFF (AC-FT)	2000		1690		2680	
10 PERCENT EXCEEDS	7.9		6.3		9.2	
50 PERCENT EXCEEDS	.65		.58		1.3	
90 PERCENT EXCEEDS	.11		.11		.16	



HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.50	.57	1.2	.17	.42	.70	.99	2.1	7.5	.49	14
2	.07	.29	2.4	.75	.17	.41	.46	3.3	13	3.2	.46	3.4
3	.07	.20	1.7	.60	.17	1.8	.35	5.1	11	3.2	.99	2.5
4	.07	.15	2.4	.45	.17	7.7	.29	7.1	2.2	2.2	1.1	2.1
5	.07	.12	.96	4.1	.13	4.2	.25	4.9	1.5	9.5	.65	.87
6	.07	.09	2.3	.95	.11	7.3	.21	3.0	8.1	6.3	2.0	.90
7	.07	.07	27	.49	.11	3.7	.23	.75	15	12	3.7	.66
8	.07	.06	13	.34	.11	5.5	.20	.40	4.7	24	1.1	1.7
9	.07	.81	7.9	.25	.11	3.4	.27	.28	4.2	58	.78	2.0
10	.06	1.1	1.4	.21	.11	1.9	3.8	.19	3.3	21	.53	.78
11	.04	1.4	.79	.20	.11	1.9	8.5	.14	17	8.8	.42	.49
12	.04	.71	.56	.17	2.0	1.9	3.4	.39	4.6	7.2	.37	.41
13	.04	.52	.41	.14	1.7	.75	1.1	2.1	1.6	3.2	.33	.38
14	.04	1.2	7.9	.14	1.0	.47	.94	3.2	2.7	1.6	.29	.37
15	.04	.51	4.7	.12	3.5	.34	1.4	8.6	2.4	3.8	.34	.66
16	.05	.31	1.2	.12	2.4	.29	.73	2.8	3.4	7.5	.39	1.7
17	.05	.52	.65	1.9	.84	20	.47	3.5	6.9	16	.40	7.8
18	.07	2.7	.45	.77	1.5	9.9	.34	.95	4.1	10	.34	4.2
19	.25	2.7	.34	.40	1.3	1.2	.26	.72	3.3	6.0	.29	.99
20	.34	16	.28	30	2.8	1.5	.24	1.1	8.1	1.8	.67	.69
21	.21	6.6	.22	2.7	.97	.81	.19	.90	4.0	1.7	1.6	7.9
22	2.2	1.7	.20	15	24	.50	.17	.39	1.6	6.0	1.3	2.1
23	2.3	4.6	.69	1.3	20	.43	.17	.23	1.3	6.9	.77	3.9
24	.76	7.6	41	.56	1.3	8.3	.14	.16	7.4	1.7	1.9	2.7
25	.59	5.1	2.5	.36	15	5.5	1.2	.14	19	10	11	.79
26	.33	2.4	.79	.27	5.3	4.4	18	.11	23	6.3	9.2	8.3
27	.21	1.7	13	.21	1.2	4.0	3.2	.10	9.2	1.3	6.0	3.4
28	.17	2.5	5.6	.20	.64	14	1.3	.09	8.5	.82	4.2	6.2
29	1.8	.93	.92	.17	---	13	1.7	.09	7.3	.76	2.9	2.7
30	2.2	.60	.50	.17	---	4.8	1.2	.09	7.4	.78	.95	3.2
31	1.2	---	7.2	.17	---	1.4	---	.08	---	.62	2.4	---
TOTAL	13.64	63.69	149.53	64.41	86.92	131.72	51.41	51.89	207.9	249.68	57.86	87.79
MEAN	.44	2.12	4.82	2.08	3.10	4.25	1.71	1.67	6.93	8.05	1.87	2.93
MAX	2.3	16	41	30	24	20	18	8.6	23	58	11	14
MIN	.04	.06	.20	.12	.11	.29	.14	.08	1.3	.62	.29	.37
AC-FT	27	126	297	128	172	261	102	103	412	495	115	174

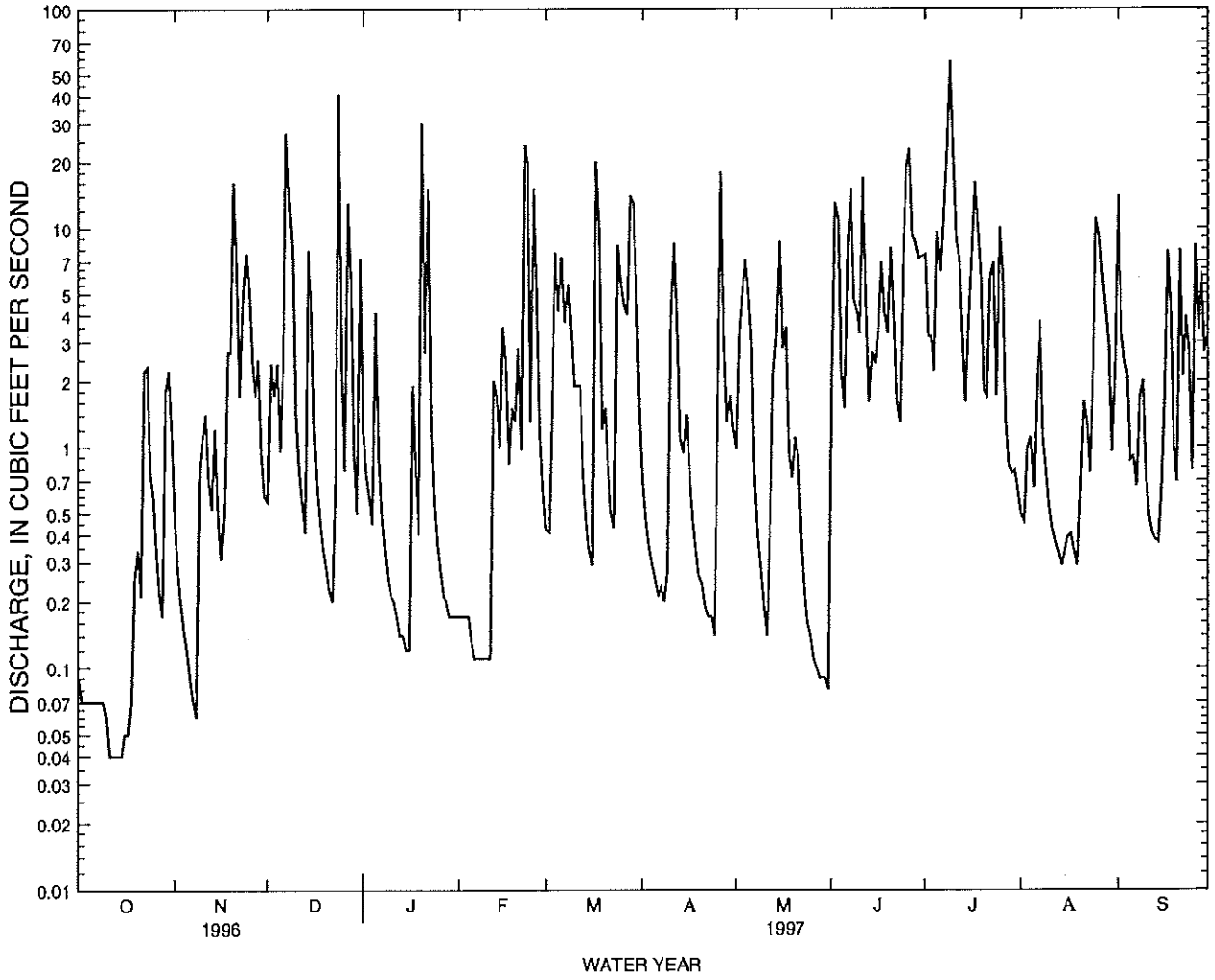
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1997, BY WATER YEAR (WY)

MEAN	2.05	3.95	3.36	3.64	2.64	5.15	5.77	3.12	3.69	4.76	3.73	2.09
MAX	5.35	23.2	9.65	13.8	10.6	24.0	17.0	7.85	8.90	8.05	7.75	8.15
(WY)	1991	1980	1971	1979	1969	1980	1986	1990	1994	1997	1970	1992
MIN	.006	.55	.11	.067	.15	.74	.53	.96	.88	.87	.67	.19
(WY)	1985	1996	1981	1981	1983	1983	1992	1996	1985	1981	1973	1984

HAWAII, ISLAND OF HAWAII

16720300 KAWAIKI STREAM NEAR KAMUELA

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1968 - 1997	
ANNUAL TOTAL	962.99		1216.44			
ANNUAL MEAN	2.63		3.33		3.69	
HIGHEST ANNUAL MEAN					7.48	1980
LOWEST ANNUAL MEAN					1.42	1981
HIGHEST DAILY MEAN	47	Feb 25	58	Jul 9	297	Nov 18 1979
LOWEST DAILY MEAN	.03	Feb 13	.04	Oct 11	.00	Nov 14 1968
ANNUAL SEVEN-DAY MINIMUM	.04	Oct 11	.04	Oct 11	.00	Jul 5 1981
ANNUAL RUNOFF (AC-FT)	1910		2410		2670	
10 PERCENT EXCEEDS	7.7		8.5		9.2	
50 PERCENT EXCEEDS	.63		1.1		1.3	
90 PERCENT EXCEEDS	.11		.13		.16	



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HAWAII, ISLAND OF HAWAII

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.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 4,020 ft (from topographic map).

REMARKS.--Ditch diverts from Kawainui and Kawaiki Streams for irrigation in vicinity of Kamuela. Rain gage located at station monitoring total rainfall between service dates. Records computed by Dale Nishimoto. Records good except for estimated daily discharges which are poor.

AVERAGE DISCHARGE.-- 33 years (water years 1965-97), 7.44 ft^3/s (5,390 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 49 ft^3/s, November 2, 1967; no flow, July 8-9, 14-16, 1992, August 4-6, 1992.

EXTREMES FOR CURRENT YEAR.-- Maximum daily discharge, 17 ft^3/s, November 20, December 7, 8, 24; minimum daily, 0.08 ft^3/s, October 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.25	2.7	3.1	6.4	.46	3.4	4.3	5.5	4.2	12	1.7	12
2	.22	1.5	9.1	3.9	.42	3.0	2.8	11	12	11	1.5	10
3	.20	.96	8.1	2.9	.39	7.4	2.0	9.8	12	11	4.0	7.8
4	.20	.69	9.8	3.1	.35	15	1.6	12	9.7	8.5	4.4	7.7
5	.20	.52	5.6	12	.32	13	1.2	12	7.0	12	2.4	3.8
6	.26	.41	8.0	5.1	.31	15	1.0	10	11	12	4.9	4.1
7	.22	.32	17	2.5	.29	13	1.0	5.4	12	12	9.3	3.0
8	.17	.30	17	1.5	.28	14	.83	3.1	12	13	4.2	6.6
9	.15	4.8	14	1.1	.33	12	.99	2.3	9.2	13	2.8	7.9
10	.13	4.8	7.2	.89	.35	8.8	6.3	1.5	11	13	1.7	3.3
11	.11	5.2	3.9	.73	.33	7.7	11	1.1	11	12	1.3	1.9
12	.09	2.9	2.5	.60	4.1	7.9	10	2.3	12	12	1.0	1.4
13	.08	2.2	1.7	.51	7.9	4.8	5.8	8.3	7.0	11	.82	1.4
14	.12	5.3	6.3	.46	5.3	3.3	4.3	9.8	8.3	6.7	.69	1.2
15	.17	2.4	13	.40	9.9	2.5	5.5	12	9.3	9.2	.94	2.5
16	.20	1.4	5.6	.41	9.5	2.1	3.2	10	10	12	1.0	4.9
17	.20	2.5	2.8	11	4.4	8.5	2.1	11	12	12	.92	11
18	.31	11	1.7	5.0	7.3	13	1.5	5.4	12	12	.71	11
19	1.2	9.3	1.2	2.2	5.9	6.4	1.1	4.4	11	12	.62	5.1
20	1.5	17	.81	13	9.9	6.9	.90	5.3	12	7.6	1.7	3.6
21	.90	14	.61	7.6	4.8	4.1	.74	4.2	11	7.3	3.9	6.0
22	4.8	8.3	.48	e13	6.1	2.6	.64	2.1	7.1	9.3	4.2	6.7
23	9.6	12	2.6	e7.5	14	2.2	.55	1.2	5.4	12	2.5	6.9
24	4.3	15	17	3.2	7.9	12	.49	.89	7.7	7.1	4.6	8.7
25	3.3	13	10	1.9	16	13	2.1	.69	12	12	12	3.4
26	1.9	9.5	4.3	1.3	13	12	12	.56	13	11	12	11
27	1.1	8.9	7.6	1.0	7.3	12	11	.47	12	5.7	11	9.3
28	.81	10	12	.81	4.9	14	7.0	.43	12	3.5	11	12
29	6.2	5.0	5.0	.65	---	15	7.5	.47	12	3.2	9.3	9.7
30	8.4	3.4	2.6	.56	---	13	5.9	.43	12	2.8	4.1	9.6
31	6.2	---	12	.48	---	7.2	---	.41	---	2.1	4.0	---
TOTAL	53.49	175.30	212.60	111.70	142.03	274.8	115.34	154.05	308.9	300.0	125.20	193.5
MEAN	1.73	5.84	6.86	3.60	5.07	8.86	3.84	4.97	10.3	9.68	4.04	6.45
MAX	9.6	17	17	13	16	15	12	12	13	13	12	12
MIN	.08	.30	.48	.40	.28	2.1	.49	.41	4.2	2.1	.62	1.2
AC-FT	106	348	422	222	282	545	229	306	613	595	248	384

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 1997, BY WATER YEAR (WY)

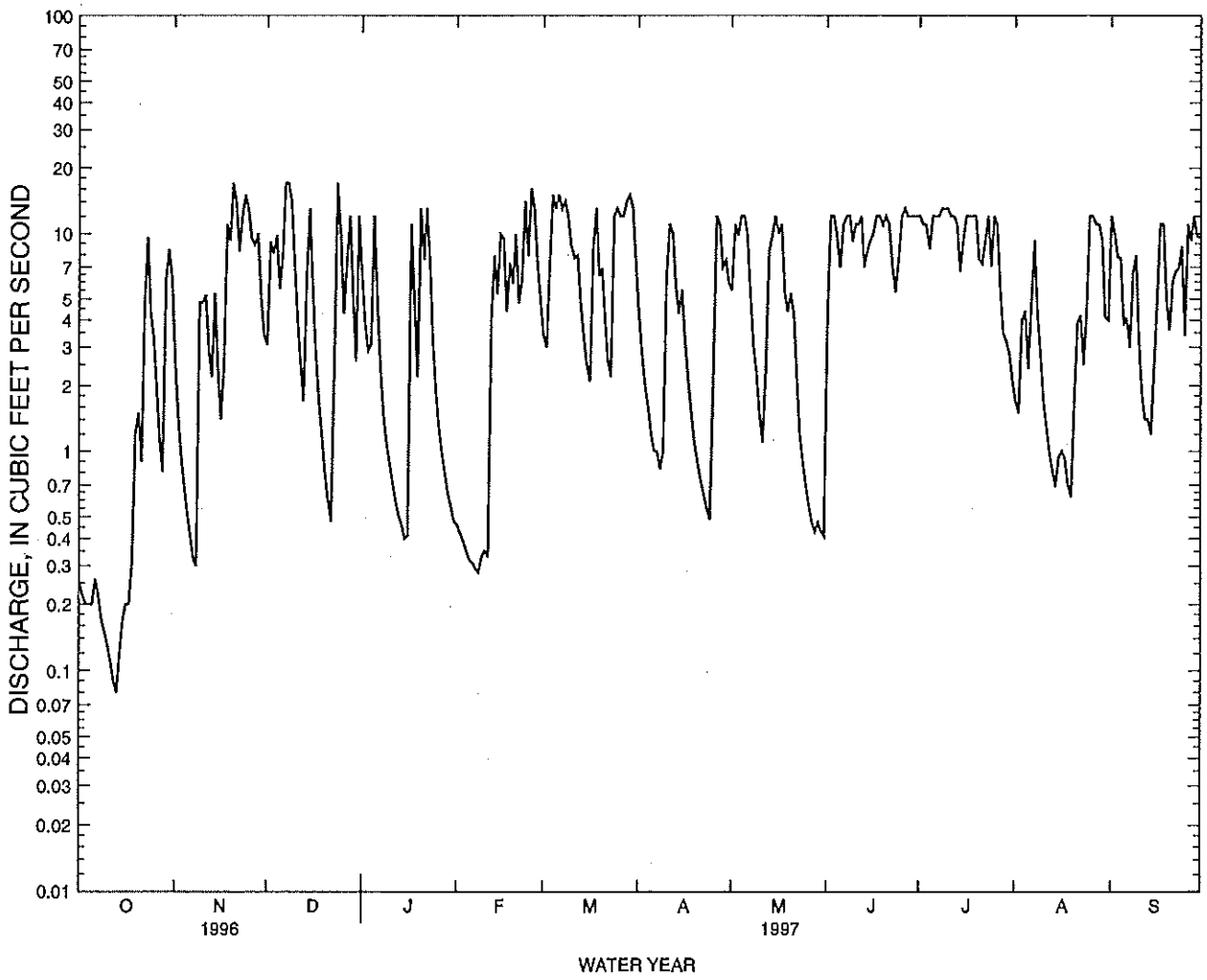
MEAN	5.60	7.68	6.78	5.89	5.48	8.13	9.19	7.28	8.59	10.5	8.33	5.65
MAX	14.0	21.0	17.5	11.9	17.1	16.0	22.1	16.2	16.5	20.5	18.7	13.4
(WY)	1965	1968	1971	1967	1969	1973	1970	1970	1966	1967	1966	1964
MIN	.14	1.85	.77	.53	.77	1.69	2.23	2.18	3.30	2.67	2.66	.19
(WY)	1985	1996	1981	1981	1995	1974	1992	1992	1984	1984	1973	1965

e Estimated

HAWAII, ISLAND OF HAWAII

16720500 UPPER HAMAKUA DITCH BELOW KAWAIKI STREAM, NEAR KAMUELA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1919 - 1997	
ANNUAL TOTAL	1802.05		2166.91			
ANNUAL MEAN	4.92		5.94		7.44	
HIGHEST ANNUAL MEAN					11.3	1970
LOWEST ANNUAL MEAN					3.78	1984
HIGHEST DAILY MEAN	17	Nov 20	17	Nov 20	49	Nov 2 1967
LOWEST DAILY MEAN	.08	Oct 13	.08	Oct 13	.00	Jul 8 1992
ANNUAL SEVEN-DAY MINIMUM	.12	Oct 8	.12	Oct 8	.04	Dec 29 1980
ANNUAL RUNOFF (AC-FT)	3570		4300		5390	
10 PERCENT EXCEEDS	13		12		17	
50 PERCENT EXCEEDS	3.0		5.0		5.0	
90 PERCENT EXCEEDS	.35		.45		.69	



HAWAII, ISLAND OF HAWAII

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.--Water-stage recorder and concrete, Columbus-type control. Elevation of gage is 3,890 ft above mean sea level (from topographic map).

REMARKS.--Records computed by Dale Nishimoto. Records good for the entire year. Ditch diverts water from Kawainui and Kawaiki Streams for irrigation in vicinity of Kamuela.

AVERAGE DISCHARGE.--29 years (water years 1969-97), 5.21 ft^3/s (3,780 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 41 ft^3/s, August 18, 1972; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 27 ft^3/s, July 9; no flow on October 10-19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	1.0	1.8	5.4	.01	1.2	2.7	3.0	2.1	15	1.0	12
2	.01	.23	6.5	3.0	.01	.85	1.4	8.0	11	13	.74	8.6
3	.01	.01	6.4	1.9	.01	4.8	.84	8.1	11	13	2.4	6.7
4	.01	.01	7.4	1.7	.01	13	.55	11	7.9	9.9	2.9	6.2
5	.01	.01	4.3	10	.01	11	.33	10	5.4	15	1.3	3.0
6	.01	.01	5.8	4.1	.01	13	.23	8.5	9.3	14	3.3	2.8
7	.01	.01	18	1.5	.01	11	.20	3.6	12	16	7.2	1.8
8	.01	.01	17	.72	.01	13	.09	1.5	10	18	3.2	4.3
9	.01	.77	14	.35	.01	11	.42	.88	7.4	27	1.8	5.7
10	.00	1.1	6.7	.14	.01	7.3	4.1	.36	9.3	22	.87	2.0
11	.00	1.4	3.7	.03	.01	5.7	9.9	.12	12	17	.43	.74
12	.00	.40	2.1	.01	2.4	6.2	8.8	.71	10	16	.20	.44
13	.00	.11	1.2	.01	5.2	2.5	4.1	5.9	5.9	12	.08	.32
14	.00	1.6	5.3	.01	2.8	1.2	2.7	7.8	6.2	7.4	.05	.17
15	.00	.27	12	.01	6.3	.65	3.5	11	8.1	9.6	.08	.80
16	.00	.01	5.1	.01	7.0	.39	1.6	8.9	9.0	13	.08	2.3
17	.00	.29	2.5	6.4	2.6	7.1	.80	9.2	14	15	.05	8.3
18	.00	7.1	1.3	3.1	4.5	13	.38	4.4	13	15	.03	7.9
19	.00	6.2	.70	.85	3.5	5.1	.18	3.2	12	13	.03	3.6
20	.01	16	.34	13	6.9	5.7	.06	4.0	15	8.3	.35	2.1
21	.01	13	.15	6.3	2.8	2.7	.02	3.1	12	7.3	1.0	4.3
22	2.6	7.0	.03	14	6.3	1.3	.01	1.0	8.1	9.1	1.4	5.3
23	7.5	11	1.3	6.1	15	.87	.01	.39	6.3	12	.64	5.0
24	2.7	14	19	2.3	6.1	11	.01	.11	8.3	7.1	2.0	6.6
25	1.6	11	9.1	1.0	17	11	.46	.01	18	13	9.5	2.1
26	.46	8.1	3.4	.54	12	11	12	.01	18	11	10	8.6
27	.03	7.2	7.2	.24	5.4	10	8.8	.01	15	5.8	9.2	6.9
28	.01	8.4	12	.06	2.5	13	4.9	.01	15	3.3	9.3	9.2
29	2.9	3.6	4.2	.01	---	15	5.6	.01	14	2.8	7.6	7.6
30	5.5	2.1	1.8	.01	---	12	3.8	.01	14	2.3	3.0	7.5
31	4.1	---	10	.01	---	5.9	---	.01	---	1.4	3.1	---
TOTAL	27.51	121.94	190.32	82.81	108.41	227.46	78.49	114.84	319.3	364.3	82.83	142.87
MEAN	.89	4.06	6.14	2.67	3.87	7.34	2.62	3.70	10.6	11.8	2.67	4.76
MAX	7.5	16	19	14	17	15	12	11	18	27	10	12
MIN	.00	.01	.03	.01	.01	.39	.01	.01	2.1	1.4	.03	.17
AC-FT	55	242	377	164	215	451	156	228	633	723	164	283

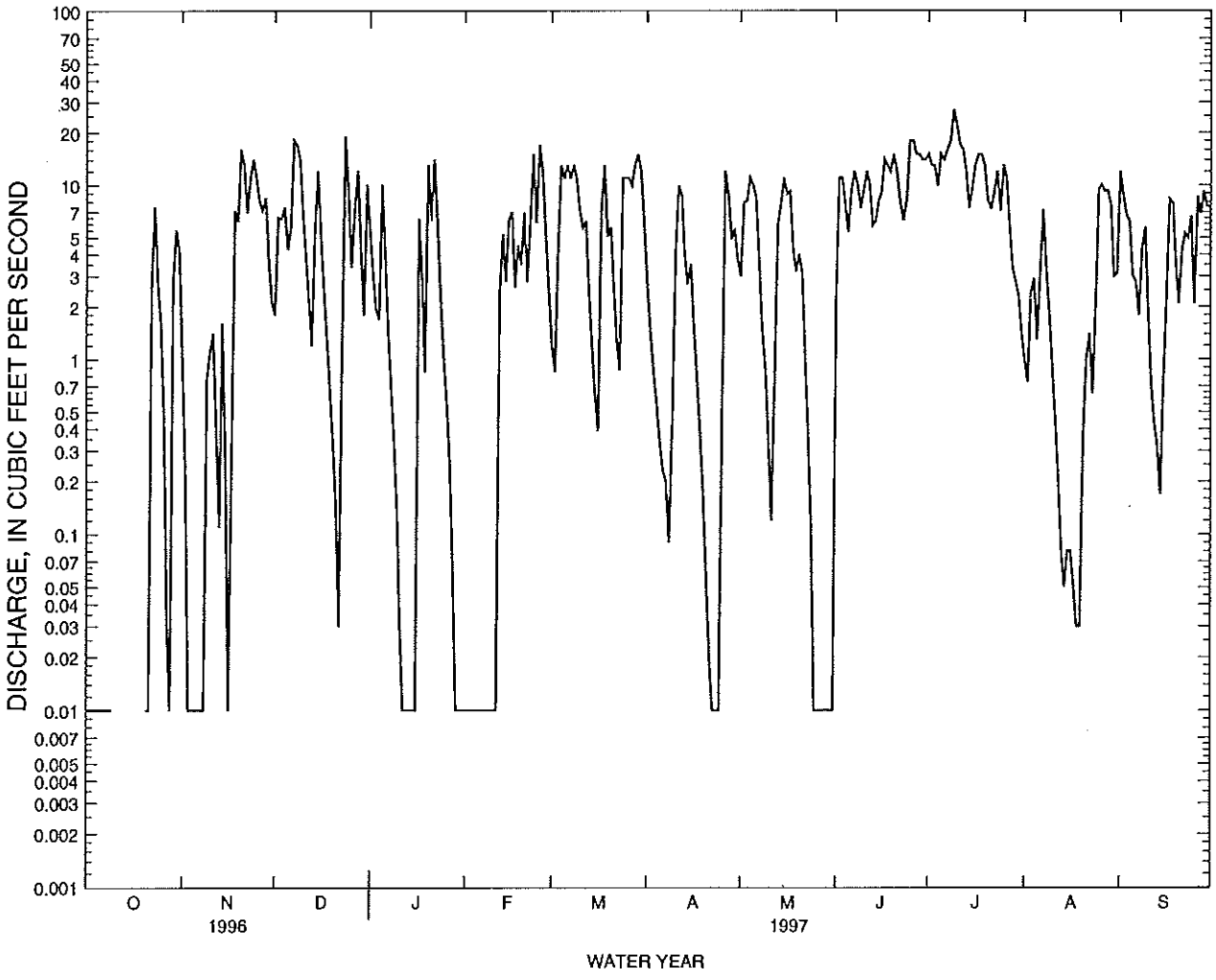
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1997, BY WATER YEAR (WY)

MEAN	3.30	4.58	4.31	3.76	3.02	5.98	7.35	5.36	6.23	8.01	6.47	3.96
MAX	9.75	12.0	12.0	10.6	14.5	23.2	17.8	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	.79	.17	.088	.062	.76	.44	1.00	.55	.49	.55	.33
(WY)	1985	1996	1981	1981	1980	1984	1992	1992	1980	1980	1980	1984

HAWAII, ISLAND OF HAWAII

16724800 UPPER HAMAKUA DITCH ABOVE ALAKAHI STREAM, NEAR KAMUELA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1968 - 1997	
ANNUAL TOTAL	1355.90		1861.08			
ANNUAL MEAN	3.70		5.10		5.21	
HIGHEST ANNUAL MEAN					9.22	1994
LOWEST ANNUAL MEAN					1.85	1980
HIGHEST DAILY MEAN	26	Apr 1	27	Jul 9	41	Aug 18 1972
LOWEST DAILY MEAN	.00	Jan 6	.00	Oct 10	.00	Oct 11 1968
ANNUAL SEVEN-DAY MINIMUM	.00	Feb 5	.00	Oct 10	.00	Oct 11 1968
ANNUAL RUNOFF (AC-FT)	2690		3690		3780	
10 PERCENT EXCEEDS	11		13		13	
50 PERCENT EXCEEDS	1.4		3.2		3.0	
90 PERCENT EXCEEDS	.01		.01		.01	



HAWAII, ISLAND OF HAWAII

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.--Water-stage recorders. Elevation of gage is 3,900 ft above mean sea level (from topographic map).

REMARKS.--Records computed by Dale Nishimoto. Records fair except for estimated period which are poor. Parker Ranch pipeline diverts from tributary 0.4 mi upstream for ranch use in Kamuela area.

AVERAGE DISCHARGE.--33 years (water years 1965-97), 7.67 ft^3/s (5,550 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,430 ft^3/s (revised), January 11, 1967, gage height 8.65 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 8.65 ft; maximum gage height, 12.80 ft, November 18, 1979; 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)
Dec. 24	0600	194	4.72	Mar. 17	2200	282	5.45
Jan. 20	0430	309	5.66	Jul. 9	1015	280	5.44
Feb. 22	2200	*337	*5.87				

Minimum discharge, 0.50 ft^3/s, October 10-15.

REVISIONS.--The maximum discharge for the water year 1967 has been revised to 1,430 ft^3/s, January 11, 1967, gage height, 8.65 ft, superseding figures published in reports for 1994 to 1996.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.57	1.7	1.6	3.2	.68	1.5	2.2	2.7	2.9	16	1.5	e38
2	.54	1.4	2.7	2.2	.65	1.4	1.7	6.0	26	6.4	1.5	e7.8
3	.54	1.2	2.9	1.8	.61	2.4	1.4	11	28	6.9	1.9	e5.1
4	.54	.95	3.4	1.6	.61	13	1.2	18	5.6	5.2	2.2	e5.2
5	.55	.81	2.2	8.7	.58	7.2	1.1	11	3.7	22	1.6	e2.4
6	.59	.74	3.2	2.7	.57	12	1.0	7.1	18	13	3.4	e2.5
7	.54	.70	56	1.8	.57	6.4	1.0	2.7	34	30	7.6	e2.2
8	.54	.68	40	1.5	.56	11	.92	1.9	11	52	2.9	e4.0
9	.54	1.6	24	1.2	.56	7.5	1.5	1.6	7.2	115	2.1	e5.0
10	.53	2.6	3.6	1.1	.55	4.3	3.2	1.3	7.1	57	1.6	e2.0
11	.53	3.0	2.3	.97	.54	4.8	14	1.1	37	24	1.4	e1.0
12	.53	2.0	1.8	.88	4.3	5.0	6.8	1.5	10	19	1.2	e.75
13	.53	1.6	1.5	.81	4.3	2.3	2.6	3.9	3.7	7.9	1.1	e.75
14	.55	2.5	17	.77	2.7	1.7	2.3	6.7	4.3	5.0	1.0	e.60
15	.56	1.7	15	.73	5.8	1.4	2.8	20	4.8	8.0	1.1	e1.5
16	.55	1.3	3.2	.75	5.2	1.2	1.8	7.0	6.0	18	1.1	e3.5
17	.54	1.3	2.1	2.2	2.2	36	1.5	8.3	15	35	1.1	e20
18	.59	4.1	1.7	2.0	2.8	28	1.2	3.1	7.0	27	1.0	7.4
19	.73	4.6	1.4	1.5	2.8	3.9	1.0	2.4	5.6	14	.96	3.0
20	.70	41	1.2	53	5.2	4.5	.89	2.7	17	5.9	1.8	1.6
21	.61	16	1.1	4.6	2.5	2.3	.81	2.5	9.7	4.8	2.6	13
22	2.1	3.9	1.0	37	34	1.7	.74	1.7	3.9	12	2.1	5.3
23	4.1	10	1.2	3.8	41	1.5	.71	1.4	3.1	15	1.7	6.6
24	1.9	19	85	2.0	3.8	22	.68	1.1	15	5.2	2.7	7.0
25	1.5	12	7.5	1.5	40	15	.97	.91	52	23	23	2.2
26	1.2	5.5	2.5	1.3	14	10	38	.83	46	17	21	20
27	.90	3.0	28	1.1	3.0	8.8	6.4	.76	20	4.4	16	4.8
28	.79	5.1	18	.92	2.0	28	3.1	.72	17	2.8	9.3	13
29	2.6	2.5	2.7	.83	---	30	3.7	.72	15	2.2	6.4	5.7
30	3.9	1.8	1.8	.75	---	10	3.0	.71	16	2.0	3.5	7.2
31	2.8	---	15	.70	---	4.1	---	.73	---	1.8	e4.9	---
TOTAL	33.69	154.28	350.6	143.91	182.08	288.9	108.22	132.08	451.6	577.5	131.26	199.10
MEAN	1.09	5.14	11.3	4.64	6.50	9.32	3.61	4.26	15.1	18.6	4.23	6.64
MAX	4.1	41	85	53	41	36	38	20	52	115	23	38
MIN	.53	.68	1.0	.70	.54	1.2	.68	.71	2.9	1.8	.96	.60
AC-FT	67	306	695	285	361	573	215	262	896	1150	260	395

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1997, BY WATER YEAR (WY)

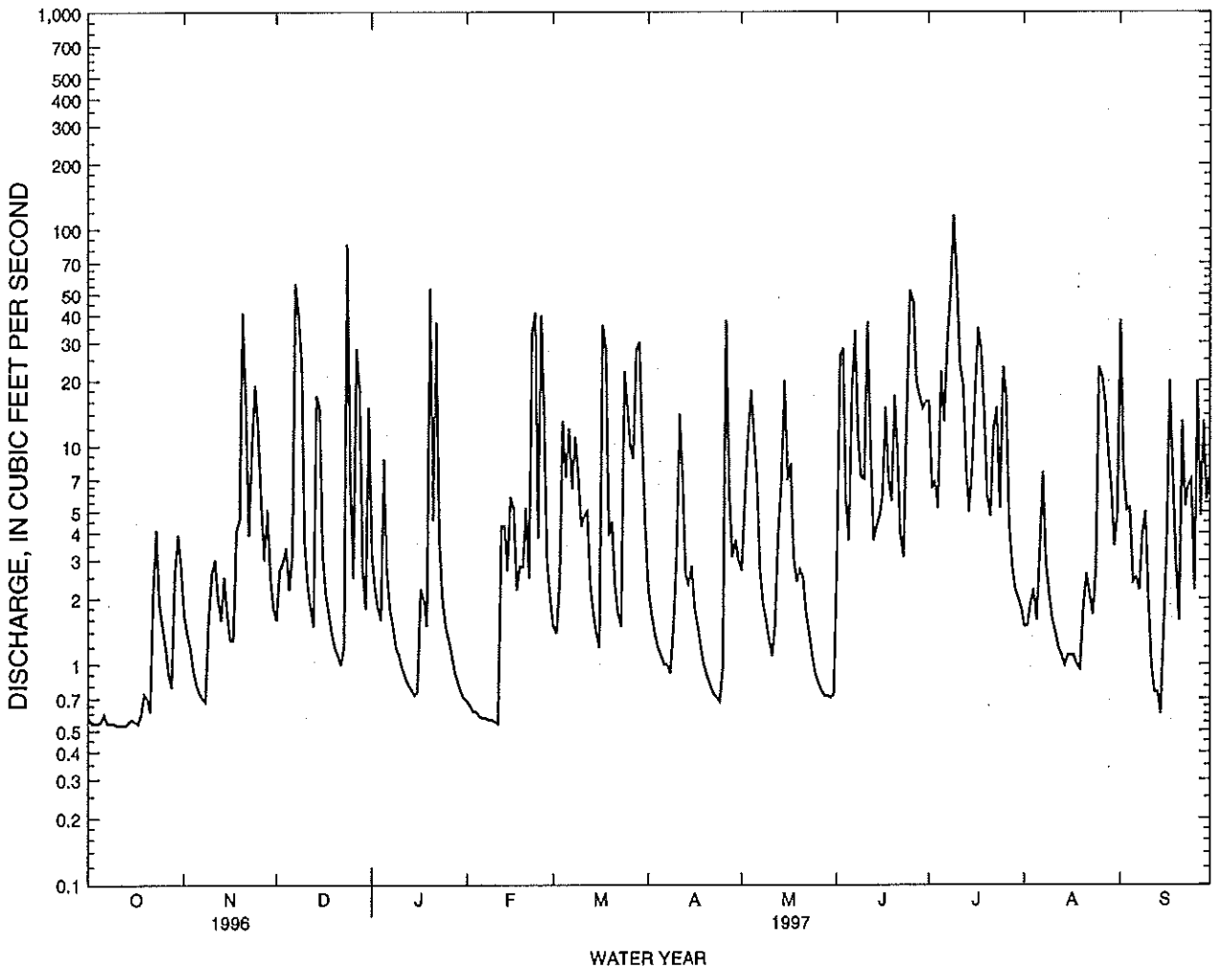
MEAN	4.70	7.78	7.21	7.64	5.75	10.1	11.3	6.80	7.75	10.3	7.99	4.82
MAX	13.5	26.5	16.7	26.4	18.6	37.9	31.6	16.8	21.7	18.7	15.9	17.8
(WY)	1984	1980	1971	1979	1969	1980	1986	1990	1994	1978	1970	1992
MIN	.31	1.07	.54	.46	.40	1.27	.82	1.83	2.04	2.38	1.72	.087
(WY)	1985	1969	1981	1981	1993	1983	1992	1996	1985	1981	1971	1965

e Estimated

HAWAII, ISLAND OF HAWAII

16725000 ALAKAHI STREAM NEAR KAMUELA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1964 - 1997	
ANNUAL TOTAL	2197.79		2753.22			
ANNUAL MEAN	6.00		7.54		7.67	
HIGHEST ANNUAL MEAN					13.4	1994
LOWEST ANNUAL MEAN					3.39	1981
HIGHEST DAILY MEAN	96	Apr 1	115	Jul 9	338	Nov 18 1979
LOWEST DAILY MEAN	.24	Feb 13	.53	Oct 10	.03	May 22 1965
ANNUAL SEVEN-DAY MINIMUM	.30	Feb 8	.53	Oct 7	.04	Sep 22 1965
ANNUAL RUNOFF (AC-FT)	4360		5460		5550	
10 PERCENT EXCEEDS	17		20		19	
50 PERCENT EXCEEDS	1.5		2.7		3.1	
90 PERCENT EXCEEDS	.53		.71		.57	



HAWAII, ISLAND OF HAWAII

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 are 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 computed by Gary Sanchez. Records good except for period of no gage height record which are poor.

AVERAGE DISCHARGE.--12 years (water years 1975-83, 1995-97), 9.27 ft^3/s (6,710 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 48 ft^3/s, April 6, 1977; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 29 ft^3/s, December 7; minimum daily discharge, 0.03 ft^3/s, May 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.33	2.9	3.7	12	1.1	3.8	7.4	7.9	9.6	20	1.9	27
2	.29	3.3	7.9	8.4	1.0	4.2	4.6	17	22	17	3.4	14
3	.25	2.4	10	5.8	.97	8.9	3.4	16	21	18	4.2	11
4	.22	1.1	11	5.8	.91	18	2.7	21	3.9	17	6.6	11
5	.21	.69	7.6	21	.84	15	2.2	21	.67	22	4.0	7.5
6	.27	.47	9.7	11	.83	18	2.0	18	7.1	18	5.9	6.4
7	.20	.34	29	5.1	.79	15	2.0	7.5	21	16	11	4.6
8	.17	.51	24	3.2	.79	18	1.7	1.8	19	10	9.3	5.5
9	.16	14	23	2.4	.76	17	2.5	2.0	15	21	7.0	6.2
10	.14	12	14	1.9	.73	14	9.2	2.6	8.8	19	3.9	4.9
11	.13	9.9	8.2	1.6	.70	14	16	1.9	5.6	18	2.8	3.0
12	.12	3.9	5.3	1.4	3.7	15	19	9.0	3.0	15	2.2	2.4
13	.11	2.6	3.8	1.3	12	7.8	9.9	21	4.9	6.1	1.8	2.1
14	.11	6.9	8.1	1.2	7.6	4.3	7.3	21	11	1.2	1.6	1.8
15	.14	2.8	22	1.1	14	3.0	10	23	13	1.0	1.6	2.3
16	.16	1.5	14	1.3	16	2.4	5.1	19	5.5	2.5	2.6	5.0
17	.09	2.9	7.5	15	6.5	11	3.2	19	.80	7.5	1.8	8.5
18	.12	16	4.6	7.7	8.6	17	2.3	12	.34	8.4	1.6	7.7
19	.30	13	3.2	3.2	10	11	1.8	6.2	.31	15	1.6	7.3
20	.36	25	2.3	12	18	14	1.5	2.1	8.3	9.5	6.3	4.7
21	.18	22	1.7	5.6	7.9	8.4	1.3	.19	17	4.2	6.8	10
22	1.8	14	1.4	6.8	11	4.8	1.2	.09	13	2.0	5.4	14
23	12	20	2.2	5.4	8.8	3.5	1.1	.81	11	6.8	3.6	13
24	4.5	24	28	5.1	4.9	12	.97	1.8	14	1.6	3.9	16
25	2.7	22	20	3.8	9.7	15	3.5	1.4	26	11	17	6.5
26	1.4	17	9.5	2.7	14	14	24	1.2	24	14	19	20
27	.61	11	13	2.1	13	14	19	.63	21	6.9	14	16
28	.40	15	22	1.7	7.0	13	11	.03	21	3.7	12	21
29	6.5	7.5	11	1.4	---	17	13	.41	21	1.2	9.1	17
30	12	4.4	5.7	1.2	---	14	11	1.2	19	1.8	8.0	17
31	8.5	---	15	1.1	---	11	---	1.3	---	1.3	8.0	---
TOTAL	54.47	279.11	348.4	159.3	182.12	358.1	199.87	258.06	367.82	316.7	187.9	293.4
MEAN	1.76	9.30	11.2	5.14	6.50	11.6	6.66	8.32	12.3	10.2	6.06	9.78
MAX	12	25	29	21	18	18	24	23	26	22	19	27
MIN	.09	.34	1.4	1.1	.70	2.4	.97	.03	.31	1.0	1.6	1.8
AC-FT	108	554	691	316	361	710	396	512	730	628	373	582

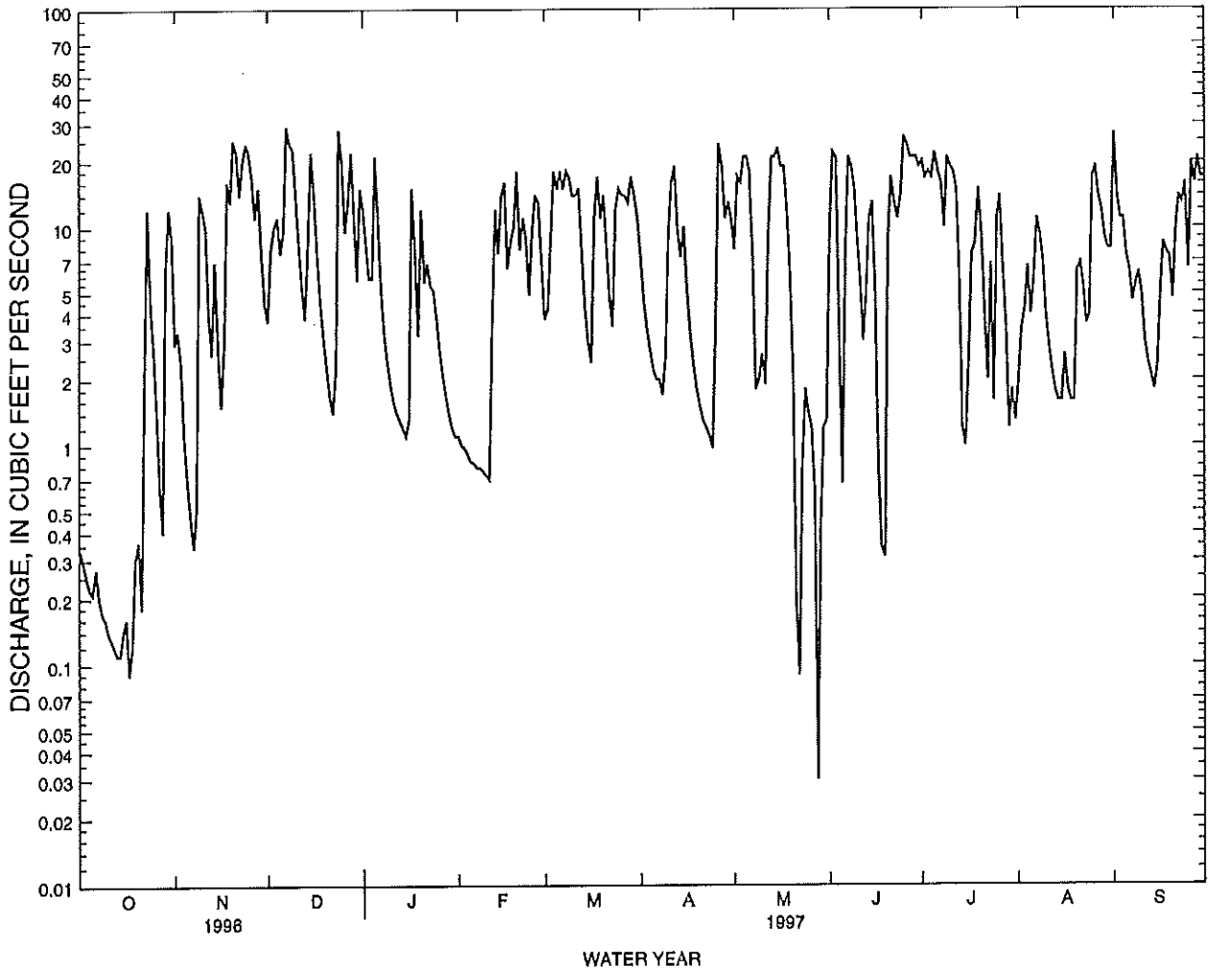
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1997, BY WATER YEAR (WY)

MEAN	6.95	9.54	7.55	5.37	5.44	12.1	12.5	10.2	8.95	13.4	10.9	7.89
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	2.82	.79	.31	.63	3.61	2.76	2.65	3.03	2.84	2.23	2.95
(WY)	1975	1996	1981	1981	1995	1995	1981	1981	1981	1981	1979	1981

HAWAII, ISLAND OF HAWAII

16726000 UPPER HAMAKUA DITCH ABOVE WAIMEA RESERVOIR DIVERSION, NEAR KAMUELA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1975 - 1997	
ANNUAL TOTAL	2202.24		3005.25			
ANNUAL MEAN	6.02		8.23		9.27	
HIGHEST ANNUAL MEAN					14.1	1982
LOWEST ANNUAL MEAN					3.80	1981
HIGHEST DAILY MEAN	29	Dec 7	29	Dec 7	48	Apr 6 1977
LOWEST DAILY MEAN	.09	Oct 17	.03	May 28	.00	Oct 1 1974
ANNUAL SEVEN-DAY MINIMUM	.12	Oct 12	.12	Oct 12	.00	Oct 1 1974
ANNUAL RUNOFF (AC-FT)	4370		5960		6710	
10 PERCENT EXCEEDS	16		19		23	
50 PERCENT EXCEEDS	4.0		6.5		5.9	
90 PERCENT EXCEEDS	.42		.72		.50	



HAWAII, ISLAND OF HAWAII

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 computed by Gary Sanchez. Records good. Ditch diverts water from above into Waimea Reservoir for use in vicinity of Kamuela.

AVERAGE DISCHARGE.--20 years (water years 1978-97), 1.60 ft^3/s (1,160 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 42 ft^3/s, April 16, 1985; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 23 ft^3/s, November 20; no flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
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	.00	.00	.00	.00
2	.00	.00	3.0	.00	.00	.00	.00	.00	.05	.00	.00	.00
3	.00	.00	4.6	.00	.00	.00	.00	.00	.10	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	1.4	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
10	.00	1.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	6.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	1.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	4.2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	1.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.68	.00	.39	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	12	.00	.00	.06	.00	.00	.00	.00	.00	.00	.00
19	.00	9.1	.00	.00	.10	.00	.00	.00	.00	.00	.00	.00
20	.00	23	.00	.03	.04	.00	.00	.00	.00	.00	.00	.00
21	.00	19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	12	.00	.00	.01	.00	.00	.00	.00	.00	.00	3.9
23	2.7	11	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.7
24	.00	.01	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	7.8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	3.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	2.3	.00	.00	.00	.00	.00	.00	.00	.00	.35	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.85	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	2.70	118.56	7.69	0.42	0.21	0.00	0.00	0.00	0.30	0.01	0.35	6.60
MEAN	.087	3.95	.25	.014	.007	.000	.000	.000	.010	.000	.011	.22
MAX	2.7	23	4.6	.39	.10	.00	.00	.00	.10	.01	.35	3.9
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	5.4	235	15	.8	.4	.00	.00	.00	.6	.02	.7	13

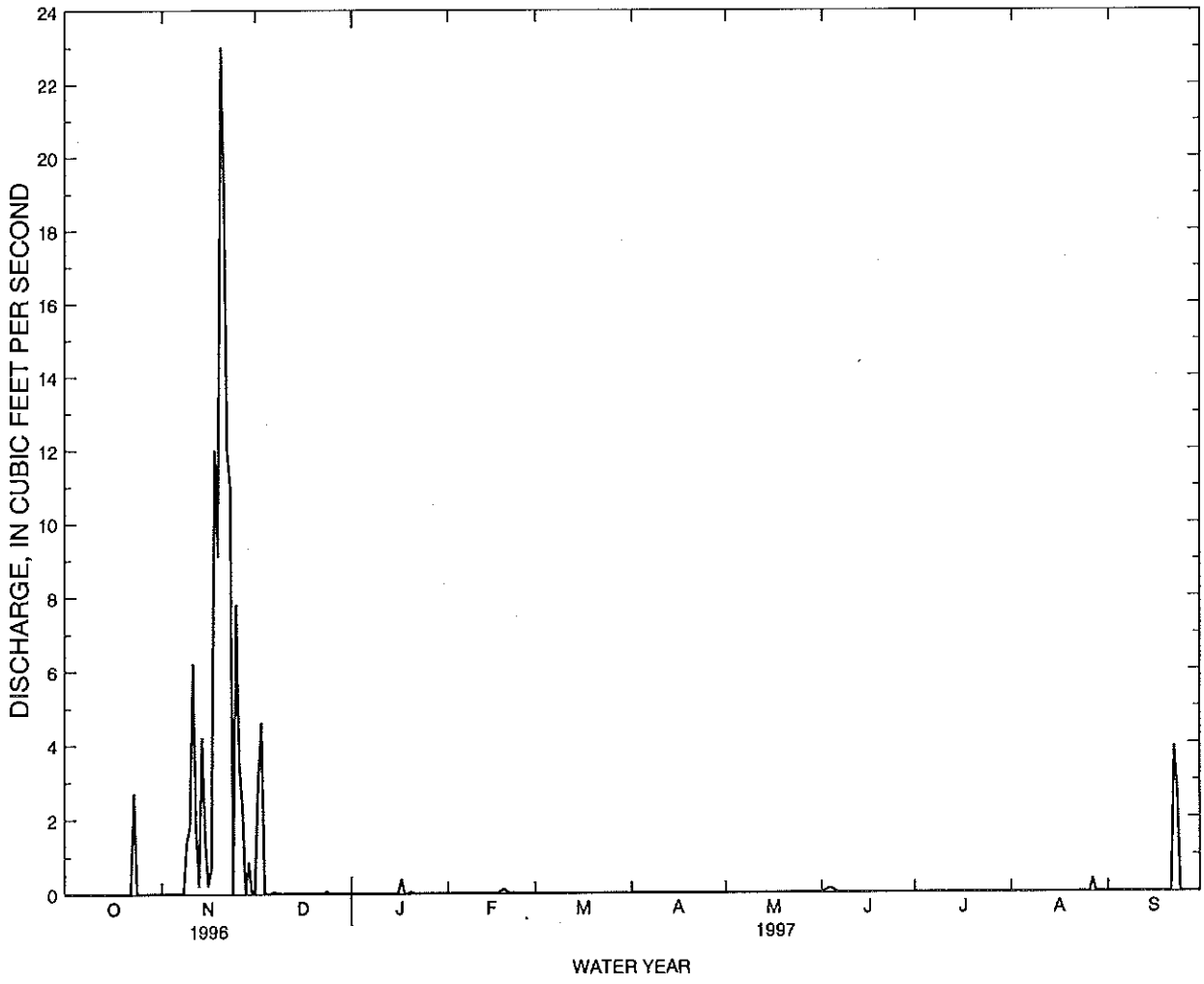
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1997, BY WATER YEAR (WY)

MEAN	1.32	2.35	1.48	1.45	1.03	2.26	2.39	1.55	1.68	1.61	1.41	.62
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

HAWAII, ISLAND OF HAWAII

16727000 UPPER HAMAKUA DITCH ABOVE PUUKAPU RESERVOIR, NEAR KAMUELA--Continued

SUMMARY STATISTICS	FOR 1996 CALENDAR YEAR		FOR 1997 WATER YEAR		WATER YEARS 1978 - 1997	
ANNUAL TOTAL	252.26		136.84			
ANNUAL MEAN	.69		.37		1.60	
HIGHEST ANNUAL MEAN					6.79	1986
LOWEST ANNUAL MEAN					.007	1990
HIGHEST DAILY MEAN	23	Nov 20	23	Nov 20	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)	500		271		1160	
10 PERCENT EXCEEDS	1.2		.02		5.4	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	



HAWAII, ISLAND OF HAWAII

16756000 KOHAKOHAU STREAM NEAR KAMUELA

LOCATION.--Lat 20°02'38", long 155°41'10", Hydrologic Unit 20010000, on left bank 0.6 mi upstream from Oolamakapehu Gulch and 1.7 mi northwest of Kamuela.

DRAINAGE AREA.--2.51 mi^2.

PERIOD OF RECORD.--March 1956 to December 6, 1966 (discontinued). Records from December 7, 1966 at site 0.5 mi downstream are not equivalent because of difference in drainage area. On August 20, 1973, the Hawaii Department of Water Supply started a diversion between the two sites, adding to the nonequivalence of the record at the two sites. From December 7, 1966, discharge records will be republished as station 16756300 Kohakohau Stream below DWS intake, near Kamuela, Hawaii.

GAGE.--Water-stage recorder. Datum of gage is 3,273 ft above mean sea level (by stadia survey by State Department of Land and Natural Resources). Prior to January 11, 1967, at site 0.5 mi upstream at different datum.

REMARKS.--Records good. Parker Ranch pipeline diverts upstream at elevation 4,250 ft. Gage destroyed by flood on January 11, 1967, but no gage-height record from December 7, 1966.

AVERAGE DISCHARGE.--10 years (water years 1957-66), 8.89 ft^3/s (6,440 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,880 ft^3/s, March 14, 1942, August 7, 1958, gage height, 10.76 ft, site and datum then in use, from rating curve extended above 70 ft^3/s by test of model of station site; maximum, 0.02 ft^3/s, October 6, 7, 1965.

REVISIONS.--Revised figures of discharge for water year 1967, superseding those published in the report for 1966, are given below.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1966 TO SEPTEMBER 1967
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.68	1.6	.90	---	---	---	---	---	---	---	---	---
2	.68	1.2	.75	---	---	---	---	---	---	---	---	---
3	.62	1.2	.62	---	---	---	---	---	---	---	---	---
4	.56	1.1	.62	---	---	---	---	---	---	---	---	---
5	.51	2.9	.56	---	---	---	---	---	---	---	---	---
6	7.9	2.0	.15	---	---	---	---	---	---	---	---	---
7	8.8	1.5	---	---	---	---	---	---	---	---	---	---
8	3.4	1.2	---	---	---	---	---	---	---	---	---	---
9	2.0	1.4	---	---	---	---	---	---	---	---	---	---
10	1.6	1.2	---	---	---	---	---	---	---	---	---	---
11	1.4	1.2	---	---	---	---	---	---	---	---	---	---
12	1.2	1.4	---	---	---	---	---	---	---	---	---	---
13	.90	1.2	---	---	---	---	---	---	---	---	---	---
14	.82	1.1	---	---	---	---	---	---	---	---	---	---
15	1.5	.98	---	---	---	---	---	---	---	---	---	---
16	4.3	1.2	---	---	---	---	---	---	---	---	---	---
17	25	.98	---	---	---	---	---	---	---	---	---	---
18	8.0	.90	---	---	---	---	---	---	---	---	---	---
19	48	.82	---	---	---	---	---	---	---	---	---	---
20	20	.75	---	---	---	---	---	---	---	---	---	---
21	3.2	.75	---	---	---	---	---	---	---	---	---	---
22	2.0	.68	---	---	---	---	---	---	---	---	---	---
23	1.4	.62	---	---	---	---	---	---	---	---	---	---
24	1.2	7.4	---	---	---	---	---	---	---	---	---	---
25	14	6.7	---	---	---	---	---	---	---	---	---	---
26	9.8	2.9	---	---	---	---	---	---	---	---	---	---
27	5.1	12	---	---	---	---	---	---	---	---	---	---
28	2.7	2.7	---	---	---	---	---	---	---	---	---	---
29	2.0	1.5	---	---	---	---	---	---	---	---	---	---
30	1.6	1.2	---	---	---	---	---	---	---	---	---	---
31	1.5	---	---	---	---	---	---	---	---	---	---	---
TOTAL	182.37	62.28	---	---	---	---	---	---	---	---	---	---
MEAN	5.88	2.08	---	---	---	---	---	---	---	---	---	---
MAX	48	12	---	---	---	---	---	---	---	---	---	---
MIN	.51	.62	---	---	---	---	---	---	---	---	---	---
AC-FT	362	124	---	---	---	---	---	---	---	---	---	---

HAWAII, ISLAND OF HAWAII

16758000 WAIKOLOA STREAM AT MARINE DAM, NEAR KAMUELA

THE RECORDS FOR WATER YEARS 1992-97 WERE NOT COMPUTED
AT THE TIME OF PUBLICATION

HAWAII, ISLAND OF HAWAII

16759000 HAUANI GULCH NEAR KAMUELA

THE RECORDS FOR WATER YEARS 1992-97 WERE NOT COMPUTED
AT THE TIME OF PUBLICATION

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HAWAII, ISLAND OF HAWAII

16764000 HILEA GULCH TRIBUTARY NEAR HONUAPO

LOCATION.--Lat 19°10'27", long 155°35'58", Hydrologic Unit 20010000, on right bank 0.5 mi upstream from mouth, 6.6 mi northwest of Honuapo, and 6.7 mi west of Punaluu.

DRAINAGE AREA.--9.17 mi^2.

PERIOD OF RECORD.--February 1966 to July 1997 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 2,940 ft (from topographic map).

REMARKS.--Records computed by Dale Nishimoto. Records fair except for estimated discharge and discharge less than 1 ft^3/s which are poor. No diversion upstream. Recording rain gage located at station. Because of poor definition of extreme low-water stage-discharge relation, flow probably occurred on some days noted as zero flow.

AVERAGE DISCHARGE.--25 years (water years 1967-91), 7.03 ft^3/s (5,090 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,400 ft^3/s, March 18, 1980, gage height, 8.00 ft, from rating curve extended above 75 ft^3/s; no flow at times each year.

EXTREMES FOR CURRENT YEAR (Water Year 1991).--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)
Nov. 17	2200	1,040	5.99	Nov. 20	0900	*1,610	*6.94
Nov. 18	1200	626	5.04	Aug. 8	0030	950	5.82

Minimum daily discharge, no flow on many days.

REVISIONS.--Daily discharges, less than 30 ft^3/s for water years 1966 to 1990 have been rated fair, except for daily discharges less than 1 ft^3/s, which have been downgraded to poor. Daily discharges greater than or equal to 30 ft^3/s and all peak stage and discharge will be held in abeyance until the rating can be confirmed or adjusted, for the effect of drawdown. In most likelihood, these discharges will not be revised and should be rated fair.

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	6.3	38	.60	.09	.06	.04	.07	.54	7.9	.16	4.3	.18
2	2.3	9.6	.55	.07	.05	.03	.06	.30	2.3	.67	.72	.15
3	9.2	2.0	.83	.05	.04	.03	.05	.17	1.0	.43	.18	41
4	3.7	.83	.57	.04	.04	.03	.04	.12	4.1	.39	24	17
5	1.0	.65	.43	.04	.03	.03	.04	.08	2.2	.18	2.4	.38
6	.70	.64	2.4	.03	.03	.02	.03	.05	.35	.12	.29	.19
7	.61	2.6	32	.02	.02	.02	.03	.02	5.5	.34	14	4.4
8	6.1	1.0	8.8	.18	.02	.02	.03	.00	2.0	.37	141	.99
9	1.6	.73	4.5	.29	.02	.02	.31	.07	.60	.23	13	.32
10	.70	.54	1.1	.08	.01	.02	.66	.11	18	3.4	1.1	.15
11	.56	2.5	.46	.05	.01	.31	.44	.03	3.0	39	.51	.12
12	.45	37	.36	.41	.00	.15	.13	.00	.70	1.4	.33	.10
13	.48	9.4	.57	.22	.00	.38	.08	.00	.31	.46	.26	.09
14	.32	13	.44	.17	.00	.28	1.0	.00	.20	.46	.20	.08
15	.17	18	.31	.13	.00	.10	11	.00	5.2	1.4	.24	.08
16	19	14	.24	.09	.00	.07	.91	.00	1.6	1.5	1.3	.08
17	2.5	158	.22	.07	.00	7.1	.71	.00	.70	.62	.72	.07
18	11	329	.21	.06	1.7	3.4	.41	.00	3.0	.36	.30	.07
19	5.8	50	.27	.05	.17	9.8	.19	.00	1.1	.24	.19	.44
20	3.4	635	.19	.04	.08	13	.22	.00	.61	.14	.16	.38
21	1.9	56	.22	.03	.06	1.2	.16	.00	.54	1.3	.15	.09
22	1.6	15	61	.03	1.4	6.7	.09	.00	.51	.49	9.1	6.0
23	1.8	e6.0	13	.02	.41	.85	.11	1.6	.27	.30	.56	35
24	3.0	e2.0	43	.01	.09	.27	.06	10	.22	.18	.21	15
25	1.1	e1.5	.96	.01	.07	.99	.32	8.8	2.2	.10	.16	.78
26	.62	e1.0	.39	.00	.05	10	2.3	1.2	4.3	.05	.14	.44
27	.45	e.80	.28	49	.05	2.2	4.7	5.5	.40	.02	.12	.21
28	.40	.80	.19	9.8	.04	.48	6.9	.89	.24	.00	.87	.18
29	.29	.79	.16	.17	---	.16	3.5	.34	.21	.00	.73	.13
30	47	.69	.13	.09	---	.11	8.0	32	.17	1.4	.31	.10
31	2.4	---	.11	.07	---	.08	---	38	---	.58	.21	---
TOTAL	136.45	1407.07	174.49	61.41	4.45	57.89	42.55	99.82	69.43	56.29	217.76	124.20
MEAN	4.40	46.9	5.63	1.98	.16	1.87	1.42	3.22	2.31	1.82	7.02	4.14
MAX	47	635	61	49	1.7	13	11	38	18	39	141	41
MIN	.17	.54	.11	.00	.00	.02	.03	.00	.17	.00	.12	.07
AC-FT	271	2790	346	122	8.8	115	84	198	138	112	432	246

e Estimated

CAL YR 1990 TOTAL 2743.35 MEAN 7.52 MAX 635 MIN .00 AC-FT 5440
WTR YR 1991 TOTAL 2451.81 MEAN 6.72 MAX 635 MIN .00 AC-FT 4860

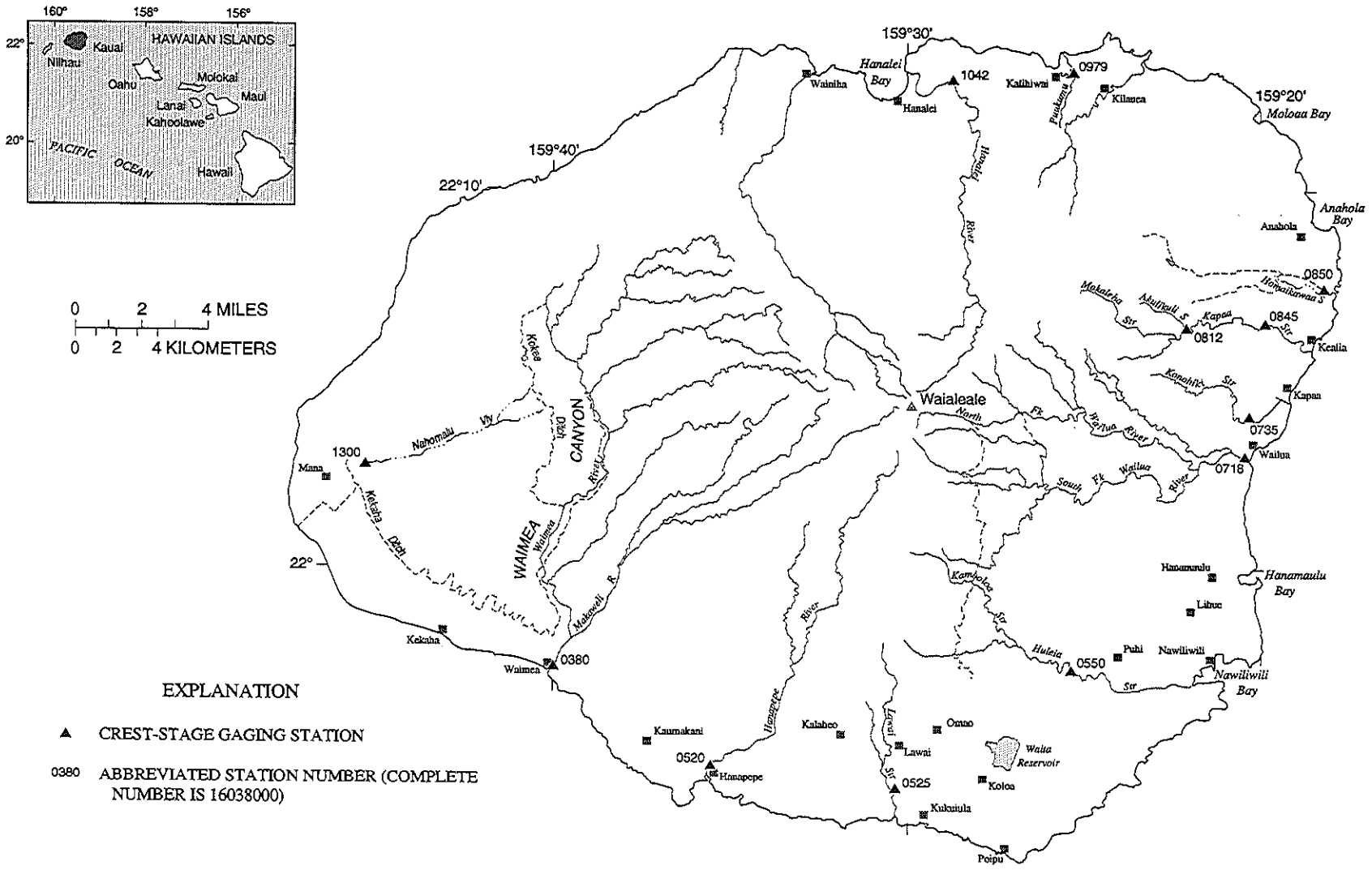

Figure 10. Locations of crest-stage gaging stations on Kauai.

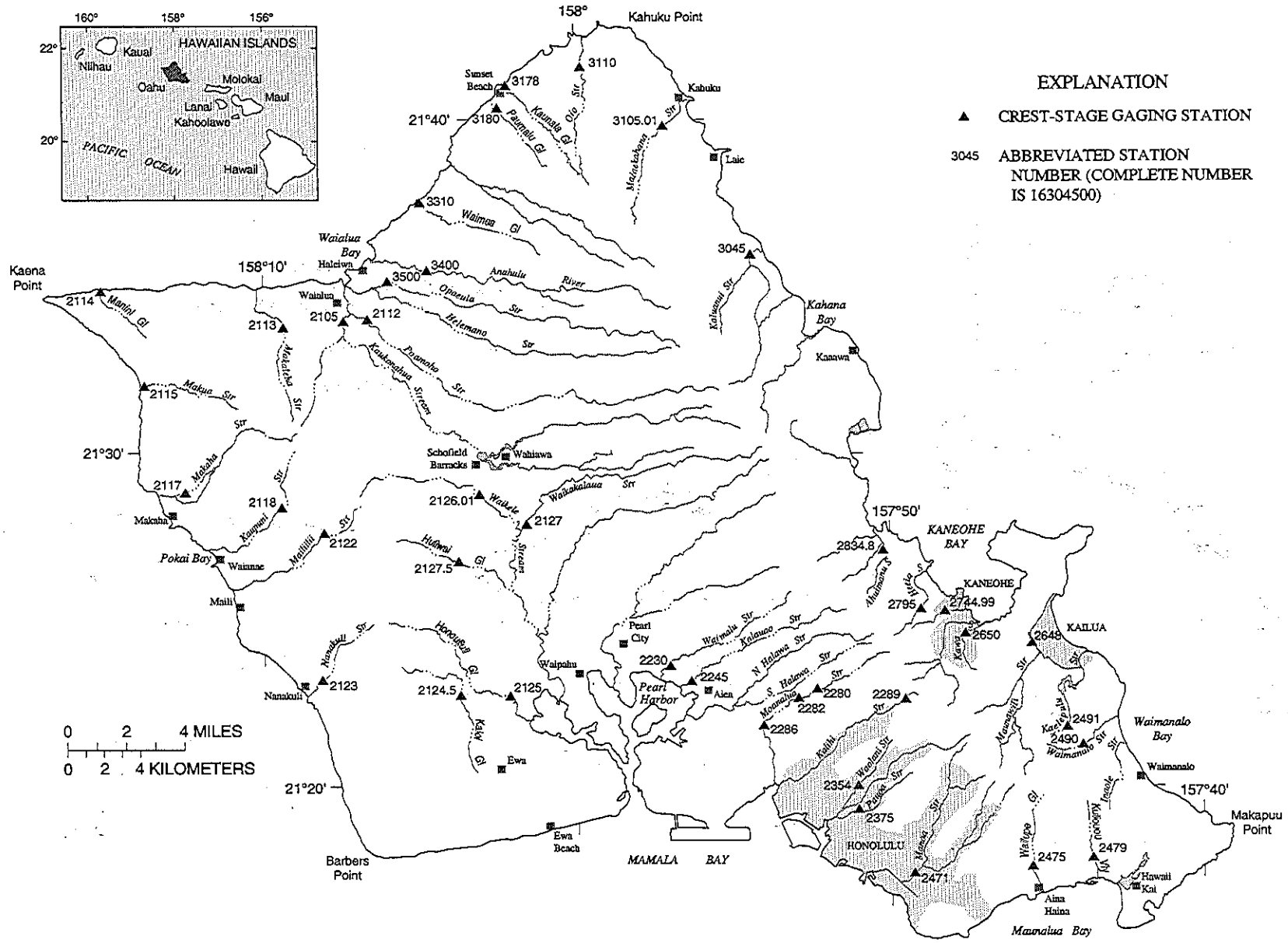

Figure 11. Locations of crest-stage gaging stations on Oahu.

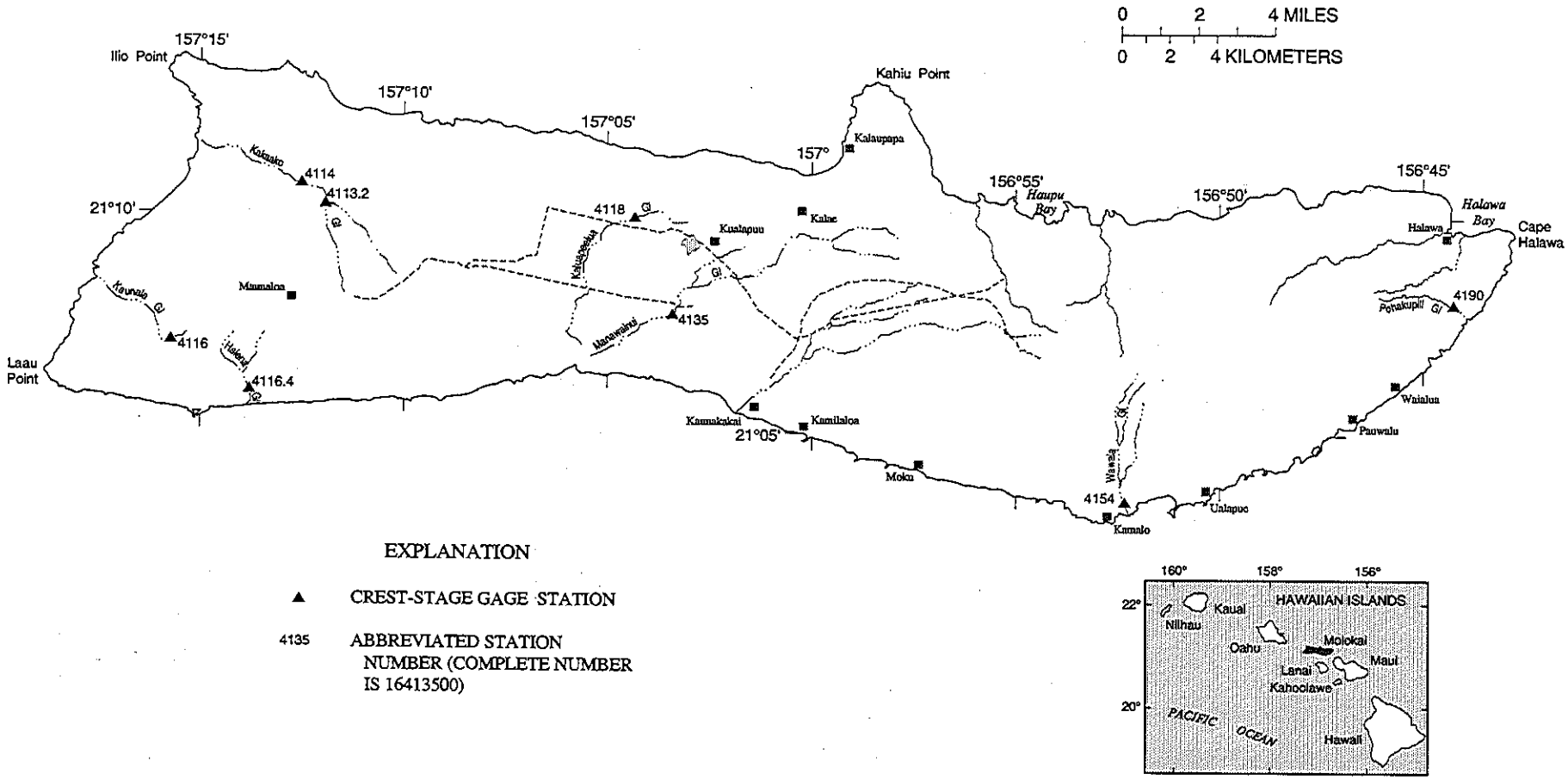

Figure 12. Locations of crest-stage gaging stations on Molokai.

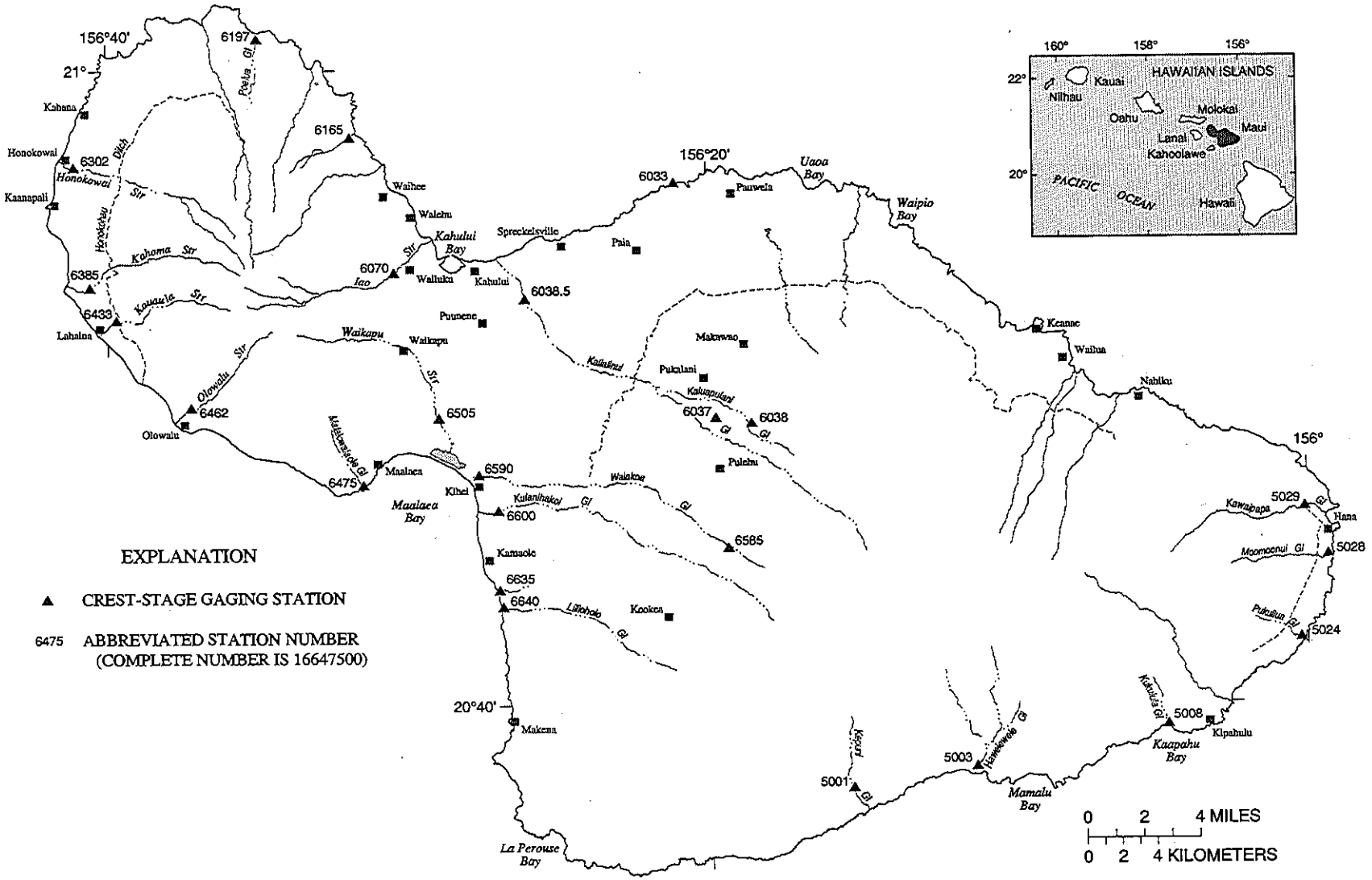

Figure 13. Locations of crest-stage gaging stations on Maui.

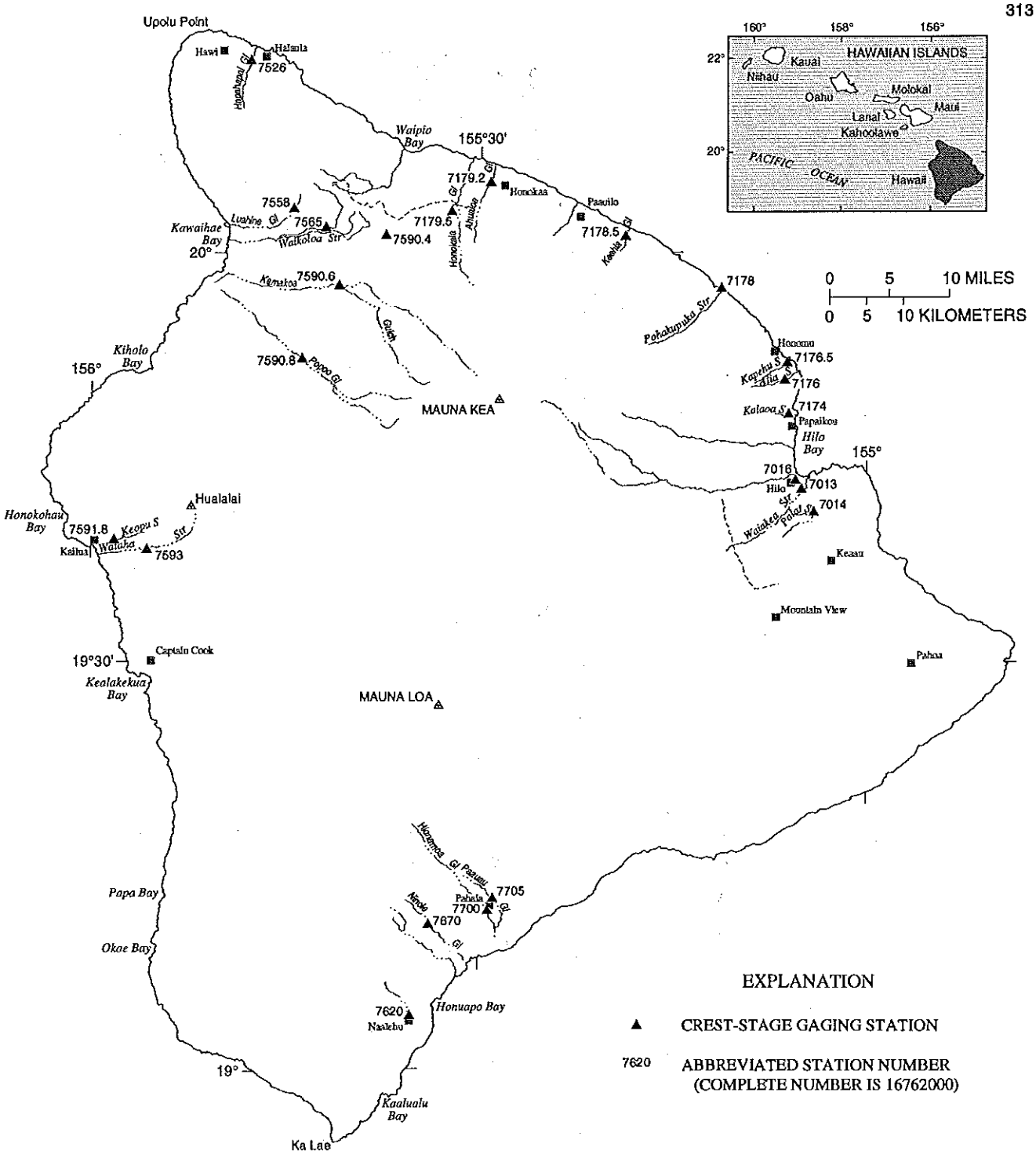

Figure 14. Locations of crest-stage gaging stations on Hawaii.

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 crest-stage partial-record stations are presented in the following table. Discharge measurements made at miscellaneous sites are given in a separate table.

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 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	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	1944-97b	01-19-97	6.60	-	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	1950-97b	11-12-96	5.33	-	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≠ 1973-97	04-10-97	5.43	1,810	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≠, 1971-97	01-19-97	12.56	5,730	11-28-70	22.40	26,800
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	1962-97b	11-12-96	5.86	-	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, 1970-97	11-02-96 01-19-97	7.12 9.13	175 -	12-14-91	16.92	2,530
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	1964-97	01-19-97	5.56	340	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	1962-97	11-12-96	12.69	7,720	12-14-91	23.11	30,330

≠ Operated as a continuous-record gaging station
b Gage height only

Annual maximum discharge at crest-stage partial-record stations during water year 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
Island of Kauai--Continued									
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	1964-97	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, 1971-97	01-04-97	-	e30	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	1963-97b	01-04-97	10.51	-	11-03-95	13.82	-
16130000 Nahoimalu 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≠, 1972-97	01-19-97	4.80	320	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, 1968-97	01-19-97	23.69	e4,500	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	1967-97	01-19-97	19.95	e2,500	04-19-74	24.0	7,340
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≠ 1966-97	11-14-96	9.41	e2,900	11-13-65 11-14-96	7.41 9.41	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	1974-97	11-14-96	13.88	e400	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	1958-97	11-14-96	11.74	e1,000	02-07-76 11-14-96	a8.00 11.74	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 Makaha Valley Road.	5.25	1966-97	11-14-96	17.60	e5,000	11-14-96	17.60	e5,000

≠ Operated as a continuous-record gaging station
a At old gage datum
b Gage height only
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
	Island of Oahu--Continued								
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≠, 1973-97	11-14-96	7.23	e1,100	01-06-82	7.82	3,640
16212200 Mailiilii 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	1958-97	11-14-96	3.76	e250	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	1968-97	11-14-96	-	e450	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	1968-97	11-14-96	6.73	594	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	1956-97	11-05-96	6.26	1,830	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, 1960-97	11-16-96	8.95	614	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	1958-97	01-03-97	7.54	1,010	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	1974-97	11-14-96	-	e50	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≠, 1973-97	11-14-96	3.08	1,500	01-05-68	6.82	8,020
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≠ 1984-97	11-14-96	-	e800	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 north of Honolulu Post Office.	2.73	1927-78≠, 1979-97	01-03-97	5.49	643	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	1969-97	04-11-97	4.79	1,130	03-18-80	9.97	4,860

≠ Operated as a continuous-record gaging station
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
	Island of Oahu--Continued								
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	1971-97	01-03-97	14.14	e1,300	03-08-80	21.0	6,200
16228900 Kalihi Str nr Kaneohe	Lat 21°22'35", long 157°49'32", on right bank 800 ft down- stream from Likelike Highway and 2.8 mi southwest of Castle High School in Kaneohe.	0.60	1967-71≠, 1972-97	11-14-96	3.20	360	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	1958-97	11-14-96	3.84	1,170	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	1958-97	11-14-96	1.61	970	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	1968-97	11-14-96	7.98	3,580	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	1958-97	11-14-96	-	e200	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, 1970-97	01-19-97	28.67	660	12-31-87	36.55	4,700
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≠, 1971-97	11-14-96	3.92	e800	11-26-70	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	1963-97	11-14-96	3.89	158	12-31-87	7.53	467
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, 1967-97b	11-14-96	<1.11	-	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, 1977-97	01-03-97	8.59	1,280	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	1959-97	03-17-97	3.51	e300	05-02-65	11.50	2,750

≠ 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 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
	Island of Oahu--Continued								
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, 1968-97	03-17-97	-	e850	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	1963-97	11-14-96	5.28	e460	02-01-69	11.8	7,300
16304500 Kaluanui Stream, at Hauula, Oahu	Lat 21°35'57", long 157°54'24", Kaluanui on left downstream wingwall of Str at concrete bridge, 1.2 mi southeast Hauula of cemetery in Hauula, and 1.4 mi northeast of Sacred Falls.	2.12	1958-97	11-14-96	3.49	e600	01-06-82	6.95	4,920
16308500 Kahawainui Stream, at Laie, Oahu	Lat 21°39'25", long 157°55'57", 800 ft northeast of Zion Cemetary on upstream side of bridge at Kamehameha Highway.	4.79	1997b	unknown	21.35	-	unknown	21.35	-
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	1958-97	11-14-96	6.40	e700	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	1958-97	11-14-96	8.63	e600	05-02-65 11-14-96	8.13 8.63	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	1973-97	11-14-96	4.61	e180	11-20-90	6.01	450
16318000 Paumalu Gulch at Sunset Beach	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	1968-97	11-14-96	6.32	e350	04-19-74 11-14-96	4.97 6.32	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	1968-97	01-19-97	9.32	857	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	1958-97	01-19-97	8.13	3,300	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	1956-97	04-03-97	14.48	2,310	04-19-74	20.7	7,600

b Gage height only
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/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	1964-97	01-19-97	1.59	108	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≠, 1973-97	11-14-96	-	e722	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 of Laau Point lighthouse, and 3.3 mi southwest of Mauna Loa.	0.28	1964-97	01-19-97	3.85	150	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	1965-97	11-14-96	4.79	1,130	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	1964-97	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 mi southwest of Kualapuu.	10.4	1965-97	01-04-97	-	e198	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	1964-97	11-13-96	1.82	677	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	1964-97	11-13-96	7.00	268	11-04-66	8.93	989
			Island of Maui						
16500100 Kepuni Gulch nr Kahikinui 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≠, 1973-97	01-04-97	4.83	149	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	1967-97	01-04-97	9.16	3,120	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≠, 1969-97	12-27-96	4.81	302	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	1963-97	08-30-97	2.93	118	01-23-65	9.30	788

≠ Operated as a continuous-record gaging station
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/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	1963-97	12-07-96	10.10	559	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	1965-97	03-10-97	7.84	5,260	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	1963-97	01-20-97	1.79	12	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	1967-97	09-14-97	2.30	35	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	1963-97	03-10-97	1.34	20	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	1967-97	01-20-97	4.91	183	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≠, 1952-97	01-04-97	4.55	2,610	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 northwest of Waihee.	0.12	1964-97	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	1965-97	01-20-97	5.64	111	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, 1965-97	01-20-97	-	e280	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≠ 1990-97	01-04-97	-	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 Lahaina Lighthouse.	4.12	1960,1962, 1964-97	01-04-97	3.96	368	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≠, 1973-97	01-04-97	3.87	453	03-24-67	5.40	1,300

≠ Operated as a continuous-record gaging station
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	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	1964-97	01-04-97	4.78	46	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	1963-97 (discontinued)	01-04-97	-	e600	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	1964-97	11-13-96	2.39	55	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	1963-97	01-20-97	7.11	378	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≠, 1971-97	01-20-97	1.01	398	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	1972-97 (discontinued)	01-20-97	-	e70	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	1972-97 (discontinued)	01-20-97	-	e68	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, 1993-97	07-30-97	5.00	560	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, 1994-97	Records being reviewed.					
16701600 Alenaio Str at Hilo	Lat 19°43′10″, long 155°05′27″, 0.65 mi south of Hilo Post Office, 0.65 mi west of Kapiolani School, and 0.1 mi upstream of Kapiolani Street bridge.	8.62	1997	07-30-97	6.36	1,010	07-30-97	6.36	1,010
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	1963-97	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, 1994-97	07-30-97	unknown	a-	02-20-79	17.1	2,850

≠ Operated as a continuous-record gaging station
a- Discharge not determined
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	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, 1994-97	07-30-97	6.43	511	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 southwest of Papaaloa.	2.76	1963-80≠, 1983-97	Records being reviewed. Station discontinued September 30, 1997.					
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, 1993-97	01-20-97	4.90	173	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 1995-97	No peak above base elevation of 2.30 ft			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	1963-97	No peak above base elevation of 1.03 ft or base discharge of 10 ft^3/s. Station discontinued September 30, 1997.			01-14-79	7.65	385
16752600 Hapahapai Gulch atKapaau	Lat 20°14′00″, long 155°48′00″, at Highway 27, 300 ft east of Kapaau Post Office.	1.52	1963-90, 1995-97	07-09-97	6.48	127	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 1994-97	03-24-97	3.03	107	04-07-89	5.33	277
16756500 Keanuiomano Str nr Kamuela	Lat 20°01′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, 1995-97	03-17-97	5.67	795	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 northeast of Waimea.	0.27	1963-91, 1994-97	01-20-97	3.41	150	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, 1994-97	No peak above base elevation of 2.43 ft or base discharge of 8.7 ft^3/s.			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, 1995-97	No peak above base elevation of 4.26 ft or base discharge of 644 ft^3/s. Station discontinued September 30, 1997.			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, 1995-97	Station discontinued May 1, 1997.			02-11-82	11.82	e800

≠ Operated as a continuous-record gaging station
e Estimated

Annual maximum discharge at crest-stage partial-record stations during water year 1997

Station name and number	Location	Drainage area (mi^2)	Period of record	Water year 1997 maximum			Period of record max		
				Date	Gage height (ft)	Discharge (ft^3/s)	Date	Gage height (ft)	Discharge (ft^3/s)
Island of Hawaii--Continued									
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, 1995-97	01-20-97	3.65	190	02-11-82	9.06	3,550
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	1963-97	Records being reviewed. Station discontinued September 30, 1997.					
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≠, 1983-97	Records being reviewed. Station discontinued September 30, 1997.					
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, 1994-97	Records being reviewed. Station discontinued September 30, 1997.					
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≠, 1980-97	11-13-96	8.59	1,994	-	-	-
				Records being reviewed.					

≠ Operated as a continuous-record gaging station

Discharge measurements made at miscellaneous sites during water year 1993

Station no.	Station name	Location	Measured previously (water years)	Date	Discharge (ft^3/s)
		Island of Maui			
205104156172301	Maliko 9.2	Lat 20°51′04″, long 156°17′23″, Maliko Gulch at altitude 1,890 ft.	-	09-29-93	0.04
205107156174601	Maliko 9.1	Lat 20°51′07″, long 156°17′46″, Maliko Gulch at altitude 1,740 ft.	-	09-29-93	0.02
205113156175501	Maliko 9	Lat 20°51′13″, long 156°17′55″, Maliko Gulch at altitude 1,680 ft.	-	09-29-93	0.02
205504156195501	Maliko Spring at 200 ft	Lat 20°55′04″, long 156°19′55″, Maliko Gulch at altitude 200 ft.	-	09-30-93	0.08
205541156201601	Maliko 5	Lat 20°55′41″, long 156°20′16″, Maliko Gulch at altitude 140 ft.	-	09-28-93	0.01
205548156201401	Maliko Spring at 135 ft	Lat 20°55′48″, long 156°20′14″, Maliko Gulch, unnamed tributary from spring, at altitude 135 ft.	-	09-28-93	0.06
205556156201801	Maliko 3	Lat 20°55′56″, long 156°20′18″, Maliko Gulch at altitude 60 ft.	-	09-28-93	0.03
205609156203101	Maliko Tunnel 5620-01	Lat 20°56′09″, long 156°20′31″, Maliko Gulch, inflow from water-supply tunnel on west bank, at altitude 50 ft.	-	09-28-93	0.08

Discharge measurements made at miscellaneous sites during water year 1994

Station no.	Station name	Location	Measured previously (water years)	Date	Discharge (ft^3/s)
		Island of Maui			
204624156080101	Hanawi 48, Nahiku	Lat 20°46′24″, long 156°08′01″, Hanawi Stream, east branch, at altitude 3,550 ft.	--	07-28-94	0.09
204556156080701	Hanawi 51, Nahiku	Lat 20°45′56″, long 156°08′07″, Hanawi Stream, west branch, at altitude 4,100 ft.	--	07-28-94	0.02
204623156080401	Hanawi 46, Nahiku	Lat 20°46′23″, long 156°08′04″, Hanawi Stream, west branch, at altitude 3,580 ft.	--	07-28-94	<0.01
204627156080301	Hanawi 45, Nahiku	Lat 20°46′27″, long 156°08′03″, Hanawi Stream at altitude 3,500 ft.		07-28-94	0.03
204740156073101	Hanawi 40, Nahiku	Lat 20°47′40″, long 156°07′31″, Hanawi Stream, east unnamed tributary, at altitude 2,280 ft.	--	07-28-94	0.86
204742156073001	Hanawi 38, Nahiku	Lat 20°47′42″, long 156°07′30″, Hanawi Stream at altitude 2,240 ft.	--	07-28-94	2.8
204844156064701	Hanawi 29, Nahiku	Lat 20°48′44″, long 156°06′47″, Hanawi Stream at altitude 1,130 ft.	--	07-26-94	1.2
204845156064301	Hanawi 27, Nahiku	Lat 20°48′45″, long 156°06′43″, Hanawi Stream at altitude 1,020 ft.	--	07-26-94	1.8
204902156063101	Hanawi 23, Nahiku	Lat 20°49′02″, long 156°06′31″, Hanawi Stream at altitude 620 ft.	1984	07-26-94	11.6
204921156062101	Hanawi 13, Nahiku	Lat 20°49′21″, long 156°06′21″, Hanawi Stream at altitude 420 ft.	1975	07-26-94	29.1
204927156062101	Hanawi 10, Nahiku	Lat 20°49′27″, long 156°06′21″, Hanawi Stream at altitude 190 ft.	--	07-27-94	37.3
204935156061901	Hanawi 8, Nahiku	Lat 20°49′35″, long 156°06′19″, Hanawi Stream at altitude 120 ft.	1975	07-27-94	36.3
204939156061401	Hanawi 6, Nahiku	Lat 20°49′39″, long 156°06′14″, Hanawi Stream at altitude 50 ft.	--	07-27-94	36.0
205227156190601	Maliko Spring at 1,280 ft	Lat 20°52′27″, long 156°19′06″, Maliko Gulch, at spring, at altitude 1,280 ft.	--	10-05-93	<0.01
205504156195501	Maliko Spring at 200 ft	Lat 20°55′04″, long 156°19′55″, Maliko Gulch at altitude 200 ft.	1993	11-12-93	0.15

Discharge measurements made at miscellaneous sites during water year 1994--Continued

Station no.	Station name	Location	Measured previously (water years)	Date	Discharge (ft^3/s)
		Island of Maui--Continued			
205548156201401	Maliko Spring at 135 ft	Lat 20°55′48″, long 156°20′14″, Maliko Gulch, unnamed tributary from spring, at altitude 135 ft.	1993	11-11-93	0.09
205618156202801	Maliko Spring at 50 ft	Lat 20°56′18″, long 156°20′28″, Maliko Gulch, inflow from spring on east bank, at altitude 50 ft.	--	10-07-93	<0.01
205609156203101	Maliko Tunnel 5620-01	Lat 20°56′09″, long 156°20′31″, Maliko Gulch, inflow from water-supply tunnel on west bank, at altitude 50 ft.	1993	11-11-93	0.07
205619156203301	Maliko 1	Lat 20°56′19″, long 156°20′33″, Maliko Gulch at altitude 3 ft.	--	11-11-93	0.06

Discharge measurements made at miscellaneous sites during water year 1995

Station no.	Station name	Location	Measured previously (water years)	Date	Discharge (ft^3/s)
		Island of Maui			
204845156064301	Hanawi 27, Nahiku	Lat 20°48′45″, long 156°06′43″, Hanawi Stream at altitude 1,020 ft.	1994	02-22-95	0.80
204902156063101	Hanawi 23, Nahiku	Lat 20°49′02″, long 156°06′31″, Hanawi Stream at altitude 620 ft.	1984 1994	02-22-95	11.4
204921156062101	Hanawi 13, Nahiku	Lat 20°49′21″, long 156°06′21″, Hanawi Stream at altitude 420 ft.	1975 1994	02-22-95	20.7
204927156062101	Hanawi 10, Nahiku	Lat 20°49′27″, long 156°06′21″, Hanawi Stream at altitude 190 ft.	1994	02-22-95	19.4
204935156061901	Hanawi 8, Nahiku	Lat 20°49′35″, long 156°06′19″, Hanawi Stream at altitude 120 ft.	1975 1994	02-22-95	23.1
204939156061401	Hanawi 6, Nahiku	Lat 20°49′39″, long 156°06′14″, Hanawi Stream at altitude 50 ft.	1994	02-22-95	22.6
204908156121901	Honomanu 23	Lat 20°49′08″, long 156°12′19″, Honomanu Stream at altitude 3,015 ft.	--	06-20-95	0.21
204910156121801	Honomanu 20	Lat 20°49′10″, long 156°12′18″, Honomanu Stream at altitude 2,995 ft.	--	06-20-95	0.31
205014156111501	Honomanu 14A	Lat 20°50′14″, long 156°11′15″, Honomanu Stream, west unnamed tributary, at altitude 1,720 ft.	--	06-20-95	0.00
205008156111601	Honomanu 13A	Lat 20°50′08″, long 156°11′16″, Honomanu Stream at altitude 1,670 ft.	--	06-20-95	0.00
205008156105901	Honomanu 11	Lat 20°50′08″, long 156°10′59″, Honomanu Stream, east unnamed tributary, at altitude 1,770 ft.	--	06-20-95	1.04
205009156105901	Honomanu 11A	Lat 20°50′09″, long 156°10′59″, Honomanu Stream, east unnamed tributary, downstream from Spreckles Ditch intake, at altitude 1,750 ft.	--	06-20-95	0.00
205051156104401	Honomanu 10A	Lat 20°50′51″, long 156°10′44″, Honomanu Stream at altitude 360 ft.	--	06-20-95	0.13
205056156104501	Honomanu 9	Lat 20°50′56″, long 156°10′45″, Uluini Stream at altitude 310 ft.	--	06-20-95	0.02

Discharge measurements made at miscellaneons sites during water year 1995--Continued

Station no.	Station name	Location	Measured previously (water years)	Date	Discharge (ft^3/s)
		Island of Mani--Continued			
205103156104301	Honomanu 8A	Lat 20°51′03″, long 156°10′43″, Honomanu Stream at altitude 240 ft.	--	06-20-95	0.09
205113156103201	Honomanu 7	Lat 20°51′13″, long 156°10′32″, Honomanu Stream at altitude 90 ft.	--	06-20-95	0.00
205132156101601	Honomanu 4	Lat 20°51′32″, long 156°10′16″, Honomanu Stream at altitude 30 ft.	--	06-20-95	0.00
205145156101201	Honomanu 2A	Lat 20°51′45″, long 156°10′12″, Honomanu Stream, west branch, at altitude 2 ft.	--	06-20-95	1.21
205145156101101	Honomanu 2	Lat 20°51′45″, long 156°10′11″, Honomanu Stream, east branch, at altitude 2 ft.	--	06-20-95	0.91
204642156141201	Waikamoi 72	Lat 20°46′42″, long 156°14′12″, Waikamoi Stream at altitude 6,290 ft.	--	10-17-94	0.00
204639156143601	Waikamoi 73	Lat 20°46′39″, long 156°14′36″, Waikamoi Stream, west branch, at altitude 6,400 ft.	--	10-17-94	0.00
204823156140201	Waikamoi 65	Lat 20°48′23″, long 156°14′02″, Waikamoi Stream at altitude 4,500 ft.	--	10-18-94	0.03
204844156135701	Waikamoi 60	Lat 20°48′44″, long 156°13′57″, Waikamoi Stream, downstream from Upper Kula pipeline diversion dam, at altitude 4,270 ft.	--	10-18-94	0.00
204950156133101	Waikamoi 56	Lat 20°49′50″, long 156°13′31″, Waikamoi Stream, upstream from flume inflow, at altitude 3,160 ft.	--	10-18-94	1.12
204950156132901	Waikamoi 55A	Lat 20°49′50″, long 156°13′29″, Waikamoi Stream, flume inflow at altitude 3,135 ft.	--	10-18-94	0.20
205032156130101	Waikamoi 46	Lat 20°50′32″, long 156°13′01″, Waikamoi Stream, upstream from East Branch Waikamoi Stream, at altitude 2,375 ft.	--	10-24-94	0.30
205033156125801	Waikamoi 45	Lat 20°50′33″, long 156°12′58″, Waikamoi Stream, downstream from East Branch Waikamoi Stream, at altitude 2,360 ft.	--	10-24-94	0.51
205119156122801	Waikamoi 40	Lat 20°51′19″, long 156°12′28″, Waikamoi Stream at altitude 1,780 ft.	--	10-24-94	0.85
205143156115801	Waikamoi 33	Lat 20°51′43″, long 156°11′58″, Waikamoi Stream, upstream from Wailoa Ditch diversion, at altitude 1,250 ft.	--	10-18-94 10-24-94	0.82 0.99

Discharge measurements made at miscellaneous sites during water year 1995--Continued

Station no.	Station name	Location	Measured previously (water years)	Date	Discharge (ft^3/s)
		Island of Maui--Continued			
205144156115601	Waikamoi 32	Lat 20°51′44″, long 156°11′56″, Waikamoi Stream at altitude 1,190 ft.	--	10-18-94	0.02
205211156113701	Waikamoi 17	Lat 20°52′11″, long 156°11′37″, Waikamoi Stream, upstream from confluence with Alo Stream, at altitude 860 ft.	--	10-18-94	0.23
205147156114901	Waikamoi 29A	Lat 20°51′47″, long 156°11′49″, Alo Stream, upstream from Wailoa Ditch diversion, at altitude 1,210 ft.	--	10-24-94	1.06
205216156113501	Waikamoi 16	Lat 20°52′16″, long 156°11′35″, Waikamoi Stream, downstream from confluence with Alo Stream, at altitude 820 ft.	--	10-18-94	0.55
205219156113201	Waikamoi 15	Lat 20°52′19″, long 156°11′32″, Waikamoi Stream at altitude 760 ft.	--	10-18-94	0.50
205224156113101	Waikamoi 14	Lat 20°52′24″, long 156°11′31″, Waikamoi Stream, upstream from Manuel Luis Ditch diversion, at altitude 720 ft.	--	10-18-94	0.57
205227156113001	Waikamoi 11	Lat 20°52′27″, long 156°11′30″, Waikamoi Stream, downstream from Manuel Luis Ditch diversion, at altitude 680 ft.	--	10-18-94	0.01
205230156112501	Waikamoi 10	Lat 20°52′30″, long 156°11′25″, Waikamoi Stream at altitude 530 ft.	--	10-18-94	0.03
205233156112101	Waikamoi 8A	Lat 20°52′33″, long 156°11′21″, Waikamoi Stream at altitude 510 ft.	--	10-18-94	0.17
205234156111601	Waikamoi 7A	Lat 20°52′34″, long 156°11′16″, Waikamoi Stream at altitude 490 ft.	--	10-18-94	0.22
205830156353801	Honokohau Stream 1.0	Lat 20°58′30″, long 156°35′38″, Honokohau Stream, upstream from springs, at altitude 625 ft.	--	09-14-95	0.00
205843156354101	Honokohau Stream 3.0	Lat 20°58′43″, long 156°35′41″, Honokohau Stream, downstream from springs, at altitude 560 ft.	--	09-14-95	1.29
205915156360001	Honokohau Stream 4.0	Lat 20°59′15″, long 156°36′00″, Honokohau Stream, upstream from Taro Gate release, at altitude 410 ft.	--	09-14-95	1.53
205922156360101	Honokohau Stream 5.0	Lat 20°59′22″, long 156°36′01″, Honokohau Stream, downstream from Taro Gate release, at altitude 380 ft.	--	09-14-95	3.20

Discharge measurements made at miscellaneous sites during water year 1995--Continued

Station no.	Station name	Location	Measured previously (water years)	Date	Discharge (ft^3/s)
		Island of Maui--Continued			
205932156360701	Honokohau Stream 6.0	Lat 20°59′32″, long 156°36′07″, Honokohau Stream, 200 ft. upstream from dam, at altitude 345 ft.	--	09-14-95	3.76
205958156361701	Honokohau Stream 7.0	Lat 20°59′58″, long 156°36′17″, Honokohau Stream, 0.5 miles downstream from dam, at altitude 235 ft.	--	09-14-95	3.96
210045156363301	Honokohau Stream 8.0	Lat 21°00′45″, long 156°36′33″, Honokohau Stream, 15 ft. downstream from Chun's dam, at altitude 80 ft.	--	09-14-95	1.05
210114156363701	Honokohau Stream 9.0	Lat 21°01′14″, long 156°36′37″, Honokohau Stream, downstream from last return flow, at altitude 20 ft.	--	09-14-95	1.63

Discharge measurements made at miscellaneous sites during water year 1997

Station no.	Station name	Location	Measured previously (water years)	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≠, 1988-96	11-19-96 01-29-97 05-28-97 09-15-97	188 80.4 172 129
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≠, 1986-96	11-19-96 01-29-97 05-28-97 09-15-97	2.94 1.86 1.88 0.95
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≠, 1986-96	11-18-96 01-28-97 04-28-97 08-27-97	59.4 27.0 27.3 49.0
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≠, 1986-96	11-18-96 01-28-97 04-28-97 08-27-97	30.9 4.11 3.88 3.89
20533515619301	Maliko Spring at 800 ft	Lat 20°53′35″, long 156°19′30″, Maliko Gulch, spring discharge at altitude 800 ft.	--	08-20-97	0.08
205845156354201	Honokohau Stream 3.1	Lat 20°58′45″, long 156°35′42″, Honokohau Stream, downstream from two springs, at altitude 540 ft.	--	08-13-97	1.95
205915156360001	Honokohau Stream 4.0	Lat 20°59′15″, long 156°36′00″, Honokohau Stream, upstream from Taro Gate release, at altitude 410 ft.	1995	08-13-97	1.67 1.62
205922156360101	Honokohau Stream 5.0	Lat 20°59′22″, long 156°36′01″, Honokohau Stream, downstream from Taro Gate release, at altitude 380 ft.	1995	08-13-97	3.12 3.01
205928156360601	Honokohau Stream 5.9	Lat 20°59′28″, long 156°36′06″, Honokohau Stream, 350 ft upstream from dam, at altitude 350 ft.	--	08-13-97	3.54
205933156360801	Honokohau Stream 6.1	Lat 20°59′33″, long 156°36′08″, Honokohau Stream, 200 ft downstream from dam, at altitude 330 ft.	--	08-13-97	2.65
205940156360901	Honokohau Stream 6.2	Lat 20°59′40″, long 156°36′09″, Honokohau Stream, 940 ft downstream from dam, at altitude 310 ft.	--	08-13-97	3.26
210001156362101	Honokohau Stream 7.1	Lat 21°00′01″, long 156°36′21″, Honokohau Stream, 3,500 ft downstream from dam, at altitude 200 ft.	--	08-13-97	3.06

Discharge measurements made at miscellaneous sites during water year 1997

Station no.	Station name	Location	Measured previously (water years)	Date	Discharge (ft^3/s)
		Island of Maui--Continued			
210012156362801	Honokohau Stream 7.6	Lat 21°00′12″, long 156°36′28″, Honokohau Stream, downstream from return flow on right bank, at altitude 180 ft.	--	08-13-97	3.70
210041156363001	Honokohau Stream 7.9	Lat 21°00′41″, long 156°36′30″, Honokohau Stream, 350 ft downstream from road ford, at altitude 100 ft.	--	08-13-97	2.76
210045156363301	Honokohau Stream 8.0	Lat 21°00′45″, long 156°36′33″, Honokohau Stream, 15 ft downstream from Chun's dam, at altitude 80 ft.	1995	08-13-97	1.25
210128156364201	Honokohau Stream 9.1	Lat 21°01′28″, long 156°36′42″, Honokohau Stream, 100 ft downstream of highway 340 bridge, at altitude 5 ft.	--	08-13-97	1.75

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ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU

16227100 HALAWA STREAM BELOW H1 (LAT 21°23'46" LONG 157°55'57")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)
OCT												
28...	0930	0.0	--	--	--	--	--	--	--	--	--	--
NOV												
12...	0930	5.3	300	8.6	24.5	24.5	2.7	758	9.8	118	--	--
DEC												
16...	0950	1.3	575	8.6	--	19.5	1.1	763	11.7	127	5700	170
JAN												
21...	0920	9.5	370	8.5	24.5	23.0	38	760	10.5	123	6800	100
FEB												
12...	1345	0.66	720	9.4	27.0	29.5	0.40	764	11.7	154	--	--
MAR												
10...	0945	2.3	463	8.9	26.0	26.0	4.0	764	11.6	143	--	--
APR												
15...	0905	5.6	347	8.4	25.0	24.0	26	769	10.4	123	2800	--
MAY												
27...	0915	0.45	656	9.6	26.0	29.5	0.77	762	11.3	149	--	--
JUN												
09...	0945	2.9	308	9.2	28.0	29.5	3.1	763	11.0	144	5200	88
JUL												
14...	0905	2.4	389	9.2	25.5	28.5	0.52	763	11.4	147	--	--
AUG												
12...	0945	0.06	664	9.6	26.0	30.0	--	--	13.9	--	--	--

DATE	TIME	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
DEC												
16...	0950	31	22	48	38	2	2.0	104	29	94	<0.10	22
JAN												
21...	0920	19	13	31	40	1	1.8	85	21	48	<0.10	22
JUN												
09...	0945	19	10	26	39	1	1.7	72	14	41	<0.10	17

DATE	TIME	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)
DEC													
16...	0950	307	311	0.42	8	0.120	0.20	<0.010	--	130	<5.0	<1	<100
JAN													
21...	0920	206	208	0.28	15	0.190	0.20	<0.010	--	1500	19	<1	<100
APR													
15...	0905	--	--	--	5	<0.050	0.30	0.070	0.07	--	--	--	--
JUN													
09...	0945	184	171	0.25	9	<0.050	0.57	0.037	0.04	250	27	<1	<100

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16227100 HALAWA STREAM BELOW H1--Continued

DATE	TIME	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)
DEC													
16...	0950	7.0	<10	<1	<1	<1	<3.0	2	170	13	<1	<10	<4
JAN													
21...	0920	4.0	<10	<1	5	<1	<3.0	3	1600	37	<1	<10	<4
JUN													
09...	0945	3.6	<10	<1	<1	<1	<3.0	3	320	57	<1	<10	<4

DATE	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)
DEC												
16...	20	8.0	0.20	<1	<10	1	<1.0	<1	<1	<1	<1.0	250
JAN												
21...	30	9.0	<0.10	<1	<10	2	<1.0	<1	<1	<1	<1.0	130
JUN												
09...	37	12	<0.10	<1	<10	2	<1.0	<1	<1	<1	<1.0	110

DATE	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OIL AND GREASE, TOTAL RECOV. GRAVI-METRIC (MG/L) (00556)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DI-AZINON, TOTAL (UG/L) (39570)
DEC												
16...	<6	<10	4.1	<1	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
JAN												
21...	<6	<10	4.6	<1	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
JUN												
09...	<6	<10	1.4	<1	--	--	--	--	--	--	--	--

DATE	TIME	DI-ELDRIN TOTAL (UG/L) (39380)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)
DEC													
16...	0950	<0.010	--	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
JAN													
21...	0920	<0.010	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	SILVEX, TOTAL (UG/L) (39760)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC												
16...	<0.010	<0.010	<0.010	<0.010	<0.100	<0.100	<0.100	--	<0.010	<1.00	<0.010	<0.010
JAN												
21...	<0.010	<0.010	<0.010	<0.010	<0.100	<0.100	<0.100	<0.050	<0.010	<1.00	<0.010	<0.010

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

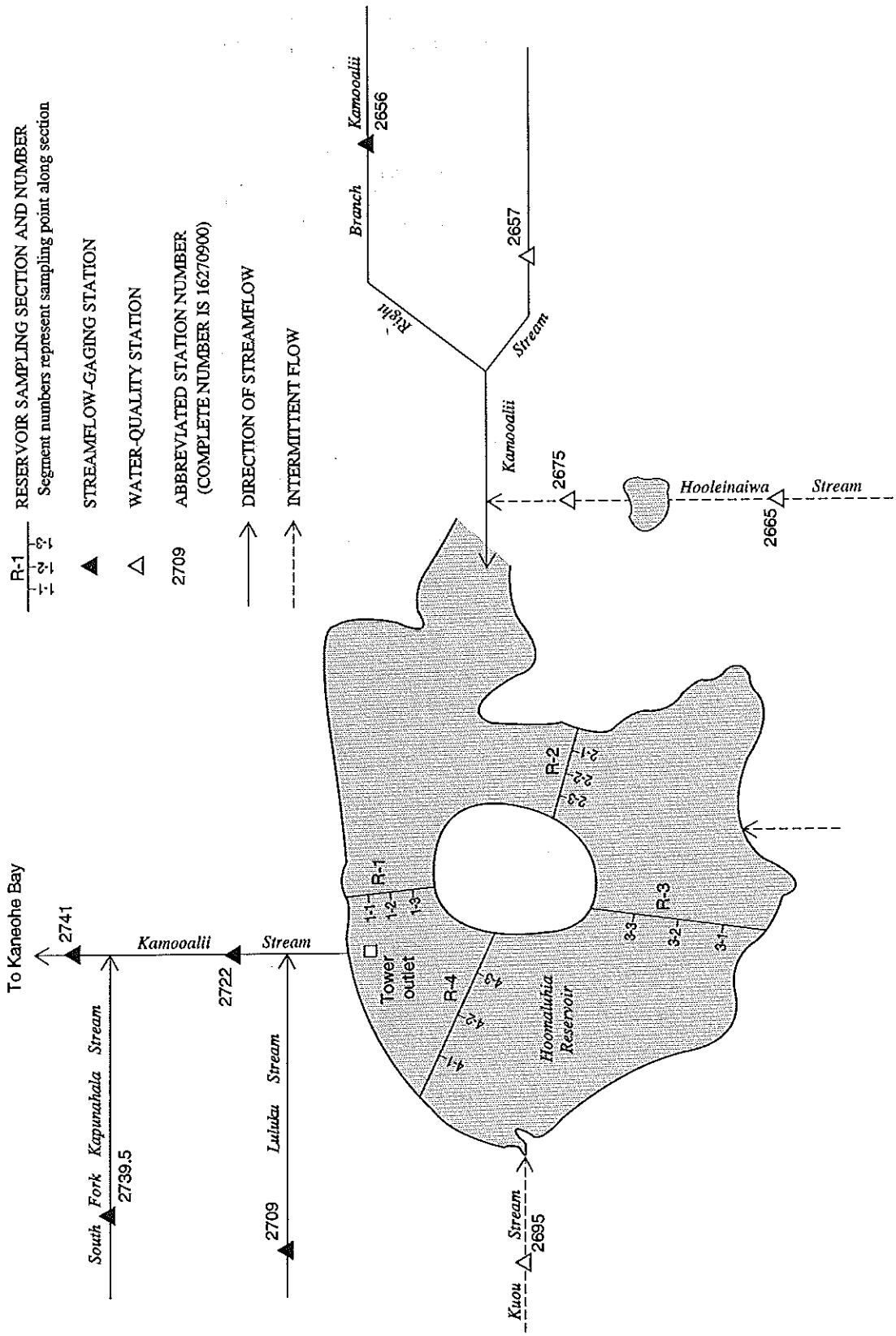

Figure 15. Diagram showing water-quality stations in Kamooalii Stream basin, Kaneohe, Oahu.

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

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 (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
29...	1155	0.20	240	6.5	28.5	23.5	0.60	758	6.4	76
NOV										
13...	1350	3.2	211	7.2	26.5	23.0	1.3	754	7.8	92
DEC										
09...	1225	1.2	250	7.1	22.5	21.5	0.30	760	7.9	90
FEB										
11...	1041	1.6	246	6.3	23.0	22.0	0.30	762	7.5	86

DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)
OCT							
29...	1155	310	<1	0.560	<0.20	0.020	0.02
DEC							
09...	1225	69	2	0.380	<0.20	<0.010	--

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16266500 HOOLEINAIWA STREAM AT ALTITUDE 220 FT, NEAR KANEOHE, OAHU (LAT 21°23'06" LONG 157°48'16")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
28...	1320	0.08	158	7.0	26.5	24.0	0.80	757	6.8	81
NOV										
13...	1400	1.1	176	6.9	24.0	23.0	0.40	752	7.1	84
DEC										
10...	1200	0.39	180	6.8	23.5	22.5	0.20	759	7.3	85
FEB										
12...	1015	0.39	171	7.0	23.0	22.5	0.30	758	8.2	95

DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
OCT						
28...	1320	140	<1	0.080	<0.20	<0.010
DEC						
10...	1200	39	1	0.180	--	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16267500 HOOLEINAIWA STREAM ABOVE CONFLUENCE WITH KAMOOALII STREAM, NEAR KANEOHE, OAHU

(LAT 21°23'18" LONG 157°48'18")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
28...	1035	0.41	194	7.3	--	24.5	1.8	760	7.0	84
NOV										
13...	1150	3.7	142	7.4	23.5	23.5	8.2	753	7.7	92
DEC										
10...	0950	0.95	187	7.3	--	22.5	3.4	761	7.8	90
FEB										
12...	0900	0.92	184	7.5	24.0	22.0	2.3	759	8.2	94

DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)
OCT							
28...	1035	160	<1	0.060	<0.20	0.020	0.02
DEC							
10...	0950	40	3	0.050	<0.20	<0.010	--

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16269500 KUOU STREAM AT ALTITUDE 220 FT NEAR KANEOHE, OAHU

(LAT 21°23'30" LONG 157°48'44")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT										
29...	1315	0.02	346	6.7	26.5	23.5	0.20	756	2.9	34
NOV										
13...	1505	1.0	270	6.9	24.0	24.0	2.0	754	7.6	91
DEC										
09...	0930	0.12	311	6.6	21.5	22.0	0.30	762	7.2	82
FEB										
12...	1140	0.13	330	7.0	23.5	22.5	0.30	758	7.2	84

DATE	TIME	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)
OCT							
29...	1315	200	4	0.500	<0.20	<0.010	--
DEC							
09...	0930	K37	3	0.300	<0.20	0.020	0.02

< 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)

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16274100 KANEOHE STREAM BELOW KAMEHAMEHA HWY, OAHU (LAT 21°24'54" LONG 157°48'03")

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT											
29...	1115	8.0	201	9.2	--	26.5	2.1	762	10.1	126	5200
NOV											
12...	1015	15	202	8.4	24.5	24.0	2.2	757	9.8	117	--
DEC											
11...	1050	18	213	8.0	--	22.0	4.2	765	9.6	109	3800
JAN											
15...	1005	17	208	8.4	25.0	22.5	0.80	759	9.7	113	1800
FEB											
11...	0945	15	213	8.8	--	22.5	2.0	766	10.4	120	--
MAR											
11...	1420	50	200	8.2	26.0	24.5	5.2	759	8.8	106	--
APR											
14...	0945	19	205	8.6	26.0	25.0	7.3	763	9.8	119	5000
MAY											
28...	1047	18	206	9.3	27.0	26.5	34	760	9.5	119	--
JUN											
09...	1030	16	210	8.6	--	26.5	1.8	765	9.2	114	4700
JUL											
15...	1015	16	195	8.6	25.0	26.0	3.2	761	8.8	109	--
AUG											
13...	0945	12	209	8.6	27.0	25.0	--	763	8.9	108	--

DATE	TIME	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
DEC											
11...	1050	62	12	7.8	16	35	0.9	1.3	64	9.6	20
JAN											
15...	1005	63	12	8.0	15	34	0.8	1.3	63	9.4	19
JUN											
09...	1030	63	12	8.2	16	36	0.9	1.0	63	7.4	20

DATE	TIME	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)
OCT											
29...	1115	--	--	--	--	--	<1	0.160	0.20	0.040	0.04
DEC											
11...	1050	<0.10	21	129	128	0.18	5	0.400	<0.20	0.010	0.01
JAN											
15...	1005	<0.10	21	129	125	0.18	2	0.300	<0.20	<0.010	--
APR											
14...	0945	--	--	--	--	--	6	0.310	0.20	0.040	0.04
JUN											
09...	1030	<0.10	22	126	126	0.17	6	0.199	0.36	0.022	0.02

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16274100 KANEOHE STREAM BELOW KAMEHAMEHA HWY, OAHU--Continued

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)
DEC											
11...	1050	240	19	<1	<100	4.0	<10	<1	2	<1	<3.0
JAN											
15...	1005	70	13	<1	<100	5.0	<10	<1	<1	<1	<3.0
JUN											
09...	1030	170	12	<1	<100	4.4	<10	<1	1	<1	3.2

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)
DEC											
11...	2	550	90	<1	<10	<4	50	15	<0.10	<1	<10
JAN											
15...	1	310	110	<1	<10	<4	40	16	<0.10	<1	<10
JUN											
09...	2	520	100	<1	<10	<4	64	7.7	<0.10	<1	<10

DATE	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OIL AND GREASE, TOTAL RECOV. GRAVIMETRIC (MG/L) (00556)
DEC											
11...	2	<1.0	<1	<1	<1	<1.0	90	<6	<10	5.0	<1
JAN											
15...	<1	<1.0	<1	<1	<1	<1.0	88	<6	<10	1.5	<1
JUN											
09...	<1	<1.0	<1	<1	<1	<1.0	87	<6	<10	2.1	<1

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	DISULFOTON UNFILT RECOVER (UG/L) (39011)
DEC											
11...	1050	<0.010	<0.100	E0.010	<0.010	<0.010	<0.010	<0.030	<0.030	0.030	--
JAN											
15...	1005	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	0.040	<0.010

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

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16274100 KANEOHE STREAM BELOW KAMEHAMEHA HWY, OAHU--Continued

DATE	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)
DEC											
11...	<0.010	<0.010	<0.010	<0.010	<0.030	<0.030	<0.010	0.010	<0.010	<0.030	<0.010
JAN											
15...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	METHYL PARA-THION, TOTAL (UG/L) (39600)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	SILVEX, TOTAL (UG/L) (39760)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC											
11...	<0.030	<0.010	<0.030	<0.100	<0.100	<0.100	<0.100	<0.010	<1.00	<0.030	<0.010
JAN											
15...	<0.010	<0.010	<0.010	<0.100	<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

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212335157482601 HOOMALUHIA RES SEC 1-1 NR KANEOHE, OAHU (LAT 21°23'35" LONG 157°48'26")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1006	1.00	152	7.2	22.5	758	6.2	72
18...	1008	3.00	152	7.2	22.5	758	6.2	72
18...	1009	5.00	154	7.2	22.5	758	6.2	72
18...	1010	7.00	154	7.2	22.5	758	6.2	72
18...	1011	8.00	154	7.2	22.5	758	6.2	72
DEC								
17...	1118	1.00	200	7.6	21.5	759	7.6	87
17...	1119	3.00	200	7.7	21.5	759	7.7	88
17...	1120	5.00	204	7.6	21.5	759	7.6	87
17...	1121	7.00	200	7.6	21.5	759	7.5	85
17...	1122	8.00	200	7.6	21.5	759	7.5	85

212335157482602 HOOMALUHIA RES SEC 1-2 NR KANEOHE, OAHU (LAT 21°23'35" LONG 157°48'26")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	0958	1.00	154	7.2	22.5	758	6.3	73
18...	0959	3.00	154	7.2	22.5	758	6.3	73
18...	1000	5.00	152	7.2	22.5	758	6.1	71
18...	1002	7.00	156	7.2	22.5	758	6.1	71
18...	1003	9.00	182	7.2	22.5	758	5.8	67
DEC								
17...	1123	1.00	202	7.7	22.0	759	7.7	89
17...	1124	3.00	200	7.7	21.5	759	7.8	89
17...	1125	5.00	204	7.7	21.5	759	7.6	87
17...	1126	7.00	206	7.6	21.5	759	7.2	82
17...	1127	9.00	208	7.6	21.0	759	7.0	79

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212335157482603 - HOOMALUHIA RES SEC 1-3 NR KANEOHE, OAHU (LAT 21°23'35" LONG 157°48'26")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARDNESS TOTAL (MG/L AS CACO3) (00900)
NOV											
18...	0948	1.00	152	7.2	22.5	9.4	758	6.4	74	--	--
18...	0949	3.00	152	7.2	22.5	--	758	6.3	73	--	--
18...	0950	5.00	152	7.2	22.5	--	758	6.2	72	--	--
18...	0952	7.00	156	7.2	22.5	9.8	758	6.1	71	--	--
18...	0953	9.00	180	7.1	22.5	--	758	5.8	67	--	--
18...	0954	11.0	186	7.2	22.0	7.7	758	6.0	69	--	--
DEC											
17...	1129	1.00	200	7.7	22.0	0.60	760	7.7	88	25	--
17...	1130	3.00	202	7.7	21.5	--	759	7.8	89	--	--
17...	1131	5.00	200	7.7	21.5	--	759	7.7	88	--	--
17...	1132	7.00	204	7.7	21.5	0.80	759	7.7	88	33	--
17...	1133	9.00	208	7.6	21.0	--	759	7.0	79	--	--
17...	1134	11.0	208	7.5	21.0	2.2	759	6.8	77	48	--
17...	1135	--	--	a7.3	--	0.90	--	--	--	--	61

DATE	TIME	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY LAB (MG/L AS CACO3) (90410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
DEC												
17...	1135	10	8.7	15	34	0.8	1.2	59	8.4	19	<0.10	20

DATE	TIME	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)
DEC												
17...	1129	--	--	--	3	0.440	<0.20	<0.010	--	--	--	--
17...	1132	--	--	--	13	0.410	<0.20	<0.010	--	--	--	--
17...	1134	--	--	--	9	0.490	<0.20	0.010	0.01	--	--	--
17...	1135	115	118	0.16	--	--	--	--	--	70	17	<1

DATE	TIME	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)
DEC												
17...	1135	<100	8.0	<10	<1	<1	<1	<3.0	1	210	94	<1

DATE	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)
DEC												
17...	<10	<4	30	18	<0.10	<1	<10	1	<1.0	<1	<1	<1

< Actual value is known to be less than the value shown
a Laboratory pH

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212335157482603 - HOOMALUHIA RES SEC 1-3 NR KANEOHE, OAHU--Continued

DATE	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	OIL AND GREASE, TOTAL RECOV. GRAVI-METRIC (MG/L) (00556)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)
DEC 17...	<1.0	91	<6	<10	1.3	<1	<0.010	<0.100	<0.010	<0.010	<0.010	<0.010

DATE	DEF TOTAL (UG/L) (39040)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)
DEC 17...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

DATE	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	MIREX, TOTAL (UG/L) (39755)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PER-THANE TOTAL (UG/L) (39034)	SILVEX, TOTAL (UG/L) (39760)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)
DEC 17...	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.100	<0.100	<0.010	<1.00	<0.010	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212331157482501 HOOMALUHIA RES SEC 2-1 NR KANEOHE, OAHU (LAT 21°23'31" LONG 157°48'25")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1136	1.00	146	7.2	23.0	758	6.2	73
18...	1137	3.00	146	7.2	23.0	758	6.2	73
18...	1138	5.00	148	7.2	23.0	758	6.1	72
18...	1139	7.00	158	7.2	22.5	758	5.8	67
18...	1140	8.00	180	7.2	22.0	758	5.5	63
DEC								
17...	0956	1.00	200	7.6	21.5	759	7.7	88
17...	0957	3.00	202	7.6	21.5	759	7.6	87
17...	0958	5.00	200	7.6	21.5	759	7.5	85
17...	0959	7.00	202	7.6	21.5	759	7.2	82
17...	1000	8.00	202	7.6	21.5	759	7.2	82

212331157482502 - HOOMALUHIA RES SEC 2-2 NR KANEOHE, OAHU (LAT 21°23'31" LONG 157°48'25")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1128	1.00	146	7.2	23.0	758	6.2	73
18...	1129	3.00	144	7.2	23.0	758	6.1	72
18...	1130	5.00	144	7.2	22.5	758	6.1	71
18...	1131	7.00	140	7.2	22.5	758	6.1	71
18...	1132	9.00	186	7.1	22.0	758	6.0	69
18...	1133	11.0	188	7.2	22.0	758	5.9	68
DEC								
17...	0947	1.00	200	7.6	21.5	759	7.7	88
17...	0948	3.00	200	7.6	21.5	759	7.7	88
17...	0949	5.00	202	7.6	21.5	759	7.6	87
17...	0950	7.00	202	7.6	21.5	759	7.5	85
17...	0951	9.00	208	7.6	21.0	759	6.3	71
17...	0953	11.0	208	7.4	21.0	759	6.4	72

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212331157482503 HOOMALUHIA RES SEC 2-3 NR KANEOHE, OAHU (LAT 21°23'31" LONG 157°48'25")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1121	1.00	144	7.2	23.0	758	6.2	73
18...	1122	3.00	140	7.2	23.0	758	6.2	73
18...	1123	5.00	140	7.2	22.5	758	6.1	71
18...	1124	7.00	140	7.2	22.5	758	6.1	71
18...	1125	9.00	184	7.2	22.0	758	5.8	67
DEC								
17...	0941	1.00	200	7.6	21.5	759	7.6	87
17...	0942	3.00	202	7.6	21.5	759	7.7	88
17...	0943	5.00	202	7.6	21.5	759	7.7	88
17...	0944	7.00	202	7.6	21.5	759	7.4	84
17...	0945	9.00	206	7.5	21.0	759	6.6	74

212329157483101 HOOMALUHIA RES SEC 3-1 NR KANEOHE, OAHU (LAT 21°23'29" LONG 157°48'31")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1037	1.00	142	7.2	23.0	758	6.2	73
18...	1038	3.00	142	7.2	23.0	758	6.2	73
18...	1039	5.00	142	7.2	23.0	758	6.1	72
18...	1040	7.00	146	7.2	22.5	758	6.0	70
18...	1041	8.00	146	7.2	22.5	758	6.0	70
DEC								
17...	1020	1.00	200	7.7	22.0	759	7.7	89
17...	1021	3.00	200	7.7	21.5	759	7.7	88
17...	1022	5.00	200	7.7	21.5	759	7.7	88
17...	1023	7.00	200	7.7	21.5	759	7.5	85
17...	1024	8.00	200	7.6	21.5	759	7.4	84

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212329157483102 - HOOMALUHIA RES SEC 3-2 NR KANEOHE, OAHU (LAT 21°23'29" LONG 157°48'31")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV									
18...	1029	1.00	144	7.2	23.0	16	758	6.1	72
18...	1030	3.00	146	7.2	22.5	--	758	6.1	71
18...	1031	5.00	146	7.2	22.5	15	758	6.0	70
18...	1032	7.00	146	7.2	22.5	--	758	6.0	70
18...	1033	9.00	146	7.2	22.5	--	758	6.0	70
18...	1034	11.0	146	7.2	22.5	13	758	5.9	69
DEC									
17...	1013	1.00	200	7.7	21.5	0.70	759	7.7	88
17...	1014	3.00	200	7.7	21.5	--	759	7.8	89
17...	1015	5.00	200	7.7	21.5	0.50	759	7.7	88
17...	1016	7.00	200	7.7	21.5	--	759	7.5	85
17...	1017	9.00	200	7.6	21.5	--	759	7.5	85
17...	1018	11.0	200	7.6	21.5	0.80	759	7.5	85

DATE	TIME	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)
DEC						
17...	1013	28	2	0.390	<0.20	<0.010
17...	1015	41	1	0.390	<0.20	<0.010
17...	1018	31	4	0.390	<0.20	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212329157483103 HOOMALUHIA RES SEC 3-3 NR KANEOHE, OAHU (LAT 21°23'29" LONG 157°48'31")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1020	1.00	140	7.2	23.0	758	6.1	72
18...	1021	3.00	142	7.2	22.5	758	6.1	71
18...	1022	5.00	146	7.2	22.5	758	5.9	69
18...	1024	7.00	146	7.2	22.5	758	5.9	69
18...	1025	9.00	146	7.2	22.5	758	5.9	69
18...	1026	11.0	144	7.2	22.5	758	5.8	67
DEC								
17...	1007	1.00	198	7.6	21.5	759	7.6	87
17...	1008	3.00	200	7.6	21.5	759	7.6	87
17...	1009	5.00	202	7.6	21.5	759	7.6	87
17...	1010	7.00	200	7.6	21.5	759	7.6	87
17...	1011	9.00	200	7.6	21.5	759	7.5	85
17...	1012	11.0	200	7.6	21.5	759	7.4	84

212335157483001 HOOMALUHIA RES SEC 4-1 NR KANEOHE, OAHU (LAT 21°23'35" LONG 157°48'30")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1106	1.00	152	7.2	23.0	758	6.3	74
18...	1107	3.00	152	7.2	23.0	758	6.2	73
18...	1108	5.00	150	7.2	22.5	758	6.1	71
18...	1109	7.00	150	7.2	22.5	758	6.1	71
18...	1110	8.00	152	7.2	22.5	758	5.7	66
DEC								
17...	1056	1.00	202	7.7	22.0	760	7.8	90
17...	1057	3.00	202	7.7	21.5	759	7.8	89
17...	1058	5.00	200	7.7	21.5	759	7.8	89
17...	1059	7.00	200	7.7	21.5	759	7.7	88
17...	1100	8.00	200	7.7	21.5	759	7.6	87

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212335157483002 - HOOMALUHIA RES SEC 4-2 NR KANEOHE, OAHU (LAT 21°23'35" LONG 157°48'30")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1100	1.00	152	7.2	23.0	758	6.3	74
18...	1101	3.00	152	7.2	22.5	758	6.3	73
18...	1102	5.00	146	7.2	22.5	758	5.9	69
18...	1103	7.00	148	7.2	22.5	758	5.9	69
18...	1104	9.00	148	7.2	22.5	758	6.0	70
DEC								
17...	1051	1.00	200	7.7	21.5	759	7.8	89
17...	1052	3.00	200	7.7	21.5	759	7.8	89
17...	1053	5.00	200	7.7	21.5	759	7.8	89
17...	1054	7.00	200	7.7	21.5	759	7.7	88
17...	1055	9.00	200	7.7	21.5	759	7.6	87

212335157483003 HOOMALUHIA RES SEC 4-3 NR KANEOHE, OAHU (LAT 21°23'35" LONG 157°48'30")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1052	1.00	152	7.2	23.0	760	6.4	75
18...	1053	3.00	146	7.2	22.5	760	6.0	70
18...	1054	5.00	146	7.2	22.5	760	5.9	68
18...	1055	7.00	146	7.2	22.5	760	5.8	67
18...	1056	9.00	152	7.2	22.5	760	5.8	67
18...	1057	11.0	156	7.2	22.5	760	5.7	66
DEC								
17...	1044	1.00	200	7.7	21.5	759	7.7	88
17...	1045	3.00	200	7.7	21.5	759	7.7	88
17...	1046	5.00	200	7.7	21.5	759	7.6	87
17...	1047	7.00	202	7.7	21.5	759	7.6	87
17...	1048	9.00	202	7.6	21.5	759	7.6	87
17...	1049	11.0	202	7.6	21.5	759	7.5	85

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

212336157482601 - HOOMALUHIA RESERVOIR AT OUTLET, NEAR KANEOHE (LAT 21°23'36" LONG 157°48'26")

DATE	TIME	SAMPLING DEPTH (FEET) (00003)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	BAROMETRIC PRESSURE (MM OF HG) (00025)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
NOV								
18...	1244	1.00	146	7.1	22.5	758	5.6	65
18...	1245	5.00	148	7.1	22.5	758	5.6	65
18...	1246	9.00	162	7.1	22.5	758	5.7	66
18...	1248	14.0	176	7.1	22.0	758	5.6	64
DEC								
17...	1300	--	--	--	21.5	757	8.0	--
17...	1400	--	--	--	21.5	756	8.1	--
17...	1500	--	--	--	22.0	756	8.2	--
17...	1600	--	--	--	22.0	756	8.3	--
17...	1700	--	--	--	22.0	756	8.3	--
17...	1800	--	--	--	22.0	758	8.2	--
17...	1900	--	--	--	22.0	758	8.2	--
17...	2000	--	--	--	22.0	758	8.3	--
17...	2100	--	--	--	22.0	758	8.3	--
17...	2200	--	--	--	21.5	758	8.2	--
17...	2300	--	--	--	21.5	758	8.1	--
17...	2400	--	--	--	21.5	758	8.0	--
18...	0100	--	--	--	21.5	758	8.0	--
18...	0200	--	--	--	21.5	758	7.9	--
18...	0300	--	--	--	21.5	757	7.8	--
18...	0400	--	--	--	21.5	757	7.7	--
18...	0500	--	--	--	21.5	757	7.7	--
18...	0600	--	--	--	21.5	758	7.7	--
18...	0700	--	--	--	21.5	758	7.7	--
18...	0800	--	--	--	21.5	758	7.7	--
18...	0900	--	--	--	21.5	758	7.8	--
18...	1000	--	--	--	21.5	758	7.9	--
18...	1100	--	--	--	21.5	758	8.0	--
18...	1200	--	--	--	21.5	757	8.0	--
18...	1300	--	--	--	21.5	757	7.7	--
18...	1400	--	--	--	22.0	757	8.3	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16264850 - KAWAINUI CANAL AT ONEAWA STREET (LAT 21°24'44" LONG 157°45'25")

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		MAY			JUNE			JULY	
1	---	---	---	27.2	22.7	24.9	27.0	23.1	25.3
2	---	---	---	27.7	22.7	25.3	27.4	23.6	25.6
3	---	---	---	27.4	22.5	25.3	27.4	23.4	25.7
4	---	---	---	27.4	22.6	25.6	27.5	23.8	26.0
5	---	---	---	27.6	22.9	25.6	27.8	23.7	26.1
6	---	---	---	27.7	23.4	25.5	27.9	24.1	26.2
7	---	---	---	27.9	23.2	25.5	28.1	24.4	26.5
8	---	---	---	28.0	23.7	25.7	28.1	24.8	26.6
9	---	---	---	28.0	23.8	25.9	28.0	24.8	26.1
10	---	---	---	27.9	24.0	25.9	28.1	24.8	26.4
11	---	---	---	27.6	23.7	25.7	28.2	25.0	26.6
12	---	---	---	28.0	23.8	25.8	28.9	24.8	26.8
13	---	---	---	29.1	24.0	26.6	28.3	25.1	26.8
14	---	---	---	28.1	24.0	26.9	28.8	25.0	27.5
15	---	---	---	28.1	23.9	26.5	28.3	26.7	27.8
16	---	---	---	27.9	23.8	26.4	28.3	24.8	26.7
17	---	---	---	---	---	---	28.4	24.5	26.5
18	---	---	---	---	---	---	28.4	24.6	26.7
19	---	---	---	27.5	24.3	26.0	28.1	24.8	26.9
20	---	---	---	27.6	23.9	25.9	29.1	24.0	27.4
21	---	---	---	27.5	23.9	25.9	28.6	24.7	27.1
22	---	---	---	27.5	24.0	25.8	28.6	25.0	27.1
23	---	---	---	27.8	24.0	26.1	28.0	25.5	26.6
24	26.9	22.3	25.7	28.0	24.4	26.2	28.6	24.5	26.7
25	26.5	22.7	25.6	28.0	24.2	26.1	28.4	25.6	27.1
26	26.3	23.3	25.5	28.5	24.7	26.3	28.7	24.6	27.4
27	26.7	23.9	25.9	28.0	24.6	26.2	28.7	24.8	27.7
28	27.0	24.6	26.0	27.5	24.6	25.9	28.4	24.3	27.2
29	27.6	24.0	26.2	27.3	24.4	25.8	29.8	25.0	28.0
30	28.3	22.1	26.4	26.7	24.2	25.4	29.1	25.2	27.9
31	27.3	22.3	25.1	---	---	---	28.9	25.7	27.8
MONTH	---	---	---	---	---	---	29.8	23.1	26.8

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16264850 - KAWAINUI CANAL AT ONEAWA STREET--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMBER	
1	29.4	24.8	27.5	30.7	26.9	29.6
2	29.0	25.2	27.5	30.9	28.3	30.2
3	29.1	25.1	27.4	30.8	27.6	29.9
4	29.5	25.0	27.7	---	---	---
5	29.8	25.1	28.3	30.7	27.1	29.3
6	29.5	25.5	28.1	30.5	27.2	29.0
7	---	---	---	29.7	26.7	28.5
8	30.0	27.4	28.7	29.9	26.9	28.8
9	31.1	27.7	29.2	30.0	26.3	28.9
10	31.2	27.8	29.3	30.2	27.8	29.4
11	31.3	27.6	29.5	30.0	28.8	29.5
12	31.1	27.6	29.5	30.6	28.8	29.6
13	29.8	27.8	29.2	30.9	29.1	29.9
14	31.4	27.5	29.8	30.7	29.3	30.3
15	30.8	26.2	29.3	30.7	27.0	29.4
16	30.3	25.5	28.8	30.5	26.4	28.8
17	30.6	26.7	29.7	30.4	26.7	28.8
18	31.0	26.5	29.8	30.0	26.9	28.7
19	30.9	25.8	29.5	30.6	28.4	29.7
20	30.9	27.7	30.0	31.0	28.2	30.0
21	30.6	27.3	29.5	30.4	29.3	30.0
22	30.3	26.2	28.7	32.1	29.5	30.6
23	30.1	27.1	29.0	31.6	29.4	30.6
24	29.9	27.0	29.1	30.6	28.0	29.5
25	29.9	26.9	29.1	---	---	---
26	29.6	27.2	28.9	---	---	---
27	29.6	26.2	28.3	---	---	---
28	29.3	26.1	28.4	---	---	---
29	29.7	27.4	29.0	---	---	---
30	30.6	26.5	29.3	---	---	---
31	30.7	27.2	29.3	---	---	---
MONTH	---	---	---	---	---	---

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16264850 - KAWAINUI CANAL AT ONEAWA STREET--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		MAY			JUNE			JULY	
1	---	---	---	47400	1460	14100	44600	3970	13400
2	---	---	---	52400	1560	21100	48200	3210	16200
3	---	---	---	52300	1970	21500	49400	2800	20400
4	---	---	---	52200	3420	30000	50100	3300	22700
5	---	---	---	51100	2680	23600	49800	3820	20000
6	---	---	---	50500	2130	15600	49100	4680	20000
7	---	---	---	50300	2030	18400	47800	4980	16500
8	---	---	---	51000	2570	17900	43700	5560	12000
9	---	---	---	48700	3070	14700	46300	6040	15800
10	---	---	---	37400	3340	9570	37700	6610	13200
11	---	---	---	34000	4290	8510	28800	5720	10200
12	---	---	---	48500	3830	16900	20800	7450	13200
13	---	---	---	49800	6650	23700	38800	14200	22200
14	---	---	---	51700	4140	39000	47800	15200	36600
15	---	---	---	51000	4920	30300	50600	18000	39800
16	---	---	---	52100	3550	28300	46300	7340	17700
17	---	---	---	---	---	---	48800	5090	17800
18	---	---	---	---	---	---	48700	6560	20400
19	---	---	---	45600	4510	13800	49400	6840	27100
20	---	---	---	45000	6200	16400	49700	9430	33700
21	---	---	---	47200	5080	19700	49500	5780	26300
22	---	---	---	43600	8020	17300	46400	6210	21100
23	---	---	---	46000	5700	17900	28500	11300	17300
24	52900	4790	39800	45700	6160	17200	37000	7060	16800
25	53100	4290	40500	46400	5570	17000	46700	6510	27500
26	53000	4780	42500	37300	4300	11400	49000	5780	33900
27	53200	3650	41800	14800	4410	7750	49500	7640	37700
28	53100	4200	41800	10600	4710	6980	50100	4510	35400
29	53500	4020	38400	39400	3990	11600	50600	11500	38900
30	52700	3830	35600	24800	6320	10000	50100	6070	36300
31	49800	1940	17700	---	---	---	47300	12600	30400
MONTH	---	---	---	---	---	---	50600	2800	23600

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16264850 - KAWAINUI CANAL AT ONEAWA STREET--Continued

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CELSIUS, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMBER	
1	47600	7530	21400	46700	19000	35500
2	46800	6280	21200	49700	23700	43300
3	47100	6900	19700	50200	15700	37200
4	48700	8790	23500	---	---	---
5	48600	7890	28900	49400	16200	33900
6	49100	8560	28100	49500	17300	31300
7	---	---	---	43800	16600	26800
8	43300	14400	28200	46200	16600	30400
9	40200	25400	34400	48500	17500	34800
10	39000	31900	35300	50400	16300	36400
11	39700	29100	34900	51000	19000	40700
12	45600	28500	38200	51400	26500	44800
13	47900	34000	42800	51300	22800	43500
14	48700	34300	42800	50500	35600	45900
15	49600	14200	38700	49100	21500	35500
16	50600	11500	37100	47700	19300	31900
17	51600	23000	45000	45100	19600	30800
18	51200	19100	40600	43800	17300	30600
19	51400	12200	36600	48700	23400	37700
20	51700	16700	42200	48500	25500	42300
21	51300	13100	37900	50000	38900	47900
22	50500	9400	31900	50200	41800	46900
23	50400	9450	34000	49700	34200	43800
24	50400	9610	36600	40200	23000	32600
25	50500	12700	36600	---	---	---
26	51300	10100	39500	---	---	---
27	49700	10300	28400	---	---	---
28	51400	8170	33600	---	---	---
29	51500	27700	45200	---	---	---
30	51000	14000	39800	---	---	---
31	45500	25600	34600	---	---	---
MONTH	---	---	---	---	---	---

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16264850 - KAWAINUI CANAL AT ONEAWA STREET--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		MAY			JUNE			JULY	
1	---	---	---	7.3	6.5	6.8	7.4	6.6	7.0
2	---	---	---	7.6	6.5	6.9	7.6	6.5	7.0
3	---	---	---	7.6	6.5	6.9	7.7	6.5	7.0
4	---	---	---	7.7	6.6	7.1	7.7	6.5	7.0
5	---	---	---	7.6	6.6	7.0	7.7	6.5	7.0
6	---	---	---	7.5	6.6	6.9	7.7	6.6	7.0
7	---	---	---	7.6	6.5	6.9	7.6	6.6	7.0
8	---	---	---	7.4	6.6	6.9	7.4	6.8	7.0
9	---	---	---	7.4	6.6	6.9	7.6	6.6	7.0
10	---	---	---	7.0	6.6	6.8	7.3	6.6	6.9
11	---	---	---	7.1	6.6	6.9	7.2	6.6	6.8
12	---	---	---	7.5	6.6	6.9	7.3	6.8	7.0
13	---	---	---	7.6	6.6	6.9	7.5	6.8	7.0
14	---	---	---	7.8	6.6	7.3	7.9	6.7	7.4
15	---	---	---	7.7	6.6	7.1	7.9	7.0	7.6
16	---	---	---	7.7	6.6	7.1	7.8	6.9	7.3
17	---	---	---	---	---	---	7.8	6.8	7.2
18	---	---	---	---	---	---	7.8	6.8	7.2
19	---	---	---	7.5	6.6	7.0	7.8	6.8	7.3
20	---	---	---	7.6	6.7	7.0	7.9	6.8	7.3
21	---	---	---	7.7	6.6	7.0	7.8	6.8	7.3
22	---	---	---	7.6	6.7	7.0	7.7	6.8	7.2
23	---	---	---	7.7	6.6	7.0	7.4	7.0	7.2
24	7.9	6.7	7.5	7.6	6.6	7.0	7.6	6.9	7.2
25	7.8	6.7	7.5	7.7	6.6	7.0	7.7	6.8	7.3
26	7.8	6.7	7.5	7.4	6.6	6.9	7.8	6.7	7.4
27	7.8	6.7	7.5	7.0	6.6	6.8	7.8	6.8	7.5
28	7.8	6.7	7.5	7.1	6.7	6.9	7.8	6.8	7.4
29	7.8	6.6	7.4	7.2	6.7	6.9	7.8	6.8	7.5
30	7.8	6.6	7.3	7.1	6.8	6.9	7.8	6.8	7.4
31	7.6	6.5	6.9	---	---	---	7.7	6.8	7.2
MONTH	---	---	---	---	---	---	7.9	6.5	7.2

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16264850 - KAWAINUI CANAL AT ONEAWA STREET--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMBER	
1	7.6	6.8	7.1	7.7	7.0	7.4
2	7.6	6.8	7.1	7.7	6.9	7.4
3	7.6	6.8	7.1	7.7	6.9	7.4
4	7.8	6.8	7.2	---	---	---
5	7.7	6.8	7.3	7.7	7.1	7.5
6	7.8	6.8	7.3	7.7	7.2	7.5
7	---	---	---	7.7	7.2	7.5
8	7.6	7.0	7.3	7.7	7.2	7.5
9	7.5	7.0	7.3	7.7	7.2	7.5
10	7.5	7.2	7.3	7.8	7.1	7.5
11	7.5	7.1	7.4	7.8	7.1	7.5
12	7.6	7.1	7.4	7.8	7.3	7.6
13	7.7	7.2	7.5	7.8	7.3	7.6
14	7.8	7.2	7.5	7.8	7.4	7.6
15	7.7	6.8	7.4	7.7	7.1	7.4
16	7.7	6.8	7.3	7.7	7.1	7.4
17	7.8	6.8	7.5	7.7	7.1	7.5
18	7.8	6.9	7.4	7.7	7.2	7.5
19	7.8	6.8	7.4	7.7	7.2	7.5
20	7.8	7.0	7.5	7.7	7.3	7.6
21	7.7	6.9	7.4	7.8	7.5	7.7
22	7.6	6.9	7.3	7.8	7.5	7.7
23	7.6	6.9	7.3	7.8	7.4	7.6
24	7.6	6.9	7.3	7.5	7.2	7.3
25	7.6	7.0	7.3	---	---	---
26	7.6	6.9	7.4	---	---	---
27	7.6	6.8	7.2	---	---	---
28	7.7	6.9	7.3	---	---	---
29	7.7	7.1	7.4	---	---	---
30	7.7	6.8	7.4	---	---	---
31	7.6	7.1	7.4	---	---	---
MONTH	---	---	---	---	---	---

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16264850 - KAWAINUI CANAL AT ONEAWA STREET--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		MAY			JUNE			JULY	
1	---	---	---	2.7	>-.5	.8	4.3	.2	2.5
2	---	---	---	3.0	>-.6	.5	4.7	.1	2.0
3	---	---	---	3.7	>-.6	.6	5.5	.1	2.0
4	---	---	---	5.1	>-.4	1.5	5.4	.0	1.7
5	---	---	---	5.0	>-.3	1.4	5.7	.0	1.9
6	---	---	---	4.5	>-.3	1.0	5.3	.1	2.0
7	---	---	---	5.2	>-.2	1.8	4.7	.0	2.2
8	---	---	---	4.5	>-.1	1.2	5.2	.6	3.1
9	---	---	---	4.3	>-.1	1.2	4.4	.1	2.5
10	---	---	---	4.5	>-.1	1.4	4.3	.0	1.5
11	---	---	---	5.4	.1	2.6	4.1	.0	1.5
12	---	---	---	4.2	.0	1.6	5.6	.1	3.3
13	---	---	---	4.7	.1	1.4	4.3	1.1	2.8
14	---	---	---	5.5	.1	3.0	5.1	.6	3.4
15	---	---	---	4.4	.1	2.0	5.6	2.1	3.7
16	---	---	---	4.6	.1	1.8	5.5	2.0	3.8
17	---	---	---	---	---	---	5.2	.6	3.3
18	---	---	---	---	---	---	5.0	.3	2.8
19	---	---	---	5.1	1.9	3.6	5.7	.3	3.1
20	---	---	---	5.2	2.0	3.7	6.4	.4	3.0
21	---	---	---	5.6	1.0	2.8	5.7	.2	2.9
22	---	---	---	5.3	1.0	3.4	4.8	.2	2.5
23	---	---	---	5.5	1.0	3.0	5.7	1.5	3.5
24	6.7	1.5	4.5	4.8	.6	3.0	6.0	.5	3.3
25	5.8	1.7	4.0	4.6	.2	2.7	4.5	.2	2.3
26	5.7	1.6	3.9	4.8	.2	2.2	4.7	.1	2.4
27	6.2	1.5	4.0	4.2	.2	1.8	4.6	.2	2.8
28	6.3	1.6	4.1	4.8	.6	2.5	4.9	.1	2.6
29	6.5	1.4	3.9	4.5	.4	2.2	5.0	.2	2.8
30	5.8	1.0	3.4	5.0	1.0	3.3	4.6	.1	2.6
31	3.8	>-.3	1.2	---	---	---	4.1	.2	2.1
MONTH	---	---	---	---	---	---	6.4	.0	2.6

> Actual value is known to be greater than the value shown

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

16264850 - KAWAINUI CANAL AT ONEAWA STREET--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN
		AUGUST			SEPTEMBER	
1	3.9	.1	1.6	5.2	1.7	3.5
2	4.2	.1	1.8	4.2	.6	2.6
3	4.7	.1	2.5	5.3	.6	3.1
4	5.8	.2	2.6	---	---	---
5	5.7	.2	2.9	---	---	---
6	5.9	.2	3.2	---	---	---
7	---	---	---	---	---	---
8	5.1	2.7	3.7	---	---	---
9	5.1	2.5	3.6	---	---	---
10	4.6	2.6	3.6	---	---	---
11	4.8	2.9	3.9	---	---	---
12	4.5	2.4	3.8	---	---	---
13	4.4	2.5	3.8	---	---	---
14	4.7	2.1	3.8	---	---	---
15	4.2	.7	2.8	---	---	---
16	4.4	.7	2.6	---	---	---
17	4.7	.7	2.9	---	---	---
18	5.0	1.0	3.0	---	---	---
19	5.2	.9	3.1	---	---	---
20	4.4	.6	2.8	---	---	---
21	4.8	.3	2.4	---	---	---
22	4.8	.4	2.2	---	---	---
23	3.6	.2	1.5	---	---	---
24	4.2	.3	1.7	---	---	---
25	4.6	.8	2.2	---	---	---
26	3.9	.5	1.7	---	---	---
27	5.3	.4	2.3	---	---	---
28	3.8	.8	2.1	---	---	---
29	3.7	.4	1.9	---	---	---
30	4.6	.5	2.8	---	---	---
31	5.0	2.1	3.6	---	---	---
MONTH	---	---	---	---	---	---

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214052157571801 - HOSPITAL DITCH STORM DRAIN AT KAHUKU (LAT 21°40'52" LONG 157°57'18")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
MAR												
13...	1210	530	7.4	26.5	24.0	763	3.2	37	1.10	<0.015	<0.20	0.090

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)
MAR												
13...	0.110	0.34	0.09	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)
MAR												
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	99.0	<0.050	<0.200	<0.200	<0.05

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)
MAR											
13...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR											
13...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR											
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214052157571801 - HOSPITAL DITCH STORM DRAIN AT KAHUKU--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLORO-WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR 13...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	103	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR 13...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENE TOTAL (UG/L) (34696)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYL-TOLUENE WATER WHOLE REC (UG/L) (77356)
MAR 13...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR 13...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR 13...	<0.05	<0.200	<0.05	<0.200	<0.200	99.0	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214106157572901 - KII DITCH AT USGS GAGING STATION 3, KAHUKU (LAT 21°41'06" LONG 157°57'29")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN DIS-SOLVED (MG/L AS N) (00602)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)
MAR 13...	1310	570	7.2	27.5	24.5	768	4.3	50	0.42	0.220	0.050	0.15

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)
MAR 13...	0.20	<0.010	<0.010	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	97.0	<0.050	<0.200	<0.200	<0.05

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)
MAR 13...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR 13...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214106157572901 - KII DITCH AT USGS GAGING STATION 3, KAHUKU--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLOROWAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR 13...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	99.0	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMOCHLOROWAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR 13...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERTBUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UO/L) (39755)	NAPHTHALENE TOTAL (UG/L) (34696)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L) (77356)
MAR 13...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR 13...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR 13...	<0.05	<0.200	<0.05	<0.200	<0.200	100	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214113157571801 - HOSPITAL DITCH AT KII REFUGE FENCE, KAHUKU (LAT 21°41'13" LONG 157°57'18")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
MAR 13...	1400	700	7.3	29.0	24.5	765	3.7	46	0.090	<0.015	<0.20	0.060

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)
MAR 13...	0.020	0.06	0.06	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	97.0	<0.050	<0.200	<0.200	<0.05

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)
MAR 13...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR 13...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

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ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214113157571801 - HOSPITAL DITCH AT KII REFUGE FENCE, KAHUKU--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLORO-WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR 13...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	102	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR 13...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENE TOTAL (UO/L) (34696)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L) (77356)
MAR 13...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR 13...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR 13...	<0.05	<0.200	<0.05	<0.200	<0.200	100	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214125157572201 - KII POND C AT KAHUKU (LAT 21°41'25" LONG 157°57'22")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
MAR												
13...	1530	740	7.5	27.5	28.0	759	6.9	88	<0.050	<0.015	0.40	0.050

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)
MAR												
13...	<0.010	0.05	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)
MAR											
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	95.0	<0.050	<0.200	<0.200	<0.05

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)
MAR											
13...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR											
13...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR											
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214125157572201 - KII POND C AT KAHUKU--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLORO-WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR 13...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	103	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMOCHLOROWAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR 13...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENE TOTAL (UG/L) (34696)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L) (77356)
MAR 13...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR 13...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR 13...	<0.05	<0.200	<0.05	<0.200	<0.200	99.0	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<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 1996 TO SEPTEMBER 1997

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) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
MAR												
13...	1450	2200	8.1	26.5	27.0	761	7.8	99	<0.050	<0.015	0.70	0.070

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)
MAR												
13...	0.070	0.21	0.07	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)
MAR												
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	100	<0.050	<0.200	<0.200	<0.05

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)
MAR											
13...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR											
13...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR											
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214127157572801 - KII POND D AT KAHUKU--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLOROWAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLOROWAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR 13...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	101	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMOCHLOROWAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR 13...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENE TOTAL (UG/L) (34696)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L) (77356)
MAR 13...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR 13...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR 13...	<0.05	<0.200	<0.05	<0.200	<0.200	101	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214149157580501 - PUNAMANO DITCH AT USGS GAGING STATION 1, KAHUKU (LAT 21°41'49" LONG 157°58'05")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
MAR 14...	0850	800	7.0	27.5	26.0	765	1.7	20	0.350	0.050	<0.20	0.020

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)
MAR 14...	0.030	0.09	0.02	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)
MAR 14...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	97.0	<0.050	<0.200	<0.200	<0.05

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)
MAR 14...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR 14...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR 14...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214149157580501 - PUNAMANO DITCH AT USGS GAGING STATION 1, KAHUKU--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLORO-WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR 14...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	100	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR 14...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERTBUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENE TOTAL (UG/L) (34696)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L) (77356)
MAR 14...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR 14...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR 14...	<0.05	<0.200	<0.05	<0.200	<0.200	99.0	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR 14...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214205157582801 - PUNAMANO NORTH POND NEAR KAHUKU (LAT 21°42'05" LONG 157°58'28")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN DIS-SOLVED (MG/L AS N) (00602)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)
MAR 13...	1820	1270	8.2	24.0	26.0	761	3.7	45	0.45	0.050	0.020	0.38

DATE	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)
MAR 13...	0.40	0.120	0.120	0.37	0.12	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200

DATE	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	98.0	<0.050	<0.200

DATE	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIPOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)
MAR 13...	<0.200	<0.05	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR 13...	<0.200	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

< 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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF OAHU--Continued

214205157582801 - PUNAMANO NORTH POND NEAR KAHUKU--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLORO-WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR 13...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	102	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR 13...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENE TOTAL (UG/L) (34696)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L) (77356)
MAR 13...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR 13...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDI CHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR 13...	<0.05	<0.200	<0.05	<0.200	<0.200	99.0	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR 13...	<0.200	<0.200	<0.200	<0.200	<0.200	E0.05	<0.010	<0.010	<0.05	<0.200	<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 1996 TO SEPTEMBER 1997

HAWAII, ISLAND OF HAWAII

201220155440701 - POLOLU POND, POLOLU (LAT 20°12'20" LONG 155°44'07")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CHLO-RIDE, (MG/L AS CL) (99905)
OCT				
08...	0830	5820	25.5	1720
23...	1430	16700	30.5	5670
23...	1455	22800	28.5	7990
23...	1500	23100	28.5	8660
24...	0855	18600	24.0	6690
24...	0910	27000	24.5	9960
24...	0915	29500	23.5	10600
25...	1220	38900	27.0	15000

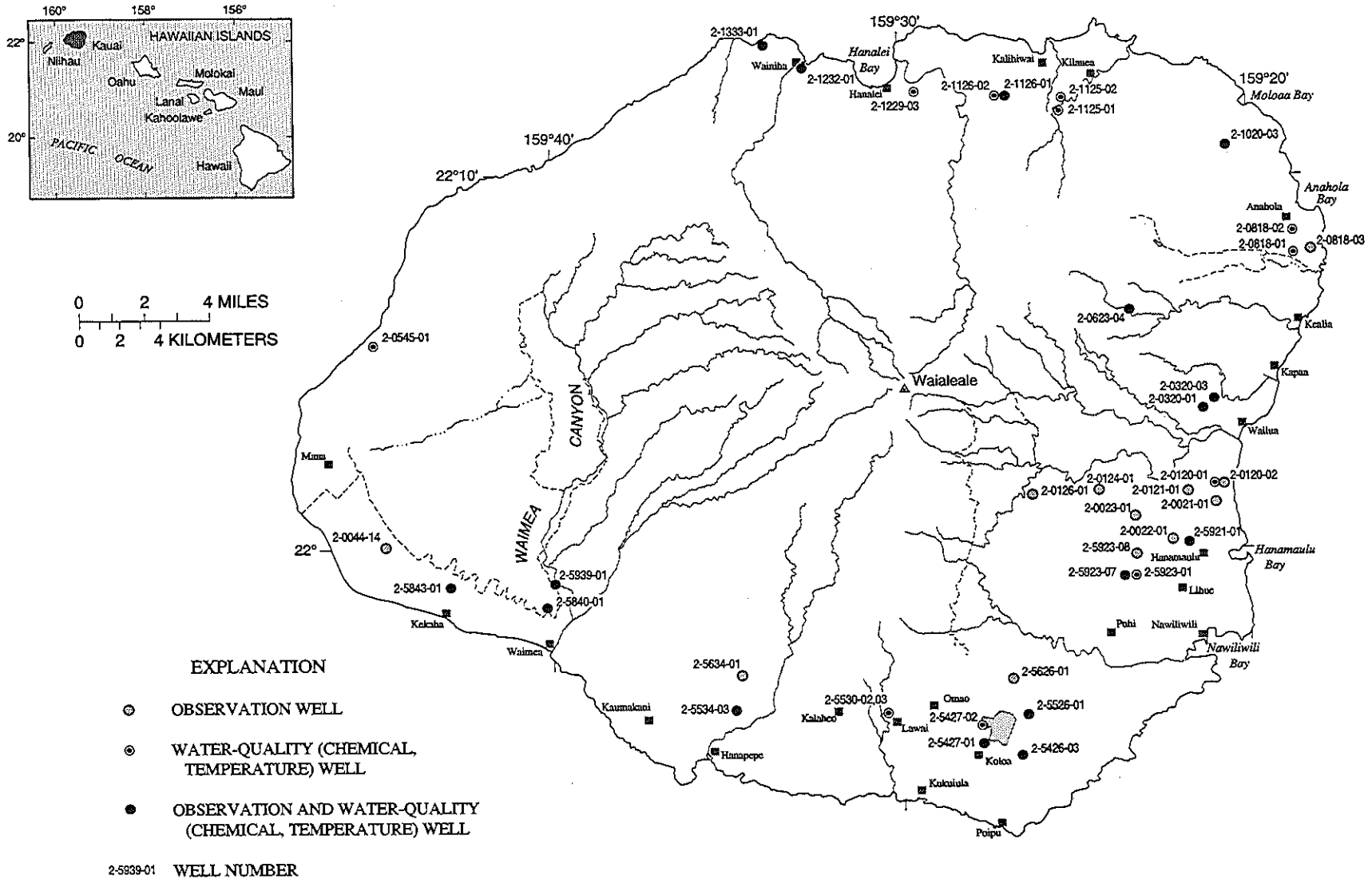


Figure 16. Locations of observation wells and ground-water quality sampling wells on Kauai.

GROUND-WATER LEVELS

HAWAII, ISLAND OF KAUAI

220057159210301. Local number 2-0021-01.

LOCATION.--Lat 22°00'57", long 159°21'03", 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 Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 277 ft, casing diameter 8-in., cased to 196 ft.

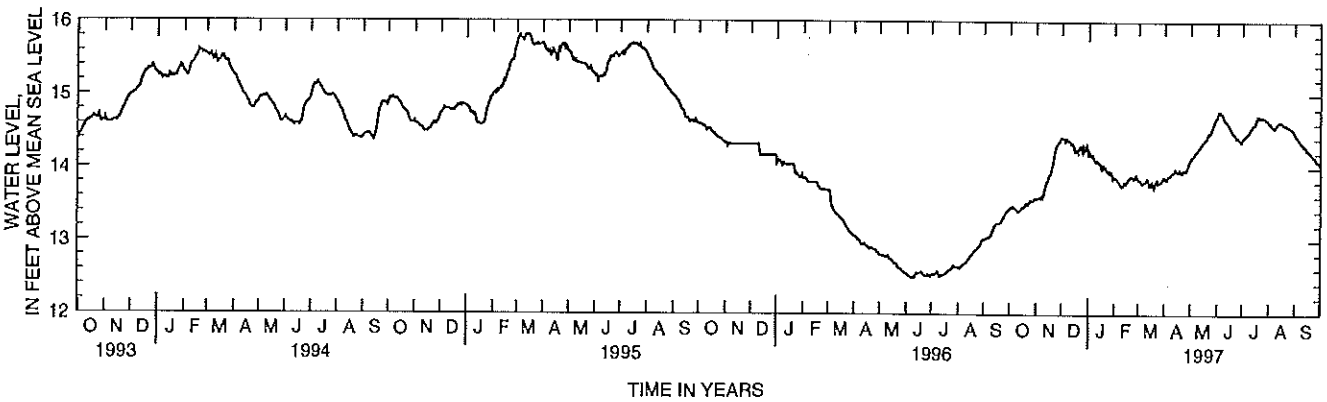
DATUM.--Elevation of land-surface datum is 166 ft. Measuring point is the top of 4-in. galvanized coupling, 166.70 ft above mean sea level.

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, March 3, 1995; lowest measured, 12.65 ft above mean sea level, October 28, 1991.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.46	13.59	14.42	14.20	13.88	13.84	13.88	14.13	14.72	14.39	14.62	14.47
2	13.46	13.59	14.41	14.23	13.87	13.84	13.86	14.15	14.76	14.42	14.61	14.45
3	13.46	13.59	14.41	14.21	13.86	13.83	13.85	14.16	14.78	14.43	14.62	14.43
4	13.47	13.60	14.40	14.17	13.84	13.82	13.87	14.17	14.78	14.44	14.61	14.42
5	13.46	13.59	14.38	14.17	13.83	13.80	13.89	14.18	14.76	14.45	14.58	14.41
6	13.46	13.60	14.41	14.18	13.82	13.80	13.90	14.21	14.75	14.46	14.57	14.39
7	13.45	13.62	14.41	14.14	13.79	13.81	13.90	14.22	14.75	14.48	14.56	14.37
8	13.44	13.60	14.38	14.12	13.78	13.82	13.92	14.23	14.71	14.48	14.56	14.36
9	13.43	13.63	14.38	14.10	13.76	13.82	13.94	14.25	14.68	14.50	14.58	14.35
10	13.41	13.69	14.38	14.09	13.76	13.84	13.94	14.27	14.67	14.53	14.60	14.33
11	13.41	13.75	14.36	14.11	13.78	13.86	13.94	14.28	14.65	14.54	14.61	14.31
12	13.42	13.81	14.34	14.09	13.81	13.85	13.96	14.30	14.65	14.56	14.63	14.31
13	13.43	13.81	14.35	14.08	13.80	13.80	13.98	14.32	14.63	14.59	14.64	14.30
14	13.44	13.83	14.34	14.08	13.79	13.76	13.97	14.34	14.61	14.60	14.64	14.29
15	13.46	13.89	14.29	14.07	13.81	13.76	13.96	14.36	14.59	14.60	14.64	14.25
16	13.47	13.91	14.24	14.01	13.84	13.81	13.95	14.36	14.57	14.61	14.63	14.25
17	13.47	13.92	14.23	13.99	13.86	13.82	13.97	14.38	14.55	14.65	14.62	14.24
18	13.47	13.96	14.24	14.00	13.86	13.77	13.98	14.39	14.52	14.68	14.61	14.23
19	13.50	14.02	14.26	14.04	13.88	13.74	13.96	14.41	14.49	14.72	14.60	14.22
20	13.52	14.06	14.23	14.02	13.89	13.77	13.94	14.43	14.49	14.72	14.60	14.21
21	13.51	14.13	14.28	14.02	13.89	13.81	13.94	14.47	14.48	14.71	14.60	14.19
22	13.50	14.19	14.30	13.98	13.87	13.83	13.97	14.49	14.47	14.70	14.58	14.17
23	13.52	14.25	14.30	13.97	13.86	13.84	13.97	14.48	14.45	14.70	14.58	14.16
24	13.54	14.30	14.25	13.95	13.86	13.80	13.96	14.49	14.42	14.70	14.57	14.16
25	13.56	14.32	14.23	13.96	13.90	13.81	13.96	14.52	14.43	14.70	14.57	14.14
26	13.55	14.34	14.31	13.94	13.91	13.81	13.99	14.55	14.42	14.70	14.56	14.11
27	13.55	14.36	14.29	13.96	13.87	13.82	14.01	14.59	14.40	14.69	14.55	14.10
28	13.55	14.37	14.25	13.96	13.85	13.82	14.04	14.62	14.39	14.68	14.55	14.10
29	13.58	14.40	14.27	13.90	---	13.84	14.08	14.66	14.38	14.67	14.54	14.09
30	13.59	14.41	14.31	13.86	---	13.86	14.10	14.68	14.37	14.67	14.52	14.07
31	13.58	---	14.27	13.88	---	13.88	---	14.70	---	14.65	14.50	---
MEAN	13.49	13.94	14.32	14.05	13.84	13.82	13.95	14.38	14.58	14.59	14.59	14.26
MAX	13.59	14.41	14.42	14.23	13.91	13.88	14.10	14.70	14.78	14.72	14.64	14.47
MIN	13.41	13.59	14.23	13.86	13.76	13.74	13.85	14.13	14.37	14.39	14.50	14.07



220013159224001. Local number 2-0022-01.

LOCATION.--Lat 22°00'13", long 159°22'40", Hydrologic Unit 20070000, 3.2 mi north of Lihue, and 1.4 mi west of the nearest shoreline. Owner: Kauai County, Department of Water.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled well, depth 700 ft; 20-in. solid casing: 0–58 ft; grouted: 0–58 ft; open hole: 58 ft to bottom.

DATUM.--Elevation of land-surface datum is 273 ft. Measuring point is the top of 4-in. stem welded to 20-in. casing, 277.67 ft above mean sea level.

PERIOD OF RECORD.--Water-level: occasional measurements, February 1997 to September 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 250.50 ft above mean sea level, May 16, 1997; lowest measured, 246.81 ft above mean sea level, July 3, 1997.

REMARKS.--Well part of a network of observation wells in cooperation with the County of Kauai, Department of Water.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 6	246.86	MAR 27	248.94	MAY 16	250.50	JUL 3	246.81	AUG 8	248.21	SEP 8	249.70
FEB 26	247.33	APR 10	249.89	JUN 4	248.12	JUL 17	247.04	AUG 25	248.98	SEP 23	248.78
MAR 14	247.16	APR 29	249.20	JUN 16	247.51	JUL 30	247.78				

220051159231801. Local number 2-0023-01.

LOCATION.--Lat 22°00'51", long 159°23'18", Hydrologic Unit 20070000, 2.5 mi northwest of Lihue, and 2.8 mi west of the nearest shoreline. Owner: U.S. Geological Survey.

AQUIFER.--Koloa Volcanics and Waimea Canyon Basalt, Miocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled well, depth 1,147 ft; 10-in. solid steel outer casing: 0–156 ft, 4-in. solid pvc casing: 0–20 ft, annular space grouted: 0–156 ft, open hole: 156 ft to bottom.

DATUM.--Elevation of land-surface datum is 319 ft. Measuring point is the top of 4-in. well casing, 319.88 ft above mean sea level.

PERIOD OF RECORD.--Water-level: occasional measurements, November 1996 to September 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 169.62 ft above mean sea level, September 08, 1997; lowest measured, 163.85 ft above mean sea level, November 14, 1996.

REMARKS.--Well part of a network of observation wells in cooperation with the County of Kauai, Department of Water.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	163.85	FEB 26	165.53	APR 10	167.07	JUN 03	167.60	JUL 17	169.15	AUG 25	169.41
DEC 06	163.99	MAR 14	165.85	APR 29	167.43	JUN 16	167.58	JUL 30	169.30	SEP 08	169.62
JAN 15	164.70	MAR 27	166.24	MAY 16	167.65	JUL 03	167.73	AUG 08	169.34	SEP 23	169.55
FEB 06	164.81										

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 Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 245 ft, casing diameter 12-in., cased to 164 ft.

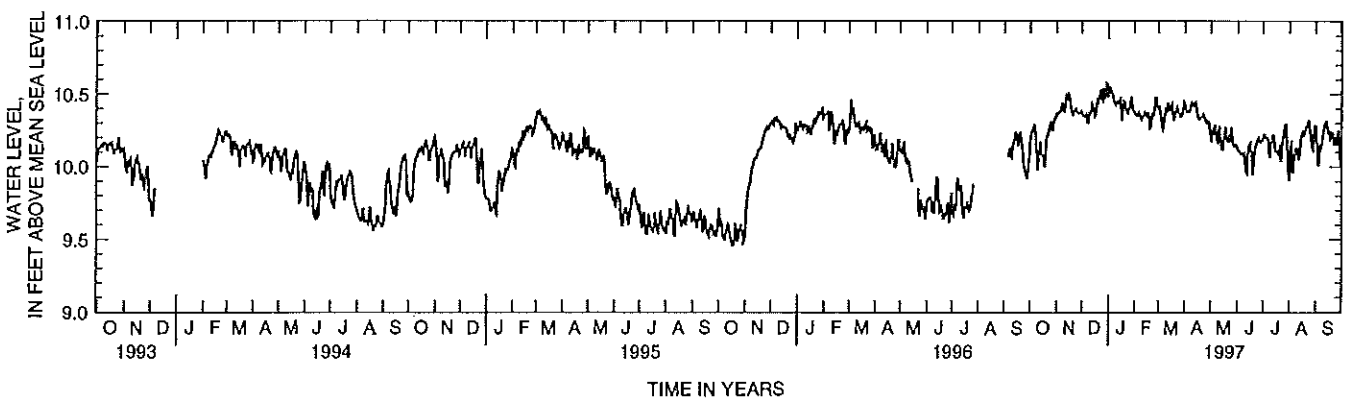
DATUM.--Elevation of land-surface datum is 8 ft. Measuring point is the top of standpipe, 11.49 ft up to February 9, 1997, changed measuring point to top of recorder shelf on February 10, 1997, 11.57 ft above mean sea level. Prior to June 1979, nonrecording gage at datum 0.25 ft lower.

PERIOD OF RECORD.--Occasional measurements 1937 to 1962 (measured by Kekaha Sugar Company). Water-level recorder, June 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.07 ft above mean sea level, December 20, 1937; lowest measured, 7.52 ft above mean sea level, August 15, 1947.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.18	10.37	10.37	10.48	10.38	10.40	10.43	10.21	10.12	10.20	9.91	10.28
2	10.22	10.37	10.36	10.53	10.36	10.41	10.40	10.17	10.11	10.22	10.11	10.19
3	10.24	10.37	10.35	10.55	10.36	10.39	10.38	10.25	10.11	10.22	10.18	10.09
4	10.26	10.38	10.35	10.52	10.35	10.34	10.38	10.27	10.10	10.20	10.09	10.01
5	10.27	10.38	10.35	10.51	10.35	10.28	10.38	10.22	10.09	10.20	9.96	10.05
6	10.29	10.40	10.36	10.50	10.37	10.26	10.38	10.29	10.09	10.20	10.04	10.14
7	10.24	10.44	10.32	10.47	10.36	10.28	10.40	10.22	10.09	10.19	10.06	10.13
8	10.15	10.42	10.30	10.44	10.35	10.35	10.43	10.18	10.08	10.11	10.12	10.15
9	10.07	10.38	10.33	10.44	10.33	10.40	10.44	10.17	10.09	10.07	10.11	10.20
10	9.98	10.38	10.37	10.43	10.34	10.40	10.43	10.25	10.01	10.16	10.12	10.24
11	10.08	10.43	10.37	10.45	10.35	10.39	10.42	10.28	9.97	10.17	10.08	10.28
12	10.11	10.49	10.39	10.45	10.36	10.44	10.43	10.20	9.96	10.18	10.05	10.30
13	10.17	10.48	10.43	10.44	10.37	10.42	10.44	10.14	10.09	10.22	10.08	10.31
14	10.11	10.47	10.42	10.45	10.36	10.39	10.41	10.12	10.14	10.20	10.17	10.31
15	10.08	10.50	10.37	10.46	10.35	10.39	10.37	10.12	10.15	10.11	10.21	10.26
16	10.07	10.49	10.35	10.39	10.37	10.42	10.34	10.19	10.16	10.11	10.23	10.23
17	10.07	10.44	10.36	10.32	10.37	10.43	10.33	10.25	10.10	10.11	10.25	10.25
18	10.00	10.40	10.42	10.37	10.34	10.35	10.33	10.27	9.99	10.10	10.21	10.18
19	10.10	10.37	10.46	10.45	10.27	10.32	10.34	10.20	9.95	10.09	10.23	10.21
20	10.20	10.36	10.45	10.44	10.28	10.34	10.34	10.17	10.02	10.12	10.25	10.23
21	10.21	10.37	10.47	10.44	10.34	10.37	10.35	10.20	10.11	10.15	10.28	10.21
22	10.23	10.38	10.50	10.39	10.37	10.40	10.36	10.21	10.14	10.04	10.28	10.22
23	10.26	10.40	10.53	10.37	10.35	10.41	10.35	10.17	10.15	10.10	10.30	10.15
24	10.28	10.40	10.47	10.37	10.38	10.38	10.33	10.23	10.17	10.17	10.32	10.20
25	10.31	10.38	10.46	10.40	10.45	10.37	10.31	10.27	10.19	10.22	10.28	10.20
26	10.27	10.37	10.54	10.40	10.48	10.35	10.30	10.20	10.20	10.27	10.20	10.15
27	10.25	10.37	10.50	10.45	10.43	10.35	10.30	10.16	10.18	10.29	10.21	10.22
28	10.30	10.37	10.47	10.48	10.41	10.35	10.31	10.14	10.17	10.29	10.13	10.25
29	10.32	10.37	10.51	10.44	---	10.37	10.30	10.14	10.18	10.18	10.12	10.15
30	10.34	10.38	10.57	10.39	---	10.40	10.23	10.15	10.18	10.01	10.23	10.05
31	10.34	---	10.56	10.38	---	10.44	---	10.14	---	9.93	10.28	---
MEAN	10.19	10.40	10.42	10.44	10.36	10.37	10.36	10.20	10.10	10.16	10.16	10.19
MAX	10.34	10.50	10.57	10.55	10.48	10.44	10.44	10.29	10.20	10.29	10.32	10.31
MIN	9.98	10.36	10.30	10.32	10.27	10.26	10.23	10.12	9.95	9.93	9.91	10.01



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 Basalt, Miocene to 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, February 21, 1974; lowest measured, 8.08 ft above mean sea level, October 12, 1978.

REMARKS.--Well affected by pumping of nearby well.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	11.09	DEC 6	10.79	FEB 10	11.22	MAR 27	11.29	JUN 3	11.26	AUG 5	11.00

220131159214701. Local number, 2-0121-01.

LOCATION.--Lat 22°01'31", long 159°21'47", Hydrologic unit 20070000, 3.2 mi north of Lihue, and 1.4 mi west of the nearest shoreline. Owner: U.S. Geological Survey.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled well, depth 1,143 ft, 10-in. solid steel outer casing: 0–160 ft, 4-in. solid steel casing: 0–80 ft, 4-in. alternating perforated/solid steel casing: 80 ft to bottom, annular space grouted: 0–160 ft, annular space open: 160 ft to bottom.

DATUM.--Elevation of land-surface datum is 289 ft. Measuring point is the top of 4-in. well casing, 290.16 ft above mean sea level.

PERIOD OF RECORD.--Water level: occasional measurements, January 1997 to September 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.31 ft above mean sea level, September 23, 1997; lowest measured, 31.11 ft above mean sea level, January 26, 1997.

REMARKS.--Well part of a network of observation wells in cooperation with the County of Kauai, Department of Water.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 26	31.11	MAR 14	31.44	APR 29	31.86	JUN 16	31.63	AUG 08	31.91	SEP 08	32.29
FEB 06	31.32	MAR 27	31.47	MAY 16	31.81	JUL 30	31.86	AUG 25	32.02	SEP 23	32.31
FEB 26	31.87	APR 10	31.87	JUN 03	31.87						

HAWAII, ISLAND OF KAUAI--Continued

220133159242001. Local number, 2-0124-01.

LOCATION.--Lat 22°01'33", long 159°24'20", Hydrologic unit 20070000, 3.7 mi northwest of Lihue, and 3.8 mi west of the nearest shoreline. Owner: U.S. Geological Survey.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled well, depth 1,047 ft, 10-in. solid steel outer casing: 0–161 ft; 4-in. solid steel casing: 0–80 ft; 4-in. alternating perforated/solid steel casing: 80-1,032 ft; annular space grouted: 0–160 ft; annular space open: 160-726 ft.

DATUM.--Elevation of land-surface datum is 466 ft. Measuring point is the top of 4-in. well casing, 467.12 ft above mean sea level.

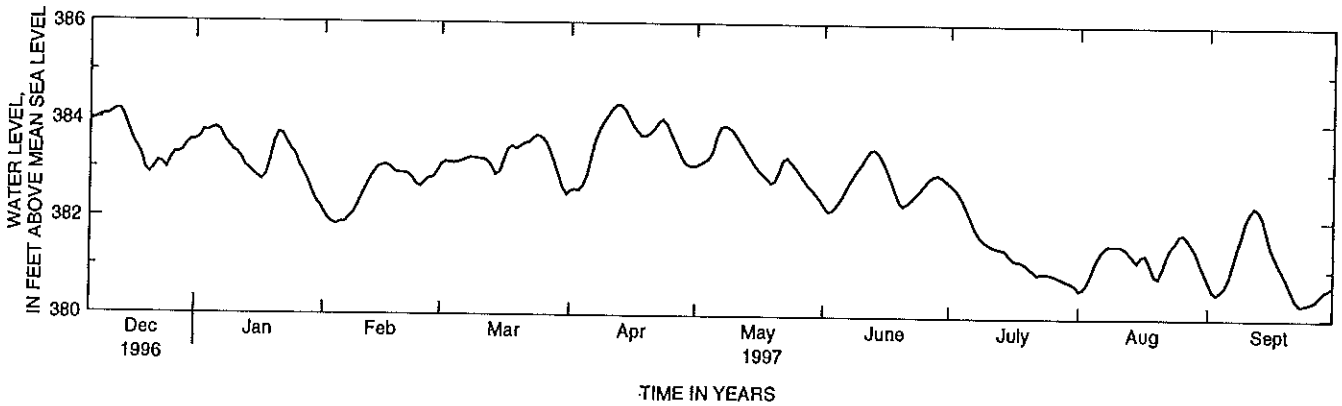
PERIOD OF RECORD.--Water level: occasional measurements, November 1996. Continuous water level recorder, December 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 384.34 ft above mean sea level, April 13, 1997; lowest measured, 380.30 ft above mean sea level, September 23, 24, 1997.

REMARKS.--Well part of a network of observation wells in cooperation with the County of Kauai Department of Water.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	383.56	382.09	383.08	382.56	383.08	382.27	382.74	380.58	380.76
2	---	---	---	383.61	381.95	383.14	382.58	383.12	382.16	382.67	380.61	380.58
3	---	---	---	383.76	381.88	383.13	382.57	383.17	382.18	382.56	380.74	380.52
4	---	---	---	383.75	381.85	383.12	382.68	383.23	382.28	382.40	380.93	380.58
5	---	---	---	383.79	381.89	383.13	382.89	383.37	382.40	382.21	381.17	380.66
6	---	---	---	383.81	381.89	383.16	383.25	383.69	382.56	382.02	381.33	380.83
7	---	---	383.95	383.76	381.98	383.20	383.59	383.88	382.74	381.82	381.44	381.13
8	---	---	383.99	383.58	382.07	383.23	383.81	383.90	382.89	381.68	381.50	381.44
9	---	---	384.03	383.47	382.23	383.22	383.98	383.87	383.02	381.58	381.50	381.72
10	---	---	384.06	383.36	382.42	383.21	384.11	383.79	383.14	381.53	381.50	382.04
11	---	---	384.07	383.31	382.60	383.20	384.25	383.66	383.29	381.47	381.50	382.22
12	---	---	384.12	383.21	382.77	383.17	384.32	383.52	383.42	381.44	381.45	382.31
13	---	---	384.18	383.04	382.92	383.05	384.32	383.39	383.43	381.42	381.37	382.26
14	---	---	384.18	382.96	383.03	382.89	384.23	383.25	383.36	381.40	381.26	382.09
15	---	---	384.01	382.89	383.06	382.94	384.05	383.12	383.20	381.30	381.18	381.78
16	---	---	383.78	382.81	383.07	383.19	383.89	383.00	383.01	381.21	381.29	381.48
17	---	---	383.56	382.76	383.02	383.42	383.78	382.91	382.80	381.17	381.31	381.29
18	---	---	383.41	382.85	382.93	383.46	383.69	382.84	382.58	381.16	381.12	381.12
19	---	---	383.26	383.15	382.91	383.42	383.69	382.74	382.36	381.11	380.89	380.96
20	---	---	382.96	383.53	382.91	383.47	383.74	382.77	382.29	381.04	380.85	380.79
21	---	---	382.89	383.72	382.89	383.53	383.83	382.96	382.34	380.97	381.05	380.60
22	---	---	382.98	383.70	382.81	383.55	383.96	383.21	382.42	380.90	381.30	380.41
23	---	---	383.11	383.54	382.68	383.64	384.03	383.25	382.53	380.92	381.47	380.31
24	---	---	383.09	383.39	382.64	383.69	383.94	383.16	382.61	380.92	381.57	380.31
25	---	---	382.99	383.29	382.72	383.65	383.75	383.06	382.72	380.91	381.72	380.33
26	---	---	383.16	383.06	382.80	383.56	383.57	382.94	382.83	380.88	381.74	380.36
27	---	---	383.29	382.92	382.82	383.38	383.37	382.81	382.90	380.84	381.65	380.40
28	---	---	383.30	382.76	382.92	383.14	383.19	382.70	382.92	380.80	381.53	380.50
29	---	---	383.35	382.54	---	382.88	383.10	382.62	382.89	380.76	381.38	380.59
30	---	---	383.49	382.34	---	382.63	383.07	382.51	382.82	380.73	381.15	380.63
31	---	---	383.56	382.24	---	382.49	---	382.41	---	380.67	380.95	---
MEAN	---	---	---	383.24	382.56	383.22	383.59	383.16	382.75	381.39	381.26	381.03
MAX	---	---	---	383.81	383.07	383.69	384.32	383.90	383.43	382.74	381.74	382.31
MIN	---	---	---	382.24	381.85	382.49	382.56	382.41	382.16	380.67	380.58	380.31



220126159261501. Local number, 2-0126-01.

LOCATION.--Lat 22°01'26", long 159°26'15", Hydrologic unit 20070000, 5.3 northwest of Lihue, and 6.2 mi west of the nearest shoreline. Owner: U. S. Geological Survey.

AQUIFER.--Koloa Volcanics and Waimea Canyon Basalt, Miocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled well, depth 1,004 ft, 10-in. solid steel outer casing: 0-198 ft; 4-in. solid pvc casing: 0-126 ft; 4.5-in. perforated pvc casing: 126 ft to bottom; annular space grouted: 0-198 ft; annular space open: 198 ft to bottom.

DATUM.--Elevation of land-surface datum is 678 ft. Measuring point is the top of 4-in. well casing, 679.06 ft above mean sea level.

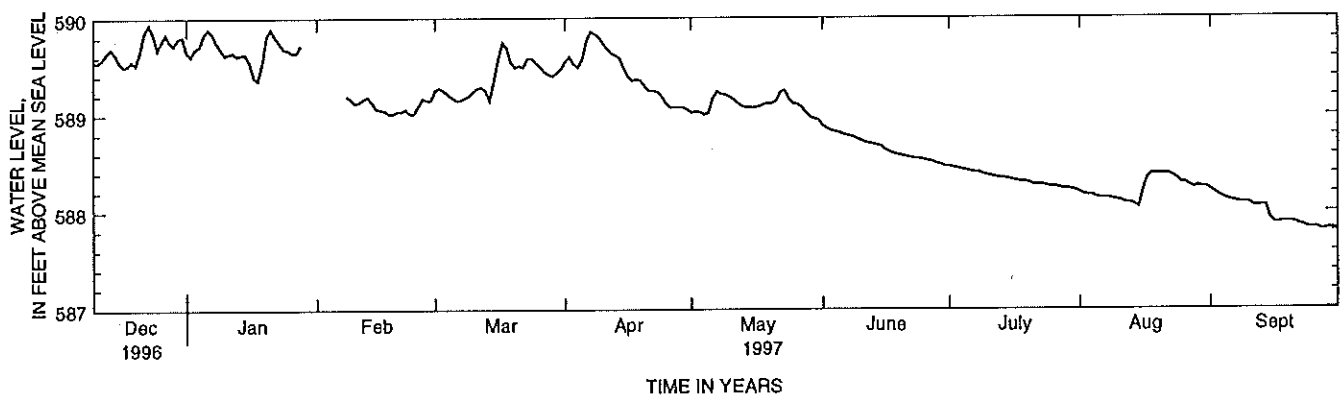
PERIOD OF RECORD.--
Water level: occasional measurements started in November 1996.
Continuous water-level recorder, December 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 589.96 ft above mean sea level, December 23, 1996; lowest measured, 587.67 ft above mean sea level, September 28, 1997.

REMARKS.--Well part of network of observation wells in cooperation with the County of Kauai Department of Water.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	589.66	---	589.26	589.56	589.03	588.89	588.47	588.20	588.22
2	---	---	---	589.62	---	589.28	589.60	589.04	588.86	588.46	588.18	588.19
3	---	---	---	589.69	---	589.26	589.53	589.03	588.84	588.45	588.17	588.16
4	---	---	---	589.72	---	589.22	589.50	589.01	588.83	588.44	588.17	588.14
5	---	---	---	589.84	---	589.19	589.58	589.02	588.82	588.43	588.15	588.12
6	---	---	---	589.89	---	589.16	589.77	589.17	588.80	588.42	588.14	588.11
7	---	---	---	589.85	---	589.16	589.86	589.24	588.79	588.41	588.14	588.10
8	---	---	---	589.76	589.20	589.18	589.84	589.22	588.78	588.41	588.14	588.09
9	---	---	---	589.69	589.17	589.20	589.81	589.21	588.76	588.39	588.13	588.09
10	---	---	589.55	589.63	589.13	589.24	589.74	589.19	588.74	588.38	588.12	588.09
11	---	---	589.55	589.64	589.14	589.28	589.69	589.16	588.72	588.37	588.11	588.06
12	---	---	589.59	589.65	589.17	589.29	589.64	589.12	588.71	588.36	588.09	588.05
13	---	---	589.65	589.62	589.19	589.26	589.62	589.09	588.70	588.35	588.09	588.06
14	---	---	589.69	589.63	589.14	589.16	589.59	589.08	588.69	588.35	588.07	588.06
15	---	---	589.64	589.63	589.07	589.36	589.49	589.08	588.68	588.34	588.05	587.93
16	---	---	589.56	589.55	589.06	589.58	589.40	589.08	588.64	588.33	588.22	587.88
17	---	---	589.51	589.40	589.05	589.75	589.36	589.09	588.62	588.32	588.35	587.88
18	---	---	589.52	589.37	589.02	589.70	589.37	589.11	588.60	588.31	588.39	587.89
19	---	---	589.56	589.55	589.02	589.55	589.36	589.12	588.59	588.31	588.39	587.89
20	---	---	589.53	589.82	589.04	589.50	589.30	589.12	588.58	588.30	588.39	587.89
21	---	---	589.66	589.89	589.04	589.51	589.25	589.15	588.57	588.28	588.39	587.88
22	---	---	589.86	589.82	589.06	589.50	589.25	589.24	588.56	588.28	588.39	587.86
23	---	---	589.94	589.76	589.02	589.59	589.24	589.25	588.55	588.28	588.37	587.85
24	---	---	589.85	589.69	589.02	589.59	589.19	589.16	588.55	588.27	588.34	587.83
25	---	---	589.69	589.68	589.10	589.54	589.12	589.12	588.54	588.26	588.30	587.83
26	---	---	589.77	589.65	589.17	589.50	589.08	589.11	588.53	588.26	588.30	587.83
27	---	---	589.84	589.65	589.16	589.45	589.08	589.08	588.52	588.25	588.27	587.81
28	---	---	589.76	589.72	589.16	589.42	589.08	589.02	588.50	588.24	588.25	587.81
29	---	---	589.73	---	---	589.41	589.08	588.98	588.49	588.24	588.26	587.82
30	---	---	589.80	---	---	589.44	589.06	588.96	588.47	588.23	588.25	587.82
31	---	---	589.81	---	---	589.48	---	588.95	---	588.22	588.25	---
MEAN	---	---	---	---	---	589.39	589.43	589.10	588.66	588.34	588.23	587.97
MAX	---	---	---	---	---	589.75	589.86	589.25	588.89	588.47	588.39	588.22
MIN	---	---	---	---	---	589.16	589.06	588.95	588.47	588.22	588.05	587.81



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 Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 240 ft, 8-in. casing diameter, cased to 193 ft.

DATUM.--Elevation of land-surface datum is 155 ft. Measuring point is the top edge of steel pump base at 1-in. breather hole, 155.98 ft above mean sea level.

PERIOD OF RECORD.--
Water level: occasional measurements, February 1960, June 1973 to current year.
Water quality: occasional measurements, 1960, 1966, 1972-80, 1985-89, 1991, 1993, 1997.

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, February 17, 1960; lowest water level measured, 0.55 ft below mean sea level, August 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	3.10	DEC 11	4.25	FEB 13	3.14	APR 4	3.26	JUN 4	5.72	AUG 6	6.26

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, Department of Water.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 302 ft; 14-in. casing diameter, cased to 168 ft.

DATUM.--Elevation of land-surface datum is 156 ft. Measuring point is the top edge of steel pump base at 1-in. breather hole, 156.94 ft above mean sea level.

PERIOD OF RECORD.--
Water level: occasional measurements, August 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, November 19, 1982; lowest water level measured, 0.28 ft above mean sea level, August 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	3.39	DEC 11	4.55	FEB 13	3.45	APR 4	3.55	JUN 4	5.98	AUG 6	6.44

220621159232101. Local number 2-0623-04.

LOCATION.--Lat 22°06′21″, long 159°23′21″, Hydrologic Unit 20070000, 1.3 mi northeast of Kapahi Reservoir, and at the end of Kahuna Road. Owner: Kauai County, Department of Water.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled well, depth 1,023 ft, 12-in. casing diameter, cased to 169 ft above mean sea level.

DATUM.--Elevation of land-surface datum is 518 ft. Measuring point is the top of 3/4-in. pipe on concrete pump base, 516.35 ft above mean sea level.

PERIOD OF RECORD.--
Water level: occasional measurements, April 1993 to current year.
Water quality: occasional measurements, 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 482.42 ft above mean sea level, August 6, 1997; lowest measured, 392.80 ft above mean sea level, November 14, 1996.

REMARKS.--Water is used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	392.80	DEC 5	399.74	FEB 13	456.78	APR 4	473.71	JUN 4	481.67	AUG 6	482.42

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, Department of Water.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 466 ft, 12-in. casing diameter, cased to 290 ft above mean sea level.

DATUM.--Elevation of land-surface datum is 267 ft. Measuring point is the top of west side of 4 1/2-in. pipe at 268.99 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, October 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.56 ft above mean sea level, August 6, 1997; lowest measured, 9.26 ft above mean sea level, December 14, 1995.

REMARKS.--Water for future public supply. Water level affected by nearby wells.

WATER LEVEL, IN FEET ABOVE MBAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	10.94	DEC 11	11.87	FEB 13	12.01	APR 4	11.97	JUN 4	12.17	AUG 6	12.56

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 Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 700 ft.

DATUM.--Elevation of land-surface datum is 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, 1997.

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, March 30, 1990; lowest measured, 66.17 ft above mean sea level, November 6, 1973.

REMARKS.--Pump is in the process of being replaced. Well unused at this time.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	114.77	DEC 4	117.69	FEB 12	124.39	APR 10	130.75	MAY 27	135.28	AUG 6	139.02

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 Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 763 ft; 14-in. casing diameter, cased to 435 ft.

DATUM.--Elevation of land-surface datum is 349 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, November 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	7.38	DEC 4	8.43	FEB 14	8.62	APR 9	9.18	MAY 28	8.90	AUG 7	8.57

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, Department of Water.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 188 ft, 6-in. casing diameter, cased to 140 ft.

DATUM.--Elevation of land-surface datum is 67 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, August 6, 1993.

REMARKS.--Water used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	7.97	DEC 11	7.86	FEB 13	10.29	APR 4	10.26	JUN 4	13.16	AUG 6	7.86

221318159335901. Local number, 2-1333-01.

LOCATION.--Lat 22°13'18", long 159°33'59", Hydrologic Unit 20070000, 0.6 mi south southwest of Haena Point, and 1.2 mi east southeast of Kailiu Point. Owner: Kauai County, Department of Water.

AQUIFER.--Waimea Canyon Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 159 ft; 8-in. casing diameter, cased to 104 ft.

DATUM.--Elevation of land-surface datum is 82 ft. Measuring point is the top of pump base after removing plug, elevation 82.05 ft above mean sea level from levels of December 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, December 8, 1989; lowest water level measured, 1.45 ft above mean sea level, August 26, 1986.

REMARKS.--Water used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	9.15	DEC 4	7.80	FEB 13	9.19	APR 4	9.91	JUN 4	6.21	AUG 6	5.96

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 Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 318 ft, 12-in. casing diameter, cased to 176 ft.

DATUM.--Elevation of land-surface datum is 222 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.--

Water level: occasional measurements, 1972 to current year.
Water quality: occasional measurements, 1997.

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, January 10, 1974; lowest water level measured, 15.48 ft above mean sea level, June 16, 1982.

REMARKS.--Water used for irrigation.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	25.79	DEC 6	24.78	FEB 11	23.26	APR 10	23.99	JUN 5	24.75	AUG 5	25.15

215454159274201. Local number, 2-5427-01.

LOCATION.--Lat 21°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, Department of Water.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 455 ft; 12-in. casing diameter, cased to 263 ft.

DATUM.--Elevation of land-surface datum is 247 ft. Measuring point is the bottom edge of the east side opening 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, October 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	35.02	DEC 10	34.57	FEB 14	34.52	APR 3	34.61	JUN 5	34.55	AUG 5	33.89

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 Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,010 ft, 20 in. casing diameter, 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, 355.28 ft above mean sea level.

PERIOD OF RECORD.--
Water level: occasional measurements, 1977 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, 112.43 ft above mean sea level, July 30, 1997; lowest water level measured, 25.28 ft above mean sea level on April 5, 1984.

REMARKS.--Water used for sugarcane irrigation.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	107.54	DEC 10	107.98	FEB 11	109.08	APR 10	110.16	JUN 3	111.06	JUL 30	112.43

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, Department of Water.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 109 ft; 9-in. casing diameter, cased to 109 ft.

DATUM.--Elevation of land-surface datum is 79 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, February 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	15.98	DEC 10	16.63	FEB 12	17.11	APR 3	16.58	JUN 10	15.94	AUG 5	16.76

215630159265101. Local number, 2-5626-01.

LOCATION.--Lat 21°56'30", long 159°26'51", Hydrologic Unit 20070000, 5.7 mi south of Lihue, and 3.8 mi northwest of the nearest shoreline. Owner: U.S. Geological Survey.

AQUIFER.--Waimea Canyon Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled well, depth 802 ft; 12.25-in. solid steel outer casing: 0–156 ft; 4-in. solid pvc casing: 0–20 ft; annular space grouted: 0–256 ft; open hole: 256 ft to bottom.

DATUM.--Elevation of land-surface is 485 ft. Measuring point is the top of 4-in. well casing, 485.40 ft above mean sea level.

PERIOD OF RECORD.--Occasional measurements, 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 177.12 ft above mean sea level, September 23, 1997; lowest measured, 173.49 ft above mean sea level, November 8, 1996.

REMARKS.--Well part of a network of observation wells in cooperation with the County of Kauai Department of Water.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 8	173.49	FEB 26	174.69	APR 10	174.94	JUN 3	175.61	JUL 17	176.33	AUG 25	175.71
DEC 10	173.74	MAR 14	174.58	APR 29	175.24	JUN 16	175.79	JUL 30	176.39	SEP 8	177.00
JAN 15	174.21	MAR 27	174.70	MAY 16	175.42	JUL 3	176.20	AUG 8	175.92	SEP 23	177.12
FEB 11	174.29										

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 Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 508 ft, 8-in. casing diameter, cased to 507 ft.

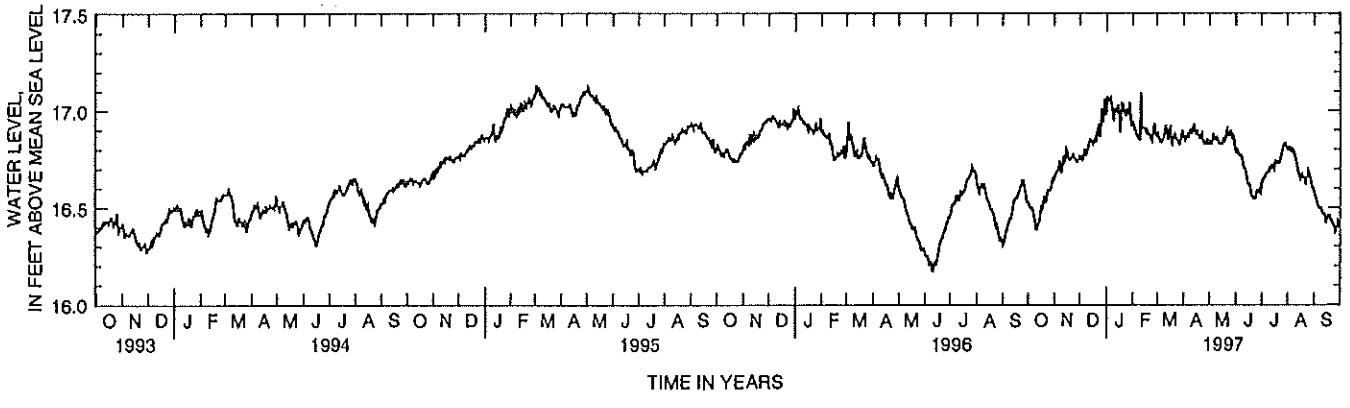
DATUM.--Elevation of land-surface datum is 439 ft. Measuring point is the top of casing 440.62 ft above mean sea level.

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, January 15, 16, 1992; lowest measured, 15.87 ft above mean sea level, November 1, 1989.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.53	16.65	16.75	16.98	16.94	16.87	16.88	16.83	16.79	16.62	16.80	16.58
2	16.51	16.67	16.75	17.07	16.92	16.88	16.86	16.84	16.80	16.64	16.80	16.56
3	16.50	16.68	16.76	17.06	16.90	16.86	16.85	16.83	16.80	16.65	16.81	16.55
4	16.50	16.69	16.75	17.05	16.90	16.85	16.86	16.83	16.78	16.65	16.81	16.53
5	16.50	16.69	16.76	17.05	16.88	16.84	16.88	16.85	16.77	16.66	16.79	16.52
6	16.49	16.71	16.80	17.06	16.87	16.84	16.88	16.87	16.77	16.67	16.79	16.50
7	16.47	16.74	16.79	17.03	16.86	16.85	16.87	16.86	16.77	16.68	16.80	16.50
8	16.45	16.70	16.77	17.00	16.86	16.85	16.89	16.85	16.76	16.68	16.79	16.50
9	16.42	16.68	16.79	16.96	16.85	16.87	16.90	16.85	16.74	16.69	16.77	16.50
10	16.39	16.70	16.80	16.95	17.09	16.89	16.90	16.86	16.71	16.70	16.76	16.48
11	16.39	16.74	16.82	17.01	16.91	16.92	16.88	16.85	16.70	16.69	16.74	16.47
12	16.41	16.77	16.84	17.01	16.91	16.92	16.91	16.84	16.70	16.70	16.72	16.47
13	16.42	16.74	16.85	17.00	16.91	16.88	16.93	16.83	16.68	16.72	16.69	16.47
14	16.43	16.75	16.85	17.02	16.91	16.85	16.91	16.83	16.65	16.72	16.67	16.46
15	16.47	16.80	16.84	17.03	16.90	16.87	16.88	16.83	16.62	16.71	16.66	16.42
16	16.50	16.79	16.83	16.95	16.89	16.91	16.88	16.83	16.62	16.70	16.65	16.44
17	16.49	16.76	16.84	16.89	16.90	16.92	16.89	16.85	16.62	16.74	16.66	16.45
18	16.50	16.75	16.85	16.95	16.88	16.84	16.88	16.84	16.60	16.74	16.67	16.46
19	16.54	16.75	16.86	17.04	16.88	16.83	16.87	16.84	16.56	16.74	16.66	16.46
20	16.56	16.75	16.85	17.03	16.88	16.85	16.86	16.86	16.56	16.73	16.65	16.44
21	16.53	16.76	16.89	17.03	16.86	16.87	16.87	16.89	16.55	16.73	16.65	16.44
22	16.53	16.76	16.91	16.99	16.86	16.88	16.88	16.90	16.55	16.73	16.62	16.43
23	16.56	16.77	16.93	16.98	16.85	16.87	16.86	16.87	16.55	16.75	16.65	16.42
24	16.59	16.76	16.87	16.98	16.88	16.85	16.84	16.87	16.55	16.76	16.67	16.41
25	16.59	16.75	16.87	17.01	16.92	16.85	16.83	16.88	16.58	16.78	16.69	16.40
26	16.59	16.75	17.01	16.98	16.93	16.84	16.83	16.89	16.59	16.80	16.68	16.38
27	16.59	16.74	16.97	17.02	16.88	16.83	16.83	16.87	16.59	16.82	16.66	16.39
28	16.60	16.74	16.94	17.04	16.87	16.83	16.85	16.86	16.58	16.83	16.64	16.40
29	16.64	16.75	16.99	16.99	---	16.85	16.85	16.87	16.59	16.83	16.62	16.43
30	16.65	16.76	17.06	16.92	---	16.88	16.83	16.85	16.58	16.83	16.60	16.42
31	16.64	---	17.05	16.94	---	16.89	---	16.81	---	16.81	16.60	---
MEAN	16.52	16.73	16.86	17.00	16.90	16.87	16.87	16.85	16.66	16.73	16.70	16.46
MAX	16.65	16.80	17.06	17.07	17.09	16.92	16.93	16.90	16.80	16.83	16.81	16.58
MIN	16.39	16.65	16.75	16.89	16.85	16.83	16.83	16.81	16.55	16.62	16.60	16.38



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, Department of Water.

AQUIFER.--Waimea Canyon Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 190 ft, 8-in. casing diameter, cased to 190 ft.

DATUM.--Elevation of land-surface datum is 168 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, 1997.

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, January 26, 1989; lowest measured, 6.58 ft above mean sea level, July 19, 1990.

REMARKS.--Water used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	9.00	DEC 10	8.93	FEB 12	8.88	APR 3	8.38	JUN 10	8.20	AUG 5	8.35

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, Department of Water.

AQUIFER.--Waimea Canyon Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 55 ft, 15-ft casing diameter, 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, 1997.

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, February 5, 1990; lowest measured, 7.82 ft above mean sea level, April 25, 1988.

REMARKS.--Well used for public supply.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	9.23	DEC 10	9.21	FEB 12	9.24	APR 3	9.25	JUN 5	8.75	AUG 5	8.91

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 Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 540 ft, 14-in. casing diameter, cased to 315 ft.

DATUM.--Elevation of land-surface datum is 302 ft. Measuring point is the top of 1-in. pipe, northeast side of flange after removing the plug, elevation 302.68 above mean sea level.

PERIOD OF RECORD.--

Water level: occasional measurements, July 1980 to September 1985. Water-level recorder, October 1985 to July 1992. Occasional measurements, October 1992 to current year.
Water quality: occasional measurements, 1997.

Occasional measurements July 1980 to September 1985. Water-level recorder, October 1985 to July 1992. Occasional measurements October 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, November 26, 1985; lowest measured, 9.41 ft above mean sea level, June 5, 1997.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	9.85	DEC 10	9.64	FEB 12	9.61	APR 3	9.60	JUN 5	9.41	AUG 5	9.56

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, Department of Water.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 200 ft, 12-in. casing diameter, cased to 200 ft.

DATUM.--Elevation of land-surface datum is 364 ft. Measuring point is the top of 1-in. 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, December 8, 1989; lowest measured, 213.17 ft above mean sea level, June 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 1	216.82	DEC 11	217.88	FEB 13	217.90	APR 7	216.92	JUN 4	215.91

215950159231601. Local number 2-5923-08.

LOCATION.--Lat 21°59'50", long 159°23'16", Hydrologic Unit 20070000, 1.5 mi northwest of Lihue, and 2.8 mi west of the nearest shoreline. Owner: U.S. Geological Survey.

AQUIFER.--Koloa Volcanics, Pliocene to Pleistocene age.

WELL CHARACTERISTICS.---Drilled well, depth 1,002 ft, 12.75-in. solid steel outer casing: 0-124 ft; 4-in. solid pvc casing: 0-87 ft; 4-in. perforated pvc casing: 87 ft to bottom; annular space grouted: 0-124 ft; annular space gravel packed: 124 ft to bottom.

DATUM.--Elevation of land-surface datum is 272 ft. Measuring point is the top of 4-in. well casing, 273.49 ft above mean sea level.

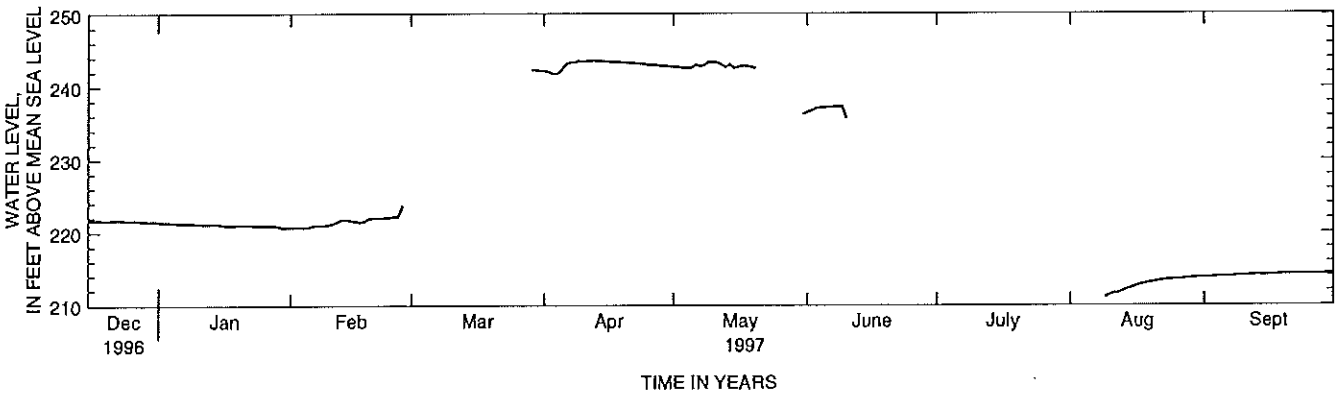
PERIOD OF RECORD.--Water level: occasional measurements, November 1996. Continuous water-level recorder, December 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 244.14 ft above mean sea level, April 10, 1997; lowest measured, 206.44 ft above mean sea level, July 31, 1997.

REMARKS.--Well part of network of observation wells in cooperation with the County of Kauai Department of Water.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	221.46	220.73	---	242.22	242.76	236.53	---	---	213.77
2	---	---	---	221.38	220.71	---	242.06	242.72	236.72	---	---	213.78
3	---	---	---	221.37	220.71	---	241.84	242.65	237.01	---	---	213.80
4	---	---	---	221.35	220.72	---	241.85	242.58	237.11	---	---	213.82
5	---	---	---	221.34	220.76	---	242.33	242.56	237.16	---	---	213.84
6	---	---	---	221.32	220.90	---	243.13	242.98	237.20	---	---	213.85
7	---	---	---	221.31	221.01	---	243.37	242.86	237.23	---	---	213.87
8	---	---	---	221.30	221.04	---	243.37	242.93	237.25	---	---	213.93
9	---	---	---	221.27	221.05	---	243.54	243.38	237.27	---	211.05	213.99
10	---	---	---	221.20	221.13	---	243.49	243.40	235.70	---	211.33	214.00
11	---	---	---	221.19	221.32	---	243.56	243.32	---	---	211.57	214.00
12	---	---	---	221.18	221.55	---	243.60	243.08	225.65	---	211.60	214.03
13	---	---	---	221.16	221.75	---	243.61	242.71	---	---	211.80	214.08
14	---	---	---	221.16	221.75	---	243.58	243.01	---	---	212.07	214.11
15	---	---	---	221.14	221.66	---	243.52	242.61	---	---	212.26	214.06
16	---	---	221.76	221.06	221.54	---	243.46	242.68	---	---	212.52	214.07
17	---	---	221.72	220.97	221.47	---	243.44	242.91	---	---	212.71	214.11
18	---	---	221.71	220.95	221.58	---	243.43	242.84	---	---	212.84	214.13
19	---	---	221.71	221.02	221.89	---	243.39	242.69	---	---	212.95	214.17
20	---	---	221.65	221.07	222.00	---	243.33	242.60	---	---	213.06	214.19
21	---	---	221.68	221.07	222.02	---	243.28	---	---	---	213.19	214.19
22	---	---	221.74	221.03	222.04	---	243.25	---	---	---	213.28	214.18
23	---	---	221.75	221.00	222.04	---	243.21	---	---	---	213.35	214.16
24	---	---	221.72	220.96	222.11	---	243.14	---	---	---	213.40	214.15
25	---	---	221.64	220.96	222.17	---	243.05	---	---	---	213.46	214.16
26	---	---	221.62	220.96	222.25	---	243.00	---	---	---	213.50	214.16
27	---	---	221.63	220.95	223.72	---	242.97	---	---	---	213.53	214.17
28	---	---	221.61	220.95	---	---	242.92	---	---	---	213.60	214.19
29	---	---	221.58	220.90	---	242.31	242.87	---	---	---	213.65	214.20
30	---	---	221.58	220.73	---	242.30	242.81	---	---	---	213.70	214.20
31	---	---	221.57	220.72	---	242.25	---	236.25	---	---	213.74	---
MEAN	---	---	---	221.11	---	---	243.09	---	---	---	---	214.05
MAX	---	---	---	221.46	---	---	243.61	---	---	---	---	214.20
MIN	---	---	---	220.72	---	---	241.84	---	---	---	---	213.77



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, Department of Water.

AQUIFER.--Waimea Canyon Basalt, Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 43 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, January 14, 1988; lowest water level measured, 8.71 ft below mean sea level, March 9, 1981.

REMARKS.--Water is presently unused.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	9.85	DEC 10	9.64	FEB 12	9.61	APR 3	9.60	JUN 5	9.41	AUG 5	9.56

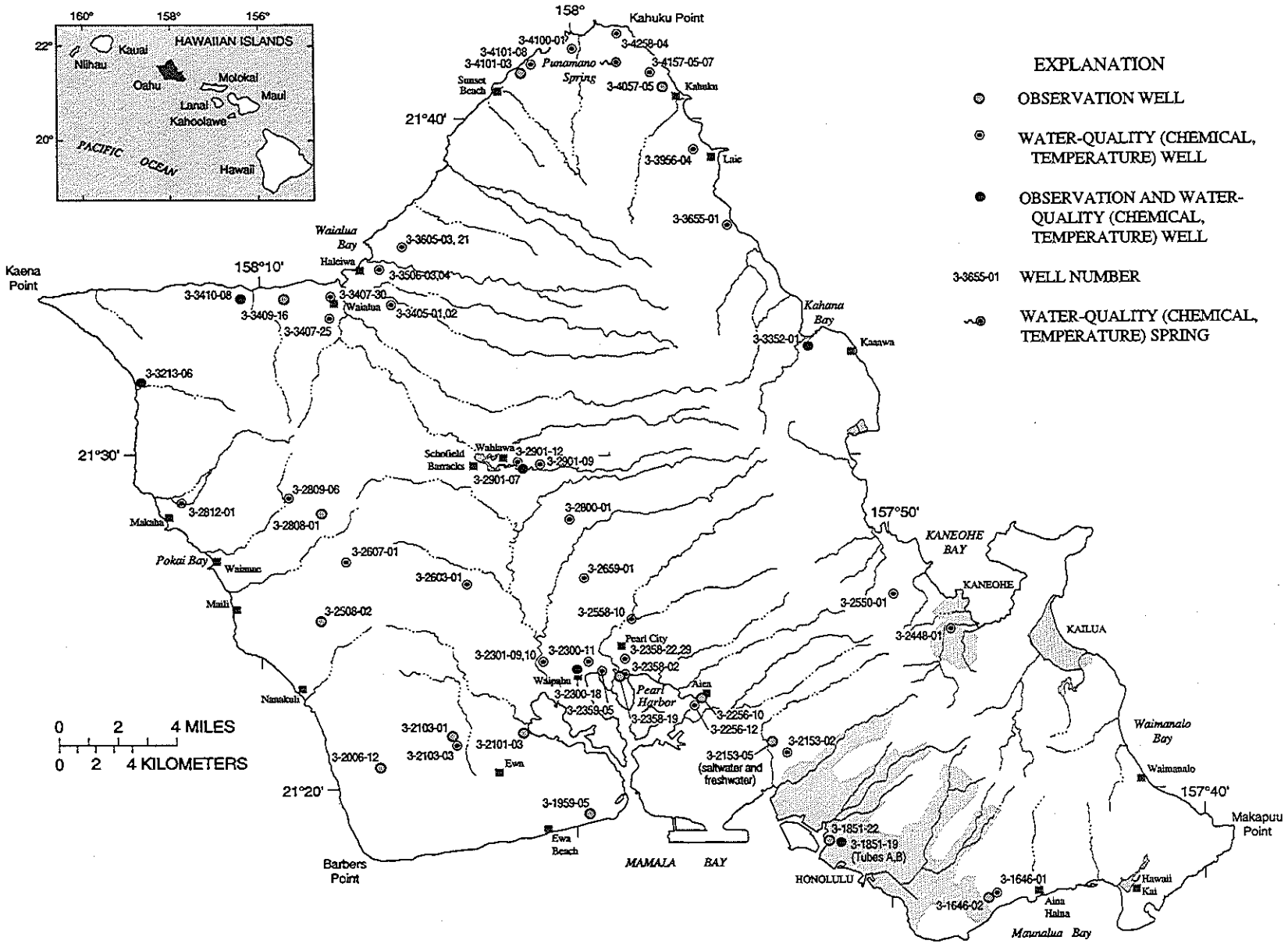


Figure 17. Locations of observation wells and ground-water quality sampling wells on Oahu.

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 Volcanics, Pliocene (?) age.

WELL CHARACTERISTICS.--Drilled well, depth 131 ft, 4-in. casing diameter, cased to 100 ft.

DATUM.--Elevation of land-surface datum is 16 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, January 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL
JUN 17	7.65	SEP 10	7.59

211832157515501. Local number, 3-1851-19 Tube A.

LOCATION.--Lat 21°18'32", long 157°51'55", Hydrologic Unit 20060000, corner of Richards and Halekauwila Streets, adjacent to Ala Moana Boulevard. Owner: Hawaiian Electric Company.

AQUIFER.--Basalt of Koolau Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, 1/2-in. galvanized pipe at 1,043 ft depth. Tube A is the pipe closer to Richards Street.

DATUM.--Elevation of land-surface datum is 6 ft. Measuring point is 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: occasional measurements, 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.16 ft above mean sea level, August 13, 1974; lowest, 5.53 ft above mean sea level, September 25, 1990.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 14	6.15	JUN 17	6.44	SEP 17	a--

a Unable to read water levels

211832157515502. Local number, 3-1851-19 Tube B.

LOCATION.--Lat 21°18'32", long 157°51'55", Hydrologic Unit 20060000, corner of Richards and Halekauwila Streets, adjacent to Ala Moana Boulevard. Owner: Hawaiian Electric Company.

AQUIFER.--Basalt of Koolau Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled artesian well, 1/2-in. galvanized pipe at 988 ft depth. Tube B is the pipe furthest from Richards Street.

DATUM.--Elevation of land-surface datum is 6 ft. Measuring point is 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: occasional measurements, 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.16 ft above mean sea level, February 3, 1983; lowest, 13.54 ft above mean sea level, October 20, 1993.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 14	16.31	JUN 17	17.76	SEP 17	17.60

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 Volcanics, 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 is 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 November 1986, occasional measurements, December 1982 to current year.
Water quality: occasional measurements, 1982, 1987.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.74 ft above mean sea level, April 12, 1991; lowest, 15.97 ft, above mean sea level, September 11-13, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 14	20.62	JUN 17	21.36	SEP 17	21.41

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 Volcanics, 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 is top of 5-in. PVC casing, 6.40 ft above mean sea level.

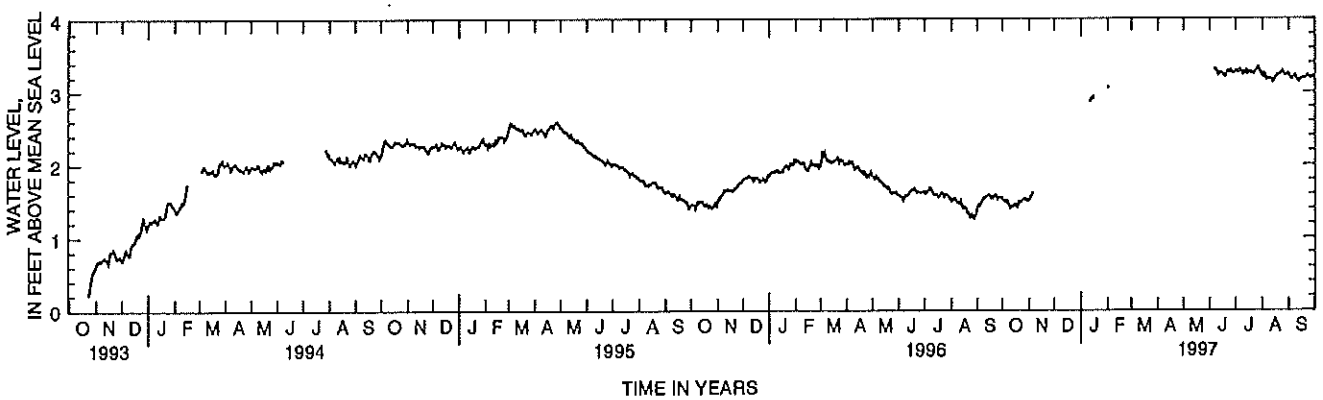
REMARKS.--Geophysical log and water-quality records are available in files of district office.

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, January 17, 1969; lowest, 2.81 ft below mean sea level, August 25, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.52	1.52	---	---	3.06	---	---	---	---	3.29	3.22	3.24
2	1.51	1.53	---	---	3.07	---	---	---	---	3.29	3.21	3.21
3	1.50	1.57	---	---	---	---	---	---	---	3.28	3.25	3.19
4	1.50	1.58	---	---	---	---	---	---	---	3.27	3.24	3.19
5	1.49	1.62	---	---	---	---	---	---	---	3.28	3.18	3.18
6	1.51	---	---	---	---	---	---	---	3.30	3.30	3.17	3.19
7	1.50	---	---	---	---	---	---	---	3.31	3.29	3.18	3.21
8	1.46	---	---	---	---	---	---	---	3.30	3.27	3.17	3.22
9	1.43	---	---	---	---	---	---	---	3.29	3.25	3.17	3.21
10	1.41	---	---	---	---	---	---	---	3.26	3.27	3.18	3.17
11	1.42	---	---	2.86	---	---	---	---	3.24	3.25	3.18	3.16
12	1.43	---	---	2.88	---	---	---	---	3.25	3.25	3.17	3.15
13	1.44	---	---	2.91	---	---	---	---	3.26	3.29	3.14	3.15
14	1.43	---	---	2.91	---	---	---	---	3.26	3.29	3.14	3.17
15	1.45	---	---	2.93	---	---	---	---	3.26	3.25	3.16	3.17
16	1.46	---	---	2.90	---	---	---	---	3.25	3.26	3.18	3.18
17	1.43	---	---	---	---	---	---	---	3.23	3.28	3.20	3.19
18	1.42	---	---	---	---	---	---	---	3.22	3.28	3.22	3.19
19	1.44	---	---	---	---	---	---	---	3.22	3.26	3.23	3.19
20	1.49	---	---	---	---	---	---	---	3.25	3.27	3.24	3.19
21	1.48	---	---	---	---	---	---	---	3.27	3.26	3.24	3.20
22	1.48	---	---	---	---	---	---	---	3.29	3.25	3.24	3.21
23	1.50	---	---	---	---	---	---	---	3.29	3.27	3.25	3.22
24	1.51	---	---	---	---	---	---	---	3.27	3.28	3.27	3.21
25	1.52	---	---	---	---	---	---	---	3.29	3.30	3.28	3.20
26	1.53	---	---	---	---	---	---	---	3.29	3.32	3.26	3.19
27	1.53	---	---	---	---	---	---	---	3.27	3.33	3.24	3.20
28	1.51	---	---	---	---	---	---	---	3.26	3.31	3.23	3.21
29	1.51	---	---	---	---	---	---	---	3.27	3.28	3.23	3.21
30	1.52	---	---	---	---	---	---	---	3.27	3.27	3.24	3.19
31	1.51	---	---	3.06	---	---	---	---	---	3.24	3.25	---
MEAN	1.48	---	---	---	---	---	---	---	---	3.28	3.21	3.19
MAX	1.53	---	---	---	---	---	---	---	---	3.33	3.28	3.24
MIN	1.41	---	---	---	---	---	---	---	---	3.24	3.14	3.15



212038158061501. Local number, 3-2006-12.

Record of water-level data for water years 1996 and 1997 not completed at the time of publication.

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 Volcanics, 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 is 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), September 2, and October 19, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 30	19.37	JUN 26	19.65	SEP 12	19.29

212132158035701. Local number, 3-2103-01.

LOCATION.--Lat 21°21'32", long 158°03'57", Hydrologic Unit 20060000, 1 mi east of Makakilo, and 2 mi north of Barbers Point Naval Air Station. Owner: U.S. Navy.

AQUIFER.--Basalt of Waianae Volcanics, 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 is 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, September 1966 to December 1971. Occasional measurements, August 1942 to December 1942, January 1953 to September 1967, September 1972 to current year.
Water quality: occasional measurements, 1942, 1953-68.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.81 ft above mean sea level, February 20, 1957; lowest, 14.25 ft above mean sea level, July 5, 1978, September 20, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 3	15.15	JUN 19	15.09	SEP 12	15.14

212123157535501. Local number, 3-2153-05 Freshwater 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 Volcanics, 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 (saltwater) and a 6-in. PVC (freshwater) encased in a 12-in. steel casing.

DATUM.--Elevation of land-surface datum is 35 ft. Measuring point is top of 3-in. PVC casing, 37.90 ft above mean sea level.

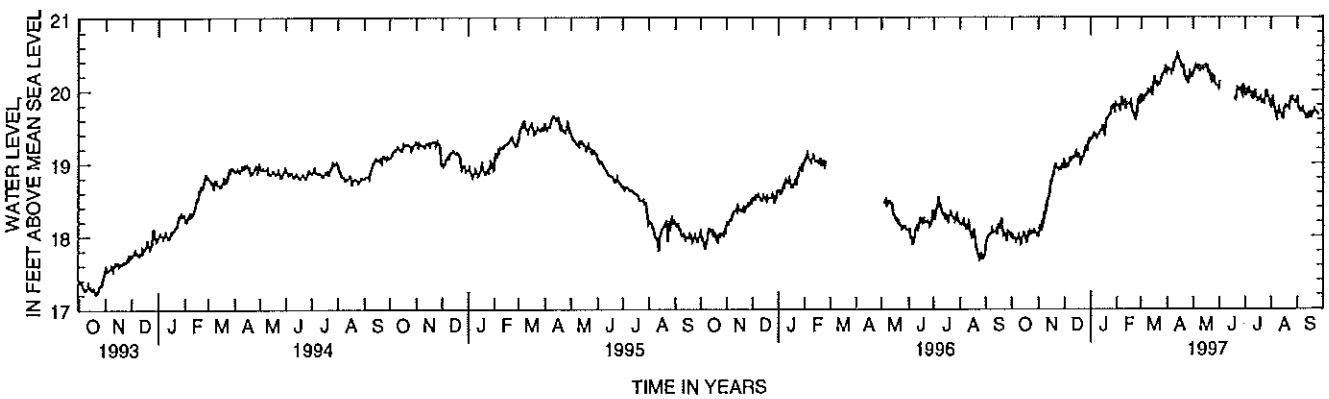
REMARKS.--Geophysical logs are available in files of district office. Prior to October 1993, unpublished records in files of the U.S. Geological Survey.

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, January 9, 1983; lowest 16.56 ft above mean sea level, July 24, 1987.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.99	18.01	19.03	19.32	19.79	19.87	20.25	20.24	20.13	20.05	19.79	19.90
2	18.01	18.11	19.00	19.35	19.80	19.95	20.28	20.28	---	19.93	19.85	19.76
3	17.97	18.16	18.95	19.35	19.77	19.86	20.31	20.32	---	19.97	19.92	19.75
4	17.98	18.07	18.96	19.39	19.75	19.87	20.30	20.34	---	20.00	19.81	19.71
5	17.97	18.18	19.00	19.41	19.80	19.92	20.28	20.31	---	19.95	19.78	19.71
6	17.94	18.16	18.98	19.40	19.91	19.94	20.25	20.30	---	20.05	19.72	19.75
7	17.96	18.29	19.07	19.38	19.86	19.93	20.29	20.34	---	19.96	19.65	19.76
8	17.99	18.27	19.08	19.36	19.82	19.95	20.28	20.34	---	19.99	19.62	19.70
9	18.04	18.40	19.05	19.40	19.85	20.00	20.38	20.28	---	19.91	19.69	19.69
10	17.95	18.38	19.08	19.40	19.86	19.97	20.39	20.29	---	19.90	19.75	19.68
11	17.90	18.49	19.09	19.40	19.75	19.97	20.41	20.33	---	19.95	19.72	19.62
12	17.91	18.52	19.08	19.45	19.81	20.01	20.45	20.33	---	19.92	19.69	19.62
13	18.00	18.55	19.09	19.45	19.83	20.05	20.50	20.30	---	20.01	19.64	19.65
14	18.01	18.64	19.14	19.49	19.82	19.93	20.48	20.33	---	19.94	19.65	19.68
15	18.06	18.76	19.16	19.53	19.81	20.06	20.42	20.32	---	19.91	19.61	19.64
16	18.01	18.76	19.08	19.43	19.83	20.15	20.41	20.34	---	19.86	19.75	19.67
17	17.97	18.84	19.13	19.41	19.85	20.19	20.35	20.32	---	19.86	19.78	19.71
18	17.91	18.84	19.13	19.49	19.75	20.10	20.31	20.35	19.90	19.89	19.79	19.65
19	17.98	18.94	19.11	19.60	19.70	20.08	20.35	20.23	19.89	19.89	19.77	19.68
20	18.07	18.99	19.01	19.63	19.70	20.13	20.34	20.27	19.88	19.93	19.78	19.69
21	18.03	18.99	19.03	19.63	19.64	20.08	20.22	20.19	19.96	19.82	19.77	19.73
22	18.07	18.94	19.06	19.66	19.62	20.08	20.19	20.15	20.04	19.86	19.76	19.71
23	18.04	18.93	19.10	19.67	19.68	20.09	20.15	20.10	20.03	19.84	19.85	19.71
24	18.06	18.92	19.10	19.68	19.67	20.14	20.17	20.21	20.01	19.83	19.91	19.69
25	18.07	18.95	19.21	19.77	19.87	20.18	20.10	20.20	20.03	19.90	19.86	19.69
26	18.03	18.95	19.23	19.78	19.89	20.21	20.14	20.18	20.04	19.99	19.92	19.67
27	18.10	18.91	19.20	19.80	19.91	20.23	20.28	20.11	19.96	19.99	19.86	---
28	18.06	19.00	19.17	19.78	19.82	20.26	20.23	20.06	19.94	19.93	19.86	---
29	18.05	18.96	19.29	19.70	---	20.25	20.19	---	20.08	19.91	19.83	19.73
30	18.01	18.95	19.35	19.82	---	20.34	20.19	20.07	20.02	19.86	19.83	19.70
31	18.02	---	19.31	19.80	---	20.31	---	20.04	---	19.82	19.89	---
MEAN	18.01	18.63	19.11	19.54	19.79	20.07	20.30	---	---	19.92	19.78	---
MAX	18.10	19.00	19.35	19.82	19.91	20.34	20.50	---	---	20.05	19.92	---
MIN	17.90	18.01	18.95	19.32	19.62	19.86	20.10	---	---	19.82	19.61	---



212123157535503. Local number, 3-2153-05 Saltwater 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 Volcanics, 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 in August 1980 and used to monitor water level (saltwater). The well is a combination of a 3-in. PVC (saltwater) and a 6-in. PVC (freshwater) encased in a 12-in. steel casing.

DATUM.--Elevation of land-surface datum is 35 ft. Measuring point is top of 6-in. PVC casing, 37.90 ft above mean sea level.

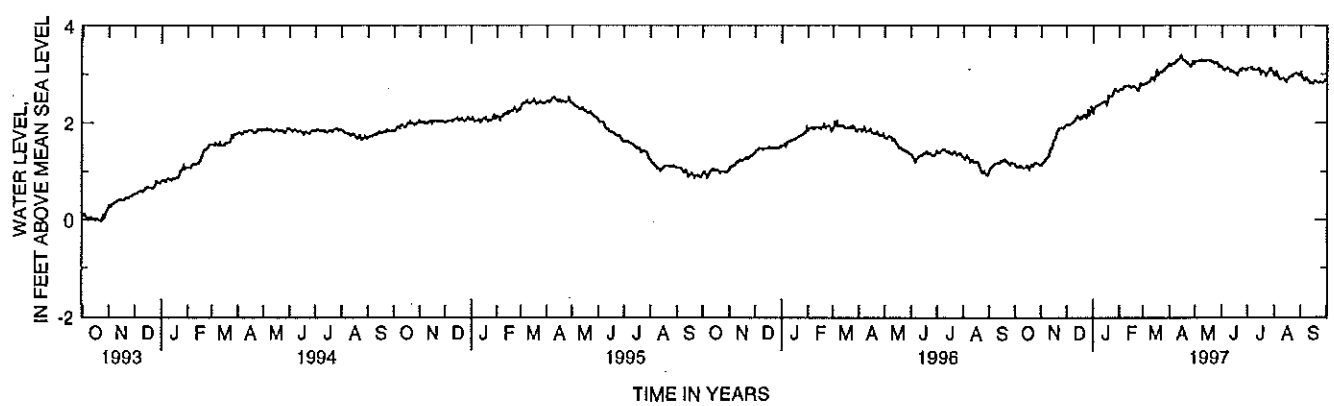
REMARKS.--Geophysical logs are available in files of district office. Prior to October 1993, unpublished records in files of the U.S. Geological Survey. No record March 5, 1991 to April 8, 1991.

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, January 9, 1983; lowest, 1.45 ft below mean sea level, October 24, 1981.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.12	1.13	1.96	2.23	2.69	2.78	3.22	3.26	3.14	3.11	2.98	3.03
2	1.12	1.16	1.95	2.29	2.70	2.80	3.18	3.27	3.13	3.13	3.01	2.96
3	1.10	1.18	1.95	2.32	2.69	2.81	3.20	3.27	3.10	3.13	3.04	2.92
4	1.09	1.18	1.96	2.34	2.69	2.80	3.22	3.27	3.09	3.13	3.00	2.91
5	1.10	1.21	1.96	2.35	2.70	2.80	3.24	3.27	3.09	3.11	2.95	2.88
6	1.11	1.25	1.98	2.36	2.75	2.83	3.24	3.28	3.11	3.13	2.94	2.89
7	1.10	1.28	2.00	2.36	2.75	2.84	3.23	3.29	3.13	3.10	2.91	2.92
8	1.11	1.28	2.00	2.37	2.75	2.84	3.26	3.28	3.13	3.09	2.90	2.91
9	1.10	1.30	2.02	2.38	2.76	2.86	3.29	3.29	3.12	3.09	2.91	2.88
10	1.08	1.34	2.04	2.40	2.76	2.91	3.30	3.28	3.08	3.10	2.92	2.87
11	1.08	1.42	2.06	2.41	2.75	2.94	3.30	3.29	3.06	3.10	2.92	2.83
12	1.08	1.47	2.09	2.42	2.76	2.94	3.31	3.29	3.08	3.09	2.91	2.82
13	1.08	1.48	2.12	2.42	2.75	2.91	3.38	3.28	3.08	3.12	2.88	2.84
14	1.08	1.50	2.13	2.43	2.73	2.88	3.39	3.29	3.05	3.12	2.88	2.83
15	1.12	1.60	2.11	2.44	2.73	2.92	3.33	3.29	3.04	3.07	2.86	2.81
16	1.11	1.65	2.08	2.42	2.75	3.03	3.30	3.29	3.04	3.03	2.90	2.83
17	1.07	1.67	2.09	2.39	2.75	3.06	3.30	3.29	3.03	3.07	2.92	2.86
18	1.05	1.71	2.13	2.43	2.74	2.98	3.30	3.28	3.01	3.07	2.93	2.85
19	1.09	1.79	2.13	2.55	2.72	2.99	3.28	3.26	3.00	3.04	2.95	2.85
20	1.14	1.83	2.10	2.54	2.72	3.04	3.26	3.25	3.04	3.04	2.96	2.83
21	1.13	1.86	2.14	2.54	2.69	3.05	3.23	3.27	3.06	3.01	2.97	2.83
22	1.11	1.88	2.17	2.54	2.67	3.04	3.24	3.25	3.09	2.99	2.96	2.83
23	1.14	1.89	2.16	2.56	2.67	3.04	3.22	3.23	3.10	3.02	2.99	2.83
24	1.16	1.90	2.11	2.57	2.71	3.07	3.21	3.24	3.08	3.03	3.01	2.84
25	1.17	1.90	2.14	2.65	2.79	3.07	3.17	3.25	3.12	3.05	3.01	2.83
26	1.16	1.89	2.25	2.66	2.80	3.10	3.18	3.25	3.12	3.09	3.01	2.83
27	1.17	1.89	2.23	2.69	2.78	3.11	3.21	3.21	3.11	3.12	3.02	2.83
28	1.16	1.92	2.18	2.68	2.78	3.14	3.26	3.17	3.09	3.10	3.02	2.85
29	1.16	1.93	2.23	2.64	---	3.16	3.25	3.18	3.11	3.07	2.99	2.88
30	1.15	1.95	2.31	2.64	---	3.19	3.23	3.17	3.10	3.06	2.98	2.86
31	1.13	---	2.29	2.67	---	3.22	---	3.16	---	3.02	3.01	---
MEAN	1.12	1.58	2.10	2.47	2.73	2.97	3.26	3.26	3.08	3.08	2.96	2.86
MAX	1.17	1.95	2.31	2.69	2.80	3.22	3.39	3.29	3.14	3.13	3.04	3.03
MIN	1.05	1.13	1.95	2.23	2.67	2.78	3.17	3.16	3.00	2.99	2.86	2.81



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 Volcanics, Tertiary age.

WELL CHARACTERISTICS.--Drilled flowing artesian well, depth 173 ft, casing diameter 12 in., cased to 143 ft.

DATUM.--Elevation of land-surface datum is 10 ft. Measuring point is top of 10-in. stilling pipe for water-level recorder, 26.15 ft above mean sea level.

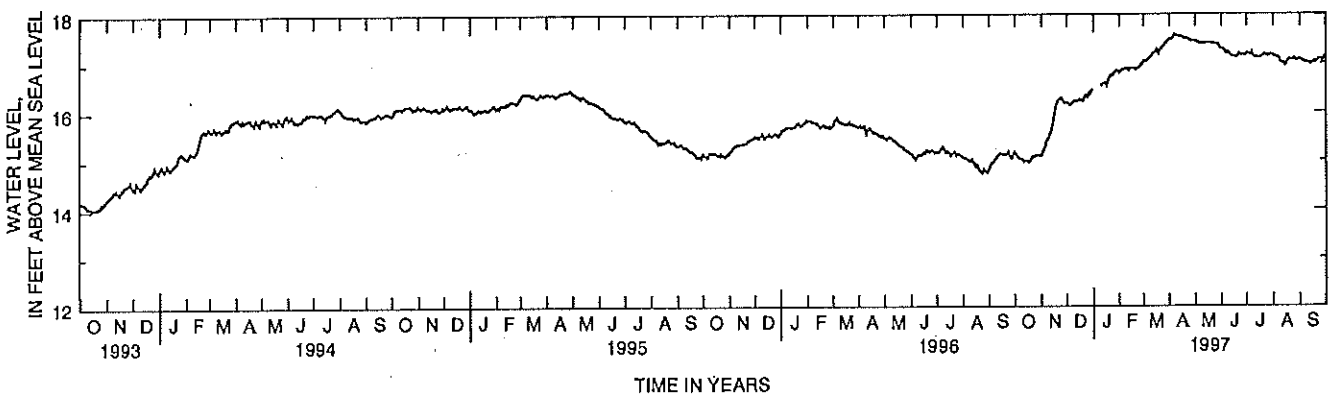
REMARKS.--Water-quality records for 1923, 1928-30, 1934-68, 1972, 1974-75 are available in files of district office.

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, January 16, 1928; lowest, 12.97 ft above mean sea level, October 5, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.15	15.10	16.19	---	16.81	17.04	17.49	17.46	17.30	17.19	17.15	17.07
2	15.13	15.12	16.19	---	16.83	17.05	17.49	17.45	17.30	17.21	17.14	17.07
3	15.10	15.20	16.17	---	16.86	17.04	17.49	17.44	17.30	17.20	17.14	17.07
4	15.07	15.24	16.16	---	16.87	17.04	17.51	17.43	17.28	17.19	17.13	17.05
5	15.05	15.27	16.15	---	16.88	17.05	17.52	17.42	17.24	17.18	17.12	17.04
6	15.04	15.34	16.16	---	16.87	17.07	17.55	17.41	17.22	17.19	17.12	17.03
7	15.04	15.41	16.18	---	16.88	17.08	17.58	17.41	17.21	17.22	17.11	17.03
8	15.04	15.44	16.20	---	16.89	17.10	17.57	17.41	17.23	17.17	17.10	17.02
9	15.03	15.45	16.22	---	16.89	17.13	17.57	17.41	17.23	17.14	17.04	17.02
10	15.01	15.50	16.22	16.55	16.90	17.14	17.57	17.41	17.20	17.13	17.01	17.01
11	15.00	15.57	16.22	16.56	16.88	17.16	17.56	17.41	17.18	17.13	17.01	17.01
12	14.98	15.60	16.23	16.57	16.87	17.19	17.56	17.41	17.16	17.13	17.01	17.00
13	14.99	15.66	16.22	16.58	16.90	17.20	17.55	17.42	17.15	17.12	17.01	17.00
14	15.00	15.75	16.23	16.59	16.90	17.21	17.55	17.42	17.14	17.12	17.00	16.99
15	15.00	15.87	16.24	16.60	16.90	17.22	17.55	17.42	17.14	17.12	16.96	17.00
16	14.99	15.96	16.25	16.59	16.90	17.25	17.54	17.42	17.14	17.12	16.97	17.02
17	14.97	16.07	16.24	16.55	16.90	17.28	17.53	17.42	17.14	17.12	17.02	17.03
18	14.97	16.15	16.24	16.59	16.90	17.24	17.52	17.42	17.13	17.13	17.05	17.03
19	14.98	16.19	16.23	16.66	16.89	17.20	17.51	17.42	17.13	17.14	17.08	17.04
20	15.03	16.22	16.23	16.70	16.88	17.23	17.51	17.42	17.14	17.16	17.08	17.03
21	15.06	16.25	16.28	16.74	16.89	17.28	17.51	17.41	17.17	17.17	17.07	17.04
22	15.08	16.27	16.31	16.75	16.90	17.29	17.50	17.41	17.19	17.18	17.07	17.06
23	15.07	16.27	16.34	16.76	16.91	17.31	17.49	17.41	17.17	17.17	17.07	17.08
24	15.08	16.28	16.33	16.75	16.91	17.33	17.49	17.40	17.17	17.16	17.07	17.08
25	15.10	16.27	16.31	16.78	16.93	17.35	17.47	17.40	17.17	17.16	17.09	17.08
26	15.09	16.24	16.37	16.80	16.97	17.37	17.46	17.40	17.17	17.15	17.09	17.08
27	15.11	16.20	16.40	16.83	16.96	17.40	17.46	17.40	17.17	17.16	17.07	17.06
28	15.11	16.19	16.37	16.85	17.01	17.42	17.46	17.40	17.17	17.17	17.06	17.07
29	15.10	16.20	16.40	16.85	---	17.43	17.46	17.36	17.17	17.17	17.06	17.11
30	15.11	16.20	16.44	16.83	---	17.45	17.46	17.31	17.17	17.17	17.07	17.13
31	15.10	---	16.45	16.83	---	17.48	---	17.30	---	17.16	17.08	---
MEAN	15.05	15.82	16.26	---	16.90	17.23	17.52	17.41	17.19	17.16	17.07	17.05
MAX	15.15	16.28	16.45	---	17.01	17.48	17.58	17.46	17.30	17.22	17.15	17.13
MIN	14.97	15.10	16.15	---	16.81	17.04	17.46	17.30	17.13	17.12	16.96	16.99



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 Volcanics, 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 is 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, August 1970 to January 1973. Occasional measurements, October 1987 to current year.
Water quality: occasional measurements, 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, January 4, 1983; lowest 14.01 ft above mean sea level, September 14, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 14	19.26	JUN 26	19.68	SEP 12	19.44

212318157583401. Local number, 3-2358-19.

Record of water-level data for water years 1996 and 1997 not completed at the time of publication.

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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Located at the bottom of a 30-degree incline 6.8 ft by 7.8 ft shaft, 340 ft long.

DATUM.--Elevation of land-surface datum is 180 ft. Measuring point is top of concrete above well, elevation is 13.16 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: occasional measurements, 1971-84.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.40 ft above mean sea level, October 3, 1972; lowest, 10.15 ft above mean sea level, March 8, 1994.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 3	10.54	JUN 19	a--	SEP 12	a--

212813158080201. Local number, 3-2808-01.

LOCATION.--Lat 21°28'13", long 158°08'04", Hydrologic Unit 20060000, inside Lualualei Naval Ammunition Depot, 1,000 ft west from the intersection of Kolekole Road and Radford Street, at Building 492, 3.3 mi north from the entrance of the depot. Owner: U.S. Navy.

AQUIFER.--Basalt of Waianae Volcanics, 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 435 ft. Measuring point is 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: occasional measurements, 1972-88.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 441.81 ft above mean sea level, February 28, 1983; lowest, 420.78 ft above mean sea level, October 24, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 3	436.18	JUN 19	436.49	SEP 12	434.81

(a) No measurement made, unable to enter shaft

212927158014801. Local number, 3-2901-07.

LOCATION.--Lat 21°29'27", long 158°01'48", Hydrologic Unit 20060000, across the main gate of Wheeler Air Force Base, and 1,200 ft south of Wahiawa bridge on Kaukonohua Stream. Owner: U.S. Army.

AQUIFER.--Basalt of Koolau Volcanics, 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 (revised). Measuring point is top of pump chamber floor at recorder, 287.00 ft above mean sea level (revised).

PERIOD OF RECORD.--

Water level: water-level recorder, November 1938 to current year.
Water quality: occasional measurements, 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, December 5, 1978.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	272.87	272.85	--	--	274.54	276.10	277.31	277.93	--	--	--	--
10	272.83	272.92	--	--	275.05	275.82	277.50	277.96	--	--	--	--
15	272.93	--	--	--	275.18	276.47	277.15	278.13	--	--	--	--
20	272.90	--	--	a--	274.91	276.79	277.78	278.78	--	--	--	--
25	272.91	--	--	274.68	275.81	276.43	277.96	278.78	--	--	--	b--
EOM	272.83	--	--	274.75	275.81	277.16	277.97	--	--	--	--	

(a) No record November 13, 1996 to January 23, 1997, clock stopped

(b) No record May 28 to September 25, 1997, clock stopped

NON-PUMPING VALUES

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	272.98	OCT 8	272.97	NOV 1	272.92	NOV 26	273.27	JAN 6	274.21
FEB 3	275.01	MAR 5	276.10	APR 8	277.58	MAY 7	278.42	JUN 3	279.08

Note: Water levels are measured after all pumps in the pump chamber are turned off for 2 hours

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 Volcanics, 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 is top of 6-in. casing, elevation is 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: occasional measurements, 1967, 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.92 ft above mean sea level, January 2, 1975; lowest, 6.49 ft above mean sea level, July 15, 1976.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 3	7.26	JUN 19	7.30	SEP 12	7.32

213327157524401. Local number, 3-3352-01.

LOCATION.--Lat 21°33'27", long 157°52'43", 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 Volcanics, 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 is 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: occasional measurements, 1935 to 1991, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.3 ft above mean sea level, March 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 5	14.98	JUN 18	15.72	SEP 12	15.01

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 Volcanics, 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 is chiseled 1 1/2-in. square on concrete, 3.7 ft in front of door of well shelter, elevation is 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: occasional measurements, 1924-84.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.3 ft above mean sea level, January 16, 1969; lowest, 16.75 ft above mean sea level, August 6, 1929.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 27	18.42	JUN 20	18.44	SEP 10	18.63

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 Volcanics, Tertiary age.

WELL CHARACTERISTICS.--Drilled artesian well, depth 447 ft, casing diameter 1 in., cased to 410 ft, perforated from 410 to 447 ft.

DATUM.--Elevation of land-surface datum is 12 ft. Measuring point is top of 12-in. stilling well, 20.53 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, January 1963 to February 1972. Occasional measurements, January 1929 to December 1962, March 1972 to current year.
Water quality: occasional measurements, 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, January 5, 1969; lowest 16.08 ft above mean sea level, August 6, 1929.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 27	18.73	JUN 18	18.90	SEP 10	19.02

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 Volcanics, 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 is top of 10-in. standpipe, 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, March 1921, January 1926 to August 1958, December 1990 to current year.
Water quality: occasional measurements, 1908, 1911-16, 1924-78.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.12 ft above mean sea level, January 1916; lowest, 8.00 ft above mean sea level, October 5, 1962.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 28	13.60	JUN 17	13.55	SEP 9	13.37

214125158013401. Local number, 3-4101-03.

LOCATION.--Lat 21°41'25", long 158°01'34", Hydrologic Unit 20060000, 1,500 ft northeast of University of Hawaii agriculture experiment station in Waialee, and 1.9 mi northeast of Sunset Beach. Owner: State of Hawaii.

AQUIFER.--Basalt of Koolau Volcanics, 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 is 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, November 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 28	13.74	JUN 17	14.12	SEP 9	14.57

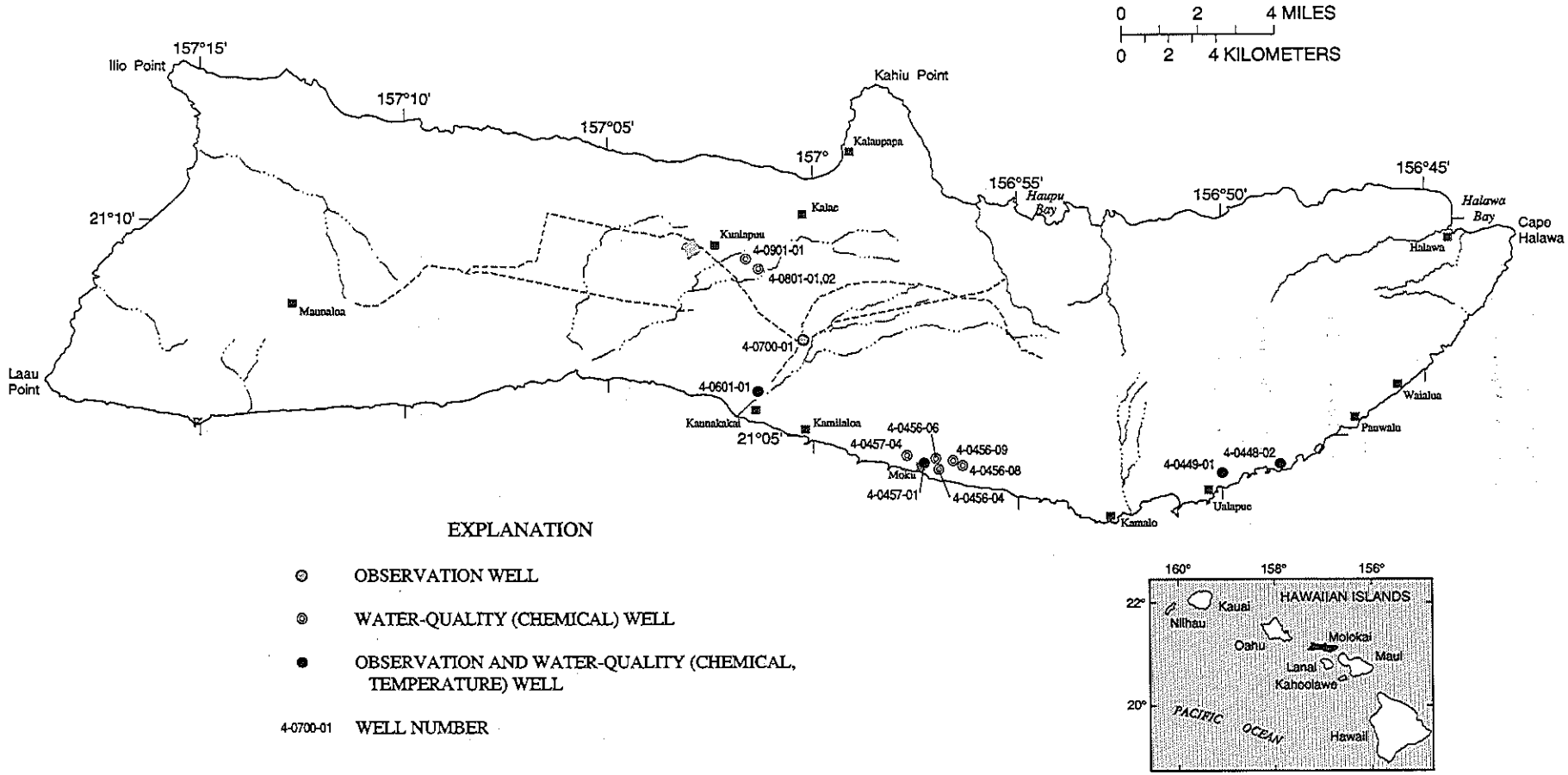


Figure 18. Locations of observation wells and ground-water quality sampling wells on Molokai.

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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Dug basal water-table well, size 4 ft x 6 ft, depth 21 ft.

DATUM.--Elevation of land-surface datum is 19 ft. Measuring point is top of 2 in. x 2 in. steel plate bolted to top of concrete wall of well, 21.23 ft above mean sea level.

PERIOD OF RECORD.--
Water level: water-level recorder, August 1970 to January 1973. Occasional measurements, February 1973 to current year.
Water quality: occasional measurements, 1970-73, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.11 ft above mean sea level, November 26, 1970; lowest measured, 3.67 ft above mean sea level, February 8, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	4.23	JAN 13	4.98	MAR 24	4.79	MAY 12	4.33	JUL 29	4.48

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 Volcanics, 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 is 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: occasional measurements, 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, January 19, 1950; lowest measured, 2.09 ft above mean sea level, September 16, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	3.05	JAN 13	3.59	MAR 24	3.51	MAY 12	3.26	JUL 29	3.40

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 Volcanics, 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 is top of steel plate, 37.36 ft, above mean sea level.

REMARKS.--Water from this well is used for public supply. Water level measured after pump has been turned off for 30 minutes.

PERIOD OF RECORD.--
Water level: occasional measurements, June 1947 to November 1960, January 1962 to February 1963, November 1972 to current year.
Water quality: occasional measurements, 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, February 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	2.11	JAN 13	1.86	MAR 25	2.21	MAY 13	1.93	AUG 1	1.91

210605157012001. Local number, 4-0601-01.

LOCATION.--Lat 21°06'01", long 157°01'11", 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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 59 ft, 12-in. casing diameter, eased to 20 ft.

DATUM.--Elevation of land-surface datum is 51 ft. Measuring point is top of 15-in. surface casing, 51.95 ft above mean sea level.

PERIOD OF RECORD.--
Water level: occasional measurements, May 1954 to current year.
Water quality: occasional measurements, 1954 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.30 ft above mean sea level, January 20, 1969; lowest measured, 1.60 ft above mean sea level, December 5, 1964.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 7	2.88	JAN 16	2.89	MAY 13	2.70	JUL 31	2.68

210711157000501. Local number, 4-0700-01.

LOCATION.--Lat 21°07'11", long 157°00'05", Hydrologic Unit 20050000, 2.3 mi northeast of Kakahaia Fishpond, and 0.5 mi northeast of Kaunakakai, and 2.4 mi north of Kamiloloa. Owner: Kaluakoi Corporation.

AQUIFER.--East Molokai Volcanics.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,080 ft, 20-in. casing diameter, cased to 956 ft, perforated from 956 to 1,056 ft.

DATUM.--Measuring point is top of casing, 981.95 ft above mean sea level (revised).

REMARKS.--Water-quality records for 1973-75 and water-level records for 1976-82 are available in files of the U.S. Geological Survey district office. Prior to October 1995, water-level data was published as "water level, in feet below land surface datum."

PERIOD OF RECORD.--Occasional measurements, July 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.70 ft above mean sea level, April 27, 1988; lowest measured, 5.72 ft above mean sea level, September 10, 1986.

REVISION.--The datum of the measuring point has been revised to 981.95 ft above mean sea level, superseding figures published in the reports for 1984 to 1996. The extremes for the period of record has also been revised to reference feet above mean sea level.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	5.98	FEB 7	6.01	MAY 16	5.88	JUL 11	5.75

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 6	5.93	JAN 15	6.00	MAY 15	a--	JUL 30	a--

(a) Well locked, unable to access

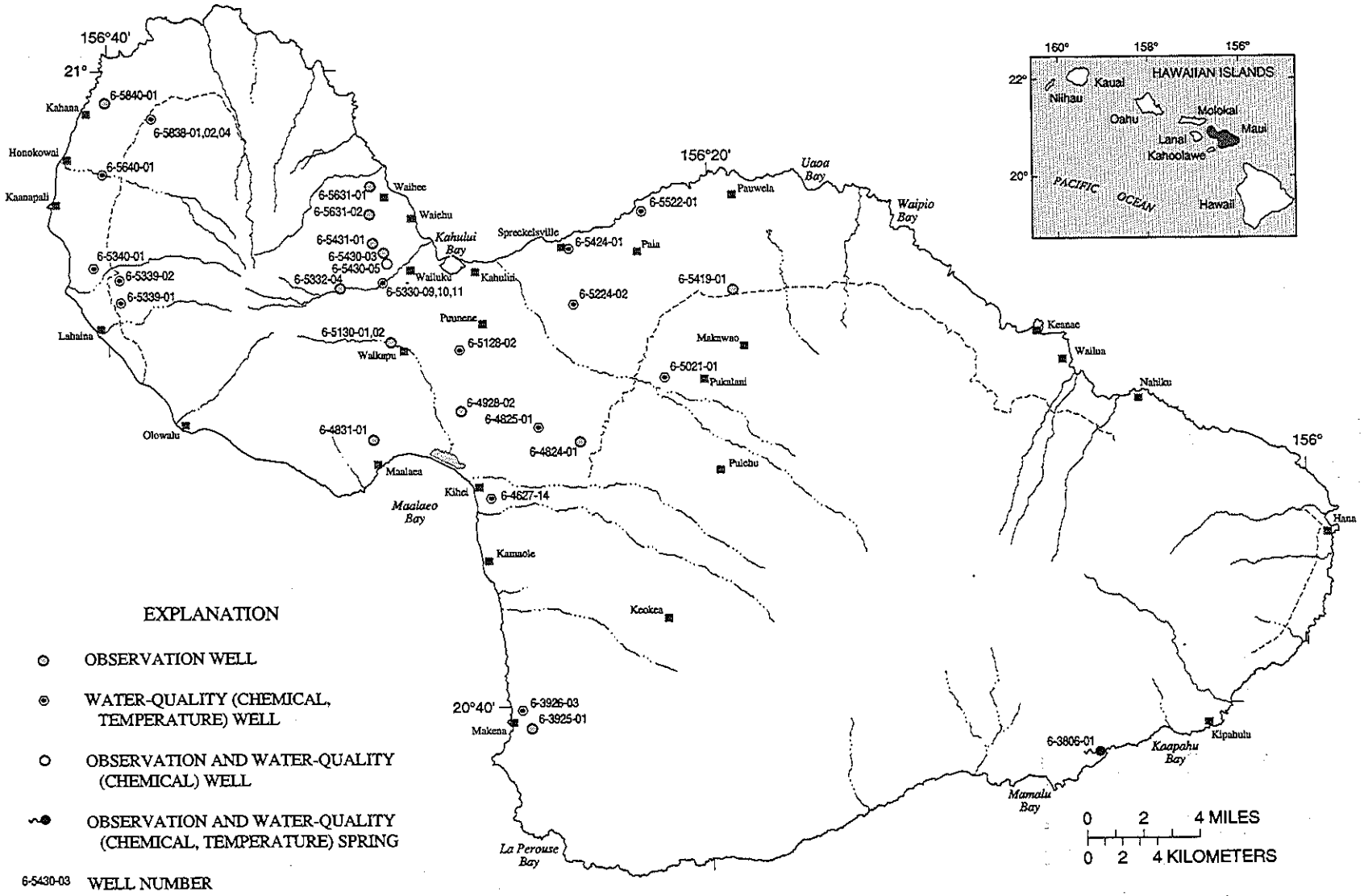


Figure 19. Locations of observation wells and ground-water quality sampling wells on Maui.

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 Volcanics, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 382 ft, 8-in. casing diameter, cased to 343 ft, perforated from 343 to 363 ft.

DATUM.--Elevation of land-surface datum is 352 ft. Measuring point is top of 2-in. 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, August 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 12	0.09	FEB 18	0.03	APR 21	-0.25	AUG 12	0.00

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 Volcanics, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 646 ft, 12-in. casing diameter, cased to 598 ft, screened from 598 to 638 ft.

DATUM.--Elevation of land-surface datum is 593 ft. Measuring point is top of 3-in. pipe attached to the steel casing cover, 594.74 ft above mean sea level.

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, January 17, 1974; lowest measured, 3.65 ft above mean sea level, January 27, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	4.26	DEC 11	4.26	FEB 25	4.72	APR 21	4.54	JUN 19	4.45	AUG 22	4.49

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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 219 ft, 8-in. casing diameter, cased to 187 ft.

DATUM.--Elevation of land-surface datum is 166 ft. Measuring point is top of 8-in. 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, November 30, 1983; lowest measured, 4.74 ft above mean sea level, March 16, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	5.32	DEC 5	5.20	FEB 13	5.46	APR 3	5.45	JUN 10	5.23	AUG 5	5.25

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 Volcanics, 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 is 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, January 12, 1980; lowest measured, 3.05 ft above mean sea level, March 5, 6, 1977.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	3.78	DEC 12	3.85	MAR 3	4.26	APR 9	4.33	JUN 10	4.05	AUG 12	4.03

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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water table well, depth 757 ft, 8-in. casing diameter, cased to 569 ft, perforated from 569 to 609 ft.

DATUM.--Elevation of land-surface datum is 551 ft. Measuring point is top of 6-in. 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, October 13, 1982; lowest measured, 11.36 ft above mean sea level, January 27, 1976.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	12.02	JAN 3	12.15	APR 1	16.21	JUN 30	14.35	AUG 25	13.93
NOV 25	11.56	FEB 24	14.48	MAY 27	15.09	AUG 6	14.13		

205154156303801. Local number, 6-5130-02.

LOCATION.--Lat 20°51'54", long 156°30'38", Hydrologic Unit 20020000, 0.6 mi northwest of Waikapu, and 1.0 mi southeast of Wailuku Heights. Owner: State of Hawaii.

AQUIFER.--Wailuku Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,020 ft, 20-in. casing diameter, cased to 520 ft, perforated from 520 to 570 ft.

DATUM.--Elevation of land-surface datum is 518 ft. Measuring point is 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, 11.88 ft above mean sea level, October 1, 1996.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	11.88	JAN 3	12.43	APR 1	12.99	JUN 30	12.89	AUG 25	12.84
NOV 25	11.94	FEB 24	12.85	MAY 27	12.92	AUG 6	12.97		

205312156321402. Local number, 6-5332-04.

LOCATION.--Lat 20°53'12", long 156°32'14", Hydrologic Unit 20020000, 1.9 mi southwest of Puuohala Village, 1.9 mi west of Wailuku Elementary School, and 10 ft from well 6-5332-04. Owner: State of Hawaii.

AQUIFER.--Wailuku Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 254 ft.

DATUM.--Elevation of land-surface datum is 713 ft. Measuring point is top of 2-in. PVC pipe.

PERIOD OF RECORD.--Occasional measurements, October 1991 to current year. Prior to October 1995, unpublished records are in the files of the U.S. Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.41 ft below land-surface datum, July 1, 1996; lowest measured, 80.60 ft below land-surface datum, February 12, 1996.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	68.24	JAN 5	54.31	APR 1	79.19	JUL 1	39.41	AUG 26	40.24
NOV 21	74.03	FEB 12	80.60	MAY 28	40.95				

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	40.54	JAN 3	76.94	APR 1	67.84	JUN 30	76.65	AUG 25	79.26
NOV 25	68.20	FEB 24	50.07	MAY 27	77.99	AUG 6	78.94		

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 Maliko Gulch. Owner: State of Hawaii

AQUIFER.--Honomanu Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 870 ft, 4-in. casing diameter, cased to 829 ft, perforated from 829 to 859 ft.

DATUM.--Elevation of land-surface datum is 828 ft. Measuring point is top of 6-in. 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 September 1996 (discontinued).

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.

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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 580 ft, 1.5-in. PVC casing, cased to 400 ft, perforated from 400 to 580 ft.

DATUM.--Elevation of land-surface datum is 415 ft. Measuring point is top of 1-in. 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, December 31, 1982; lowest measured, 9.65 ft above mean sea level, October 1, 1996.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	9.65	JAN 3	11.55	APR 1	11.63	JUN 30	10.19	AUG 25	10.47
NOV 25	11.27	FEB 24	11.35	MAY 27	10.80	AUG 6	9.97		

205405156305401. Local number, 6-5430-05.

LOCATION.--Lat 20°54'59", long 156°30'54", 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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,400 ft, 10-in. casing diameter, cased to 400 ft.

DATUM.--Elevation of land-surface datum is 380 ft. Measuring point is top of 10-in. casing, 380.84 ft above mean sea level.

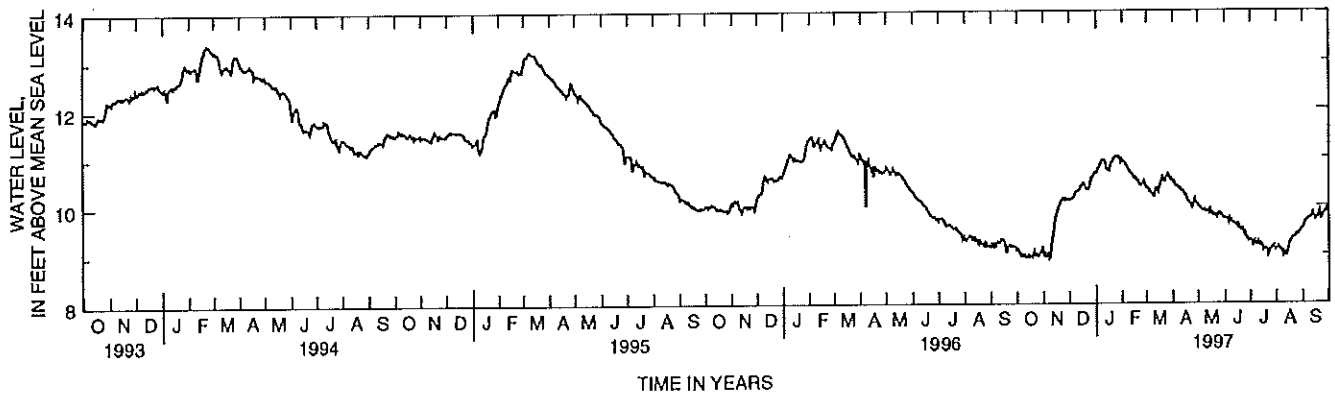
PERIOD OF RECORD.--
Water level: occasional measurements, August 1983 to May 1986. Water-level recorder, June 1986 to current year.
Water quality: 1982, 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.20 ft above mean sea level, December 14, 1989; lowest measured, e8.77 ft above mean sea level, November 5, 1996.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.12	e9.02	10.14	10.67	10.91	10.37	10.49	10.00	9.75	9.28	9.11	9.54
2	e9.11	e9.04	10.13	10.72	10.90	10.36	10.50	9.97	9.74	9.29	9.12	9.57
3	e9.04	e8.99	10.13	10.77	10.90	10.35	10.45	9.95	9.74	9.25	9.15	9.64
4	e9.03	e9.02	10.15	10.79	10.86	10.30	10.41	9.96	9.72	9.20	9.13	9.66
5	e8.98	e8.99	10.15	10.83	10.85	10.32	10.41	9.93	9.73	9.24	9.10	9.68
6	e8.97	e9.03	10.18	10.87	10.82	10.29	10.41	9.91	9.67	9.27	9.10	9.70
7	e9.00	e9.03	10.23	10.92	10.77	10.25	10.38	9.90	9.74	9.21	9.08	9.72
8	e8.96	e8.93	10.27	10.93	10.75	10.23	10.36	9.90	9.70	9.20	9.05	9.73
9	e8.96	e8.96	10.30	10.93	10.71	10.21	10.34	9.92	9.70	9.22	8.99	9.75
10	e8.99	e9.15	10.30	10.93	10.69	10.20	10.35	9.88	9.64	9.25	9.05	9.75
11	e8.96	e9.33	10.31	10.92	10.66	10.29	10.30	9.88	9.64	9.20	9.03	9.75
12	e8.95	e9.38	10.31	10.87	10.64	10.36	10.30	9.89	9.64	9.18	8.99	9.81
13	e8.97	9.53	10.34	10.74	10.62	10.36	10.30	9.90	9.62	9.22	8.98	9.84
14	e8.99	9.67	10.38	10.75	10.58	10.31	10.24	9.86	9.61	9.20	9.06	9.79
15	e8.95	9.78	10.42	10.74	10.56	10.28	10.21	9.95	9.61	9.18	9.11	9.75
16	e8.96	9.84	10.44	10.73	10.58	10.37	10.23	9.86	9.58	9.08	9.20	9.72
17	e8.98	9.89	10.46	10.80	10.56	10.41	10.19	9.87	9.64	9.10	9.25	9.75
18	e8.98	9.97	10.45	10.88	10.52	10.48	10.11	9.82	9.53	9.10	9.26	9.77
19	e8.96	10.00	10.42	10.90	10.51	10.54	10.09	9.83	9.53	9.11	9.30	9.76
20	e9.01	10.07	10.35	10.90	10.46	10.58	10.09	9.79	9.50	9.10	9.33	9.82
21	e9.07	10.10	10.35	10.96	10.43	10.54	10.05	9.80	9.52	9.08	9.35	9.88
22	e9.00	10.12	10.35	10.99	10.42	10.50	10.04	9.81	9.53	8.99	9.35	9.82
23	e8.99	10.15	10.35	11.00	10.42	10.50	9.99	9.77	9.48	9.03	9.37	9.75
24	e9.01	10.14	10.41	11.01	10.45	10.58	9.96	9.83	9.41	9.09	9.41	9.77
25	e8.99	10.12	10.47	11.01	10.46	10.61	9.99	9.84	9.43	9.09	9.40	9.81
26	e8.98	10.15	10.57	11.00	10.50	10.64	10.10	9.84	9.35	9.11	9.40	9.85
27	e8.99	10.15	10.57	10.99	10.46	10.62	10.13	9.80	9.32	9.15	9.42	9.87
28	e9.04	10.12	10.60	11.00	10.40	10.57	10.08	9.81	9.32	9.15	9.45	9.88
29	e9.05	10.12	10.64	10.95	---	10.54	10.04	9.78	9.27	9.17	9.47	9.92
30	e9.10	10.14	10.68	10.90	---	10.56	10.04	9.76	9.27	9.09	9.51	9.87
31	e9.17	---	10.67	10.95	---	10.53	---	9.74	---	9.09	9.52	---
MEAN	9.01	9.63	10.37	10.88	10.62	10.42	10.22	9.86	9.56	9.16	9.23	9.76
MAX	9.17	10.15	10.68	11.01	10.91	10.64	10.50	10.00	9.75	9.29	9.52	9.92
MIN	8.95	8.93	10.13	10.67	10.40	10.20	9.96	9.74	9.27	8.99	8.98	9.54

e Estimated



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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 555 ft, 1.5-in. PVC casing, cased to 515 ft, perforated from 515 to 555 ft.

DATUM.--Elevation of land-surface datum is 493 ft. Measuring point is top of 1.5-in. PVC casing, 492.51 ft above mean sea level.

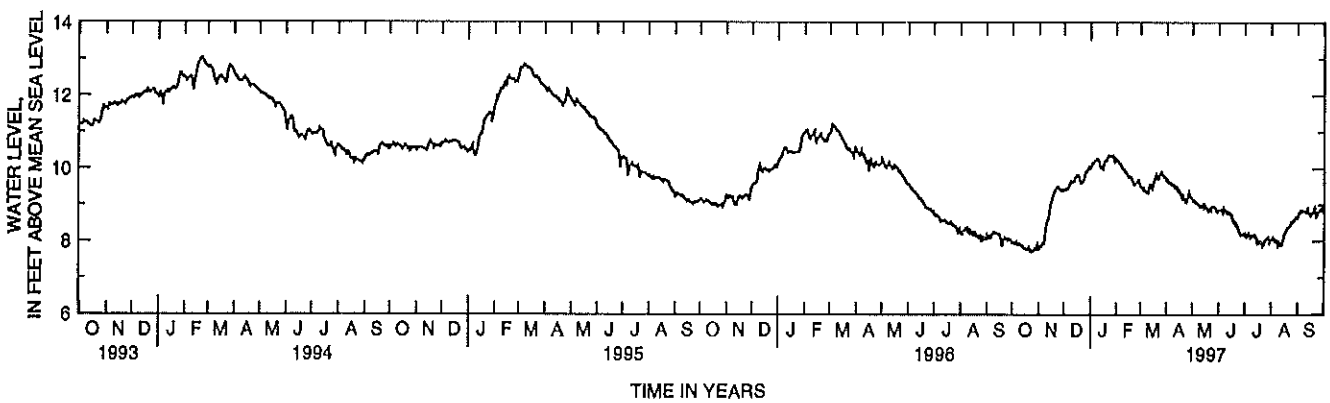
PERIOD OF RECORD.--Water-level recorder, August 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.52 ft above mean sea level, January 2, 1983; lowest measured, 7.58 ft above mean sea level, October 25, 31, 1996.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.95	7.78	9.43	10.01	10.24	9.51	9.67	9.14	8.84	e8.16	8.03	8.64
2	7.96	7.85	9.42	10.09	10.23	9.50	9.69	9.11	8.86	e8.20	8.05	8.73
3	7.95	7.87	9.42	10.14	10.19	9.47	9.64	9.08	8.86	8.16	8.09	8.79
4	7.92	7.86	9.45	10.13	10.16	9.42	9.60	9.11	8.85	8.13	8.06	8.81
5	7.93	7.93	9.44	10.17	10.14	9.46	9.62	9.05	8.86	8.18	8.01	8.83
6	7.97	7.92	9.47	10.20	10.12	9.42	9.61	9.04	8.80	8.21	8.04	8.81
7	7.91	7.94	9.55	10.22	10.04	9.39	9.56	9.04	8.90	8.14	8.02	8.83
8	7.91	8.14	9.60	10.23	10.02	9.36	9.55	9.00	8.85	8.11	7.97	8.82
9	7.93	8.34	9.65	10.26	9.98	9.35	9.53	9.00	8.85	8.16	7.90	8.83
10	7.92	8.50	9.63	10.25	9.96	9.35	9.54	8.95	8.77	8.16	7.98	8.82
11	7.86	8.58	9.63	10.23	9.91	9.45	9.46	8.94	8.78	8.13	7.95	8.80
12	7.86	8.60	9.63	10.15	9.89	9.56	9.46	8.95	8.80	8.11	7.89	8.89
13	7.87	8.73	9.65	10.00	9.87	9.55	9.48	8.99	8.75	8.16	7.89	8.90
14	7.82	8.89	9.74	10.03	9.81	9.48	9.39	8.94	8.77	8.13	8.00	8.79
15	7.80	9.04	9.77	10.02	9.77	9.45	9.36	9.05	8.75	8.11	8.07	8.77
16	7.80	9.11	9.81	10.00	9.78	9.55	9.39	8.94	8.72	7.96	8.18	8.73
17	7.79	9.18	9.81	10.12	9.76	9.64	9.34	8.95	e8.59	7.99	8.22	8.77
18	7.77	9.28	9.79	10.20	9.76	9.71	9.25	8.89	e8.54	7.96	8.28	8.79
19	7.80	9.33	9.73	10.22	9.69	9.79	9.19	8.89	e8.54	8.00	8.32	8.78
20	7.83	9.40	9.62	10.22	9.62	9.83	9.25	8.85	e8.46	7.99	8.36	8.88
21	7.75	9.43	9.62	10.29	9.57	9.75	9.16	8.89	e8.49	7.95	8.38	8.93
22	7.73	9.46	9.62	10.34	9.57	9.72	9.16	8.90	e8.42	7.87	8.40	8.82
23	7.75	9.49	9.63	10.35	9.59	9.73	9.09	8.86	e8.39	7.91	8.42	8.71
24	7.74	9.49	9.71	10.33	9.61	9.84	9.08	8.95	e8.30	8.00	8.47	8.75
25	7.74	9.44	9.80	10.33	9.64	9.87	9.14	8.95	e8.24	7.99	8.53	8.80
26	7.74	9.41	9.90	10.34	9.67	9.90	9.26	8.95	e8.17	8.04	8.53	8.85
27	7.79	9.42	9.91	10.32	9.67	9.85	9.33	8.94	e8.17	8.08	8.55	8.87
28	7.78	9.39	9.94	10.34	9.55	9.78	9.24	8.91	e8.19	8.09	8.58	8.85
29	7.85	9.39	9.97	10.26	---	9.79	9.20	8.85	e8.19	8.10	8.62	8.90
30	7.90	9.43	10.03	10.21	---	9.77	9.20	8.85	e8.20	7.98	8.66	8.83
31	7.78	---	10.00	10.28	---	9.74	---	8.82	---	8.01	8.66	---
MEAN	7.84	8.82	9.69	10.20	9.85	9.61	9.38	8.96	8.60	8.07	8.23	8.81
MAX	7.97	9.49	10.03	10.35	10.24	9.90	9.69	9.14	8.90	8.21	8.66	8.93
MIN	7.73	7.78	9.42	10.00	9.55	9.35	9.08	8.82	8.17	7.87	7.89	8.64

e Estimated



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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 300 ft, 1.5-in. PVC casing, cased to 260 ft, perforated from 260 to 300 ft.

DATUM.--Elevation of land-surface datum is 248 ft. Measuring point is top of 1.5-in. 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, December 6, 1982; lowest measured, 12.24 ft above mean sea level, August 6, 1997.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	12.42	JAN 3	12.96	APR 1	13.96	JUN 30	12.52	AUG 25	12.39
NOV 26	12.68	FEB 24	13.02	MAY 27	12.70	AUG 6	12.24		

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 Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 387 ft, 16-in. casing diameter, cased to 290 ft, perforated from 290 to 310 ft.

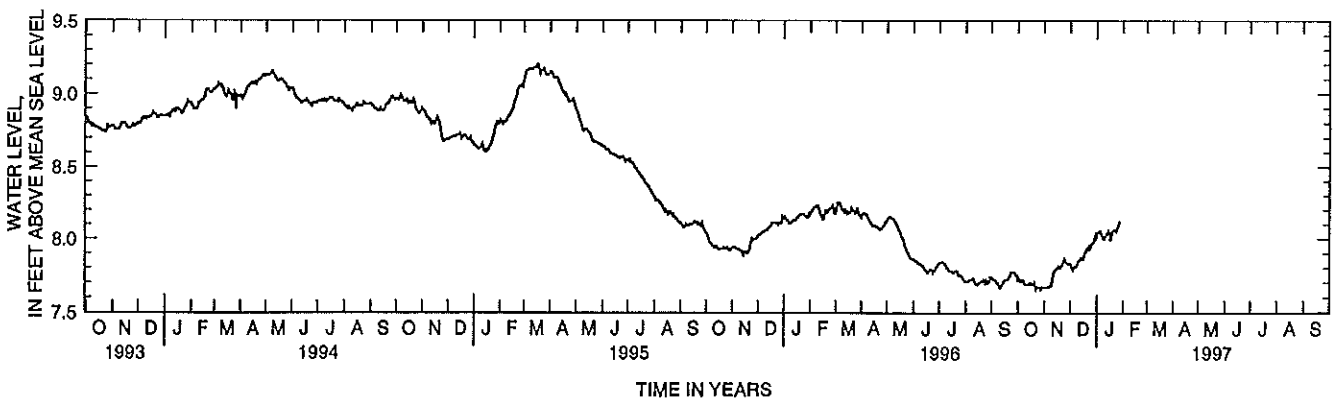
DATUM.--Elevation of land-surface datum is 281 ft. Measuring point is top of 16-in. casing, 284.78 ft above mean sea level.

PERIOD OF RECORD.--Water-level recorder, April 1988 to January 29, 1997 (discontinued). Recorder removed due to installation of a pump in the well.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.05 ft above mean sea level, October 22, November 2, 10, 11, 1989. Lowest water level measured, 7.59 ft above mean sea level, November 8, 9, 1996.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.71	7.67	7.83	8.01	---	---	---	---	---	---	---	---
2	7.73	7.67	7.81	8.03	---	---	---	---	---	---	---	---
3	7.72	7.67	7.80	8.04	---	---	---	---	---	---	---	---
4	7.71	7.67	7.79	8.05	---	---	---	---	---	---	---	---
5	7.71	7.67	7.80	8.05	---	---	---	---	---	---	---	---
6	7.72	7.67	7.81	8.05	---	---	---	---	---	---	---	---
7	7.72	7.68	7.81	8.03	---	---	---	---	---	---	---	---
8	7.70	7.68	7.81	8.01	---	---	---	---	---	---	---	---
9	7.69	7.68	7.82	8.00	---	---	---	---	---	---	---	---
10	7.69	7.71	7.84	8.00	---	---	---	---	---	---	---	---
11	7.69	7.75	7.85	8.02	---	---	---	---	---	---	---	---
12	7.69	7.78	7.86	8.02	---	---	---	---	---	---	---	---
13	7.69	7.78	7.86	8.04	---	---	---	---	---	---	---	---
14	7.69	7.79	7.87	8.04	---	---	---	---	---	---	---	---
15	7.70	7.80	7.86	8.05	---	---	---	---	---	---	---	---
16	7.70	7.80	7.86	8.03	---	---	---	---	---	---	---	---
17	7.69	7.81	7.87	7.99	---	---	---	---	---	---	---	---
18	7.69	7.80	7.90	8.01	---	---	---	---	---	---	---	---
19	7.69	7.80	7.91	8.05	---	---	---	---	---	---	---	---
20	7.70	7.81	7.92	8.05	---	---	---	---	---	---	---	---
21	7.68	7.82	7.93	8.06	---	---	---	---	---	---	---	---
22	7.66	7.83	7.94	8.06	---	---	---	---	---	---	---	---
23	7.67	7.85	7.95	8.06	---	---	---	---	---	---	---	---
24	7.67	7.86	7.93	8.05	---	---	---	---	---	---	---	---
25	7.67	7.85	7.94	8.07	---	---	---	---	---	---	---	---
26	7.67	7.84	7.96	8.08	---	---	---	---	---	---	---	---
27	7.67	7.83	7.97	8.10	---	---	---	---	---	---	---	---
28	7.66	7.83	7.97	8.12	---	---	---	---	---	---	---	---
29	7.67	7.83	7.98	---	---	---	---	---	---	---	---	---
30	7.67	7.83	8.01	---	---	---	---	---	---	---	---	---
31	7.67	---	8.03	---	---	---	---	---	---	---	---	---
MEAN	7.69	7.77	7.89	---	---	---	---	---	---	---	---	---
MAX	7.73	7.86	8.03	---	---	---	---	---	---	---	---	---
MIN	7.66	7.67	7.79	---	---	---	---	---	---	---	---	---



205856156400101. Local number, 6-5840-01.

LOCATION.--Lat 20°58'56", long 156°40'01", Hydrologic Unit 20020000, on pineapple plantation road 0.9 mi east of Kahana, and 1.5 mi southwest of Honokahua. Owner: State of Hawaii.

AQUIFER.--Honolua Volcanics, Pliocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 274 ft, 8-in. casing diameter, 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 is top of 9-in. casing, 257.45 ft above mean sea level. Levels of August 11, 1993.

REMARKS.--Water-quality records for 1964 and 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, September 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	3.30	DEC 9	3.02	FEB 18	3.17	APR 14	3.12	JUN 11	2.93	AUG 15	2.99

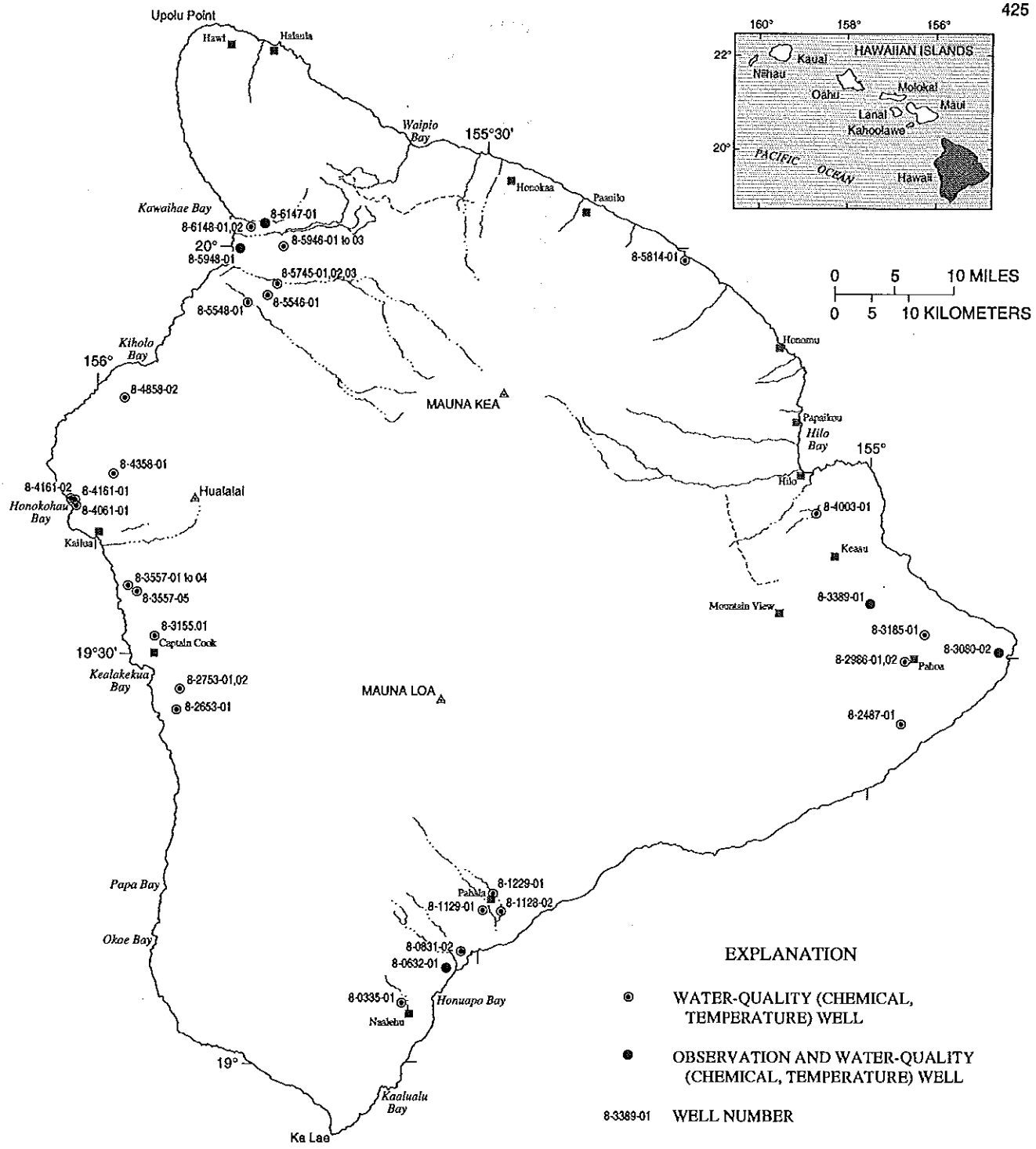


Figure 20. Locations of observation wells and ground-water quality sampling wells on Hawaii.

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 Volcanics, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table, depth 140 ft, 14-in. casing diameter, cased to 105 ft, perforated from 105 to 125 ft.

DATUM.--Elevation of land-surface datum is 102 ft. Measuring point is 0.38 ft above 1-in. 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.--
Water level: occasional measurements, April 1972 to current year.
Water quality: occasional measurements, 1994 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, October 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	1.44	MAR 11	0.95	JUL 7	1.35
JAN 14	1.57	MAY 8	1.27	SEP 23	1.68

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 Volcanics, Holocene age.

WELL CHARACTERISTICS.--Dug basal water-table well, depth 46 ft, 66-in. casing diameter, 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 is top of steel manhole cover at 1-in. 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: occasional measurements, 1972-81, 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.99 ft above mean sea level, May 5, 1997; lowest measured, 1.18 ft above mean sea level, June 3, 1985.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 9	4.63	MAR 10	4.94	JUL 7	4.87
JAN 13	4.79	MAY 5	4.99	SEP 22	4.83

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 Volcanics, Holocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 475 ft, 8-in. casing diameter, cased to 403 ft, perforated from 403 to 475 ft.

DATUM.--Elevation of land-surface datum is 427 ft. Measuring point is 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.--
Water level: occasional measurements, September 1974 to current year.
Water quality: occasional measurements, 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.76 ft above mean sea level, revised, November 27, 1990; lowest measured, 9.92 ft above mean sea level, June 9, 1992.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 9	16.88	MAR 10	17.07	JUL 7	17.17
JAN 13	18.27	MAY 5	17.31	SEP 22	19.02

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 Volcanics, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 268 ft, 10-in. casing diameter, cased to 246 ft, screened from 246 to 266 ft.

DATUM.--Elevation of land-surface datum is 244 ft. Measuring point is hole in pump base, 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: occasional measurements, 1970, 1973 to current year.

REVISED RECORDS.--WDR HI-91-1: 1976-80 (water-level data), 1976-90 (extremes for the period of record).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.83 ft above mean sea level, August 29, 1994; lowest measured, 1.38 ft above mean sea level, September 28, 1979.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	a--	MAR 21	4.30	JUL 3	4.22
JAN 17	a--	MAY 7	a--	SEP 25	3.31

(a) No water level measured. Pump found running

200132155471101. Local number, 8-6147-01.

LOCATION.--Lat 20°01'32", long 155°47'11", 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 Volcanics, Pleistocene age.

WELL CHARACTERISTICS.--Drilled basal water-table well, depth 1,008 ft, 8-in. casing diameter, 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 is top of pipe coupling on casing cover 983.08 ft, revised, November 18, 1986, above mean sea level.

REMARKS.--Water-quality records for 1963-64 are available in files of district office.

PERIOD OF RECORD.--
Water level: occasional measurements, June to July 1963, June 1973 to current year.
Water quality: occasional measurements, 1994 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 1996 TO SEPTEMBER 1997

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	5.83	MAR 21	5.85	JUL 7	5.75
JAN 17	5.91	MAY 7	5.98	SEP 25	5.43

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CHLO-RIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF KAUAI						
220136159205501	2-0120-01	W7 WAILUA	22 01 36 N	159 20 55 W	11-01-96	a0915	--	--	--
					11-18-96	a0740	--	--	--
					12-06-96	a0800	--	--	--
					02-11-97	0750	792	26.0	132
					03-19-97	1300	794	25.5	132
					06-03-97	0800	796	25.0	134
					08-08-97	0830	802	25.5	135
220354159205601	2-0320-01	W9-1A WAIL	22 03 54 N	159 20 56 W	12-11-96	1420	400	24.0	53.0
					04-04-97	b0825	--	--	--
					06-04-97	b0910	--	--	--
					08-06-97	0850	411	25.5	53.0
220354159205602	2-0320-03	W9-1B WAIL	22 03 54 N	159 20 56 W	11-01-96	0920	391	24.5	45.0
					02-13-97	0910	416	23.5	53.0
					04-04-97	0825	404	24.0	49.0
					06-04-97	0915	397	24.0	45.0
					08-06-97	c0830	--	--	--
220530159450401	2-0545-01	W59 KAULAU	22 05 30 N	159 45 07 W	10-28-96	1240	730	23.5	142
					12-05-96	1310	743	24.5	137
					02-12-97	1115	855	23.5	146
					04-03-97	1245	789	24.0	138
					06-05-97	1155	771	25.0	135
					08-05-97	1145	765	25.5	134
220621159232101	2-0623-04	KAPAA	22 06 21 N	159 23 21 W	11-01-96	1415	111	25.5	13.0
					12-11-96	0900	119	23.5	14.0
					02-13-97	1400	121	24.0	13.0
					04-04-97	0910	108	24.0	11.0
					06-04-97	1415	105	26.0	12.0
					08-06-97	0930	106	26.5	12.0
220827159185401	2-0818-01	W90A ANAHO	22 08 27 N	159 18 54 W	11-01-96	1030	234	24.5	21.0
					02-13-97	1015	239	24.0	22.0
					04-04-97	d0945	--	--	--
					06-04-97	1010	239	24.0	22.0
					08-06-97	d1005	--	--	--
220826159185401	2-0818-02	W90B ANAHO	22 08 26 N	159 18 54 W	12-11-96	0940	228	23.5	19.0
					04-04-97	0950	234	23.5	20.0
					06-04-97	e1015	--	--	--
					08-06-97	1005	222	24.0	19.0
221038159203801	2-1020-03	W78 MOLOAA	22 10 38 N	159 20 38 W	10-29-96	f1600	--	--	--
					12-04-96	g1400	--	--	--
					02-12-97	a1530	--	--	--
					04-10-97	a1130	--	--	--
					05-27-97	a1530	--	--	--
					08-06-97	a1415	--	--	--
221141159252501	2-1125-01	N1 KILAUEA	22 11 41 N	159 25 25 W	11-01-96	1100	179	23.5	17.0
					02-13-97	1050	176	23.5	17.0
					04-07-97	h0955	--	--	--
					06-04-97	h1035	--	--	--
					08-06-97	1340	179	26.5	17.0
221141159252502	2-1125-02	N2 KILAUEA	22 11 41 N	159 25 35 W	12-11-96	1015	160	25.0	15.0
					04-07-97	0950	162	24.0	15.0
					06-04-97	1040	159	24.0	16.0
					08-06-97	i1350	--	--	--

a Pump not working, unable to collect sample
b Sample taken at well 2-0320-03, alternating sampling between wells
c Sample taken at well 2-0320-01, alternating sampling between wells
d Sample taken at well 2-0818-02, alternating sampling between wells
e Sample taken at well 2-0818-01, alternating sampling between wells
f Well not used, unable to collect sample
g Pump not installed, unable to collect sample
h Sample taken at well 2-1125-02, alternating sampling between wells
i Sample taken at well 2-1125-01, alternating sampling between wells

STATION NUMBER	LOCAL NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CHLORIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF KAUAI--Continued						
221150159264501	2-1126-01	KALIHIWAI	22 11 50 N	159 26 45 W	10-29-96	0745	203	22.5	23.0
					02-14-97	0800	203	21.0	20.0
					04-09-97	a0810	--	--	--
					05-28-97	0730	183	22.0	19.0
					08-07-97	a0800	--	--	--
221151159265001	2-1126-02	KALIHIWAI	22 11 51 N	159 26 50 W	10-29-96	b0800	--	--	--
					12-04-96	0850	189	23.0	18.0
					04-09-97	0820	202	23.5	20.0
					05-28-97	b0740	--	--	--
					08-07-97	0800	192	23.5	17.0
221201159293401	2-1229-03	W73 HANALE	22 12 01 N	159 29 34 W	11-01-96	1150	259	24.0	36.0
					12-11-96	1115	262	23.0	37.0
					02-13-97	1250	263	23.0	36.0
					04-07-97	1030	259	23.0	36.0
					06-04-97	1300	261	24.0	36.0
					08-06-97	1310	256	24.0	37.0
221247159324801	2-1232-01	W67 WAINIH	22 12 47 N	159 32 48 W	11-01-96	1300	118	24.0	22.0
					12-11-96	1225	118	23.5	22.0
					02-13-97	1200	124	23.5	25.0
					04-04-97	1155	130	22.5	21.0
					06-04-97	1220	115	23.0	23.0
					08-06-97	1210	129	22.5	22.0
221318159335901	2-1333-01	W66 HAENA	22 13 18 N	159 33 59 W	11-01-96	c1230	--	--	--
					12-04-96	c1200	--	--	--
					02-13-97	c1150	--	--	--
					04-04-97	c1100	--	--	--
					06-04-97	1145	206	22.0	21.0
					08-06-97	1115	203	22.0	20.0
215434159263301	2-5426-03	T16 KOLOA	21 54 34 N	159 26 33 W	10-31-96	d0850	--	--	--
					06-03-97	0930	463	23.5	82.0
215454159274201	2-5427-01	W16A KOLOA	21 54 54 N	159 27 42 W	10-31-96	0800	233	22.5	26.0
					02-14-97	0750	233	22.0	26.0
					04-03-97	e0830	--	--	--
					06-05-97	0815	234	23.0	27.0
					08-05-97	e0800	--	--	--
215455159274201	2-5427-02	W16B KOLOA	21 54 55 N	159 27 42 W	12-10-96	0830	228	22.5	26.0
					04-03-97	0835	226	22.5	24.0
					06-05-97	f0830	--	--	--
					08-05-97	0830	224	23.0	25.0
215536159263501	2-5526-01	KOLOA	21 55 36 N	159 26 35 W	11-08-96	d1410	--	--	--
					12-10-96	g1410	--	--	--
					02-11-97	h1000	--	--	--
215528159303001	2-5530-02	W23 LAWAI	21 55 28 N	159 30 30 W	10-31-96	c1300	--	--	--
					12-10-96	0740	283	22.5	31.0
215535159302601	2-5530-03	W22 LAWAI	21 55 35 N	159 30 26 W	11-08-96	0830	228	22.5	26.0
					12-10-96	0750	203	19.5	23.0
					02-12-97	1320	233	26.0	27.0
					04-15-97	1545	233	26.0	26.0
					06-05-97	1350	235	28.0	27.0
					08-05-97	1400	227	26.0	25.0

a Sample taken at well 2-1126-02, alternating sampling between wells
b Sample taken at well 2-1126-01, alternating sampling between wells
c Pump could not be turned on, unable to collect sample
d Well not being used, unable to collect sample
e Sample taken at well 2-5427-02, alternating sampling between wells
f Sample taken at well 2-5427-01, alternating sampling between wells
g Pump not working, unable to collect sample
h Discontinued sampling

STATION NUMBER	LOCAL NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CHLORIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF KAUAI--Continued						
215522159342601	2-5534-03	W25-1 HANA	21 55 22 N	159 34 26 W	10-31-96	1230	429	23.5	36.0
					12-10-96	0950	426	23.5	36.0
					02-12-97	0850	434	24.0	37.0
					04-03-97	0925	439	23.5	35.0
					06-10-97	0800	433	23.5	36.0
					08-05-97	1340	393	24.0	33.0
215803159401201	2-5840-01	W26 WAIMEA	21 58 03 N	159 40 12 W	10-31-96	1100	671	25.0	114
					12-10-96	1130	982	24.0	223
					02-12-97	0955	752	24.5	140
					04-03-97	1150	1050	25.0	245
					06-10-97	1000	1010	25.5	238
					08-05-97	0945	1100	25.0	262
215857159430101	2-5843-01	S12 KEKAHA	21 58 57 N	159 43 01 W	04-03-97	1010	475	24.0	59.0
					06-05-97	1020	484	24.5	59.0
					08-05-97	1015	502	25.0	63.0
215958159214301	2-5921-01	W10 HANAMA	21 59 58 N	159 21 43 W	04-07-97	0835	486	25.0	28.0
					06-04-97	0820	522	25.5	61.0
					08-06-97	0745	522	25.5	55.0
215901159235301	2-5923-01	KILOHANA A	21 59 01 N	159 23 53 W	11-01-96	a0830	--	--	--
					12-11-96	a0800	--	--	--
					02-13-97	0810	244	25.0	19.0
					04-04-97	0740	243	25.0	19.0
					06-04-97	0755	246	25.0	20.0
					08-08-97	0800	261	25.5	19.0
215901159235201	2-5923-07	KILOHANA I	21 59 01 N	159 23 52 W	11-01-96	0820	189	23.5	21.0
					12-11-96	0745	169	23.0	18.0
					02-13-97	0750	190	23.0	20.0
					04-04-97	0730	189	23.0	20.0
					06-04-97	0745	176	23.5	20.0
					08-08-97	0805	188	23.5	19.0
215906159395601	2-5939-01	S9 WAIMEA	21 59 06 N	159 39 56 W	10-28-96	1020	259	23.5	24.0
					12-10-96	1205	311	24.0	30.0
					02-12-97	1225	291	24.0	25.0
					04-03-97	1100	288	24.0	27.0
					06-05-97	1300	281	24.0	29.0
					08-05-97	1255	290	24.0	32.0

a Pump not working, unable to collect sample

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CHLO-RIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF OAHU						
211646157465201	3-1646-01	W1-B WAIAL	21 16 46 N	157 46 52 W	06-17-97	0905	882	21.5	--
					09-10-97	0915	810	21.0	--
211832157515501	3-1851-19	W102 TUBEA	21 18 32 N	157 51 55 W	02-14-97	1215	34800	24.0	13300
					06-17-97	1505	35600	24.5	13600
					09-17-97	1050	35600	24.0	13400
211832157515502	3-1851-19	W102 TUBEB	21 18 32 N	157 51 55 W	02-14-97	1210	16200	24.0	--
					06-17-97	1515	16700	24.5	--
					09-17-97	1030	16900	24.5	5900
212133158035501	3-2103-03	S14 MAKAKI	21 21 33 N	158 03 55 W	02-03-97	0900	1080	23.5	224
					06-19-97	0950	1090	23.5	230
					09-12-97	0900	1090	23.5	226
212106157533701	3-2153-02	W153 MOANA	21 21 06 N	157 53 37 W	02-13-97	1440	487	22.0	100
					06-17-97	1300	490	22.0	100
					09-10-97	1015	493	22.0	102
212238157561102	3-2256-12	W187-C	21 22 39 N	157 56 09 W	01-09-97	1220	900	23.5	231
					06-17-97	1345	888	23.5	228
					09-17-97	1435	859	26.0	206
212343158001001	3-2300-11	W238 WAIPH	21 23 43 N	158 00 10 W	02-13-97	1335	651	22.0	--
					06-26-97	1030	638	22.0	--
					09-12-97	0930	649	22.0	--

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SAMPLE DEPTH DIS-TANCE BELOW MSL FEET (78890)	CHLO-RIDE, (MG/L AS CL) (99905)
				HAWAII, ISLAND OF OAHU--Continued				
212340158001901	3-2300-18 W241		21 23 40 N	158 00 19 W	12-12-96	a0920	400	167
					12-12-96	a0945	500	636
					12-12-96	a1015	550	1560
					12-12-96	a1040	600	3520
					12-12-96	a1105	650	5920
					12-12-96	a1135	700	7720
					12-12-96	a1205	750	9720
					12-12-96	a1235	800	11000
					12-12-96	a1310	850	12700
					12-12-96	a1340	900	14600
					12-12-96	a1405	950	16200
					12-12-96	a1440	990	16400
					03-27-97	a0930	400	181
					03-27-97	a0950	500	589
					03-27-97	a1010	550	1480
					03-27-97	a1030	600	3350
					03-27-97	a1055	650	5720
					03-27-97	a1118	700	7550
					03-27-97	a1145	750	9430
					03-27-97	a1215	800	10900
					03-27-97	a1240	850	12700
					03-27-97	a1315	900	15100
					03-27-97	a1340	950	16100
					03-27-97	a1415	990	16900
					06-26-97	a0925	400	180
					06-26-97	a0950	500	582
					06-26-97	a1015	550	1390
					06-26-97	a1050	600	3160
					06-26-97	a1110	650	5560
					06-26-97	a1135	700	7560
					06-26-97	a1205	750	9510
					06-26-97	a1235	800	11000
					06-26-97	a1310	850	13200
					06-26-97	a1345	900	14500
					06-26-97	a1415	950	17000
					06-26-97	a1455	990	16600
					09-25-97	a0915	400	175
					09-25-97	a0930	500	567
					09-25-97	a0950	550	1320
					09-25-97	a1015	600	3060
					09-25-97	a1040	650	5460
					09-25-97	a1105	700	7440
					09-25-97	a1135	750	9190
					09-25-97	a1205	800	10700
					09-25-97	a1235	850	12500
					09-25-97	a1305	900	14300
					09-25-97	a1338	950	15800
					09-25-97	a1410	990	16200

a Water sample collected by Hawaii Commission on Water Resource Management

STATION NUMBER	LOCAL NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CHLORIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF OAHU--Continued						
212358158010901	3-2301-09,10	W247-IJ	21 23 58 N	158 01 09 W	06-26-97	0910	647	22.0	--
					09-12-97	1515	675	22.5	--
212332157582201	3-2358-02	W201	21 23 32 N	157 58 22 W	02-14-97	1025	1360	20.5	--
					06-19-97	1100	1210	21.0	--
					09-12-97	1340	1250	20.5	383
212342157584301	3-2358-22	W204-4	21 23 42 N	157 58 43 W	02-14-97	0955	1730	20.5	--
					06-26-97	1000	1780	20.5	--
					09-10-97	1330	1620	23.0	--
212343157584701	3-2358-29	W204-9	21 23 43 N	157 58 47 W	02-14-97	0950	4450	20.5	--
					06-26-97	1055	5010	20.5	--
					09-10-97	1355	3560	21.0	--
212336157591801	3-2359-05	W204-11	21 23 36 N	157 59 18 W	02-14-97	1005	3020	22.0	--
					06-26-97	1040	3220	22.0	--
					09-10-97	1415	2690	22.5	--
212422157485601	3-2448-01	W416	21 24 22 N	157 48 56 W	02-05-97	a1405	--	--	--
					06-18-97	a--	--	--	--
					09-12-97	1045	202	20.5	19.0
212556157500301	3-2550-01	W407-16	21 25 56 N	157 50 03 W	02-05-97	b1330	--	--	--
					06-18-97	1318	135	23.0	19.0
					09-12-97	1000	132	23.0	18.0
212506157582301	3-2558-10	S16	21 25 06 N	157 58 23 W	02-07-97	0810	220	21.0	--
					06-26-97	1115	250	21.0	--
					09-12-97	1430	259	20.5	--
212617158033801	3-2603-01	W330-8	21 26 17 N	158 03 38 W	02-14-97	0905	340	23.0	47.0
					06-20-97	1035	342	24.0	47.0
					09-12-97	1035	343	23.5	47.0
212656158071801	3-2607-01	W277-97	21 26 56 N	158 07 18 W	02-03-97	1045	385	24.5	--
					06-19-97	1055	353	25.0	--
					09-12-97	1000	396	24.5	--

a No flow, unable to collect sample
b Pump off, unable to collect sample

STATION NUMBER	LOCAL NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE	TIME	SAMPLE DEPTH DISTANCE BELOW MSL FEET (78890)	CHLORIDE, (MG/L AS CL) (99905)
				HAWAII, ISLAND OF OAHU--Continued				
212614157594301	3-2659-01	WAIPIO-MAUKA MON	21 26 14 N	157 59 43 W	12-10-96	a0920	400	34.0
					12-10-96	a0955	500	41.0
					12-10-96	a1030	600	72.0
					12-10-96	a1105	700	383
					12-10-96	a1145	800	1310
					12-10-96	a1225	825	2870
					12-10-96	a1310	850	4770
					12-10-96	a1340	875	6940
					12-11-96	a0920	900	8590
					12-11-96	a1005	1000	13100
					12-11-96	a1055	1100	15200
					12-11-96	a1145	1200	16500
					12-11-96	a1245	1300	17000
					03-24-97	a0925	400	28.0
					03-24-97	a0955	500	24.0
					03-24-97	a1025	600	73.0
					03-24-97	a1105	700	361
					03-24-97	a1135	800	1320
					03-24-97	a1210	825	2910
					03-24-97	a1250	850	4580
					03-24-97	a1330	875	6940
					03-25-97	a0950	900	8390
					03-25-97	a1040	1000	13200
					03-25-97	a1125	1100	15600
					03-25-97	a1215	1200	16700
					03-25-97	a1310	1300	17400
					06-24-97	a1000	400	26.0
					06-24-97	a1030	500	27.0
					06-24-97	a1105	600	74.0
					06-24-97	a1140	700	71.0
					06-24-97	a1210	800	1790
					06-24-97	a1250	825	3110
					06-24-97	a1325	850	4290
					06-24-97	a1405	875	6890
					06-25-97	a0950	900	8220
					06-25-97	a1045	1000	13000
					06-25-97	a1135	1100	15100
					06-25-97	a1225	1200	16200
					06-25-97	a1320	1300	17000
					09-23-97	a0940	400	27.0
					09-23-97	a1010	500	26.0
					09-23-97	a1045	600	73.0
					09-23-97	a1115	700	77.0
					09-23-97	a1150	800	1780
					09-23-97	a1220	825	3140
					09-23-97	a1255	850	4340
					09-23-97	a1330	875	6870
					09-24-97	a0920	900	8010
					09-24-97	a1005	1000	12800
					09-24-97	a1050	1100	15000
					09-24-97	a1145	1200	16200
					09-24-97	a1235	1300	17000

a Water sample collected by Hawaii Commission on Water Resource Management

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CHLO-RIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF OAHU--Continued						
212803158000701	3-2800-01 W250-4A		21 28 03 N	158 00 06 W	02-07-97	0845	160	22.0	18.0
					06-26-97	1145	151	22.0	18.0
					09-17-97	1345	148	22.0	18.0
212828158092001	3-2809-06 TU WAIANAE		21 28 27 N	158 09 20 W	02-03-97	1315	560	22.5	--
					06-19-97	1340	338	22.5	--
					09-12-97	1135	349	22.5	--
212859158124301	3-2812-01 S1		21 28 59 N	158 12 43 W	02-03-97	1350	818	23.5	--
					06-19-97	1400	753	25.5	--
212927158014801	3-2901-07 S4		21 29 27 N	158 01 48 W	05-28-97	0930	250	21.5	20.0
					09-25-97	0910	168	21.5	19.0
212945158014301	3-2901-09 W330-6		21 29 45 N	158 01 43 W	01-24-97	a1445	--	--	--
					06-20-97	1120	199	22.0	21.0
					09-17-97	1215	199	22.0	22.0
212945158014302	3-2901-12 WAHIAWA		21 29 45 N	158 01 43 W	02-07-97	1300	200	22.0	22.0
213224158135901	3-3213-06 W277-101		21 32 24 N	158 13 59 W	02-03-97	1415	894	23.0	202
					06-19-97	1445	804	23.5	201
					09-12-97	1210	883	23.5	201
213327157524401	3-3352-01 W405		21 33 27 N	157 52 43 W	02-05-97	1100	251	22.5	34.0
					06-18-97	1125	251	22.5	34.0
					09-12-97	0903	--	23.0	34.0
213429158055501	3-3405-01 W323-1		21 34 29 N	158 05 55 W	09-17-97	1145	388	22.5	--
213427158055501	3-3405-02 W323-2		21 34 27 N	158 05 55 W	01-24-97	1425	414	22.0	--
					06-20-97	1400	404	22.5	--
213411158074501	3-3407-25 W320		21 34 11 N	158 07 45 W	02-07-97	0950	1640	23.0	--
					06-18-97	a0900	--	--	--
					09-10-97	0905	1550	23.5	--
213444158075501	3-3407-30 W318-2		21 34 44 N	158 07 55 W	01-27-97	a1115	--	--	--
					06-18-97	1430	3850	24.5	1030
					09-10-97	a1105	--	--	--
213446158104901	3-3410-08 W286		21 34 46 N	158 10 49 W	01-27-97	1130	730	22.0	--
					06-18-97	1400	647	22.0	--
					09-10-97	1300	715	22.0	--
213512158061601	3-3506-03 TO 04 W329 A-B W		21 35 12 N	158 06 16 W	01-28-97	a1000	--	--	--
					06-18-97	1150	384	22.0	--
					09-10-97	a1030	--	--	--
213636158053701	3-3605-03 W334-C		21 36 36 N	158 05 37 W	01-28-97	0945	1590	21.5	--
					06-18-97	0950	1610	21.5	--
					09-10-97	1015	1670	21.5	--
213636158053702	3-3605-21 W334-U		21 36 35 N	158 05 40 W	01-27-97	1000	1390	21.5	--
					06-18-97	1010	1410	21.5	--
					09-10-97	1030	1440	21.5	--
213656157550401	3-3655-01 W394		21 36 56 N	157 55 04 W	01-28-97	1430	237	21.0	33.0
					06-18-97	1050	237	22.0	33.0
					09-09-97	1416	--	21.0	33.0
213902157561601	3-3956-04 W366		21 39 02 N	157 56 16 W	01-28-97	1404	311	21.5	50.0
					06-17-97	1410	307	21.5	47.0
214157158000101	3-4100-01 W338		21 41 57 N	158 00 01 W	01-28-97	a1012	--	--	--
					06-17-97	1036	319	21.5	53.0
					09-09-97	a1036	--	--	--
214131158011601	3-4101-08 W337-6		21 41 31 N	158 01 16 W	01-28-97	a1255	--	--	--
					06-17-97	1246	220	21.0	33.0
					09-09-97	1210	--	20.0	33.0
214233157583501	3-4258-04 W345		21 42 33 N	157 58 35 W	01-28-97	0950	1550	23.0	446
					06-17-97	0955	1520	24.0	486
					09-09-97	1008	1490	24.5	434

a Pump off, unable to collect sample

STATION NUMBER	LOCAL NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CHLORIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF MOLOKAI						
210425156483001	4-0448-02	S8	21 04 25 N	156 48 30 W	11-07-96	0935	324	25.0	19.0
					01-13-97	1550	743	25.0	94.0
					03-24-97	1430	575	24.0	78.0
					05-12-97	1215	520	24.5	62.0
					07-29-97	1530	430	24.5	37.0
210402156495801	4-0449-01	S6	21 04 02 N	156 49 58 W	11-07-96	1000	337	20.5	66.0
					01-13-97	1620	339	21.0	66.0
					03-24-97	1450	331	20.5	62.0
					05-12-97	1245	337	21.0	65.0
					07-29-97	1545	334	20.5	62.0
210414156565601	4-0456-04	KAWELA PLANTATIO	21 04 14 N	156 56 56 W	11-05-96	a0755	--	--	201
					01-15-97	a0815	b800	--	188
					03-27-97	a0740	b390	--	71.0
					05-14-97	a1420	b351	--	52.0
					07-28-97	a1100	b190	--	17.0
210429156565106	4-0456-06	KAWELA PLANTATIO	21 04 29 N	156 56 51 W	11-05-96	a0845	b405	--	84.0
					01-15-97	a0900	b312	--	45.0
					03-27-97	a0850	b365	--	72.0
					05-14-97	a1405	b370	--	73.0
					07-28-97	a1115	b379	--	77.0
210419156562108	4-0456-08	KAWELA PLANTATIO	21 04 19 N	156 56 21 W	11-05-96	a0815	--	--	121
					01-15-97	a0830	b500	--	110
					03-27-97	a0810	b497	--	107
					05-14-97	a1325	b1430	--	376
					07-28-97	a1135	b907	--	224
210426156563509	4-0456-09	KAWELA PLANTATIO	21 04 26 N	156 56 35 W	11-05-96	a0835	--	--	160
					01-15-97	a0845	b664	--	158
					03-27-97	a0825	--	--	144
					05-14-97	a1340	--	--	152
					07-28-97	a1125	--	--	152
210419156570501	4-0457-01	S4	21 04 19 N	156 57 05 W	11-07-96	1105	710	23.5	176
					01-13-97	1655	658	23.5	160
					03-25-97	1530	713	23.5	173
					05-13-97	0945	717	23.5	172
					08-01-97	0730	662	23.5	156
210433156574201	4-0457-04	KAWELA PLANTATIO	21 04 33 N	156 57 42 W	11-05-96	a0900	--	--	329
					01-15-97	a0920	--	--	324
					03-27-97	a0900	--	--	323
					05-14-97	a1315	--	--	329
					07-28-97	a1045	--	--	324
210605157012001	4-0601-01	W11	21 06 06 N	157 01 11 W	11-07-96	1400	349	24.5	37.0
					01-16-97	1010	267	24.0	35.0
					05-13-97	1250	258	24.0	25.0
					07-31-97	1100	331	24.5	27.0
210856157011201	4-0801-01	W16	21 08 56 N	157 01 12 W	10-21-96	c1435	--	--	100
					12-11-96	c0800	b600	--	143
					01-21-97	c1045	415	--	89.0
					02-12-97	c1040	424	--	92.0
					04-02-97	c0800	--	--	116
					05-08-97	c1000	--	--	97.0
					06-27-97	c0940	b420	--	93.0
210857156010701	4-0801-02		21 08 57 N	157 01 07 W	10-22-96	c0745	--	--	66.0
					11-06-96	c1410	--	--	72.0
					12-10-96	c1000	b360	--	75.0
					01-22-97	c0800	b297	--	55.0
					02-13-97	c0745	b323	--	62.0
					03-07-97	c0800	b361	--	72.0
					05-08-97	c1125	--	--	70.0
					07-26-97	c0800	b332	--	66.0
210903157013001	4-0901-01	W17	21 09 03 N	157 01 30 W	11-01-96	d1000	--	--	50.0
					12-01-96	d0940	b317	--	49.0
					03-01-97	d1000	b270	--	51.0
					07-01-97	d0800	b242	--	43.0
					08-01-97	d0925	b239	--	43.0
					09-01-97	d0920	b276	--	51.0

a Water sample collected by Kawela Plantation Homeowners Association
b Laboratory specific conductance
c Water sample collected by Hawaii Department of Hawaiian Home Lands
d Water sample collected by Kukui Incorporated

STATION NUMBER	LOCAL NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CHLORIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF MAUI						
203835156065001	6-3806-01	PUNAHOU SPRINGS	20 38 35 N	156 06 50 W	10-21-96	b1030	--	--	--
					12-17-96	b1100	--	--	--
					02-05-97	0810	777	--	198
					04-22-97	b1000	--	--	--
					06-12-97	b1015	--	--	--
					09-03-97	a1030	--	--	--
203947156261201	6-3926-03	WAILEA 8	20 39 47 N	156 26 13 W	12-12-96	1055	2690	20.0	720
					02-18-97	1230	2580	21.0	685
					04-21-97	1215	4450	19.0	1260
					08-22-97	a1100	--	--	--
204635156270101	6-4627-14	W226	20 46 35 N	156 27 01 W	02-18-97	1430	1490	24.0	232
					04-09-97	1115	1490	23.5	223
					08-12-97	0955	1510	23.5	225
204845156255001	6-4825-01	S15	20 48 45 N	156 25 50 W	10-30-96	a1110	--	--	--
					12-11-96	1050	1230	23.5	--
					02-25-97	1045	1110	23.5	170
					04-21-97	1330	1220	23.5	--
					06-19-97	1035	1220	23.5	--
					08-22-97	1040	1250	23.5	--
205014156212701	6-5021-01	PUKALANI	20 50 14 N	156 21 27 W	10-29-96	0930	--	--	561
					01-28-97	0950	2020	--	551
					04-02-97	1015	--	--	548
					07-17-97	0920	--	--	561
205102156282501	6-5128-02	S16	20 51 02 N	156 28 25 W	10-30-96	1045	1620	24.0	269
					12-11-96	a1010	--	--	--
					02-25-97	a1020	--	--	--
					04-21-97	a1105	--	--	--
					06-19-97	a1020	--	--	--
					08-22-97	a1020	--	--	--
205243156243201	6-5224-02	S22	20 52 43 N	156 24 32 W	10-30-96	a1300	--	--	--
					12-11-96	a1215	--	--	--
					02-25-97	a1410	--	--	--
					04-21-97	a1440	--	--	--
					06-19-97	a1305	--	--	--
					08-22-97	1125	1140	23.5	247
205329156305502	6-5330-09	W15A	20 53 29 N	156 30 55 W	10-30-96	a1010	--	--	--
					12-11-96	a0930	--	--	--
					02-25-97	a0930	--	--	--
					04-24-97	a1345	--	--	--
					06-19-97	a0955	--	--	--
					08-22-97	a0930	--	--	--

a Pump off, unable to collect sample
b Tide too high to sample from seepage

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CHLO-RIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF MAUI--Continued						
205329156305501	6-5330-10 W15B		20 53 29 N	156 30 55 W	10-30-96	a1015	--	--	--
					12-11-96	a0935	--	--	--
					02-25-97	0945	525	22.0	103
					04-24-97	1350	632	22.0	132
					06-19-97	0950	627	22.0	132
					08-22-97	0935	623	22.0	128
205330156305401	6-5330-11 W15F		20 53 30 N	156 30 54 W	10-30-96	1025	672	23.0	141
					12-11-96	0925	604	22.5	123
					02-25-97	0935	750	22.5	164
					04-24-97	1355	790	22.5	170
					06-19-97	1000	840	22.5	191
					08-22-97	0935	880	22.5	196
205322156394501	6-5339-01 W291		20 53 22 N	156 39 45 W	10-29-96	a1020	--	--	--
					12-09-96	a0940	--	--	--
					02-18-97	a0940	--	--	--
					04-14-97	1020	529	21.5	69.0
					06-11-97	1325	588	21.5	95.0
					08-15-97	a0830	--	--	--
205320156394501	6-5339-02 W292		20 53 20 N	156 39 45 W	10-29-96	1025	580	21.0	92.0
					12-09-96	a0945	--	--	--
					02-18-97	a0945	--	--	--
					04-14-97	1025	542	21.0	77.0
					06-11-97	1320	612	21.5	105
					08-15-97	a0825	--	--	--
205343156401101	6-5340-01 S5		20 53 43 N	156 40 11 W	10-29-96	a1050	--	--	--
					12-09-96	a1005	--	--	--
					02-18-97	a1010	--	--	--
					04-14-97	a1100	--	--	--
					06-11-97	a1250	--	--	--
					08-15-97	0900	1260	21.5	305
205416156244301	6-5424-01 S24		20 54 16 N	156 24 43 W	10-30-96	a1310	--	--	--
					12-11-96	a1220	--	--	--
					02-25-97	a1400	--	--	--
					04-21-97	1430	1710	23.0	--
					06-19-97	a1255	--	--	--
					08-22-97	1135	1550	23.0	--

a Pump off, unable to collect sample

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SAMPLE DEPTH DIS-TANCE BELOW MSL FEET (78890)	CHLO-RIDE, (MG/L AS CL) (99905)
				HAWAII, ISLAND OF MAUI--Continued				
205405156305401	6-5430-05	WAIEHU MONITOR W	20 54 59 N	156 30 54 W	10-02-96	0915	200	16.0
					10-02-96	0930	400	12.0
					10-02-96	0950	500	112
					10-02-96	1010	600	129
					10-02-96	1030	675	761
					10-02-96	1055	750	14700
					10-02-96	1120	800	17800
					10-02-96	1145	825	18400
					10-02-96	1210	850	18600
					10-02-96	1240	900	18900
					01-06-97	0945	200	13.0
					01-06-97	1005	400	85.0
					01-06-97	1025	500	87.0
					01-06-97	1045	600	114
					01-06-97	1105	675	735
					01-06-97	1130	750	15000
					01-06-97	1200	800	17800
					01-06-97	1230	825	18200
					01-06-97	1255	850	18600
					01-06-97	1320	900	18800
					05-08-97	0940	200	12.0
					05-08-97	0955	600	126
					05-08-97	1020	650	467
					05-08-97	1040	700	2300
					05-08-97	1110	725	9710
					05-08-97	1140	750	15500
					05-08-97	1205	800	17800
					05-08-97	1230	900	18800
					05-08-97	1305	1000	18900
					07-02-97	0930	200	12.0
					07-02-97	0945	400	13.0
					07-02-97	1005	600	135
					07-02-97	1030	650	497
					07-02-97	1055	675	869
					07-02-97	1115	700	2640
					07-02-97	1140	725	10300
					07-02-97	1210	750	15400
					07-02-97	1235	800	17700
					07-02-97	1305	1000	19200

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CHLO-RIDE, (MG/L AS CL) (99905)
				HAWAII, ISLAND OF MAUI--Continued					
205511156222101	6-5522-01 S31		20 55 11 N	156 22 21 W	10-30-96	1325	1390	22.0	315
					12-11-96	a1200	--	--	--
					02-25-97	1350	1070	22.0	219
					04-21-97	1420	1220	22.0	265
					06-19-97	a1250	--	--	--
					08-22-97	1150	1180	23.5	248
205651156401001	6-5640-01 S36		20 56 51 N	156 40 10 W	10-29-96	a1110	--	--	--
					12-09-96	a1015	--	--	--
					02-18-97	a1025	--	--	--
					04-14-97	a1115	--	--	--
					06-11-97	1210	814	21.0	181
					08-15-97	a0925	--	--	--
205837156384601	6-5838-01 NAPILI A		20 58 37 N	156 38 46 W	10-29-96	a1225	--	--	--
					12-09-96	a1145	--	--	--
					02-18-97	a1205	--	--	--
					04-14-97	a1300	--	--	--
					06-11-97	a1510	--	--	--
					08-15-97	a1015	--	--	--
205838156383101	6-5838-02 NAPILI B		20 58 38 N	156 38 31 W	10-29-96	1230	367	20.0	77.0
					12-09-96	1155	370	20.0	80.0
					02-18-97	1215	360	20.0	77.0
					04-18-97	b1310	--	--	--
					06-11-97	a1515	--	--	--
					08-15-97	a1025	--	--	--
205848156383601	6-5838-04 NAPILI		20 58 48 N	156 38 36 W	10-29-96	1245	511	20.0	118
					12-09-96	a1200	--	--	--
					02-18-97	a1230	--	--	--
					04-18-97	1320	562	20.5	130
					06-11-97	a1520	--	--	--
					08-15-97	1030	610	20.0	142

a Pump off, unable to collect sample
b Pump being serviced, unable to collect sample

STATION NUMBER	LOCAL NUMBER	LOCAL IDENTI-FIER	LATI-TUDE	LONGI-TUDE	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CHLORIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF HAWAII						
190347155354301	8-0335-01	NAALEHU W1	19 03 47 N	155 35 43 W	10-16-96	a1045	--	--	--
					01-14-97	a1125	--	--	--
					03-11-97	a1115	--	--	--
					05-08-97	a1120	--	--	--
					07-07-97	a1005	--	--	--
					09-23-97	a1230	--	--	--
190602155325901	8-0632-01	W10-1	19 06 02 N	155 32 59 W	10-16-96	a1120	--	--	--
					01-14-97	a1110	--	--	--
					03-11-97	a1140	--	--	--
					05-08-97	a1130	--	--	--
					07-07-97	a1035	--	--	--
					09-23-97	a1205	--	--	--
190832155310901	8-0831-02	NINOLE A	19 08 32 N	155 31 09 W	10-16-96	a1210	--	--	--
					01-14-97	a1205	--	--	--
					03-11-97	a1225	--	--	--
					05-08-97	a1230	--	--	--
					07-07-97	a1045	--	--	--
					09-23-97	a1120	--	--	--
191108155281701	8-1128-02	PALIMA	19 11 08 N	155 28 17 W	10-16-96	1240	135	22.0	18.0
					01-14-97	1220	125	22.5	14.0
					03-11-97	a1245	--	--	--
					05-08-97	1250	125	24.0	14.0
					07-07-97	1100	125	24.0	17.0
					09-23-97	a1105	--	--	--
191114155294801	8-1129-01		19 11 14 N	155 29 48 W	10-16-96	1220	90	19.0	5.00
					01-14-97	1250	90	19.0	4.00
					03-11-97	a1235	--	--	--
					05-08-97	a1235	--	--	--
					07-07-97	1055	90	19.0	3.00
191219155291601	8-1229-01	PAHALA	19 12 25 N	155 29 22 W	10-16-96	1300	92	18.0	5.00
					01-14-97	1315	90	18.0	5.00
					03-11-97	a1045	--	--	--
					05-08-97	a1315	--	--	--
					07-07-97	a1115	--	--	--
					09-23-97	a1050	--	--	--
192456154571901	8-2487-01	W9-7	19 24 57 N	154 57 18 W	10-09-96	a1240	--	--	--
					01-13-97	a1240	--	--	--
					03-10-97	a1045	--	--	--
192646155532001	8-2653-01	KEEI C	19 26 46 N	155 53 20 W	10-10-96	a1520	--	--	--
					01-16-97	a1320	--	--	--
					03-13-97	a1805	--	--	--
					05-06-97	a1350	--	--	--
					07-01-97	a1405	--	--	--
					09-24-97	a1200	--	--	--
192738155534201	8-2753-01	W12-4	19 27 31 N	155 53 41 W	10-10-96	a1505	--	--	--
					01-16-97	a1305	--	--	--
					03-13-97	1745	650	20.0	149
					05-06-97	1330	725	19.5	175
					07-01-97	a1350	--	--	--
					09-24-97	1120	750	19.5	195
192731155534101	8-2753-02	W12-8	19 27 22 N	155 53 38 W	10-10-96	a1510	--	--	--
					01-16-97	a1315	--	--	--
					03-13-97	a1800	--	--	--
					05-06-97	a1345	--	--	--
					07-01-97	a1400	--	--	--
					09-24-97	1140	1200	19.0	317
192924154564701	8-2986-01	W9-5B	19 29 24 N	154 56 47 W	10-09-96	a1220	--	--	--
					01-13-97	1215	125	23.5	6.00
					03-10-97	a1235	--	--	--
					05-05-97	1310	125	23.5	6.00
					07-07-97	a1230	--	--	--
					09-22-97	a1215	--	--	--

a Pump off, unable to collect sample

STATION NUMBER	LOCAL NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DATE	TIME	SPECIFIC CONDUCTANCE (US/CM) (00095)	TEMPERATURE WATER (DEG C) (00010)	CHLORIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF HAWAII--Continued						
192923154564701	8-2986-02 W9-5A		19 29 23 N	154 56 47 W	10-09-96	a1225	--	--	--
					01-13-97	1200	120	23.5	6.00
					03-10-97	a1230	--	--	--
					05-05-97	1300	120	23.5	6.00
					07-07-97	a1235	--	--	--
					09-22-97	a1215	--	--	--
193017154502101	8-3080-02 S9		19 30 17 N	154 50 21 W	10-09-96	a1340	--	--	--
					01-13-97	a1420	--	--	--
					03-10-97	a1320	--	--	--
					05-05-97	a1400	--	--	--
					07-07-97	a1305	--	--	--
					09-22-97	a1310	--	--	--
193122155551701	8-3155-01		19 31 22 N	155 55 17 W	10-10-96	a1540	--	--	--
					09-24-97	1305	120	20.5	--
193113154555801	8-3185-01 W9-11	HAWN SHORE	19 31 13 N	154 55 58 W	10-09-96	1400	125	22.0	15.0
					01-13-97	a1445	--	--	--
					03-10-97	1350	120	21.5	15.0
					05-05-97	a1420	--	--	--
					07-07-97	a1325	--	--	--
					09-22-97	1230	115	21.0	14.0
193339154594801	8-3389-01 W9-4		19 33 39 N	154 59 48 W	10-09-96	a1430	--	--	--
					01-13-97	a1125	--	--	--
					03-10-97	a1200	--	--	--
					05-05-97	a1225	--	--	--
					07-07-97	a1205	--	--	--
					09-22-97	b1145	--	--	--
193510155570801	8-3557-01 W12-5		19 35 10 N	155 57 08 W	10-10-96	1615	320	20.5	64.0
					01-16-97	1425	430	20.5	100
					03-14-97	1000	440	20.5	92.0
					05-06-97	1445	400	20.0	85.0
					07-01-97	1440	320	20.0	56.0
					09-24-97	1415	405	20.0	89.0
193505155570801	8-3557-02 W12-6		19 35 05 N	155 57 08 W	10-10-96	1630	510	21.0	133
					01-16-97	1435	480	21.0	116
					03-14-97	1020	650	20.5	156
					05-06-97	1505	620	20.0	146
					07-01-97	1500	480	20.0	113
					09-24-97	1430	480	20.5	112
193508155570701	8-3557-03	KAHALUU C	19 35 08 N	155 57 07 W	10-10-96	1600	360	20.5	82.0
					01-16-97	1410	360	20.5	75.0
					03-14-97	1010	360	20.5	69.0
					05-06-97	1435	320	20.0	60.0
					07-01-97	1450	260	20.0	45.0
					09-24-97	1400	330	20.0	67.0
193505155570701	8-3557-04	KAHALUU D	19 35 05 N	155 57 07 W	10-10-96	c1635	--	--	--
					01-16-97	c1430	--	--	--
					03-14-97	1035	520	20.5	117
					05-06-97	a1445	--	--	--
					07-01-97	a1510	--	--	--
					09-24-97	d1440	--	--	--
193502155572301	8-3557-05	KAH SHAFT	19 35 02 N	155 57 23 W	10-10-96	1645	1000	20.5	273
					01-16-97	1500	1000	20.5	273
					03-14-97	0945	1000	20.5	267
					05-06-97	1525	1000	20.5	303
					07-02-97	1135	1200	20.0	323
					09-24-97	1500	1300	20.0	346
194037155035301	8-4003-01 W8-3		19 40 37 N	155 03 53 W	10-09-96	1500	80	21.5	6.00
					01-13-97	1515	75	20.5	4.00
					03-10-97	1425	75	21.0	5.00
					05-05-97	1445	75	21.0	5.00
					07-07-97	0905	80	21.0	5.00
					09-22-97	1110	81	20.5	6.00

a Pump off, unable to collect sample
b Discontinued monitoring
c Pump being repaired, unable to collect sample
d Pump removed. Drill rig present, unable to collect sample

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CHLO-RIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF HAWAII--Continued						
194818155582301	8-4858-02	KONA VILLAGE	19 48 18 N	155 58 23 W	10-11-96	a1125	--	--	--
					01-17-97	a1055	--	--	--
					03-14-97	a1330	--	--	--
					05-07-97	a1140	--	--	--
					07-02-97	a1030	--	--	--
					09-24-97	1615	2400	21.5	544
					09-24-97	1635	2300	20.5	510
195546155462001	8-5546-01	WAIKOLOA WATER W	19 55 46 N	155 46 20 W	10-11-96	a1410	--	--	--
					01-17-97	a1255	--	--	--
					03-21-97	1225	580	28.5	98.0
					05-07-97	1310	580	28.5	100
					07-03-97	a1230	--	--	--
					09-25-97	a1130	--	--	--
195546155480301	8-5548-01	PARKER 1	19 55 46 N	155 48 03 W	10-11-96	1300	2200	29.0	626
					01-17-97	1130	2100	29.0	617
					03-14-97	a1410	--	--	--
					05-07-97	a1230	--	--	--
					07-03-97	1120	2350	28.5	626
					09-25-97	1110	2350	28.5	627
195724155455301	8-5745-01	PARKER 5	19 57 24 N	155 45 53 W	10-11-96	a1335	--	--	--
					01-17-97	1220	280	27.0	28.0
					03-21-97	a1145	--	--	--
					05-07-97	a1300	--	--	--
					07-03-97	1155	270	26.5	28.0
					09-25-97	1155	275	26.5	27.0
195722155455201	8-5745-02	PARKER 4	19 57 22 N	155 45 52 W	10-11-96	a1350	--	--	--
					01-17-97	1235	270	29.0	29.0
					03-21-97	a1205	--	--	--
					05-07-97	a1250	--	--	--
					07-03-97	1210	270	29.0	28.0
					09-25-97	a1215	--	--	--
195728155455401	8-5745-03	WAIKOLOA WELL 1	19 57 28 N	155 45 54 W	10-11-96	1340	280	27.0	26.0
					01-17-97	a1230	--	--	--
					03-21-97	1155	280	26.5	26.0
					05-07-97	1240	280	26.5	26.0
					07-03-97	a1155	--	--	--
					09-25-97	a1205	--	--	--
195857155142301	8-5814-01	LAUPAHOEHO	19 58 57 N	155 14 23 W	10-11-96	a1635	--	--	--
					01-17-97	a1600	--	--	--
					03-21-97	a1535	--	--	--
					05-07-97	a1630	--	--	--
					07-03-97	a1620	--	--	--
					09-24-97	a0850	--	--	--
195929155462501	8-5946-01	LALAMILO A	19 59 30 N	155 46 30 W	10-11-96	1455	500	27.0	95.0
					01-17-97	1350	470	27.0	87.0
					03-21-97	1320	460	26.0	80.0
					05-07-97	1400	470	26.0	88.0
					07-03-97	1310	460	26.0	88.0
					09-25-97	1410	480	26.0	88.0
195912155464201	8-5946-02	LALAMILO B	19 59 14 N	155 46 39 W	10-11-96	1440	390	26.5	55.0
					01-17-97	1330	360	26.5	54.0
					03-21-97	1310	370	26.0	54.0
					05-07-97	1335	360	26.0	53.0
					07-03-97	1325	360	26.0	55.0
					09-25-97	1340	360	26.0	53.0
195939155464201	8-5946-03	LALAMILO C	19 59 34 N	155 46 45 W	10-11-96	1505	500	27.0	96.0
					01-17-97	a1345	--	--	--
					03-21-97	a1325	--	--	--
					05-07-97	a1350	--	--	--
					07-03-97	1320	480	26.0	92.0
					09-25-97	1430	490	26.0	92.0
195947155485801	8-5948-01	HAPUNA PRK	19 59 47 N	155 48 58 W	10-10-96	1305	1900	26.0	512
					01-17-97	1415	1900	26.0	512
					03-21-97	1415	1950	26.0	497
					05-07-97	b1430	--	--	--
					07-03-97	b1340	--	--	--
					09-25-97	1555	1900	26.0	506

a Pump off, unable to collect sample
b Pump on, switch broken. Unable to collect sample

STATION NUMBER	LOCAL NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CHLO-RIDE, (MG/L AS CL) (99905)
			HAWAII, ISLAND OF HAWAII--Continued						
200132155471101	8-6147-01 W16		20 01 32 N	155 47 11 W	10-11-96	a1540	--	--	--
					01-17-97	a1445	--	--	--
					03-21-97	a1430	--	--	--
					05-07-97	a1450	--	--	--
					07-07-97	a1400	--	--	--
					09-25-97	a1630	--	--	--
200122155480901	8-6148-01 W14		20 01 22 N	155 48 09 W	10-11-96	a1535	--	--	--
					01-17-97	a1430	--	--	--
					03-21-97	a1415	--	--	--
					05-07-97	a1440	--	--	--
					07-07-97	a1355	--	--	--
					09-25-97	a1615	--	--	--
200121155480801	8-6148-02 W14B		20 01 21 N	155 48 08 W	10-11-96	a1540	--	--	--
					01-17-97	a1435	--	--	--
					03-21-97	a1420	--	--	--
					05-07-97	a1445	--	--	--
					07-07-97	a1355	--	--	--

a Pump off, unable to collect sample

HAWAII, ISLAND OF OAHU

214119157573000 - 3-4157-05-07 KII 1 TO 3 (Lat 21°41'19" Long 157°57'30")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
MAR												
13...	1630	660	7.3	26.0	22.0	760	7.9	89	0.950	<0.015	<0.20	0.010
13...	1640	660	7.3	26.0	22.0	760	7.9	89	0.960	<0.015	<0.20	0.020

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)
MAR												
13...	0.050	0.15	0.01	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200
13...	0.050	0.15	0.02	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)
MAR												
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	95.0	<0.050	<0.200	<0.200	<0.05
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	97.0	<0.050	<0.200	<0.200	<0.05

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)
MAR											
13...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
13...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR											
13...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200
13...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR											
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

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

HAWAII, ISLAND OF OAHU--Continued

214119157573000 - 3-4157-05-07 KII 1 TO 3--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLOROWAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLOROWAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR											
13...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	100	<0.010	<0.200
13...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	102	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMOCHLOROWAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR											
13...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010
13...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENE TOTAL (UG/L) (34696)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L) (77356)
MAR											
13...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200
13...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR											
13...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050
13...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR											
13...	<0.05	<0.200	<0.05	<0.200	<0.200	99.0	<0.200	<1.00	<0.200	<0.200	<0.200
13...	<0.05	<0.200	<0.05	<0.200	<0.200	101	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR											
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<0.200
13...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<0.200

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

HAWAII, ISLAND OF OAHU--Continued

214146157583401 - PUNAMANO SPR NR KAHUKU (Lat 21°41'46" Long 157°58'34")

DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
MAR 14...	1030	1000	7.6	28.0	25.0	766	7.9	95	1.10	<0.015	<0.20	0.100

DATE	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4) (00660)	PHOS-PHORUS ORGANIC TOTAL (MG/L AS P) (00670)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDRIN, TOTAL (UG/L) (39330)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)
MAR 14...	0.090	0.28	0.10	<0.050	<0.050	<0.010	<0.050	<0.050	<0.200	<0.200	<0.200	<0.200

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BROMO-BENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMO-FORM TOTAL (UG/L) (32104)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)
MAR 14...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	99.0	<0.050	<0.200	<0.200	<0.05

DATE	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CARBON-TETRA-CHLO-RIDE TOTAL (UG/L) (32102)	CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CHLOR-DANE, TECH-NICAL TOTAL (UG/L) (39350)	CHLOR-PYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLORO-BENZENE TOTAL (UG/L) (34301)	CHLORO-DI-BROMO-METHANE TOTAL (UG/L) (32105)	CHLORO-ETHANE TOTAL (UG/L) (34311)	CHLORO-FORM TOTAL (UG/L) (32106)	CIS-1,2-DI-CHLORO-ETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)
MAR 14...	<0.050	<0.200	<0.05	<0.100	<0.010	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200

DATE	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEF TOTAL (UG/L) (39040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DI-AZINON, TOTAL (UG/L) (39570)	DIBROMO CHLORO-PROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DI-BROMO-METHANE WATER WHOLE RECOVER (UG/L) (30217)
MAR 14...	<0.200	<0.05	<0.010	<0.010	<0.010	<0.050	<0.010	<0.050	<0.010	<1.00	<0.200

DATE	1,2-DIBROMO ETHANE WATER WHOLE TOTAL (UG/L) (77651)	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	DI-ELDRIN TOTAL (UG/L) (39380)
MAR 14...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.010

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

HAWAII, ISLAND OF OAHU--Continued

214146157583401 - PUNAMANO SPR NR KAHUKU--Continued

DATE	DIPHENAMID, WATER, DISS, REC (UG/L) (04033)	DISULFOTON UNFILT RECOVER (UG/L) (39011)	2, 4-DP TOTAL (UG/L) (82183)	2,4-D, TOTAL (UG/L) (39730)	ENDOSULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRACHLOROWAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRACHLOROWAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHION, TOTAL (UG/L) (39398)	ETHYLBENZENE TOTAL (UG/L) (34371)
MAR 14...	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.200	<0.200	103	<0.010	<0.200

DATE	FONOFOS (DYFONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FREON113 WATER UNFLTRD REC (UG/L) (77652)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXACHLOROBUTADIENE TOTAL (UG/L) (39702)	HEXAZINONE, WATER, DISS, REC (UG/L) (04025)	ISOPROPYLBENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHANE BROMO CHLOROWAT UNFLTRD REC (UG/L) (77297)	METHOXYCHLOR, TOTAL (UG/L) (39480)
MAR 14...	<0.010	<0.200	<0.010	<0.010	<0.200	<0.05	<0.200	<0.010	<0.010	<0.200	<0.010

DATE	METHYLBROMIDE TOTAL (UG/L) (34413)	METHYLCHLORIDE TOTAL (UG/L) (34418)	METHYLENE CHLORIDE TOTAL (UG/L) (34423)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TERTBUTYL ETHER WAT UNF REC (UG/L) (78032)	METOLACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENE TOTAL (UG/L) (34696)	O-CHLOROTOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISOPROPYLTOLUENE WATER WHOLE REC (UG/L) (77356)
MAR 14...	<0.200	<0.200	<0.200	<0.010	<0.200	<0.050	<0.050	<0.010	<0.200	<0.200	<0.200

DATE	PARATHION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PERTHANE TOTAL (UG/L) (39034)	PHORATE TOTAL (UG/L) (39023)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROMETRYN, WATER, DISS, REC (UG/L) (04036)	PROPAZINE WATER DISS REC (UG/L) (38535)	PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SILVEX, TOTAL (UG/L) (39760)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)
MAR 14...	<0.010	<0.100	<0.100	<0.100	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050

DATE	SIMATRYN, WATER, DISS, REC (UG/L) (04030)	STYRENE TOTAL (UG/L) (77128)	TERBACIL, WATER, DISS, REC (UG/L) (04032)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)
MAR 14...	<0.05	<0.200	<0.05	<0.200	<0.200	99.0	<0.200	<1.00	<0.200	<0.200	<0.200

DATE	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TRIFLURALIN, WATER, DISS, REC (UG/L) (04023)	TOTAL TRITHION (UG/L) (39786)	2,4,5-T TOTAL (UG/L) (39740)	VERNOLATE, WATER, DISS, REC (UG/L) (04034)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
MAR 14...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.05	<0.010	<0.010	<0.05	<0.200	<0.200

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

HAWAII, ISLAND OF HAWAII

194053156013001 - 8-4061-01 KAHO WELL 1 (Lat 19°40'53" Long 156°01'30")

DATE	TIME	CHLORIDE, (MG/L AS CL) (99905)	ANTIMONY, TOTAL (UG/L AS SB) (01097)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)
SEP 03...	1319	5560	<1	<1	<10	<5	3	5	<1	<0.10	<1	<1

DATE	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)	ACENAPHTHENE TOTAL (UG/L) (34205)	ACENAPHTHYLENE TOTAL (UG/L) (34200)	ALDRIN, TOTAL (UG/L) (39330)	ANTHRACENE TOTAL (UG/L) (34220)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	BENZENE NITRO-WATER UNFLTRD RECOVER (UG/L) (34447)
SEP 03...	<1	<10	<0.010	<5.00	<5.00	<0.010	<5.00	<0.200	<0.200	<0.200	<0.200	<5.00

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BENZIDINE TOTAL (UG/L) (39120)	BENZO A ANTHRACENE1,2-BENZANTHRACENE TOTAL (UG/L) (34526)	BENZO B FLUORANTHENE TOTAL (UG/L) (34230)	BENZO K FLUORANTHENE TOTAL (UG/L) (34242)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	95.0	<40.0	<10.0	<10.0	<10.0

DATE	BENZO-A-PYRENE TOTAL (UG/L) (34247)	BENZOGHI PERYLENE1,12-BENZOPERYLENE TOTAL (UG/L) (34521)	BIS 2-CHLOROETHYL ETHER UNFLTRD RECOVER (UG/L) (34273)	BIS (2-CHLOROETHOXY) METHANE TOTAL (UG/L) (34278)	BIS (2-CHLOROISOPROPYL) ETHER TOTAL (UG/L) (34283)	BIS(2-ETHYLHEXYL) PHTHALATE TOTAL (UG/L) (39100)	BROMOBENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMOFORM TOTAL (UG/L) (32104)	4-BROMOPHENYL PHENYL ETHER TOTAL (UG/L) (34636)	CARBONTETRACHLORIDE TOTAL (UG/L) (32102)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)
SEP 03...	<10.0	<10.0	<5.00	<5.00	<5.00	<5.00	<0.200	<0.200	<5.00	<0.200	<0.100

DATE	2-CHLORONAPHTHALENE TOTAL (UG/L) (34581)	2-CHLOROPHENOL TOTAL (UG/L) (34586)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLOROBENZENE TOTAL (UG/L) (34301)	CHLORODIBROMOMETHANE TOTAL (UG/L) (32105)	CHLOROETHANE TOTAL (UG/L) (34311)	CHLOROFORM TOTAL (UG/L) (32106)	4-CHLOROPHENYL PHENYL ETHER TOTAL (UG/L) (34641)	CHRYSENE TOTAL (UG/L) (34320)	CIS-1,2-DICHLOROETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DICHLOROPROPENE TOTAL (UG/L) (34704)
SEP 03...	<5.00	<5.00	<0.010	<0.200	<0.200	<0.200	<0.200	<5.00	<10.0	<0.200	<0.200

DATE	CYCLOPENTADIENHEXACHLORO-UNFLTRD RECOVER (UG/L) (34386)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)	1,2,5,6-DIBENZ-ANTHRACENE TOTAL (UG/L) (34556)	DIBROMOCHLOROPROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DIBROMOMETHANE WATER WHOLE RECOVER (UG/L) (30217)	1,2-DIBROMOETHANE WATER WHOLE TOTAL (UG/L) (77651)	3,3'-DICHLOROBENZIDINE TOTAL (UG/L) (34631)
SEP 03...	<20.0	<0.010	<0.010	<0.010	<0.020	<0.010	<10.0	<1.00	<0.200	<0.200	<20.0

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

HAWAII, ISLAND OF HAWAII--Continued

194053156013001 - 8-4061-01 KAHO WELL 1--Continued

DATE	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	2,4-DI-CHLORO-PHENOL TOTAL (UG/L) (34601)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	2,4-DI-METHYL-PHENOL TOTAL (UG/L) (34606)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<0.200	<5.00	<0.200	<0.200	<0.200	<0.200	<5.00

DATE	2,4,-DI-NITRO-PHENOL TOTAL (UG/L) (34616)	2,4-DI-NITRO-TOLUENE TOTAL (UG/L) (34611)	DI-ELDRIN TOTAL (UG/L) (39380)	DIETHYL PHTHAL-ATE TOTAL (UG/L) (34336)	DI-METHYL PHTHAL-ATE TOTAL (UG/L) (34341)	4,6-DINITRO-ORTHO-CRESOL TOTAL (UG/L) (34657)	2,6-DI-NITRO-TOLUENE TOTAL (UG/L) (34626)	1,2-DI-PHENYL-HYDRA-ZINE WATER TOT.REC (UG/L) (82626)	DI-N-BUTYL PHTHAL-ATE TOTAL (UG/L) (39110)	DI-N-OCTYL PHTHAL-ATE TOTAL (UG/L) (34596)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)
SEP 03...	<20.0	<5.00	<0.010	<5.00	<5.00	<30.0	<5.00	<5.00	<5.00	<10.0	<0.030

DATE	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHANE HEXA-CHLORO-WATER UNFLTRD RECOVER (UG/L) (34396)	ETHION, TOTAL (UG/L) (39398)	ETHYL-BENZENE TOTAL (UG/L) (34371)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FLUOR-ANTHENE TOTAL (UG/L) (34376)	FLUOR-ENE TOTAL (UG/L) (34381)
SEP 03...	<0.010	<0.010	<0.200	<0.200	106	<5.00	<0.010	<0.200	<0.010	<5.00	<5.00

DATE	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXA-CHLORO-BENZENE TOTAL (UG/L) (39700)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L) (39702)	INDENO (1,2,3-CD) PYRENE TOTAL (UG/L) (34403)	ISO-PHORONE TOTAL (UG/L) (34408)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L) (77297)
SEP 03...	<0.200	<0.010	<0.010	<5.00	<0.200	<10.0	<5.00	<0.200	<0.010	<0.050	<0.200

DATE	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL-BROMIDE TOTAL (UG/L) (34413)	METHYL-CHLO-RIDE TOTAL (UG/L) (34418)	METHYL-ENE CHLO-RIDE TOTAL (UG/L) (34423)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	MIREX, TOTAL (UG/L) (39755)	N-BUTYL BENZYL PHTHAL-ATE TOTAL (UG/L) (34292)	N-NITRO-SODI-N-PROPYL-AMINE TOTAL (UG/L) (34428)	N-NITRO-SODI-METHY-LAMINE TOTAL (UG/L) (34438)	N-NITRO-SODI-PHENY-LAMINE TOTAL (UG/L) (34433)
SEP 03...	<0.010	<0.200	<0.200	<0.200	<0.010	<0.200	<0.010	<5.00	<5.00	<5.00	<5.00

DATE	NAPHTH-ALENE TOTAL (UG/L) (34696)	2-NITRO-PHENOL TOTAL (UG/L) (34591)	4-NITRO-PHENOL TOTAL (UG/L) (34646)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L) (77356)	PARA-CHLORO-META CRESOL TOTAL (UG/L) (34452)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PENTA-CHLORO-PHENOL TOTAL (UG/L) (39032)	PER-THANE TOTAL (UG/L) (39034)
SEP 03...	<0.200	<5.00	<30.0	<0.200	<0.200	<30.0	<0.010	<0.100	<0.100	<30.0	<0.100

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

HAWAII, ISLAND OF HAWAII--Continued

194053156013001 - 8-4061-01 KAHO WELL 1--Continued

DATE	PHENANTHRENE TOTAL (UG/L) (34461)	PHENOL (C6H5OH) TOTAL (UG/L) (34694)	PHORATE TOTAL (UG/L) (39023)	PYRENE TOTAL (UG/L) (34469)	STYRENE TOTAL (UG/L) (77128)	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)
SEP 03...	<5.00	7.14	<0.010	<5.00	<0.200	<0.200	<0.200	102	<0.200	<1.00	<0.200

DATE	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	1,2,3-TRICHLORO BENZENE WAT, WH REC (UG/L) (77613)	TRICHLOROETHYLENE TOTAL (UG/L) (39180)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)	TRICHLOROFLUOROMETHANE TOTAL (UG/L) (34488)	2,4,6-TRICHLOROPHENOL TOTAL (UG/L) (34621)	123-TRICHLOROPROPANE WATER WHOLE TOTAL (UG/L) (77443)	TOTAL TRITHION (UG/L) (39786)	VINYL CHLORIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<20.0	<0.200	<0.010	<0.200	<0.200

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

HAWAII, ISLAND OF HAWAII--Continued

194120156013501 - 8-4161-01 KAHO WELL 2 (Lat 19°41'20" Long 156°01'35")

DATE	TIME	CHLORIDE, (MG/L AS CL) (99905)	ANTIMONY, TOTAL (UG/L AS SB) (01097)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)
SEP 03...	1048	2610	<1	<1	.<10	<1	1	4	<1	<0.10	<1	<1

DATE	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)	ACENAPHTHENE TOTAL (UG/L) (34205)	ACENAPHTHYLENE TOTAL (UG/L) (34200)	ANTHRACENE TOTAL (UG/L) (34220)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DICHLOROWATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	BENZENE NITROWATER UNFLTRD RECOVER (UG/L) (34447)	BENZENE SEC BUTYLWATER UNFLTRD REC (UG/L) (77350)
SEP 03...	<1	10	<0.010	<5.00	<5.00	<5.00	<0.200	<0.200	<0.200	<0.200	<5.00	<0.200

DATE	BENZENE TERTBUTYLWATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRICHLOROWAT UNF REC (UG/L) (34551)	BENZENE 1,3-DICHLOROWATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DICHLOROWATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFLSURROG VOC UNFLTRD REC PERCENT (99834)	BENZIDINE TOTAL (UG/L) (39120)	BENZO A ANTHRACENE1,2-BENZANTHRACENE TOTAL (UG/L) (34526)	BENZO B FLUORANTHENE TOTAL (UG/L) (34230)	BENZO K FLUORANTHENE TOTAL (UG/L) (34242)	BENZOAPYRENE TOTAL (UG/L) (34247)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	96.0	<40.0	<10.0	<10.0	<10.0	<10.0

DATE	BENZOGHI PERYLENE1,12-BENZOPERYLENE TOTAL (UG/L) (34521)	BIS 2-CHLOROETHYL ETHER UNFLTRD RECOVER (UG/L) (34273)	BIS (2-CHLOROETHOXY) METHANE TOTAL (UG/L) (34278)	BIS (2-CHLOROISOPROPYL) ETHER TOTAL (UG/L) (34283)	BIS(2-ETHYL HEXYL) PHTHALATE TOTAL (UG/L) (39100)	BROMOBENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMOFORM TOTAL (UG/L) (32104)	4-BROMOPHENYL PHENYL ETHER TOTAL (UG/L) (34636)	CARBONTETRACHLORIDE TOTAL (UG/L) (32102)	2-CHLORONAPHTHALENE TOTAL (UG/L) (34581)	2-CHLOROPHENOL TOTAL (UG/L) (34586)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)
SEP 03...	<10.0	<5.00	<5.00	<5.00	<5.00	<0.200	<0.200	<5.00	<0.200	<5.00	<5.00	<0.010

DATE	CHLOROBENZENE TOTAL (UG/L) (34301)	CHLORODIBROMOMETHANE TOTAL (UG/L) (32105)	CHLOROETHANE TOTAL (UG/L) (34311)	CHLOROFORM TOTAL (UG/L) (32106)	4-CHLOROPHENYL PHENYL ETHER TOTAL (UG/L) (34641)	CHRYSENE TOTAL (UG/L) (34320)	CIS-1,2-DICHLOROETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DICHLOROPROPENE TOTAL (UG/L) (34704)	CYCLOPENTADIENHEXACHLOROUNFLTRD RECOVER (UG/L) (34386)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)	1,2,5,6-DIBENZANTHRACENE TOTAL (UG/L) (34556)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<5.00	<10.0	<0.200	<0.200	<20.0	<0.020	<0.010	<10.0

DATE	DIBROMOCHLOROPROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DIBROMOMETHANE WATER WHOLE RECOVER (UG/L) (30217)	1,2-DIBROMOETHANE WATER WHOLE TOTAL (UG/L) (77651)	3,3'-DICHLOROBENZIDINE TOTAL (UG/L) (34631)	DICHLOROBROMOMETHANE TOTAL (UG/L) (32101)	DICHLORODIFLUOROMETHANE TOTAL (UG/L) (34668)	1,1-DICHLOROETHANE TOTAL (UG/L) (34496)	1,2-DICHLOROETHANE TOTAL (UG/L) (32103)	1,1-DICHLOROETHYLENE TOTAL (UG/L) (34501)	2,4-DICHLOROPHENOL TOTAL (UG/L) (34601)	1,2-DICHLOROPROPANE TOTAL (UG/L) (34541)	1,3-DICHLOROPROPANE WAT. WH TOTAL (UG/L) (77173)
SEP 03...	<1.00	<0.200	<0.200	<20.0	<0.200	<0.200	<0.200	<0.200	<0.200	<5.00	<0.200	<0.200

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

HAWAII, ISLAND OF HAWAII--Continued

194120156013501 - 8-4161-01 KAHO WELL 2--Continued

DATE	2,2-DI CHLORO- PRO- PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO- PRO- PENE, WAT, WH TOTAL (UG/L) (77168)	2,4-DI- METHYL- PHENOL TOTAL (UG/L) (34606)	2,4,- DI- NITRO- PHENOL TOTAL (UG/L) (34616)	2,4-DI- NITRO- TOLUENE TOTAL (UG/L) (34611)	DIETHYL PHTHAL- ATE TOTAL (UG/L) (34336)	DI- METHYL PHTHAL- ATE TOTAL (UG/L) (34341)	4,6- DINITRO -ORTHO- CRESOL TOTAL (UG/L) (34657)	2,6-DI- NITRO- TOLUENE TOTAL (UG/L) (34626)	1,2-DI- PHENYL- HYDRA- ZINE WATER TOT.REC (UG/L) (82626)	DI-N- BUTYL PHTHAL- ATE TOTAL (UG/L) (39110)	DI-N- OCTYL PHTHAL- ATE TOTAL (UG/L) (34596)
SEP 03...	<0.200	<0.200	<5.00	<20.0	<5.00	<5.00	<5.00	<30.0	<5.00	<5.00	<5.00	<10.0

DATE	DISUL- FOTON UNFILT RECOVER (UG/L) (39011)	ETHANE, 1112- TETRA- CHLORO- WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRA- CHLORO- WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHANE HEXA- CHLORO- WATER UNFLTRD RECOVER (UG/L) (34396)	ETHION, TOTAL (UG/L) (39398)	ETHYL- BENZENE TOTAL (UG/L) (34371)	FONOFOS (DY- FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FLUOR- ANTHENE TOTAL (UG/L) (34376)	FLUOR- ENE TOTAL (UG/L) (34381)	FREON- 113 WATER UNFLTRD REC (UG/L) (77652)	HEXA- CHLORO- BENZENE TOTAL (UG/L) (39700)
SEP 03...	<0.030	<0.200	<0.200	102	<5.00	<0.010	<0.200	<0.010	<5.00	<5.00	<0.200	<5.00

DATE	HEXA- CHLORO- BUT- ADIENE TOTAL (UG/L) (39702)	INDENO (1,2,3- CD) PYRENE TOTAL (UG/L) (34403)	ISO- PHORONE TOTAL (UG/L) (34408)	ISO- PROPYL- BENZENE WATER WHOLE REC (UG/L) (77223)	MALA- THION, TOTAL (UG/L) (39530)	METHANE BROMO CHLORO- WAT UNFLTRD REC (UG/L) (77297)	METHYL- BROMIDE TOTAL (UG/L) (34413)	METHYL- CHLO- RIDE TOTAL (UG/L) (34418)	METHYL- ENE CHLO- RIDE TOTAL (UG/L) (34423)	METHYL PARA- THION, TOTAL (UG/L) (39600)	METHYL TERT- BUTYL ETHER WAT UNF REC (UG/L) (78032)
SEP 03...	<0.200	<10.0	<5.00	<0.200	<0.050	<0.200	<0.200	<0.200	<0.200	<0.010	<0.200

DATE	N-BUTYL BENZYL PHTHAL- ATE TOTAL (UG/L) (34292)	N- NITRO- SODI-N- PROPYL- AMINE TOTAL (UG/L) (34428)	N-NITRO -SODI- METHY- LAMINE TOTAL (UG/L) (34438)	N-NITRO -SODI- PHENY- LAMINE TOTAL (UG/L) (34433)	NAPHTH- ALENE TOTAL (UG/L) (34696)	2- NITRO- PHENOL TOTAL (UG/L) (34591)	4- NITRO- PHENOL TOTAL (UG/L) (34646)	O- CHLORO- TOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISO- PROPYL- TOLUENE WATER WHOLE REC (UG/L) (77356)	PARA- CHLORO- META CRESOL TOTAL (UG/L) (34452)	PARA- THION, TOTAL (UG/L) (39540)
SEP 03...	<5.00	<5.00	<5.00	<5.00	<0.200	<5.00	<30.0	<0.200	<0.200	<30.0	<0.010

DATE	PENTA- CHLORO- PHENOL TOTAL (UG/L) (39032)	PHENAN- THRENE TOTAL (UG/L) (34461)	PHENOL (C6H- 5OH) TOTAL (UG/L) (34694)	PHORATE TOTAL (UG/L) (39023)	PYRENE TOTAL (UG/L) (34469)	STYRENE TOTAL (UG/L) (77128)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	1,2- TRANSDI CHLORO- ETHENE TOTAL (UG/L) (34546)
SEP 03...	<30.0	<5.00	9.17	<0.010	<5.00	<0.200	<0.200	<0.200	101	<0.200	<0.200

DATE	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L) (34699)	1,2,3- TRI- CHLORO BENZENE WAT, WH REC (UG/L) (77613)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L) (39180)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L) (34506)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L) (34511)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L) (34488)	2,4,6- TRI- CHLORO- PHENOL TOTAL (UG/L) (34621)	123-TRI CHLORO- PROPANE WATER WHOLE TOTAL (UG/L) (77443)	TOTAL TRI- THION (UG/L) (39786)	VINYL CHLO- RIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<20.0	<0.200	<0.010	<0.200	<0.200

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

HAWAII, ISLAND OF HAWAII--Continued

194125156015501 - 8-4161-02 KAHO WELL 3 (Lat 19°41'25" Long 156°01'55")

DATE	TIME	CHLORIDE, (MG/L AS CL) (99905)	ANTIMONY, TOTAL (UG/L AS SB) (01097)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)
SEP 03...	0905	3190	<1	<1	<10	<1	2	5	<1	<0.10	1	<1

DATE	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)	ACENAPHTHENE TOTAL (UG/L) (34205)	ACENAPHTHYLENE TOTAL (UG/L) (34200)	ALDRIN, TOTAL (UG/L) (39330)	ANTHRACENE TOTAL (UG/L) (34220)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DICHLOROWATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	BENZENE NITROWATER UNFLTRD RECOVER (UG/L) (34447)
SEP 03...	<1	<10	<0.010	<5.00	<5.00	<0.010	<5.00	<0.200	<0.200	<0.200	<0.200	<5.00

DATE	BENZENE SEC BUTYLWATER UNFLTRD REC (UG/L) (77350)	BENZENE TERTBUTYLWATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRICHLOROWAT UNF REC (UG/L) (34551)	BENZENE 1,3-DICHLOROWATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DICHLOROWATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFLSURROG VOC UNFLTRD REC PERCENT (99834)	BENZIDINE TOTAL (UG/L) (39120)	BENZO A ANTHRACENE1,2-BENZANTHRACENE TOTAL (UG/L) (34526)	BENZO B FLUORANTHENE TOTAL (UG/L) (34230)	BENZO K FLUORANTHENE TOTAL (UG/L) (34242)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	94.0	<40.0	<10.0	<10.0	<10.0

DATE	BENZO-A-PYRENE TOTAL (UG/L) (34247)	BENZOGHI PERYLENE1,12-BENZOPERYLENE TOTAL (UG/L) (34521)	BIS 2-CHLOROETHYL ETHER UNFLTRD RECOVER (UG/L) (34273)	BIS (2-CHLOROETHOXY) METHANE TOTAL (UG/L) (34278)	BIS (2-CHLOROISOPROPYL) ETHER TOTAL (UG/L) (34283)	BIS(2-ETHYL HEXYL) PHTHALATE TOTAL (UG/L) (39100)	BROMOBENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMOFORM TOTAL (UG/L) (32104)	4-BROMOPHENYL PHENYL ETHER TOTAL (UG/L) (34636)	CARBONTETRACHLORIDE TOTAL (UG/L) (32102)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)
SEP 03...	<10.0	<10.0	<5.00	<5.00	<5.00	<5.00	<0.200	<0.200	<5.00	<0.200	<0.100

DATE	2-CHLORONAPHTHALENE TOTAL (UG/L) (34581)	2-CHLOROPHENOL TOTAL (UG/L) (34586)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLOROBENZENE TOTAL (UG/L) (34301)	CHLORODIBROMOMETHANE TOTAL (UG/L) (32105)	CHLOROETHANE TOTAL (UG/L) (34311)	CHLOROFORM TOTAL (UG/L) (32106)	4-CHLOROPHENYL PHENYL ETHER TOTAL (UG/L) (34641)	CHRYSENE TOTAL (UG/L) (34320)	CIS-1,2-DICHLOROETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DICHLOROPROPENE TOTAL (UG/L) (34704)
SEP 03...	<5.00	<5.00	<0.010	<0.200	<0.200	<0.200	<0.200	<5.00	<10.0	<0.200	<0.200

DATE	CYCLOPENTADIENHEXACHLOROUNFLTRD RECOVER (UG/L) (34386)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)	1,2,5,6-DIBENZ-ANTHRACENE TOTAL (UG/L) (34556)	DIBROMOCHLOROPROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DIBROMOMETHANE WATER WHOLE RECOVER (UG/L) (30217)	1,2-DIBROMOETHANE WATER WHOLE TOTAL (UG/L) (77651)	3,3'-DICHLOROBENZIDINE TOTAL (UG/L) (34631)
SEP 03...	<20.0	<0.010	<0.010	<0.010	<0.020	<0.010	<10.0	<1.00	<0.200	<0.200	<20.0

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

HAWAII, ISLAND OF HAWAII--Continued

194125156015501 - 8-4161-02 KAHO WELL 3--Continued

DATE	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	2,4-DI-CHLORO-PHENOL TOTAL (UG/L) (34601)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	2,4-DI-METHYL-PHENOL TOTAL (UG/L) (34606)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<0.200	<5.00	<0.200	<0.200	<0.200	<0.200	<5.00

DATE	2,4,-DI-NITRO-PHENOL TOTAL (UG/L) (34616)	2,4-DI-NITRO-TOLUENE TOTAL (UG/L) (34611)	DI-ELDRIN TOTAL (UG/L) (39380)	DIETHYL PHTHAL-ATE TOTAL (UG/L) (34336)	DI-METHYL PHTHAL-ATE TOTAL (UG/L) (34341)	4,6-DINITRO-ORTHO-CRESOL TOTAL (UG/L) (34657)	2,6-DI-NITRO-TOLUENE TOTAL (UG/L) (34626)	1,2-DI-PHENYL-HYDRA-ZINE WATER TOT.REC (UG/L) (82626)	DI-N-BUTYL PHTHAL-ATE TOTAL (UG/L) (39110)	DI-N-OCTYL PHTHAL-ATE TOTAL (UG/L) (34596)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)
SEP 03...	<20.0	<5.00	<0.010	<5.00	<5.00	<30.0	<5.00	<5.00	<5.00	<10.0	<0.030

DATE	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHANE HEXA-CHLORO-WATER UNFLTRD RECOVER (UG/L) (34396)	ETHION, TOTAL (UG/L) (39398)	ETHYL-BENZENE TOTAL (UG/L) (34371)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FLUOR-ANTHENE TOTAL (UG/L) (34376)	FLUOR-ENE TOTAL (UG/L) (34381)
SEP 03...	<0.010	<0.010	<0.200	<0.200	103	<5.00	<0.010	<0.200	<0.010	<5.00	<5.00

DATE	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEXA-CHLORO-BENZENE TOTAL (UG/L) (39700)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L) (39702)	INDENO (1,2,3-CD) PYRENE TOTAL (UG/L) (34403)	ISO-PHORONE TOTAL (UG/L) (34408)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L) (77297)
SEP 03...	<0.200	<0.010	<0.010	<5.00	<0.200	<10.0	<5.00	<0.200	<0.010	<0.050	<0.200

DATE	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL-BROMIDE TOTAL (UG/L) (34413)	METHYL-CHLO-RIDE TOTAL (UG/L) (34418)	METHYL-ENE CHLO-RIDE TOTAL (UG/L) (34423)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	MIREX, TOTAL (UG/L) (39755)	N-BUTYL BENZYL PHTHAL-ATE TOTAL (UG/L) (34292)	N-NITRO-SODI-N-PROPYL-AMINE TOTAL (UG/L) (34428)	N-NITRO-SODI-METHY-LAMINE TOTAL (UG/L) (34438)	N-NITRO-SODI-PHENY-LAMINE TOTAL (UG/L) (34433)
SEP 03...	<0.010	<0.200	<0.200	<0.200	<0.010	<0.200	<0.010	<5.00	<5.00	<5.00	<5.00

DATE	NAPHTH-ALENE TOTAL (UG/L) (34696)	2-NITRO-PHENOL TOTAL (UG/L) (34591)	4-NITRO-PHENOL TOTAL (UG/L) (34646)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L) (77356)	PARA-CHLORO-META CRESOL TOTAL (UG/L) (34452)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PENTA-CHLORO-PHENOL TOTAL (UG/L) (39032)	PER-THANE TOTAL (UG/L) (39034)
SEP 03...	<0.200	<5.00	<30.0	<0.200	<0.200	<30.0	<0.010	<0.100	<0.100	<30.0	<0.100

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

HAWAII, ISLAND OF HAWAII--Continued

194125156015501 - 8-4161-02 KAHO WELL 3--Continued

DATE	PHENAN-THRENE TOTAL (UG/L) (34461)	PHENOL (C6H-5OH) TOTAL (UG/L) (34694)	PHORATE TOTAL (UG/L) (39023)	PYRENE TOTAL (UG/L) (34469)	STYRENE TOTAL (UG/L) (77128)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOX-APHENE, TOTAL (UG/L) (39400)	1,2-TRANSDI CHLORO-ETHENE TOTAL (UG/L) (34546)
SEP 03...	<5.00	E4.33	<0.010	<5.00	<0.200	<0.200	<0.200	100	<0.200	<1.00	<0.200

DATE	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L) (77613)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L) (39180)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L) (34506)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L) (34511)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L) (34488)	2,4,6-TRI-CHLORO-PHENOL TOTAL (UG/L) (34621)	123-TRI CHLORO-PROPANE WATER WHOLE TOTAL (UG/L) (77443)	TOTAL TRI-THION (UG/L) (39786)	VINYL CHLO-RIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
SEP 03...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<20.0	<0.200	<0.010	<0.200	<0.200

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

HAWAII, ISLAND OF HAWAII--Continued

194315155584101 - 8-4358-01 KALAOA EX A (Lat 19°43'15" Long 155°58'41")

DATE	TIME	CHLORIDE, (MG/L AS CL) (99905)	ANTIMONY, TOTAL (UG/L AS SB) (01097)	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	SELENIUM, TOTAL (UG/L AS SE) (01147)
SEP 04...	0855	11.0	<1	<1	<10	<1	3	1	<1	<0.10	<1	1

DATE	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)	ACENAPHTHENE TOTAL (UG/L) (34205)	ACENAPHTHYLENE TOTAL (UG/L) (34200)	ALDRIN, TOTAL (UG/L) (39330)	ANTHRACENE TOTAL (UG/L) (34220)	BENZENE TOTAL (UG/L) (34030)	BENZENE O-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34536)	BENZENE N-BUTYL WATER UNFLTRD REC (UG/L) (77342)	BENZENE N-PROPY WATER UNFLTRD REC (UG/L) (77224)	BENZENE NITRO-WATER UNFLTRD RECOVER (UG/L) (34447)
SEP 04...	<1	<10	<0.010	<5.00	<5.00	<0.010	<5.00	<0.200	<0.200	<0.200	<0.200	<5.00

DATE	BENZENE SEC BUTYL-WATER UNFLTRD REC (UG/L) (77350)	BENZENE TERT-BUTYL-WATER UNFLTRD REC (UG/L) (77353)	BENZENE 1,2,4-TRI-CHLORO-WAT UNF REC (UG/L) (34551)	BENZENE 1,3-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34566)	BENZENE 1,4-DI-CHLORO-WATER UNFLTRD REC (UG/L) (34571)	BENZENE 124-TRI METHYL UNFILT RECOVER (UG/L) (77222)	BENZENE 135-TRI METHYL WATER UNFLTRD REC (UG/L) (77226)	BENZENE 14BRFL-SURROG VOC UNFLTRD REC PERCENT (99834)	BENZIDINE TOTAL (UG/L) (39120)	BENZO A ANTHRACENE1,2-BENZANTHRACENE TOTAL (UG/L) (34526)	BENZO B FLUOR-ANTHENE TOTAL (UG/L) (34230)	BENZO K FLUOR-ANTHENE TOTAL (UG/L) (34242)
SEP 04...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	89.0	<40.0	<10.0	<10.0	<10.0

DATE	BENZO-A-PYRENE TOTAL (UG/L) (34247)	BENZOGHI PERYLENE1,12-BENZOPERYLENE TOTAL (UG/L) (34521)	BIS 2-CHLORO-ETHYL ETHER UNFLTRD RECOVER (UG/L) (34273)	BIS (2-CHLORO-ETHOXY) METHANE TOTAL (UG/L) (34278)	BIS (2-CHLORO-ISO-PROPYL) ETHER TOTAL (UG/L) (34283)	BIS(2-ETHYL HEXYL) PHTHALATE TOTAL (UG/L) (39100)	BROMOBENZENE WATER, WHOLE, TOTAL (UG/L) (81555)	BROMOFORM TOTAL (UG/L) (32104)	4-BROMOPHENYL PHENYL ETHER TOTAL (UG/L) (34636)	CARBON-TETRACHLORIDE TOTAL (UG/L) (32102)	CHLORDANE, TECHNICAL TOTAL (UG/L) (39350)
SEP 04...	<10.0	<10.0	<5.00	<5.00	<5.00	<5.00	<0.200	<0.200	<5.00	<0.200	<0.100

DATE	2-CHLORONAPHTHALENE TOTAL (UG/L) (34581)	2-CHLOROPHENOL TOTAL (UG/L) (34586)	CHLORPYRIFOS TOTAL RECOVER (UG/L) (38932)	CHLOROBENZENE TOTAL (UG/L) (34301)	CHLORODIBROMETHANE TOTAL (UG/L) (32105)	CHLOROETHANE TOTAL (UG/L) (34311)	CHLOROFORM TOTAL (UG/L) (32106)	4-CHLOROPHENYL PHENYL ETHER TOTAL (UG/L) (34641)	CHRYSENE TOTAL (UG/L) (34320)	CIS-1,2-DICHLOROETHENE WATER TOTAL (UG/L) (77093)	CIS 1,3-DICHLOROPROPENE TOTAL (UG/L) (34704)
SEP 04...	<5.00	<5.00	<0.010	<0.200	<0.200	<0.200	<0.200	<5.00	<10.0	<0.200	<0.200

DATE	CYCLOPENTADIENHEXACHLORO-UNFLTRD RECOVER (UG/L) (34386)	P,P'-DDD UNFILT RECOVER (UG/L) (39360)	P,P'-DDE, TOTAL (UG/L) (39365)	P,P'-DDT UNFILT RECOVER (UG/L) (39370)	DEF TOTAL (UG/L) (39040)	DIAZINON, TOTAL (UG/L) (39570)	1,2,5,6-DIBENZ-ANTHRACENE TOTAL (UG/L) (34556)	DIBROMOCHLOROPROPANE WATER WHOLE TOT.REC (UG/L) (82625)	DIBROMOMETHANE WATER WHOLE RECOVER (UG/L) (30217)	1,2-DIBROMOETHANE WATER WHOLE TOTAL (UG/L) (77651)	3,3'-DICHLOROBENZIDINE TOTAL (UG/L) (34631)
SEP 04...	<20.0	<0.010	<0.010	<0.010	<0.020	<0.010	<10.0	<1.00	<0.200	<0.200	<20.0

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

HAWAII, ISLAND OF HAWAII--Continued

194315155584101 - 8-4358-01 KALAOA EX A--Continued

DATE	DI-CHLORO-BROMO-METHANE TOTAL (UG/L) (32101)	DI-CHLORO-DI-FLUORO-METHANE TOTAL (UG/L) (34668)	1,1-DI-CHLORO-ETHANE TOTAL (UG/L) (34496)	1,2-DI-CHLORO-ETHANE TOTAL (UG/L) (32103)	1,1-DI-CHLORO-ETHYL-ENE TOTAL (UG/L) (34501)	2,4-DI-CHLORO-PHENOL TOTAL (UG/L) (34601)	1,2-DI-CHLORO-PROPANE TOTAL (UG/L) (34541)	1,3-DI-CHLORO-PROPANE WAT. WH TOTAL (UG/L) (77173)	2,2-DI CHLORO-PRO-PANE WAT, WH TOTAL (UG/L) (77170)	1,1-DI CHLORO-PRO-PENE, WAT, WH TOTAL (UG/L) (77168)	2,4-DI-METHYL-PHENOL TOTAL (UG/L) (34606)
SEP 04...	<0.200	<0.200	<0.200	<0.200	<0.200	<5.00	<0.200	<0.200	<0.200	<0.200	<5.00

DATE	2,4,-DI-NITRO-PHENOL TOTAL (UG/L) (34616)	2,4-DI-NITRO-TOLUENE TOTAL (UG/L) (34611)	DI-ELDRIN TOTAL (UG/L) (39380)	DIETHYL PHTHAL-ATE TOTAL (UG/L) (34336)	DI-METHYL PHTHAL-ATE TOTAL (UG/L) (34341)	4,6-DINITRO-ORTHO-CRESOL TOTAL (UG/L) (34657)	2,6-DI-NITRO-TOLUENE TOTAL (UG/L) (34626)	1,2-DI-PHENYL-HYDRA-ZINE WATER TOT.REC (UG/L) (82626)	DI-N-BUTYL PHTHAL-ATE TOTAL (UG/L) (39110)	DI-N-OCTYL PHTHAL-ATE TOTAL (UG/L) (34596)	DISUL-FOTON UNFILT RECOVER (UG/L) (39011)
SEP 04...	<20.0	<5.00	<0.010	<5.00	<5.00	<30.0	<5.00	<5.00	<5.00	<10.0	<0.030

DATE	ENDO-SULFAN, I TOTAL (UG/L) (39388)	ENDRIN WATER UNFLTRD REC (UG/L) (39390)	ETHANE, 1112-TETRA-CHLORO-WAT UNF REC (UG/L) (77562)	ETHANE, 1,1,2,2 TETRA-CHLORO-WAT UNF REC (UG/L) (34516)	ETHANE 12DICL SURROG VOC UNFLTRD REC PERCENT (99832)	ETHANE HEXA-CHLORO-WATER UNFLTRD RECOVER (UG/L) (34396)	ETHION, TOTAL (UG/L) (39398)	ETHYL-BENZENE TOTAL (UG/L) (34371)	FONOFOS (DY-FONATE) WATER WHOLE TOT.REC (UG/L) (82614)	FLUOR-ANTHENE TOTAL (UG/L) (34376)	FLUOR-ENE TOTAL (UG/L) (34381)
SEP 04...	<0.010	<0.010	<0.200	<0.200	98.0	<5.00	<0.010	<0.200	<0.010	<5.00	<5.00

DATE	FREON-113 WATER UNFLTRD REC (UG/L) (77652)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEKA-CHLORO-BENZENE TOTAL (UG/L) (39700)	HEXA-CHLORO-BUT-ADIENE TOTAL (UG/L) (39702)	INDENO (1,2,3-CD) PYRENE TOTAL (UG/L) (34403)	ISO-PHORONE TOTAL (UG/L) (34408)	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L) (77223)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METHANE BROMO CHLORO-WAT UNFLTRD REC (UG/L) (77297)
SEP 04...	<0.200	<0.010	<0.010	<5.00	<0.200	<10.0	<5.00	<0.200	<0.010	<0.050	<0.200

DATE	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL-BROMIDE TOTAL (UG/L) (34413)	METHYL-CHLO-RIDE TOTAL (UG/L) (34418)	METHYL-ENE CHLO-RIDE TOTAL (UG/L) (34423)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TERT-BUTYL ETHER WAT UNF REC (UG/L) (78032)	MIREX, TOTAL (UG/L) (39755)	N-BUTYL BENZYL PHTHAL-ATE TOTAL (UG/L) (34292)	N-NITRO-SODI-N-PROPYL-AMINE TOTAL (UG/L) (34428)	N-NITRO-SODI-METHY-LAMINE TOTAL (UG/L) (34438)	N-NITRO-SODI-PHENY-LAMINE TOTAL (UG/L) (34433)
SEP 04...	<0.010	<0.200	<0.200	<0.200	<0.010	<0.200	<0.010	<5.00	<5.00	<5.00	<5.00

DATE	NAPHTH-ALENE TOTAL (UG/L) (34696)	2-NITRO-PHENOL TOTAL (UG/L) (34591)	4-NITRO-PHENOL TOTAL (UG/L) (34646)	O-CHLORO-TOLUENE WATER WHOLE TOTAL (UG/L) (77275)	P-ISO-PROPYL-TOLUENE WATER WHOLE REC (UG/L) (77356)	PARA-CHLORO-META CRESOL TOTAL (UG/L) (34452)	PARA-THION, TOTAL (UG/L) (39540)	PCB, TOTAL (UG/L) (39516)	PCNS UNFILT RECOVER (UG/L) (39250)	PENTA-CHLORO-PHENOL TOTAL (UG/L) (39032)	PER-THANE TOTAL (UG/L) (39034)
SEP 04...	<0.200	<5.00	<30.0	<0.200	<0.200	<30.0	<0.010	<0.100	<0.100	<30.0	<0.100

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

HAWAII, ISLAND OF HAWAII--Continued

194315155584101 - 8-4358-01 KALAOA EX A--Continued

DATE	PHENAN-THRENE TOTAL (UG/L) (34461)	PHENOL (C6H-5OH) TOTAL (UG/L) (34694)	PHORATE TOTAL (UG/L) (39023)	PYRENE TOTAL (UG/L) (34469)	STYRENE TOTAL (UG/L) (77128)	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L) (34475)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE D8 SURROG VOC UNFLTRD REC PERCENT (99833)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOX-APHENE, TOTAL (UG/L) (39400)	1,2-TRANSDI CHLORO-ETHENE TOTAL (UG/L) (34546)
SEP 04...	<5.00	<5.00	<0.010	<5.00	<0.200	<0.200	<0.200	101	<0.200	<1.00	<0.200

DATE	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)	1,2,3-TRI-CHLORO BENZENE WAT, WH REC (UG/L) (77613)	TRI-CHLORO-ETHYL-ENE TOTAL (UG/L) (39180)	1,1,1-TRI-CHLORO-ETHANE TOTAL (UG/L) (34506)	1,1,2-TRI-CHLORO-ETHANE TOTAL (UG/L) (34511)	TRI-CHLORO-FLUORO-METHANE TOTAL (UG/L) (34488)	2,4,6-TRI-CHLORO-PHENOL TOTAL (UG/L) (34621)	123-TRI CHLORO-PROPANE WATER WHOLE TOTAL (UG/L) (77443)	TOTAL TRI-THION (UG/L) (39786)	VINYL CHLO-RIDE TOTAL (UG/L) (39175)	XYLENE WATER UNFLTRD REC (UG/L) (81551)
SEP 04...	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<20.0	<0.200	<0.010	<0.200	<0.200

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

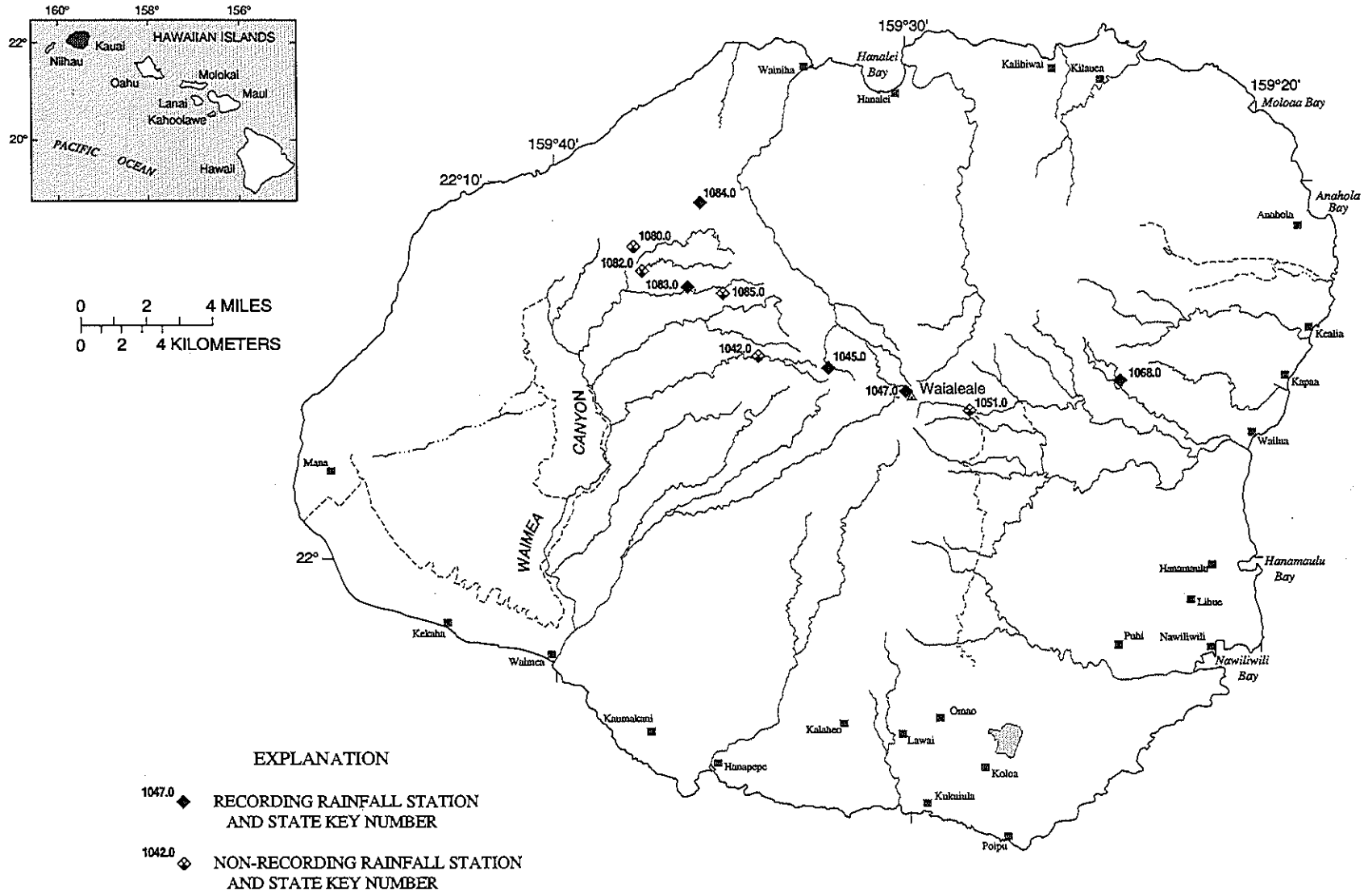


Figure 21. Locations of rainfall stations on Kauai.

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI

220523159341201. State Key Number 1042.0 Waialae rain gage 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.--1911 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-in. National Weather Service accumulation rain gage with a custom made reduced 1 to 2 ratio rain-gage catchment. Elevation of gage is 4,000 ft (from topographic map).

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Dec. 31	45.4 estimated (a)
Jan. 01 to Jan. 08	5.6 estimated (a)
Jan. 08 to Apr. 17	41.8
Apr. 17 to Jul. 02	15.8
Jul. 02 to Sep. 30	11.7 estimated (b)

CAL YR 1996 Total 106.0
WTR YR 1997 Total 120.3

(a) Estimated values based on accumulation rain can reading of 51.0 inches from Oct. 1 to Jan. 8
(b) Estimated values based on accumulation rain can reading of 14.8 inches from Jul. 2 to Oct. 16

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI--Continued

220504159321401. State Key Number 1045.0 Waialeale Trail rain gage 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.--1962 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Electronic data logger with a tipping bucket catchment (0.01 in. per tip). Elevation of gage is 4,560 ft (from topographic map).

REMARKS.--Records good. Recording rainfall in hundredths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.00	.61	.00	.00	.20	1.50	.16	.20	.50	.02	.00
2	.03	.03	.17	.30	.01	.01	.02	.42	.10	.69	.14	.02
3	.00	.00	1.30	2.22	.01	1.04	.39	.10	.00	.05	.24	.02
4	.00	.86	.69	3.58	.07	1.12	1.87	1.95	.00	.52	.07	.09
5	.01	1.18	.32	.67	.10	1.80	1.10	1.01	.10	.01	.05	.50
6	.00	2.32	1.63	.01	.01	.30	.91	.33	.50	1.42	.08	.48
7	.27	2.08	1.56	.00	.02	1.49	.11	.23	.00	.28	.08	.22
8	.10	.48	.71	.00	.01	.08	.00	.54	.20	.06	.04	.45
9	.01	.03	.11	.17	.04	.01	.17	.00	.60	.45	.00	.19
10	.30	.06	.01	.02	.00	.02	1.33	.11	.40	.76	.00	.10
11	1.06	.04	.01	.00	.17	.03	7.83	.38	.00	.21	.09	.20
12	.83	7.75	.26	.00	.01	.58	.13	.25	.10	.04	.01	.33
13	.13	.39	.97	.01	.00	1.36	.16	.18	.00	.03	.00	.09
14	.88	.03	.02	.09	.01	.40	.01	.53	.20	.01	.01	.02
15	1.50	.47	.00	.48	.00	.04	.00	.07	.20	.16	.13	.65
16	1.54	1.50	.01	.13	.00	.01	.00	.64	.30	.10	.54	.83
17	1.31	.60	.00	.01	.04	.68	.00	.90	.30	.39	.55	.71
18	.05	.35	.00	.00	.04	.04	.00	.10	.20	.17	.14	.42
19	.15	.94	.46	5.06	.02	.00	.18	.00	1.30	.16	.00	.34
20	1.34	.01	1.68	.01	.00	.00	.00	.00	.50	.03	.00	.21
21	.07	.00	2.96	.98	.01	.00	.02	.00	2.50	.28	.55	.34
22	.10	.01	.07	.00	1.00	.23	.00	1.30	.70	3.75	.10	.08
23	.19	.12	.05	.00	.00	5.90	.01	.10	.40	1.75	.27	.00
24	.76	.38	.39	.00	.10	2.03	.55	.00	.80	.08	.25	.01
25	.12	.01	.00	.00	1.72	3.15	.18	.00	.10	.21	.11	.25
26	.38	.81	2.38	.20	1.83	1.38	.51	.00	1.40	.00	.20	.69
27	2.84	.34	1.64	.82	2.31	.12	1.40	.00	.70	.00	.03	.63
28	.33	1.16	.01	.13	1.46	2.13	.11	.00	.50	.06	.03	.22
29	.01	.35	.00	1.05	---	1.73	.05	.30	2.50	.00	.29	.05
30	.10	1.49	.13	.01	---	.00	.07	.60	.30	.56	.57	.01
31	.34	---	.99	.01	---	.43	---	.10	---	.65	.00	---
TOTAL	14.81	23.79	19.14	15.96	8.99	26.31	18.61	10.30	15.10	13.38	4.59	8.15

CAL YR 1996 Total 169.50
WTR YR 1997 Total 179.13

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI--Continued

220427159300201. State Key Number 1047.0 Mount Waialeale rain gage 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.--1910 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Electronic data logger with a tipping bucket catchment (0.01 in. per tip). Elevation of gage is 5,150 ft (from topographic map).

REMARKS.--Records good for period of daily record. Records fair for period of no daily record. Recorded rainfall read in hundredths of an inch. Accumulated rainfall read in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.02	2.48	.00	---	---	3.23	.31	1.51	.77	.38	.11
2	.01	.85	.55	1.86	---	---	.02	1.03	.24	.62	1.08	.84
3	.00	.12	1.38	4.62	---	---	2.96	.46	.06	.16	.94	.93
4	.00	1.21	.75	7.31	---	---	5.17	4.72	.90	1.70	.24	1.50
5	.00	.88	.50	.93	---	---	5.06	2.98	.59	.13	.55	1.40
6	.00	2.48	2.32	.00	---	---	5.75	.43	1.82	2.21	.69	.77
7	1.47	2.29	1.28	.00	---	---	1.50	.42	.21	.73	.42	.37
8	.38	.17	1.25	---	---	---	.17	1.04	1.03	.69	.26	.72
9	.38	.01	.26	---	---	---	.13	.00	1.28	2.08	.03	.34
10	1.18	.39	.03	---	---	---	1.92	.08	.61	3.00	.04	.21
11	2.72	.44	.08	---	---	---	6.76	.99	.15	1.49	.58	.84
12	2.23	16.04	1.49	---	---	---	.56	3.26	.24	.84	.02	1.00
13	.52	.58	.75	---	---	---	1.58	1.41	.39	.20	.04	.61
14	1.16	.13	.01	---	---	---	.46	1.31	.70	.01	.04	.08
15	1.65	1.15	.00	---	---	---	.02	.48	.69	.58	.90	1.14
16	4.72	1.86	.01	---	---	---	.00	2.67	.49	1.05	1.22	1.51
17	1.43	.47	.09	---	---	---	.01	3.78	1.03	.36	1.16	1.14
18	.79	.25	.04	---	---	---	.00	.57	.73	.49	1.14	1.39
19	4.10	1.94	1.79	---	---	a--	.12	.01	1.13	.48	.07	.74
20	2.18	.07	4.02	---	---	.12	.00	.01	.80	.17	.02	.54
21	1.56	.03	3.01	---	---	.06	.00	.00	3.67	.76	3.38	.51
22	.31	.09	.14	---	---	1.60	.00	1.59	.85	5.36	.67	.55
23	.72	1.09	.05	---	---	8.01	.01	.40	.66	2.24	.69	.00
24	2.34	4.69	.50	---	---	1.70	.61	.00	1.06	.32	.67	.00
25	.38	.00	.00	---	---	5.98	.42	.00	1.02	.93	.75	.78
26	.11	1.18	4.14	---	---	1.21	2.76	.01	3.30	.06	.68	3.22
27	4.26	1.38	1.17	---	---	.39	2.14	.00	2.78	.07	.16	1.23
28	.40	2.39	.00	---	---	2.48	.20	.00	1.50	.38	.15	.69
29	.19	.85	.00	---	---	2.75	.22	.60	3.57	.01	2.07	.19
30	.43	1.52	.24	---	---	.16	.40	4.43	.93	.90	1.99	.04
31	.90	---	1.25	---	---	.50	---	3.27	---	1.92	.07	---
TOTAL	36.52	44.57	29.58	---	---	---	42.18	36.26	33.94	30.71	21.10	23.39

CAL YR 1996 Total 350.07
WTR YR 1997 Total 389.13

(a) Total accumulated rainfall from January 8 (0001 hrs) to March 19 (2400 hrs)is 51.2 inches

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI--Continued

220356159281401. State Key Number 1051.0 North Wailua ditch rain gage 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 rain gage.

PERIOD OF RECORD.--1928 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-in. National Weather Service non-recording rain gage. Elevation of gage is 1,110 ft (from topographic map).

REMARKS.--Records good. Cumulative rainfall read in nearest hundredths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall	Period	Rainfall
Oct. 01 to Oct. 07	2.00 estimated (a)	Apr. 07 to Apr. 14	4.20
Oct. 07 to Oct. 14	3.37	Apr. 14 to Apr. 21	.26
Oct. 14 to Oct. 21	7.60	Apr. 21 to Apr. 28	2.10
Oct. 21 to Oct. 28	4.90	Apr. 28 to May 05	4.00
Oct. 28 to Nov. 04	1.80	May 05 to May 12	3.55
Nov 04 to Nov. 11	8.00	May 12 to May 19	5.09
Nov. 11 to Nov. 18	11.80	May 19 to May 26	1.32
Nov. 18 to Nov. 25	3.20	May 26 to Jun. 02	3.00
Nov. 25 to Dec. 02	3.56	Jun. 02 to Jun. 09	2.10
Dec. 02 to Dec. 09	2.76	Jun. 09 to Jun. 16	1.00
Dec. 09 to Dec. 16	1.90	Jun. 16 to Jun. 23	2.72
Dec. 16 to Dec. 23	9.50	Jun. 23 to Jun. 30	6.50
Dec. 23 to Dec. 30	3.31	Jun. 30 to Jul. 07	8.50
Dec. 30 to Dec. 31	1.14 estimated (b)	Jul. 07 to Jul. 14	2.15
Jan. 01 to Jan. 06	11.56 estimated (b)	Jul. 14 to Jul. 21	.98
Jan. 06 to Jan. 13	2.53	Jul. 21 to Jul. 28	3.75
Jan. 13 to Jan. 20	6.38	Jul. 28 to Aug. 04	1.82
Jan. 20 to Jan. 27	.08	Aug. 04 to Aug. 11	.55
Jan. 27 to Feb. 10	.80	Aug. 11 to Aug. 18	4.40
Feb. 10 to Feb. 18	1.78	Aug. 18 to Aug. 25	2.20
Feb. 18 to Feb. 24	3.10	Aug. 25 to Sep. 02	2.54
Feb. 24 to Mar. 03	4.30	Sep. 02 to Sep. 08	2.12
Mar. 03 to Mar. 10	3.37	Sep. 08 to Sep. 15	2.76
Mar. 10 to Mar. 17	5.80	Sep. 15 to Sep. 22	3.38
Mar. 17 to Mar. 24	7.30	Sep. 22 to Sep. 29	2.60
Mar. 24 to Mar. 31	4.55	Sep. 29 to Sep. 30	.08 estimated (c)
Mar. 31 to Apr. 07	8.65		

CAL YR 1996 Total 195.92
WTR YR 1997 Total 198.71

(a) Estimated value based on accumulation can reading of 2.00 inches from Sep. 30 to Oct. 7
(b) Estimated value based on accumulation can reading of 12.70 inches from Dec. 30 to Jan. 6
(c) Estimated value based on accumulation can reading of 4.00 inches from Sep. 29 to Oct. 6

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI--Continued

220443159235601. State Key Number 1068.0 Left Branch Opaekaa rain gage near Kapaa, Kauai.

LOCATION.--Lat 22°04'43", long 159°23'56", Hydrologic Unit 20070000, in USGS stream-gaging station 16071500 on left bank, 5.0 mi west of Kapaa Beach Park and 0.7 mi northeast of Wailua Reservoir.

PERIOD OF RECORD.--1960 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Electronic data logger with a tipping bucket catchment (0.01 in. per tip). Elevation of gage is 470 ft (from topographic map).

REMARKS.--Records good. Recorded rainfall read in hundredths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	.01	.01	.00	.00	.01	1.64	.08	.01	.26	.07	.01
2	.01	.17	.02	.68	.00	.02	.00	.23	.09	.13	.21	.03
3	.00	.01	.22	2.34	.00	.31	.18	.16	.07	.04	.11	.08
4	.00	.14	.06	2.05	.20	.45	.58	1.43	.09	.10	.06	.17
5	.01	1.72	.14	.52	.05	.35	1.26	1.55	.13	.07	.02	.09
6	.00	1.56	.46	.00	.00	.06	1.04	.89	.07	.40	.07	.03
7	.18	.92	.27	.00	.54	.27	.24	1.70	.01	.14	.02	.01
8	.06	.15	.03	.00	.01	.00	.00	1.53	.03	.10	.06	.10
9	.12	.00	.02	.17	.02	.11	.00	.01	.04	.26	.00	.07
10	.22	.10	.00	.17	.00	.05	.11	.00	.03	.38	.00	.05
11	.50	.08	.00	.00	.07	.58	.08	.25	.07	.16	.08	.25
12	.85	4.97	.40	.10	1.37	.13	.07	.47	.00	.05	.03	.45
13	.12	.02	.02	.00	.03	.26	.01	.53	.01	.04	.00	.54
14	.17	.03	.01	.00	.01	1.42	.00	.28	.09	.01	.05	.47
15	.55	.13	.00	.18	.00	.53	.01	.05	.03	.01	1.08	.02
16	.73	1.72	.00	.00	.01	.03	.00	.12	.05	.26	1.77	.31
17	.21	.40	.00	.00	.01	.32	.00	.42	.07	.08	.92	.09
18	.01	.03	.00	.00	.02	.00	.00	.03	.00	.07	1.00	.50
19	.49	.21	.15	3.59	.02	.00	.00	.00	.02	.20	.09	.05
20	1.69	.00	1.23	.01	.00	.00	.00	.00	.13	.02	.00	.15
21	.14	.00	1.78	.33	.18	.06	.00	.00	.34	.05	.40	.00
22	.07	.05	.07	.00	2.03	.20	.00	.04	.01	1.23	.12	.01
23	.34	.12	.00	.00	.00	1.79	.00	.10	.10	.36	.05	.01
24	.60	.31	.04	.00	.00	.55	.27	.00	.16	.13	.14	.00
25	.24	.00	.00	.00	.17	.73	.02	.00	.07	.38	.12	.19
26	.01	.20	.84	.11	.29	.16	.22	.00	.13	.01	.16	.18
27	2.36	.12	.35	.42	.42	.07	.46	.00	.34	.00	.06	.20
28	.16	.10	.00	1.13	1.37	.75	.04	.00	.15	.10	.14	.13
29	.29	.10	.00	.85	---	.35	.00	.09	.67	.00	.34	.07
30	.11	.15	.00	.00	---	.01	.04	.60	.15	.02	.26	.01
31	.37	---	.22	.01	---	.04	---	.49	---	.29	.20	---
TOTAL	10.72	13.52	6.34	12.66	6.82	9.61	6.27	11.05	3.16	5.35	7.63	4.27

CAL YR 1996 TOTAL 89.68
WTR YR 1997 TOTAL 97.40

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI--Continued

220817159374401. State Key Number 1080.0 Paukahana rain gage 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.--1910 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-in. National Weather Service accumulation rain gage. Elevation of gage is 3,700 ft (from topographic map).

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

REVISIONS.--The accumulated rainfall, in inches, from August 2, 1996 to October 25, 1996 has been revised to 8.0 inches. This supersedes the figure published in the water data report for 1996.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Oct. 24	1.4 estimated (a)
Oct. 24 to Jan. 08	>24.0 (b)
Jan. 08 to Feb. 12	11.7
Feb. 12 to Apr. 05	15.1
Apr. 05 to Jun. 07	2.6
Jun. 07 to Aug. 02	7.8
Aug. 02 to Oct. 25	8.0 (c)

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Oct. 25	2.9 estimated (d)
Oct. 25 to Dec. 03	21.1
Dec. 03 to Dec. 31	17.6 estimated (e)
Jan. 01 to Feb. 07	14.4 estimated (e)
Feb. 07 to Apr. 07	23.2
Apr. 07 to Jun. 04	8.7
Jun. 04 to Aug. 11	3.8
Aug. 11 to Sep. 30	4.2 estimated (f)

WTR YR 1997 Total 95.9

220739159373001. State Key Number 1082.0 Waiakoali rain gage 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.--1910 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-in. National Weather Service accumulation rain gage with a custom made reduced 1 to 2 ratio rain-gage catchment. Elevation of gage is 3,420 ft (from topographic map).

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Oct. 25	3.4 estimated (g)
Oct. 25 to Dec. 03	23.4
Dec. 03 to Dec. 31	19.1 estimated (h)
Jan. 01 to Feb. 07	15.7 estimated (h)
Feb. 07 to Apr. 07	27.2
Apr. 07 to Jun. 04	8.2
Jun. 04 to Aug. 11	3.8
Aug. 11 to Sep. 30	3.8 estimated (i)

CAL YR 1996 Total 92.2
WTR YR 1997 Total 104.6

\> Actual value is known to be greater than the value shown
(a) Estimated values based on accumulation rain can reading of 5.5 inches from Aug. 16 to Oct. 24, 1995
(b) Rain can overflowed
(c) Estimated values based on rain can reading of nearby raingage
(d) Estimated values based on estimated accumulation raincan reading of 8.0 inches from Aug. 2 to Oct. 25
(e) Estimated values based on estimated accumulation raincan raading of 32.0 inches from Dec. 3 to Feb. 7
(f) Estimated values based on accumulation raincan reading of 5.3 inches from Aug. 11 to Oct. 6
(g) Estimated values based on accumulation can reading of 9.4 inches from Aug. 2 to Oct. 25
(h) Estimated values based on accumulation can reading of 34.8 inches from Dec. 3 to Feb. 7
(i) Estimated values based on accumulation can reading of 4.8 inches from Aug. 11 to Oct. 6

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI--Continued

220713159361201. State Key Number 1083.0 Mohihi crossing rain gage 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.--1910 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Electronic data logger with a tipping bucket catchment (0.01 in. per tip). Elevation of gage is 3,420 ft (from topographic map).

REMARKS.--Records good for period of daily record. Records fair for period of no daily record. Accumulated rainfall recorded in tenths of an inch and recording rainfall recorded in hundredths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	---	---	---	.00	.49	1.91	.08	.01	.15	.00	.00
2	.09	---	---	---	.00	.01	.00	.12	.01	.16	.03	.00
3	.00	---	a--	---	.00	.14	.25	.07	.01	.00	.08	.00
4	.00	---	---	---	.10	.66	1.77	1.12	.00	.02	.00	.00
5	.00	---	---	---	.07	.98	.56	.63	.00	.00	.00	.02
6	.00	---	---	---	.00	.09	.15	.09	.08	.23	.03	.05
7	1.29	---	---	c--	.02	.15	.01	.31	.01	.03	.05	.10
8	.00	---	---	.00	.00	.00	.00	.76	.05	.01	.01	.05
9	.00	---	---	.13	.00	.00	.67	.01	.07	.11	.00	.16
10	.05	---	---	.01	.00	.00	.06	.05	.02	.09	.00	.06
11	.27	---	---	.00	.00	.17	.56	.09	.00	.07	.01	.07
12	.33	---	---	.00	.00	.63	.01	.08	.00	.01	.00	.06
13	.03	---	---	.00	.00	.61	.07	.08	.00	.01	.01	.01
14	.09	---	---	.07	.00	.12	.01	.30	.01	.00	.70	.01
15	.19	---	---	.29	.00	.01	.00	.01	.02	.03	.05	.01
16	.40	---	---	.08	.00	.00	.00	1.29	.10	.00	.09	.22
17	.00	---	---	.00	.01	2.11	.00	.47	.10	.15	1.32	.21
18	.00	---	---	.00	.02	.02	.00	.09	.04	.14	.41	.17
19	.00	---	---	4.67	.00	.00	.18	.00	.38	.06	.01	.34
20	.86	---	---	.03	.00	.00	.00	.00	.18	.02	.00	.13
21	.08	---	---	.75	.00	.00	.00	.03	.48	.04	.36	.33
22	.01	---	---	.01	.96	.07	.00	1.36	.21	.77	.05	.10
23	.02	---	---	.00	.00	4.39	.08	.16	.02	.25	.07	.05
24	.12	---	---	.00	.07	1.97	.43	.00	.08	.02	.08	.00
25	.03	---	---	.00	1.86	2.13	.08	.00	.02	.07	.01	.02
26	.26	---	---	.43	1.41	1.17	.02	.00	.07	.00	.01	.34
27	1.81	---	---	.55	.44	.06	.36	.00	.03	.00	.02	.14
28	.32	---	---	.32	1.05	.94	.01	.00	.09	.01	.01	.08
29	.00	---	---	1.47	---	.73	.01	.18	.17	.00	.11	.03
30	.00	---	---	.01	---	.01	.00	.15	.04	.44	.18	.00
31	.09	---	b--	.00	---	.45	---	.01	---	.13	.00	---
TOTAL	6.40	---	---	---	6.01	18.11	7.20	7.54	2.30	3.02	3.70	2.76

CAL YR 1996 Total 91.56
WTR YR 1997 Total 114.38

(a) Total accumulated rainfall from November 1 (0001 hrs) to December 3 (2400 hrs) is 22.52 inches
(b) Total accumulated rainfall from December 4 (0001 hrs) to December 31 (2400 hrs) is 19.20 inches
(c) Total accumulated rainfall from January 1 (0001 hrs) to January 7 (2400 hrs) is 6.80 inches

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI--Continued

220927159355001. State Key Number 1084.0 Kilohana rain gage 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.--1910 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Electronic data logger with a tipping bucket catchment (0.01 in. per tip). Elevation of gage is 4,000 ft (from topographic map).

REMARKS.--Records good. Recording rainfall in hundredths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	.00	.21	.74	.17	.03	.45	.01	.03
2	---	---	---	---	.00	.01	.03	.28	.21	.63	.04	.11
3	---	---	---	---	.00	.39	2.38	.27	.03	.03	.09	.00
4	---	---	---	---	.55	2.86	6.02	1.71	.01	.37	.01	.01
5	---	---	---	---	.35	1.92	3.49	2.19	.03	.01	.02	.16
6	---	---	---	---	.00	.06	1.81	1.15	.46	.62	.02	.11
7	---	---	---	---	.04	.15	.01	1.71	.04	.14	.03	.06
8	---	---	---	b--	.00	.00	.00	2.33	.13	.04	.04	.09
9	---	---	---	.71	.00	.01	.57	.02	.11	1.07	.00	.31
10	---	---	---	.08	.00	.01	.09	.70	.02	.89	.03	.09
11	---	---	---	.00	.02	.07	.65	1.40	.03	.40	.06	.19
12	---	---	---	.10	.00	.17	.03	.66	.03	.06	.01	.93
13	---	---	---	.00	.00	.23	.01	.34	.00	.10	.06	.11
14	---	---	---	.01	.00	.70	.54	.67	.06	.01	.60	.01
15	---	---	---	.20	.00	.26	.00	.10	.01	.02	.72	.01
16	---	---	---	.78	.00	.01	.00	1.07	.16	.06	.06	.44
17	---	---	---	.00	.02	1.22	.00	1.17	.55	.06	.30	.27
18	---	---	---	.00	.03	.03	.00	.27	.11	.57	.21	.37
19	---	---	---	2.19	.01	.00	.02	.01	.57	.19	.00	1.10
20	---	---	---	.00	.00	.00	.00	.03	.45	.00	.00	.16
21	---	---	---	.95	.00	.00	.00	.01	1.00	.07	.83	.13
22	---	---	---	.00	6.20	.01	.00	.56	.43	1.79	.08	.30
23	---	---	---	.00	.00	1.64	.02	.19	.05	.52	.16	.87
24	---	---	---	.00	.04	4.69	1.99	.00	.12	.06	.18	.01
25	---	---	---	.00	1.10	5.91	.26	.00	.04	.13	.07	.16
26	---	---	---	.15	1.06	2.23	.47	.00	.11	.00	.04	.82
27	---	---	---	.85	.07	.16	1.54	.00	.17	.00	.02	.40
28	---	---	---	.65	.37	2.74	.03	.00	.34	.05	.01	.08
29	---	---	---	.94	---	1.40	.02	.94	.63	.00	.16	.03
30	---	---	---	.01	---	.00	.00	1.66	.09	.14	.06	.01
31	---	---	a--	.00	---	.04	---	.05	---	.11	.00	---
TOTAL	---	---	---	---	9.86	27.13	20.72	19.66	6.02	8.59	3.92	7.37

CAL YR 1996 Total 127.24
WTR YR 1997 Total 154.89

(a) Total accumulated rainfall from October 1 (0001 hrs) to December 31 (2400 hrs) is 39.2 inches
(b) Total accumulated rainfall from January 1 (0001 hrs) to January 8 (2400 hrs) is 4.8 inches

RAINFALL RECORDS

HAWAII, ISLAND OF KAUAI--Continued

220703159351201. State Key Number 1085.0 Mohihi-Koaie divide rain gage 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.--1910 to current year. Prior to October 1992, unpublished records are in files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard 8-in. National Weather Service accumulation rain gage. Elevation of gage is 4,000 ft (from topographic map).

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Dec. 31	41.7 estimated (a)
Jan. 01 to Jan. 08	5.1 estimated (a)
Jan. 08 to Apr. 17	41.4
Apr. 17 to Jul. 02	13.2
Jul. 02 to Sep. 30	12.5 estimated (b)

CAL YR 1996 Total 89.3
WTR YR 1997 Total 113.9

(a) Estimated values based on accumulation rain can reading of 46.8 inches from Oct. 1 to Jan. 8
(b) Estimated values based on accumulation rain can reading of 15.8 inches from Jul. 2 to Oct. 16

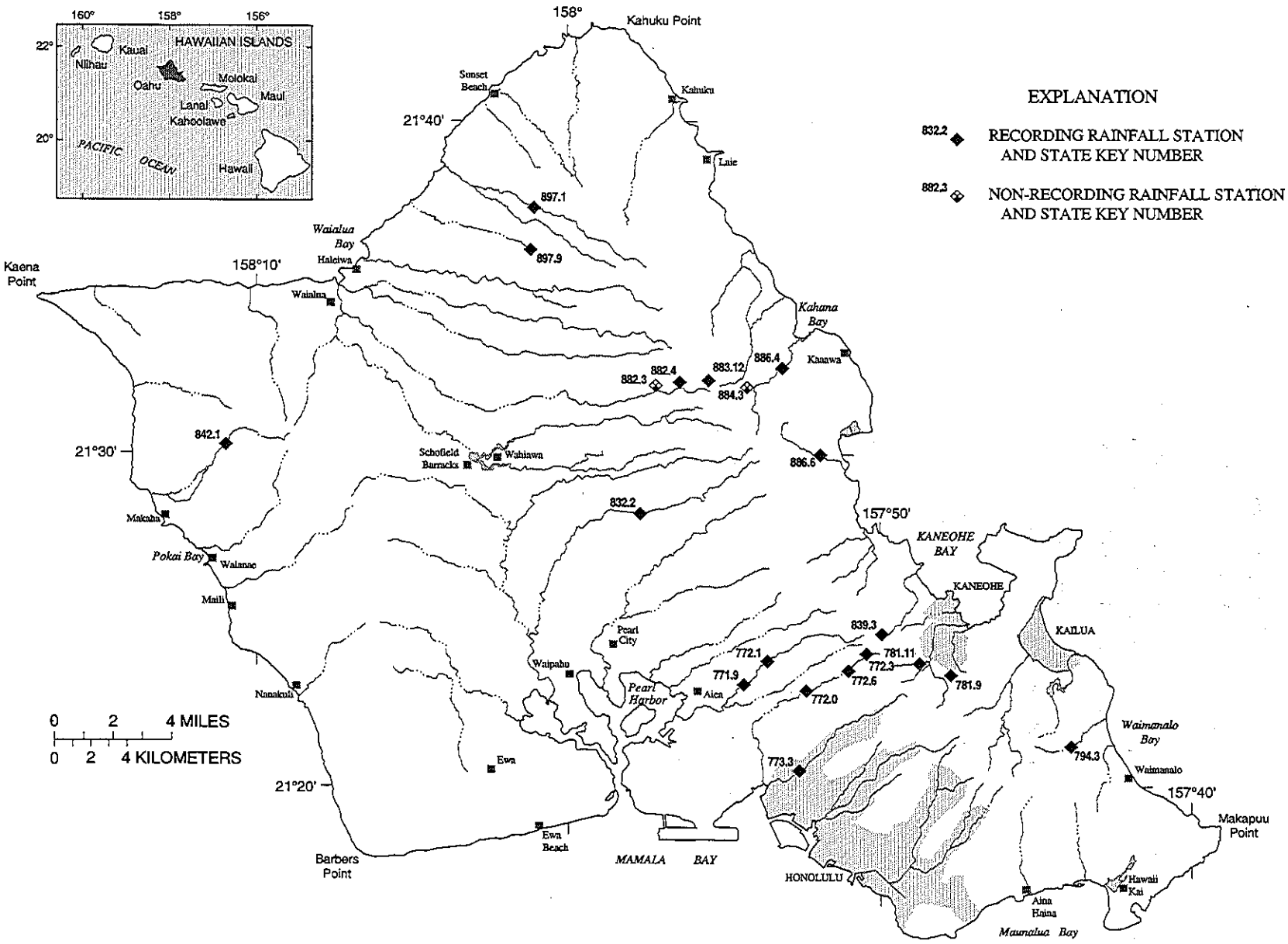


Figure 22. Locations of rainfall stations on Oahu.

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU

212304157542201. State Key Number 771.9 North Halawa rain gage 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-in. National Weather Service rain gage with recording tipping-bucket attachment. Digital recorder was installed on March 18, 1997, replacing the tipping-bucket attachment. Elevation of gage is 180 ft above mean sea level (from topographic map).

REMARKS.--Records fair. Rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.0	.0	.0	.4	.0	.0	.1	.0	.0
2	.0	.5	.0	.0	.0	.0	.1	.0	.0	.5	.0	.0
3	.0	.1	.2	3.8	.0	.2	.5	.2	.0	.0	.0	.0
4	.0	.0	.1	.2	.0	1.0	.1	.0	.0	.0	.0	.0
5	.0	5.3	.2	.0	.0	.4	.3	.1	.0	.0	.0	.0
6	.0	.0	.1	.0	.0	.1	.1	1.1	.1	.2	.0	.0
7	.0	.6	.8	.0	.1	.1	.0	.3	.0	.0	.0	.0
8	.0	.8	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
9	.0	.0	.0	.0	.0	.0	.3	.0	.1	.1	.0	.0
10	.0	.0	.0	.0	.0	.0	.6	.0	.0	.1	.0	.0
11	.0	.0	.2	.0	.0	1.0	.2	.0	.0	.1	.0	.0
12	.0	3.2	.0	.2	.0	.0	.0	.0	.2	.0	.1	.1
13	.0	1.6	.1	.0	.0	.3	.0	.0	.0	.0	.0	.0
14	.4	3.2	.1	.0	.0	.0	.0	.1	.0	.0	.0	.1
15	.0	1.1	.0	.0	.0	.0	.0	.1	.0	.1	1.7	.1
16	.0	4.4	.0	.1	.0	1.2	.0	.0	.1	.0	.1	.2
17	.0	.0	.0	.0	.0	1.5	.0	.0	.0	.0	.8	.0
18	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.1
19	.1	.0	.0	2.2	.0	.0	.0	.0	.4	.1	.0	.0
20	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.3	.5	.0	.0	.0	.0	.2	.0	.0	.3
22	.0	.0	.0	.0	.1	.0	.0	.3	.0	.8	.0	.7
23	.0	.0	.3	.0	.0	2.6	.0	.1	.4	.0	.1	.0
24	.1	.1	.4	.0	.0	.5	.4	.0	.7	.0	.1	.0
25	.0	.0	.0	.0	.4	.4	.3	.0	.0	.1	.0	.0
26	.0	.0	.3	.0	.1	.4	.5	.0	.2	.0	.2	.1
27	.0	.0	.4	.0	.3	.3	.6	.0	.1	.0	.0	.1
28	.0	.3	.0	.0	.0	.1	.0	.0	.1	.0	.0	.0
29	.0	.0	.0	.4	---	.2	.0	.0	.0	.0	.0	.0
30	.0	.2	.1	.0	---	.0	.0	.0	.0	.0	.0	.0
31	.0	---	.1	.0	---	.0	---	.0	---	.0	.0	---
TOTAL	0.6	21.4	3.7	7.4	1.0	10.3	4.4	2.3	2.7	2.3	3.1	1.8

WTR YR 1997 Total 61.0

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212253157522201. State Key Number 772.0 Moanalua rain gage 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-in. National Weather Service collector attached to a 7 5/16-in. rain can with float-type recorder system. An electronic data logger was installed on February 6, 1997 replacing the digital recorder. Housed with recording crest-gage. Elevation of the gage is 340 ft above mean sea level (from topographic map).

REMARKS.--Records good. Rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.1	.1	.1	.0	.0	.5	.0	.4	.2	.0	.0
2	.0	.1	.1	.0	.0	.4	.4	.0	.0	.4	.0	.0
3	.0	.0	.3	3.9	.0	.6	.9	.3	.0	.1	.0	.0
4	.0	.0	.2	.5	.0	2.1	.1	.0	.2	.2	.0	.1
5	.0	3.1	.5	.0	.0	1.5	.6	.5	.1	.0	.0	.1
6	.0	.0	.0	.0	.0	.3	.2	.1	.3	.8	.1	.1
7	.0	1.1	.7	.0	.6	.3	.0	.2	.0	.1	.0	.2
8	.0	1.4	.2	.0	.0	.0	.2	.1	.5	.1	.0	.2
9	.0	.0	.0	.0	.1	.1	.0	.0	.2	.9	.0	.0
10	.1	.0	.1	.0	.1	.2	1.0	.0	.1	.4	.0	.0
11	.0	.0	.6	.0	.1	.9	1.6	.0	.1	.2	.2	.2
12	.0	4.1	.2	.5	.1	.0	.0	.1	.7	.0	.0	.3
13	.0	1.5	.3	.0	.1	.6	.5	.0	.0	.1	.2	.1
14	.5	2.8	.1	.0	.0	.0	.0	1.2	.1	.0	.0	.1
15	.1	1.3	.0	.0	.0	.0	.0	1.2	.4	.1	.9	.2
16	.0	2.6	.0	.1	.1	.9	.0	.4	.2	.1	1.2	.5
17	.2	.1	.0	.0	.1	1.8	.0	.1	.3	.2	1.3	.1
18	.0	.0	.0	.0	.2	.0	.0	.0	.1	.1	.0	.6
19	.3	.3	.0	2.4	.0	.0	.0	.0	.7	.5	.0	.2
20	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.6
21	.0	.0	.4	.6	.0	.0	.0	.0	.7	.3	.1	.1
22	.1	.0	.1	.0	1.0	.0	.0	.4	.2	2.5	.1	.3
23	.1	.0	.4	.0	.0	2.8	.0	.0	.8	.0	.0	.1
24	.2	.4	.2	.0	.0	.9	.6	.0	1.0	.1	.2	.0
25	.1	.0	.0	.0	.5	.7	.9	.0	.4	.5	.0	.1
26	.0	.0	.8	.0	.5	.7	1.5	.0	1.0	.0	.2	.4
27	.0	.2	.6	.0	.4	.4	1.4	.0	.4	.0	.1	.1
28	.0	.7	.0	.2	.0	.6	.0	.0	.3	.2	.1	.2
29	.0	.0	.0	.7	---	.4	.1	.0	.5	.0	.2	.0
30	.3	.2	.1	.0	---	.0	.0	.0	.0	.2	.1	.1
31	.3	---	.3	.1	---	.0	---	.0	---	.0	.0	---
TOTAL	2.3	20.0	6.3	9.1	3.9	16.4	10.5	4.6	9.7	8.3	5.0	5.0

WTR YR 1997 Total 101.1

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212346157533701. State Key Number 772.1 North Halawa rain gage 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 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--A 12-in. collector and 10-in. storage tank with float-type recorder system. Elevation of gage is 320 ft above mean sea level (from topographic map).

REMARKS.--Records good. Rainfall recorded in 0.083 of an inch increments.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.25	.00	.08	.00	.00	.33	.00	.17	.00	.00	.00
2	.00	.08	.00	.00	.00	.00	.25	.00	.00	.42	.00	.00
3	.00	.00	.00	3.00	.00	.42	1.42	.17	.00	.00	.00	.00
4	.00	.00	.17	.33	.00	1.33	.00	.00	.00	.08	.00	.00
5	.00	3.17	.42	.00	.00	.83	.42	.42	.00	.00	.00	.08
6	.00	.08	.08	.00	.00	.25	.08	1.00	.33	.33	.00	.00
7	.00	.42	.67	.00	.33	.08	.00	.08	.00	.00	.00	.08
8	.00	1.00	.00	.00	.00	.00	.00	.00	.25	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.17	.67	.00	.08
10	.00	.00	.00	.00	.00	.00	.92	.00	.08	.17	.00	.00
11	.00	.00	.33	.00	.08	.92	1.25	.00	.08	.17	.00	.17
12	.00	2.75	.00	.25	.00	.08	.00	.00	.25	.00	.00	.17
13	.08	1.42	.00	.00	.00	.25	.17	.00	.08	.00	.00	.08
14	.42	2.75	.08	.00	.00	.00	.00	.50	.00	.00	.00	.08
15	.08	.75	.00	.00	.08	.00	.00	.33	.33	.00	1.33	.17
16	.00	2.33	.00	.08	.00	.50	.00	.25	.08	.00	.17	.33
17	.25	.00	.00	.00	.00	1.83	.00	.00	.25	.08	.50	.17
18	.00	.00	.00	.00	.00	.00	.00	.00	.08	.17	.00	.25
19	.08	.08	.00	1.83	.00	.00	.00	.00	.42	.17	.00	.08
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08
21	.00	.00	.33	.50	.00	.00	.00	.00	.33	.17	.00	.08
22	.00	.00	.00	.00	.58	.00	.00	.25	.08	1.25	.00	.17
23	.00	.00	.17	.00	.00	2.00	.00	.08	.33	.00	.08	.00
24	.08	.17	.17	.00	.00	.58	.33	.00	.75	.00	.00	.00
25	.00	.00	.00	.00	.50	.50	.58	.00	.33	.33	.00	.00
26	.00	.00	.17	.00	.25	.25	1.00	.00	.33	.00	.33	.17
27	.00	.00	.42	.00	.25	.33	.83	.00	.17	.00	.00	.08
28	.00	.25	.00	.00	.00	.42	.00	.00	.17	.00	.08	.00
29	.00	.00	.00	.25	---	.17	.00	.00	.25	.00	.00	.00
30	.00	.08	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.08	---	.00	.00	---	.00	---	.00	---	.00	.25	---
TOTAL	1.07	15.58	3.01	6.32	2.07	10.74	7.58	3.08	5.31	4.01	2.74	2.32

WTR YR 1997 Total 63.83

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212359157502601. State Key Number 772.3 Moanalua rain gage no. 1 at altitude 1,000 ft 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-in. National Weather Service collector and 7 5/16-in. can with recorder. An electronic data logger was installed on February 5, 1997 replacing the digital recorder. Elevation of gage is 1,000 ft above mean sea level (from topographic map).

REMARKS.--Records good except for periods of no record which is poor. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	---	---	---	---	.2	.4	.0	.2	.0	.0	.0
2	.0	---	---	---	---	.5	2.1	.0	.5	.3	.0	.8
3	.0	---	---	---	---	.8	1.1	.1	.0	.1	.0	.0
4	.0	---	---	---	---	2.0	.1	.1	.4	.3	.0	.1
5	.0	---	---	---	b.0	1.6	.8	.0	.2	.0	.0	.0
6	.0	---	---	---	.6	.2	.1	.2	.3	1.0	.1	.1
7	.0	---	---	---	1.3	.0	.0	.3	.1	.2	.0	.0
8	.0	---	---	---	.0	.0	.0	---	.8	.1	.2	.2
9	.0	---	---	---	.1	.2	.1	---	.4	1.9	.0	.0
10	a.0	---	---	---	.1	.1	1.9	---	.2	.8	.0	.0
11	---	---	---	---	.4	1.1	.3	---	.3	.3	.2	.2
12	---	---	---	---	.0	.0	.0	---	.8	.0	.0	.6
13	---	---	---	---	.0	1.0	1.3	---	.1	.3	.0	.2
14	---	---	---	---	.0	.0	.0	---	.0	.0	.0	1.3
15	---	---	---	---	.2	1.2	.0	---	.4	.4	.6	.1
16	---	---	---	---	.0	.7	.0	c---	.2	.3	1.1	.5
17	---	---	---	---	.2	2.1	.0	.0	.4	.2	2.4	.1
18	---	---	---	---	.1	.0	.0	.0	.1	.4	.0	.5
19	---	---	---	---	.0	.0	.0	.0	.1	.8	.0	.3
20	---	---	---	---	.0	.4	.0	.0	.0	.0	.1	1.0
21	---	---	---	---	.1	.0	.0	.0	.6	.0	.3	.7
22	---	---	---	---	2.6	.0	.0	.3	---	2.6	.0	1.1
23	---	---	---	---	.0	3.0	.0	.0	---	.0	.0	.5
24	---	---	---	---	.0	1.3	1.1	.0	---	.0	.0	.0
25	---	---	---	---	.4	.8	.8	.0	---	.7	.0	.5
26	---	---	---	---	.3	.5	1.7	.0	---	.0	1.0	.2
27	---	---	---	---	.4	.4	.0	.0	d.2	.0	.0	.3
28	---	---	---	---	.0	.8	.0	.0	.3	.0	.5	.5
29	---	---	---	---	---	.4	.0	.0	.7	.0	.3	.1
30	---	---	---	---	---	.0	.0	.0	.1	.2	.0	.1
31	---	---	---	---	---	.0	---	.4	---	.0	.2	---
TOTAL	---	---	---	---	---	19.3	11.8	---	---	10.9	7.0	10.0

(a) Partial daily record from 0001 hrs to 1130 hrs
(b) Partial daily record from 1130 hrs to 2400 hrs. Total accumulated rainfall from Oct 10 (1130 hrs) to Feb 5 (1130 hrs) is greater than 41.2 inches, rain can overflowed
(c) No record from May 8 (0030 hrs) to May 16 (2400 hrs), rain can overflowed
(d) Partial daily record from 1200 hrs to 2400 hrs. No record for June 23 (0030 hrs) to June 27 (1200 hrs), rain can overflowed

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212329157510501. State key Number 772.6 Moanalua rain gage near Kaneohe, Oahu.

LOCATION.--Lat 21°23'29", long 157°51'05", (Kaneohe quadrangle, 1959, 1:24000) Hydrologic Unit 20060000, in USGS stream-gaging 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-in. National Weather Service collector attached to 7 5/16-in. rain can with a digital recorder. An electonic data logger was installed on February 5, 1997 replacing the 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 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.0	.1	.2	.7	---	.5	.1	.0	.0
2	.0	1.0	.1	.1	.0	.6	1.2	---	.4	.3	.0	.5
3	.0	.0	.2	4.5	.0	.9	1.2	---	.0	.2	.0	.0
4	.0	.0	.3	.7	.0	2.5	.2	---	.6	.3	.0	.2
5	.0	2.8	.5	.0	.0	1.9	1.0	---	.2	.0	.1	.1
6	.1	.1	.3	.0	.4	.4	.0	---	.4	1.3	.1	.0
7	.0	1.1	.7	.0	1.6	.0	.0	---	.1	.1	.0	.1
8	.0	1.8	.1	.0	.1	.0	.0	---	.9	.1	.2	.4
9	.0	.0	.0	.0	.2	.3	.3	---	.4	2.1	.0	.0
10	.1	.0	.3	.0	.2	.2	1.7	---	.2	.8	.0	.0
11	.0	.2	1.6	.0	.5	1.1	.4	---	.2	.3	.2	.3
12	.1	4.7	.3	.8	.0	.0	.0	---	1.0	.0	.0	.5
13	.0	1.9	.6	.0	.0	1.1	---	---	.2	.3	.1	.3
14	.5	4.1	.0	.0	.1	.0	---	---	.1	.0	.0	1.2
15	.3	1.6	.0	.1	.2	.7	---	---	.5	.5	1.2	.1
16	.1	2.2	.0	.2	.0	.9	---	---	.2	.2	1.1	.5
17	.7	.7	.0	.0	.2	2.1	---	---	.7	.2	3.0	.1
18	.1	.0	.0	.0	.1	.0	---	---	.2	.4	.0	.8
19	1.7	.5	.0	2.8	.1	.0	---	---	.3	1.2	.0	.3
20	.2	.0	.0	.0	.0	.6	---	---	.1	.0	.1	1.1
21	.0	.0	.4	.8	.2	.0	---	---	1.0	.2	.3	.1
22	.0	.0	.1	.0	2.4	.0	---	---	.2	3.2	.1	.9
23	.2	.2	.4	.0	.0	3.9	---	---	1.2	.0	.1	.4
24	.2	1.6	.3	.0	.0	1.7	---	---	1.0	.1	.0	.1
25	.1	.0	.0	.0	.6	.9	---	---	.6	.7	.1	.4
26	.0	.1	.9	.0	.7	.5	---	---	1.2	.0	.7	.4
27	.0	.1	.7	.0	.6	.4	---	---	.9	.0	.0	.3
28	.0	.1	.0	.1	.0	.8	---	---	.4	.1	.5	.3
29	.2	.0	.0	.8	---	.6	---	a.0	.8	.1	.3	.1
30	.5	.2	.1	.3	---	.0	---	.0	.1	.3	.1	.1
31	1.1	---	.5	.2	---	.0	---	.3	---	.0	.2	---
TOTAL	6.2	25.0	8.4	11.4	8.3	22.3	---	---	14.6	13.1	8.5	9.6

CAL YR 1996 Total 126

(a) Partial daily record from 1300 hrs to 2400 hrs. Total accumulated rainfall from Apr 13 (0030 hrs) to May 29 (1300 hrs) is greater than 4.2 inches, rain can overflowed

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212029157523601. State Key Number 773.3 Kalihi rain gage at Kalihi, Oahu.

LOCATION.--Lat 21°20'29", long 157°52'36", Hydrologic Unit 20060000, in USGS stream-gaging 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-in. National Weather Service rain gage with tipping-bucket attachment. An electronic data logger records rainfall at 30-minute intervals. Elevation of gage is 70 ft above mean sea level (from topographic map).

REMARKS.--Records good except for period of no record, October 1 to December 5, and March 18-30. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	a.0	---	---	.0	.0	.0	.5	.0	.0	.0	.0	.0
2	---	---	---	.1	.0	.3	.0	.0	.0	.2	.0	.0
3	---	---	---	1.8	.0	.1	.2	.1	.0	.0	.0	.0
4	---	---	---	.4	.0	.5	.1	.1	.0	.1	.0	.0
5	---	---	b.0	.0	.0	.5	.1	.1	.0	.0	.0	.0
6	---	---	.0	.0	.0	.2	.2	.0	.1	.1	.0	.0
7	---	---	.3	.0	.0	.0	.0	.0	.0	.0	.0	.1
8	---	---	.1	.0	.0	.0	.0	.1	.0	.0	.0	.0
9	---	---	.0	.0	.0	.0	.8	.0	.0	.1	.0	.0
10	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	---	---	.1	.0	.0	.4	.0	.0	.0	.1	.1	.0
12	---	---	.0	.2	.0	.1	.0	.0	.1	.0	.0	.0
13	---	---	.3	.0	.0	.2	.1	.0	.0	.0	.1	.0
14	---	---	.0	.0	.0	.0	.0	.1	.0	.0	.0	.3
15	---	---	.0	.2	.0	.1	.0	.0	.0	.0	.0	.3
16	---	---	.0	.0	.0	.5	.0	.1	.0	.0	.1	.1
17	---	---	.0	.0	.0	.2	.0	.0	.1	.0	.3	.0
18	---	---	.0	.0	.0	---	.0	.0	.1	.1	.0	.1
19	---	---	.0	1.1	.0	---	.0	.0	.3	.0	.0	.1
20	---	---	.0	.0	.0	---	.0	.0	.0	.0	.0	.0
21	---	---	.0	.3	.0	---	.0	.0	.1	.2	.0	.1
22	---	---	.1	.0	.3	---	.1	.3	.0	.5	.0	.2
23	---	---	.3	.0	.0	---	.0	.0	.3	.0	.1	.1
24	---	---	.1	.0	.0	---	.6	.0	.6	.0	.0	.0
25	---	---	.0	.0	.4	---	.2	.0	.0	.1	.1	.0
26	---	---	.4	.0	.5	---	.6	.0	.2	.0	.2	.1
27	---	---	.3	.0	.6	---	.5	.0	.0	.0	.0	.0
28	---	---	.0	.0	.0	---	.0	.0	.1	.0	.0	.0
29	---	---	.0	.4	---	---	.0	.0	.1	.0	.0	.0
30	---	---	.1	.0	---	---	.0	.0	.0	.0	.0	.0
31	---	---	.0	.0	---	c.0	---	.0	---	.0	.1	---
TOTAL	---	---	---	4.5	1.8	3.1	4.0	0.9	2.1	1.5	1.1	1.5

WTR YR 1997 TOTAL 48.3

(a) Partial daily record from 0015 to 1130 hrs
(b) Partial daily record from 1145 hrs to 2400 hrs. No record from Oct. 1 (1130 hrs) to Dec. 5 (1145 hrs), tipping-bucket counter malfunctioned, total accumulated rainfall for the period is 20.5 inches
(c) Partial daily record from 1300 hrs to 2400 hrs. Total accumulated rainfall from Mar. 18 (0015 hrs) to Mar. 30 (1300 hrs) is 5.2 inches, data logger stopped

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212342157484401. State Key Number 781.11 Luluku rain gage at altitude 220 ft near Kaneohe, Oahu.

LOCATION.--Lat 21°23'42", long 157°48'44", Hydrologic Unit 20060000, in USGS stream-gaging 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-in. National Weather Service tipping-bucket rain gage. Elevation of gage is 220 ft above mean sea level (from topographic map).

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.1	.0	.3	.6	.0	.0	.0	.0	.0
2	.0	1.5	.0	.3	.0	.2	1.9	.0	.5	.0	.0	.0
3	.0	.0	.1	3.6	.0	.0	.7	.1	.0	.1	.0	.1
4	.0	.0	.0	.6	.0	.9	.0	.0	.1	.2	.0	.1
5	.0	2.4	.2	.0	.0	.7	.3	1.4	.0	.0	.0	.0
6	.0	.1	.1	.0	.0	.0	.1	.3	.1	.5	.0	.0
7	.0	.0	.2	.0	.3	.1	.0	1.0	.0	.0	.0	.0
8	.0	2.6	.0	.0	.0	.0	.1	1.4	.2	.1	.0	.0
9	.0	.0	.1	.0	.0	.2	.1	.1	.0	.6	.0	.0
10	.0	.1	.1	.0	.0	.0	.1	.0	.1	.3	.0	.0
11	.0	.2	.6	.0	.0	1.0	.2	.4	.0	.1	.2	.1
12	.0	4.0	.1	.6	.0	.0	.0	.4	.2	.0	.0	1.1
13	.0	1.6	.1	.0	.0	.5	.2	.2	.0	.1	.0	.1
14	.1	2.7	.3	.0	.1	.0	.0	1.2	.0	.0	.0	.4
15	.1	.9	.0	.1	.0	.5	.0	.7	.2	.2	.1	.0
16	.1	1.7	.0	.3	.0	.1	.0	.4	.0	.0	.6	.2
17	.2	.5	.0	.0	.0	2.7	.0	.1	.1	.1	1.3	.1
18	.0	.0	.0	.0	.0	.0	.0	.1	.1	.0	.0	---
19	.8	.2	.0	2.3	.0	.0	.0	.0	.1	.7	.0	---
20	.0	.0	.0	.1	.0	.1	.0	.0	.0	.0	.1	---
21	.0	.0	.1	1.2	.1	.0	.0	.0	.3	.0	.0	---
22	.0	.0	.1	.0	1.2	.0	.0	.5	.0	1.2	.0	---
23	.0	.0	.4	.0	.0	2.6	.0	.1	.3	.0	.0	---
24	.0	1.1	.2	.0	.0	.4	.7	.0	.4	.0	.0	---
25	.2	.1	.0	.0	.1	.4	.1	.0	.2	.1	.1	---
26	.0	.0	.4	.0	.4	.2	1.0	.0	.4	.0	.4	---
27	.0	.0	1.1	.0	.5	.1	.6	.0	.5	.0	.0	---
28	.0	.0	.1	.0	.0	.3	.0	.0	.0	.0	.1	---
29	.0	.0	.0	.7	---	.2	.0	.0	.3	.0	.4	---
30	.0	.0	.2	.3	---	.0	.0	.0	.1	.1	.0	---
31	.2	---	.9	.3	---	.0	---	.1	---	.0	.1	a--
TOTAL	1.7	19.7	5.4	10.5	2.7	11.5	6.7	8.5	4.2	4.4	3.4	---

CAL YR 1996 TOTAL 81.7

(a) Total accumulated rainfall from Sep. 18 to Oct. 2 is 3.1 inches

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212322157474401. State Key Number 781.9 Right Branch Kamooalii rain gage near Kaneohe, Oahu.

LOCATION.--Lat 21°23'22", long 157°47'44", Hydrologic Unit 20060000, in USGS stream-gaging 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 are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-in. National Weather Service rain gage attached to a tipping-bucket counter and recorder to January 8, 1997 when tipping-bucket counter was replaced by float-driven digital 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 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	.0	.2	1.0	.0	.0	.0	.0	.0
2	---	---	---	h--	.0	.2	3.5	.0	.3	.0	.0	.1
3	---	---	---	i--	.0	.0	.7	.0	.0	.1	.0	.0
4	---	---	---	---	.0	.9	.1	.0	.1	.1	.0	.0
5	---	---	---	---	.0	.9	.4	.6	.0	.0	.0	.0
6	---	---	---	---	.0	.1	.0	1.7	.0	.2	.0	.0
7	---	c--	---	---	.0	.0	.0	1.0	.0	.1	.0	.0
8	---	---	---	j.0	.0	.0	.3	1.5	.0	.0	.0	.0
9	---	---	f--	.0	.0	.0	.0	.0	.0	.5	.0	.0
10	---	---	---	.0	.0	.2	.4	.0	.1	.2	.0	.0
11	---	---	---	.0	.0	1.2	.0	.9	.0	.0	.0	.1
12	---	---	---	.6	.0	.0	.1	.3	.2	.0	.0	.9
13	---	d--	g--	.1	.0	.5	.0	.2	.0	.1	.0	.1
14	---	e--	---	.0	.0	.6	.0	1.4	.0	.0	.0	.3
15	---	---	---	.1	.3	.2	.0	.7	.1	.2	.0	.0
16	a.1	---	---	.4	.0	.4	.0	.7	.0	.0	.5	.0
17	.0	---	---	.0	.0	2.6	.0	.1	.0	.1	.5	.1
18	.0	---	---	.0	.0	.0	.0	.1	.2	.1	.0	.5
19	.2	---	---	2.8	.0	.0	.0	.0	.0	.4	.0	.1
20	.0	---	---	.0	.0	.0	.0	.0	.0	.0	.1	.3
21	.0	---	---	1.3	.0	.0	.0	.0	.5	.2	.0	1.1
22	.0	---	---	.0	.6	.0	.0	.5	.0	1.1	.0	.0
23	.0	---	---	.0	.0	2.6	.0	.1	.3	.0	.0	.8
24	.0	---	---	.0	.0	.5	.4	.0	.4	.0	.0	.4
25	.1	---	---	.0	.1	.2	.1	.0	.2	.1	.0	.1
26	.0	---	---	.0	.3	.3	.9	.0	.7	.0	.3	.0
27	.0	---	---	.0	.5	.2	.5	.0	.1	.0	.0	.1
28	.0	---	---	.0	.2	.3	.0	.0	.0	.0	.1	.0
29	b.0	---	---	.6	---	.1	.0	.0	.1	.0	.1	.1
30	---	---	---	.4	---	.0	.0	.0	.1	.0	.1	.0
31	---	---	---	.2	---	.0	---	.1	---	.0	.0	---
TOTAL	---	---	---	---	2.0	12.2	8.4	9.9	3.4	3.5	1.7	5.1

(a) Total accumulated rainfall from Aug. 20 (0924 hrs) to Oct. 16 (0930 hrs) is 7.5 inches.
Partial daily record from 0930 hrs to 2400 hrs
(b) Partial daily record from 0001 hrs to 1458 hrs
(c) Total accumulated rainfall from Oct. 29 (1458 hrs) to Nov. 7 (1334 hrs) is 3.8 inches
(d) Total accumulated rainfall from Nov. 7 (1334 hrs) to Nov. 13 (1100 hrs) is 8.3 inches
(e) Total accumulated rainfall from Nov. 13 (1100 hrs) to Nov. 14 (0900 hrs) is 2.9 inches
(f) Total accumulated rainfall from Nov. 14 (0900 hrs) to Dec. 9 (1009 hrs) is 5.6 inches
(g) Total accumulated rainfall from Dec. 9 (1009 hrs) to Dec. 13 (1254 hrs) is 0.9 inches
(h) Total accumulated rainfall from Dec. 13 (1254 hrs) to Jan. 2 (1521 hrs) is 4.1 inches
(i) Total accumulated rainfall from Jan. 2 (1521 hrs) to Jan. 3 (1500 hrs) is 3.6 inches
(j) Total accumulated rainfall from Jan. 3 (1500 hrs) to Jan. 8 (1430 hrs) is 0.5 inches.
Partial daily record from 1430 hrs to 2400 hrs

212114157435001. State Key Number 794.3 Waimanalo rain gage at Waimanalo, Oahu.

LOCATION.--Lat 21°21'14", long 157°43'50", Hydrologic Unit 20060000, in USGS stream-gaging 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-in. National Weather Service rain gage attached to a tipping-bucket counter and recorder. Elevation of gage is 20 ft above mean sea level (from topographic map).

REMARKS.--Records poor. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Jun. 20 to Oct. 15	4.2
Oct. 15 to Nov. 15	17.8
Nov. 15 to Jan. 08	12.8
Jan. 08 to Apr. 09	17.6
Apr. 09 to Jun. 06	12.6
Jun. 06 to Sep. 12	0.1
Sep. 12 to Oct. 23	a--

(a) No record

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212813157574001. State Key Number 832.2 Kipapa rain gage near Wahiawa, Oahu.

LOCATION.--Lat 21°28'13", long 157°57'40", Hydrologic Unit 20060000, on left bank of stream 1,700 ft below Forest Reserve Boundary, 4.9 mi southeast of Wahiawa Post Office, and 6.3 mi northeast of Waipahu. The rain gage was housed in the same shelter with USGS stream-gaging station 16212800, but was relocated to a new shelter 15 ft downstream on January 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-in. National Weather Service collector and 7 5/16-in. 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 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.1	.1	.2	.1	.0	.1	1.0	---	---	.0	.0	.0
2	.1	.3	.0	.1	.0	.2	.3	---	---	.4	.2	.0
3	.0	.0	.7	4.3	.0	1.0	1.1	---	---	.0	.0	.0
4	.0	.2	.3	.8	.0	1.9	.0	---	---	.0	.1	.0
5	.0	7.4	.4	.1	.0	.8	.4	---	---	.0	.0	.1
6	.0	.0	---	.1	.1	.3	.1	---	---	.5	.1	.3
7	.0	.5	---	.1	.2	.1	.0	---	---	.1	.0	.2
8	.0	1.1	---	.0	.0	.0	.1	---	---	.0	.0	.4
9	.0	.0	---	.0	.1	.0	.0	---	---	.3	.0	.0
10	.1	.0	---	.0	.1	.0	1.5	---	---	.5	.1	.1
11	.1	.0	a.1	.0	.0	1.6	2.1	---	---	.3	.0	.1
12	.0	4.1	.2	.3	.0	.2	.0	---	---	.0	.0	.1
13	.1	1.8	.3	.0	.0	.7	.2	---	---	.0	.0	.2
14	.6	2.8	.0	.0	.0	.0	.0	---	---	.0	.0	.9
15	.1	2.2	.0	.0	.0	.1	.1	---	---	.1	.5	.3
16	.0	2.0	.0	.0	.0	.0	.0	---	---	.2	1.1	.6
17	.2	.1	.0	.0	.0	1.2	.0	---	---	.0	.2	.2
18	.0	.1	.0	.0	.0	.1	.0	---	---	.2	.0	.3
19	.2	.3	.0	2.7	.0	.0	.0	---	---	.2	.0	.1
20	.0	.0	.0	.0	.1	.1	.0	---	---	.0	.0	.2
21	.1	.1	.1	.6	.0	.0	.0	---	---	.4	.0	.6
22	.1	.1	.4	.0	.4	.0	.0	---	---	1.6	.4	.3
23	.3	.0	.1	.0	.0	3.3	.0	---	---	.1	.1	.0
24	.2	.2	.1	.0	.0	.5	.4	---	---	.0	.3	.0
25	.0	.0	.0	.0	.4	1.1	---	---	---	.2	.1	.0
26	.0	.0	.8	.0	.3	1.1	---	---	---	.0	.0	.1
27	.0	.2	1.0	.1	.2	.3	---	---	---	.0	.0	.2
28	.0	.5	.1	.1	.1	.5	---	---	---	.1	.1	.1
29	.1	.0	.1	.5	---	.2	---	---	---	.0	.1	.0
30	.3	.1	.2	.0	---	.1	---	---	b.0	.2	.0	.0
31	.1	---	.7	.0	---	.0	---	---	---	.0	.3	---
TOTAL	2.8	24.2	---	9.9	2.0	15.5	---	---	---	5.4	3.7	5.4

(a) Partial daily record from 1315 hrs to 2400 hrs. No record from Dec. 6 (0015 hrs) to Dec. 11 (1315 hrs), rain can overflowed

(b) Partial daily record from 1045 hrs to 2400 hrs. No record from Apr. 25 (0015 hrs) to June 30 (1045 hrs), rain can overflowed

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

212434157495601. State Key Number 839.3 Haiku rain gage near Heeia, Oahu.

LOCATION.--Lat 21°24'34", long 157°49'56", about 1,600 ft inside of security fence at Haiku, on the right side of roadway.

PERIOD OF RECORD.--Continuous-record station, December 2, 1983 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-in. National Weather Service receiver and 7 5/16-in. 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 1996 TO SEPTEMBER 1997
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	.0	.0	.0
2	.0	2.1	.0	.2	.0	.2	.8	.0	.3	.2	.0	.4
3	.0	.0	.0	4.5	.0	.0	1.7	.0	.0	.0	.0	.0
4	.0	.0	.1	.8	.0	.8	.7	.1	.1	.3	.0	.0
5	.0	2.6	.2	.1	.0	.8	.2	1.7	.0	.0	.0	.0
6	.0	.1	.0	.0	.0	.1	.4	.3	.1	.3	.0	.0
7	.0	.8	.3	.0	.6	.0	.1	.8	.0	.1	.0	.0
8	.0	2.5	.0	.0	.0	.0	.1	1.8	.5	.0	.0	.0
9	.0	.0	.0	.0	.0	.0	.0	.0	.1	.8	.0	.0
10	.0	.0	.0	.0	.1	.1	.0	.0	.2	.2	.0	.1
11	.0	.2	1.1	.0	.0	1.1	.4	.7	.3	.0	.1	.0
12	.0	4.0	.1	.9	.0	.1	.2	.3	.2	.0	.0	.4
13	.0	1.9	.2	.0	.0	1.2	.0	.2	.1	.2	.0	.2
14	.4	4.0	.1	.0	.0	.0	.1	1.6	.0	.0	.0	.6
15	.0	1.6	.0	.1	.0	.8	.1	1.1	.1	.1	.5	.0
16	.2	1.9	.0	.7	.0	.1	.1	.4	.1	.0	.7	.2
17	.5	.9	.0	.0	.1	3.1	.0	.0	.3	.0	1.1	.0
18	.0	.1	.0	.0	.0	.0	.0	.0	.1	.2	.0	.1
19	.8	.0	.0	2.4	.0	.0	.1	.0	.1	.7	.0	.4
20	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.5
21	.0	.0	.5	1.0	.0	.0	.0	.0	.3	.0	.1	2.0
22	.0	.0	.0	.0	1.8	.0	.0	.6	.1	1.3	.0	.4
23	.0	.0	.4	.0	.0	3.2	.0	.1	.2	.0	.0	.1
24	.0	1.2	.4	.0	.0	.5	1.4	.0	.3	.0	.0	.0
25	.1	.2	.0	.0	.1	.6	.4	.0	.1	.4	.0	.0
26	.0	.0	.9	.0	.2	.1	.9	.0	.6	.0	.4	.1
27	.0	.0	.9	.0	.3	.2	.6	.0	.1	.0	.0	.1
28	.0	.0	.0	.0	.4	.2	.0	.0	.2	.0	.0	.2
29	.2	.0	.0	.8	---	.1	.0	.0	.5	.1	.1	.0
30	.0	.0	.1	.5	---	.1	.0	.0	.0	.0	.1	.0
31	.1	---	.8	.2	---	.1	---	.1	---	.0	.2	---
TOTAL	2.6	24.1	6.1	12.3	3.7	13.6	8.3	9.8	5.0	4.9	3.4	5.8

CAL YR 1996 TOTAL 91.9
WTR YR 1997 TOTAL 99.6

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

213016158105901. State Key Number 842.1 Makaha rain gage near Makaha, Oahu.

LOCATION.--Lat 21°30'16", long 158°10'59", Hydrologic Unit 20060000, in USGS stream-gaging 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-in. National Weather Service collector and 7 5/16-in., 4-ft tall rain can with a float-type system attached to an electronic data logger. Readings are taken at 30-minute intervals. Elevation of gage is 957 ft above mean sea level (from topographic map).

REMARKS.--Records good except for period of no daily record, November 18-26, which is poor. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.0	.0	.0	.6	.0	.0	.0	.0	.0
2	.0	.0	.0	.5	.0	.0	.6	.0	.0	.0	.0	.0
3	.0	.0	.0	1.6	.0	.1	.4	.0	.0	.0	.0	.0
4	.0	.0	.1	1.4	.0	.2	.0	.0	.1	.0	.0	.0
5	.0	5.4	.3	.6	.0	.4	.1	.7	.1	.0	.0	.0
6	.0	.3	.2	.0	.0	.0	.0	.5	.0	.1	.0	.0
7	.0	1.6	1.1	.0	.0	.0	.1	.4	.0	.0	.0	.0
8	.0	.7	.4	.0	.0	.0	.0	.2	.0	.0	.0	.0
9	.0	.0	.0	.0	.0	.5	.0	.0	.0	.3	.0	.0
10	.0	.0	.1	.0	.0	.0	.2	.0	.0	.0	.1	.0
11	.0	.0	.1	.0	.0	2.3	.2	.4	.0	.0	.1	.0
12	.0	4.8	.0	.3	.0	.0	.0	.0	.1	.0	.0	.1
13	.0	5.4	1.1	.0	.0	.5	.1	.0	.0	.0	.0	.2
14	.1	4.3	.0	.0	.0	.2	.0	.4	.0	.0	.0	1.7
15	.0	1.8	.0	.1	.0	.0	.0	.1	.0	.1	1.3	.0
16	.0	5.8	.0	.4	.0	.1	.0	.0	.0	.0	.2	.1
17	.0	.0	.0	.0	.0	.9	.0	.0	.1	.0	.1	.0
18	.0	---	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	2.9	---	.0	6.4	.0	.0	.0	.0	.1	.0	.0	.1
20	.1	---	.1	.0	.0	.0	.1	.0	.0	.0	.0	.9
21	.0	---	.2	.2	.0	.0	.0	.0	.1	.0	.0	.1
22	.0	---	.0	.0	1.0	.0	.1	1.4	.0	.8	.2	.0
23	.0	---	.8	.0	.0	3.4	.0	.1	.0	.0	.0	.0
24	.1	---	.2	.0	.0	2.3	1.2	.0	.2	.0	.0	.0
25	.0	---	.0	.0	.7	.3	.7	.0	.0	.0	.0	.0
26	.0	a.0	1.2	.0	.3	.1	.1	.0	.0	.0	.0	.0
27	.0	.0	2.7	.0	.9	.0	.1	.0	.0	.0	.0	.0
28	.0	.0	.0	.0	1.4	.0	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.6	---	.0	.0	.0	.0	.0	.1	.0
30	.0	.0	.3	.0	---	.0	.0	.0	.0	.6	.0	.0
31	.3	---	.3	.0	---	.0	---	.0	---	.0	.0	---
TOTAL	3.5	---	9.2	12.1	4.3	11.3	4.6	4.2	0.8	1.9	2.1	3.2

(a) Partial daily record from 1130 hrs to 2400 hrs. No record from Nov. 18 (0030 hrs) to Nov. 26 (1130 hrs). Total accumulated rainfall from Oct 1 (0030 hrs) to Nov. 26 (1130 hrs) is greater than 35.7 inches, rain can overflowed

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

213205157571001. State Key Number 882.3 Poamoho rain gage 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-in. 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 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
July 05 to Oct. 10	26.9
Oct. 10 to Jan. 08	48.7
Jan. 08 to July 15	58.5
July 15 to Aug. 06	9.0
Aug. 06 to Nov. 07	38.8

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

213211157562400. State Key Number 882.4 Poamoho rain gage 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 Wahiawa.

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-in. National Weather Service collector on a 10-in. storage can with a float-type system attached to a graphic recorder. An electronic data logger was installed on August 6, 1997 replacing the graphic recorder. Elevation of gage is 1,960 ft above mean sea level (from topographic map).

REMARKS.--Record good. Rainfall recorded in increments of hundredths of an inch (graphic recorder) and 0.188 inch (data logger).

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.02	1.65	.10	.16	1.85	---	---	---	---	---	.00
2	.00	.22	.65	.27	.05	.35	---	---	---	---	---	.00
3	.00	.01	.20	4.03	.00	1.00	---	---	---	---	---	.00
4	.00	.02	.20	.70	.01	1.70	---	---	---	---	---	.19
5	.00	4.10	.60	.12	.04	1.27	---	---	---	---	---	.75
6	.00	.02	.35	.00	.40	.16	---	---	---	---	c.00	.19
7	.00	.53	.75	.00	3.34	.30	---	---	---	---	.19	.19
8	.05	1.35	.30	.00	.05	.00	---	---	---	---	.00	.38
9	.08	.05	.00	.00	.27	.37	---	---	---	---	.00	.00
10	.10	.00	.80	.00	.15	.30	---	---	---	---	.00	.19
11	.42	.45	1.20	.00	.68	1.35	---	---	---	---	.19	.38
12	.25	2.85	.75	.35	.15	.05	---	---	---	---	.19	.19
13	.00	1.42	.35	.02	.00	.35	---	---	---	---	.00	.56
14	.52	4.08	.15	.03	.10	a.07	---	---	---	---	.00	2.81
15	.45	1.50	.00	.03	.25	---	---	---	---	b--	3.75	.75
16	1.20	2.30	.00	.27	.05	---	---	---	---	---	1.87	.75
17	2.93	.40	.00	.10	.00	---	---	---	---	---	.38	.38
18	.22	.20	.00	.00	.05	---	---	---	---	---	.00	.38
19	8.23	.60	.05	3.06	.05	---	---	---	---	---	.00	.19
20	.35	.00	.00	.00	.00	---	---	---	---	---	.00	.75
21	.20	.00	.15	.42	.00	---	---	---	---	---	.38	.19
22	.05	.00	.15	.00	1.60	---	---	---	---	---	.38	.56
23	.20	.40	.18	.00	.10	---	---	---	---	---	.19	.00
24	.21	1.00	.17	.00	.00	---	---	---	---	---	.19	.00
25	.89	.15	.00	.00	.62	---	---	---	---	---	.19	.37
26	.10	.30	.70	.00	.38	---	---	---	---	---	.75	.56
27	.18	.10	.85	.15	.20	---	---	---	---	---	.19	.19
28	.02	1.45	.05	.36	.00	---	---	---	---	---	.00	.19
29	.00	.20	.00	2.70	---	---	---	---	---	---	.75	.00
30	1.10	.50	.10	.07	---	---	---	---	---	---	.56	.19
31	1.78	---	.55	.14	---	---	---	---	---	---	.56	---
TOTAL	19.53	24.22	10.90	12.92	8.70	---	---	---	---	---	---	11.28

(a) Partial daily record from 0001 hrs to 1345 hrs
(b) Total accumulated rainfall from Mar. 14 (1345 hrs) to July 15 (1045 hrs) is 69.0 inches,recorder stopped
(c) Partial daily record from 1230 hrs to 2400 hrs. Total accumulated rainfall from July 15 (1045 hrs) to Aug. 6 (1230 hrs) is 11.9 inches, recorder stopped

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

213215157552800. State Key Number 883.12 Poamoho rain gage 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-in. National Weather Service collector on a 10-in. storage can with a float-type system attached to a graphic recorder. An electronic data logger was installed on August 13, 1997, replacing the graphic recorder. Elevation is 2,480 ft above mean sea level (from topographic map).

REMARKS.--Records poor. Rainfall recorded in increments of hundredths of an inch (graphic recorder) and 0.188 inch (data logger).

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	.40	2.58	.60	---	---	---	---	.00
2	---	---	---	---	.00	.40	1.55	---	---	---	---	.19
3	---	---	---	---	.00	.45	6.40	---	---	---	---	.00
4	---	---	---	---	.00	1.20	.65	---	---	---	---	.19
5	---	---	---	---	.05	.60	.00	---	---	---	---	.56
6	---	---	---	---	.35	.09	.75	---	---	---	e--	.19
7	---	---	---	---	4.55	.20	.10	---	---	---	---	.00
8	---	---	---	c.00	.00	.00	.03	---	---	---	---	.38
9	---	---	---	.00	.15	.58	.77	---	---	---	---	.00
10	a.00	---	---	.00	.05	.45	.25	---	---	---	---	.00
11	.40	---	---	.00	.77	1.60	.75	---	---	---	---	.37
12	.15	---	---	.45	.05	.00	.27	---	---	---	---	.38
13	.40	---	---	.05	.00	.73	1.28	---	---	---	f.00	.94
14	b3.30	---	---	.00	.33	.05	.30	---	---	---	.00	1.13
15	---	---	---	.10	.15	.49	.00	---	---	d--	2.06	.19
16	---	---	---	.56	.00	.03	.00	---	---	---	2.06	.56
17	---	---	---	.00	.05	1.45	.03	---	---	---	.38	.19
18	---	---	---	.00	.00	.03	.00	---	---	---	.00	.38
19	---	---	---	3.54	.08	.00	---	---	---	---	.00	.19
20	---	---	---	.00	.05	.95	---	---	---	---	.19	.38
21	---	---	---	.40	.00	.03	---	---	---	---	.56	.94
22	---	---	---	.00	1.95	.00	---	---	---	---	.38	.19
23	---	---	---	.00	.00	2.15	---	---	---	---	.00	.19
24	---	---	---	.00	.00	1.48	---	---	---	---	.38	.19
25	---	---	---	.00	.32	2.00	---	---	---	---	.19	.38
26	---	---	---	.00	.30	.56	---	---	---	---	.94	.38
27	---	---	---	.10	.15	.22	---	---	---	---	.00	.00
28	---	---	---	.80	.00	.71	---	---	---	---	.19	.19
29	---	---	---	3.50	---	.86	---	---	---	---	.75	.19
30	---	---	---	.38	---	.00	---	---	---	---	.56	.19
31	---	---	---	.22	---	.06	---	---	---	---	.56	---
TOTAL	---	---	---	---	9.75	19.95	---	---	---	---	---	9.06

(a) Partial daily record from 1320 hrs to 2400 hrs. Total accumulated rainfall from July 8 (0345 hrs) to Oct. 10 (1320 hrs) was 29.03 inches, recorder stopped
(b) Partial daily record from 0001 hrs to 1530 hrs
(c) Partial daily record from 1230 hrs to 2400 hrs. Total accumulated rainfall from Oct. 14 (1530 hrs) to Jan. 8 (1230 hrs) was 64.11 inches, recorder stopped
(d) Total accumulated rainfall from Apr. 19 (0001 hrs) to July 15 (1210 hrs) was 40.34 inches, recorder stopped
(e) Total accumulated rainfall from July 15 (1210 hrs) to Aug. 6 (1118 hrs) was 11.15 inches, recorder stopped
(f) Partial daily record from 1400 hrs to 2400 hrs. Total accumulated rainfall from Aug. 6 (1118 hrs) to Aug. 13 (1400 hrs) was 0.37 inches, recorder stopped

213221157541501. State Key Number 884.3 Punaluu rain gage 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 stream-gaging 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-in. National Weather Service collector with standard 8-in. can, and an auxiliary 3-in. diameter, 5-ft 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.

REVISIONS.--The total rainfall from June 28 to October 22 has been revised to 14.9 inches. This figure supersedes the figure published in the report for 1996.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
June 28 to Oct. 22	14.9
Oct. 22 to Jan. 07	28.0
Jan. 07 to May 19	22.2
May 19 to Sep. 23	19.7
Sep. 23 to Dec. 22	9.7

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

213237157530701. State Key Number 886.4 Kahana rain gage at altitude 95 ft near Kahana, Oahu.

LOCATION.--Lat 21°32'37", long 157°53'07", Hydrologic Unit 20060000, on right bank, 600 ft upstream from Kawa Stream, about 40 ft bankward from USGS stream-gaging station 16296500, 1.1 mi southwest of Kahana, and 2.2 mi southwest of Swanzy Beach Park in Kaaawa.

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.--An electronic data logger with a float system using an 8-in. 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 periods of no daily record, October 1 to January 16 and May 11 to June 4, which are poor.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	.10	.10	1.90	.00	---	.10	.10	.00
2	---	---	---	---	.00	.10	2.20	.10	---	.10	.10	.10
3	---	---	---	---	.00	.20	1.10	.10	---	.00	.10	.00
4	---	---	---	---	.00	1.00	.20	.00	b.00	.30	.00	.10
5	---	---	---	---	.00	.40	.60	1.00	.20	.00	.10	.00
6	---	---	---	---	.00	.10	.00	2.10	.10	.30	.10	.00
7	---	---	---	---	1.10	.10	.00	.70	.10	.30	.10	.00
8	---	---	---	---	.00	.00	.10	.20	.60	.00	.20	.3
9	---	---	---	---	.00	.10	1.60	.00	.40	.60	.00	.00
10	---	---	---	---	.00	.00	.20	.00	.00	.40	.00	.00
11	---	---	---	---	.00	.70	.10	---	.00	.10	.10	.2
12	---	---	---	---	.10	.00	.10	---	.30	.00	.00	.2
13	---	---	---	---	.00	.40	1.30	---	.20	.10	.00	.5
14	---	---	---	---	.00	.00	.00	---	.30	.00	.00	.3
15	---	---	---	---	.00	.60	.00	---	.20	.20	.40	.00
16	---	---	---	a.30	.00	.10	.00	---	.00	.20	1.20	.2
17	---	---	---	.00	.10	.70	.00	---	.30	.20	1.30	.3
18	---	---	---	.00	.00	.00	.00	---	.10	.00	.00	.00
19	---	---	---	2.70	.00	.00	.00	---	.10	.40	.00	.2
20	---	---	---	.10	.00	.10	.00	---	.00	.10	.10	.3
21	---	---	---	.30	.00	.10	.00	---	.60	.10	.40	.7
22	---	---	---	.00	.00	.00	.00	---	.00	2.10	.20	.10
23	---	---	---	.00	.00	2.10	.00	---	.40	.00	.10	.00
24	---	---	---	.00	.00	.60	1.50	---	.10	.10	.00	.00
25	---	---	---	.00	.20	1.50	.00	---	.30	.50	.10	.3
26	---	---	---	.00	.10	.20	1.10	---	.40	.00	.20	.2
27	---	---	---	.00	.20	.10	.50	---	1.00	.00	.00	.10
28	---	---	---	.50	.80	.90	.00	---	.20	.20	.10	.10
29	---	---	---	1.50	---	.20	.00	---	.50	.00	.50	.10
30	---	---	---	.40	---	.00	.00	---	.10	.20	.30	.10
31	---	---	---	.30	---	.00	---	---	---	.00	.50	---
TOTAL	---	---	---	---	2.70	10.40	12.50	---	---	6.60	6.30	4.40

(a) Partial daily record from 1115 hrs to 2400 hrs. Total accumulated rainfall from Sep. 26 (1230 hrs) to Jan. 16 (1100 hrs) was greater than 32.0 inches, rain can overflowed
(b) Partial daily record from 1000 hrs to 2400 hrs. No record from May 11 (0015 hrs) to June 4 (1000 hrs), rain can overflowed

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

213000157515401. State Key Number 886.6 Waikane rain gage at altitude 75 ft at Waikane, Oahu.

LOCATION.--Lat 21°30'00", long 157°51'54", Hydrologic Unit 20060000, in USGS stream-gaging 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 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-in. National Weather Service collector and 7 5/16-in., 4-ft tall rain can with a float-type system attached to a digital recorder. An electonic data logger was installed on June 12, 1996, replacing the digital recorder. Readings are taken at 30-minute intervals. Elevation of gage is 75 ft above mean sea level (from topographic map).

REMARKS.--Records good. Daily record read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.2	.0	.0	.0	.1	1.2	.0	.0	.0	.0	.0
2	.0	1.0	.0	.3	.1	.1	1.6	.0	.0	.0	.0	.3
3	.0	.0	.0	4.4	.1	.1	1.3	.0	.0	.0	.0	.0
4	.0	.0	.0	.5	.1	.5	.1	.1	.1	.2	.0	.0
5	.0	3.5	.1	.2	.0	.1	.1	.6	.0	.0	.0	.0
6	.1	.0	.1	.0	.0	.0	.1	2.8	.0	.0	.0	.0
7	.0	.5	.3	.0	.2	.0	.0	.9	.1	.1	.0	.0
8	.0	1.9	.0	.0	.0	.0	.1	1.0	.1	.0	.0	.2
9	.0	.0	.0	.0	.0	.0	.1	.0	.0	.2	.0	.0
10	.1	.2	.2	.9	.0	.0	.0	.0	.0	.2	.0	.0
11	.0	.2	.3	.0	.0	1.2	.0	.8	.1	.0	.1	.0
12	.1	3.6	.3	.3	.0	.0	.0	.7	.2	.0	.0	.1
13	.0	1.5	.4	.0	.0	.4	.8	.1	.4	.0	.0	.4
14	.2	2.7	.0	.0	.0	.0	.0	.7	.0	.0	.0	.1
15	.1	.9	.0	.0	.0	1.2	.0	.2	.1	.1	.1	.0
16	.1	2.4	.0	.6	.0	.0	.0	.2	.0	.0	.5	.1
17	.0	1.1	.0	.0	.0	1.3	.0	.3	.1	.0	.9	.1
18	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
19	.4	.2	.0	2.3	.1	.0	.0	.0	.0	.2	.0	.1
20	.2	.0	.0	.0	.0	.0	.1	.0	.0	.1	.0	.1
21	.0	.0	.2	.8	.0	.0	.0	.0	.3	.2	.1	.2
22	.0	.0	.1	.0	.7	.0	.0	.2	.0	1.2	.0	.0
23	.0	.1	.0	.0	.0	2.3	.4	.2	.1	.0	.0	.0
24	.0	.1	.1	.0	.0	.8	1.5	.0	.0	.0	.0	.0
25	.1	.0	.0	.0	.4	.3	.2	.0	.2	.5	.0	.2
26	.0	.0	1.3	.0	.0	.2	.6	.0	.6	.1	.1	.0
27	.1	.0	.8	.1	.2	.1	.2	.0	.0	.1	.0	.1
28	.0	.0	.0	.1	.7	.4	.0	.0	.1	.0	.2	.0
29	.0	.0	.0	.7	---	.1	.0	.0	.2	.0	.3	.0
30	.0	.0	.3	.4	---	.0	.0	.1	.0	.0	.0	.1
31	.0	---	.7	.1	---	.0	---	.0	---	.0	.2	---
TOTAL	1.5	20.1	5.2	11.7	2.6	9.2	8.4	8.9	2.8	3.2	2.5	2.1

CAL YR 1996 TOTAL 78.6
WTR YR 1997 TOTAL 78.20

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

213725158010401. State Key Number 897.1 Kamananui rain gage at Pupukea Military Road near Maunawai, Oahu.

LOCATION.--Lat 21°37'25", long 158°01'04", Hydrologic Unit 20060000, on left bank, at USGS stream-gaging 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-in. National Weather Service collector and 8-in. rain can attached to a tipping-bucket counter. An electronic data logger was installed on March 26, 1996 to record rainfall at 15-minute intervals. Elevation of gage is 590 ft above mean sea level (from topographic map).

REMARKS.--Records fair when recorder operating, poor when recorder not operating (November 16 to January 24). Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	---	---	.17	.09	1.04	.09	.17	.18	.00	.00
2	.00	.60	---	---	.00	.00	1.04	.17	.00	.45	.09	.00
3	.00	.00	---	---	.00	.70	.78	.00	.00	.00	.00	.00
4	.00	.00	---	---	.00	1.30	.17	.09	.00	.09	.09	.00
5	.00	1.60	---	---	.00	.35	.52	.70	.45	.00	.09	.09
6	.00	.00	---	---	.17	.17	.09	.87	.18	.63	.09	.19
7	.00	.60	---	---	.35	.17	.00	.17	.00	.09	.09	.19
8	.00	1.30	---	---	.09	.00	.00	.17	.27	.00	.09	.09
9	.10	.00	---	---	.00	.00	.00	.00	.63	.90	.00	.19
10	.00	.00	---	---	.09	.09	.00	.00	.18	.36	.00	.09
11	.20	.10	---	---	.00	1.22	.09	.35	.00	.18	.09	.19
12	.10	1.80	---	---	.00	.00	.00	.09	.36	.00	.00	.19
13	.00	1.30	---	---	.00	.09	.09	.35	.09	.00	.00	.00
14	.40	2.40	---	---	.09	.09	.00	1.13	.18	.00	.00	2.42
15	.30	.50	---	---	.00	.17	.00	.35	.18	.00	3.06	.00
16	.00	a1.50	---	---	.00	.00	.00	.09	.18	.09	.63	.37
17	.10	---	---	---	.00	.35	.00	.09	.36	.09	.00	.19
18	.00	---	---	---	.00	.00	.00	.00	.09	.36	.00	.09
19	.60	---	---	---	.09	.00	.00	.00	.36	.72	.00	.09
20	.00	---	---	---	.00	.09	.00	.00	.00	.00	.00	.00
21	.00	---	---	---	.00	.00	.00	.00	.45	.18	.00	.19
22	.00	---	---	---	.44	.00	.00	.52	.00	1.44	.18	.00
23	.10	---	---	---	.00	1.22	.00	.26	.99	.00	.27	.00
24	.10	---	---	b.00	.00	.70	.26	.00	.27	.00	.18	.00
25	.10	---	---	.00	.35	.78	.44	.00	.36	.18	.00	.09
26	.00	---	---	.00	.09	.61	1.22	.00	.54	.09	.18	.28
27	.00	---	---	.09	.09	.44	.87	.00	.36	.00	.00	.19
28	.00	---	---	.78	.17	.52	.00	.00	.27	.09	.18	.09
29	.00	---	---	.70	---	.09	.00	.00	.09	.00	.18	.19
30	.10	---	---	.00	---	.00	.00	.09	.09	.00	.18	.00
31	.10	---	---	.00	---	.09	---	.09	---	.00	.18	---
TOTAL	2.30	---	---	---	2.19	9.33	6.61	5.67	7.10	6.12	5.85	5.41

WTR YR 1997 TOTAL 77.85

(a) Partial daily record from 0015 hrs to 1630 hrs
(b) Partial daily record from 1045 hrs to 2400 hrs. Total accumulated rainfall from Nov. 16 (1630 hrs) to Jan. 24 (1045 hrs) is 14.0 inches, recorder stopped

RAINFALL RECORDS

HAWAII, ISLAND OF OAHU--Continued

213608158011101. State Key Number 897.9 Pupukea Road rain gage at altitude 1,160 ft near Haleiwa, Oahu (formerly published as Pupukea Road rain gage 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-in. National Weather Service rain collector attached to a 8-in. storage can with a recording float-type system. On January 23, an electronic data logger was installed to replace the recorder. Elevation of gage is 1,160 ft above mean sea level (from topographic map).

REMARKS.--Records good except for days with no daily record, which are poor. Rainfall recorded in 0.12 of an inch increments.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	---	---	---	.00	.12	1.44	.12	.36	.24	.00	.00
2	.00	---	---	---	.00	.12	.72	.12	.00	.60	.12	.00
3	.00	---	---	---	.00	.60	2.52	.00	.00	.00	.00	.00
4	.00	a--	---	---	.00	2.16	.12	.12	.00	.00	.00	.00
5	.12	---	---	---	.00	.60	.36	1.56	.48	.00	.12	.00
6	.00	---	---	---	.00	.24	.00	1.08	.24	.60	.00	.24
7	.00	---	---	---	.24	.12	.00	.00	.00	.12	.12	.24
8	.24	---	---	---	.00	.00	.00	.24	.24	.00	.00	.12
9	.00	---	---	---	.00	.00	.00	.00	.60	.84	.00	.12
10	.00	---	---	---	.00	.24	.00	.00	.12	.60	.00	.00
11	.12	---	---	---	.12	1.92	.12	.12	.00	.24	.00	.36
12	.00	---	---	---	.00	.00	.00	.00	.60	.00	.00	.12
13	.00	---	---	---	.00	.12	.00	.24	.12	.00	.00	.12
14	.24	---	---	---	.00	.12	.00	.96	.00	.00	.00	1.20
15	---	---	---	---	.00	.48	.00	.36	.12	.00	2.28	.24
16	---	---	---	---	.00	.00	.00	.24	.36	.24	.60	.48
17	---	---	---	---	.00	.60	.00	.12	.24	.24	.00	.12
18	---	---	---	---	.00	.00	.00	.00	.24	.60	.00	.12
19	---	---	---	---	.00	.00	.00	.00	.84	.48	.00	.12
20	---	---	---	---	.00	.00	.00	.00	.00	.00	.00	.00
21	---	---	---	---	.00	.00	.00	.00	.48	.12	.00	.48
22	---	---	---	---	.60	.00	.00	.72	.12	1.56	.36	.12
23	---	---	---	b.00	.00	1.56	.00	.12	.60	.00	.12	.00
24	---	---	---	.00	.00	.84	.48	.00	.36	.00	.24	.00
25	---	---	---	.00	.48	1.08	.72	.00	.36	.24	.00	.12
26	---	---	---	.00	.24	.72	1.80	.00	.36	.00	.00	.24
27	---	---	---	.00	.00	.36	.96	.00	.12	.00	.00	.12
28	---	---	---	.24	.36	.36	.00	.00	.36	.00	.12	.00
29	---	---	---	1.32	---	.12	.12	.00	.12	.00	.24	.24
30	---	---	---	.00	---	.00	.00	.00	.00	.12	.12	.00
31	---	---	---	.12	---	.12	---	.00	---	.00	.36	---
TOTAL	---	---	---	---	2.04	12.60	9.36	6.12	7.44	6.84	4.80	4.92

(a) Total accumulated rainfall from Oct. 15 (0030 hrs) to Nov. 4 (1100 hrs) is 6.6 inches
(b) Partial daily record from 1400 hrs to 2400 hrs. Total accumulated rainfall from Nov. 4 (1100 hrs) to Jan. 23 (1400 hrs) is greater than 36 inches, rain can overflowed

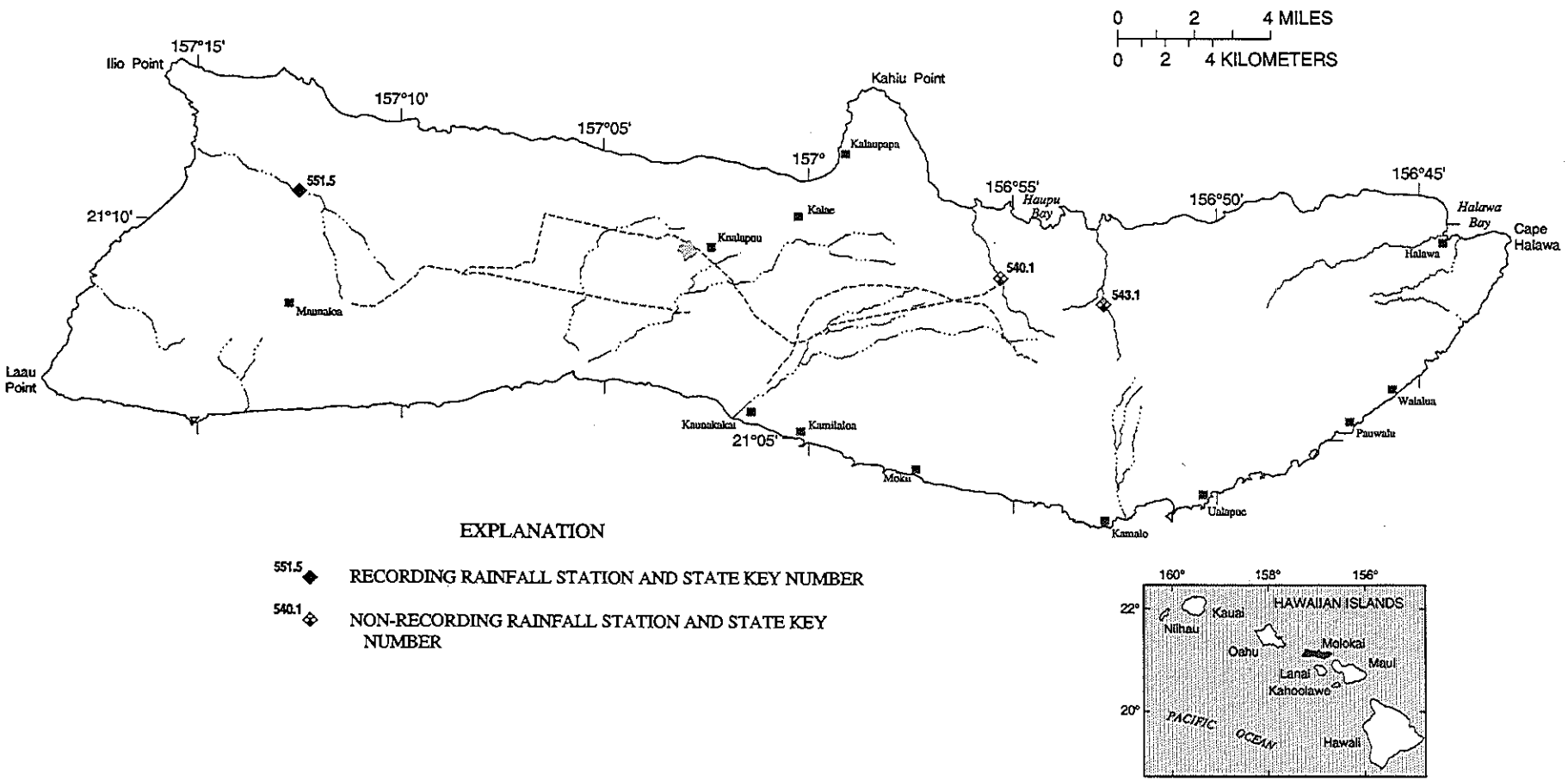


Figure 23. Locations of rainfall stations on Molokai.

RAINFALL RECORDS

HAWAII, ISLAND OF MOLOKAI

210843156551801. State Key Number 540.1 Waikolu rain gage at altitude 900 ft, near Kalaupapa, Molokai.

LOCATION.--Lat 21°08'43", long 156°55'18", Hydrologic Unit 20050000, on left bank near USGS stream-gaging station 16405500, 1.8 mi southwest of Haupu Bay, 2.3 mi upstream from mouth, and 5.2 mi southeast of Kalaupapa.

PERIOD OF RECORD.--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 rain gage with reduced 1:2 catchment. Elevation of gage is 900 ft (from topographic map).

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Nov. 05	0.9(a)
Nov. 05 to Dec. 31	46.7(b)
Jan. 01 to Jan. 14	11.7(b)
Jan. 14 to Mar. 26	18.2
Mar. 26 to June 06	12.6
June 06 to July 30	1.0
July 30 to Sep. 30	3.5(c)

(a) Estimated value based on accumulation can reading of 1.2 inches from Sep. 18 to Nov. 5
(b) Estimated value based on accumulation can reading of 58.4 inches from Nov. 5 to Jan. 14
(c) Estimated value based on accumulation can reading of 4.0 inches from July 30 to Oct. 8

210807156524601. State Key Number 543.1 Pelekunu rain gage 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 mi south of former village of Pelekunu, and 5.7 mi north of Kamalo.

PERIOD OF RECORD.--1968 to October 1996 (discontinued). Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey and at the National Weather Service.

GAGE.--Standard rain gage with reduced 1:2 catchment. Elevation of gage is 700 ft from topographic map.

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1995 TO SEPTEMBER 1996
INTERMITTENT READINGS

Period	Rainfall
Jul. 19 to Oct. 25	6.2

RAINFALL RECORDS

HAWAII, ISLAND OF MOLOKAI--Continued

211039157123101. State Key Number 551.5 Kakaako rain gage near Mauna Loa, Molokai.

LOCATION.--Lat 21°10'39", long 157°12'31", Hydrologic Unit 20050000, in the USGS stream-gaging station 16411400 on left bank, 1.0 mi downstream of Kamakahi Gulch, and 3.0 mi north of Mauna Loa school.

PERIOD OF RECORD.--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-in. National Weather Service rain gage with recording tipping bucket attachment. Elevation of gage is 380 ft (from topographic map).

REMARKS.--Records poor. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	---	.0	---	.1	.0	.0	.2	.0	.0
2	.0	.0	.0	---	.0	---	2.3	.0	.0	.0	.0	.2
3	.0	.0	.0	---	.0	---	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	---	.0	---	.0	.0	.0	.0	.0	.0
5	.0	.2	.0	---	.0	---	.0	.0	.0	.0	.0	.0
6	.0	.1	.0	---	.0	---	.1	.6	.0	.0	.0	.0
7	.0	.1	.1	---	.0	---	.0	.0	.0	.1	.0	.0
8	.0	2.7	.0	---	.0	---	.0	.2	.0	.0	.0	.0
9	.0	.0	.0	---	.0	---	.0	.0	.0	---	.0	.0
10	.0	.0	.0	---	.0	---	.4	.0	.0	---	.0	.0
11	.0	.0	.2	---	.0	---	.0	.0	.0	---	.0	.0
12	.0	5.4	.0	---	.0	---	.0	.1	.0	---	.0	.0
13	.0	3.6	.1	a--	.0	---	.0	.0	.0	---	.0	.0
14	.0	8.6	.8	.0	.0	---	.0	1.4	.0	---	.0	.2
15	.0	2.5	.0	.0	.0	---	.0	.0	.0	---	.0	.0
16	.0	2.8	.0	1.6	.0	---	.0	.0	.0	---	.0	.0
17	.0	.3	.0	.0	.0	---	.0	.0	.0	---	.7	.0
18	.0	.0	.0	.0	.0	---	.0	.0	.0	---	.0	.0
19	.4	.0	.0	3.0	.0	---	.0	.0	.0	---	.0	.0
20	.0	.0	.0	.3	.0	---	.0	.0	.0	---	.0	1.7
21	.0	.0	---	.8	.0	---	.0	.0	.0	---	.0	.1
22	.0	.0	---	.0	---	---	.0	1.1	.1	---	.0	.0
23	.0	.0	---	.0	---	---	.0	1.4	.0	---	.0	.0
24	.0	.0	---	.0	---	---	.2	.0	.1	---	.0	.0
25	.0	.0	---	.0	---	---	.0	.0	.2	---	.0	.0
26	.0	.0	---	.0	---	---	.1	.0	.0	---	.0	.1
27	.0	.0	---	.0	---	b--	.0	.0	.0	---	.0	.0
28	.0	.0	---	.0	---	.0	.0	.0	.0	---	.0	.0
29	.0	.0	---	.1	---	.0	.0	.0	.1	---	.0	.0
30	.0	.0	---	.3	---	.0	.0	.0	.0	---	.0	.0
31	.0	---	---	.0	---	.0	---	.0	---	c--	.0	---
TOTAL	0.4	26.3	---	---	---	---	3.2	4.8	0.5	---	0.7	2.3

CAL YR 1996 TOTAL 73.5
WTR YR 1997 TOTAL 62.7

(a) Total rainfall from Nov. 6 to Jan. 13, when rain can overflowed, was estimated at 50.4 inches. Total accumulated rainfall from Dec. 21 to Jan. 13 was 23.2 inches. Estimated rainfall 13.1 inches from Dec. 21-31 and 10.1 inches from Jan. 1-13

(b) Total rainfall from Jan. 13 to Mar. 27 was 8.4 inches. Total accumulated rainfall from Feb. 22 to Mar. 27 was 2.3 inches

(c) Total rainfall from May 13 to July 31, when no accumulated rain can reading was recorded, was estimated at 6.1 inches. Estimated rainfall 1.4 inches from July 9-31

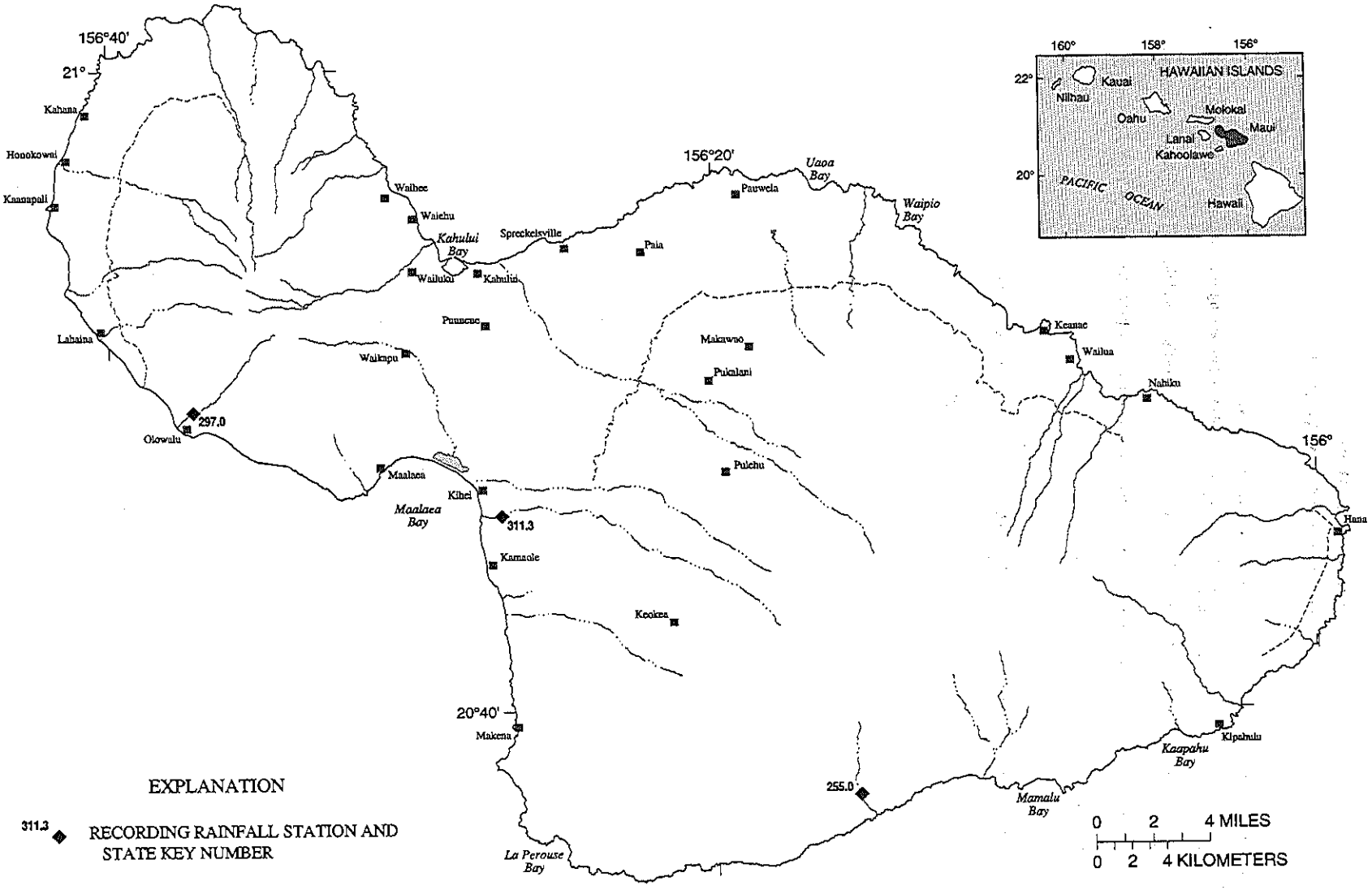


Figure 24. Locations of rainfall stations on Maui.

RAINFALL RECORDS

HAWAII, ISLAND OF MAUI

203721156151601. State Key Number 255.0 Kepuni Gulch rain gage near Kaupo, Maui.

LOCATION.--Lat 20°37'21", long 156°15'16", Hydrologic Unit 20020000, in USGS stream-gaging station 16500100 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.

PERIOD OF RECORD.--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-in. National Weather Service rain gage with recording tipping bucket attachment. Elevation of gage is 740 ft (from topographic map).

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	2.5	.0	.0	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0
3	.0	.2	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0
4	.0	.1	.0	7.1	.0	.0	.0	.0	.0	.0	.0	.0
5	.0	.8	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0	.0	.0	.6	.0	.0	.0	.0
7	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
8	.0	2.1	.0	.0	.0	.0	.0	.1	.3	.0	.0	.0
9	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.0	.0	4.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0
12	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	.0	4.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	.1	1.3	.2	.0	.0	.0	.0	.0	.0	.0	.0	2.1
15	.0	.1	.3	.3	.0	.0	.0	.0	.0	.0	.0	.1
16	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	.9	.4	.0	.2	.0	.0	.0	.0	.0	.0	.0	.0
18	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	.7	.0	.0	.4	.0	.0	.0	.0	.4	.0	.0	.0
20	.0	.0	.1	3.0	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.8	.0	.2	.0	.0	.0	.0	.4	.0	.0
23	.0	.0	4.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	.0	.0	1.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
27	.0	.0	2.7	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	.0	---	.0	.0	.0	.0	.2	.0	.0
30	.0	.1	.2	.0	---	.0	.0	.0	.0	.5	.0	.0
31	.0	---	.9	.0	---	.0	---	.0	---	.0	.0	---
TOTAL	1.7	10.1	11.0	14.0	0.5	4.8	0.0	0.7	0.8	1.1	0.0	2.2

CAL YR 1996 Total 41.2
WTR YR 1997 Total 46.9

RAINFALL RECORDS

HAWAII, ISLAND OF MAUI--Continued

204923156371501. State Key Number 297.0 Olowalu rain gage at Olowalu, Maui.

LOCATION.--Lat 20°49'23", long 156°37'15", Hydrologic Unit 20020000, in USGS stream-gaging station 16646200 on downstream side of center pier of plantation road bridge, 0.6 mi northeast of Olowalu, and 5.5 mi southeast of Lahaina.

PERIOD OF RECORD.--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-in. National Weather Service rain gage with recording tipping bucket attachment. Elevation of gage is 130 ft (from topographic map).

REMARKS.--Records good except for period of missing record. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
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
2	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
6	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
7	.0	.0	.1	---	---	.0	.0	.0	.0	.0	.0	.0
8	.0	1.5	.0	---	---	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	---	---	.3	.0	.0	.0	.0	.0	.0
12	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
13	.0	.0	1.4	---	a--	.0	.0	.0	.0	.0	.0	.0
14	.0	.0	2.0	---	.0	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.1	---	.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	3.0	.0	.0	.0	.0	.0	.0
18	.0	.2	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.1	---	.0	.0	.0	.0	.0	.0	.0	.0
23	.0	.0	2.4	---	.0	.8	.0	.2	.0	.0	.0	.0
24	.0	.0	.2	---	.0	1.2	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	---	.0	.0	.1	.0	.0	.0	.0	.0
26	.0	.0	.0	---	.2	.0	.1	.0	.0	.0	.0	.0
27	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
31	.0	---	.0	---	---	.0	---	.0	---	.0	.0	---
TOTAL	0.0	1.7	6.3	---	---	5.3	0.2	0.2	0.0	0.0	0.0	0.0

CAL YR 1996 Total 13.7
WTR YR 1997 Total 19.6

(a) Total rainfall from Dec. 5 to Feb. 13 is 12.0 inches. Total accumulated rainfall from Jan. 1 to Feb. 13 is 5.7 inches

RAINFALL RECORDS

HAWAII, ISLAND OF MAUI--Continued

204606156270301. State Key Number 311.3 Kulanihakoi rain gage near Kihei, Maui.

LOCATION.--Lat 20°46'06", long 156°27'03", Hydrologic Unit 20020000, in USGS stream-gaging station 16660000 on right bank, 0.5 mi northeast of Lihue Cemetery, 0.8 mi upstream from mouth, and 1.3 mi southeast of Kihei.

PERIOD OF RECORD.--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-in. National Weather Service rain gage with recording tipping bucket attachment. Elevation of gage is 35 ft (from topographic map).

REMARKS.--Records good. Rainfall recorded in tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.0	.0	.0	.1	---	.0	.0	.0	.0	.0	.0	.0
2	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
3	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
4	.0	.0	.0	.7	---	.0	.0	.0	.0	.0	.0	.0
5	.0	.0	.0	.0	---	.0	.0	.1	.0	.0	.0	.0
6	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
7	.0	.0	.1	.0	---	.0	.0	.0	.0	.0	.0	.0
8	.0	.6	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
9	.0	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0
10	.0	.0	.0	.1	---	.0	.0	.0	.0	.0	.0	.0
11	.0	.0	.0	.0	---	1.0	.0	.0	.0	.0	.0	.0
12	.0	.1	.0	---	---	.0	.0	.0	.0	.0	.0	.0
13	.0	.6	3.0	---	---	.0	.0	.0	.0	.0	.0	.0
14	.0	.0	.5	---	---	.0	.0	.0	.0	.0	.0	.0
15	.0	.0	.2	---	---	1.2	.0	.0	.0	.0	.0	.0
16	.0	.1	.0	---	---	.5	.0	.0	.0	.0	.0	.0
17	.0	.0	.0	---	---	3.7	.0	.0	.0	.0	.0	.0
18	.0	.0	.0	---	a--	.0	.0	.0	.0	.0	.0	.0
19	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
20	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
21	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
22	.0	.0	.1	---	.3	.0	.0	.0	.0	.0	.0	.0
23	.0	.0	.7	---	.0	.7	.0	.8	.0	.0	.0	.0
24	.0	.0	.3	---	.0	.3	.0	.0	.0	.0	.0	.0
25	.0	.0	.0	---	.4	.0	.2	.0	.0	.0	.0	.0
26	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
27	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
28	.0	.0	.0	---	.0	.0	.0	.0	.0	.0	.0	.0
29	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
30	.0	.0	.0	---	---	.0	.0	.0	.0	.0	.0	.0
31	.0	---	.0	---	---	.0	---	.0	---	.0	.0	---
TOTAL	0.0	1.4	4.9	---	---	7.4	0.2	0.9	0.0	0.0	0.0	0.0

CAL YR 1996 TOTAL 10.2
WTR YR 1997 TOTAL 29.4

(a) Total rainfall from Dec. 12 to Feb. 11 is 18.7 inches. Total accumulated rainfall from Jan. 12 to Feb. 18 is 13.0 inches

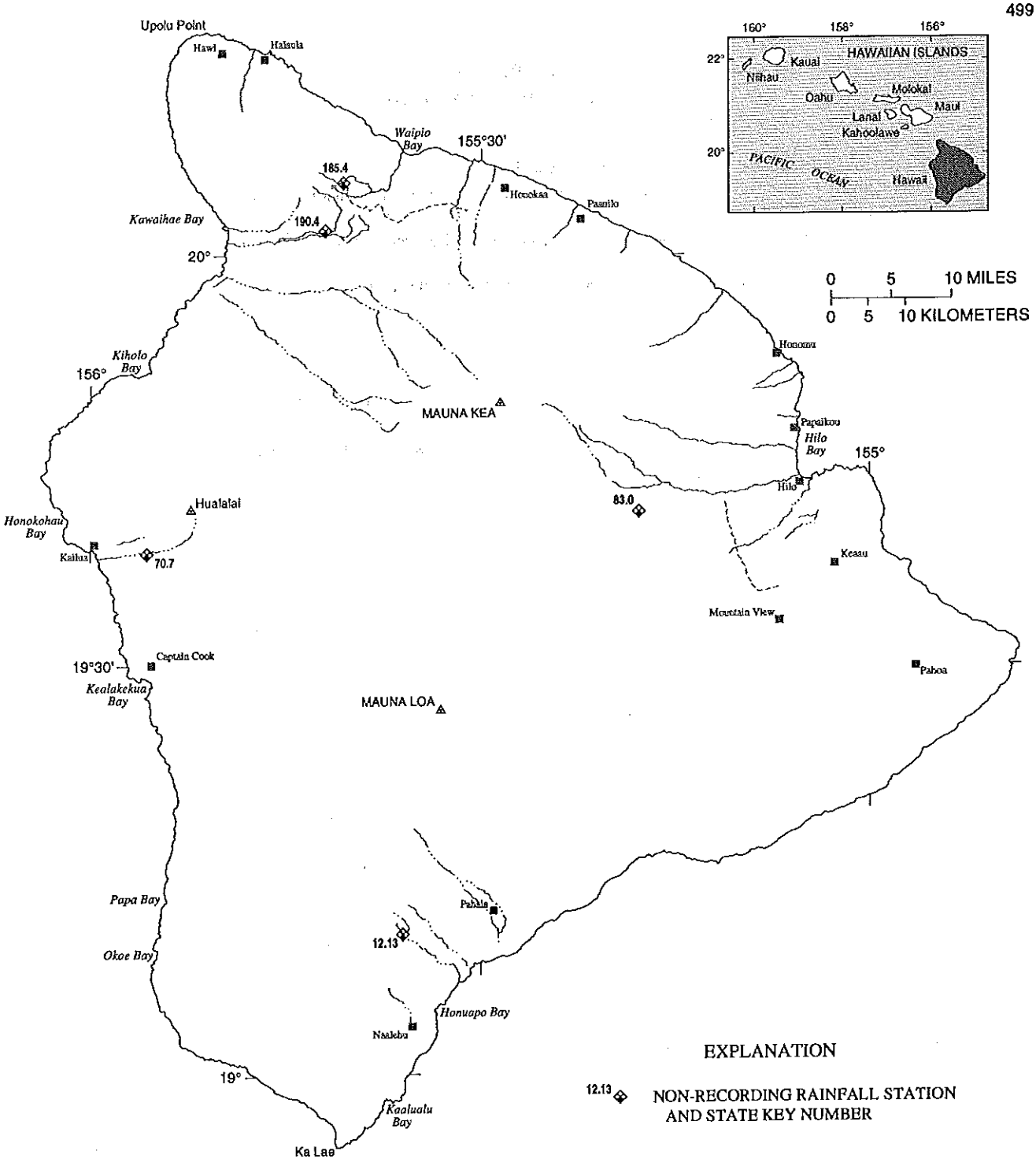


Figure 25. Locations of rainfall stations on Hawaii.

RAINFALL RECORDS

HAWAII, ISLAND OF HAWAII

191027155355801. State Key Number 12.13 Hilea Gulch Tributary rain gage near Honuapo, Hawaii.

LOCATION.--Lat 19°10'27", long 155°35'58", Hydrologic Unit 20010000, at USGS stream-gaging station 16764000, 6.6 mi northwest of Honuapo, and 6.7 mi west of Punaluu.

PERIOD OF RECORD.--1967 to September 1997 (discontinued). Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-in. National Weather Service nonrecording rain gage. Elevation of gage is 2,940 ft (from topographic map).

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Oct. 18	0.0 estimate (a)
Oct. 18 to Dec. 31	21.3 estimate (b)
Jan. 01 to Jan. 08	0.0 estimate (b)
Jan. 08 to Mar. 28	30.4
Mar. 28 to May 16	19.2
May 16 to Jul. 11	32.1
Jul. 11 to Sep. 19	19.6
Sep. 19 to Sep. 30	- (c)

193812155554501. State Key Number 70.7 Waiaha rain gage 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.--1960 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-in. National Weather Service nonrecording rain gage. Elevation of gage is 2,580 ft (from topographic map).

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Oct. 11	1.0 estimate (d)
Oct. 11 to Jan. 16	- (e)
Jan. 16 to Mar. 14	8.9
Mar. 14 to May 01	9.1
May 01 to Jul. 02	15.1
Jul. 02 to Sep. 25	9.8
Sep. 25 to Sep. 30	1.0 estimate (f)

(a) Estimated values based on accumulated reading of 18.7 inches from Aug. 9 to Oct. 18, 1996
(b) Estimated values based on accumulated reading of 21.3 inches from Oct. 18, 1996 to Jan. 8, 1997
(c) No data due to flood at gage. Station discontinued Sep. 19, 1997
(d) Estimated value based on accumulated reading of 11.4 inches from Aug. 20 to Oct. 11, 1996
(e) No data Oct. 11, 1996 to Jan. 16, 1997
(f) Estimated value based on accumulated reading of 8.3 inches from Sep. 25 to Dec. 18, 1997

RAINFALL RECORDS

HAWAII, ISLAND OF HAWAII--Continued

194117155174801. State Key Number 83.0 Quarry at Saddle Road rain gage, 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.--1967 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-in. National Weather Service nonrecording rain gage. Elevation of gage is 4,140 ft (from topographic map).

REMARKS.--Records good. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Aug. 30 to Oct. 31	2.2
Oct. 31 to Jan. 10	2.1
Jan. 10 to Apr. 01	9.9
Apr. 01 to Jul. 10	17.7
Jul. 10 to Sep. 12	7.0
Sep. 12 to Dec. 22	15.6

200515155404201. State Key Number 185.4 Upper Hamakua Ditch rain gage below Kawaiki Stream near Kamuela, Hawaii.

LOCATION.--Lat 20°05'15", long 155°40'42", Hydrologic Unit 20010000, 15 ft from USGS stream-gaging station 16720500 on right bank, and 800 ft downstream of Kawaiki Stream.

PERIOD OF RECORD.--1964 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-in. National Weather Service nonrecording rain gage. Elevation of gage is 4,020 ft (from topographic map).

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Oct. 23	1.0 estimate (a)
Oct. 23 to Dec. 31	13.9 estimate (b)
Jan. 01 to Jan. 23	3.0 estimate (b)
Jan. 23 to Mar. 26	>44.2 (c)
Mar. 26 to May 14	21.4
May 14 to Jul. 15	>41.8 (c)
Jul. 15 to Sep. 17	>43.8 (c)
Sep. 17 to Sep. 30	10.0 estimate (d)

CAL YR 1996 Total 142.7 in.

(a) Estimated value based on accumulated reading of 16.2 inches from Aug. 6 to Oct. 23, 1996
(b) Estimated value based on accumulated reading of 16.9 inches from Oct. 23, 1996 to Jan 23, 1997
(c) Rain gage found full. Actual value is known to be greater than the value shown
(d) Estimated value based on accumulated reading of >44.2 inches from Sep. 17 to Dec. 2, 1997

RAINFALL RECORDS

HAWAII, ISLAND OF HAWAII--Continued

200148155420501. State Key Number 190.4 Keanuiomano rain gage near Kamuela, Hawaii.

LOCATION.--Lat 20°01'48", long 155°42'05", Hydrologic Unit 20010000, in USGS stream-gaging 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.--1963 to current year. Prior to October 1992, unpublished records are in the files of the U.S. Geological Survey.

GAGE.--Standard 8-in. National Weather Service nonrecording rain gage. Elevation of gage is 2,410 ft (from topographic map).

REMARKS.--Records fair. Cumulative rainfall read in nearest tenths of an inch.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997
INTERMITTENT READINGS

Period	Rainfall
Oct. 01 to Oct. 22	0.0
Oct. 22 to Dec. 31	16.0 estimate (a)
Jan. 01 to Jan. 24	5.0 estimate (a)
Jan. 24 to Mar. 27	8.7
Mar. 27 to Apr. 30	1.0
Apr. 30 to Jul. 16	2.3
Jul. 16 to Sep. 18	0.4
Sep. 18 to Sep. 30	2.0 estimate (b)

WTR YR 1997 Total 35.4 in.
CAL YR 1996 Total 32.0 in.

(a) Estimated value based on accumulated reading of 21.0 inches from Oct. 22, 1996 to Jan. 24, 1997
(b) Estimated value based on accumulated reading of 9.7 inches from Sep. 18 to Dec 05, 1997

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
	Length	
inch (in.)	2.54×10^{1}	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^{0}	kilometer
	Area	
acre	4.047×10^{3}	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi^2)	2.590×10^{0}	square kilometer
	Volume	
gallon (gal)	3.785×10^{0}	liter
	3.785×10^{0}	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^{3}	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft^3)	2.832×10^{1}	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft^3/s) d]	2.447×10^{3}	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^{3}	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
	Flow	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter per second
	2.832×10^{1}	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^{1}	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
	Mass	
ton (short)	9.072×10^{-1}	megagram or metric ton

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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