Iwao

Water Resources Data for Hawaii and other Pacific Areas

Water Year 1976

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT HI-76-1

Prepared in cooperation with the State of Hawaii, Trust Territory of the Pacific Islands, the Government of American Samoa, the Government of Guam, and with other State, county, and Federal agencies

CALENDAR FOR WATER YEAR 1976

1975

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Prepared in cooperation with the State of Hawaii, Trust Territory of the Pacific Islands, the Government of American Samoa, the Government of Guam, and with other State, county, and Federal agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

V. E. McKelvey, Director

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and other Pacific Areas write to
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1977

PREFACE

This report was prepared by personnel of the Hawaii district of the Water Resources Division of the U.S. Geological Survey under the supervision of F. T. Hidaka, District Chief, and W. H. Robinson, Regional Hydrologist, Western Region. It was done in cooperation with the State of Hawaii and with other agencies.

This report is one of a series issued by State. General direction for the series is by J. S. Cragwall, Jr., Chief Hydrologist, U.S. Geological Survey, and G. W. Whetstone, Assistance Chief Hydrologist for Scientific Publications and Data Management.

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16. Abstracts

Water resources data for the 1976 water year for Hawaii and other Pacific Areas consist of records of stage, discharge, and water quality of streams; stage of a reservoir; and water levels and water quality in wells and springs. This report contains discharge records for 158 gaging stations; stage only record for 1 gaging station; water quality for 10 gaging stations, 108 partial-record flow stations and 144 wells; and water levels for 25 observation wells. Also included are 107 crest-stage partial-record stations and 109 low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U. S. Geological Survey and cooperating State, Territorial, and Federal agencies in Hawaii and other Pacific areas.

17. Key Words and Document Analysis. 17a. Descriptors

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

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

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CONTENTS

ILLUSTRATIONS

		Page
Figure 1.	Discharge during 1976 water year compared with median discharge for period 1931-60 for four representative gaging stations	23
2.	Map of Kauai showing locations of gaging, water-quality, and partial-record stations	24
3.	Map of Kauai showing locations of observation wells and ground-water quality sampling sites	25
4.	Map of Oahu showing locations of gaging, water-quality, and partial-record stations	26
5.	Map of Oahu showing locations of observation wells and ground-water quality sampling sites	27
6.	Map of Molokai showing locations of gaging, water-quality, and partial-record stations	28
7.	Map of Molokai showing locations of observation wells and ground-water quality sampling sites	29
8.	Map of Maui showing locations of gaging, water-quality, and partial-record stations	30
9.	Map of Maui showing locations of observation wells and ground-water quality sampling sites	31
10.	Map of Hawaii showing locations of gaging, water-quality, and partial-record stations	32
11.	Map of Hawaii showing locations of observation wells and ground-water quality sampling sites	33
12.	Map showing locations of the Trust Territory Pacific Islands	34
13.	Map of Saipan, Mariana Islands, showing locations of gaging and water-quality stations	35
14.	Map of Guam, Mariana Islands, showing locations of gaging, water-quality, and partial-record stations	36
15.	Map of Babelthuap, Palau Islands, showing locations of gaging, water-quality, and partial-record stations	37
16.	Map of Arakabesan, Malakal, Palau Islands, showing locations of partial-record stations	38
17.	Map of Yap Islands, showing locations of gaging, water-quality, and partial-record stations	39
18.	Map of Moen, Truk Islands, showing locations of gaging and water-quality stations	40
19.	Map of Tol, Truk Islands, showing location of partial-record station	41
20.	Map of Dublon Island, Truk Islands, showing locations of gaging and water-quality stations	42
21.	Map of Ponape, showing locations of gaging, water-quality, and partial-record stations	43
22.	Map of Kusaie, showing locations of gaging and water-quality stations	44
23.	Map of Tutuila, Samoa Islands, showing locations of gaging, water-quality, and partial-record stations	45
24.	Sketch showing system for numbering wells and miscellaneous sites	46
25.	Sketch showing local well numbering system	46
26.	Map of Hawaii showing system for numbering local well numbers	47

TABLES

Table 1.	Peak discharges at selected station sites	21

CONTENTS

	Page
Preface	III
List of gaging stations, in downstream order, for which records are published	VII
List of ground-water stations for which water-level records are published	XI
Introduction	1
Cooperation	2
Hydrologic conditions	2
Definition of terms	3
Downstream order and station numbers	10
Numbering system for wells and miscellaneous sites	10
Special networks and programs	11
Explanation of stage and water-discharge records	12
Collection and computation of data	12
Accuracy of field data and computed results	14
Records of discharge collected by agencies other than the Geological Survey	15
Other data available	15
Publications	15
Explanation of water-quality records	16
Collection and examination of data	16
Water analysis	16
Water temperature	16
Sediment	17
Publications	17
Explanation of ground-water level records	17
Collection of the data	17
Publications	18
Publications of techniques of water-resources investigations	19
Summary of February, May, and August 1976 floods	21
Gaging-station records	48
Discharge at partial-record stations and miscellaneous sites	380
Low-flow partial-record stations	380
Crest-stage partial-record stations	390
Measurements at miscellaneous sites	399
Analyses of samples collected at water-quality partial-record stations	400
Analyses of samples collected at miscellaneous sites	407
Periodic determinations of water temperature at gaging stations	412
Ground-water records	417
Ground-water level records	417
Quality of ground-water records	426
Index	441

(Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment)

Page

HAWAII
ISLAND OF KAUAI
Kawaikoi Stream (head of Waimea River) near Waimea (dct)..... 48
Poomau Stream (continuation of Kawaikoi Stream):
Kokee ditch near Waimea (dct)..... 50
Waimea River:
Waialae Stream at altitude 3,820 ft (1,164 m), near Waimea (dct)..... 52
Waimea River near Waimea (dcbmts)..... 54
Makaweli River near Waimea (dct)..... 64
Hanapepe River below Manuahi Stream, near Eleele (dct)..... 66
South Fork Wailua River near Lihue (dct)..... 68
North Fork Wailua River:
North Wailua ditch near Lihue (dct)..... 70
North Wailua ditch below Waikoko Stream, near Lihue (dct)..... 72
Stable storm ditch near Lihue (dct)..... 74
North Fork Wailua River at altitude 650 ft (198 m), near Lihue (dct)... 76
East Branch of North Fork Wailua River near Lihue (dct)..... 78
Wailua ditch near Kapaa (dct)..... 80
North Fork Wailua River near Kapaa (dct)..... 82
Wailua River:
Opaekaa Stream:
Left Branch Opaekaa Stream near Kapaa (dct)..... 84
Kapaa Stream:
Makaleha Stream:
Makaleha ditch near Kealia (dct)..... 86
Kapahi ditch near Kealia (dct)..... 88
Kapaa Stream at Kapahi ditch intake, near Kapaa (dct)..... 90
Anahola Stream:
Anahola ditch:
Anahola ditch wasteway near Kealia (dct)..... 92
Anahola ditch above Kaneha Reservoir, near Kealia (dct)..... 94
Anahola Stream near Kealia (dct)..... 96
Lower Anahola ditch near Kealia (dct)..... 98
Anahola Stream at Anahola (dct)..... 100
Kilauea Stream:
Halaulani Stream at altitude 400 ft (122 m), near Kilauea (dct)..... 102
Hanalei River:
Hanalei tunnel outlet near Lihue (dct)..... 104
Hanalei River near Hanalei (dct)..... 106
Wainiha River near Hanalei (dct)..... 108
ISLAND OF OAHU
North Fork Kaukonahua Stream (head of Kiikii Stream)
above Right Branch, near Wahiawa (dct)..... 110
South Fork Kaukonahua Stream at East Pump Reservoir, near Wahiawa (dct) 112
Kaukonahua Stream:
Poamoho Stream:
Poamoho tunnel near Wahiawa (dt)..... 114
Makaha Stream near Makaha (dct)..... 115
Waikele Stream:
Kipapa Stream near Wahiawa (dcts)..... 117
Waikele Stream at Waipahu (dcbmts)..... 122
Waiawa Stream near Pearl City (dct)..... 138
Kalauao Stream at Moanalua Road, at Aiea (dct)..... 140
North Halawa Stream (head of Halawa Stream) near Aiea (dct)..... 142
Moanalua Stream near Kaneohe (dcs)..... 144
Moanalua Stream tributary near Kaneohe (dc)..... 148
Moanalua Stream near Honolulu (d)..... 149
Kalihi Stream near Honolulu (dcts)..... 150
Kalihi Stream at Kalihi (dcbmts)..... 153

Page

HAWAII--Continued
ISLAND OF OAHU--Continued
Nuuanu Stream below reservoir 2 wasteway, near Honolulu (dct)..... 162
Waihi Stream (head of Manoa Stream) at Honolulu (dct)..... 164
Waiakeakua Stream at Honolulu (dct)..... 166
Pukele Stream (head of Palolo Stream) near Honolulu (dct)..... 168
Palolo Stream near Honolulu (dct)..... 170
Maunawili Stream:
Makawao Stream near Kailua (dct)..... 172
Kamooalii Stream (head of Kaneohe Stream) below Kuou Stream, near Kaneohe (dcts)..... 174
Kamooalii Stream at Kaneohe (dcts)..... 178
Haiku Stream (head of Heeia Stream) near Heeia (dct)..... 180
Kahaluu Stream:
South Fork Waihee Stream near Heeia (dct)..... 183
North Fork Waihee Stream near Heeia (dct)..... 185
Waihee Stream near Heeia (dct)..... 187
Waihee Stream near Kahaluu (dct)..... 189
Waikane Stream at altitude 75 ft (23 m), at Waikane (dct)..... 191
Kahana Stream at altitude 30 ft (9.1 m), near Kahana (dct)..... 193
Punaluu Stream:
Punaluu ditch near Punaluu (dct)..... 195
Punaluu Stream near Punaluu (dct)..... 197
Kaluanui Stream near Punaluu (dct)..... 199
Kamananui Stream (head of Waimea River) at Pupukea Military Road, near Maunawai (dct)..... 201
Kamananui Stream at Maunawai (dct)..... 203
Helemano Stream (head of Paukauila Stream) at Haleiwa (dct)..... 205
Opaeula Stream near Wahiawa (dcts)..... 207
ISLAND OF MOLOKAI
Halawa Stream near Halawa (dcbmts)..... 209
Kapuhi Stream (head of Pelekunu Stream):
Kawainui Stream near Pelekunu (dct)..... 218
Pelekunu Stream near Pelekunu (dct)..... 220
Pilipililau Stream near Pelekunu (dct)..... 222
Waikolu Stream:
Molokai tunnel at east portal (dt)..... 224
Molokai tunnel at west portal (dct)..... 225
Waikolu Stream at altitude 900 ft (274 m), near Kalaupapa (dct)..... 227
Waikolu Stream below pipeline crossing, near Kalaupapa (dct)..... 229
Kaunakakai Gulch at Kaunakakai (d)..... 231
Papio Gulch at Halawa (dct)..... 232
ISLAND OF MAUI
Palikea Stream (head of Oheo Gulch) below diversion dam, near Kipahulu (dct)..... 234
Hanawi Stream near Nahiku (dct)..... 236
Koolau ditch at Nahiku weir, near Nahiku (dct)..... 238
West Wailuaiki Stream near Keanae (dct)..... 240
Koolau ditch near Keanae (dct)..... 242
Haipuaena Stream:
Kula diversion from Haipuaena Stream near Olinda (dct)..... 244
Spreckels ditch at Haipuaena weir, near Huelo (dct)..... 246
Koolau ditch at Haipuaena, near Huelo (dct)..... 248
Manuel Luis ditch at Puohokamoa Gulch, near Huelo (dct)..... 250
Honopou Stream near Huelo (dct)..... 252
Wailoa ditch at Honopou, near Huelo (dct)..... 254
New Hamakua ditch at Honopou, near Huelo (dct)..... 256
Lowrie ditch at Honopou Gulch, near Huelo (dct)..... 258
Haiku ditch at Honopou Gulch, near Kailua (dct)..... 260
Opana Gulch:
Opana tunnel at Kailiili (dct)..... 262
Kahakuloa Stream near Honokohau (dcbmts)..... 264
Honokohau Stream near Honokohau (dct)..... 272
Kahoma Stream at Lahaina (dct)..... 274

Page

HAWAII--Continued
ISLAND OF HAWAII
Waiakea Stream (head of Wailoa River) near Mountain View (dct)..... 276
Olaa flume spring near Kaumana (dct)..... 278
Wailuku River near Humuula (dct)..... 280
Wailuku River near Kaumana (dct)..... 282
Wailuku River at Piihonua (dcbmts)..... 284
Honolii Stream near Papaikou (dcmts)..... 296
Pohakupuka Stream near Papaaloa (dct)..... 300
Kawainui Stream (head of Wailoa Stream) near Kamuela (dct)..... 302
Kawaiki Stream near Kamuela (dct)..... 304
Upper Hamakua ditch below Kawaiki Stream, near Kamuela (dct)..... 306
Upper Hamakua ditch above Alakahi Stream, near Kamuela (dct)..... 308
Waipio Stream (continuation of Kawainui Stream):
Alakahi Stream near Kamuela (dct)..... 310
Upper Hamakua ditch above Waimea Reservoir diversion, near Kamuela (dct). 312
Kohakohau Stream near Kamuela (dct)..... 314
Waikoloa Stream at Marine Dam, near Kamuela (dct)..... 316
Hauani Gulch (head of Lanimaumau Stream) near Kamuela (dct)..... 318
Waiaha Stream:
Right Branch Waiaha Stream near Holualoa (dct)..... 320
Kiilae Stream near Honaunau (dct)..... 322
Hilea Gulch:
Hilea Gulch tributary near Honuapo (dct)..... 324
Hilea Gulch tributary No. 2 near Honuapo (dct)..... 326
Ninole Gulch near Punaluu (dct)..... 328
Paauau Gulch at Pahala (dct)..... 330
MARIANA ISLANDS
ISLAND OF SAIPAN
Denni Spring (head of Denni Stream) (d)..... 332
South Fork Talofofo Stream (dt)..... 333
Middle Fork Talofofo Stream (dt)..... 334
ISLAND OF GUAM
Finile Creek at Agat (dt)..... 335
Umatac River at Umatac (dt)..... 336
Inarajan River near Inarajan (dt)..... 337
Tinaga River near Inarajan (dt)..... 338
Tolaeyuus River (head of Talofofo River):
Imong River (head of Fena River) near Agat (dt)..... 339
Almagosa River near Agat (dt)..... 340
Maulap River near Agat (dt)..... 341
Fena Dam spillway near Agat..... 342
Ylig River near Yona (dt)..... 343
Pago River near Ordot (dt)..... 344
CAROLINE ISLANDS
PALAU ISLANDS
Adeiddo River, Babelthuap (dt)..... 345
Tabagaten River, Babelthuap (dt)..... 346
Gihmel River, Babelthuap (dt)..... 347
Gaden River (head of Geriiki River), Babelthuap (dt)..... 349
Ngardok River:
South Fork Ngardok River, Babelthuap (dt)..... 350
YAP ISLANDS
Aringel Stream, Yap (dt)..... 351
Dalolab Stream, Yap (dt)..... 352
Pemgoy Stream, Yap (dt)..... 353
Talagu Stream, Yap (dt)..... 354
Burong Stream, Yap (dt)..... 355
Mukong Stream, Gagil-Tomil (dt)..... 356
TRUK ISLANDS
Wichen River at altitude 55 m, Moen (dt)..... 357
Wichen River at altitude 18 m, Moen (dt)..... 358
Nachiponong Stream, Moen (dt)..... 359

Page

CAROLINE ISLANDS--Continued
TRUK ISLANDS--Continued
Chun Stream, Dublon Island (dt)..... 360
Tumunu Stream, Dublon Island (dt)..... 361
ISLAND OF PONAPE
Tawenjokola River:
Nanepil River (dt)..... 362
Lui River (dt)..... 363
Lui River at mouth (dt)..... 364
Lupwor River (dt)..... 366
ISLAND OF KUSAIE
Mutunte River (dt)..... 367
Okat River (head of Wukat River) (dt)..... 368
Melo River (dt)..... 369
Malem River (dt)..... 370
Tofol River (dt)..... 371
SAMOA ISLANDS
ISLAND OF TUTUILA
Pago Stream at Afono (dt)..... 372
Leele Stream at mouth, at Fagasa (dt)..... 373
Aasu Stream at Aasu (dt)..... 374
Atauloma Stream at Afao (dt)..... 375
Papa Stream at Nuuuli (dt)..... 376
Afuelo Stream at Matuu (dt)..... 377
Alega Stream at Alega (dt)..... 378
Leafu Stream near Auasi (dt)..... 379

		Page
HAWAII		
ISLAND OF KAUAI		
Kauai County, Wailua	(2-0320-01)220354159205601	417
ISLAND OF OAHU		
State of Hawaii, Honolulu	(3-1749-07)211718157491001	417
Hawaii Meat Co., Honolulu	(3-2101-03)212154158015201	417
U. S. Navy, Aiea	(3-2256-10)212238157561101	418
U. S. Army, Wahiawa	(3-2901-07)212927158014807	418
Mary E. Foster Estate, Kahana	(3-3352-01)213327157524401	418
Waialua Sugar, Waialua	(3-3406-01)213455158065301	419
Waialua Sugar, Mokuleia	(3-3410-08)213446158104901	419
Consolidated Amusement, Hauula	(3-3755-05)213722157551701	419
State of Hawaii, Kahuku	(3-4101-03)214125158013401	420
ISLAND OF MOLOKAI		
P. Friel, Pukoo	(4-0448-02)210425156483001	420
State of Hawaii, Kaunakakai	(4-0601-01)210605157012001	420
ISLAND OF MAUI		
State of Hawaii, Wailuku	(6-3925-01)203912156255901	421
State of Hawaii, Kihei	(6-4824-01)204827156242201	421
State of Hawaii, Maalaea	(6-4831-01)204818156310301	421
Hawaiian Commercial & Sugar, Kihei	(6-4928-02)204909156281401	422
State of Hawaii, Haiku	(6-5519-01)205552156193101	422
State of Hawaii, Kahana	(6-5840-01)205856156400101	422
ISLAND OF HAWAII		
County of Hawaii, Pahoa	(8-3080-02)193017154502101	423
County of Hawaii, Keaau	(8-3389-01)193339154594801	423
Hawaiian Paradise Co., Keaau	(8-4100-01)194134155005601	423
Kona Village Resort, Kona	(8-4858-01)194819155582301	424
State of Hawaii, Kaupulehu	(8-5948-01)195947155485801	424
State of Hawaii, Hapuna	(8-6147-01)200132155471001	424
Kohala Co., Hawi	(8-7652-01)201603155521801	425

WATER RESOURCES DATA FOR HAWAII AND OTHER PACIFIC AREAS, 1976

INTRODUCTION

Water resources data for the 1976 water year for Hawaii and other Pacific areas consist of records of stage, discharge, and water quality of streams; stage of reservoirs; and water-levels and water quality of wells and springs. This report contains discharge records for 158 gaging stations; stage only records for 1 gaging station; water quality for 10 gaging stations, 108 partial-record flow stations, and 144 wells; and water levels for 25 observation wells. Also included are data for 107 crest-stage partial-record stations and 109 low-flow partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State, Territorial, and Federal agencies in Hawaii and other Pacific areas.

Through September 30, 1960 (June 30, 1960, for Hawaii and other Pacific areas), the records of discharge (or stage) of streams, and contents (or stage) of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled, "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." Through water year 1960 these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled, "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, VA 22304.

Beginning with the 1961 water year (fiscal year for Hawaii) and continuing through water year 1974, streamflow data have been released by the Geological Survey in annual reports on a State-boundary basis. The Hawaii reports have included records for other Pacific areas. Through June 1967, the Hawaii reports were on a fiscal-year basis (the 12-month period July 1 to June 30) and discharges (except for Guam and Okinawa) were published in million gallons a day. Beginning with the 1967 water year, the Hawaii reports have been published on a water-year basis and with discharges entirely in cubic feet per second.

Water-quality records beginning with the 1964 water year, and ground-water data since the 1971 water year have been similarly released either in separate reports or in conjunction with streamflow records. These reports provided rapid release of preliminary water data shortly after the end of the water year. The final data were then released in the water-supply paper series mentioned above. Beginning with the 1975 water year, water data for streamflow, water-quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry 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-76-1." Water-data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161.

COOPERATION

The U.S. Geological Survey and organizations of the State of Hawaii have had cooperative agreements for the systematic collection of streamflow records since 1909, and for water-quality records since 1967. Cooperative agreements with the Territory of Guam for the collection of streamflow records began in 1953, with the Territory of American Samoa in 1957, and with the Trust Territory of the Pacific Island in 1968. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Hawaii Department of Land and Natural Resources, Division of Water and Land Development, R. T. Chuck, manager-chief engineer.
Hawaii Department of Transportation, E. Alvey Wright, director.
Trust Territory of the Pacific Islands, E. E. Johnston, high commissioner.
Government of American Samoa, E. B. Ruth, governor.
Government of Guam, R. J. Bordallo, governor.
City and County of Honolulu, Board of Water Supply, Edward Y. Hirata, manager and chief engineer.
City and County of Honolulu, Division of Engineering, Kazu Hayashida, director and chief engineer.

Assistance in the form of funds or services are given by the Corps of Engineers, U.S. Army in collecting records for 10 gaging stations, 2 water-quality stations and 7 partial-record stations, and the U.S. Forest Service for 1 water-quality station published in this report.

The following organizations aided in collecting records:

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

HYDROLOGIC CONDITIONS

The 1976 water year began with monthly mean discharges at four representative or index stations on the islands of Kauai, Oahu, Maui, and Hawaii below the median-range discharge for the 5th consecutive month. Streamflow generally increased seasonally to December but the index stations on the island of Kauai and Hawaii remained below the median-range discharge for the 8th consecutive month. On February 7, a general storm of intense rainfall fell on the leeward and northern coastal areas of the island of Oahu. The rainfall of 18 inches for 24 hours on the 7th at the coastal town of Waianae, resulted in peak discharges that were highest of record at most crest-gage stations in that area. Many homes were inundated in the northern and western coastal areas of the island and flood damage to private and public property exceeded $300,000. Recurrence intervals (the average period in years, in which a flood of a given magnitude will be equaled or exceeded as an annual maximum) exceeded 200 years at station 16211700 Makaha Stream at Makaha, Oahu.

Streamflow varied seasonally after February and monthly mean flows generally remained within the normal range or excessive (in the upper 25 percent of record) for the three index stations on the islands of Kauai, Oahu, and Hawaii for the remainder of the water year. At the index station, Honopou Stream near Huelo on the island of Maui, monthly mean flow decreased significantly after April and remained below-normal range for five consecutive months at the end of the water year.

Supertyphoon Pamela passed over the island of Guam, Mariana Islands, on May 21, 1976, with maximum sustained winds at 135 miles per hour and gusts up to 165 miles per hour. Pamela was the third most powerful typhoon in Guam's recorded history. The high winds and severe flooding caused widespread destruction estimated at $400 million and the island was declared a major disaster area.

The total rainfall of 33.7 inches that fell during May 19-22 as recorded by the National Weather Service resulted in new peaks of record at four gaging sites on the island. The recurrence interval of the peak flow at station 16865000 Pago River near Ordot exceeded 200 years.

Rapid runoff from intense rains associated with a tropical storm on Aug. 4, 1976, caused flooding on the island of Ponape, Caroline Islands. The total rainfall of 9.9 inches for 24 hours resulted in peaks of record at four gaging sites on the island.

Monthly and annual mean discharge is compared with medians at four representative gaging stations in figure 1. Table 1 is a summary of flood stages and discharges at 12 selected sites.

The chemical quality of Hawaii's surface-water resources remained excellent during the 1976 water year. Except for the lower reaches of five streams in Oahu, the dissolved solids content, determined periodically for 126 sites, did not exceed 200 mg/L. Sediment discharge increased over last water year on leeward Oahu mainly because of the February 7 storm. Organochlorine insecticides were detected only from bottom materials sampled at the 16213000 Waikele Stream at Waipahu, and 16229300 Kalihi Stream at Kalihi gaging sites.

Ground-water levels at the wells equipped with continuous recorders showed that no new maximum or minimum of record occurred. The maximum water levels in general occurred during the period February to April and the minimums during October or November. Average water levels this year were generally lower than the average levels for last year at the respective recorder sites.

DEFINITION OF TERMS

Definition of terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined as follows:

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.

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

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, rod-like, 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 ± 1.0°C on M-Endo medium (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 warmblooded 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 medium (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 warmblooded 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 ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

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

Biomass is the amount of living matter present at any given 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.

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 milliliters (mL) or liters (L).

CFS-day 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.

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

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.

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.

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, 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.

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 specific 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 "DISCHARGE (CFS)."

Dissolved refers to the amount of a substance present in true chemical solution. In practice, however, the term includes all forms of the substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (colloidal) suspended particles. Analyses are performed on filtered samples.

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

$$\bar{d} = \sum_{i=i}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

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

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

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

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

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

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

Hydrologic 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.

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

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

Micrograms per liter (UG/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.

Milligrams 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.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

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

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

Total organism count is the total number of organisms collected and enumerated in any particular sample.

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

Particle-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

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

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	.004 - .062	Sedimentation.
Sand.....	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

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

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

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

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

Blue-green algae are a group of 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/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/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.

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

Milligrams of carbon per area or volume per unit time [mg C/(m^2·time) for periphyton and macrophytes and mg C/(m^3·time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O_2/(m^2·time) for periphyton and macrophytes and mg O_2/(m^3·time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

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).

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 milligrams per liter times 0.0027.

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

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

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

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks 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 micromhos 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 micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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

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

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

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

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

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 day.

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

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.....*Hexageria*
Species.....*Hexagenia limbata*

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.

DOWNSTREAM ORDER AND STATION NUMBER

Records are listed in a downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed before the first mainstream station. Stations on tributaries to tributaries are listed in a similar manner. In the lists of gaging stations and water-quality stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identification, each gaging station, partial-record station, and water-quality station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and continuous-record gaging stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station. 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 16884600 which appears just to the left of the station name includes the 2-digit number "16" plus the 6-digit downstream order number "884600." In this report, the records are listed in downstream order by islands.

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

Miscellaneous downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples of discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits is a sequential number for wells within a 1-second grid. In the event that the latitude-longitude coordinates for a well and a miscellaneous site are the same, assign sequential numbers "01," "02," etc. as one would for wells. See figure 24.

Beginning in 1971, the local well-numbering system for Hawaii was restructured to contain seven digits based on a non-arbitrary, unique one-minute grid system. One-minute parallel lines for both latitude and longitude are drawn on the map resulting in one-minute grids. Each grid is designated by a four-digit number. The first two digits represent minutes of latitude for the grid and the second two digits represent minutes of longitude for that grid. This establishes unique minute-grid numbers within each of the islands in the state except for the island of Hawaii where it encompasses an area more than one degree (60 minutes) of latitude and longitude. To establish unique minute-grid numbers for this island, 30 was added to the minutes of latitude in areas less than 19°00" of latitude, and 60 was added to the minutes of latitude in areas more than 20°00" of latitude. For the same reason, 30 was added to the minutes of longitude in areas less than 155°00" of longitude, and 60 was added to the minutes of longitudes more than 156°00" longitude. See figures 25 and 26.

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

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

For continuity, the old well numbers are listed in parentheses after the new well numbers.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network is an accounting network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated in the network design. Areal configuration of the network is based on the river-basin accounting units designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

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

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

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharges are computed from the daily figures. 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 computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty 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, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the bases of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations, in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figures was first published is given.

The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE", it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks,

including the maximum for the year, above the selected base with time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

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

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

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

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

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va 22092, maintains an index of water-data sites not published by the Geological Survey. Information on records available at specific sites can be obtained upon request.

Other data available

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

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Publications

In each water-supply paper entitled, "Surface Water Supply of the United States" there is a list of numbers of preceding water-supply papers containing streamflow information for the area covered by that report. In addition, there is a list of numbers of water-supply papers containing detailed information on major floods in the area. Records for stations in Hawaii and other Pacific areas for the period October 1959 to September 1965, are in Water-Supply Paper 1937.

Two series of summary reports entitled, "Compilation of Records of Surface Waters of the United States" have been published; the first series covers the entire period of record through September 1950 (June 1950, for Hawaii), and the second series covers the period October 1950 to September 1960 (July 1950 to June 1960, for Hawaii and other Pacific areas). These reports contain summaries of monthly and annual discharge and monthend storage for all previously published records, as well as some records not contained in the annual series of water-supply papers. All records were reexamined and revised where warranted. Estimates of discharge were made to fill short gaps whenever practical. The yearly summary table for each gaging station lists the numbers of the water-supply papers in which daily records were published for that station. Records for stations in Hawaii and other Pacific areas are compiled in Water-Supply Paper 1319 through June 1950, in 1739 and 1751 for July 1950 to June 1960, and in 1937 for October 1959 to September 1965.

Special reports on major floods or droughts or of other hydrologic studies for the area have been issued in publications other than water-supply papers. Information relative to these reports may be obtained from the district office.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The water-quality records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives periods of record for the various types of water-quality data (chemical, specific conductance, biological determination, water temperatures, sediment discharge), period of record, and extremes of pertinent data, and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

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.

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

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 district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel 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, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

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

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, 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 loads 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.

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

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Publications

The annual series of water-supply papers that contain information on quality of surface waters in Hawaii and other Pacific areas are listed below.

Water year	WSP No.	Water year	WSP No.	Water year	WSP No.
1964	1966	1967	2016	1970	2160
1965	1966	1968	2016	1971	A2170
1966	1996	1969	2150		

A In preparation.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

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

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

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

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 for every fifth day and the end of each month (eom). To show the intraday variation in the ground-water levels caused by local pumping and tidal fluctuations, instantaneous maximum and minimum water levels are given with the mean water levels for the day.

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.

Publications

Publication of ground-water level data for the United States in Water-Supply Papers was begun by the Geological Survey in 1935. From 1935 through 1939, a single Water-Supply Paper for each year covering the entire nations was issued (Water-Supply Papers 777, 817, 840, 845, and 886). From 1940 through 1974, separate Water-Supply Papers were issued for 6 sections of the United States. Water-level data for Hawaii are in the Water-Supply Papers listed below, each report containing one or more calendar years (January-December) of data. Data in this report are for the 12-month water year ending September 30.

Calendar year	WSP No.	Calendar year	WSP No.	Calendar year	WSP No.	Calendar year	WSP No.
1935	777	1942	949	1949	1161	1956-60	1770
1936	817	1943	991	1950	1170	1961-65	1855
1937	840	1944	1021	1951	1196	1966-70	2010
1938	845	1945	1028	1952	1226	1971-74	A2162
1939	886	1946	1076	1953	1270		
1940	911	1947	1101	1954	1326		
1941	941	1948	1131	1955	1409		

A In preparation.

Information about reports and other data on ground water in Hawaii may be obtained from the district office, at the address given on the back of the title page.

PUBLICATIONS OF TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-two manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing 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) is on 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 Distribution, 604 South Picket Street, Alexandria, VA 22304 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering 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. $1.60.

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. $1.90

2-E1. *Application of borehole geophysics to water-resources investigations,* by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

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. $0.25.

3-A2. *Measurement of peak discharge by the slope-area method,* by Tate Dalyrmple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.20.

3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3, 1968. 60 pages. $0.40.

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. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS--TWRI Book 3, Chapter A5, 1967. 29 pages. $0.30.

3-A6. *General procedure for gaging streams,* by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages. $0.20.

3-A7. *Stage measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $0.45.

3-A8. *Discharge measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS-TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $0.40.

3-A12. *Fluormetric procedures for dye tracing,* by J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analyses,* by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics--a programed text for self-instruction,* by D. S. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages. $2.50

3-C1. *Fluvial sediment concepts,* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. $0.65.

3-C2. *Field methods for measurement of fluvial sediment,* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages. $0.70.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. $1.15.

4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages. $0.30.

4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $0.20.

4-B1. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages. $0.65.

4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.75.

4-D1. *Computation of rate and volume of stream depletion by wells,* by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. $0.65.

5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases,* by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. $2.40.

5-A2. *Determination of minor elements in water by emission spectroscopy,* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water,* by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* by K. V. Slack, R. C. Averett, P. E. Greeson, and R. G. Lipscomb: USGS--TWRI Book 5, Chapter A4. 1973. 165 pages. $1.95.

5-C1. *Laboratory theory and methods for sediment analyses,* by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. $0.65.

7-C1. *Finite-difference model for aquifer simultation 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. $2.30.

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. $0.70.

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. $0.40.

SUMMARY OF FLOOD STAGE AND DISCHARGE

The following table contains the record of peak flows at selected sites for floods which occurred during February 7, May 21, and August 4, 1976. The sites are gaging stations or crest-gage stations where new peak discharges for the period of record occurred. Nine indirect discharge measurements were made to determine peaks of the flood. Other peaks were determined from established or extended rating tables.

Table 1.--Peak discharges at selected station sites

Station number	Station name	Drainage area (sq mi)	Period of record	Maximum previously known			Maximum		
				Date	Gage height (feet)	Discharge (cfs)	Date	Gage height (feet)	Discharge (cfs)
			Hawaii, Island of Oahu						
16211500	Makua Stream at Makua	4.28	1958-76	12-23-64	7.90	1520	2- 7-76	8.0	3220
16211700	Makaha Stream at Makaha	5.25	1966-76	11-13-65	13.77	1530	2- 7-76	16.4	4310
16211800	Kaupuni Stream at altitude 374 ft (114 m), near Waianae	3.58	1961-76	12-23-64	4.75	1340	2- 7-76	6.59	1730
16212300	Nanakuli Stream at Nanakuli	3.98	1968-76	1- 3-69	22.93	2070	2- 7-76	26.2	3320
			Mariana Islands, Island of Guam						
16808300	Finile Creek at Agat	.28	1960-76	10-17-69	3.81	319	5-21-76	3.88	326
16848100	Almagosa River near Agat	1.32	1972-76	8- 2-72	6.64	1640	5-21-76	7.32	2200
16848500	Maulap River near Agat	1.15	1972-76	8-27-74	7.10	1220	5-21-76	8.21	1800
16865000	Pago River near Ordot	5.67	1951-76	8- 2-62	18.87	9470	5-21-76	20.15	10090
			Caroline Islands, Island of Ponape						
16897600	Nanepil River	2.93	1970-76	7-11-74	8.16	5220	8- 4-76	9.68	8820
16897900	Lui River	.47	1970-76	5- 4-72	5.64	970	8- 4-76	5.92	1190
16898200	Lui River at mouth	2.06	1970-76	7-17-71	7.92	4790	8- 4-76	8.91	6360
16898600	Lupwor River	1.12	1970-76	7-11-74	6.53	1770	8- 4-76	8.26	3090

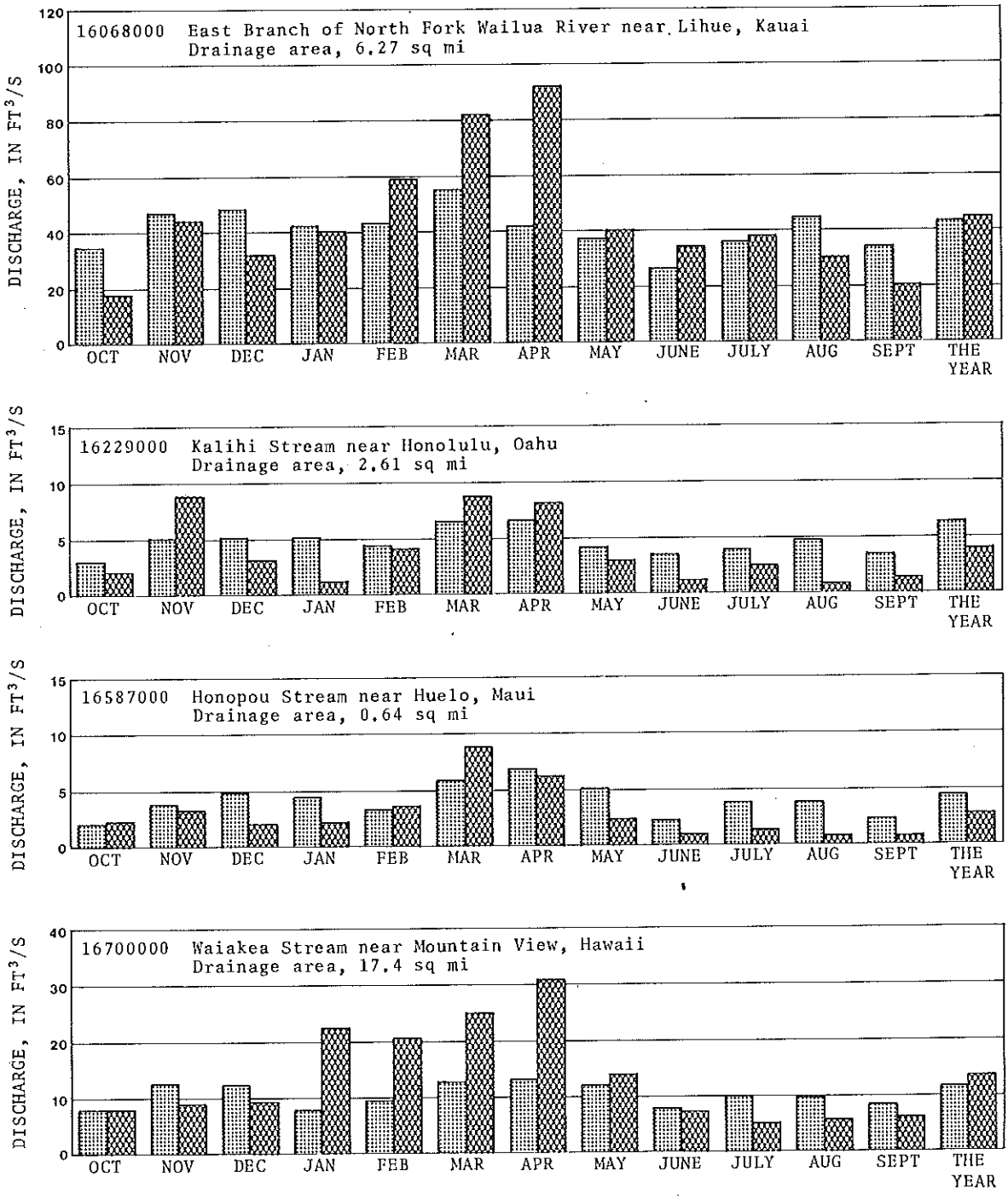

FIGURE 1.--DISCHARGE DURING 1976 WATER YEAR COMPARED WITH MEDIAN DISCHARGE FOR PERIOD 1931-60 FOR FOUR REPRESENTATIVE GAGING STATIONS.

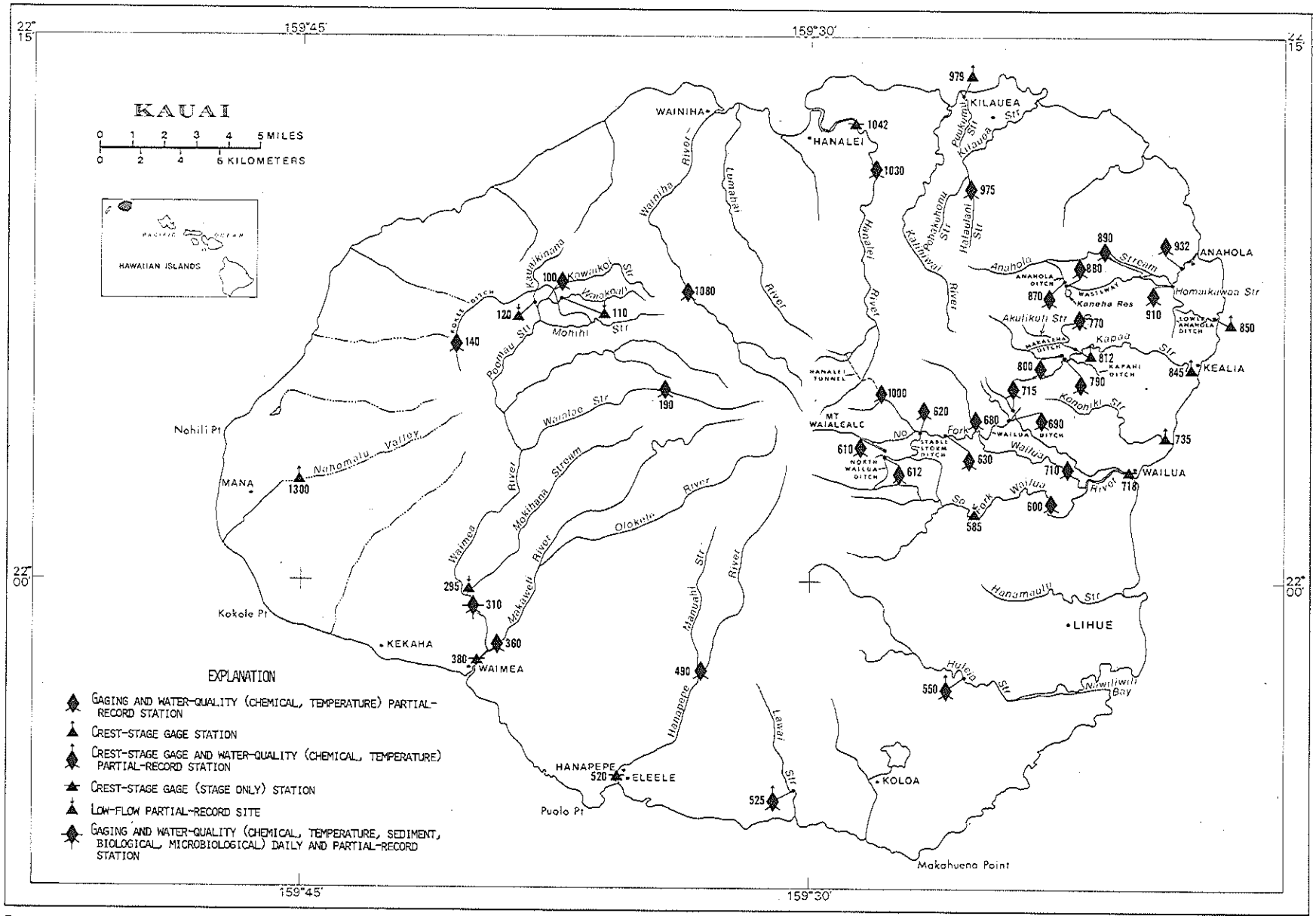

FIGURE 2.--MAP OF KAUAI SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

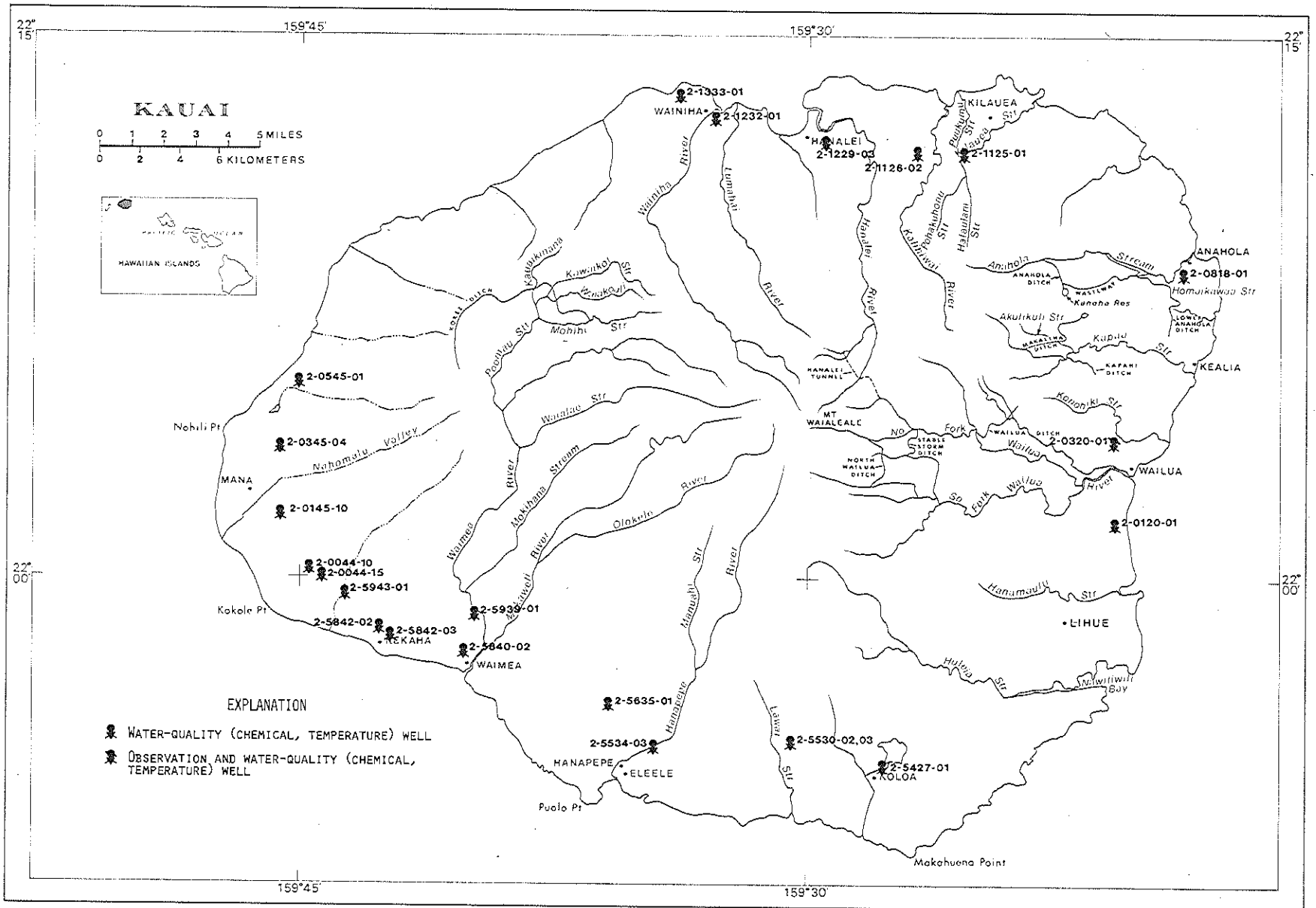

FIGURE 3.--MAP OF KAUAI SHOWING LOCATIONS OF OBSERVATION WELLS AND GROUND-WATER QUALITY SAMPLING SITES.

FIGURE 4.--MAP OF OAHU SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

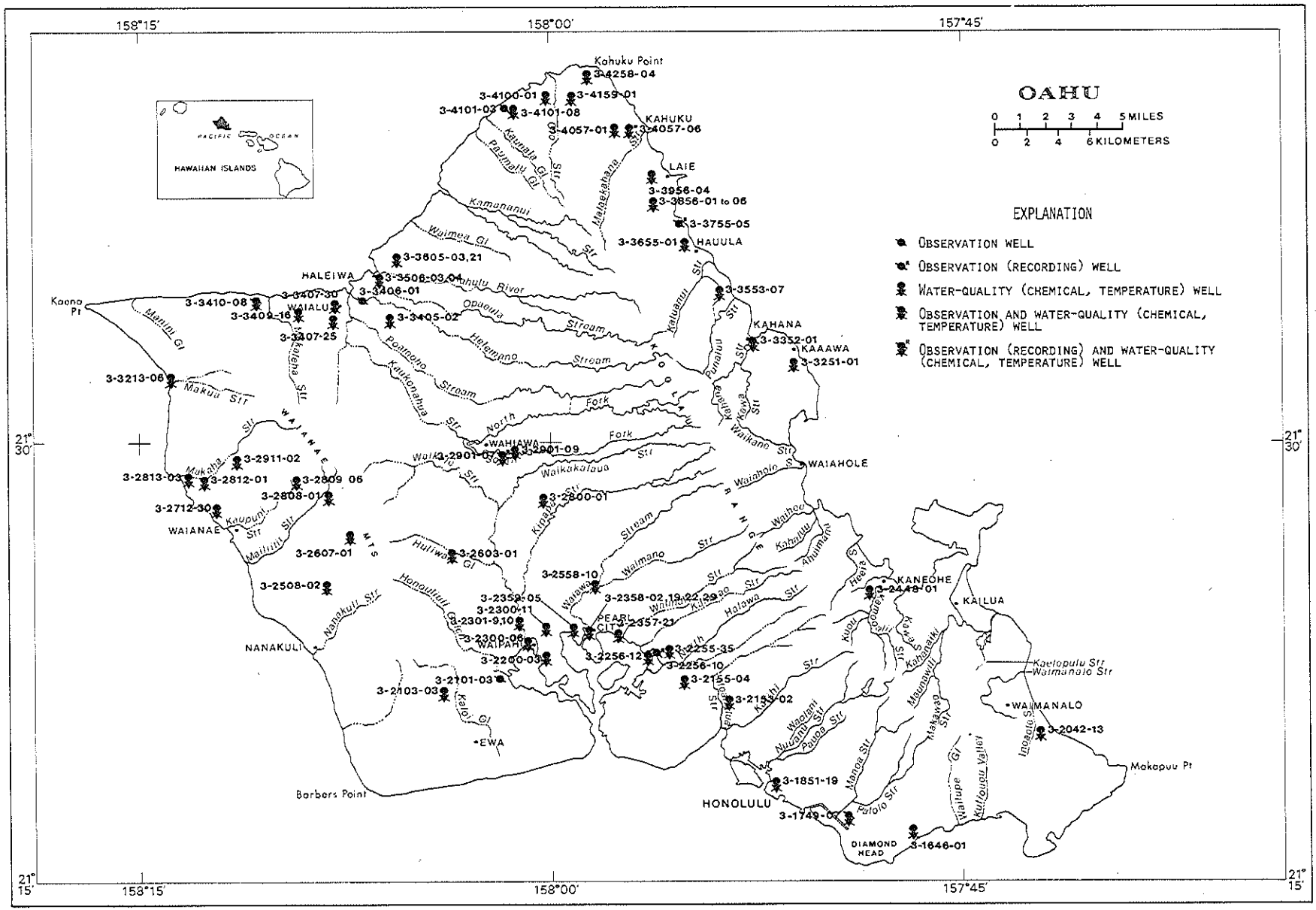

FIGURE 5.--MAP OF OAHU SHOWING LOCATIONS OF OBSERVATION WELLS AND GROUND-WATER QUALITY SAMPLING SITES.

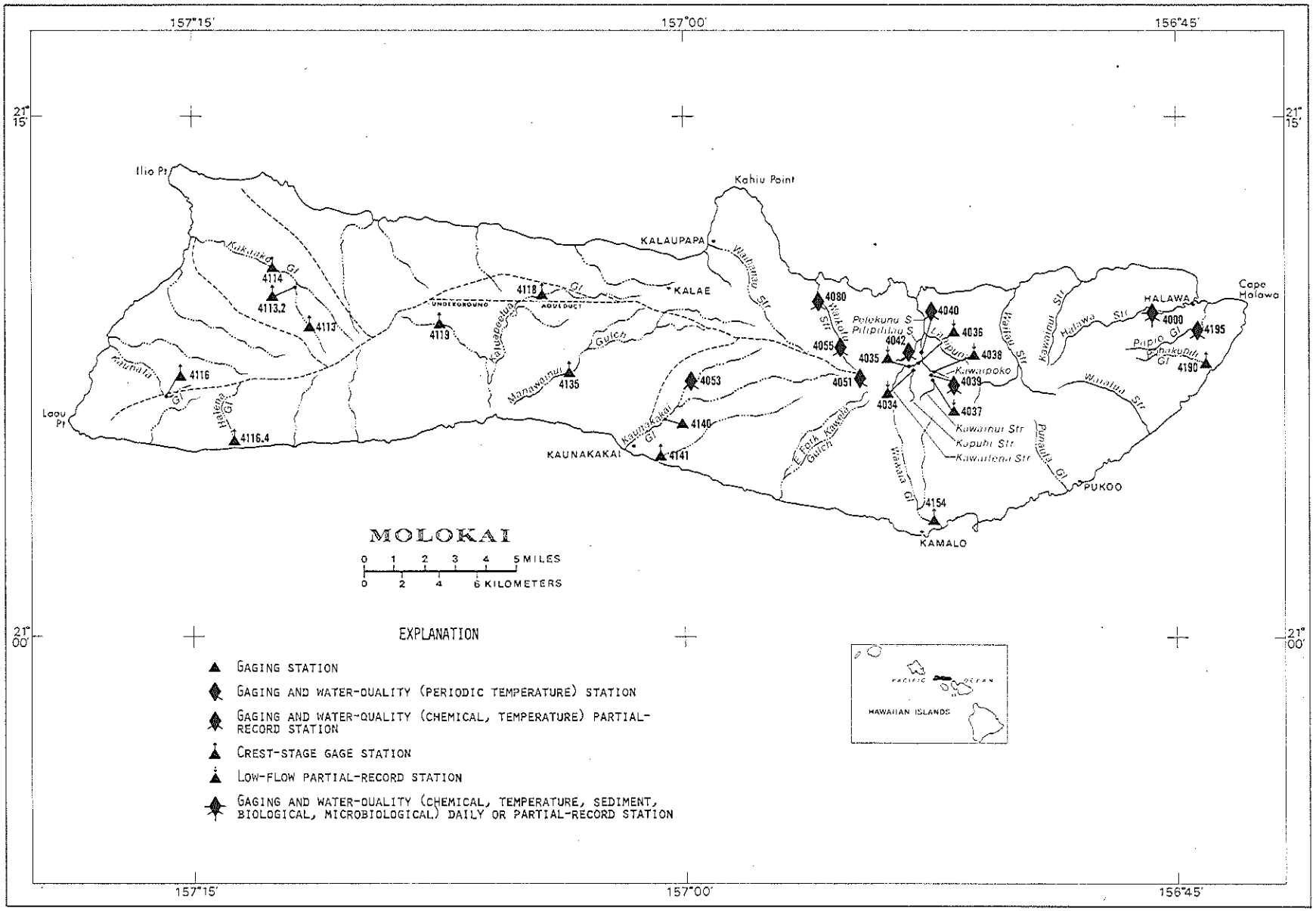

FIGURE 6.--MAP OF MOLOKAI SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

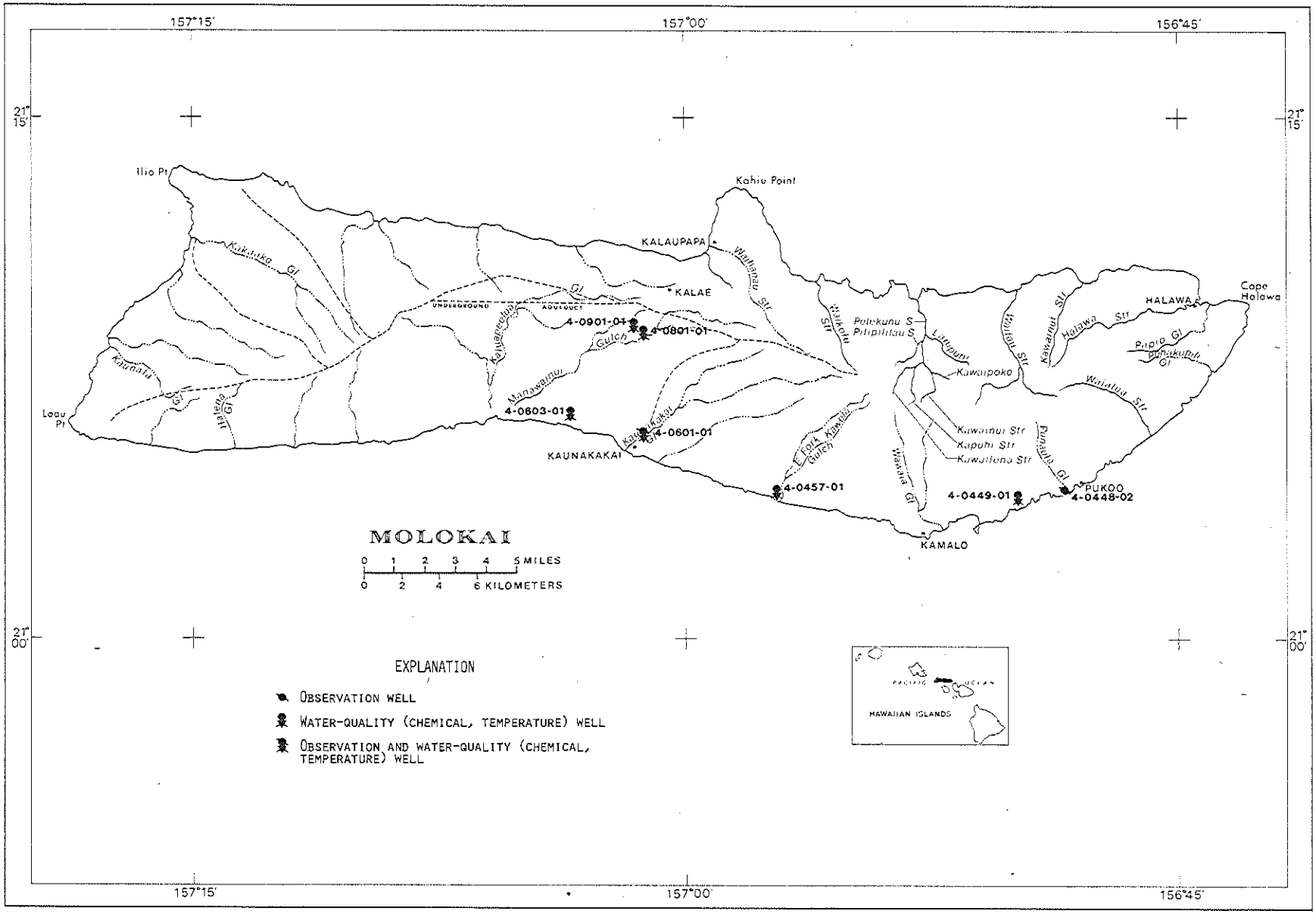

FIGURE 7.--MAP OF MOLOKAI SHOWING LOCATIONS OF OBSERVATION WELLS AND GROUND-WATER QUALITY SAMPLING SITES.

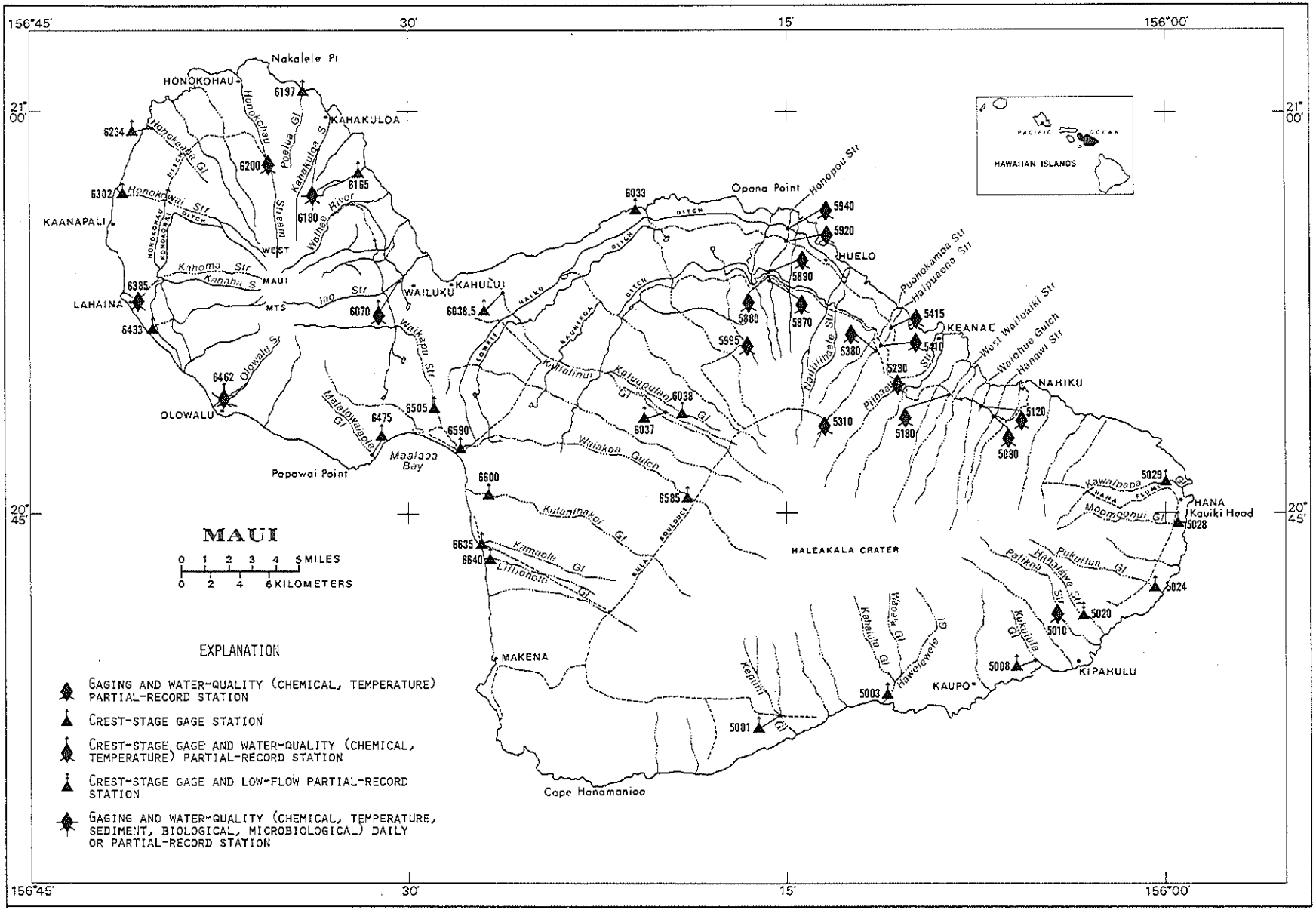

FIGURE 8.--MAP OF MAUI SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

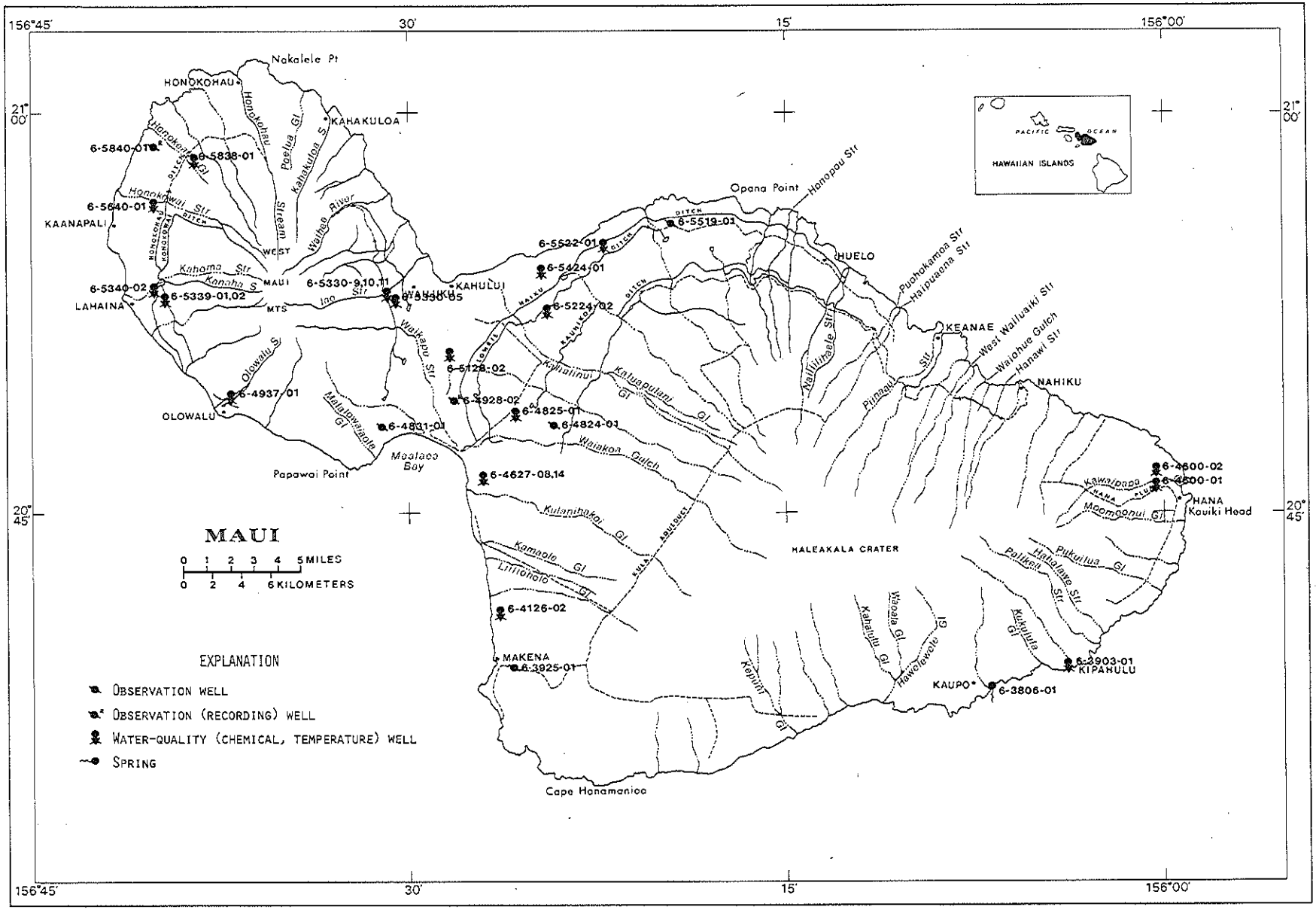

FIGURE 9.--MAP OF MAUI SHOWING LOCATIONS OF OBSERVATION WELLS AND GROUND-WATER QUALITY SAMPLING SITES.

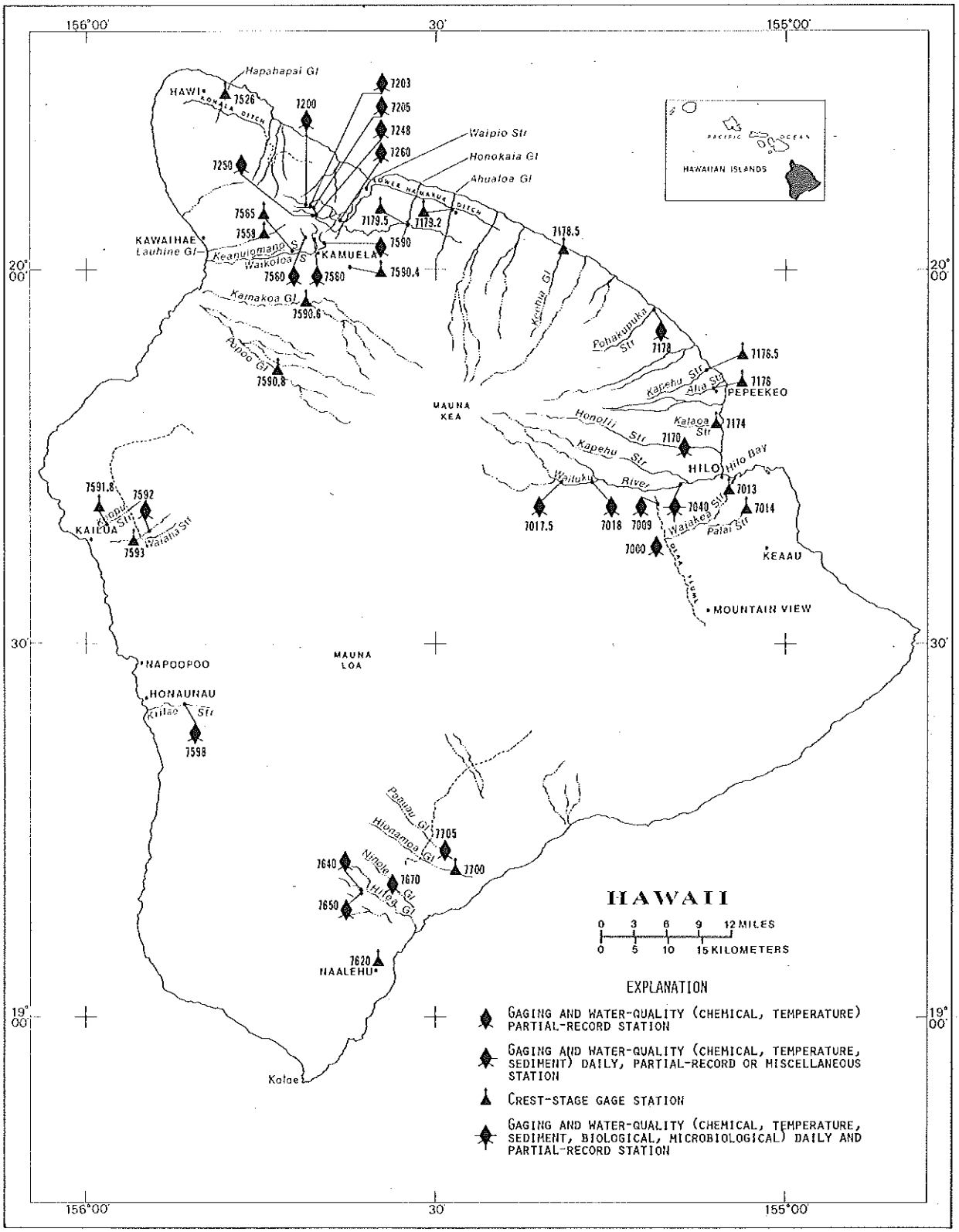

FIGURE 10.--MAP OF HAWAII SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

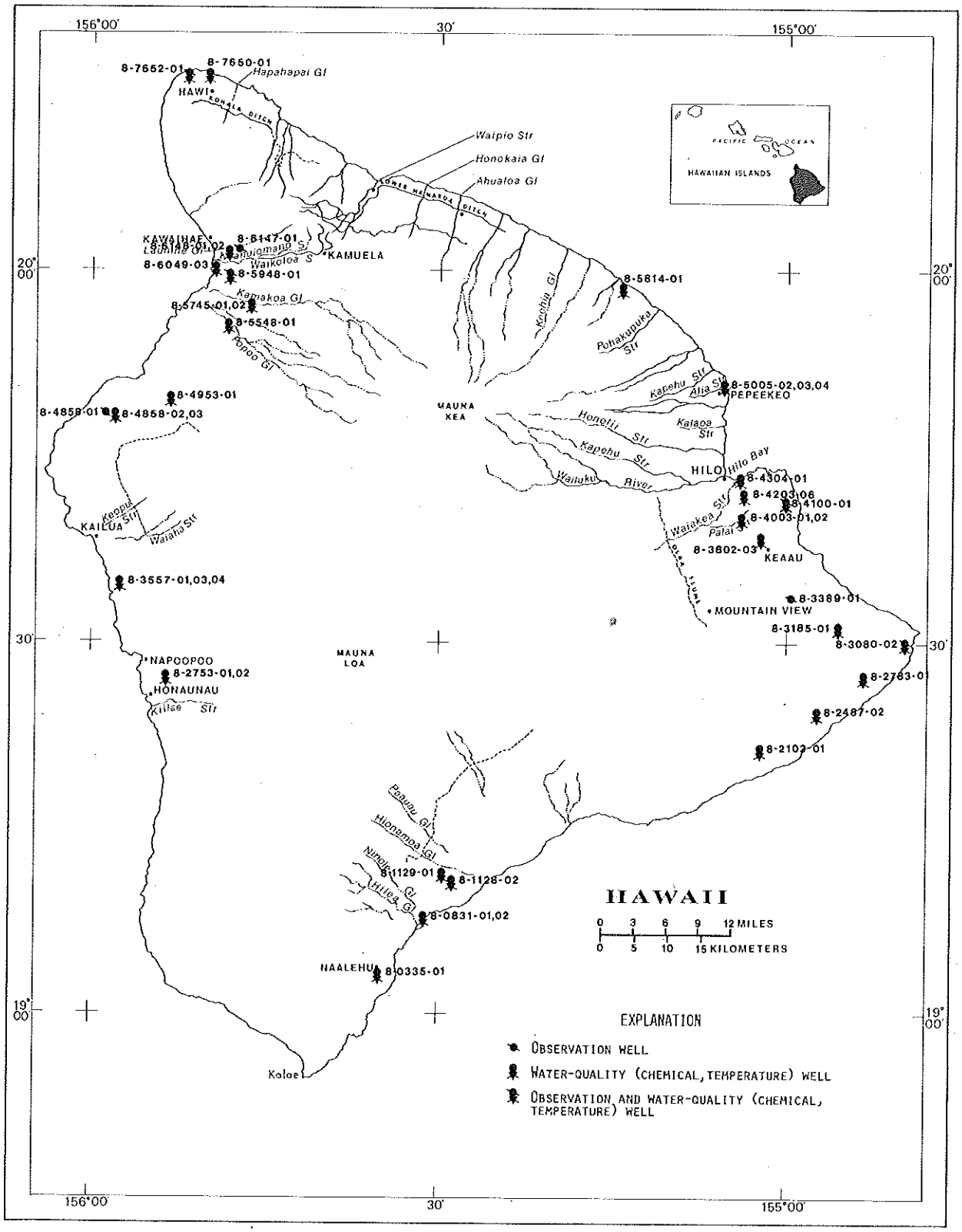

FIGURE 11.--MAP OF HAWAII SHOWING LOCATIONS OF OBSERVATION WELLS AND GROUND-WATER QUALITY SAMPLING SITES.

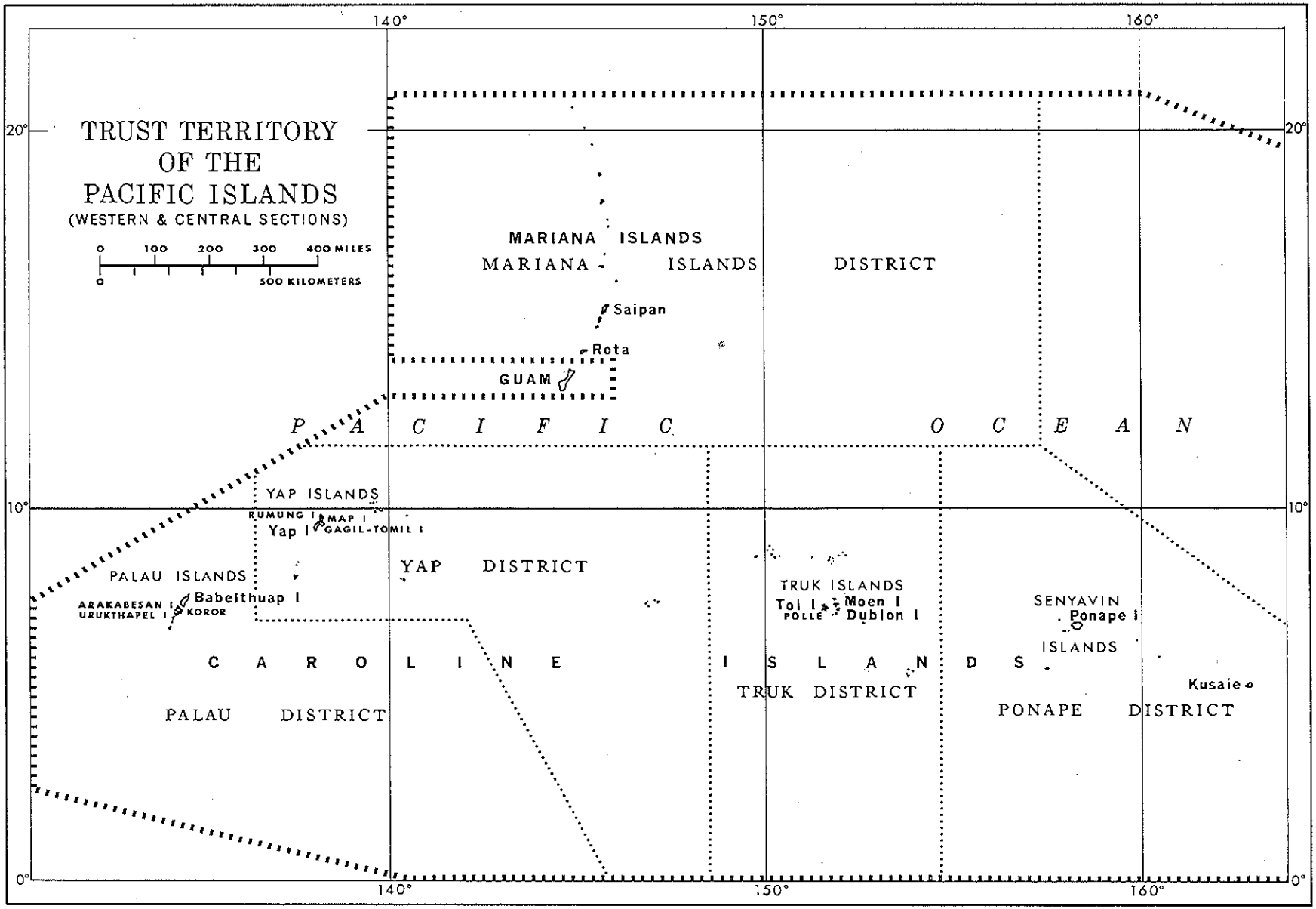

FIGURE 12. MAP SHOWING LOCATIONS OF THE TRUST TERRITORY PACIFIC ISLANDS

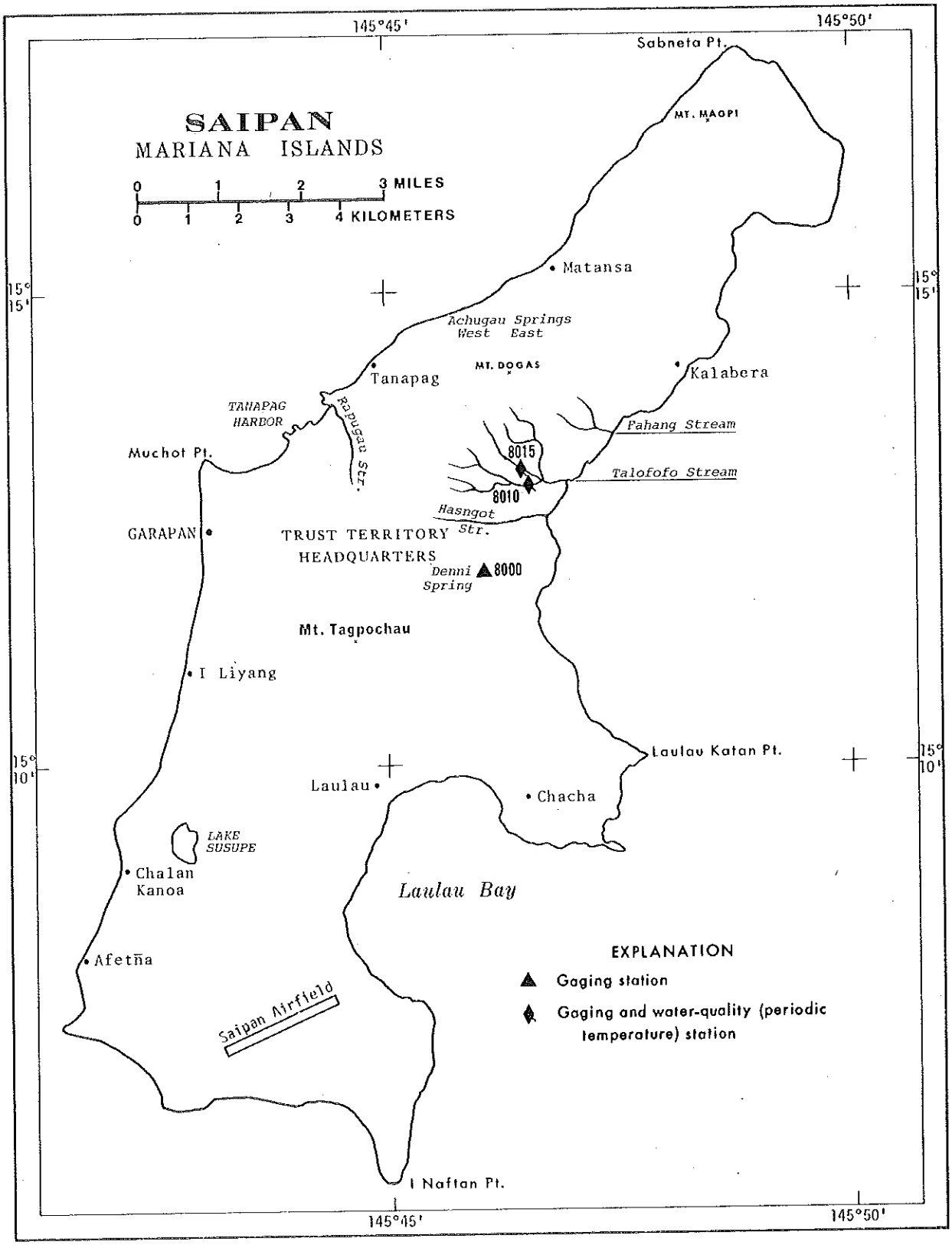

FIGURE 13.--MAP OF SAIPAN, MARIANA ISLANDS, SHOWING LOCATIONS OF GAGING AND WATER-QUALITY STATIONS.

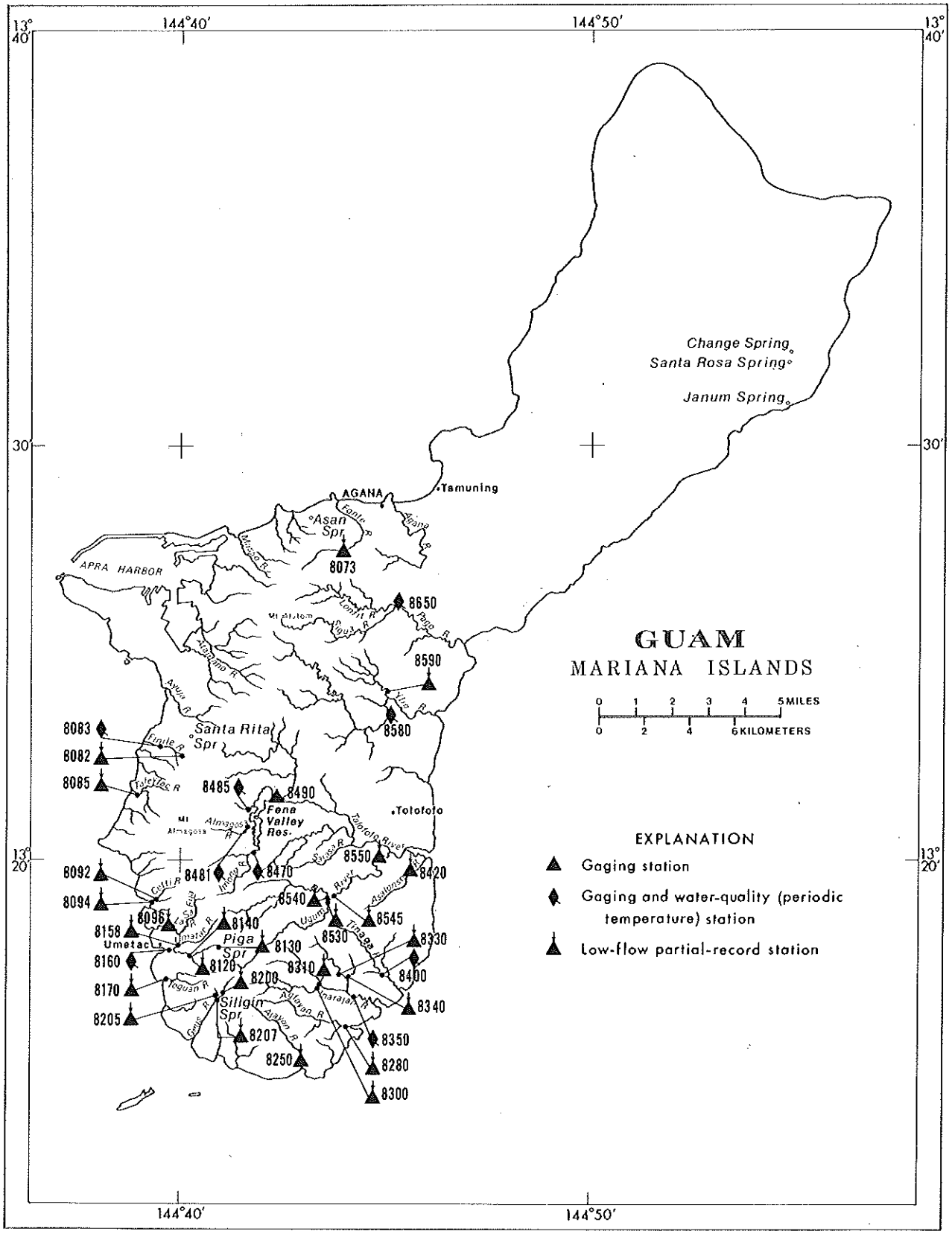

FIGURE 14.--MAP OF GUAM, MARIANA ISLANDS, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

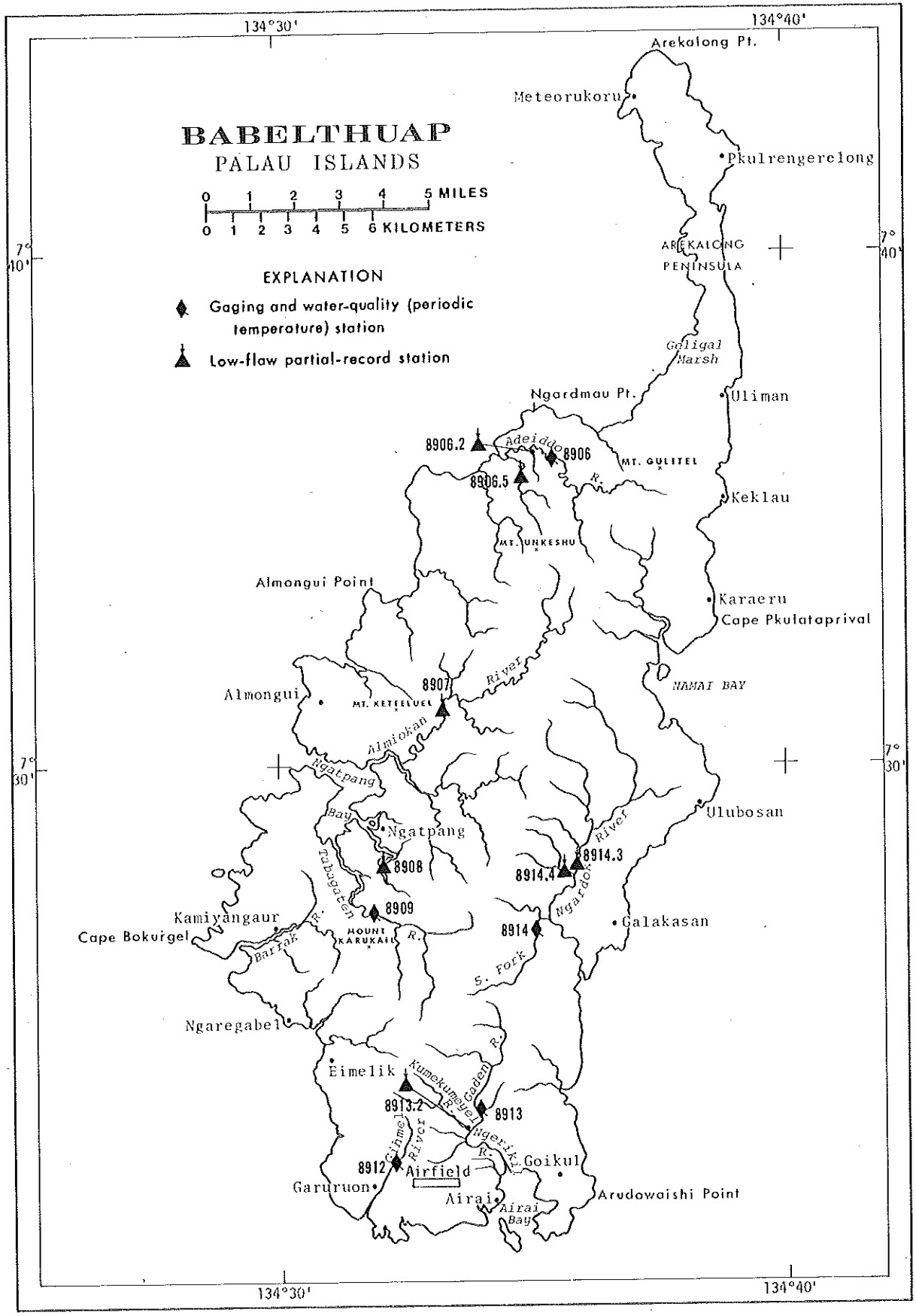

FIGURE 15.--MAP OF BABELTHUAP, PALAU ISLANDS, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

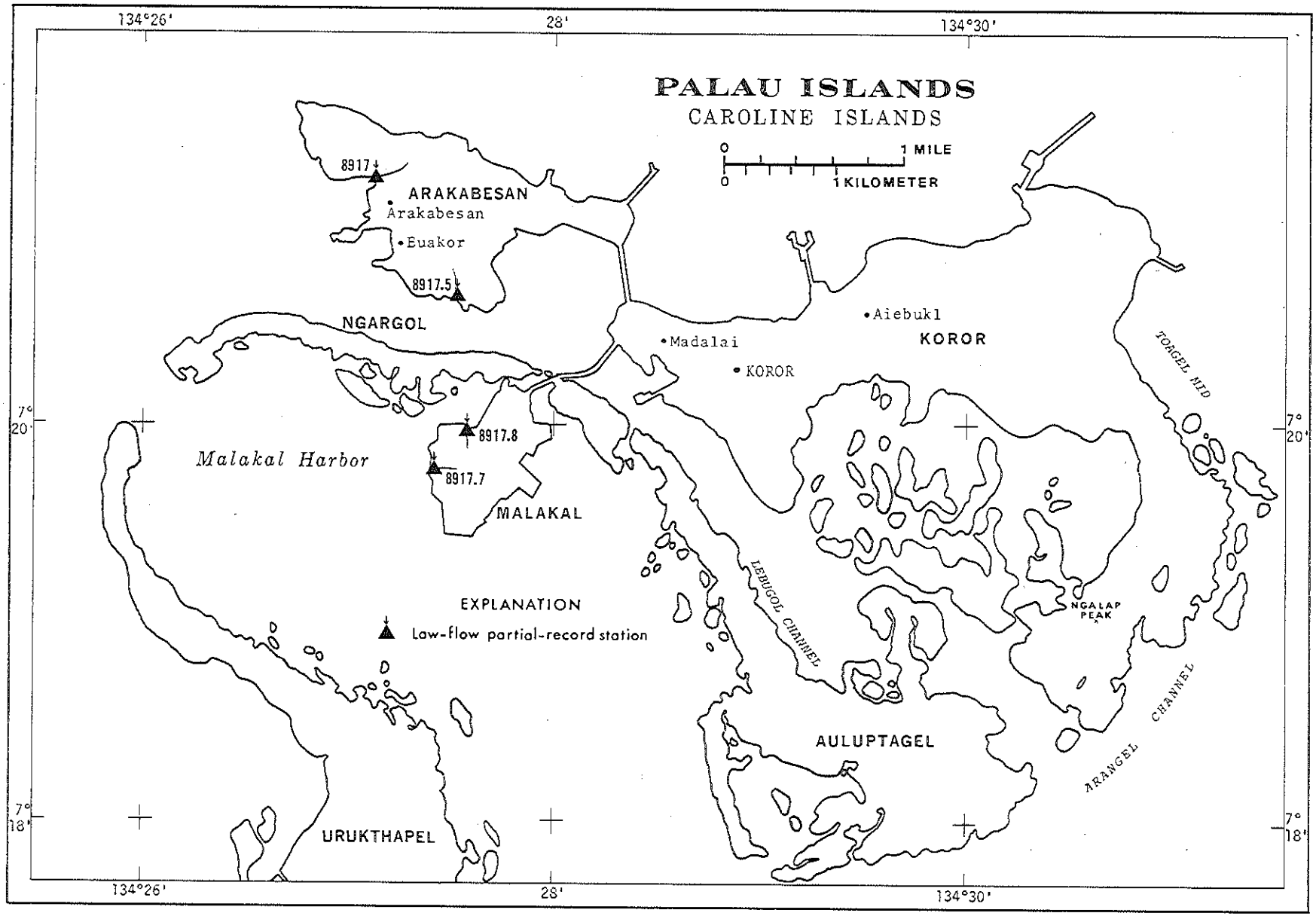

FIGURE 16.--MAP OF ARAKABESAN, MALAKAL, PALAU ISLANDS, SHOWING LOCATIONS OF PARTIAL-RECORD STATIONS.

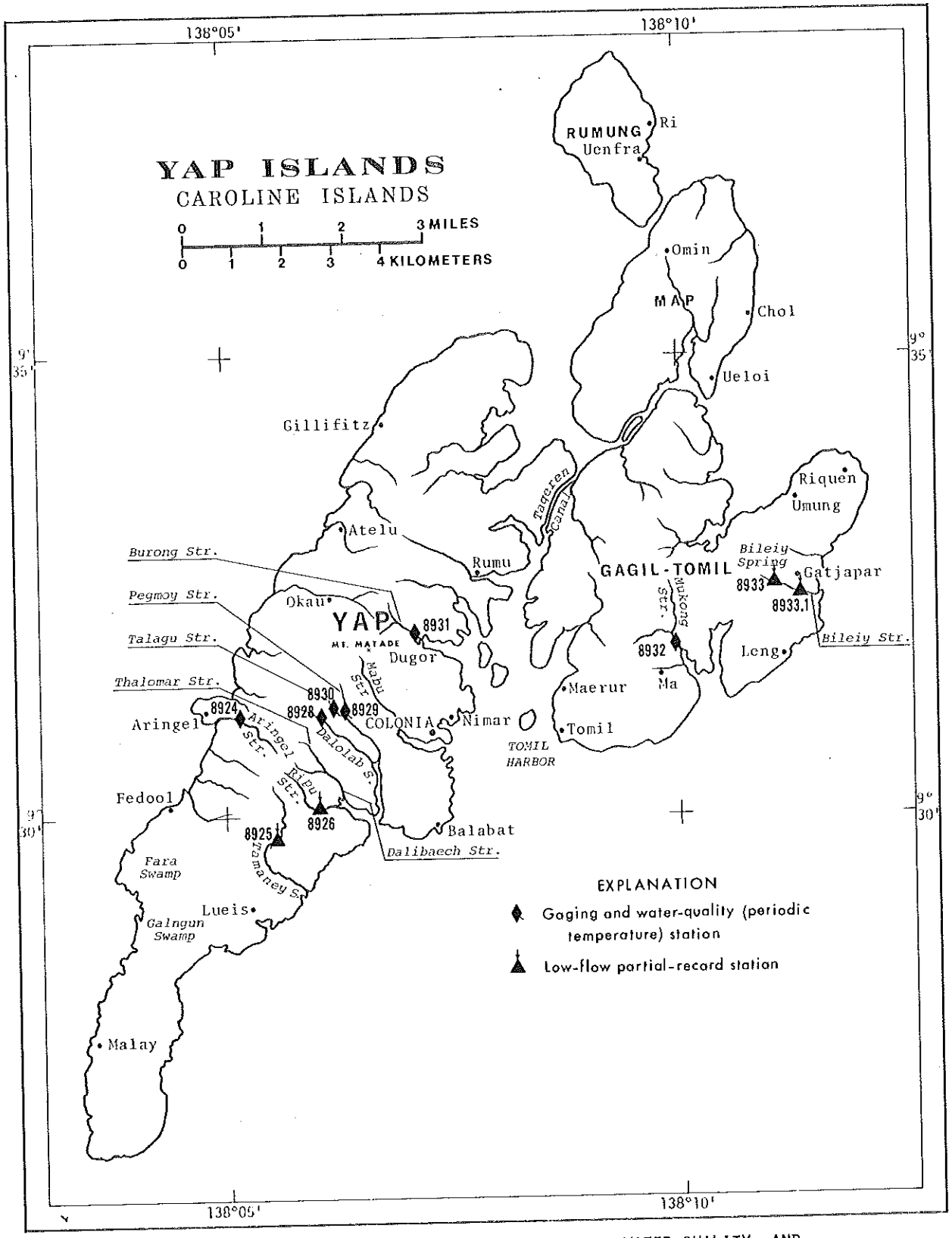

FIGURE 17.--MAP OF YAP ISLANDS, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

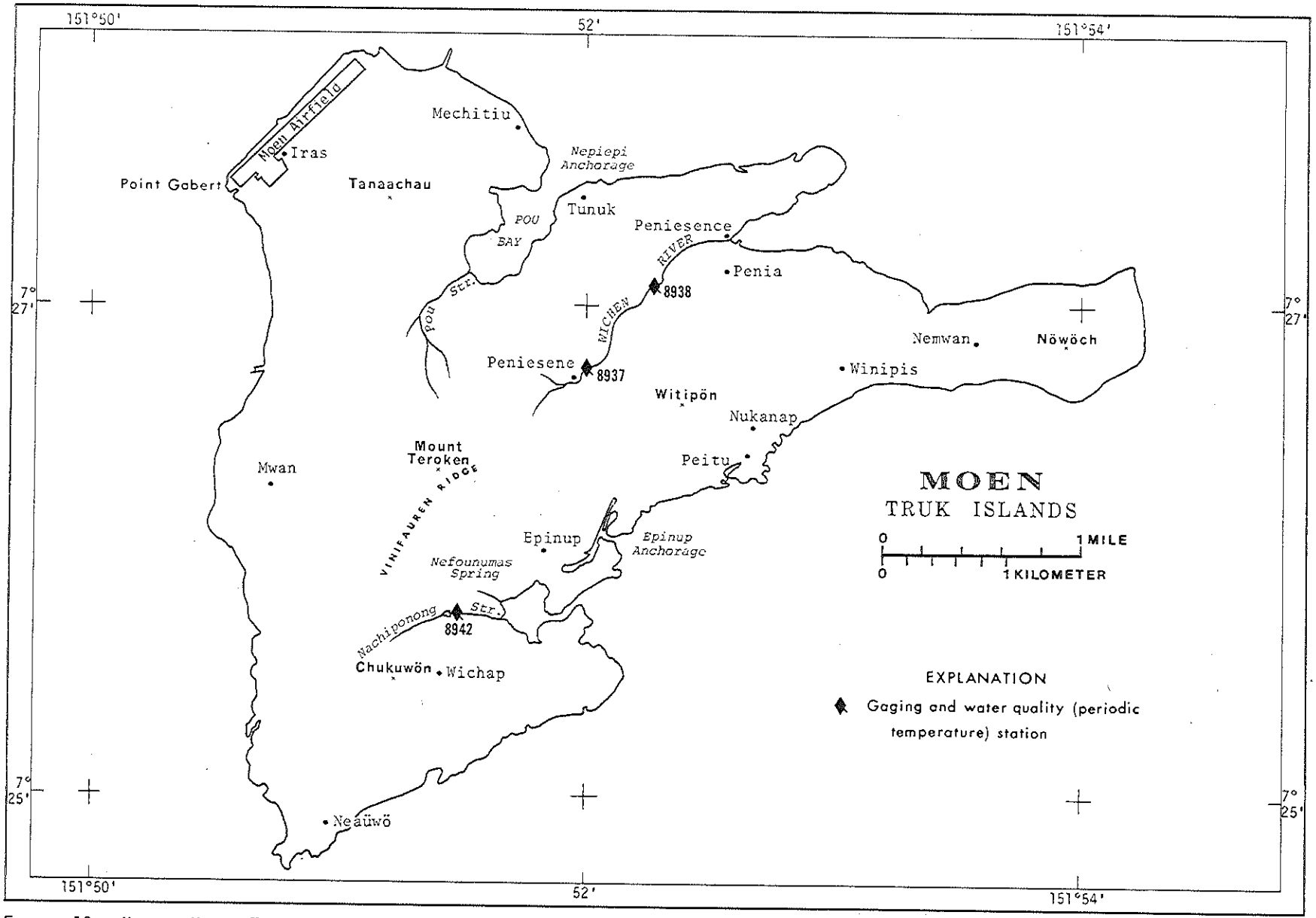

FIGURE 18.--MAP OF MOEN, TRUK ISLANDS, SHOWING LOCATIONS OF GAGING AND WATER-QUALITY STATIONS.

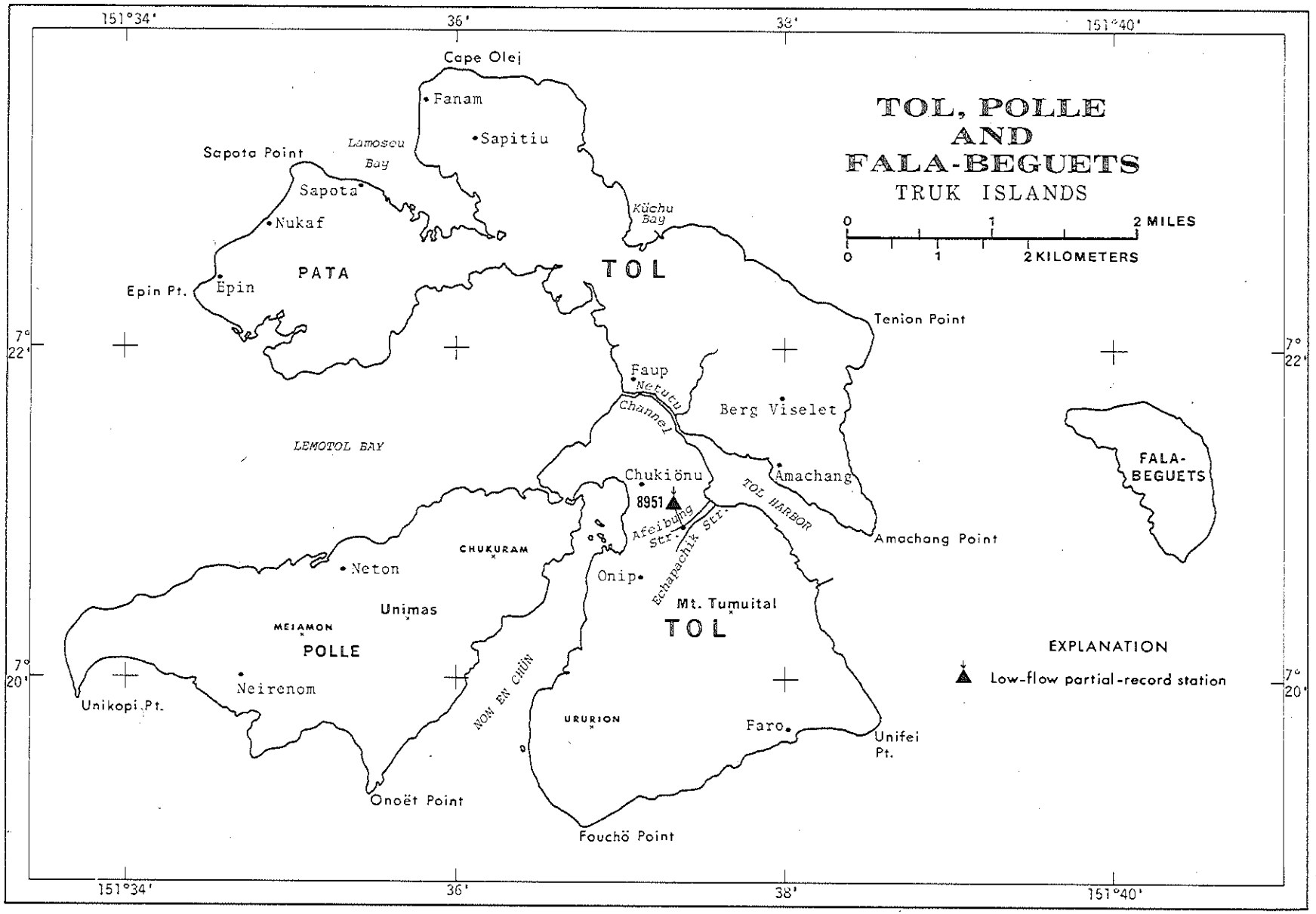

FIGURE 19.--MAP OF TOL, TRUK ISLANDS, SHOWING LOCATION OF PARTIAL-RECORD STATION.

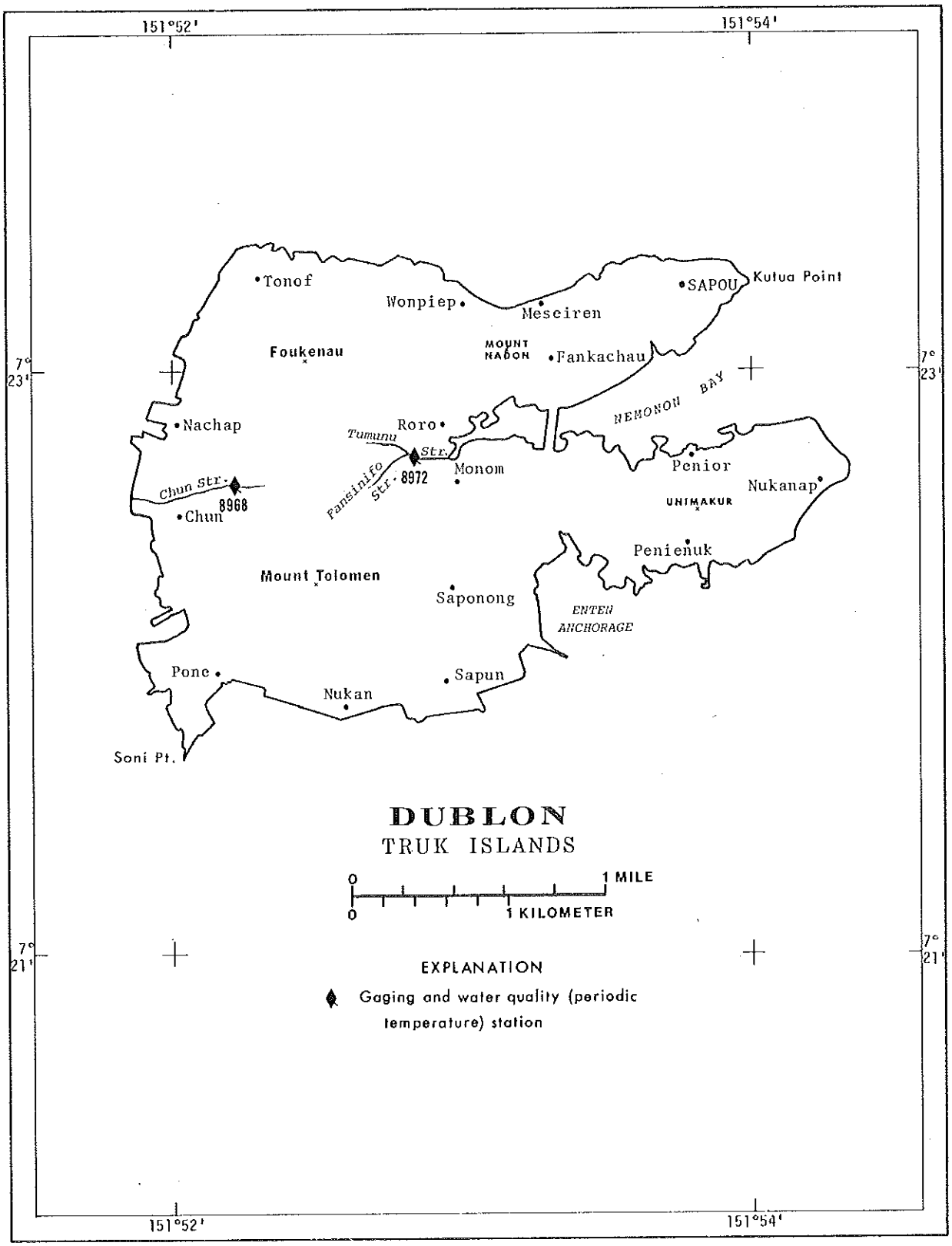

FIGURE 20.--MAP OF DUBLON ISLAND, TRUK ISLANDS, SHOWING LOCATIONS OF GAGING AND WATER-QUALITY STATIONS.

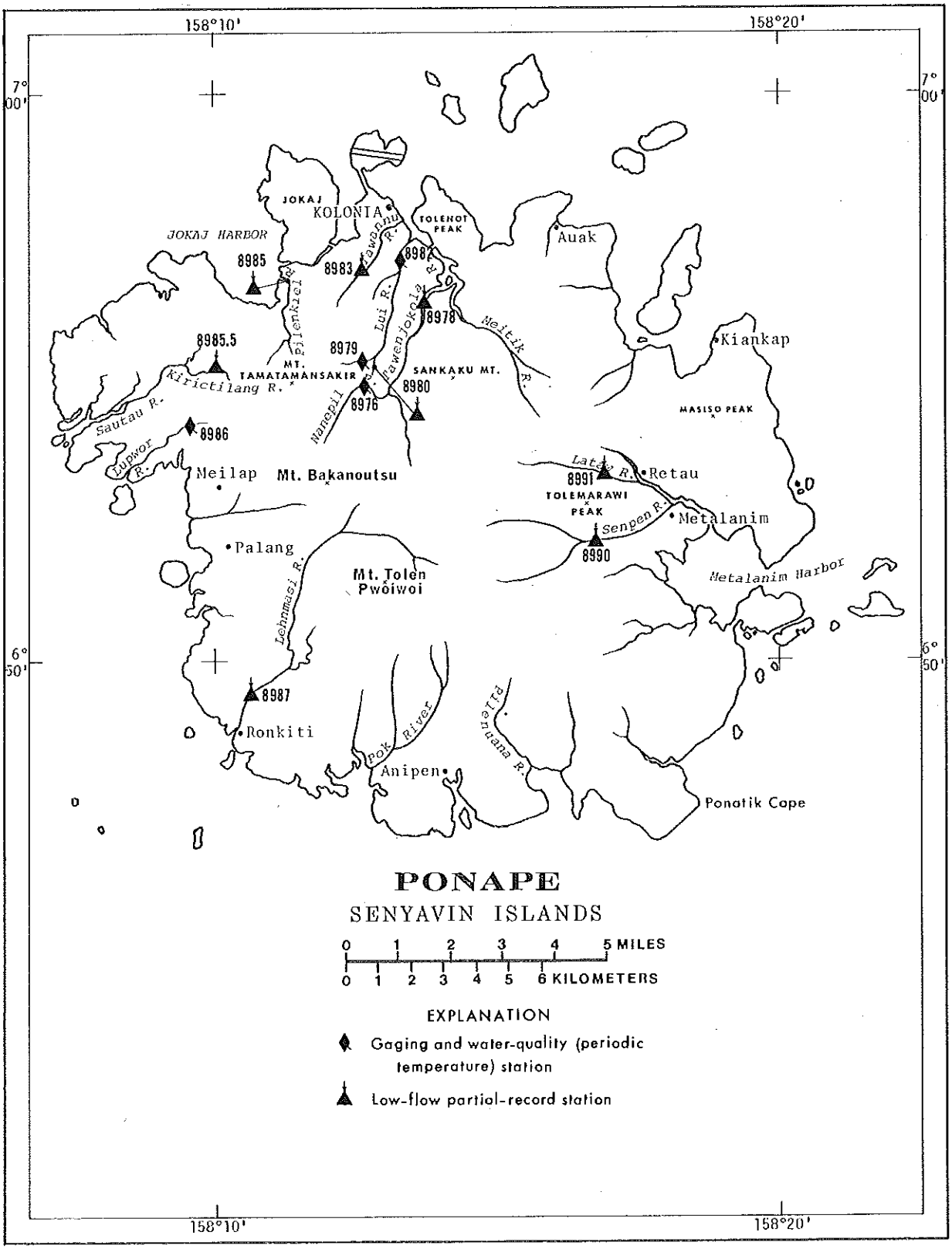

FIGURE 21.--MAP OF PONAPE, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

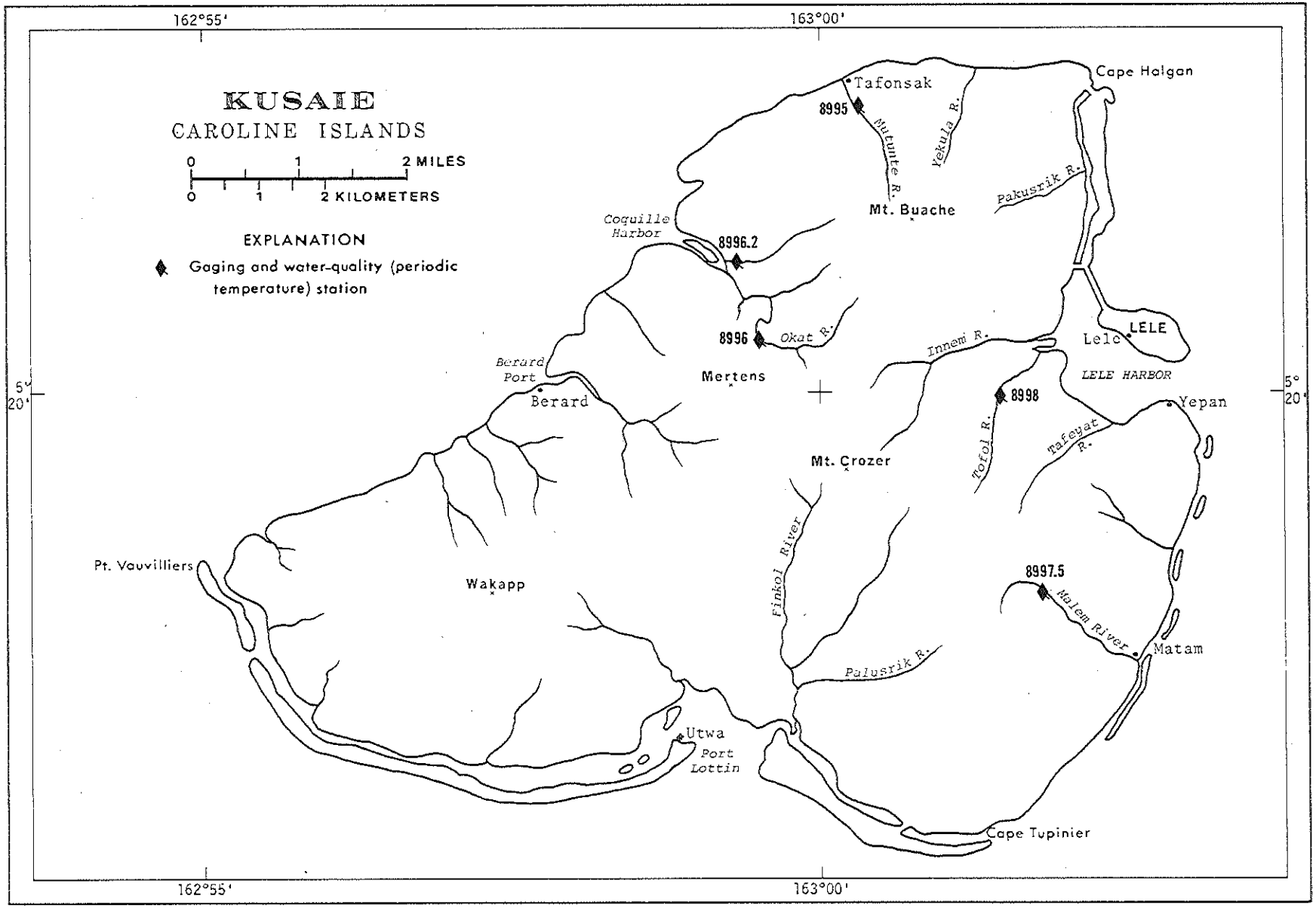

FIGURE 22.--MAP OF KUSAIE, SHOWING LOCATIONS OF GAGING AND WATER-QUALITY STATIONS.

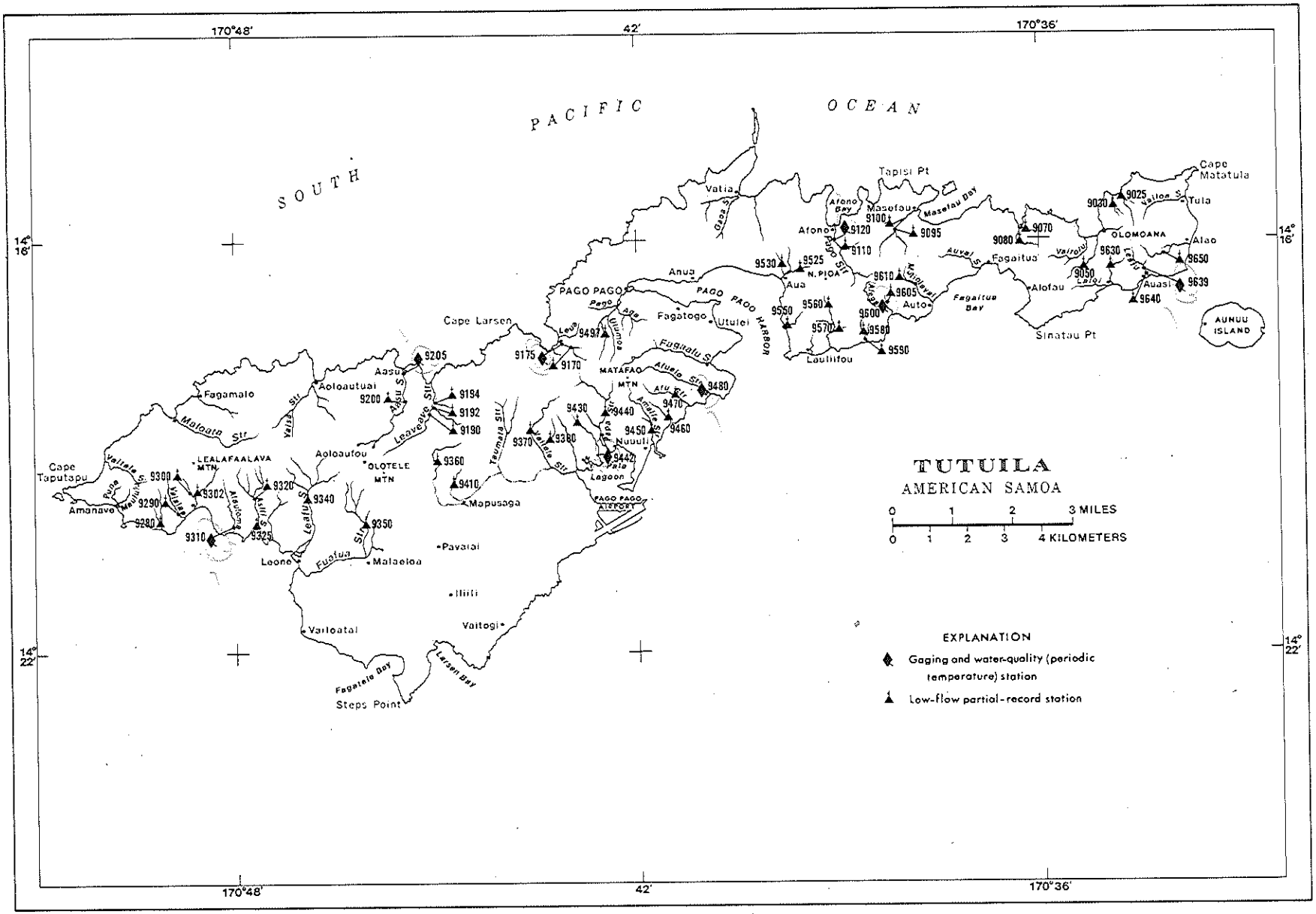

FIGURE 23.--MAP OF TUTUILA, SAMOA ISLANDS, SHOWING LOCATIONS OF GAGING, WATER-QUALITY, AND PARTIAL-RECORD STATIONS.

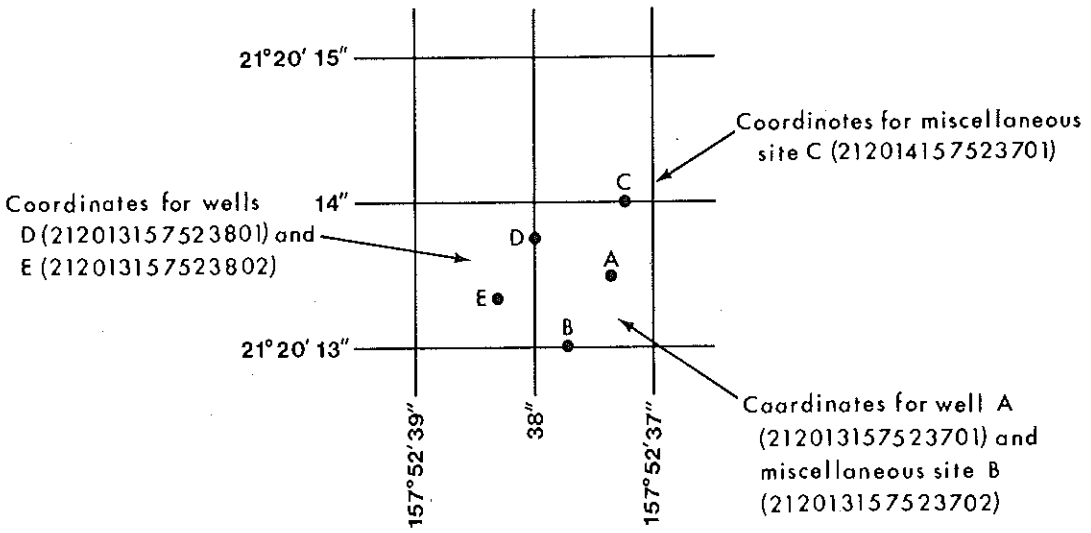

Figure 24. Sketch showing system for numbering wells and miscellaneous sites

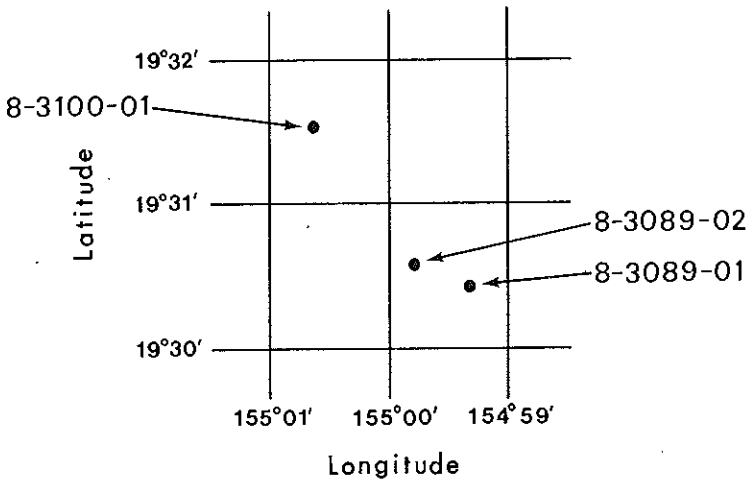

Figure 25. Sketch showing local well numbering system

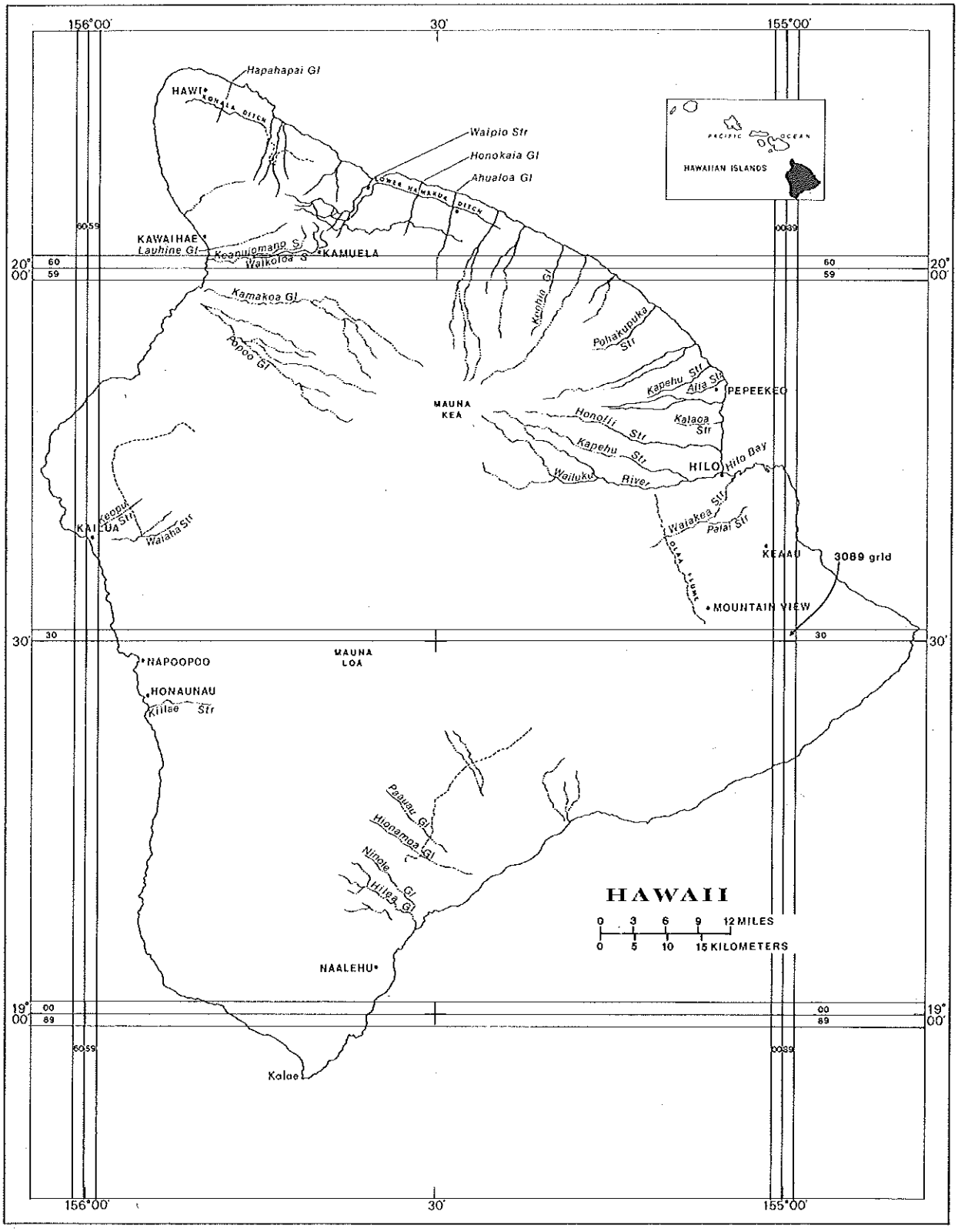

FIGURE 26.--MAP OF HAWAII SHOWING SYSTEM FOR NUMBERING LOCAL WELL NUMBERS.

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 (0.3 km) upstream from Kokee-Mohihi Road crossing, 2.5 mi (4.0 km) east of Kokee Lodge, and 12.5 mi (20.1 km) north of Waimea.

DRAINAGE AREA.--3.95 mi² (10.23 km²).

WATER-DISCHARGE RECORDS

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 (FISCAL YEARS).--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. Altitude of gage is 3,420 ft (1,042 m) by barometer. Prior to May 26, 1910, nonrecording gage at site 300 ft (91 m) downstream at different datum.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--59 years (water years, 1912, 1914, 1920-76), 34.6 ft³/s (0.980 m³/s), 25,070 acre-ft/yr (30.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s (320 m³/s) Jan. 13, 1967, gage height, 15.33 ft (4.673 m), from rating curve extended above 470 ft³/s (13.3 m³/s) on basis of slope-area measurements at gage heights 12.12 ft (3.694 m) and 13.43 ft (4.093 m); minimum, 1.14 ft³/s (0.032 m³/s) Sept. 21, 22, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,320 ft³/s (37.4 m³/s) Mar. 9, gage height, 6.83 ft (2.082 m), from rating curve extended as explained above, no peak above base of 2,100 ft³/s (59.5 m³/s); minimum, 1.5 ft³/s (0.042 m³/s) Oct. 2, 5, 17-19, Nov. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	1.7	8.1	6.3	23	109	307	29	9.6	44	8.7	5.2
2	1.5	1.6	7.2	5.8	14	25	293	23	8.8	66	7.7	4.9
3	1.7	1.5	6.3	4.5	11	13	267	20	8.3	19	7.0	4.6
4	1.6	7.2	5.8	4.1	11	11	110	21	8.1	15	6.5	4.5
5	1.6	9.4	5.8	3.8	387	10	85	20	8.3	11	6.1	4.5
6	2.5	41	5.4	77	280	9.6	164	16	7.9	8.6	6.1	4.3
7	22	8.8	4.8	47	68	10	115	15	7.4	8.1	8.2	4.2
8	11	20	61	21	36	19	189	15	7.2	7.7	7.2	4.1
9	3.9	43	18	18	23	513	112	13	7.2	28	6.7	4.0
10	2.5	11	57	12	18	56	59	12	18	18	7.0	6.9
11	2.0	14	19	9.9	15	33	40	11	13	9.6	6.1	85
12	1.8	7.9	9.4	6.5	13	40	32	11	8.8	7.9	6.7	38
13	1.7	5.1	18	5.4	12	49	27	11	7.9	7.2	8.5	17
14	1.7	3.6	101	4.8	11	39	23	10	7.2	6.5	8.3	8.7
15	1.6	3.0	15	96	19	22	20	9.7	8.6	6.5	7.2	19
16	1.6	8.2	9.9	104	71	79	18	9.3	42	10	7.1	13
17	1.5	5.3	8.3	13	66	53	19	8.8	16	10	15	7.7
18	1.5	11	7.4	8.8	40	58	22	10	49	23	28	6.1
19	1.6	5.5	6.7	7.4	17	58	32	14	55	102	22	5.4
20	4.5	4.3	6.1	25	20	27	24	28	16	172	15	4.9
21	3.9	5.1	5.8	53	40	106	136	68	10	20	21	14
22	2.7	4.1	5.4	19	116	117	151	68	9.1	73	17	11
23	2.1	5.0	5.2	9.1	20	47	224	23	8.3	26	7.7	6.8
24	1.8	234	4.8	7.4	14	31	43	14	7.4	14	6.1	5.3
25	1.6	60	4.7	6.5	12	38	27	26	7.2	11	5.7	4.8
26	2.3	195	4.5	5.9	10	59	28	19	7.2	32	17	24
27	8.8	202	4.4	5.6	9.6	42	231	19	14	37	36	72
28	4.7	22	4.7	5.2	8.8	21	160	17	13	20	9.2	18
29	2.9	13	4.5	5.2	8.6	21	61	38	9.1	16	6.7	8.4
30	2.1	9.9	4.1	149	---	107	71	14	7.4	11	7.2	6.4
31	1.9	---	3.9	172	---	477	---	11	---	9.6	5.8	---
TOTAL	104.3	963.2	432.2	918.2	1394.0	2299.6	3090	623.8	407.0	849.7	334.5	422.7
MEAN	3.36	32.1	13.9	29.6	48.1	74.2	103	20.1	13.6	27.4	10.8	14.1
MAX	22	234	101	172	387	513	307	68	55	172	36	85
MIN	1.5	1.5	3.9	3.8	8.6	9.6	18	8.8	7.2	6.5	5.7	4.0
AC-FT	207	1910	857	1820	2760	4560	6130	1240	807	1690	663	838

CAL YR 1975 TOTAL 7644.6 MEAN 20.9 MAX 911 MIN 1.5 AC-FT 15160
WTR YR 1976 TOTAL 11839.2 MEAN 32.3 MAX 513 MIN 1.5 AC-FT 23480

16010000 KAWAIKOI STREAM NEAR WAIMEA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN.									
22...	1110	18	100	2	3	1	.9	.2	3.1
MAY									
06...	1115	16	10	1	7	1	1.2	1.0	3.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN.									
22...	66	.8	.3	2	0	2	6.4	4.4	5.1
MAY									
06...	50	.6	.2	8	0	7	20	1.9	5.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN.								
22...	.0	1.3	17	.02	.11	.04	270	20
MAY								
06...	.0	3.5	21	.03	.00	.00	120	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN.						JULY					
22...	1110	18	30	5.7	14.5	01...	1125	9.1	40	5.8	17.0
MAR.						AUG.					
15...	1130	20	29	5.3	15.5	16...	1150	6.5	30	6.6	20.0
MAY											
06...	1115	16	29	5.6	18.0						

16014000 KOKEE DITCH NEAR WAIMEA

LOCATION.--Lat 22°06'42", long 159°40'43", Hydrologic Unit 20070000, on left bank, 0.3 mi (0.5 km) west of Highway 55, 1.9 mi (3.1 km) south of Kokee Lodge, and 10.5 mi (16.9 km) north of Waimea.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1926 to current year.

GAGE.--Water-stage recorder and suppressed weir. Altitude of gage is 3,310 ft (1,009 m) by baroneter. Prior to July 1, 1962, at datum 0.07 ft (0.021 m) higher.

REMARKS.--Records good. Ditch diverts at altitude 3,400 ft (1,040 m) from Mohihi Stream and all streams west which are tributary to Wainea River, for irrigation in vicinity of Kekaha. Records do not include waste water diverted at times at station.

AVERAGE DISCHARGE.--50 years, 24.2 ft^3/s (0.685 m^3/s), 17,530 acre-ft/yr (21.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximun daily discharge, 105 ft^3/s (2.97 m^3/s) Dec. 2, 1929, Mar. 4, 1933; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.4	17	9.0	60	64	56	40	20	24	15	8.0
2	1.9	2.3	14	9.2	37	63	50	33	19	72	14	7.3
3	2.1	1.9	12	7.5	31	35	46	42	18	34	12	7.1
4	2.1	8.5	11	7.1	27	29	46	41	17	24	11	6.7
5	1.9	8.8	9.5	6.4	64	27	60	39	19	19	11	6.4
6	2.4	47	9.0	47	85	25	59	35	17	14	10	6.4
7	19	15	8.0	70	45	25	54	33	15	13	12	6.2
8	16	23	36	38	17	28	54	32	15	12	11	6.2
9	6.4	56	32	30	39	70	54	30	14	27	11	6.0
10	4.4	18	63	23	48	73	53	28	25	29	11	6.9
11	3.1	18	33	22	38	51	51	27	24	16	9.8	54
12	2.6	18	18	14	40	54	52	26	18	12	9.8	52
13	2.3	8.0	22	11	40	47	56	23	15	11	11	27
14	2.3	5.4	86	9.8	36	49	45	25	14	11	13	14
15	2.3	4.4	36	19	39	45	48	24	14	10	11	21
16	2.1	8.6	24	73	44	47	45	24	50	14	11	19
17	1.9	7.3	18	30	42	56	45	23	30	13	16	12
18	1.9	12	16	20	46	54	48	23	51	21	40	9.5
19	1.9	7.8	14	16	41	39	52	26	62	45	28	8.2
20	6.1	5.8	12	15	37	34	46	36	30	78	29	7.3
21	6.4	7.3	11	62	44	65	58	53	20	39	25	14
22	4.4	5.4	11	34	71	56	65	61	17	53	27	16
23	3.7	6.9	9.8	19	30	56	58	39	15	50	14	11
24	2.8	63	9.2	15	33	55	54	29	14	25	11	8.2
25	2.3	63	8.8	12	29	51	40	35	13	19	9.5	7.1
26	2.1	70	8.2	11	26	54	44	32	12	36	19	24
27	9.0	59	8.0	11	25	52	69	30	19	49	38	53
28	6.0	37	8.2	9.5	23	38	66	29	20	29	15	32
29	4.1	25	8.0	9.0	22	43	55	46	15	28	11	14
30	3.1	19	7.3	45	---	43	55	28	13	20	11	11
31	2.6	---	7.1	97	---	62	---	22	---	18	9.2	---
TOTAL	131.0	633.8	587.1	801.5	1159	1490	1584	1014	645	865	486.3	481.5
MEAN	4.23	21.1	18.9	25.9	40.0	48.1	52.8	32.7	21.5	27.9	15.7	16.1
MAX	19	70	86	97	85	73	69	61	62	78	40	54
MIN	1.8	1.9	7.1	6.4	17	25	40	22	12	10	9.2	6.0
AC-FT	260	1260	1160	1590	2300	2960	3140	2010	1280	1720	965	955

CAL YR 1975 TOTAL 6015.6 MEAN 16.5 MAX 86 MIN 1.6 AC-FT 11930
WTR YR 1976 TOTAL 9878.2 MEAN 27.0 MAX 97 MIN 1.8 AC-FT 19590

HAWAII, ISLAND OF KAUAI

16014000 KOKEE DITCH NEAR WAIMEA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 22...	1430	32	100	2	8	4	2.1	.6	3.8
MAY 06...	1440	34	10	1	7	1	1.0	1.1	3.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 22...	51	.6	.3	5	0	4	2.5	4.1	5.8
MAY 06...	52	.6	.2	7	0	6	1.4	1.5	6.7

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 22...	.0	2.3	22	.03	.06	.03	340	10
MAY 06...	.0	4.6	23	.03	.08	.00	90	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN. 22...	1430	32	32	6.5	14.0
MAR. 15...	1415	43	35	6.2	13.5
MAY 06...	1440	34	39	6.9	16.5
JULY 01...	1445	13	38	5.3	16.5
AUG. 16...	1440	10	40	6.4	19.0

16019000 WAIALAE STREAM AT ALTITUDE 3,820 FT (1,164 M), NEAR WAIMEA

LOCATION.--Lat 22°05'20", long 159°34'18", Hydrologic Unit 20070000, on left bank 5.0 mi (8.0 km) northeast of mouth, 6.4 mi (10.3 km) southeast of Kokee Lodge, and 11 mi (18 km) northeast of Waimea.

DRAINAGE AREA.--1.79 mi^2 (4.64 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1920 to July 1932, June 1952 to current year. Prior to July 1954, published as Waialae River at altitude 3,700 ft (1,128 m) near Waimea.

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

GAGE.--Water-stage recorder. Altitude of gage is 3,820 ft (1,164 m), from topographic map.

REMARKS.--Records fair. No diversion above station.

AVERAGE DISCHARGE.--35 years (water years, 1921-31, 1953-76), 22.5 ft^3/s (0.637 m^3/s), 16,300 acre-ft/yr (20.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,530 ft^3/s (128 m^3/s) Jan. 16, 1921, gage height, 8.44 ft (2.573 m), from rating curve extended above 1,100 ft^3/s (31.2 m^3/s) on basis of slope-area measurement at gage height 4.60 ft (1.402 m); minimum, 0.99 ft^3/s (0.028 m^3/s) May 17, 18, May 30 to June 2, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,360 ft^3/s (38.5 m^3/s) Nov. 26, gage height, 4.60 ft (1.402 m), no other peak above base of 1,300 ft^3/s (36.8 m^3/s); minimum, 1.1 ft^3/s (0.031 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	2.3	5.8	2.4	14	62	137	11	6.6	18	6.6	3.2
2	1.4	2.3	5.0	4.2	7.7	12	123	10	5.8	59	6.1	2.8
3	1.6	2.1	4.4	6.4	6.1	7.2	154	9.0	5.2	14	5.5	2.6
4	1.6	3.4	4.0	7.2	6.1	6.4	45	8.6	5.2	11	5.0	2.4
5	1.6	4.1	3.8	4.4	218	6.4	54	7.7	8.6	9.0	4.7	2.4
6	4.4	50	3.4	275	394	5.5	34	6.9	11	7.2	4.7	2.3
7	52	28	3.4	192	50	5.2	26	6.6	7.7	6.6	4.7	2.3
8	11	59	3.2	30	22	5.0	114	6.4	6.1	6.1	4.7	2.2
9	4.4	74	3.0	26	11	109	82	6.1	5.8	13	4.7	3.2
10	3.0	14	3.0	57	8.6	19	121	5.5	19	11	4.4	3.4
11	2.4	38	2.8	12	6.9	10	31	5.5	10	7.2	4.2	21
12	2.1	11	2.8	7.7	6.1	7.7	25	5.2	7.2	6.4	4.2	13
13	1.9	6.4	35	5.8	6.1	6.6	17	5.0	6.6	5.8	6.1	4.7
14	10	5.0	97	6.2	6.4	5.8	14	4.7	5.8	5.5	6.9	3.8
15	6.1	5.2	9.0	5.8	25	5.2	11	4.7	14	5.2	5.8	3.4
16	3.6	8.6	5.8	12	112	5.2	11	6.1	27	5.2	5.2	3.2
17	2.8	6.1	4.7	6.4	119	28	13	7.7	10	7.2	59	2.8
18	2.6	6.4	4.0	5.0	36	103	23	7.7	22	9.0	32	2.6
19	13	5.2	3.6	4.2	19	40	91	9.5	29	22	94	2.4
20	92	4.2	3.4	4.7	12	10	22	30	11	163	13	2.3
21	6.9	3.6	3.0	9.0	11	16	64	25	8.6	13	12	3.2
22	4.2	4.7	2.8	6.4	32	41	79	73	7.2	24	9.0	3.8
23	3.0	11	2.8	5.0	11	19	97	30	6.9	14	5.8	3.8
24	2.6	215	2.6	4.2	8.1	14	22	19	6.9	10	4.4	3.0
25	2.4	90	2.4	3.6	6.6	16	14	16	6.9	6.9	3.8	2.6
26	17	349	2.4	3.4	6.1	86	12	13	7.2	11	4.4	3.4
27	10	209	2.4	3.2	5.8	119	16	24	11	36	5.5	15
28	5.8	16	2.4	3.0	5.2	16	63	15	12	16	4.4	6.6
29	3.8	9.5	2.4	2.8	5.0	14	19	26	8.6	10	3.8	4.2
30	3.0	7.2	2.3	137	---	20	21	10	7.2	7.7	3.8	3.2
31	2.6	---	2.2	54	---	227	---	7.2	---	7.2	3.6	---
TOTAL	279.9	1251.3	234.8	905.0	1176.8	1047.2	1555	422.1	306.1	547.2	342.0	134.8
MEAN	9.03	41.7	7.57	29.2	40.6	33.8	51.8	13.6	10.2	17.7	11.0	4.49
MAX	92	349	97	275	394	227	154	73	29	163	94	21
MIN	1.1	2.1	2.2	2.4	5.0	5.0	11	4.7	5.2	5.2	3.6	2.2
AC-FT	555	2480	466	1800	2330	2080	3080	837	607	1090	678	267

CAL YR 1975 TOTAL 6412.6 MEAN 17.6 MAX 598 MIN 1.1 AC-FT 12720
WTR YR 1976 TOTAL 8202.2 MEAN 22.4 MAX 394 MIN 1.1 AC-FT 16270

16019000 WAIALAE STREAM AT ALTITUDE 3,820 FT (1,164 M), NEAR WAIMEA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
FEB. 12...	0930	6.1	65	1	5	0	.6	.8	3.0
MAY 17...	0930	7.9	28	1	5	1	.7	.7	3.0
JULY 23...	0950	14	180	1	7	4	1.4	.8	2.7

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
FEB. 12...	56	.6	.3	7	0	6	2.2	3.0	5.1
MAY 17...	57	.6	.2	4	0	3	1.6	3.9	6.0
JULY 23...	45	.5	.3	4	0	3	8.1	6.6	5.6

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
FEB. 12...	.0	5.0	22	.03	.04	.00	180	0
MAY 17...	.1	5.1	22	.03	.00	.00	200	10
JULY 23...	.1	2.1	22	.03	.00	.03	520	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
FEB. 12...	0930	6.1	27	6.7	12.0
MAY 17...	0930	7.9	26	6.6	15.0
JULY 23...	0950	14	29	5.9	15.0

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

LOCATION.--Lat 21°59'02", long 159°39'47", Hydrologic Unit 20070000, on right bank 1.3 mi (2.1 km) upstream from Makaweli River and 1.9 mi (3.1 km) north of Waimea Post Office.

DRAINAGE AREA.--57.8 mi^2 (149.7 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Datum of gage is 20.0 ft (6.10 m) above mean sea level (Department of Water, County of Kauai bench mark). Prior to Oct. 5, 1911, nonrecording gage at site 1.0 mi (1.6 km) downstream at different datum. Oct. 5, 1911, to Oct. 31, 1919, nonrecording gage at present site at different datum. Oct. 1, 1972, to Apr. 30, 1975, at site 60 ft (18.3 m) streamward at same datum.

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

AVERAGE DISCHARGE.--35 years (water years 1911-17, 1945-68, 1970-72, 1976), 134 ft^3/s (3.795 m^3/s), 97,080 acre-ft/yr (120 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,100 ft^3/s (1,050 m^3/s) Feb. 7, 1949, gage height, 19.3 ft (5.88 m), from rating curve extended above 5,200 ft^3/s (147 m^3/s) on basis of slope-area measurements at gage heights 10.28 ft (3.133 m) and 18.7 ft (5.70 m); practically no flow occasionally owing to upstream diversions.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 19, 1974, which destroyed the station reached a stage of 19.05 ft (5.806 m), from floodmarks, discharge, 29,100 ft^3/s (824 m^3/s), from rating curve extended above 2,000 ft^3/s (56.6 m^3/s) on basis of slope-area measurement at gage height 19.05 ft (5.806 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,850 ft^3/s (194 m^3/s) Feb. 6, gage height, 10.09 ft (3.075 m), from rating curve extended as explained above, no peak above base of 8,700 ft^3/s (246 m^3/s); minimum, 1.7 ft^3/s (0.048 m^3/s) Nov. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	2.7	8.3	2.8	228	612	1170	50	5.6	4.9	4.7	4.2
2	3.5	2.6	3.6	2.7	42	109	882	23	5.1	77	4.0	4.5
3	3.9	2.6	2.8	3.1	21	24	1090	14	5.1	41	4.0	4.5
4	3.9	2.3	2.4	4.0	10	12	430	9.6	6.0	8.0	4.0	4.5
5	3.9	2.6	2.7	4.7	456	9.9	315	8.2	8.7	5.6	4.0	4.5
6	3.9	67	2.6	262	3720	8.0	310	7.4	8.7	5.1	4.0	4.7
7	16	31	3.0	712	707	7.2	400	6.7	7.7	4.7	4.3	4.9
8	55	44	11	168	430	6.4	528	6.4	6.0	4.3	4.2	5.5
9	5.1	191	13	77	192	504	1110	6.2	5.5	4.2	4.6	7.2
10	3.0	77	3.1	90	107	228	1110	5.1	5.6	10	4.7	6.1
11	2.7	9.6	4.7	56	72	50	1110	6.0	20	6.0	4.3	16
12	3.0	52	3.1	8.0	49	31	624	5.8	7.4	4.3	5.5	84
13	2.9	13	6.9	5.3	29	23	75	5.8	6.0	4.9	5.1	11
14	3.0	3.2	778	4.5	21	20	53	6.2	5.5	4.5	5.5	6.1
15	3.3	2.2	75	4.3	19	11	37	5.8	5.3	4.7	6.2	5.3
16	3.5	2.2	23	175	133	16	31	5.6	26	4.5	5.4	5.1
17	3.3	2.4	9.3	16	355	26	45	6.4	27	4.3	7.7	4.9
18	3.2	3.0	6.9	4.7	131	260	40	6.4	8.7	4.7	126	4.9
19	3.2	2.7	5.6	3.6	54	165	148	7.2	81	5.5	153	4.9
20	86	2.4	5.1	3.5	37	51	58	11	28	504	101	5.1
21	19	2.7	4.7	13	21	37	88	67	7.2	59	11	4.9
22	5.3	2.3	4.3	11	97	272	606	159	5.5	12	7.2	5.1
23	3.7	2.8	4.3	5.1	44	69	540	54	5.3	65	5.7	5.9
24	3.9	1060	4.0	3.9	14	62	192	35	5.3	8.5	4.5	5.3
25	2.5	325	3.9	3.6	9.9	20	58	13	4.9	4.3	3.9	4.7
26	3.1	1530	3.9	3.2	8.7	99	33	15	5.1	4.2	3.8	4.7
27	20	1660	3.9	3.9	8.0	350	113	9.0	5.3	32	4.2	7.7
28	6.7	171	3.9	3.8	7.2	72	492	28	7.7	19	5.7	53
29	4.3	60	2.9	3.6	6.7	34	140	23	8.0	12	4.7	6.3
30	3.9	32	2.6	91	---	49	150	19	5.6	5.8	4.5	4.2
31	3.1	---	2.8	307	---	1470	---	6.4	---	5.1	4.4	---
TOTAL	292.1	5161.3	1011.3	2056.3	7029.5	4707.5	11978	631.2	338.8	939.1	521.8	299.7
MEAN	9.42	179	32.6	66.3	242	152	399	20.4	11.3	30.3	16.8	9.99
MAX	86	1660	778	712	3720	1470	1170	159	81	504	153	84
MIN	2.5	2.2	2.4	2.7	6.7	6.4	31	5.1	4.9	4.2	3.8	4.2
AC-FT	579	10630	2010	4080	13940	9340	23760	1250	672	1860	1030	594

WTR YR 1976 TOTAL 35166.6 MEAN 96.1 MAX 3720 MIN 2.2 AC-FT 69750

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

WATER-QUALITY RECORDS

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

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT.											
06...	1100	3.9	240	7.4	24.0	5	3	120	100	83	0
NOV.											
03...	1200	2.8	240	7.3	23.5	5	1	83	200	85	0
26...	1030	1850	--	--	--	--	--	--	--	--	--
26...	1500	1000	--	--	--	--	--	--	--	--	--
DEC.											
08...	1030	3.0	220	7.5	21.0	8	1	120	330	85	2
11...	1230	8.0	170	7.9	21.0	8	2	140	450	66	0
JAN.											
08...	1050	137	--	--	--	--	--	--	--	--	--
12...	1115	10	115	7.2	20.5	45	4	160	560	48	6
FEB.											
02...	1015	60	95	6.8	16.5	45	4	110	930	36	2
MAR.											
01...	1130	245	75	5.2	19.5	25	600	17000	>100000	28	14
APR.											
12...	1200	87	67	6.8	20.5	35	2	63	1200	24	4
MAY											
10...	1115	6.4	150	7.0	23.5	4	2	--	--	56	0
10...	1130	--	--	--	--	--	--	86	200	--	--
JUNE											
07...	1030	7.8	160	7.2	24.0	5	2	350	310	59	4
JULY											
12...	1030	5.9	180	7.3	24.5	12	3	--	--	66	0
12...	1045	--	--	--	--	--	--	62	170	--	--
AUG.											
09...	1200	4.3	195	7.3	24.0	18	2	87	210	77	4
SEP.											
16...	1130	5.3	180	7.3	24.5	--	4	100	200	66	0

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT.											
06...	10	14	11	22	.5	.9	108	0	89	6.9	2.3
NOV.											
03...	11	14	11	22	.5	.9	105	0	86	8.4	1.8
26...	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--
DEC.											
08...	11	14	9.7	20	.5	.9	101	0	83	5.1	1.5
11...	8.2	11	8.6	22	.5	.8	82	0	67	1.7	.1
JAN.											
08...	--	--	--	--	--	--	--	--	--	--	--
12...	6.2	7.9	6.9	24	.4	.7	51	0	42	5.1	7.3
FEB.											
02...	5.6	5.4	5.8	25	.4	.8	42	0	34	11	3.6
MAR.											
01...	3.6	4.7	4.8	25	.4	2.2	18	0	15	182	8.5
APR.											
12...	2.9	4.1	4.5	28	.4	.4	25	0	21	6.3	1.7
MAY											
10...	6.9	9.5	8.3	24	.5	.7	71	0	58	11	2.0
10...	--	--	--	--	--	--	--	--	--	--	--
JUNE											
07...	7.3	10	9.2	25	.5	.7	67	0	55	6.8	2.5
JULY											
12...	8.2	11	9.2	23	.5	.7	81	0	66	6.5	5.2
12...	--	--	--	--	--	--	--	--	--	--	--
AUG.											
09...	11	12	10	22	.5	.8	89	0	73	7.1	5.4
SEP.											
16...	8.1	11	9.3	23	.5	.7	86	0	71	6.9	4.1

HAWAII, ISLAND OF KAUAI

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT.										
06...	16	.1	28	136	136	.19	.01	.96	.97	.03
NOV.										
03...	15	.1	26	134	132	.18	.01	.29	.30	.02
26...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
DEC.										
08...	15	.1	25	135	127	.18	.02	.07	.09	.00
11...	12	.1	22	126	103	.17	.00	.13	.13	.00
JAN.										
08...	--	--	--	--	--	--	--	--	--	--
12...	9.5	.1	19	82	83	.11	.11	.30	.41	.01
FEB.										
02...	8.6	.1	18	72	69	.10	.32	.30	.62	.02
MAR.										
01...	9.1	.1	11	--	55	.13	.20	3.9	4.1	.45
APR.										
12...	7.0	.1	13	52	46	.07	.07	.20	.27	.02
MAY										
10...	12	.1	20	87	95	.12	.01	.00	.01	.01
10...	--	--	--	--	--	--	--	--	--	--
JUNE										
07...	13	.1	23	94	100	.13	.01	.08	.09	.01
JULY										
12...	14	.1	23	112	111	.15	.00	.17	.17	.00
12...	--	--	--	--	--	--	--	--	--	--
AUG.										
09...	16	.1	24	126	123	.17	.03	.18	.21	.01
SEP.										
16...	13	.1	24	117	113	.16	.09	.25	.34	.01

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
DEC.												
08...	1030	0	0	<10	0	<10	<10	<50	0	<10	2	240
MAR.												
01...	1130	2	0	10	3	360	0	50	4	90	5	91000
JUNE												
07...	1030	0	0	30	2	20	0	0	0	<10	0	280
SEP.												
16...	1130	0	0	<10	5	0	0	<50	0	<10	2	430

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
DEC.												
08...	70	<100	8	50	40	.0	.0	0	0	0	0	2.9
MAR.												
01...	--	<100	28	980	80	.1	.0	1	1	100	0	40
JUNE												
07...	140	140	20	20	20	.3	.3	0	0	0	0	5.1
SEP.												
16...	170	<100	32	20	20	.0	.0	0	0	0	0	1.7

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL A MG/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL B MG/SQ M	PERI-PHYTON LENGTH OF EX-POSURE (DAYS)	PERI-PHYTON SAMPL-ING METHOD
OCT								
06...	1100	1800	--	--	--	--	--	
NOV								
03...	1200	2900	--	--	--	--	--	
DEC								
08...	1030	300	2.20	2.40	1.10	.100	35	Polyethylene
11...	1230	380	--	--	--	--	--	strip
JAN								
12...	1115	260	13.0	11.0	6.60	.800	33	
FEB								
02...	1015	220	--	--	--	--	--	
MAR								
01...	1130	1200	--	--	--	--	--	
APR								
12...	1200	350	6.84	5.53	10.8	2.22	31	
MAY								
10...	1115	380	--	--	--	--	--	
JUN								
07...	1030	840	--	--	--	--	--	
JUL								
12...	1030	1100	7.62	5.38	6.21	.000	35	
AUG								
09...	1200	450	20.0	13.2	8.40	2.56	28	
SEP								
16...	1130	1200	--	--	--	--	--	

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT.					
06...	1100	3.9	5	.05	84
NOV.					
03...	1200	2.8	3	.02	100
26...	1030	1850	184	919	--
26...	1500	1000	237	640	--
DEC.					
08...	1030	3.0	2	.02	--
11...	1230	8.0	2	.04	100
JAN.					
08...	1050	137	6	2.2	--
12...	1115	10	4	.11	100
FEB.					
02...	1015	60	4	.65	100
MAR.					
01...	1130	245	1740	1150	100
APR.					
12...	1200	87	2	.47	100
MAY					
10...	1130	--	3	--	100
JUNE					
07...	1030	7.8	4	.08	100
JULY					
12...	1045	--	4	--	100
AUG.					
09...	1200	4.3	3	.03	100
SEP.					
16...	1130	5.3	3	.04	100

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
					Depth-Integrated
Oct 06	1100	CHLOROPHYTA			
		Chlorophyceae			
		Chlorococcales			
		Scenedesmaceae			
		Scenedesmus	170	10	
		Zygnematales			
		Zygnemataceae			
		Mougeotia	43	2	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella	210	12	
		Pennales			
		Cymbellaceae			
		Cymbella	130	7	
		Rhopalodia		L	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	43	2	
		Naviculaceae			
		Gyrosigma		L	
		Navicula	350	20	
		Nitzschiaceae			
		Nitzschia	520	29	
		CYANOPHYTA			
		Myxophyceae			
		Chroococcales			
		Chroococcaceae			
		Anacystis	170	10	
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria		L	
		PYRRHOPHYTA			
		Dinophyceae			
		Peridiniales			
		Peridiniaceae			
		Peridinium	130	7	
		TOTAL	1,800		
					Depth-Integrated
Nov 03	1200	CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella	49	2	
		Pennales			
		Achnanthaceae			
		Rhoicosphenia		L	
		Cymbellaceae			
		Cymbella	190	7	
		Fragilariaceae			
		Fragilaria	98	3	
		Naviculaceae			
		Navicula	540	19	
		Nitzschiaceae			
		Hantzschia	98	3	
		Nitzschia	140	5	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	780	27	
		Rivulariaceae			
		Raphiopsis	930	32	
		PYRRHOPHYTA			
		Dinophyceae			
		Peridiniales			
		Peridiniaceae			
		Peridinium	49	2	
		TOTAL	2,900		

NOTE: L - Less than 1 percent; may not have been actually counted.

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Dec 08	1030	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Coelastraceae			
		Coelastrum	44	15	
		Oocystaceae			
		Kirchneriella	11	4	
		Scenedesmaceae			
		Scenedesmus		L	
		Zygnematales			
		Desmidiaceae			
		Cosmarium	6	2	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella		L	
		Melosira	28	9	
		Pennales			
		Achnanthaceae			
		Achnanthes	11	4	
		Rhoicosphenia		L	
		Cymbellaceae			
		Cymbella	6	2	
		Fragilariaceae			
		Fragilaria	6	2	
		Synedra	6	2	
		Gomphonemataceae			
		Gomphonema	17	6	
		Naviculaceae			
		Navicula	66	22	
		Neidium	6	2	
		Nitzschiaceae			
		Nitzschia	33	11	
		Xanthophyceae			
		Heterococcales			
		Chlorotheciaceae			
		Ophiocytium	6	2	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Phormidium	55	19	
		TOTAL	300		
Dec 11	1230	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Zygnematales			
		Desmidiaceae			
		Cosmarium		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella		L	
		Pennales			
		Achnanthaceae			
		Cocconeis	11	3	
		Cymbellaceae			
		Cymbella		L	
		Fragilariaceae			
		Synedra	34	9	
		Gomphonemataceae			
		Gomphonema	34	9	
		Naviculaceae			
		Navicula	100	26	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	200	53	
		TOTAL	380		

NOTE: L - Less than 1 percent; may not have been actually counted.

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Jan 12	1115	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus		L	
		Zygnematales			
		Desmidiaceae			
		Cosmarium	17	6	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	25	9	
		Pennales			
		Achnanthaceae			
		Rhoicosphenia	8	3	
		Cymbellaceae			
		Cymbella	17	6	
		Diatomaceae			
		Diatoma	17	6	
		Fragilariaceae			
		Fragilaria		L	
		Gomphonemataceae			
		Gomphonema	17	6	
		Naviculaceae			
		Navicula	150	56	
		Nitzschiaceae			
		Nitzschia	17	6	
		TOTAL	260		
Feb 02	1015	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes		L	
		Rhoicosphenia	58	27	
		Cymbellaceae			
		Cymbella		L	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	73	33	
		Naviculaceae			
		Navicula	73	33	
		Nitzschiaceae			
		Nitzschia	15	7	
		TOTAL	220		
Mar 01	1130	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Cymbellaceae			
		Cymbella	290	25	
		Fragilariaceae			
		Synedra	290	25	
		Naviculaceae			
		Navicula	580	50	
		Achaanthaceae			
		Rhoicosphenia		L	
		TOTAL	1,200		

NOTE: L - Less than 1 percent; may not have been actually counted.

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Apr 12	1200	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella	5	2	
		Pennales			
		Achnanthaceae			
		Achnanthes	49	14	
		Cocconeis	5	2	
		Cymbellaceae			
		Cymbella	5	2	
		Fragilariaceae			
		Synedra	5	2	
		Gomphonemataceae			
		Gomphonema	71	20	
		Naviculaceae			
		Navicula	33	9	
		Pinnularia	5	2	
		Nitzschiaceae			
		Hantzschia	5	2	
		Nitzschia	38	11	
		Achnanthaceae			
		Rhoiocosphenia	33	9	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Nostocaceae			
		Anabaena	93	27	
		TOTAL	350		
May 10	1115	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	61	16	
		Cymbellaceae			
		Cymbella	15	4	
		Gomphonemataceae			
		Gomphonema	120	32	
		Naviculaceae			
		Navicula	170	44	
		Nitzschiaceae			
		Nitzschia	15	4	
		TOTAL	380		
June 07	1030	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Oocystaceae			
		Ankistrodesmus	16	2	
		Kirchneriella	8	1	
		Zygnematales			
		Desmidiaceae			
		Cosmarium		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	74	9	
		Cymbellaceae			
		Cymbella	49	6	
		Fragilariaceae			
		Synedra	58	7	
		Gomphonemataceae			
		Gomphonema	150	18	
		Naviculaceae			
		Navicula	260	30	
		Pinnularia	25	3	
		Nitzschiaceae			
		Nitzschia	160	19	
		Achnanthaceae			
		Rhoiocosphenia	49	6	
		TOTAL	840		

NOTE: L - Less than 1 percent; may not have been actually counted.

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
July 12	1030	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Zygnematales			
		Zygnemataceae			
		Mougeotia	36	3	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	390	35	
		Cymbellaceae			
		Cymbella	110	10	
		Gomphonemataceae			
		Gomphonema	250	23	
		Naviculaceae			
		Navicula	140	13	
		Nitzschiaceae			
		Nitzschia	180	16	
		TOTAL	1,100		
Aug 09	1200	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella	8	2	
		Melosira	4	1	
		Pennales			
		Cymbellaceae			
		Cymbella	38	8	
		Fragilariaceae			
		Fragilaria	46	10	
		Synedra	58	13	
		Gomphonemataceae			
		Gomphonema	25	6	
		Naviculaceae			
		Navicula	75	17	
		Nitzschiaceae			
		Nitzschia	17	4	
		Achnanthaceae			
		Rhoiocosphenia	8	2	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	170	38	
		TOTAL	450		

16031000 WAIMEA RIVER NEAR WAIMEA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Sept 16	1130	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus	14	1	
		Scenedesmaceae			
		Scenedesmus	57	5	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella	28	2	
		Melosira	14	1	
		Pennales			
		Achnanthaceae			
		Achnanthes	160	13	
		Cymbellaceae			
		Cymbella	14	1	
		Fragilariaceae			
		Synedra	57	5	
		Gomphonemataceae			
		Gomphonema	28	2	
		Naviculaceae			
		Navicula	330	27	
		Pinnularia	14	1	
		Nitzschiaceae			
		Nitzschia	350	30	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Nostocaceae			
		Anabaena	130	11	
		TOTAL	1,200		

16036000 MAKAWELI RIVER NEAR WAIMEA

LOCATION.--Lat 21°58'31", long 159°38'55", Hydrologic Unit 20070000, on left bank 0.7 mi (1.1 km) upstream from mouth and 1.9 mi (3.1 km) northeast of Waimea.

DRAINAGE AREA.--26.0 mi^2 (67.3 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1943 to current year. Records for October 1911 to June 1917 at site 0.2 mi (0.3 km) downstream not equivalent owing to intervening diversion.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 18.2 ft (5.55 m) above mean sea level (by stadia survey). Prior to June 16, 1959, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records fair. Olokele ditch diverts all low flow from Olokele River 9 mi (14.5 km) above station for irrigation in vicinity of Makaweli.

AVERAGE DISCHARGE.--33 years, 90.1 ft^3/s (2.552 m^3/s), 65,280 acre-ft/yr (80.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft^3/s (736 m^3/s) Jan. 31, 1975, gage height, 15.51 ft (4.727 m), from rating curve extended above 3,200 ft^3/s (90.6 m^3/s) on basis of slope-area measurement at gage height 10.65 ft (3.246 m); minimum, 3.15 ft^3/s (0.089 m^3/s) July 19, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,440 ft^3/s (126 m^3/s) Feb. 6, gage height, 6.90 ft (2.103 m), from rating curve extended as explained above, no peak above base of 4,700 ft^3/s (133 m^3/s); minimum, 8.0 ft^3/s (0.23 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	23	11	40	390	254	30	20	38	18	14
2	11	11	20	14	20	92	268	26	18	170	16	13
3	11	11	16	20	16	48	454	24	18	39	16	13
4	11	11	14	20	13	37	165	26	17	25	15	13
5	11	24	13	12	469	32	188	23	29	20	14	13
6	25	253	12	645	1590	30	124	21	37	19	20	13
7	178	46	12	885	266	26	85	20	24	16	21	13
8	48	164	11	612	142	26	183	20	20	16	16	16
9	16	253	11	166	81	114	321	20	20	44	15	24
10	12	70	11	254	63	46	448	19	90	27	15	17
11	11	93	10	94	52	27	122	18	40	17	14	36
12	11	43	109	63	44	24	151	17	26	26	14	34
13	11	23	345	79	48	22	99	17	20	16	20	18
14	54	19	61	70	44	20	58	16	18	16	18	16
15	22	22	31	63	76	20	64	16	54	16	15	14
16	13	21	24	73	275	22	37	53	115	16	14	13
17	12	16	20	23	423	187	43	27	37	24	81	13
18	11	15	17	15	157	448	116	30	48	20	99	13
19	26	14	17	12	91	188	317	36	70	20	288	13
20	380	13	15	12	56	42	75	99	29	474	61	13
21	31	13	13	16	52	51	151	50	20	50	30	13
22	17	13	12	21	114	82	272	170	20	63	26	23
23	13	122	11	11	46	81	246	128	26	36	20	16
24	12	441	11	10	31	55	107	70	25	24	18	13
25	11	835	10	10	26	40	72	66	20	24	16	13
26	75	1030	10	9.8	25	239	50	44	19	54	16	12
27	38	245	10	9.3	25	493	47	82	26	107	17	20
28	17	84	9.8	8.8	24	127	112	38	24	42	16	19
29	13	52	9.8	8.0	21	79	40	95	19	32	16	13
30	12	39	9.8	229	---	56	51	31	16	25	18	13
31	12	---	9.8	122	---	288	---	22	---	22	15	---
TOTAL	1136	4008	908.2	3597.9	4330	3432	4720	1354	965	1538	998	487
MEAN	36.6	134	29.3	116	149	111	157	43.7	32.2	49.6	32.2	16.2
MAX	380	1030	345	885	1590	493	454	170	115	474	288	36
MIN	11	11	9.8	8.0	13	20	37	16	16	16	14	12
AC-FT	2250	7950	1800	7140	8590	6810	9360	2690	1910	3050	1980	966

CAL YR 1975	TOTAL	27476.4	MEAN 75.3	MAX 3040	MIN 8.8	AC-FT	54500
WTR YR 1976	TOTAL	27474.1	MEAN 75.1	MAX 1590	MIN 8.0	AC-FT	54490

NOTE.--No gage-height record Feb. 6.

16036000 MAKAWELI RIVER NEAR WAIMEA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN.									
07...	1005	1510	65	50	15	5	2.4	2.1	3.7
MAY									
05...	1410	22	2	1	44	0	6.1	6.9	7.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN.									
07...	34	.4	.8	12	0	10	2.4	3.8	5.2
MAY									
05...	26	.5	.7	55	0	45	176	1.6	10

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN.								
07...	.0	7.3	32	.04	.12	.06	120	10
MAY								
05...	.0	19	79	.11	.00	.00	170	20

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN.					
07...	1005	1510	55	6.9	19.0
MAR.					
05...	1155	32	135	7.1	19.0
MAY					
05...	1410	22	130	5.7	20.0
JULY					
02...	1030	215	59	5.6	20.0
AUG.					
13...	1350	14	120	6.2	23.0

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 (61 m) downstream from Manuahi Stream and 4.0 mi (6.4 km) northeast of Eleele.

DRAINAGE AREA.--18.5 mi^2 (47.9 km^2).

WATER-DISCHARGE RECORDS

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 (0.8 km) upstream not equivalent owing to intervening inflow.

REVISED RECORDS (FISCAL YEARS).--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 (67.67 m) above mean sea level (by stadia survey). July 1, 1917, to Jan. 22, 1921, nonrecording gage and Dec. 16, 1926, to June 30, 1951, water-stage recorder, at same site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good. Hanapepe ditch diverts 3.0 mi (4.8 km) above station for irrigation in vicintiy of Makaweli.

AVERAGE DISCHARGE.--52 years (water years, 1918-20, 1928-76), 87.6 ft^3/s (2.481 m^3/s), 63,480 acre-ft/yr (78.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft^3/s (1,100 m^3/s) Apr. 15, 1963, gage height, 14.87 ft (4.532 m), from rating curve extended above 7,600 ft^3/s (215 m^3/s) on basis of slope-area measurement of peak flow; minimum, 5.1 ft^3/s (0.14 m^3/s) May 21, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,600 ft^3/s (102 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 27	0330	3900	110	6.20	1.890
Feb. 6	0200	*4280	121	6.45	1.966

Minimum discharge, 15 ft^3/s (0.42 m^3/s) Oct. 23-25, Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	17	23	16	19	482	354	27	24	54	20	17
2	17	17	21	17	17	59	268	24	22	247	19	17
3	17	17	20	19	16	32	705	24	21	43	19	17
4	16	17	19	17	16	25	182	25	27	32	18	16
5	17	59	18	16	174	23	143	23	57	23	17	16
6	25	260	17	407	1410	21	125	23	44	22	22	16
7	158	35	17	584	153	20	67	22	27	21	20	16
8	27	139	17	219	73	28	159	36	27	25	20	16
9	17	216	17	152	39	24	339	21	26	47	18	55
10	16	47	17	248	30	19	545	20	87	26	19	18
11	17	86	17	71	57	18	151	20	34	30	17	32
12	17	35	17	34	71	18	262	20	36	21	18	18
13	17	21	174	24	81	18	205	20	26	20	27	17
14	23	18	283	22	71	17	137	19	22	19	18	17
15	19	29	43	25	80	17	131	19	66	19	18	17
16	18	33	27	23	277	17	70	30	110	19	16	16
17	18	20	28	18	456	165	57	21	33	31	173	16
18	20	21	20	18	174	510	127	29	38	20	67	16
19	94	17	19	17	129	222	430	65	49	20	301	16
20	396	20	18	17	97	34	102	143	26	480	52	16
21	20	17	17	25	92	30	311	54	23	41	26	17
22	16	17	17	20	163	36	315	153	22	108	20	25
23	15	19	17	17	53	70	247	169	34	32	19	16
24	15	256	17	16	26	40	123	59	24	22	18	19
25	15	164	17	17	24	75	62	123	24	22	18	16
26	55	685	17	17	22	145	55	80	24	115	18	17
27	26	613	17	16	21	570	51	108	40	268	19	39
28	18	80	17	16	21	167	87	51	30	67	17	17
29	16	38	16	17	20	89	33	92	22	32	18	15
30	16	27	17	121	---	55	40	36	22	24	18	15
31	17	---	17	48	---	210	---	27	---	22	17	---
TOTAL	1194	3040	1019	2294	3882	3256	5883	1583	1067	1972	1107	581
MEAN	38.5	101	32.8	74.0	134	105	196	51.1	35.6	63.6	35.7	19.4
MAX	396	685	283	584	1410	570	705	169	110	480	301	55
MIN	15	17	16	16	16	17	33	19	21	19	16	15
AC-FT	2370	6030	2020	4550	7700	6460	11670	3140	2120	3910	2200	1150

CAL YR 1975 TOTAL 26595 MEAN 72.9 MAX 3080 MIN 15 AC-FT 52750
WTR YR 1976 TOTAL 26877 MEAN 73.4 MAX 1410 MIN 15 AC-FT 53310

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 06...	1145	388	45	30	17	3	2.5	2.5	4.4
MAY 05...	1045	23	0	1	41	0	6.0	6.4	8.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 06...	35	.5	.7	16	0	13	2.0	4.2	6.1
MAY 05...	30	.6	.6	54	0	44	4.3	1.3	12

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 06...	.0	7.4	36	.05	.06	.06	140	0
MAY 05...	.0	20	81	.11	.01	.01	40	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN. 06...	1145	388	60	7.1	19.0	MAY 05...	1045	23	130	7.3	21.0
FEB. 06...	1145	1310	62	6.0	17.0	JULY 14...	1030	18	120	6.5	21.5
MAR. 17...	1010	102	85	6.2	19.0	AUG. 13...	1030	21	130	6.3	22.0

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 (0.3 km) upstream from Wailua Falls and 4.3 mi (6.9 km) north of Lihue.

DRAINAGE AREA.--22.4 mi² (58.0 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 240 ft (73 m), from topographic map. Prior to Nov. 18, 1918, at site 0.3 mi (0.5 km) upstream at different datum. Nov. 18, 1918, to June 30, 1957, at site 10 ft (3 m) downstream from present site at datum 2.50 ft (0.762 m) higher and July 1, 1957, to June 23, 1958, at present datum.

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

AVERAGE DISCHARGE.--59 years (water years, 1913-18, 1920, 1922-24, 1926-56, 1959-76), 118 ft³/s (3.342 m³/s), 85,490 acre-ft/yr (105 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,300 ft³/s (2,470 m³/s) Apr. 15, 1963, gage height, 22.90 ft (6.980 m), from rating curve extended above 13,000 ft³/s (368 m³/s) on basis of slope-area measurement of peak flow; minimum, 1.69 ft³/s (0.048 m³/s) Sept. 21, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,420 ft³/s (153 m³/s) Mar. 19, gage height, 14.34 ft (4.371 m); no peak above base of 5,800 ft³/s (164 m³/s); minimum, 2.4 ft³/s (0.068 m³/s) Oct. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	2.9	107	55	74	770	396	85	7.5	5.5	20	5.1
2	2.5	2.9	92	57	60	212	343	100	6.0	99	11	5.1
3	2.5	2.9	62	64	56	116	871	76	5.7	15	7.3	5.5
4	2.6	2.9	9.9	60	52	71	432	73	5.5	6.0	6.2	6.0
5	2.6	2.9	6.2	11	314	64	265	54	6.4	13	4.9	5.3
6	3.1	171	5.5	365	1310	58	194	43	6.0	7.8	7.1	5.5
7	74	12	4.9	453	294	51	152	36	5.5	5.5	20	5.1
8	29	62	4.6	173	205	110	205	105	5.3	5.7	8.1	4.9
9	4.8	122	4.6	187	138	212	433	40	6.4	7.1	6.0	27
10	3.2	43	4.9	220	104	106	548	29	26	7.3	6.6	9.9
11	2.9	86	14	126	97	83	256	21	9.3	6.2	6.0	12
12	2.8	53	6.2	52	85	76	356	9.0	18	5.5	6.2	9.3
13	2.7	18	210	9.3	81	70	343	7.8	26	4.9	7.2	6.2
14	2.8	8.1	412	8.4	55	66	215	7.5	5.5	4.8	7.5	5.3
15	5.7	4.8	134	8.4	44	44	242	7.3	21	5.1	4.9	5.3
16	3.2	8.2	87	46	87	13	188	7.5	89	6.0	4.6	5.3
17	2.9	6.0	86	12	269	88	194	8.4	19	6.5	14	4.8
18	2.6	7.1	76	7.5	70	531	280	7.8	6.8	8.7	96	6.0
19	2.7	7.0	54	12	26	1510	412	46	6.2	6.6	320	6.2
20	512	3.7	15	25	17	319	147	92	6.2	381	78	5.3
21	12	3.4	11	101	13	214	239	38	5.5	23	57	5.5
22	4.4	3.4	8.4	90	58	188	353	102	5.3	22	49	15
23	3.9	3.4	6.8	31	24	171	306	213	7.7	7.3	28	7.1
24	3.4	177	6.4	43	24	184	240	82	12	5.7	7.8	5.1
25	3.2	317	6.0	38	18	142	185	112	8.4	16	6.6	4.8
26	16	1060	5.7	31	14	182	147	51	6.6	132	6.6	4.8
27	15	895	6.6	11	35	483	155	118	6.6	292	6.6	6.0
28	5.7	242	7.5	8.7	74	253	230	48	7.5	78	5.7	7.3
29	3.7	163	7.3	20	33	204	104	53	6.2	50	5.5	4.9
30	3.2	133	6.5	268	---	141	129	36	5.5	21	5.3	4.4
31	3.0	---	62	138	---	282	---	24	---	17	5.3	---
TOTAL	740.7	3623.6	1530.0	2731.3	3731	7014	8560	1732.3	358.6	1271.2	825.0	210.0
MEAN	23.9	121	49.4	88.1	129	226	285	55.9	12.0	41.0	26.6	7.00
MAX	512	1060	412	453	1310	1510	871	213	89	381	320	27
MIN	2.5	2.9	4.6	7.5	13	13	104	7.3	5.3	4.8	4.6	4.4
AC-FT	1470	7190	3030	5420	7400	13910	16980	3440	711	2520	1640	417

CAL YR 1975	TOTAL	32381.6	MEAN 88.7	MAX 5180	MIN 2.5	AC-FT	64230
WTR YR 1976	TOTAL	32327.7	MEAN 88.3	MAX 1510	MIN 2.5	AC-FT	64120

16060000 SOUTH FORK WAILUA RIVER NEAR LIHUE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 27...	1030	11	5	1	37	4	5.5	5.7	7.8
APR. 29...	1015	100	8	3	24	1	3.7	3.7	6.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 27...	31	.6	.5	41	0	34	8.3	4.9	13
APR. 29...	35	.6	.5	29	0	24	23	2.8	10

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 27...	.1	14	72	.10	.03	.00	170	20
APR. 29...	.0	10	52	.07	.01	.00	180	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 22...	1440	8.4	135	6.8	21.0
JAN. 27...	1030	11	110	6.9	18.0
FEB. 25...	1445	16	118	7.3	22.0
MAR. 24...	1345	104	85	6.4	19.0
APR. 29...	1015	100	90	6.3	19.0
MAY 27...	1335	199	85	6.6	21.5
JUNE 25...	1415	8.8	141	6.4	27.0
JULY 27...	1430	196	58	6.1	21.5
SEP. 01...	1000	5.4	120	6.3	22.0
28...	1350	6.9	132	7.3	27.5

HAWAII, ISLAND OF KAUAI

16061000 NORTH WAILUA DITCH NEAR LIHUE

LOCATION.--Lat 22°03'56", long 159°28'14", Hydrologic Unit 20070000, on left bank 300 ft (91 m) downstream from intake, 7.9 mi (12.7 km) west of Wailua House Lots, and 8.8 mi (14.2 km) northwest of Lihue.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1932 to current year.

REVISED RECORDS (FISCAL YEAR).--WSP 770: 1933.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 1,105.45 ft (336.941 m) above mean sea level (levels by Lihue Plantation Co.).

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

AVERAGE DISCHARGE.--44 years, 18.8 ft^3/s (0.532 m^3/s), 13,620 acre-ft/yr (16.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 59 ft^3/s (1.67 m^3/s) Dec. 21, 1933, Apr. 24, 1934; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	16	16	15	16	14	16	17	16	19	15	15
2	16	16	17	16	17	12	16	17	16	20	15	15
3	16	15	17	16	17	17	17	17	16	17	16	15
4	16	16	16	16	18	17	15	17	16	17	15	15
5	18	17	16	16	16	17	16	17	17	16	15	15
6	22	18	16	25	10	16	15	16	17	18	16	15
7	26	19	16	21	3.7	16	17	17	17	17	16	15
8	20	20	16	19	8.7	17	20	17	17	18	16	16
9	17	20	16	19	15	15	20	16	18	19	16	16
10	17	19	16	20	18	15	21	16	19	17	16	16
11	16	20	16	18	18	16	18	16	18	16	15	16
12	16	18	16	17	17	16	21	16	18	16	15	16
13	16	18	15	17	18	16	20	16	17	16	16	15
14	20	18	14	17	17	16	20	16	18	16	16	16
15	19	19	16	18	18	16	19	16	20	16	16	16
16	16	19	16	19	19	16	20	18	19	15	15	16
17	16	18	16	17	20	19	18	16	18	16	17	16
18	18	18	16	17	18	20	20	17	19	16	16	17
19	23	18	15	17	18	20	20	18	20	17	18	16
20	24	17	15	18	17	17	18	18	19	19	16	16
21	20	18	15	16	17	18	19	18	18	16	15	16
22	18	18	15	19	18	17	18	19	18	17	15	16
23	17	19	15	18	17	17	19	18	20	16	14	16
24	19	20	15	17	17	16	17	17	18	16	14	16
25	20	19	15	17	17	16	17	17	17	17	14	16
26	23	17	15	17	18	16	16	16	17	18	14	16
27	19	5.8	15	17	17	18	19	18	18	18	14	17
28	16	.20	15	17	17	16	19	17	17	17	14	16
29	16	9.1	15	17	16	15	18	18	17	16	15	16
30	16	15	15	19	---	15	18	17	16	16	14	16
31	16	---	15	17	---	16	---	16	---	16	14	---
TOTAL	567	500.10	482	549	473.4	508	547	525	531	524	473	474
MEAN	18.3	16.7	15.5	17.7	16.3	16.4	18.2	16.9	17.7	16.9	15.3	15.8
MAX	26	20	17	25	20	20	21	19	20	20	18	17
MIN	15	.20	14	15	3.7	12	15	16	16	15	14	15
AC-FT	1120	992	956	1090	939	1010	1080	1040	1050	1040	938	940

CAL YR 1975 TOTAL 6711.92 MEAN 18.4 MAX 27 MIN 0 AC-FT 13310
WTR YR 1976 TOTAL 6153.50 MEAN 16.8 MAX 26 MIN .20 AC-FT 12210

HAWAII, ISLAND OF KAUAI

16061000 NORTH WAILUA DITCH NEAR LIHUE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 27...	1455	16	2	0	30	0	5.4	3.9	4.4
MAY 20...	1020	21	12	2	16	4	3.6	1.7	3.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 27...	24	.4	.5	37	0	30	.5	.9	5.8
MAY 20...	30	.3	.3	15	0	12	.2	1.8	5.9

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 27...	.1	19	58	.08	.04	.01	10	0
MAY 20...	.0	5.7	30	.04	.09	.02	80	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 18...	1135	15	70	7.6	17.5
JAN. 27...	1455	16	71	8.1	17.5
FEB. 24...	1415	18	70	7.6	18.5
MAR. 19...	1335	18	60	6.9	17.5
APR. 16...	1205	19	67	6.9	18.5
MAY 20...	1020	21	40	8.0	18.5
JUNE 18...	1145	19	60	6.4	17.5
JULY 19...	1315	15	72	7.3	20.0
AUG. 18...	1505	15	68	7.1	21.0
SEP. 20...	1335	16	72	7.6	19.5

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 (116 m) downstream from Waikoko Strean, 8.1 mi (13.0 km) west of Wailua, and 8.4 mi (13.5 km) northwest of Lihue.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 1,070 ft (326 m), from topographic map.

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

AVERAGE DISCHARGE.--11 years, 24.9 ft^3/s (0.705 m^3/s), 18,040 acre-ft/yr (22.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 58 ft^3/s (1.64 m^3/s) Oct. 11, 1966; no flow Jan. 1-18, 1965.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	19	21	17	20	25	25	23	21	23	20	18
2	18	19	20	18	20	19	25	22	21	27	20	18
3	17	18	20	18	20	21	28	22	20	22	20	18
4	18	19	20	18	20	21	25	23	20	22	19	18
5	20	22	19	17	29	21	27	22	21	21	18	18
6	23	27	19	29	29	20	26	22	20	21	21	18
7	29	26	19	28	20	20	24	23	20	20	21	17
8	24	28	18	24	20	20	28	24	21	22	20	18
9	21	27	18	25	21	26	32	22	22	24	20	20
10	20	26	18	25	22	21	34	21	25	22	20	19
11	19	26	18	22	21	20	27	20	23	21	19	23
12	18	24	17	21	21	20	32	20	25	20	19	20
13	18	23	22	20	21	19	31	20	22	20	20	18
14	23	22	24	20	21	19	30	20	21	19	20	18
15	22	23	21	22	22	18	28	19	25	19	19	19
16	19	23	20	23	25	19	28	23	24	18	18	19
17	18	23	21	21	26	25	26	21	22	20	24	18
18	20	24	19	20	23	29	31	22	22	19	23	21
19	26	22	19	20	22	29	30	24	22	20	28	19
20	31	21	18	20	21	22	24	27	21	30	23	18
21	24	21	18	20	21	22	28	24	21	22	21	21
22	23	22	17	22	22	22	27	28	20	23	21	23
23	22	23	17	21	21	22	26	29	21	21	19	20
24	22	28	17	20	21	21	24	24	22	20	19	19
25	23	28	17	20	20	21	24	25	21	22	18	19
26	27	30	17	19	22	24	22	24	22	27	19	19
27	24	25	16	19	23	27	28	27	23	27	18	23
28	22	15	16	19	22	25	27	24	22	23	17	20
29	21	17	16	19	21	22	25	26	21	22	19	19
30	20	21	16	27	---	22	25	22	20	22	18	19
31	19	---	16	23	---	26	---	22	---	21	18	---
TOTAL	667	692	574	657	637	688	817	715	651	680	619	577
MEAN	21.5	23.1	18.5	21.2	22.0	22.2	27.2	23.1	21.7	21.9	20.0	19.2
MAX	31	30	24	29	29	29	34	29	25	30	28	23
MIN	16	15	16	17	20	18	22	19	20	18	17	17
AC-FT	1320	1370	1140	1300	1260	1360	1620	1420	1290	1350	1230	1140

CAL YR 1975	TOTAL	7834.46	MEAN 21.5	MAX 38	MIN	.17	AC-FT	15540
WTR YR 1976	TOTAL	7974.00	MEAN 21.8	MAX 34	MIN	15	AC-FT	15820

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 19...	1145	19	1	0	28	0	5.5	3.4	4.6
MAY 25...	1210	24	3	1	22	0	4.0	3.0	4.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 19...	26	.4	.4	37	0	30	.7	1.2	6.0
MAY 25...	29	.4	.5	27	0	22	14	1.5	5.9

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 19...	.0	17	57	.08	.04	.01	10	0
MAY 25...	.0	15	48	.07	.00	.02	30	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 18...	1020	20	71	7.6	17.5
JAN. 19...	1145	19	79	7.9	16.5
FEB. 19...	1015	23	65	7.2	17.5
MAR. 19...	1430	27	58	7.2	17.5
APR. 16...	1050	26	68	6.7	17.5
MAY 25...	1210	24	68	6.5	19.0
JUNE 18...	1050	22	67	6.1	17.5
JULY 19...	1130	20	72	6.9	19.5
AUG. 18...	1335	22	68	6.3	21.5
SEP. 20...	1205	18	76	7.6	22.0

16062000 STABLE STORM DITCH NEAR LIHUE

LOCATION.--Lat 22°04'09", long 159°26'46", Hydrologic Unit 20070000, on left bank 100 ft (30 m) downstream from intake, 7.8 mi (12.6 km) northwest of Lihue, and 7.9 mi (12.7 km) west of Kapaa.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 710 ft (216 m) by baroneter.

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

AVERAGE DISCHARGE.--39 years (water years 1938-76), 10.7 ft^3/s (0.303 m^3/s), 7,750 acre-ft/yr (9.56 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 71 ft^3/s (2.01 m^3/s) Apr. 3, 1948; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	28	.02	.30	.28	.12	.42	.12	.42	.72	.42	14
2	24	31	1.6	.20	.28	.12	.42	.12	.42	.72	.42	24
3	23	28	.42	.30	.28	.12	.42	.12	.42	.57	.28	14
4	24	33	.28	.20	.28	.12	.28	.12	.42	.57	.28	1.6
5	27	36	.28	.12	.40	.06	.28	.12	.42	.57	.18	1.6
6	31	46	.28	.40	.12	.06	.28	.12	.42	.42	.28	.57
7	46	42	.28	.30	.12	.06	.28	.12	.42	.42	.28	17
8	34	45	.28	.30	.12	.06	.28	.12	.42	.42	.28	28
9	28	45	.28	.15	.12	.12	.28	.12	.42	.42	20	29
10	27	17	.18	.12	.06	.06	.42	.12	.28	.28	32	31
11	26	.88	.18	.12	.06	.06	.28	.12	.28	.28	30	36
12	25	.72	.18	.12	.06	.12	.42	.12	.28	.28	30	31
13	25	.72	.28	.12	.06	.12	.28	.12	.28	.28	19	29
14	33	.57	.12	.12	.06	.12	.28	.12	25	21	.57	28
15	28	.57	1.0	.30	.06	.12	.28	.12	42	30	.57	28
16	25	.57	.70	.25	.06	.12	.28	.12	42	30	15	27
17	25	.57	.50	.20	.06	.12	.28	.12	13	32	16	26
18	28	.57	.50	.20	.06	.12	.28	18	.72	30	.57	35
19	38	.42	.30	.20	.06	.47	.28	25	.72	33	.46	26
20	22	.42	.12	.20	.06	.12	.28	.72	.72	17	.06	26
21	24	.28	.12	.20	.06	.12	.28	.72	.57	.72	.06	34
22	34	.28	.12	.20	.06	.12	.28	.72	19	.72	.25	37
23	31	.28	.12	.28	.12	.12	.28	.72	39	.72	.57	27
24	32	.18	.12	.28	.12	.12	.28	.72	38	.57	.57	26
25	33	.12	.12	.28	.12	.12	.28	.57	20	.57	.57	25
26	41	.27	.12	.28	.12	.12	.28	.57	.88	.57	.57	27
27	39	.38	.12	.28	.12	.12	.18	.42	.88	.57	.57	15
28	35	.02	.12	.28	.12	.12	.12	.42	.88	.57	2.8	.88
29	32	.02	.12	.28	.12	.42	.12	.42	.72	.57	3.8	.72
30	30	.02	.12	.28	---	.57	.12	.42	.72	.57	3.8	.72
31	29	---	.12	.28	---	.57	---	.42	---	.57	3.2	---
TOTAL	921	358.86	9.10	7.14	3.62	4.91	8.52	51.88	249.71	205.67	183.41	646.09
MEAN	29.7	12.0	.29	.23	.12	.16	.28	1.67	8.32	6.63	5.92	21.5
MAX	46	46	1.6	.40	.40	.57	.42	25	42	33	32	37
MIN	22	.02	.02	.12	.06	.06	.12	.12	.28	.28	.06	.57
AC-FT	1830	712	18	14	7.2	9.7	17	103	495	408	364	1280

CAL YR 1975 TOTAL 4600.69 MEAN 12.6 MAX 46 MIN 0 AC-FT 9130
WTR YR 1976 TOTAL 2649.91 MEAN 7.24 MAX 46 MIN .02 AC-FT 5260

NOTE.--No gage-height record Dec. 23 to Jan. 25.

HAWAII, ISLAND OF KAUAI

16062000 STABLE STORM DITCH NEAR LIHUE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 19...	1000	.20	2	1	28	0	4.4	4.1	5.7
MAY 20...	1240	.71	17	9	13	1	2.0	1.9	4.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 19...	30	.5	.4	40	0	33	4.0	1.6	7.5
MAY 20...	42	.6	.6	15	0	12	2.4	1.4	4.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 19...	.0	16	60	.08	.02	.01	40	0
MAY 20...	.0	6.5	29	.04	.00	.00	110	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 18...	0930	.50	82	7.4	18.0
JAN. 19...	1000	.20	100	7.2	17.5
FEB. 19...	1330	.06	95	6.4	--
MAR. 19...	1150	.10	102	6.6	20.0
APR. 16...	0820	.39	80	6.5	19.0
MAY 20...	1240	.71	48	7.0	19.0
JUNE 18...	0930	.66	78	6.1	19.0
JULY 19...	1000	31	84	7.0	21.5
AUG. 18...	1150	.53	70	6.8	22.0
SEP. 20...	1525	24	86	8.0	22.5

16063000 NORTH FORK WAILUA RIVER AT ALTITUDE 650 FT (198 M), NEAR LIHUE

LOCATION.--Lat 22°04'02", long 159°26'21", Hydrologic Unit 20070000, on right bank 0.5 mi (0.8 km) downstream from intake of Stable storm ditch and 7.6 mi (12.2 km) northwest of Lihue.

DRAINAGE AREA.--5.29 mi² (13.70 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1914 to March 1915, May 1915 to October 1918, December 1918, March 1919, June 1919 to current year. Monthly discharge only for some periods, published in WSP 1319.

REVISED RECORDS (FISCAL YEARS).--WSP 555: 1921. WSP 1569: 1915-27(M), 1943-47(M), 1948-56(P). WSP 2137: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 650 ft (198 m), from topographic map. Prior to Sept. 9, 1944, at datum 2.0 ft (0.61 m) higher.

REMARKS.--Records fair. Since 1925, Hanalei tunnel (see sta 16100000) has diverted from Hanalei River basin into North Fork Wailua River above station; North Wailua and Stable storm ditches (see sta 16061000 and 16062000) divert water above station for power development and irrigation in vicinity of Lihue.

AVERAGE DISCHARGE.--60 years (water years, 1916-18, 1920-76), 73.6 ft³/s (2.084 m³/s), 53,320 acre-ft/yr (65.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,200 ft³/s (374 m³/s) Nov. 12, 1955, gage height, 13.53 ft (4.124 m), from rating curve extended above 2,300 ft³/s (65.1 m³/s) on basis of slope-area measurement at gage height 10.65 ft (3.246 m); minimum, 0.23 ft³/s (0.007 m³/s) June 5, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base at 2,800 ft³/s (79.4 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 27	0330	*3300	93.5	7.88	2.402
Feb. 5	1030	3220	91.2	7.80	2.377
Aug. 19	1030	3080	87.2	7.66	2.335

Minimum discharge, 0.84 ft³/s (0.024 m³/s) Oct. 12, 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.0	65	32	75	213	194	88	52	75	37	19
2	1.4	2.8	52	36	51	78	224	84	49	138	46	5.6
3	1.3	1.0	51	40	42	49	334	74	47	62	42	14
4	1.3	5.2	42	34	42	49	163	83	45	55	34	27
5	3.1	68	39	26	509	59	162	70	47	45	32	26
6	4.0	94	37	390	600	45	130	65	45	52	58	30
7	96	49	34	279	176	39	100	68	45	47	49	13
8	8.9	65	43	163	128	42	172	92	53	60	44	18
9	1.1	74	34	125	78	369	225	54	59	94	18	21
10	.98	71	31	152	65	92	284	49	88	52	9.8	13
11	.91	124	30	80	60	58	119	47	63	44	4.9	50
12	.91	74	28	58	47	52	250	47	102	41	4.9	9.5
13	1.1	52	200	49	52	49	207	44	54	40	20	3.5
14	18	45	212	48	40	45	176	42	18	15	34	2.4
15	1.3	69	71	154	55	42	154	42	49	2.8	28	2.6
16	.98	60	51	185	111	53	217	107	35	2.4	13	2.4
17	.84	52	62	76	164	214	132	51	37	7.8	136	2.1
18	2.1	59	45	65	83	366	267	37	62	2.5	66	14
19	49	42	40	57	69	599	290	48	61	15	301	2.6
20	307	37	37	80	47	110	119	134	45	277	98	2.4
21	34	34	34	162	45	125	162	87	44	47	74	6.5
22	3.5	38	33	88	74	124	157	161	24	86	64	17
23	1.6	81	30	57	41	113	155	144	15	41	48	2.5
24	2.4	285	30	49	39	76	106	88	8.7	34	47	2.2
25	4.4	439	29	44	34	82	110	116	18	65	41	2.0
26	22	690	28	40	50	157	82	82	52	169	53	2.8
27	23	498	27	38	86	347	186	140	71	145	45	56
28	5.9	158	27	36	58	182	201	86	57	90	34	30
29	2.2	110	26	34	41	112	129	110	45	51	46	25
30	1.4	76	27	231	---	108	129	69	49	63	34	25
31	1.1	---	26	140	---	230	---	57	---	41	26	---
TOTAL	603.12	3454.0	1521	3048	2962	4279	5336	2466	1439.7	1959.5	1587.6	447.1
MEAN	19.5	115	49.1	98.3	102	138	178	79.5	48.0	63.2	51.2	14.9
MAX	307	690	212	390	600	599	334	161	102	277	301	56
MIN	.84	1.0	26	26	34	39	82	37	8.7	2.4	4.9	2.0
AC-FT	1200	6850	3020	6050	5880	8490	10580	4890	2860	3890	3150	887

CAL YR 1975 TOTAL 26344.54 MEAN 72.2 MAX 1460 MIN .84 AC-FT 52250
WTR YR 1976 TOTAL 29103.02 MEAN 79.5 MAX 690 MIN .84 AC-FT 57730

16063000 NORTH FORK WAILUA RIVER AT ALTITUDE 650 FT (198 M), NEAR LIHUE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 27...	1330	39	3	1	32	0	4.7	4.8	6.5
APR. 29...	1315	104	0	0	27	0	4.2	4.1	4.7

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 27...	30	.5	.6	42	0	34	5.3	1.7	8.8
APR. 29...	27	.4	.4	34	0	28	22	.9	6.9

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 27...	.1	16	64	.09	.01	.00	30	0
APR. 29...	.0	14	52	.07	.01	.00	80	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 23...	1100	30	85	7.7	17.5
JAN. 27...	1330	39	90	7.1	17.5
FEB. 25...	1145	33	90	7.2	18.5
MAR. 24...	1030	72	80	6.9	18.5
APR. 29...	1315	104	85	6.4	19.0
MAY 27...	1005	200	56	6.2	18.0
JUNE 25...	1100	3.4	93	6.3	20.5
JULY 29...	1030	51	82	6.7	19.5
AUG. 31...	1010	30	87	6.2	20.0
SEP. 28...	1035	31	80	7.5	22.0

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 (366 m) upstream from mouth and 7.2 mi (11.6 km) northwest of Lihue.

DRAINAGE AREA.--6.27 mi^2 (16.24 km^2).

WATER-DISCHARGE RECORDS

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 (FISCAL YEARS).--WSP 770: 1932-33. WSP 1719: 1916. WSP 1937: 1918. WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 500 ft (152 m), from topographic map. Prior to Dec. 31, 1914, nonrecording gage at site 725 ft (221 m) downstream at different datum. Dec. 31, 1914, to May 10, 1934, water-stage recorder at site 75 ft (23 m) upstream at present datum.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--61 years (water years, 1913-14, 1916-17, 1920-76), 48.6 ft^3/s (1.376 m^3/s), 35,210 acre-ft/yr (43.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,400 ft^3/s (521 m^3/s) Nov. 12, 1955, gage height, 14.7 ft (4.48 m), from floodmarks, from rating curve extended above 2,700 ft^3/s (76.5 m^3/s); minimum, 6.8 ft^3/s (0.19 m^3/s) July 3, 13, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,090 cfs (59.2 m^3/s) Mar. 19, gage height, 5.89 ft (1.795 m), no other peak above base of 1,900 ft^3/s (53.8 m^3/s); minimum, 11 ft^3/s (0.31 m^3/s) Nov. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	12	28	16	30	130	121	49	30	34	26	18
2	13	12	27	16	25	50	122	45	28	68	25	17
3	13	12	25	19	23	37	213	42	27	33	25	18
4	13	14	22	16	22	35	115	46	26	30	22	16
5	13	24	21	16	259	35	107	39	26	27	22	16
6	16	49	20	115	302	31	88	39	25	29	25	18
7	36	22	18	73	94	30	69	35	25	30	27	16
8	21	35	22	46	74	32	95	41	26	30	23	16
9	15	51	18	44	53	206	124	32	27	47	21	24
10	14	32	18	42	46	58	105	31	44	31	22	22
11	14	44	16	32	41	41	69	30	32	27	20	37
12	13	27	16	29	38	36	99	29	108	25	20	24
13	15	21	143	25	39	33	80	28	41	24	22	20
14	18	18	196	25	34	32	66	28	32	24	22	18
15	16	21	48	63	33	30	69	27	42	24	21	20
16	14	27	34	78	44	36	81	30	44	23	19	18
17	14	23	33	32	73	78	63	27	33	25	88	17
18	14	30	29	29	50	35	75	38	36	24	52	27
19	19	20	25	27	37	558	113	34	38	25	123	20
20	69	18	24	77	33	96	63	47	31	152	44	18
21	18	18	22	83	33	99	76	39	30	31	33	23
22	15	20	21	44	53	114	103	58	28	41	29	27
23	14	18	20	33	32	73	103	57	32	27	24	20
24	14	94	18	30	30	57	69	52	30	24	23	18
25	13	55	18	27	28	53	55	63	28	29	22	18
26	21	226	18	25	29	61	48	38	32	70	24	20
27	21	251	17	23	76	127	97	64	36	79	22	31
28	16	58	17	22	49	73	118	38	33	47	20	21
29	13	39	16	21	33	56	71	42	28	35	20	17
30	13	32	16	36	---	56	83	33	27	34	20	16
31	13	---	16	65	---	137	---	31	---	28	18	---
TOTAL	544	1323	982	1229	1713	2525	2760	1232	1025	1177	924	611
MEAN	17.5	44.1	31.7	39.6	59.1	81.5	92.0	39.7	34.2	38.0	29.8	20.4
MAX	69	251	196	115	302	558	213	64	108	152	123	37
MIN	13	12	16	16	22	30	48	27	25	23	18	16
AC-FT	1080	2620	1950	2440	3400	5010	5470	2440	2030	2330	1830	1210

CAL YR 1975 TOTAL 15273 MEAN 41.8 MAX 1190 MIN 12 AC-FT 30290
WTR YR 1976 TOTAL 16045 MEAN 43.8 MAX 558 MIN 12 AC-FT 31830

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 26...	1100	25	3	1	31	0	3.9	5.1	7.4
MAY 25...	1145	48	18	7	23	0	2.8	3.8	6.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 26...	34	.6	.5	39	0	32	3.9	2.0	11
MAY 25...	38	.6	.5	30	0	25	12	2.8	10

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 26...	.1	14	63	.09	.01	.00	100	10
MAY 25...	.0	9.3	51	.07	.00	.02	190	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 22...	1010	21	115	6.9	18.5
JAN. 26...	1100	25	108	7.2	18.5
FEB. 23...	1040	33	92	7.3	19.5
MAR. 25...	1020	55	85	6.9	19.5
APR. 26...	1035	48	90	6.8	18.5
MAY 25...	1145	48	78	6.6	20.0
JUNE 24...	1100	31	95	6.2	21.0
JULY 26...	0930	98	100	6.2	20.0
AUG. 25...	1055	27	110	6.7	22.0
SEP. 24...	1010	18	107	7.4	23.0

16069000 WAILUA DITCH NEAR KAPAA

LOCATION.--Lat 22°04'34", long 159°24'04", Hydrologic Unit 20070000, on right bank 2,000 ft (610 m) downstream from Wailua Reservoir, 5.2 mi (8.4 km) west of Kapaa, and 7.0 mi (11.3 km) north of Lihue.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Sharp-crested weir since Feb. 4, 1965. Datum of gage is 462.3 ft (140.91 m) above mean sea level (by stadia survey).

REMARKS.--Records good. Ditch diverts water from North Fork Wailua River to reservoir, 2,000 ft (610 m) above station and thence to fields for irrigation of sugarcane in vicinity of Kapaa.

AVERAGE DISCHARGE.--39 years (water years 1938-76), 14.7 ft^3/s (0.416 m^3/s), 10,650 acre-ft/yr (13.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 63 ft^3/s (1.78 m^3/s) June 4, 1937; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	20	.20	3.4	19	6.3	5.3	4.7	16	16	8.3	31
2	8.9	16	.20	3.5	20	6.1	5.3	4.3	17	18	9.3	28
3	8.7	13	.17	3.9	20	5.7	5.1	4.5	16	21	9.1	24
4	7.5	12	.14	4.7	20	5.3	4.9	4.9	15	20	9.1	20
5	7.3	14	.11	6.1	15	4.7	4.7	5.3	14	20	8.9	20
6	7.7	29	.08	6.5	6.9	4.5	5.1	5.5	14	22	11	20
7	16	33	.01	6.9	5.7	4.1	5.1	11	14	23	17	20
8	21	37	.01	7.7	4.7	4.3	5.1	17	13	23	18	19
9	21	40	.01	11	4.7	5.1	4.9	16	12	21	18	20
10	18	40	.02	15	5.5	5.7	4.9	17	12	18	22	20
11	14	34	.03	14	6.3	5.9	4.7	18	12	18	25	20
12	11	26	.03	14	6.7	6.1	4.5	18	13	22	25	20
13	10	24	.61	18	7.1	5.9	4.9	18	14	26	30	18
14	13	24	2.4	18	7.1	5.9	5.1	19	14	26	36	18
15	17	25	.65	18	7.1	5.9	5.1	19	15	26	36	17
16	14	27	.51	18	6.7	13	4.9	19	14	26	36	18
17	11	27	.23	18	6.5	18	4.5	19	14	25	34	21
18	10	25	.03	19	6.3	18	4.7	19	14	25	34	27
19	13	25	4.1	19	6.5	11	4.9	19	14	24	35	26
20	22	22	6.3	18	6.5	5.7	5.1	19	14	26	31	29
21	28	20	6.5	8.7	6.5	3.4	5.1	19	14	26	28	32
22	31	19	9.9	8.5	6.3	1.1	5.1	19	14	26	28	33
23	29	2.9	9.3	8.1	6.1	3.3	4.9	19	14	18	30	32
24	27	.17	9.9	7.9	6.3	4.9	4.9	19	14	8.5	31	28
25	25	.35	9.5	7.5	6.3	5.5	4.7	19	14	8.7	31	24
26	26	1.6	8.7	13	6.5	5.7	4.7	18	14	9.3	31	24
27	28	1.1	7.3	16	6.5	5.1	5.1	18	14	9.3	31	24
28	28	.51	5.7	17	6.5	4.5	5.1	17	16	9.5	31	24
29	27	.35	2.6	20	6.3	4.1	5.1	16	17	9.3	31	24
30	25	.27	1.9	22	---	4.7	5.1	16	17	9.1	33	24
31	23	---	4.1	19	---	5.5	---	16	---	9.1	34	---
TOTAL	556.8	559.25	91.24	390.4	245.6	195.0	148.6	473.2	429	588.8	791.7	705
MEAN	18.0	18.6	2.94	12.6	8.47	6.29	4.95	15.3	14.3	19.0	25.5	23.5
MAX	31	40	9.9	22	20	18	5.3	19	17	26	36	33
MIN	7.3	.17	.01	3.4	4.7	1.1	4.5	4.3	12	8.5	8.3	17
AC-FT	1100	1110	181	774	487	387	295	939	851	1170	1570	1400

CAL YR 1975 TOTAL 5824.69 MEAN 16.0 MAX 40 MIN .01 AC-FT 11550
WTR YR 1976 TOTAL 5174.59 MEAN 14.1 MAX 40 MIN .01 AC-FT 10260

16069000 WAILUA DITCH NEAR KAPAA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 19...	1545	13	6	3	23	0	3.3	3.5	5.8
MAY 20...	1445	19	3	0	28	1	3.8	4.4	7.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 19...	35	.5	.6	29	0	24	1.2	3.0	9.2
MAY 20...	36	.6	.6	32	0	26	2.0	1.5	9.1

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 19...	.0	11	51	.07	.00	.00	60	0
MAY 20...	.0	13	56	.08	.00	.03	150	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 18...	1305	.03	80	7.0	22.5
JAN. 19...	1545	13	84	7.6	21.0
FEB. 19...	1500	6.8	81	6.9	22.0
MAR. 19...	0950	8.0	66	6.2	19.5
APR. 16...	1400	4.9	75	6.5	23.5
MAY 20...	1445	19	80	7.4	19.0
JUNE 21...	0925	15	85	6.2	23.0
JULY 19...	1450	25	95	6.2	25.0
AUG. 18...	1000	33	92	6.4	24.5
SEP. 20...	0945	27	93	7.9	26.5

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 (1.8 km) upstream from confluence with South Fork, 3.7 mi (6.0 km) southwest of Kapaa, and 5.0 mi (8.0 km) north of Lihue.

DRAINAGE AREA.--17.9 mi^2 (46.4 km^2).

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder. Altitude of gage is 18 ft (5.5 m) from topographic map.

REMARKS.--Records good. Wailua and Aahoaka ditches (see stas 16069000 and 16070000) divert above station for irrigation of sugarcane in vicinities of Kapaa and Wailua, respectively.

AVERAGE DISCHARGE.--24 years, 130 ft^3/s (3.682 m^3/s), 94,180 acre-ft/yr (116 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,200 ft^3/s (1,510 m^3/s) Nov. 12, 1955, gage height, 19.88 ft (6.059 m) in gage well, 20.8 ft (6.34 m), from floodmarks, from rating curve extended above 3,700 ft^3/s (105 m^3/s) on basis of slope-area measurement of peak flow; minimum, 2.12 ft^3/s (0.060 m^3/s) Oct. 28, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,350 ft^3/s (123 m^3/s) Mar. 19, gage height, 7.20 ft (2.195 m), from rating curve extended as explained above, no other peak above base of 4,100 ft^3/s (116 m^3/s); minimum, 4.8 ft^3/s (0.14 m^3/s) Oct. 1-3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	6.0	103	54	110	376	374	183	61	89	75	24
2	4.8	6.0	90	56	79	190	406	159	34	202	81	9.7
3	5.2	5.8	84	63	40	145	625	95	54	89	80	8.3
4	5.4	5.6	75	56	7.2	128	381	108	69	78	65	23
5	5.6	5.8	69	32	698	131	298	89	72	65	62	24
6	6.0	59	65	342	965	99	230	101	72	54	77	48
7	48	8.6	59	314	370	94	204	110	69	46	69	41
8	20	10	68	142	258	66	298	150	75	36	52	26
9	5.6	35	59	122	133	402	409	94	72	112	35	23
10	5.2	62	54	183	89	122	427	54	130	77	18	16
11	5.4	155	51	120	78	79	238	48	78	59	11	54
12	5.2	97	48	84	63	90	346	46	191	43	9.7	51
13	5.4	44	330	49	77	94	285	44	86	30	13	24
14	5.8	29	505	48	78	86	237	44	41	22	34	18
15	6.2	29	153	158	88	79	276	46	49	7.5	27	9.0
16	6.0	30	105	225	158	70	327	110	96	7.0	21	8.3
17	5.4	47	62	84	246	201	221	61	55	7.0	116	8.0
18	5.4	94	8.3	69	134	520	351	59	86	8.3	163	23
19	5.8	46	7.5	62	90	1390	405	47	90	6.9	272	10
20	158	40	6.9	122	83	394	192	142	68	272	126	8.3
21	6.9	79	6.7	268	105	362	249	106	65	69	80	8.7
22	5.4	106	6.7	148	142	285	316	220	54	97	71	27
23	5.2	118	21	103	83	130	302	174	36	66	47	10
24	5.2	422	56	89	55	72	208	122	29	71	36	8.0
25	5.2	430	55	81	48	84	187	196	26	97	35	8.0
26	5.4	874	54	68	61	255	61	135	69	236	43	8.0
27	5.6	783	52	51	138	555	247	233	94	255	41	41
28	5.4	231	52	33	156	334	325	128	83	155	33	42
29	5.2	160	49	8.3	97	163	208	155	65	108	35	28
30	5.2	116	48	192	---	105	266	99	62	106	35	24
31	5.4	---	48	201	---	370	---	80	---	86	27	---
TOTAL	378.3	4133.8	2451.1	3627.3	4729.2	7471	8899	3438	2131	2656.7	1889.7	661.3
MEAN	12.2	138	79.1	117	163	241	297	111	71.0	85.7	61.0	22.0
MAX	158	874	505	342	965	1390	625	233	191	272	272	54
MIN	4.8	5.6	6.7	8.3	7.2	66	61	44	26	6.9	9.7	8.0
AC-FT	750	8200	4860	7190	9380	14820	17650	6820	4230	5270	3750	1310

CAL YR 1975 TOTAL 38422.0 MEAN 105 MAX 3120 MIN 4.7 AC-FT 76210
WTR YR 1976 TOTAL 42466.4 MEAN 116 MAX 1390 MIN 4.8 AC-FT 84230

HAWAII, ISLAND OF KAUAI

16071000 NORTH FORK WAILUA RIVER NEAR KAPAA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 15...	1245	43	4	1	33	0	4.9	5.0	7.4
MAY 04...	1325	96	0	1	31	0	4.3	4.9	6.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 15...	32	.6	.6	41	0	34	2.1	3.6	10
MAY 04...	31	.5	.5	38	0	31	15	1.5	9.4

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 15...	.0	15	67	.09	.06	.01	110	10
MAY 04...	.0	14	60	.08	.00	.00	120	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN. 15...	1245	43	110	7.5	19.5
MAR. 08...	1150	64	100	7.3	21.5
MAY 04...	1325	96	95	6.6	21.0
JUNE 29...	1000	64	95	6.3	21.0
AUG. 17...	1000	9.5	125	6.9	24.0

HAWAII, ISLAND OF KAUAI

16071500 LEFT BRANCH OPAEKAA STREAM NEAR KAPAA

LOCATION.--Lat 22°04'43", long 159°23'55", Hydrologic Unit 20070000, on left bank 0.4 mi (0.6 km) upstream from mouth, 0.6 mi (1.0 km) northeast of Wailua Reservoir, and 4.9 mi (7.9 km) west of Kapaa.

DRAINAGE AREA.--0.65 mi^2 (1.68 km^2).

WATER-DISCHARGE RECORDS

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 (139.72 m) above mean sea level (by stadia survey).

REMARKS.--Records good. No diversion above station. Recording rain gage located at station.

AVERAGE DISCHARGE.--16 years, 2.74 ft^3/s (0.078 m^3/s), 1,990 acre-ft/yr (2.45 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 724 ft^3/s (20.5 m^3/s) Jan. 31, 1975, gage height, 5.58 ft (1.701 m), from rating curve extended above 415 ft^3/s (11.8 m^3/s); minimum, 0.09 ft^3/s (0.003 m^3/s) Sept. 27-30, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft^3/s (1.98 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 14	0030	84	2.38	2.44	0.744
Mar. 19	0500	*188	5.32	3.26	0.994

Minimum discharge, 0.25 ft^3/s (0.007 m^3/s) Nov. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	.41	1.2	.91	2.1	5.1	5.3	3.2	2.3	1.3	1.7	1.2
2	.35	.41	1.2	.91	1.9	3.1	6.1	3.2	2.2	1.5	1.6	1.2
3	.35	.35	1.1	.91	1.9	2.5	8.3	3.1	2.2	1.5	1.5	1.2
4	.35	.30	1.0	.83	1.9	2.5	6.1	3.1	2.2	1.4	1.5	1.2
5	.35	.41	.91	.83	3.5	2.4	5.7	3.1	2.1	1.3	1.4	1.2
6	.35	.67	.91	2.1	11	2.4	5.3	3.1	2.0	1.3	1.4	1.2
7	.35	.53	.91	1.8	5.0	2.4	4.8	3.1	2.0	1.3	1.4	1.2
8	.41	.53	.91	1.5	4.6	2.3	4.8	2.9	2.0	1.3	1.3	1.2
9	.47	.67	.83	1.4	3.8	3.2	5.0	2.8	2.0	1.4	1.3	1.3
10	.60	.53	.83	1.4	3.2	2.9	5.0	2.8	2.1	1.3	1.3	1.3
11	.53	.67	.83	1.3	3.1	2.5	4.6	2.8	2.0	1.3	1.3	1.6
12	.41	.53	.83	1.2	2.9	2.5	4.8	2.8	2.5	1.1	1.2	1.2
13	.41	.47	4.0	1.2	2.8	2.5	4.6	2.8	2.0	1.1	1.2	1.2
14	.41	.47	13	1.1	2.7	2.5	4.1	2.8	1.8	1.1	1.2	1.0
15	.41	.47	2.7	1.1	2.7	2.4	3.9	2.8	1.9	1.0	1.1	1.0
16	.35	.47	2.1	2.4	2.7	2.4	3.8	2.7	2.0	1.0	1.1	.91
17	.41	.47	1.9	1.7	2.8	2.5	3.8	2.7	1.9	1.0	1.5	.91
18	.53	.53	1.8	1.5	2.7	4.1	4.4	2.7	1.8	.91	1.8	1.4
19	.47	.47	1.7	1.5	2.4	42	3.9	2.5	1.8	1.2	2.6	1.1
20	.41	.41	1.5	3.8	2.4	8.0	3.8	2.7	1.8	4.0	1.8	1.0
21	.41	.41	1.4	5.2	2.3	6.4	3.8	2.7	1.8	1.7	1.6	1.2
22	.41	.41	1.4	2.8	2.3	5.9	3.8	2.8	1.7	1.6	1.5	1.1
23	.41	.41	1.4	2.4	2.2	5.3	3.8	2.8	1.6	1.4	1.4	1.0
24	.47	.67	1.3	2.3	2.1	5.0	3.6	2.7	1.6	1.4	1.3	.91
25	.53	1.4	1.3	2.2	2.1	4.8	3.6	2.8	1.6	1.3	1.2	.83
26	.53	6.8	1.1	2.0	2.1	4.4	3.4	2.7	1.6	2.7	1.4	.91
27	.47	5.3	1.0	2.0	2.7	5.5	3.6	3.1	1.6	3.4	1.3	1.0
28	.47	2.0	1.0	1.9	2.7	4.6	3.9	2.7	1.6	2.2	1.2	.91
29	.41	1.5	.91	1.9	2.2	4.3	3.6	2.5	1.4	2.0	1.2	.83
30	.35	1.3	.91	2.2	---	4.3	3.6	2.4	1.3	1.8	1.2	.83
31	.35	---	.91	2.4	---	5.0	---	2.4	---	1.8	1.2	---
TOTAL	13.08	29.97	52.79	56.69	86.8	155.7	134.8	87.3	56.4	48.61	43.7	33.04
MEAN	.42	1.00	1.70	1.83	2.99	5.02	4.49	2.82	1.88	1.57	1.41	1.10
MAX	.60	6.8	13	5.2	11	42	8.3	3.2	2.5	4.0	2.6	1.6
MIN	.35	.30	.83	.83	1.9	2.3	3.4	2.4	1.3	.91	1.1	.83
AC-FT	26	59	105	112	172	309	267	173	112	96	87	66

CAL YR 1975 TOTAL 721.22 MEAN 1.98 MAX 89 MIN .30 AC-FT 1430
WTR YR 1976 TOTAL 798.88 MEAN 2.18 MAX 42 MIN .30 AC-FT 1580

16071500 LEFT BRANCH OPAEKAA STREAM NEAR KAPAA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 15...	1030	1.1	9	5	25	1	3.4	3.9	8.4
MAY 04...	1030	3.0	1	2	22	0	2.9	3.5	8.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 15...	41	.7	1.1	29	0	24	5.8	3.3	12
MAY 04...	45	.8	.4	28	0	23	89	2.7	13

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 15...	.0	12	59	.08	.00	.13	220	10
MAY 04...	.1	11	56	.08	.00	.00	120	20

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN. 15...	1030	1.1	96	6.9	19.0
MAR. 02...	1005	3.0	84	7.3	18.5
MAY 04...	1030	3.0	90	5.7	20.5
JUNE 29...	1115	1.4	100	6.2	21.5
AUG. 05...	1430	1.4	120	6.5	21.0

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 (6.3 km) northwest of Kealia, and 4.0 mi (6.4 km) northwest of Kapaa.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 518 ft (158 m) above mean sea level (by stadia survey).

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

AVERAGE DISCHARGE.--39 years (water years 1938-76), 6.71 ft^3/s (0.190 m^3/s), 4,860 acre-ft/yr (5.99 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 31 ft^3/s (0.88 m^3/s) Aug. 1, 1961; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	5.6	.21	.04	9.0	.87	.33	1.2	8.6	11	.63	7.3
2	5.8	6.9	.17	.04	6.8	1.1	.63	.87	7.9	12	5.8	6.6
3	6.2	6.0	4.0	.04	6.2	.63	1.5	.69	7.8	11	10	7.4
4	6.0	8.2	7.3	.04	6.1	.47	1.5	7.0	7.8	10	8.7	7.3
5	6.7	7.5	6.8	.02	6.9	.38	.99	12	8.7	9.4	8.3	6.9
6	9.1	10	6.8	.14	4.6	.28	.87	12	11	11	10	8.2
7	10	9.7	5.6	.99	2.5	.21	.63	7.4	8.7	8.6	12	7.0
8	8.5	10	6.5	.63	1.9	6.9	.52	.47	10	4.2	11	7.0
9	6.3	10	7.1	.47	1.3	7.7	.47	.42	11	10	8.9	9.7
10	5.8	9.4	4.8	.42	.87	.74	.47	4.6	8.8	5.8	9.3	11
11	5.6	9.7	.33	.38	.52	.58	.38	7.9	8.4	4.2	8.0	12
12	5.5	8.9	.34	.33	3.2	.47	.33	7.8	8.2	6.4	8.4	10
13	7.0	7.9	.38	.28	6.8	.38	.33	7.9	8.0	7.9	11	7.6
14	7.5	7.0	4.2	.24	.47	.21	.28	7.4	8.0	7.4	11	7.0
15	6.8	7.8	4.3	.21	.42	2.8	.28	7.8	8.0	7.4	9.9	8.6
16	5.8	9.0	8.4	.21	7.3	11	.24	9.4	13	7.6	7.6	7.3
17	5.5	9.0	.69	.21	13	14	.24	7.6	8.8	7.9	6.9	6.6
18	6.1	10	.58	.21	13	8.6	.24	10	8.8	7.6	1.9	9.7
19	8.0	8.3	.47	1.4	4.9	8.8	.24	10	8.6	7.8	2.5	7.6
20	10	7.4	.38	11	.36	2.7	.21	11	8.8	12	2.5	7.0
21	8.0	7.3	.33	7.4	.33	1.4	.21	11	7.5	12	1.5	10
22	6.9	8.6	.21	2.3	.28	.93	7.3	12	4.6	12	1.2	10
23	6.2	7.3	.11	1.3	.24	.69	10	12	10	11	2.8	6.1
24	6.1	6.6	.09	.87	2.6	.52	.69	12	11	10	9.4	7.3
25	6.4	.33	.06	.63	6.8	.42	.63	13	8.6	11	8.9	8.2
26	10	1.8	.06	.47	5.8	.38	5.2	12	11	12	9.1	9.6
27	10	3.2	.06	.42	3.9	.33	14	13	12	12	7.2	11
28	8.3	.99	.04	2.1	.42	.33	14	12	12	12	1.1	11
29	6.8	.42	.02	5.5	.24	.28	10	13	10	9.5	.99	8.6
30	6.2	.28	.02	8.3	---	.24	1.5	8.6	9.8	.81	5.0	7.6
31	5.8	---	.02	12	---	.24	---	4.5	---	.74	7.5	---
TOTAL	218.2	205.12	70.37	58.59	116.75	74.58	74.21	256.55	275.4	272.25	209.02	251.2
MEAN	7.04	6.84	2.27	1.89	4.03	2.41	2.47	8.28	9.18	8.78	6.74	8.37
MAX	10	10	8.4	12	13	14	14	13	13	12	12	12
MIN	5.3	.28	.02	.02	.24	.21	.21	.42	4.6	.74	.63	6.1
AC-FT	433	407	140	116	232	148	147	509	546	540	415	498

CAL YR 1975 TOTAL 2322.49 MEAN 6.36 MAX 17 MIN .02 AC-FT 4610
WTR YR 1976 TOTAL 2082.24 MEAN 5.69 MAX 14 MIN .02 AC-FT 4130

HAWAII, ISLAND OF KAUAI

16077000 MAKALEHA DITCH NEAR KEALIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATININ-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 19...	1450	.21	8	4	28	7	6.0	3.2	7.7
MAY 19...	1430	12	7	1	32	4	5.7	4.2	8.0

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 19...	37	.6	.6	26	0	21	5.2	3.0	12
MAY 19...	35	.6	.6	33	0	27	8.4	1.9	11

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 19...	.0	11	56	.08	.00	.02	90	10
MAY 19...	.0	15	63	.09	.01	.01	80	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 18...	1410	.53	110	5.6	19.5
JAN. 19...	1450	.21	95	6.9	18.5
FEB. 20...	1320	.43	95	6.5	19.0
MAR. 22...	1000	.90	95	6.3	18.5
APR. 19...	1510	.26	--	--	18.5
MAY 19...	1430	12	90	6.8	18.5
JUNE 21...	1030	9.7	83	6.7	20.5
JULY 19...	1350	8.3	120	6.3	21.5
AUG. 18...	1355	1.9	60	6.4	22.0
SEP. 20...	1440	6.9	90	7.0	22.0

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 (152 m) downstream from intake and 4.0 mi (6.4 km) west of Kealia.

WATER-DISCHARGE RECORDS

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 1913 and as "at Kapahi, near Kealia" January to December 1913.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 377.1 ft (114.94 m) above mean sea level (by stadia survey). Prior to Nov. 26, 1936, at site 61 ft (19 m) upstream at datum 2.52 ft (0.768 m) higher.

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

AVERAGE DISCHARGE.--58 years (water years, 1918-20, 1922-76), 6.37 ft^3/s (0.180 m^3/s), 4,620 acre-ft/yr (5.70 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 138 ft^3/s (3.91 m^3/s) Feb. 6, 1913; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.9	4.3	4.6	7.4	11	22	.38	1.9	6.9	13	0
2	2.4	1.9	10	6.7	4.9	.38	.38	.31	1.2	21	9.2	0
3	2.5	1.8	7.6	7.4	4.2	.31	.59	10	.51	6.1	5.2	1.0
4	2.4	3.2	3.2	7.4	4.1	.38	.25	16	.51	4.4	3.9	3.0
5	2.7	12	2.6	8.3	4.8	.31	.31	10	.99	3.9	3.8	3.2
6	4.6	24	2.5	6.4	.92	.31	.31	9.1	.45	4.1	7.4	3.8
7	14	7.7	2.5	.31	.25	.31	.31	13	.45	9.1	8.9	1.4
8	5.1	15	8.7	.31	.19	6.0	.45	22	.51	12	6.4	.01
9	2.3	21	3.6	.25	.24	25	.45	15	3.9	19	4.2	.16
10	2.0	7.1	4.0	.25	.31	23	.45	9.2	9.4	9.8	3.9	.45
11	2.0	7.4	7.6	.25	.25	17	13	5.4	8.9	4.4	3.8	.38
12	1.9	6.2	7.2	9.7	.25	15	16	5.2	5.3	7.1	3.6	.31
13	3.4	3.2	20	12	.25	13	2.1	4.9	.82	4.1	6.9	3.2
14	2.6	2.3	42	16	.31	9.0	.45	4.9	.74	3.9	6.0	3.8
15	2.0	2.8	30	18	.38	7.2	.38	4.7	3.4	3.8	4.5	4.1
16	1.9	3.2	6.3	10	8.2	7.0	1.7	4.9	.58	3.6	2.7	3.5
17	1.7	2.5	.74	.38	18	22	1.4	5.2	4.4	3.8	.36	3.2
18	1.8	3.8	.66	.31	15	26	.90	10	6.5	3.6	0	7.5
19	4.3	2.1	.58	5.5	13	6.4	9.9	8.3	9.9	3.8	.21	3.6
20	19	2.3	.51	7.9	14	.39	21	15	4.7	28	0	3.2
21	2.9	2.0	.51	1.1	16	1.2	10	8.7	4.7	12	0	5.8
22	2.0	3.2	.51	.74	10	.74	13	7.1	5.7	18	0	12
23	2.2	2.0	.45	.51	.19	.58	17	.58	5.9	7.6	0	6.0
24	2.0	2.1	.45	.51	6.3	14	.45	5.6	6.0	.51	0	3.2
25	2.0	.38	4.3	.38	4.1	21	.38	9.6	4.2	.45	0	3.6
26	8.5	.58	6.7	6.8	5.0	12	6.1	2.8	6.5	3.6	0	8.5
27	7.1	.47	.38	10	12	.58	18	.31	12	22	0	18
28	2.6	.14	.38	8.1	21	.45	18	.25	8.4	19	0	8.0
29	1.9	.10	4.6	4.2	14	13	11	.25	4.7	14	0	4.1
30	1.9	.10	5.2	8.8	---	19	.58	.25	4.1	23	0	3.5
31	1.9	---	4.6	20	---	29	---	.25	---	16	0	---
TOTAL	116.0	142.47	192.67	183.10	185.54	301.54	186.84	209.18	127.26	298.56	93.97	118.51
MEAN	3.74	4.75	6.22	5.91	6.40	9.73	6.23	6.75	4.24	9.63	3.03	3.95
MAX	19	24	42	20	21	29	22	22	12	28	13	18
MIN	1.7	.10	.38	.25	.19	.31	.25	.25	.25	.45	0	0
AC-FT	230	283	382	363	368	598	371	415	252	592	186	235

CAL YR 1975 TOTAL 1780.37 MEAN 4.88 MAX 42 MIN 0 AC-FT 3530
WTR YR 1976 TOTAL 2155.64 MEAN 5.89 MAX 42 MIN 0 AC-FT 4280

16079000 KAPAHI DITCH NEAR KEALIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN.									
20...	1040	4.5	8	1	39	0	5.7	6.0	8.6
MAY									
18...	1445	7.4	10	2	34	4	5.1	5.1	8.1

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN.									
20...	32	.6	.5	49	0	40	6.2	5.9	13
MAY									
18...	34	.6	.5	36	0	30	18	3.9	12

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN.								
20...	.0	16	80	.11	.00	.03	240	10
MAY								
18...	.1	13	66	.09	.00	.01	290	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC.					
18...	1520	.57	130	6.7	20.0
JAN.					
20...	1040	4.5	133	7.1	18.5
FEB.					
20...	1500	13	110	5.6	19.0
MAR.					
19...	1450	.40	85	6.5	19.0
APR.					
20...	1030	26	100	6.3	17.5
MAY					
18...	1445	7.4	100	6.5	22.0
JUNE					
21...	1220	4.4	98	6.6	20.5
JULY					
19...	1530	4.5	140	6.7	21.5
SEP.					
20...	1555	3.3	90	7.2	22.0

16080000 KAPAA STREAM AT KAPAHI DITCH INTAKE, NEAR KAPAA

LOCATION.--Lat 22°06'15", long 159°22'29", Hydrologic Unit 20070000, on right bank at Kapahi ditch intake, 3.8 mi (6.1 km) northwest of Kapaa, and 4.3 mi (6.9 km) northwest of Wailua.

DRAINAGE AREA.--3.86 mi^2 (10.00 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1936 to current year. Prior to July 1959, published as Kapaa River at Kapahi ditch intake, near Kapaa.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete-masonry control. Datum of gage is 381.8 ft (116.37 m) above mean sea level (by stadia survey). Prior to July 1, 1962, at datum 0.07 ft (0.021 m) higher.

REMARKS.--Records good. Entire low flow is diverted above station at times for irrigation of sugarcane. Records do not include flow of Kapahi ditch (see sta 16079000).

AVERAGE DISCHARGE.--40 years, 20.9 ft^3/s (0.592 m^3/s), 15,140 acre-ft/yr (18.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,670 ft^3/s (217 m^3/s) Jan. 25, 1956, gage height, 5.41 ft (1.649 m), present datum, from rating curve extended above 2,800 ft^3/s (79.3 m^3/s); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, unknown Mar. 19, gage height, unknown; no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	3.2	3.4	0	46	30	24	2.9	0	0	2.2
2	0	0	1.4	1.3	0	27	58	20	2.3	5.2	0	2.6
3	0	0	3.6	.78	0	24	116	11	3.0	0	0	1.4
4	0	0	7.0	.75	0	21	42	3.3	2.6	0	0	0
5	0	1.8	7.0	0	100	18	50	0	2.4	0	0	0
6	0	6.7	7.0	42	120	17	33	0	3.0	0	.19	0
7	0	0	6.6	50	25	16	24	5.9	3.0	0	.44	1.1
8	0	0	9.2	15	22	10	45	.32	4.4	2.2	0	1.5
9	0	0	5.0	17	20	84	52	0	1.3	7.4	0	7.5
10	0	5.9	3.8	20	18	27	41	0	9.4	3.2	0	4.0
11	0	8.6	0	18	19	5.0	8.8	0	.35	5.8	0	17
12	0	.75	0	6.4	14	0	23	0	22	0	0	5.1
13	0	0	3.8	0	13	0	29	0	6.4	0	.14	.89
14	0	0	10	0	14	3.0	22	0	3.5	0	0	0
15	0	1.5	7.5	0	14	.50	23	0	7.3	0	0	0
16	0	6.5	2.8	3.8	8.3	6.2	37	0	13	0	1.5	0
17	0	3.2	8.0	11	8.1	44	20	0	1.7	0	102	0
18	0	15	7.6	11	.36	50	23	.19	0	0	41	0
19	0	1.0	7.6	5.7	.09	300	28	0	.47	0	96	0
20	2.5	0	7.6	178	0	40	.28	1.7	0	76	30	0
21	0	0	7.6	91	.01	42	18	0	.75	0	21	0
22	0	0	7.6	30	18	48	18	19	2.2	3.8	18	.12
23	0	0	7.6	19	13	21	25	21	.02	.56	11	0
24	0	17	7.4	16	3.9	7.1	27	13	0	4.0	3.5	0
25	0	51	3.1	13	0	0	18	19	0	8.0	3.5	0
26	0	100	.95	2.6	0	7.9	5.0	5.7	0	66	4.5	1.1
27	0	25	7.6	0	11	30	59	24	.01	20	7.0	6.9
28	0	7.0	7.6	0	.06	20	59	6.9	0	.81	11	0
29	0	7.0	3.2	0	0	6.7	37	9.9	0	0	11	0
30	0	7.0	3.1	0	---	0	56	6.4	0	.42	6.4	0
31	0	---	3.4	12	---	13	---	8.3	---	0	2.2	---
TOTAL	2.5	264.95	167.85	567.73	441.82	934.40	1027.08	199.61	92.00	203.39	370.37	51.41
MEAN	.081	8.83	5.41	18.3	15.2	30.1	34.2	6.44	3.07	6.56	11.9	1.71
MAX	2.5	100	10	178	120	300	116	24	22	76	102	17
MIN	0	0	0	0	0	0	.28	0	0	0	0	0
AC-FT	5.0	526	333	1130	876	1850	2040	396	182	403	735	102

CAL YR 1975 TOTAL 4232.69 MEAN 11.6 MAX 792 MIN 0 AC-FT 8400
WTR YR 1976 TOTAL 4323.11 MEAN 11.8 MAX 300 MIN 0 AC-FT 8570

NOTE.--No gage-height record Mar. 1-31.

16080000 KAPAA STREAM AT KAPAHI DITCH INTAKE, NEAR KAPAA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 26...	1400	5.2	4	1	39	2	5.7	6.1	8.2
MAY 27...	1445	31	22	5	21	1	2.8	3.3	6.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 26...	31	.6	.6	46	0	38	12	3.7	13
MAY 27...	40	.6	.3	24	0	20	4.8	2.4	10

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 26...	.1	17	77	.10	.01	.00	150	20
MAY 27...	.1	8.9	46	.06	.00	.02	190	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 22...	1515	7.6	120	7.3	21.0
JAN. 26...	1400	5.2	120	6.8	18.0
MAR. 31...	1515	38	70	6.5	18.0
APR. 23...	1525	25	75	7.0	19.0
MAY 27...	1445	31	80	6.9	19.0
JULY 28...	1505	.36	90	6.4	21.0
AUG. 30...	1450	2.6	95	6.1	23.0

16087000 ANAHOLA DITCH WASTEWAY NEAR KEALIA

LOCATION.--Lat 22°08'16", long 159°22'28", Hydrologic Unit 20070000, on right bank 300 ft (91 m) downstream from wasteway gates on Anahola ditch, 500 ft (152 m) north of Kaneha Reservoir, 3.8 mi (6.1 km) west of Anahola, and 4.9 mi (7.9 km) northwest of Kealia.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 825 ft (251 m) above mean sea level (by stadia survey).

REMARKS.--Records good. Water that passes station flows into Kaupaku Stream and thence into Anahola Stream 2 mi (3 km) below gaging station 16089000 on Anahola Stream.

AVERAGE DISCHARGE.--40 years, 4.73 ft^3/s (0.134 m^3/s), 3,430 acre-ft/yr (4.23 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 84 ft^3/s (2.38 m^3/s) Nov. 12, 1955; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.47	1.1	2.8	4.9	.25	8.6	7.1	.94	.78	.33	.47
2	.20	.47	.94	3.1	3.8	.19	10	6.6	.94	1.1	.33	.47
3	.20	.47	.94	3.6	2.0	.10	12	6.6	.94	.94	.33	.47
4	.20	.78	.94	2.6	1.3	.04	9.6	7.1	.94	.94	.47	.47
5	.30	.62	.78	2.4	8.4	.10	9.6	6.8	.94	.94	.47	.47
6	.50	.11	.78	9.1	18	.10	8.9	6.3	.94	1.1	.47	.62
7	.80	.11	.78	13	13	.10	8.3	6.0	.94	1.1	.33	.62
8	.40	.11	.94	9.3	13	.10	9.4	6.6	1.1	1.1	.33	.62
9	.30	.11	.62	4.0	10	4.0	11	5.1	1.1	1.1	.33	.62
10	.20	.19	.62	.47	8.9	3.7	9.3	3.5	1.3	1.1	.33	.47
11	.15	.19	.62	.19	3.0	3.6	8.0	1.3	1.3	1.1	.33	.33
12	.12	.19	.47	.19	.47	3.5	8.0	1.3	1.3	1.1	.33	.11
13	.12	.19	5.0	.19	.47	1.6	8.0	1.1	1.1	1.3	.33	.11
14	.40	.19	13	.19	.47	.10	7.7	1.1	1.3	1.1	.33	.19
15	.30	.33	7.7	.19	.47	.10	8.0	.94	1.3	.94	.33	.47
16	.20	.62	5.4	.78	.33	3.0	8.2	1.1	1.1	.94	.47	.62
17	.20	.62	5.7	.78	3.2	4.0	7.4	1.1	1.1	.94	.47	.78
18	.47	.62	4.6	.78	7.8	14	6.8	1.3	1.1	.94	.30	.94
19	.62	.47	3.8	.94	4.9	16	7.4	1.1	1.1	.94	.11	.78
20	.47	.47	3.3	5.5	4.4	14	6.8	1.1	.94	.47	.11	.94
21	.19	.47	3.1	19	4.4	12	7.4	.94	.78	.19	.11	.94
22	.19	.47	2.8	13	9.0	10	7.7	.94	.94	.47	.11	.78
23	.19	.47	2.8	9.3	4.1	9.3	8.3	.94	.94	.47	.11	.47
24	.19	.33	2.6	7.4	2.1	8.0	7.4	.94	.94	.19	.19	.47
25	.19	.04	2.4	6.3	.19	8.6	6.8	.78	.94	.47	.19	.62
26	.47	11	2.4	5.1	.19	7.7	6.6	.94	.94	.33	.19	.78
27	.62	15	2.4	4.9	.04	9.6	10	.94	.78	.33	.33	.94
28	.47	9.3	2.6	4.4	.04	8.6	11	.94	.78	.33	.33	.62
29	.33	6.8	2.4	3.6	.04	7.1	8.3	1.1	.62	.19	.47	.78
30	.33	3.1	2.4	3.8	---	7.4	8.3	1.1	.62	.33	.47	.94
31	.33	---	2.4	10	---	8.6	---	.94	---	.33	.33	---
TOTAL	9.85	54.31	86.33	146.90	128.91	165.48	254.8	83.64	30.00	23.60	9.66	17.91
MEAN	.32	1.81	2.78	4.74	4.45	5.34	8.49	2.70	1.00	.76	.31	.60
MAX	.80	15	13	19	18	16	12	7.1	1.3	1.3	.47	.94
MIN	.12	.04	.47	.19	.04	.04	6.6	.78	.62	.19	.11	.11
AC-FT	20	108	171	291	256	328	505	166	60	47	19	36

CAL YR 1975 TOTAL 181.56 MEAN .50 MAX 15 MIN 0 AC-FT 360
WTR YR 1976 TOTAL 1011.39 MEAN 2.76 MAX 19 MIN .04 AC-FT 2010

16087000 ANAHOLA DITCH WASTEWAY NEAR KEALIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 19...	1145	.97	4	2	20	0	2.4	3.3	9.6
MAY 19...	1110	1.3	4	2	21	2	2.4	3.6	7.9

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 19...	51	.9	.7	26	0	21	13	2.4	11
MAY 19...	45	.8	.4	23	0	19	29	1.8	12

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 19...	.0	8.6	51	.07	.00	.02	40	0
MAY 19...	.0	8.2	48	.07	.00	.01	90	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 18...	1050	4.6	75	6.5	19.0
JAN. 19...	1145	.97	85	6.5	19.0
FEB. 20...	1025	4.4	70	6.3	18.0
MAR. 19...	1130	20	40	6.1	18.5
APR. 19...	1150	7.4	--	--	18.5
MAY 19...	1110	1.3	80	6.1	19.0
JUNE 18...	1110	.87	87	5.8	20.0
JULY 19...	1040	.87	90	6.9	21.0
AUG. 18...	1020	.30	60	6.5	22.0
SEP. 20...	1115	.97	80	7.3	21.0

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 (152 m) below wasteway gates, and 4.8 mi (7.7 km) northwest of Kealia.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1921 to current year. Records for May 1915 to December 1921 at site 520 ft (158 m) upstream not equivalent owing to intervening diversion.

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 821.8 ft (250.48 m) above mean sea level (Lihue Plantation bench mark). Dec. 9, 1921, to June 2, 1934, at site 480 ft (146 m) upstream at different datum.

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

AVERAGE DISCHARGE.--52 years (water years, 1923-25, 1928-76), 4.13 ft^3/s (0.117 m^3/s), 2,990 acre-ft/yr (3.69 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 62 ft^3/s (1.76 m^3/s) Nov. 12, 1947; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.79	.79	3.3	.24	.16	3.7	2.3	1.8	3.3	4.1	4.3	1.9
2	.97	1.4	3.2	.24	.13	1.8	3.2	1.6	3.2	15	3.9	1.4
3	1.0	.97	2.9	.44	1.4	1.2	4.4	1.4	3.0	4.1	3.3	1.6
4	1.0	2.7	2.3	.20	2.0	1.0	2.8	1.8	3.0	3.2	2.6	1.4
5	.97	3.9	2.3	.57	9.7	1.6	2.8	1.8	3.0	2.6	2.4	1.2
6	2.4	13	2.0	5.4	.24	1.7	2.4	1.4	3.2	3.5	5.0	1.8
7	7.5	8.3	1.7	.06	.16	1.6	2.0	1.4	2.8	5.6	5.2	1.2
8	4.2	9.3	5.3	.04	.16	1.6	2.9	1.6	3.5	4.2	3.9	1.2
9	1.2	9.1	3.3	5.5	.13	2.9	3.2	1.0	2.9	10	3.2	3.9
10	.88	6.9	2.6	9.5	.13	2.4	3.0	2.2	6.6	5.4	4.4	3.2
11	.57	6.6	1.9	6.6	4.8	1.7	2.0	3.6	4.6	3.2	3.0	6.8
12	.44	4.4	1.7	4.8	5.9	1.4	2.2	3.3	6.4	2.8	2.8	3.6
13	.97	3.2	3.8	3.5	5.5	3.1	2.0	3.3	4.4	2.6	2.6	2.8
14	2.2	2.4	4.8	6.4	4.8	4.3	1.9	3.2	3.0	2.3	3.2	1.6
15	1.2	3.2	.19	4.1	4.4	3.9	2.0	3.2	5.2	2.3	2.9	3.4
16	.79	6.2	.79	6.9	8.0	12	2.4	3.8	7.4	2.3	2.6	2.0
17	.67	6.3	.97	3.2	11	16	1.9	3.2	3.8	2.9	9.2	1.4
18	.57	5.5	.64	2.9	2.4	12	1.7	3.9	3.9	2.3	8.0	2.4
19	1.7	3.0	.50	2.6	1.2	7.3	1.9	5.1	5.9	2.3	9.6	1.4
20	11	2.6	.38	21	.97	2.8	1.7	6.8	3.3	17	7.8	1.0
21	1.8	2.6	.33	.57	.97	2.8	2.2	7.4	3.0	5.2	4.6	2.8
22	1.2	2.6	.28	.20	3.6	2.9	2.0	8.1	2.8	11	4.4	6.2
23	.88	2.2	.24	.16	1.0	2.2	2.8	7.6	2.8	5.2	2.9	1.6
24	.79	15	.24	.13	2.6	1.8	1.9	4.6	3.3	3.5	2.8	1.2
25	.88	11	.20	.13	4.1	2.2	1.6	7.3	3.2	3.9	2.4	1.2
26	3.0	7.1	.20	.09	5.3	1.7	1.6	5.0	3.7	13	2.6	3.1
27	4.4	.06	.20	.09	5.1	2.8	3.9	5.3	5.7	12	2.2	9.5
28	1.8	.06	.24	.09	3.9	2.0	3.6	4.1	6.1	12	1.9	3.8
29	1.2	.06	.24	.17	3.8	1.6	2.6	5.9	3.3	10	2.0	1.9
30	1.0	2.0	.20	.20	---	1.6	2.3	4.3	2.8	7.6	2.0	1.6
31	.88	---	.20	.44	---	2.3	---	3.6	---	5.7	2.2	---
TOTAL	58.85	142.44	47.14	86.46	93.55	107.9	73.2	118.6	119.1	186.8	119.9	78.1
MEAN	1.90	4.75	1.52	2.79	3.23	3.48	2.44	3.83	3.97	6.03	3.87	2.60
MAX	11	15	5.3	21	11	16	4.4	8.1	7.4	17	9.6	9.5
MIN	.44	.06	.19	.04	.13	1.0	1.6	1.0	2.8	2.3	1.9	1.0
AC-FT	117	283	94	171	186	214	145	235	236	371	238	155

CAL YR 1975 TOTAL 1593.29 MEAN 4.37 MAX 43 MIN .06 AC-FT 3160
WTR YR 1976 TOTAL 1232.04 MEAN 3.37 MAX 21 MIN .04 AC-FT 2440

HAWAII, ISLAND OF KAUAI

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 19...	1020	2.7	5	2	20	0	2.8	3.2	6.9
MAY 19...	0945	8.4	4	2	22	0	2.6	3.7	7.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 19...	42	.7	.4	27	0	22	14	2.2	11
MAY 19...	41	.7	.4	28	0	23	22	2.4	12

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 19...	.0	8.6	49	.07	.00	.02	30	0
MAY 19...	.0	8.3	51	.07	.01	.02	80	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 18...	0940	.66	75	6.6	19.0
JAN. 19...	1020	2.7	90	6.5	18.5
FEB. 20...	0940	1.0	75	6.4	19.0
MAR. 19...	1030	9.0	46	6.1	18.5
APR. 19...	1040	2.0	--	--	18.0
MAY 19...	0945	8.4	85	6.3	18.5
JUNE 18...	0950	3.6	85	6.5	19.5
JULY 19...	1010	2.2	90	6.9	21.0
AUG. 18...	0940	8.5	65	6.5	21.5
SEP. 20...	0920	1.2	80	7.3	20.5

HAWAII, ISLAND OF KAUAI

16089000 ANAHOLA STREAM NEAR KEALIA

LOCATION.--Lat 22°09'05", long 159°21'17", Hydrologic Unit 20070000, on right bank at intake of Lower Anahola ditch and 4.7 mi (7.6 km) northwest of Kealia.

DRAINAGE AREA.--4.27 mi^2 (11.06 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to December 1910, January 1913 to November 1918, January 1919, March 1919 to current year. Monthly discharge only for some periods, published in WSP 1319. Published as Anahola River above dam at Kiokala, near Kealia prior to July 1913 and as Anahola River near Kealia July 1913 to June 1958.

REVISED RECORDS (FISCAL YEARS).--WSP 1719: 1915, 1916-18(M). (WATER YEAR).--WSP 2137: 1965(P), drainage area.

GAGE.--Water-stage recorder and combination concrete dam and orifice control. Datum of gage is 295.11 ft (89.950 m) above mean sea level (Highway Department bench mark). Prior to May 4, 1934, at site 0.1 mi (0.2 km) upstream at different datum.

REMARKS.--Records poor. Records include flow in Lower Anahola ditch (see sta 16091000). Anahola ditch (see sta 16088000) diverts 3 mi (5 km) above station for irrigation in vicinity of Kealia.

AVERAGE DISCHARGE.--61 years (water years, 1914-17, 1920-76), 22.7 ft^3/s (0.643 m^3/s), 16,450 acre-ft/yr (20.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,600 ft^3/s (555 m^3/s) Jan. 25, 1956, gage height, 14.6 ft (4.45 m), from floodmarks, from rating curve extended above 590 ft^3/s (16.7 m^3/s); minimum, 1.9 ft^3/s (0.054 m^3/s) Oct. 30 to Nov. 1, Nov. 7-11, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft^3/s (62.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 20	2130	*3210	90.9	6.83	2.082
Mar. 19	0500	2810	79.6	6.46	1.969

Minimum discharge, 2.1 ft^3/s (0.059 m^3/s) Oct. 30, 31, Nov. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.1	7.2	4.5	12	92	26	19	8.0	6.4	15	5.6
2	2.3	2.3	6.4	3.8	11	22	47	17	7.8	19	14	5.2
3	2.4	2.2	6.0	4.3	10	15	89	16	7.6	10	13	5.5
4	2.4	2.4	5.3	3.8	9.6	14	50	18	7.7	7.4	12	5.2
5	2.4	4.8	5.0	3.7	182	15	50	17	7.8	6.6	12	5.1
6	2.7	32	4.8	144	168	17	45	15	7.6	6.6	14	5.3
7	3.0	8.6	4.5	54	40	17	38	15	7.2	9.4	16	4.9
8	3.6	10	9.8	18	36	16	55	17	7.1	7.8	13	4.8
9	2.6	12	6.9	14	21	121	67	14	7.1	13	12	6.6
10	2.4	6.9	5.3	14	18	28	56	13	9.7	12	12	5.8
11	2.3	6.0	4.3	10	15	18	38	13	8.6	8.6	12	8.6
12	2.3	4.7	4.1	9.0	14	16	39	13	10	9.0	10	6.5
13	2.4	3.6	122	7.6	13	15	36	12	8.4	8.3	10	5.6
14	2.9	3.0	145	11	12	14	32	12	7.8	8.0	11	4.9
15	2.7	3.4	17	7.7	12	13	34	12	7.7	8.2	11	5.7
16	2.3	4.5	12	10	12	20	40	12	11	8.0	11	5.1
17	2.2	6.8	12	6.1	16	34	32	12	7.2	8.6	53	4.6
18	2.2	8.3	9.6	5.6	15	72	28	12	6.8	8.4	29	5.6
19	2.3	3.8	7.7	8.4	12	439	29	13	9.3	8.4	36	4.5
20	16	3.2	6.1	413	11	45	27	16	7.4	67	18	4.2
21	3.6	3.0	5.5	80	11	41	34	15	6.8	18	13	5.7
22	2.6	2.9	5.3	35	19	42	36	20	6.5	25	11	9.2
23	2.4	2.9	4.9	25	12	26	46	17	6.6	12	9.2	5.2
24	2.2	57	4.5	21	10	23	32	12	7.2	8.4	8.8	4.2
25	2.2	50	4.2	18	10	26	28	15	6.6	12	8.8	5.0
26	2.5	151	4.1	16	10	21	27	10	6.6	49	7.8	6.1
27	3.0	119	4.0	13	11	30	57	10	9.0	35	7.4	13
28	2.6	19	4.3	11	9.6	24	51	9.6	12	30	6.8	7.6
29	2.3	12	4.2	11	9.0	20	31	10	8.2	24	6.2	4.6
30	2.1	9.0	3.9	12	---	19	27	9.0	6.8	22	5.7	4.1
31	2.1	---	3.6	21	---	27	---	8.4	---	17	5.3	---
TOTAL	91.2	556.4	449.5	1015.5	741.2	1342	1227	424.0	238.1	493.1	424.0	174.0
MEAN	2.94	18.5	14.5	32.8	25.6	43.3	40.9	13.7	7.94	15.9	13.7	5.80
MAX	16	151	145	413	182	439	89	20	12	67	53	13
MIN	2.1	2.1	3.6	3.7	9.0	13	26	8.4	6.5	6.4	5.3	4.1
AC-FT	181	1100	892	2010	1470	2660	2430	841	472	978	841	345

CAL YR 1975 TOTAL 5897.3 MEAN 16.2 MAX 804 MIN 2.1 AC-FT 11700
WTR YR 1976 TOTAL 7176.0 MEAN 19.6 MAX 439 MIN 2.1 AC-FT 14230

16089000 ANAHOLA STREAM NEAR KEALIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 26...	1215	1.3	3	1	14	5	1.6	2.4	11
MAY 27...	1230	9.8	2	1	12	4	1.5	1.9	11

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 26...	62	1.3	.5	11	0	9	1.8	5.4	18
MAY 27...	67	1.4	.3	9	0	7	.9	3.5	18

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 26...	.1	5.3	50	.07	.10	.00	20	0
MAY 27...	.1	4.5	45	.06	.01	.02	60	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 22...	1245	5.3	110	7.0	19.0	MAY 27...	1230	9.8	90	7.2	20.0
JAN. 26...	1215	1.3	95	7.0	17.5	JUNE 24...	1310	7.1	90	6.3	21.0
FEB. 25...	1240	10	100	6.7	17.5	JULY 27...	1235	36	75	6.3	21.0
MAR. 23...	1150	31	90	7.0	20.0	AUG. 30...	1250	5.5	85	6.3	22.0
APR. 23...	1045	74	70	6.3	19.0	SEP. 28...	1230	6.8	98	7.0	21.0

HAWAII, ISLAND OF KAUAI

16091000 LOWER ANAHOLA DITCH NEAR KEALIA

LOCATION.--Lat 22°08'14", long 159°19'31", Hydrologic Unit 20070000, on left bank 100 ft (30 m) downstream from last wasteway, 1.5 mi (2.4 km) southwest of mouth of Anahola Stream, and 2.8 mi (4.5 km) northwest of Kealia.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 276.11 ft (84.158 m) above mean sea level (Highway Department bench mark).

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

AVERAGE DISCHARGE.--39 years (water years 1938-76), 3.13 ft^3/s (0.089 m^3/s), 2,270 acre-ft/yr (2.80 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18.6 ft^3/s (0.53 m^3/s) June 1, 1938; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	1.1		0				0	5.1	4.5	5.3	5.8
2	.88	1.1		0				0	5.0	5.9	6.2	5.5
3	.85	1.1		0				0	5.2	6.0	6.8	5.3
4	.80	1.1		0				0	5.4	5.4	6.7	3.8
5	.75	1.2		0				0	4.5	4.8	6.0	4.8
6	1.1	1.3		.04				0	4.4	4.6	6.1	4.3
7	1.4	1.4		.06				0	4.5	4.1	4.6	5.4
8	1.8	1.4		.06				0	4.7	4.5	4.1	5.3
9	1.2	1.3		.06				0	4.5	5.1	5.0	5.5
10	.85	1.3		.06				0	4.5	4.2	4.5	5.5
11	.65	1.3		.09				0	5.3	3.6	5.0	5.5
12	.61	1.3		.09				0	4.6	3.9	4.1	4.4
13	.85	1.2		.11				0	4.4	5.7	4.1	4.8
14	1.3	1.2		.02				3.6	5.5	6.1	4.0	4.7
15	1.5	1.2		.06				5.9	5.4	6.3	3.9	4.9
16	1.1	1.2		0				5.9	5.3	6.0	5.0	5.1
17	.80	1.2		0				5.8	4.8	5.4	6.7	4.8
18	.70	1.4		0				5.8	5.1	5.3	7.0	4.6
19	.85	1.2		0				5.8	4.2	5.2	6.1	3.8
20	2.8	1.2		.19				5.9	4.1	8.1	5.7	4.5
21	3.6	1.2		0				6.1	3.9	6.1	5.0	4.7
22	3.0	1.2		0				5.8	4.2	6.3	5.0	4.6
23	2.7	1.2		.06				5.4	4.0	6.2	6.7	4.2
24	2.5	.57		.09				5.6	3.9	5.3	6.8	4.2
25	1.5	0		.17				6.3	3.8	5.6	7.0	3.5
26	1.6	0		.09				6.7	3.5	7.5	5.8	3.8
27	1.2	0		.06				6.2	3.5	7.1	5.4	4.4
28	1.2	0		.04				6.3	3.6	7.8	3.8	4.8
29	1.1	0		0				5.2	3.5	7.8	3.6	4.4
30	1.1	0		0	---			5.1	3.3	7.5	4.8	4.3
31	1.1	---		0	---		---	5.5	---	5.7	4.9	---
TOTAL	42.22	28.87	0	1.35	0	0	0	102.9	133.7	177.6	165.7	141.2
MEAN	1.36	.96	0	.044	0	0	0	3.32	4.46	5.73	5.35	4.71
MAX	3.6	1.4	0	.19	0	0	0	6.7	5.5	8.1	7.0	5.8
MIN	.61	0	0	0	0	0	0	0	3.3	3.6	3.6	3.5
AC-FT	84	57	0	2.7	0	0	0	204	265	352	329	280

CAL YR 1975 TOTAL 1264.56 MEAN 3.46 MAX 13 MIN 0 AC-FT 2510
WTR YR 1976 TOTAL 793.54 MEAN 2.17 MAX 8.1 MIN 0 AC-FT 1570

HAWAII, ISLAND OF KAUAI

16091000 LOWER ANAHOLA DITCH NEAR KEALIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
MAY 19...	1240	6.0	4	3	26	8	4.0	4.0	11

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
MAY 19...	47	.9	.5	23	0	19	5.8	6.3	17

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
MAY 19...	.1	7.6	65	.09	.65	.00	120	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
MAY 19...	1240	6.0	100	6.8	19.0
JUNE 18...	1250	5.4	130	6.3	20.0
JULY 19...	1155	5.3	130	6.6	21.5
AUG. 18...	1200	8.2	65	6.7	22.0
SEP. 20...	1300	7.2	85	7.0	22.0

HAWAII, ISLAND OF KAUAI

16093200 ANAHOLA STREAM AT ANAHOLA

LOCATION.--Lat 22°08'42", long 159°18'59", Hydrologic Unit 20070000, on downstream side of old highway bridge at Anahola, 0.1 mi (0.2 km) upstream from Highway 56, and 0.9 mi (1.4 km) upstream from mouth.

DRAINAGE AREA.--9.24 mi^2 (23.93 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Annual maximum, water years 1962-65, November 1964 to current year.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (by stadia survey). Apr. 12, 1962, to Nov. 19, 1964, crest-stage gage at same site and datum.

REMARKS.--Records fair. Anahola and Lower Anahola ditches (see sta 16088000 and 16091000) divert above station for irrigation of sugarcane in vicinities of Kealia and Anahola, respectively.

AVERAGE DISCHARGE.--11 years (water years 1966-76), 36.2 ft^3/s (1.025 m^3/s), 26,230 acre-ft/yr (32.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,000 ft^3/s (368 m^3/s) May 15, 1965, gage height, 16.0 ft (4.88 m), from rating curve extended above 5,800 ft^3/s (164 m^3/s) on basis of contracted-opening measurement of peak flow; minimum, 2.1 ft^3/s (0.059 m^3/s) Oct. 25, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,200 ft^3/s (62.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 14	0200	2240	63.4	9.67	2.947
Jan. 20	1900	*5360	152	12.35	3.764
Mar. 19	0530	3230	91.5	10.73	3.270

Minimum discharge, 2.1 ft^3/s (0.059 m^3/s) Oct. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	3.1	7.2	7.2	21	90	42	42	12	8.0	10	8.4
2	3.7	3.4	6.5	7.2	18	40	76	38	12	20	10	8.0
3	4.0	3.7	6.1	7.6	17	23	156	34	12	10	10	7.6
4	4.0	3.7	5.4	7.2	15	20	78	33	12	7.6	9.6	7.2
5	4.0	4.0	5.4	7.2	172	22	66	34	12	6.9	9.1	7.2
6	4.2	43	4.8	157	217	24	61	29	12	8.0	10	7.6
7	4.2	8.0	4.5	63	68	24	51	28	12	9.6	12	7.6
8	5.1	9.0	6.8	22	79	21	54	32	12	9.1	10	6.9
9	4.2	9.3	7.6	20	46	101	80	29	12	12	9.6	8.0
10	3.7	6.5	5.4	14	34	49	81	29	14	12	9.6	8.4
11	4.0	6.5	5.1	11	28	25	50	21	13	9.1	8.7	9.1
12	3.7	6.1	4.5	10	22	23	48	20	14	9.1	8.0	8.0
13	3.4	4.5	39	8.7	21	19	38	18	12	8.4	8.0	6.9
14	4.2	4.0	213	10	20	17	34	15	9.1	7.2	8.4	6.5
15	4.0	3.7	21	10	20	19	37	13	9.6	6.9	8.4	6.5
16	3.7	4.5	14	10	21	21	38	13	14	6.9	8.4	6.5
17	3.4	6.2	12	10	31	37	48	12	9.6	6.9	69	5.8
18	3.4	9.7	11	12	34	69	38	13	8.4	6.9	30	6.1
19	3.7	5.1	8.7	12	23	523	36	13	9.6	6.9	39	5.8
20	16	4.5	8.0	635	20	93	28	18	8.7	78	20	5.4
21	4.5	4.8	6.9	208	22	74	31	17	8.4	14	14	6.5
22	4.0	4.5	6.5	63	41	91	41	26	8.4	19	12	8.4
23	3.1	4.5	6.1	40	24	61	49	22	8.4	13	12	6.1
24	2.5	60	6.1	31	18	47	36	14	8.7	8.4	12	5.1
25	2.5	52	6.9	25	15	43	29	24	8.4	9.1	12	5.8
26	3.1	195	7.2	23	15	36	32	16	8.0	51	9.6	6.1
27	4.8	170	6.9	21	16	52	73	15	9.6	32	9.1	22
28	4.2	29	7.2	20	15	47	98	14	10	28	8.7	9.6
29	3.7	17	7.6	18	13	37	52	15	10	19	8.4	5.4
30	3.4	12	7.2	20	---	30	66	13	8.4	17	8.0	4.8
31	3.1	---	6.9	34	---	43	---	12	---	13	8.0	---
TOTAL	129.2	697.3	471.5	1544.1	1106	1821	1647	672	318.3	473.0	421.6	223.3
MEAN	4.17	23.2	15.2	49.8	38.1	58.7	54.9	21.7	10.6	15.3	13.6	7.44
MAX	16	195	213	635	217	523	156	42	14	78	69	22
MIN	2.5	3.1	4.5	7.2	13	17	28	12	8.0	6.9	8.0	4.8
AC-FT	256	1380	935	3060	2190	3610	3270	1330	631	938	836	443

CAL YR 1975	TOTAL	8577.6	MEAN 23.5	MAX 1640	MIN 2.5	AC-FT	17010	
WTR YR 1976	TOTAL	9524.3	MEAN 26.0	MAX 635	MIN 2.5	AC-FT	18890	

16093200 ANAHOLA STREAM AT ANAHOLA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 26...	1035	23	5	7	28	2	3.7	4.6	11
MAY 27...	1025	16	4	4	34	0	4.2	5.6	11

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 26...	45	.9	.7	32	0	26	8.1	5.3	16
MAY 27...	41	.8	.5	41	0	34	6.6	5.4	15

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 26...	.1	12	70	.10	.24	.00	60	0
MAY 27...	.1	11	73	.10	.07	.01	100	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 22...	0925	6.6	150	7.5	21.0
JAN. 26...	1035	23	125	6.8	18.0
FEB. 25...	1100	16	140	6.7	18.5
MAR. 23...	1445	76	90	6.5	22.5
APR. 23...	1335	88	94	7.0	19.0
MAY 27...	1025	16	120	7.0	21.0
JUNE 24...	1030	9.3	110	6.5	21.0
JULY 27...	1000	66	80	6.3	20.0
AUG. 30...	1030	8.1	85	6.2	22.0
SEP. 28...	1045	9.2	95	7.0	21.0

16097500 HALAULANI STREAM AT ALTITUDE 400 FT (122 M), NEAR KILAUEA

LOCATION.--Lat 22°10'54", long 159°25'17", Hydrologic Unit 20070000, on left bank 0.5 mi (0.8 km) upstream from confluence with Pohakuhonu Stream and 2.3 mi (3.7 km) south of Kilauea.

DRAINAGE AREA.--1.19 mi^2 (3.08 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 391.8 ft (119.42 m) above mean sea level (by stadia survey).

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--18 years (water years 1959-76), 11.3 ft^3/s (0.320 m^3/s), 8,190 acre-ft/yr (10.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,070 ft^3/s (58.6 m^3/s) Aug. 6, 1959, gage height, 8.30 ft (2.530 m), from rating curve extended above 190 ft^3/s (5.38 m^3/s) on basis of slope-area measurement of peak flow; minimum, 1.8 ft^3/s (0.051 m^3/s) Sept. 6-8, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 580 ft^3/s (16.4 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 20	1830	773	21.9	5.18	1.579
Mar. 19	0430	*1040	29.5	5.95	1.814

Minimum discharge, 2.9 ft^3/s (0.082 m^3/s) Oct. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	3.6	6.9	3.9	5.4	36	19	9.3	7.1	6.4	8.1	4.8
2	3.9	3.9	6.4	4.1	4.9	14	28	8.7	6.6	16	7.4	4.8
3	4.1	3.6	5.7	4.1	4.7	9.5	44	8.4	6.6	7.1	6.6	4.8
4	3.3	3.6	5.3	3.9	4.5	8.2	21	8.4	6.4	6.4	6.2	5.3
5	3.4	8.4	4.9	3.9	74	12	19	8.4	5.9	5.9	5.9	4.8
6	3.9	16	4.9	61	47	14	14	7.6	5.9	5.9	8.1	4.4
7	7.3	9.9	4.8	29	17	14	12	7.4	5.7	6.2	7.1	4.4
8	4.2	11	5.3	11	16	17	18	7.6	5.7	6.2	6.2	4.2
9	3.2	15	5.5	12	9.8	41	28	6.6	5.7	8.4	5.7	6.2
10	3.2	9.6	5.1	14	8.1	19	25	6.2	7.1	6.9	5.9	4.9
11	3.1	12	4.6	8.7	7.6	12	15	6.2	5.9	6.2	5.7	5.3
12	3.1	9.6	4.2	7.0	6.9	10	16	5.9	6.4	5.7	5.7	4.8
13	3.7	7.3	20	6.1	6.3	8.4	14	5.7	5.7	5.7	6.2	4.9
14	4.2	6.4	41	8.2	5.7	7.2	11	5.5	5.5	5.5	5.9	4.4
15	3.6	6.6	9.3	6.4	6.0	6.9	11	5.3	6.4	5.7	5.5	5.1
16	3.2	7.1	7.4	7.2	7.5	25	14	5.9	7.6	5.5	5.3	4.6
17	3.2	9.9	6.6	5.4	15	62	12	5.5	5.9	5.9	20	4.4
18	3.2	9.0	5.9	5.4	10	62	9.9	5.5	6.2	5.5	12	4.8
19	4.9	6.8	5.3	19	7.7	140	12	5.7	7.6	6.4	16	4.4
20	20	6.8	5.1	125	7.1	23	10	9.0	5.9	36	11	4.2
21	5.1	6.4	4.8	43	6.4	20	17	9.0	5.7	8.4	8.1	4.6
22	4.1	6.2	4.6	20	17	19	19	14	5.5	11	7.6	9.6
23	3.7	5.9	4.4	12	7.4	17	22	17	6.2	7.4	6.6	4.9
24	3.7	35	4.4	9.2	6.4	12	15	12	6.2	6.4	6.2	4.6
25	3.7	18	4.2	7.7	5.8	13	11	14	5.7	7.9	5.7	4.8
26	4.6	43	4.1	6.7	20	13	9.6	11	6.2	16	5.5	5.5
27	4.9	41	4.2	6.1	10	20	20	11	6.6	16	5.5	8.4
28	4.2	14	4.2	5.6	7.6	16	20	9.0	7.9	15	5.3	5.7
29	3.7	10	4.1	5.2	6.6	12	13	9.3	6.4	11	5.5	4.9
30	3.6	8.1	3.9	5.3	---	12	12	7.9	5.9	13	5.1	4.6
31	3.6	---	3.9	8.0	---	18	---	7.4	---	9.3	4.9	---
TOTAL	137.7	353.7	211.0	474.1	358.4	713.2	511.5	260.4	188.1	284.9	226.5	153.1
MEAN	4.44	11.8	6.81	15.3	12.4	23.0	17.1	8.40	6.27	9.19	7.31	5.10
MAX	20	43	41	125	74	140	44	17	7.9	36	20	9.6
MIN	3.1	3.6	3.9	3.9	4.5	6.9	9.6	5.3	5.5	5.5	4.9	4.2
AC-FT	273	702	419	940	711	1410	1010	517	373	565	449	304

CAL YR 1975 TOTAL 3425.5 MEAN 9.38 MAX 245 MIN 3.1 AC-FT 6790
WTR YR 1976 TOTAL 3872.6 MEAN 10.6 MAX 140 MIN 3.1 AC-FT 7680

16097500 HALAULANI STREAM AT ALTITUDE 400 FT (122 M), NEAR KILAUEA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN.									
13...	1200	6.2	5	2	30	0	7.9	4.9	6.9
MAY									
03...	1425	8.2	2	1	31	1	4.3	5.0	6.8

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN.									
13...	33	.6	.3	41	0	34	4.1	1.9	10
MAY									
03...	32	.5	.3	37	0	30	47	1.5	9.9

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN.								
13...	.0	16	64	.09	.00	.01	90	10
MAY								
03...	.1	16	62	.08	.01	.00	140	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN.						JUNE					
13...	1200	6.2	110	7.2	19.5	23...	1030	6.6	110	6.2	22.0
FEB.						AUG.					
27...	1045	9.5	84	6.5	18.0	06...	1315	9.0	120	6.4	23.0
MAY											
03...	1425	8.2	95	6.1	20.5						

16100000 HANALEI TUNNEL OUTLET NEAR LIHUE

LOCATION.--Lat 22°05'02", long 159°27'50", Hydrologic Unit 20070000, on right bank at outlet of Hanalei tunnel, 2.2 mi (3.5 km) downstream from intake on Kaapoko Stream, and 9.4 mi (15.1 km) northwest of Lihue.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1932 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 1,210 ft (369 m), from tunnel-profile.

REMARKS.--Records good. Tunnel diverts water from Kaapoko Stream and Hanalei River into North Branch of North Fork Wailua River, from which it is later diverted for irrigation in vicinity of Lihue and Kapaa. Records do not include water by-passing at times above station.

AVERAGE DISCHARGE.--44 years, 27.4 ft^3/s (0.776 m^3/s), 19,850 acre-ft/yr (24.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 99 ft^3/s (2.80 m^3/s) Apr. 11, 25, 26, 1942; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	23	20	18	20	27	44	29	25	29	25	21
2	22	25	19	19	18	17	48	30	24	37	26	21
3	21	22	19	21	17	16	52	29	23	27	26	21
4	22	26	18	20	19	17	42	28	23	25	23	20
5	25	30	17	16	44	19	38	27	23	23	23	20
6	29	38	17	37	37	18	37	27	23	25	27	21
7	41	36	17	36	26	16	33	28	23	24	27	20
8	28	41	21	30	22	17	44	28	25	27	26	26
9	24	39	17	27	18	35	45	24	26	32	23	28
10	23	36	17	29	18	21	51	23	30	25	24	27
11	22	40	17	23	17	19	34	23	27	23	23	32
12	22	33	16	20	16	20	48	24	32	22	23	25
13	23	29	26	19	17	23	44	23	25	22	24	22
14	29	27	27	19	17	22	40	23	23	21	21	22
15	26	30	20	25	20	22	38	23	32	21	20	22
16	23	30	19	30	25	27	41	36	30	21	19	21
17	22	29	19	21	27	42	34	25	26	25	31	21
18	26	30	18	21	21	51	43	28	28	22	26	27
19	34	26	17	19	20	48	44	29	28	28	39	21
20	43	24	16	23	17	30	33	36	24	47	28	20
21	30	20	16	28	17	38	37	34	24	27	27	26
22	27	20	16	23	20	37	37	38	24	33	25	27
23	25	24	16	19	17	34	43	38	27	27	22	21
24	27	36	16	18	16	27	33	32	25	25	22	20
25	29	37	16	17	16	32	32	36	23	28	22	20
26	37	42	16	17	16	41	30	30	27	38	23	21
27	34	36	16	17	18	50	46	37	28	37	23	31
28	28	25	16	17	16	40	46	30	26	33	21	21
29	25	22	16	17	15	32	39	32	23	27	23	19
30	25	21	16	27	---	34	34	27	25	30	21	19
31	23	---	16	28	---	49	---	25	---	25	20	---
TOTAL	835	897	553	701	587	921	1210	902	772	856	753	683
MEAN	26.9	29.9	17.8	22.6	20.2	29.7	40.3	29.1	25.7	27.6	24.3	22.8
MAX	43	42	27	37	44	51	52	38	32	47	39	32
MIN	20	20	16	16	15	16	30	23	23	21	19	19
AC-FT	1660	1780	1100	1390	1160	1830	2400	1790	1530	1700	1490	1350

CAL YR 1975 TOTAL 9341.10 MEAN 25.6 MAX 55 MIN .80 AC-FT 18530
WTR YR 1976 TOTAL 9670 MEAN 26.4 MAX 52 MIN 15 AC-FT 19180

16100000 HANALEI TUNNEL OUTLET NEAR LIHUE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN.									
27...	1135	17	1	0	30	0	5.0	4.2	4.9
MAY									
28...	1130	29	8	2	26	1	4.1	3.9	6.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN.									
27...	26	.4	.6	38	0	31	.8	.9	7.3
MAY									
28...	34	.5	.3	31	0	25	1.2	1.5	7.9

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN.								
27...	--	--	--	--	.01	.00	0	0
MAY								
28...	.1	14	53	.07	.00	.01	110	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV.					
25...	1200	41	62	7.1	17.5
DEC.					
23...	1200	16	80	7.3	17.0
JAN.					
27...	1135	17	82	7.9	15.5
27...	1200	17	82	7.9	15.5
FEB.					
24...	1035	16	76	7.1	16.5
MAR.					
29...	1400	30	75	6.7	17.5
APR.					
27...	1120	33	57	7.2	17.0
MAY					
28...	1130	29	80	7.6	17.5
JUNE					
28...	1115	29	70	6.5	18.5
JULY					
27...	1100	34	63	6.2	18.5
AUG.					
31...	1110	20	65	6.0	21.0
SEP.					
29...	1120	19	77	7.6	18.5

16103000 HANALEI RIVER NEAR HANALEI

LOCATION.--Lat 22°11'31", long 159°27'57", Hydrologic Unit 20070000, on right bank 2.6 mi (4.2 km) southeast of Hanalei School and 4.9 mi (7.9 km) upstream from mouth.

DRAINAGE AREA.--19.1 mi^2 (49.5 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS (WATER YEARS).--WSP 1937: Drainage area. WSP 2137: 1962(M), 1963-65(P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 35.8 ft (10.91 m) above mean sea level (by stadia survey). Jan. 1, 1912, to Nov. 20, 1919, nonrecording gage at site 0.2 mi (0.3 km) upstream at different datum. Jan. 26 to Dec. 26, 1962, crest-stage gage at present site and datum.

REMARKS.--Records good. Since 1925, Hanalei tunnel (see sta 16100000) has diverted from Hanalei River and its tributary Kaapoko Stream above station to North Branch of North Fork Wailua River for irrigation. China ditch above station diverts for irrigation of taro in vicinity of Hana.

AVERAGE DISCHARGE (since diversion to Hanalei tunnel).--13 years (water years 1964-76), 224 ft^3/s (6.344 m^3/s) 162,300 acre-ft/yr (200 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,900 ft^3/s (705 m^3/s), Apr. 19, 1974, gage height, 14.28 ft (4.353 m), from rating curve extended above 9,600 ft^3/s (272 m^3/s); minimum, 24 ft^3/s (0.68 m^3/s) Sept. 30, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,860 ft^3/s (194 m^3/s) Feb. 5, gage height, 8.80 ft (2.682 m), no peak above base of 9,200 ft^3/s (261 m^3/s); minimum, 24 ft^3/s (0.68 m^3/s) Oct. 1, 2, 5, 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	32	82	43	90	599	763	200	84	91	76	48
2	25	32	73	50	63	174	750	160	75	225	72	47
3	28	31	66	57	58	105	1120	140	72	88	71	46
4	31	40	60	51	56	90	475	152	70	73	65	47
5	25	58	56	42	2590	113	365	129	66	63	62	45
6	35	195	52	1200	1590	102	334	113	64	61	61	46
7	121	80	50	876	314	103	253	102	61	67	82	44
8	49	162	98	323	238	141	462	130	64	64	66	51
9	28	195	57	211	149	1680	637	88	67	117	60	77
10	28	100	50	285	123	264	672	83	133	75	63	64
11	31	149	46	144	107	149	274	80	76	60	60	115
12	26	76	44	98	96	123	338	78	184	57	60	71
13	35	57	582	79	96	98	293	76	81	55	80	54
14	59	50	454	73	84	84	202	73	62	54	84	48
15	34	49	123	424	86	79	204	72	107	53	61	54
16	28	61	75	439	184	370	200	116	149	54	58	50
17	30	53	72	111	391	1150	160	83	75	59	224	46
18	33	59	60	88	188	1190	250	102	86	54	148	64
19	105	44	54	93	133	2100	540	104	101	84	439	47
20	1120	47	51	1030	120	274	250	177	69	739	125	44
21	75	44	49	697	150	353	400	184	63	112	100	64
22	51	51	47	242	350	487	520	312	60	148	75	95
23	43	80	44	137	150	322	700	274	75	90	62	50
24	42	848	43	102	120	202	230	194	67	75	58	46
25	38	849	41	84	110	353	170	287	60	84	55	44
26	74	1630	40	73	98	369	150	151	68	186	61	50
27	59	1100	39	67	102	821	400	292	85	203	63	99
28	43	215	55	62	143	298	800	144	78	173	60	59
29	37	135	40	58	84	209	400	176	63	114	54	48
30	35	98	40	116	---	257	450	107	63	140	54	45
31	33	---	40	316	---	881	---	102	---	115	49	---
TOTAL	2425	6620	2683	7671	8063	13540	12762	4481	2428	3633	2708	1708
MEAN	78.2	221	86.5	247	278	437	425	145	80.9	117	87.4	56.9
MAX	1120	1630	582	1200	2590	2100	1120	312	184	739	439	115
MIN	24	31	39	42	56	79	150	72	60	53	49	44
AC-FT	4810	13130	5320	15220	15990	26860	25310	8890	4820	7210	5370	3390

CAL YR 1975 TOTAL 58161 MEAN 159 MAX 3130 MIN 24 AC-FT 115400
WTR YR 1976 TOTAL 68722 MEAN 188 MAX 2590 MIN 24 AC-FT 136300

16103000 HANALEI RIVER NEAR HANALEI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN.									
05...	1030	44	5	2	34	0	5.2	5.2	6.1
MAY									
03...	1030	134	0	0	32	0	4.8	4.8	5.8

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN.									
05...	27	.5	.5	45	0	37	4.5	2.6	7.5
MAY									
03...	28	.4	.4	44	0	36	44	1.2	8.1

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN.								
05...	.0	17	66	.09	.00	.01	60	0
MAY								
03...	.0	15	62	.08	.00	.00	100	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN.					
05...	1030	44	99	7.2	19.0
FEB.					
26...	1005	81	97	6.1	18.5
MAY					
03...	1030	134	95	6.2	19.5
JUNE					
22...	1005	62	110	7.1	20.0
AUG.					
05...	0955	63	100	6.5	21.0
SEP.					
24...	1240	45	102	7.3	22.5

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 (2.4 km) upstream from Wainiha powerplant intake, and 6.0 mi (9.6 km) southwest of Hanalei.

DRAINAGE AREA.--10.2 mi² (26.4 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 960 ft (293 m), from topographic map.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--21 years (water years, 1953-55, 1959-76), 142 ft³/s (4.021 m³/s), 102,900 acre-ft/yr (127 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,100 ft³/s (796 m³/s) Apr. 19, 1974, gage height, 9.47 ft (2.886 m), from rating curve extended above 1,100 ft³/s (31.2 m³/s) on basis of slope-area measurement at gage height 7.72 ft (2.353 m); minimum, 34.8 ft³/s (0.99 m³/s) Feb. 12, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 17, 1956, which destroyed the station, reached a stage of 14.1 ft (4.30 m), from floodmarks, discharge, about 40,000 ft³/s (1,130 m³/s), from unit-discharge study.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) Nov. 26, gage height, 4.98 ft (1.518 m), from rating curve extended as explained above, no peak above base of 3,600 ft³/s (102 m³/s); minimum, 43 ft³/s (1.22 m³/s) Dec. 25-31.

NOTE.--Peak discharge of 4,820 ft³/s (136 m³/s) on Dec. 21, 1974 (2330), gage height, 5.65 ft (1.722 m) should have been included in the HI-75-1 report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	46	56	62	100	235	564	102	71	175	69	54
2	54	52	54	88	68	90	583	86	67	286	67	53
3	54	45	55	100	57	64	734	84	65	114	71	56
4	56	61	53	74	69	57	265	95	64	101	62	53
5	73	148	50	50	755	79	250	83	70	78	61	53
6	104	241	49	1190	1020	65	228	79	73	82	102	56
7	297	150	47	915	172	63	180	68	68	81	92	54
8	76	217	56	247	114	72	510	83	76	110	83	75
9	53	218	50	180	74	960	475	63	95	165	66	107
10	53	127	50	259	63	168	558	61	154	88	75	114
11	51	190	48	101	64	94	165	60	92	77	68	195
12	48	82	46	69	56	82	247	66	82	72	74	101
13	48	60	235	60	76	67	175	63	68	71	102	69
14	100	51	279	56	74	60	138	61	68	65	87	61
15	60	82	74	121	104	56	122	64	163	71	73	73
16	51	83	57	202	265	92	126	193	152	72	67	65
17	48	60	74	78	372	300	95	79	89	104	160	56
18	65	75	55	63	175	654	173	105	168	78	114	74
19	188	53	50	58	127	385	336	118	158	195	372	54
20	364	53	48	102	78	105	135	210	90	606	111	53
21	61	56	46	182	90	185	235	188	79	104	116	90
22	51	64	46	97	190	276	324	283	74	205	86	110
23	48	137	45	66	87	200	395	228	97	110	64	57
24	54	546	45	56	76	129	156	129	90	80	60	53
25	79	344	44	53	65	158	105	183	76	100	59	53
26	163	924	43	51	63	286	87	124	94	205	83	74
27	102	606	43	49	55	630	297	193	140	247	73	187
28	60	98	45	49	54	218	450	135	110	152	60	77
29	51	74	44	48	53	127	205	148	80	89	75	58
30	49	62	45	238	---	168	218	84	94	110	66	53
31	46	---	44	279	---	741	---	75	---	77	56	---
TOTAL	2653	5005	1976	5243	4616	6866	8531	3593	2867	4170	2774	2288
MEAN	85.6	167	63.7	169	159	221	284	116	95.6	135	89.5	76.3
MAX	364	924	279	1190	1020	960	734	283	168	606	372	195
MIN	46	45	43	48	53	56	87	60	64	65	56	53
AC-FT	5260	9930	3920	10400	9160	13620	16920	7130	5690	8270	5500	4540

CAL YR 1975 TOTAL 42283 MEAN 116 MAX 1600 MIN 43 AC-FT 83870
WTR YR 1976 TOTAL 50582 MEAN 138 MAX 1190 MIN 43 AC-FT 100300

16108000 WAINIHA RIVER NEAR HANALEI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
FEB.									
12...	1200	57	5	0	21	0	3.3	3.1	4.0
MAY									
17...	1100	70	10	6	17	0	3.2	2.3	3.5

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
FEB.									
12...	28	.4	.8	28	0	23	36	1.5	4.4
MAY									
17...	30	.4	.4	23	0	19	5.8	1.8	5.2

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
FEB.								
12...	.0	15	46	.06	.00	.00	30	0
MAY								
17...	.1	14	42	.06	.00	.00	60	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
FEB.					
12...	1200	57	66	6.1	18.0
MAY					
17...	1100	70	56	6.8	16.0
JULY					
23...	1130	137	58	5.9	18.0

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 (43 m) upstream from Mauka ditch intake and Right Branch, and 4.5 mi (7.2 km) northeast of Wahiawa.

DRAINAGE AREA.--1.38 mi^2 (3.57 km^2).

WATER-DISCHARGE RECORDS

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 (FISCAL YEARS).--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. Altitude of gage is 1,150 ft (351 m), from topographic map.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--53 years (water years, 1914-24, 1927-52, 1961-76), 16.7 ft^3/s (0.473 m^3/s), 12,100 acre-ft/yr (14.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,490 ft^3/s (155 m^3/s) Jan. 1, 1933, gage height, 11.7 ft (3.57 m), from floodmarks, from rating curve extended above 68 ft^3/s (1.93 m^3/s) by test of model of station site; maximum gage height, 12.46 ft (3.798 m) Apr. 15, 1963; minimum, 0.12 ft^3/s (0.003 m^3/s) Mar. 2, 13, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,360 ft^3/s (38.5 m^3/s), Oct. 19, gage height 6.36 ft (1.939 m) from rating curve extended above 82 ft^3/s (2.32 m^3/s) on basis of slope-area measurement at gage height 12.46 ft (3.798 m), no other peak above base of 1,300 ft^3/s (36.8 m^3/s); minimum, 0.49 ft^3/s (0.014 m^3/s) Oct. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	3.6	9.5	1.6	1.6	17	12	11	7.8	28	5.5	3.9
2	.72	2.5	16	1.6	1.2	4.9	23	8.8	6.4	29	8.4	5.4
3	.56	1.3	48	2.5	1.0	3.2	36	16	5.7	10	4.6	7.9
4	1.3	1.4	6.2	1.5	.95	32	11	16	6.2	5.9	4.0	2.5
5	1.3	1.7	6.4	9.5	7.6	13	12	13	6.3	4.6	3.6	1.9
6	30	8.5	4.4	20	63	4.6	8.3	6.8	4.7	14	19	1.6
7	143	9.9	3.8	33	26	4.1	7.3	6.4	9.9	10	4.1	1.6
8	7.7	17	3.8	7.6	32	20	60	5.5	5.5	4.4	3.4	1.4
9	4.2	10	3.5	26	7.5	44	57	4.9	8.1	4.4	3.4	7.4
10	2.6	8.3	3.1	38	5.0	11	33	4.6	23	18	3.5	3.4
11	2.2	24	2.8	6.8	3.4	5.3	13	17	27	8.2	3.1	2.4
12	2.3	4.7	26	4.9	2.6	4.6	24	16	6.2	4.2	4.7	7.5
13	1.5	2.8	30	3.5	2.9	4.0	15	4.9	5.1	3.8	14	2.3
14	1.3	2.3	5.1	6.0	4.7	3.6	19	4.2	4.2	3.4	3.2	1.6
15	1.5	5.3	28	3.0	7.3	3.4	13	4.1	17	3.2	2.6	1.7
16	1.2	10	5.2	19	21	10	38	10	15	3.0	2.4	1.3
17	1.0	4.3	15	3.5	10	95	98	10	5.1	4.0	2.3	4.6
18	1.9	2.4	4.4	2.8	4.2	102	70	6.2	4.9	4.4	2.2	4.3
19	92	1.9	3.6	2.4	3.8	20	27	15	12	14	58	1.5
20	11	8.7	3.1	2.2	6.7	9.2	14	20	4.6	43	4.4	1.3
21	3.5	2.7	2.8	2.4	5.1	25	16	19	14	11	2.8	5.9
22	2.3	15	2.6	2.0	15	17	33	27	9.0	15	2.4	19
23	1.8	5.9	2.5	1.8	23	76	25	33	26	6.8	2.2	2.1
24	3.1	46	2.4	1.6	6.6	11	20	38	32	45	2.1	2.3
25	2.3	115	2.2	1.6	4.1	35	13	29	8.5	54	2.1	2.0
26	2.8	59	2.1	1.4	7.6	60	9.2	36	5.9	25	4.4	5.4
27	2.3	63	1.9	1.3	3.8	58	8.3	18	7.8	21	9.5	8.6
28	1.6	11	1.9	1.3	18	26	61	11	14	15	2.4	14
29	1.3	7.6	1.9	1.2	4.6	12	48	20	5.9	7.6	5.3	6.5
30	1.3	5.7	1.8	1.3	---	13	21	10	6.7	18	2.4	2.3
31	3.0	---	1.6	4.5	---	39	---	7.8	---	5.7	4.9	---
TOTAL	333.68	461.5	251.6	215.8	300.25	782.9	845.1	449.2	314.5	443.6	196.9	133.6
MEAN	10.8	15.4	8.12	6.96	10.4	25.3	28.2	14.5	10.5	14.3	6.35	4.45
MAX	143	115	48	38	63	102	98	38	32	54	58	19
MIN	.56	1.3	1.6	1.2	.95	3.2	7.3	4.1	4.2	3.0	2.1	1.3
AC-FT	662	915	499	428	596	1550	1680	891	624	880	391	265

CAL YR 1975 TOTAL 4909.05 MEAN 13.4 MAX 143 MIN .46 AC-FT 9740
WTR YR 1976 TOTAL 4728.63 MEAN 12.9 MAX 143 MIN .56 AC-FT 9380

HAWAII, ISLAND OF OAHU

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968, 1970 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 12...	1400	2.6	5	2	9	0	1.0	1.6	5.5
MAY 24...	1430	84	30	120	4	3	.7	.6	4.8

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 12...	56	.8	.3	12	0	10	3.8	1.4	8.4
MAY 24...	68	1.0	.5	2	0	2	8.0	3.1	8.4

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 12...	.0	8.6	33	.04	.01	.00	20	0
MAY 24...	.0	1.0	20	.03	.00	.00	80	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC 12...	1400	2.6	51	6.7	17.5
JAN 21...	1305	2.9	50	6.7	19.0
MAR 09...	1320	24	26	5.6	18.0
APR 13...	1350	12	54	6.8	18.5
MAY 24...	1430	84	41	5.6	18.0
JUL 13...	1535	3.8	52	6.3	22.5
AUG 25...	1320	2.2	51	5.9	23.5

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 (3.7 km) east of Wahiawa Post Office, and 7.1 mi (11.4 km) north of Waipahu.

DRAINAGE AREA.--4.04 mi² (10.46 km²).

WATER-DISCHARGE RECORDS

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 (262.235 m) above mean sea level. July 1, 1963, to June 30, 1964, crest-stage gage at same site and datum.

REMARKS.--Records good. Prior to 1960, diversions from reservoirs above station for use at Schofield Barracks.

AVERAGE DISCHARGE (since termination of diversions to Schofield Barracks).--14 years (water years, 1961-62, 1965-76), 22.7 ft³/s (0.643 m³/s), 16,450 acre-ft/yr (20.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,460 ft³/s (155 m³/s) Apr. 15, 1963, gage height, 11.33 ft (3.453 m), from rating curve extended above 1,100 ft³/s (31.2 m³/s) on basis of computation of peak flow over dam; no flow Dec. 24, 25, 27, 28, 1960, Feb. 23, 24, 1963.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 870 ft³/s (24.6 m³/s) Oct. 19, gage height, 4.68 ft (1.426 m), no peak above base of 1,100 ft³/s (31.2 m³/s); minimum, 0.52 ft³/s (0.015 m³/s) Oct. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	.71	9.3	1.5	3.0	26	25	21	11	19	9.4	8.4
2	.83	1.2	15	1.5	1.3	15	40	17	10	69	8.6	4.1
3	.61	.89	73	2.2	.89	6.0	70	21	9.3	19	8.0	13
4	.56	.83	10	2.2	.77	20	25	29	9.6	11	7.0	8.1
5	2.8	.89	8.6	2.0	2.5	29	30	29	11	7.3	6.5	3.7
6	15	6.9	7.0	9.3	140	7.9	20	13	7.9	6.8	12	3.0
7	135	6.0	5.5	52	99	5.5	16	12	10	24	7.3	2.8
8	16	7.9	5.0	7.9	73	27	130	11	7.9	7.3	5.6	2.5
9	4.2	18	4.8	11	14	49	100	10	12	7.3	5.5	11
10	2.2	6.8	4.2	29	7.9	24	50	9.3	48	30	5.3	6.7
11	1.3	14	3.8	6.5	6.0	7.3	30	22	28	28	5.4	5.4
12	1.0	7.9	3.6	5.7	4.6	5.5	60	32	10	9.3	7.7	10
13	.96	3.0	39	3.4	3.8	4.8	35	11	7.6	7.0	18	6.0
14	.77	1.9	7.9	2.4	6.2	4.2	50	8.9	6.8	5.7	6.6	2.9
15	.77	1.6	26	2.5	9.6	3.8	30	7.9	18	5.8	4.6	2.6
16	.71	2.5	5.7	17	12	5.0	60	16	25	5.1	4.0	2.5
17	.71	2.8	15	5.0	10	115	200	21	10	5.7	3.9	2.5
18	1.4	1.6	6.0	2.7	6.8	127	100	13	8.9	7.2	3.6	6.4
19	123	1.2	4.0	2.0	4.4	29	45	29	41	10	34	3.2
20	25	4.4	3.4	1.6	3.8	16	30	31	10	73	14	2.1
21	5.5	4.8	2.8	1.4	7.3	23	62	79	12	28	5.1	1.7
22	3.4	2.0	2.7	1.3	49	29	127	61	10	56	3.9	20
23	2.0	4.6	2.4	1.3	25	119	60	58	11	16	3.3	3.9
24	1.5	75	2.2	1.1	13	19	105	29	11	52	3.0	2.2
25	1.2	280	2.0	.96	6.2	89	34	31	14	110	2.9	1.7
26	1.9	137	1.9	.89	8.6	129	24	29	7.6	27	16	5.0
27	1.6	182	1.9	.89	7.9	79	20	30	7.9	46	27	5.5
28	1.4	30	1.8	.77	34	28	79	16	21	34	6.2	41
29	1.1	17	3.2	.77	15	24	111	26	8.9	18	7.9	13
30	.89	12	1.6	.83	---	36	39	15	6.5	23	4.7	4.8
31	.83	---	1.5	2.5	---	50	---	12	---	11	3.4	---
TOTAL	354.97	835.32	280.8	180.11	575.56	1152.0	1807	750.1	411.9	778.5	260.4	205.7
MEAN	11.5	27.8	9.06	5.81	19.8	37.2	60.2	24.2	13.7	25.1	8.40	6.86
MAX	135	280	73	52	140	129	200	79	48	110	34	41
MIN	.56	.71	1.5	.77	.77	3.8	16	7.9	6.5	5.1	2.9	1.7
AC-FT	704	1660	557	357	1140	2280	3580	1490	817	1540	517	408

CAL YR 1975 TOTAL 5688.90 MEAN 15.6 MAX 280 MIN .51 AC-FT 11280
WTR YR 1976 TOTAL 7592.36 MEAN 20.7 MAX 280 MIN .56 AC-FT 15060

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968, 1970 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 21...	1230	2.9	40	10	9	2	1.4	1.4	5.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 21...	55	.8	.5	9	0	7	5.7	3.2	8.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 21...	.0	4.5	30	.04	.04	.00	200	40

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC					
21...	1230	2.9	54	6.4	19.0
FEB					
05...	1115	1.1	65	6.0	20.0
MAR					
08...	1330	8.6	51	5.8	22.0
08...	1500	129	54	5.9	20.5
12...	1630	5.7	52	5.7	19.5
APR					
21...	1715	31	57	6.1	21.0
MAY					
27...	1400	34	50	6.2	20.0
JUL					
14...	1500	5.5	56	6.0	23.0
AUG					
26...	1130	22	63	6.0	22.5

HAWAII, ISLAND OF OAHU

16210900 POAMOHO TUNNEL NEAR WAHIAWA

LOCATION.--Lat 21°31'12", long 157°58'51", Hydrologic Unit 20060000, on left bank 5 ft (2 m) downstream from tunnel outlet and 3.6 mi (5.8 km) northeast of Wahiawa Post Office.

PERIOD OF RECORD.--July 1958 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 1,120 ft (341 m), from topographic map.

REMARKS.--Records fair. Tunnel diverts from Poamoho Stream to North Fork Kaukonahua Stream to augment storage in Wahiawa Reservoir. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--18 years, 4.92 ft^3/s (0.139 m^3/s), 3,560 acre-ft/yr (4.39 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 265 ft^3/s (7.50 m^3/s) Mar. 16, 1968; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	.62	4.0	.74	1.6	3.8	8.4	5.9	2.9	1.4	1.5	1.2
2	.34	.38	6.4	.83	.88	4.0	10	5.0	2.4	8.7	1.4	.83
3	.21	.34	17	1.3	.66	2.2	13	5.1	2.3	2.1	1.8	.54
4	.15	.34	5.6	.88	.54	4.0	6.1	5.3	2.7	1.7	1.1	.54
5	.10	.41	4.7	3.4	6.0	8.4	5.3	7.4	2.9	1.2	1.0	.47
6	.27	.54	3.5	8.7	20	3.2	4.5	4.3	2.1	1.1	1.2	.36
7	31	2.2	2.8	17	17	2.3	4.2	3.8	3.1	1.9	1.4	.32
8	3.7	6.5	2.8	4.4	16	5.0	12	3.6	2.2	1.3	.88	.27
9	1.1	3.0	2.6	5.7	6.8	13	14	3.2	2.0	1.1	.88	.60
10	.62	1.3	2.1	12	5.9	8.4	13	3.1	5.0	2.2	.83	1.1
11	.38	5.7	1.8	3.9	3.8	3.5	6.2	4.0	6.0	2.1	.78	1.5
12	.27	2.8	2.9	2.9	3.0	2.8	9.7	4.7	2.9	1.5	.98	1.3
13	.19	1.1	20	1.9	2.4	2.3	12	3.2	1.9	1.1	2.0	1.3
14	.16	.66	6.2	2.4	2.2	2.1	8.2	2.6	1.7	.88	1.3	.50
15	.16	.50	11	2.0	3.4	1.8	8.0	2.4	1.7	.83	.78	.34
16	.11	.62	4.3	9.3	5.1	2.0	12	3.2	2.1	.78	.62	.27
17	.09	1.3	4.8	2.9	4.4	14	18	4.3	1.8	.74	.54	.25
18	.09	.74	3.0	1.8	2.4	20	11	3.3	1.6	.88	1.1	.47
19	39	.44	2.3	1.4	4.7	13	10	3.2	2.8	1.9	10	.70
20	14	.44	1.9	1.2	3.7	5.4	9.3	5.2	1.8	14	2.6	.34
21	3.2	.78	1.7	1.1	4.4	5.3	8.9	6.2	1.6	3.2	1.1	.23
22	1.9	.78	1.5	1.1	9.4	7.1	11	4.0	1.7	4.0	.78	1.1
23	1.4	1.6	1.4	.93	8.4	11	10	6.6	6.4	2.7	.62	.93
24	3.0	23	1.3	.88	4.5	5.6	9.5	7.9	9.4	3.1	.50	.38
25	1.8	35	1.2	.78	3.0	7.0	9.2	14	3.9	16	.47	.23
26	.98	21	1.1	.70	3.5	15	6.2	6.7	1.9	4.8	.78	.93
27	.70	24	.98	.66	3.9	15	5.4	5.1	1.7	7.0	2.4	1.0
28	.57	11	.93	.62	6.0	16	9.6	3.4	1.5	3.3	1.0	4.9
29	.41	6.6	.93	.62	4.4	9.2	12	3.4	1.4	2.6	.74	2.8
30	.36	4.8	.88	.70	---	7.1	9.7	3.0	1.6	4.6	2.0	1.0
31	.34	---	.83	3.0	---	13	---	2.8	---	2.2	.83	---
TOTAL	107.07	158.49	122.45	95.74	157.98	232.5	286.4	145.9	83.0	100.91	43.91	26.70
MEAN	3.45	5.28	3.95	3.09	5.45	7.50	9.55	4.71	2.77	3.26	1.42	.89
MAX	39	35	20	17	20	20	18	14	9.4	16	10	4.9
MIN	.09	.34	.83	.62	.54	1.8	4.2	2.4	1.4	.74	.47	.23
AC-FT	212	314	243	190	313	461	568	289	165	200	87	53

CAL YR 1975 TOTAL 1687.35 MEAN 4.62 MAX 39 MIN .05 AC-FT 3350
WTR YR 1976 TOTAL 1561.05 MEAN 4.27 MAX 39 MIN .09 AC-FT 3100

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 (2.4 km) northeast of Kaneaki Heiau and 3.4 mi (5.5 km) northeast of Makaha.

DRAINAGE AREA.--2.31 mi^2 (5.98 km^2).

WATER-DISCHARGE RECORDS

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 (286.097 m) above mean sea level (Waianae Plantation bench mark).

REMARKS.--Records fair. Wells and water-development tunnels in the vicinity and above the station may affect low-flow records. Recording rain gage located at station.

AVERAGE DISCHARGE.--17 years, 1.98 ft^3/s (0.056 m^3/s), 1,430 acre-ft/yr (1.76 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,170 ft^3/s (33.1 m^3/s) Mar. 13, 1962, gage height, 6.50 ft (1.981 m), from floodmarks, from rating curve extended above 51 ft^3/s (1.44 m^3/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since at least 1953, about 7.8 ft (2.38 m) Nov. 24, 1954, from information by local resident. Discharge, about 1,700 ft^3/s (48.1 m^3/s).

EXTREMES FOR CURRENT YEAR: Maximum discharge, 975 ft^3/s (27.6 m^3/s) Feb. 7, gage height, 5.93 ft (1.807 m), from rating curve extended as explained above, no other peak above base of 200 ft^3/s (5.66 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	.18	.18	1.1	2.3	1.5	3.9	.59	.31	.49	.10
2		0	.05	.18	.68	3.2	2.1	2.8	.54	.27	.44	.10
3		0	0	.15	.56	1.6	2.0	2.2	.54	.27	.39	.09
4		0	.02	.15	.45	1.4	1.4	1.9	.54	.27	.31	.07
5		0	.21	.15	1.1	1.6	1.2	1.9	.59	.27	.27	.07
6		0	.11	.18	16	1.3	1.1	1.6	.54	.23	.27	.07
7		0	.13	.15	283	1.0	1.0	1.5	.54	.23	.23	.06
8		0	.31	.15	95	.94	2.1	1.3	.49	.20	.20	.05
9		0	.24	.15	21	28	2.1	1.3	.49	.20	.20	.04
10		0	.27	.13	12	14	1.5	1.2	.49	.20	.17	.04
11		0	.31	.13	6.2	6.8	1.3	1.1	.49	.20	.17	.04
12		0	.27	.11	4.7	4.7	1.1	1.1	.44	.17	.14	.04
13		0	.21	.13	3.9	3.7	1.0	1.1	.44	.17	.14	.03
14		0	.24	.13	3.3	3.0	.94	1.0	.44	.17	.12	.03
15		0	.24	.15	2.8	2.5	.88	.94	.39	.15	.12	.03
16		0	.21	.35	2.8	2.2	.88	.88	.39	.16	.12	.03
17		0	.18	.31	2.6	2.0	.88	.88	.39	.16	.20	.08
18		0	.24	.40	2.1	3.7	1.3	.82	.35	.16	.17	.04
19		0	.39	.40	1.8	3.2	1.1	.76	.35	.16	.35	.03
20		0	.40	.40	1.5	2.1	.94	.76	.35	.17	.54	.03
21		0	.35	.40	1.3	2.0	.82	1.0	.39	.17	.49	.05
22		0	.31	.35	1.3	2.3	.76	1.1	.44	.27	.44	.05
23		0	.31	.31	1.3	2.0	.88	1.1	.44	.32	.39	.05
24		1.6	.27	.27	1.2	1.8	1.1	.88	.44	.36	.35	.06
25		24	.24	.24	1.1	1.5	.88	.82	.39	4.0	.31	.07
26		16	.24	.21	1.0	1.5	1.8	.70	.35	1.9	.23	.08
27		9.7	.21	.18	.94	1.8	2.3	.64	.35	1.5	.15	.08
28		3.2	.21	.18	.88	1.4	6.8	.64	.31	.94	.15	.08
29		1.3	.18	.15	.82	1.2	16	.64	.31	.70	.13	.08
30		.45	.21	.19	---	1.2	6.2	.59	.31	.64	.11	.08
31		---	.18	1.7	---	1.4	---	.59	---	.54	.11	---
TOTAL	0	56.25	6.92	8.26	472.43	107.34	63.86	37.64	13.11	15.46	7.90	1.75
MEAN	0	1.88	.22	.27	16.3	3.46	2.13	1.21	.44	.50	.25	.058
MAX	0	24	.40	1.7	283	28	16	3.9	.59	4.0	.54	.10
MIN	0	0	0	.11	.45	.94	.76	.59	.31	.15	.11	.03
AC-FT	0	112	14	16	937	213	127	75	26	31	16	3.5

CAL YR 1975 TOTAL 351.40 MEAN .96 MAX 29 MIN 0 AC-FT 697
WTR YR 1976 TOTAL 790.92 MEAN 2.16 MAX 283 MIN 0 AC-FT 1570

HAWAII, ISLAND OF OAHU

16211600 MAKAHA STREAM NEAR MAKAHA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968-71 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
19...	1645	.39	4	1	33	8	5.4	4.8	10
MAY									
31...	1030	.59	2	1	30	2	4.6	4.4	8.8

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
19...	39	.8	1.1	31	0	25	6.2	11	13
MAY									
31...	39	.7	.5	34	0	28	3.4	5.2	13

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
19...	.1	33	94	.13	.00	.02	120	0
MAY								
31...	.1	26	80	.11	.00	.03	140	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC						MAY					
19...	1645	.39	125	6.9	19.0	31...	1030	.59	105	7.2	19.0
JAN						JUL					
30...	1530	.12	120	6.7	19.5	15...	1110	.18	140	6.8	20.0
MAR						AUG					
11...	1600	6.2	97	6.8	18.5	27...	1200	.17	120	6.8	21.0
APR											
19...	1430	1.1	93	6.7	20.0						

16212800 KIPAPA STREAM NEAR WAHIAWA

LOCATION.--Lat 21°28'13", long 157°57'40", Hydrologic Unit 20060000, on left bank 1,700 ft (518 m) downstream from forest-reserve boundary, 4.9 mi (7.9 km) southeast of Wahiawa Post Office, and 6.3 mi (10.1 km) northeast of Waipahu.

DRAINAGE AREA.--4.29 mi^2 (11.11 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 690 ft (210 m), from topographic map.

REMARKS.--Records good. No diversion above station. Recording rain gage located at station.

AVERAGE DISCHARGE.--19 years, 10.9 ft^3/s (0.309 m^3/s), 7,900 acre-ft/yr (9.74 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,680 ft^3/s (161 m^3/s) May 14, 1963, gage height, 12.29 ft (3.746 m), from rating curve extended above 300 ft^3/s (8.50 m^3/s) on basis of slope-area measurements at gage heights 7.96 ft (2.426 m) and 12.29 ft (3.746 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 930 ft^3/s (26.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 19	1730	1060	30.0	7.21	2.198
Nov. 26	1830	*1390	39.4	7.88	2.402

Minimum discharge, 0.04 ft^3/s (0.001 m^3/s) Oct. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.29	.26	5.1	.40	2.1	29	18	11	2.6	2.4	1.6	.36
2	.17	.23	9.3	.48	.92	9.6	17	7.8	1.8	23	1.2	.36
3	.11	.20	58	.86	.62	3.4	23	9.6	1.6	3.7	2.1	.32
4	.09	.36	6.3	.62	.48	24	10	11	1.5	1.9	1.2	.92
5	.06	.48	4.7	8.0	10	15	9.5	13	2.5	1.2	.86	.62
6	2.8	.32	3.4	17	107	4.5	5.8	4.9	1.6	.80	.92	.32
7	74	.48	2.5	38	40	2.9	5.6	4.3	1.7	7.2	1.9	.32
8	9.2	5.9	2.2	5.6	52	15	54	3.7	1.3	1.6	.86	.20
9	2.8	3.6	2.0	14	12	79	41	3.2	1.2	.92	.62	.23
10	1.5	1.8	1.7	20	7.0	16	18	2.9	11	12	.57	.52
11	.74	6.9	1.5	7.0	4.7	5.6	9.4	5.0	10	14	.52	1.4
12	.48	2.9	1.6	4.9	2.9	3.9	16	14	2.9	2.8	.68	1.2
13	.32	1.1	39	2.4	2.5	2.8	9.4	4.9	1.5	1.3	13	.57
14	.20	.57	6.0	7.0	3.2	2.1	5.8	2.8	.80	.86	2.4	.29
15	.20	.40	9.3	3.1	3.6	1.7	7.9	2.4	2.9	.68	.92	.17
16	.15	.44	2.9	17	7.9	8.4	28	2.8	3.9	.57	.57	.13
17	.15	1.1	5.1	4.3	6.5	13	88	5.1	2.5	.62	.52	.11
18	.29	.80	2.9	2.8	3.1	83	25	4.7	1.5	.57	.52	3.0
19	94	.48	1.6	1.8	2.4	17	15	3.9	5.8	1.1	31	1.1
20	17	1.9	1.3	1.4	1.9	6.5	8.1	6.5	2.8	27	4.1	.36
21	4.0	2.3	1.1	1.2	2.1	16	8.7	8.5	2.4	4.8	1.2	.20
22	2.0	.80	.92	1.3	7.6	18	29	15	2.9	10	.74	.23
23	1.2	5.0	.86	1.2	6.8	46	22	14	8.6	5.1	.52	.29
24	.86	69	.80	.92	3.4	9.7	24	11	7.4	7.1	.36	.20
25	.74	168	.68	.80	1.9	16	22	5.3	5.5	56	.29	.52
26	.68	129	.62	.62	1.6	40	7.6	7.4	1.7	9.7	.62	3.9
27	.52	144	.57	.57	2.3	47	7.0	9.0	1.2	11	1.5	9.2
28	.44	25	.52	.52	12	14	44	4.1	1.3	8.3	1.4	23
29	.32	12	.48	.48	8.0	10	84	7.0	1.2	4.1	.68	9.0
30	.26	7.3	.48	.68	---	8.7	39	4.9	1.2	4.5	.52	1.8
31	.26	---	.44	6.3	---	35	---	2.6	---	2.6	.32	---
TOTAL	215.83	592.62	173.87	171.25	316.52	602.8	701.8	212.3	94.80	227.42	74.21	60.84
MEAN	6.96	19.8	5.61	5.52	10.9	19.4	23.4	6.85	3.16	7.34	2.39	2.03
MAX	94	168	58	38	107	83	88	15	11	56	31	23
MIN	.06	.20	.44	.40	.48	1.7	5.6	2.4	.80	.57	.29	.11
AC-FT	428	1180	345	340	628	1200	1390	421	188	451	147	121

CAL YR 1975	TOTAL	2799.49	MEAN 7.67	MAX 168	MIN 0	AC-FT	5550
WTR YR 1976	TOTAL	3444.26	MEAN 9.41	MAX 168	MIN .06	AC-FT	6830

16212800 KIPAPA STREAM NEAR WAHIAWA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970-73, February 1973 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: February 1973 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since February 1973.

REMARKS.--In addition to the sediment sampler record, samples were collected at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 905 mg/L Apr. 19, 1974; minimum daily mean, 0 mg/L on many days during September 1975.
SEDIMENT DISCHARGE: Maximum daily, 4,110 tons (3,730 tonnes) Apr. 19, 1974; minimum daily, 0 ton (0 tonne) on many days each year.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 301 mg/L Nov. 25; minimum daily mean, 2 mg/L Oct. 2-5, Dec. 28 to Jan. 1, June 6-9.
SEDIMENT DISCHARGE: Maximum daily, 270 tons (245 tonnes) Oct. 19; minimum daily, 0 ton (0 tonne) on many days during the year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV.									
26...	1230	23	35	10	13	7	2.4	1.6	7.0
MAY									
21...	1200	11	55	10	9	0	.7	1.8	7.0

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV.									
26...	53	.9	.7	7	0	6	2.2	2.8	11
MAY									
21...	60	1.0	.8	12	0	10	12	4.1	11

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV.								
26...	.0	6.1	35	.05	.01	.00	50	0
MAY								
21...	.0	5.5	37	.05	.00	.01	200	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT					
21...	1405	3.4	--	--	23.5
NOV					
26...	1230	23	58	6.7	21.5
DEC					
12...	1155	2.6	--	--	20.0
JAN					
20...	1030	1.4	61	6.7	18.5
FEB					
20...	1435	1.7	77	6.8	22.5
APR					
08...	1300	104	--	--	18.0
MAY					
21...	1200	11	63	6.2	21.5
JUL					
01...	1340	2.2	65	6.5	23.5
SEP					
16...	1430	.11	70	6.2	31.0

HAWAII, ISLAND OF OAHU

16212800 KIPAPA STREAM NEAR WAHIAWA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM
NOV							
26...	1830	1150	1850	5740	22	33	49
27...	0030	980	884	2340	17	24	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
NOV						
26...	67	82	88	95	100	--
27...	51	--	80	90	95	100

HAWAII, ISLAND OF OAHU

16212800 KIPAPA STREAM NEAR WAHIAWA--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCTOBER			NOVEMBER			DECEMBER		
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)
1	.29	4	0	.26	3	0	5.1	5	.07
2	.17	2	0	.23	3	0	9.3	6	.15
3	.11	2	0	.20	3	0	58	202	140
4	.09	2	0	.36	5	0	6.3	15	.26
5	.06	2	0	.48	5	.01	4.7	12	.15
6	2.8	15	.11	.32	5	0	3.4	10	.09
7	74	280	115	.48	8	.01	2.5	8	.05
8	9.2	50	1.2	5.9	30	.48	2.2	6	.04
9	2.8	10	.08	3.6	8	.08	2.0	5	.03
10	1.5	8	.03	1.8	8	.04	1.7	4	.02
11	.74	6	.01	6.9	30	.56	1.5	3	.01
12	.48	4	.01	2.9	8	.06	1.6	5	.02
13	.32	3	0	1.1	6	.02	39	55	11
14	.20	3	0	.57	5	.01	6.0	7	.11
15	.20	3	0	.40	3	0	9.3	10	.25
16	.15	3	0	.44	5	.01	2.9	5	.04
17	.15	3	0	1.1	8	.02	5.1	12	.17
18	.29	5	0	.80	6	.01	2.9	5	.04
19	94	270	270	.48	4	.01	1.6	4	.02
20	17	120	5.5	1.9	20	.10	1.3	4	.01
21	4.0	15	.16	2.3	12	.07	1.1	4	.01
22	2.0	8	.04	.80	5	.01	.92	4	.01
23	1.2	7	.02	5.0	30	.41	.86	4	.01
24	.86	5	.01	69	279	117	.80	3	.01
25	.74	5	.01	168	301	229	.68	3	.01
26	.68	5	.01	129	168	269	.62	3	.01
27	.52	5	.01	144	146	172	.57	3	0
28	.44	3	0	25	13	.88	.52	2	0
29	.32	3	0	12	8	.26	.48	2	0
30	.26	3	0	7.3	7	.14	.48	2	0
31	.26	3	0	---	---	---	.44	2	0
TOTAL	215.83	---	392.20	592.62	---	790.19	173.87	---	152.59

	JANUARY			FEBRUARY			MARCH		
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)
1	.40	2	0	2.1	6	.03	29	193	52
2	.48	3	0	.92	5	.01	9.6	60	1.6
3	.86	4	.01	.62	4	.01	3.4	12	.11
4	.62	4	.01	.48	4	.01	24	80	5.2
5	8.0	10	.30	10	35	4.9	15	40	1.6
6	17	17	1.8	107	172	85	4.5	8	.10
7	38	36	6.2	40	77	11	2.9	5	.04
8	5.6	4	.06	52	50	7.0	15	70	2.8
9	14	8	.30	12	8	.26	79	159	72
10	20	8	.43	7.0	5	.09	16	15	.65
11	7.0	5	.09	4.7	4	.05	5.6	5	.08
12	4.9	4	.05	2.9	4	.03	3.9	3	.03
13	2.4	3	.02	2.5	4	.03	2.8	3	.02
14	7.0	12	.23	3.2	4	.03	2.1	3	.02
15	3.1	5	.04	3.6	4	.04	1.7	3	.01
16	17	18	.83	7.9	6	.13	8.4	30	.68
17	4.3	9	.10	6.5	4	.07	13	40	1.4
18	2.8	5	.04	3.1	4	.03	83	85	25
19	1.8	5	.02	2.4	5	.03	17	12	.55
20	1.4	5	.02	1.9	5	.03	6.5	5	.09
21	1.2	5	.02	2.1	5	.03	16	25	1.1
22	1.3	5	.02	7.6	12	.25	18	20	.97
23	1.2	5	.02	6.8	12	.22	46	76	25
24	.92	3	.01	3.4	8	.07	9.7	10	.26
25	.80	3	.01	1.9	6	.03	16	20	.86
26	.62	3	.01	1.6	6	.03	40	45	4.9
27	.57	3	0	2.3	12	.07	47	54	14
28	.52	3	0	12	35	1.1	14	12	.45
29	.48	3	0	8.0	25	.54	10	10	.27
30	.68	5	.01	---	---	---	8.7	10	.23
31	6.3	11	.22	---	---	---	35	40	3.8
TOTAL	171.25	---	10.87	316.52	---	111.12	602.8	---	215.82

16212800 KIPAPA STREAM NEAR WAHIAWA--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	APRIL			MAY			JUNE		
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)
1	18	12	.58	11	7	.21	2.6	5	.04
2	17	12	.55	7.8	4	.08	1.8	4	.02
3	23	15	.93	9.6	12	.31	1.6	3	.01
4	10	8	.22	11	14	.42	1.5	3	.01
5	9.5	8	.21	13	25	.88	2.5	5	.03
6	5.8	5	.08	4.9	8	.11	1.6	2	.01
7	5.6	5	.08	4.3	6	.07	1.7	2	.01
8	54	84	19	3.7	4	.04	1.3	2	.01
9	41	50	5.5	3.2	4	.03	1.2	2	.01
10	18	15	.73	2.9	4	.03	11	25	.74
11	9.4	8	.20	5.0	10	.14	10	15	.41
12	16	15	.65	14	30	1.1	2.9	8	.06
13	9.4	8	.20	4.9	8	.11	1.5	4	.02
14	5.8	5	.08	2.8	5	.04	.80	3	.01
15	7.9	6	.13	2.4	5	.03	2.9	6	.05
16	28	52	19	2.8	6	.05	3.9	5	.05
17	88	183	65	5.1	10	.14	2.5	4	.03
18	25	22	1.5	4.7	8	.10	1.5	3	.01
19	15	13	.53	3.9	6	.06	5.8	12	.19
20	8.1	6	.13	6.5	15	.26	2.8	6	.05
21	8.7	8	.19	8.5	10	.23	2.4	8	.05
22	29	70	5.5	15	30	1.2	2.9	6	.05
23	22	40	2.4	14	25	.94	8.6	20	.46
24	24	60	3.9	11	20	.59	7.4	15	.30
25	22	80	4.8	5.3	10	.14	5.5	10	.15
26	7.6	8	.16	7.4	10	.20	1.7	5	.02
27	7.0	8	.15	9.0	20	.49	1.2	4	.01
28	44	56	16	4.1	10	.11	1.3	4	.01
29	84	143	69	7.0	10	.19	1.2	4	.01
30	39	65	12	4.9	8	.11	1.2	4	.01
31	---	---	---	2.6	6	.04	---	---	---
TOTAL	701.8	---	229.40	212.3	---	8.45	94.80	---	2.84

	JULY			AUGUST			SEPTEMBER		
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)
1	2.4	5	.03	1.6	5	.02	.36	3	0
2	23	155	15	1.2	4	.01	.36	3	0
3	3.7	20	.20	2.1	6	.03	.32	3	0
4	1.9	10	.05	1.2	4	.01	.92	6	.01
5	1.2	8	.03	.86	4	.01	.62	4	.01
6	.80	7	.02	.92	4	.01	.32	3	0
7	7.2	25	.49	1.9	6	.03	.32	3	0
8	1.6	6	.03	.86	3	.01	.20	3	0
9	.92	6	.01	.62	3	.01	.23	3	0
10	12	30	.97	.57	3	0	.52	5	.01
11	14	60	2.3	.52	3	0	1.4	5	.02
12	2.8	25	.19	.68	3	.01	1.2	5	.02
13	1.3	15	.05	13	25	.88	.57	3	0
14	.86	10	.02	2.4	16	.10	.29	3	0
15	.68	8	.01	.92	10	.02	.17	3	0
16	.57	6	.01	.57	6	.01	.13	3	0
17	.62	6	.01	.52	6	.01	.11	3	0
18	.57	6	.01	.52	6	.01	3.0	15	.12
19	1.1	10	.03	31	101	25	1.1	5	.01
20	27	123	20	4.1	30	.33	.36	3	0
21	4.8	22	.29	1.2	10	.03	.20	3	0
22	10	16	.43	.74	6	.01	.23	3	0
23	5.1	12	.17	.52	5	.01	.29	3	0
24	7.1	30	.58	.36	4	0	.20	3	0
25	56	76	13	.29	4	0	.52	5	.01
26	9.7	15	.39	.62	10	.02	3.9	15	.16
27	11	20	.59	1.5	10	.04	9.2	25	.62
28	8.3	12	.27	1.4	8	.03	23	35	2.2
29	4.1	8	.09	.68	5	.01	9.0	15	.36
30	4.5	10	.12	.52	3	0	1.8	8	.04
31	2.6	8	.06	.32	3	0	---	---	---
TOTAL	227.42	---	55.45	74.21	---	26.66	60.84	---	3.59
YEAR	3444.26		1994.81						

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

LOCATION.--Lat 21°23'11", long 158°00'49", Hydrologic Unit 20060000, on left bank 300 ft (91 m) upstream from bridge on Highway 90 and 0.3 mi (0.5 km) southwest of sugar refinery at Waipahu.

DRAINAGE AREA.--45.7 mi^2 (118.4 km^2).

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1.37 ft (0.418 m) above mean sea level. Prior to July 1, 1960, at site 300 ft (91 m) downstream at datum 1.30 ft (0.396 m) higher.

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

AVERAGE DISCHARGE.--23 years (water years, 1953-59, 1961-76), 39.2 ft^3/s (1.110 m^3/s), 28,400 acre-ft/yr (35.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft^3/s (385 m^3/s) Nov. 28, 1954, gage height, 14.82 ft (4.517 m), site and datum then in use, from rating curve extended above 730 ft^3/s (20.7 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.02 ft^3/s (0.001 m^3/s) Oct. 3, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,300 ft^3/s (36.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 25	0230	2340	66.3	5.84	1.780
Nov. 27	0200	2670	75.6	6.17	1.881
Feb. 7	0730	*2780	78.7	6.28	1.914

Minimum discharge, 0.02 ft^3/s (0.001 m^3/s) Oct. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	8.6	42	28	32	72	91	36	10	13	12	3.0
2	1.9	17	41	28	27	68	71	30	13	27	6.5	6.5
3	1.6	11	119	28	25	30	83	32	15	22	7.1	6.8
4	5.5	3.0	47	28	27	27	59	40	14	24	10	4.5
5	17	8.6	37	29	74	62	48	36	9.3	20	13	8.8
6	12	13	35	35	343	32	33	22	12	5.7	12	6.9
7	58	5.7	32	78	968	26	35	19	7.4	7.4	9.9	12
8	32	8.0	32	43	740	29	96	18	7.0	15	8.6	16
9	12	17	33	36	112	115	135	25	8.6	17	7.9	16
10	6.3	6.8	30	52	69	72	67	22	14	13	9.1	16
11	8.5	2.2	30	42	54	32	50	12	23	23	11	9.3
12	18	5.9	31	35	46	24	51	21	15	16	11	6.4
13	14	6.8	77	31	41	22	37	28	9.3	10	12	4.5
14	6.5	6.0	47	25	38	30	29	18	5.5	13	14	3.9
15	6.4	6.8	39	27	41	19	32	17	4.7	10	7.8	6.0
16	3.8	14	36	38	40	12	35	21	9.0	6.8	4.1	8.7
17	3.8	12	32	40	43	27	173	24	12	8.2	8.6	9.5
18	9.0	13	34	33	38	133	77	20	12	4.0	13	15
19	106	7.8	31	26	36	71	60	20	17	3.0	33	7.1
20	82	7.0	29	29	36	34	36	16	17	41	26	4.2
21	16	5.7	29	24	34	35	39	35	7.8	21	14	5.8
22	9.2	4.2	29	26	40	55	82	56	11	28	8.1	8.2
23	6.0	10	29	26	49	72	66	37	15	28	4.6	7.0
24	5.8	120	28	26	45	41	86	52	17	18	9.1	3.5
25	8.3	778	28	31	37	32	66	22	19	78	11	3.7
26	17	607	28	25	28	74	45	24	14	44	10	2.4
27	8.7	706	28	25	32	113	36	23	9.0	30	11	2.9
28	5.0	108	28	22	60	52	58	20	5.6	22	6.3	23
29	4.8	64	29	24	58	40	189	18	8.7	21	2.0	26
30	4.1	50	28	26	---	48	84	23	11	12	3.2	14
31	5.0	---	28	37	---	96	---	16	---	17	4.6	---
TOTAL	495.5	2633.1	1146	1003	3213	1595	2049	803	352.9	618.1	320.5	267.6
MEAN	16.0	87.8	37.0	32.4	111	51.5	68.3	25.9	11.8	19.9	10.3	8.92
MAX	106	778	119	78	968	133	189	56	23	78	33	26
MIN	1.3	2.2	28	22	25	12	29	12	4.7	3.0	2.0	2.4
AC-FT	983	5220	2270	1990	6370	3160	4060	1590	700	1230	636	531

CAL YR 1975	TOTAL	13574.7	MEAN 37.2	MAX 1330	MIN 1.3	AC-FT	26930
WTR YR 1976	TOTAL	14496.7	MEAN 39.6	MAX 968	MIN 1.3	AC-FT	28750

HAWAII, ISLAND OF OAHU

16213000 WAIKELE STREAM AT WAIPAHU--Continued

WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1973 to current year.
WATER TEMPERATURES: April 1973 to current year.
SUSPENDED SEDIMENT DISCHARGE: July 1972 to current year.

INSTRUMENTATION.--Water-quality monitor since April 1973. Automatic pumping sediment sampler since July 1972.

REMARKS.--In addition to the water-quality monitor record, samples were collected once a month. Available pesticide data for water year 1975 are also published for this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 656 micromhos/cm June 22, 1975; minimum, 30 micromhos/cm Apr. 19, 1974.
WATER TEMPERATURES: Maximum, 30.0°C May 6, 1973; minimum, 16.0°C Mar. 16, 1976.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,420 mg/L Feb. 7, 1976; minimum daily mean, 10 mg/L May 10, Aug. 10, 29-31, Sept. 1, 1974, Oct. 29 to Nov. 2, Nov. 15-17, Dec. 11, 12, 1975.
SEDIMENT DISCHARGE: Maximum daily, 32,200 tons (29,200 tonnes) Apr. 19, 1974; minimum daily, 0.07 ton (0.06 tonne) Sept. 4, Oct. 1, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 615 micromhos/cm Feb. 9; minimum, 93 micromhos/cm July 25.
WATER TEMPERATURES: Maximum, 27.5°C Aug. 25; minimum, 16.0°C Mar. 16.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,420 mg/L Feb. 7; minimum daily mean, 10 mg/L Oct. 29 to Nov. 2, Nov. 15-17, Dec. 11, 12.
SEDIMENT DISCHARGE: Maximum daily, 12,000 tons (10,900 tonnes) Feb. 7; minimum daily, 0.07 ton (0.06 tonne) Oct. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT.											
20...	1230	62	165	5.8	21.9	150	100	3100	3900	26	8
NOV.											
17...	1245	4.2	420	6.4	22.0	9	3	B600	150	72	3
26...	1430	2380	85	6.4	22.5	--	2100	--	--	24	0
DEC.											
08...	1030	28	400	6.9	21.7	15	6	3600	1300	67	1
JAN.											
19...	0930	16	395	6.6	21.5	13	7	510	670	62	3
19...	0945	16	395	6.6	21.5	--	7	--	--	60	2
FEB.											
06...	1045	536	86	6.4	19.9	--	400	--	--	--	--
19...	1400	35	405	6.7	23.0	5	3	18000	B8900	62	1
MAR.											
23...	0930	30	280	6.5	22.2	180	98	B7300	B9000	52	5
APR.											
27...	1240	34	310	6.6	23.0	10	12	3100	1200	52	5
MAY											
25...	0900	17	285	6.5	21.6	2	8	350	790	45	5
25...	1030	16	285	6.5	21.5	6	5	--	--	46	2
JUNE											
29...	1215	4.2	405	6.5	24.2	6	5	440	--	67	6
JULY											
27...	0900	20	260	6.2	22.5	45	10	B290	1000	43	8
AUG.											
24...	0900	4.8	400	6.2	22.5	--	5	920	540	61	1
SEP.											
28...	1145	25	245	6.4	23.9	--	15	3100	B13000	36	7

B Results based on colony count outside the acceptable range (non-ideal colony count).

16213000 WAIKELE STREAM AT WAIPAHU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DIS-SOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.											
20...	4.8	3.5	22	63	1.9	1.8	23	0	19	58	9.0
NOV.											
17...	15	8.4	64	65	3.3	3.6	84	0	69	54	22
26...	6.4	1.9	7.4	37	.7	3.2	32	0	26	20	7.4
DEC.											
08...	12	9.1	53	62	2.8	3.5	81	0	66	16	20
JAN.											
19...	10	8.9	56	65	3.1	3.6	71	0	58	29	23
19...	10	8.5	56	65	3.1	3.5	71	0	58	29	22
FEB.											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	11	8.3	54	64	3.0	3.3	74	0	61	24	22
MAR.											
23...	10	6.5	35	58	2.1	2.9	57	0	47	29	16
APR.											
27...	8.6	7.3	40	61	2.4	2.7	57	0	47	23	16
MAY											
25...	7.9	6.1	39	64	2.5	2.4	49	0	40	25	15
25...	8.1	6.2	40	64	2.6	2.6	53	0	43	27	16
JUNE											
29...	11	9.6	57	63	3.0	3.5	74	0	61	37	22
JULY											
27...	8.2	5.4	34	62	2.3	2.5	42	0	34	42	14
AUG.											
24...	11	8.1	56	65	3.1	3.7	73	0	60	74	24
SEP.											
28...	6.4	4.8	30	61	2.2	4.5	35	0	29	22	13

DATE	DIS-SOLVED CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
OCT.										
20...	32	.1	18	118	103	.16	.63	1.3	1.9	.45
NOV.										
17...	77	.2	56	292	288	.40	2.3	.30	2.6	1.2
26...	9.0	.1	6.0	--	61	.08	--	--	--	--
DEC.										
08...	66	.2	56	260	260	.35	2.7	.00	2.7	.96
JAN.										
19...	70	.2	58	278	265	.38	3.4	--	--	1.2
19...	71	.2	58	270	264	.37	3.4	.76	4.2	1.2
FEB.										
06...	--	--	--	--	--	--	.13	4.0	4.1	.64
19...	69	.2	56	264	260	.36	2.9	.78	3.7	1.1
MAR.										
23...	42	.1	34	182	175	.25	1.6	1.9	3.5	.98
APR.										
27...	48	.2	41	213	192	.29	2.5	.57	3.1	1.2
MAY										
25...	48	.1	37	218	180	.30	1.7	.52	2.2	1.1
25...	49	.1	38	--	188	.27	--	--	--	--
JUNE										
29...	73	.3	58	300	271	.41	3.2	.70	3.9	1.4
JULY										
27...	44	.1	37	182	166	.25	2.9	.72	3.6	1.1
AUG.										
24...	70	.2	60	274	269	.37	3.6	.30	3.9	1.6
SEP.										
28...	39	.2	30	163	145	.22	2.2	1.6	3.8	1.8

16213000 WAIKELE STREAM AT WAIPAHU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
NOV.												
17...	1245	2	1	0	0	<10	0	<50	0	10	4	550
26...	1430	--	--	--	--	--	--	--	--	--	--	--
FEB.												
19...	1400	0	0	<10	1	0	0	<50	2	10	3	340
MAY												
25...	0900	1	0	0	0	<10	0	0	0	<10	3	1100
25...	1030	--	--	--	--	--	--	--	--	--	--	--
AUG.												
24...	0900	0	0	<10	0	0	0	<50	0	10	3	830

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
NOV.												
17...	60	0	0	90	40	.0	.0	2	2	0	0	2.2
26...	110	--	--	--	5	--	--	--	--	--	--	--
FEB.												
19...	80	<100	1	70	60	.0	.0	1	1	20	0	5.8
MAY												
25...	70	0	0	70	40	.1	.1	0	0	10	0	1.8
25...	90	--	--	--	40	--	--	--	--	--	--	--
AUG.												
24...	40	<100	0	240	100	.0	.0	1	1	10	0	1.9

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	METHYL PARA-THION IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL METHYL TRI-THION (UG/L)	METHYL TRI-THION IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL PARA-THION (UG/L)	PARA-THION IN BOTTOM MA-TERIAL (UG/KG)	TOTAL TOX-APHENE (UG/L)	TOX-APHENE IN BOTTOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	TRI-THION IN BOTTOM MA-TERIAL (UG/KG)
JUN									
16...	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP									
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	TIME	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MA-TERIAL (UG/KG)	TOTAL CHLOR-DANE (UG/L)	CHLOR-DANE IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DDD (UG/L)	P,P' DDD IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DDE (UG/L)	P,P' DDE IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DDT (UG/L)
JUN										
16...	0900	ND	ND	ND	111	ND	36	ND	46	ND
SEP										
15...	1330	ND	ND	ND	88	ND	34	ND	41	ND

DATE	P,P' DDT IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DI-AZINON (UG/L)	DI-AZINON IN BOTTOM MA-TERIAL (UG/KG)	TOTAL DI-ELDRIN (UG/L)	DI-ELDRIN IN BOTTOM MA-TERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MA-TERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MA-TERIAL (UG/KG)	TOTAL HEPTA-CHLOR (UG/L)
JUN										
16...	75	ND	ND	ND	3.5	ND	ND	ND	ND	ND
SEP										
15...	48	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND Material specifically analyzed for but not detected.

16213000 WAIKELE STREAM AT WAIPAHU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	MALATHION IN BOTTOM MATERIAL (UG/KG)	TOTAL METHOXYCHLOR (UG/L)	METHOXYCHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL METHYL PARATHION (UG/L)
JUN 16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP 15...	ND	ND	ND	.01	ND	ND	ND	ND	ND	ND

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ATRAZINE (UG/L)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	P,P' DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDT (UG/L)	DDT IN BOTTOM MATERIAL (UG/KG)
NOV 17...	1245	ND	ND	ND	ND	15	ND	6.8	ND	9.1	ND	4.7
FEB 19...	1400	ND	--	ND	ND	--	ND	--	ND	--	ND	--
APR 27...	1240	ND	ND	ND	ND	60	ND	11	ND	21	ND	10
AUG 24...	0900	ND	--	ND	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL DIAZINON (UG/L)	DIAZINON IN BOTTOM MATERIAL (UG/KG)	TOTAL DIELDRIN (UG/L)	DIELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)
NOV 17...	ND	ND	ND	.8	ND	ND	ND	ND	ND	ND	ND	ND
FEB 19...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR 27...	ND	ND	ND	2.0	ND	ND	ND	ND	ND	ND	ND	ND
AUG 24...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	MALATHION IN BOTTOM MATERIAL (UG/KG)	TOTAL METHOXYCHLOR (UG/L)	METHOXYCHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM MATERIAL (UG/KG)	TOTAL METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM MATERIAL (UG/KG)	TOTAL PARATHION (UG/L)	PARATHION IN BOTTOM MATERIAL (UG/KG)
NOV 17...	ND	ND	ND	NO	ND	ND	ND	ND	ND	ND	ND	ND
FEB 19...	ND	--	NO	--	ND	--	ND	--	NO	--	ND	--
APR 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NO	ND
AUG 24...	NO	--	ND	--	ND	--	ND	--	ND	--	NO	--

DATE	SIMAZINE TOTAL (UG/L)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION IN BOTTOM MATERIAL (UG/KG)	TOTAL 2,4-D (UG/L)	2,4-D IN BOTTOM MATERIAL (UG/KG)	TOTAL 2,4,5-T (UG/L)	2,4,5-T IN BOTTOM MATERIAL (UG/KG)	TOTAL SILVEX (UG/L)	SILVEX IN BOTTOM MATERIAL (UG/KG)
NOV 17...	--	ND	ND	ND	ND	ND	--	ND	--	ND	--
FEB 19...	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR 27...	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 24...	ND	ND	--	ND	--	ND	--	ND	--	ND	--

ND Material specifically analyzed for but not detected.

16213000 WAIKELE STREAM AT WAIPAHU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL A MG/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL B MG/SQ M	PERI-PHYTON LENGTH OF EXPO-SURE (DAYS)	PERI-PHYTON SAMPLING METHOD
OCT								
20...	1230	530	--	--	--	--	--	Polyethylene strip
NOV								
17...	1245	250	8.10	1.50	73	26	28	
DEC								
08...	1030	48	--	--	--	--	--	
JAN								
19...	0930	450	--	--	--	--	--	
19...	0945	290	--	--	--	--	--	
FEB								
19...	1400	370	5.30	4.10	7.30	1.70	31	
MAR								
23...	0930	680	--	--	--	--	--	
APR								
27...	1240	400	--	--	--	--	--	
MAY								
25...	0900	1300	14.3	6.85	32.4	9.24	28	
JUN								
29...	1215	660	--	--	--	--	--	
JUL								
27...	0900	3000	--	--	--	--	--	
AUG								
24...	0900	1100	12.4	7.15	83.1	28.3	28	
SEP								
28...	1145	11000	--	--	--	--	--	

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT.					
20...	1230	62	79	13	100
NOV.					
17...	1245	4.2	5	.06	100
DEC.					
08...	1030	28	9	.69	100
JAN.					
19...	0930	16	9	.39	100
FEB.					
19...	1400	35	5	.47	100
MAR.					
23...	0930	30	142	12	84
APR.					
27...	1240	34	22	2.0	100
MAY					
25...	0900	17	11	.50	100
JUNE					
29...	1215	4.2	10	.11	100
JULY					
27...	0900	20	43	2.3	100
AUG.					
24...	0900	4.8	12	.16	100
SEP.					
28...	1145	25	30	2.0	95

16213000 WAIKELE STREAM AT WAIPAHU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM
NOV							
17...	1245	4.2	5	.06	--	--	--
25...	0205	2000	9050	48900	32	41	56
27...	0200	2000	2610	14100	30	40	53

DATE	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
NOV						
17...	--	--	--	--	--	--
25...	71	88	93	97	99	100
27...	67	79	88	98	100	--

16213000 WAIKELE STREAM AT WAIPAHU--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Oct 20	1230	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes		L	
		Cymbellaceae			
		Rhopalodia	76	14	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema		L	
		Naviculaceae			
		Navicula	300	57	
		Nitzschiaceae			
		Nitzschia	76	14	
		Tabellariaceae			
		Tabellaria	76	14	
		TOTAL	530		
Nov 17	1245	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Scenedesmaceae			
		Scenedesmus	20	8	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	5	2	
		Pennales			
		Cymbellaceae			
		Amphora		L	
		Cymbella	5	2	
		Diatomaceae			
		Diatoma	5	2	
		Gomphonemataceae			
		Gomphonema	31	12	
		Naviculaceae			
		Navicula	100	41	
		Nitzschiaceae			
		Nitzschia	73	29	
		Tabellariaceae			
		Tabellaria	10	4	
		TOTAL	250		
Dec 08	1030	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Cocconeis		L	
		Cymbellaceae			
		Cymbella	5	10	
		Eunotiaceae			
		Eunotia	5	10	
		Naviculaceae			
		Navicula	29	60	
		Nitzschiaceae			
		Nitzschia	10	20	
		TOTAL	48		

NOTE: L - Less than 1 percent; may not have been actually counted.

16213000 WAIKELE STREAM AT WAIPAHU--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Jan 19	0930	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	21	5	
		Pennales			
		Achnanthaceae			
		Achnanthes		L	
		Gomphonemataceae			
		Gomphonema	82	18	
		Naviculaceae			
		Navicula	210	45	
		Nitzschiaceae			
		Nitzschia	140	32	
		Tabellariaceae			
		Tabellaria		L	
		TOTAL	450		
Jan 19	0945	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus	18	6	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Gomphonemataceae			
		Gomphonema	72	25	
		Naviculaceae			
		Navicula	54	19	
		Nitzschiaceae			
		Nitzschia	140	50	
		TOTAL	290		
Feb 19	1400	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	11	3	
		Cymbellaceae			
		Cymbella	55	15	
		Eunotiaceae			
		Eunotia	11	3	
		Gomphonemataceae			
		Gomphonema	22	6	
		Naviculaceae			
		Navicula	180	47	
		Nitzschiaceae			
		Nitzschia	99	26	
		TOTAL	370		
Mar 23	0930	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	26	4	
		Cymbellaceae			
		Cymbella	26	4	
		Gomphonemataceae			
		Gomphonema	160	23	
		Naviculaceae			
		Navicula	260	38	
		Nitzschiaceae			
		Nitzschia	210	31	
		TOTAL	680		

NOTE: L - Less than 1 percent; may not have been actually counted.

16213000 WAIKELE STREAM AT WAIPAHU--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
					Depth-Integrated
Apr 27	1240	CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	36	9	
		Pennales			
		Gomphonemataceae			
		Gomphonema	54	14	
		Naviculaceae			
		Frustulia		L	
		Navicula	90	23	
		Pinnularia	36	9	
		Nitzschiaceae			
		Nitzschia	160	41	
		Tabellariaceae			
		Tabellaria	18	5	
		TOTAL	400		
					Depth-Integrated
May 25	0900	CHLOROPHYTA			
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus	17	1	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	120	9	
		Cymbellaceae			
		Cymbella	17	1	
		Diatomaceae			
		Diatoma	17	1	
		Fragilariaceae			
		Fragilaria	50	4	
		Gomphonemataceae			
		Gomphonema	130	10	
		Naviculaceae			
		Frustulia	17	1	
		Gyrosigma	83	6	
		Navicula	280	22	
		Pinnularia	17	1	
		Nitzschiaceae			
		Nitzschia	350	27	
		Chrysophyceae			
		Chrysomonadales			
		Mallomonadaceae			
		Mallomonas		L	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	200	15	
		TOTAL	1,300		
					Depth-Integrated
June 29	1215	CHLOROPHYTA			
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus	23	3	
		Scenedesmaceae			
		Scenedesmus	91	14	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Cymbellaceae			
		Cymbella	69	10	
		Gomphonemataceae			
		Gomphonema	69	10	
		Naviculaceae			
		Navicula	91	14	
		Nitzschiaceae			
		Nitzschia	320	48	
		TOTAL	660		

NOTE: L - Less than 1 percent; may not have been actually counted.

16213000 WAIKELE STREAM AT WAIPAHU--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
July 27	0900	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus	41	1	
		Tetraedron	41	1	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Cymbellaceae			
		Cymbella	120	4	
		Eunotiaceae			
		Eunotia	41	1	
		Fragilariaceae			
		Fragilaria	170	6	
		Gomphonemataceae			
		Gomphonema	170	6	
		Naviculaceae			
		Navicula	250	8	
		Nitzschiaceae			
		Nitzschia	620	21	
		Tabellariaceae			
		Tabellaria	120	4	
		CYANOPHYTA			
		Myxophyceae			
		Chroococcales			
		Chroococcaceae			
		Anacystis	790	26	
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	620	21	
		TOTAL	3,000		
Aug 24	0900	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Fragilariaceae			
		Synedra	27	2	
		Gomphonemataceae			
		Gomphonema	40	4	
		Naviculaceae			
		Navicula	110	9	
		Nitzschiaceae			
		Nitzschia	160	14	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	810	71	
		TOTAL	1,100		
Sept 28	1145	CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Gomphonemataceae			
		Gomphonema	250	2	
		Naviculaceae			
		Navicula	420	4	
		Pinnularia	84	1	
		Nitzschiaceae			
		Nitzschia	420	4	
		Tabellariaceae			
		Tabellaria	84	1	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	9,600	88	
		TOTAL	11,000		

16213000 WAIKELE STREAM AT WAIPAHU--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	457	441	448	472	444	454	374	327	340	594	554	569
2	468	445	456	501	458	476	383	331	351	602	467	545
3	496	461	474	504	461	486	364	129	238	474	459	469
4	514	463	476	463	445	453	313	237	281	473	460	469
5	534	518	524	504	450	465	372	316	344	473	464	470
6	539	494	527	508	452	471	378	362	370	473	432	460
7	495	142	335	477	459	468	408	379	392	424	251	341
8	245	164	212	470	441	455	418	409	412	322	302	309
9	378	249	320	469	444	454	426	417	420	379	325	351
10	414	379	395	457	436	445	433	424	428	380	323	354
11	439	415	424	449	439	443	439	429	434	351	322	334
12	469	440	453	446	390	419	444	439	441	390	354	374
13	483	468	473	421	391	405	445	345	407	430	389	401
14	483	469	475	445	423	432	341	313	329	445	415	424
15	493	468	479	458	443	450	363	341	352	448	416	434
16	495	483	491	461	446	453	386	360	368	426	395	420
17	494	483	489	497	420	460	407	377	389	389	364	374
18	501	492	496	518	461	494	416	405	410	400	376	383
19	506	321	488	523	459	489	428	413	420	424	401	405
20	291	165	222	462	443	452	439	426	430	443	423	431
21	323	224	284	467	447	453	451	437	442	454	441	446
22	387	325	356	503	459	482	461	449	454	461	449	455
23	431	388	406	504	489	498	462	450	458	471	460	465
24	440	426	432	506	139	285	465	451	460	474	461	470
25	461	440	448	227	169	190	467	455	463	483	470	476
26	502	454	469	340	85	180	473	460	467	486	470	481
27	509	454	474	---	---	180	474	459	468	486	471	481
28	462	448	456	---	---	200	475	459	470	486	463	478
29	456	444	450	330	238	281	476	463	471	477	460	471
30	452	434	443	379	304	331	476	464	472	473	461	469
31	454	445	450	---	---	---	581	475	538	472	432	451
MONTH	539	142	430	523	85	407	581	129	410	602	251	434

	FEBRUARY			MARCH			APRIL			MAY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	434	405	417	425	379	394	200	159	181	235	184	211
2	431	410	417	390	371	377	233	179	212	274	238	254
3	448	431	437	375	361	367	243	160	192	314	277	294
4	455	448	450	381	371	374	288	236	263	330	296	313
5	459	178	413	381	320	338	364	280	330	323	263	302
6	199	86	178	323	311	317	304	272	295	325	307	316
7	154	98	130	356	324	341	326	304	316	363	326	337
8	248	110	195	409	357	391	347	122	271	373	353	363
9	615	250	456	408	338	370	165	121	139	447	373	407
10	539	456	479	337	273	290	214	138	186	428	397	415
11	496	477	486	290	278	282	323	220	262	406	386	395
12	501	469	481	326	291	311	371	250	308	398	378	387
13	489	458	468	370	327	354	303	251	281	305	235	265
14	470	450	458	403	371	391	320	276	301	376	308	339
15	460	443	449	426	404	412	359	295	324	402	353	372
16	448	434	440	438	427	433	409	329	370	411	381	394
17	442	419	428	439	415	425	354	116	159	448	362	406
18	429	405	420	352	326	336	230	144	186	384	334	354
19	430	419	424	262	250	256	272	220	241	421	338	368
20	438	430	433	283	261	270	335	246	281	381	345	362
21	445	437	440	313	297	306	363	331	343	367	233	305
22	451	442	447	314	308	311	364	238	315	340	207	263
23	451	415	427	297	280	296	263	223	252	296	222	267
24	421	390	401	294	280	285	250	198	229	294	204	236
25	418	402	411	298	286	291	244	236	240	368	239	256
26	431	418	425	301	140	234	300	244	268	363	306	322
27	444	432	437	203	104	157	314	300	303	385	290	321
28	449	444	447	317	192	261	345	315	331	329	279	303
29	446	422	431	298	262	275	335	183	222	395	313	341
30	---	---	---	333	268	292	198	173	182	389	320	346
31	---	---	---	288	138	208	---	---	---	372	324	354
MONTH	615	86	411	439	104	321	409	116	259	448	184	328

HAWAII, ISLAND OF OAHU

16213000 WAIKELE STREAM AT WAIPAHU--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	JUNE			JULY			AUGUST			SEPTEMBER		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	392	354	371	464	446	453	502	378	408	432	408	417
2	414	369	388	456	208	349	428	397	407	443	428	435
3	415	384	400	339	258	295	414	389	401	470	433	448
4	419	387	405	383	338	359	441	402	414	480	428	447
5	418	397	409	449	383	423	446	415	430	488	439	457
6	421	397	413	428	417	421	440	420	430	444	434	439
7	491	406	445	437	420	427	439	415	425	444	424	430
8	440	421	432	451	348	392	507	424	445	492	430	450
9	438	415	428	458	405	428	493	429	448	466	429	438
10	430	407	424	466	417	439	431	419	427	480	454	467
11	403	280	327	428	285	336	437	408	421	461	428	440
12	350	295	329	324	248	287	430	411	422	433	425	428
13	410	342	391	379	324	348	432	422	428	438	425	431
14	423	384	405	410	376	391	427	342	379	432	413	421
15	428	413	421	425	408	413	424	380	398	450	421	431
16	438	422	429	434	418	425	429	408	420	435	423	429
17	429	379	395	439	421	429	430	413	422	437	427	432
18	413	380	397	448	436	442	524	432	480	485	428	444
19	564	391	448	449	433	442	482	157	370	486	434	447
20	485	337	386	450	168	306	338	213	281	443	433	439
21	373	323	350	326	203	270	407	315	364	454	427	435
22	410	374	390	361	279	319	421	393	407	453	427	434
23	452	382	404	384	254	284	422	402	412	435	423	429
24	403	354	374	409	331	365	485	409	423	431	414	421
25	383	318	355	386	93	230	515	478	493	432	419	425
26	406	344	377	220	100	163	502	449	471	441	426	434
27	423	388	405	262	196	232	509	441	465	446	438	441
28	423	397	413	316	242	283	456	428	440	440	206	320
29	428	405	418	317	287	301	440	429	435	329	243	284
30	453	426	435	378	320	343	443	430	437	347	276	308
31	---	---	---	392	322	345	439	403	425	---	---	---
MONTH	564	280	399	466	93	353	524	157	420	492	206	423
YEAR	615	85	383									

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	24.0	22.0	23.0	23.5	21.5	22.5	22.5	21.0	22.0	23.0	21.0	22.0
2	24.5	22.0	23.0	24.5	22.5	23.5	22.5	21.5	22.0	23.0	21.0	22.0
3	24.0	22.5	23.0	24.0	22.5	23.5	22.0	20.5	21.5	23.0	21.5	22.0
4	24.0	22.5	23.0	24.0	22.0	22.5	23.0	21.0	22.0	23.0	21.5	22.0
5	25.0	23.5	24.0	23.5	22.0	22.5	23.0	21.5	22.0	23.0	21.5	22.0
6	25.5	23.0	24.5	23.5	22.0	22.5	22.5	21.0	22.0	22.5	22.0	22.5
7	23.5	22.0	22.5	23.0	22.0	22.5	23.0	21.5	22.0	22.5	21.5	22.0
8	23.5	22.0	23.0	23.5	22.0	22.5	22.5	21.5	22.0	22.5	21.0	21.5
9	25.0	22.5	23.5	23.5	22.0	23.0	22.5	20.5	21.5	22.5	21.5	22.0
10	23.5	22.0	23.0	23.5	22.0	22.5	22.0	21.0	21.5	22.5	21.0	22.0
11	23.0	22.0	22.5	23.5	22.0	22.5	22.5	20.5	21.5	22.0	21.0	21.5
12	23.0	22.0	22.5	23.5	22.0	22.5	21.5	21.0	21.0	22.0	21.5	22.0
13	24.5	22.0	23.0	23.5	21.5	22.5	21.5	20.5	21.0	22.5	21.0	21.5
14	23.0	22.0	22.5	23.0	21.5	22.0	22.0	21.0	21.5	23.0	21.5	22.0
15	24.0	22.5	23.0	23.0	22.0	22.5	22.5	21.5	22.0	22.5	21.0	22.0
16	24.0	22.5	23.0	23.0	22.0	22.5	23.0	21.5	22.0	22.5	21.0	21.5
17	24.0	22.0	23.0	23.5	22.0	22.5	23.0	22.0	22.5	22.0	20.5	21.0
18	24.5	22.5	23.5	23.5	22.0	23.0	22.5	21.5	22.0	22.5	21.0	21.5
19	24.0	20.0	22.5	23.5	22.0	23.0	22.5	21.0	22.0	22.0	21.0	21.5
20	23.0	20.0	21.5	23.0	21.5	22.5	23.0	21.5	22.0	22.0	21.0	21.5
21	23.5	22.5	23.0	23.0	22.0	22.5	23.0	21.0	22.0	22.5	21.0	21.5
22	24.0	22.0	23.0	24.0	22.0	23.0	22.5	21.0	22.0	23.0	21.0	22.0
23	24.5	22.0	23.0	24.0	22.5	23.0	22.5	21.0	22.0	23.0	21.5	22.0
24	24.0	22.5	23.0	23.5	21.5	22.0	23.0	21.0	21.5	23.0	21.5	22.0
25	24.0	22.0	23.0	22.0	20.5	21.0	22.5	21.0	21.5	23.0	21.5	22.0
26	24.5	22.5	23.5	22.5	20.5	21.5	23.0	21.0	21.5	23.5	21.5	22.0
27	24.0	22.5	23.5	22.5	21.0	22.0	22.5	21.0	22.0	23.5	21.5	22.0
28	24.0	22.0	23.0	22.5	21.0	22.0	23.0	21.0	22.0	23.0	21.0	22.0
29	23.5	22.0	22.5	22.5	21.5	22.0	22.5	21.0	22.0	23.0	21.0	22.0
30	24.0	21.5	22.5	22.5	21.0	22.0	22.5	21.5	22.0	23.5	22.0	22.5
31	23.5	22.0	22.5	---	---	---	22.5	21.0	22.0	23.0	21.5	22.0
MONTH	25.5	20.0	23.0	24.5	20.5	22.5	23.0	20.5	22.0	23.5	20.5	22.0

HAWAII, ISLAND OF OAHU

16213000 WAIKELE STREAM AT WAIPAHU--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	FEBRUARY			MARCH			APRIL			MAY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	22.0	20.5	21.0	22.0	20.5	21.5	22.0	19.5	20.5	23.5	20.5	22.0
2	21.5	20.5	21.0	22.0	20.0	21.0	23.5	20.5	21.5	24.5	21.0	22.5
3	22.5	20.5	21.0	23.0	20.5	21.5	24.0	20.0	21.5	24.5	22.0	23.0
4	22.5	20.5	21.5	22.0	21.5	22.0	24.0	20.5	22.5	24.5	22.0	23.5
5	22.5	21.5	22.0	23.0	20.0	21.5	24.5	22.5	23.0	25.5	22.0	23.5
6	22.0	19.5	21.5	24.0	21.0	22.5	23.5	21.0	22.5	25.5	22.0	23.5
7	20.0	19.0	19.5	23.5	21.5	22.5	23.5	21.0	22.5	24.5	22.5	23.5
8	19.5	18.0	19.0	24.5	22.0	23.0	23.0	19.5	21.5	24.5	22.5	23.5
9	21.0	19.0	20.0	23.0	20.5	21.5	21.5	19.5	20.0	26.0	22.0	24.0
10	22.0	20.0	21.0	21.5	19.5	20.5	22.0	20.0	20.5	25.5	23.0	24.0
11	23.0	21.0	22.0	22.0	19.5	21.0	23.5	20.5	22.0	25.5	23.0	24.0
12	23.0	21.0	22.0	22.5	20.0	21.5	23.5	22.5	23.0	23.5	23.0	23.0
13	23.0	21.5	22.0	23.5	20.5	22.0	22.5	21.5	22.0	25.0	22.5	23.5
14	22.5	21.0	22.0	23.5	21.0	22.5	24.5	21.0	23.0	25.0	22.5	23.5
15	23.0	21.0	22.0	23.0	21.5	22.0	26.0	22.0	23.5	24.5	22.5	23.5
16	23.0	21.0	22.0	23.0	16.0	21.5	25.0	22.0	23.0	25.0	22.0	23.5
17	23.0	21.5	22.0	23.0	21.5	22.0	22.5	20.0	21.0	25.5	22.0	23.5
18	23.5	21.5	22.0	22.0	20.0	21.0	23.5	20.5	22.0	26.0	23.0	24.0
19	23.0	21.5	22.0	24.0	20.5	22.5	25.0	21.5	23.0	26.0	23.0	24.5
20	23.5	21.0	22.0	24.5	21.5	23.0	25.5	21.5	23.5	25.5	22.5	24.0
21	23.5	21.5	22.5	24.0	22.0	23.0	26.0	23.5	24.5	25.5	22.5	24.0
22	23.0	21.5	22.5	24.5	21.5	23.0	24.0	22.0	23.0	25.5	21.5	23.0
23	23.0	20.5	22.0	24.0	21.0	22.5	23.0	21.0	22.0	24.5	21.5	23.0
24	23.0	21.0	22.0	24.0	20.0	22.0	24.0	20.5	22.0	23.0	21.5	22.5
25	22.5	21.0	22.0	24.5	21.5	23.0	24.5	21.0	22.5	25.0	21.5	21.5
26	23.5	21.0	22.0	23.0	21.5	22.5	23.5	21.5	22.5	25.0	22.5	23.5
27	23.0	21.5	22.5	23.0	20.0	21.5	25.5	21.5	22.0	26.0	22.5	24.5
28	23.5	21.5	22.5	25.0	21.0	23.0	25.0	21.5	24.0	24.5	23.0	24.0
29	23.0	19.5	21.5	24.5	21.0	23.0	21.5	19.0	20.5	25.0	22.5	23.5
30	---	---	---	25.0	21.0	23.0	23.5	19.5	21.5	25.5	22.5	24.0
31	---	---	---	22.5	20.5	21.5	---	---	---	24.5	22.5	23.5
MONTH	23.5	18.0	21.5	25.0	16.0	22.0	26.0	19.0	22.0	26.0	20.5	23.5

	JUNE			JULY			AUGUST			SEPTEMBER		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	24.5	22.5	23.5	25.0	22.5	23.5	26.5	23.5	24.5	25.0	22.5	23.5
2	24.0	22.5	23.0	24.5	22.5	23.5	25.5	23.5	24.5	25.5	22.5	23.5
3	24.0	22.5	23.0	25.0	22.5	23.5	25.5	22.5	24.0	25.5	23.0	24.0
4	23.5	22.5	23.0	25.5	22.5	23.5	25.0	23.0	24.0	26.5	22.5	24.5
5	24.0	22.5	23.0	26.0	23.0	24.0	26.0	23.0	24.0	25.0	23.0	24.0
6	24.5	22.0	23.0	25.0	22.5	23.5	26.0	23.0	24.5	25.0	22.5	23.5
7	26.5	22.5	24.0	26.0	22.5	24.0	26.5	23.0	24.0	25.0	22.5	23.5
8	25.0	22.5	23.5	24.5	23.0	24.0	25.5	22.5	24.0	26.0	22.5	24.0
9	25.0	22.5	23.5	25.5	23.0	24.0	25.5	23.0	24.0	24.5	23.0	24.0
10	24.5	22.5	23.5	25.5	23.5	24.0	26.0	22.5	24.0	24.5	23.5	24.0
11	26.0	22.5	24.0	26.0	23.0	24.0	25.0	23.0	24.0	24.5	22.5	23.5
12	24.0	22.0	23.0	25.0	22.5	24.0	25.5	23.0	24.0	24.5	22.5	23.5
13	25.5	22.0	23.5	25.5	23.0	24.0	25.5	22.5	24.0	25.0	22.0	23.5
14	25.5	22.5	23.5	26.0	23.0	24.0	25.5	23.5	24.5	25.0	22.5	23.5
15	25.5	22.5	24.0	26.0	22.5	23.5	26.0	22.5	24.0	25.0	23.0	23.5
16	24.5	22.5	23.5	26.0	22.5	24.0	25.5	22.5	23.5	25.0	22.5	23.5
17	24.5	22.0	23.0	25.0	22.5	23.5	24.5	22.5	23.5	24.5	22.5	23.5
18	24.0	22.5	23.0	26.0	22.0	23.5	26.5	23.0	25.0	25.5	23.0	24.0
19	25.0	22.5	23.5	25.5	22.0	23.5	26.5	23.0	24.0	25.0	23.0	23.5
20	24.5	22.5	23.5	25.5	22.5	24.0	26.0	23.0	24.5	24.5	22.5	23.5
21	25.0	22.5	23.5	26.0	23.0	24.0	26.0	23.0	24.5	24.0	22.0	23.0
22	25.5	22.5	24.0	25.0	23.0	24.0	25.5	22.5	24.0	25.0	22.5	23.5
23	26.5	22.5	24.0	25.0	22.5	24.0	25.0	22.5	24.0	24.0	22.0	23.0
24	25.0	23.0	24.0	26.0	23.0	24.5	26.0	22.5	24.0	24.5	22.5	23.5
25	25.5	22.0	23.5	25.5	23.0	24.0	27.5	24.5	26.0	24.0	22.5	23.0
26	25.0	22.5	23.5	24.5	22.5	23.5	26.5	23.5	25.0	25.0	22.5	23.5
27	25.5	22.5	23.5	25.5	22.5	24.0	26.5	23.5	25.5	24.5	22.5	23.5
28	26.0	22.5	24.0	25.5	22.5	24.0	25.5	22.5	24.0	24.0	22.5	23.5
29	25.5	22.5	24.0	25.5	22.5	24.0	25.5	22.5	23.5	26.0	23.0	24.0
30	25.5	22.5	23.5	25.0	23.0	24.0	26.0	22.5	24.0	24.5	23.0	24.0
31	---	---	---	25.5	22.5	24.0	24.5	22.5	23.0	---	---	---
MONTH	26.5	22.0	23.5	26.0	22.0	24.0	27.5	22.5	24.0	26.5	22.0	23.5
YEAR	27.5	16.0	23.0									

HAWAII, ISLAND OF OAHU

16213000 WAIKELE STREAM AT WAIPAHU--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER MEAN DISCHARGE (CFS)	OCTOBER MEAN CONCEN-TRATION (MG/L)	OCTOBER SEDIMENT DISCHARGE (TONS/DAY)	NOVEMBER MEAN DISCHARGE (CFS)	NOVEMBER MEAN CONCEN-TRATION (MG/L)	NOVEMBER SEDIMENT DISCHARGE (TONS/DAY)	DECEMBER MEAN DISCHARGE (CFS)	DECEMBER MEAN CONCEN-TRATION (MG/L)	DECEMBER SEDIMENT DISCHARGE (TONS/DAY)
1	1.3	20	.07	8.6	10	.23	42	15	1.7
2	1.9	25	.13	17	10	.46	41	12	1.3
3	1.6	30	.13	11	12	.36	119	332	173
4	5.5	25	.37	3.0	12	.10	47	60	7.6
5	17	25	1.1	8.6	12	.28	37	25	2.5
6	12	25	.81	13	12	.42	35	20	1.9
7	58	214	98	5.7	12	.18	32	20	1.7
8	32	50	4.3	8.0	12	.26	32	15	1.3
9	12	20	.65	17	12	.55	33	15	1.3
10	6.3	15	.26	6.8	15	.28	30	15	1.2
11	8.5	12	.28	2.2	15	.09	30	10	.81
12	18	12	.58	5.9	15	.24	31	10	.84
13	14	15	.57	6.8	15	.28	77	80	17
14	6.5	15	.26	6.0	12	.19	47	20	2.5
15	6.4	15	.26	6.8	10	.18	39	20	2.1
16	3.8	15	.15	14	10	.38	36	20	1.9
17	3.8	20	.21	12	10	.32	32	25	2.2
18	9.0	20	.49	13	15	.53	34	30	2.8
19	106	354	562	7.8	15	.32	31	30	2.5
20	82	223	80	7.0	15	.28	29	30	2.3
21	16	50	2.2	5.7	15	.23	29	25	2.0
22	9.2	30	.75	4.2	20	.23	29	25	2.0
23	6.0	20	.32	10	20	.54	29	20	1.6
24	5.8	15	.23	120	397	195	28	20	1.5
25	8.3	15	.34	778	1770	5060	28	15	1.1
26	17	12	.55	607	1510	4810	28	15	1.1
27	8.7	12	.28	706	929	3030	28	15	1.1
28	5.0	12	.16	108	94	29	28	15	1.1
29	4.8	10	.13	64	40	6.9	29	15	1.2
30	4.1	10	.11	50	25	3.4	28	15	1.1
31	5.0	10	.14	---	---	---	28	15	1.1
TOTAL	495.5	---	755.83	2633.1	---	13141.23	1146	---	243.35

DAY	JANUARY MEAN DISCHARGE (CFS)	JANUARY MEAN CONCEN-TRATION (MG/L)	JANUARY SEDIMENT DISCHARGE (TONS/DAY)	FEBRUARY MEAN DISCHARGE (CFS)	FEBRUARY MEAN CONCEN-TRATION (MG/L)	FEBRUARY SEDIMENT DISCHARGE (TONS/DAY)	MARCH MEAN DISCHARGE (CFS)	MARCH MEAN CONCEN-TRATION (MG/L)	MARCH SEDIMENT DISCHARGE (TONS/DAY)
1	28	15	1.1	32	20	1.7	72	194	82
2	28	15	1.1	27	15	1.1	68	180	33
3	28	15	1.1	25	15	1.0	30	50	4.1
4	28	15	1.1	27	15	1.1	27	45	3.3
5	29	15	1.2	74	269	185	62	60	10
6	35	20	1.9	343	660	781	32	30	2.6
7	78	60	13	968	3420	12000	26	25	1.8
8	43	15	1.7	740	1330	4600	29	30	2.3
9	36	15	1.5	112	130	39	115	216	101
10	52	25	3.5	69	50	9.3	72	100	19
11	42	20	2.3	54	35	5.1	32	40	3.5
12	35	20	1.9	46	25	3.1	24	35	2.3
13	31	15	1.3	41	20	2.2	22	30	1.8
14	25	15	1.0	38	20	2.1	30	25	2.0
15	27	15	1.1	41	20	2.2	19	25	1.3
16	38	15	1.5	40	20	2.2	12	30	.97
17	40	15	1.6	43	20	2.3	27	45	3.3
18	33	15	1.3	38	20	2.1	133	221	93
19	26	15	1.1	36	20	1.9	71	85	21
20	29	15	1.2	36	15	1.5	34	30	2.8
21	24	15	.97	34	20	1.8	35	30	2.8
22	26	15	1.1	40	20	2.2	55	60	8.9
23	26	15	1.1	49	15	2.0	72	139	37
24	26	15	1.1	45	15	1.8	41	60	6.6
25	31	15	1.3	37	15	1.5	32	30	2.6
26	25	15	1.0	28	20	1.5	74	80	16
27	25	15	1.0	32	20	1.7	113	118	37
28	22	15	.89	60	145	46	52	40	5.6
29	24	15	.97	58	120	19	40	35	3.8
30	26	15	1.1	---	---	---	48	50	6.5
31	37	30	3.0	---	---	---	96	133	36
TOTAL	1003	---	55.03	3213	---	17721.4	1595	---	553.87

16213000 WAIKELE STREAM AT WAIPAHU--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	APRIL MEAN DISCHARGE (CFS)	APRIL MEAN CONCEN-TRATION (MG/L)	APRIL SEDIMENT DISCHARGE (TONS/DAY)	MAY MEAN DISCHARGE (CFS)	MAY MEAN CONCEN-TRATION (MG/L)	MAY SEDIMENT DISCHARGE (TONS/DAY)	JUNE MEAN DISCHARGE (CFS)	JUNE MEAN CONCEN-TRATION (MG/L)	JUNE SEDIMENT DISCHARGE (TONS/DAY)
1	91	100	25	36	35	3.4	10	15	.41
2	71	80	15	30	25	2.0	13	20	.70
3	83	60	13	32	20	1.7	15	20	.81
4	59	35	5.6	40	30	3.2	14	20	.76
5	48	35	4.5	36	25	2.4	9.3	20	.50
6	33	30	2.7	22	20	1.2	12	20	.65
7	35	25	2.4	19	20	1.0	7.4	20	.40
8	96	150	39	18	20	.97	7.0	20	.38
9	135	170	62	25	20	1.4	8.6	20	.46
10	67	70	13	22	20	1.2	14	20	.76
11	50	35	4.7	12	20	.65	23	20	1.2
12	51	35	4.8	21	20	1.1	15	20	.81
13	37	30	3.0	28	20	1.5	9.3	20	.50
14	29	30	2.3	18	20	.97	5.5	20	.30
15	32	30	2.6	17	20	.92	4.7	15	.19
16	35	30	2.8	21	20	1.1	9.0	15	.36
17	173	250	110	24	20	1.3	12	20	.65
18	77	100	21	20	20	1.1	12	20	.65
19	60	80	13	20	20	1.1	17	20	.92
20	36	70	6.8	16	20	.86	17	20	.92
21	39	70	7.4	35	25	2.4	7.8	25	.53
22	82	150	33	56	30	4.5	11	25	.74
23	66	70	12	37	20	2.0	15	20	.81
24	86	80	19	52	30	4.2	17	20	.92
25	66	40	7.1	22	25	1.5	19	20	1.0
26	45	35	4.3	24	20	1.3	14	20	.76
27	36	30	2.9	23	20	1.2	9.0	20	.49
28	58	83	25	20	20	1.1	5.6	20	.30
29	189	263	197	18	15	.73	8.7	20	.47
30	84	80	18	23	20	1.2	11	20	.59
31	---	---	---	16	15	.65	---	---	---
TOTAL	2049	---	678.9	803	---	49.85	352.9	---	18.94

DAY	JULY MEAN DISCHARGE (CFS)	JULY MEAN CONCEN-TRATION (MG/L)	JULY SEDIMENT DISCHARGE (TONS/DAY)	AUGUST MEAN DISCHARGE (CFS)	AUGUST MEAN CONCEN-TRATION (MG/L)	AUGUST SEDIMENT DISCHARGE (TONS/DAY)	SEPTEMBER MEAN DISCHARGE (CFS)	SEPTEMBER MEAN CONCEN-TRATION (MG/L)	SEPTEMBER SEDIMENT DISCHARGE (TONS/DAY)
1	13	20	.70	12	25	.81	3.0	20	.16
2	27	25	1.8	6.5	20	.35	6.5	20	.35
3	22	20	1.2	7.1	20	.38	6.8	20	.37
4	24	20	1.3	10	25	.68	4.5	30	.36
5	20	15	.81	13	25	.88	8.8	30	.71
6	5.7	15	.23	12	20	.65	6.9	25	.47
7	7.4	15	.30	9.9	20	.53	12	25	.81
8	15	20	.81	8.6	20	.46	16	25	1.1
9	17	20	.92	7.9	20	.43	16	30	1.3
10	13	20	.70	8.1	20	.49	16	30	1.3
11	23	20	1.2	11	20	.59	9.3	30	.75
12	16	20	.86	11	20	.59	6.4	20	.35
13	10	15	.41	12	20	.65	4.5	20	.24
14	13	15	.53	14	20	.76	3.9	20	.21
15	10	15	.41	7.8	15	.32	6.0	25	.41
16	6.8	15	.28	4.1	15	.17	8.7	25	.59
17	8.2	15	.33	8.6	15	.35	9.5	25	.64
18	4.0	15	.16	13	20	.70	15	25	1.0
19	3.0	15	.12	33	40	3.6	7.1	25	.48
20	41	60	6.6	26	30	2.1	4.2	25	.28
21	21	35	2.0	14	20	.76	5.8	25	.39
22	28	25	1.9	8.1	20	.44	8.2	25	.55
23	28	25	1.9	4.6	20	.25	7.0	25	.47
24	19	20	.97	9.1	40	.98	3.5	25	.24
25	78	120	25	11	40	1.2	3.7	25	.25
26	44	70	8.3	10	40	1.1	2.4	25	.16
27	30	50	4.1	11	30	.89	2.9	25	.20
28	22	35	2.1	6.3	20	.34	23	40	2.5
29	21	30	1.7	2.0	20	.11	26	30	2.1
30	12	25	.81	3.2	20	.17	14	25	.94
31	17	25	1.1	4.6	20	.25	---	---	---
TOTAL	618.1	---	69.55	320.5	---	21.98	267.6	---	19.68
YEAR	14496.7		33329.61						

16216000 WAIAWA STREAM NEAR PEARL CITY

LOCATION.--Lat 21°23'57", long 157°58'51", Hydrologic Unit 20060000, on left bank 100 ft (30 m) upstream from lower bridge on Highway 90, 0.6 mi (1.0 km) northwest of Pearl City, and 2.0 mi (3.2 km) northeast of Waipahu.

DRAINAGE AREA.--26.4 mi^2 (68.4 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1569: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1.81 ft (0.552 m) above mean sea level.

REMARKS.--Records fair except those above 300 ft^3/s (8.50 m^3/s), which are poor. Low flow affected by effluent from sewage treatment plant and occasional small irrigation diversions and return flow above station.

AVERAGE DISCHARGE.--24 years, 33.0 ft^3/s (0.935 m^3/s), 23,910 acre-ft/yr (29.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,400 ft^3/s (663 m^3/s) Jan. 5, 1968, gage height, 20.56 ft (6.267 m), from rating curve extended above 1,100 ft^3/s (31.2 m^3/s) on basis of slope-area measurements at gage heights 17.1 ft (5.21 m) and 20.56 ft (6.267 m); minimum, 1.7 ft^3/s (0.048 m^3/s) Nov. 8, 9, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,300 ft^3/s (65.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 19	2000	4000	113	10.30	3.139	Feb. 7	0600	2420	68.5	8.54	2.603
Nov. 25	1545	5990	170	12.29	3.746	Apr. 29	0415	3800	108	10.10	3.078
Nov. 27	0115	*8300	235	14.13	4.307						

Minimum discharge, 1.8 ft^3/s (0.051 m^3/s) June 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.3	2.7	16	3.5	3.2	58	50	24	3.7	2.9	5.1	3.0
2	3.0	2.8	37	3.4	3.1	41	48	15	4.0	9.8	3.8	3.1
3	2.9	2.7	56	3.4	3.0	14	104	10	4.0	5.6	3.0	3.1
4	2.9	3.0	15	3.4	3.0	86	36	12	3.7	3.4	2.9	2.9
5	2.9	2.8	9.1	3.4	4.4	62	21	13	3.4	3.0	3.1	3.0
6	3.4	2.6	7.2	3.6	421	16	14	7.9	3.1	2.9	3.3	2.8
7	107	3.0	6.1	36	393	11	16	5.4	3.2	2.7	3.2	2.9
8	18	8.1	5.5	9.6	315	31	175	5.4	3.1	2.7	3.0	3.4
9	5.6	5.7	4.8	8.5	54	188	165	4.1	3.1	2.8	3.2	3.5
10	5.2	3.3	4.4	23	27	62	57	3.6	9.3	3.0	3.0	4.2
11	5.5	3.9	4.2	12	16	18	31	4.1	7.3	5.6	3.5	3.0
12	3.9	3.6	4.5	6.6	11	11	25	6.6	5.8	5.1	4.0	3.0
13	3.6	4.6	75	5.0	8.1	8.1	19	8.7	4.7	3.1	3.7	2.8
14	3.5	5.1	19	4.0	6.6	6.9	13	4.3	3.8	2.6	4.6	2.8
15	3.2	7.1	9.3	3.6	6.0	6.0	16	3.4	2.9	2.8	4.7	3.0
16	3.0	4.1	6.4	17	5.8	9.6	12	3.2	2.8	2.7	3.2	3.0
17	2.9	4.2	5.4	9.8	5.7	38	216	4.6	3.2	2.5	4.6	3.6
18	3.1	4.3	5.4	5.0	6.0	252	47	7.2	3.0	2.6	3.7	3.3
19	417	4.2	4.6	3.9	5.0	60	40	7.3	3.7	3.4	36	3.6
20	75	4.5	4.0	3.6	4.6	21	19	5.8	2.9	31	12	4.2
21	12	5.2	3.8	3.4	4.3	21	14	13	3.3	7.6	4.4	2.8
22	6.9	3.7	3.6	3.4	4.7	42	117	13	2.9	13	3.1	3.0
23	4.9	11	3.8	4.2	7.0	105	49	8.2	3.7	9.9	2.9	2.6
24	4.3	187	3.5	3.4	7.8	32	88	11	6.0	12	3.0	2.5
25	3.6	1720	3.5	3.3	5.8	26	42	14	5.2	293	3.0	2.5
26	3.3	1100	3.4	3.3	4.7	158	21	7.8	4.1	46	4.0	2.5
27	3.2	1590	3.4	3.2	6.0	116	13	9.7	3.2	23	4.3	2.5
28	3.3	139	3.4	3.1	24	37	25	8.1	2.8	20	3.2	43
29	2.8	46	3.4	3.1	28	28	469	5.2	2.8	12	3.3	19
30	2.8	25	3.4	3.2	---	21	69	5.8	2.8	9.8	3.7	5.7
31	2.7	---	3.4	4.9	---	64	---	4.2	---	7.3	3.1	---
TOTAL	724.7	4909.2	337.5	206.8	1393.8	1649.6	2031	255.6	117.5	553.8	151.6	150.3
MEAN	23.4	164	10.9	6.67	48.1	53.2	67.7	8.25	3.92	17.9	4.89	5.01
MAX	417	1720	75	36	421	252	469	24	9.3	293	36	43
MIN	2.7	2.6	3.4	3.1	3.0	6.0	12	3.2	2.8	2.5	2.9	2.5
AC-FT	1440	9740	669	410	2760	3270	4030	507	233	1100	301	298

CAL YR 1975 TOTAL 12285.9 MEAN 33.7 MAX 1720 MIN 2.6 AC-FT 24370
WTR YR 1976 TOTAL 12481.4 MEAN 34.1 MAX 1720 MIN 2.5 AC-FT 24760

HAWAII, ISLAND OF OAHU

16216000 WAIAWA STREAM NEAR PEARL CITY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968-72 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 18...	1300	5.5	1	1	130	51	24	17	77
FEB. 06...	1100	667	--	230	--	--	--	--	--
MAY 03...	1215	9.9	1	4	78	33	13	11	43

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 18...	55	2.9	4.4	96	0	79	31	25	130
FEB. 06...	--	--	--	--	--	--	--	--	--
MAY 03...	53	2.1	2.9	55	0	45	28	13	78

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 18...	.1	38	374	.51	2.0	.70	20	60
FEB. 06...	--	--	--	--	--	--	--	--
MAY 03...	.0	24	222	.30	1.8	.60	100	30

DATE	TIME	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
FEB. 06...	1100	.21	.14	3.3	3.4	3.6	.26

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC 18...	1300	5.5	658	6.7	21.5
FEB 06...	1100	667	62	6.5	20.0
MAR 22...	1300	41	170	6.2	22.5
MAY 03...	1215	9.9	440	6.5	23.0
JUN 15...	1300	3.7	1000	6.7	25.0
JUL 23...	1500	7.9	800	6.7	25.0
SEP 10...	1230	5.1	1800	6.9	23.5

16224500 KALAUAO STREAM AT MOANALUA ROAD, AT AIEA

LOCATION.--Lat 21°23'07", long 157°56'22", Hydrologic Unit 20060000, on left bank at downstream side of Moanalua Road bridge, 0.4 mi (0.6 km) northwest of Aiea Post Office, and 2.3 mi (3.7 km) southeast of Pearl City Post Office.

DRAINAGE AREA.--2.59 mi² (6.71 km²).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete control. Datum of gage is 11.71 ft (3.569 m) above mean sea level. Nov. 15, 1965, to June 16, 1966, at datum 0.04 ft (0.012 m) higher. Prior to Nov. 15, 1965, and June 17, 1966, to Sept. 30, 1970, at datum 1.04 ft (0.317 m) higher.

REMARKS.--Records poor. No diversion above station.

AVERAGE DISCHARGE.--19 years, 2.92 ft³/s (0.083 m³/s), 2,120 acre-ft/yr (2.61 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,580 ft³/s (73.1 m³/s) May 14, 1963, gage height, 6.63 ft (2.021 m), datum then in use, from rating curve extended above 77 ft³/s (2.18 m³/s) on basis of slope-area measurements at gage heights 6.29 ft (1.917 m) and 6.63 ft (2.021 m); no flow for many days in 1970-74.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.50 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 25	1615	530	15.0	4.02	1.225
Nov. 26	2400	*620	17.6	4.20	1.280

Minimum discharge, 0.02 ft³/s (0.001 m³/s) for several days in August.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.06	.74	.07	.12	15	3.9	2.4	.10	.08	.06	.04
2	.06	.06	1.2	.09	.07	7.0	2.9	.96	.07	.11	.06	.04
3	.07	.05	3.1	.12	.09	1.5	13	.36	.07	.17	.05	.04
4	.07	.05	.90	.09	.08	32	3.5	.29	.13	.18	.05	.04
5	.07	.05	.29	.08	.24	13	1.4	.22	.30	.06	.06	.04
6	.06	.05	.18	.25	43	2.8	.61	.18	.24	.08	.06	.04
7	.06	.06	.13	.09	19	1.4	.29	.20	.08	.07	.08	.05
8	.06	.06	.11	.09	31	9.2	9.4	.14	.18	.06	.06	.04
9	.05	.06	.08	.09	5.6	35	14	.09	.25	.06	.06	.04
10	.05	.06	.08	.12	2.1	7.3	5.9	.08	.11	.13	.05	.04
11	.06	.06	.07	.08	1.0	2.4	2.6	.08	.06	.08	.04	.04
12	.06	.05	.34	.08	.50	1.2	1.3	.12	.06	.11	.03	.04
13	.06	.07	18	.08	.35	.53	.73	.09	.09	.12	.04	.07
14	.06	.05	3.4	.07	.26	.32	.41	.12	.10	.18	.04	.05
15	.06	.05	1.2	.07	.21	.27	.19	.10	.06	.06	.04	.04
16	.06	.05	.50	.07	.21	.32	.86	.10	.06	.07	.04	.04
17	.06	.05	.39	.07	.22	1.3	14	.09	.08	.08	.39	.04
18	.07	.05	.33	.08	.19	27	8.0	.26	.09	.06	.04	.04
19	4.5	.05	.17	.08	.18	6.5	4.3	.42	.08	.15	.05	.05
20	3.3	.05	.20	.09	.14	2.0	1.6	.21	.06	.06	.04	.04
21	.20	.05	.15	.12	.15	1.3	.66	.14	.06	.05	.04	.04
22	.08	.05	.16	.13	.15	3.5	9.8	.13	.07	.10	.09	.04
23	.07	1.9	.18	.07	.18	11	3.8	.15	.10	.10	.08	.04
24	.06	9.0	.08	.07	.24	4.4	5.8	.08	.15	.05	.03	.05
25	.86	146	.08	.07	.19	2.3	2.4	.08	.10	15	.05	.05
26	.06	79	.15	.07	.17	13	1.6	.11	.11	3.0	.04	.08
27	.06	108	.20	.07	.20	6.3	.39	.09	.14	.83	.04	.04
28	.08	8.6	.07	.08	.24	2.6	1.3	.08	.12	.11	.04	.04
29	.05	2.9	.06	.13	.51	2.1	24	.07	.06	.07	.05	.04
30	.05	1.2	.07	.23	---	2.4	8.0	.09	.07	.06	.05	.04
31	.05	---	.07	.26	---	4.9	---	.17	---	.05	.05	---
TOTAL	9.73	357.79	32.68	3.16	106.59	219.84	146.64	7.70	3.25	21.39	1.90	1.32
MEAN	.31	11.9	1.05	.10	3.68	7.09	4.89	.25	.11	.69	.061	.044
MAX	4.5	146	18	.26	43	35	24	2.4	.30	15	.39	.08
MIN	.05	.05	.06	.07	.07	.27	.19	.07	.06	.05	.03	.04
AC-FT	19	710	65	6.3	211	436	291	15	6.4	42	3.8	2.6

CAL YR 1975 TOTAL 1022.80 MEAN 2.80 MAX 155 MIN .04 AC-FT 2030
WTR YR 1976 TOTAL 911.99 MEAN 2.49 MAX 146 MIN .03 AC-FT 1810

16224500 KALAUAO STREAM AT MOANALUA ROAD, AT AIEA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968, 1970-71 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
22...	1505	.21	3	1	130	0	24	18	69
MAY									
03...	1430	.09	5	6	83	0	15	11	27

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
22...	52	2.6	3.6	170	0	139	54	29	86
MAY									
03...	41	1.3	1.9	111	0	91	35	9.5	33

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
22...	.2	49	368	.50	1.1	.08	0	30
MAY								
03...	.0	24	177	.24	.12	.01	70	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC					
22...	1505	.21	577	6.7	23.5
FEB					
05...	1345	.10	600	6.7	23.0
MAR					
25...	0930	1.8	180	6.6	22.5
MAY					
03...	1430	.09	310	6.7	24.5
JUN					
15...	1300	.06	600	6.9	26.0
JUL					
20...	1400	.06	650	6.9	24.5
SEP					
09...	1300	.04	625	6.6	24.5

16226000 NORTH HALAWA STREAM NEAR AIEA

LOCATION.--Lat 21°23'46", long 157°53'37", Hydrologic Unit 20060000, on left bank 2.7 mi (4.3 km) upstream from confluence with South Halawa Stream and 2.7 mi (4.3 km) northeast of Aiea Post Office.

DRAINAGE AREA.--3.45 mi^2 (8.94 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 320 ft (98 m), from topographic map.

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

AVERAGE DISCHARGE.--26 years (water years, 1930-32, 1954-76), 5.04 ft^3/s (0.143 m^3/s), 3,650 acre-ft/yr (4.50 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,650 ft^3/s (188 m^3/s) Feb. 28, 1932, gage height, 13.36 ft (4.103 m), from rating curve extended above 420 ft^3/s (11.9 m^3/s); maximum gage height, 13.46 ft (4.103 m) May 14, 1963; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 758 ft^3/s (21.5 m^3/s) Nov. 25, gage height, 9.46 ft (2.883 m), from rating curve extended above 44 ft^3/s (1.25 m^3/s) on basis of slope-area measurements at gage heights 10.3 ft (3.14 m), 13.04 ft (3.975 m), and 13.46 ft (4.103 m), no other peak above base of 570 ft^3/s (16.1 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	1.2	.02	0	8.7	3.0	6.3	.07	0	.27	0
2	0	0	4.3	.02	0	3.0	4.8	3.1	.04	0	.15	0
3	0	0	5.6	.02	0	1.1	24	2.0	.04	0	.07	0
4	0	0	1.7	0	0	49	6.1	1.9	.03	0	.05	0
5	0	0	.63	0	0	16	3.6	1.4	.03	0	.04	0
6	0	0	.43	.01	63	3.7	2.2	1.0	.03	0	.09	0
7	3.4	0	.25	.01	24	1.8	1.5	.74	.03	0	.16	0
8	.35	0	.14	0	36	16	30	.58	.04	0	.11	0
9	.11	0	.10	.02	8.5	51	31	.43	.03	0	.07	0
10	.06	0	.07	.74	3.1	17	13	.32	.02	0	.04	0
11	.03	0	.04	.63	1.6	4.1	5.9	.30	.02	0	.05	0
12	.03	0	.03	.32	.87	2.1	3.7	1.2	.01	0	.03	0
13	.02	0	37	.18	.58	1.7	2.6	1.0	.01	0	.08	0
14	.02	0	5.9	.12	.39	.74	1.8	.39	.01	0	.15	0
15	.02	0	2.3	.07	.20	.48	1.5	.23	.03	0	.13	0
16	.01	0	1.0	1.9	.15	.78	16	.16	.03	0	.10	0
17	0	0	.68	.58	.11	18	27	.20	.04	0	.09	0
18	0	0	.43	.27	.07	48	18	.25	.04	0	.07	.98
19	10	0	.25	.16	.07	12	9.8	.20	.05	0	.08	.03
20	3.7	0	.14	.09	.06	4.6	4.1	.16	.05	0	.07	.03
21	.48	0	.10	.07	.05	6.0	2.8	1.9	.04	0	.07	.05
22	.23	2.8	.07	.07	.03	6.5	14	4.0	.03	0	.07	.04
23	.12	1.3	.06	.05	.04	26	5.5	2.2	.02	.09	.07	.03
24	.07	16	.05	.05	.04	7.4	7.4	1.2	.02	7.3	.06	.02
25	.04	143	.04	.04	.04	4.8	4.4	.74	.01	51	.03	.02
26	.02	60	.03	.04	.03	31	2.4	.53	0	9.2	.03	.05
27	.02	99	.03	.03	.03	14	1.6	.39	0	3.8	.05	1.9
28	.02	14	.02	.02	.03	5.9	6.1	.23	0	2.3	.02	5.9
29	.02	4.4	.02	.02	.10	3.4	45	.15	0	1.0	0	3.6
30	.01	2.1	.02	.01	---	2.2	19	.10	0	1.1	0	.74
31	.01	---	.02	.02	---	3.3	---	.08	---	.53	0	---
TOTAL	18.79	342.6	62.65	5.58	139.09	370.30	317.8	33.38	.77	76.32	2.30	13.39
MEAN	.61	11.4	2.02	.18	4.80	11.9	10.6	1.08	.026	2.46	.074	.45
MAX	10	143	37	1.9	63	51	45	6.3	.07	51	.27	5.9
MIN	0	0	.02	0	0	.48	1.5	.08	0	0	0	0
AC-FT	37	680	124	11	276	734	630	66	1.5	151	4.6	27

CAL YR 1975 TOTAL 986.88 MEAN 2.70 MAX 143 MIN 0 AC-FT 1960
WTR YR 1976 TOTAL 1382.97 MEAN 3.78 MAX 143 MIN 0 AC-FT 2740

HAWAII, ISLAND OF OAHU

16226000 NORTH HALAWA STREAM NEAR AIEA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971, 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970, 1973 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 22...	1130	.06	6	1	42	4	7.2	5.9	16
APR. 30...	1600	16	7	5	30	2	4.9	4.3	12

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 22...	44	1.1	1.0	47	0	39	75	4.4	26
APR. 30...	46	1.0	.9	34	0	28	8.6	2.9	18

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 22...	.1	23	107	.15	.01	.01	10	0
APR. 30...	.0	17	77	.10	.12	.01	70	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC 22...	1130	.06	170	6.0	19.5
MAR 23...	1500	63	100	6.3	20.5

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
APR 30...	1600	16	140	6.8	20.0

HAWAII, ISLAND OF OAHU

16227500 MOANALUA STREAM NEAR KANEOHE

LOCATION.--Lat 21°23'29", long 157°51'05", Hydrologic Unit 20060000, on left bank 3.3 mi (5.3 km) northeast of Tripler Hospital and 3.6 mi (5.8 km) southwest of Kaneohe Post Office.

DRAINAGE AREA.--0.94 mi^2 (2.43 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 660 ft (201 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Recording rain gage and evaporation pan located at station.

AVERAGE DISCHARGE.--8 years, 1.32 ft^3/s (0.037 m^3/s), 956 acre-ft/yr (1.18 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,530 ft^3/s (43.3 m^3/s) Nov. 26, 1970, gage height, 8.07 ft (2.460 m), from rating curve extended above 18 ft^3/s (0.51 m^3/s) on basis of slope-area measurement at gage height 5.94 ft (1.811 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft^3/s (7.08 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 25	1335	*560	15.9	5.57	1.698
Nov. 26	2305	409	11.6	5.13	1.564

No flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	.83	0	0	0	.01	.85		0		0
2	0	0	1.3	0	0	0	1.1	.52		0		0
3	0	0	.89	0	0	0	1.4	.54		0		0
4	0	0	.48	0	0	2.1	.99	.60		0		0
5	0	0	.28	0	0	0	.74	.53		0		0
6	0	0	.15	0	.02	0	.55	.46		0		0
7	0	0	.04	1.2	0	0	.45	.41		0		0
8	0	0	0	.20	.03	0	11	.36		0		0
9	0	0	0	.01	0	2.0	3.1	.31		0		0
10	0	0	0	.35	.28	0	1.3	.26		0		0
11	0	0	0	.22	.49	0	.87	.24		0		0
12	0	0	0	.04	.32	0	.67	.22		0		0
13	0	0	3.0	0	.22	0	.58	.20		0		0
14	0	0	.09	0	.13	0	.53	.15		0		0
15	0	0	0	0	.03	0	.46	.13		0		0
16	0	0	0	1.2	0	0	9.4	.11		0		0
17	0	0	0	.51	0	.07	8.1	.08		0		0
18	0	0	0	.22	0	.35	5.1	0		0		.02
19	7.0	0	0	.07	0	0	2.3	0		0		0
20	.60	0	0	0	0	0	.89	0		0		0
21	.03	0	0	0	0	0	.64	0		0		0
22	0	0	0	0	0	0	2.7	0		0		0
23	0	0	0	0	0	.12	.79	0		0		0
24	0	.06	0	0	0	0	.91	0		1.3		0
25	0	56	0	0	0	0	.60	0		8.6		0
26	0	14	0	0	0	.01	.41	0		.48		0
27	0	22	0	0	0	0	.27	0		.24		.19
28	0	2.6	0	0	0	0	.59	0		.29		1.0
29	0	1.1	0	0	0	0	8.3	0		.03		.44
30	0	.56	0	0	---	0	3.6	0		.24		.02
31	0	---	0	0	---	0	---	0	---	.19		---
TOTAL	7.63	96.32	7.06	4.02	1.52	4.65	68.35	5.97	0	11.37	0	1.67
MEAN	.25	3.21	.23	.13	.052	.15	2.28	.19	0	.37	0	.056
MAX	7.0	56	3.0	1.2	.49	2.1	11	.85	0	8.6	0	1.0
MIN	0	0	0	0	0	0	.01	0	0	0	0	0
AC-FT	15	191	14	8.0	3.0	9.2	136	12	0	23	0	3.3

CAL YR 1975 TOTAL 302.53 MEAN .83 MAX 56 MIN 0 AC-FT 600
WTR YR 1976 TOTAL 208.56 MEAN .57 MAX 56 MIN 0 AC-FT 414

16227500 MOANALUA STREAM NEAR KANEOHE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970-71, 1972 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1971 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since October 1971.

REMARKS.--In addition to the sediment sampler record, a water-quality sample was collected during the year.

EXTREMES FOR PERIOD OF RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 303 mg/L Nov. 25, 1975; minimum daily mean, 0 mg/L on many days each year.
SEDIMENT DISCHARGE: Maximum daily, 162 tons (147 tonnes) Nov. 25, 1975; minimum daily, 0 ton (0 tonne) on many days each year.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 303 mg/L Nov. 25; minimum daily mean: 0 mg/L on many days during year.
SEDIMENT DISCHARGE: Maximum daily, 162 tons (147 tonnes) Nov. 25; minimum daily, 0 ton (0 tonne) on many days during year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)
NOV. 26...	1435	3.5	1	25	10	4.4	3.4	11	48	1.0	1.0

DATE	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)
NOV. 26...	18	0	15	36	5.2	20	.2	11	65	.09

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
NOV. 26...	1435	3.5	107	5.9

HAWAII, ISLAND OF OAHU

16227500 MOANALUA STREAM NEAR KANEOHE--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	OCTOBER MEAN DISCHARGE (CFS)	OCTOBER MEAN CONCEN-TRATION (MG/L)	OCTOBER SEDIMENT DISCHARGE (TONS/DAY)	NOVEMBER MEAN DISCHARGE (CFS)	NOVEMBER MEAN CONCEN-TRATION (MG/L)	NOVEMBER SEDIMENT DISCHARGE (TONS/DAY)	DECEMBER MEAN DISCHARGE (CFS)	DECEMBER MEAN CONCEN-TRATION (MG/L)	DECEMBER SEDIMENT DISCHARGE (TONS/DAY)
1	0	0	0	0	0	0	.83	8	.02
2	0	0	0	0	0	0	1.3	30	.11
3	0	0	0	0	0	0	.89	10	.02
4	0	0	0	0	0	0	.48	5	.01
5	0	0	0	0	0	0	.28	4	0
6	0	0	0	0	0	0	.15	3	0
7	0	0	0	0	0	0	.04	3	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	3.0	40	.32
14	0	0	0	0	0	0	.09	50	.01
15	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
19	7.0	50	.94	0	0	0	0	0	0
20	.60	20	.03	0	0	0	0	0	0
21	.03	5	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0
24	0	0	0	.06	10	0	0	0	0
25	0	0	0	56	303	162	0	0	0
26	0	0	0	14	100	3.8	0	0	0
27	0	0	0	22	120	7.1	0	0	0
28	0	0	0	2.6	30	.21	0	0	0
29	0	0	0	1.1	10	.03	0	0	0
30	0	0	0	.56	5	.01	0	0	0
31	0	0	0	---	---	---	0	0	0
TOTAL	7.63	---	.97	96.32	---	173.15	7.06	---	.49

DAY	JANUARY MEAN DISCHARGE (CFS)	JANUARY MEAN CONCEN-TRATION (MG/L)	JANUARY SEDIMENT DISCHARGE (TONS/DAY)	FEBRUARY MEAN DISCHARGE (CFS)	FEBRUARY MEAN CONCEN-TRATION (MG/L)	FEBRUARY SEDIMENT DISCHARGE (TONS/DAY)	MARCH MEAN DISCHARGE (CFS)	MARCH MEAN CONCEN-TRATION (MG/L)	MARCH SEDIMENT DISCHARGE (TONS/DAY)
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	2.1	20	.11
5	0	0	0	0	0	0	0	0	0
6	0	0	0	.02	5	0	0	0	0
7	1.2	20	.06	0	0	0	0	0	0
8	.20	5	0	.03	5	0	0	0	0
9	.01	5	0	0	0	0	2.0	30	.16
10	.35	8	.01	.28	5	0	0	0	
11	.22	5	0	.49	5	.01	0	0	0
12	.04	5	0	.32	5	0	0	0	0
13	0	0	0	.22	5	0	0	0	0
14	0	0	0	.13	5	0	0	0	0
15	0	0	0	.03	5	0	0	0	0
16	1.2	10	.03	0	0	0	0	0	0
17	.51	5	.01	0	0	0	.07	10	0
18	.22	5	0	0	0	0	.35	10	.01
19	.07	5	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	.12	10	0
24	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	.01	10	0
27	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0
30	0	0	0	---	---	---	0	0	0
31	0	0	0	---	---	---	0	0	0
TOTAL	4.02	---	.11	1.52	---	.01	4.65	---	.28

HAWAII, ISLAND OF OAHU

16227500 MOANALUA STREAM NEAR KANEOHE--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	APRIL MEAN DISCHARGE (CFS)	APRIL MEAN CONCEN-TRATION (MG/L)	APRIL SEDIMENT DISCHARGE (TONS/DAY)	MAY MEAN DISCHARGE (CFS)	MAY MEAN CONCEN-TRATION (MG/L)	MAY SEDIMENT DISCHARGE (TONS/DAY)	JUNE MEAN DISCHARGE (CFS)	JUNE MEAN CONCEN-TRATION (MG/L)	JUNE SEDIMENT DISCHARGE (TONS/DAY)
1	.81	5	0	.85	8	.02			
2	1.1	10	.03	.52	8	.01			
3	1.4	10	.04	.54	8	.01			
4	.99	8	.02	.60	8	.01			
5	.74	5	.01	.53	5	.01			
6	.55	5	.01	.46	5	.01			
7	.45	5	.01	.41	5	.01			
8	11	30	.89	.36	5	0			
9	7.1	10	.08	.31	5	0			
10	1.3	8	.03	.26	5	0			
11	.87	5	.01	.24	5	0			
12	.67	5	.01	.22	5	0			
13	.58	5	.01	.20	5	0			
14	.53	5	.01	.15	5	0			
15	.46	5	.01	.13	5	0			
16	9.4	60	1.5	.11	5	0			
17	8.1	40	.87	.08	5	0			
18	5.1	20	.28	0	0	0			
19	2.3	10	.06	0	0	0			
20	.89	8	.02	0	0	0			
21	.64	8	.01	0	0	0			
22	2.7	20	.15	0	0	0			
23	.79	8	.02	0	0	0			
24	.91	8	.02	0	0	0			
25	.60	8	.01	0	0	0			
26	.41	5	.01	0	0	0			
27	.27	5	0	0	0	0			
28	.59	8	.01	0	0	0			
29	8.3	20	.45	0	0	0			
30	3.6	10	.10	0	0	0			
31	---	---	---	0	0	0			
TOTAL	68.35	---	4.68	5.97	---	.08	0	0	0

DAY	JULY MEAN DISCHARGE (CFS)	JULY MEAN CONCEN-TRATION (MG/L)	JULY SEDIMENT DISCHARGE (TONS/DAY)	AUGUST MEAN DISCHARGE (CFS)	AUGUST MEAN CONCEN-TRATION (MG/L)	AUGUST SEDIMENT DISCHARGE (TONS/DAY)	SEPTEMBER MEAN DISCHARGE (CFS)	SEPTEMBER MEAN CONCEN-TRATION (MG/L)	SEPTEMBER SEDIMENT DISCHARGE (TONS/DAY)
1	0	0	0				0	0	0
2	0	0	0				0	0	0
3	0	0	0				0	0	0
4	0	0	0				0	0	0
5	0	0	0				0	0	0
6	0	0	0				0	0	0
7	0	0	0				0	0	0
8	0	0	0				0	0	0
9	0	0	0				0	0	0
10	0	0	0				0	0	0
11	0	0	0				0	0	0
12	0	0	0				0	0	0
13	0	0	0				0	0	0
14	0	0	0				0	0	0
15	0	0	0				0	0	0
16	0	0	0				0	0	0
17	0	0	0				.02	10	0
18	0	0	0				0	0	0
19	0	0	0				0	0	0
20	0	0	0						
21	0	0	0				0	0	0
22	0	0	0				0	0	0
23	0	0	0				0	0	0
24	1.3	10	.04				0	0	0
25	8.6	50	1.2						
26	.48	10	.01				0	0	0
27	.24	8	.01				.19	5	0
28	.29	8	.01				1.0	10	.03
29	.03	8	0				.44	10	.01
30	.24	8	.01				.02	5	0
31	.19	8	0				---	---	---
TOTAL	11.37	---	1.28	0	0	0	1.67	---	.04
YEAR	208.56		181.09						

16227700 MOANALUA STREAM TRIBUTARY NEAR KANEOHE

LOCATION.--Lat 21°23'27", long 157°50'53", Hydrologic Unit 20060000, on left bank 3.4 mi (5.5 km) northeast of Tripler Hospital and 3.6 mi (5.8 km) southwest of Kaneohe Post Office.

DRAINAGE AREA.--0.62 mi² (1.61 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 700 ft (213 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Recording rain gage located at station. Water-quality records for the current year are published on page 402 of this report.

AVERAGE DISCHARGE.--8 years, 0.761 ft³/s (0.022 m³/s), 551 acre-ft/yr (679,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 892 ft³/s (25.3 m³/s) Feb. 1, 1969, gage height, 5.57 ft (1.698 m), from rating curve extended above 28 ft³/s (0.79 m³/s) on basis of slope-area measurement at gage height 5.19 ft (1.582 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 25	a1330	*440	12.5	4.60	1.402
Nov. 26	2315	330	9.35	4.30	1.311

No flow for many days.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	1.2	.03	0	.10	.51	.74	.18	.15	.10	0
2	0	0	.60	0	0	.10	.62	.67	.18	.14	.10	0
3	0	0	1.3	0	0	.08	.74	.61	.18	.12	.10	.09
4	0	0	.32	0	0	8.2	.59	.59	.20	.11	.10	0
5	0	0	.25	.01	.01	1.3	.55	.59	.22	.08	.10	0
6	0	0	.19	.24	8.4	.30	.51	.55	.22	.10	.09	0
7	.92	0	.16	1.1	1.2	.22	.56	.50	.24	.10	.04	0
8	.05	0	.14	.21	2.7	.24	5.5	.44	.25	.08	.03	0
9	0	0	.14	.24	.49	6.4	2.4	.44	.29	.09	.03	0
10	0	0	.14	.59	.32	1.1	.92	.43	.27	.12	.04	0
11	0	0	.10	.22	.29	.41	.71	.34	.18	.11	.03	0
12	0	0	1.0	.17	.26	.30	.63	.28	.18	.09	.04	0
13	0	0	4.4	.14	.23	.27	.66	.32	.17	.06	.05	0
14	0	0	.38	.12	.26	.22	.61	.32	.21	.06	.02	0
15	0	0	.27	.11	.26	.18	.59	.32	.27	.06	.01	0
16	0	0	.24	.59	.23	.21	5.4	.35	.25	.06	.03	0
17	0	0	.28	.22	.18	1.6	3.2	.25	.27	.05	.04	0
18	0	0	.26	.13	.21	5.3	4.4	.24	.21	.04	.02	.07
19	7.2	0	.41	.10	.19	.97	1.7	.24	.14	.05	.07	0
20	.36	0	.22	.06	.18	.52	1.0	.27	.14	.76	.01	0
21	.08	0	.22	.06	.18	.43	.89	.29	.17	.15	0	0
22	.01	0	.22	.03	.20	.57	2.1	.34	.20	.10	0	0
23	0	0	.20	.03	.19	3.5	.98	.30	.19	.13	0	0
24	0	.04	.18	.03	.18	.61	1.4	.28	1.3	1.2	0	0
25	0	40	.14	.03	.19	.52	.85	.31	.19	6.9	0	0
26	0	10	.10	.02	.22	3.5	.68	.35	.18	.51	0	.04
27	0	9.0	.07	0	.22	1.2	.66	.38	.17	.25	0	.31
28	0	1.3	.06	0	.20	.67	1.0	.37	.16	.20	0	.70
29	0	.60	.06	0	.12	.59	2.9	.38	.16	.17	0	.13
30	0	.37	.05	0	---	.55	1.2	.28	.15	.13	0	.06
31	0	---	.02	.03	---	.60	---	.20	---	.11	0	---
TOTAL	8.62	81.31	13.32	4.51	17.11	40.76	44.46	11.97	7.12	12.28	1.05	1.40
MEAN	.28	2.04	.43	.15	.59	1.31	1.48	.39	.24	.40	.034	.047
MAX	7.2	40	4.4	1.1	8.4	8.2	5.5	.74	1.3	6.9	.10	.70
MIN	0	0	.02	0	0	.08	.51	.20	.14	.04	0	0
AC-FT	17	122	26	8.9	34	81	88	24	14	24	2.1	2.8

CAL YR 1975 TOTAL 214.92 MEAN .59 MAX 40 MIN 0 AC-FT 426
WTR YR 1976 TOTAL 223.91 MEAN .61 MAX 40 MIN 0 AC-FT 444

16228000 MOANALUA STREAM NEAR HONOLULU

LOCATION.--Lat 21°22'53", long 157°52'22", Hydrologic Unit 20060000, on left bank 1.8 mi (2.9 km) northeast of Tripler Hospital and 5.0 mi (8.0 km) north of Honolulu Post Office.

DRAINAGE AREA.--2.73 mi² (7.07 km²).

PERIOD OF RECORD.--June 1926 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 935: 1931(M). WSP 1319: 1927-30(M), 1932-41(M). WSP 1569: Drainage area.

GAGE.--Water-stage recorder and concrete weir. Datum of gage is 338.12 ft (103.059 m) above mean sea level (city and county of Honolulu bench mark). Prior to July 1, 1960, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records fair. No diversion above station. Recording rain gage located at station.

AVERAGE DISCHARGE.--50 years, 3.19 ft³/s (0.090 m³/s), 2,310 acre-ft/yr (2.85 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,580 ft³/s (130 m³/s) Nov. 18, 1930, gage height, 12.58 ft (3.834 m), present datum, from rating curve extended above 110 ft³/s (3.12 m³/s) by test of model of station site; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 25	1400	*838	23.7	6.27	1.911
Nov. 26	2400	682	19.3	5.65	1.722

No flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	.38		0	0	.42	2.5		0		
2	0	0	2.0		0	0	1.1	1.3		0		
3	0	0	1.7		0	0	2.8	.71		0		
4	0	0	.39		0	16	3.1	.41		0		
5	0	0	.08		0	4.5	2.0	.24		0		
6	0	0	.03		43	.32	.93	.10		0		
7	0	0	.02		9.9	0	.49	.07		0		
8	0	0	.01		19	4.5	26	.07		0		
9	0	0	0		4.9	.73	13	.05		0		
10	0	0	0		1.9	.15	6.1	.04		0		
11	0	0	0		.70	0	3.2	.04		0		
12	0	0	0		.22	0	1.9	.03		0		
13	0	0	30		.03	0	1.3	.03		0		
14	0	0	4.2		0	0	.81	.01		0		
15	0	0	1.6		0	0	.54	0		0		
16	0	0	.60		0	0	14	0		0		
17	0	0	.21		0	2.1	17	0		0		
18	0	0	.08		0	22	16	0		0		
19	15	0	.04		0	4.3	11	0		0		
20	1.1	0	.02		0	1.5	4.1	0		0		
21	0	0	.01		0	.62	2.5	0		0		
22	0	0	0		0	.44	7.9	0		0		
23	0	0	0		0	8.8	3.3	0		0		
24	0	1.1	0		0	2.2	3.9	0		0		
25	0	149	0		0	.95	2.3	0		17		
26	0	39	0		0	11	1.4	0		1.4		
27	0	96	0		0	5.0	.74	0		.03		
28	0	10	0		0	2.5	.58	0		0		
29	0	3.5	0		0	1.3	11	0		0		
30	0	1.3	0		---	.59	6.5	0		0		
31	0	---	0		---	.54	---	0	---	0		---
TOTAL	16.1	299.9	41.37	0	79.65	90.04	165.91	5.60	0	18.43	0	0
MEAN	.52	10.0	1.33	0	2.75	2.90	5.53	.18	0	.59	0	0
MAX	15	149	30	0	43	22	26	2.5	0	17	0	0
MIN	0	0	0	0	0	0	.42	0	0	0	0	0
AC-FT	32	595	82	0	158	179	329	11	0	37	0	0

CAL YR 1975 TOTAL 868.08 MEAN 2.38 MAX 149 MIN 0 AC-FT 1720
WTR YR 1976 TOTAL 717.00 MEAN 1.96 MAX 149 MIN 0 AC-FT 1420

16229000 KALIHI STREAM NEAR HONOLULU

LOCATION.--Lat 21°22'00", long 157°50'49", Hydrologic Unit 20060000, on right bank 1.9 mi (3.1 km) upstream from Kamanaiki Stream and 4.1 mi (6.6 km) north of Honolulu Post Office.

DRAINAGE AREA.--2.61 mi^2 (6.76 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1913 to April 1914, July 1914 to current year. Monthly discharge only for some periods, published in WSP 1319.

REVISED RECORDS (FISCAL YEARS).--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 (141.549 m) above mean sea level. Prior to Oct. 12, 1923, at datum 2.00 ft (0.610 m) lower.

REMARKS.--Records fair. No diversion above station.

AVERAGE DISCHARGE.--62 years (water years 1915-76), 6.83 ft^3/s (0.193 m^3/s), 4,950 acre-ft/yr (6.10 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 12,400 ft^3/s (351 m^3/s) Nov. 18, 1930, gage height, 13.81 ft (4.209 m), from rating curve extended above 280 ft^3/s (7.93 m^3/s) on basis of indirect measurements at gage heights 8.9 ft (2.71 m), 10.96 ft (3.341 m), and 11.27 ft (3.435 m); minimum, 0.09 ft^3/s (0.003 m^3/s) Oct. 22, 1933, July 29, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft^3/s (19.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 25	1300	810	22.9	a7.6	2.32
Nov. 26	2300	*822	23.3	7.63	2.326

Minimum discharge, 0.30 ft^3/s (0.008 m^3/s) Oct. 1, 3, 14.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	.50	5.6	1.2	.82	2.0	4.9	5.9	1.4	1.1	1.4	.65
2	.50	.50	5.1	1.1	.73	1.6	5.6	5.1	1.4	1.3	1.2	.73
3	.36	.36	5.4	.91	.65	1.4	5.1	5.4	1.5	.91	1.1	.91
4	.50	.73	3.8	.91	.65	38	4.4	4.6	1.5	.82	1.1	3.4
5	.50	.43	3.0	1.3	1.9	12	4.0	4.2	1.4	.82	.91	1.0
6	1.1	.36	2.8	2.2	41	5.4	3.6	3.6	1.4	.91	2.7	.73
7	4.5	.91	2.4	2.0	10	4.0	3.4	3.8	1.3	1.1	1.2	.57
8	1.2	1.1	2.3	1.3	17	5.1	23	3.2	1.3	.82	1.0	.50
9	.65	.73	2.3	2.1	6.2	26	19	3.2	1.4	.82	.91	.91
10	.50	.73	2.0	2.0	4.4	11	8.0	3.0	2.2	1.5	.82	1.1
11	.43	1.1	2.0	1.6	3.4	6.2	5.6	3.4	1.3	1.2	.82	1.3
12	.43	.36	3.1	1.3	2.6	4.9	5.1	3.0	1.3	1.0	.91	.82
13	.36	.36	24	1.1	2.4	4.2	4.9	2.8	1.2	.82	1.4	.73
14	.36	.36	5.6	1.1	2.2	3.6	4.6	2.6	1.1	.82	.82	.65
15	.36	.50	4.0	1.1	2.0	3.2	4.2	2.4	1.3	.82	.73	.65
16	.36	.50	3.0	3.2	2.2	3.4	15	2.6	1.2	.73	.82	.57
17	.36	.50	2.6	1.5	1.9	7.9	15	2.4	1.1	.82	1.0	.82
18	.36	.43	2.3	1.4	1.8	23	14	2.3	1.0	.73	.73	1.6
19	35	.36	2.2	1.1	1.9	7.7	8.7	2.3	1.3	.65	1.3	.73
20	4.6	1.1	1.9	1.1	1.8	5.4	6.8	2.6	1.0	1.6	.82	.65
21	1.9	.50	1.8	1.1	1.8	5.1	6.2	3.8	1.2	1.5	.73	.91
22	1.5	1.4	1.6	1.0	2.0	5.4	8.0	2.8	1.0	2.3	.65	1.1
23	1.1	.82	1.5	1.0	1.9	14	5.6	2.3	1.5	1.4	.65	.73
24	.57	9.1	1.4	1.0	1.6	6.2	7.1	2.2	1.7	5.1	.57	.65
25	.57	106	1.3	.91	1.5	6.8	5.1	1.9	1.1	32	.57	2.7
26	.57	50	1.2	.82	1.3	25	4.9	2.3	.91	4.2	.65	2.8
27	.57	60	1.2	.82	1.4	9.1	4.4	1.9	1.1	2.4	.91	3.1
28	.50	13	1.1	.73	2.2	6.8	5.9	1.8	.91	2.4	.57	6.2
29	.50	7.4	1.3	.65	1.6	5.6	18	1.6	.91	1.6	.65	2.8
30	.36	5.1	1.2	.73	---	4.9	11	1.5	.91	1.8	.50	1.5
31	.43	---	1.1	1.4	---	4.9	---	1.5	---	1.2	.73	---
TOTAL	61.36	265.24	100.1	39.68	120.85	269.8	241.1	92.0	37.84	75.19	28.87	41.51
MEAN	1.98	8.84	3.23	1.28	4.17	8.70	8.04	2.97	1.26	2.43	.93	1.38
MAX	35	106	24	3.2	41	38	23	5.9	2.2	32	2.7	6.2
MIN	.36	.36	1.1	.65	.65	1.4	3.4	1.5	.91	.65	.50	.50
AC-FT	122	526	199	79	240	535	478	182	75	149	57	82

CAL YR 1975 TOTAL 1450.47 MEAN 3.97 MAX 106 MIN .24 AC-FT 2880
WTR YR 1976 TOTAL 1373.54 MEAN 3.75 MAX 106 MIN .36 AC-FT 2720

HAWAII, ISLAND OF OAHU

16229000 KALIHI STREAM NEAR HONOLULU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972, 1974-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1969, 1973 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 24...	1040	11	60	60	21	3	4.1	2.5	9.0
MAR. 24...	1130	5.6	4	4	34	6	5.9	4.7	13
JUNE 25...	0845	1.1	23	4	34	2	5.7	4.8	13

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 24...	47	.9	1.0	21	0	17	8.4	5.8	12
MAR. 24...	45	1.0	.8	34	0	28	5.4	6.0	20
JUNE 25...	45	1.0	.8	39	0	32	25	7.0	20

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 24...	.0	6.2	52	.07	.11	.00	140	0
MAR. 24...	.1	13	80	.11	.02	.00	100	20
JUNE 25...	.2	11	82	.11	.09	.01	280	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV 24...	1040	11	90	6.6	19.5
DEC 22...	1015	1.6	--	--	19.0
MAR 24...	1130	5.6	130	7.0	19.0
APR 26...	1500	4.4	130	6.8	22.0
MAY 25...	0800	1.9	150	6.6	21.0
JUN 25...	0845	1.1	150	6.4	19.5
JUL 26...	0850	4.1	126	6.7	20.5
AUG 25...	0950	.66	150	6.5	20.5

HAWAII, ISLAND OF OAHU

16229000 KALIHI STREAM NEAR HONOLULU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NOV				
24...	0955	22	101	6.0
24...	1030	26	152	11
24...	1040	11	--	--
24...	1100	23	115	7.1
24...	1130	23	66	4.1
24...	1230	16	41	1.8
24...	1330	11	27	.80
25...	1115	95	70	18
25...	1145	91	46	11
25...	1230	136	40	15
25...	1245	188	138	70
25...	1300	450	193	234
25...	1320	560	985	1490
25...	1330	530	1240	1770
25...	1350	425	1120	1290
25...	1400	303	782	640
25...	1435	303	361	295
25...	1510	330	232	207
25...	1545	360	169	164
25...	1615	270	138	101
25...	1645	212	97	56
NOV				
25...	1715	177	67	32
26...	0930	13	5	.18
DEC				
08...	1500	2.3	2	.01
22...	1015	1.6	--	--
FEB				
06...	0840	64	62	11
06...	0900	60	53	8.6
06...	0930	63	47	8.0
06...	1010	73	30	5.9
06...	1045	73	25	4.9
06...	1130	64	22	3.8
06...	1230	71	22	4.2
06...	1330	69	20	3.7
06...	1430	70	19	3.6
08...	0910	21	6	.34
08...	1010	19	6	.31
08...	1110	17	5	.23
08...	1210	16	6	.26
MAR				
01...	1205	2.2	33	.20
01...	1330	2.6	22	.15
01...	1500	2.6	13	.09
01...	1600	2.8	11	.08
24...	1130	5.6	--	--
APR				
26...	1500	4.4	--	--
MAY				
25...	0800	1.9	--	--
JUN				
25...	0845	1.1	--	--
JUL				
26...	0850	4.1	--	--
AUG				
25...	0950	.66	--	--

16229300 KALIHI STREAM AT KALIHI
(National stream-quality accounting network station)

LOCATION.--Lat 21°20'29", long 157°52'36", Hydrologic Unit 20060000, on right bank at Kalihi, 0.4 mi (0.6 km) northwest of Bishop Museum, and 2.4 mi (3.9 km) northwest of Honolulu Post Office.

DRAINAGE AREA.--5.18 mi^2 (13.42 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Water year 1962 (annual maximum), July 1962 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 70 ft (21 m), from topographic map. Aug. 28, 1961, to June 30, 1962, crest-stage gage at site 600 ft (183 m) downstream at different datum.

REMARKS.--Records fair. No diversion above station. Recording rain gage located at station.

AVERAGE DISCHARGE.--14 years, 11.6 ft^3/s (0.329 m^3/s), 8,400 acre-ft/yr (10.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,110 ft^3/s (201 m^3/s) Apr. 19, 1974, gage height, 9.98 ft (3.042 m), from rating curve extended above 180 ft^3/s (5.10 m^3/s) on basis of slope-area measurement at gage height 9.98 ft (3.042 m); minimum, 0.16 ft^3/s (0.005 m^3/s) June 24, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 14, 1960, reached a stage of 8.0 ft (2.44 m) from floodmarks, present site and datum, discharge, 6,350 ft^3/s (180 m^3/s), from slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,780 ft^3/s (50.4 m^3/s) Nov. 25, gage height, 5.20 ft (1.585 m), from rating curve extended as explained above, no other peak above base of 1,600 ft^3/s (45.3 m^3/s); minimum, 0.63 ft^3/s (0.018 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.80	6.9	2.4	1.5	5.6	9.9	7.8	2.6	1.5	2.2	1.5
2	1.7	.80	6.5	2.6	1.4	3.0	14	6.5	2.4	2.4	1.7	1.5
3	2.0	.90	6.1	3.0	1.2	2.4	11	6.5	2.4	1.5	1.5	2.2
4	1.8	1.7	4.4	2.4	1.2	40	7.8	6.1	2.4	1.4	1.6	7.6
5	1.7	1.1	4.1	2.8	2.8	18	6.5	5.7	2.4	1.2	1.4	2.2
6	2.6	1.0	3.2	7.1	102	6.9	5.3	5.0	2.4	1.2	4.3	1.2
7	7.8	2.2	2.8	3.8	27	5.0	5.0	5.0	2.4	1.7	1.8	1.1
8	2.2	2.8	2.6	2.4	50	6.5	40	4.7	2.6	1.5	1.7	1.1
9	1.2	3.8	2.6	3.8	13	26	47	4.4	2.8	1.4	1.8	1.7
10	1.0	2.2	2.6	4.4	7.3	14	18	4.7	3.5	2.6	1.5	1.5
11	1.0	3.0	2.4	3.2	5.0	7.8	11	6.1	2.0	3.0	1.7	2.6
12	1.0	2.0	5.8	2.8	4.1	6.1	8.4	6.1	1.8	1.8	1.8	2.6
13	.90	1.8	34	2.4	3.5	4.7	7.8	5.0	1.8	1.7	2.0	2.2
14	1.1	1.5	8.4	2.0	3.8	4.1	6.1	4.4	1.8	1.5	1.7	2.6
15	1.1	1.2	5.3	1.8	3.2	3.8	5.3	4.4	2.8	1.2	1.5	2.6
16	1.1	1.2	4.4	6.8	4.1	3.8	17	5.0	3.0	2.3	1.4	2.6
17	1.4	1.1	4.1	3.2	3.2	14	20	5.7	2.8	2.2	2.0	2.4
18	1.8	.90	3.2	2.6	3.0	35	18	4.4	2.6	1.1	1.4	2.6
19	42	.90	2.8	1.8	4.0	12	13	5.0	2.8	1.7	2.2	1.7
20	7.8	1.7	2.8	1.7	2.6	7.8	8.9	4.7	2.2	3.5	1.5	2.4
21	3.0	1.0	3.0	1.7	2.8	6.9	7.8	7.7	2.4	2.6	1.4	4.3
22	1.8	2.2	2.8	1.8	5.0	6.9	15	6.1	2.4	3.8	1.2	2.8
23	1.4	1.4	2.8	2.0	5.7	24	8.9	4.4	2.8	2.4	1.2	1.5
24	1.2	20	2.6	1.8	3.5	11	14	3.5	2.9	5.0	1.2	1.2
25	1.0	266	2.2	1.8	3.2	14	8.4	3.0	2.2	45	1.1	2.6
26	.90	117	2.0	2.2	3.2	63	6.5	3.5	2.0	7.3	2.4	4.4
27	1.0	167	2.0	2.0	2.8	22	6.0	3.8	1.8	4.1	2.6	3.2
28	1.1	24	2.0	2.0	5.0	12	8.4	3.0	1.5	4.1	1.2	8.3
29	1.1	11	2.2	1.8	2.8	9.5	18	3.0	1.4	2.8	1.4	4.4
30	1.2	6.9	2.4	2.2	---	7.8	17	2.6	1.4	2.6	1.2	2.6
31	.90	---	2.2	4.1	---	10	---	2.6	---	2.0	1.2	---
TOTAL	96.80	649.10	141.2	86.4	277.9	413.6	390.0	150.4	70.3	118.1	52.8	81.2
MEAN	3.12	21.6	4.55	2.79	9.58	13.3	13.0	4.85	2.34	3.81	1.70	2.71
MAX	42	266	34	7.1	102	63	47	7.8	3.5	45	4.3	8.3
MIN	.90	.80	2.0	1.7	1.2	2.4	5.0	2.6	1.4	1.1	1.1	1.1
AC-FT	192	1290	280	171	551	820	774	298	139	234	105	161

CAL YR 1975 TOTAL 2743.68 MEAN 7.52 MAX 266 MIN .56 AC-FT 5440
WTR YR 1976 TOTAL 2527.80 MEAN 6.91 MAX 266 MIN .80 AC-FT 5010

16229300 KALIHI STREAM AT KALIHI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970-74, 1975 to current year.

REMARKS.--Available pesticide data for water year 1975 are also published for this station.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT.											
20...	0930	6.2	185	7.6	21.0	15	3	7600	6200	50	12
NOV.											
17...	0845	.90	305	6.7	22.0	7	0	6100	2300	88	0
DEC.											
09...	0930	2.5	245	7.6	18.5	10	1	2500	3600	71	6
JAN.											
19...	1215	1.7	245	7.4	20.5	5	2	3500	5000	67	1
FEB.											
06...	1315	189	168	6.5	--	--	40	--	--	--	--
19...	1130	3.5	270	7.5	20.5	17	6	5000	B15000	68	1
MAR.											
23...	1345	31	150	7.1	21.0	80	34	6000	8100	40	4
APR.											
27...	1010	5.7	220	7.6	22.0	6	3	2300	870	63	8
MAY											
25...	1140	2.9	250	7.4	22.5	4	2	--	--	67	1
25...	1145	3.1	250	7.4	22.5	3	2	3800	2600	71	6
JUNE											
29...	0930	1.3	270	6.8	22.5	7	1	B500	--	79	4
JULY											
27...	1200	3.9	230	7.2	23.0	12	4	920	3200	68	7
AUG.											
24...	1200	1.1	295	7.1	24.0	--	3	3400	1600	90	0
SEP.											
28...	0930	7.1	160	7.0	23.0	--	9	3900	4900	50	9

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT.											
20...	11	5.4	17	42	1.1	1.4	46	0	38	1.8	9.8
NOV.											
17...	19	9.9	27	40	1.3	1.4	112	0	92	36	9.0
DEC.											
09...	15	8.2	22	40	1.1	1.1	80	0	66	3.2	10
JAN.											
19...	14	7.8	21	40	1.1	1.4	81	0	66	5.2	9.7
FEB.											
06...	--	--	--	--	--	--	--	--	--	--	--
19...	15	7.5	23	42	1.2	1.6	82	0	67	4.1	12
MAR.											
23...	8.0	4.9	13	40	.9	1.2	44	0	36	5.6	6.4
APR.											
27...	12	8.0	20	41	1.1	.8	67	0	55	2.7	9.3
MAY											
25...	13	8.4	23	42	1.2	1.1	81	0	66	5.2	9.5
25...	14	8.8	23	41	1.2	1.1	80	0	66	5.1	9.9
JUNE											
29...	15	10	24	40	1.2	1.0	91	0	75	23	8.6
JULY											
27...	15	7.3	20	39	1.1	1.3	74	0	61	7.5	8.9
AUG.											
24...	20	9.8	27	39	1.2	1.4	110	0	90	14	8.9
SEP.											
28...	11	5.5	15	39	.9	1.3	50	0	41	8.0	7.2

B Results based on colony count outside the acceptable range (non-ideal colony count).

16229300 KALIHI STREAM AT KALIHI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT. 20...	30	.1	13	117	110	.16	.16	.22	.38	.06
NOV. 17...	36	.1	16	170	174	.23	.08	.21	.29	.06
DEC. 09...	30	.1	15	129	141	.18	.23	.13	.36	.03
JAN. 19...	30	.1	13	148	137	.20	.19	.59	.78	.06
FEB. 06...	--	--	--	--	--	--	1.4	1.1	2.5	.22
19...	33	.1	12	145	145	.20	.15	.31	.46	.06
MAR. 23...	17	.0	11	93	83	.13	.22	1.1	1.3	.16
APR. 27...	28	.1	12	135	123	.18	.13	.13	.26	.07
MAY 25...	33	.1	15	--	144	.20	--	--	--	--
25...	34	.0	15	173	145	.24	.22	.20	.42	.04
JUNE 29...	34	.2	12	168	150	.23	.04	.15	.19	.02
JULY 27...	29	.1	16	130	134	.18	.15	.14	.29	.05
AUG. 24...	38	.1	17	164	177	.22	.09	.28	.37	.06
SEP. 28...	23	.1	12	100	100	.14	.07	.56	.63	.07

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
NOV. 17...	0845	2	1	0	0	<10	0	<50	0	<10	2	210
FEB. 19...	1130	1	0	<10	0	0	0	<50	3	10	4	400
MAY 25...	1140	--	--	--	--	--	--	--	--	--	--	--
25...	1145	1	0	0	0	<10	0	0	0	<10	2	320
AUG. 24...	1200	0	0	<10	0	10	10	<50	0	<10	2	390

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
NOV. 17...	100	<100	2	30	30	.0	.0	0	0	0	0	3.1
FEB. 19...	120	<100	7	50	10	.0	.0	0	0	0	0	7.8
MAY 25...	170	--	--	--	10	--	--	--	--	--	--	--
25...	140	<100	2	20	20	.2	.2	0	0	10	0	--
AUG. 24...	140	<100	2	50	30	.0	.0	0	0	10	0	2.4

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	TIME	TOTAL ALDRIN (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL ODT (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)
JUN 16...	1045	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP 15...	1000	ND	ND	ND	ND	ND	ND	.48	ND	ND

ND Material specifically analyzed for but not detected.

16229300 KALIHI STREAM AT KALIHI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

DATE	TOTAL HEPTACHLOR (UG/L)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALATHION (UG/L)	TOTAL METHOXYCHLOR (UG/L)	TOTAL METHYL PARATHION (UG/L)	TOTAL METHYL TRITHION (UG/L)	TOTAL PARATHION (UG/L)	TOTAL TOXAPHENE (UG/L)	TOTAL TRITHION (UG/L)
JUN										
16...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SEP										
15...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ATRAZINE (UG/L)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDT (UG/L)	DDT IN BOTTOM MATERIAL (UG/KG)
NOV												
17...	0845	ND	90	ND	ND	226	ND	ND	ND	ND	ND	ND
FEB												
19...	1130	ND	--	ND	ND	--	ND	--	ND	--	ND	--
APR												
27...	1010	--	81	ND	ND	333	ND	ND	ND	ND	ND	ND
AUG												
24...	1200	ND	--	ND	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL DIAZINON (UG/L)	DIAZINON IN BOTTOM MATERIAL (UG/KG)	TOTAL DIELDRIN (UG/L)	DIELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)
NOV												
17...	ND	ND	.18	232	ND	ND	ND	ND	ND	ND	ND	ND
FEB												
19...	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
APR												
27...	ND	ND	ND	48	ND	ND	ND	ND	ND	ND	ND	1.4
AUG												
24...	ND	--	.03	--	ND	--	ND	--	ND	--	ND	--

DATE	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	MALATHION IN BOTTOM MATERIAL (UG/KG)	TOTAL METHOXYCHLOR (UG/L)	METHOXYCHLOR IN BOTTOM MATERIAL (UG/KG)	TOTAL METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM MATERIAL (UG/KG)	TOTAL METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM MATERIAL (UG/KG)	TOTAL PARATHION (UG/L)	PARATHION IN BOTTOM MATERIAL (UG/KG)
NOV												
17...	ND	ND	ND	ND	ND	ND	ND	ND	NO	ND	ND	ND
FEB												
19...	ND	--	ND	--	ND	--	NO	--	ND	--	ND	--
APR												
27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG												
24...	ND	--	ND	--	ND	--	NO	--	ND	--	ND	--

DATE	SIMAZINE TOTAL (UG/L)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION IN BOTTOM MATERIAL (UG/KG)	TOTAL 2,4-D (UG/L)	2,4-D IN BOTTOM MATERIAL (UG/KG)	TOTAL 2,4,5-T (UG/L)	2,4,5-T IN BOTTOM MATERIAL (UG/KG)	TOTAL SILVEX (UG/L)	SILVEX IN BOTTOM MATERIAL (UG/KG)
NOV											
17...	--	ND	ND	ND	ND	ND	--	ND	--	ND	--
FEB											
19...	--	NO	--	ND	--	ND	--	ND	--	ND	--
APR											
27...	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG											
24...	ND	ND	--	ND	--	ND	--	NO	--	ND	--

ND Material specifically analyzed for but not detected.

16229300 KALIHI STREAM AT KALIHI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL A MG/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL B MG/SQ M	PERI-PHYTON LENGTH OF EX-POSURE (DAYS)	PERI-PHYTON SAMPL-ING METHOD
OCT								
20...	0930	84	--	--	--	--	--	Polyethylene strip
NOV								
17...	0845	7	3.00	1.20	10.0	3.6	28	
DEC								
09...	0930	120	--	--	--	--	--	
JAN								
19...	1215	280	--	--	--	--	--	
FEB								
19...	1130	370	9.70	7.70	28.0	2.70	31	
MAR								
23...	1345	1800	--	--	--	--	--	
APR								
27...	1010	430	--	--	--	--	--	
MAY								
25...	1145	930	9.62	5.15	2.63	.127	28	
JUN								
29...	0930	130	--	--	--	--	--	
JUL								
27...	1200	400	--	--	--	--	--	
AUG								
24...	1200	200	6.38	2.85	32.8	11.7	28	
SEP								
28...	0930	71	--	--	--	--	--	

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT.					
20...	0930	6.2	4	.07	90
NOV.					
17...	0845	.90	2	.00	100
DEC.					
09...	0930	2.5	1	.01	100
JAN.					
19...	1215	1.7	0	.00	100
FEB.					
19...	1130	3.5	3	.03	100
MAR.					
23...	1345	31	43	3.6	96
APR.					
27...	1010	5.7	4	.06	100
MAY					
25...	1145	3.1	3	.03	100
JUNE					
29...	0930	1.3	2	.01	100
JULY					
27...	1200	3.9	4	.04	100
AUG.					
24...	1200	1.1	7	.02	100
SEP.					
28...	0930	7.1	8	.15	100

16229300 KALIHI STREAM AT KALIHI--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Oct 20	0930	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	12	14	
		Cocconeis		L	
		Rhoicosphenia	48	57	
		Diatomaceae			
		Diatoma		L	
		Gomphonemataceae			
		Gomphonema	12	14	
		Nitzschiaceae			
		Nitzschia	12	14	
		TOTAL	84		
Nov 17	0845	Achnanthaceae			Depth-Integrated
		Cocconeis	3	50	
		Rhoicosphenia	3	50	
		Naviculaceae			
		Navicula		L	
		Nitzschiaceae			
		Nitzschia		L	
		TOTAL	7		
Dec 09	0930	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Oocystaceae			
		Ankistrodesmus	13	11	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	13	11	
		Cocconeis	7	6	
		Gomphonemataceae			
		Gomphonema	40	33	
		Naviculaceae			
		Gyrosigma	7	6	
		Stauroneis	7	6	
		Nitzschiaceae			
		Nitzschia	34	28	
		TOTAL	120		
Jan 19	1215	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Scenedesmaceae			
		Scenedesmus		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes		L	
		Cocconeis		L	
		Rhoicosphenia	160	57	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	20	7	
		Naviculaceae			
		Navicula	20	7	
		Nitzschiaceae			
		Nitzschia	40	14	
		Chrysophyceae			
		Chrysomonadales			
		Ochromonadaceae			
		Ochromonas	40	14	
		TOTAL	280		

NOTE: L - Less than 1 percent; may not have been actually counted.

HAWAII, ISLAND OF OAHU

16229300 KALIHI STREAM AT KALIHI--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
					Depth-Integrated
Feb 19	1130	CHLOROPHYTA			
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Selenastrum	10	3	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	20	6	
		Pennales			
		Achnanthaceae			
		Achnanthes	61	17	
		Cymbellaceae			
		Cymbella	10	3	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	10	3	
		Naviculaceae			
		Navicula	71	19	
		Nitzschiaceae			
		Nitzschia	31	8	
		Achnanthaceae			
		Rhoicosphenia	120	33	
		EUGLENOPHYTA			
		Euglenophyceae			
		Euglenales			
		Euglenaceae			
		Euglena	31	8	
		TOTAL	370		
					Depth-Integrated
Mar 23	1345	CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira		L	
		Pennales			
		Achnanthaceae			
		Achnanthes	200	11	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	98	6	
		Naviculaceae			
		Navicula	98	6	
		Nitzschiaceae			
		Nitzschia	290	17	
		Achnanthaceae			
		Rhoicosphenia	1,100	61	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria		L	
		TOTAL	1,800		

NOTE: L - Less than 1 percent; may not have been actually counted.

16229300 KALIHI STREAM AT KALIHI--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Apr 27	1010	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Cymbellaceae			
		Cymbella		L	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	25	6	
		Naviculaceae			
		Gyrosigma		L	
		Navicula	76	18	
		Nitzschiaceae			
		Nitzschia	76	18	
		Achnanthaceae			
		Rhoicosphenia	250	59	
		TOTAL	430		
May 25	1145	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Oocystaceae			
		Ankistrodesmus	9	1	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	690	75	
		Pennales			
		Gomphonemataceae			
		Gomphonema	19	2	
		Naviculaceae			
		Navicula	28	3	
		Achnanthaceae			
		Rhoicosphenia	130	14	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	46	5	
		TOTAL	930		
June 29	0930	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Oocystaceae			
		Ankistrodesmus	6	5	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	3	2	
		Gomphonemataceae			
		Gomphonema	16	12	
		Naviculaceae			
		Navicula	35	27	
		Nitzschiaceae			
		Nitzschia	42	32	
		Achnanthaceae			
		Rhoicosphenia	29	22	
		TOTAL	130		

NOTE: L - Less than 1 percent; may not have been actually counted.

16229300 KALIHI STREAM AT KALIHI--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
July 27	1200	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Gomphonemataceae			
		Gomphonena		L	
		Naviculaceae			
		Navicula	38	9	
		Nitzschiaceae			
		Nitzschia	76	19	
		Achnanthaceae			
		Rhoicosphenia	51	13	
		EUGLENOPHYTA			
		Euglenophyceae			
		Euglenales			
		Euglenaceae			
		Lepocinclis	240	59	
		TOTAL	400		
Aug 24	1200	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Cymbellaceae			
		Cymbella	6	3	
		Fragilariaceae			
		Synedra	50	26	
		Gomphonemataceae			
		Gomphonena	50	26	
		Naviculaceae			
		Navicula	19	10	
		Nitzschiaceae			
		Nitzschia	32	16	
		Achnanthaceae			
		Rhoicosphenia	38	19	
		TOTAL	200		
Sept 28	0930	CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	16	22	
		Gomphonemataceae			
		Gomphonema	4	6	
		Naviculaceae			
		Navicula	16	22	
		Nitzschiaceae			
		Nitzschia	20	28	
		Achnanthaceae			
		Rhoicosphenia	16	22	
		TOTAL	71		

NOTE: L - Less than 1 percent; may not have been actually counted.

16232000 NUUANU STREAM BELOW RESERVOIR 2 WASTEWAY, NEAR HONOLULU

LOCATION.--Lat 21°20'57", long 157°49'40", Hydrologic Unit 20060000, on right bank beside Old Pali Road in upper Nuuanu Valley, 0.2 mi (0.3 km) downstream from reservoir 2 wasteway, and 3.5 mi (5.6 km) northeast of Honolulu Post Office.

DRAINAGE AREA.--3.35 mi^2 (8.68 km^2).

WATER-DISCHARGE RECORDS

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

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

GAGE.--Water-stage recorder and sharp-crested weirs. Datum of gage is 631.71 ft (192.545 m) above mean sea level. Prior to Sept. 7, 1915, nonrecording gage at same site at datum 0.03 ft (0.009 m) lower and Sept. 7, 1915, to Mar. 31, 1918, at same datum.

REMARKS.--Records fair. Low-flow regulation by reservoirs 2, 3, and 4, capacities, 21 acre-ft (25,900 m^3), 34 acre-ft (41,900 m^3), and 1,630 acre-ft (2.01 hm^3), respectively. Honolulu Board of Water Supply diverts ground water from tunnels in drainage area.

AVERAGE DISCHARGE.--60 years (water years 1915-16, 1918-20, 1922-76), 7.18 ft^3/s (0.203 m^3/s), 5,200 acre-ft/yr (6.41 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,990 ft^3/s (198 m^3/s) Jan. 16, 1921, gage height, 8.74 ft (2.664 m), from floodmarks, from rating curve extended above 420 ft^3/s (11.9 m^3/s) by test of model of station site; minimum, 0.09 ft^3/s (0.003 m^3/s) Sept. 10, 11, 1925.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 240 ft^3/s (6.80 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 25	1330	248	7.02	3.63	1.106
Nov. 26	2330	*356	10.1	4.12	1.256

Minimum discharge, 0.42 ft^3/s (0.012 m^3/s) Nov. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.64	.70	4.0	2.2	1.5	2.4	5.5	6.4	3.0	2.2	1.8	.85
2	.56	.73	3.8	2.0	1.1	2.0	5.6	5.9	3.0	2.4	1.8	.89
3	.61	.83	3.7	2.0	1.1	1.9	5.0	6.1	3.0	2.1	1.7	.96
4	.70	.84	3.7	1.9	1.1	12	4.3	5.9	3.0	2.1	1.7	1.1
5	.72	.86	3.7	2.2	2.0	6.0	4.3	5.6	3.0	2.0	1.7	.94
6	.66	.88	3.4	2.4	18	3.5	4.4	5.1	2.8	2.1	2.7	.86
7	4.4	.92	3.1	2.5	5.2	3.4	3.8	5.0	2.8	2.0	1.8	.70
8	1.1	.94	3.0	1.9	8.6	4.0	8.6	4.7	2.7	1.9	1.7	.72
9	.60	.93	2.8	2.1	3.8	8.8	7.7	4.5	2.7	2.0	1.7	.86
10	.60	.84	2.7	2.7	2.6	7.3	5.2	4.4	2.9	2.2	1.6	.83
11	.64	.89	2.5	2.2	2.4	4.9	3.9	4.7	2.7	2.2	1.6	.82
12	.65	.57	3.0	2.0	2.4	4.4	4.1	4.9	2.4	1.6	1.6	.84
13	.65	.46	4.0	2.0	2.4	3.8	5.4	4.3	2.4	1.6	1.8	.77
14	.66	.50	3.2	2.2	2.5	3.4	4.8	4.1	2.4	1.5	1.3	.72
15	.66	.54	2.8	1.9	2.5	3.4	4.2	4.0	2.6	1.5	1.3	.70
16	.67	.54	2.4	3.2	2.6	3.7	15	4.2	2.5	1.5	1.3	.71
17	.72	.53	2.5	2.2	2.1	11	15	4.8	2.4	1.7	1.3	.97
18	.77	.48	2.4	1.8	1.5	12	18	3.9	2.3	1.5	1.1	1.8
19	12	.47	2.3	1.1	1.9	4.9	8.5	3.8	2.5	1.5	1.3	.75
20	2.9	.58	2.4	1.1	1.8	3.2	7.3	4.4	2.4	3.3	1.3	.75
21	1.3	.59	2.5	1.1	1.8	3.4	7.0	4.8	2.5	3.1	1.2	.84
22	.89	.64	2.3	1.2	2.5	3.7	7.9	4.6	2.3	3.5	1.3	1.1
23	.68	.57	2.2	1.2	1.9	8.8	6.9	3.7	2.9	1.9	1.3	.81
24	.84	5.3	2.2	1.3	1.8	5.2	7.9	4.4	2.7	4.5	1.3	.75
25	.97	42	2.1	1.3	1.8	5.3	6.8	3.8	2.3	15	1.3	1.6
26	.87	20	2.1	1.4	1.8	11	5.9	4.0	2.2	3.9	1.3	1.2
27	.91	20	2.2	1.4	1.9	7.3	6.0	3.8	2.2	3.2	1.2	1.5
28	.94	3.8	2.2	1.4	1.9	7.3	7.0	3.6	2.2	2.4	.70	2.6
29	.93	3.6	2.1	1.3	1.9	6.6	11	3.5	2.2	1.9	.76	1.6
30	.94	3.4	2.0	1.2	---	5.7	8.8	3.3	2.2	1.8	.69	1.0
31	.96	---	2.1	1.9	---	5.2	---	3.2	---	1.8	.85	---
TOTAL	41.14	113.93	85.4	56.3	84.4	175.5	215.8	139.4	77.2	81.9	44.00	30.54
MEAN	1.33	3.80	2.75	1.82	2.91	5.66	7.19	4.50	2.57	2.64	1.42	1.02
MAX	12	42	4.0	3.2	18	12	18	6.4	3.0	15	2.7	2.6
MIN	.56	.46	2.0	1.1	1.1	1.9	3.8	3.2	2.2	1.5	.69	.70
AC-FT	82	226	169	112	167	348	428	276	153	162	87	61

CAL YR 1975 TOTAL 1313.85 MEAN 3.60 MAX 42 MIN .46 AC-FT 2610
WTR YR 1976 TOTAL 1145.51 MEAN 3.13 MAX 42 MIN .46 AC-FT 2270

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

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 18...	1545	2.3	4	2	33	7	4.6	5.2	9.9
APR. 27...	1330	5.2	3	3	33	3	4.5	5.2	10

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 18...	39	.8	.6	32	0	26	10	6.6	14
APR. 27...	40	.8	.5	36	0	30	9.1	4.4	16

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 18...	.0	11	68	.09	.09	.00	160	0
APR. 27...	.0	11	70	.10	.03	.00	120	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC 18...	1545	2.3	121	6.7	21.0
FEB 03...	1110	1.2	140	6.5	17.0
MAR 18...	1145	14	120	6.0	20.0
APR 27...	1330	5.2	130	6.8	22.0
JUN 08...	1520	2.6	120	6.2	22.0
JUL 19...	1500	1.4	130	6.8	22.0
SEP 07...	1505	.73	130	6.6	24.0

16238500 WAIHI STREAM AT HONOLULU

LOCATION.--Lat 21°19'55", long 157°48'12", Hydrologic Unit 20060000, on left bank 100 ft (30 m) upstream from bridge on Waaloa Way, 700 ft (213 m) upstream from confluence with Waiakeakua Stream, and 4.2 mi (6.8 km) northeast of Honolulu Post Office.

DRAINAGE AREA.--1.14 mi^2 (2.95 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS (FISCAL YEARS).--WSP 1319: 1930-32(M), 1939(M). WSP 1569: Drainage area.

GAGE.--Water-stage recorder and combination Parshall flume and V-notch weir. Datum of gage is 290.84 ft (88.648 m) above mean sea level (Honolulu Board of Water Supply bench mark). Prior to June 17, 1914, non-recording gage at same site at different datum. June 17, 1914, to Jan. 16, 1921, water-stage recorder at site 150 ft (46 m) upstream at different datum and Aug. 4, 1925, to Mar. 15, 1928, at present site at datum 3.35 ft (1.021 m) lower.

REMARKS.--Records fair.

AVERAGE DISCHARGE.--58 years (water years, 1914-20, 1926-76), 3.62 ft^3/s (0.103 m^3/s), 2,620 acre-ft/yr (3.23 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,250 ft^3/s (92.0 m^3/s) Jan. 16, 1921, gage height, 10.4 ft (3.17 m), from floodmarks, site and datum then in use, from rating curve extended above 60 ft^3/s (1.70 m^3/s); minimum, 0.08 ft^3/s (0.002 m^3/s) Dec. 16, 18, 1913, Jan. 16-18, Feb. 4, 6, 1915, Mar. 16, 22, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 383 ft^3/s (10.8 m^3/s) Nov. 26, gage height, 3.36 ft (1.024 m), from rating curve extended above 120 ft^3/s (3.40 m^3/s) by test of model of station site, no other peak above base of 310 ft^3/s (8.78 m^3/s); minimum, 0.14 ft^3/s (0.004 m^3/s) Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	.32	7.7	1.5	.32	1.3	2.5	3.1	1.2	1.6	2.9	.86
2	.17	.32	3.4	.86	.26	1.0	3.2	2.7	1.1	2.6	2.0	1.4
3	1.0	.21	2.2	.46	.26	.70	3.0	3.4	1.0	.94	1.6	3.3
4	1.6	.78	1.7	.46	.21	14	2.1	3.8	1.0	.70	1.5	1.4
5	.38	.26	1.6	2.2	.70	3.4	1.9	2.7	1.0	.62	1.3	.70
6	.38	.38	1.4	1.7	17	1.8	1.9	2.3	.94	.86	4.1	.54
7	12	.46	1.3	1.2	3.4	1.4	1.9	2.3	.86	.86	1.4	.46
8	1.6	1.6	1.2	.78	7.7	4.3	23	1.9	.86	.54	1.1	.38
9	.78	1.5	1.1	3.2	2.5	12	12	1.7	1.3	.62	1.0	2.3
10	.54	.70	.94	3.8	1.8	4.4	4.5	1.7	3.2	2.1	1.0	.94
11	.46	1.4	.86	1.8	1.5	2.5	3.2	2.5	1.6	1.9	1.1	.86
12	.32	.62	1.9	1.5	1.1	1.8	3.6	3.8	1.0	.86	1.1	1.5
13	.26	.38	3.0	1.1	.94	1.6	5.5	1.8	.94	.78	2.3	.70
14	.46	.26	1.3	1.4	1.1	1.4	4.1	1.7	.78	.86	.86	.62
15	.62	.46	1.2	1.1	1.0	1.2	2.6	1.5	1.7	.94	.78	.46
16	.54	.62	.94	3.5	1.7	1.2	16	3.0	1.6	.86	.70	.46
17	.54	.46	1.3	.94	1.2	19	11	2.8	.86	1.8	.70	2.0
18	.79	.38	.78	1.0	1.0	16	8.2	2.2	.86	.62	.62	1.5
19	13	.26	.70	.62	1.2	4.1	5.7	2.3	2.3	2.8	.94	.46
20	1.6	1.1	.62	.54	.94	2.9	3.3	3.0	1.0	4.4	.70	.46
21	.78	.78	.54	.46	.86	2.9	3.6	4.9	2.5	11	.62	1.1
22	.46	3.1	.54	.46	4.8	3.2	6.1	2.8	1.8	8.3	.62	2.3
23	.32	.78	.46	.38	2.2	12	4.5	2.6	2.1	3.4	.54	.54
24	.26	11	.46	.38	1.5	3.6	6.4	3.1	1.5	18	.46	1.8
25	.26	37	.38	.38	1.2	4.6	4.0	1.7	1.1	31	.46	.50
26	.26	27	1.3	.32	1.1	14	3.2	2.7	.94	8.0	.62	1.5
27	.26	32	3.1	.26	.94	4.6	3.3	1.9	.86	5.5	.86	3.0
28	.26	5.7	2.5	.26	.94	5.4	5.2	2.7	.86	4.2	.54	5.0
29	.26	3.4	.78	.26	.78	3.3	14	3.2	.70	2.7	1.1	2.5
30	.21	2.5	.86	.32	---	3.7	5.1	1.7	.78	2.3	.54	1.2
31	.26	---	.94	1.5	---	2.9	---	1.5	---	2.4	2.1	---
TOTAL	40.76	135.73	47.00	34.64	60.15	156.20	174.6	79.0	38.24	124.06	36.16	40.74
MEAN	1.31	4.52	1.52	1.12	2.07	5.04	5.82	2.55	1.27	4.00	1.17	1.36
MAX	13	37	7.7	3.8	17	19	23	4.9	3.2	31	4.1	5.0
MIN	.14	.21	.38	.26	.21	.70	1.9	1.5	.70	.54	.46	.38
AC-FT	81	269	93	69	119	310	346	157	76	246	72	81

CAL YR 1975 TOTAL 877.83 MEAN 2.41 MAX 42 MIN .12 AC-FT 1740
WTR YR 1976 TOTAL 967.28 MEAN 2.64 MAX 37 MIN .14 AC-FT 1920

16238500 WAIHI STREAM AT HONOLULU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970-71 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
19...	1200	.71	4	3	49	0	7.6	7.3	11
MAY									
04...	1345	3.3	5	4	43	0	6.4	6.5	9.9

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
19...	32	.7	1.0	62	0	51	20	4.6	15
MAY									
04...	33	.7	.8	52	0	43	6.6	2.6	16

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
19...	.3	16	94	.13	.11	.00	170	20
MAY								
04...	.0	14	83	.11	.15	.00	140	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV					
03...	0830	.17	--	--	21.5
DEC					
19...	1200	.71	155	6.7	20.5
FEB					
02...	1000	.29	175	6.5	18.0
APR					
26...	1000	3.4	140	6.2	20.0
MAY					
04...	1345	3.3	140	7.1	20.0
JUN					
08...	1110	.82	160	6.5	20.5
JUL					
19...	1000	.63	160	6.6	21.0
SEP					
07...	1030	.46	160	6.7	22.5

16240500 WAIAKEAKUA STREAM AT HONOLULU

LOCATION.--Lat 21°19'53", long 157°48'12", Hydrologic Unit 20060000, on right bank 5 ft (2 m) downstream from bridge on Waaloa Way, 500 ft (152 m) upstream from confluence with Waihi Stream, and 4.2 mi (6.8 km) northeast of Honolulu Post Office.

DRAINAGE AREA.--1.06 mi^2 (2.75 km^2).

WATER-DISCHARGE RECORDS

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 (FISCAL YEARS).--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 (89.764 m) above mean sea level (Honolulu Board of Water Supply bench mark). Prior to May 20, 1914, nonrecording gage at site 200 ft (61 m) upstream at different datum. May 20, 1914, to Jan. 16, 1921, water-stage recorder at site 30 ft (9 m) upstream at different datum. Aug. 18, 1925, to Mar. 15, 1928, water-stage recorder at present site at datum 2.99 ft (0.911 m) lower, and Mar. 16, 1928, to Oct. 18, 1933, at datum 0.41 ft (0.125 m) higher than present datum.

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

AVERAGE DISCHARGE.--58 years (water years, 1914-20, 1926-76), 5.10 ft^3/s (0.144 m^3/s), 3,690 acre-ft/yr (4.55 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,090 ft^3/s (87.5 m^3/s) Jan. 16, 1921, gage height, 10.4 ft (3.17 m), from floodmarks, site and datum then in use, from rating curve extended above 58 ft^3/s (1.64 m^3/s); minimum, 0.6 ft^3/s (0.017 m^3/s) June 7, 8, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 374 ft^3/s (10.6 m^3/s) Nov. 26, gage height, 3.44 ft (1.049 m), from rating curve extended above 110 ft^3/s (3.12 m^3/s) on basis of slope-area measurement at gage height 5.28 ft (1.609 m), no other peak above base of 310 ft^3/s (8.78 m^3/s); minimum, 1.1 ft^3/s (0.031 m^3/s) for several days in January and February.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.2	5.5	1.4	1.2	2.1	2.8	3.7	2.2	2.5	3.3	2.1
2	1.4	1.2	4.8	1.2	1.2	1.7	3.5	3.3	2.2	3.4	2.7	2.6
3	1.9	1.2	2.7	1.1	1.1	1.4	3.2	4.6	2.1	2.0	2.4	6.1
4	2.4	1.7	2.2	1.1	1.1	27	2.6	4.1	2.0	1.8	2.3	2.5
5	1.5	1.3	2.1	2.2	1.4	6.1	2.4	3.3	2.0	1.7	2.2	2.0
6	1.5	1.3	1.9	2.1	14	3.3	2.4	3.1	1.9	2.3	6.8	1.9
7	9.5	1.5	1.8	2.0	3.6	2.4	2.4	3.5	1.9	2.1	2.6	1.8
8	2.2	2.2	1.8	1.7	8.0	5.6	20	2.8	1.9	1.8	2.4	1.7
9	1.7	2.3	1.7	2.5	2.6	16	9.3	2.6	2.1	1.8	2.3	3.4
10	1.5	1.6	1.6	1.9	2.1	5.6	4.0	2.5	3.0	3.2	2.2	2.5
11	1.5	2.2	1.6	1.6	1.9	3.1	3.2	3.0	2.2	2.8	2.5	2.4
12	1.4	1.5	2.5	1.7	1.7	2.6	3.2	4.2	1.9	1.9	2.5	2.7
13	1.4	1.3	3.9	1.5	1.6	2.4	4.3	2.7	1.9	1.7	4.1	2.2
14	1.4	1.3	2.0	1.8	1.7	2.2	3.4	2.6	1.8	1.6	2.3	2.1
15	1.3	1.3	1.8	2.1	1.7	1.9	3.0	2.4	2.4	1.6	2.2	1.9
16	1.4	1.5	1.7	5.5	2.0	2.0	8.5	3.5	2.2	1.6	2.1	1.8
17	1.3	1.5	1.8	3.2	1.6	7.1	8.7	3.0	1.8	2.1	2.1	3.5
18	1.4	1.4	1.6	2.3	1.5	11	9.1	2.7	1.9	1.7	2.0	2.9
19	8.0	1.3	1.5	1.4	1.6	4.1	4.5	3.0	2.5	2.8	2.3	1.9
20	2.2	1.6	1.4	1.2	1.4	3.2	3.3	3.4	1.9	3.7	2.2	1.7
21	1.7	1.3	1.3	1.3	1.6	3.6	3.5	3.9	2.5	7.3	2.0	3.2
22	1.6	3.5	1.3	1.2	5.2	4.2	5.9	2.9	3.0	5.7	1.9	4.0
23	1.4	1.5	1.3	1.2	2.2	8.3	4.4	3.0	2.7	3.4	1.8	1.9
24	1.4	7.0	1.2	1.2	1.7	3.9	6.3	3.2	2.2	17	1.8	2.2
25	1.3	35	1.2	1.2	1.4	4.6	4.0	2.4	2.0	41	1.8	2.7
26	1.3	28	1.2	1.1	3.4	8.7	3.0	3.0	1.9	6.7	1.9	3.3
27	1.3	27	1.2	1.1	1.6	4.1	3.2	2.4	1.8	6.0	2.0	6.1
28	1.3	4.9	1.2	1.1	1.7	4.3	5.7	3.0	1.8	6.5	1.8	7.2
29	1.3	3.1	1.2	1.1	1.5	3.2	11	2.9	1.7	3.4	1.9	4.9
30	1.2	2.4	1.2	1.3	---	3.4	6.4	2.3	1.8	2.9	1.8	2.5
31	1.2	---	1.2	2.5	---	3.0	---	2.4	---	3.3	2.7	---
TOTAL	61.2	144.1	59.4	53.8	73.3	162.1	e157.2	95.4	63.2	147.3	74.9	87.7
MEAN	1.97	4.80	1.92	1.74	2.53	5.23	5.24	3.08	2.11	4.75	2.42	2.92
MAX	9.5	35	5.5	5.5	14	27	20	4.6	3.0	41	6.8	7.2
MIN	1.2	1.2	1.2	1.1	1.1	1.4	2.4	2.3	1.7	1.6	1.8	1.7
AC-FT	121	286	118	107	145	322	312	189	125	292	149	174

CAL YR 1975 TOTAL 1304.5 MEAN 3.57 MAX 38 MIN 1.2 AC-FT 2590
WTR YR 1976 TOTAL 1179.6 MEAN 3.22 MAX 41 MIN 1.1 AC-FT 2340

16240500 WAIAKEAKUA STREAM AT HONOLULU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970-71 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 19...	1500	1.5	1	1	40	0	6.7	5.6	9.9
MAY 04...	1310	3.2	4	3	37	0	6.5	5.0	9.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 19...	35	.7	.8	51	0	42	13	3.2	12
MAY 04...	35	.7	.7	47	0	39	9.5	2.2	13

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 19...	.4	19	84	.11	.19	.00	20	0
MAY 04...	.0	17	78	.11	.15	.00	40	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV 03...	1130	1.3	--	--	22.0
DEC 19...	1500	1.5	126	6.8	21.5
FEB 02...	1400	1.1	140	6.5	21.0
MAR 17...	1200	2.9	100	6.0	20.0
APR 26...	1230	2.7	140	6.8	22.0
MAY 04...	1310	3.2	135	6.9	20.5
JUN 08...	0930	1.8	140	6.5	20.5
JUL 19...	1230	1.8	145	6.7	21.0
SEP 07...	1215	1.7	140	7.0	22.5

HAWAII, ISLAND OF OAHU

16244000 PUKELE STREAM NEAR HONOLULU

LOCATION.--Lat 21°18'36", long 157°47'27", Hydrologic Unit 20060000, on right bank 200 ft (61 m) upstream from bridge on Paloio Avenue, 0.6 mi (1.0 km) upstream from confluence with Waiomao Stream, and 4.8 mi (7.7 km) east of Honolulu Post Office.

DRAINAGE AREA.--1.18 mi^2 (3.06 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1926 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 835: 1930(M). WSP 1569: Drainage area. WSP 1639: 1927-29(M), 1931(M), 1932, 1933-34(M). WSP 1719: 1935(M), 1937-40(M), 1942(M), 1948-59(P).

GAGE.--Water-stage recorder and V-notch weir. Datum of gage is 344.78 ft (105.089 m) above mean sea level (Honolulu Board of Water Supply bench mark).

REMARKS.--Records fair except those for period of no gage-height record May 2 to June 9, which are poor. No diversion above station.

AVERAGE DISCHARGE.--50 years, 1.96 ft^3/s (0.056 m^3/s), 1,420 acre-ft/yr (1.75 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,600 ft^3/s (73.6 m^3/s) Apr. 11, 1930, gage height, 7.75 ft (2.362 m), from rating curve extended above 71 ft^3/s (2.01 m^3/s) by test of model of station site; minimum, 0.08 ft^3/s (0.002 m^3/s) Oct. 31, 1929.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 350 ft^3/s (9.91 m^3/s) Nov. 26, gage height, 4.32 ft (1.317 m), no other peak above base of 140 ft^3/s (3.96 m^3/s); minimum, 0.17 ft^3/s (0.005 m^3/s) Nov. 18-20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.20	1.1	.32	.30	.67	1.7	2.4	.70	.45	1.1	.42
2	.20	.20	1.2	.30	.29	.61	1.7	1.6	.64	.45	1.0	.42
3	.22	.20	.87	.29	.28	.58	1.5	1.4	.60	.45	1.0	.44
4	.23	.21	.80	.29	.26	14	1.4	1.3	.58	.45	.97	.42
5	.21	.20	.77	.29	.26	4.2	1.4	1.3	.58	.45	.90	.40
6	.20	.20	.73	.29	8.3	1.2	1.3	1.3	.56	.45	.92	.38
7	.22	.20	.72	.29	1.7	.81	1.2	1.3	.53	.45	.83	.37
8	.25	.23	.68	.29	4.8	.85	8.5	1.3	.52	.45	.81	.36
9	.24	.22	.65	.29	1.3	9.9	6.6	1.3	.50	.45	.77	.36
10	.23	.20	.62	.29	.78	5.4	2.7	1.3	.50	.45	.77	.36
11	.23	.20	.60	.28	.78	1.9	2.0	1.3	.50	.45	.71	.36
12	.23	.20	.88	.26	.77	1.2	1.9	1.2	.50	.45	.68	.37
13	.21	.20	1.1	.26	.79	1.2	2.0	1.2	.50	.45	.70	.36
14	.20	.20	.71	.26	.79	1.2	1.6	1.2	.50	.45	.66	.36
15	.20	.20	.58	.26	.78	1.1	1.6	1.2	.50	.45	.62	.36
16	.20	.20	.54	.29	.77	1.1	1.9	1.1	.50	.45	.60	.36
17	.20	.20	.52	.32	.72	4.6	3.5	1.1	.50	.45	.60	.36
18	.20	.19	.49	.32	.59	12	5.4	1.1	.45	.45	.58	.36
19	.21	.17	.46	.32	.55	3.2	3.0	1.0	.50	.45	.58	.36
20	.29	.20	.44	.32	.55	1.6	1.7	1.0	.50	.45	.56	.36
21	.27	.20	.41	.31	.56	1.4	1.5	1.0	.45	.45	.54	.37
22	.26	.21	.38	.29	2.1	2.0	1.7	1.0	.45	.83	.52	.37
23	.24	.20	.37	.29	.84	3.9	1.5	.94	.45	.50	.48	.36
24	.23	3.2	.36	.29	.65	2.2	2.6	.90	.45	5.2	.46	.36
25	.23	17	.34	.29	.65	2.2	1.6	.85	.45	19	.45	.36
26	.23	15	.32	.29	.63	2.7	1.4	.82	.45	3.3	.45	.38
27	.23	18	.32	.29	.62	2.1	1.4	.80	.45	2.7	.44	.37
28	.21	2.5	.32	.29	.64	2.2	1.6	.76	.45	1.8	.44	.63
29	.21	1.0	.32	.29	.61	1.8	9.0	.72	.45	1.2	.45	.65
30	.21	.83	.32	.29	---	1.7	4.4	.70	.45	1.1	.44	.50
31	.20	---	.32	.32	---	1.7	---	.70	---	1.2	.43	---
TOTAL	6.89	62.16	18.24	9.07	32.66	91.22	79.3	35.09	15.16	46.28	20.46	11.89
MEAN	.22	2.07	.59	.29	1.13	2.94	2.64	1.13	.51	1.49	.66	.40
MAX	.29	18	1.2	.32	8.3	14	9.0	2.4	.70	19	1.1	.65
MIN	.20	.17	.32	.26	.26	.58	1.2	.70	.45	.45	.43	.36
AC-FT	14	123	36	18	65	181	157	70	30	92	41	24

CAL YR 1975 TOTAL 415.39 MEAN 1.14 MAX 28 MIN .17 AC-FT 824
WTR YR 1976 TOTAL 428.42 MEAN 1.17 MAX 19 MIN .17 AC-FT 850

16244000 PUKELE STREAM NEAR HONOLULU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974, 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970, 1973 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
23...	1100	.37	0	1	62	5	9.5	9.3	18
APR.									
27...	1230	1.3	0	1	59	5	9.2	8.8	17

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
23...	38	1.0	1.2	70	0	57	89	8.7	22
APR.									
27...	38	1.0	1.1	66	0	54	27	6.5	25

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
23...	.1	23	136	.19	2.2	.06	0	10
APR.								
27...	.1	21	130	.18	1.9	.04	10	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC						JUN					
23...	1100	.37	215	6.1	22.0	09...	1515	.50	240	6.0	22.5
FEB						JUL					
03...	1545	.37	240	6.5	22.0	26...	1400	2.7	200	6.6	22.5
APR											
27...	1230	1.3	220	6.6	22.0						

16247000 PALOLO STREAM NEAR HONOLULU

LOCATION.--Lat 21°17'35", long 157°48'25", Hydrologic Unit 20060000, on left bank 250 ft (76 m) downstream from bridge on Palolo Avenue and 3.9 mi (6.3 km) east of Honolulu Post Office.

DRAINAGE AREA.--3.63 mi^2 (9.40 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS (FISCAL YEARS).--WSP 1569: Drainage area. WSP 1937: 1953, 1955-60.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 95 ft (29 m), from topographic map.

REMARKS.--Records poor. Honolulu Board of Water Supply diverts ground water from tunnels in drainage area.

AVERAGE DISCHARGE.--24 years, 5.64 ft^3/s (0.160 m^3/s), 4,090 acre-ft/yr (5.04 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,270 ft^3/s (121 m^3/s) Dec. 18, 1967, gage height, 5.98 ft (1.823 m), from rating curve extended above 140 ft^3/s (3.96 m^3/s) on basis of slope-conveyance study and slope-area measurements at gage heights 3.92 ft (1.195 m) and 4.13 ft (1.259 m); minimum, 0.02 ft^3/s (0.001 m^3/s) June 25, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 866 ft^3/s (24.5 m^3/s) Nov. 26, gage height, 3.28 ft (1.000 m), from rating curve extended as explained above, no other peak above base of 500 ft^3/s (14.2 m^3/s); minimum, 0.12 ft^3/s (0.003 m^3/s) Oct. 1, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	.34	1.8	.74	.63	5.0	4.5	2.9	1.2	.73	2.0	.77
2	.35	.31	3.0	.58	.55	2.2	5.9	2.0	1.3	.80	1.8	.93
3	.79	.48	4.6	.59	.51	1.3	3.6	2.5	1.3	.72	1.6	.85
4	.56	.40	1.4	.58	.50	56	4.2	2.3	1.3	.68	1.6	.77
5	.39	.40	1.3	.71	1.6	18	2.9	2.5	1.2	.69	1.5	.58
6	.48	.28	1.2	1.1	72	4.0	2.5	2.0	1.1	.78	4.1	.58
7	2.8	.31	1.1	.65	12	2.5	2.6	2.3	.93	.74	1.2	.53
8	.95	.37	.99	.68	21	2.2	33	2.3	.85	.73	.97	.58
9	.61	1.6	.93	.92	3.1	39	26	1.9	.85	.69	.92	1.6
10	.51	.58	.85	.96	1.6	21	7.4	1.9	1.1	1.3	.84	.93
11	.48	.53	.84	.79	1.1	6.0	3.9	2.5	.83	.99	.86	1.0
12	.46	.53	4.8	.69	.91	2.9	3.2	2.7	.75	.79	.84	1.4
13	.42	.53	3.7	.75	1.3	2.1	3.9	1.9	.74	.59	1.5	.77
14	.39	.48	1.3	1.4	1.3	1.5	2.7	1.7	.71	.53	.85	.77
15	.37	.48	.97	.80	1.2	1.6	2.7	1.7	.77	.52	.77	.63
16	.38	.53	.84	5.5	1.2	1.4	3.2	1.9	.74	.47	.77	.58
17	.44	.48	.93	1.7	.99	15	12	1.9	.73	.64	.77	.85
18	.42	.48	.84	1.3	.96	36	14	1.9	.72	.49	.85	2.5
19	.61	.43	.99	1.2	.94	8.6	3.9	2.0	1.1	1.5	.85	.85
20	.85	1.6	.88	1.1	.84	3.6	2.0	2.3	.85	1.4	.85	.70
21	.58	1.0	.65	1.1	1.1	4.1	2.0	2.0	.85	3.1	.77	1.1
22	.43	2.1	.67	1.1	13	6.4	2.7	2.3	.83	2.9	.77	1.1
23	.40	.75	.64	1.1	3.6	15	2.3	1.6	.87	1.8	.77	.85
24	.43	13	.62	.87	1.8	5.6	3.9	1.4	.97	22	.77	.85
25	.37	70	.60	.62	1.5	7.7	2.7	1.6	.82	61	.77	1.2
26	.37	67	.58	.54	1.4	10	2.3	2.7	.76	7.1	.93	2.6
27	.37	95	.57	.52	1.3	5.1	2.0	1.6	.75	7.7	.77	1.4
28	.31	8.1	.56	.53	1.2	5.9	5.0	1.4	.74	4.6	.77	4.1
29	.34	2.5	.61	.55	1.1	5.9	36	1.4	.78	1.7	.77	3.4
30	.34	1.7	.60	2.9	---	4.1	9.3	1.4	1.9	1.4	.77	1.4
31	.34	---	.59	2.9	---	4.9	---	1.3	---	1.5	.85	---
TOTAL	16.90	272.29	39.95	35.47	150.23	304.6	212.3	61.8	28.34	130.58	34.15	36.17
MEAN	.55	9.08	1.29	1.14	5.18	9.83	7.08	1.99	.94	4.21	1.10	1.21
MAX	2.8	95	4.8	5.5	72	56	36	2.9	1.9	61	4.1	4.1
MIN	.31	.28	.56	.52	.50	1.3	2.0	1.3	.71	.47	.77	.53
AC-FT	34	540	79	70	298	604	421	123	56	259	68	72

CAL YR 1975 TOTAL 1525.04 MEAN 4.18 MAX 194 MIN .28 AC-FT 3020
WTR YR 1976 TOTAL 1322.78 MEAN 3.61 MAX 95 MIN .28 AC-FT 2620

16247000 PALOLO STREAM NEAR HONOLULU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 23...	0930	.65	6	3	87	13	15	12	28
APR. 27...	0900	2.2	5	1	75	10	12	11	22

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 23...	41	1.3	1.3	57	16	73	.2	16	45
APR. 27...	39	1.1	.7	79	0	65	1.0	9.0	36

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 23...	.1	19	183	.25	.52	.02	20	0
APR. 27...	.1	13	146	.20	.70	.01	20	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC 23...	0930	.65	314	8.8	21.5
FEB 03...	1330	.59	340	10.5	24.0
MAR 18...	1400	30	180	6.7	22.5
APR 27...	0900	2.2	270	8.1	22.5
JUN 09...	1030	.75	320	9.0	23.0
JUL 26...	1030	7.8	230	8.2	22.5
SEP 08...	0945	.51	625	8.9	28.0

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 (198 m) upstream from mouth, 2.7 mi (4.3 km) southwest of Kailua, and 4.3 mi (6.9 km) southeast of Kaneohe Courthouse.

DRAINAGE AREA.--2.04 mi^2 (5.28 km^2).

WATER-DISCHARGE RECORDS

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. Altitude of gage is 80 ft (24 m), from topographic map. Prior to Jan. 1, 1958, nonrecording gage at sites about 200 ft (61 m) upstream at different datums.

REMARKS.--Records fair. Maunawili ditch diverts 1.5 mi (2.4 km) above station for irrigation in vicinity of Wainanalo.

AVERAGE DISCHARGE.--20 years (water years, 1914-15, 1959-76), 5.10 ft^3/s (0.144 m^3/s), 3,690 acre-ft/yr (4.55 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,000 ft^3/s (170 m^3/s) Feb. 4, 1965, gage height, 12.41 ft (3.783 m), from rating curve extended above 470 ft^3/s (13.3 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.43 ft^3/s (0.012 m^3/s) Sept. 8-12, 14, 16-20, 22, 23, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 272 ft^3/s (7.70 m^3/s) Nov. 27, gage height, 4.36 ft (1.329 m), no peak above base of 390 ft^3/s (11.0 m^3/s); minimum, 0.77 ft^3/s (0.022 m^3/s) Oct. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	.97	3.6	1.9	1.5	3.1	3.2	2.8	2.1	1.6	1.5	1.2
2	1.0	.90	3.3	1.6	1.5	2.6	3.2	2.7	2.0	1.7	1.5	1.2
3	1.1	.97	3.1	1.6	1.5	2.3	3.1	2.8	2.0	1.6	1.4	1.6
4	1.3	.97	2.7	1.6	1.4	28	2.9	2.7	2.1	1.6	1.4	1.5
5	1.2	.97	2.5	1.6	2.0	11	2.9	2.7	2.0	1.5	1.4	1.4
6	1.2	.97	2.5	1.6	18	6.6	2.9	2.6	1.9	1.6	1.6	1.3
7	1.9	.97	2.3	1.6	7.9	5.6	2.9	2.6	1.9	1.5	1.4	1.3
8	1.4	1.0	2.5	1.6	10	5.4	3.7	2.6	1.9	1.5	1.4	1.3
9	1.2	.97	2.2	1.7	7.9	15	3.2	2.5	1.9	1.5	1.4	1.4
10	1.1	.97	2.1	1.6	6.4	11	2.9	2.5	2.0	1.6	1.4	1.4
11	1.1	.97	2.1	1.5	5.8	9.0	2.9	2.5	1.9	1.6	1.4	1.4
12	1.0	.97	2.2	1.5	5.6	8.1	2.8	2.5	1.8	1.5	1.4	1.4
13	1.0	1.0	2.3	1.5	4.3	7.6	2.8	2.3	1.9	1.5	1.5	1.3
14	1.0	1.1	2.3	1.5	2.9	7.2	2.7	2.3	1.8	1.5	1.4	1.6
15	1.0	1.2	2.2	1.5	2.8	6.0	2.7	2.3	1.8	1.5	1.3	1.4
16	.97	1.2	2.0	2.0	2.8	4.8	2.8	2.3	1.8	1.4	1.3	1.2
17	.97	1.4	2.0	1.6	2.7	6.2	3.8	2.3	1.7	1.5	1.3	1.3
18	.97	1.3	1.9	1.6	2.6	7.6	3.2	2.2	1.7	1.4	1.4	1.4
19	.97	1.2	1.9	1.5	2.6	6.8	2.9	2.3	1.7	1.4	1.3	1.2
20	.97	1.4	1.8	1.5	2.6	6.6	2.8	2.2	1.7	1.6	1.3	1.2
21	.97	1.3	1.8	1.6	2.6	6.2	2.8	2.6	1.8	1.7	1.3	1.3
22	1.0	1.4	1.8	1.5	2.6	6.2	2.8	2.1	1.7	1.7	1.3	1.3
23	.97	1.4	1.7	1.4	2.3	6.4	2.7	2.3	1.7	1.6	1.2	1.2
24	.97	5.4	1.7	1.4	2.3	5.8	2.8	2.6	1.7	1.8	1.2	1.2
25	.97	25	1.7	1.4	2.2	5.8	2.8	2.1	1.6	2.8	1.2	1.3
26	.97	22	1.7	1.4	2.2	6.0	2.7	2.1	1.6	1.8	1.2	1.5
27	.97	52	1.7	1.4	2.6	5.6	2.7	2.1	1.6	1.7	1.2	1.6
28	.90	10	1.6	1.4	2.3	5.4	2.9	2.1	1.6	1.6	1.2	2.2
29	.90	5.2	1.6	1.4	2.2	4.1	3.5	2.1	1.5	1.5	1.3	1.9
30	.90	4.1	1.7	1.5	---	3.2	2.9	2.0	1.5	1.5	1.2	1.8
31	.90	---	1.7	2.2	---	3.2	---	2.0	---	1.4	1.2	---
TOTAL	32.77	149.20	66.2	48.7	114.1	218.4	88.9	73.8	53.8	49.7	41.5	42.3
MEAN	1.06	4.97	2.14	1.57	3.93	7.05	2.96	2.38	1.79	1.60	1.34	1.41
MAX	1.9	52	3.6	2.2	18	28	3.8	2.8	2.1	2.8	1.6	2.2
MIN	.90	.90	1.6	1.4	1.4	2.3	2.7	2.0	1.5	1.4	1.2	1.2
AC-FT	65	296	131	97	226	433	176	146	107	99	82	84

CAL YR 1975 TOTAL 1252.73 MEAN 3.43 MAX 63 MIN .90 AC-FT 2480
WTR YR 1976 TOTAL 979.37 MEAN 2.68 MAX 52 MIN .90 AC-FT 1940

16254000 MAKAWAO STREAM NEAR KAILUA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD,--Water years 1974, 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968, 1970, 1972 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
05...	1530	2.6	6	1	67	3	12	8.9	17
MAY									
13...	1400	2.4	2	2	64	0	11	8.8	17

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
05...	35	.9	1.2	78	0	64	20	9.0	23
MAY									
13...	36	.9	.6	80	0	66	8.1	7.0	22

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
05...	.1	31	146	.20	1.1	.03	150	0
MAY								
13...	.1	31	137	.19	.00	.11	190	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC						MAY					
05...	1530	2.6	220	6.8	22.0	13...	1400	2.4	220	7.2	21.0
JAN						JUL					
20...	1420	1.5	220	6.7	19.0	07...	1350	1.5	215	6.7	21.5
FEB						AUG					
23...	1205	2.6	220	6.1	20.5	11...	1355	1.4	200	7.2	22.5
MAR						SEP					
29...	1240	3.5	215	7.0	20.5	23...	1225	1.3	210	6.9	23.0

16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE

LOCATION.--Lat 21°23'42", long 157°48'26", Hydrologic Unit 20060000, on right bank 100 ft (30 m) downstream from Kuou Stream, 1.1 mi (1.8 km) southwest of Castle High School, and 1.9 mi (3.1 km) south of Kaneohe Post Office.

DRAINAGE AREA.--3.21 mi^2 (8.31 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1967 to September 1970. Occasional low-flow measurements and annual maximum, water year 1971. January 1972 to September 1976 (discontinued).

GAGE.--Water-stage recorder and combination pipe culverts and paved road control. Altitude of gage is 118 ft (36 m), from topographic map. Control rebuilt and datum lowered 2.80 ft (0.853 m) Apr. 22, 1969.

REMARKS.--Records poor. No diversion above station.

AVERAGE DISCHARGE.--7 years (water years, 1969-70, 1974-76), 10.9 ft^3/s (0.309 m^3/s) 7,900 acre-ft/yr (9.74 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft^3/s (306 m^3/s) Feb. 1, 1969, gage height, 12.42 ft (3.786 m), control and datum then in use, from rating curve extended above 1,800 ft^3/s (51 m^3/s); minimum, 3.1 ft^3/s (0.088 m^3/s) Oct. 10, 12, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 444 ft^3/s (12.6 m^3/s) Nov. 26, gage height, 6.98 ft (2.128 m), from rating curve extended above 130 ft^3/s (3.68 m^3/s), no peak above base of 900 ft^3/s (25.5 m^3/s); minimum, 3.5 ft^3/s (0.099 m^3/s) Oct. 28, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	3.8	6.5	5.7	3.9	7.6	6.2	6.5	5.7	5.5	4.5	4.0
2	4.0	3.8	8.5	4.3	3.9	4.9	6.5	6.5	5.9	5.5	4.3	4.5
3	4.0	3.8	9.2	4.3	3.9	4.7	5.9	6.8	5.9	5.1	4.3	4.7
4	4.1	4.0	5.7	4.1	3.8	26	5.9	6.5	5.7	5.1	4.1	4.3
5	4.0	4.0	5.1	4.1	11	9.8	5.7	6.5	5.5	4.9	4.0	4.1
6	4.1	4.0	5.1	4.9	50	7.6	5.5	6.5	5.5	4.9	4.5	4.0
7	5.9	4.0	4.9	4.3	13	6.2	5.5	6.5	4.9	4.9	4.1	4.0
8	4.3	4.0	5.1	4.1	17	7.6	9.2	6.2	5.1	4.9	4.1	4.0
9	4.0	3.9	4.9	4.5	8.5	20	7.6	6.2	4.9	5.1	4.1	4.1
10	4.0	3.9	4.7	4.5	7.9	8.5	9.3	6.2	5.9	5.7	4.0	4.7
11	4.1	4.1	4.7	4.1	6.8	7.1	6.2	6.2	5.5	5.1	4.1	4.5
12	4.1	3.9	5.5	4.0	6.2	6.8	5.9	6.2	5.1	4.9	4.3	4.1
13	4.0	3.9	5.9	4.0	5.7	6.8	5.9	6.2	4.9	4.7	4.5	4.0
14	4.0	3.8	5.9	4.0	5.5	6.5	5.9	5.9	4.9	4.7	4.1	4.0
15	4.0	3.9	5.1	4.1	5.1	6.5	5.9	5.7	5.5	4.5	4.0	4.0
16	4.0	3.9	4.9	6.5	5.1	7.6	8.5	6.2	5.1	4.3	3.9	3.9
17	4.0	4.0	4.7	4.3	4.9	8.5	12	6.5	4.9	4.5	4.0	5.5
18	3.9	3.9	4.7	4.1	4.7	9.2	8.5	6.8	4.9	4.3	4.0	5.9
19	4.3	3.8	4.5	4.0	4.7	7.6	7.1	6.2	5.1	4.5	4.1	4.1
20	4.1	4.5	4.5	4.0	4.7	7.1	6.5	6.8	4.9	5.1	4.0	3.9
21	4.1	3.9	4.3	4.1	4.7	7.1	6.8	5.9	5.3	4.7	3.9	4.3
22	3.9	3.9	4.3	4.0	5.1	7.1	7.1	6.2	5.1	4.7	3.9	4.0
23	3.8	3.9	4.1	3.9	4.9	7.6	6.8	6.2	5.5	4.5	3.9	3.9
24	3.8	11	4.1	3.9	4.7	6.5	6.5	5.9	6.2	4.7	3.9	3.9
25	3.8	73	4.1	3.8	4.7	6.8	7.1	5.9	5.1	5.9	3.9	4.9
26	3.8	30	4.1	3.8	4.5	7.6	6.2	5.7	5.1	4.9	3.9	4.7
27	3.8	57	4.1	3.8	4.7	6.5	6.2	5.9	5.1	4.5	4.0	4.5
28	3.7	10	4.1	3.7	4.7	6.2	8.5	5.5	4.9	4.5	4.0	5.1
29	3.9	7.6	4.3	3.7	4.5	6.2	8.5	5.5	4.9	4.3	4.0	4.5
30	3.8	6.5	4.3	4.7	---	5.9	6.5	5.5	4.9	4.7	4.0	4.7
31	3.7	---	4.5	6.8	---	6.5	---	5.5	---	4.5	4.0	---
TOTAL	125.0	285.7	156.4	134.1	218.8	250.6	209.9	190.8	157.9	150.1	126.4	130.8
MEAN	4.03	9.52	5.05	4.33	7.54	8.08	7.00	6.15	5.26	4.84	4.08	4.36
MAX	5.9	73	9.2	6.8	50	26	12	6.8	6.2	5.9	4.5	5.9
MIN	3.7	3.8	4.1	3.7	3.8	4.7	5.5	5.5	4.9	4.3	3.9	3.9
AC-FT	248	567	310	266	434	497	416	378	313	298	251	259

CAL YR 1975 TOTAL 3185.8 MEAN 8.73 MAX 225 MIN 3.7 AC-FT 6320
WTR YR 1976 TOTAL 2136.5 MEAN 5.84 MAX 73 MIN 3.7 AC-FT 4240

16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-71, January 1972 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: January 1972 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler since January 1972.

REMARKS.--In addition to the sediment sampler record, samples were collected at this station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 420 mg/L May 14, 1974; minimum daily mean, 0 tons (0 tonnes) on several days in October 1972.
SEDIMENT DISCHARGE: Maximum daily 512 tons (464 tonnes) May 14, 1974; minimum daily, 0 tons (0 tonnes) on several days in October 1972.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 400 mg/L Nov. 25; minimum daily mean, 2 mg/L Oct. 1, 2.
SEDIMENT DISCHARGE: Maximum daily, 79 tons (72 tonnes) Nov. 25; minimum daily, 0.02 ton (0.02 tonne) Oct. 1, 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 26...	1145	10	10	8	70	31	13	9.1	17

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 26...	34	.9	1.3	47	0	39	9.5	33	21

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 26...	.0	21	141	.19	.42	.01	70	30

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV 26...	1145	10	240	6.9	22.0
MAR 31...	1105	8.0	140	6.9	22.0
SEP 20...	1600	4.1	180	6.6	24.0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM
NOV 25...	1425	350	844	798	39	53	70	87	96	99	100

16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCTOBER			NOVEMBER			DECEMBER		
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)
1	4.0	2	.02	3.8	3	.03	6.5	7	.12
2	4.0	2	.02	3.8	4	.04	8.5	6	.14
3	4.0	3	.03	3.8	3	.03	9.2	10	.25
4	4.1	3	.03	4.0	3	.03	5.7	5	.08
5	4.0	3	.03	4.0	3	.03	5.1	5	.07
6	4.1	4	.04	4.0	3	.03	5.1	5	.07
7	5.9	10	.16	4.0	3	.03	4.9	5	.07
8	4.3	3	.03	4.0	3	.03	5.1	5	.07
9	4.0	3	.03	3.9	5	.05	4.9	5	.07
10	4.0	3	.03	3.9	5	.05	4.7	5	.06
11	4.1	3	.03	4.1	7	.08	4.7	5	.06
12	4.1	3	.03	3.9	12	.13	5.5	4	.06
13	4.0	4	.04	3.9	5	.05	5.9	4	.06
14	4.0	4	.04	3.8	5	.05	5.9	4	.06
15	4.0	4	.04	3.9	5	.05	5.1	6	.08
16	4.0	4	.04	3.9	5	.05	4.9	6	.08
17	4.0	3	.03	4.0	5	.05	4.7	6	.08
18	3.9	3	.03	3.9	3	.03	4.7	6	.08
19	4.3	5	.06	3.8	3	.03	4.5	6	.07
20	4.1	4	.04	4.5	3	.04	4.5	6	.07
21	4.1	3	.03	3.9	3	.03	4.3	4	.05
22	3.9	3	.03	3.9	3	.03	4.3	4	.05
23	3.8	3	.03	3.9	8	.08	4.1	4	.04
24	3.8	3	.03	11	30	.89	4.1	4	.04
25	3.8	3	.03	73	400	79	4.1	3	.03
26	3.8	3	.03	30	80	6.5	4.1	3	.03
27	3.8	3	.03	57	250	38	4.1	3	.03
28	3.7	3	.03	10	10	.27	4.1	3	.03
29	3.9	3	.03	7.6	7	.14	4.3	4	.05
30	3.8	3	.03	6.5	7	.12	4.3	4	.05
31	3.7	3	.03	---	---	---	4.5	3	.04
TOTAL	125.0	---	1.13	285.7	---	125.97	156.4	---	2.14

	JANUARY			FEBRUARY			MARCH		
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)
1	5.7	8	.12	3.9	4	.04	7.6	20	.41
2	4.3	4	.05	3.9	4	.04	4.9	8	.11
3	4.3	4	.05	3.9	3	.03	4.7	6	.08
4	4.1	4	.04	3.8	3	.03	26	80	5.6
5	4.1	4	.04	11	40	1.2	9.8	15	.40
6	4.9	6	.08	50	120	16	7.6	8	.16
7	4.3	6	.07	13	20	.70	6.2	8	.13
8	4.1	5	.06	17	30	1.4	7.6	12	.25
9	4.5	5	.06	8.5	10	.23	20	50	2.7
10	4.5	5	.06	7.9	6	.13	8.5	15	.34
11	4.1	4	.04	6.8	5	.09	7.1	8	.15
12	4.0	4	.04	6.2	4	.07	6.8	8	.15
13	4.0	4	.04	5.7	4	.06	6.8	6	.11
14	4.0	4	.04	5.5	4	.06	6.5	6	.11
15	4.1	8	.09	5.1	4	.06	6.5	6	.11
16	6.5	10	.18	5.1	4	.06	7.6	40	.82
17	4.3	5	.06	4.9	4	.05	8.5	30	.69
18	4.1	4	.04	4.7	4	.05	9.2	35	.87
19	4.0	4	.04	4.7	4	.05	7.6	15	.31
20	4.0	4	.04	4.7	4	.05	7.1	10	.19
21	4.1	3	.03	4.7	4	.05	7.1	10	.19
22	4.0	3	.03	5.1	4	.06	7.1	10	.19
23	3.9	3	.03	4.9	4	.05	7.6	6	.12
24	3.9	3	.03	4.7	4	.05	6.5	6	.11
25	3.8	5	.05	4.7	4	.05	6.8	6	.11
26	3.8	4	.04	4.5	4	.05	7.6	6	.12
27	3.8	4	.04	4.7	5	.06	6.5	8	.14
28	3.7	4	.04	4.7	6	.08	6.2	8	.13
29	3.7	4	.04	4.5	8	.10	6.2	8	.13
30	4.7	6	.08	---	---	---	5.9	8	.13
31	6.8	8	.15	---	---	---	6.5	8	.14
TOTAL	134.1	---	1.80	218.8	---	20.95	250.6	---	15.20

16270500 KAMOOALII STREAM BELOW KUOU STREAM, NEAR KANEOHE--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DAY	APRIL MEAN DISCHARGE (CFS)	APRIL MEAN CONCEN-TRATION (MG/L)	APRIL SEDIMENT DISCHARGE (TONS/DAY)	MAY MEAN DISCHARGE (CFS)	MAY MEAN CONCEN-TRATION (MG/L)	MAY SEDIMENT DISCHARGE (TONS/DAY)	JUNE MEAN DISCHARGE (CFS)	JUNE MEAN CONCEN-TRATION (MG/L)	JUNE SEDIMENT DISCHARGE (TONS/DAY)
1	4.2	10	.17	6.5	6	.11	5.7	6	.09
2	6.5	10	.18	6.5	6	.11	5.9	6	.10
3	5.9	10	.16	6.8	6	.11	5.9	6	.10
4	5.9	10	.16	6.5	6	.11	5.7	6	.09
5	5.7	15	.23	6.5	6	.11	5.5	6	.09
6	5.5	12	.18	6.5	6	.11	5.5	6	.09
7	5.5	12	.18	6.5	6	.11	4.9	6	.08
8	9.2	30	.75	6.2	6	.10	5.1	6	.08
9	7.6	20	.41	6.2	6	.10	4.9	6	.08
10	9.3	10	.25	6.2	6	.10	5.9	6	.10
11	6.2	10	.17	6.2	6	.10	5.5	6	.09
12	5.9	10	.16	6.2	6	.10	5.1	6	.08
13	5.9	10	.16	6.2	6	.10	4.9	6	.08
14	5.9	15	.24	5.9	6	.10	4.9	6	.08
15	5.9	15	.24	5.7	6	.09	5.5	6	.09
16	8.5	30	.69	6.2	6	.10	5.1	6	.08
17	12	90	2.9	6.5	6	.11	4.9	6	.08
18	8.5	15	.34	6.8	6	.11	4.9	6	.08
19	7.1	10	.19	6.2	6	.10	5.1	6	.08
20	6.5	10	.18	6.8	6	.11	4.9	6	.08
21	6.8	10	.18	5.9	6	.10	5.3	6	.09
22	7.1	10	.19	6.2	6	.10	5.1	6	.08
23	6.8	8	.15	6.2	6	.10	5.5	6	.09
24	6.5	6	.11	5.9	6	.10	6.2	6	.10
25	7.1	6	.12	5.9	6	.10	5.1	6	.08
26	6.2	6	.10	5.7	6	.09	5.1	6	.08
27	6.2	6	.10	5.9	6	.10	5.1	6	.08
28	8.5	6	.14	5.5	6	.09	4.9	6	.08
29	8.5	6	.14	5.5	6	.09	4.9	6	.08
30	6.5	6	.11	5.5	6	.09	4.9	6	.08
31	---	---	---	5.5	6	.09	---	---	---
TOTAL	209.9	---	9.28	190.8	---	3.14	157.9	---	2.56

DAY	JULY MEAN DISCHARGE (CFS)	JULY MEAN CONCEN-TRATION (MG/L)	JULY SEDIMENT DISCHARGE (TONS/DAY)	AUGUST MEAN DISCHARGE (CFS)	AUGUST MEAN CONCEN-TRATION (MG/L)	AUGUST SEDIMENT DISCHARGE (TONS/DAY)	SEPTEMBER MEAN DISCHARGE (CFS)	SEPTEMBER MEAN CONCEN-TRATION (MG/L)	SEPTEMBER SEDIMENT DISCHARGE (TONS/DAY)
1	5.5	8	.12	4.5	8	.10	4.0	8	.09
2	5.5	8	.12	4.3	8	.09	4.5	8	.10
3	5.1	8	.11	4.3	8	.09	4.7	8	.10
4	5.1	8	.11	4.1	8	.09	4.3	8	.09
5	4.9	8	.11	4.0	8	.09	4.1	8	.09
6	4.9	8	.11	4.5	8	.10	4.0	8	.09
7	4.9	8	.11	4.1	8	.09	4.0	8	.09
8	4.9	8	.11	4.1	8	.09	4.0	8	.09
9	5.1	8	.11	4.1	8	.09	4.1	8	.09
10	5.7	8	.12	4.0	8	.09	4.7	8	.10
11	5.1	8	.11	4.1	8	.09	4.5	8	.10
12	4.9	8	.11	4.3	8	.09	4.1	8	.09
13	4.7	8	.10	4.5	8	.10	4.0	8	.09
14	4.7	8	.10	4.1	8	.09	4.0	8	.09
15	4.5	8	.10	4.0	8	.09	4.0	8	.09
16	4.3	8	.09	3.9	8	.08	3.9	8	.08
17	4.5	8	.10	4.0	8	.09	5.5	20	.30
18	4.3	8	.09	4.0	8	.09	5.9	50	.80
19	4.5	8	.10	4.1	8	.09	4.1	8	.09
20	5.1	8	.11	4.0	8	.09	3.9	8	.08
21	4.7	8	.10	3.9	8	.08	4.3	8	.09
22	4.7	8	.10	3.9	8	.08	4.0	8	.09
23	4.5	8	.10	3.9	8	.08	3.9	8	.08
24	4.7	8	.10	3.9	8	.08	3.9	8	.08
25	5.9	8	.13	3.9	8	.08	4.9	20	.26
26	4.9	8	.11	3.9	8	.08	4.7	15	.19
27	4.5	8	.10	4.0	8	.09	4.5	10	.12
28	4.5	8	.10	4.0	8	.09	5.1	20	.28
29	4.3	8	.09	4.0	8	.09	4.5	8	.10
30	4.7	8	.10	4.0	8	.09	4.7	8	.10
31	4.5	8	.10	4.0	8	.09	---	---	---
TOTAL	150.1	---	3.27	126.4	---	2.75	130.8	---	4.13
YEAR	2136.5		192.32						

16273900 KAMOOALII STREAM AT KANEOHE

LOCATION.--Lat 21°24'51", long 157°48'13", Hydrologic Unit 20060000, on right bank 500 ft (152 m) upstream from Highway 83 and 0.2 mi (0.3 km) south of Parker School in Kaneohe.

DRAINAGE AREA.--4.38 mi^2 (11.34 km^2).

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--January 1959 to October 1963, November 1965 to current year.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 38.75 ft (11.811 m) above mean sea level (levels by city and county of Honolulu). Prior to Oct. 5, 1963, at site 50 ft (15 m) downstream at datum 0.93 ft (0.283 m) lower.

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

AVERAGE DISCHARGE.--14 years (water years 1960-63, 1967-76), 14.9 ft^3/s (0.422 m^3/s), 10,800 acre-ft/yr (13.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft^3/s (340 m^3/s) Feb. 1, 1969, gage height, 10.16 ft (3.097 m), from rating curve extended above 380 ft^3/s (10.8 m^3/s) on basis of slope-area measurements at gage heights 5.26 ft (1.603 m), 7.14 ft (2.176 m), 7.47 ft (2.277 m), and 10.16 ft (3.097 m); minimum, 3.4 ft^3/s (0.096 m^3/s) Aug. 28, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 23, 1958, reached a stage of 8.3 ft (2.53 m), from floodmarks, former site and datum, discharge, 6,610 ft^3/s (187 m^3/s), from rating curve extended above 120 ft^3/s (3.40 m^3/s) on basis of slope-area measurement at gage height 5.69 ft (1.734 m). Discharge for peaks of Feb. 4 and May 2, 1965, 6,190 ft (175 m^3/s) and 5,400 ft^3/s (153 m^3/s), respectively; results of slope-area measurements of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 588 ft^3/s (16.7 m^3/s) Nov. 25, gage height, 3.18 ft (0.969 m), no peak above base of 950 ft^3/s (26.9 m^3/s); minimum, 4.6 ft^3/s (0.130 m^3/s) Nov. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	5.2	9.4	8.2	5.4	11	9.0	9.4	8.2	7.8	6.5	5.6
2	5.6	5.2	8.6	6.2	5.4	7.1	9.4	9.4	8.6	7.8	6.2	6.5
3	5.6	5.2	13	6.2	5.4	6.8	8.6	9.8	8.6	7.4	6.2	6.8
4	5.9	5.6	8.2	5.9	5.2	36	8.6	9.4	8.2	7.4	5.9	6.2
5	5.6	5.6	7.4	5.9	15	14	8.2	9.4	7.8	7.1	5.6	5.9
6	5.9	5.4	7.4	7.1	68	11	7.8	9.4	7.8	7.1	6.5	5.6
7	8.5	5.6	7.1	6.2	18	9.0	7.8	9.4	7.1	7.1	5.9	5.6
8	6.2	5.6	7.4	5.9	24	11	13	9.0	7.4	7.1	5.9	5.6
9	5.6	5.4	7.1	6.5	12	28	11	9.0	7.1	7.4	5.9	5.9
10	5.6	5.4	6.8	6.5	11	12	9.4	9.0	8.6	8.3	5.6	6.8
11	5.9	5.9	6.8	5.9	9.8	10	9.0	9.0	7.8	7.1	5.9	6.5
12	5.9	5.4	7.8	5.6	9.0	9.8	8.6	9.0	7.4	6.8	6.2	5.9
13	5.6	5.4	8.6	5.6	8.2	9.8	8.6	9.0	7.1	6.5	6.5	5.6
14	5.6	5.2	8.4	5.6	7.8	9.4	8.6	8.6	7.1	6.8	5.9	5.6
15	5.6	5.4	7.4	6.0	7.4	9.4	8.6	8.2	7.8	6.2	5.6	5.6
16	5.6	5.4	7.1	9.3	7.4	11	12	9.0	7.4	5.9	5.4	5.4
17	5.6	5.6	6.8	6.2	7.1	12	18	9.4	7.1	6.2	5.6	7.9
18	5.4	5.4	6.8	5.9	6.8	13	13	9.8	7.1	5.9	5.6	8.5
19	6.2	5.2	6.5	5.6	6.8	11	10	9.0	7.4	6.3	5.9	5.9
20	5.9	6.5	6.5	5.6	6.8	10	9.4	9.8	7.1	7.3	5.6	5.4
21	5.9	5.4	6.2	5.9	6.8	10	9.8	8.6	7.7	6.8	5.4	6.2
22	5.4	5.4	6.2	5.6	7.4	10	10	9.0	7.4	6.8	5.4	5.6
23	5.2	5.4	5.9	5.4	7.1	11	9.8	9.0	7.8	6.5	5.4	5.4
24	5.2	16	5.9	5.4	6.8	9.4	9.4	8.6	8.7	6.8	5.4	5.4
25	5.2	99	5.9	5.2	6.8	9.8	10	8.6	7.4	8.6	5.4	7.2
26	5.2	41	5.9	5.2	6.5	11	9.0	8.2	7.4	7.1	5.4	6.8
27	5.2	78	5.9	5.2	6.8	9.4	9.0	8.6	7.4	6.5	5.6	6.5
28	4.9	14	5.9	4.9	6.8	9.0	12	7.8	7.1	6.5	5.6	7.4
29	5.4	11	6.2	4.9	6.5	9.0	12	7.8	7.1	6.2	5.6	6.5
30	5.2	9.4	6.2	6.7	---	8.6	9.4	7.8	7.1	6.8	5.6	6.8
31	4.9	---	6.5	9.5	---	9.4	---	7.8	---	6.5	5.6	---
TOTAL	175.1	394.2	221.8	189.8	308.0	357.9	299.0	275.8	227.8	214.6	178.8	186.6
MEAN	5.65	13.1	7.15	6.12	10.6	11.5	9.97	8.90	7.59	6.92	5.77	6.22
MAX	8.5	99	13	9.5	68	36	18	9.8	8.7	8.6	6.5	8.5
MIN	4.9	5.2	5.9	4.9	5.2	6.8	7.8	7.8	7.1	5.9	5.4	5.4
AC-FT	347	782	440	376	611	710	593	547	452	426	355	370

CAL YR 1975 TOTAL 4375.3 MEAN 12.0 MAX 280 MIN 4.9 AC-FT 8680
WTR YR 1976 TOTAL 3029.4 MEAN 8.28 MAX 99 MIN 4.9 AC-FT 6010

16273900 KAMOOALII STREAM AT KANEOHE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1967-68 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
MAY 13...	1500	10	2	10	60	0	11	7.9	16

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
MAY 13...	36	.9	1.1	74	0	61	1.2	8.4	20

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
MAY 13...	.0	20	123	.17	.29	.06	270	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT 21...	1110	5.4	--	--	22.0
NOV 26...	1040	20	--	--	22.5
JAN 08...	1340	5.1	200	7.6	22.5
FEB 06...	1220	122	180	6.8	22.0
26...	1120	6.4	200	6.8	22.5
APR 09...	0955	12	210	6.9	23.0
MAY 07...	1315	10	210	8.0	29.0
13...	1500	10	210	8.0	29.0
JUN 25...	1235	7.8	200	8.2	28.5
AUG 09...	1540	5.8	200	8.9	29.0
SEP 20...	1450	5.3	190	7.5	27.0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT 21...	1110	5.4	--	--
NOV 05...	1240	5.4	3	.04
25...	0900	42	42	4.8
26...	1000	17	10	.46
26...	1040	20	--	--
27...	1030	30	15	1.2
DEC 04...	1130	7.8	2	.04
JAN 08...	1340	5.9	8	.13
FEB 04...	1300	5.4	7	.10
06...	0945	135	199	73
06...	1100	142	114	44
06...	1145	140	140	53
06...	1215	120	100	32
06...	1220	122	--	--
06...	1330	111	53	16
26...	0930	7.1	6	.12
26...	1120	6.4	--	--
APR 09...	0905	10	34	.92
09...	0955	12	--	--
MAY 07...	1315	10	--	--
07...	1505	7.8	18	.38
13...	1500	10	--	--
13...	1515	8.6	22	.51
JUN 25...	1140	7.8	16	.34
25...	1235	7.8	--	--
JUL 07...	1030	7.8	19	.40
AUG 07...	1400	5.9	9	.14
09...	1510	5.6	13	.20
09...	1540	5.8	--	--
25...	1330	5.2	24	.34
SEP 20...	1400	5.2	15	.21

16275000 HAIKU STREAM NEAR HEEIA

LOCATION.--Lat 21°24'46", long 157°49'33", Hydrologic Unit 20060000, on left bank 1.7 mi (2.7 km) west of Kaneohe Post Office and 1.8 mi (2.9 km) southwest of Heeia.

DRAINAGE AREA.--0.97 mi² (2.51 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1914 to October 1919, July 1939 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 (82.875 m) above mean sea level (levels by city and county of Honolulu). Prior to Apr. 28, 1914, nonrecording gage and Apr. 28, 1914, to Oct. 25, 1919, water-stage recorder, at same site at different datums.

REMARKS.--Records fair. Honolulu Board of Water Supply has diverted ground water from tunnel in drainage area since 1943.

AVERAGE DISCHARGE (since diversion from tunnel began).--33 years (water years 1944-76), 2.18 ft³/s (0.062 m³/s), 1,580 acre-ft/yr (1.95 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,740 ft³/s (163 m³/s) May 2, 1965, gage height, 7.94 ft (2.420 m), from rating curve extended above 57 ft³/s (1.61 m³/s) on basis of slope-area measurements at gage heights 3.87 ft (1.180 m), 3.88 ft (1.183 m), and 7.94 ft (2.420 m); minimum, 0.20 ft³/s (0.006 m³/s) July 20, 1957, Sept. 17, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 456 ft³/s (12.9 m³/s) Nov. 25, gage height, 3.22 ft (0.976 m), from rating curve extended as explained above, no other peak above base of 340 ft³/s (9.63 m³/s); minimum, 0.94 ft³/s (0.027 m³/s) Nov. 9-20, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	1.0	1.5	1.1	1.1	1.6	1.5	2.0	1.2	1.2	1.1	1.1
2	1.0	1.0	1.5	1.1	1.0	1.3	1.5	1.8	1.2	1.2	1.1	1.1
3	1.0	1.0	1.7	1.1	1.0	1.2	1.8	1.7	1.1	1.1	1.0	1.1
4	1.0	1.0	1.4	1.1	1.0	9.4	1.7	1.6	1.1	1.1	1.0	1.1
5	1.0	1.0	1.3	1.1	1.2	4.6	1.6	1.6	1.1	1.1	1.0	1.1
6	1.1	1.0	1.3	1.2	12	2.1	1.5	1.5	1.0	1.1	1.0	1.1
7	1.2	1.0	1.2	1.1	4.7	1.7	1.5	1.4	1.0	1.2	1.0	1.1
8	1.1	1.0	1.2	1.1	4.7	2.2	3.3	1.4	1.0	1.2	1.0	1.2
9	1.1	1.0	1.2	1.1	2.6	11	2.8	1.4	1.0	1.2	1.1	1.3
10	1.1	.95	1.2	1.1	1.7	4.3	2.1	1.4	1.1	1.3	1.1	1.2
11	1.1	1.0	1.1	1.1	1.4	2.5	1.7	1.3	1.0	1.3	1.1	1.1
12	1.1	.96	1.2	1.1	1.4	2.0	1.6	1.3	1.0	1.2	1.1	1.1
13	1.1	.96	1.4	1.1	1.2	1.8	1.5	1.3	1.0	1.2	1.1	1.1
14	1.1	.97	1.6	1.1	1.2	1.7	1.5	1.3	1.0	1.2	1.1	1.1
15	1.0	.97	1.3	1.1	1.1	1.6	1.5	1.3	1.1	1.2	1.1	1.1
16	1.1	.97	1.2	1.4	1.1	1.8	3.8	1.3	1.0	1.1	1.1	1.1
17	1.0	.97	1.2	1.3	1.1	2.1	6.4	1.3	1.0	1.1	1.1	1.2
18	1.1	.95	1.1	1.2	1.1	3.7	3.5	1.3	1.1	1.1	1.1	1.2
19	1.1	.94	1.1	1.1	1.2	2.5	2.5	1.3	1.1	1.0	1.1	1.1
20	1.1	1.3	1.1	1.1	1.2	1.9	2.0	1.3	1.0	1.1	1.1	1.1
21	1.1	1.0	1.1	1.1	1.1	1.8	1.8	1.3	1.1	1.1	1.1	1.0
22	1.0	1.0	1.1	1.1	1.1	1.8	1.8	1.2	1.1	1.1	1.1	.98
23	1.0	1.0	1.1	1.1	1.1	2.2	1.7	1.2	1.1	1.1	1.1	.98
24	1.0	2.7	1.1	1.1	1.1	2.0	1.7	1.2	1.1	1.2	1.1	.98
25	1.0	34	1.1	1.1	1.1	1.8	1.7	1.2	1.1	1.7	1.1	1.0
26	1.0	12	1.1	1.0	1.1	1.7	1.6	1.2	1.1	1.5	1.2	1.3
27	1.0	15	1.1	1.0	1.1	1.6	1.6	1.2	1.1	1.4	1.2	1.4
28	1.0	3.4	1.1	1.0	1.1	1.6	1.7	1.2	1.1	1.3	1.1	1.6
29	1.0	1.9	1.1	1.0	1.1	1.5	3.6	1.2	1.1	1.2	1.1	1.6
30	1.0	1.5	1.1	1.0	---	1.4	2.6	1.2	1.1	1.2	1.1	1.3
31	1.0	---	1.1	1.2	---	1.5	---	1.2	---	1.1	1.1	---
TOTAL	32.5	93.46	37.9	34.4	52.9	79.9	65.1	42.1	32.1	37.1	33.7	34.74
MEAN	1.05	3.11	1.22	1.11	1.82	2.58	2.17	1.36	1.07	1.20	1.09	1.16
MAX	1.2	34	1.7	1.4	12	11	6.4	2.0	1.2	1.7	1.2	1.6
MIN	1.0	.94	1.1	1.0	1.0	1.2	1.5	1.2	1.0	1.0	1.0	.98
AC-FT	64	185	75	68	105	158	129	84	64	74	67	69

CAL YR 1975 TOTAL 621.98 MEAN 1.70 MAX 34 MIN .94 AC-FT 1230
WTR YR 1976 TOTAL 575.78 MEAN 1.57 MAX 34 MIN .94 AC-FT 1140

16275000 HAIKU STREAM NEAR HEEIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 04...	1355	1.5	8	1	60	5	12	7.2	12

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 04...	30	.7	1.1	67	0	55	8.5	5.4	16

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 04...	.1	25	113	.15	.21	.01	70	30

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAY 06...	0845	1.4	160	7.0	20.3	0	1	842	500	53	0	10
14...	1110	1.1	165	6.6	22.0	2	1	--	--	50	0	9.7

DATE	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)
MAY 06...	6.8	12	33	.7	1.0	69	0	57	2.5	15	.0	24
14...	6.3	12	34	.7	.8	64	0	53	3.7	16	.0	24

DATE	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)
MAY 06...	106	.14	.03	.01	.02	.02	.04	.07	.01	.01	0	0
14...	104	.14	--	.00	--	--	--	--	--	.05	--	--

DATE	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)
MAY 06...	<10	0	0	0	<50	0	10	1	270	140	<100	1
14...	--	--	--	--	--	--	--	--	--	190	--	--

16275000 HAIKU STREAM NEAR HEEIA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TOTAL MANGANESE (MN) (UG/L)	DIS-SOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DIS-SOLVED SELENIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	OIL AND GREASE (MG/L)	SUS-PENDED SEDIMENT (MG/L)	SUS-PENDED SEDIMENT DIS-CHARGE (T/DAY)
MAY												
06...	40	40	.0	.0	0	0	0	0	1.2	2	1	.00
14...	--	30	--	--	--	--	--	--	--	--	--	--

DATE	TIME	INSTANTANEOUS DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC					
04...	1355	1.5	165	7.1	21.5
JAN					
12...	1530	1.0	170	6.8	20.0
FEB					
25...	1430	1.1	160	6.7	20.5
MAY					
06...	0845	1.4	160	7.0	20.3
14...	1110	1.1	165	6.6	22.0
MAY					
30...	1545	1.3	170	7.1	20.0
JUN					
24...	1450	.99	179	6.6	20.5
AUG					
11...	0955	.99	160	6.9	20.0
SEP					
24...	0820	.91	150	6.8	20.5

HAWAII, ISLAND OF OAHU

16283600 SOUTH FORK WAIHEE STREAM NEAR HEEIA

LOCATION.--Lat 21°26'47", long 157°52'12", Hydrologic Unit 20060000, on left bank 0.2 mi (0.3 km) upstream from confluence with North Fork, 3.0 mi (4.8 km) southwest of Waiahole School, and 4.0 mi (6.4 km) northwest of Heeia.

DRAINAGE AREA.--0.03 mi² (0.08 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 615.74 ft (187.678 m) above mean sea level (levels by Honolulu Board of Water Supply).

REMARKS.--Records fair. No diversion above station.

AVERAGE DISCHARGE.--14 years, 1.94 ft³/s (0.055 m³/s), 1,410 acre-ft/yr (1.74 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 279 ft³/s (7.90 m³/s) May 2, 1965, gage height, 3.96 ft (1.207 m), from rating curve extended above 3.9 ft³/s (0.11 m³/s); minimum, 1.1 ft³/s (0.031 m³/s) many days in 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 47 ft³/s (1.33 m³/s) Apr. 29, gage height, 2.14 ft (0.652 m), from rating curve extended above 3.9 ft³/s (0.11 m³/s), no other peak above base of 47 ft³/s (1.33 m³/s); minimum, 1.3 ft³/s (0.037 m³/s) many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.4	1.6	1.4	1.3	1.7	1.4	1.4	1.3	1.4	1.7	1.6
2	1.5	1.4	1.6	1.4	1.3	1.3	1.4	1.4	1.3	1.4	1.6	1.6
3	1.5	1.4	1.7	1.4	1.3	1.3	1.4	1.4	1.3	1.4	1.7	1.6
4	1.5	1.4	1.6	1.4	1.3	2.6	1.4	1.4	1.3	1.4	1.6	1.6
5	1.5	1.4	1.5	1.4	1.3	1.4	1.4	1.4	1.3	1.4	1.6	1.6
6	1.5	1.4	1.5	1.4	2.3	1.3	1.4	1.4	1.3	1.4	1.4	1.6
7	1.7	1.4	1.5	1.7	1.5	1.3	1.4	1.4	1.3	1.4	1.4	1.7
8	1.5	1.4	1.5	1.4	1.7	1.5	1.5	1.4	1.4	1.4	1.4	1.8
9	1.5	1.4	1.5	1.4	1.3	2.7	1.4	1.4	1.4	1.4	1.4	1.7
10	1.5	1.4	1.5	1.4	1.3	1.5	1.4	1.4	1.4	1.4	1.4	1.7
11	1.4	1.4	1.5	1.4	1.3	1.4	1.3	1.4	1.4	1.4	1.4	1.7
12	1.4	1.4	1.6	1.4	1.3	1.4	1.3	1.4	1.4	1.4	1.5	1.7
13	1.4	1.4	1.7	1.4	1.3	1.4	1.3	1.4	1.4	1.4	1.5	1.7
14	1.4	1.4	1.5	1.3	1.3	1.4	1.3	1.4	1.4	1.4	1.5	1.8
15	1.4	1.4	1.4	1.3	1.3	1.4	1.3	1.4	1.4	1.4	1.5	1.8
16	1.4	1.4	1.4	1.3	1.3	1.4	2.5	1.4	1.4	1.4	1.6	1.8
17	1.4	1.4	1.4	1.3	1.3	1.5	1.7	1.4	1.4	1.4	1.6	1.8
18	1.4	1.4	1.4	1.3	1.3	1.8	1.5	1.4	1.4	1.4	1.5	1.8
19	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.6	1.8
20	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.3	1.4	1.5	1.6	1.8
21	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.3	1.4	1.7	1.5	2.2
22	1.4	1.5	1.4	1.3	1.3	1.4	1.5	1.3	1.4	1.6	1.5	2.0
23	1.4	1.4	1.4	1.3	1.3	1.5	1.4	1.3	1.4	1.7	1.5	1.8
24	1.4	1.6	1.4	1.3	1.3	1.4	1.4	1.3	1.3	1.6	1.5	1.7
25	1.4	3.7	1.4	1.3	1.3	1.4	1.4	1.3	1.3	1.9	1.5	1.7
26	1.4	2.6	1.4	1.3	1.3	1.4	1.4	1.3	1.3	1.7	1.5	1.7
27	1.4	2.5	1.4	1.3	1.3	1.4	1.4	1.3	1.4	1.6	1.5	1.8
28	1.4	1.6	1.4	1.3	1.3	1.4	1.5	1.3	1.4	1.7	1.5	1.8
29	1.4	1.6	1.4	1.3	1.3	1.3	3.2	1.3	1.4	1.7	1.5	1.7
30	1.4	1.5	1.4	1.3	---	1.3	1.5	1.3	1.4	1.7	1.6	1.7
31	1.4	---	1.4	1.3	---	1.3	---	1.3	---	1.7	1.6	---
TOTAL	44.6	47.4	45.6	41.9	39.3	46.3	45.2	42.2	41.0	46.8	47.2	52.3
MEAN	1.44	1.58	1.47	1.35	1.36	1.49	1.51	1.36	1.37	1.51	1.52	1.74
MAX	1.7	3.7	1.7	1.7	2.3	2.7	3.2	1.4	1.4	1.9	1.7	2.2
MIN	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.6
AC-FT	88	94	90	83	78	92	90	84	81	93	94	104

CAL YR 1975 TOTAL 595.3 MEAN 1.63 MAX 4.0 MIN 1.4 AC-FT 1180
WTR YR 1976 TOTAL 539.8 MEAN 1.47 MAX 3.7 MIN 1.3 AC-FT 1070

16283600 SOUTH FORK WAIHEE STREAM NEAR HEEIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1971 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
08...	1230	1.4	2	0	30	0	5.5	3.9	9.6
MAY									
17...	1040	1.3	3	0	29	0	5.4	3.8	9.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
08...	40	.8	.8	37	0	30	4.7	2.2	13
MAY									
17...	41	.8	.7	35	0	29	5.6	2.9	14

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
08...	.1	26	80	.11	.14	.03	30	0
MAY								
17...	.0	25	79	.11	.12	.09	0	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC					
08...	1230	1.4	110	7.1	19.5
JAN					
21...	1200	1.2	115	6.6	19.0
FEB					
20...	1115	1.3	115	6.5	19.0
APR					
05...	1100	1.4	120	7.0	19.0
MAY					
17...	1040	1.3	115	7.0	19.0
JUN					
23...	1200	1.4	120	6.9	19.0
AUG					
12...	1220	1.6	140	7.0	19.5
SEP					
21...	1200	2.8	110	6.6	19.0

HAWAII, ISLAND OF OAHU

16283700 NORTH FORK WAIHEE STREAM NEAR HEEIA

LOCATION.--Lat 21°26'48", long 157°52'18", Hydrologic Unit 20060000, on left bank 0.3 mi (0.5 km) upstream from confluence with South Fork, 2.8 mi (4.5 km) southwest of Waiahole School, and 4.3 mi (6.9 km) northwest of Heeia.

DRAINAGE AREA.--0.03 mi^2 (0.08 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 639.00 ft (194.767 m) above mean sea level (levels by Honolulu Board of Water Supply).

REMARKS.--Records fair. No diversion above station.

AVERAGE DISCHARGE.--14 years, 1.93 ft^3/s (0.055 m^3/s), 1,400 acre-ft/yr (1.73 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 376 ft^3/s (10.6 m^3/s) Feb. 4, 1965, gage height, 3.38 ft (1.030 m), from rating curve extended above 19 ft^3/s (0.54 m^3/s); minimum, 1.3 ft^3/s (0.037 m^3/s) many days in 1963, 1973, and Oct. 11-13, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 44 ft^3/s (1.25 m^3/s) Apr. 29, gage height, 1.72 ft (0.524 m), from rating curve extended above 19 ft^3/s (0.54 m^3/s), no peak above base of 45 ft^3/s (1.27 m^3/s); minimum, 1.4 ft^3/s (0.040 m^3/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.5	1.6	1.5	1.5	1.8	1.5	1.6	1.6	1.6	1.6	1.6
2	1.5	1.5	1.6	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.6	1.6
3	1.5	1.5	1.7	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6
4	1.5	1.5	1.6	1.5	1.5	2.7	1.5	1.6	1.6	1.6	1.6	1.6
5	1.5	1.5	1.6	1.5	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.6
6	1.5	1.5	1.6	1.5	2.5	1.6	1.5	1.6	1.6	1.6	1.6	1.6
7	1.8	1.5	1.6	1.8	1.7	1.6	1.5	1.6	1.6	1.6	1.6	1.6
8	1.5	1.5	1.5	1.5	1.8	1.7	1.6	1.6	1.6	1.6	1.6	1.6
9	1.5	1.5	1.5	1.5	1.5	2.9	1.6	1.6	1.6	1.6	1.6	1.6
10	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.6	1.6	1.6	1.6
11	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.6	1.6	1.6	1.6
12	1.5	1.5	1.6	1.5	1.5	1.6	1.5	1.5	1.6	1.6	1.6	1.6
13	1.5	1.5	1.7	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6
14	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6
15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6
16	1.5	1.5	1.5	1.5	1.5	1.5	2.4	1.5	1.6	1.6	1.6	1.6
17	1.5	1.5	1.5	1.5	1.5	1.6	1.9	1.5	1.6	1.6	1.6	1.6
18	1.5	1.5	1.5	1.5	1.5	1.9	1.6	1.5	1.6	1.6	1.7	1.6
19	1.6	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.6	1.6	1.8	1.6
20	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.6	1.6	1.7	1.6
21	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.5
22	1.5	1.6	1.5	1.5	1.5	1.5	1.7	1.5	1.6	1.6	1.6	1.5
23	1.5	1.6	1.5	1.5	1.5	1.6	1.6	1.5	1.6	1.6	1.6	1.5
24	1.5	1.7	1.5	1.5	1.5	1.5	1.6	1.5	1.6	1.6	1.6	1.6
25	1.5	4.0	1.5	1.5	1.5	1.5	1.6	1.6	1.6	2.0	1.6	1.6
26	1.5	3.0	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.6	1.7
27	1.5	2.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.8
28	1.5	1.7	1.5	1.5	1.5	1.5	1.8	1.6	1.6	1.6	1.6	1.8
29	1.5	1.7	1.5	1.5	1.5	1.5	3.3	1.6	1.6	1.6	1.6	1.6
30	1.5	1.6	1.5	1.5	---	1.5	1.6	1.6	1.6	1.6	1.6	1.7
31	1.5	---	1.5	1.5	---	1.5	---	1.6	---	1.6	1.6	---
TOTAL	46.9	50.8	47.6	46.8	45.1	51.0	49.8	48.1	48.0	50.1	50.0	48.3
MEAN	1.51	1.69	1.54	1.51	1.56	1.65	1.66	1.55	1.60	1.62	1.61	1.61
MAX	1.8	4.0	1.7	1.8	2.5	2.9	3.3	1.6	1.6	2.0	1.8	1.8
MIN	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.5
AC-FT	93	101	94	93	89	101	99	95	95	99	99	96

CAL YR 1975 TOTAL 642.8 MEAN 1.76 MAX 4.0 MIN 1.5 AC-FT 1270
WTR YR 1976 TOTAL 582.5 MEAN 1.59 MAX 4.0 MIN 1.5 AC-FT 1160

HAWAII, ISLAND OF OAHU

16283700 NORTH FORK WAIHEE STREAM NEAR HEEIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1971.

REMARKS.--Miscellaneous chemical analyses published for this station for 1971 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
08...	1225	1.5	4	0	31	4	5.7	4.0	9.1
MAY									
17...	1150	1.4	1	0	29	2	5.4	3.8	9.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
08...	39	.7	.7	32	0	26	5.1	2.9	13
MAY									
17...	40	.7	.5	33	0	27	4.2	3.9	13

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
08...	.2	24	76	.10	.18	.04	0	0
MAY								
17...	.0	23	76	.10	.14	.05	0	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC						MAY					
08...	1225	1.5	110	7.0	19.0	17...	1150	1.4	110	7.1	19.0
JAN						JUN					
21...	1330	1.5	120	6.8	19.0	23...	1340	1.6	110	6.9	19.0
FEB						AUG					
20...	1245	1.5	115	6.5	18.5	12...	1400	1.6	120	7.1	--
APR						SEP					
05...	1215	1.3	120	7.1	19.0	21...	1340	1.5	110	6.5	19.0

HAWAII, ISLAND OF OAHU

16284000 WAIHEE STREAM NEAR HEEIA

LOCATION.--Lat 21°27'01", long 157°51'38", Hydrologic Unit 20060000, on left bank 120 ft (37 m) downstream from forest-reserve boundary, 3.5 mi (5.6 km) northwest of Heeia, and 4.0 mi (6.4 km) northwest of Kaneohe Post Office.

DRAINAGE AREA.--0.93 mi² (2.41 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1935 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1569: Drainage area. WSP 1719: 1956-57. WSP 1937: 1940-43(M), 1947(M), 1948(P), 1949-50(M), 1953(M), 1955(M), 1958(M), 1959(P). (WATER YEAR).--WRD Hawaii 1972: 1971(P).

GAGE.--Water-stage recorder and Parshall flume. Datum of gage is 193.44 ft (58.961 m) above mean sea level (levels by Honolulu Board of Water Supply).

REMARKS.--Records fair. Honolulu Board of Water Supply diverts water from tunnel in drainage area and pumps water from well nearby.

AVERAGE DISCHARGE.--40 years (water years 1937-76), 8.39 ft³/s (0.238 m³/s), 6,080 acre-ft/yr (7.50 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,110 ft³/s (145 m³/s) Feb. 4, 1965, gage height, 8.72 ft (2.658 m), from floodmarks, from rating curve extended above 77 ft³/s (2.18 m³/s) on basis of slope-area measurements at gage heights 6.06 ft (1.847 m) and 8.72 ft (2.658 m); minimum, 1.9 ft³/s (0.054 m³/s) several days in September and October 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 140 ft³/s (3.96 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 25	1500	198	5.61	3.91	1.192
Nov. 26	2300	*212	6.00	4.04	1.231
Apr. 29	0200	194	5.49	3.87	1.180

Minimum discharge, 2.0 ft³/s (0.057 m³/s) for several days in January and February.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	2.1	2.8	2.2	2.0	2.6	2.5	3.1	2.2	2.2	2.5	2.4
2	2.2	2.1	2.7	2.2	2.0	4.7	2.5	2.9	2.2	2.2	2.5	2.4
3	2.2	2.1	3.2	2.3	2.0	2.3	2.7	2.8	2.3	2.2	2.5	2.4
4	2.2	2.2	2.7	2.2	2.0	6.4	2.5	2.6	2.3	2.2	2.5	2.4
5	2.2	2.1	2.5	2.3	2.5	12	2.2	2.5	2.3	2.1	2.4	2.4
6	2.3	2.2	2.5	2.9	12	4.1	2.2	2.5	2.3	2.2	2.5	2.4
7	3.7	2.2	2.3	3.4	7.1	3.0	2.2	2.5	2.3	2.2	2.4	2.5
8	2.5	2.1	2.2	2.4	7.1	2.7	2.7	2.4	2.2	2.2	2.4	2.6
9	2.4	2.1	2.2	2.5	4.4	12	2.8	2.4	2.3	2.3	2.5	2.7
10	2.4	2.1	2.2	2.4	3.3	14	2.4	2.4	2.4	2.3	2.5	2.6
11	2.3	2.2	2.1	2.3	2.8	4.9	2.4	2.4	2.3	2.2	2.5	2.5
12	2.3	2.1	2.4	2.3	2.6	3.5	2.3	2.4	2.3	2.2	2.4	2.5
13	2.3	2.1	3.4	2.2	2.5	3.0	2.3	2.3	2.3	2.2	2.4	2.5
14	2.2	2.1	2.8	2.2	2.4	2.7	2.3	2.3	2.3	2.2	2.3	2.6
15	2.2	2.1	2.5	2.2	2.3	2.6	2.2	2.4	2.3	2.2	2.3	2.5
16	2.2	2.2	2.4	2.6	2.2	2.6	6.0	2.4	2.2	2.3	2.3	2.5
17	2.2	2.1	2.4	2.3	2.2	2.6	4.6	2.3	2.2	2.3	2.4	2.8
18	2.2	2.1	2.4	2.2	2.1	4.9	3.0	2.3	2.2	2.3	2.4	2.8
19	2.4	2.1	2.3	2.1	2.1	4.9	2.5	2.3	2.2	2.4	2.6	2.6
20	2.3	2.3	2.3	2.1	2.1	3.0	2.4	2.3	2.2	2.4	2.4	2.6
21	2.2	2.1	2.3	2.2	2.1	3.3	2.4	2.3	2.2	2.4	2.4	3.0
22	2.2	2.9	2.3	2.1	2.1	3.2	2.8	2.2	2.2	2.4	2.4	2.5
23	2.2	2.5	2.3	2.1	2.1	3.3	2.4	2.2	2.2	2.4	2.4	2.4
24	2.2	3.7	2.3	2.1	2.0	2.7	2.4	2.2	2.1	2.5	2.4	2.4
25	2.2	33	2.3	2.0	2.0	2.9	2.7	2.2	2.1	4.0	2.4	2.4
26	2.1	16	2.2	2.0	2.1	3.2	2.4	2.2	2.1	2.7	2.4	2.8
27	2.1	24	2.2	2.0	2.1	2.8	2.3	2.2	2.1	2.5	2.4	2.8
28	2.1	5.2	2.2	2.0	2.0	2.6	2.8	2.2	2.1	2.4	2.4	3.2
29	2.1	3.3	2.3	2.0	2.1	2.5	16	2.3	2.1	2.5	2.4	2.8
30	2.1	2.8	2.3	2.0	---	2.5	4.4	2.2	2.1	2.5	2.4	3.0
31	2.1	---	2.2	2.2	---	2.5	---	2.2	---	2.5	2.4	---
TOTAL	70.5	138.2	75.2	70.0	86.3	130.0	95.3	73.9	66.6	73.6	75.1	78.0
MEAN	2.27	4.61	2.43	2.26	2.98	4.19	3.18	2.38	2.22	2.37	2.42	2.60
MAX	3.7	33	3.4	3.4	12	14	16	3.1	2.4	4.0	2.6	3.2
MIN	2.1	2.1	2.1	2.0	2.0	2.3	2.2	2.2	2.1	2.1	2.3	2.4
AC-FT	140	274	149	139	171	258	189	147	132	146	149	155

CAL YR 1975 TOTAL 1269.5 MEAN 3.48 MAX 35 MIN 2.1 AC-FT 2520
WTR YR 1976 TOTAL 1032.7 MEAN 2.82 MAX 33 MIN 2.0 AC-FT 2050

16284000 WAIHEE STREAM NEAR HEEIA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1969-71 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 25...	1300	23	180	800	24	1	5.4	2.5	7.8
MAY 17...	1440	2.4	1	1	30	0	5.4	3.9	9.7

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 25...	41	.7	.5	28	0	23	18	6.8	12
MAY 17...	41	.8	.6	36	0	30	5.8	2.9	14

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 25...	.0	10	59	.08	.04	.00	0	0
MAY 17...	.0	24	79	.11	.00	.09	40	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV 25...	1300	23	85	6.4	20.0
JAN 12...	1000	2.4	120	7.1	19.5
FEB 20...	1420	2.2	115	6.5	19.5
APR 05...	1435	2.5	140	7.1	21.0
MAY 17...	1440	2.4	110	7.0	21.0
JUN 23...	1415	2.3	110	6.7	20.0
AUG 12...	1530	2.7	120	7.1	20.0
SEP 21...	0940	3.4	105	6.7	20.0

16284200 WAIHEE STREAM NEAR KAHALUU

LOCATION.--Lat 21°27'04", long 157°51'36", Hydrologic Unit 20060000, on right bank 0.2 mi (0.3 km) downstream from forest-reserve boundary, 1.0 mi (1.6 km) south of Kahaluu School, and 1.6 mi (2.6 km) west of Ahuimanu sewage treatment plant.

DRAINAGE AREA.--0.97 mi² (2.51 km²)

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 170 ft (52 m), from topographic map.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 508 ft³/s (14.4 m³/s) Nov. 21, 1974, gage height, 5.96 ft (1.817 m) from rating curve extended above 10 ft³/s (0.28 m³/s); minimum, 2.1 ft³/s (0.060 m³/s) Sept. 22, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 25	1500	212	6.00	4.68	1.426
Nov. 26	2315	*230	6.51	4.77	1.454
Apr. 29	0200	212	6.00	4.68	1.426

Minimum discharge, 2.1 cfs (0.060 m³/s) Sept. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.5	3.1	3.7	3.7	6.9	4.2	5.4	4.1	2.7	2.7	2.7
2	2.7	2.5	3.1	3.7	3.6	4.6	4.2	4.9	4.1	2.7	2.7	2.7
3	2.7	2.4	3.6	3.8	3.6	4.1	4.6	4.7	4.1	2.7	2.7	2.7
4	2.8	2.5	3.1	3.7	3.6	17	4.1	4.6	4.1	2.7	2.6	2.7
5	2.8	2.5	2.9	3.7	4.4	7.9	4.0	4.4	4.1	2.7	2.6	2.8
6	2.9	2.5	2.8	4.0	16	5.9	3.8	4.2	4.1	2.7	2.6	2.8
7	4.2	2.5	2.7	5.0	9.9	4.9	3.8	4.2	4.1	3.1	2.6	2.7
8	3.0	2.5	2.9	3.8	10	5.2	4.4	4.2	4.3	2.8	2.6	2.8
9	2.9	2.4	3.2	4.0	6.8	28	4.6	4.2	4.3	2.7	2.5	2.9
10	2.8	2.4	3.2	3.8	5.0	9.3	4.2	4.2	4.3	2.7	2.5	2.8
11	2.8	2.4	3.2	3.7	5.2	6.3	4.1	4.1	4.3	2.7	2.5	2.7
12	2.7	2.3	4.0	3.7	4.2	5.4	4.1	4.1	4.1	2.7	2.4	2.7
13	2.7	2.3	5.9	3.7	4.1	5.0	4.0	4.1	4.1	2.6	2.7	2.7
14	2.6	2.3	5.0	3.8	4.0	4.7	4.0	4.1	3.7	2.6	2.5	2.6
15	2.6	2.3	4.6	3.8	4.0	4.6	4.1	4.1	3.1	2.6	2.5	2.6
16	2.7	2.3	3.8	4.2	4.0	4.7	8.2	4.0	2.9	2.7	2.6	2.6
17	2.7	2.3	3.8	3.8	3.8	5.5	7.6	4.0	2.8	2.7	2.6	2.9
18	2.6	2.3	3.7	3.7	3.8	8.8	5.0	4.0	2.8	2.7	2.6	2.9
19	2.8	2.3	3.7	3.7	3.7	6.3	4.6	4.0	2.7	2.7	2.8	2.7
20	2.6	2.4	3.6	3.8	3.7	5.6	4.4	4.1	2.7	2.8	2.6	2.6
21	2.5	2.4	3.6	3.8	3.7	5.4	4.2	4.1	2.6	2.8	2.6	3.0
22	2.5	3.0	3.6	3.8	3.8	5.6	4.9	4.1	2.6	2.7	2.6	2.5
23	2.6	2.7	3.6	3.7	3.7	6.1	4.4	4.1	2.7	2.8	2.6	2.5
24	2.5	4.4	3.6	3.7	3.6	5.2	4.4	4.1	2.6	2.8	2.6	2.4
25	2.5	39	3.6	3.7	3.6	5.2	4.7	4.1	2.6	4.3	2.6	2.5
26	2.5	19	3.6	3.6	3.7	5.6	4.4	4.1	2.6	3.0	2.7	2.9
27	2.5	28	3.6	3.6	3.7	5.0	4.2	4.1	2.6	2.7	2.7	2.8
28	2.5	6.1	3.6	3.6	3.7	4.7	4.6	4.1	2.6	2.7	2.6	3.2
29	2.5	3.8	3.6	3.6	3.7	4.6	21	4.2	2.6	2.7	2.6	2.9
30	2.5	3.2	3.7	3.8	---	4.4	7.1	4.1	2.6	2.7	2.7	3.0
31	2.5	---	3.6	4.0	---	4.4	---	4.1	---	2.7	2.7	---
TOTAL	83.8	159.5	111.6	118.0	140.3	206.9	155.9	130.8	100.9	86.2	80.9	82.3
MEAN	2.70	5.32	3.60	3.81	4.84	6.67	5.20	4.22	3.36	2.78	2.61	2.74
MAX	4.2	39	5.9	5.0	16	28	21	5.4	4.3	4.3	2.8	3.2
MIN	2.5	2.3	2.7	3.6	3.6	4.1	3.8	4.0	2.6	2.6	2.4	2.4
AC-FT	166	316	221	234	278	410	309	259	200	171	160	163

CAL YR 1975 TOTAL 1557.4 MEAN 4.27 MAX 40 MIN 2.3 AC-FT 3090
WTR YR 1976 TOTAL 1457.1 MEAN 3.98 MAX 39 MIN 2.3 AC-FT 2890

16284200 WAIHEE STREAM NEAR KAHALUU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV.									
25...	1100	32	90	200	25	11	4.7	3.3	9.3
MAY									
17...	1550	3.7	1	1	40	0	7.9	4.8	11

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV.									
25...	44	.8	.7	17	0	14	6.8	5.0	17
MAY									
17...	37	.8	1.0	49	0	40	7.8	4.1	15

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV.								
25...	.0	16	65	.09	.06	.01	10	0
MAY								
17...	.0	27	96	.13	.07	.09	0	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV						MAY					
25...	1100	32	110	6.6	20.5	17...	1550	3.7	140	7.0	21.0
JAN						JUN					
12...	1230	3.8	140	7.0	19.5	23...	1510	2.5	120	6.7	20.0
FEB						AUG					
25...	1025	3.8	140	6.8	20.0	12...	1640	2.4	120	7.0	21.0
APR						SEP					
05...	1525	4.0	140	7.0	21.0	21...	0825	2.7	110	6.5	20.0

HAWAII, ISLAND OF OAHU

16294900 WAIKANE STREAM AT ALTITUDE 75 FT (23 M), AT WAIKANE

LOCATION.--Lat 21°30'00", long 157°51'54", Hydrologic Unit 20060000, on right bank 0.3 mi (0.5 km) downstream from Waikeekee Stream, 0.7 mi (1.1 km) west of Waikane, and 1.2 mi (1.9 km) northwest of Waiahole School.

DRAINAGE AREA.--2.22 mi^2 (5.75 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 75 ft (23 m), from topographic map.

REMARKS.--Records fair. Waiahole tunnel diverts from two tributaries above station for irrigation in vicinity of Waipahu. Recording rain gage located at station.

AVERAGE DISCHARGE.--16 years (water years 1961-76), 8.66 ft^3/s (0.245 m^3/s), 6,270 acre-ft/yr (7.73 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,800 ft^3/s (249 m^3/s) Feb. 4, 1965, gage height, 10.76 ft (3.280 m), from rating curve extended above 120 ft^3/s (3.40 m^3/s) on basis of slope-area measurements at gage heights 4.88 ft (1.487 m), 9.46 ft (2.883 m), and 10.76 ft (3.280 m); minimum, 0.76 ft^3/s (0.022 m^3/s) Oct. 27, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 762 ft^3/s (21.6 m^3/s) Mar. 9, gage height, 4.98 ft (1.518 m), from rating curve extended as explained above, no other peak above base of 700 ft^3/s (19.8 m^3/s); minimum, 0.76 ft^3/s (0.022 m^3/s) Oct. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.4	3.7	2.6	2.3	9.8	8.0	13	4.3	3.2	2.7	1.8
2	1.6	1.4	3.4	2.2	2.2	6.7	8.4	10	3.8	4.5	2.9	1.8
3	1.5	1.4	4.8	2.2	2.1	4.5	7.9	10	4.0	2.5	2.7	1.8
4	1.7	1.6	3.4	4.1	2.1	30	6.7	11	3.8	2.4	2.5	1.8
5	1.5	1.4	3.2	3.9	4.6	18	6.7	9.5	3.6	2.4	2.5	1.9
6	1.6	1.5	2.9	3.6	61	9.4	6.1	7.6	3.4	5.3	2.4	1.8
7	8.5	1.5	2.8	2.9	22	7.5	5.7	7.0	3.4	3.9	2.3	1.8
8	2.3	1.5	2.9	2.5	35	15	14	6.4	3.4	2.7	2.3	1.8
9	1.6	1.4	2.7	2.6	14	80	9.4	6.1	3.6	2.6	2.1	1.8
10	1.4	1.5	2.6	2.8	8.7	30	7.4	5.8	3.2	3.4	2.0	2.0
11	1.5	1.4	2.5	2.6	7.0	15	6.6	5.8	3.0	3.0	2.1	1.8
12	1.4	1.2	3.9	2.5	6.1	9.0	6.3	6.7	3.0	2.7	2.2	1.7
13	1.3	1.3	7.4	2.3	5.2	7.4	5.9	5.2	2.8	2.6	2.5	1.7
14	1.3	1.3	5.2	2.4	4.9	6.6	5.6	5.2	3.0	2.5	2.2	1.7
15	1.3	1.5	5.4	2.5	4.4	6.0	5.4	5.1	3.0	2.5	2.0	1.7
16	1.2	1.6	3.8	6.0	4.2	5.6	5.9	4.8	2.8	2.5	2.0	1.6
17	1.1	1.3	3.4	3.2	4.0	5.4	30	4.7	2.6	2.6	2.3	1.7
18	1.4	1.4	3.1	2.7	3.8	12	11	5.0	3.0	2.5	2.1	1.6
19	1.5	1.3	2.9	2.5	3.8	8.0	7.8	5.1	3.0	2.7	2.4	1.6
20	1.4	1.5	2.9	2.5	3.6	6.2	6.9	5.0	3.2	3.3	2.2	1.5
21	1.4	1.4	2.8	2.8	3.4	5.6	6.7	4.7	3.2	3.1	2.1	1.6
22	1.5	1.4	2.7	2.5	3.4	5.8	7.6	4.9	3.0	2.9	2.0	1.4
23	1.4	1.3	2.7	2.4	3.2	7.5	9.2	4.4	3.0	2.9	2.0	1.6
24	1.5	16	2.6	2.3	3.2	5.8	7.8	4.2	2.7	4.9	2.2	2.1
25	1.3	45	2.6	2.2	3.0	5.2	6.7	4.5	2.6	19	2.0	1.8
26	1.5	35	2.5	2.2	4.5	6.0	6.2	4.0	2.5	9.0	1.9	2.8
27	1.2	61	2.5	2.2	6.9	5.4	5.8	4.1	2.4	5.0	1.9	4.0
28	1.1	8.1	2.5	2.1	4.6	5.0	20	3.9	2.5	3.0	2.0	5.5
29	1.3	5.0	2.4	2.1	4.0	4.8	34	3.8	2.4	2.7	1.9	4.4
30	1.4	3.9	2.5	2.2	---	6.0	19	4.2	2.4	2.7	1.9	2.9
31	1.3	---	2.5	3.0	---	9.4	---	3.8	---	2.6	1.7	---
TOTAL	51.6	206.5	101.2	84.6	237.2	358.6	294.7	185.5	92.6	117.6	68.0	63.0
MEAN	1.66	6.88	3.26	2.73	8.18	11.6	9.82	5.98	3.09	3.79	2.19	2.10
MAX	8.5	61	7.4	6.0	61	80	34	13	4.3	19	2.9	5.5
MIN	1.1	1.2	2.4	2.1	2.1	4.5	5.4	3.8	2.4	2.4	1.7	1.4
AC-FT	102	410	201	168	470	711	585	368	184	233	135	125

CAL YR 1975 TOTAL 1691.7 MEAN 4.63 MAX 141 MIN 1.1 AC-FT 3360
WTR YR 1976 TOTAL 1861.1 MEAN 5.09 MAX 80 MIN 1.1 AC-FT 3690

NOTE.--No gage-height record Mar. 8-30, July 26 to Sept. 22.

HAWAII, ISLAND OF OAHU

16294900 WAIKANE STREAM AT ALTITUDE 75 FT (23 M), AT WAIKANE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
04...	1530	3.0	9	2	46	2	7.8	6.4	15
MAY									
14...	1320	4.9	1	1	45	0	7.3	6.6	15

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
04...	41	1.0	.8	53	0	43	13	4.8	20
MAY									
14...	41	1.0	.6	57	0	47	29	5.1	19

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
04...	.0	27	108	.15	.03	.00	150	20
MAY								
14...	.0	25	107	.15	.06	.04	160	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC						MAY					
04...	1530	3.0	180	6.8	22.0	14...	1320	4.9	160	6.5	21.0
JAN						JUN					
20...	1040	2.3	185	6.4	19.5	24...	1120	2.6	170	6.4	21.5
FEB						AUG					
19...	1510	3.5	195	6.2	19.5	10...	1625	1.9	175	6.8	23.0
MAR						SEP					
30...	1250	6.0	170	7.0	20.0	22...	1515	1.3	170	6.6	23.5

16296500 KAHANA STREAM AT ALTITUDE 30 FT (9.1 M), NEAR KAHANA

LOCATION.--Lat 21°32'37", long 157°53'07", Hydrologic Unit 20060000, on right bank 600 ft (183 m) upstream from Kawa Stream, 1.1 mi (1.8 km) southwest of Kahana, and 2.2 mi (3.5 km) southwest of Swanzy Beach Park in Kaaawa.

DRAINAGE AREA.--3.74 mi^2 (9.69 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1958 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1937: 1959-60.

GAGE.--Water-stage recorder and concrete-masonry control. Altitude of gage is 30 ft (9.1 m), from topographic map.

REMARKS.--Records fair. Approximately 9 ft^3/s (0.25 m^3/s) is diverted by Waiahole Water Co. at 800-ft (244-m) elevation, 2.3 mi (3.7 km) above station. Recording rain gage located at station.

AVERAGE DISCHARGE.--17 years (water years 1960-76), 35.9 ft^3/s (1.017 m^3/s), 26,010 acre-ft/yr (32.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,430 ft^3/s (154 m^3/s) Apr. 15, 1963, gage height, 8.10 ft (2.469 m), from rating curve extended above 530 ft^3/s (15.0 m^3/s) on basis of computation of peak flow over submerged weir; minimum, 10 ft^3/s (0.28 m^3/s) Sept. 17, 18, 20, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,690 ft^3/s (47.9 m^3/s) Nov. 26, gage height, 4.89 ft (1.490 m), from rating curve extended as explained above, no other peak above base of 1,600 ft^3/s (45.3 m^3/s); minimum, 12 ft^3/s (0.34 m^3/s) many days in October and November.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	14	26	18	16	49	26	29	29	28	19	15
2	12	13	24	18	15	25	28	27	19	41	20	14
3	12	13	30	17	15	21	31	30	18	18	17	15
4	12	12	25	23	15	121	23	34	18	16	17	14
5	12	12	23	21	41	54	24	34	18	16	16	14
6	13	13	21	20	192	32	21	25	17	21	18	14
7	95	14	20	19	49	28	21	24	17	20	16	14
8	19	15	22	18	104	32	61	22	17	16	16	14
9	15	13	20	19	36	96	40	22	17	16	16	18
10	14	13	19	20	29	39	28	21	20	20	16	15
11	13	16	18	19	25	29	25	24	20	17	16	15
12	13	14	24	18	22	27	28	25	17	16	16	15
13	13	13	32	18	21	25	30	21	17	16	20	14
14	13	13	23	18	21	23	26	20	16	16	16	14
15	12	13	28	19	20	22	25	20	19	16	15	14
16	12	13	24	25	22	22	138	18	18	15	15	14
17	12	14	23	20	20	30	321	20	17	16	15	14
18	12	13	21	19	18	84	102	18	16	15	15	16
19	13	13	20	18	18	39	57	20	17	15	64	14
20	14	14	20	17	18	26	39	23	16	30	17	14
21	13	13	19	18	18	29	34	23	16	17	16	14
22	12	24	19	17	19	30	41	22	16	18	16	16
23	12	19	19	16	18	54	39	21	20	17	15	14
24	13	126	18	16	17	28	30	21	25	32	15	16
25	12	185	18	16	17	29	31	22	18	81	15	15
26	12	177	18	16	30	31	27	22	17	34	15	16
27	12	196	18	15	27	74	25	20	16	38	15	17
28	12	45	18	15	35	34	61	19	16	27	15	21
29	12	33	17	15	22	28	76	20	16	21	15	17
30	12	28	17	15	---	25	33	19	16	25	14	16
31	24	---	18	18	---	36	---	19	---	19	15	---
TOTAL	489	1114	662	561	920	1222	1491	705	539	713	546	453
MEAN	15.8	37.1	21.4	18.1	31.7	39.4	49.7	22.7	18.0	23.0	17.6	15.1
MAX	95	196	32	25	192	121	321	34	29	81	64	21
MIN	12	12	17	15	15	21	21	18	16	15	14	14
AC-FT	970	2210	1310	1110	1820	2420	2960	1400	1070	1410	1080	899

CAL YR 1975 TOTAL 9082 MEAN 24.9 MAX 341 MIN 12 AC-FT 18010
WTR YR 1976 TOTAL 9415 MEAN 25.7 MAX 321 MIN 12 AC-FT 18670

NOTE.--No gage-height record Nov. 28 to Jan. 19.

16296500 KAHANA STREAM AT ALTITUDE 30 FT (9.1 M), NEAR KAHANA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
10...	1320	17	7	2	47	7	11	4.7	11
MAY									
18...	1600	20	3	1	37	0	6.7	5.0	11

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
10...	33	.7	.6	48	0	39	31	6.0	14
MAY									
18...	39	.8	.5	47	0	39	47	3.5	15

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
10...	.0	22	93	.13	.01	.01	200	30
MAY								
18...	.0	21	86	.12	.00	.03	240	30

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC						MAY					
10...	1320	17	135	6.4	20.5	18...	1600	20	130	6.2	21.0
JAN						JUN					
19...	1435	17	135	6.4	19.5	28...	1415	19	140	6.6	21.0
FEB						AUG					
27...	1315	18	140	6.6	20.5	13...	1605	19	120	6.4	22.0
APR						SEP					
06...	1240	22	130	6.3	20.0	28...	1505	28	110	6.0	22.5

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 (244 m) downstream from intake, 1.5 mi (2.4 km) west of Kahana, and 1.7 mi (2.7 km) southwest of Punaluu.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1953 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1719: 1954-55.

GAGE.--Water-stage recorder. Altitude of gage is 200 ft (61 m), from topographic map.

REMARKS.--Records good. Ditch diverts from Punaluu Stream for irrigation and domestic use in Punaluu Valley.

AVERAGE DISCHARGE.--23 years, 9.08 ft^3/s (0.257 m^3/s), 6,580 acre-ft/yr (8.11 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 54 ft^3/s (1.53 m^3/s) Oct. 31, 1964; no flow for several days in 1963, 1966, 1969, 1972, 1974.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	4.5	5.5	2.4	2.9	4.5	4.4	4.8	3.6	2.9	2.8	2.6
2	5.2	4.4	5.3	2.3	2.7	4.0	4.5	4.6	3.3	3.5	2.8	2.5
3	5.2	4.4	11	2.3	2.6	3.7	4.6	4.6	3.2	2.9	2.7	2.5
4	5.2	4.5	3.4	2.2	2.6	8.2	4.5	4.8	3.2	2.8	2.7	2.5
5	5.2	4.4	3.1	2.4	3.6	7.5	4.5	4.6	3.1	2.8	2.7	2.5
6	5.2	4.5	2.9	4.5	11	5.2	4.1	4.2	3.0	2.8	2.8	2.5
7	6.3	4.5	2.7	5.8	7.2	4.4	4.0	4.2	3.0	2.7	2.6	2.4
8	5.5	4.5	2.7	3.3	9.5	4.8	5.8	4.0	3.0	2.7	2.6	2.4
9	5.1	4.4	2.6	3.2	6.2	5.9	4.7	4.0	3.0	2.7	2.6	2.7
10	5.0	4.4	2.5	3.6	5.0	5.2	4.2	3.9	3.2	2.8	2.6	2.6
11	5.0	4.5	2.4	3.1	4.4	5.1	4.1	4.0	3.2	2.7	2.6	2.5
12	5.0	4.4	3.6	2.9	4.0	5.1	4.4	4.0	3.0	2.7	2.6	2.6
13	4.8	4.4	5.1	2.8	3.8	4.8	4.6	4.0	3.0	2.7	2.7	2.5
14	4.8	4.4	3.8	2.9	3.7	4.6	4.4	4.0	3.0	2.7	2.5	2.5
15	4.8	4.5	3.8	2.9	3.7	4.6	4.2	3.8	3.0	2.7	2.5	2.5
16	4.7	4.4	3.2	4.6	3.7	4.6	9.8	3.8	3.0	2.7	2.4	2.4
17	4.5	4.2	3.1	3.2	3.3	5.9	17	3.8	2.9	2.8	2.4	2.6
18	4.5	4.1	3.0	3.1	3.2	8.2	8.0	3.6	2.9	2.7	2.6	2.7
19	4.7	4.0	2.9	3.0	3.1	5.0	6.2	3.6	3.0	2.8	3.1	2.6
20	5.0	4.2	2.7	3.1	3.1	4.4	5.2	3.6	2.9	3.7	2.8	2.5
21	4.6	4.0	2.6	3.2	3.0	4.4	4.7	3.4	3.0	2.8	2.7	2.5
22	4.6	4.0	2.5	3.0	3.2	4.2	4.8	3.4	2.9	2.8	2.6	2.4
23	4.6	4.0	2.5	2.9	3.0	4.7	5.0	3.6	3.0	2.8	2.6	2.3
24	5.1	4.8	2.5	2.8	3.0	4.4	4.4	3.8	3.1	3.1	2.5	2.3
25	4.6	12	2.5	2.8	2.9	4.4	5.3	4.0	2.9	5.2	2.6	2.4
26	4.6	8.0	2.5	2.7	5.5	4.4	4.2	3.6	2.8	3.4	2.6	2.5
27	4.6	9.2	2.4	2.7	4.4	5.1	4.1	3.3	2.8	3.6	2.6	2.5
28	4.6	7.6	2.4	2.7	4.7	4.6	6.7	3.3	2.8	3.2	2.5	2.6
29	4.5	6.5	2.4	2.6	3.9	4.4	7.7	3.3	2.8	3.2	2.6	2.4
30	4.5	5.8	2.6	2.8	---	4.4	5.5	3.3	2.7	3.4	2.5	2.4
31	4.6	---	2.3	3.3	---	4.6	---	3.3	---	2.8	2.6	---
TOTAL	151.9	153.5	102.5	95.1	122.9	155.3	165.6	120.2	90.3	93.1	81.5	74.9
MEAN	4.90	5.12	3.31	3.07	4.24	5.01	5.52	3.88	3.01	3.00	2.63	2.50
MAX	6.3	12	11	5.8	11	8.2	17	4.8	3.6	5.2	3.1	2.7
MIN	4.5	4.0	2.3	2.2	2.6	3.7	4.0	3.3	2.7	2.7	2.4	2.3
AC-FT	301	304	203	189	244	308	328	238	179	185	162	149

CAL YR 1975 TOTAL 1372.92 MEAN 3.76 MAX 13 MIN .53 AC-FT 2720
WTR YR 1976 TOTAL 1406.8 MEAN 3.84 MAX 17 MIN 2.2 AC-FT 2790

NOTE.--No gage-height record Mar. 8 to Apr. 8.

16302000 PUNALUU DITCH NEAR PUNALUU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1973 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 28...	1430	7.4	5	1	32	4	5.7	4.2	11

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 28...	42	.9	.7	33	0	27	6.6	3.6	14

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 28...	.0	23	79	.11	.03	.01	20	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV 28...	1430	7.4	120	6.9	21.0

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 (2.2 km) west of Kahana, and 1.8 mi (2.9 km) southwest of Punaluu.

DRAINAGE AREA.--2.78 mi^2 (7.20 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1953 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1569: Drainage area. WSP 1937: 1956(P), 1957(M), 1959(M).
(WATER YEARS).--WRD Hawaii 1974: 1971-72(P), 1973(M).

GAGE.--Water-stage recorder and masonry control. Altitude of gage is 212 ft (65 m), from topographic map.

REMARKS.--Records poor. Records do not include flow of Punaluu ditch (see sta 16302000). All published peak discharges prior to Oct. 1, 1970, have been found to be in error; revised records are on file in the district office and will be published in the next water-supply paper.

AVERAGE DISCHARGE.--23 years, 16.6 ft^3/s (0.470 m^3/s), 12,030 acre-ft/yr (14.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,700 ft^3/s (161 m^3/s) July 17, 1974, gage height, 7.60 ft (2.316 m), from rating curve extended above 170 ft^3/s (4.81 m^3/s) on basis of slope-area measurements at gage heights 5.77 ft (1.759 m) and 7.60 ft (2.316 m); no flow at times.

EXTREMES FOR CURRENT YEAR: Maximum discharge, 725 ft^3/s (20.5 m^3/s) Dec. 3, gage height, 3.03 ft (0.924 m), from rating curve extended as explained above, no peak above base of 930 ft^3/s (26.3 m^3/s); minimum, 4.4 ft^3/s (0.12 m^3/s) Nov. 18-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	5.7	10	12	12	19	15	21	14	13	12	11
2	8.2	5.3	9.1	10	11	15	16	19	13	15	12	11
3	7.7	5.3	52	10	10	13	18	19	13	12	12	11
4	8.2	5.3	15	10	10	46	15	21	13	12	12	10
5	7.7	5.3	14	12	17	39	15	20	13	12	12	10
6	8.6	5.7	13	27	80	23	14	18	13	12	13	10
7	15	5.7	12	30	44	16	13	17	13	12	12	10
8	9.1	5.3	12	14	53	19	24	16	13	12	12	10
9	8.6	5.3	11	13	27	41	18	16	13	12	12	12
10	8.2	5.3	10	15	20	23	15	16	14	12	12	12
11	7.7	5.7	10	13	16	18	14	16	14	12	12	11
12	6.8	5.0	19	12	14	16	16	16	13	12	12	11
13	6.8	5.0	26	12	13	14	17	15	13	11	12	10
14	6.8	5.0	17	12	13	13	15	15	13	11	12	10
15	6.8	5.0	17	12	13	12	15	15	13	11	11	10
16	6.8	5.0	14	22	13	13	89	15	13	11	11	10
17	6.3	4.7	14	14	12	18	157	15	12	11	11	11
18	6.3	4.7	13	13	11	39	42	15	12	11	12	12
19	7.7	4.7	12	12	11	26	30	15	12	12	19	10
20	8.2	5.0	12	13	11	16	25	16	12	17	12	10
21	6.3	4.7	12	13	11	16	22	16	12	13	12	10
22	6.0	5.0	12	12	12	17	21	16	12	13	11	10
23	6.3	5.0	11	12	10	22	22	16	13	12	11	10
24	8.6	25	11	12	10	15	19	18	13	15	11	10
25	6.8	68	10	12	10	16	24	19	12	27	11	10
26	6.3	45	10	11	26	16	18	15	12	15	11	11
27	6.0	59	10	11	18	24	17	15	13	15	11	12
28	6.0	20	10	10	21	19	35	14	13	13	10	12
29	5.7	14	10	10	15	16	44	14	13	12	11	11
30	5.7	11	11	12	---	15	26	13	13	15	10	10
31	6.0	---	10	14	---	16	---	14	---	12	11	---
TOTAL	229.4	360.7	429.1	417	544	631	831	506	385	405	365	318
MEAN	7.40	12.0	13.8	13.5	18.8	20.4	27.7	16.3	12.8	13.1	11.8	10.6
MAX	15	68	52	30	80	46	157	21	14	27	19	12
MIN	5.7	4.7	9.1	10	10	12	13	13	12	11	10	10
AC-FT	455	715	851	827	1080	1250	1650	1000	764	803	724	631

CAL YR 1975 TOTAL 5375.3 MEAN 14.7 MAX 183 MIN 4.7 AC-FT 10660
WTR YR 1976 TOTAL 5421.2 MEAN 14.8 MAX 157 MIN 4.7 AC-FT 10750

16303000 PUNALUU STREAM NEAR PUNALUU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 28...	1310	20	5	1	32	5	5.4	4.4	9.9
MAY 20...	1250	15	2	1	33	1	5.8	4.6	9.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 28...	40	.8	.8	33	0	27	6.6	4.0	14
MAY 20...	38	.7	.7	40	0	33	5.1	3.3	14

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 28...	.1	23	78	.11	.04	.03	50	5
MAY 20...	.0	25	83	.11	.00	.05	80	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV 28...	1310	20	120	6.9	21.0	JUL 01...	1245	12	130	7.0	21.0
JAN 14...	1340	12	125	7.4	20.0	AUG 10...	1250	12	120	7.2	21.5
FEB 14...	1225	10	120	6.5	20.0	SEP 22...	1225	10	120	7.0	20.0
MAY 20...	1250	15	120	7.1	21.0						

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 (1.3 km) downstream from Sacred Falls, 1.6 mi (2.6 km) west of Punaluu Beach Park, and 1.7 mi (2.7 km) south of cemetery in Hauula.

DRAINAGE AREA.--1.11 mi² (2.87 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 110 ft (34 m), from topographic map.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--9 years, 3.83 ft³/s (0.108 m³/s), 2,770 acre-ft/yr (3.42 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,010 ft³/s (56.9 m³/s) Feb. 1, 1969, gage height, 10.0 ft (3.05 m), from rating curve extended above 14 ft³/s (0.40 m³/s) on basis of slope-area measurements at gage heights 8.85 ft (2.697 m) and 10.0 ft (3.05 m); maximum gage height, 10.84 ft (3.304 m) July 17, 1974; no flow for several days in July and August 1971, Sept. 14, 27, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 278 ft³/s (7.87 m³/s) Apr. 29, gage height, 7.63 ft (2.326 m), from rating curve extended as explained above, no peak above base of 500 ft³/s (14.2 m³/s); minimum, 0.10 ft³/s (0.003 m³/s) Oct. 3, 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.40	.31	2.1	.42	.80	11	3.1	2.9	1.8	3.9	1.1	1.6
2	.27	.79	3.0	.60	.45	4.3	8.7	2.1	.67	5.0	1.8	.59
3	.16	.32	8.2	.55	.35	1.3	6.0	3.6	.53	.90	1.0	1.3
4	.75	1.2	1.4	.35	.30	40	1.8	2.4	.59	.58	.78	.63
5	.50	.54	1.4	3.8	.70	16	1.7	2.7	.69	.41	.68	.36
6	3.8	3.6	1.0	22	1.8	3.0	1.8	1.4	.46	3.5	3.9	.43
7	17	2.2	.83	12	5.6	2.1	1.3	2.4	.42	2.3	.99	.53
8	2.1	1.9	.97	2.0	3.0	6.8	14	1.4	.32	.64	.63	.28
9	.91	1.4	1.0	5.9	1.9	35	9.2	1.1	.29	.70	.64	4.3
10	.58	1.2	.64	5.4	1.2	7.6	3.2	.91	4.5	4.2	.52	3.3
11	.45	5.0	.53	1.8	1.0	2.7	1.8	2.9	2.8	1.9	.74	2.2
12	.45	1.2	14	1.5	.80	2.0	2.9	7.3	.75	.87	1.0	1.4
13	.32	.82	14	1.1	.70	1.6	2.5	1.2	.43	.65	4.0	.78
14	.25	.63	2.7	1.5	.60	1.3	2.4	.94	.31	.51	.87	.49
15	.20	.56	2.4	1.7	1.5	1.1	2.4	.81	1.6	.50	.56	.38
16	.19	.94	1.2	13	5.0	1.9	36	.77	1.5	.48	.43	.34
17	.17	1.4	2.6	1.5	1.7	3.4	59	1.3	.70	.87	.39	4.3
18	.15	.61	1.2	1.1	2.0	22	7.8	1.7	.56	.58	.36	4.8
19	4.7	.47	.85	.96	1.3	7.0	4.3	1.2	3.8	.97	4.8	.63
20	3.9	4.3	.70	3.9	1.0	1.8	2.6	3.3	.67	5.6	1.0	.43
21	.69	.83	.60	6.3	1.3	4.1	2.8	1.8	2.1	2.3	.59	.37
22	.39	2.5	.51	1.2	4.2	5.2	5.2	1.3	.89	4.4	.40	1.5
23	.28	1.5	.44	.91	1.3	15	10	1.7	1.2	1.5	.30	.49
24	2.8	25	.38	.63	.91	2.4	3.6	1.4	2.3	8.9	.25	.57
25	.57	47	.33	.51	.78	3.5	8.2	4.7	1.1	30	.22	.36
26	.38	21	.29	.34	2.7	3.0	2.5	2.5	.52	3.8	1.4	4.6
27	.88	23	.26	.34	1.7	6.4	1.9	1.0	.43	3.4	1.9	8.7
28	.57	3.7	.24	.32	6.1	5.4	27	.80	.39	3.9	.53	4.0
29	.34	2.3	.23	.50	1.6	2.2	32	1.2	.34	1.7	.83	1.8
30	.31	1.7	.28	.80	---	1.6	6.1	1.1	.28	5.2	.43	1.7
31	.38	---	.39	2.0	---	3.5	---	.85	---	1.3	.40	---
TOTAL	44.84	157.92	64.60	94.73	52.29	224.2	270.8	60.68	32.93	101.46	33.44	53.16
MEAN	1.45	5.26	2.08	3.06	1.80	7.23	9.03	1.96	1.10	3.27	1.08	1.77
MAX	17	47	14	22	6.1	40	59	7.3	4.5	30	4.8	8.7
MIN	.15	.31	.23	.32	.30	1.1	1.3	.77	.28	.41	.22	.28
AC-FT	89	313	128	188	104	445	537	120	65	201	66	105

CAL YR 1975 TOTAL 1023.30 MEAN 2.80 MAX 69 MIN 0 AC-FT 2030
WTR YR 1976 TOTAL 1191.95 MEAN 3.26 MAX 59 MIN .15 AC-FT 2360

16304200 KALUANUI STREAM NEAR PUNALUU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chenical analyses published for this station for 1970 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
10...	1100	.67	8	1	12	3	2.2	1.5	6.7
MAY									
18...	1240	1.7	6	1	9	4	1.1	1.6	7.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
10...	54	.9	.5	10	0	8	8.0	2.2	12
MAY									
18...	61	1.0	.5	7	0	6	2.8	2.6	13

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
10...	.0	5.8	36	.05	.03	.00	10	0
MAY								
18...	.0	5.0	34	.05	.00	.00	30	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC					
10...	1100	.67	65	6.3	18.0
JAN					
19...	1200	.92	70	6.5	18.0
FEB					
19...	1130	1.3	85	6.5	19.5
APR					
06...	1032	1.4	65	6.2	19.0
MAY					
18...	1240	1.7	60	6.6	21.0
JUN					
30...	1410	.31	70	6.3	20.5
SEP					
28...	0915	2.1	50	6.0	21.0

16325000 KAMANANUI STREAM AT PUPUKEA MILITARY ROAD, NEAR MAUNAWAI

LOCATION.--Lat 21°37'25", long 158°01'04", Hydrologic Unit 20060000, on right bank 75 ft (23 m) upstream from Pupukea Military Road and 3.5 mi (5.6 km) southeast of Maunawai.

DRAINAGE AREA.--3.13 mi² (8.11 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1961, 1963, June 1963 to current year.

GAGE.--Water-stage recorder and combination pipe culverts and paved road control. Altitude of gage is 590 ft (180 m), from topographic map.

REMARKS.--Records fair. No diversion above station.

AVERAGE DISCHARGE.--13 years, 11.4 ft³/s (0.323 m³/s), 8,260 acre-ft/yr (10.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,390 ft³/s (96.0 m³/s) Jan. 30, 1975, gage height, 10.06 ft (3.066 m), from rating curve extended above 42 ft³/s (1.19 m³/s) on basis of slope-area measurement at gage height 10.06 ft (3.066 m); no flow Aug. 26 to Sept. 1, Sept. 23, Oct. 15-25, 1971, many days in September 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,590 ft³/s (45.0 m³/s) Nov. 25, gage height, 8.29 ft (2.527 m), from rating curve extended as explained above, no other peak above base of 950 ft³/s (26.9 m³/s); minimum, 0.02 ft³/s (0.001 m³/s) Nov. 3-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	.04	5.4	1.9	4.8	9.7	8.9	9.3	2.7	1.6	2.0	.93
2	.51	.03	6.8	2.5	1.9	10	14	7.3	2.6	15	1.7	1.3
3	.51	.02	24	1.9	1.1	3.1	19	6.6	2.4	3.8	1.5	.93
4	.37	.02	4.6	1.5	.85	25	7.2	7.2	2.6	2.3	1.4	1.8
5	.31	.02	3.3	1.4	28	17	6.1	7.2	2.5	1.6	1.3	1.1
6	.51	.03	2.9	4.7	66	5.8	5.4	5.7	2.5	1.4	2.3	.64
7	26	1.1	2.4	21	72	3.7	4.8	5.2	2.4	3.3	3.4	.64
8	6.4	1.8	2.7	4.4	58	3.6	31	4.9	2.2	2.6	1.7	.78
9	1.7	5.1	4.4	6.2	12	29	32	4.5	2.3	1.7	1.2	3.3
10	.74	3.0	2.4	12	7.2	22	13	4.2	3.2	4.6	1.1	3.7
11	.51	5.2	2.1	4.2	5.4	6.6	7.7	4.6	8.6	4.2	1.0	3.1
12	.47	3.7	22	2.5	4.2	4.8	7.2	7.0	3.7	2.0	1.1	2.2
13	.37	1.5	86	1.9	3.7	4.1	6.1	4.9	2.3	1.2	1.3	3.2
14	.34	.67	8.9	1.7	3.4	3.6	5.5	3.8	1.8	.93	1.8	1.2
15	.31	.40	6.0	1.6	4.6	3.3	5.8	3.7	2.4	.78	1.3	.58
16	.23	.37	4.6	7.5	9.9	3.3	10	3.7	3.8	.85	.93	.46
17	.17	.31	5.2	2.9	5.5	8.7	73	4.6	3.9	.93	.93	1.5
18	.10	.28	4.1	1.9	3.8	28	17	4.4	2.5	1.3	.85	4.6
19	.22	.21	3.3	1.8	4.6	13	13	5.3	6.0	1.8	9.6	2.1
20	9.8	.25	3.0	1.4	3.7	5.4	7.5	4.4	3.9	13	4.5	.78
21	1.5	.28	2.8	5.6	3.4	4.9	6.8	6.6	3.8	3.8	1.8	.58
22	.43	.40	2.5	2.4	10	13	13	6.2	4.5	3.2	1.1	4.0
23	.25	4.6	2.4	1.5	4.6	22	18	6.6	3.2	3.4	.93	3.0
24	.19	32	2.3	1.2	3.7	8.2	10	5.7	4.8	6.7	.78	1.0
25	.13	272	2.1	1.0	2.8	8.0	7.5	6.1	5.7	49	.71	.64
26	.10	74	2.0	.93	2.5	7.5	6.0	3.9	2.6	11	.78	6.5
27	.06	77	1.9	.85	2.4	14	5.4	4.5	1.9	6.7	7.0	4.7
28	.05	18	1.8	.78	2.2	7.0	32	3.3	1.6	5.9	3.3	10
29	.10	8.5	1.7	.71	3.3	7.6	72	3.6	1.4	4.5	3.3	4.9
30	.10	6.1	1.7	.78	---	4.8	14	3.8	1.2	4.0	2.7	2.3
31	.06	---	1.7	7.4	---	12	---	2.9	---	3.2	1.2	---
TOTAL	53.10	516.93	227.0	108.05	335.55	318.7	478.9	161.7	95.0	166.29	64.51	72.46
MEAN	1.71	17.2	7.32	3.49	11.6	10.3	16.0	5.22	3.17	5.36	2.08	2.42
MAX	26	272	86	21	72	29	73	9.3	8.6	49	9.6	10
MIN	.05	.02	1.7	.71	.85	3.1	4.8	2.9	1.2	.78	.71	.46
AC-FT	105	1030	450	214	666	632	950	321	188	330	128	144

CAL YR 1975 TOTAL 3147.31 MEAN 8.62 MAX 500 MIN 0 AC-FT 6240
WTR YR 1976 TOTAL 2598.19 MEAN 7.10 MAX 272 MIN .02 AC-FT 5150

16325000 KAMANANUI STREAM AT PUPUKEA MILITARY ROAD, NEAR MAUNAWAI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1970, 1973 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 11...	1315	2.2	35	10	12	7	1.2	2.2	8.7
JUNE 01...	1045	2.6	22	8	13	3	1.5	2.3	9.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 11...	60	1.1	.6	6	0	5	3.8	3.3	14
JUNE 01...	59	1.1	.6	13	0	11	8.3	3.5	16

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 11...	.0	8.5	42	.06	.00	.00	110	0
JUNE 01...	.0	7.7	47	.06	.00	.00	140	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC 11...	1315	2.2	75	6.4	18.0
JAN 26...	1145	.83	65	6.5	19.5
MAR 10...	0940	19	65	6.1	18.0
APR 16...	1115	4.8	79	6.3	22.5
JUN 01...	1045	2.6	80	6.4	23.0
JUL 15...	1145	.82	76	6.4	23.5
AUG 31...	1040	1.2	62	6.5	25.0

HAWAII, ISLAND OF OAHU

16330000 KAMANANUI STREAM AT MAUNAWAI

LOCATION.--Lat 21°38'20", long 158°03'27", Hydrologic Unit 20060000, on right bank at Maunawai, 25 ft (7.6 m) upstream from Elehaha Stream, 4.9 mi (7.9 km) northeast of Waialua School, and 7.3 mi (11.7 km) southwest of Kahuku School.

DRAINAGE AREA.--9.79 mi² (25.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1958 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1937: 1958-60. (WATER YEARS).--WRD Hawaii 1974: 1971(P), 1972-73(M).

GAGE.--Water-stage recorder. Altitude of gage is 20 ft (6.1 m), from topographic map. Prior to May 13, 1965, at datum 2.00 ft (0.610 m) higher and May 13, 1965, to May 17, 1966, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--18 years, 16.2 ft³/s (0.459 m³/s), 11,740 acre-ft/yr (14.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,610 ft³/s (159 m³/s) Apr. 19, 1974, gage height, 10.43 ft (3.179 m), from rating curve extended above 150 ft³/s (4.25 m³/s) on basis of slope-area measurements at gage heights 6.25 ft (1.905 m), 8.13 ft (2.478 m), 10.14 ft (3.091 m), and 10.43 ft (3.179 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,300 ft³/s (36.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 25	0430	*2830	80.1	7.94	2.420
Dec. 13	0630	1770	50.1	6.59	2.009
Feb. 7	0900	1840	52.1	6.69	2.039

No flow Oct. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.17	7.1	1.2	9.7	7.4	17	20	3.1	.84	2.4	.76
2	0	.15	7.7	2.1	3.5	21	20	15	3.0	13	1.7	.60
3	0	.15	48	2.6	1.7	6.2	40	12	2.8	6.0	1.4	.70
4	0	.15	12	1.6	.99	50	15	12	2.8	2.6	1.1	.50
5	0	.13	6.2	1.3	74	38	10	12	3.0	1.5	.95	1.2
6	0	.13	4.5	3.3	325	12	8.6	9.7	2.3	.91	.97	.62
7	25	.13	3.7	38	388	6.2	7.4	8.3	1.9	1.1	3.0	.36
8	13	.13	3.3	9.0	310	5.2	73	7.7	1.8	2.3	1.7	.24
9	3.0	1.1	6.5	5.7	44	65	90	6.8	1.6	1.2	1.0	.31
10	1.1	4.7	4.3	20	19	63	29	6.0	1.8	1.4	.80	4.3
11	.44	4.1	2.8	8.6	12	14	16	5.7	7.1	5.5	.63	2.7
12	.25	6.2	9.3	3.9	8.3	8.3	13	8.0	4.5	2.1	.58	2.7
13	.22	3.0	361	2.6	6.5	6.0	11	8.0	2.5	1.3	.66	2.1
14	.28	1.6	25	1.9	5.2	5.0	8.3	5.2	1.7	.77	.71	1.5
15	.22	.91	12	1.6	5.2	4.5	7.7	4.7	1.5	.49	1.1	.67
16	.17	.59	8.0	6.5	12	4.5	7.7	4.5	2.6	.43	.63	.34
17	.13	.44	7.1	5.2	9.3	7.4	289	5.5	3.5	.41	.54	.26
18	.13	.25	6.2	2.6	6.0	49	66	6.2	2.2	.39	.44	2.9
19	.17	.19	4.5	1.9	6.5	24	27	6.0	3.7	.73	7.5	2.1
20	6.5	.15	3.7	1.5	6.2	10	15	6.5	5.2	11	8.5	.94
21	3.1	.13	3.1	4.5	5.0	6.5	13	7.4	2.8	5.5	2.8	.50
22	1.4	.13	2.8	3.9	11	17	21	7.7	4.7	2.6	1.4	1.2
23	.59	2.1	2.5	2.1	9.3	40	35	8.0	3.0	3.2	.82	3.4
24	.25	44	2.2	1.3	6.5	19	24	7.7	3.5	1.9	.49	1.4
25	.15	775	1.9	.91	4.1	12	15	6.8	6.0	132	.36	.64
26	.07	225	1.7	.70	3.3	12	12	6.0	3.1	26	.33	5.4
27	.10	325	1.6	.54	3.1	21	9.3	5.2	1.9	9.5	4.1	5.4
28	.19	53	1.5	.49	2.8	11	83	4.5	1.4	6.7	4.0	13
29	.19	16	1.4	.44	3.5	11	272	3.9	1.1	6.9	2.1	7.2
30	.17	9.7	1.3	.40	---	7.4	36	5.0	.84	3.8	3.4	3.0
31	.17	---	1.2	5.2	---	13	---	3.7	---	4.4	1.4	---
TOTAL	56.99	1404.43	564.1	141.58	1301.69	576.6	1291.0	235.7	86.94	256.47	57.51	66.94
MEAN	1.84	49.8	18.2	4.57	44.9	18.6	43.0	7.60	2.90	8.27	1.86	2.23
MAX	25	775	361	38	388	65	289	20	7.1	132	8.5	13
MIN	0	.13	1.2	.40	.99	4.5	7.4	3.7	.84	.39	.33	.24
AC-FT	113	2960	1120	281	2580	1140	2560	468	172	509	114	133

CAL YR 1975 TOTAL 6398.03 MEAN 17.5 MAX 912 MIN 0 AC-FT 12690
WTR YR 1976 TOTAL 6129.95 MEAN 16.7 MAX 775 MIN 0 AC-FT 12160

16330000 KAMANANUI STREAM AT MAUNAWAI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968, 1970 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
11...	1630	2.5	25	6	19	1	2.7	3.0	9.6
MAY									
27...	1030	4.9	32	9	18	4	2.5	2.8	9.9

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
11...	51	1.0	.9	22	0	18	18	3.5	16
MAY									
27...	54	1.0	.7	17	0	14	11	5.3	17

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
11...	.0	9.4	56	.08	.00	.00	80	10
MAY								
27...	.0	8.0	55	.07	.00	.00	210	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC					
11...	1630	2.5	94	6.3	20.0
11...	1730	2.5	94	6.3	21.5
JAN					
26...	1510	.64	95	6.6	22.0
MAR					
05...	0930	32	65	6.7	19.0
APR					
14...	1355	8.2	85	6.6	23.5
MAY					
27...	1030	4.9	100	6.4	23.0
JUL					
15...	1445	.54	98	6.3	28.0
AUG					
30...	1530	2.7	82	6.5	27.0

16343000 HELEMANO STREAM AT HALEIWA

LOCATION.--Lat 21°34'40", long 158°06'12", Hydrologic Unit 20060000, on left bank at upstream side of private road bridge, 0.3 mi (0.5 km) east of Weed Circle, and 1.1 mi (1.8 km) southeast of Waialua School at Haleiwa.

DRAINAGE AREA.--14.2 mi² (36.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1.57 ft (0.479 m) above mean sea level.

REMARKS.--Records fair except those below 1.0 ft³/s (0.03 m³/s), which are poor. Minor regulation by reservoir on upstream tributary. Diversions into basin for irrigation of sugarcane; low flow affected by irrigation return flow and releases.

AVERAGE DISCHARGE.--8 years (1969-76), 13.7 ft³/s (0.388 m³/s), 9,930 acre-ft/yr (12.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,200 ft³/s (515 m³/s) Apr. 19, 1974, gage height, 22.5 ft (6.86 m), from floodmark, from rating curve extended above 300 ft³/s (8.50 m³/s) on basis of slope-area measurements at gage heights 10.54 ft (3.213 m), 14.2 ft (4.328 m), 15.34 ft (4.676 m), 17.63 ft (5.374 m), and 22.5 ft (6.86 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,350 ft³/s (38.2 m³/s) Dec. 3, gage height, 9.20 ft (2.804 m), from rating curve extended as explained above, no other peak above base of 1,200 ft³/s (34.0 m³/s); no flow Aug. 25-27, Sept. 5-13, 15, 21-26, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.03	3.6	.20	.23	1.6	3.6	4.3	.07	.05	.03	.09
2	.03	.03	2.1	.20	.26	2.0	3.6	2.0	.26	.05	.03	.01
3	.02	.03	101	.18	.26	1.4	5.7	1.2	.08	.04	.03	.01
4	.02	.03	12	.20	.26	.54	4.9	.50	.07	.06	.28	.01
5	.02	.03	3.0	.18	.35	.26	2.5	.23	.19	.05	.95	0
6	.02	.03	.93	.20	133	.23	1.6	.12	.06	.06	.04	0
7	.02	.03	.20	44	168	.60	1.2	.10	.12	.05	.05	0
8	.02	.03	.16	9.6	111	.50	.77	.09	.05	.06	.04	0
9	.02	.03	.18	1.5	21	1.7	20	.08	.05	.09	.05	0
10	.02	.03	.20	.38	9.2	42	8.7	.08	.10	.05	.10	0
11	.02	.03	.20	.16	5.3	5.1	3.9	.12	.22	.05	.03	0
12	.02	.03	.20	.16	3.4	1.6	2.1	.40	.18	.08	.04	0
13	.02	.03	137	.10	2.2	.68	1.3	.18	.03	.14	.07	0
14	.02	.04	13	.10	1.3	.35	1.0	.23	.02	.23	.05	.01
15	.02	.03	4.0	.10	.98	.29	.72	.18	.02	.05	.04	0
16	.02	.03	1.8	.16	.77	.26	.41	.16	.12	.03	.15	.13
17	.02	.11	1.3	.14	.50	.23	207	.18	.25	.03	.11	.01
18	.02	.14	.64	.14	.41	.26	27	.14	.17	.03	.01	.01
19	46	.09	.29	.16	.38	20	6.2	.14	.19	.06	.05	.01
20	69	.04	2.8	.26	.35	4.2	3.1	.18	.05	.08	.01	.01
21	4.9	.04	3.9	.26	.29	1.4	1.6	.27	.10	.08	.01	0
22	.74	.04	3.3	.26	.29	.59	2.1	.12	.16	.18	.01	0
23	.07	.04	.50	.34	.26	.38	5.3	.10	.06	.21	.01	0
24	.03	2.0	.77	.10	.23	4.7	5.3	.13	.03	.04	.01	0
25	.03	345	2.1	.10	.23	2.2	3.8	.28	.02	.03	0	0
26	.03	113	2.2	.10	.20	.82	1.8	.14	.08	.03	0	0
27	.03	274	2.2	.08	.20	7.2	1.0	.14	.02	.14	0	.01
28	.03	37	2.2	.07	.20	5.8	.64	.18	.01	.03	.02	0
29	.03	13	2.1	.08	.18	2.9	61	.12	.01	.03	.01	.02
30	.03	6.9	.64	.10	---	1.5	12	.09	.30	.03	.01	.02
31	.03	---	.26	.23	---	1.3	---	.08	---	.03	.16	---
TOTAL	121.32	751.79	304.77	59.84	461.23	112.59	399.84	12.26	3.09	*2.17	2.40	.35
MEAN	3.91	25.1	9.83	1.93	15.9	3.63	13.3	.40	.10	.070	.077	.012
MAX	69	345	137	44	168	42	207	4.3	.30	.23	.95	.13
MIN	.02	.03	.16	.07	.18	.23	.41	.08	.01	.03	0	0
AC-FT	241	1490	605	119	915	223	793	24	6.1	4.3	4.8	.7

CAL YR 1975 TOTAL 3493.36 MEAN 9.57 MAX 847 MIN .01 AC-FT 6930
WTR YR 1976 TOTAL 2231.65 MEAN 6.10 MAX 345 MIN 0 *AC-FT 4430

16343000 HELEMANO STREAM AT HALEIWA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968, 1970 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
10...	1530	.20	10	1	60	17	10	8.5	34
MAY									
26...	1515	2.4	12	30	130	75	21	20	91

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
10...	54	1.9	1.5	52	0	43	13	18	50
MAY									
26...	58	3.4	7.3	73	0	60	59	29	170

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
10...	.1	26	177	.24	.57	.02	60	220
MAY								
26...	.1	35	414	.56	.90	.02	140	320

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC						MAY					
10...	1530	.20	305	6.8	20.5	26...	1515	2.4	700	6.3	25.5
APR						JUL					
14...	1620	.80	150	6.3	25.5	14...	1435	.05	1000	6.5	25.0

16345000 OPAEULA STREAM NEAR WAHIAWA

LOCATION.--Lat 21°33'55", long 158°00'10", Hydrologic Unit 20060000, on left bank 4.3 mi (6.9 km) northeast of Leilehua High School in Wahiawa and 8.1 mi (13.0 km) east of Waialua School.

DRAINAGE AREA.--2.98 mi^2 (7.72 km^2).

WATER-DISCHARGE RECORDS

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

REVISED RECORDS (FISCAL YEAR).--WSP 1937: 1960.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 1,120 ft (341 m), from topographic map.

REMARKS.--Records fair. No diversion above station.

AVERAGE DISCHARGE.--17 years, 13.9 ft^3/s (0.394 m^3/s), 10,070 acre-ft/yr (12.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,540 ft^3/s (157 m^3/s) July 17, 1974, gage height, 11.94 ft (3.639 m), from rating curve extended above 110 ft^3/s (3.12 m^3/s) on basis of slope-area measurements at gage heights 6.74 ft (2.054 m) and 10.12 ft (3.085 m); minimum 0.01 ft^3/s (<0.001 m^3/s) Sept. 25-28, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,940 ft^3/s (54.9 m^3/s) Dec. 3, gage height, 7.55 ft (2.301 m), from rating curve extended as explained above, no other peak above base of 1,200 ft^3/s (34.0 m^3/s); minimum, 0.30 ft^3/s (0.008 m^3/s) Oct. 17-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	.48	4.4	.75	10	4.5	15	12	3.0	1.3	3.1	.96
2	1.5	.40	8.4	.77	3.0	16	18	8.9	3.2	22	2.7	2.8
3	.80	.75	100	1.8	1.5	4.3	38	7.9	2.5	5.2	3.9	1.4
4	.59	1.1	8.2	1.8	1.1	22	14	11	2.7	2.7	2.5	1.8
5	.50	1.5	4.9	1.4	18	49	10	14	2.8	1.9	1.9	1.7
6	2.9	2.5	3.8	44	144	10	8.0	6.7	2.8	1.4	3.0	.98
7	54	8.0	3.4	95	74	4.8	7.0	5.5	2.0	6.6	5.3	.74
8	14	6.5	3.0	9.7	77	4.0	60	6.1	1.8	3.8	2.2	.72
9	3.6	4.8	4.5	12	12	70	80	4.7	1.7	1.9	1.7	1.0
10	1.8	3.1	2.6	22	7.4	60	27	4.2	6.8	6.9	1.6	5.3
11	1.2	11	1.9	7.7	4.9	12	15	6.5	11	7.9	1.5	8.4
12	.82	6.1	9.8	4.7	3.7	7.0	13	16	5.6	5.6	1.8	4.4
13	.61	2.7	123	3.6	3.1	5.0	11	7.9	2.4	2.3	5.5	3.3
14	.47	1.6	12	2.6	2.6	4.0	10	4.1	1.7	1.6	5.1	1.9
15	.41	1.1	7.9	2.9	6.2	3.7	9.0	3.5	1.6	1.5	2.1	1.1
16	.35	.92	5.9	34	14	3.5	65	3.4	3.9	1.2	1.4	.77
17	.31	1.4	5.0	8.0	9.8	6.5	222	3.8	4.9	1.2	1.2	.76
18	.30	2.4	6.4	3.7	6.3	47	26	5.9	2.5	2.4	1.0	8.0
19	31	1.4	3.0	2.7	5.2	20	20	5.0	7.8	2.4	11	3.4
20	42	7.2	2.2	2.2	3.7	9.0	10	9.2	5.3	25	7.3	1.5
21	5.0	5.5	1.8	2.7	3.0	6.0	9.2	10	2.4	5.6	2.7	.92
22	2.2	2.1	1.6	3.4	13	15	25	6.2	4.9	13	1.7	1.3
23	1.3	2.4	1.5	1.9	9.3	40	26	10	2.6	7.3	1.2	3.9
24	.86	73	1.3	1.5	4.5	18	18	6.4	4.5	13	.93	1.5
25	3.5	250	1.2	1.3	3.0	10	17	9.3	7.5	105	.79	.85
26	1.7	70	1.1	1.1	2.4	9.0	8.4	8.3	2.9	18	.94	4.8
27	.96	114	.99	1.0	6.9	20	8.4	5.8	1.8	14	5.3	4.8
28	.74	18	.91	.90	3.4	10	51	3.6	1.5	9.2	3.7	18
29	1.1	8.4	.85	.82	10	9.5	150	3.8	1.4	6.8	2.0	8.2
30	.82	5.7	.83	.81	---	6.5	28	4.0	1.3	11	2.0	3.8
31	.60	---	.79	12	---	12	---	3.6	---	5.7	1.5	---
TOTAL	177.74	614.05	333.17	288.75	463.0	518.3	1019.0	217.3	106.8	313.4	88.56	99.00
MEAN	5.73	20.5	10.7	9.31	16.0	16.7	34.0	7.01	3.56	10.1	2.86	3.30
MAX	54	250	123	95	144	70	222	16	11	105	11	18
MIN	.30	.40	.79	.75	1.1	3.5	7.0	3.4	1.3	1.2	.79	.72
AC-FT	353	1220	661	573	918	1030	2020	431	212	622	176	196

CAL YR 1975	TOTAL	3722.50	MEAN 10.2	MAX 250	MIN .01	AC-FT	7380
WTR YR 1976	TOTAL	4239.07	MEAN 11.6	MAX 250	MIN .30	AC-FT	8410

NOTE.--No gage-height record Mar. 7 to Apr. 15.

16345000 OPAEULA STREAM NEAR WAHIAWA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-72, 1975-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1968, 1970, 1973-74 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
10...	0930	2.8	35	3	6	6	.4	1.3	5.1
MAY									
26...	0945	5.5	32	3	7	4	.8	1.2	6.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
10...	62	.9	.4	1	0	1	.8	2.8	9.1
MAY									
26...	65	1.1	.4	4	0	3	3.2	2.9	12

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
10...	.0	2.7	22	.03	.00	.00	60	0
MAY								
26...	.0	2.8	29	.04	.00	.00	90	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC						MAY					
10...	0930	2.8	40	6.3	17.5	26...	0945	5.5	53	6.3	22.5
FEB						JUL					
04...	1535	1.0	45	6.0	18.0	14...	1130	1.7	60	6.6	22.0
MAR						AUG					
01...	1600	4.2	45	6.4	20.0	26...	1610	1.0	44	6.2	25.0
APR											
14...	0955	7.0	62	6.4	19.0						

16400000 HALAWA STREAM NEAR HALAWA
(National stream-quality accounting network station)

LOCATION.--Lat 21°09'31", long 156°45'53", Hydrologic Unit 20050000, on right bank 600 ft (183 m) downstream from Hipuapua Stream and 1.5 mi (2.4 km) west of Halawa.

DRAINAGE AREA.--4.62 mi^2 (11.97 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1917 to July 1932, November 1937 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1319: 1928, 1929(M), 1930-31, 1938-50(M), drainage area. WSP 1719: 1954.

GAGE.--Water-stage recorder. Altitude of gage is 210 ft (64 m), from topographic map. Prior to June 25, 1923, at site 350 ft (107 m) upstream at different datum. June 25, 1923, to July 18, 1932, and Nov. 17, 1937, to Feb. 3, 1965, at present site at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--52 years (water years, 1918-31, 1939-76), 29.2 ft^3/s (0.827 m^3/s), 21,160 acre-ft/yr (26.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,900 ft^3/s (762 m^3/s) Feb. 4, 1965, gage height, 19.91 ft (6.069 m), from floodmarks, from rating curve extended above 86 ft^3/s (2.44 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.76 ft^3/s (0.022 m^3/s) about Nov. 23, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,890 ft^3/s (53.5 m^3/s) Mar. 17, gage height, 8.48 ft (2.585 m), from rating curve extended as explained above, no peak above base of 1,900 ft^3/s (53.8 m^3/s); minimum, 1.7 ft^3/s (0.048 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	12	42	19	38	16	18	26	20	10	14	5.5
2	1.8	7.7	27	8.1	11	68	16	13	7.6	9.9	32	23
3	22	5.5	13	5.8	7.7	24	16	15	6.3	8.4	10	25
4	12	4.8	10	26	6.4	436	13	23	5.6	7.9	8.4	8.3
5	6.9	4.3	12	80	5.9	62	10	15	14	6.0	11	6.3
6	12	13	9.0	24	203	56	13	16	24	12	41	4.9
7	102	17	7.2	20	33	49	28	22	7.0	19	11	4.7
8	13	40	11	18	47	98	43	11	15	7.0	8.1	4.7
9	6.2	16	11	28	16	218	58	8.6	9.4	5.9	6.7	11
10	4.9	12	6.4	29	20	159	29	7.5	18	33	6.6	47
11	4.3	18	5.5	13	12	32	15	11	9.1	38	15	19
12	3.7	10	5.2	22	8.6	21	12	14	6.2	25	20	10
13	8.2	6.5	5.3	12	8.5	16	11	9.0	5.2	11	38	6.6
14	5.4	5.3	8.2	16	8.3	12	10	8.5	4.7	7.5	15	6.0
15	5.8	4.5	19	13	18	11	17	13	15	7.0	8.1	4.9
16	4.3	54	7.6	29	36	9.4	18	11	18	6.1	6.6	4.3
17	9.9	103	9.5	12	14	307	33	19	7.6	5.8	5.8	6.6
18	5.2	13	5.8	13	9.0	124	68	7.9	9.4	6.2	5.4	5.6
19	64	8.8	5.0	7.2	7.6	23	22	6.4	48	12	25	3.8
20	9.0	122	4.4	6.2	6.6	36	12	11	12	28	14	3.4
21	9.5	27	4.0	5.8	35	48	10	20	45	54	16	3.1
22	22	65	3.6	5.2	57	38	25	9.1	13	45	6.5	5.8
23	7.4	28	3.4	4.6	15	79	32	14	17	10	5.3	11
24	16	42	3.2	4.3	10	44	22	9.6	51	149	4.8	11
25	6.6	94	3.2	4.0	7.2	36	49	24	13	140	4.4	5.0
26	6.2	37	3.2	3.6	11	37	12	29	8.2	27	6.1	96
27	12	32	3.0	3.3	9.1	22	9.7	13	14	38	5.2	29
28	7.2	17	2.9	3.2	6.6	14	10	11	15	19	4.4	81
29	8.1	13	3.0	3.0	5.4	16	133	22	19	13	5.5	19
30	8.9	10	7.7	3.2	---	15	76	10	12	11	5.8	37
31	13	---	4.5	226	---	29	---	12	---	14	5.4	---
TOTAL	419.2	842.4	265.8	667.5	672.9	2155.4	840.7	441.6	469.3	785.7	371.1	508.5
MEAN	13.5	28.1	8.57	21.5	23.2	69.5	28.0	14.2	15.6	25.3	12.0	17.0
MAX	102	122	42	226	203	436	133	29	51	149	41	96
MIN	1.7	4.3	2.9	3.0	5.4	9.4	9.7	6.4	4.7	5.8	4.4	3.1
AC-FT	831	1670	527	1320	1330	4280	1670	876	931	1560	736	1010

CAL YR 1975 TOTAL 5958.2 MEAN 16.3 MAX 147 MIN 1.7 AC-FT 11820
WTR YR 1976 TOTAL 8440.1 MEAN 23.1 MAX 436 MIN 1.7 AC-FT 16740

16400000 HALAWA STREAM NEAR HALAWA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-74, 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT.											
20...	1500	8.3	54	5.8	21.0	80	10	1900	730	7	2
NOV.											
10...	1300	13	54	6.2	20.0	45	20	420	990	11	5
DEC.											
15...	1230	56	53	5.7	20.5	17	5	1200	1900	7	1
JAN.											
05...	1240	118	54	5.8	19.5	55	10	870	1500	8	8
FEB.											
09...	1300	14	53	6.1	19.0	35	10	1300	220	9	4
MAR.											
08...	1330	84	41	5.2	19.0	90	15	810	710	8	4
APR.											
05...	1400	9.7	57	6.8	19.5	25	4	1000	B110	10	3
MAY											
03...	1300	17	54	6.5	20.5	4	9	1700	170	6	0
JUNE											
01...	1300	14	51	6.3	21.5	35	10	1600	630	6	1
JULY											
12...	1200	32	50	6.7	19.5	75	8	B100	260	7	3
AUG.											
16...	1145	6.6	52	6.9	23.0	36	4	1100	240	8	3
SEP.											
14...	1300	5.9	52	6.9	22.0	--	3	400	350	7	1

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MO/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT.											
20...	1.1	1.0	6.3	65	1.0	.5	6	0	5	15	3.9
NOV.											
10...	3.0	.8	7.6	59	1.0	.6	7	0	6	7.1	2.8
DEC.											
15...	1.0	1.2	6.8	64	1.1	.7	8	0	7	26	2.2
JAN.											
05...	.9	1.5	6.5	60	1.0	.8	1	0	1	2.5	6.7
FEB.											
09...	1.1	1.6	6.3	57	.9	.9	6	0	5	7.6	3.6
MAR.											
08...	1.1	1.2	5.2	57	.8	.6	4	0	3	40	4.0
APR.											
05...	1.2	1.6	7.1	60	1.0	.6	8	0	7	2.0	3.9
MAY											
03...	1.1	.9	6.8	68	1.2	.5	9	0	7	4.6	3.2
JUNE											
01...	1.0	.9	6.4	67	1.1	.5	6	0	5	4.8	4.4
JULY											
12...	1.1	1.0	6.2	64	1.0	.5	5	0	4	1.6	5.4
AUG.											
16...	1.3	1.1	6.6	63	1.0	.5	6	0	5	1.2	3.1
SEP.											
14...	1.3	1.0	6.6	64	1.1	.5	8	0	7	1.6	4.7

B Results based on colony count outside the acceptable range (non-ideal colony count).

16400000 HALAWA STREAM NEAR HALAWA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT. 20...	11	.1	4.5	43	32	.06	.02	.67	.69	.07
NOV. 10...	11	.0	4.9	39	34	.05	.05	.05	.10	.02
DEC. 15...	10	.0	8.3	39	34	.05	.10	.61	.71	.06
JAN. 05...	12	.1	2.2	37	31	.05	.04	.61	.65	.05
FEB. 09...	8.6	.0	5.0	38	30	.05	.08	.41	.49	.03
MAR. 08...	8.1	.1	2.8	47	25	.06	.04	.46	.50	.04
APR. 05...	13	.0	6.8	41	38	.06	.07	.22	.29	.01
MAY 03...	10	.1	6.4	37	33	.05	.03	.00	.03	.02
JUNE 01...	10	.1	5.1	47	31	.06	.03	.33	.36	.04
JULY 12...	11	.1	4.0	45	32	.06	.01	.23	.24	.02
AUG. 16...	11	.0	7.1	33	34	.04	.01	.13	.14	.02
SEP. 14...	10	.0	6.5	40	35	.05	.34	.36	.70	.03

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT. 20...	1500	0	0	<10	2	50	0	<50	0	<10	1	710
FEB. 09...	1300	2	1	<10	0	0	0	<50	0	10	0	410
APR. 05...	1400	0	0	<10	1	0	0	<50	0	<10	0	180
JULY 12...	1200	0	0	0	0	20	0	0	0	<10	0	450

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT. 20...	180	<100	12	10	10	.0	.0	0	0	20	20	7.4
FEB. 09...	150	<100	1	20	0	.0	.0	0	0	10	0	7.3
APR. 05...	30	<100	6	20	0	.0	.0	0	0	0	0	2.1
JULY 12...	200	<100	3	10	10	.2	.2	0	0	20	10	4.2

16400000 HALAWA STREAM NEAR HALAWA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL A MG/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL B MG/SQ M	PERI-PHYTON LENGTH OF EXPO-SURE DAYS	PERI-PHYTON SAMPLING METHOD
OCT								
20...	1500	560	1.40	1.20	1.80	.200	36	Polyethylene strip
NOV								
10...	1300	120	--	--	--	--	--	
DEC								
15...	1230	730	--	--	--	--	--	
JAN								
05...	1240	340	--	--	--	--	--	
FEB								
09...	1300	76	1.20	.500	1.60	.100	35	
MAR								
08...	1330	66	--	--	--	--	--	
APR								
05...	1400	49	2.10	1.50	3.50	.500	28	
MAY								
03...	1300	59	--	--	--	--	--	
JUL								
12...	1200	84	11.6	7.00	39.4	14.1	41	
AUG								
16...	1145	370	--	--	--	--	--	
SEP								
14...	1300	15	--	--	--	--	--	

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT.					
20...	1500	8.3	11	.25	92
NOV.					
10...	1300	13	3	.11	100
DEC.					
15...	1230	56	13	2.0	100
JAN.					
05...	1240	118	14	4.5	100
FEB.					
09...	1300	14	6	.23	100
MAR.					
08...	1330	84	12	2.7	100
APR.					
05...	1400	9.7	2	.05	100
MAY					
03...	1300	17	2	.10	100
JUNE					
01...	1300	14	10	.38	100
JULY					
12...	1200	32	5	.43	100
AUG.					
16...	1145	6.6	3	.05	100
SEP.					
14...	1300	5.9	3	.05	100

16400000 HALAWA STREAM NEAR HALAWA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Oct 20	1500	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus	15	3	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	15	3	
		Cocconeis	15	3	
		Cymbellaceae			
		Cymbella	47	8	
		Fragilariaceae			
		Fragilaria	370	67	
		Gomphonemataceae			
		Gomphonema	15	3	
		Naviculaceae			
		Navicula	62	11	
		Nitzschiaceae			
		Nitzschia	15	3	
		TOTAL	560		
Nov 10	1300	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes		L	
		Cocconeis		L	
		Rhoicosphenia	6	5	
		Cymbellaceae			
		Cymbella	6	5	
		Eunotiaceae			
		Eunotia	6	5	
		Fragilariaceae			
		Synedra	6	5	
		Gomphonemataceae			
		Gomphonema	13	11	
		Naviculaceae			
		Navicula	13	11	
		Nitzschiaceae			
		Nitzschia		L	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Lyngbya	71	58	
		TOTAL	120		

NOTE: L - Less than 1 percent; may not have been actually counted.

16400000 HALAWA STREAM NEAR HALAWA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Dec 15	1230	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	48	7	
		Rhoicosphenia	12	2	
		Cymbellaceae			
		Cymbella		L	
		Diatomaceae			
		Diatoma		L	
		Eunotiaceae			
		Actinella	12	2	
		Fragilariaceae			
		Fragilaria	60	8	
		Synedra	12	2	
		Gomphonemataceae			
		Gomphonema	130	18	
		Naviculaceae			
		Navicula	96	13	
		Stauroneis		L	
		Nitzschiaceae			
		Nitzschia	72	10	
		CYANOPHYTA			
		Myxophyceae			
		Chroococcales			
		Chroococcaceae			
		Anacystis	48	7	
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	240	33	
		Rivulariaceae			
		Gloeotrichia		L	
		TOTAL	730		
Jan 05	1240	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	7	2	
		Cocconeis	7	2	
		Cymbellaceae			
		Rhopalodia	7	2	
		Fragilariaceae			
		Synedra	14	4	
		Gomphonemataceae			
		Gomphonema	35	10	
		Naviculaceae			
		Gyrosigma		L	
		Navicula	70	21	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Lyngbya	200	58	
		TOTAL	340		

NOTE: L - Less than 1 percent; may not have been actually counted.

HAWAII, ISLAND OF MOLOKAI

16400000 HALAWA STREAM NEAR HALAWA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
					Depth-Integrated
Feb 09	1300	CHLOROPHYTA			
		Chlorophyceae			
		Oedogoniales			
		Oedogoniaceae			
		Oedogonium		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	38	50	
		Cymbellaceae			
		Cymbella		L	
		Eunotiaceae			
		Eunotia		L	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	25	33	
		Naviculaceae			
		Navicula		L	
		Nitzschiaceae			
		Nitzschia	13	17	
		TOTAL	76		
					Depth-Integrated
Mar 08	1330	CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	7	11	
		Cymbellaceae			
		Rhopalodia		L	
		Eunotiaceae			
		Eunotia	44	67	
		Gomphonemataceae			
		Gomphonema	7	11	
		Naviculaceae			
		Navicula	7	11	
		Surirellaceae			
		Surirella		L	
		TOTAL	66		
					Depth-Integrated
Apr 05	1400	CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Fragilariaceae			
		Fragilaria	8	15	
		Synedra	4	8	
		Gomphonemataceae			
		Gomphonema	15	31	
		Naviculaceae			
		Navicula	11	23	
		Nitzschiaceae			
		Nitzschia	11	23	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Lyngbya		L	
		TOTAL	49		

NOTE: L - Less than 1 percent; may not have been actually counted.

16400000 HALAWA STREAM NEAR HALAWA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
May 03	1300	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Oedogoniales			
		Oedogoniaceae			
		Oedogonium		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	18	30	
		Cymbellaceae			
		Cymbella		L	
		Fragilariaceae			
		Fragilaria		L	
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	29	50	
		Naviculaceae			
		Navicula	6	10	
		Nitzschiaceae			
		Nitzschia	6	10	
		TOTAL	59		
July 12	1200	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Biddulphiaceae			
		Biddulphia	5	6	
		Pennales			
		Achnanthaceae			
		Cocconeis	5	6	
		Fragilariaceae			
		Synedra	5	6	
		Gomphonemataceae			
		Gomphonema	32	37	
		Naviculaceae			
		Navicula	21	25	
		Nitzschiaceae			
		Nitzschia	5	6	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	11	12	
		TOTAL	84		
Aug 16	1145	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella	14	4	
		Pennales			
		Gomphonemataceae			
		Gomphonema	9	2	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	340	94	
		TOTAL	370		

NOTE: L - Less than 1 percent; may not have been actually counted.

16400000 HALAWA STREAM NEAR HALAWA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Sept 14	1300	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Gomphonemataceae			
		Gonphonema	5	33	
		Naviculaceae			
		Frustulia	10	67	
		TOTAL	15		

16403900 KAWAINUI STREAM NEAR PELEKUNU

LOCATION.--Lat 21°07'59", long 156°52'38", Hydrologic Unit 20050000, on right bank 900 ft (274 m) upstream from confluence with Kapuhi Stream, 2.1 mi (3.4 km) south of former village of Pelekunu, and 5.7 mi (9.2 km) north of Kanalo.

DRAINAGE AREA.--1.17 mi^2 (3.03 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 770 ft (235 m), from topographic map.

REMARKS.--Records good except those above 90 ft^3/s (2.55 m^3/s), which are poor. No diversion above station.

AVERAGE DISCHARGE.--8 years, 8.32 ft^3/s (0.236 m^3/s), 6,030 acre-ft/yr (7.43 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,630 ft^3/s (46.2 m^3/s) Jan. 8, 1969, gage height, 7.36 ft (2.243 m), from rating curve extended above 43 ft^3/s (1.22 m^3/s); minimum, 0.70 ft^3/s (0.020 m^3/s) Sept. 22, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 515 ft^3/s (14.6 m^3/s) Feb. 6, gage height, 4.87 ft (1.484 m), from rating curve extended above 43 ft^3/s (1.22 m^3/s), no other peak above base of 300 ft^3/s (8.50 m^3/s); minimum, 1.2 ft^3/s (0.034 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	2.1	7.5	1.8	18	8.8	16	16	5.2	6.8	4.4	1.9
2	1.9	1.9	6.6	1.8	11	14	16	11	4.7	6.2	4.4	3.4
3	3.8	1.8	5.4	2.4	8.3	11	15	9.6	4.3	6.0	3.8	3.2
4	3.4	1.7	4.7	2.1	6.8	24	14	8.8	4.0	4.5	3.6	2.4
5	2.6	1.9	4.4	6.8	9.3	18	11	7.6	4.3	3.9	3.5	2.1
6	5.0	2.8	4.0	8.4	66	12	10	6.9	3.7	3.9	5.3	1.9
7	9.3	3.8	3.7	16	23	13	10	6.4	3.7	4.7	3.3	1.8
8	3.7	6.2	3.7	7.8	18	16	15	5.5	5.4	3.4	3.0	1.7
9	2.4	5.3	3.5	7.2	13	32	24	4.9	4.2	3.9	2.8	3.4
10	2.0	5.2	3.2	7.4	11	41	18	4.7	5.2	8.0	2.7	5.7
11	2.0	8.8	3.1	5.5	9.8	17	13	6.4	3.4	9.1	5.3	3.9
12	1.7	5.3	5.6	7.0	8.4	13	11	6.1	3.0	7.7	3.9	3.9
13	1.6	4.0	5.6	6.3	7.2	10	9.3	4.9	2.8	5.7	4.5	2.6
14	1.9	3.4	3.5	6.2	7.2	8.6	8.7	4.9	3.1	4.8	3.5	2.3
15	3.8	3.0	4.0	15	11	7.4	8.8	4.5	6.1	5.8	2.7	2.2
16	2.0	3.9	3.4	89	14	6.5	12	4.7	6.2	4.1	2.5	2.0
17	4.8	7.5	5.1	22	10	15	19	6.8	3.7	3.8	2.5	2.5
18	5.7	3.7	3.3	14	7.9	15	20	4.5	4.8	3.7	2.4	1.9
19	16	3.3	3.0	11	7.3	10	17	4.8	8.4	4.2	6.9	1.8
20	6.5	9.3	2.8	8.8	5.8	9.1	13	6.7	5.1	5.6	5.2	1.7
21	4.4	7.3	2.6	7.4	9.9	10	10	10	8.1	11	3.5	1.6
22	3.6	6.9	2.5	6.3	15	9.4	14	7.3	5.3	9.2	2.8	1.7
23	3.6	5.1	2.4	5.5	14	13	13	7.6	4.9	6.6	2.6	1.7
24	3.9	31	2.2	4.9	10	11	13	7.2	7.7	10	2.4	1.6
25	3.0	42	2.2	4.5	8.4	16	11	6.2	5.2	13	2.4	1.6
26	2.9	23	2.1	4.1	7.0	22	9.3	7.1	4.5	9.9	2.8	15
27	3.9	23	2.1	3.8	9.7	15	8.1	6.6	5.0	9.2	2.8	7.3
28	2.9	12	2.0	3.6	6.8	12	11	5.7	4.4	7.3	2.3	7.8
29	2.5	9.6	2.1	3.5	5.7	12	27	10	4.7	6.3	2.6	5.8
30	2.2	7.9	2.0	3.6	---	13	32	7.1	4.9	5.4	2.2	12
31	2.0	---	1.9	35	---	17	---	5.9	---	4.8	2.0	---
TOTAL	116.3	252.7	110.2	328.7	359.5	451.8	429.2	216.4	146.0	198.5	104.6	108.4
MEAN	3.75	8.42	3.55	10.6	12.4	14.6	14.3	6.98	4.87	6.40	3.37	3.61
MAX	16	42	7.5	89	66	41	32	16	8.4	13	6.9	15
MIN	1.3	1.7	1.9	1.8	5.7	6.5	8.1	4.5	2.8	3.4	2.0	1.6
AC-FT	231	501	219	652	713	896	851	429	290	394	207	215

CAL YR 1975 TOTAL 2107.6 MEAN 5.77 MAX 42 MIN 1.2 AC-FT 4180
WTR YR 1976 TOTAL 2922.3 MEAN 7.71 MAX 89 MIN 1.3 AC-FT 5600

HAWAII, ISLAND OF MOLOKAI

16403900 KAWAINUI STREAM NEAR PELEKUNU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 05...	1220	4.4	5	1	44	16	12	3.5	7.9
JUNE 10...	1000	6.4	11	1	39	13	11	2.7	7.1

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 05...	28	.5	.5	34	0	28	2.2	20	9.7
JUNE 10...	28	.5	.3	31	0	25	12	15	9.3

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 05...	.1	17	88	.12	.10	.03	0	0
JUNE 10...	.1	15	76	.10	.02	.01	30	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN. 05...	1220	4.4	128	7.4	18.5
MAR. 24...	1415	8.9	123	7.3	18.5
JUNE 10...	1000	6.4	118	6.6	19.0
SEP. 16...	1400	2.0	143	7.7	20.5

16404000 PELEKUNU STREAM NEAR PELEKUNU

LOCATION.--Lat 21°08'11", long 156°52'43", Hydrologic Unit 20050000, on right bank, 0.4 mi (0.6 km) upstream from Pilipililau Stream, 1.9 mi (3.1 km) south of former village of Pelekunu, and 5.8 mi (9.3 km) north of Kanalo.

DRAINAGE AREA.--2.59 mi^2 (6.71 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1919 to January 1929, September 1937 to November 1947, June 1948 to August 1957, August 1971 to current year. Occasional low-flow measurements and annual maximum, water years 1968-71.

REVISED RECORDS (FISCAL YEAR).--WSP 1569: 1940(M).

GAGE.--Water-stage recorder. Altitude of gage is 552 ft (168.250 m) above mean sea level (levels by Bureau of Reclamation). Prior to Aug. 25, 1957, at site 300 ft (91 m) downstream at different datum.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--31 years (water years, 1921-28, 1938-47, 1949-56, 1972-76), 16.5 ft^3/s (0.467 m^3/s), 11,950 acre-ft/yr (14.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,120 ft^3/s (117 m^3/s) Nov. 20, 1940, gage height, 6.81 ft (2.076 m), from rating curve extended above 39 ft^3/s (1.10 m^3/s) by test on model of station site; minimum, 2.2 ft^3/s (0.062 m^3/s) Sept. 29, Oct. 3, 4, 6, 12-18, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of undetermined magnitude destroyed station on Jan. 26, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 669 ft^3/s (18.9 m^3/s) Feb. 6, gage height, 4.31 ft (1.314 m), no other peak above base of 460 ft^3/s (13.0 m^3/s); minimum, 2.9 ft^3/s (0.082 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	3.8	11	3.8	30	16	35	35	8.3	10	7.5	3.3
2	3.9	3.6	9.7	3.7	15	25	35	24	7.9	9.1	7.1	5.3
3	6.3	3.5	8.1	4.5	12	18	30	19	7.5	9.1	6.8	4.8
4	5.6	3.4	7.3	4.0	9.6	45	28	17	7.1	7.1	6.1	4.3
5	4.6	3.7	7.0	11	15	31	21	15	7.5	6.4	5.8	3.8
6	8.2	4.7	6.4	18	101	20	19	13	6.4	6.4	7.9	3.8
7	16	6.4	6.0	38	40	20	20	12	6.1	7.5	5.8	3.8
8	5.7	12	6.1	12	33	28	34	10	7.9	6.1	5.2	3.8
9	4.1	8.2	5.7	10	21	47	55	10	6.8	6.8	4.8	5.4
10	3.7	7.9	5.3	10	17	71	40	10	8.3	14	4.8	12
11	3.7	16	5.2	7.5	15	31	26	11	6.1	17	8.2	7.1
12	3.4	7.6	10	9.6	13	21	21	11	5.8	12	6.1	7.1
13	3.3	5.9	11	8.7	12	17	17	9.6	5.4	8.7	6.8	5.2
14	3.6	5.2	6.0	8.3	12	14	16	9.1	6.1	7.9	5.4	4.6
15	6.1	4.7	6.4	23	21	12	16	8.7	10	8.7	4.6	4.3
16	3.8	5.9	5.5	119	21	11	23	9.1	12	7.1	4.6	4.0
17	8.2	13	8.1	37	15	26	40	12	7.1	6.8	4.6	4.7
18	9.5	5.7	5.4	21	12	28	46	8.7	8.3	6.4	4.3	4.0
19	31	5.1	5.1	14	11	17	33	8.7	16	7.1	13	4.0
20	9.0	16	4.7	12	9.6	14	24	12	8.7	8.8	7.5	3.8
21	6.4	11	4.6	9.6	15	17	19	17	15	20	5.8	3.5
22	5.4	10	4.5	8.7	23	14	28	12	8.3	15	5.2	3.5
23	5.6	7.3	4.3	7.9	22	23	26	12	7.9	9.1	4.8	3.5
24	5.9	64	4.2	7.5	15	17	25	11	13	19	4.6	3.5
25	4.9	83	4.1	6.8	12	37	21	9.6	7.9	25	4.6	3.3
26	4.8	43	4.0	6.4	10	52	17	11	7.1	16	5.2	32
27	6.1	44	4.0	5.8	16	30	14	10	7.5	15	4.8	12
28	4.9	21	3.9	5.4	10	23	29	9.1	6.8	11	4.0	13
29	4.2	15	4.0	5.4	9.1	26	67	19	7.1	9.6	4.3	8.3
30	3.9	12	4.0	6.1	---	28	78	12	7.9	8.3	3.8	26
31	3.8	---	3.9	71	---	40	---	9.1	---	7.9	3.5	---
TOTAL	198.6	452.6	185.5	515.7	567.3	819	903	396.7	247.8	328.9	177.5	207.7
MEAN	6.41	15.1	5.98	16.6	19.6	26.4	30.1	12.8	8.26	10.6	5.73	6.92
MAX	31	83	11	119	101	71	78	35	16	25	13	32
MIN	3.0	3.4	3.9	3.7	9.1	11	14	8.7	5.4	6.1	3.5	3.3
AC-FT	394	898	368	1020	1130	1620	1790	787	492	652	352	412

CAL YR 1975 TOTAL 3927.1 MEAN 10.8 MAX 83 MIN 2.9 AC-FT 7790
WTR YR 1976 TOTAL 5000.3 MEAN 13.7 MAX 119 MIN 3.0 AC-FT 9920

HAWAII, ISLAND OF MOLOKAI

16404000 PELEKUNU STREAM NEAR PELEKUNU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1969-70 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 07...	1210	34	35	2	33	16	8.6	2.9	7.5
JUNE 10...	1800	7.9	12	1	38	4	9.7	3.3	8.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 07...	32	.6	1.0	21	0	17	2.1	13	12
JUNE 10...	32	.6	.7	41	0	34	21	12	11

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 07...	.2	14	71	.10	.23	.03	20	0
JUNE 10...	.2	20	86	.12	.00	.02	40	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN. 07...	1210	34	102	7.2	18.5
MAR. 24...	1630	16	125	7.2	19.5
JUNE 10...	1800	7.9	120	6.5	20.5
SEP. 17...	1030	5.2	137	7.2	21.0

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 (152 m) downstream from left-bank tributary, 1.9 mi (3.1 km) south of former village of Pelekunu, and 5.8 mi (9.3 km) north of Kamalo.

DRAINAGE AREA.--0.49 mi^2 (1.27 km^2)

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,000 ft (305 m), from topographic map.

REMARKS.--Records good except those for period of no gage height record Jan. 17 to Feb 5 which are fair, and those above 8 ft^3/s (0.23 m^3/s), which are poor. No diversion above station.

AVERAGE DISCHARGE.--8 years, 1.38 ft^3/s (0.039 m^3/s), 1,000 acre-ft/yr (1.23 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 274 ft^3/s (7.76 m^3/s) Dec. 8, 1973, gage height, 3.78 ft (1.152 m), from rating curve extended above 3.8 ft^3/s (0.11 m^3/s); minimum, 0.50 ft^3/s (0.014 m^3/s) Sept. 2-8, 21-29, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 77 ft^3/s (2.18 m^3/s) Feb. 6, gage height, 2.91 ft (0.887 m), from rating curve extended above 3.8 ft^3/s (0.11 m^3/s), no peak above base of 80 ft^3/s (2.27 m^3/s); minimum, 0.53 ft^3/s (0.015 m^3/s) on several days in December and January.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.56	.56	.64	.55	1.4	.82	1.8	2.0	.86	.78	.66	.62
2	.63	.55	.63	.54	.80	1.4	2.1	1.6	.86	.74	.66	.70
3	.63	.56	.59	.56	.70	1.1	1.6	1.4	.84	.77	.65	.64
4	.60	.56	.59	.54	.67	2.1	1.5	1.3	.82	.72	.65	.62
5	.60	.57	.59	.62	.78	1.6	1.3	1.3	.84	.70	.65	.62
6	.61	.58	.57	.69	4.7	1.1	1.2	1.2	.82	.72	.68	.62
7	.68	.62	.57	1.1	1.6	1.1	1.3	1.2	.81	.72	.65	.61
8	.59	.70	.62	.61	1.5	1.2	2.1	1.1	.83	.70	.65	.61
9	.57	.61	.58	.59	1.2	3.0	2.3	1.1	.80	.71	.65	.62
10	.57	.59	.56	.58	1.1	3.7	1.8	1.1	.79	.74	.65	.79
11	.57	.68	.56	.56	.98	1.7	1.4	1.1	.77	.86	.72	.65
12	.57	.58	.68	.57	.94	1.3	1.3	1.1	.77	.75	.67	.64
13	.57	.57	.68	.56	.90	1.2	1.2	1.1	.76	.71	.67	.62
14	.58	.56	.59	.56	.94	1.2	1.2	1.0	.78	.71	.65	.61
15	.59	.55	.60	1.9	1.1	1.2	1.2	1.0	.83	.70	.65	.61
16	.60	.61	.58	5.2	1.2	1.1	1.2	1.0	.83	.69	.64	.61
17	.65	.69	.59	2.0	.98	1.7	1.3	1.0	.77	.69	.65	.63
18	.72	.57	.56	.86	.94	1.6	1.4	.97	.77	.69	.63	.61
19	1.5	.57	.56	.76	.94	1.1	1.3	.96	.83	.72	.71	.60
20	.61	.81	.56	.72	.90	1.2	1.1	1.0	.78	.72	.65	.60
21	.58	.66	.56	.76	1.1	1.3	1.1	1.1	.80	.76	.63	.61
22	.58	.64	.56	.70	1.3	1.2	1.4	.96	.77	.77	.63	.61
23	.61	.60	.55	.67	1.3	1.3	1.5	.96	.75	.69	.63	.61
24	.59	2.6	.55	.64	.98	1.2	1.3	.96	.82	1.3	.62	.60
25	.57	2.5	.55	.64	.90	1.6	1.1	.91	.74	1.2	.62	.59
26	.57	1.1	.55	.60	.90	1.9	1.0	.92	.74	.76	.65	1.0
27	.58	1.2	.54	.60	.98	1.5	1.0	.92	.75	.72	.63	.71
28	.57	.71	.54	.58	.74	1.2	1.8	.88	.74	.69	.63	.71
29	.56	.64	.55	.56	.65	1.6	3.4	.97	.74	.67	.63	.69
30	.56	.62	.56	.59	---	1.7	5.3	.87	.75	.67	.61	1.4
31	.56	---	.55	4.0	---	2.4	---	.86	---	.67	.62	---
TOTAL	19.33	23.36	17.96	30.41	33.12	47.32	48.5	33.84	23.76	23.44	20.09	20.16
MEAN	.62	.78	.58	.98	1.14	1.53	1.62	1.09	.79	.76	.65	.67
MAX	1.5	2.6	.68	5.2	4.7	3.7	5.3	2.0	.86	1.3	.72	1.4
MIN	.56	.55	.54	.54	.65	.82	1.0	.86	.74	.67	.61	.59
AC-FT	38	46	36	60	66	94	96	67	47	46	40	40

CAL YR 1975 TOTAL 289.80 MEAN .79 MAX 3.3 MIN .50 AC-FT 575
WTR YR 1976 TOTAL 341.29 MEAN .93 MAX 5.3 MIN .54 AC-FT 677

HAWAII, ISLAND OF MOLOKAI

16404200 PILIPILILAU STREAM NEAR PELEKUNU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 06...	1145	.54	5	6	50	0	11	5.5	12
JUNE 09...	1145	.82	4	2	44	0	9.8	4.7	12

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 06...	32	.7	4.0	73	0	60	3.7	5.0	15
JUNE 09...	36	.8	2.0	60	0	49	24	4.1	15

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 06...	.1	42	131	.18	.11	.11	10	0
JUNE 09...	.1	36	114	.16	.09	.07	60	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN. 06...	1145	.54	165	7.5	19.5
MAR. 24...	1400	1.4	145	7.2	19.0
JUNE 09...	1145	.82	152	6.6	19.5
SEP. 16...	1130	.59	125	7.2	20.5

16405100 MOLOKAI TUNNEL AT EAST PORTAL

LOCATION.--Lat 21°08'38", long 156°55'16", Hydrologic Unit 20050000, on left bank 100 ft (30 m) downstream from the east portal, 5.3 mi (8.5 km) southeast of Kalaupapa, and 7.5 mi (12.1 km) northeast of Kaunakakai.

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 989 ft (301.4 m), from tunnel plans.

REMARKS.--Records good. Tunnel diverts from Waikolu Stream and two tributaries; diversion is augmented by water pumped from two wells and from the stream at elevation 728 ft (221.9 m) in Waikolu Valley near the east portal. Periodic determinations of water temperature for the current year are published on page 405 of this report.

AVERAGE DISCHARGE.--10 years, 2.88 ft^3/s (0.082 m^3/s), 2,090 acre-ft/yr (2.58 hm^3/yr).

EXTREMES FOR THE PERIOD OF RECORD.--Maximum daily discharge, 29 ft^3/s (0.82 m^3/s) Jan. 27, May 18, 1973; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	.90	1.4	2.6	8.7	2.6	1.2	1.5	1.4	5.0	1.1	1.7
2	2.5	.90	1.4	2.6	3.1	8.9	2.9	.37	2.2	5.0	1.2	2.2
3	3.2	2.2	1.4	2.6	1.9	4.6	1.3	.25	3.1	4.2	.99	3.7
4	3.8	2.8	1.2	2.6	1.3	15	1.4	.06	3.1	2.6	2.2	2.9
5	3.1	2.8	1.1	1.7	1.6	5.8	.28	.03	3.1	1.5	3.0	1.3
6	6.0	2.8	.99	5.1	18	3.6	.02	.01	3.1	1.3	3.5	1.3
7	11	4.7	.90	11	5.8	4.0	.90	.01	3.1	1.4	3.1	2.4
8	4.8	10	.99	5.0	8.7	7.3	3.0	.01	3.4	1.3	2.9	3.2
9	3.3	6.7	1.1	3.2	3.0	16	3.6	.01	3.5	1.2	2.8	3.2
10	3.0	4.6	.90	3.2	2.6	17	3.2	.04	3.6	4.0	3.1	8.8
11	2.9	7.2	.90	1.9	2.7	4.6	.82	.66	3.6	7.3	3.5	6.5
12	2.9	5.1	.90	1.7	2.7	3.4	1.2	1.9	3.6	5.5	5.2	5.3
13	2.9	3.4	2.2	2.2	2.6	2.4	.22	2.0	3.6	2.8	4.7	3.5
14	2.8	3.2	1.6	2.0	2.7	1.9	.08	2.0	3.2	1.6	4.2	2.2
15	3.1	3.0	1.3	4.6	10	1.6	.90	1.9	3.8	1.5	3.4	1.2
16	3.0	3.0	1.1	19	11	1.5	.16	1.7	8.4	1.3	3.1	1.1
17	7.3	7.0	1.3	8.2	5.8	4.1	1.1	3.2	4.3	1.1	2.4	2.5
18	7.6	4.0	1.2	4.6	3.2	4.6	2.1	2.1	3.5	1.1	.99	3.2
19	13	3.2	.99	2.5	2.4	.01	1.5	1.9	6.5	2.0	2.0	3.2
20	4.6	8.0	.90	1.7	1.9	0	.22	2.1	3.4	2.6	1.9	3.2
21	2.8	6.9	.90	1.9	5.2	2.5	.10	6.9	6.2	6.2	1.4	3.2
22	3.2	5.2	.98	2.1	9.5	.67	1.8	4.6	2.4	7.2	.99	3.2
23	3.1	3.6	2.1	2.9	6.6	.92	1.7	3.6	1.9	2.3	2.3	3.2
24	3.1	13	3.0	2.9	3.4	0	1.2	3.4	3.3	9.6	3.1	3.2
25	3.1	12	3.0	2.7	2.0	1.8	.37	2.4	2.7	11	3.1	3.2
26	3.1	5.2	3.0	3.1	1.5	3.4	.06	2.9	1.6	3.9	3.2	11
27	3.6	7.4	3.0	3.0	2.0	1.4	0	3.0	1.4	3.8	3.2	5.9
28	3.6	2.7	3.0	3.0	2.0	.99	1.2	2.3	1.5	2.1	3.2	6.0
29	3.1	1.9	2.7	3.0	1.4	.99	3.4	5.6	1.6	1.5	3.2	4.6
30	1.1	1.5	2.6	3.1	---	2.4	3.2	2.9	2.3	1.3	2.9	9.9
31	.90	---	2.6	21	---	3.0	---	1.6	---	1.2	2.4	---
TOTAL	124.00	144.90	50.65	136.7	133.3	126.98	39.13	60.95	98.4	104.4	84.27	116.0
MEAN	4.00	4.83	1.63	4.41	4.60	4.10	1.30	1.97	3.28	3.37	2.72	3.87
MAX	13	13	3.0	21	18	17	3.6	6.9	8.4	11	5.2	11
MIN	.90	.90	.90	1.7	1.3	0	0	.01	1.4	1.1	.99	1.1
AC-FT	246	287	100	271	264	252	78	121	195	207	167	230

CAL YR 1975 TOTAL 1037.85 MEAN 2.84 MAX 13 MIN .22 AC-FT 2060
WTR YR 1976 TOTAL 1219.68 MEAN 3.33 MAX 21 MIN 0 AC-FT 2420

16405300 MOLOKAI TUNNEL AT WEST PORTAL

LOCATION.--Lat 21°07'27", long 156°59'50", Hydrologic Unit 20050000, on left bank 50 ft (15 m) upstream from the west portal, 2.5 mi (4.0 km) northeast of Kaunakakai, and 4.7 mi (7.6 km) south of Kalaupapa.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 970 ft (295.7 m), from tunnel plans.

REMARKS.--Records excellent. Tunnel diverts from Waikolu Stream and two tributaries; diversion is augmented by water pumped from two wells and from the stream at elevation 728 ft (221.9 m) in Waikolu Valley near east portal and one well in the tunnel near east portal. Water is used for irrigation in west-central Molokai.

AVERAGE DISCHARGE.--11 years, 5.15 ft^3/s (0.146 m^3/s), 3,730 acre-ft/yr (4.60 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 34 ft^3/s (0.96 m^3/s) Feb. 5, 1972; minimum daily, 1.8 ft^3/s (0.051 m^3/s) Oct. 15, 1967.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	3.0	3.3	4.5	12	3.6	3.5	3.5	3.7	6.4	2.8	3.3
2	4.7	3.0	3.3	4.5	5.3	12	4.8	2.2	4.1	7.0	3.0	3.5
3	5.3	3.8	3.3	4.5	3.7	6.5	3.5	2.1	5.4	5.6	2.8	5.5
4	6.2	4.9	3.1	4.5	3.1	15	3.5	1.9	5.2	4.5	3.7	5.0
5	5.6	4.9	3.1	3.6	3.0	9.6	2.5	1.9	5.2	3.3	4.5	3.1
6	7.5	4.9	3.0	5.5	18	5.5	2.0	1.9	5.2	3.1	5.0	3.1
7	13	6.3	3.0	14	9.3	6.0	3.0	1.9	5.2	3.1	4.8	3.8
8	7.8	12	3.0	7.0	10	9.1	4.5	1.9	5.2	3.1	4.6	4.9
9	5.6	8.8	3.1	5.0	4.8	16	5.8	2.0	5.5	3.0	4.5	4.9
10	5.1	7.0	3.0	5.0	4.3	20	5.2	2.1	5.6	5.2	4.7	9.9
11	4.9	9.0	2.8	3.9	4.5	7.2	3.1	2.4	5.7	8.0	4.9	8.6
12	4.9	7.7	2.8	3.6	4.5	5.5	3.3	3.7	5.5	7.8	6.9	7.1
13	4.7	5.6	3.9	4.0	4.8	4.5	2.4	3.9	5.2	4.8	6.3	5.5
14	4.7	5.2	3.7	3.9	4.5	3.9	2.2	3.7	4.7	3.7	5.8	4.2
15	5.3	4.9	3.2	4.0	10	3.7	3.0	3.7	5.2	3.5	4.9	3.0
16	5.2	4.9	3.0	21	14	3.5	2.3	3.7	9.8	3.1	4.6	2.8
17	9.2	8.7	3.1	9.4	7.8	3.0	3.1	4.9	6.3	3.0	4.4	3.8
18	9.0	6.4	3.1	7.4	5.5	8.9	4.1	4.1	5.3	2.8	2.8	4.7
19	15	5.4	3.0	4.4	4.5	2.0	4.3	3.7	8.1	3.5	3.6	4.7
20	7.2	9.3	2.8	3.5	3.9	2.0	2.3	3.9	5.5	4.8	3.7	4.7
21	5.1	9.0	2.8	3.5	6.6	3.8	2.2	8.1	8.0	7.0	3.0	4.7
22	5.2	7.3	2.9	3.6	12	3.7	3.9	6.8	4.3	9.2	2.8	4.7
23	4.9	5.8	3.5	4.5	9.1	2.9	3.6	5.2	3.7	4.1	3.7	4.7
24	4.9	15	4.7	4.5	5.8	2.2	3.9	5.0	4.9	8.4	4.6	4.5
25	4.9	13	4.7	4.5	4.1	3.1	2.6	4.1	4.5	14	4.6	4.5
26	4.9	7.9	4.7	4.7	3.5	5.8	2.1	4.8	3.5	5.8	4.6	11
27	5.6	9.9	4.7	4.7	3.7	3.7	2.0	4.8	3.1	5.2	4.6	7.6
28	5.8	4.8	4.7	4.7	4.1	3.0	2.6	3.9	3.1	3.9	4.6	7.6
29	5.4	3.9	4.5	4.7	3.3	2.8	5.2	6.9	3.3	3.3	4.6	6.0
30	3.3	3.5	4.5	4.7	---	5.0	5.0	5.0	3.9	3.0	4.3	11
31	3.1	---	4.5	19	---	4.8	---	3.7	---	2.8	4.2	---
TOTAL	188.6	205.8	108.8	186.3	189.7	188.3	101.5	117.4	153.9	156.0	133.9	162.4
MEAN	6.08	6.86	3.51	6.01	6.54	6.07	3.38	3.79	5.13	5.03	4.32	5.41
MAX	15	15	4.7	21	18	20	5.8	8.1	9.8	14	6.9	11
MIN	3.1	3.0	2.8	3.5	3.0	2.0	2.0	1.9	3.1	2.8	2.8	2.8
AC-FT	374	408	216	370	376	373	201	233	305	309	266	322

CAL YR 1975 TOTAL 1803.9 MEAN 4.94 MAX 15 MIN 2.3 AC-FT 3580
WTR YR 1976 TOTAL 1892.6 MEAN 5.17 MAX 21 MIN 1.9 AC-FT 3750

16405300 MOLOKAI TUNNEL AT WEST PORTAL--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1969-71 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 16...	1700	2.8	1	1	40	6	10	3.6	9.2
JUNE 02...	1710	5.8	6	2	26	0	5.5	3.0	9.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 16...	32	.6	1.6	41	0	34	3.3	2.8	10
JUNE 02...	42	.8	1.4	39	0	32	7.9	.8	11

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 16...	.1	30	90	.12	.42	.05	10	0
JUNE 02...	.1	30	81	.11	.19	.06	20	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 16...	1700	2.8	110	7.3	18.0
FEB. 10...	1630	5.0	78	6.5	17.5
APR. 06...	1700	2.0	120	7.1	18.0
JUNE 02...	1710	5.8	104	6.9	18.5
JULY 13...	1620	4.3	88	6.6	19.0
SEP. 02...	1620	5.0	111	7.8	18.5

16405500 WAIKOLU STREAM AT ALTITUDE 900 FT (274 M), NEAR KALAUPAPA

LOCATION.--Lat 21°08'43", long 156°55'18", Hydrologic Unit 20050000, on right bank 1.8 mi (2.9 km) southwest of Haupu Bay, 2.3 mi (3.7 km) upstream from mouth, and 5.2 mi (8.4 km) southeast of Kalaupapa.

DRAINAGE AREA.--1.99 m^2 (5.15 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1956 to October 1961, July 1962 to current year.

REVISED RECORDS (FISCAL YEAR).--WSP 1719: 1959. (WATER YEARS).--WSP 2137: 1963(P), 1964(M), 1965(P).

GAGE.--Water-stage recorder. Altitude of gage is 900 ft (274 m), from topographic map. Prior to July 1, 1962, at site 200 ft (61 m) upstream at datum 6.14 ft (1.871 m) higher.

REMARKS.--Records fair except those above 90 ft^3/s (2.55 m^3/s), which are poor. Since Nov. 16, 1960, water diverted above station at times, either into or from Molokai tunnel.

AVERAGE DISCHARGE (since Molokai tunnel diversion began).--15 years (water years, 1961, 1963-76), 7.53 ft^3/s (0.213 m^3/s), 5,460 acre-ft/yr (6.73 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,080 ft^3/s (58.9 m^3/s) Apr. 13, 1965, gage height, 6.12 ft ((1.865 m), from rating curve extended above 43 ft^3/s (1.22 m^3/s); minimum, 0.06 ft^3/s (0.002 m^3/s) Sept. 9, 1975.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 31, 1961, reached a stage of 13.62 ft (4.151 m), from flood-marks, former site and datum, discharge, 6,220 ft^3/s (176 m^3/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 524 ft^3/s (14.8 m^3/s) Jan. 31, gage height, 3.69 ft (1.125 m), from rating curve extended above 43 ft^3/s (1.22 m^3/s), no peak above base of 590 ft^3/s (16.7 m^3/s); minimum, 0.08 ft^3/s (0.002 m^3/s) Oct. 17, 18, 20, 21, Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.21	.36	.15	6.2	2.7	6.3	5.6	.92	1.1	.74	.46
2	.21	.21	.36	.15	.46	9.9	15	3.9	.74	1.1	.74	.59
3	.21	.21	.36	.15	.28	2.8	6.7	3.3	.74	.92	.74	.46
4	.28	.21	.36	.15	.28	45	5.2	3.3	.74	.74	.74	.46
5	.36	.28	.46	.11	.74	4.8	3.9	3.3	.74	.74	.46	.59
6	.46	.36	.46	.87	53	1.1	3.1	3.3	.74	.74	.36	.59
7	1.4	.36	.46	10	5.8	1.4	4.5	3.3	.74	.74	.36	.74
8	.11	3.2	.46	.74	10	7.5	25	3.3	.74	.74	.36	.74
9	.15	.46	.46	.21	1.1	42	22	3.3	.59	.74	.28	.74
10	.21	.28	.46	.21	.74	44	14	3.6	.46	.92	.28	1.9
11	.28	2.3	.36	.21	.46	3.3	5.6	2.7	.36	3.9	.36	.92
12	.28	.46	.36	.21	.36	1.1	6.7	1.4	.28	1.4	.36	.74
13	.21	.36	.36	.36	.46	.74	4.5	1.4	.21	.85	.36	.74
14	.21	.36	.36	.21	.59	.74	4.5	1.6	.28	.59	.36	.74
15	.15	.36	.36	17	7.9	.74	6.3	1.6	.36	.74	.36	.74
16	.15	.36	.36	84	9.5	.74	4.8	1.6	1.1	.74	.36	.74
17	.21	1.1	.36	10	1.9	12	8.4	1.6	.46	.74	.28	.74
18	.21	.36	.36	3.6	.92	17	12	1.4	.59	.74	.28	.74
19	18	.36	.36	.36	.59	4.5	8.7	1.4	2.4	.92	.36	.74
20	.09	3.0	.36	.36	.46	3.6	5.2	1.4	.74	.74	.36	.74
21	.08	1.1	.36	.36	4.0	15	5.6	2.4	1.4	2.4	.36	.74
22	.15	.36	.36	.28	11	7.9	10	1.6	.74	2.8	.46	.74
23	.21	.36	.36	.21	6.9	8.2	12	1.4	.74	.74	.46	.74
24	.28	23	.36	.15	.92	4.8	7.1	1.4	2.1	12	.59	.74
25	.36	14	.36	.15	.36	11	5.6	1.4	1.1	9.7	.59	.74
26	.21	3.9	.36	.11	.36	16	3.6	1.1	.74	1.1	.46	16
27	.28	6.7	.36	.15	.46	7.9	3.3	1.1	.74	1.1	.46	2.1
28	.36	.46	.36	.21	.74	7.5	20	1.1	.74	.74	.59	3.3
29	.21	.36	.28	.21	.74	14	37	1.9	.74	.74	.59	1.6
30	.28	.36	.21	.21	---	14	51	1.1	.74	.74	.59	13
31	.21	---	.21	73	---	17	---	.92	---	.74	.46	---
TOTAL	25.96	45.40	11.38	204.09	127.22	328.96	327.6	67.72	23.71	52.64	14.11	54.55
MEAN	.84	2.18	.37	6.58	4.39	10.6	10.9	2.18	.79	1.70	.46	1.82
MAX	18	23	.46	84	53	45	51	5.6	2.4	12	.74	16
MIN	.08	.21	.21	.11	.28	.74	3.1	.92	.21	.59	.28	.46
AC-FT	51	130	23	405	252	652	650	134	47	104	28	108

CAL YR 1975 TOTAL 1000.90 MEAN 2.74 MAX 67 MIN .08 AC-FT 1990
WTR YR 1976 TOTAL 1303.34 MEAN 3.56 MAX 84 MIN .08 AC-FT 2590

16405500 WAIKOLU STREAM AT ALTITUDE 900 FT (274 M), NEAR KALAUPAPA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1969-70 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
16...	1245	.28	0	0	29	0	6.0	3.3	8.9
JUNE									
02...	1430	.74	2	0	26	0	5.3	3.0	8.5

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
16...	39	.7	1.8	41	0	34	6.6	2.2	9.7
JUNE									
02...	40	.7	1.4	35	0	29	7.0	1.0	11

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
16...	.1	30	83	.11	.15	.04	0	0
JUNE								
02...	.1	29	78	.11	.20	.05	10	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC.					
16...	1245	.28	120	7.0	20.5
FEB.					
10...	1030	.71	72	6.7	19.5
APR.					
06...	1230	3.9	67	7.6	18.0
JUNE					
02...	1430	.74	102	6.9	19.0
JULY					
13...	1230	1.1	100	8.2	19.5
SEP.					
02...	1330	.46	106	8.1	20.0

16408000 WAIKOLU STREAM BELOW PIPELINE CROSSING, NEAR KALAUPAPA

LOCATION.--Lat 21°09'45", long 156°55'54", Hydrologic Unit 20050000, on left bank 0.7 mi (1.1 km) upstream from mouth and 4.4 mi (7.1 km) southeast of Molokai Lighthouse near Kalaupapa.

DRAINAGE AREA.--3.68 mi^2 (9.53 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1919 to November 1930, August 1931 to July 1932, September 1937 to January 1948, July 1948 to current year. Prior to August 1931, published as "at pipeline crossing, near Kalaupapa."

REVISED RECORDS (FISCAL YEARS).--WSP 1155: 1932(M), 1938-44(M), 1946-48(M). WSP 1319: 1923(M), 1930(M), 1932, 1938-40, 1945(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 252 ft (76.810 m) above mean sea level (hand levels by Bureau of Reclamation). Prior to Nov. 19, 1930, at site 500 ft (152 m) upstream at different datums. Aug. 14, 1931, to July 20, 1932, and Sept. 20, 1937, to Jan. 26, 1948, at present site at datum 1.49 ft (0.454 m) higher, and July 30, 1948, to June 30, 1962, at present site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good except those above 80 ft^3/s (2.27 m^3/s), which are poor. Diversion above station for domestic use in Kalaupapa, and since Nov. 16, 1960, water has been diverted above station both to and from Molokai tunnel.

AVERAGE DISCHARGE (since Molokai tunnel diversion began).--16 years (water years 1961-76), 15.1 ft^3/s (0.428 m^3/s), 10,940 acre-ft/yr (13.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,600 ft^3/s (187 m^3/s) Oct. 31, 1961, gage height, 13.75 ft (4.191 m), present datum, from floodmarks, from rating curve extended above 39 ft^3/s (1.10 m^3/s) on basis of slope-area measurement of peak flow; minimum, 2.0 ft^3/s (0.057 m^3/s) Nov. 1, 2, 1925, June 5, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 873 ft^3/s (24.7 m^3/s) Mar. 4, gage height, 5.14 ft (1.567 m), from rating curve extended as explained above; minimum, 2.1 ft^3/s (0.059 m^3/s) Nov. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	3.4	2.9	2.8	13	8.0	12	14	5.9	5.5	5.7	4.7
2	4.5	3.2	2.9	2.8	4.2	18	23	9.8	5.9	5.7	5.7	5.0
3	4.5	3.2	2.8	2.8	3.7	8.1	13	8.6	5.5	5.5	5.7	4.7
4	4.3	3.0	2.8	2.8	3.5	151	12	8.4	5.3	5.3	5.7	4.6
5	4.2	2.9	2.8	2.8	4.0	21	9.3	8.1	5.2	5.3	5.5	4.6
6	4.2	2.9	2.6	2.9	68	9.8	8.6	7.9	5.0	5.5	5.7	4.6
7	4.3	2.8	2.6	12	12	8.4	11	7.9	5.0	5.3	5.3	4.6
8	4.3	3.8	2.9	3.7	17	14	35	7.7	5.0	5.3	5.3	4.6
9	4.2	2.6	2.9	3.2	6.6	77	33	7.4	5.0	5.5	5.2	4.6
10	4.0	2.5	2.9	3.0	5.5	68	21	7.2	5.0	5.5	5.2	5.5
11	4.0	3.2	2.9	3.0	4.8	13	11	7.0	5.0	8.6	5.0	5.0
12	4.0	2.9	2.9	2.9	4.7	8.8	12	6.2	5.0	6.3	4.9	4.6
13	4.0	2.6	2.9	3.0	4.5	7.4	9.3	6.2	5.0	5.5	4.9	4.4
14	4.0	2.4	2.9	3.0	4.3	6.8	8.6	6.1	5.0	5.5	4.9	4.4
15	4.0	2.4	2.9	16	9.8	6.6	10	6.1	5.0	5.5	4.9	4.4
16	4.3	2.6	2.9	101	14	6.4	8.6	6.1	5.2	5.5	4.7	4.4
17	4.3	3.0	3.0	14	6.0	22	11	6.1	4.9	5.5	4.7	4.6
18	4.5	2.6	3.0	8.4	4.8	26	15	6.1	4.9	5.5	4.7	4.4
19	24	2.6	3.1	4.0	4.3	11	14	6.1	6.4	11	4.9	4.4
20	4.2	6.4	3.1	3.8	4.3	9.0	9.0	6.1	5.2	6.6	4.9	4.4
21	3.7	3.4	3.2	4.0	7.8	20	8.8	7.2	5.3	8.1	5.0	4.4
22	3.5	2.9	3.1	3.7	17	14	15	6.2	5.0	9.3	5.0	4.4
23	3.4	2.8	3.2	3.5	12	13	16	6.1	5.0	5.9	5.0	4.4
24	3.4	41	3.1	3.4	6.0	10	13	5.9	6.3	23	4.9	4.4
25	3.2	17	3.0	3.4	4.8	15	9.8	6.1	5.7	22	4.9	4.3
26	3.2	6.0	2.9	3.2	4.7	20	7.9	5.9	5.3	7.0	4.7	28
27	3.5	8.4	2.9	3.2	4.7	13	7.4	5.9	5.3	6.4	4.7	6.8
28	3.5	3.4	2.9	3.1	4.3	11	27	5.9	5.3	6.1	4.7	6.6
29	3.4	3.1	2.9	3.0	4.3	16	62	6.4	5.3	5.9	4.7	5.5
30	3.4	3.0	2.9	3.1	---	22	89	6.1	5.3	5.7	4.6	19
31	3.4	---	2.9	88	---	21	---	5.9	---	5.7	4.6	---
TOTAL	141.7	152.0	90.7	319.5	264.6	675.3	542.3	216.7	158.2	225.0	156.3	180.3
MEAN	4.57	5.07	2.93	10.3	9.12	21.8	18.1	6.99	5.27	7.26	5.04	6.01
MAX	24	41	3.2	101	68	151	89	14	6.4	23	5.7	28
MIN	3.2	2.4	2.6	2.8	3.5	6.4	7.4	5.9	4.9	5.3	4.6	4.3
AC-FT	281	301	180	634	525	1340	1080	430	314	446	310	358

CAL YR 1975 TOTAL 2545.9 MEAN 6.98 MAX 84 MIN 2.4 AC-FT 5050
WTR YR 1976 TOTAL 3122.6 MEAN 8.53 MAX 151 MIN 2.4 AC-FT 6190

16408000 WAIKOLU STREAM BELOW PIPELINE CROSSING, NEAR KALAUPAPA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

REMARKS.--Miscellaneous chemical analyses published for this station for 1969, 1971 water years.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
16...	1100	2.9	1	1	36	0	7.4	4.3	9.4
JUNE									
02...	1200	5.9	2	0	31	0	6.6	3.6	9.7

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
16...	35	.7	1.6	50	0	41	6.4	.4	11
JUNE									
02...	39	.8	1.4	46	0	38	4.6	2.9	12

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
16...	.1	33	93	.13	.15	.04	10	0
JUNE								
02...	.1	31	90	.12	.00	.02	10	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC.						JUNE					
16...	1100	2.9	120	7.1	22.0	02...	1200	5.9	116	7.2	20.5
FEB.						JULY					
10...	1230	5.5	115	7.4	20.0	13...	1100	5.4	119	7.9	22.0
APR.						SEP.					
06...	1230	8.2	100	7.1	20.0	02...	1200	5.0	118	7.8	20.5

16414000 KAUNAKAKAI GULCH AT KAUNAKAKAI

LOCATION.--Lat 21°06'21", long 157°00'34", Hydrologic Unit 20050000, on left bank 0.6 mi (1.0 km) upstream from Molokai Ranch pipeline crossing, 1.3 mi (2.1 km) northeast of Kaunakakai Post Office, and 1.7 mi (2.7 km) upstream from mouth.

DRAINAGE AREA.--6.57 mi^2 (17.02 km^2).

PERIOD OF RECORD.--December 1949 to current year. Prior to July 1958, published as Kaunakakai Stream at Kaunakakai.

REVISED RECORDS (FISCAL YEARS).--WSP 1289: 1950-51. WSP 1569: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 240 ft (73 m), from topographic map.

REMARKS.--Records good. Flow has been augmented by occasional spillage from Molokai tunnel since May 1965.

AVERAGE DISCHARGE.--26 years (water years 1951-76), 1.51 ft^3/s (0.043 m^3/s), 1,090 acre-ft/yr (1.34 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,060 ft^3/s (86.7 m^3/s) Oct. 31, 1961, gage height, 9.30 ft (2.835 m), from rating curve extended above 620 ft^3/s (17.6 m^3/s) on basis of slope-area measurement of peak flow; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 245 ft^3/s (6.94 m^3/s) Jan. 16, gage height, 4.75 ft (1.448 m), from rating curve extended as explained above, no peak above base of 280 ft^3/s (7.93 m^3/s); no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				0	7.3	0	0	.03				
2				0	0	0	0	0				
3				0	0	0	0	0				
4				0	0	8.6	0	0				
5				0	0	6.9	0	0				
6				0	27	0	0	0				
7				0	6.2	0	0	0				
8				0	3.2	0	0	0				
9				0	2.1	0	0	0				
10				0	0	15	0	0				
11				0	0	.99	0	0				
12				0	0	0	0	0				
13				0	0	0	0	0				
14				0	0	0	0	0				
15				0	0	0	0	0				
16				50	0	0	0	0				
17				1.2	0	0	0	0				
18				0	0	0	0	0				
19				0	0	0	0	0				
20				0	0	0	0	0				
21				0	0	0	0	0				
22				0	0	0	0	0				
23				0	0	0	0	0				
24				0	0	0	0	0				
25				0	0	0	0	0				
26				0	0	0	0	0				
27				0	0	0	0	0				
28				0	0	0	0	0				
29				0	0	0	0	0				
30				0	---	0	1.3	0				---
31		---		7.1	---	0	---	0	---			
TOTAL	0	0	0	58.3	45.8	31.49	1.3	.03	0	0	0	0
MEAN	0	0	0	1.88	1.58	1.02	.043	.001	0	0	0	0
MAX	0	0	0	50	27	15	1.3	.03	0	0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	116	91	62	2.6	.06	0	0	0	0

CAL YR 1975 TOTAL 16.16 MEAN .044 MAX 7.9 MIN 0 AC-FT 32
WTR YR 1976 TOTAL 136.92 MEAN .37 MAX 50 MIN 0 AC-FT 272

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 (61 m) downstream from wooden bridge on Highway 45 and 0.8 mi (1.3 km) south of Halawa.

DRAINAGE AREA.--0.94 mi^2 (2.43 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 640 ft (195 m), from topographic map.

REMARKS.--Records good. Diversion above station for domestic use at Puu O Hoku Ranch.

AVERAGE DISCHARGE.--13 years, 0.826 ft^3/s (0.023 m^3/s), 598 acre-ft/yr (737,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,720 ft^3/s (77.0 m^3/s) Apr. 13, 1965, gage height, 11.25 ft (3.429 m), from rating curve extended above 37 ft^3/s (1.05 m^3/s) on basis of slope-area measurements at gage heights 4.60 ft (1.402 m), 7.15 ft (2.179 m), and 11.25 ft (3.429 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 150 ft^3/s (4.25 m^3/s) Mar. 4, gage height, 3.62 ft (1.103 m), no peak above base of 210 ft^3/s (5.95 m^3/s); no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1				0	0	0	.07	.21		0		0
2				0	0	0	.07	.05		0		0
3				0	0	0	.05	.04		0		0
4				0	0	19	.05	.04		0		0
5				0	0	2.8	.04	.04		0		0
6				0	5.0	.58	.04	.04		0		0
7				0	.33	.50	.06	.03		0		0
8				0	3.3	1.3	.07	.03		0		0
9				0	.48	4.3	.18	.03		0		0
10				0	.02	8.9	.07	.02		0		0
11				0	0	.98	.06	.01		0		0
12				0	0	.50	.04	0		0		0
13				0	0	.27	.03	0		0		0
14				0	0	.12	.03	0		0		0
15				0	0	.06	.02	0		0		0
16				0	0	.05	.01	0		0		0
17				0	0	11	.01	0		0		0
18				0	0	13	.01	0		0		0
19				0	0	1.4	0	0		0		0
20				0	0	.93	.01	0		0		0
21				0	0	.68	.02	0		0		0
22				0	0	.83	.02	0		0		0
23				0	0	1.1	.02	0		0		0
24				0	0	.50	.05	0		0		0
25				0	0	.30	.05	0		2.1		0
26				0	0	.21	.04	0		.13		0
27				0	0	.15	.03	0		.01		0
28				0	0	.09	.02	0		0		.16
29				0	0	.09	1.8	0		0		.01
30				0	---	.09	.30	0		0		0
31		---		.01	---	.09	---	0	---	0		---
TOTAL	0	0	0	.01	9.13	69.82	3.27	.54	0	2.24	0	.17
MEAN	0	0	0	.0003	.31	2.25	.11	.017	0	.072	0	.006
MAX	0	0	0	.01	5.0	19	1.8	.21	0	2.1	0	.16
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	0	0	.02	18	138	6.5	1.1	0	4.4	0	.3

CAL YR 1975	TOTAL 28.31	MEAN .078	MAX 4.8	MIN 0	AC-FT 56
WTR YR 1976	TOTAL 85.18	MEAN .23	MAX 19	MIN 0	AC-FT 169

16419500 PAPIO GULCH AT HALAWA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971-72, 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
FEB. 09...	1530	.12	40	10	24	10	2.9	4.1	14

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
FEB. 09...	53	1.2	2.0	17	0	14	11	9.7	24

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
FEB. 09...	.0	8.7	74	.10	.02	.00	290	30

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
FEB. 09...	1530	.12	134	6.4	19.5	MAY 03...	1545	.04	170	6.1	21.5
MAR. 08...	1640	1.1	117	6.3	19.5						

16501000 PALIKEA STREAM BELOW DIVERSION DAM, NEAR KIPAHULU

LOCATION.--Lat 20°41'03", long 156°04'10", Hydrologic Unit 20020000, on left bank 50 ft (15 m) downstream from old diversion dam, 2 mi (3 km) northwest of Kipahulu, and 2.1 mi (3.4 km) upstream from mouth.

DRAINAGE AREA.--6.29 mi^2 (16.29 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1927 to September 1929, December 1931 to September 1935, December 1935 to February 1938, May to October, December 1938, January 1939, August 1939 to current year. Published as Oheo Stream at elevation 1,550 ft (472 m) near Kipahulu 1927-29 and as Oheo Stream below diversion dam, near Kipahulu 1930-56.

REVISED RECORDS (FISCAL YEARS).--WSP 1155: 1939(M). WSP 1569: Drainage area. WSP 1719: 1932-34, 1937-40, 1948, 1949-50(P), 1951, 1952-54(P), 1956-58(P). WSP 1937: 1932-38(M), 1940-47(M), 1948-49(P), 1950(M), 1951-53(P), 1956(P), 1957(M), 1958-59(P), 1960(M).

GAGE.--Water-stage recorder. Datum of gage is 1,546 ft (471 m) above mean sea level (by vertical angles). Prior to Sept. 6, 1929, at site 100 ft (30 m) upstream at different datum.

REMARKS.--Records good except those for period of no gage-height record, Mar. 17 to Apr. 20, which are fair. No diversion above station.

AVERAGE DISCHARGE.--41 years (water years, 1928, 1933-34, 1937, 1940-76), 58.0 ft^3/s (1.643 m^3/s), 42,020 acre-ft/yr (51.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,100 ft^3/s (456 m^3/s) Jan. 23, 1965, gage height, 18.3 ft (5.58 m), from floodmarks, from rating curve extended above 3,300 ft^3/s (93.5 m^3/s) on basis of computations of peak flow over dam at gage heights 12.68 ft (3.865 m) and 17.5 ft (5.33 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,180 ft^3/s (118 m^3/s) Feb. 26, gage height, 9.53 ft (2.905 m), no other peak above base of 3,700 ft^3/s (105 m^3/s); minimum, 0.02 ft^3/s (0.001 m^3/s) on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.40	33	1.4	2.0	1.6	23	5.3	24	24	32	.02
2	8.4	.35	16	1.1	.64	1.1	5.0	.81	2.3	9.1	57	.12
3	65	.30	39	33	.41	.72	30	14	1.2	57	2.8	9.2
4	27	.28	5.1	266	.24	63	200	29	2.1	7.1	.64	.15
5	10	.25	1.5	760	.12	120	15	6.1	13	1.1	.41	.02
6	89	.25	.81	521	.05	34	6.0	10	19	.64	8.8	.02
7	283	.30	.50	490	.19	93	4.1	4.7	5.1	.64	2.9	.02
8	13	3.0	.25	77	225	105	83	.81	26	.29	.15	.03
9	1.4	100	.18	103	203	97	120	.41	2.8	.48	.07	.56
10	2.3	3.0	.07	146	92	14	69	.35	1.5	29	.03	.05
11	.79	11	.03	18	31	62	17	.81	1.4	53	.19	.03
12	.32	40	56	86	8.6	11	6.9	1.6	1.0	7.1	2.5	.02
13	.11	5.5	101	57	4.7	2.3	3.0	3.6	.48	.72	27	.02
14	13	1.8	108	59	47	1.4	1.6	1.1	.56	.29	1.8	.02
15	50	1.0	66	5.8	215	.81	1.0	1.5	13	.24	.03	.02
16	5.2	15	6.8	506	403	.56	.76	7.0	14	.15	.03	.02
17	52	8.0	36	96	284	400	.60	18	.81	2.8	.02	.02
18	131	.70	1.6	7.7	37	39	2.6	9.6	2.8	.35	.02	.02
19	100	30	.59	2.3	36	5.0	9.2	17	16	.19	98	.02
20	17	388	.22	1.8	4.7	3.0	51	73	5.0	7.1	80	.02
21	1.7	32	.08	1.2	36	28	44	108	7.7	90	2.3	.02
22	1.8	31	.03	1.0	237	13	137	114	3.8	35	.56	.02
23	85	6.6	.02	.72	447	50	117	348	9.0	2.8	.24	.02
24	5.0	659	.03	.48	81	31	81	342	86	20	.09	.02
25	1.0	33	.03	.41	97	66	54	55	5.6	142	.03	.02
26	.50	7.8	.02	.56	574	150	18	80	4.3	10	.02	.02
27	15	75	.13	.19	27	41	6.1	67	13	8.0	.02	.02
28	40	68	1.8	.09	6.1	13	2.3	9.1	10	1.2	.02	.03
29	5.2	11	.11	.29	2.3	31	1.8	91	25	4.9	65	.03
30	.69	1.9	.78	.09	---	60	19	19	13	1.1	1.7	.03
31	.50	---	2.0	12	---	199	---	25	---	.29	.02	---
TOTAL	1024.93	1534.43	477.68	3255.13	3102.05	1736.49	1128.96	1462.79	329.45	516.58	384.39	10.63
MEAN	33.1	51.1	15.4	105	107	56.0	37.6	47.2	11.0	16.7	12.4	.35
MAX	283	659	108	760	574	400	200	348	86	142	98	9.2
MIN	.02	.25	.02	.09	.05	.56	.60	.35	.48	.15	.02	.02
AC-FT	2030	3040	947	6460	6150	3440	2240	2900	653	1020	762	21

CAL YR 1975 TOTAL 17620.43 MEAN 48.3 MAX 908 MIN .02 AC-FT 34950
WTR YR 1976 TOTAL 14963.51 MEAN 40.9 MAX 760 MIN .02 AC-FT 29680

NOTE.--No gage-height record Mar. 17 to Apr. 20.

16501000 PALIKEA STREAM BELOW DIVERSION DAM, NEAR KIPAHULU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 19...	1100	.41	10	1	10	1	2.0	1.1	4.1
JAN. 14...	1000	102	20	2	5	0	1.5	.3	2.5

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 19...	47	.6	.3	11	0	9	5.6	1.4	4.7
JAN. 14...	50	.5	.3	6	0	5	3.0	1.6	3.3

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 19...	.0	6.2	26	.04	.06	.00	30	5
JAN. 14...	.0	2.0	15	.02	.02	.02	80	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 19...	1100	.41	40	6.5	19.0
JAN. 14...	1000	102	21	6.5	16.5
MAR. 03...	1230	6.7	52	6.5	18.0
APR. 21...	1130	37	24	6.6	15.5
JUNE 15...	1130	.91	44	6.2	20.0
AUG. 11...	1130	.12	36	7.4	22.5

16508000 HANAWI STREAM NEAR NAHIKU

LOCATION.--Lat 20°48'37", long 156°07'00", Hydrologic Unit 20020000, on left bank 200 ft (61 m) upstream from Koolau ditch intake and trail, 1.9 mi (3.1 km) southwest of Nahiku, and 4.5 mi (7.2 km) southeast of Keanae.

DRAINAGE AREA.--3.49 mi^2 (9.04 km^2).

WATER-DISCHARGE RECORDS

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 (FISCAL YEARS).--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 (401.7 m) above mean sea level (by vertical angles). Prior to Nov. 1, 1921, at site 50 ft (15 m) downstream at datum 0.12 ft (0.037 m) lower.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--54 years (water years 1923-76), 22.7 ft^3/s (0.643 m^3/s), 16,450 acre-ft/yr (20.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 5,570 ft^3/s (158 m^3/s) Jan. 18, 1916, gage height, 11.6 ft (3.54 m), present site and datum, from rating curve extended above 814 ft^3/s (23.1 m^3/s) by test model of station site; minimum, 1.2 ft^3/s (0.034 m^3/s) Oct. 17, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft^3/s (48.1 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 24	1100	1920	54.4	6.86	2.091
Jan. 16	0200	*2350	66.6	7.66	2.335

Minimum discharge, 2.1 ft^3/s (0.059 m^3/s) Sept. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.3	4.1	6.9	2.4	4.7	5.5	34	20	4.4	4.5	3.5	2.8
2	15	3.8	4.3	2.5	3.3	5.7	33	11	4.2	4.0	3.4	4.3
3	28	3.6	4.0	5.0	3.1	7.1	53	8.8	4.0	7.8	3.1	7.5
4	12	3.5	3.8	5.5	3.0	49	145	8.3	3.9	5.1	3.0	4.3
5	9.3	3.4	3.8	96	3.0	48	29	7.4	3.8	3.9	3.0	3.4
6	12	3.4	3.5	111	3.0	17	21	7.0	3.7	3.8	3.8	6.7
7	25	3.6	3.3	79	3.2	33	17	6.4	3.6	4.7	2.9	3.9
8	11	4.7	3.2	14	13	57	71	6.1	3.6	4.5	2.7	3.2
9	6.1	23	3.1	13	4.5	53	103	5.8	3.4	6.1	2.7	3.4
10	5.1	9.5	3.0	17	3.4	37	71	5.7	3.4	8.2	2.6	3.6
11	4.3	11	2.9	5.4	3.1	24	26	6.1	3.3	10	2.8	4.0
12	3.9	5.9	3.3	11	3.2	12	21	6.3	3.2	7.0	2.9	3.7
13	3.7	4.4	3.1	19	3.2	8.8	15	7.0	3.1	4.5	4.4	3.2
14	3.5	4.0	2.8	8.8	21	7.5	13	6.4	3.1	3.8	5.4	2.9
15	4.5	3.8	3.0	5.1	116	9.4	12	6.6	3.2	4.1	3.1	2.8
16	11	5.0	2.8	711	149	10	11	5.9	3.4	3.6	2.9	2.7
17	27	4.7	3.3	90	45	49	11	6.6	3.0	3.5	2.7	2.7
18	23	3.7	2.7	14	11	29	12	6.4	3.2	3.3	2.6	2.6
19	28	4.3	2.7	7.7	6.1	8.8	14	6.8	7.1	3.2	19	2.5
20	11	135	2.6	5.2	4.6	8.4	18	11	7.0	3.2	47	2.4
21	6.2	15	2.5	4.4	20	18	17	26	4.8	12	5.3	2.4
22	4.8	8.0	2.5	4.0	153	17	78	16	3.6	8.6	3.5	2.4
23	14	5.3	2.5	3.7	168	31	59	28	3.2	5.4	3.0	2.3
24	8.4	306	2.4	3.5	21	25	27	18	5.5	14	2.9	2.3
25	5.1	16	2.4	3.3	12	53	12	8.9	3.9	8.6	2.8	2.2
26	4.8	5.5	2.4	3.3	48	102	11	7.0	3.5	5.1	2.8	2.3
27	7.7	30	2.3	3.2	15	65	9.9	6.8	4.1	4.5	3.2	2.3
28	9.4	8.3	2.3	3.1	8.5	20	8.5	5.8	4.0	4.0	11	2.9
29	6.2	4.3	2.3	3.1	6.3	21	26	5.6	4.5	9.3	6.5	2.3
30	4.6	4.3	2.3	3.1	---	49	119	5.2	3.9	4.2	3.5	2.3
31	4.4	---	2.8	3.8	---	138	---	4.7	---	3.7	3.1	---
TOTAL	321.3	647.1	94.8	1261.1	858.2	1018.2	1097.4	287.6	118.6	178.2	171.1	96.3
MEAN	10.4	21.6	3.06	40.7	29.6	32.8	36.6	9.28	3.95	5.75	5.52	3.21
MAX	28	306	6.9	711	168	138	145	28	7.1	14	47	7.5
MIN	2.3	3.4	2.3	2.4	3.0	5.5	8.5	4.7	3.0	3.2	2.6	2.2
AC-FT	637	1280	188	2500	1700	2020	2180	570	235	353	339	191

CAL YR 1975 TOTAL 6188.4 MEAN 17.0 MAX 421 MIN 2.3 AC-FT 12270
WTR YR 1976 TOTAL 6149.9 MEAN 16.8 MAX 711 MIN 2.2 AC-FT 12200

16508000 HANAWI STREAM NEAR NAHIKU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV.									
18...	1620	3.7	4	0	9	0	2.0	.9	5.7
MAR.									
04...	1030	110	15	3	8	1	1.2	1.2	3.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV.									
18...	57	.8	.6	14	0	11	1.8	1.0	5.6
MAR.									
04...	48	.6	.5	9	0	7	91	1.7	3.2

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV.								
18...	.0	9.0	32	.04	.06	.01	20	0
MAR.								
04...	.0	5.3	21	.03	.00	.00	40	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV.						APR.					
18...	1620	3.7	44	7.1	19.5	22...	1130	145	27	6.2	16.0
JAN.						JUNE					
15...	1315	5.2	30	6.5	17.0	16...	0830	3.7	47	6.0	19.0
MAR.						AUG.					
04...	1030	110	30	5.2	18.0	12...	1100	2.8	47	7.7	20.0

16512000 KOOLAU DITCH AT NAHIKU WEIR, NEAR NAHIKU

LOCATION.--Lat 20°48'56", long 156°07'15", Hydrologic Unit 20020000, on right bank between Kapaula and Waiohue Gulches, 1.8 mi (2.9 km) southwest of Nahiku, and 3.8 mi (6.1 km) southeast of Keanae.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1919 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 1,289.14 ft (392.930 m) above mean sea level. Prior to Apr. 28, 1922, nonrecording gage at same site and datum.

REMARKS.--Records excellent. Ditch diverts water from nearly all streams from the Makapipi west to the Alo for power, domestic use, and irrigation in central Maui.

AVERAGE DISCHARGE.--57 years, 34.0 ft^3/s (0.963 m^3/s), 24,630 acre-ft/yr (30.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 99 ft^3/s (2.80 m^3/s) Apr. 27, May 11, 1963, May 25, 1964; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.4	22	36	12	21	29	84	68	22	19	18	14
2	30	20	26	11	15	30	79	50	20	17	18	20
3	66	19	23	21	15	34	83	43	19	28	16	29
4	43	18	22	25	14	90	90	40	18	21	15	21
5	34	17	22	52	14	73	82	36	18	17	15	17
6	41	16	20	69	13	57	68	33	17	17	18	31
7	72	17	19	81	15	81	62	31	16	20	14	21
8	46	20	18	52	34	56	67	29	16	20	13	17
9	32	56	17	47	19	71	91	27	16	23	13	17
10	28	35	16	56	15	87	89	26	15	30	13	18
11	25	42	16	29	14	78	79	26	15	36	13	18
12	23	27	17	41	14	56	75	27	14	29	13	18
13	21	23	17	60	14	43	61	29	14	21	19	16
14	20	20	15	41	32	36	56	28	14	19	22	14
15	22	19	16	28	85	40	51	28	14	19	15	14
16	39	25	15	90	87	42	48	25	15	17	14	13
17	60	24	16	85	81	74	50	28	13	17	12	13
18	63	19	14	49	43	60	52	27	14	16	11	12
19	68	21	13	39	29	42	58	28	23	16	38	12
20	52	78	13	34	25	39	61	36	24	16	64	12
21	36	55	13	29	40	57	59	66	19	46	26	11
22	29	37	12	25	86	59	82	53	15	34	18	11
23	36	28	12	23	93	72	83	65	14	27	16	10
24	40	63	12	21	70	73	80	65	22	52	15	10
25	28	54	12	20	52	83	57	42	17	38	13	9.6
26	26	33	11	18	78	91	49	35	15	27	14	9.3
27	34	61	11	17	56	89	45	33	17	24	16	9.7
28	38	36	11	17	42	79	40	29	17	21	31	12
29	31	26	11	16	34	65	62	27	19	36	28	9.9
30	25	25	11	15	---	84	82	25	17	24	17	10
31	24	---	12	18	---	91	---	23	---	20	16	---
TOTAL	1141.4	956	499	1141	1150	1961	2025	1128	509	767	584	449.5
MEAN	36.8	31.9	16.1	36.8	39.7	63.3	67.5	36.4	17.0	24.7	18.8	15.0
MAX	72	78	36	90	93	91	91	68	24	52	64	31
MIN	9.4	16	11	11	13	29	40	23	13	16	11	9.3
AC-FT	2260	1900	990	2260	2280	3890	4020	2240	1010	1520	1160	892

CAL YR 1975 TOTAL 12360.4 MEAN 33.9 MAX 91 MIN 9.3 AC-FT 24520
WTR YR 1976 TOTAL 12310.9 MEAN 33.6 MAX 93 MIN 9.3 AC-FT 24420

HAWAII, ISLAND OF MAUI

16512000 KOOLAU DITCH AT NAHIKU WEIR, NEAR NAHIKU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 18...	1500	19	3	1	15	4	4.0	1.1	5.1
JAN. 13...	1500	54	15	1	7	0	1.2	1.0	4.0

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 18...	42	.6	.7	13	0	11	1.3	3.1	5.7
JAN. 13...	53	.7	.5	13	0	11	1.3	1.7	4.7

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 18...	.0	10	36	.05	.07	.01	20	0
JAN. 13...	.0	5.8	26	.04	.04	.03	40	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 18...	1500	19	50	7.2	18.5
JAN. 13...	1500	54	32	7.2	19.0
MAR. 02...	1500	35	45	6.2	17.5
APR. 20...	1450	62	44	7.5	18.0
APR. 22...	1230	86	29	6.4	16.5
JUNE 16...	0945	15	49	6.1	19.0
AUG. 10...	1430	13	51	8.7	20.5

16518000 WEST WAILUAIKI STREAM NEAR KEANAE

LOCATION.--Lat 20°49'16", long 156°08'37", Hydrologic Unit 20020000, on left bank 500 ft (152 m) upstream from Koolau ditch crossing and trail bridge and 2.8 mi (4.5 km) south of Keanae Post Office.

DRAINAGE AREA.--3.66 mi^2 (9.48 km^2).

WATER-DISCHARGE RECORDS

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 (FISCAL YEARS).--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). (WATER YEARS).--WSP 2137: 1960(P), 1961(M), 1963(M).

GAGE.--Water-stage recorder. Datum of gage is 1,343.1 ft (409.38 m) above mean sea level (by vertical angles). Prior to Oct. 3, 1974, at present site at datum 0.50 ft (0.15 m) higher.

REMARKS.--Records good. No diversion above station. Water is diverted by Koolau ditch, 500 ft (152 m) below station, for domestic supply and irrigation of sugarcane in central Maui.

AVERAGE DISCHARGE.--56 years (water years, 1915, 1917, 1923-76), 35.2 ft^3/s (0.997 m^3/s), 25,500 acre-ft/yr (31.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,900 ft^3/s (280 m^3/s) Jan. 14, 1923, gage height, 13.5 ft (4.11 m), from floodmarks, from rating curve extended above 650 ft^3/s (18.4 m^3/s); minimum, 0.5 ft^3/s (0.014 m^3/s) July 26, 1922.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,630 ft^3/s (159 m^3/s) Jan. 16, gage height, 11.34 ft (3.456 m), from rating curve extended above 650 ft^3/s (18.4 m^3/s), no other peak above base of 1,900 ft^3/s (53.9 m^3/s); minimum, 2.1 ft^3/s (0.059 m^3/s) Dec. 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	5.7	12	2.3	19	8.6	73	33	5.1	5.3	4.2	3.8
2	42	5.1	8.0	3.1	5.8	11	69	16	4.7	4.4	4.0	9.3
3	54	4.8	7.1	10	4.7	13	55	12	4.5	13	3.6	13
4	19	4.6	6.6	5.2	4.2	98	208	11	4.3	6.5	3.3	6.5
5	15	4.2	6.6	41	4.0	70	47	8.9	4.0	4.5	3.2	4.6
6	18	4.3	5.8	29	13	25	34	8.0	3.8	4.2	4.7	10
7	36	4.5	5.3	22	31	55	27	7.2	3.7	5.9	3.1	5.3
8	16	6.5	5.0	13	20	89	95	6.5	4.0	5.4	2.8	4.3
9	9.4	34	4.7	13	7.9	89	137	6.1	3.5	7.4	2.6	5.1
10	7.9	12	4.4	17	5.7	77	70	5.8	3.2	9.3	2.5	5.8
11	6.5	13	4.1	6.9	4.9	47	31	6.5	3.1	18	3.4	5.9
12	5.8	7.2	4.2	18	4.8	21	22	6.5	2.9	9.4	4.0	5.2
13	5.3	5.7	4.0	28	5.4	14	16	7.8	2.8	6.3	8.7	4.2
14	5.1	5.0	3.6	13	75	11	13	6.5	3.0	5.0	7.5	3.6
15	6.6	4.5	4.1	7.8	175	15	11	7.1	4.0	6.3	4.0	3.5
16	16	6.0	3.7	1100	104	15	10	5.7	4.3	4.3	4.5	3.4
17	58	5.6	4.8	119	39	62	9.4	6.2	3.3	4.4	3.2	3.8
18	41	4.1	3.3	27	16	32	9.4	6.2	4.2	4.0	2.8	3.1
19	26	5.0	3.1	15	10	12	11	6.6	8.9	3.9	39	2.8
20	15	204	2.9	11	8.0	11	26	16	8.0	3.9	84	2.7
21	8.9	31	2.8	8.6	36	28	24	38	5.0	17	9.5	2.6
22	7.3	12	2.7	7.4	211	24	97	22	3.7	10	5.8	2.7
23	31	7.7	2.6	6.7	175	38	74	33	3.2	6.4	4.6	2.7
24	19	252	2.5	6.2	26	32	37	21	7.2	21	4.1	2.4
25	8.2	34	2.5	5.7	15	68	16	11	4.1	14	3.8	2.2
26	7.5	12	2.4	5.2	31	101	14	8.7	3.8	6.6	3.9	3.7
27	11	65	2.3	4.9	23	56	12	8.7	4.4	5.9	5.3	4.3
28	13	17	2.4	4.7	13	21	11	7.1	4.4	4.8	25	5.3
29	8.3	9.8	2.4	4.4	10	31	52	6.9	4.6	13	8.4	8.0
30	6.6	8.9	2.3	4.2	---	83	182	5.9	3.9	5.3	4.6	24
31	6.4	---	2.5	8.8	---	192	---	5.3	---	5.0	4.5	---
TOTAL	532.3	795.2	130.7	1568.1	1097.4	1449.6	1492.8	357.2	129.6	240.4	274.6	163.8
MEAN	17.2	26.5	4.22	50.6	37.8	46.8	49.8	11.5	4.32	7.75	8.86	5.46
MAX	58	252	12	1100	211	192	208	38	8.9	21	84	24
MIN	2.5	4.1	2.3	2.3	4.0	8.6	9.4	5.3	2.8	3.9	2.5	2.2
AC-FT	1060	1580	259	3110	2180	2880	2960	709	257	477	545	325

CAL YR 1975 TOTAL 6897.4 MEAN 18.9 MAX 291 MIN 2.0 AC-FT 13680
WTR YR 1976 TOTAL 8231.7 MEAN 22.5 MAX 1100 MIN 2.2 AC-FT 16330

16518000 WEST WAILUAIKI STREAM NEAR KEANAE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV.									
18...	1330	3.9	15	2	13	4	2.9	1.5	4.1
JAN.									
13...	1315	31	25	10	13	3	2.5	1.7	3.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV.									
18...	39	.5	.4	12	0	10	1.0	1.3	5.0
JAN.									
13...	33	.4	.7	13	0	11	1.0	2.0	4.1

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV.								
18...	.1	9.2	31	.04	.02	.00	80	0
JAN.								
13...	.0	5.7	27	.04	.04	.03	100	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV.					
18...	1330	3.9	46	7.3	18.0
JAN.					
13...	1315	31	29	7.3	17.6
MAR.					
02...	1245	8.5	35	5.9	16.5
APR.					
20...	1200	16	43	7.3	17.5
JUNE					
16...	1200	5.3	50	6.2	20.5
AUG.					
10...	1230	3.0	50	7.6	21.5

16523000 KOOLAU DITCH NEAR KEANAE

LOCATION.--Lat 20°49'53", long 156°10'30", Hydrologic Unit 20020000, on right bank on west side of Keanae Valley, 2.6 mi (4.2 km) southwest of Keanae Post Office, and 5.1 mi (8.2 km) southeast of Kailua.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1910 to December 1912, November 1917 to February 1918, April 1918 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,237.7 ft (377.25 m) above mean sea level (by plane-table traverse). Jan. 1, 1910, to Dec. 31, 1912, nonrecording gage at same site and datum.

REMARKS.--Records good. Ditch diverts at altitude 1,260 ft (384 m) from nearly all streams from the Makapipi west to the Alo for power, domestic use, and irrigation in central Maui.

AVERAGE DISCHARGE.--60 years (water years, 1911-12, 1918-76), 101 ft^3/s (2.860 m^3/s), 73,170 acre-ft/yr (90.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 266 ft^3/s (7.53 m^3/s) Apr. 19, 1935; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	67	124	32	111	78	221	209	59	63	55	44
2	115	60	76	34	48	95	219	155	56	54	53	87
3	211	56	68	79	43	187	219	123	53	112	48	114
4	165	54	64	68	40	222	221	117	51	69	45	71
5	133	50	64	122	39	216	221	98	49	53	45	52
6	156	50	57	165	49	176	214	89	47	51	64	111
7	212	52	53	185	115	217	204	80	45	71	43	67
8	156	63	50	150	133	217	188	75	47	66	40	52
9	97	169	48	126	67	203	217	71	44	82	38	58
10	83	118	46	162	49	222	222	68	42	108	37	62
11	70	146	44	76	43	219	219	75	40	139	43	61
12	64	81	47	134	43	190	206	77	38	101	45	59
13	59	66	47	200	45	138	176	89	37	67	85	49
14	57	58	41	131	138	110	155	76	38	57	84	44
15	74	54	45	78	221	122	134	80	43	67	49	42
16	137	77	41	218	220	142	120	69	47	54	49	41
17	194	77	50	205	214	206	122	75	39	52	39	44
18	203	55	39	168	144	188	123	74	45	47	36	38
19	187	65	37	125	91	124	151	78	87	47	140	36
20	157	211	35	98	72	116	172	111	89	47	201	34
21	100	180	34	80	113	178	174	198	59	166	88	33
22	82	123	33	70	222	187	214	179	45	112	59	34
23	92	83	32	64	221	198	215	195	40	80	51	33
24	147	154	31	59	199	209	213	186	88	185	46	31
25	87	191	31	54	156	217	165	119	50	135	43	30
26	81	100	30	51	186	221	145	94	44	79	44	40
27	124	190	29	48	146	218	130	91	54	72	58	39
28	137	130	29	45	118	203	113	77	53	61	129	54
29	95	81	29	43	90	181	186	76	60	121	97	49
30	74	78	27	42	---	221	218	68	51	74	55	87
31	75	---	32	75	---	222	---	63	---	61	51	---
TOTAL	3653	2929	1413	3187	3376	5563	5497	3235	1536	2553	1960	1596
MEAN	118	97.6	45.6	103	116	179	183	104	51.2	82.4	63.2	53.2
MAX	212	211	124	218	222	222	222	209	89	185	201	114
MIN	29	50	27	32	39	78	113	63	37	47	36	30
AC-FT	7250	5810	2800	6320	6700	11030	10900	6420	3050	5060	3890	3170

CAL YR 1975 TOTAL 36593 MEAN 100 MAX 224 MIN 27 AC-FT 72580
WTR YR 1976 TOTAL 36498 MEAN 99.7 MAX 222 MIN 27 AC-FT 72390

HAWAII, ISLAND OF MAUI

16523000 KOOLAU DITCH NEAR KEANAE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 18...	1000	54	15	1	13	4	3.1	1.3	4.6
JAN. 13...	1040	222	25	8	10	0	1.8	1.3	3.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 18...	42	.6	.4	11	0	9	3.5	.9	5.9
JAN. 13...	40	.5	.7	12	0	10	1.5	1.9	4.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 18...	.0	9.8	32	.04	.02	.01	60	0
JAN. 13...	.0	5.3	25	.03	.03	.03	110	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 18...	1000	54	50	6.7	17.5
JAN. 13...	1040	222	31	7.1	17.5
MAR. 02...	1000	73	46	6.8	17.0
APR. 20...	1000	176	45	7.2	17.5
JUNE 16...	1330	52	52	6.4	20.0
AUG. 10...	1000	38	66	7.7	19.5

16531000 KULA DIVERSION FROM HAIPUAENA STREAM NEAR OLINDA

LOCATION.--Lat 20°28'24", long 156°13'27", Hydrologic Unit 20020000, on left bank of Haipuaena Stream, 3.4 mi (5.5 km) east of Olinda, and 6.2 mi (10.0 km) south of Kailua.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1945 to current year.

GAGE.--Water-stage recorder and V-notch sharp-crested weir since Apr. 2, 1975. Altitude of gage is 4,320 ft (1,317 m), from topographic map.

REMARKS.--Records good except those above 6.7 ft^3/s (0.19 m^3/s), which are fair. Water is diverted from Haipuaena Stream at station for domestic use and irrigation of truck crops in the Olinda and Kula areas.

AVERAGE DISCHARGE.--31 years, 0.652 ft^3/s (0.018 m^3/s), 472 acre-ft/yr (582,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 7.2 ft^3/s (0.20 m^3/s) Apr. 30, 1976; no flow Nov. 4, 1964, Dec. 3, 5, 1970, Mar. 27 to Apr. 1, Apr. 10-14, 1975.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.26	.34	2.5	.02	3.9	.77	4.4	1.7	.30	.97	1.1	.08
2	4.5	.18	.91	.02	.64	1.2	3.6	.77	.18	.64	1.0	.88
3	5.2	.14	.43	.14	.34	1.2	2.8	.48	.14	1.6	.30	.70
4	1.6	.10	.26	.14	.20	5.6	4.9	.34	.12	.64	.18	.26
5	1.0	.08	.23	1.4	.16	4.2	2.7	.30	.10	.30	.14	.26
6	.77	.07	.18	1.3	.26	2.3	2.0	.34	.09	.20	.12	.26
7	3.3	.05	.14	.48	1.1	4.2	1.2	.26	.08	.23	.09	.23
8	.98	.06	.12	.26	.84	5.4	2.9	.18	.09	.38	.07	.14
9	.38	2.4	.12	.23	.97	4.2	5.8	.16	.09	.20	.06	.10
10	.23	1.0	.10	.58	.91	5.4	2.0	.14	.07	.87	.04	.38
11	.16	.91	.08	.26	1.0	5.0	.97	.14	.07	3.1	.05	.53
12	.14	.38	.07	1.8	1.0	2.0	.70	.26	.12	1.1	.06	.26
13	.12	.18	.05	1.2	.64	.91	.48	.30	.10	.70	.46	.23
14	.10	.12	.05	.70	5.1	.58	.34	.23	.08	.30	.53	.14
15	.09	.10	.05	.30	6.4	.38	.26	.16	.14	.23	.26	.10
16	.20	.70	.04	3.6	3.4	.34	3.6	.14	.14	.18	.34	.07
17	3.9	.91	.06	5.2	1.7	2.7	1.1	.18	.12	.14	.16	.06
18	3.1	.20	.03	1.3	.97	2.6	1.0	.18	.20	.14	.12	.05
19	1.5	.14	.03	.64	.58	.77	1.0	.23	.38	.10	5.5	.03
20	.58	1.8	.02	.38	.34	.77	3.8	1.1	.34	.08	6.0	.03
21	.38	.58	.02	.23	2.2	2.6	2.3	3.7	.20	.59	.58	.02
22	.23	.58	.02	.18	5.4	2.2	7.2	1.6	1.3	1.3	.23	.03
23	.82	.43	.01	.16	4.0	3.8	5.9	4.2	1.4	.53	.16	.09
24	1.3	2.3	.01	.14	1.2	1.4	3.0	4.2	1.9	1.9	.14	.07
25	.38	1.1	.01	.12	.77	4.6	1.2	2.4	.58	3.5	.10	.03
26	.23	.43	.01	.10	.64	4.8	.58	.91	.34	.91	.08	.79
27	.20	4.4	.01	.08	1.2	1.8	.38	.77	.91	.64	.08	.59
28	.38	1.7	.01	.07	.97	.97	.26	.43	1.3	.34	.10	.34
29	.30	.58	.01	.05	1.2	2.1	3.4	.30	4.7	.75	.14	.95
30	.18	.58	.01	.04	---	5.5	7.2	.26	1.2	.97	.10	.88
31	.18	---	.01	3.9	---	6.2	---	.23	---	1.1	.10	---
TOTAL	32.69	22.54	5.60	25.02	48.03	86.49	76.97	26.59	16.78	24.63	18.39	8.58
MEAN	1.05	.75	.18	.81	1.66	2.79	2.57	.86	.56	.79	.59	.29
MAX	5.2	4.4	2.5	5.2	6.4	6.2	7.2	4.2	4.7	3.5	6.0	.95
MIN	.09	.05	.01	.02	.16	.34	.26	.14	.07	.08	.04	.02
AC-FT	65	45	11	50	95	172	153	53	33	49	36	17

CAL YR 1975 TOTAL 224.66 MEAN .62 MAX 5.2 MIN 0 AC-FT 446
WTR YR 1976 TOTAL 392.31 MEAN 1.07 MAX 7.2 MIN .01 AC-FT 778

16531000 KULA DIVERSION FROM HAIPUAENA STREAM NEAR OLINDA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 25...	1200	.95	95	2	6	6	1.9	.4	1.2
MAR. 10...	1130	6.8	60	2	4	2	.3	.8	1.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 25...	29	.2	.1	1	0	1	64	4.3	2.8
MAR. 10...	39	.3	.1	2	0	2	80	4.0	1.3

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 25...	.0	1.0	13	.02	.08	.00	530	10
MAR. 10...	.1	.6	10	.01	.04	.01	300	20

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 25...	1200	.95	18	4.4	14.0
JAN. 21...	1430	.23	13	5.4	12.0
MAR. 10...	1130	6.8	14	4.6	11.5
APR. 28...	1400	.27	14	5.6	14.0
JUNE 22...	1100	.16	17	5.6	13.5
AUG. 13...	1025	.58	18	5.5	14.5

16538000 SPRECKELS DITCH AT HAIPUAENA WEIR, NEAR HUELO

LOCATION.--Lat 20°51'15", long 156°11'25", Hydrologic Unit 20020000, on right bank near Spreckels ditch trail between Haipuaena and Puohokamoa Streams, 2.7 mi (4.3 km) west of Keanae, and 4.5 mi (7.2 km) southeast of Huelo.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1922 to current year. Published as "at Haipuaena, near Huelo" 1930-35.

REVISED RECORDS (FISCAL YEARS).--WSP 770: 1932-33.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 1,470.96 ft (448.349 m) above mean sea level (East Maui Irrigation Co. bench mark). Apr. 29, 1922, to Feb. 19, 1930, at same site at different datum. Feb. 20, 1930, to Oct. 25, 1935, at site 100 ft (30 m) upstream at different datum.

REMARKS.--Records excellent. Spreckels ditch diverts from all streams between the Nuaailua and the Kailua above Koolau ditch east of the Puohokanoa, and below Koolau ditch west of the Puohokamoa. About 6 ft^3/s (0.17 m^3/s) was diverted above station to East Maui Irrigation Co. powerplant at Kolea Gulch prior to June 30, 1961, when the plant was abandoned. Water used for domestic supply and irrigation in central Maui.

AVERAGE DISCHARGE (since termination of powerplant diversion).--15 years (water years 1962-76), 29.3 ft^3/s (0.830 m^3/s), 21,230 acre-ft/yr (26.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 150 ft^3/s (4.25 m^3/s) Feb. 10, 1955, Feb. 18, 1956; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	18	48	5.1	58	18	77	51	12	18	18	9.6
2	67	13	19	8.6	11	30	75	28	9.7	13	16	36
3	89	11	19	25	8.3	33	73	21	8.9	37	10	31
4	48	10	15	10	7.3	113	103	23	8.3	19	8.6	15
5	36	9.3	15	45	6.7	69	66	17	7.9	12	8.4	11
6	48	9.2	12	37	6.7	38	53	16	7.6	11	16	31
7	84	9.2	11	20	9.3	61	49	15	7.2	25	8.3	16
8	43	16	10	28	31	75	65	14	8.5	19	7.3	10
9	23	65	12	28	10	73	112	13	7.4	23	7.0	14
10	18	28	9.4	45	7.6	95	87	12	6.5	32	6.5	18
11	14	41	9.0	14	6.8	84	60	17	6.1	51	8.2	16
12	12	19	8.7	37	7.5	46	44	18	5.7	29	10	12
13	11	13	8.1	63	11	27	30	21	5.5	17	27	10
14	11	11	7.8	28	64	21	25	14	5.7	14	21	8.3
15	16	9.9	8.4	17	108	28	21	15	8.0	16	12	7.6
16	49	28	7.5	122	82	36	30	11	8.5	12	13	7.6
17	77	30	12	41	55	81	20	13	6.6	11	7.4	8.7
18	77	12	7.5	30	26	54	19	13	9.8	9.3	6.4	7.7
19	46	14	6.9	24	17	23	28	15	28	8.7	67	6.4
20	33	96	6.3	17	14	27	50	35	27	9.1	82	5.8
21	19	50	6.0	14	41	66	40	64	13	52	21	5.5
22	16	26	5.8	12	117	54	94	37	15	29	13	5.9
23	33	17	5.6	12	119	72	80	52	11	18	11	6.8
24	33	39	5.3	9.6	46	70	61	56	34	72	9.3	5.4
25	16	20	5.1	8.5	26	86	29	24	11	46	8.8	5.0
26	16	14	4.8	7.8	40	94	26	19	8.5	20	9.3	17
27	36	52	4.6	7.2	27	72	21	19	17	17	14	12
28	37	22	5.6	6.9	21	38	26	14	17	13	53	19
29	21	13	4.8	6.8	23	46	75	14	20	45	28	21
30	15	19	4.6	6.2	---	81	107	12	14	20	13	37
31	29	---	4.8	51	---	106	---	11	---	15	13	---
TOTAL	1078.2	734.6	309.6	786.7	1007.2	1817	1646	704	355.4	733.1	553.5	416.3
MEAN	34.8	24.5	9.99	25.4	34.7	58.6	54.9	22.7	11.8	23.6	17.9	13.9
MAX	89	96	48	122	119	113	112	64	34	72	82	37
MIN	5.2	9.2	4.6	5.1	6.7	18	19	11	5.5	8.7	6.4	5.0
AC-FT	2140	1460	614	1560	2000	3600	3260	1400	705	1450	1100	826

CAL YR 1975 TOTAL 9914.8 MEAN 27.2 MAX 126 MIN 4.3 AC-FT 19670
WTR YR 1976 TOTAL 10141.6 MEAN 27.7 MAX 122 MIN 4.6 AC-FT 20120

HAWAII, ISLAND OF MAUI

16538000 SPRECKELS DITCH AT HAIPUAENA WEIR, NEAR HUELO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 21...	1400	36	45	6	10	5	2.5	.8	2.8
MAR. 08...	1330	80	55	8	7	1	1.3	.9	2.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 21...	38	.4	.2	6	0	5	4.8	2.1	4.4
MAR. 08...	42	.4	.3	7	0	6	7.1	2.1	3.3

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 21...	.0	4.0	20	.03	.02	.00	160	5
MAR. 08...	.0	2.6	17	.02	.01	.01	160	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 21...	1400	36	28	6.3	19.0
JAN. 08...	1530	39	37	6.5	19.5
MAR. 08...	1330	80	23	6.2	18.0
APR. 23...	1025	58	31	6.5	21.0
JUNE 17...	1230	6.6	43	6.3	20.5
AUG. 16...	1400	10	37	7.3	21.0

HAWAII, ISLAND OF MAUI

16541000 KOOLAU DITCH AT HAIPUAENA, NEAR HUELO

LOCATION.--Lat 20°51'17", long 156°11'19", Hydrologic Unit 20020000, on right bank at Haipuaena Stream, 1,000 ft (305 m) upstream from intake at Puohokamoa Stream, 3.3 mi (5.3 km) southeast of Kailua, and 4.5 mi (7.2 km) southeast of Huelo.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1932 to current year.

GAGE.--Water-stage recorder and Parshall flume. Altitude of gage is 1,240 ft (378 m), from topographic map. Prior to Mar. 21, 1933, at datum 1.94 ft (0.591 m) lower, and Mar. 21, 1933, to Mar. 20, 1935, at datum 0.25 ft (0.076 m) lower, than present datum.

REMARKS.--Records excellent. Ditch is extension of Wailoa ditch east of Alo Stream; it receives water from Makapipi ditch at Hanawi Stream and diverts from nearly all streams from there west to the Alo. Water is used for power, domestic supply, and irrigation in central Maui.

AVERAGE DISCHARGE.--44 years, 117 ft^3/s (3.313 m^3/s), 84,770 acre-ft/yr (105 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 300 ft^3/s (8.50 m^3/s) July 1, 17, 1963; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	68	132	31	135	82	243	216	61	64	57	44
2	128	61	82	33	50	97	233	157	57	53	55	89
3	233	56	72	78	44	110	237	126	54	108	49	114
4	158	54	67	66	41	269	281	120	52	72	46	72
5	127	50	67	132	39	236	236	102	50	54	44	52
6	150	50	59	168	47	179	228	94	48	51	65	108
7	222	52	55	183	116	225	214	85	46	73	43	68
8	151	64	52	149	136	239	219	78	48	68	40	52
9	95	184	50	129	70	237	288	73	44	83	38	57
10	83	116	46	165	50	264	258	70	42	106	36	60
11	70	142	44	79	44	247	228	77	40	143	42	60
12	64	84	47	135	43	198	212	81	39	103	45	56
13	60	67	48	202	46	144	179	92	37	69	83	49
14	57	60	42	133	152	118	158	80	38	59	85	43
15	75	55	45	83	262	127	137	84	43	68	49	41
16	138	79	41	206	246	149	125	72	48	55	49	41
17	211	80	51	231	217	236	126	78	40	53	39	44
18	207	55	39	176	149	202	126	77	46	47	36	38
19	185	65	36	132	96	129	153	81	87	47	157	35
20	154	249	35	105	76	123	174	115	93	46	230	34
21	102	188	33	86	121	194	181	206	62	166	91	33
22	85	126	32	74	268	195	248	176	46	111	61	33
23	99	88	31	67	277	222	239	197	42	81	53	32
24	147	162	31	61	203	229	222	190	83	195	47	31
25	90	185	30	57	159	250	166	122	53	137	44	29
26	84	105	29	52	194	265	144	98	46	82	44	38
27	122	202	28	49	147	242	130	95	56	75	59	39
28	135	135	28	46	123	209	117	81	55	63	133	54
29	97	86	28	44	96	194	211	79	62	132	100	47
30	77	81	27	42	---	250	272	72	53	77	56	97
31	79	---	32	86	---	278	---	65	---	63	53	---
TOTAL	3712	3049	1439	3280	3647	6139	5985	3339	1571	2604	2029	1590
MEAN	120	102	46.4	106	126	198	200	108	52.4	84.0	65.5	53.0
MAX	233	249	132	231	277	278	288	216	93	195	230	114
MIN	28	50	27	31	39	82	117	65	37	46	36	29
AC-FT	7360	6050	2850	6510	7230	12180	11870	6620	3120	5170	4020	3150

CAL YR 1975 TOTAL 37772 MEAN 103 MAX 279 MIN 27 AC-FT 74920
WTR YR 1976 TOTAL 38384 MEAN 105 MAX 288 MIN 27 AC-FT 76130

16541000 KOOLAU DITCH AT HAIPUAENA, NEAR HUELO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 21...	1200	182	30	4	8	0	1.6	1.0	3.0
APR. 23...	1600	279	30	8	7	1	1.4	.8	3.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 21...	43	.5	.4	10	0	8	1.0	1.7	4.5
APR. 23...	51	.6	.3	7	0	6	2.2	2.5	6.0

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 21...	.0	5.4	23	.03	.08	.00	90	0
APR. 23...	.0	3.0	22	.03	.14	.00	140	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 21...	1200	182	34	7.2	18.0
JAN. 19...	1300	122	35	6.3	17.5
MAR. 08...	1330	229	23	6.2	18.0
APR. 23...	1600	279	28	6.7	17.0
JUNE 17...	1100	39	53	5.9	19.0
AUG. 16...	1240	47	48	6.8	18.0

16541500 MANUEL LUIS DITCH AT PUOHOKAMOA GULCH, NEAR HUELO

LOCATION.--Lat 20°51'48", long 156°10'49", Hydrologic Unit 20020000, on right bank at lower portal of tunnel between Haipuaena and Puohokamoa Streams, 2.2 mi (3.5 km) west of Keanae, and 4.4 mi (7.1 km) southeast of Huelo.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1917 to November 1924, January 1925 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1719: 1918-30.

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 920 ft (280 m), from topographic map.

REMARKS.--Records good. Ditch is extension of Center ditch and picks up water from streams between the Kolea and the Waikamoi for irrigation in central Maui.

AVERAGE DISCHARGE.--57 years (water years, 1919-24, 1926-76), 8.27 ft^3/s (0.234 m^3/s), 5,990 acre-ft/yr (7.39 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 142 ft^3/s (4.02 m^3/s) Jan. 3, 1927; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.15	.73	2.7	.19	2.8	1.4	3.5	5.0	.41	.49	.42	.16
2	2.6	.54	1.1	.24	.59	2.5	4.2	3.0	.41	.38	.44	.37
3	5.6	.48	.88	.36	.48	2.0	5.2	2.5	.37	.55	.38	.96
4	.96	.45	.84	.34	.43	12	32	2.4	.34	.79	.34	.69
5	.90	.41	.85	.93	.41	12	3.0	1.8	.34	.37	.32	1.8
6	.92	.44	.71	1.5	.40	8.9	2.3	1.5	.29	.30	.60	2.1
7	5.4	.52	.64	1.7	.41	7.8	1.9	1.3	.28	.47	.31	1.4
8	1.9	.75	.59	1.2	1.0	8.6	33	1.1	.28	.38	.28	1.2
9	.88	5.5	.60	.80	.43	6.3	34	.96	.28	.35	.28	1.5
10	.73	.99	.53	2.4	.34	6.2	10	.87	.27	.53	.22	1.4
11	.63	1.2	.48	.72	.34	6.2	4.8	.90	.22	2.6	.25	1.3
12	.53	.76	.48	1.2	.34	6.0	4.3	.86	.22	1.0	.33	1.3
13	.45	.63	.50	2.0	.34	5.9	3.0	.86	.22	.49	.52	1.2
14	.41	.56	.41	1.6	.36	5.8	2.5	.85	.22	.38	.53	1.2
15	.43	.48	.50	1.2	.59	5.7	2.1	.82	.22	.34	.30	.94
16	1.5	1.8	.42	8.1	.78	5.4	1.8	.62	.22	.33	.25	.20
17	12	1.8	.46	2.9	.86	5.3	2.0	.59	.19	.37	.22	.23
18	1.5	.74	.38	2.3	.82	5.3	1.8	.54	.16	.29	.22	.16
19	3.1	.76	.34	2.0	.82	5.3	1.6	.62	.42	.28	4.2	.16
20	1.9	8.8	.31	1.6	.82	5.1	1.6	1.2	.50	.28	20	.16
21	1.0	4.2	.28	1.3	.82	5.1	1.3	2.1	.28	2.6	.49	.14
22	.83	1.9	.28	1.1	2.8	5.1	10	.97	.22	.95	.30	.14
23	4.3	1.5	.27	.98	13	5.0	9.0	1.7	.17	.54	.26	.16
24	2.2	1.9	.22	.83	2.5	4.9	1.9	2.5	1.8	6.3	.22	.14
25	.81	1.3	.22	.72	1.6	4.8	1.3	1.1	.38	3.5	.22	.12
26	.73	1.1	.22	.64	6.9	4.8	.95	.77	.24	1.2	.22	.19
27	.84	3.0	.22	.57	2.6	4.8	.93	.70	.48	1.1	.22	.17
28	.94	1.1	.26	.56	2.0	4.8	.86	.56	.32	.91	.91	.36
29	.85	.95	.22	.48	1.7	4.8	13	.56	.57	4.1	1.1	.24
30	.63	.94	.22	.46	---	4.8	51	.49	.39	.69	.33	5.1
31	.77	---	.21	2.4	---	12	---	.44	---	.50	.22	---
TOTAL	56.39	46.23	16.34	43.32	47.28	184.6	244.84	40.18	10.71	33.36	34.90	25.19
MEAN	1.82	1.54	.53	1.40	1.63	5.95	8.16	1.30	.36	1.08	1.13	.84
MAX	12	8.8	2.7	8.1	13	12	51	5.0	1.8	6.3	20	5.1
MIN	.15	.41	.21	.19	.34	1.4	.86	.44	.16	.28	.22	.12
AC-FT	112	92	32	86	94	366	486	80	21	66	69	50

CAL YR 1975 TOTAL 968.59 MEAN 2.65 MAX 66 MIN .11 AC-FT 1920
WTR YR 1976 TOTAL 783.34 MEAN 2.14 MAX 51 MIN .12 AC-FT 1550

16541500 MANUEL LUIS DITCH AT PUOHOKAMOA GULCH, NEAR HUELO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 21...	1630	2.4	17	3	13	3	3.5	1.0	5.6
MAY 21...	1015	1.6	22	6	10	2	1.3	1.6	6.1

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 21...	48	.7	.4	12	0	10	9.6	2.5	8.3
MAY 21...	56	.8	.4	10	0	8	6.4	1.9	9.4

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 21...	.0	6.3	34	.05	.00	.01	80	5
MAY 21...	.0	5.7	32	.04	.00	.01	200	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 21...	1630	2.4	48	6.3	19.5
JAN. 19...	1600	2.1	50	5.8	19.5
MAR. 08...	1100	9.4	42	6.2	19.0
APR. 22...	1530	4.5	36	6.2	19.0
MAY 21...	1015	1.6	53	6.4	19.5
JUNE 17...	1430	.16	66	6.4	20.5
AUG. 12...	1410	.34	64	6.9	22.0

16587000 HONOPOU STREAM NEAR HUELO

LOCATION.--Lat 20°53'20", long 156°15'20", Hydrologic Unit 20020000, on left bank 75 ft (23 m) upstream from Wailoa ditch intake, 2.2 mi (3.5 km) southwest of Huelo, and 2.5 mi (4.0 km) west of Kailua.

DRAINAGE AREA.--0.64 mi^2 (1.66 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1910 to current year. Monthly discharge only for some periods, published in WSP 1319.

REVISED RECORDS (FISCAL YEARS).--WSP 1219: 1914(M), 1916-50(M). WSP 1249: 1948-50(P). WSP 1569: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,208 ft (368 m) above mean sea level (by vertical angles). Prior to June 19, 1914, nonrecording gage at same site and datum.

REMARKS.--Records excellent. No diversion above station.

AVERAGE DISCHARGE.--65 years (water years 1912-76), 4.67 ft^3/s (0.132 m^3/s), 3,380 acre-ft/yr (4.17 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,710 ft^3/s (162 m^3/s) Nov. 18, 1930, gage height, 7.28 ft (2.219 m), from rating curve extended above 110 ft^3/s (3.12 m^3/s) by test of model of station site; minimum, 0.02 ft^3/s (0.001 m^3/s) several days in 1933, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 214 ft^3/s (6.06 m^3/s) Mar. 4, gage height, 2.93 ft (0.893 m), no peak above base of 270 ft^3/s (7.65 m^3/s); minimum, 0.46 ft^3/s (0.013 m^3/s) Sept. 20-26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.74	1.7	5.4	.84	4.0	3.0	6.5	4.9	1.2	.84	.96	.64
2	2.3	1.6	3.7	1.1	1.8	4.3	6.2	3.9	1.2	.74	.96	.96
3	2.8	1.5	3.3	1.7	1.7	3.9	8.8	3.7	1.2	1.2	.84	1.2
4	1.7	1.5	3.0	1.2	1.6	36	9.0	3.7	1.2	1.2	.84	.74
5	1.6	1.3	2.8	2.4	1.5	11	6.0	3.2	1.2	.84	.84	.64
6	1.8	1.3	2.7	2.3	1.6	8.0	5.4	3.0	1.2	.74	1.1	.74
7	3.3	1.2	2.5	1.2	1.5	8.0	5.1	2.8	1.1	.74	.84	.64
8	2.3	1.7	2.5	1.5	5.3	9.5	16	2.7	1.1	.74	.84	.64
9	1.7	4.2	2.4	2.2	1.8	18	13	2.5	1.1	.96	.74	.74
10	1.6	2.1	2.1	3.0	1.6	18	10	2.4	.96	.96	.74	.74
11	1.6	2.5	2.0	1.3	1.5	12	8.0	2.4	.96	2.1	.74	.64
12	1.5	1.7	1.8	1.6	1.5	9.8	7.3	2.3	.84	1.2	.84	.64
13	1.3	1.6	1.8	1.7	1.5	8.2	6.2	2.3	.84	.84	.96	.64
14	1.3	1.5	1.7	1.6	1.7	7.3	5.6	2.1	.84	.84	.96	.54
15	1.3	1.3	1.7	1.5	3.9	6.5	4.9	2.4	.84	.74	.74	.54
16	2.3	2.1	1.6	8.6	5.6	5.8	4.5	1.8	.84	.74	.74	.54
17	3.2	1.8	1.6	3.0	3.0	8.6	3.9	1.7	.84	.74	.64	.64
18	2.8	1.5	1.5	2.4	2.4	5.8	3.9	1.7	.84	.64	.64	.54
19	2.1	1.5	1.3	2.1	2.1	4.5	3.7	1.6	1.2	.74	1.6	.54
20	2.0	17	1.2	2.0	2.0	4.3	3.7	2.2	1.2	.74	2.7	.46
21	1.7	3.5	1.2	1.8	2.5	4.3	3.2	2.5	.84	1.6	.96	.46
22	1.6	3.0	1.2	1.8	5.8	4.1	4.7	1.7	.64	1.3	.84	.54
23	6.0	2.7	1.2	1.7	16	6.9	6.3	2.4	.64	1.1	.74	.54
24	2.8	3.5	1.2	1.7	6.2	5.4	3.9	2.5	1.3	2.8	.64	.46
25	2.1	2.7	1.1	1.6	5.1	6.9	3.2	1.8	.74	2.1	.64	.46
26	2.1	2.5	.96	1.5	4.7	7.4	2.8	1.6	.64	1.2	.64	.64
27	2.4	18	.96	1.3	4.1	6.9	2.8	1.6	.84	1.1	.64	.64
28	2.4	4.5	1.2	1.3	3.7	5.6	3.0	1.5	.74	.96	.84	.64
29	2.1	3.7	.96	1.2	3.3	5.5	5.3	1.5	.84	2.2	1.1	.64
30	1.8	3.9	.84	1.2	---	6.1	14	1.3	.84	1.2	.74	.96
31	1.7	---	.84	7.5	---	15	---	1.2	---	.96	.64	---
TOTAL	65.94	98.6	58.26	65.84	99.0	266.6	186.9	72.9	28.76	34.80	27.68	19.38
MEAN	2.13	3.29	1.88	2.12	3.41	8.60	6.23	2.35	.96	1.12	.89	.65
MAX	6.0	18	5.4	8.6	16	36	16	4.9	1.3	2.8	2.7	1.2
MIN	.74	1.2	.84	.84	1.5	3.0	2.8	1.2	.64	.64	.64	.46
AC-FT	131	196	116	131	196	529	371	145	57	69	55	38

CAL YR 1975 TOTAL 1076.30 MEAN 2.95 MAX 35 MIN .38 AC-FT 2130
WTR YR 1976 TOTAL 1024.66 MEAN 2.80 MAX 36 MIN .46 AC-FT 2030

16587000 HONOPOU STREAM NEAR HUELO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV.									
24...	1430	4.2	10	3	14	6	3.3	1.4	5.2
MAY									
21...	1300	1.9	75	35	10	1	1.6	1.5	5.7

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV.									
24...	44	.6	.5	10	0	8	4.0	2.2	8.6
MAY									
21...	53	.8	.8	9	0	7	5.7	3.7	8.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV.								
24...	.0	6.1	33	.04	.12	.01	90	0
MAY								
21...	.0	4.2	32	.04	.07	.03	410	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV.						MAY					
24...	1430	4.2	52	6.6	19.5	21...	1300	1.9	49	6.4	20.0
JAN.						JUNE					
20...	1330	2.1	53	7.1	17.0	21...	1430	.84	56	6.2	23.0
MAR.						AUG.					
25...	1145	5.8	50	5.9	19.5	18...	1135	.66	55	7.3	23.0

16588000 WAILOA DITCH AT HONOPOU, NEAR HUELO

LOCATION.--Lat 20°53'20", long 156°15'19", Hydrologic Unit, 20020000, on right bank 100 ft (30 m) downstream from intake at Honopou Strean, 0.5 mi (0.8 km) west of Lupi, and 2.2 mi (3.5 km) southwest of Huelo.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1922 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,208 ft (368.2 m) above mean sea level (by vertical angles).

REMARKS.--Records excellent. Wailoa ditch receives water from Koolau ditch at Alo Strean and from all streams from there west to Halehaku Gulch at altitude of about 1,200 ft (366 m). Water is used for domestic supply, power, and irrigation in Central Maui.

AVERAGE DISCHARGE.--53 years (water years 1924-76), 171 ft^3/s (4.843 m^3/s), 123,900 acre-ft/yr (153 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maxinum daily discharge, 326 ft^3/s (9.23 m^3/s) Apr. 1, 1967; no flow Jan. 24-27, 1923.

CORRECTIONS.--The average discharge for the water years 1974-75 is 172 ft^3/s (4.871 m^3/s), 124,600 acre-ft/yr (154 hm^3/yr); the previously published figures were incorrect.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	145	237	55	244	165	291	222	110	135	115	81
2	160	119	185	61	117	206	291	268	100	108	123	134
3	286	108	158	165	93	194	294	226	94	186	95	200
4	234	101	143	114	83	272	297	226	89	167	85	128
5	224	94	140	196	77	232	292	186	86	109	81	94
6	218	93	120	240	81	208	289	171	82	97	130	157
7	283	95	111	247	151	211	287	156	78	155	80	124
8	226	126	103	225	166	273	287	143	84	144	72	90
9	184	224	109	204	125	281	301	135	76	165	68	110
10	162	224	95	257	93	220	299	126	71	183	65	110
11	137	273	88	145	83	202	295	142	67	146	74	122
12	122	171	87	197	79	209	291	163	64	199	84	100
13	113	131	90	47	94	204	286	178	62	146	155	86
14	105	113	79	50	158	198	273	147	62	121	154	75
15	136	103	87	147	211	207	243	167	74	126	85	70
16	198	176	79	292	246	247	233	128	80	105	102	70
17	272	203	102	286	250	290	231	134	67	100	70	79
18	264	116	74	263	225	284	219	132	81	87	63	65
19	276	122	67	217	168	232	258	145	179	85	200	60
20	258	290	64	177	137	235	271	198	184	87	281	57
21	186	275	61	147	180	212	271	286	113	234	167	54
22	154	224	59	128	295	204	292	275	87	201	113	56
23	182	162	57	118	311	271	292	283	79	150	97	57
24	244	213	55	108	293	285	290	286	164	268	84	52
25	166	254	53	97	257	289	274	233	104	258	79	48
26	153	168	51	91	270	292	242	186	81	176	78	75
27	223	192	50	83	233	289	195	177	121	158	104	84
28	253	179	58	80	218	286	184	147	120	127	201	115
29	193	157	51	77	179	279	196	141	142	192	191	99
30	146	160	48	72	---	289	193	128	121	161	108	164
31	167	---	51	210	---	296	---	115	---	127	101	---
TOTAL	5975	5011	2812	4796	5117	7562	7957	5650	2922	4703	3505	2816
MEAN	193	167	90.7	155	176	244	265	182	97.4	152	113	93.9
MAX	286	290	237	292	311	296	301	286	184	268	281	200
MIN	50	93	48	47	77	165	184	115	62	85	63	48
AC-FT	11850	9940	5580	9510	10150	15000	15780	11210	5800	9330	6950	5590

CAL YR 1975 TOTAL 60663 MEAN 166 MAX 292 MIN 48 AC-FT 120300
WTR YR 1976 TOTAL 58826 MEAN 161 MAX 311 MIN 47 AC-FT 116700

16588000 WAILOA DITCH AT HONOPOU, NEAR HUELO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 24...	1600	291	50	25	9	3	2.5	.6	2.8
APR. 27...	1300	188	3	2	10	0	2.0	1.1	4.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 24...	40	.4	.4	7	0	6	5.6	2.0	4.4
APR. 27...	50	.6	.5	17	0	14	4.3	1.9	6.3

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 24...	.0	3.9	21	.03	.08	.00	160	0
APR. 27...	.0	7.7	33	.04	.04	.00	70	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 24...	1600	291	28	6.3	18.5
JAN. 20...	1230	184	41	7.0	16.0
MAR. 09...	1400	282	30	5.9	17.5
APR. 27...	1300	188	44	6.8	18.5
APR. 27...	1600	189	44	6.8	18.5
JUNE 21...	1300	117	47	5.9	20.0
AUG. 18...	1415	62	49	7.0	22.0

16589000 NEW HAMAKUA DITCH AT HONOPOU, NEAR HUELO

LOCATION.--Lat 20°53'28", long 156°15'22", Hydrologic Unit 20020000, on right bank 15 ft (4.6 m) upstream from tunnel portal, 600 ft (183 m) downstream from Honopou Stream crossing, and 2.1 mi (3.4 km) southwest of Huelo.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1918 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,170 ft (356.6 m) above mean sea level (by vertical angles). Prior to May 14, 1921, at site 300 ft (91 m) upstream at different datum. May 14, 1921, to Mar. 18, 1962, at present site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records excellent. Ditch diverts from streams between Waikanoi Stream and Halehaku Gulch above Center and Lowrie ditches for irrigation in central Maui.

AVERAGE DISCHARGE.--58 years, 36.4 ft^3/s (1.031 m^3/s), 26,370 acre-ft/yr (32.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 182 ft^3/s (5.15 m^3/s) Nov. 2, 1967; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.58	4.7	39	.86	96	2.5	163	139	1.2	8.1	1.1	1.1
2	52	1.6	12	.92	2.4	34	161	21	1.2	.77	1.1	46
3	149	1.4	2.7	9.9	1.9	32	163	4.8	1.1	64	.97	54
4	85	1.3	2.4	1.2	1.7	164	164	4.2	1.1	9.7	.90	1.5
5	63	1.3	2.5	27	1.6	163	160	3.5	1.0	.85	.88	1.2
6	81	1.3	2.2	63	1.6	143	142	3.2	.99	.71	1.2	32
7	153	1.3	2.1	12	2.0	163	120	2.9	.95	1.1	.84	3.8
8	124	1.3	2.1	24	64	160	82	2.6	.98	.78	.77	1.2
9	17	107	2.0	9.3	2.5	137	166	2.4	.93	1.6	.72	1.2
10	1.5	13	1.8	84	1.7	163	165	2.3	.87	40	.68	1.1
11	1.3	39	1.6	2.1	1.5	163	163	2.3	.83	114	.72	1.2
12	1.2	5.7	1.6	46	1.5	160	140	2.4	.77	30	.78	.55
13	1.1	1.8	1.6	153	1.4	95	56	3.6	.75	1.2	3.6	.49
14	1.1	1.4	1.5	135	42	39	20	2.1	.75	.88	8.6	.43
15	1.0	1.3	1.7	11	40	21	4.5	2.4	.79	.79	.72	.41
16	63	19	1.5	148	63	53	16	1.8	.81	.73	.66	.39
17	135	36	1.7	148	113	128	8.7	1.8	.78	.78	.60	.42
18	147	3.1	1.4	62	51	121	3.8	1.6	.80	.71	.53	.32
19	99	1.9	1.3	15	9.2	16	13	1.7	4.5	.63	81	.29
20	28	143	1.2	2.4	4.1	17	54	14	10	.66	141	.27
21	3.0	102	1.2	2.2	24	67	77	124	.91	91	9.2	.27
22	1.7	24	1.2	1.9	155	127	137	59	.78	31	.85	.29
23	35	9.0	1.1	1.8	95	135	153	102	.73	3.5	.71	.32
24	61	55	1.0	1.7	55	150	144	106	63	120	.64	.27
25	2.0	45	.98	1.6	33	162	29	17	1.3	105	.65	.25
26	1.5	6.8	.98	1.5	69	164	3.0	1.9	.76	3.5	.61	.34
27	9.8	104	.92	1.4	29	162	26	1.7	1.1	1.8	.63	.42
28	36	68	1.2	1.3	23	125	14	1.5	.90	1.5	60	.63
29	6.7	8.0	.92	1.3	2.7	60	155	1.5	1.4	63	40	.86
30	1.7	14	.92	1.2	---	160	168	1.4	1.0	4.9	.97	46
31	4.5	---	.86	81	---	165	---	1.3	---	1.2	.79	---
TOTAL	1366.68	822.2	95.18	1051.58	987.8	3451.5	2871.0	636.9	102.98	704.39	362.42	197.52
MEAN	44.1	27.4	3.07	33.9	34.1	111	95.7	20.5	3.43	22.7	11.7	6.58
MAX	153	143	39	153	155	165	168	139	63	120	141	54
MIN	.58	1.3	.86	.86	1.4	2.5	3.0	1.3	.73	.63	.53	.25
AC-FT	2710	1630	189	2090	1960	6850	5690	1260	204	1400	719	392

CAL YR 1975 TOTAL 10952.19 MEAN 30.0 MAX 159 MIN .02 AC-FT 21720
WTR YR 1976 TOTAL 12650.15 MEAN 34.6 MAX 168 MIN .25 AC-FT 25090

16589000 NEW HAMAKUA DITCH AT HONOPOU, NEAR HUELO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV.									
24...	1230	8.2	22	3	18	14	5.1	1.2	1.1
MAR.									
09...	1300	124	30	8	10	0	1.2	1.6	4.1

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV.									
24...	12	.1	.4	5	0	4	6.4	1.8	7.0
MAR.									
09...	47	.6	.4	12	0	10	30	2.4	5.3

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV.								
24...	.0	6.7	26	.04	.10	.00	100	0
MAR.								
09...	.0	5.3	27	.04	.08	.00	130	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV.					
24...	1230	8.2	44	6.1	19.0
JAN.					
20...	1400	2.4	60	6.9	17.0
FEB.					
26...	1230	75	40	5.9	17.0
MAR.					
09...	1300	124	35	5.8	17.5
APR.					
27...	1300	40	42	7.0	18.0
JUNE					
21...	1130	.92	57	6.1	22.0
AUG.					
18...	1100	.64	63	7.1	22.5

16592000 LOWRIE DITCH AT HONOPOU GULCH, NEAR HUELO

LOCATION.--Lat 20°54'57", long 156°15'08", Hydrologic Unit 20020000, on left bank 0.2 mi (0.3 km) downstream from siphon across Honopou Stream, 1.6 mi (2.6 km) west of Huelo, and 2.7 mi (4.3 km) northwest of Kailua.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1910 to March 1927, February 1930 to current year. Published as "at Opana weir, near Huelo" 1910-27.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 598.0 ft (182.27 m) above mean sea level. Jan. 1, 1910, to Mar. 31, 1927, at site 1.5 mi (2.4 km) downstream at different datum.

REMARKS.--Records good. Lowrie ditch receives water from Center ditch at Nailiilihaele Stream and diverts from additional streams westward to Maliko Gulch for irrigation in central Maui.

AVERAGE DISCHARGE.--62 years (water years, 1911-26, 1931-76), 37.8 ft^3/s (1.070 m^3/s), 27,390 acre-ft/yr (33.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily, discharge, 116 ft^3/s (3.29 m^3/s) Oct. 31, 1921; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	10	46	5.9	70	36	75	74	13	8.2	25	4.3
2	18	8.0	29	5.7	21	29	72	47	13	7.0	14	6.3
3	77	7.1	24	9.0	17	24	74	36	13	8.5	14	12
4	23	7.1	23	7.5	15	70	76	33	13	8.4	13	5.3
5	23	6.8	26	13	6.2	52	70	29	12	6.2	7.2	4.9
6	32	6.6	22	46	5.0	49	62	37	10	5.6	8.7	6.3
7	67	7.3	17	29	13	49	48	33	13	6.6	6.4	14
8	47	8.4	27	28	46	46	47	26	9.5	5.8	5.6	9.8
9	35	68	21	28	8.3	63	75	34	7.6	5.6	5.3	7.1
10	29	21	15	44	4.1	78	75	24	7.1	7.5	5.0	6.2
11	26	33	10	20	3.8	77	70	15	6.7	43	5.7	6.0
12	14	27	9.6	20	3.6	74	62	21	6.3	15	6.5	6.6
13	7.7	21	10	82	3.4	62	43	25	6.1	19	7.1	5.2
14	6.5	18	9.1	81	4.0	42	46	22	5.9	16	7.7	4.7
15	7.0	10	10	19	7.5	38	26	18	4.4	15	5.5	4.5
16	11	14	9.1	87	25	44	23	15	2.8	11	4.9	3.9
17	65	24	10	79	28	72	26	13	3.0	7.2	4.5	4.6
18	69	12	8.4	33	13	72	25	12	5.9	5.5	4.2	3.7
19	56	9.8	7.8	20	5.6	38	25	12	7.3	5.0	20	3.4
20	30	79	7.3	21	5.2	38	29	14	7.9	5.1	63	3.2
21	23	63	7.0	32	16	57	35	38	6.3	19	18	3.1
22	18	32	6.8	29	66	72	66	18	5.4	23	16	3.3
23	23	31	6.6	11	65	66	78	44	5.2	13	15	3.8
24	41	43	6.6	14	35	67	70	51	11	33	17	3.4
25	16	29	6.3	14	12	76	40	22	7.6	45	19	2.8
26	19	14	6.0	27	13	77	25	17	5.5	18	17	4.0
27	24	90	5.9	17	12	77	27	32	6.8	15	13	4.1
28	29	44	8.1	14	28	61	26	16	6.9	15	15	5.9
29	25	17	6.2	8.9	21	49	88	16	10	30	22	4.4
30	13	16	5.8	8.3	---	75	90	16	7.6	24	17	21
31	9.6	---	5.8	59	---	77	---	15	---	30	5.0	---
TOTAL	887.3	777.1	412.4	912.3	572.7	1807	1594	825	239.8	476.2	407.3	177.8
MEAN	28.6	25.9	13.3	29.4	19.7	58.3	53.1	26.6	7.99	15.4	13.1	5.93
MAX	77	90	46	87	70	78	90	74	13	45	63	21
MIN	3.5	6.6	5.8	5.7	3.4	24	23	12	2.8	5.0	4.2	2.8
AC-FT	1760	1540	818	1810	1140	3580	3160	1640	476	945	808	353

CAL YR 1975 TOTAL 9630.9 MEAN 26.4 MAX 103 MIN 3.5 AC-FT 19100
WTR YR 1976 TOTAL 9088.9 MEAN 24.8 MAX 90 MIN 2.8 AC-FT 18030

16592000 LOWRIE DITCH AT HONOPOU GULCH, NEAR HUELO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 01...	1230	17	15	9	12	1	2.1	1.6	6.6
MAR. 05...	1545	52	35	10	9	0	1.1	1.6	5.1

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 01...	53	.8	.6	13	0	11	2.6	2.5	10
MAR. 05...	53	.7	.5	11	0	9	35	2.9	6.9

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 01...	.1	8.5	39	.05	.01	.01	90	0
MAR. 05...	.0	4.6	28	.04	.00	.00	130	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 01...	1230	17	65	6.9	21.0
JAN. 20...	1315	16	66	7.0	18.0
MAR. 05...	1545	52	43	5.7	18.0
APR. 26...	1300	25	58	7.0	21.5
JUNE 18...	1330	6.1	83	6.3	23.0
AUG. 17...	1335	4.4	79	8.5	27.0

16594000 HAIKU DITCH AT HONOPOU GULCH, NEAR KAILUA

LOCATION.--Lat 20°55'07", long 156°14'58", Hydrologic Unit 20020000, on right bank on west side of Honopou Gulch, 160 ft (49 m) below new Government Road, 2.5 mi (4.0 km) northwest of Kailua, and 5.0 mi (8.0 km) east of Haiku.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1910 to December 1928, February 1930 to current year. Published as "at Peahi weir, near Huelo" prior to July 1919, as "at Manawai Gulch, near Peahi" July 1919 to December 1928, and as "at Kapalalaea Gulch, near Huelo" February 1930 to January 1940. Monthly discharge only for some periods, published in WSP 1319.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 421.54 ft (128.485 m) above mean sea level. Prior to Oct. 7, 1914, at site at Peahi weir on old Haiku ditch at different datum. Oct. 7, 1914, to Dec. 31, 1928, at site 2.9 mi (4.7 km) downstream at different datum. Feb. 19, 1930, to Feb. 20, 1940, at site 0.9 mi (1.4 km) downstream at different datum.

REMARKS.--Records excellent. Ditch diverts from all streams between Nailiilihaele Stream and Maliko Gulch for irrigation in central Maui.

AVERAGE DISCHARGE.--61 years (water years, 1911, 1914, 1916-28, 1931-76), 25.5 ft^3/s (0.722 m^3/s), 18,470 acre-ft/yr (22.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 209 ft^3/s (5.92 m^3/s) Nov. 13, 1934, Jan. 8, 9, Feb. 25-27, 1935, Jan. 27, 1938; no flow at times.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	.35	22	.90	49	2.9	45	67	1.5	.78	1.7	.73
2	13	.31	9.8	.87	4.9	5.3	36	4.3	1.5	.74	1.3	.48
3	99	.28	3.8	1.1	3.9	4.2	41	3.8	1.5	.72	.56	.54
4	4.8	.29	2.8	.96	3.1	70	43	3.5	1.2	.86	.45	.42
5	2.4	.29	3.0	2.9	9.3	57	29	3.1	.92	.66	.46	.38
6	2.2	.35	2.6	22	18	51	25	3.0	.87	.68	.60	.42
7	68	.36	2.4	1.7	2.2	55	8.6	2.9	.82	.81	.49	.35
8	5.7	.48	2.8	1.4	12	54	29	2.6	.83	.65	.45	.29
9	2.0	44	3.0	1.4	12	50	88	2.6	.79	.52	.40	.36
10	1.5	1.8	2.3	8.4	11	42	52	2.5	.99	.69	.38	.35
11	1.3	1.9	2.2	1.2	10	39	26	2.5	1.2	24	.58	.37
12	.56	1.1	2.2	1.2	9.4	37	22	2.4	1.0	3.9	.65	.35
13	.43	.82	2.1	47	9.0	18	4.0	2.2	.99	2.3	.56	.31
14	.40	.38	2.0	45	10	14	4.0	2.1	1.1	.78	.47	.32
15	.44	.35	1.9	1.6	11	9.1	3.5	2.0	2.0	.59	.40	.30
16	.45	.85	1.8	87	94	6.2	3.3	1.9	4.5	.53	.45	.30
17	53	.92	1.6	74	62	36	3.3	1.9	3.5	.52	.32	.41
18	40	.59	1.3	5.1	16	50	3.8	1.8	1.2	.48	.32	.30
19	27	.56	1.3	2.4	12	5.6	3.3	1.7	.86	.46	7.8	.22
20	3.4	76	1.2	1.9	10	5.3	3.0	1.7	.82	.47	78	.16
21	2.3	33	1.2	1.9	4.5	42	3.7	13	.77	1.0	2.3	.15
22	.54	3.6	1.2	1.7	33	67	69	2.2	.71	1.1	1.9	.22
23	.56	2.7	1.2	1.7	65	60	53	9.9	.68	.76	1.6	.20
24	14	3.3	1.2	1.5	48	36	56	23	.75	2.7	1.4	.24
25	2.4	2.7	1.2	.92	14	80	4.4	2.8	.69	25	.79	.19
26	1.8	2.3	1.1	.61	51	72	2.8	1.8	.71	2.6	.68	.29
27	.76	63	1.1	.58	16	46	2.6	1.7	.79	1.8	.63	.24
28	.42	19	1.1	.61	4.4	7.4	2.5	1.7	.70	.64	1.8	.45
29	.41	5.7	.99	.60	3.0	6.4	60	1.7	.92	13	2.0	.30
30	.34	5.0	.99	.58	---	61	104	1.6	.75	2.3	1.5	22
31	.34	---	.94	22	---	44	---	1.5	---	1.9	1.1	---
TOTAL	349.69	272.28	84.32	340.73	599.7	1133.4	830.8	176.4	35.56	93.94	112.02	31.64
MEAN	11.3	9.08	2.72	11.0	20.7	36.6	27.7	5.69	1.19	3.03	3.61	1.05
MAX	99	76	22	87	94	80	104	67	4.5	25	78	22
MIN	.24	.28	.94	.58	2.2	2.9	2.5	1.5	.68	.46	.32	.15
AC-FT	694	540	167	676	1190	2250	1650	350	71	186	222	63

CAL YR 1975	TOTAL	3204.74	MEAN	8.78	MAX 99	MIN .24	AC-FT	6360
WTR YR 1976	TOTAL	4060.48	MEAN	11.1	MAX 104	MIN .15	AC-FT	8050

16594000 HAIKU DITCH AT HONOPOU GULCH, NEAR KAILUA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV.									
20...	1645	92	75	30	11	6	3.4	.7	3.1
APR.									
26...	1400	2.8	6	4	17	3	2.7	2.6	11

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV.									
20...	36	.4	.4	7	0	6	18	2.4	5.7
APR.									
26...	57	1.1	.7	18	0	15	2.3	4.9	17

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV.								
20...	.0	2.6	22	.03	.04	.00	210	5
APR.								
26...	.0	9.8	58	.08	.15	.00	190	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV.					
20...	1645	92	32	5.8	19.5
JAN.					
20...	1100	1.9	80	7.0	19.0
MAR.					
05...	1415	65	41	5.4	18.5
APR.					
23...	1000	15	55	6.5	19.0
26...	1400	2.8	95	7.1	22.0
JUNE					
18...	1050	1.4	102	6.1	22.5
AUG.					
17...	1235	.32	112	7.4	24.0

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 (0.5 km) north of Kailiili, and 2.7 mi (4.3 km) east of Makawao.

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 2,340 ft (713 m), from topographic map.

REMARKS.--Records excellent. Tunnel diverts from Opana Gulch for domestic use in the Kokomo, Makawao and Pukalani areas.

AVERAGE DISCHARGE.--11 years, 3.14 ft^3/s (0.089 m^3/s), 2,270 acre-ft/yr (2.80 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 13 ft^3/s (0.37 m^3/s) Apr. 1, 1969, Apr. 9, 10, 1972, Nov. 12, 1973; minimum daily, 0.11 ft^3/s (0.003 m^3/s) Nov. 5-10, 1973, Oct. 5, 6, 25, 26, 1974.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.65	2.3	.40	8.5	5.4	9.0	7.1	1.3	.86	.41	.24
2	2.2	.60	2.3	.42	3.8	5.7	8.8	5.0	1.2	.81	.44	.41
3	7.3	.54	1.9	.80	2.1	4.6	8.6	4.4	1.1	1.1	.39	.59
4	3.1	.49	1.6	.58	1.6	9.6	9.7	4.1	1.1	1.0	.32	.37
5	2.1	.44	1.5	.64	1.4	8.9	8.5	3.8	1.0	.70	.28	.27
6	1.7	.40	1.4	1.2	1.4	7.0	8.2	3.5	1.0	.56	.29	.24
7	2.9	.36	1.2	.69	1.9	8.1	7.5	3.4	.95	.52	.27	.22
8	2.4	.45	1.2	.63	2.4	8.8	7.6	3.1	.95	.50	.24	.20
9	1.3	3.7	1.3	.68	2.0	8.7	9.8	2.9	.86	.46	.24	.20
10	.91	1.8	1.1	1.0	1.7	10	8.6	2.8	.80	.60	.24	.21
11	.69	1.9	.96	.70	1.5	10	7.7	2.9	.76	1.7	.24	.22
12	.55	1.3	.91	.96	1.3	9.0	7.1	2.7	.71	1.4	.24	.23
13	.47	.90	.86	1.5	1.4	7.7	6.3	2.5	.70	.91	.28	.20
14	.42	.71	.82	1.0	5.3	6.3	5.8	2.3	.67	.69	.33	.17
15	.43	.60	.79	.91	10	5.5	5.3	2.2	.72	.61	.30	.17
16	.72	.63	.75	12	8.9	5.0	6.4	2.1	.69	.51	.35	.17
17	5.0	.82	.81	9.7	6.7	5.3	5.9	2.0	.64	.44	.28	.17
18	5.3	.61	.73	6.4	4.1	7.4	5.1	1.9	.75	.39	.25	.16
19	3.7	.50	.64	3.5	2.9	4.9	4.8	1.8	.95	.36	1.4	.15
20	2.4	7.8	.59	2.5	2.3	4.2	5.6	2.3	.91	.35	3.9	.15
21	1.6	4.9	.58	2.0	3.0	5.0	7.1	3.5	.71	.53	1.4	.15
22	1.2	2.5	.52	1.7	9.3	5.0	9.5	2.8	.64	.78	.70	.15
23	1.8	1.9	.52	1.5	10	7.1	9.4	3.2	.68	.67	.46	.15
24	2.2	3.7	.50	1.4	7.7	5.4	8.9	2.9	1.0	.93	.35	.15
25	1.3	3.4	.46	1.2	5.6	6.8	7.1	2.6	.97	1.6	.30	.15
26	1.0	2.1	.46	1.1	4.5	9.2	5.6	2.0	.73	1.1	.28	.16
27	1.1	9.6	.45	1.0	4.1	7.3	4.9	1.8	.72	.73	.31	.20
28	1.3	6.9	.44	.98	5.0	5.2	4.7	1.6	.69	.55	.73	.20
29	1.1	3.1	.41	.92	4.3	5.2	6.4	1.5	.67	.64	.63	.27
30	.88	2.4	.41	.86	---	9.1	7.6	1.4	.80	.60	.33	1.7
31	.73	---	.41	6.0	---	9.9	---	1.3	---	.46	.28	---
TOTAL	57.98	65.70	28.82	64.87	124.7	217.3	217.5	87.4	25.37	23.06	16.46	8.02
MEAN	1.87	2.19	.93	2.09	4.30	7.01	7.25	2.82	.85	.74	.53	.27
MAX	7.3	9.6	2.3	12	10	10	9.8	7.1	1.3	1.7	3.9	1.7
MIN	.18	.36	.41	.40	1.3	4.2	4.7	1.3	.64	.35	.24	.15
AC-FT	115	130	57	129	247	431	431	173	50	46	33	16

CAL YR 1975 TOTAL 845.80 MEAN 2.32 MAX 11 MIN .18 AC-FT 1680
WTR YR 1976 TOTAL 937.18 MEAN 2.56 MAX 12 MIN .15 AC-FT 1860

16599500 OPANA TUNNEL AT KAILIILI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-74.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 25...	1515	3.0	40	3	8	0	1.9	.9	2.7
MAR. 10...	1600	10	40	2	6	0	1.1	.8	2.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 25...	40	.4	.4	12	0	10	24	1.5	4.3
MAR. 10...	45	.4	.3	9	0	7	36	2.2	2.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 25...	.0	4.9	23	.03	.13	.00	220	0
MAR. 10...	.0	3.1	17	.02	.04	.00	110	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 25...	1515	3.0	32	5.9	18.0
JAN. 21...	1200	2.0	40	6.1	18.5
MAR. 10...	1600	10	23	5.6	15.0
APR. 28...	1010	4.5	42	6.8	16.5
JUNE 22...	1330	.65	63	5.8	18.5
AUG. 13...	1430	.27	73	7.0	19.0

16618000 KAHAKULOA STREAM NEAR HONOKOHAU
(National stream-quality accounting network station)

LOCATION.--Lat 20°58'54", long 156°33'26", Hydrologic Unit 20020000, on right bank 0.5 mi (0.8 km) downstream from Kapuna Stream, 1.3 mi (2.1 km) south of Kahakuloa, 2.0 mi (3.2 km) west of Puu Makawana, and 4.3 mi (6.9 km) southeast of Honokohau.

DRAINAGE AREA.--3.47 mi² (8.99 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1939 to August 1943, September 1947 to November 1970, December 1974 to current year. Records for January 1913 to December 1914 (fragmentary) at site 1.0 mi (1.6 km) upstream not equivalent owing to difference in drainage areas.

REVISED RECORDS (FISCAL YEARS).--WSP 1319: 1948, 1949(M). WSP 1569: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 330 ft (101 m), from topographic map.

REMARKS.--Records good. No diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,800 ft³/s (108 m³/s) Nov. 25, 1970, gage height, 10.57 ft (3.222 m), from floodmarks, from rating curve extended above 510 ft³/s (14.4 m³/s) on basis of slope-area measurements at gage heights 6.70 ft (2.042 m), 8.48 ft (2.585 m), and 10.57 ft (3.222 m); minimum, 3.0 ft³/s (0.085 m³/s) Feb. 9-11, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 20	1000	767	21.7	5.61	1.710
Mar. 4	0230	*1880	53.2	7.01	2.137
Apr. 30	0730	526	14.9	5.19	1.582

Minimum discharge, 3.6 ft³/s (0.10 m³/s) Dec. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	5.3	18	4.5	11	8.4	11	17	6.0	9.9	5.3	4.6
2	4.3	4.8	13	4.0	4.8	28	15	8.7	4.8	6.6	5.5	12
3	20	4.6	9.1	4.6	4.2	29	9.5	17	4.6	6.6	4.8	8.2
4	7.6	4.3	6.3	4.3	4.0	227	31	8.2	4.6	5.6	4.6	5.2
5	6.3	4.1	8.8	5.6	4.2	51	9.2	6.9	4.6	5.0	4.6	4.7
6	5.6	4.4	6.0	5.6	51	13	8.1	6.9	4.6	8.2	23	4.6
7	30	4.2	5.2	5.1	9.8	27	9.4	6.6	4.3	14	5.6	5.6
8	19	4.5	4.9	6.1	5.6	18	47	6.1	4.4	6.3	4.9	4.3
9	9.3	7.9	4.8	5.9	5.0	46	32	5.8	4.7	5.3	4.7	5.7
10	7.2	4.7	4.5	5.0	4.8	105	9.3	5.4	4.4	14	4.6	7.5
11	5.7	4.9	4.4	4.5	4.5	25	7.5	10	4.4	21	5.4	7.7
12	5.1	4.5	4.3	6.6	4.3	13	6.7	20	4.3	10	5.4	6.6
13	4.8	4.2	4.4	8.5	4.3	8.6	6.1	7.0	4.1	6.7	7.1	5.0
14	4.5	4.0	4.2	7.8	4.7	7.1	5.8	6.5	4.1	5.7	7.7	4.5
15	4.5	3.9	4.3	6.4	16	6.3	5.7	6.9	4.2	6.4	5.2	4.2
16	6.2	44	4.2	79	9.2	9.1	6.6	5.9	4.3	5.3	4.7	4.1
17	12	32	4.2	14	5.5	46	7.4	5.6	4.4	4.9	4.5	8.9
18	12	6.3	4.1	9.8	4.9	24	9.7	5.3	6.9	4.9	4.5	4.9
19	14	6.6	4.0	5.5	4.5	8.1	6.6	5.5	13	4.7	7.0	4.2
20	8.4	133	3.9	4.8	4.2	12	6.0	6.3	7.0	5.0	11	4.1
21	5.9	15	3.9	4.6	4.5	14	5.9	6.0	5.7	39	5.2	4.0
22	4.9	9.0	3.9	4.3	18	19	9.2	6.0	6.3	15	4.5	4.2
23	30	6.6	3.8	4.1	27	17	15	11	6.4	11	4.4	6.3
24	11	43	3.8	4.0	6.3	10	11	12	33	87	4.3	4.8
25	5.8	23	3.8	4.0	5.0	7.7	9.7	7.2	6.7	41	4.3	4.1
26	5.2	7.7	3.8	3.9	5.2	13	6.3	5.5	5.1	9.7	4.5	18
27	5.4	29	3.7	3.8	23	7.1	6.2	5.5	6.9	8.1	4.8	8.0
28	5.9	7.1	3.7	3.9	7.4	6.6	5.4	5.0	10	9.5	4.9	16
29	6.8	5.9	3.7	3.8	5.0	6.4	69	5.0	21	7.6	10	12
30	5.2	6.9	10	3.7	---	12	127	5.0	7.3	6.4	5.8	14
31	4.7	---	7.8	18	---	43	---	4.9	---	5.4	6.0	---
TOTAL	281.2	445.4	174.5	255.7	267.9	867.4	514.3	240.7	212.1	395.8	188.8	208.0
MEAN	9.07	14.8	5.63	8.25	9.24	28.0	17.1	7.76	7.07	12.8	6.09	6.93
MAX	30	133	18	79	51	227	127	20	33	87	23	18
MIN	3.9	3.9	3.7	3.7	4.0	6.3	5.4	4.9	4.1	4.7	4.3	4.0
AC-FT	558	883	346	507	531	1720	1020	477	421	785	374	413

CAL YR 1975 TOTAL 3835.5 MEAN 10.5 MAX 317 MIN 3.7 AC-FT 7610
WTR YR 1976 TOTAL 4051.8 MEAN 11.1 MAX 227 MIN 3.7 AC-FT 8040

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1974 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT.											
06...	1200	5.3	82	6.9	21.0	4	0	530	250	22	0
NOV.											
03...	1200	4.6	88	7.4	20.5	2	1	780	350	25	3
DEC.											
08...	1200	4.7	80	6.7	20.0	9	1	540	590	21	0
JAN.											
12...	1200	5.5	82	7.6	19.5	5	1	300	630	22	0
FEB.											
17...	1230	5.1	83	6.4	19.0	8	1	940	140	26	7
MAR.											
15...	1230	6.1	76	6.8	18.0	7	0	460	340	20	0
APR.											
12...	1300	7.0	72	7.1	19.0	0	1	450	220	18	2
MAY											
10...	1330	5.2	77	7.8	21.0	2	0	200	120	21	0
JUNE											
07...	1330	4.3	85	6.2	20.5	2	0	900	370	20	0
JULY											
06...	1000	4.9	82	6.9	21.0	4	0	8110	190	18	0
AUG.											
02...	1100	5.5	76	7.7	21.0	12	0	70	270	19	0
SEP.											
07...	1215	5.5	77	8.0	22.0	5	1	130	170	17	0

B Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT.											
06...	4.0	3.0	7.7	42	.7	.9	27	0	22	5.4	3.0
NOV.											
03...	5.5	2.8	7.8	39	.7	.9	27	0	22	1.7	1.9
DEC.											
08...	4.3	2.4	7.0	41	.7	.8	28	0	23	8.9	1.9
JAN.											
12...	4.7	2.6	7.4	40	.7	1.1	27	0	22	1.1	3.6
FEB.											
17...	5.7	2.8	7.4	37	.6	1.1	23	0	19	15	2.5
MAR.											
15...	3.7	2.6	7.3	43	.7	1.0	24	0	20	6.1	2.6
APR.											
12...	3.4	2.4	6.5	42	.7	.9	20	0	16	2.5	2.4
MAY											
10...	3.5	2.9	7.2	42	.7	1.0	26	0	21	.6	3.6
JUNE											
07...	3.9	2.6	8.0	45	.8	.9	26	0	21	26	5.5
JULY											
06...	3.4	2.4	7.6	46	.8	.8	28	0	23	5.6	1.9
AUG.											
02...	3.8	2.3	7.1	44	.7	.8	25	0	21	.8	5.7
SEP.											
07...	3.7	1.9	7.3	47	.8	.9	26	0	21	.4	2.6

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT. 06...	9.5	.0	17	58	58	.08	.08	.11	.19	.04
NOV. 03...	10	.1	19	64	61	.09	.08	.14	.22	.00
DEC. 08...	9.0	.0	19	64	58	.09	.18	.00	.18	.02
JAN. 12...	8.8	.1	18	55	60	.07	.13	.22	.35	.02
FEB. 17...	11	.1	16	60	58	.08	.10	.20	.30	.02
MAR. 15...	8.8	.1	16	53	54	.07	.14	.24	.38	.02
APR. 12...	9.1	.1	16	53	51	.07	.11	.13	.24	.03
MAY 10...	9.1	.1	17	49	57	.07	.08	.00	.08	.02
JUNE 07...	9.7	.1	19	60	63	.08	.05	.01	.06	.02
JULY 06...	9.5	.0	17	62	56	.08	.06	.22	.28	.03
AUG. 02...	9.1	.1	18	66	59	.09	.13	.08	.21	.03
SEP. 07...	9.9	.1	18	53	57	.07	.09	.15	.24	.01

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT. 06...	1200	0	0	0	0	10	10	<50	0	0	0	20
JAN. 12...	1200	0	0	<10	2	0	0	<50	0	<10	0	30
APR. 12...	1300	0	0	<10	1	10	0	<50	0	10	0	40
JULY 06...	1000	0	0	0	0	20	0	0	0	<10	5	0

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT. 06...	20	<100	10	20	10	.0	.0	0	0	10	10	2.5
JAN. 12...	0	<100	14	0	0	.0	.0	0	0	30	0	1.1
APR. 12...	10	<100	11	0	0	.0	.0	0	0	30	0	1.9
JULY 06...	10	0	0	0	0	.0	.1	0	0	20	20	.3

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL A MG/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL B MG/SQ M	PERI-PHYTON LENGTH OF EX-POSURE (DAYS)	PERI-PHYTON SAMPL-ING METHOD
OCT 06...	1200	220	.500	.300	7.40	.100	27	Polyethylene strip
NOV 03...	1200	170	--	--	--	--	--	
DEC 08...	1200	53	--	--	--	--	--	
JAN 12...	1200	170	4.80	4.20	61.0	15.0	35	
FEB 17...	1230	190	--	--	--	--	--	
MAR 15...	1230	240	--	--	--	--	--	
APR 12...	1300	67	4.90	3.50	15.0	.400	28	
MAY 10...	1330	620	--	--	--	--	--	
JUN 07...	1330	220	--	--	--	--	--	
JUL 06...	1000	97	6.08	4.46	22.8	1.65	30	
AUG 02...	1100	140	--	--	--	--	--	
SEP 07...	1215	380	--	--	--	--	--	

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT. 06...	1200	5.3	0	.00	100
NOV. 03...	1200	4.6	1	.01	100
DEC. 08...	1200	4.7	1	.01	100
JAN. 12...	1200	5.5	2	.03	100
FEB. 17...	1230	5.1	1	.01	100
MAR. 15...	1230	6.1	2	.03	100
APR. 12...	1300	7.0	1	.02	100
MAY 10...	1330	5.2	1	.01	100
JUNE 07...	1330	4.3	2	.02	100
JULY 06...	1000	4.9	1	.01	100
AUG. 02...	1100	5.5	10	.15	100
SEP. 07...	1215	5.5	2	.03	100

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Oct 06	1200	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	51	23	
		Rhoicosphenia	100	46	
		Cymbellaceae			
		Cymbella		L	
		Gomphonemataceae			
		Gomphonema	17	8	
		Naviculaceae			
		Navicula	17	8	
		Nitzschiaceae			
		Nitzschia	34	15	
		TOTAL	220		
Nov 03	1200	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira		L	
		Pennales			
		Achnanthaceae			
		Achnanthes		L	
		Rhoicosphenia	88	50	
		Gomphonemataceae			
		Gomphonema	29	17	
		Naviculaceae			
		Navicula	29	17	
		Nitzschiaceae			
		Nitzschia	29	17	
		TOTAL	170		
Dec 08	1200	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Rhoicosphenia	41	78	
		Gomphonemataceae			
		Gomphonema		L	
		Naviculaceae			
		Navicula	12	22	
		Nitzschiaceae			
		Nitzschia		L	
		TOTAL	53		
Jan 12	1200	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Rhoicosphenia	140	80	
		Fragilariaceae			
		Synedra	12	7	
		Gomphonemataceae			
		Gomphonema		L	
		Naviculaceae			
		Navicula	23	13	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria		L	
		TOTAL	170		

NOTE: L - Less than 1 percent; may not have been actually counted.

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Feb 17	1230	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Fragilariaceae			
		Fragilaria		L	
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	16	8	
		Naviculaceae			
		Navicula	47	25	
		Pinnularia		L	
		Nitzschiaceae			
		Nitzschia	16	8	
		Achnanthaceae			
		Rhoiocosphenia	110	58	
		TOTAL	190		
Mar 15	1230	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Gomphonemataceae			
		Gomphonema	4	2	
		Achnanthaceae			
		Rhoiocosphenia	21	9	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	210	89	
		TOTAL	240		
Apr 12	1300	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Oocystaceae			
		Ankistrodesmus	4	7	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	18	27	
		Cymbellaceae			
		Cymbella		L	
		Fragilariaceae			
		Synedra		L	
		Gomphonemataceae			
		Gomphonema	18	27	
		Naviculaceae			
		Navicula	4	7	
		Achnanthaceae			
		Rhoiocosphenia	22	33	
		TOTAL	67		
May 10	1330	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Achnanthaceae,			
		Achnanthes	7	1	
		Cymbellaceae			
		Cymbella		L	
		Gomphonemataceae			
		Gomphonema	15	2	
		Naviculaceae			
		Navicula	22	4	
		Achnanthaceae			
		Rhoiocosphenia	22	4	
		CYANOPHYTA			
		Myxophyceae			
		Chroococcales			
		Chroococcaceae			
		Anacystis	560	89	
		TOTAL	620		

NOTE: L - Less than 1 percent; may not have been actually counted.

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
June 07	1330	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	4	2	
		Pennales			
		Achnanthaceae			
		Achnanthes	4	2	
		Fragilariaceae			
		Synedra	8	3	
		Gomphonemataceae			
		Gonphonema	77	34	
		Naviculaceae			
		Navicula	23	10	
		Nitzschiaceae			
		Nitzschia	15	7	
		Achnanthaceae			
		Rhoiocosphenia	92	41	
		TOTAL	220		
July 06	1000	CHRYSOPHYTA			Depth-Integrated
		Bacillariophyceae			
		Pennales			
		Cymbellaceae			
		Cymbella		L	
		Gomphonemataceae			
		Gomphonema	9	10	
		Naviculaceae			
		Navicula	5	5	
		Pinnularia	5	5	
		Nitzschiaceae			
		Nitzschia	5	5	
		Achnanthaceae			
		Rhoiocosphenia	74	76	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Spirulina		L	
		TOTAL	97		
Aug 02	1100	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Volvocales			
		Chlamydomonadaceae			
		Chlamydomonas	5	4	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Fragilariaceae			
		Fragilaria	5	4	
		Synedra	10	7	
		Gomphonemataceae			
		Gonphonema	5	4	
		Naviculaceae			
		Navicula	5	4	
		Nitzschiaceae			
		Nitzschia	5	4	
		Achnanthaceae			
		Rhoiocosphenia	52	36	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	57	39	
		TOTAL	140		

NOTE: L - Less than 1 percent; may not have been actually counted.

HAWAII, ISLAND OF MAUI

16618000 KAHAKULOA STREAM NEAR HONOKOHAU--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
					Depth-Integrated
Sept 07	1215	CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Naviculaceae			
		Navicula	26	7	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	350	93	
		TOTAL	380		

16620000 HONOKOHAU STREAM NEAR HONOKOHAU

LOCATION.--Lat 20°57'48", long 156°35'22", Hydrologic Unit 20020000, on right bank 1,000 ft (305 m) upstream from intake of Honokohau ditch and 4.1 mi (6.6 km) southeast of Honokohau.

DRAINAGE AREA.--4.11 mi^2 (10.64 km^2).

WATER-DISCHARGE RECORDS

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 current year. Monthly discharge only for some periods, published in WSP 1319.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder and masonry control. Altitude of gage is 870 ft (265 m), from topographic map. Prior to Mar. 7, 1913, nonrecording gage at site just below Honokohau ditch intake at different datum.

REMARKS.--Records good. No diversion above station. All medium and low flow, together with the inflow from two development tunnels below station, is diverted into Honokohau ditch.

AVERAGE DISCHARGE.--60 years (water years, 1914-19, 1923-76), 39.3 ft^3/s (1.114 m^3/s), 28,470 acre-ft/yr (35.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,740 ft^3/s (106 m^3/s) Dec. 14, 1942, Aug. 30, 1957, gage height, 8.40 ft (2.560 m), from rating curve extended above 480 ft^3/s (13.6 m^3/s); minimum, 8.4 ft^3/s (0.24 m^3/s) May 1, 1945, Jan. 5, 1946.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,130 ft^3/s (32.0 m^3/s) Mar. 4, gage height, 5.43 ft (1.655 m), from rating curve extended above 480 ft^3/s (13.6 m^3/s), no other peak above base of 1,100 ft^3/s (31.2 m^3/s); minimum, 11 ft^3/s (0.31 m^3/s) on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	49	11	20	15	21	24	14	34	14	13
2	35	12	33	11	12	24	33	17	14	18	18	41
3	68	11	18	14	11	19	27	22	14	26	14	34
4	33	11	14	13	11	230	82	28	14	15	14	15
5	18	11	21	15	12	65	19	21	14	14	14	13
6	30	11	13	15	66	19	19	20	14	22	40	13
7	114	12	12	17	19	37	21	16	14	30	15	13
8	35	15	12	24	13	71	125	15	15	18	14	13
9	15	28	12	17	12	46	91	15	16	18	13	26
10	17	18	12	25	11	93	33	35	15	52	13	34
11	16	24	12	13	11	26	18	57	14	61	17	19
12	13	13	12	33	11	17	22	45	14	28	16	18
13	12	11	12	29	13	14	17	22	14	17	23	14
14	13	11	11	18	17	13	15	19	14	14	23	13
15	22	11	12	12	51	13	22	22	19	16	14	13
16	33	44	12	234	23	14	32	16	18	14	14	12
17	43	36	16	31	16	48	23	19	16	14	13	18
18	33	13	12	17	13	36	56	16	23	14	13	13
19	47	13	11	13	16	15	19	17	48	23	40	12
20	21	153	11	12	13	34	18	26	23	29	67	12
21	14	28	11	12	15	44	16	32	27	127	15	12
22	13	14	11	11	101	40	36	19	37	43	13	12
23	20	12	11	11	93	62	50	26	22	30	13	13
24	15	71	11	11	16	63	45	51	56	125	13	13
25	13	33	11	11	13	31	26	22	16	56	13	12
26	13	15	11	11	12	33	15	18	14	20	13	43
27	19	53	11	11	14	19	14	19	22	27	17	20
28	24	13	11	11	12	39	14	15	21	24	48	37
29	18	13	11	11	11	30	86	21	31	21	36	23
30	13	16	13	11	---	37	158	16	20	16	15	17
31	12	---	12	35	---	77	---	15	---	14	16	---
TOTAL	803	738	441	720	658	1324	1173	726	613	980	621	561
MEAN	25.9	24.6	14.2	23.2	22.7	42.7	39.1	23.4	20.4	31.6	20.0	18.7
MAX	114	153	49	234	101	230	158	57	56	127	67	43
MIN	11	11	11	11	11	13	14	15	14	14	13	12
AC-FT	1590	1460	875	1430	1310	2630	2330	1440	1220	1940	1230	1110

CAL YR 1975 TOTAL 8833 MEAN 24.2 MAX 262 MIN 11 AC-FT 17520
WTR YR 1976 TOTAL 9358 MEAN 25.6 MAX 234 MIN 11 AC-FT 18560

HAWAII, ISLAND OF MAUI

16620000 HONOKOHAU STREAM NEAR HONOKOHAU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 28...	1300	13	10	0	18	0	4.0	1.9	4.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 28...	34	.4	.6	26	0	21	2.6	1.0	5.0

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 28...	.0	19	49	.07	.06	.00	20	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 28...	1300	13	60	7.2	20.0
JAN. 22...	1200	11	66	7.1	18.0
MAR. 11...	1400	23	50	6.7	16.0
APR. 30...	1400	138	27	6.8	16.0
JUNE 23...	1215	17	55	7.2	20.0
AUG. 20...	1200	90	33	6.4	18.5

16638500 KAHOMA STREAM AT LAHAINA

LOCATION.--Lat 20°53'10", long 156°40'36", Hydrologic Unit 20020000, on right bank 0.2 mi (0.3 km) west of Kelawea, 0.6 mi (1.0 km) northeast of Lahaina, 0.6 mi (1.0 km) downstream from Kanaha Stream, and 0.9 mi (1.4 km) upstream from mouth.

DRAINAGE AREA.--5.22 mi^2 (13.52 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS (WATER YEARS).--WSP 2137: 1963-65(P).

GAGE.--Water-stage recorder. Altitude of gage is 90 ft (27 m), from topographic map.

REMARKS.--Records fair except those below 10 ft^3/s (0.28 m^3/s), which are poor. Diversion above station by Pioneer Mill Co. for irrigation of sugarcane. Diversion fron Kanaha Stream above station by Maui County Board of Water Supply for domestic use. Recording rain gage located at station.

AVERAGE DISCHARGE.--13 years (water years 1964-76), 3.73 ft^3/s (0.106 m^3/s), 2,700 acre-ft/yr (3.33 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,490 ft^3/s (70.5 m^3/s) July 11, 1965, gage height, 11.03 ft (3.362 m), from rating curve extended above 206 ft^3/s (5.83 m^3/s) on basis of slope-area measurements at gage heights 7.58 ft (2.310 m), 8.07 ft (2.460 m), and 11.03 ft (3.362 m); no flow many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge of flood of May 13, 1960, 7,750 ft^3/s (219 m^3/s), by slope-area measurement at site 0.5 mi (0.8 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 380 ft^3/s (10.8 m^3/s) Feb. 23, gage height, 6.82 ft (2.079 m), no peak above base of 590 ft^3/s (16.7 m^3/s); minimum, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN 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	.03	0		0	0	0	.01	0	0	0	0	
3	.01	0		0	0	0	0	0	0	0	0	
4	.01	0		0	0	1.8	0	0	0	0	0	
5	0	0		0	0	0	0	0	0	0	0	
6	0	0		0	18	0	0	0	0	0	0	
7	0	0		0	0	0	0	0	0	0	0	
8	0	0		0	0	.01	2.1	0	0	0	0	
9	0	.01		0	0	0	1.2	0	0	0	0	
10	0	0		0	0	0	.03	0	0	.01	0	
11	0	0		0	0	0	0	.08	0	8.6	0	
12	0	0		.06	0	0	0	.01	0	0	0	
13	0	0		0	0	0	0	0	0	0	0	
14	0	0		0	0	0	0	0	0	0	0	
15	0	0		0	8.4	0	0	0	0	0	0	
16	0	0		.01	0	0	0	0	0	0	0	
17	0	0		0	0	0	0	0	0	0	0	
18	0	0		0	0	.05	0	0	0	0	0	
19	0	0		0	0	0	0	0	0	0	2.0	
20	0	0		0	0	0	0	0	0	0	0	
21	0	0		0	2.0	0	0	.09	0	0	0	
22	0	0		0	29	.01	1.1	0	0	0	0	
23	0	0		0	64	0	0	0	0	0	0	
24	0	1.1		0	0	0	0	0	0	.43	0	
25	0	0		0	0	0	0	0	0	2.7	0	
26	0	0		0	0	0	0	0	0	0	0	
27	0	0		0	0	0	0	.21	0	0	0	
28	0	0		0	0	0	0	0	0	0	.54	
29	0	0		0	0	0	0	0	0	0	.02	
30	0	0		0	---	0	0	0	.01	0	0	
31	0	---		0	---	.01	---	0	---	0	0	---
TOTAL	.05	1.11	0	.07	121.4	1.88	4.44	.39	.01	11.74	2.56	0
MEAN	.002	.037	0	.002	4.19	.061	.15	.013	.0003	.38	.083	0
MAX	.03	1.1	0	.06	64	1.8	2.1	.21	.01	8.6	2.0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	.10	2.2	0	.1	241	3.7	8.8	.8	.02	23	5.1	0

CAL YR 1975 TOTAL 325.25 MEAN .89 MAX 40 MIN 0 AC-FT 645
WTR YR 1976 TOTAL 143.65 MEAN .39 MAX 64 MIN 0 AC-FT 285

HAWAII, ISLAND OF MAUI

16638500 KAHOMA STREAM AT LAHAINA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
FEB 06...	1330	11	80	200	17	0	4.5	1.3	11

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
FEB 06...	54	1.2	2.7	27	0	22	0.7	5.5	15

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
FEB 06...	.1	2.8	58	.08	.32	.16	110	30

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
FEB 06...	1330	11	98	7.8	19.5

16700000 WAIAKEA STREAM NEAR MOUNTAIN VIEW

LOCATION.--Lat 19°38'30", long 155°10'28", Hydrologic Unit 20010000, on left bank 200 ft (61 m) upstream from Olaa Flume Road, 7.3 mi (11.7 km) northwest of Mountain View, and 8.0 mi (12.9 km) southwest of Hilo Post Office.

DRAINAGE AREA.--17.4 mi^2 (45.1 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1930 to current year. Prior to July 1960, published as "at middle flume house, near Mountain View."

REVISED RECORDS (FISCAL YEARS).--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 (589 m) above mean sea level (by stadia survey). Prior to Jan. 21, 1938, at datum 0.23 ft (0.070 m) lower.

REMARKS.--Records good. No diversion above station. Large part of flow comes from 3 tunnels.

AVERAGE DISCHARGE.--46 years, 11.9 ft^3/s (0.337 m^3/s), 8,620 acre-ft/yr (10.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 565 ft^3/s (16.0 m^3/s) Mar. 14, 1942, Aug. 26, 1970, from rating curve extended above 160 ft^3/s (4.53 m^3/s); maximum gage height, 4.45 ft (1.356 m) Aug. 26, 1970; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s (2.83 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 19	0030	133	3.77	3.61	1.100
Jan. 7	0530	126	3.57	3.58	1.091
Feb. 29	1530	*523	14.8	4.39	1.338

Minimum discharge, 0.80 ft^3/s (0.023 m^3/s) Oct. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	11	13	5.1	7.0	37	50	22	15	4.2	4.1	6.6
2	1.0	9.9	12	5.6	6.5	33	48	21	14	4.0	4.2	7.7
3	1.0	9.3	14	6.3	6.2	28	48	20	13	4.2	3.8	8.5
4	.90	8.8	13	14	5.7	33	53	19	12	4.0	3.6	7.8
5	.90	8.1	13	39	5.4	31	*48	19	11	3.8	3.3	7.3
6	.85	7.6	12	41	5.5	34	42	18	10	3.7	3.2	7.0
7	4.2	7.0	12	68	9.7	30	36	17	9.6	4.4	3.0	6.6
8	2.7	6.5	12	58	6.3	28	30	16	9.4	6.9	3.0	6.6
9	3.3	7.1	11	55	6.9	27	29	14	8.9	6.9	2.8	6.3
10	3.0	6.3	10	48	6.3	25	30	13	8.2	6.6	2.7	5.8
11	2.7	8.1	9.8	37	6.0	24	27	12	7.6	6.1	2.5	5.6
12	2.4	8.2	9.3	31	5.6	23	27	12	7.1	5.7	2.5	5.3
13	2.3	7.3	8.7	30	5.3	21	26	12	6.9	5.3	2.4	5.0
14	2.4	6.7	9.0	26	12	19	23	11	6.5	5.1	2.1	4.8
15	3.5	6.3	8.9	23	14	18	22	9.8	6.2	4.8	2.0	4.5
16	4.7	6.5	9.7	22	19	17	21	9.3	6.1	4.6	2.0	4.2
17	6.0	6.5	12	20	24	19	22	8.5	5.7	4.2	1.7	6.1
18	11	6.0	10	19	24	17	24	7.9	5.6	4.0	1.7	8.5
19	22	5.7	9.8	17	25	17	25	7.5	5.3	3.8	8.2	8.2
20	16	13	8.9	16	24	17	28	7.2	5.5	3.7	17	6.5
21	16	9.9	8.3	16	22	16	28	8.1	5.1	6.8	12	5.8
22	16	8.7	7.7	14	25	16	31	11	4.9	5.2	11	5.4
23	15	8.7	7.2	13	36	16	29	13	4.7	4.8	9.3	7.2
24	18	11	6.7	12	41	16	29	12	4.9	6.2	8.5	5.7
25	15	11	6.4	11	48	15	30	13	4.2	6.0	7.9	5.3
26	15	11	6.0	9.8	56	19	28	14	4.5	5.7	7.5	5.1
27	14	13	5.7	9.0	49	26	26	16	4.6	5.4	7.0	4.8
28	13	13	5.6	9.2	44	28	23	16	4.5	5.2	8.3	4.4
29	13	13	5.4	8.9	54	33	21	16	4.3	4.8	8.7	4.7
30	13	13	5.2	8.1	---	39	22	16	4.4	4.5	7.5	4.1
31	12	---	5.2	7.5	---	51	---	16	---	4.2	7.0	---
TOTAL	251.85	268.2	287.5	699.5	599.4	773	926	427.3	219.7	154.8	170.5	181.4
MEAN	8.12	8.94	9.27	22.6	20.7	24.9	30.9	13.8	7.32	4.99	5.50	6.05
MAX	22	13	14	68	56	51	53	22	15	6.9	17	8.5
MIN	.85	5.7	5.2	5.1	5.3	15	21	7.2	4.2	3.7	1.7	4.1
AC-FT	500	532	570	1390	1190	1530	1840	848	436	307	338	360

CAL YR 1975 TOTAL 4432.37 MEAN 12.1 MAX 232 MIN .44 AC-FT 8790
WTR YR 1976 TOTAL 4959.15 MEAN 13.5 MAX 68 MIN .85 AC-FT 9840

HAWAII, ISLAND OF HAWAII

16700000 WAIAKEA STREAM NEAR MOUNTAIN VIEW--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1972 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 25...	0905	12	10	0	13	0	3.9	.9	3.1
MAY 24...	1030	12	4	0	12	0	3.1	1.1	3.0

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 25...	32	.4	.6	24	0	20	31	1.1	2.5
MAY 24...	33	.4	.6	16	0	13	2.6	1.3	2.4

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 25...	.0	15	40	.05	.25	.02	50	0
MAY 24...	.0	14	34	.05	.15	.06	30	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 25...	0900	12	41	6.1	17.0
25...	0905	12	41	6.1	17.0
DEC. 28...	0830	7.3	43	6.2	17.0
JAN. 26...	1030	9.9	30	6.7	19.0
FEB. 23...	1040	32	37	7.0	17.0
MAR. 24...	1110	15	40	7.4	17.0
APR. 26...	1430	27	40	7.1	17.0
MAY 24...	1030	12	40	7.0	17.0
JUNE 24...	1020	5.1	38	6.9	18.0
JULY 26...	0950	5.5	42	7.2	17.0
AUG. 25...	1015	7.9	50	7.2	17.0
SEP. 27...	0950	4.8	40	6.6	18.0

16700900 OLAA FLUME SPRING NEAR KAUMANA

LOCATION.--Lat 19°41'59", long 155°11'13", Hydrologic Unit 20010000, on left bank 58 ft (18 m) downstream from tunnel entrance, 3.3 mi (5.3 km) northwest of Kaumana School, and 6.5 mi (10.5 km) southwest of Hilo Post Office.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 1,970 ft (600 m), from topographic map.

REMARKS.--Records good. No diversion above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 43 ft^3/s (1.22 m^3/s) Jan. 8, 1975; minimum daily, 1.2 ft^3/s (0.034 m^3/s) Oct. 10, 1974.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	15	18	10	15	29	33	26	20	10	8.6	9.4
2	4.3	14	16	11	14	28	32	28	19	10	9.0	8.8
3	4.1	12	16	13	13	27	30	26	18	10	9.8	9.0
4	3.8	12	16	18	12	26	32	26	16	10	9.6	9.2
5	3.8	11	16	30	12	26	33	25	15	10	9.0	9.4
6	4.0	10	15	34	11	28	30	23	14	9.6	8.4	9.0
7	4.9	10	14	36	14	28	29	21	13	9.4	8.0	8.4
8	8.2	9.6	13	35	18	28	28	20	12	10	7.4	8.0
9	10	9.8	12	33	17	28	27	18	13	15	7.2	7.8
10	10	10	12	30	18	28	29	18	12	16	6.7	7.6
11	10	11	11	30	16	28	29	16	11	14	6.6	7.2
12	9.6	13	10	27	15	27	28	16	11	12	6.2	6.9
13	9.0	14	10	27	14	27	28	16	11	12	6.2	6.4
14	8.4	12	11	27	15	26	28	16	10	11	6.0	6.0
15	8.4	11	14	26	23	25	27	15	11	10	5.9	5.5
16	9.8	11	14	26	27	23	26	14	10	10	5.7	5.4
17	11	11	16	26	30	24	27	14	10	9.4	5.4	5.2
18	15	11	20	25	31	28	28	12	10	9.0	5.1	6.2
19	28	11	18	24	29	27	29	12	10	8.6	5.5	8.0
20	28	15	16	23	27	26	29	12	10	8.2	16	10
21	26	22	14	21	26	25	29	13	10	8.8	24	9.8
22	22	19	12	19	26	24	29	16	10	12	20	9.2
23	19	18	12	18	29	23	29	20	10	12	17	9.0
24	23	18	11	18	32	25	29	24	10	12	14	9.2
25	25	18	10	17	33	26	28	22	10	14	13	8.8
26	24	18	10	16	33	27	28	23	10	12	11	8.0
27	21	16	9.8	16	32	30	27	25	10	12	11	7.2
28	20	18	10	15	30	32	25	26	10	11	10	6.7
29	18	20	11	16	29	32	24	24	11	10	10	6.2
30	17	18	11	16	---	33	23	22	10	9.6	10	5.9
31	16	---	10	16	---	33	---	19	---	9.0	9.6	---
TOTAL	426.0	418.4	408.8	699	641	847	853	608	357	336.6	301.9	233.4
MEAN	13.7	13.9	13.2	22.5	22.1	27.3	28.4	19.6	11.9	10.9	9.74	7.78
MAX	28	22	20	36	33	33	33	28	20	16	24	10
MIN	3.8	9.6	9.8	10	11	23	23	12	10	8.2	5.1	5.2
AC-FT	845	830	811	1390	1270	1680	1690	1210	708	668	599	463

CAL YR 1975 TOTAL 5573.3 MEAN 15.3 MAX 43 MIN 3.4 AC-FT 11050
WTR YR 1976 TOTAL 6130.1 MEAN 16.7 MAX 36 MIN 3.8 AC-FT 12160

HAWAII, ISLAND OF HAWAII

16700900 OLAA FLUME SPRING, NEAR KAUMANA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 02...	1300	16	5	0	13	0	3.4	1.0	4.2
MAY 05...	0930	24	0	0	10	0	2.5	.9	2.1

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 02...	35	.5	3.5	15	0	12	12	2.2	6.5
MAY 05...	30	.3	.5	14	0	11	5.6	1.2	1.7

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 02...	.1	13	45	.06	.00	.13	30	0
MAY 05...	.1	10	28	.04	.11	.00	30	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 31...	0910	16	37	6.4	17.0
DEC. 02...	1225	16	40	6.3	17.0
02...	1300	16	40	6.3	17.0
JAN. 14...	1310	27	28	7.2	17.0
FEB. 27...	1020	32	29	7.2	17.0
APR. 12...	1040	28	27	6.8	16.0
MAY 05...	0930	24	30	6.6	17.0
JUNE 17...	1345	10	40	6.7	16.0
JULY 27...	1415	11	39	6.6	16.0
SEP. 07...	1200	8.4	40	6.9	17.0

HAWAII, ISLAND OF HAWAII

16701750 WAILUKU RIVER NEAR HUMUULA

LOCATION.--Lat 19°42'55", long 155°18'36", Hydrologic Unit 20010000, on right bank 300 ft (91 m) upstream from trail terminus, 10 mi (16 km) east of Humuula, and 14 mi (22 km) west of Hilo.

DRAINAGE AREA.--34.8 mi^2 (90.1 km^2).

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder. Altitude of gage is 4,250 ft (1,295 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record Oct. 1 to Feb. 12, and those above 40 ft^3/s (1.13 m^3/s), which are fair. No diversion above station.

AVERAGE DISCHARGE.--11 years, 3.08 ft^3/s (0.087 m^3/s), 2,230 acre-ft/yr (2.75 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,180 ft^3/s (90.1 m^3/s) Nov. 20, 1973, gage height, 11.00 ft (3.353 m), from rating curve extended above 18 ft^3/s (0.51 m^3/s); no flow at times in 1965, 1969-76.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 212 ft^3/s (6.00 m^3/s) Feb. 23, gage height, 4.88 ft (1.487 m), from rating curve extended above 18 ft^3/s (0.51 m^3/s), no peak above base of 310 ft^3/s (8.78 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.15	.55	.60	.25	1.9	4.2	1.3	.30	.02	.02	0
2	0	.10	.50	.65	.20	1.5	2.3	.90	.25	.02	.02	.02
3	0	.10	.60	.70	.20	1.8	5.2	.85	.20	.10	0	.02
4	0	.08	.50	3.0	.20	1.6	17	.75	.20	.04	0	0
5	0	.08	.45	85	.20	3.7	2.4	.70	.15	.02	0	0
6	0	.06	.30	40	.25	2.0	1.9	.66	.15	.02	0	0
7	.10	.06	.25	45	1.0	1.6	1.6	.66	.15	.03	0	0
8	0	.08	.20	10	.50	1.6	1.4	.62	.21	.17	0	.01
9	0	.60	.15	4.0	.50	2.1	1.6	.57	.17	.08	0	0
10	0	.10	.15	3.0	.50	1.2	3.2	.52	.10	.03	0	0
11	0	.10	.10	2.5	.25	2.9	1.5	.52	.10	.02	0	0
12	0	.30	.10	2.5	.15	1.7	1.3	.48	.10	.02	0	0
13	0	.06	.65	3.0	.14	1.2	1.2	.48	.10	.01	0	0
14	0	.05	2.5	2.0	3.6	.95	1.0	.44	.17	.01	0	0
15	0	.05	.70	1.5	5.9	.75	1.0	.44	.12	.01	0	0
16	0	.10	.50	1.5	12	.66	1.8	.39	.12	.01	0	0
17	0	.15	1.0	1.0	8.7	17	2.1	.34	.10	.01	.08	0
18	10	.05	.60	.90	3.0	3.7	4.8	.30	.08	0	0	0
19	5.0	.05	.50	.70	2.3	1.9	3.7	.30	.06	0	1.6	0
20	.90	1.0	.35	.60	1.7	1.7	3.2	.34	.08	0	.80	0
21	.60	.50	.30	.55	1.3	1.4	1.6	.39	.04	.02	.14	0
22	.90	.10	.15	.55	5.4	1.2	2.1	.62	.02	.02	.03	0
23	2.0	.10	.15	2.0	81	1.6	1.8	1.0	.02	.01	.01	0
24	3.5	1.0	.10	.90	22	1.1	1.3	.70	.03	.03	0	0
25	1.0	.90	.10	.50	11	1.2	1.2	.65	.02	.01	0	0
26	.75	.40	.08	.45	11	5.2	1.0	1.0	.02	.01	0	0
27	.60	8.5	.10	.40	4.3	12	.90	1.5	.02	0	0	0
28	.50	3.5	.25	.40	3.0	5.2	.85	.75	.02	0	.02	0
29	.45	.90	.08	.45	3.6	2.7	.85	.60	.03	0	.01	0
30	.30	.60	.05	.30	---	2.3	1.0	.50	.02	0	0	0
31	.25	---	1.5	.30	---	11	---	.40	---	0	0	---
TOTAL	26.85	19.82	13.51	214.95	184.14	96.36	75.00	19.67	3.15	.72	2.73	.05
MEAN	.87	.66	.44	6.93	6.35	3.11	2.50	.63	.11	.023	.088	.002
MAX	10	8.5	2.5	85	81	17	17	1.5	.30	.17	1.6	.02
MIN	0	.05	.05	.30	.14	.66	.85	.30	.02	0	0	0
AC-FT	53	39	27	426	365	191	149	39	6.2	1.4	5.4	.10

CAL YR 1975 TOTAL 1952.55 MEAN 5.35 MAX 790 MIN 0 AC-FT 3870
WTR YR 1976 TOTAL 656.95 MEAN 1.79 MAX 85 MIN 0 AC-FT 1300

16701750 WAILUKU RIVER NEAR HUMUULA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
FEB.									
12...	1130	.14	15	2	12	0	2.0	1.8	2.3
JUNE									
07...	1225	.12	7	1	12	0	2.2	1.6	1.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
FEB.									
12...	27	.3	.7	17	0	14	4.3	2.8	1.0
JUNE									
07...	22	.2	.4	15	0	12	3.8	1.4	1.0

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
FEB.								
12...	.1	9.7	29	.04	.01	.00	230	40
JUNE								
07...	.1	9.7	26	.04	.00	.00	300	30

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
FEB.					
12...	1120	.14	33	6.8	16.5
12...	1130	.14	33	6.8	16.5
JUNE					
07...	1225	.12	32	6.8	19.5

16701800 WAILUKU RIVER NEAR KAUMANA

LOCATION.--Lat 19°43'15", long 155°16'08", Hydrologic Unit 20010000, on right bank 0.2 mi (0.3 km) upstream from Waipahoehoe Gulch and 8.4 mi (13.5 km) west of Kaumana.

DRAINAGE AREA.--43.4 mi^2 (112.4 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,520 ft (1,073 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record Feb. 22 to Apr. 2, which are fair. No diversion above station. Recording rain gage located at station.

AVERAGE DISCHARGE.--10 years, 30.1 ft^3/s (0.852 m^3/s), 21,810 acre-ft/yr (26.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,580 ft^3/s (271 m^3/s) Aug. 8, 1967, gage height, 13.35 ft (4.069 m), from rating curve extended above 2,200 ft^3/s (62.3 m^3/s); no flow Mar. 13, 14, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,380 ft^3/s (39.1 m^3/s) Jan. 5, gage height, 6.04 ft (1,841 m), from rating curve extended above 2,200 ft^3/s (62.3 m^3/s), no peak above base of 1,500 ft^3/s (42.5 m^3/s); minimum, 0.22 ft^3/s (0.006 m^3/s) Oct. 2, Aug. 15, 16, Sept. 27, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.28	2.0	5.2	5.1	2.2	25	60	38	4.0	.97	.88	.70
2	.22	1.6	4.1	6.9	2.1	15	30	14	3.5	.88	1.7	.97
3	.34	1.4	5.4	7.4	2.5	20	92	12	3.5	1.8	.64	1.1
4	.31	1.2	4.1	36	2.5	15	289	9.4	3.0	1.4	.52	.85
5	.43	1.2	3.4	755	2.5	40	36	7.2	3.0	.88	.43	.64
6	.34	1.1	2.6	431	2.8	25	22	6.3	3.0	.73	.52	.58
7	3.4	1.1	2.4	453	12	15	17	5.4	2.5	.88	.49	.58
8	1.2	1.2	2.1	140	4.3	15	14	4.9	2.5	3.8	.43	2.5
9	.94	5.4	1.8	64	4.9	20	22	4.3	2.5	1.9	.37	.97
10	.70	1.5	1.7	41	4.6	15	104	3.7	2.0	1.2	.31	.67
11	.64	1.6	1.6	22	2.6	30	24	3.3	2.0	.97	.71	.61
12	.49	2.7	1.5	21	2.2	20	24	3.1	2.0	.88	.46	.58
13	.43	1.2	6.3	42	1.8	15	22	3.3	2.0	.82	.49	.55
14	.49	1.0	28	18	133	10	14	3.1	3.0	.79	.34	.52
15	1.1	.94	6.6	13	165	8.0	12	2.2	2.5	.73	.22	.52
16	1.0	1.3	4.0	16	262	7.0	47	1.8	2.0	.76	1.8	.46
17	1.6	1.9	11	11	209	200	57	1.6	1.5	.70	1.4	.62
18	137	.97	4.7	8.1	49	40	108	1.4	1.5	.61	1.2	.82
19	67	.85	3.1	6.6	29	25	126	1.4	1.2	.58	63	.73
20	7.6	12	2.5	5.9	20	20	91	1.7	1.5	.55	29	.49
21	4.6	3.1	2.1	5.4	15	20	31	2.1	1.1	1.2	4.1	.40
22	7.7	1.6	1.8	5.7	80	15	49	10	1.0	.97	1.8	.37
23	23	1.5	1.7	20	700	20	31	15	.97	.73	1.4	.37
24	41	11	1.4	9.0	300	10	20	7.2	1.4	1.2	1.0	.43
25	13	8.3	1.4	5.1	200	10	16	5.4	1.0	.85	.97	.31
26	6.6	3.1	1.2	4.1	150	75	14	17	1.0	.70	.88	.28
27	4.9	118	1.4	3.4	60	150	11	25	.97	.61	.88	.22
28	3.8	41	2.2	4.1	40	75	8.8	7.6	1.0	.52	1.2	.25
29	3.1	7.6	1.2	4.9	45	30	8.8	5.4	1.1	.49	1.2	.22
30	2.5	5.4	1.1	2.7	---	25	11	4.9	.97	.52	.85	.22
31	2.4	---	15	2.5	---	145	---	4.1	---	.55	.82	---
TOTAL	338.11	242.76	132.6	2169.9	2504.0	1155.0	1411.6	231.8	59.21	30.17	119.61	18.53
MEAN	10.9	8.09	4.28	70.0	86.3	37.3	47.1	7.48	1.97	.97	3.86	.62
MAX	137	118	28	755	700	200	289	38	4.0	3.8	63	2.5
MIN	.22	.85	1.1	2.5	1.8	7.0	8.8	1.4	.97	.49	.22	.22
AC-FT	671	482	263	4300	4970	2290	2800	460	117	60	237	37

CAL YR 1975 TOTAL 16833.04 MEAN 46.1 MAX 5380 MIN .19 AC-FT 33390
WTR YR 1976 TOTAL 8413.29 MEAN 23.0 MAX 755 MIN .22 AC-FT 16690

HAWAII, ISLAND OF HAWAII

16701800 WAILUKU RIVER NEAR KAUMANA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 15...	1100	5.7	65	15	8	0	1.2	1.3	1.6
MAY 06...	1030	6.1	7	1	10	1	2.0	1.1	1.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 15...	25	.2	1.5	11	0	9	11	2.9	1.7
MAY 06...	20	.2	1.6	11	0	9	2.2	1.9	2.1

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 15...	.1	4.1	21	.03	.09	.06	500	10
MAY 06...	.0	6.9	23	.03	.00	.00	190	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 23...	1030	5.4	23	6.3	16.5
DEC. 15...	1100	5.7	22	6.2	16.0
15...	1150	5.7	20	6.0	16.0
FEB. 10...	1200	4.2	22	6.7	15.0
APR. 02...	0950	27	20	7.1	14.0
MAY 06...	1030	6.1	23	6.9	17.0
06...	1050	6.1	23	6.9	17.0
JUNE 18...	1150	1.2	28	6.7	18.0
AUG. 03...	1305	.64	28	6.9	21.5
SEP. 07...	1050	.58	27	6.8	20.0

16704000 WAILUKU RIVER AT PIIHONUA
(National stream-quality accounting network station)

LOCATION.--Lat 19°42'58", long 155°09'13", Hydrologic Unit 20010000, on left bank 0.2 mi (0.3 km) downstream from Hookelekele Stream, 0.9 mi (1.4 km) west of Piihonua, and 4.1 mi (6.6 km) west of Hilo Post Office.

DRAINAGE AREA.--125 mi^2 (324 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1928 to July 1940, October 1940 to December 1947, April 1948 to current year. Monthly discharge only July 1928, published in WSP 1319. Prior to July 1960, published as "above Hilo Boarding School ditch intake, near Hilo."

REVISED RECORDS (FISCAL YEARS).--WSP 865: 1929-36(M). WSP 965: 1941.

GAGE.--Water-stage recorder. Altitude of gage is 1,070 ft (326 m), from topographic map.

REMARKS.--Records good. Hawaii County Board of Water Supply diverts about 6 ft^3/s (0.17 m^3/s) above station for domestic supply. Kapehu ditch diverted from Kapehu Stream into Wailuku River above station 1938-63.

AVERAGE DISCHARGE.--45 years (water years, 1929-39, 1942-47, 1949-76), 286 ft^3/s (8.100 m^3/s), 207,200 acre-ft/yr (255 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 63,400 ft^3/s (1,800 m^3/s) Aug. 11, 1940, gage height, 28.6 ft (8.72 m), from floodmarks, from rating curve extended above 11,000 ft^3/s (312 m^3/s); minimum, 0.25 ft^3/s (0.007 m^3/s) Mar. 9, 1941.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 8,700 ft^3/s (246 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 19	0030	11700	331	16.00	4.877
Jan. 5	2215	*28500	807	20.20	6.157
Apr. 4	0215	9310	264	15.23	4.642

Minimum discharge, 7.5 ft^3/s (0.21 m^3/s) Oct. 2, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	77	110	73	60	508	1380	656	63	44	34	25
2	7.8	61	193	100	50	355	697	318	113	34	114	59
3	10	51	317	148	45	274	1320	297	89	60	42	69
4	10	44	174	635	40	347	2870	247	74	58	30	54
5	14	38	127	9570	38	686	768	184	69	34	26	28
6	16	34	97	5660	40	862	522	158	58	28	27	21
7	191	33	90	7700	417	563	364	136	60	50	28	18
8	76	32	69	1310	129	460	283	113	87	150	27	57
9	62	126	58	869	179	955	637	97	65	79	21	37
10	40	56	53	662	132	512	1090	83	50	87	17	24
11	33	75	47	429	102	684	505	74	47	62	16	20
12	26	178	72	429	87	491	550	72	41	56	23	17
13	22	65	181	790	75	339	486	105	50	45	21	15
14	24	49	329	396	835	256	312	84	80	39	17	13
15	79	39	144	266	1320	197	320	62	49	36	13	10
16	66	61	141	497	1700	160	487	51	58	32	11	9.3
17	106	109	324	275	2140	1750	718	45	43	28	9.6	14
18	1090	53	141	237	762	715	1020	38	50	24	8.7	119
19	1700	40	93	205	489	320	1030	38	39	20	498	59
20	441	566	69	152	341	248	1010	60	52	27	756	25
21	202	168	56	133	244	206	550	97	38	180	198	19
22	136	160	47	117	1090	188	814	267	33	70	107	17
23	670	118	41	274	5550	363	716	307	29	44	71	95
24	816	198	35	210	1990	259	470	256	72	133	52	33
25	319	172	31	127	1940	353	467	133	43	70	41	20
26	207	119	27	85	2210	1060	330	382	44	52	34	15
27	165	683	30	71	791	2870	248	450	61	40	32	13
28	150	513	89	98	433	1430	196	223	56	33	75	11
29	112	161	37	180	1210	1100	178	74	50	29	86	9.1
30	107	104	34	79	---	1550	289	70	41	27	40	9.5
31	99	---	46	65	---	2260	---	80	---	26	29	---
TOTAL	6996.6	4183	3302	31842	24439	22321	20627	5257	1704	1697	2504.3	934.9
MEAN	226	139	107	1027	843	720	688	170	56.8	54.7	80.8	31.2
MAX	1700	683	329	9570	5550	2870	2870	656	113	180	756	119
MIN	7.8	32	27	65	38	160	178	38	29	20	8.7	9.1
AC-FT	13880	8300	6550	63160	48470	44270	40910	10430	3380	3370	4970	1850

CAL YR 1975 TOTAL 118966.7 MEAN 326 MAX 22200 MIN 4.6 AC-FT 236000
WTR YR 1976 TOTAL 125807.8 MEAN 344 MAX 9570 MIN 7.8 AC-FT 249500

16704000 WAILUKU RIVER AT PIIHONUA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-74, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 1975 to current year.
WATER TEMPERATURES: May 1975 to current year.

INSTRUMENTATION.--Water-quality monitor since May 1975.

REMARKS.--Interruptions in the daily records were due to malfunctions of the instrument. No record July 1 to Sept. 30. In addition to the water-quality monitor record, samples were collected once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 54 micronhos/cm June 8, 1975; minimum, 22 micronhos/cm July 17, 1975.
WATER TEMPERATURES: Maximum, 23.5°C July 23, 1975; minimum, 18.5°C Sept. 17, 1975.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
OCT.											
21...	0845	205	30	6.4	18.0	1	84	200	13	3	2.9
NOV.											
17...	1115	97	31	5.9	20.0	3	200	460	15	2	2.9
DEC.											
09...	1130	58	40	6.4	19.0	1	B12	8210	19	1	3.8
JAN.											
26...	1010	86	31	7.1	17.5	2	130	83	13	0	2.6
FEB.											
25...	0950	1650	--	--	16.0	--	160	62	--	--	--
25...	1000	1650	20	6.6	16.0	4	--	--	6	2	1.6
MAR.											
29...	1400	910	25	7.0	17.0	3	59	170	10	3	1.7
APR.											
26...	1055	550	32	7.4	18.5	2	180	180	12	3	2.1
MAY											
11...	1100	74	38	6.9	19.0	--	--	--	--	--	--
24...	1000	215	31	7.6	17.0	1	72	210	11	1	2.2
JUNE											
29...	1250	58	40	7.0	18.0	1	14	94	14	0	3.1
JULY											
19...	1015	21	42	7.4	19.5	1	<1	120	16	0	3.7
20...	1100	26	41	7.4	19.5	--	--	--	--	--	--
AUG.											
23...	1040	72	29	6.6	19.5	2	8160	62	11	3	2.5
SEP.											
28...	0930	11	41	6.7	20.5	1	4	69	14	0	3.3

B Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT.										
21...	1.4	2.1	25	.3	.4	12	0	10	7.6	2.4
NOV.										
17...	1.9	2.4	25	.3	.5	16	0	13	32	2.4
DEC.										
09...	2.4	3.1	25	.3	.4	22	0	18	14	1.0
JAN.										
26...	1.6	2.5	29	.3	.3	19	0	16	2.4	2.7
FEB.										
25...	--	--	--	--	--	--	--	--	--	--
25...	.6	1.9	38	.3	.2	5	0	4	2.0	2.0
MAR.										
29...	1.3	2.1	31	.3	.4	8	0	7	1.3	1.9
APR.										
26...	1.6	2.4	30	.3	.3	11	0	9	.7	1.7
MAY										
11...	--	--	--	--	--	--	--	--	--	--
24...	1.3	2.3	31	.3	.3	12	0	10	.5	2.2
JUNE										
29...	1.4	2.7	29	.3	.5	18	0	15	2.9	2.6
JULY										
19...	1.6	2.7	26	.3	.5	24	0	20	1.5	1.6
20...	--	--	--	--	--	--	--	--	--	--
AUG.										
23...	1.2	1.9	26	.2	.4	10	0	8	4.0	3.9
SEP.										
28...	1.5	2.8	29	.3	.6	18	0	15	5.7	2.6

16704000 WAILUKU RIVER AT PIIHONUA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT.										
21...	3.8	.0	8.6	35	28	.05	.10	.06	.16	.02
NOV.										
17...	3.3	.1	7.6	35	29	.05	.09	.24	.33	.01
DEC.										
09...	3.0	.1	11	32	36	.04	.14	.01	.15	.00
JAN.										
26...	2.4	.0	8.7	36	30	.05	.14	.24	.38	.00
FEB.										
25...	--	--	--	--	--	--	--	--	--	--
25...	3.1	.0	3.5	12	15	.02	.04	.08	.12	.02
MAR.										
29...	3.4	.0	5.3	26	20	.04	.06	.05	.11	.02
APR.										
26...	2.5	.0	7.5	25	24	.03	.07	.21	.28	.01
MAY										
11...	--	--	--	--	--	--	--	--	--	--
24...	2.9	.0	6.2	31	23	.04	.06	.20	.26	.01
JUNE										
29...	2.8	.1	11	38	33	.05	.02	.11	.13	.01
JULY										
19...	3.3	.1	13	39	38	.05	.07	.06	.13	.00
20...	--	--	--	--	--	--	--	--	--	--
AUG.										
23...	2.9	.0	7.7	36	25	.05	.06	.10	.16	.00
SEP.										
28...	2.2	.1	12	35	34	.05	.09	.35	.44	.00

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
JAN.												
26...	1010	0	0	<10	0	0	0	<50	0	<10	0	350
APR.												
26...	1055	0	0	<10	1	0	0	<50	0	10	1	620
JULY												
19...	1015	0	0	<10	1	0	0	<50	2	<10	0	290
SEP.												
28...	0930	0	0	<10	1	10	0	<50	0	<10	1	220

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
JAN.												
26...	90	<100	2	10	0	.0	.0	0	0	0	0	3.8
APR.												
26...	110	<100	7	0	0	.1	.1	0	0	100	0	8.3
JULY												
19...	120	<100	9	10	10	.0	.0	0	0	0	0	3.0
SEP.												
28...	130	<100	11	0	0	.0	.0	0	0	0	0	1.6

HAWAII, ISLAND OF HAWAII

16704000 WAILUKU RIVER AT PIIHONUA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PHYTO-PLANK-TON (CELLS PER ML)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL A MG/SQ M	UNCOR-RECTED PERI-PHYTON CHLORO-PHYLL B MG/SQ M	PERI-PHYTON LENGTH OF EX-POSURE (DAYS)	PERI-PHYTON SAMPL-ING METHOD
OCT 21...	0845	57	7.20	6.20	2.00	.500	32	Polyethylene strip
NOV. 17...	1115	250	--	--	--	--	--	
DEC 09...	1130	220	--	--	--	--	--	
JAN 26...	1010	53	--	--	--	--	--	
FEB 25...	1000	330	--	--	--	--	--	
MAR 29...	1400	140	--	--	--	--	--	
APR 26...	1055	250	--	--	--	--	--	
MAY 11...	1100	--	2.54	1.85	8.04	1.54	36	
24...	1000	310	--	--	--	--	--	
JUN 29...	1250	130	3.00	.538	4.53	.259	35	
JUL 19...	1015	670	--	--	--	--	--	
20...	1100	--	2.46	.154	2.25	.541	35	
AUG 23...	1040	1800	--	--	--	--	--	
SEP 28...	0930	400	--	--	--	--	--	
28...	1030	--	1.08	.538	3.26	1.34	36	

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT. 21...	0845	205	1	.55	100
NOV. 17...	1115	97	3	.79	100
DEC. 09...	1130	58	2	.31	100
JAN. 26...	1010	86	2	.46	100
FEB. 25...	0950	1650	4	18	100
MAR. 29...	1400	910	2	4.9	100
APR. 26...	1055	550	5	7.4	100
MAY 24...	1000	215	4	2.3	100
JUNE 29...	1250	50	2	.27	100
JULY 19...	1015	21	1	.06	100
AUG. 23...	1040	72	3	.58	100
SEP. 28...	0930	11	1	.03	100

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Oct 21	0845	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Scenedesmaceae			
		Scenedesmus		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	28	50	
		Gomphonemataceae			
		Gomphonema	14	25	
		Naviculaceae			
		Navicula	14	25	
		Nitzschiaceae			
		Nitzschia		L	
		Tabellariaceae			
		Tabellaria		L	
		TOTAL	57		
Nov 17	1115	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Zygnematales			
		Zygnemataceae			
		Mougeotia		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	18	7	
		Cocconeis		L	
		Cymbellaceae			
		Cymbella		L	
		Eunotiaceae			
		Eunotia		L	
		Fragilariaceae			
		Synedra	120	50	
		Gomphonemataceae			
		Gomphonema	36	14	
		Naviculaceae			
		Navicula	18	7	
		Nitzschiaceae			
		Nitzschia	54	21	
		TOTAL	250		
Dec 09	1130	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Zygnematales			
		Zygnemataceae			
		Mougeotia	13	6	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	26	12	
		Gomphonemataceae			
		Gomphonema	52	24	
		Naviculaceae			
		Navicula	39	18	
		Nitzschiaceae			
		Nitzschia	91	41	
		TOTAL	220		

NOTE: L - Less than 1 percent; may not have been actually counted.

16704000 WAILUKU RIVER AT PIIHONUA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Jan 26	1010	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Zygnematales			
		Desmidiaceae			
		Euastrum		L	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	35	67	
		Cocconeis		L	
		Fragilariaceae			
		Fragilaria	9	17	
		Gomphonemataceae			
		Gomphonema		L	
		Naviculaceae			
		Navicula	9	17	
		Nitzschiaceae			
		Nitzschia		L	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria		L	
		TOTAL	53		
Feb 25	1000	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Oocystaceae			
		Ankistrodesmus	5	1	
		Oedogoniales			
		Oedogoniaceae			
		Oedogonium	25	7	
		Ulotrichales			
		Chaetophoraceae			
		Stigeoclonium	44	13	
		Microsporaceae			
		Microspora	120	37	
		Zygnematales			
		Desmidiaceae			
		Penium	10	3	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	34	10	
		Pennales			
		Gomphonemataceae			
		Gomphonema	5	1	
		Naviculaceae			
		Navicula	30	9	
		Pinnularia	5	1	
		Nitzschiaceae			
		Nitzschia	5	1	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Rivulariaceae			
		Raphidiopsis	44	13	
		TOTAL	330		

NOTE: L - Less than 1 percent; may not have been actually counted.

16704000 WAILUKU RIVER AT PIIHONUA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Mar 29	1400	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Zygnematales			
		Desmidiaceae			
		Euastrum	3	2	
		Zygnemataceae			
		Mougeotia	6	4	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella	3	2	
		Pennales			
		Achnanthaceae			
		Achnanthes	12	9	
		Cymbellaceae			
		Rhopalodia		L	
		Eunotiaceae			
		Eunotia	9	7	
		Fragilariaceae			
		Fragilaria		L	
		Synedra	12	9	
		Gomphonemataceae			
		Gomphonema	34	24	
		Naviculaceae			
		Navicula	9	7	
		Neidium	3	2	
		Tabellariaceae			
		Tabellaria	12	9	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	37	26	
		TOTAL	140		
Apr 26	1055	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Zygnematales			
		Mesotaeniaceae			
		Gonatozygon	4	2	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Cyclotella	4	2	
		Pennales			
		Achnanthaceae			
		Achnanthes	4	2	
		Cocconeis	8	3	
		Cymbellaceae			
		Cymbella	4	2	
		Eunotiaceae			
		Eunotia	12	5	
		Fragilariaceae			
		Synedra	25	10	
		Gomphonemataceae			
		Gomphonema	49	20	
		Naviculaceae			
		Caloneis	4	2	
		Frustulia	4	2	
		Navicula	33	13	
		Nitzschiaceae			
		Nitzschia	16	7	
		Tabellariaceae			
		Tabellaria	16	7	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	62	25	
		TOTAL	250		

NOTE: L - Less than 1 percent; may not have been actually counted.

16704000 WAILUKU RIVER AT PIIHONUA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
May 24	1000				Depth-Integrated
		CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	11	4	
		Pennales			
		Achnanthaceae			
		Achnanthes	100	33	
		Cocconeis	6	2	
		Cymbellaceae			
		Cymbella	6	2	
		Fragilariaceae			
		Synedra	11	4	
		Gomphonemataceae			
		Gomphonema	33	11	
		Naviculaceae			
		Navicula	72	24	
		Nitzschiaceae			
		Nitzschia	50	16	
		Tabellariaceae			
		Tabellaria		L	
		CYANOPHYTA			
		Myxophyceae			
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	17	5	
		TOTAL	310		
June 29	1250				Depth-Integrated
		CHLOROPHYTA			
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus	22	17	
		Scenedesmaceae			
		Scenedesmus	43	33	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	11	8	
		Cocconeis	4	3	
		Eunotiaceae			
		Eunotia	4	3	
		Naviculaceae			
		Navicula	18	14	
		Nitzschiaceae			
		Nitzschia	18	14	
		Tabellariaceae			
		Tabellaria	7	6	
		PYRRHOPHYTA			
		Dinophyceae			
		Peridiniales			
		Peridiniaceae			
		Peridinium	4	3	
		TOTAL	130		
July 19	1015				Depth-Integrated
		CHLOROPHYTA			
		Chlorophyceae			
		Chlorococcales			
		Occystaceae			
		Ankistrodesmus	410	62	
		Kirchneriella	26	4	
		Scenedesmaceae			
		Scenedesmus	100	15	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Naviculaceae			
		Navicula	100	15	
		Nitzschiaceae			
		Nitzschia	26	4	
		TOTAL	670		

NOTE: L - Less than 1 percent; may not have been actually counted.

16704000 WAILUKU RIVER AT PIIHONUA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

PHYTOPLANKTON

Date	Time	Organism	Count (cells/ml)	Percent of total	Sampling method
Aug 23	1040	CHLOROPHYTA			Depth-Integrated
		Chlorophyceae			
		Chlorococcales			
		Oocystaceae			
		Ankistrodesmus	33	2	
		Kirchneriella	33	2	
		CHRYSOPHYTA			
		Bacillariophyceae			
		Pennales			
		Achnanthaceae			
		Achnanthes	65	4	
		Naviculaceae			
		Navicula	65	4	
		CYANOPHYTA			
		Myxophyceae			
		Chroococcales			
		Chroococcaceae			
		Anacystis	1,400	79	
		Oscillatoriales			
		Oscillatoriaceae			
		Oscillatoria	200	11	
		TOTAL	1,800		
Sept 28	0930	CHRYSOPHYTA			
		Bacillariophyceae			
		Centrales			
		Coscinodiscaceae			
		Melosira	29	7	
		Pennales			
		Gomphonemataceae			
		Gomphonema	29	7	
		Naviculaceae			
		Navicula	180	43	
		CYANOPHYTA			
		Myxophyceae			
		Chroococcales			
		Chroococcaceae			
		Anacystis	110	28	
		Oscillatoriales			
		Oscillatoriaceae			
		Lyngbya	58	14	
		TOTAL	400		

HAWAII, ISLAND OF HAWAII

16704000 WAILUKU RIVER AT PIIHONUA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	56	41	48	---	---	---	---	---	---	55	48	52
2	49	42	46	---	---	---	---	---	---	64	39	46
3	47	42	45	---	---	---	---	---	---	82	37	44
4	47	43	45	---	---	---	---	---	---	91	32	39
5	47	39	43	---	---	---	26	17	23	14	10	12
6	44	40	42	---	---	---	39	22	28	24	10	16
7	---	---	---	---	---	---	32	23	29	22	11	14
8	---	---	---	---	---	---	49	22	36	29	22	26
9	40	35	38	---	---	---	81	40	56	---	---	---
10	38	30	35	---	---	---	82	46	65	---	---	---
11	38	28	36	---	---	---	72	45	59	---	---	---
12	38	34	37	---	---	---	---	---	---	---	---	---
13	39	33	37	---	---	---	49	35	40	---	---	---
14	38	28	36	37	31	34	67	29	43	---	---	---
15	49	35	39	39	32	35	63	28	33	---	---	---
16	36	31	34	89	36	45	39	32	36	---	---	---
17	37	30	33	39	26	30	38	28	32	---	---	---
18	---	---	---	38	26	32	37	27	32	---	---	---
19	---	---	---	48	35	41	44	34	38	---	---	---
20	---	---	---	---	---	---	61	37	45	---	---	---
21	---	---	---	---	---	---	65	41	52	---	---	---
22	36	30	33	---	---	---	62	43	52	---	---	---
23	---	---	---	---	---	---	70	45	56	---	---	---
24	---	---	---	---	---	---	67	46	57	---	---	---
25	---	---	---	---	---	---	70	50	61	---	---	---
26	---	---	---	---	---	---	71	51	60	35	31	34
27	---	---	---	---	---	---	68	50	57	36	32	35
28	---	---	---	---	---	---	71	45	52	82	35	41
29	---	---	---	---	---	---	67	45	53	52	29	32
30	---	---	---	---	---	---	69	47	57	33	30	32
31	---	---	---	---	---	---	61	43	51	37	33	35
MONTH	---	---	---	---	---	---	82	17	46	---	---	---

	FEBRUARY			MARCH			APRIL			MAY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	37	34	36	16	15	15	23	18	20	39	27	30
2	39	36	37	19	16	18	29	23	26	34	30	32
3	40	36	39	22	19	20	31	19	28	37	34	34
4	41	37	40	26	22	23	19	19	19	36	33	35
5	42	39	40	24	21	23	20	19	19	38	36	37
6	---	---	---	30	20	22	21	19	19	39	38	38
7	---	---	---	28	22	25	21	18	19	40	38	39
8	40	33	35	30	25	28	24	21	22	41	39	40
9	43	31	34	25	19	22	27	24	25	42	40	41
10	35	31	33	28	18	25	26	23	25	43	41	42
11	37	32	34	29	20	27	32	26	29	43	38	43
12	40	34	36	27	20	24	32	30	31	45	42	42
13	42	35	37	29	25	27	33	31	32	52	42	46
14	56	34	45	31	29	30	35	33	34	42	40	41
15	64	53	59	32	31	31	35	34	35	44	41	42
16	78	22	51	34	32	33	34	31	33	44	41	43
17	23	20	21	37	15	22	31	27	28	46	43	44
18	28	23	26	16	14	15	31	24	29	46	44	45
19	30	27	29	15	14	15	29	23	26	47	45	46
20	31	28	30	16	15	15	30	26	29	50	45	46
21	33	31	32	16	15	15	33	28	31	55	43	45
22	36	15	30	17	15	16	34	28	31	49	34	37
23	15	14	15	18	16	17	32	28	30	44	29	32
24	15	14	15	19	17	18	34	31	32	33	31	32
25	20	15	15	22	19	20	35	32	34	42	32	34
26	22	15	20	25	19	22	35	31	33	34	27	30
27	29	22	26	18	15	15	37	35	36	31	27	28
28	31	27	30	16	15	15	38	35	37	34	31	32
29	31	15	25	25	15	17	39	37	38	36	33	35
30	---	---	---	29	21	25	40	37	38	37	35	36
31	---	---	---	33	19	26	---	---	---	37	36	37
MONTH	78	14	32	37	14	21	40	18	29	55	27	38

HAWAII, ISLAND OF HAWAII

16704000 WAILUKU RIVER AT PIIHONUA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	JUNE			JULY			AUGUST			SEPTEMBER		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	37	36	37									
2	38	36	37									
3	39	37	38									
4	41	39	40									
5	41	40	40									
6	42	41	42									
7	43	42	42									
8	42	40	41									
9	41	39	41									
10	43	41	42									
11	44	42	42									
12	44	42	43									
13	45	43	44									
14	43	40	41									
15	43	40	41									
16	42	40	41									
17	42	41	42									
18	43	41	42									
19	43	42	43									
20	44	42	43									
21	44	42	43									
22	44	42	43									
23	44	42	43									
24	44	42	43									
25	42	40	41									
26	47	38	41									
27	41	40	41									
28	41	39	40									
29	42	39	40									
30	---	---	---									
31	---	---	---									
MONTH	47	36	41									
YEAR	91	10	35									

NOTE: Number of missing days of record exceeded 20% of year.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	22.0	20.0	21.0	---	---	---	---	---	---	18.0	17.5	18.0
2	22.0	20.5	21.5	---	---	---	---	---	---	18.0	17.0	17.5
3	22.0	21.0	21.5	---	---	---	---	---	---	18.0	17.5	17.5
4	22.0	21.0	21.5	---	---	---	---	---	---	18.0	17.0	17.5
5	22.5	21.0	21.5	---	---	---	19.0	18.0	18.0	17.5	16.5	17.0
6	22.0	21.0	21.5	---	---	---	18.5	17.5	18.0	18.0	16.5	17.0
7	---	---	---	---	---	---	19.5	18.0	18.5	17.5	17.0	17.5
8	---	---	---	---	---	---	19.5	18.0	18.5	18.0	17.5	17.5
9	20.5	19.5	20.0	---	---	---	19.0	18.5	18.5	---	17.0	17.5
10	20.0	19.0	19.5	---	---	---	19.0	18.5	18.5	---	---	---
11	20.0	19.5	19.5	---	---	---	20.0	18.0	19.0	---	---	---
12	20.0	19.5	19.5	---	---	---	20.0	18.5	19.0	---	---	---
13	20.0	19.5	19.5	---	---	---	19.0	18.5	19.0	---	---	---
14	20.5	19.5	20.0	19.5	19.0	19.0	19.5	18.5	19.0	---	---	---
15	20.0	19.5	20.0	19.0	18.0	18.5	19.0	18.0	18.5	---	---	---
16	20.0	19.5	19.5	20.0	18.5	19.0	19.0	18.5	18.5	---	---	---
17	20.0	19.0	19.5	19.5	19.0	19.5	18.5	18.0	18.5	---	---	---
18	19.5	17.5	19.0	19.5	18.5	19.0	18.0	16.0	17.0	---	---	---
19	18.0	17.0	17.5	19.0	18.5	19.0	18.0	16.5	17.5	---	---	---
20	18.5	18.0	18.0	---	---	---	17.5	16.5	17.0	---	---	---
21	19.0	18.0	18.0	---	---	---	17.5	16.0	17.0	---	---	---
22	19.0	18.5	19.0	---	---	---	17.5	16.0	17.0	---	---	---
23	---	---	---	---	---	---	18.0	16.5	17.5	---	---	---
24	---	---	---	---	---	---	18.0	17.5	18.0	---	---	---
25	---	---	---	---	---	---	18.0	17.5	18.0	---	---	---
26	---	---	---	---	---	---	18.5	17.5	18.0	17.5	17.0	17.0
27	---	---	---	---	---	---	18.0	17.5	18.0	17.5	16.5	17.0
28	---	---	---	---	---	---	18.5	18.0	18.0	17.5	16.5	17.0
29	---	---	---	---	---	---	18.0	17.0	17.5	18.0	17.0	17.5
30	---	---	---	---	---	---	18.0	17.5	18.0	18.0	16.5	17.5
31	---	---	---	---	---	---	18.5	17.5	18.0	17.5	17.0	17.0
MONTH	---	---	---	---	---	---	20.0	16.0	18.0	---	---	---

16704000 WAILUKU RIVER AT PIIHONUA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

	FEBRUARY			MARCH			APRIL			MAY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.5	16.5	17.0	17.0	15.5	16.5	16.5	15.0	16.0	18.0	17.0	17.0
2	17.0	16.5	16.5	17.5	16.5	17.0	17.0	16.0	16.5	17.5	17.0	17.0
3	17.0	16.0	16.5	17.5	17.0	17.5	17.0	16.0	16.5	17.5	17.0	17.0
4	17.0	16.0	16.5	18.5	17.5	17.5	16.5	15.0	16.0	18.0	17.0	17.5
5	18.5	17.0	17.5	17.5	16.0	16.5	17.0	16.0	16.5	18.0	17.0	17.5
6	19.0	17.5	18.0	16.5	15.5	16.0	17.5	16.0	17.0	18.0	17.5	18.0
7	18.5	17.0	17.5	17.5	16.5	17.0	17.5	16.0	17.0	18.5	18.0	18.0
8	18.0	17.5	17.5	17.5	16.5	17.0	17.0	16.5	17.0	18.5	18.0	18.0
9	17.5	17.0	17.5	17.5	16.5	17.0	17.0	17.0	17.0	19.0	18.0	18.5
10	17.5	16.5	17.0	17.5	16.5	17.0	17.0	16.0	16.5	20.0	18.5	19.0
11	17.5	17.0	17.5	17.0	16.5	17.0	17.0	16.5	16.5	19.5	19.0	19.0
12	18.0	17.0	17.5	16.5	16.0	16.0	17.5	16.5	17.0	19.5	18.5	19.0
13	18.0	17.0	17.5	17.0	16.0	16.5	17.5	17.0	17.0	19.0	18.5	18.5
14	17.5	15.5	16.5	17.0	16.0	16.5	18.0	17.0	17.5	19.0	18.0	18.5
15	16.0	14.5	15.5	17.0	16.5	16.5	18.0	17.0	17.5	19.5	18.0	19.0
16	16.0	15.0	15.5	17.0	16.5	17.0	18.0	17.0	17.5	19.5	18.5	19.0
17	16.0	15.5	16.0	17.0	15.5	16.0	18.0	17.0	17.0	20.0	18.5	19.5
18	16.5	16.0	16.0	17.0	15.5	16.5	17.5	17.0	17.0	20.0	19.0	19.5
19	16.5	16.0	16.5	17.0	16.0	16.5	17.0	16.0	16.5	20.0	19.0	19.5
20	17.5	16.0	16.5	17.5	16.5	17.0	17.0	16.5	16.5	20.0	19.0	19.5
21	17.5	17.0	17.0	17.5	16.5	17.0	17.5	16.5	17.0	19.5	18.5	19.0
22	17.5	15.5	17.0	18.0	17.0	17.5	17.5	17.0	17.5	18.5	18.0	18.5
23	15.0	14.5	15.0	17.5	17.0	17.5	17.5	16.5	17.0	18.0	17.0	17.5
24	16.5	15.0	15.5	17.5	17.0	17.5	18.0	16.5	17.5	17.5	17.0	17.5
25	16.5	15.0	15.5	17.5	16.5	17.0	18.0	17.0	17.5	18.0	17.0	17.5
26	16.0	15.5	16.0	17.0	16.0	16.5	18.5	17.0	18.0	18.0	17.0	17.5
27	17.0	15.5	16.0	16.0	15.5	15.5	18.5	17.5	18.0	17.5	16.5	17.0
28	17.0	16.0	16.5	16.5	15.5	16.0	18.5	17.0	18.0	18.0	16.5	17.5
29	17.0	16.0	16.5	16.5	16.0	16.0	18.5	17.0	18.0	18.5	17.5	18.0
30	---	---	---	17.0	16.0	16.5	18.5	17.5	18.0	18.0	18.0	18.0
31	---	---	---	16.5	15.5	16.5	---	---	---	18.0	17.5	18.0
MONTH	19.0	14.5	16.5	18.5	15.5	16.5	18.5	15.0	17.0	20.0	16.5	18.0

	JUNE			JULY			AUGUST			SEPTEMBER		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	18.0	17.5	18.0									
2	18.5	17.5	18.0									
3	18.5	17.5	18.0									
4	19.0	18.0	18.5									
5	20.0	18.5	19.0									
6	19.5	19.0	19.0									
7	19.5	19.0	19.0									
8	19.0	18.5	19.0									
9	20.0	19.5	19.0									
10	19.5	19.0	19.0									
11	19.0	18.5	19.0									
12	19.0	18.5	19.0									
13	19.0	18.5	18.5									
14	19.5	19.5	19.0									
15	19.5	18.5	19.0									
16	19.5	19.0	19.0									
17	19.5	18.5	19.0									
18	19.5	18.5	19.0									
19	19.5	18.5	19.0									
20	19.5	19.0	19.0									
21	19.5	19.0	19.5									
22	20.0	19.0	19.5									
23	20.0	19.0	19.5									
24	20.0	19.5	19.5									
25	20.0	19.0	19.5									
26	19.5	18.5	19.0									
27	19.0	18.5	19.0									
28	19.0	18.5	18.5									
29	19.0	18.5	18.5									
30	---	---	---									
31	---	---	---									
MONTH	20.0	17.5	19.0									
YEAR	22.5	14.5	18.0									

NOTE: Number of missing days of record exceeded 20% of year.

16717000 HONOLII STREAM NEAR PAPAIKOU
(Hydrologic bench-mark station)

LOCATION.--Lat 19°46'00", long 155°09'16", Hydrologic Unit 20010000, on left bank 0.7 mi (1.1 km) downstream from Pohakupaa Stream, 4.1 mi (6.6 km) west of Papaikou, and 4.8 mi (7.7 km) northwest of Hilo Post Office.

DRAINAGE AREA.--11.6 mi² (30.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1911 to March 1913 (published as "at Kaiwiki, near Hilo"), February 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,540 ft (469 m), from topographic map. Prior to Aug. 27, 1911, nonrecording gage and Aug. 27, 1911, to Mar. 24, 1913, water-stage recorder, at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.--Records good. No diversion above station. During period 1911-13, Honolii ditch diverted an average of about 3.2 ft³/s (0.091 m³/s) above station for fluming cane and domestic use.

AVERAGE DISCHARGE.--10 years, 128 ft³/s (3.625 m³/s), 92,740 acre-ft/yr (114 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,450 ft³/s (268 m³/s) Aug. 3, 1967, gage height, 16.95 ft (5.166 m); minimum, 0.8 ft³/s (0.023 m³/s) Jan. 31, 1912.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,400 ft³/s (125 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 19	0030	7800	221	15.30	4.663
Jan. 5	0515	*8170	231	15.67	4.776

Minimum discharge, 10 ft³/s (0.28 m³/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	26	62	42	23	81	308	391	51	40	38	21
2	13	21	244	41	20	51	101	90	39	32	77	99
3	19	19	190	124	18	106	528	90	32	67	32	66
4	17	16	85	315	17	219	847	80	29	42	25	44
5	25	15	50	3540	16	293	110	49	31	29	22	25
6	26	13	37	1860	16	453	81	46	27	25	28	20
7	240	14	39	2390	232	175	54	40	34	56	31	19
8	62	16	28	198	70	147	49	36	57	153	28	35
9	50	82	24	126	134	665	408	34	38	109	20	36
10	32	31	23	110	71	153	528	30	29	50	18	23
11	28	78	21	61	58	167	104	30	32	35	19	25
12	21	87	58	100	41	97	168	36	27	37	45	18
13	18	30	133	274	37	67	159	65	31	30	26	17
14	23	23	246	68	451	50	67	42	47	27	22	16
15	72	18	65	44	431	41	104	30	39	28	18	15
16	66	45	66	397	806	40	171	25	44	25	14	13
17	80	61	218	70	1090	573	288	23	32	22	13	19
18	629	26	55	48	156	194	286	21	43	20	14	46
19	802	21	36	43	93	56	317	21	30	18	409	29
20	70	479	29	34	67	48	358	38	50	31	429	18
21	46	64	26	46	58	41	118	72	30	130	69	14
22	34	98	22	33	464	45	416	226	27	45	35	12
23	282	51	20	338	2180	149	232	250	26	33	29	99
24	410	97	18	129	944	98	117	153	56	119	23	29
25	74	65	17	60	778	146	64	90	31	48	19	17
26	61	45	16	35	839	476	59	215	36	34	17	13
27	54	560	18	29	203	498	52	203	41	30	17	12
28	57	230	42	43	105	453	43	68	40	25	169	11
29	39	64	20	64	317	305	51	51	40	22	77	12
30	32	48	89	30	---	420	173	66	40	21	32	31
31	32	---	50	25	---	978	---	46	---	22	24	---
TOTAL	3429	2443	2046	10717	9735	7285	6361	2657	1109	1405	1839	854
MEAN	111	81.4	66.0	346	336	235	212	85.7	37.0	45.3	59.3	28.5
MAX	802	560	246	3540	2180	978	847	391	57	153	429	99
MIN	13	13	16	25	16	40	43	21	26	18	13	11
AC-FT	6800	4850	4060	21260	19310	14450	12620	5270	2200	2790	3650	1690

CAL YR 1975 TOTAL 46132.9 MEAN 126 MAX 5780 MIN 9.9 AC-FT 91500
WTR YR 1976 TOTAL 49880.0 MEAN 136 MAX 3540 MIN 11 AC-FT 98940

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1969 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)
OCT.											
22...	0945	36	32	6.2	18.0	2	9.1	270	60	93	12
NOV.											
18...	1045	27	38	6.1	18.0	4	9.3	230	96	160	16
DEC.											
10...	0910	23	48	7.3	17.0	1	9.0	71	9	33	19
JAN.											
27...	0950	29	39	6.9	16.5	1	9.5	78	36	813	18
FEB.											
26...	0930	615	14	7.0	15.0	6	9.6	8150	75	110	4
MAR.											
30...	0920	600	15	6.4	15.0	--	9.4	420	150	420	5
APR.											
28...	0955	42	39	7.2	22.0	--	9.3	30	16	19	14
MAY											
25...	0930	66	26	7.0	16.0	--	9.2	120	55	820	9
JUNE											
30...	1030	36	44	6.9	18.0	--	9.4	61	11	22	16
JULY											
20...	0945	25	60	7.4	19.0	--	9.1	66	34	160	23
AUG.											
24...	0945	23	49	6.5	19.0	--	9.9	58	23	93	22
SEP.											
28...	1415	11	75	7.2	22.5	--	9.4	37	5	10	32

B Results based on colony count outside the acceptable range (non-ideal colony count).

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)
OCT.										
22...	0	2.3	1.6	2.2	28	.3	.1	16	0	13
NOV.										
18...	0	3.2	2.0	2.2	23	.2	.2	20	0	16
DEC.										
10...	0	3.9	2.3	2.4	21	.2	.2	26	0	21
JAN.										
27...	0	2.9	2.5	2.1	20	.2	.3	21	0	17
FEB.										
26...	1	.6	.6	1.3	39	.3	.3	4	0	3
MAR.										
30...	3	.7	.9	1.2	32	.2	.1	3	0	2
APR.										
28...	0	3.1	1.6	2.2	25	.3	.2	20	0	16
MAY										
25...	1	1.8	1.2	2.0	31	.3	.2	10	0	8
JUNE										
30...	0	3.3	2.0	2.5	24	.3	.3	22	0	18
JULY										
20...	0	4.8	2.6	3.1	23	.3	.3	31	0	25
AUG.										
24...	3	4.6	2.6	2.6	20	.2	.3	24	0	20
SEP.										
28...	2	6.7	3.7	3.7	20	.3	.4	36	0	30

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT.										
22...	16	1.8	2.6	.0	6.7	25	25	.03	.01	.01
NOV.										
18...	25	3.2	3.0	.1	7.8	36	32	.05	.02	.01
DEC.										
10...	2.1	1.5	2.7	.0	12	41	38	.06	.04	.00
JAN.										
27...	4.2	3.3	2.4	.0	8.5	41	32	.06	.03	.00
FEB.										
26...	.6	2.6	2.2	.0	1.2	6	11	.01	.01	.00
MAR.										
30...	1.9	2.4	2.4	.0	1.3	17	10	.02	.00	.01
APR.										
28...	2.0	1.3	2.5	.1	8.9	36	30	.05	.00	.01
MAY										
25...	1.6	4.6	2.7	.1	4.6	32	22	.04	.00	.01
JUNE										
30...	4.4	1.9	2.9	.0	9.1	38	33	.05	.00	.02
JULY										
20...	2.0	4.3	3.8	.1	14	49	48	.07	.02	.01
AUG.										
24...	12	3.1	3.4	.0	11	47	39	.06	.04	.00
SEP.										
28...	3.6	2.0	3.4	.1	18	70	56	.10	.04	.01

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT.							
22...	0945	0	100	0	<50	10	430
MAY							
25...	0930	0	0	<10	--	<10	660

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT.						
22...	<100	10	.0	0	0	40
MAY						
25...	<100	10	.0	10	0	70

DATE	TIME	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED URANIUM (U) (UG/L)
OCT.									
22...	0945	<.5	<.4	1.4	<.4	1.2	<.4	.02	.08

DATE	TIME	TOTAL PCB (UG/L)	POLY-CHLO-RINATED NAPH-THA-LENES (UG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)
MAY												
25...	0930	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00

DATE	TOTAL HEPTA-CHLOR (UG/L)	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL METHYL PARA-THION (UG/L)	TOTAL METHYL TRI-THION (UG/L)	TOTAL PARA-THION (UG/L)	TOTAL TOX-APHENE (UG/L)	TOTAL TRI-THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
MAY											
25...	.00	.00	.00	.00	.00	.00	0	.00	.00	.00	.00

16717000 HONOLII STREAM NEAR PAPAIKOU--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TEMPERATURE (DEG C)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT.					
22...	0945	36	18.0	1	.10
NOV.					
18...	1045	27	18.0	2	.15
DEC.					
10...	0910	23	17.0	0	.00
JAN.					
27...	0950	29	16.5	1	.08
FEB.					
26...	0930	615	15.0	5	8.3
MAR.					
30...	0920	600	15.0	12	19
APR.					
28...	0955	42	22.0	5	.57
MAY					
25...	0930	66	16.0	1	.18
JUNE					
30...	1030	36	18.0	2	.19
JULY					
20...	0945	25	19.0	1	.07
AUG.					
24...	0945	23	19.0	2	.12
SEP.					
28...	1415	11	22.5	1	.03

16717800 POHAKUPUKA STREAM NEAR PAPAALOA

LOCATION.--Lat 19°57'20", long 155°11'20", Hydrologic Unit 20010000, on right bank 200 ft (61 m) downstream from Highway 19, 2.8 mi (4.5 km) northwest of Honohina, and 3.0 mi (4.8 km) southeast of Papaaloa.

DRAINAGE AREA.--2.76 mi^2 (7.15 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 250 ft (76.2 m) above mean sea level (by stadia survey).

REMARKS.--Records good except those for period of no gage-height record May 9 to June 16, which are fair.

AVERAGE DISCHARGE.--14 years, 27.2 ft^3/s (0.770 m^3/s), 19,710 acre-ft/yr (24.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,340 ft^3/s (151 m^3/s) Nov. 26, 1967, gage height, 13.37 ft (4.075 m), from rating curve extended above 1,100 ft^3/s (31.2 m^3/s); minimum, 0.28 ft^3/s (0.008 m^3/s) Nov. 9, 1962.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft^3/s (39.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 19	0015	*3280	92.9	10.74	3.274
Jan. 6	2200	1440	40.8	7.74	2.359

Minimum discharge, 0.82 ft^3/s (0.023 m^3/s) Oct. 4, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.96	6.0	9.7	11	14	22	84	161	20	9.2	2.7	2.4
2	.90	4.0	37	6.5	10	80	36	26	15	5.8	3.1	19
3	.89	3.0	93	23	8.9	132	130	20	10	6.5	2.7	17
4	.87	2.5	27	34	8.5	44	188	22	10	6.8	2.3	6.0
5	.86	2.3	16	334	8.3	74	40	15	10	4.2	2.1	3.1
6	1.1	2.1	12	269	30	183	32	14	9.0	3.8	2.1	2.5
7	20	2.1	15	337	61	55	21	13	10	38	2.0	2.0
8	7.1	2.1	9.7	56	16	34	20	12	15	66	2.2	2.0
9	12	20	8.5	43	12	90	167	10	10	29	2.2	2.8
10	4.4	7.0	8.4	30	11	53	127	10	9.0	11	1.8	2.8
11	2.8	14	8.0	17	10	28	27	12	9.5	7.2	1.8	5.7
12	2.2	23	8.6	18	9.7	25	25	20	9.0	9.2	6.1	2.6
13	1.9	5.1	20	92	9.7	20	25	15	9.5	6.2	5.8	1.8
14	1.7	3.8	24	21	76	18	18	10	10	5.3	4.8	1.6
15	7.2	3.3	11	14	100	17	16	8.0	8.0	10	2.8	1.4
16	14	7.5	15	257	108	39	16	7.5	5.5	5.9	4.0	1.4
17	14	11	42	41	162	162	15	7.5	5.2	4.2	2.3	1.4
18	134	4.0	12	18	30	41	21	7.0	8.2	3.5	2.3	41
19	184	5.1	8.7	15	17	20	37	7.0	6.5	3.0	65	4.7
20	13	143	7.5	13	14	17	68	10	23	5.8	114	1.7
21	11	20	6.9	16	22	16	31	25	7.2	49	15	1.3
22	9.0	11	6.6	12	112	19	125	125	6.3	13	6.0	1.1
23	8.0	9.2	6.2	39	388	70	82	100	5.0	7.4	4.0	1.0
24	18	12	5.9	20	128	44	31	75	4.5	45	3.1	.96
25	10	9.9	5.6	13	140	47	20	50	5.1	7.9	2.6	.94
26	8.0	6.9	5.4	11	85	123	19	100	7.2	5.8	2.1	.90
27	7.0	6.4	7.1	11	29	186	16	90	12	4.6	2.1	.89
28	9.0	20	10	11	20	90	14	35	14	3.9	125	1.2
29	8.0	9.1	7.0	14	58	62	49	25	12	3.4	12	.98
30	7.5	6.8	5.6	10	---	169	206	30	7.0	3.3	4.4	2.5
31	7.0	---	12	10	---	247	---	25	---	3.0	3.1	---
TOTAL	526.38	382.2	471.4	1816.5	1698.1	2227	1706	1087.0	292.7	386.9	411.5	134.67
MEAN	17.0	12.7	15.2	58.6	58.6	71.8	56.9	35.1	9.76	12.5	13.3	4.49
MAX	184	143	93	337	388	247	206	161	23	66	125	41
MIN	.86	2.1	5.4	6.5	8.3	16	14	7.0	4.5	3.0	1.8	.89
AC-FT	1040	758	935	3600	3370	4420	3380	2160	581	767	816	267

CAL YR 1975 TOTAL 8056.18 MEAN 22.1 MAX 1070 MIN .86 AC-FT 15980
WTR YR 1976 TOTAL 11140.35 MEAN 30.4 MAX 388 MIN .86 AC-FT 22100

HAWAII, ISLAND OF HAWAII

16717800 POHAKUPUKA STREAM NEAR PAPAALOA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-76.

REMARKS.--Miscellaneous chemical analyses published for this station for 1972 water year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
01...	1445	9.1	10	5	23	0	4.8	2.7	4.3
MAY									
07...	0915	13	5	1	41	0	9.1	4.4	5.7

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
01...	27	.4	2.1	29	0	24	3.7	3.5	5.2
MAY									
07...	23	.4	.6	54	0	44	2.7	1.7	7.2

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
01...	.0	12	51	.07	.12	.35	260	0
MAY								
07...	.0	20	77	.10	.37	.01	130	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV.						APR.					
04...	1115	2.6	65	7.2	21.0	08...	1405	19	93	7.4	20.0
DEC.						MAY					
01...	1445	9.1	68	7.1	21.0	07...	0915	13	103	7.5	20.0
JAN.						JUNE					
12...	1320	18	73	7.4	23.0	16...	1045	5.1	130	7.4	21.0
FEB.						JULY					
19...	1120	17	71	7.3	19.0	22...	1015	11	42	6.9	20.0
MAR.						AUG.					
15...	1020	17	105	7.3	21.0	26...	1315	2.3	100	7.5	20.0

16720000 KAWAINUI STREAM NEAR KAMUELA

LOCATION.--Lat 20°05'18", long 155°40'58", Hydrologic Unit 20010000, on left bank 250 ft (76 m) upstream from Upper Hamakua ditch intake and 4.5 mi (7.2 km) north of Kamuela.

DRAINAGE AREA.--1.58 mi² (4.09 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,060 ft (1,237 m), from topographic map.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--12 years, 13.3 ft³/s (0.377 m³/s), 9,640 acre-ft/yr (11.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,400 ft³/s (68.0 m³/s) Jan. 11, 1967, gage height, 9.15 ft (2.789 m), from rating curve extended above 53 ft³/s (1.50 m³/s) on basis of computation of peak flow over dam; minimum, 0.02 ft³/s (0.001 m³/s) Sept. 23, 24, 26-30, Oct. 11, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 440 ft³/s (12.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 18	2015	465	13.2	5.10	1.554
Jan. 16	0530	*730	20.7	6.00	1.829

Minimum discharge, 0.03 ft³/s (0.001 m³/s) Jan. 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.48	1.4	16	.37	1.4	.85	36	25	1.7	18	1.0	3.5
2	53	1.2	5.4	.35	.60	28	21	7.1	1.1	11	.87	35
3	43	.97	3.6	1.5	.28	25	75	3.1	.80	25	.65	15
4	21	.88	9.5	6.9	.10	16	94	4.5	.66	20	.55	5.0
5	15	.73	19	2.9	.07	21	17	6.8	.52	10	1.0	4.5
6	22	.62	5.1	4.4	28	40	9.3	12	.38	17	27	4.0
7	28	.55	5.0	7.5	17	26	5.5	5.5	.49	90	18	3.5
8	14	.56	2.1	69	3.6	22	7.0	4.0	2.0	106	9.5	2.5
9	14	59	1.9	29	2.2	17	80	2.4	1.6	58	3.6	4.2
10	3.8	11	1.8	13	1.3	15	48	4.5	.95	16	2.0	8.9
11	2.4	42	1.2	3.9	.89	29	14	14	.82	6.1	4.8	11
12	1.8	22	.95	12	.68	10	11	15	.71	7.8	27	5.7
13	1.3	3.6	.79	44	.75	3.0	6.6	37	3.1	6.2	16	2.4
14	1.7	2.0	.67	34	47	1.7	5.4	20	12	5.8	25	1.5
15	24	1.9	.59	9.5	18	1.1	3.4	6.3	20	28	6.1	1.3
16	57	34	2.2	195	3.9	14	3.4	3.4	33	10	10	1.0
17	39	18	26	23	17	64	2.7	6.9	23	4.3	3.5	1.3
18	77	3.1	3.9	4.6	9.6	13	3.0	2.4	55	2.2	2.5	.98
19	21	18	1.9	2.1	4.5	3.0	7.7	2.2	53	1.5	75	.64
20	5.8	56	1.3	1.3	3.1	12	16	7.3	59	9.4	45	.44
21	3.6	9.6	.98	.98	17	16	15	17	23	72	6.0	.30
22	2.1	3.3	.77	.70	57	9.0	69	11	19	25	3.5	.21
23	1.4	1.9	.63	.52	84	21	66	4.5	14	34	3.0	.22
24	1.6	14	.52	.35	31	23	21	3.1	7.5	63	2.5	.41
25	4.1	6.8	.48	.22	21	15	7.4	1.9	4.0	14	2.0	.29
26	23	2.3	.45	.11	6.9	15	2.7	1.7	17	7.0	2.0	8.9
27	41	1.5	.40	.08	3.0	37	1.8	1.2	18	4.9	3.5	18
28	21	2.8	.39	.07	1.6	36	1.3	.95	8.1	2.9	50	7.3
29	10	3.6	.40	.07	1.2	15	11	6.3	8.5	1.8	15	13
30	3.1	8.8	.45	.06	---	26	19	13	22	1.5	6.0	5.0
31	1.9	---	.39	1.4	---	52	---	3.4	---	1.3	6.0	---
TOTAL	558.08	332.11	114.75	468.87	382.67	626.65	680.2	253.45	410.93	679.7	378.57	165.99
MEAN	18.0	11.1	3.70	15.1	13.2	20.2	22.7	8.18	13.7	21.9	12.2	5.53
MAX	77	59	26	195	84	64	94	37	59	106	75	35
MIN	.48	.55	.39	.06	.07	.85	1.3	.95	.38	1.3	.55	.21
AC-FT	1110	659	228	930	759	1240	1350	503	815	1350	751	329

CAL YR 1975 TOTAL 4610.44 MEAN 12.6 MAX 143 MIN .34 AC-FT 9140
WTR YR 1976 TOTAL 5051.97 MEAN 13.8 MAX 195 MIN .06 AC-FT 10020

HAWAII, ISLAND OF HAWAII

16720000 KAWAINUI STREAM NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 17...	1030	36	90	6	10	5	3.0	.6	2.7
JUNE 07...	1230	.26	65	1	5	1	.9	.6	2.9

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 17...	34	.4	1.1	6	0	5	4.8	4.8	4.3
JUNE 07...	56	.6	.2	5	0	4	8.0	1.9	4.7

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 17...	.0	.9	22	.03	.00	.22	600	20
JUNE 07...	.1	5.5	19	.03	.00	.00	170	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 29...	1115	9.3	25	5.8	15.0
DEC. 17...	1030	36	26	6.3	12.0
MAR. 03...	1120	30	24	5.4	12.0
APR. 23...	0950	22	28	5.1	11.0
JUNE 07...	1220	.26	25	6.0	16.0
07...	1230	.26	25	6.0	16.0
SEP. 08...	1035	.65	28	6.5	15.0

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 (0.3 km) upstream from Upper Hamakua ditch intake and 4.4 mi (7.1 km) north of Kamuela.

DRAINAGE AREA.--0.45 mi² (1.17 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,090 ft (1,247 m), from topographic map.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--8 years, 3.68 ft³/s (0.104 m³/s), 2,670 acre-ft/yr (3.29 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 595 ft³/s (16.9 m³/s) Oct. 20, 1974, gage height, 5.65 ft (1.722 m), from rating curve extended above 33 ft³/s (0.94 m³/s); minimum, 0.03 ft³/s (0.001 m³/s) Nov. 12-15, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 18	2015	122	3.46	3.18	0.969
Jan. 16	0530	*234	6.63	4.17	1.271

Minimum discharge, 0.24 ft³/s (0.007 m³/s) Jan. 1-3, Feb. 4-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.33	.67	4.2	.26	.62	.69	10	7.3	1.3	4.4	.95	1.6
2	13	.60	2.0	.24	.36	12	5.7	3.0	1.0	3.9	.95	9.3
3	11	.54	1.6	.99	.28	7.3	18	1.8	.93	7.9	.85	4.3
4	5.4	.54	3.4	1.8	.25	4.6	22	2.3	.87	5.3	.85	2.2
5	3.5	.48	5.5	1.4	.24	5.8	5.9	3.2	.84	4.2	2.7	2.0
6	5.7	.48	2.0	1.8	11	11	3.2	4.8	.77	5.7	7.8	1.5
7	6.5	.44	2.3	2.8	5.0	6.6	2.3	2.8	.98	30	3.7	1.5
8	4.0	.42	.99	18	1.4	7.0	2.9	2.5	2.2	23	2.7	1.0
9	4.8	13	1.0	6.5	.91	5.2	19	1.8	1.5	12	1.5	2.6
10	1.3	3.0	.82	3.2	.73	4.1	10	2.7	1.1	4.3	1.2	3.5
11	.93	8.7	.59	1.3	.52	8.4	4.7	5.7	1.0	2.4	4.1	3.7
12	.77	5.1	.52	3.4	.48	3.1	3.3	5.9	.92	3.7	6.9	2.3
13	.65	1.2	.48	11	.53	1.3	2.2	11	2.5	2.7	6.1	1.2
14	.79	.78	.44	9.6	10	.88	2.0	5.6	5.1	2.7	4.5	.96
15	7.6	1.1	.42	2.7	4.1	.73	1.5	2.5	5.4	8.0	3.3	.84
16	15	11	1.0	40	1.2	5.4	1.6	2.1	8.2	2.9	2.7	.77
17	9.3	4.4	5.8	6.4	3.5	17	1.4	2.9	7.7	1.8	1.6	.92
18	17	1.2	1.3	1.7	2.3	3.3	1.9	1.4	13	1.2	1.0	.68
19	4.6	6.0	.81	.92	1.4	1.3	3.2	1.7	16	1.5	18	.60
20	2.1	12	.61	.71	1.2	5.0	4.3	3.2	13	9.1	11	.54
21	1.3	2.7	.50	.59	5.0	4.7	3.8	5.4	7.6	17	2.4	.51
22	.80	1.2	.42	.58	13	3.2	17	3.6	5.6	6.1	1.6	.50
23	.63	.81	.38	.52	14	5.1	15	2.1	4.6	14	1.0	.54
24	.89	3.3	.36	.46	6.5	7.0	5.5	1.6	3.0	11	.95	.67
25	1.7	1.8	.33	.41	4.0	4.1	2.7	1.2	2.6	4.1	.95	.53
26	7.3	.90	.33	.37	2.1	3.5	1.4	1.3	5.7	2.4	.95	3.0
27	12	.69	.29	.34	1.2	7.2	1.1	1.1	5.9	2.2	1.0	5.5
28	5.5	1.3	.29	.35	.75	9.9	.96	.97	3.3	1.5	13	3.0
29	3.1	1.6	.32	.35	.81	4.7	4.3	2.7	3.9	1.2	4.1	4.7
30	1.2	3.3	.36	.30	---	7.1	6.4	4.3	9.4	1.0	2.4	2.1
31	.80	---	.28	.97	---	13	---	1.9	---	.95	2.4	---
TOTAL	149.49	89.25	38.84	119.96	93.38	180.20	183.26	100.37	135.91	198.15	113.15	63.06
MEAN	4.82	2.98	1.25	3.87	3.22	5.81	6.11	3.24	4.53	6.39	3.65	2.10
MAX	17	13	5.5	40	14	17	22	11	16	30	18	9.3
MIN	.33	.42	.28	.24	.24	.69	.96	.97	.77	.95	.85	.50
AC-FT	297	177	77	238	185	357	363	199	270	393	224	125

CAL YR 1975 TOTAL 1253.63 MEAN 3.43 MAX 32 MIN .28 AC-FT 2490
WTR YR 1976 TOTAL 1465.02 MEAN 4.00 MAX 40 MIN .24 AC-FT 2910

16720300 KAWAIKI STREAM NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
17...	1005	7.8	80	3	7	5	.8	1.2	2.8
JUNE									
23...	1100	3.1	90	1	4	1	.9	.4	2.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
17...	45	.5	.5	2	0	2	1.3	3.7	4.5
JUNE									
23...	55	.5	.1	3	0	2	15	5.2	4.1

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
17...	.0	.9	16	.02	.00	.11	390	10
JUNE								
23...	.0	.9	16	.02	.00	.03	390	20

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT.					
29...	1030	3.1	25	5.5	15.0
DEC.					
17...	1000	7.8	27	6.4	12.0
17...	1005	7.8	27	6.4	12.0
MAR.					
03...	1040	7.5	26	--	12.0
APR.					
23...	0905	5.5	28	5.0	12.0
JUNE					
23...	1100	3.1	22	5.5	15.0
SEP.					
09...	1000	1.0	41	6.4	15.0

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 (244 m) downstream from Kawaiki Stream intake and 4.4 mi (7.1 km) north of Kamuela.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,020 ft (1,225 m), from topographic map.

REMARKS.--Records good. Ditch diverts from Kawainui and Kawaiki Streams for irrigation in vicinity of Kamuela. Recording rain gage located at station.

AVERAGE DISCHARGE.--12 years, 8.34 ft^3/s (0.236 m^3/s), 6,040 acre-ft/yr (7.45 hm^3/yr).

EXIREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 49 ft^3/s (1.39 m^3/s) Nov. 2, 1967; minimum daily, 0.05 ft^3/s (0.001 m^3/s) Oct. 4-6, 1965.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	2.3	13	.42	1.8	1.5	14	13	2.4	12	1.4	2.5
2	13	1.9	6.2	.38	1.0	8.5	14	8.9	1.7	11	1.2	12
3	12	1.6	5.0	1.9	.72	10	14	4.1	1.3	8.9	1.0	7.0
4	10	1.4	10	6.6	.62	12	15	5.9	1.1	13	.94	3.5
5	7.5	1.2	12	3.8	.45	14	13	8.3	.89	11	5.4	3.0
6	10	1.0	6.5	5.2	5.7	14	11	12	.84	13	13	2.0
7	10	.94	6.0	4.7	6.9	14	6.7	7.1	1.0	15	10	2.0
8	7.0	.89	2.7	15	3.8	14	8.9	5.3	3.4	15	8.9	1.5
9	7.0	12	2.5	14	3.0	12	14	3.5	2.5	14	3.2	5.6
10	4.5	12	2.4	11	2.0	14	14	5.9	1.4	12	2.1	5.4
11	3.5	13	1.5	4.4	1.4	13	11	9.5	1.3	6.5	9.8	9.6
12	2.5	12	1.1	11	1.3	12	12	12	1.1	11	13	6.6
13	2.0	4.6	.89	15	1.7	4.4	8.0	14	4.3	7.0	12	3.1
14	2.5	2.9	.84	14	12	2.5	12	12	10	7.4	11	1.9
15	10	3.4	.67	9.1	5.8	1.7	4.4	7.4	13	13	8.2	1.6
16	13	14	2.6	15	3.4	3.4	4.4	5.3	14	9.6	7.4	1.4
17	12	11	13	9.0	6.0	15	3.8	8.2	14	4.4	3.0	1.7
18	15	4.3	4.4	3.8	4.3	11	4.1	3.2	14	2.9	2.5	1.3
19	10	7.4	2.4	2.9	3.6	4.4	8.3	3.5	14	2.9	13	1.0
20	6.5	14	1.4	2.0	3.4	8.2	12	8.9	14	12	10	.89
21	4.5	10	1.1	1.5	8.7	13	11	13	14	14	5.5	.78
22	3.0	4.4	.89	1.3	12	11	13	11	13	13	3.0	.72
23	2.0	2.7	.72	1.1	13	11	14	5.6	12	14	2.5	.72
24	2.0	6.4	.62	.89	8.5	14	14	3.8	8.8	13	2.0	.94
25	5.0	7.4	.56	.78	5.9	13	8.4	2.5	5.5	12	2.0	.78
26	10	3.1	.50	.67	4.0	13	3.9	2.4	13	6.6	2.0	3.6
27	12	2.1	.45	.62	3.1	14	2.6	1.7	13	5.6	2.5	10
28	10	3.8	.45	.56	2.5	14	1.9	1.4	9.6	3.2	10	8.1
29	10	4.7	.45	.56	2.0	14	6.4	6.0	11	2.3	7.0	8.6
30	4.1	7.6	.56	.45	---	14	12	12	12	1.8	3.5	5.6
31	2.7	---	.42	2.0	---	12	---	4.4	---	1.5	3.5	---
TOTAL	224.8	174.03	101.82	159.63	128.59	332.6	291.8	221.8	228.13	288.6	180.54	113.43
MEAN	7.25	5.80	3.28	5.15	4.43	10.7	9.73	7.15	7.60	9.31	5.82	3.78
MAX	15	14	13	15	13	15	15	14	14	15	13	12
MIN	1.5	.89	.42	.38	.45	1.5	1.9	1.4	.84	1.5	.94	.72
AC-FT	446	345	202	317	255	660	579	440	452	572	358	225

CAL YR 1975 TOTAL 2249.50 MEAN 6.16 MAX 15 MIN .42 AC-FT 4460
WTR YR 1976 TOTAL 2445.77 MEAN 6.68 MAX 15 MIN .38 AC-FT 4850

16720500 UPPER HAMAKUA DITCH BELOW KAWAIKI STREAM, NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 17...	0930	14	90	6	7	7	1.5	.9	2.8
JUNE 07...	1440	.78	60	1	5	1	.8	.7	3.1

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 17...	43	.4	.6	1	0	1	.6	4.4	4.7
JUNE 07...	57	.6	.2	5	0	4	2.5	1.9	4.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 17...	.0	.9	17	.02	.00	.10	590	20
JUNE 07...	.0	6.1	20	.03	.00	.01	280	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 29...	1000	12	25	5.5	15.0
DEC. 17...	0920	14	27	6.4	12.0
17...	0930	14	27	6.4	12.0
MAR. 03...	1015	10	23	--	13.0
APR. 23...	0900	14	27	5.1	13.0
JUNE 07...	1440	.78	26	6.5	16.0
SEP. 08...	0940	1.1	38	6.5	15.0

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 (0.2 km) upstream from Alakahi Stream and 3.6 mi (5.8 km) north of Kamuela.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,890 ft (1,186 m), from topographic map.

REMARKS.--Records good. Ditch diverts from Kawainui and Kawaiki Streams for irrigation in vicinity of Kamuela.

AVERAGE DISCHARGE.--8 years, 6.21 ft^3/s (0.176 m^3/s), 4,500 acre-ft/yr (5.55 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 41 ft^3/s (1.16 m^3/s) Aug. 18, 1972; no flow at times each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.74	8.3	0	.10	.90	11	9.7	.80	7.7	.16	3.0
2	9.5	.48	4.0	0	0	6.0	9.7	6.4	.30	6.9	.05	10
3	13	.28	2.0	.14	0	5.0	11	2.5	.03	5.5	.02	6.0
4	11	.22	5.7	2.1	0	6.6	14	3.5	0	9.0	.02	3.0
5	9.1	.12	8.6	.61	0	7.4	10	4.9	0	7.5	1.2	2.5
6	9.1	.04	3.8	1.7	1.7	7.9	8.2	7.9	0	8.6	7.7	2.0
7	12	.01	3.9	.83	4.2	7.6	4.8	4.8	0	14	6.3	.50
8	10	.01	1.0	8.7	.90	7.5	6.5	3.5	.58	13	5.0	0
9	10	8.3	.77	8.1	.52	6.9	11	1.9	.33	11	1.4	1.7
10	3.0	8.4	.67	6.4	.16	7.4	11	3.4	0	8.7	.59	1.7
11	1.6	8.9	.25	1.7	0	7.7	8.6	5.8	0	4.5	3.6	4.4
12	1.0	9.4	.05	4.5	0	6.5	8.7	8.2	0	6.8	7.2	2.8
13	.61	2.6	0	8.0	0	2.2	5.9	10	1.2	4.9	7.4	.80
14	.72	1.1	0	7.7	3.8	.83	4.6	9.2	5.0	4.7	8.0	.27
15	8.1	1.0	0	5.9	3.5	.37	2.7	5.5	7.2	8.6	5.0	.10
16	12	9.8	.50	13	1.0	1.8	2.6	2.6	8.6	7.0	7.0	0
17	12	8.2	6.7	6.7	1.5	9.5	1.9	5.5	8.8	2.8	2.5	.08
18	12	2.2	1.8	1.6	1.5	7.1	2.1	1.7	10	1.1	2.0	0
19	9.0	4.1	.41	.91	1.0	2.3	4.8	1.4	11	.70	12	0
20	3.0	11	.08	.48	.90	4.6	7.6	4.7	11	7.2	10	0
21	2.5	7.6	.01	.24	3.0	7.8	7.7	8.3	9.5	11	5.0	0
22	1.5	2.4	0	.10	7.0	6.6	10	7.3	9.1	8.6	3.0	0
23	.95	1.1	0	.03	7.0	6.5	12	3.5	8.6	10	2.5	0
24	.90	3.4	0	0	5.0	8.2	10	2.0	6.0	11	2.0	0
25	1.0	5.0	0	0	4.0	7.7	6.7	1.0	3.1	8.6	1.0	0
26	5.5	1.3	0	0	3.5	7.4	2.3	.83	7.9	4.8	.80	.67
27	7.5	.62	0	0	2.5	8.1	1.2	.46	8.4	3.5	3.0	5.4
28	7.5	1.3	0	0	1.5	9.0	.75	.22	6.3	1.5	10	3.8
29	6.0	2.0	0	0	1.0	8.6	3.7	2.2	6.8	.81	6.0	4.2
30	2.5	3.6	0	0	---	9.3	8.9	7.2	8.0	.52	4.0	2.9
31	1.2	---	0	.06	---	8.6	---	2.5	---	.31	3.5	---
TOTAL	183.78	105.22	48.54	79.50	55.28	193.90	209.95	138.61	138.54	200.84	127.94	55.82
MEAN	5.93	3.51	1.57	2.56	1.91	6.25	7.00	4.47	4.62	6.48	4.13	1.86
MAX	13	11	8.6	13	7.0	9.5	14	10	11	14	12	10
MIN	0	.01	0	0	0	.37	.75	.22	0	.31	.02	0
AC-FT	365	209	96	158	110	385	416	275	275	398	254	111

CAL YR 1975 TOTAL 1940.32 MEAN 5.32 MAX 20 MIN 0 AC-FT 3850
WTR YR 1976 TOTAL 1537.92 MEAN 4.20 MAX 14 MIN 0 AC-FT 3050

16724800 UPPER HAMAKUA DITCH ABOVE ALAKAHI STREAM, NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 17...	0855	7.0	100	5	13	6	4.4	.6	3.0

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 17...	31	.4	.7	9	0	7	11	4.2	4.5

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 17...	.0	1.0	24	.03	.00	.03	590	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 29...	0855	10	26	5.7	15.0
DEC. 17...	0855	7.0	25	6.1	13.0
MAR. 03...	0910	5.0	24	--	13.0
APR. 23...	1115	10	27	5.6	12.0

16725000 ALAKAHI STREAM NEAR KAMUELA

LOCATION.--Lat 20°04'27", long 155°40'25", Hydrologic Unit 20010000, on right bank 25 ft (8 m) upstream from Upper Hamakua ditch intake and 3.5 mi (5.6 km) north of Kamuela.

DRAINAGE AREA.--0.87 mi^2 (2.25 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,900 ft (1,189 m), from topographic map.

REMARKS.--Records good. Parker Ranch pipeline diverts from tributary, 0.4 mi (0.6 km) above station for ranch use in Kamuela area.

AVERAGE DISCHARGE.--12 years, 6.31 ft^3/s (0.179 m^3/s), 4,570 acre-ft/yr (5.63 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,420 ft^3/s (40.2 m^3/s) Jan. 11, 1967, gage height, 8.65 ft (2.637 m), from rating curve extended above 28 ft^3/s (0.79 m^3/s) on basis of computation of peak flow over dam; minimum, 0.03 ft^3/s (0.001 m^3/s) on several days in 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 81 ft^3/s (2.29 m^3/s) Apr. 3, gage height, 3.91 ft (1.192 m), from rating curve extended as explained above, no peak above base of 120 ft^3/s (3.40 m^3/s); minimum, 0.38 ft^3/s (0.011 m^3/s) Sept. 22, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	2.0	7.1	1.1	1.2	1.8	20	15	2.5	7.3	2.5	3.4
2	16	1.7	4.3	1.1	1.2	17	11	5.8	2.0	6.2	2.3	16
3	18	1.5	2.8	1.2	1.2	16	23	4.0	1.8	13	2.1	8.4
4	9.1	1.4	5.3	1.3	1.2	9.8	34	3.8	1.7	9.8	2.0	4.8
5	7.4	1.3	8.9	1.6	1.1	11	10	5.5	1.5	8.3	4.2	3.5
6	8.3	1.2	4.4	3.0	15	17	7.4	8.2	1.5	11	16	2.7
7	10	1.1	4.9	2.5	12	13	4.9	5.3	1.6	48	7.5	2.3
8	6.2	1.1	2.8	29	4.4	12	5.7	4.6	3.0	39	5.8	1.3
9	8.4	14	2.1	13	3.2	10	30	3.8	2.6	18	3.7	2.3
10	3.9	5.5	2.1	6.7	2.6	7.9	21	4.1	2.0	7.6	2.8	3.9
11	2.8	11	1.6	4.0	2.0	16	7.8	8.6	1.7	4.5	7.5	5.0
12	2.2	11	1.4	4.2	1.7	7.4	6.8	9.6	1.6	6.2	12	2.4
13	1.8	3.6	1.3	17	1.5	3.9	4.8	18	3.4	5.4	12	1.1
14	1.6	2.4	1.2	15	15	2.8	4.1	11	7.5	5.4	8.9	.80
15	9.8	2.3	1.2	6.5	8.3	2.2	3.4	5.2	8.5	14	5.4	.67
16	21	18	1.1	43	3.7	6.5	3.4	3.9	13	5.9	5.8	.79
17	15	9.4	5.0	15	4.3	26	3.1	5.5	15	4.4	3.9	.49
18	17	3.6	3.2	5.1	4.2	8.1	3.0	3.4	22	3.5	2.9	.45
19	9.8	8.9	2.0	3.6	3.2	4.1	5.2	2.9	16	3.0	25	.43
20	4.0	23	1.5	2.7	2.7	7.6	6.2	4.6	21	19	20	.42
21	3.3	5.6	1.3	2.2	6.2	8.5	6.1	8.5	14	27	5.8	.43
22	2.2	3.7	1.3	1.9	20	5.8	25	5.6	9.6	12	4.2	.38
23	1.7	2.7	1.2	1.7	21	7.6	28	4.1	8.2	28	3.2	.39
24	1.5	5.1	1.2	1.5	11	11	9.7	3.1	5.8	18	2.6	.47
25	2.0	4.6	1.2	1.4	7.3	8.5	6.4	2.5	5.4	10	2.3	.46
26	6.8	2.6	1.2	1.3	5.0	5.6	4.1	2.3	9.0	5.7	2.1	10
27	8.9	1.9	1.1	1.2	3.6	10	3.2	2.1	9.2	5.2	2.1	4.8
28	8.9	2.0	1.1	1.2	2.5	16	2.6	1.9	6.0	4.0	18	3.1
29	6.6	2.9	1.2	1.2	2.0	8.1	5.6	2.9	6.2	3.2	7.6	12
30	3.5	5.0	1.2	1.1	---	14	11	6.9	16	2.7	4.9	3.1
31	2.5	---	1.1	1.2	---	17	---	4.1	---	2.4	4.4	---
TOTAL	221.4	160.1	77.3	192.5	168.3	312.2	316.5	176.8	219.3	357.7	209.5	96.28
MEAN	7.14	5.34	2.49	6.21	5.80	10.1	10.6	5.70	7.31	11.5	6.76	3.21
MAX	21	23	8.9	43	21	26	34	18	22	48	25	16
MIN	1.2	1.1	1.1	1.1	1.1	1.8	2.6	1.9	1.5	2.4	2.0	.38
AC-FT	439	318	153	382	334	619	628	351	435	709	416	191

CAL YR 1975 TOTAL 2139.30 MEAN 5.86 MAX 41 MIN .60 AC-FT 4240
WTR YR 1976 TOTAL 2507.88 MEAN 6.85 MAX 48 MIN .38 AC-FT 4970

HAWAII, ISLAND OF HAWAII

16725000 ALAKAHI STREAM NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 17...	0930	8.4	80	3	10	0	2.3	1.0	3.5
JUNE 07...	1615	1.5	45	1	9	0	1.4	1.4	3.6

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 17...	41	.5	.8	12	0	10	9.6	3.7	4.3
JUNE 07...	45	.5	.2	11	0	9	4.4	1.8	5.1

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 17...	.0	5.5	28	.04	.00	.15	510	30
JUNE 07...	.0	7.1	26	.04	.00	.03	250	20

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 29...	0910	6.9	29	6.0	15.0
DEC. 17...	0930	8.4	34	6.3	13.0
MAR. 03...	0830	11	25	--	13.0
APR. 23...	1100	11	27	5.3	13.0
JUNE 07...	1615	1.5	36	6.6	16.0
SEP. 08...	1125	2.0	36	6.4	15.0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
APR. 23...	1100	11	27	5.3	13.0
JUNE 07...	1615	1.5	36	6.6	16.0
SEP. 08...	1125	2.0	36	6.4	15.0

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 120 ft (37 m) upstream from diversion intake leading to Wainea Reservoir and 3.7 mi (6.0 km) northeast of Kamuela Post Office.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,020 ft (920 m), from topographic map.

REMARKS.--Records good except those for periods of no gage-height record, Oct. 21 to Nov. 27, July 6 to Aug 12, which are fair. Ditch diverts from Kawainui, Kawaiki, and Alakahi streams for use in vicinity of Kamuela.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 39 ft^3/s (1.10 m^3/s) Apr. 21, 1975, Jan. 16, 1976; no flow at times during the year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.47	3.0	19	.20	1.0	1.3	31	29	3.0	13	3.0	3.5
2	17	2.5	10	.17	.63	13	26	15	1.8	9.0	3.0	23
3	27	2.5	4.8	.14	.51	33	30	7.7	1.2	8.3	2.5	15
4	21	2.0	11	2.3	.44	22	37	8.0	.97	13	2.5	6.7
5	19	2.0	20	1.2	.39	24	23	13	.84	11	5.0	3.2
6	17	2.0	11	3.7	9.6	27	20	22	.75	15	20	2.0
7	25	1.5	13	1.3	23	25	11	13	.70	35	9.0	1.5
8	19	1.5	4.5	31	6.5	23	14	11	3.5	25	7.0	1.5
9	23	25	2.9	25	4.0	20	33	6.9	2.0	20	4.5	4.8
10	7.7	7.5	2.7	17	2.7	22	31	7.9	1.5	8.5	3.5	11
11	4.5	20	1.6	6.9	1.6	26	21	15	1.0	6.0	9.0	11
12	3.2	20	1.2	8.4	1.2	19	21	21	.80	7.0	18	5.8
13	2.1	5.0	.96	25	.97	7.3	13	30	4.0	6.5	20	2.5
14	1.8	3.5	.77	24	19	3.9	8.8	25	9.0	6.5	22	1.6
15	19	3.5	.68	16	19	2.5	7.0	13	10	16	13	1.3
16	30	30	.84	39	7.8	7.1	7.2	7.3	15	6.5	14	1.1
17	25	15	9.0	31	6.2	34	5.4	12	20	5.5	5.2	1.1
18	23	5.0	4.7	14	5.5	20	4.6	5.3	25	4.0	2.6	.79
19	27	10	1.7	6.7	3.3	7.4	10	4.0	30	3.5	27	.60
20	14	35	.97	3.8	2.5	11	15	8.4	25	20	25	.54
21	8.0	7.5	.68	2.7	6.9	19	15	17	15	30	11	.50
22	3.5	5.0	.51	1.9	25	14	27	14	10	15	5.6	.52
23	2.5	3.5	.43	1.5	27	16	34	8.3	9.0	30	3.1	.99
24	2.0	7.0	.37	1.2	20	21	25	5.6	6.0	20	2.1	.87
25	3.0	5.5	.36	1.0	13	19	18	3.2	3.5	12	1.6	.66
26	10	4.0	.34	.84	7.6	14	8.0	2.5	8.8	7.0	1.4	18
27	15	3.0	.30	.72	4.7	20	5.3	1.9	9.5	6.5	2.2	8.9
28	15	3.3	.28	.77	2.5	25	3.6	1.4	7.0	5.0	27	8.8
29	7.5	5.4	.25	.70	1.6	23	14	4.7	7.0	4.5	16	18
30	4.5	9.9	.24	.57	---	27	27	16	15	3.5	8.0	4.4
31	3.5	---	.22	.59	---	21	---	7.4	---	3.0	6.0	---
TOTAL	400.27	250.6	125.30	269.30	224.14	567.5	545.9	356.5	246.86	375.8	299.8	160.17
MEAN	12.9	8.35	4.04	8.69	7.73	18.3	18.2	11.5	8.23	12.1	9.67	5.34
MAX	30	35	20	39	27	34	37	30	30	35	27	23
MIN	.47	1.5	.22	.14	.39	1.3	3.6	1.4	.70	3.0	1.4	.50
AC-FT	794	497	249	534	445	1130	1080	707	490	745	595	318

CAL YR 1975 TOTAL 3916.44 MEAN 10.7 MAX 39 MIN .22 AC-FT 7770
WTR YR 1976 TOTAL 3822.14 MEAN 10.4 MAX 39 MIN .14 AC-FT 7580

16726000 UPPER HAMAKUA DITCH ABOVE WAIMEA RESERVOIR DIVERSION, NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 26...	1015	4.4	60	2	6	0	1.3	.6	3.8
MAY 14...	1155	27	90	2	6	4	.8	1.0	3.1

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 26...	45	.7	--	7	0	6	1.8	4.2	5.3
MAY 14...	51	.5	.3	3	0	2	1.9	5.3	5.6

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 26...	.1	3.3	--	.04	.01	--	230	5
MAY 14...	.1	2.4	21	.03	.00	.01	540	20

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 17...	1350	25	22	6.0	16.5
NOV. 26...	1015	4.4	23	6.8	18.0
JAN. 30...	1320	.60	32	6.7	18.0
MAR. 04...	1400	12	23	5.6	16.0
MAY 14...	1155	27	24	6.4	15.0
JUNE 25...	1445	3.3	23	5.4	16.0
JULY 01...	1030	13	25	5.8	16.0
AUG. 12...	1230	24	26	6.0	16.0

16756000 KOHAKOHAU STREAM NEAR KAMUELA

LOCATION.--Lat 20°02'38", long 155°41'10", Hydrologic Unit 20010000, on left bank 0.6 mi (1.0 km) upstream from Oolamakapehu Gulch and 1.7 mi (2.7 km) northwest of Kamuela.

DRAINAGE AREA.--2.51 mi^2 (6.50 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,273 ft (997.6 m) above mean sea level (by stadia survey by State Department of Land and Natural Resources). Prior to Jan. 11, 1967, at site 0.5 mi (0.8 km) upstream at different datums.

REMARKS.--Records good. Parker Ranch pipeline diverts above station at altitude 4,250 ft (1,295 m). Hawaii Division of Water and Land Development diverts by pipeline 0.3 mi (0.5 km) above station at altitude 3,400 ft (1,036 m) for domestic use in the Kamuela and Kawaihae areas since Aug. 20, 1973.

AVERAGE DISCHARGE.--20 years, 8.37 ft^3/s (0.237 m^3/s), 6,060 acre-ft/yr (7.47 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,880 ft^3/s (110 m^3/s) Aug. 7, 1958, gage height, 10.76 ft (3.280 m), site and datum then in use, from rating curve extended above 70 ft^3/s (1.98 m^3/s), by test of model of station site; no flow at times in 1968, 1971-76.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 375 ft^3/s (10.6 m^3/s) Jan. 16, gage height, 4.53 ft (1.381 m), from rating curve extended above 46 ft^3/s (1.30 m^3/s) on basis of computation of flow over dam at gage height 6.20 ft (1.890 m), no other peak above base of 310 ft^3/s (8.78 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.57	7.5	0	0	0	33	21	0	14	1.2	.79
2	4.2	0	3.5	0	0	16	20	5.0	0	5.2	0	13
3	13	0	.99	0	0	26	46	2.3	0	12	0	6.7
4	2.1	0	2.6	0	0	11	58	2.3	0	17	0	1.9
5	5.0	0	8.7	0	0	17	15	3.5	0	7.0	0	.93
6	.92	0	3.2	0	26	29	8.2	7.0	0	11	8.6	.68
7	7.4	0	1.1	0	18	27	6.0	4.7	0	63	7.7	.57
8	1.1	0	.85	22	.49	16	4.7	4.0	0	68	3.8	.44
9	2.3	11	1.6	9.1	.01	17	50	2.1	0	46	0	.18
10	.17	2.5	1.9	.65	2.6	9.2	32	1.8	0	15	0	0
11	.01	12	.18	1.6	1.1	20	12	2.9	0	4.1	0	1.4
12	0	20	0	.40	.20	14	10	3.5	0	4.7	7.6	.97
13	0	1.7	0	25	.02	4.8	4.2	25	0	4.9	7.1	.58
14	0	.11	0	27	23	1.3	2.9	17	0	3.7	16	.42
15	.84	0	0	11	15	.60	2.3	5.5	0	17	2.6	.36
16	14	14	0	100	2.7	2.5	2.3	1.6	9.7	8.1	5.7	.01
17	20	17	0	25	.21	41	1.8	2.4	5.8	2.4	.32	0
18	34	2.6	0	6.1	.15	14	.95	1.5	36	0	.73	0
19	24	6.9	0	4.1	.02	2.3	.95	1.7	33	0	24	0
20	5.5	44	0	.87	0	3.3	0	.78	46	5.4	36	0
21	3.6	7.6	0	.65	0	9.5	3.3	4.7	20	47	4.3	0
22	1.3	2.9	0	.01	30	5.0	31	2.4	14	18	1.8	0
23	.90	1.1	0	.06	40	11	47	1.4	11	31	1.0	0
24	.51	6.7	0	.04	20	14	16	.37	7.6	42	.78	0
25	0	6.4	0	.17	9.5	12	7.3	0	2.8	17	.62	0
26	5.5	1.6	0	.15	2.9	1.6	3.5	0	5.0	7.0	0	0
27	26	.59	0	0	1.2	21	2.0	0	8.4	3.9	0	0
28	19	.42	0	0	.18	23	1.5	0	5.6	1.7	4.8	0
29	11	2.0	0	0	0	9.8	1.8	0	3.8	.32	4.2	0
30	2.9	2.2	0	0	---	21	4.2	0	14	1.4	1.7	0
31	1.3	---	0	0	---	29	---	0	---	.30	1.3	---
TOTAL	206.55	163.89	32.12	233.90	193.28	428.90	427.90	124.45	222.7	478.12	141.85	28.93
MEAN	6.66	5.46	1.04	7.55	6.66	13.8	14.3	4.01	7.42	15.4	4.58	.96
MAX	34	44	8.7	100	40	41	58	25	46	68	36	13
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	410	325	64	464	383	851	849	247	442	948	281	57

CAL YR 1975 TOTAL 1860.73 MEAN 5.10 MAX 62 MIN 0 AC-FT 3690
WTR YR 1976 TOTAL 2682.59 MEAN 7.33 MAX 100 MIN 0 AC-FT 5320

HAWAII, ISLAND OF HAWAII

16756000 KOHAKOHAU STREAM NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
MAR. 04...	1000	11	130	2	6	2	.8	.9	3.2
MAY 14...	1020	15	90	1	4	2	.6	.6	2.3

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
MAR. 04...	53	.6	.4	4	0	3	13	5.0	5.0
MAY 14...	53	.5	.4	2	0	2	1.3	5.4	4.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
MAR. 04...	.1	2.3	20	.03	.01	.00	440	10
MAY 14...	.0	1.4	17	.02	.00	.02	370	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 17...	1025	35	26	5.6	15.0
MAR. 04...	1000	11	27	5.7	15.0
04...	1030	12	27	5.7	15.0
APR. 22...	1000	23	48	7.0	15.0
MAY 14...	1020	15	29	6.4	15.0
AUG. 12...	0900	21	17	6.8	15.0

16758000 WAIKOLOA STREAM AT MARINE DAM, NEAR KAMUELA

LOCATION.--Lat 20°02'48", long 155°39'58", Hydrologic Unit 20010000, on right bank 160 ft (49 m) upstream from Marine Dam, 0.4 mi (0.6 km) east of Puu Ohu, and 1.6 mi (2.6 km) north of Kamuela.

DRAINAGE AREA.--1.18 mi^2 (3.06 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1947 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1569: Drainage area. WSP 1937: 1948(M), 1949-51(P), 1952(M), 1954(M), 1955, 1956-57(P), 1958-60.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,460 ft (1,055 m), from topographic map.

REMARKS.--Records good. Diversion above station for livestock and domestic use.

AVERAGE DISCHARGE.--29 years, 8.56 ft^3/s (0.242 m^3/s), 6,200 acre-ft/yr (7.64 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,390 ft^3/s (96.0 m^3/s) Oct. 23, 1957, gage height, 6.99 ft (2.131 m), from rating curve extended above 120 ft^3/s (3.40 m^3/s) on basis of computations of flow over dam at gage heights 5.46 ft (1.664 m) and 5.96 ft (1.817 m); minimum, 0.59 ft^3/s (0.017 m^3/s) Oct. 3-6, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 234 ft^3/s (6.63 m^3/s) Jan. 16, gage height, 3.51 ft (1.070 m), from rating curve extended as explained above, no other peak above base of 180 ft^3/s (5.10 m^3/s); minimum, 1.7 ft^3/s (0.048 m^3/s) Feb. 3-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	2.8	7.5	2.0	2.1	2.2	20	21	3.3	9.2	3.3	3.7
2	7.4	2.8	5.3	1.8	1.9	9.5	11	6.9	3.0	4.7	3.1	12
3	12	2.6	4.1	2.0	1.8	20	25	4.8	2.7	5.0	2.9	8.4
4	7.4	2.5	5.1	2.1	1.7	11	50	4.4	2.7	7.3	2.8	4.6
5	6.6	2.4	7.5	2.2	1.7	11	10	6.8	2.6	6.4	3.7	3.6
6	5.1	2.3	6.6	2.8	19	16	8.5	11	2.5	9.5	11	3.3
7	7.6	2.3	4.9	2.5	14	12	5.5	6.7	2.7	52	7.8	3.0
8	5.4	2.2	4.1	22	4.5	11	5.8	6.3	3.1	60	5.6	3.0
9	5.7	2.8	4.1	13	3.8	11	25	4.9	2.9	33	3.8	3.3
10	4.1	5.3	4.0	6.4	4.0	10	22	4.5	2.6	9.4	3.2	5.2
11	3.3	6.9	3.2	3.8	2.8	20	8.2	6.8	2.5	5.6	3.3	8.8
12	2.9	9.2	2.6	3.4	2.5	11	7.5	8.5	2.5	5.8	6.7	4.5
13	2.7	3.8	2.8	12	2.2	4.5	5.1	16	3.0	6.3	6.4	3.3
14	2.7	2.9	2.6	17	8.8	3.4	4.3	11	4.7	6.7	8.9	3.2
15	7.9	3.0	2.6	7.0	6.9	3.1	4.0	5.6	5.1	18	5.6	3.0
16	18	20	2.8	76	3.3	6.1	4.1	4.4	9.4	7.6	8.3	2.9
17	13	9.2	2.8	16	2.8	27	3.9	4.6	9.0	4.6	4.0	3.0
18	20	4.1	2.7	5.5	2.6	9.8	3.6	3.9	21	3.7	3.3	2.8
19	18	14	2.5	3.7	2.4	4.4	3.9	3.7	23	3.5	20	2.7
20	5.5	20	2.4	3.2	2.2	5.2	4.3	3.8	35	12	23	2.6
21	4.3	6.2	2.3	2.9	3.1	7.0	4.5	4.3	11	35	6.4	2.6
22	3.3	3.3	2.3	2.7	7.9	4.9	20	4.1	10	12	4.2	2.6
23	3.0	3.3	2.3	2.5	11	6.2	27	3.7	8.6	27	3.5	2.7
24	2.9	4.6	2.2	2.4	7.1	9.9	12	3.4	6.9	30	3.2	2.8
25	2.8	5.1	2.2	2.3	5.3	8.4	8.6	3.2	4.3	15	3.1	2.6
26	4.6	3.5	2.2	2.2	3.7	4.6	4.8	3.2	5.5	8.3	3.0	3.5
27	18	3.0	2.2	2.1	3.2	8.3	4.8	3.0	6.4	5.8	3.0	11
28	13	3.5	2.1	2.3	2.6	17	3.6	2.9	5.7	4.5	8.1	6.5
29	6.9	4.0	2.1	2.1	2.3	9.7	8.2	3.7	5.2	3.9	6.8	6.5
30	4.0	5.5	2.1	1.9	---	11	15	5.1	13	3.6	4.4	5.2
31	3.0	---	2.1	2.3	---	15	---	3.9	---	3.4	4.7	---
TOTAL	225.7	179.1	105.9	231.1	137.2	310.3	339.4	186.1	219.9	418.8	187.1	132.9
MEAN	7.28	5.97	3.42	7.45	4.73	10.0	11.3	6.00	7.33	13.5	6.04	4.43
MAX	20	20	7.5	76	19	27	50	21	35	60	23	12
MIN	1.8	2.2	2.1	1.9	1.7	2.2	3.6	2.9	2.5	3.4	2.8	2.6
AC-FT	448	355	210	458	272	615	673	369	436	831	371	264

CAL YR 1975 TOTAL 2452.8 MEAN 6.72 MAX 56 MIN 1.8 AC-FT 4870
WTR YR 1976 TOTAL 2673.5 MEAN 7.30 MAX 76 MIN 1.7 AC-FT 5300

HAWAII, ISLAND OF HAWAII

16758000 WAIKOLOA STREAM AT MARINE DAM, NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 17...	1050	2.9	45	3	16	0	2.0	2.7	4.6
MAY 14...	0830	13	65	3	5	3	.9	.7	3.0

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 17...	37	.5	1.0	23	0	19	15	2.5	4.7
MAY 14...	54	.6	.4	2	0	2	1.0	3.9	6.1

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 17...	.0	11	41	.06	.00	.19	650	20
MAY 14...	.1	1.6	18	.02	.00	.00	320	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 17...	0830	15	60	6.2	15.5
DEC. 17...	1050	2.9	58	6.4	14.0
JAN. 30...	0900	1.8	56	6.6	14.0
MAR. 04...	0900	7.8	30	6.7	15.5
APR. 22...	0830	7.5	41	7.1	15.0
MAY 14...	0830	13	32	6.5	15.0
JUNE 25...	0850	4.3	41	6.4	14.0
AUG. 12...	0830	8.6	44	7.0	15.0

16759000 HAUANI GULCH NEAR KAMUELA

LOCATION--Lat 20°02'28", long 155°39'05", Hydrologic Unit 20010000, on left bank 800 ft (244 m) downstream from small tributary and 1.8 mi (2.9 km) northeast of Kamuela.

DRAINAGE AREA.--0.47 mi^2 (1.22 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1956 to current year. Prior to July 1960, published as Hauani Strean near Kamuela.

GAGE.--Water-stage recorder. Concrete control since Feb. 27, 1963. Datun of gage is 3,117.42 ft (950.190 m) above nean sea level (Hawaii County Board of Water Supply bench mark).

REMARKS.--Records good. Diversion above station for livestock and domestic use.

AVERAGE DISCHARGE.--20 years, 1.44 ft^3/s (0.041 m^3/s), 1,040 acre-ft/yr (1.28 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximun discharge, 590 ft^3/s (16.7 m^3/s) Oct. 20, 1974, gage height, 4.18 ft (1.274 m), fron rating curve extended above 11 ft^3/s (0.31 m^3/s) on basis of slope-conveyance study; maximun gage height, 4.65 ft (1.417 m) Oct. 23, 1957; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximun discharge, 132 ft^3/s (3.74 m^3/s) Jan. 16, gage height, 2.91 ft (0.887 m), from rating curve extended above 54 ft^3/s (1.53 m^3/s), no other peak above base of 78 ft^3/s (2.21 m^3/s); nininum, 0.05 ft^3/s (0.001 m^3/s) Jan. 2-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.27	.86	.06	.15	.15	2.7	2.9	.17	1.0	.31	.22
2	1.0	.23	.51	.06	.11	.32	1.5	.74	.15	.51	.28	1.9
3	1.4	.17	.28	.06	.10	3.0	8.5	.53	.13	.32	.30	.68
4	.72	.18	.33	.06	.09	3.5	12	.47	.12	.41	.31	.32
5	.67	.17	.70	.07	.09	1.4	1.4	.69	.11	.58	.82	.24
6	.48	.16	.60	.07	4.3	2.1	.99	1.1	.10	1.0	2.1	.21
7	.62	.15	.73	.06	1.5	1.6	.74	.73	.14	19	.91	.19
8	.41	.14	.29	2.9	.37	1.8	.70	.64	.20	17	.64	.21
9	.75	1.8	.26	1.3	.34	1.4	3.8	.48	.16	7.0	.38	.30
10	.28	.58	.24	.52	.49	.83	2.9	.45	.13	1.2	.32	.43
11	.22	.49	.18	.22	.23	3.2	1.1	.80	.11	.67	.37	.47
12	.21	1.1	.16	.18	.19	1.4	.87	.88	.10	.60	.81	.25
13	.16	.30	.15	1.1	.17	.53	.56	2.6	.13	.62	.83	.19
14	.17	.21	.14	.94	1.2	.35	.44	1.3	.27	.77	1.1	.17
15	1.8	.22	.12	.48	.70	.29	.38	.53	.30	4.6	.47	.16
16	5.1	5.1	.13	26	.27	.71	.37	.39	.66	.84	.73	.16
17	2.2	1.2	.12	2.3	.21	3.9	.35	.45	1.3	.47	.31	.15
18	3.5	.39	.11	.65	.19	1.1	.32	.31	3.4	.35	.25	.12
19	2.6	3.3	.10	.36	.17	.46	.38	.30	10	.32	5.8	.11
20	.77	5.9	.09	.28	.16	.52	.39	.31	9.4	2.8	2.9	.09
21	.51	.75	.09	.24	.25	.63	.38	.33	2.0	7.5	.67	.09
22	.34	.41	.08	.20	.96	.44	3.5	.28	1.2	1.4	.40	.09
23	.34	.30	.08	.17	1.2	.57	5.3	.25	.90	7.5	.31	.11
24	.27	.80	.08	.15	.76	1.0	1.7	.22	.71	6.5	.27	.11
25	.23	.54	.09	.14	.52	.85	1.0	.21	.47	2.3	.25	.09
26	.48	.29	.08	.12	.30	.43	.52	.20	.78	.98	.23	.50
27	4.8	.23	.07	.12	.24	.93	.41	.18	.51	.66	.23	1.1
28	2.1	.35	.07	.15	.19	3.1	.36	.17	.45	.49	.38	.38
29	1.1	.33	.07	.13	.17	1.1	1.4	.51	.43	.40	.37	.24
30	.49	.83	.07	.10	---	1.0	2.1	.41	1.9	.36	.27	.23
31	.34	---	.06	.18	---	2.3	---	.22	---	.33	.29	---
TOTAL	34.14	26.89	6.94	39.37	15.62	40.91	57.06	19.58	36.43	88.48	23.61	9.51
MEAN	1.10	.90	.22	1.27	.54	1.32	1.90	.63	1.21	2.85	.76	.32
MAX	5.1	5.9	.86	26	4.3	3.9	12	2.9	10	19	5.8	1.9
MIN	.08	.14	.06	.06	.09	.15	.32	.17	.10	.32	.23	.09
AC-FT	68	53	14	78	31	81	113	39	72	176	47	19

CAL YR 1975 TOTAL 335.97 MEAN .92 MAX 18 MIN .01 AC-FT 666
WTR YR 1976 TOTAL 398.54 MEAN 1.09 MAX 26 MIN .06 AC-FT 791

HAWAII, ISLAND OF HAWAII

16759000 HAUANI GULCH NEAR KAMUELA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 26...	0900	.28	100	1	6	5	1.1	.8	2.9
MAY 14...	1130	1.4	110	1	7	2	.8	1.1	3.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 26...	48	.5	.6	1	0	1	.3	4.8	4.4
MAY 14...	50	.5	.3	5	0	4	6.4	5.7	6.0

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 26...	.1	3.7	19	.03	.01	.00	380	5
MAY 14...	.1	3.4	24	.03	.00	.01	490	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 17...	1200	1.5	25	6.9	16.5
NOV. 26...	0900	.28	29	6.8	18.0
JAN. 30...	1200	.10	34	6.7	16.0
MAR. 04...	1130	.67	27	5.4	16.0
APR. 22...	1200	5.9	35	6.9	15.0
MAY 14...	1130	1.4	31	6.1	15.0
JUNE 25...	1140	.34	29	6.4	16.0
AUG. 12...	1100	1.2	29	6.2	16.0

16759200 RIGHT BRANCH WAIAHA STREAM NEAR HOLUALOA

LOCATION.--Lat 19°38'41", long 155°54'55", Hydrologic Unit 20010000, on right bank 1,000 ft (305 m) upstream from reservoir, 1.0 mi (1.6 km) northeast of Holualoa Makai Camp, and 2.9 mi (4.7 km) northeast of Holualoa School.

DRAINAGE AREA.--1.89 mi^2 (4.90 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1960 to current year.

REVISED RECORDS (WATER YEARS).--WSP 2137: 1963-65(M).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,280 ft (1,000 m), from topographic map.

REMARKS.--Records good. No diversion above station. Recording rain gage located at station.

AVERAGE DISCHARGE.--16 years, 0.353 ft^3/s (0.010 m^3/s), 256 acre-ft/yr (316,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,630 ft^3/s (46.2 m^3/s) Oct. 3, 1968, gage height, 5.78 ft (1.762 m), from rating curve extended above 9.1 ft^3/s (0.26 m^3/s) on basis of slope-area measurements at gage heights 4.07 ft (1.241 m) and 5.78 ft (1.762 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 176 ft^3/s (4.98 m^3/s) Sept. 29, gage height, 4.05 ft (1.234 m), from rating curve extended as explained above, no other peak above base of 115 ft^3/s (3.26 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.02	.08	0	.04	.02	.05	.11	.45	.19	.06	.01
2	.07	.02	.04	0	.01	.28	.03	.12	.30	.25	.04	.01
3	.21	.02	.02	0	0	.12	.02	.10	.16	.21	.09	.01
4	.33	.02	.01	0	0	.47	.02	.07	.11	.11	.14	.01
5	.25	.02	.01	0	0	.36	.01	.06	.11	.09	.06	.01
6	.16	.02	.01	0	0	.25	.01	.08	.08	.09	.08	.01
7	.10	.02	.01	0	.01	.16	.01	.06	.07	.11	.11	.01
8	.08	.02	.01	0	.17	.07	.01	.05	.18	.10	.47	.01
9	.04	.02	0	0	.10	3.9	.01	.05	.30	.26	.19	.01
10	.03	.02	0	0	.11	.63	.01	.12	.21	.63	.19	.01
11	.02	.02	0	0	.04	.62	.01	.08	.45	.77	.33	.01
12	.02	.02	0	0	.04	.42	.01	.06	.45	.19	.19	.02
13	.02	.01	0	0	.02	.11	.01	.04	.19	.12	.16	.02
14	.01	.01	0	0	.01	.05	.01	.42	.11	.09	.11	.01
15	.02	.01	0	0	0	.02	.01	.25	.11	.08	.10	.01
16	.02	.01	0	.19	0	.23	.01	.14	.08	.16	.07	0
17	.03	.01	0	.03	0	.16	.01	.25	.06	.63	.05	0
18	.14	0	0	.01	0	.06	.20	.12	.04	.45	.04	0
19	.09	.01	0	0	0	.04	1.5	.11	.04	.16	.84	0
20	.05	0	0	0	0	.41	.42	1.1	.08	.12	.19	0
21	.06	0	0	0	0	.19	.19	.79	.16	.07	.16	0
22	.04	0	0	0	0	.09	.42	.19	.09	.04	.09	0
23	.02	0	0	0	0	.06	.55	.17	.06	.06	.07	0
24	.03	1.6	0	0	0	.04	.45	.73	.05	.04	.08	0
25	.03	.16	0	0	0	.06	.19	.86	.10	1.3	.08	0
26	.02	.04	0	0	0	.08	.10	1.3	.42	.45	.04	0
27	.02	.92	0	0	0	.05	.07	.39	.86	.45	.04	0
28	.02	.25	0	0	0	.30	.07	.19	.45	.30	.02	0
29	.02	.36	0	0	0	.16	.08	.31	.30	.14	.01	13
30	.02	.25	0	0	---	.09	.08	.39	.19	.09	.01	.86
31	.02	---	0	.16	---	.08	---	.16	---	.07	.01	---
TOTAL	2.02	3.88	.19	.39	.55	9.58	4.57	8.87	6.26	7.82	4.12	14.03
MEAN	.065	.13	.006	.013	.019	.31	.15	.29	.21	.25	.13	.47
MAX	.33	1.6	.08	.19	.17	3.9	1.5	1.3	.86	1.3	.84	13
MIN	.01	0	0	0	0	.02	.01	.04	.04	.04	.01	0
AC-FT	4.0	7.7	.4	.8	1.1	19	9.1	18	12	16	8.2	28

CAL YR 1975 TOTAL 91.99 MEAN .25 MAX 12 MIN 0 AC-FT 182
WTR YR 1976 TOTAL 62.28 MEAN .17 MAX 13 MIN 0 AC-FT 124

16759200 RIGHT BRANCH WAIAHA STREAM NEAR HOLUALOA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV.									
25...	1435	.09	40	3	11	--	2.2	1.3	2.2
MAY									
12...	1350	.06	22	2	11	4	2.1	1.5	2.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV.									
25...	26	.3	2.4	--	0	--	--	5.3	5.3
MAY									
12...	29	.3	.4	9	0	7	3.6	3.5	4.5

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV.								
25...	.1	3.7	--	.03	.18	.40	370	10
MAY								
12...	.1	4.0	23	.03	.00	.00	100	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT.					
16...	1145	.02	38	6.4	18.0
NOV.					
25...	1435	.09	43	5.7	18.0
MAR.					
03...	1205	.10	34	6.8	15.0
APR.					
21...	1130	.16	30	6.8	17.0
MAY					
12...	1325	.05	37	6.6	20.0
12...	1350	.06	37	6.6	20.0
JUNE					
24...	1115	.06	28	6.7	17.0
AUG.					
11...	1035	.11	34	6.9	15.0

16759800 KIILAE STREAM NEAR HONAUNAU

LOCATION.--Lat 19°24'52", long 155°50'56", Hydrologic Unit 20010000, on right bank 2.4 mi (3.9 km) northeast of Kealia and 3.0 mi (4.8 km) southeast of Honaunau Post Office.

DRAINAGE AREA.--0.67 mi^2 (1.74 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,898 ft (883.3 m) above mean sea level (by stadia traverse).

REMARKS.--Records good. No diversion above station. Banks overflow at high stage and part of overflow is lost in lava. Recording rain gage located at station.

AVERAGE DISCHARGE.--18 years, 0.212 ft^3/s (0.006 m^3/s), 154 acre-ft/yr (190,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 104 ft^3/s (2.95 m^3/s) Jan. 13, 1959, gage height, 2.32 ft (0.707m), from rating curve extended above 5.7 ft^3/s (0.161 m^3/s); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft^3/s (0.71 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 26	1800	*31	0.88	1.64	0.500
Aug. 20	1630	28	.79	1.61	.491
Sept. 4	1630	27	.76	1.60	.488

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	0	.02	.08	.04	.07	.03	.93	.13	.40	.05	0
2	.04	0	0	0	0	.18	.06	.26	.16	.40	0	0
3	.77	0	0	0	0	2.4	.27	.07	.11	.59	0	.01
4	.61	0	0	0	0	.81	.16	.08	.06	.11	.05	1.8
5	.61	0	0	.32	0	.37	.08	.10	.04	.04	0	.16
6	.18	0	0	.07	0	.20	.03	.06	.03	.01	.05	.06
7	.10	0	0	0	.01	.10	.01	.05	.02	.02	.05	.01
8	.07	0	0	0	1.1	1.1	.10	.04	.06	.07	.35	0
9	.04	0	0	0	.08	2.1	.42	.03	.27	.04	.10	.01
10	.01	0	0	0	0	.40	.11	.02	.26	1.0	0	.14
11	.02	0	0	0	.01	1.3	.13	.18	.33	.22	.04	.17
12	.01	0	0	0	.02	.18	1.3	.08	.22	.06	.05	.64
13	0	0	0	0	.02	.04	.16	.07	.13	.03	.16	.16
14	0	0	0	0	.02	0	.02	.16	.10	.10	.04	.04
15	.01	0	0	0	.09	0	.39	.22	.07	.04	.03	.01
16	.32	0	0	1.5	.02	0	.58	.11	.06	.02	.12	0
17	.34	0	0	.10	.18	.04	.47	.31	.04	.04	.08	0
18	.41	.04	0	.05	.16	.92	.45	.40	.07	.07	.04	0
19	.08	.02	0	0	.10	.12	.70	.16	.03	.01	.01	0
20	.03	0	0	0	.02	.61	1.7	1.1	.32	.01	3.8	0
21	.03	0	0	0	.04	.55	.72	.20	.26	.04	1.2	0
22	.01	0	0	0	.01	.11	.16	.09	.16	.52	.18	0
23	0	0	0	0	0	.04	.61	.13	.15	.07	.06	0
24	0	1.4	0	0	.05	.24	.88	.10	.13	0	.02	.18
25	0	.10	0	0	.48	1.9	.13	.11	.11	0	0	.02
26	0	.01	0	0	.08	.14	4.1	.15	.16	0	0	0
27	0	0	0	0	0	.06	.26	.47	.10	.06	0	0
28	.02	.06	0	0	0	2.6	.24	.13	.04	.04	0	0
29	0	.98	0	0	.34	1.3	.11	.07	.04	.01	0	.16
30	0	.24	.02	0	---	.46	.72	.18	.25	.02	0	.16
31	0	---	.02	.66	---	.11	---	.12	---	.04	0	---
TOTAL	3.73	2.85	.06	2.78	2.87	18.45	15.10	6.18	3.91	4.08	6.48	3.73
MEAN	.12	.095	.002	.090	.099	.60	.50	.20	.13	.13	.21	.12
MAX	.77	1.4	.02	1.5	1.1	2.6	4.1	1.1	.33	1.0	3.8	1.8
MIN	0	0	0	0	0	0	.01	.02	.02	0	0	0
AC-FT	7.4	5.7	.1	5.5	5.7	37	30	12	7.8	8.1	13	7.4

CAL YR 1975 TOTAL 88.31 MEAN .24 MAX 5.0 MIN 0 AC-FT 175
WTR YR 1976 TOTAL 70.22 MEAN .19 MAX 4.1 MIN 0 AC-FT 139

HAWAII, ISLAND OF HAWAII

16759800 KIILAE STREAM NEAR HONAUNAU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 25...	1125	.07	40	2	6	2	1.1	.8	1.6
MAY 12...	1040	.07	48	2	6	4	1.3	.7	1.5

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 25...	31	.3	1.4	5	0	4	32	3.4	3.8
MAY 12...	34	.3	.1	3	0	2	1.9	3.3	2.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 25...	.0	3.0	19	.03	.03	.30	150	0
MAY 12...	.0	2.8	14	.02	.00	.00	460	10

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT. 16...	0925	.01	23	6.5	18.0
NOV. 25...	1125	.07	31	5.4	17.0
MAR. 03...	0945	.04	24	6.7	14.0
APR. 21...	0920	.16	19	6.6	14.0
MAY 12...	1040	.07	21	6.4	20.0
JUNE 24...	0900	.10	23	6.4	16.0

16764000 HILEA GULCH TRIBUTARY NEAR HONUAPO

LOCATION.--Lat 19°10'27", long 155°35'58", Hydrologic Unit 20010000, on right bank 0.5 mi (0.8 km) upstream from mouth, 6.6 mi (10.6 km) northwest of Honuapo, and 6.7 mi (10.8 km) west of Punaluu.

DRAINAGE AREA.--9.17 mi^2 (23.75 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,940 ft (896 m), from topographic map.

REMARKS.--Records good. No diversion above station. Recording rain gage located at station.

AVERAGE DISCHARGE.--10 years, 8.74 ft^3/s (0.248 m^3/s), 6,330 acre-ft/yr (7.80 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,220 ft^3/s (34.6 m^3/s) Dec. 30, 1966, gage height, 6.35 ft (1.935 m), from rating curve extended above 75 ft^3/s (2.12 m^3/s); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft^3/s (17.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 24	1300	698	19.8	5.22	1.591
Jan. 5	2115	*866	24.5	5.64	1.719

Minimum discharge, 0.12 ft^3/s (0.003 m^3/s) Aug. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.24	1.5	8.0	1.9	.33	.68	1.8	10	7.5	3.9	16	.63
2	4.2	.44	13	.39	.28	1.5	.46	11	2.9	.75	6.9	78
3	16	.32	9.3	.30	.25	2.0	2.4	8.3	1.6	9.0	.56	46
4	11	.28	65	3.4	4.0	20	1.1	3.2	1.4	1.2	.30	5.3
5	1.8	.23	5.0	303	57	19	.35	1.7	1.4	.36	.21	1.2
6	.33	.20	3.0	113	46	8.2	.27	1.0	3.1	.29	.44	.42
7	36	.18	3.2	170	62	49	.30	.69	15	1.4	.28	11
8	2.1	.17	.61	5.7	57	38	.28	.75	15	8.1	.21	.69
9	.45	.17	.46	10	18	14	8.9	.59	12	1.6	.13	.32
10	2.5	.14	.39	3.4	7.9	4.5	1.2	4.1	35	.42	.16	1.7
11	.99	26	.35	3.3	4.4	26	1.0	19	13	7.9	26	2.5
12	.27	3.6	.80	1.8	4.5	2.9	4.6	7.0	5.7	1.4	1.4	1.3
13	.19	1.2	7.3	8.9	1.9	1.2	1.8	11	6.8	.51	.35	2.9
14	.30	.42	31	1.7	.47	.54	5.3	6.8	5.1	.34	.26	1.4
15	5.6	.22	14	19	.34	.42	30	9.3	7.5	.23	.23	.32
16	43	16	1.9	8.8	3.2	.37	19	4.2	2.0	1.5	9.1	.24
17	3.1	3.9	5.1	.76	35	12	35	3.2	1.5	.78	.84	.19
18	78	1.4	12	.42	4.2	8.9	52	2.2	4.1	.28	.26	.31
19	5.3	.31	2.6	.35	13	3.4	42	22	9.0	.23	45	.31
20	6.9	1.8	.65	.32	18	7.7	5.9	4.6	2.5	.15	33	.19
21	3.1	.71	.37	14	2.7	29	2.1	.70	1.1	27	3.6	.16
22	1.2	1.8	.32	29	.49	3.3	62	33	2.3	2.0	17	4.2
23	4.1	.70	.29	3.4	31	.55	9.8	14	4.7	.40	4.7	7.4
24	20	122	.27	.55	32	49	15	12	12	15	.51	1.1
25	2.5	18	.25	.38	19	4.2	6.3	22	2.9	8.6	.32	9.3
26	2.2	64	.32	.32	23	3.7	16	58	2.2	4.5	4.7	1.8
27	1.9	89	.32	.26	2.7	46	12	63	1.4	8.9	1.5	.94
28	24	33	.43	27	.70	61	18	7.8	2.6	11	34	.41
29	4.0	4.7	12	21	1.5	29	15	30	6.9	4.6	7.8	.24
30	2.3	21	18	.63	---	3.0	30	15	24	3.2	3.4	.16
31	5.0	---	15	.40	---	4.3	---	12	---	2.1	2.6	---
TOTAL	288.57	413.39	231.23	753.38	450.86	453.36	399.86	398.13	212.2	127.64	221.76	182.63
MEAN	9.31	13.8	7.46	24.3	15.5	14.6	13.3	12.8	7.07	4.12	7.15	6.09
MAX	78	122	65	303	62	61	62	63	35	27	45	78
MIN	.19	.14	.25	.26	.25	.37	.27	.59	1.1	.15	.13	.16
AC-FT	572	820	459	1490	894	899	793	790	421	253	440	362

CAL YR 1975 TOTAL 4683.35 MEAN 12.8 MAX 695 MIN .14 AC-FT 9290
WTR YR 1976 TOTAL 4133.01 MEAN 11.3 MAX 303 MIN .13 AC-FT 8200

16764000 HILEA GULCH TRIBUTARY NEAR HONUAPO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-76.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC.									
10...	1130	.40	3	0	22	6	5.0	2.3	3.0
MAY									
19...	1000	1.0	4	0	14	6	2.8	1.7	2.5

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC.									
10...	23	.3	.4	20	0	16	13	5.5	6.8
MAY									
19...	27	.3	.3	10	0	8	4.0	5.3	3.9

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC.								
10...	.1	16	49	.07	.00	.00	20	0
MAY								
19...	.1	9.3	31	.04	.00	.05	70	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC.					
10...	1130	.40	59	6.4	16.0
10...	1150	.40	59	6.4	16.0
JAN.					
28...	1300	.48	59	6.8	15.0
MAR.					
02...	1025	.38	50	6.4	15.5
APR.					
20...	0910	4.2	25	6.9	14.0
MAY					
19...	1000	1.0	41	6.6	13.5
JUNE					
23...	0945	1.2	45	6.8	15.0
AUG.					
10...	1000	.18	58	7.2	15.0

16765000 HILEA GULCH TRIBUTARY NO. 2 NEAR HONUAPO

LOCATION.--Lat 19°10'17", long 155°36'05", Hydrologic Unit 20010000, on right bank 0.5 mi (0.8 km) upstream from mouth, 6.3 mi (10.1 km) northwest of Honuapo, and 6.6 mi (10.6 km) west of Punaluu.

DRAINAGE AREA.--1.86 mi^2 (4.82 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,880 ft (878 m), from topographic map.

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--10 years, 3.31 ft^3/s (0.094 m^3/s), 2,400 acre-ft/yr (2.96 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 523 ft^3/s (14.8 m^3/s) Dec. 30, 1966, gage height, 7.16 ft (2.182 m), from rating curve extended above 41 ft^3/s (1.16 m^3/s); no flow many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 396 ft^3/s (11.2 m^3/s) Jan. 5, gage height, 6.47 ft (1.972 m), from rating curve extended above 41 ft^3/s (1.16 m^3/s), no other peak above base of 310 ft^3/s (8.78 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	.02	1.3	.32	0	0	.18	3.7	1.2	.37	5.2	0
2	.13	0	3.0	0	0	.10	0	2.8	.21	0	1.5	15
3	3.7	0	2.6	0	0	.03	1.9	2.2	0	2.9	0	8.4
4	2.0	0	33	18	1.1	4.4	.25	.32	0	.02	0	.96
5	.13	0	1.5	142	5.0	6.1	0	0	0	0	0	0
6	0	0	.21	55	13	1.2	0	0	0	0	0	0
7	12	0	.53	45	16	15	0	0	2.5	0	0	1.1
8	2.2	0	0	1.2	23	11	0	0	2.8	1.1	0	0
9	0	0	0	3.5	6.4	3.9	1.3	0	2.2	.04	0	0
10	0	0	0	1.0	1.7	1.1	.09	.09	10	0	0	0
11	0	9.1	0	1.1	.32	7.8	0	4.5	2.2	.81	6.8	0
12	0	.45	0	.22	.51	.22	.77	1.4	.89	.03	.07	0
13	0	.04	1.5	5.1	.13	0	.18	1.9	.75	0	0	0
14	0	0	13	.30	0	0	.53	1.0	.91	0	0	0
15	.20	0	6.1	5.0	0	0	11	1.4	1.5	0	0	0
16	18	2.2	.23	4.9	1.3	0	8.2	.45	.15	0	1.6	0
17	.40	.33	.52	.02	11	7.1	14	.24	0	0	.01	0
18	45	0	2.5	0	1.4	2.4	20	.07	.15	0	0	0
19	1.5	0	.25	0	.05	.15	21	6.6	1.2	0	12	0
20	.97	0	0	0	3.7	.96	2.1	.74	.22	0	7.6	0
21	.31	0	0	1.5	.32	13	.96	0	0	6.8	.45	0
22	0	0	0	8.4	0	.86	19	13	0	.13	.26	0
23	.42	0	0	.82	4.9	0	7.8	3.8	.16	0	.54	.12
24	4.9	57	0	0	8.9	14	7.4	2.5	1.8	4.4	0	0
25	.13	4.4	0	0	7.1	1.3	1.6	6.1	.17	1.7	0	.75
26	.09	37	0	0	15	1.6	3.7	21	0	.34	.20	.03
27	.02	44	0	0	.35	16	3.5	19	0	.96	.01	0
28	7.8	12	0	7.5	0	19	9.7	2.1	0	1.3	11	0
29	.48	.91	1.9	8.8	0	12	5.9	9.6	.39	.12	1.2	0
30	0	7.8	2.9	0	---	.78	10	4.0	6.2	.02	.24	0
31	.13	---	3.1	0	---	1.5	---	2.6	---	0	.11	---
TOTAL	100.51	175.25	74.14	309.68	121.18	141.50	151.06	111.11	35.60	21.04	48.79	26.36
MEAN	3.24	5.84	2.39	9.99	4.18	4.56	5.04	3.58	1.19	.68	1.57	.88
MAX	45	57	33	142	23	19	21	21	10	6.8	12	15
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	199	348	147	614	240	281	300	220	71	42	97	52

CAL YR 1975 TOTAL 1907.29 MEAN 5.23 MAX 268 MIN 0 AC-FT 3780
WTR YR 1976 TOTAL 1316.22 MEAN 3.60 MAX 142 MIN 0 AC-FT 2610

16765000 HILEA GULCH TRIBUTARY NO. 2 NEAR HONUAPO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 24...	1050	115	45	10	7	6	1.8	.6	1.1
MAY 27...	1045	1.2	22	2	7	3	1.3	.8	1.4

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 24...	24	.2	.4	1	0	1	13	3.0	1.8
MAY 27...	31	.2	.3	4	0	3	1.6	5.0	2.6

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 24...	.1	2.8	12	.02	.01	.03	160	0
MAY 27...	.1	4.1	18	.02	.00	.00	60	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 24...	1050	115	18	5.1	19.0
APR. 20...	1020	.87	25	6.9	14.0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
MAY 27...	1045	1.2	24	6.6	14.0

16767000 NINOLE GULCH NEAR PUNALUU

LOCATION.--Lat 19°10'44", long 155°33'46", Hydrologic Unit 20010000, on right bank 300 ft (91 m) downstream from forest-reserve boundary, 4.6 mi (7.4 km) northwest of Punaluu, and 6.0 mi (9.6 km) north of Honuapo.

DRAINAGE AREA.--15.5 mi² (40.1 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1966 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 2,080 ft (634 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record Jan. 28 to Mar. 2, which are fair. No diversion above station.

AVERAGE DISCHARGE.--10 years, 4.08 ft³/s (0.116 m³/s), 2,960 acre-ft/yr (3.65 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,430 ft³/s (68.8 m³/s) Apr. 11, 1970, gage height, 6.62 ft (2.018 m), from rating curve extended above 30 ft³/s (0.85 m³/s); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,660 ft³/s (47.0 m³/s) Jan. 5, gage height, 6.11 ft (1.862 m), from rating curve extended above 30 ft³/s (0.85 m³/s), no other peak above base of 1,000 ft³/s (28.3 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	.34	.01	0	0	.01	1.5	0	0	0	0
2	.01	0	.01	0	0	4.5	0	1.3	0	0	0	28
3	0	0	2.9	0	0	.75	0	.54	0	0	0	19
4	0	0	66	0	0	3.0	0	0	0	0	0	.02
5	0	0	1.3	351	15	3.3	0	0	0	0	0	0
6	0	0	0	81	10	1.3	0	0	0	0	0	0
7	5.2	0	0	130	20	40	0	0	.26	0	0	2.1
8	0	0	0	.21	15	34	0	0	0	0	0	0
9	0	0	0	0	2.0	14	0	0	0	0	0	0
10	0	0	0	0	0	2.4	0	0	7.7	0	0	0
11	0	0	0	0	0	15	0	.31	.32	0	0	0
12	0	0	0	0	0	.17	0	.05	.03	0	0	0
13	0	0	0	0	0	0	0	0	.03	0	0	0
14	0	0	5.1	0	0	0	0	0	0	0	0	0
15	0	0	.01	8.6	0	0	2.7	0	0	0	0	0
16	0	0	0	3.0	0	0	.09	0	0	0	.02	0
17	0	0	0	0	5.0	14	1.6	0	0	0	0	0
18	13	0	4.6	0	0	1.4	11	0	0	0	0	0
19	0	0	.08	0	.50	.04	12	1.7	0	0	11	0
20	21	0	0	.28	1.0	.06	10	.01	0	0	17	0
21	18	0	0	8.1	0	18	0	0	0	.41	.02	0
22	0	0	0	20	0	.28	31	11	.02	0	1.3	0
23	.60	.11	0	.28	5.0	0	.57	.04	0	0	.01	0
24	0	108	0	.17	4.5	48	9.1	0	0	0	0	0
25	0	5.6	0	0	1.0	.57	4.4	6.7	0	0	0	0
26	1.5	43	0	0	1.5	0	5.6	16	0	0	0	.30
27	.90	49	0	0	0	16	2.5	25	0	0	0	0
28	0	36	0	5.0	0	31	8.0	.25	0	0	19	0
29	0	.30	0	3.0	0	19	2.5	9.5	0	.04	.01	0
30	0	3.3	12	0	---	.20	17	.24	0	0	0	0
31	0	---	1.1	0	---	.17	---	.10	---	0	0	---
TOTAL	60.21	245.31	93.44	610.65	80.50	266.14	118.07	74.24	8.36	.45	48.36	49.42
MEAN	1.94	8.18	3.01	19.7	2.78	8.59	3.94	2.39	.28	.015	1.56	1.65
MAX	21	108	66	351	20	48	31	25	7.7	.41	19	28
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	119	487	185	1210	160	528	234	147	17	.9	96	98

CAL YR 1975 TOTAL 2157.64 MEAN 5.91 MAX 678 MIN 0 AC-FT 4280
WTR YR 1976 TOTAL 1655.15 MEAN 4.52 MAX 351 MIN 0 AC-FT 3280

16767000 NINOLE GULCH NEAR PUNALUU--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 24...	1200	210	35	20	5	0	1.5	.2	.9
MAY 27...	1000	.01	12	1	9	6	2.3	.8	1.9

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 24...	25	.2	1.0	8	0	7	322	2.5	1.6
MAY 27...	30	.3	.4	4	0	3	1.6	4.8	3.8

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 24...	.1	1.9	14	.02	.00	.19	70	0
MAY 27...	.1	3.9	20	.03	.00	.00	80	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 24...	1200	210	14	--	19.0
APR. 20...	1230	.01	17	6.6	16.0
MAY 27...	1000	.01	27	6.6	15.0

16770500 PAAUAU GULCH AT PAHALA

LOCATION.--Lat 19°12'39", long 155°28'48", Hydrologic Unit 20010000, on right bank 100 ft (30 m) downstream from bridge on Wood Valley Road and 0.7 mi (1.1 km) north of Pahala.

DRAINAGE AREA.--1.74 mi^2 (4.51 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 972 ft (296.3 m) above mean sea level (by stadia survey).

REMARKS.--Records good. No diversion above station.

AVERAGE DISCHARGE.--14 years, 0.842 ft^3/s (0.024 m^3/s), 610 acre-ft/yr (752,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,600 ft^3/s (102 m^3/s) Jan. 5, 1969, Jan. 8, 1975, gage height, 5.90 ft (1.798 m), from rating curve extended above 360 ft^3/s (10.2 m^3/s) on basis of slope-area measurement at gage height 4.40 ft (1.341 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 180 ft^3/s (5.10 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 24	2230	970	27.5	4.67	1.423	Jan. 5	2130	*3150	89.2	5.75	1.753
Nov. 27	2130	210	5.95	3.72	1.134	Feb. 5	0030	1940	54.9	5.27	1.606

No flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	0	0	0	.56	0	0				
2		0	0	0	0	19	0	0				
3		0	0	0	0	.08	0	0				
4		0	0	0	66	0	0	0				
5		0	0	387	137	0	0	0				
6		0	0	33	3.5	0	0	0				
7		0	0	66	12	.01	0	0				
8		0	0	.82	5.4	.01	0	0				
9		0	0	0	2.2	.06	0	0				
10		0	0	0	1.1	0	0	0				
11		0	0	0	1.0	2.3	0	0				
12		0	0	0	.60	2.2	0	0				
13		0	0	0	.17	.12	0	0				
14		0	.03	0	.07	.04	0	.04				
15		0	0	0	0	0	0	0				
16		0	0	0	0	0	0	0				
17		0	0	0	0	0	0	0				
18		0	0	0	0	0	1.2	0				
19		0	0	0	0	0	.04	0				
20		0	0	2.4	0	0	0	0				
21		0	0	4.6	0	0	0	0				
22		0	0	2.5	0	0	0	0				
23		0	0	0	0	0	0	0				
24		21	0	2.0	0	0	0	0				
25		2.1	0	0	0	0	.86	0				
26		1.1	0	0	.03	0	.21	0				
27		11	0	0	.05	0	.06	0				
28		2.4	0	.01	5.2	0	0	.06				
29		0	0	.68	1.2	0	0	0				
30		0	0	0	---	0	0	0				
31		---	0	0	---	0	---	.04	---			---
TOTAL	0	37.6	.03	499.01	235.52	24.38	2.37	.14	0	0	0	0
MEAN	0	1.25	.001	16.1	8.12	.79	.079	.005	0	0	0	0
MAX	0	21	.03	387	137	19	1.2	.06	0	0	0	0
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	75	.06	990	467	48	4.7	.3	0	0	0	0

CAL YR 1975 TOTAL 1011.02 MEAN 2.77 MAX 720 MIN 0 AC-FT 2010
WTR YR 1976 TOTAL 799.05 MEAN 2.18 MAX 387 MIN 0 AC-FT 1580

HAWAII, ISLAND OF HAWAII

16770500 PAAUAU GULCH AT PAHALA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
NOV. 24...	1230	27	25	45	36	31	8.3	3.6	3.8

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
NOV. 24...	14	.3	12	5	0	4	16	5.5	16

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
NOV. 24...	.1	9.8	84	.11	5.0	.01	80	20

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 24...	1230	27	126	5.7	20.0
24...	1300	25	126	5.7	20.0
MAR. 02...	0815	.02	125	6.6	17.0

16800000 DENNI SPRING

LOCATION.--Lat 15°11'57" N., long 145°46'05" E., 2.8 mi (4.5 km) southeast of Tanapag, 3.1 mi (5.0 km) east of Garapan, and 5.6 mi (9.0 km) northeast of Chalan Kanoa.

PERIOD OF RECORD.--August 1952 to June 1954 (published as Donni Spring near Garapan), March 1968, January 1969 to current year.

GAGE.--Water-stage recorder and metal plus concrete control. Altitude of gage is 261 ft (79.6 m) from U.S. Navy.

REMARKS.--Records good.

AVERAGE DISCHARGE.--8 years (water years, 1953, 1970-76), 0.545 ft^3/s (0.015 m^3/s), 395 acre-ft/yr (487,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximun daily discharge, 2.7 ft^3/s (0.076 m^3/s) Aug. 11-16, 1972; minimun daily, 0.02 ft^3/s (0.001 m^3/s) Sept. 16, 17, 1969.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.96	.69	.53	.37	.29	.26	.17	.65	.26	.77	.90
2	1.4	.96	.69	.53	.37	.29	.26	.14	.61	.26	.77	.85
3	1.4	.90	.65	.53	.37	.29	.26	.14	.61	.26	.77	.85
4	1.4	.85	.65	.53	.37	.29	.26	.12	.57	.26	.96	.85
5	1.4	.81	.65	.53	.37	.29	.26	.12	.53	.26	1.5	.81
6	1.4	.77	.65	.53	.37	.29	.26	.12	.53	.26	1.7	.85
7	1.3	.73	.65	.53	.37	.29	.26	.12	.53	.26	1.8	.85
8	1.3	.73	.65	.53	.37	.29	.26	.12	.49	.26	1.8	.85
9	1.2	.73	.65	.49	.37	.29	.26	.10	.49	.26	1.8	.90
10	1.1	.73	.61	.49	.37	.26	.26	.10	.45	.26	1.8	.90
11	1.1	.73	.61	.49	.37	.26	.26	.10	.45	.26	1.7	.90
12	1.0	.73	.61	.49	.37	.26	.26	.10	.45	.29	1.6	.90
13	.96	.69	.61	.45	.37	.26	.26	.10	.41	.29	1.5	.90
14	.96	.69	.61	.45	.37	.26	.26	.10	.41	.29	1.4	.90
15	.90	.69	.61	.45	.37	.26	.26	.10	.41	.33	1.4	1.4
16	.85	.65	.61	.45	.37	.26	.26	.10	.37	.33	1.4	1.4
17	.85	.65	.61	.45	.37	.26	.23	.10	.37	.33	1.3	1.3
18	.81	.65	.61	.45	.37	.26	.23	.12	.37	.29	1.2	1.3
19	.81	.65	.61	.45	.37	.26	.23	.12	.33	.29	1.2	1.3
20	.81	.69	.61	.45	.33	.26	.23	.12	.33	.61	1.1	1.3
21	.81	.77	.61	.45	.33	.26	.23	.20	.33	.81	1.1	1.3
22	.77	.81	.57	.45	.33	.26	.20	.73	.33	.90	1.1	1.3
23	.73	.81	.57	.45	.33	.26	.20	1.1	.33	.90	1.1	1.3
24	.77	.81	.57	.45	.33	.26	.20	1.1	.33	.85	1.1	1.3
25	.77	.81	.57	.45	.33	.26	.20	1.1	.33	.85	1.1	1.4
26	.73	.81	.57	.45	.33	.26	.20	1.0	.29	.81	1.1	1.4
27	.73	.77	.57	.45	.33	.26	.17	.96	.29	.81	1.1	1.4
28	.73	.77	.57	.41	.33	.26	.17	.90	.29	.81	1.0	1.4
29	.77	.73	.57	.41	.33	.26	.17	.81	.29	.81	.96	1.4
30	.90	.69	.57	.41	---	.26	.17	.73	.26	.77	.90	1.4
31	.96	---	.53	.37	---	.26	---	.69	---	.77	.90	---
TOTAL	31.02	22.77	18.91	14.55	10.33	8.33	6.99	11.63	12.43	15.00	38.93	33.81
MEAN	1.00	.76	.61	.47	.36	.27	.23	.38	.41	.48	1.26	1.13
MAX	1.4	.96	.69	.53	.37	.29	.26	1.1	.65	.90	1.8	1.4
MIN	.73	.65	.53	.37	.33	.26	.17	.10	.26	.26	.77	.81
AC-FT	62	45	38	29	20	17	14	23	25	30	77	67

CAL YR 1975 TOTAL 204.54 MEAN .56 MAX 1.7 MIN .14 AC-FT 406
WTR YR 1976 TOTAL 224.70 MEAN .61 MAX 1.8 MIN .10 AC-FT 446

16801000 SOUTH FORK TALOFOFO STREAM

LOCATION.--Lat 15°12'58" N., long 145°46'31" E., on left bank 0.3 mi (0.5 km) upstream from confluence with Middle and North Forks, 1.4 mi (2.3 km) south of Ogso Dogas, and 2.2 mi (3.5 km) southeast of Tanapag.

DRAINAGE AREA.--0.69 mi^2 (1.79 km^2). Area at site used prior to Mar. 31, 1971, 0.73 mi^2 (1.89 km^2).

PERIOD OF RECORD.--October 1968 to current year. Low-flow records not equivalent prior to Mar. 31, 1971, due to undetermined amount of underflow between sites.

GAGE.--Water-stage recorder. Concrete control since Mar. 31, 1971. Altitude of gage is 30 ft (9.1 m), from topographic map. Prior to Mar. 31, 1971, at site 0.2 mi (0.3 km) downstream at different datum.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 412 of this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,460 ft^3/s (98.0 m^3/s) Aug. 4, 1976, gage height, 8.15 ft (2.484 m), from rating curve extended above 59 ft^3/s (1.67 m^3/s) on basis of estimate of discharge from high-water marks; no flow at times prior to Mar. 31, 1971, at site then in use; minimum at present site, 0.01 ft^3/s (<0.001 m^3/s) for many days in 1973, 1974 and 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft^3/s (11.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Aug. 4	0400	*3460	98.0	8.15	2.484
Sept. 24	a0600	Not determined		--	--

Minimum discharge, 0.06 ft^3/s (0.002 m^3/s) Apr. 26, 27.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.8	.76	.62	.54	.25	.11	.08	.58	.21	.80	1.8
2	2.4	1.4	.76	.49	2.3	.23	.15	.85	.54	.21	1.3	1.7
3	1.8	1.3	.72	.67	.85	.23	.13	.25	.49	.19	1.7	1.6
4	1.5	1.4	.67	.49	.67	.23	.11	.40	.49	.19	100	1.5
5	1.5	1.2	.62	.44	.67	.21	.11	.31	.49	.21	25	5.0
6	1.3	1.1	.76	.44	1.4	.21	.09	.21	.49	.21	15	2.0
7	1.1	.94	.72	.44	.85	.21	.09	.23	.62	.23	10	4.5
8	1.0	.85	1.3	.44	.72	.19	.09	.17	.49	.21	5.0	2.5
9	.85	.85	.67	.49	.67	.19	.09	.19	.40	.21	6.0	2.0
10	.94	.80	1.0	.44	.58	.17	.09	.17	.34	.21	3.0	2.0
11	.85	.80	.85	.44	.54	.17	.11	.15	.34	.19	2.5	1.7
12	.85	.85	.80	.40	.49	.17	.09	.13	.31	.23	2.0	4.0
13	.80	4.5	.72	.40	.44	.17	.08	.15	.28	.25	1.9	2.0
14	1.0	1.5	2.0	.40	.40	.17	.08	.13	.28	4.3	1.8	3.0
15	.85	1.1	.85	.40	.40	.15	.08	.13	.25	.94	1.7	12
16	.80	.94	.72	.40	.49	.15	.09	.12	.31	.67	1.6	3.0
17	.72	.85	.67	.40	.44	.15	.09	.11	.25	.58	1.5	2.0
18	1.3	.85	.62	.40	.37	.13	.09	.11	.23	.49	5.0	1.5
19	.85	1.5	.67	.40	.37	.15	.12	.12	.23	10	1.5	1.4
20	1.5	4.5	.72	.40	.37	.15	.09	.80	.23	16	2.0	1.3
21	1.2	3.9	.62	.40	.34	.13	.12	33	.23	5.0	7.0	1.2
22	1.0	1.7	.58	.35	.31	.13	.12	22	.23	2.9	2.5	1.1
23	1.3	1.4	.67	.35	.28	.13	.11	3.6	.28	1.9	2.0	1.0
24	.94	1.3	.58	.35	.28	.13	.09	2.0	.37	2.1	2.0	40
25	.85	1.2	.54	.35	.28	.13	.08	1.4	.31	1.4	1.9	5.0
26	.80	1.1	.49	.30	.25	.13	.08	1.3	.25	1.4	1.8	3.0
27	.80	1.0	.49	.30	.23	.13	.08	.94	.25	1.4	1.7	2.0
28	2.1	.94	.49	.30	.23	.12	.17	.80	.23	1.1	1.6	1.8
29	14	.85	.44	.25	.25	.12	.09	.76	.23	1.0	1.5	1.6
30	2.9	.80	.44	1.5	---	.11	.08	.67	.23	1.0	1.5	1.4
31	2.8	---	.44	.62	---	.11	---	.62	---	.80	2.4	---
TOTAL	53.00	43.22	22.38	14.07	16.01	5.05	3.00	71.90	10.25	55.73	215.20	114.6
MEAN	1.71	1.44	.72	.45	.55	.16	.10	2.32	.34	1.80	6.94	3.82
MAX	14	4.5	2.0	1.5	2.3	.25	.17	33	.62	16	100	40
MIN	.72	.80	.44	.25	.23	.11	.08	.08	.23	.19	.80	1.0
AC-FT	105	86	44	28	32	10	6.0	143	20	111	427	227

CAL YR 1975 TOTAL 509.25 MEAN 1.40 MAX 43 MIN .01 AC-FT 1010
WTR YR 1976 TOTAL 624.41 MEAN 1.71 MAX 100 MIN .08 AC-FT 1240

NOTE.--No gage-height record Aug. 4 to Sept. 27.

16801500 MIDDLE FORK TALOFOFO STREAM

LOCATION.--Lat 15°13'05" N., long 145°46'36" E., on left bank 700 ft (213 m) upstream from confluence with South and North Forks, 2.2 mi (3.5 km) southeast of Tanapag, and 3.7 mi (6.0 km) east of Garapan.
DRAINAGE AREA.--0.35 mi^2 (0.91 km^2).
PERIOD OF RECORD.--March 1968 to current year.
GAGE.--Water-stage recorder. Concrete control since Feb. 28, 1971. Altitude of gage is 25 ft (7.6 m), from topographic map.
REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 412 of this report.
AVERAGE DISCHARGE.--8 years, 0.628 ft^3/s (0.018 m^3/s), 455 acre-ft/yr (561,000 m^3/yr).
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 541 ft^3/s (15.3 m^3/s) Sept. 24, 1976, gage height, 5.67 ft (1.728 m), from rating curve extended on basis of slope-area measurement at gage height 5.38 ft (1.640 m); minimum, 0.07 ft^3/s (0.002 m^3/s) July 5, 6, 1973, Apr. 25, 1974.
EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s (2.83 m^3/s) revised, and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Aug. 4	0330	455	12.9	5.38	1.640
Sept. 24	0530	*541	15.3	5.67	1.728

Minimum discharge, 0.10 ft^3/s (0.003 m^3/s) May 14-18.

REVISIONS.--The peak discharges and annual maximum (*) for water years 1968-75 have been revised as shown in the following table. They supersede figures published in WSP 2137, and the reports for 1971-75.

Water year	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
1968	Apr. 12, 1968	0130	69	1.95	3.23	0.985
	June 28, 1968	0730	*278	7.87	4.64	1.414
	July 21, 1968	-	60	1.70	3.12	.951
	Sept. 2, 1968	2200	171	4.84	4.07	1.241
	Sept. 12, 1968	1300	59	1.67	3.11	.948
1969	Oct. 23, 1968	0330	135	3.82	3.83	1.167
	Nov. 2, 1968	1200	360	10.2	5.00	1.524
	Nov. 19, 1968	1430	*415	11.8	5.22	1.591
1970	Oct. 16, 1969	1730	*282	7.99	4.66	1.420
1971	Sept. 6, 1971	2100	*108	3.06	3.62	1.103
1972	July 23, 1972	0300	183	5.18	†4.14	1.262
	Aug. 6, 1972	0200	*256	7.25	4.53	1.381
	Aug. 10, 1972	1500	246	6.97	4.48	1.366
1973	Oct. 2, 1972	2300	58	1.64	3.10	.945
1974	May 4, 1974	0500	*74	2.10	3.29	1.003
1975	Nov. 3, 1974	1300	*186	5.27	4.16	1.268

† From floodmarks.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.95	.85	.65	.65	.47	.26	.26	.23	.40	.30	.47	.47
2	.95	.75	.60	.60	1.2	.30	.26	.89	.40	.26	.71	.47
3	.80	.65	.60	.60	.50	.30	.26	.23	.36	.30	.85	.47
4	.75	.70	.62	.56	.43	.30	.26	.23	.47	.30	22	.47
5	.70	.70	.52	.56	.43	.30	.26	.23	.47	.33	7.1	1.6
6	.65	.70	.60	.56	.94	.26	.26	.30	.50	.30	5.5	.71
7	.65	.70	.56	.52	.64	.26	.26	.29	.50	.33	3.0	1.5
8	.65	.65	.80	.52	.47	.26	.23	.19	.43	.33	1.4	.85
9	.65	.70	.56	.56	.43	.26	.23	.16	.47	.33	1.8	.57
10	.65	.65	.60	.56	.40	.26	.23	.16	.40	.30	.85	.64
11	.65	.65	.52	.56	.36	.26	.23	.16	.43	.26	.71	.47
12	.65	.92	.48	.52	.36	.30	.23	.16	.43	.36	.64	1.4
13	.70	2.4	.48	.48	.36	.26	.26	.19	.40	.43	.71	.57
14	.80	.95	.75	.48	.33	.26	.26	.23	.40	3.1	.64	1.1
15	.70	.75	.52	.48	.33	.26	.23	.14	.36	.64	.57	5.4
16	.65	.65	.52	.48	.36	.26	.19	.14	.40	.47	.64	1.1
17	.65	.65	.52	.52	.36	.26	.19	.14	.33	.47	.57	.64
18	.70	.70	.52	.48	.33	.23	.19	.14	.33	.43	1.5	.50
19	.65	.85	.56	.48	.33	.23	.26	.16	.33	4.0	.64	.47
20	1.0	1.5	.60	.48	.33	.23	.19	.50	.36	5.3	.78	.43
21	.85	1.2	.60	.48	.33	.23	.26	8.6	.33	1.6	2.3	.43
22	.70	.90	.52	.44	.30	.23	.23	5.9	.36	1.1	.99	.43
23	.85	.85	.60	.41	.30	.23	.23	.99	.40	.85	.71	.43
24	.65	.85	.56	.41	.30	.23	.19	.64	.43	1.1	.64	14
25	.65	.80	.56	.41	.30	.26	.19	.50	.40	.71	.57	1.7
26	.60	.80	.52	.38	.30	.30	.16	.64	.36	.71	.50	.99
27	.56	.75	.52	.38	.30	.30	.16	.50	.33	.92	.47	.78
28	.75	.75	.52	.35	.30	.30	.30	.47	.30	.57	.47	.78
29	3.2	.70	.52	.35	.26	.30	.19	.43	.30	.57	.47	.71
30	1.1	.65	.48	.70	---	.26	.26	.40	.30	.57	.47	.71
31	1.0	---	.48	.48	---	.26	---	.40	---	.47	.47	---
TOTAL	25.46	25.32	17.46	15.44	12.05	8.21	6.91	24.34	11.68	27.71	59.14	40.79
MEAN	.82	.84	.56	.50	.42	.26	.23	.79	.39	.89	1.91	1.36
MAX	3.2	2.4	.80	.70	1.2	.30	.30	8.6	.50	5.3	22	14
MIN	.56	.65	.48	.35	.26	.23	.16	.14	.30	.26	.47	.43
AC-FT	50	50	35	31	24	16	14	48	23	55	117	81

CAL YR 1975 TOTAL 229.74 MEAN .63 MAX 8.3 MIN .12 AC-FT 456
WTR YR 1976 TOTAL 274.51 MEAN .75 MAX 22 MIN .14 AC-FT 544

16808300 FINILE CREEK AT AGAT

LOCATION.--Lat 13°22'39" N., long 144°39'26" E., on right bank 0.4 mi (0.6 km) upstream from estuary and 0.4 mi (0.6 km) south of Agat School.

DRAINAGE AREA.--0.28 mi^2 (0.73 km^2).

PERIOD OF RECORD.--April 1960 to current year. Prior to October 1969, published as Finile River at Agat.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 20 ft (6.1 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--16 years, 1.46 ft^3/s (0.041 m^3/s), 1,060 acre-ft/yr (1.31 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 326 ft^3/s (9.23 m^3/s) May 21, 1976, gage height, 3.88 ft (1.183 m), from rating curve extended above 80 ft^3/s (2.27 m^3/s) on basis of slope-area measurement at gage height 3.66 ft (1.116 m); minimum, 0.04 ft^3/s (0.001 m^3/s) July 2-4, 6, 8, 9, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 170 ft^3/s (4.81 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 21	1330	*326	9.23	3.88	1.183
Aug. 5	a0600	202	5.72	2.72	.829

Minimum discharge, 0.51 ft^3/s (0.014 m^3/s) May 1-8.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.92	1.2	1.9	5.7	3.3	1.9	1.3	.60	2.1	1.3	1.2	1.6
2	.81	1.9	1.9	2.1	6.5	1.8	1.0	.60	1.9	1.3	5.0	1.6
3	.81	1.2	1.9	3.7	4.6	1.4	1.0	.60	1.9	1.1	15	1.6
4	1.2	1.1	1.6	1.6	4.1	1.4	1.0	.60	1.8	1.1	6.0	1.6
5	2.4	1.0	1.9	1.3	4.6	1.3	1.0	.60	1.8	1.1	10	7.0
6	.83	1.1	2.1	1.4	3.5	1.1	.92	.70	1.6	1.1	12	2.6
7	.77	1.0	1.6	1.1	4.6	1.1	.92	.60	1.6	1.0	4.4	1.9
8	3.4	1.1	1.5	1.1	3.3	1.1	5.5	.60	1.6	1.0	7.9	1.8
9	1.3	1.5	1.5	1.1	6.0	1.1	1.4	.70	2.1	4.9	3.9	2.4
10	1.1	1.9	1.4	1.0	3.3	1.1	1.1	.60	1.6	1.8	3.5	1.8
11	.99	3.5	1.4	1.0	4.9	1.0	1.1	.70	1.6	1.4	3.5	4.9
12	1.2	1.9	1.3	1.0	3.5	1.0	1.0	3.0	3.0	6.5	3.2	5.7
13	3.3	2.6	1.3	.92	3.5	1.0	.92	3.0	1.6	2.2	3.2	2.6
14	2.8	1.6	1.3	.92	3.5	1.0	.92	2.1	1.5	2.8	3.2	3.5
15	2.9	1.4	1.4	.92	3.2	1.0	.92	2.4	1.5	1.7	2.8	2.6
16	2.0	1.9	1.3	.92	2.8	.92	.92	.92	1.8	1.5	2.8	2.2
17	1.3	1.8	1.3	.92	2.4	.92	.81	.81	1.4	1.2	2.6	2.1
18	1.2	2.0	1.3	.81	2.4	.92	.81	.81	1.4	1.0	2.4	1.9
19	1.2	9.4	1.3	.81	2.4	.92	.81	.81	1.4	5.0	2.4	1.9
20	1.1	10	1.3	.81	2.2	.92	.81	4.4	1.6	5.0	2.2	1.9
21	1.1	3.7	1.3	.70	2.2	.92	.81	33	1.5	7.0	4.9	1.8
22	1.0	2.6	1.3	.70	2.0	.92	.81	20	1.3	2.0	2.4	1.8
23	1.1	4.1	1.1	.81	1.9	.81	.81	7.2	1.3	1.5	2.2	1.6
24	.89	2.5	1.1	.81	1.8	.81	.70	7.2	1.9	4.0	2.1	1.6
25	.84	2.3	1.0	10	1.8	.81	.70	5.7	1.5	2.0	1.9	1.6
26	.85	2.2	.92	17	1.8	.81	.70	5.7	2.6	6.0	1.9	1.5
27	.87	2.1	1.0	9.0	1.6	.92	.70	3.0	1.8	2.0	1.9	1.5
28	4.0	2.1	.92	3.5	1.6	2.2	.70	2.6	1.5	1.5	1.8	1.4
29	2.2	2.0	.92	3.9	2.0	1.9	.70	2.4	1.4	2.5	1.8	1.4
30	2.2	2.0	.81	4.1	---	2.2	.60	2.4	1.4	1.5	1.8	1.4
31	1.5	---	.81	4.6	---	1.8	---	2.2	---	1.2	1.8	---
TOTAL	48.08	74.7	41.68	84.25	91.3	37.00	31.39	116.55	51.0	75.2	121.7	68.8
MEAN	1.55	2.49	1.34	2.72	3.15	1.19	1.05	3.76	1.70	2.43	3.93	2.29
MAX	4.0	10	2.1	17	6.5	2.2	5.5	33	3.0	7.0	15	7.0
MIN	.77	1.0	.81	.70	1.6	.81	.60	.60	1.3	1.0	1.2	1.4
AC-FT	95	148	83	167	181	73	62	231	101	149	241	136

CAL YR 1975 TOTAL 312.53 MEAN .86 MAX 10 MIN .08 AC-FT 620
WTR YR 1976 TOTAL 841.65 MEAN 2.30 MAX 33 MIN .60 AC-FT 1670

16816000 UMATAC RIVER AT UMATAC

LOCATION.--Lat 13°17'48" N., long 144°39'46" E., on left bank 0.2 mi (0.3 km) upstream from mouth, 0.3 mi (0.5 km) southeast of Umatac, and 5.8 mi (9.3 km) northwest of Inarajan.

DRAINAGE AREA.--2.11 mi^2 (5.46 km^2).

PERIOD OF RECORD.--September 1952 to September 1976 (discontinued).

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 8 ft (2.4 m), from topographic map. Prior to Oct. 16, 1953, at datum 0.62 ft (0.189 m) higher.

REMARKS.--Records fair. Upstream diversion at Piga Spring for domestic use at Umatac. Recording rain gage located at station. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--24 years, 8.67 ft^3/s (0.246 m^3/s), 6,280 acre-ft/yr (7.74 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,460 ft^3/s (211 m^3/s) Oct. 19, 1960, gage height, 7.04 ft (2.146 m), from rating curve extended above 320 ft^3/s (9.06 m^3/s) on basis of slope-area measurements at gage heights 3.51 ft (1.070 m) and 7.04 ft (2.146 m); minimum, 0.10 ft^3/s (0.003 m^3/s) June 20-23, July 3-6, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft^3/s (39.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 26	1030	2380	67.4	4.22	1.286	July 18	1630	1600	45.3	3.63	1.106
May 21	1345	*7150	202	†6.9	2.103	Aug. 6	0145	1820	51.5	3.82	1.164

Minimum discharge, 1.3 ft^3/s (0.037 m^3/s) May 1-3.

†From floodmarks.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	9.8	5.9	4.7	35	5.6	7.4	1.4	5.6	5.3	10	4.0
2	4.3	11	5.9	8.4	44	8.4	5.2	1.3	5.3	4.7	85	4.0
3	3.8	7.5	6.6	4.4	23	4.7	4.0	8.6	4.9	4.4	150	3.8
4	8.8	7.0	5.9	4.4	20	4.2	3.9	13	4.9	4.4	45	3.5
5	6.2	6.1	6.6	3.1	15	3.9	3.8	2.8	4.7	4.4	85	65
6	5.0	5.8	8.4	3.9	12	3.6	3.6	2.6	4.4	4.2	150	25
7	6.6	5.2	5.6	2.9	18	3.4	3.7	2.8	4.2	3.9	30	10
8	24	5.2	4.9	2.7	23	3.4	9.0	2.2	4.2	3.6	25	35
9	16	23	4.9	3.6	57	3.1	6.0	2.5	7.3	26	20	15
10	13	15	4.7	2.9	24	3.1	4.7	2.2	4.4	15	10	8.0
11	15	74	4.2	2.5	62	3.1	3.8	4.8	13	11	8.0	20
12	13	20	3.9	2.5	21	2.7	3.3	61	14	8.0	7.0	25
13	23	31	4.2	2.1	15	2.9	3.1	25	7.6	6.2	6.0	10
14	45	14	3.9	2.1	12	2.7	2.9	22	6.3	9.2	25	40
15	23	12	3.9	2.1	9.4	2.7	2.6	18	5.6	6.6	10	25
16	16	18	3.4	2.0	8.4	2.5	2.7	15	6.9	5.9	30	9.0
17	14	23	3.1	2.5	7.6	2.5	2.7	14	5.6	5.9	20	8.0
18	12	20	3.1	2.3	6.9	2.1	2.4	13	4.9	92	10	7.0
19	11	92	2.9	1.8	8.0	2.7	2.6	12	4.9	50	8.0	6.0
20	10	105	2.9	1.6	6.3	5.1	2.1	29	8.8	100	6.0	5.0
21	9.8	26	2.5	1.8	5.6	2.4	1.9	500	6.9	30	45	15
22	9.7	17	2.5	1.8	5.3	2.4	1.8	133	5.9	15	10	8.0
23	24	22	2.3	2.9	4.9	2.0	1.6	29	6.3	10	8.0	6.0
24	14	13	2.3	3.6	4.7	2.4	1.6	18	13	10	7.0	8.0
25	12	14	2.3	98	4.4	2.2	2.2	14	16	10	6.4	10
26	15	10	2.0	227	4.2	2.7	1.9	11	10	25	6.0	8.1
27	18	8.8	2.9	66	3.9	11	1.6	9.2	10	15	5.5	5.1
28	48	8.0	2.7	28	3.9	9.1	1.5	8.4	7.3	10	5.0	4.0
29	38	7.3	2.1	26	6.9	11	1.5	7.3	6.3	30	5.0	2.8
30	22	6.9	2.0	26	---	31	1.5	6.6	5.6	15	4.5	2.5
31	13	---	1.8	28	---	11	---	6.3	---	10	4.5	---
TOTAL	498.2	637.6	120.3	571.6	471.4	159.6	96.6	996.0	214.8	550.7	846.9	397.8
MEAN	16.1	21.3	3.88	18.4	16.3	5.15	3.22	32.1	7.16	17.8	27.3	13.3
MAX	48	105	8.4	227	62	31	9.0	500	16	100	150	65
MIN	3.8	5.2	1.8	1.6	3.9	2.0	1.5	1.3	4.2	3.6	4.5	2.5
AC-FT	988	1260	239	1130	935	317	192	1980	426	1090	1680	789

CAL YR 1975 TOTAL 2148.15 MEAN 5.89 MAX 105 MIN .10 AC-FT 4260
WTR YR 1976 TOTAL 5561.50 MEAN 15.2 MAX 500 MIN 1.3 AC-FT 11030

NOTE.--No gage-height record July 19 to Sept. 23.

16835000 INARAJAN RIVER NEAR INARAJAN

LOCATION.--Lat 13°16'41" N., long 144°44'15" E., on right bank 0.6 mi (1.0 km) northwest of Inarajan and 4.9 mi (7.9 km) east of Merizo.

DRAINAGE AREA.--4.42 mi² (11.45 km²).

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

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records fair. Stage-discharge relation not determined above gage height 11.0 ft (3.35 m) owing to ungaged overbank flow. Village of Inarajan diverted about 40,000 gallons (151 m³) a day above station for domestic use until October 1973, and during dry periods about 250,000 gallons (946 m³) a day for irrigation. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--24 years, 17.8 ft³/s (0.504 m³/s), 12,900 acre-ft/yr (15.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 12.90 ft (3.932 m) Oct. 11, 1963 (discharge not determined); minimum discharge, 0.42 ft³/s (0.012 m³/s) June 21, 22, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,700 ft³/s (48.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 11	a0700	†		12.55	3.825	Aug. 3	1515	†		12.17	3.709
Jan. 26	1045	†		12.54	3.822	Aug. 6	0215	†		12.27	3.740
May 21	1345	†		12.61	3.844	Sept. 8	1930	†		11.37	3.466

Minimum discharge, 4.4 ft³/s (0.125 m³/s) Apr. 27, 28, May 8.

† Discharge not determined.
a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	15	16	15	105	20	14	5.2	43	10	23	13
2	6.0	13	15	16	91	15	10	5.4	30	9.4	167	14
3	6.3	11	15	11	54	13	9.7	13	14	9.1	370	12
4	19	10	15	10	40	12	9.1	13	13	8.8	95	14
5	21	12	15	8.0	38	12	8.8	6.2	12	8.8	171	171
6	12	12	16	8.1	31	11	8.2	5.7	12	8.8	359	49
7	9.3	9.9	13	6.9	39	10	7.9	5.7	12	7.9	68	23
8	56	11	13	6.6	50	11	17	4.9	11	7.6	44	167
9	22	113	12	7.3	90	9.7	13	5.4	16	9.7	37	34
10	15	55	12	6.6	40	9.4	9.7	4.9	12	11	32	22
11	14	302	12	5.9	120	9.1	8.2	7.0	21	11	30	41
12	12	60	11	6.2	40	9.1	7.6	57	27	9.7	26	72
13	37	80	11	5.9	30	8.8	7.0	22	18	14	25	37
14	107	26	11	5.7	25	8.8	7.0	27	13	23	25	44
15	34	22	10	5.6	22	8.8	6.7	23	12	11	23	111
16	19	28	10	5.4	20	8.5	6.2	11	20	9.7	44	29
17	15	38	9.4	5.2	20	7.9	6.7	8.2	12	15	22	25
18	13	28	8.5	5.2	18	7.6	6.2	7.6	11	101	28	22
19	12	220	8.5	5.0	20	8.8	6.5	7.9	11	89	26	21
20	11	150	8.5	5.0	18	13	6.0	79	17	193	21	19
21	11	50	8.5	4.9	17	7.9	5.7	762	13	206	119	18
22	10	40	8.5	5.1	15	9.1	6.0	511	11	43	28	17
23	10	50	8.2	6.7	14	7.3	5.7	87	14	29	22	18
24	9.0	25	8.2	8.0	13	8.2	5.4	70	31	23	19	58
25	8.0	35	8.0	290	12	7.0	5.4	56	31	25	18	32
26	8.0	25	7.9	496	12	7.3	5.2	52	20	75	17	25
27	20	20	8.8	136	10	17	4.9	51	17	47	16	17
28	40	19	8.2	48	10	15	4.9	49	13	29	15	15
29	40	18	7.2	42	15	17	6.0	48	12	152	14	14
30	30	17	6.9	44	---	44	5.4	47	11	41	14	14
31	20	---	7.4	47	---	20	---	44	---	26	15	---
TOTAL	653.3	1514.9	329.7	1278.3	1029	373.3	230.1	2096.1	510	1263.5	1933	1168
MEAN	21.1	50.5	10.6	41.2	35.5	12.0	7.67	67.6	17.0	40.8	62.4	38.9
MAX	107	302	16	496	120	44	17	762	43	206	370	171
MIN	6.0	9.9	6.9	4.9	10	7.0	4.9	4.9	11	7.6	14	12
AC-FT	1300	3000	654	2540	2040	740	456	4160	1010	2510	3830	2320

CAL YR 1975 TOTAL 4024.99 MEAN 11.0 MAX 302 MIN .65 AC-FT 7980
WTR YR 1976 TOTAL 12379.20 MEAN 33.8 MAX 762 MIN 4.9 AC-FT 24550

16840000 TINAGA RIVER NEAR INARAJAN

LOCATION.--Lat 13°17'10" N., long 144°45'04" E., on right bank 0.3 mi (0.5 km) upstream from mouth, 0.9 mi (1.4 km) northeast of Inarajan, and 4.5 mi (7.2 km) south of Talofofo.

DRAINAGE AREA.--1.89 mi² (4.90 km²).

PERIOD OF RECORD.--October 1952 to current year. Prior to October 1969, published as Paululuc River near Inarajan.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records good except those above 20 ft³/s (0.57 m³/s), which are fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--24 years, 5.83 ft³/s (0.165 m³/s), 4,220 acre-ft/yr (5.20 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,980 ft³/s (84.4 m³/s) Oct. 15, 1953, gage height, 13.11 ft (3.996 m), from rating curve extended above 210 ft³/s (5.95 m³/s); minimum, 0.15 ft³/s (0.004 m³/s) May 16, 21-23, 29, 1966, June 13, 29, 30, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft³/s (11.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 11	0700	528	15.0	4.90	1.494	July 21	1530	497	14.1	4.72	1.439
Jan. 26	1145	864	24.5	6.62	2.018	Aug. 2	0715	425	12.0	4.28	1.305
May 21	1415	*1710	48.4	10.25	3.124						

Minimum discharge, 1.3 ft³/s (0.037 m³/s) Jan. 21-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	6.4	6.4	4.5	35	7.9	4.5	1.4	5.8	4.0	9.3	4.9
2	3.4	5.2	6.1	7.3	35	5.5	3.8	1.6	5.5	3.7	68	4.9
3	2.8	5.0	5.5	4.7	21	5.0	3.4	1.8	5.2	3.3	98	4.7
4	4.8	4.5	6.4	4.7	14	4.7	3.4	1.8	5.0	3.1	50	4.7
5	4.8	5.2	6.4	3.8	14	4.7	3.1	1.8	5.0	2.9	67	36
6	4.0	5.0	6.4	5.8	10	4.2	3.1	1.8	4.8	2.9	83	27
7	3.6	4.3	6.1	3.4	14	3.7	2.8	1.8	4.5	2.7	23	8.2
8	7.3	4.3	5.5	2.9	23	3.7	4.7	1.6	4.3	2.9	16	16
9	11	19	5.2	2.8	39	3.7	5.2	1.9	4.8	2.9	13	14
10	7.6	17	5.0	2.6	20	3.3	4.5	1.8	4.8	2.7	11	7.9
11	5.5	102	4.8	2.6	48	3.1	4.3	2.0	6.4	3.1	9.7	16
12	5.0	13	4.5	2.3	19	2.9	3.8	8.9	9.0	3.5	8.9	76
13	8.6	34	4.3	2.2	14	2.7	3.1	7.5	6.1	5.2	8.5	14
14	23	11	4.0	2.2	9.8	2.5	2.6	9.3	5.5	14	8.2	20
15	12	9.0	3.8	2.0	8.6	2.5	2.6	6.0	5.0	5.5	7.5	49
16	7.6	10	4.0	1.8	7.6	2.7	2.5	4.2	7.3	4.7	15	12
17	5.8	19	4.3	1.7	7.3	2.7	2.5	2.9	5.2	4.4	7.5	9.7
18	5.2	12	3.6	1.7	7.0	2.5	2.3	2.6	5.0	4.2	8.5	8.5
19	4.8	87	3.4	1.6	7.6	2.5	2.3	2.5	4.8	10	8.5	8.2
20	4.3	61	3.1	1.6	7.0	4.2	2.2	22	5.0	81	7.2	7.9
21	4.0	20	2.8	1.4	6.4	3.1	2.2	439	5.8	83	64	7.5
22	4.0	14	2.8	1.3	5.8	3.3	1.9	152	5.2	19	13	7.2
23	4.0	24	2.8	1.8	5.2	3.1	2.0	21	5.0	12	7.9	7.2
24	4.0	11	2.8	2.2	5.0	3.3	2.0	14	6.7	9.3	7.5	13
25	3.6	14	2.8	76	4.7	2.9	2.0	11	9.8	8.5	6.9	18
26	3.1	9.8	2.8	181	4.7	2.7	1.7	10	6.1	42	6.3	11
27	7.3	8.6	2.9	45	4.5	3.1	1.6	7.7	7.3	31	6.0	7.9
28	18	7.9	3.1	17	4.3	6.3	1.6	7.2	5.8	22	5.7	6.9
29	17	7.3	3.4	15	6.7	5.5	1.7	6.4	5.2	27	5.7	6.3
30	9.8	6.7	3.4	18	---	12	1.6	6.3	4.5	18	5.2	6.0
31	8.2	---	3.1	16	---	6.4	---	6.0	---	10	5.2	---
TOTAL	217.7	557.2	131.5	436.9	408.2	126.4	87.0	765.8	170.4	448.5	661.2	400.6
MEAN	7.02	18.6	4.24	14.1	14.1	4.08	2.90	24.7	5.68	14.5	21.3	13.4
MAX	23	102	6.4	181	48	12	6.7	439	9.8	83	98	49
MIN	2.8	4.3	2.8	1.3	4.3	2.5	1.6	1.4	4.3	2.7	5.2	4.7
AC-FT	432	1110	261	867	810	251	173	1520	338	890	1310	795

CAL YR 1975	TOTAL	1400.03	MEAN	3.84	MAX 102	MIN .29	AC-FT	2780
WTR YR 1976	TOTAL	4411.40	MEAN	12.1	MAX 439	MIN 1.3	AC-FT	8750

MARIANA ISLANDS, ISLAND OF GUAM

16847000 IMONG RIVER NEAR AGAT

LOCATION.--Lat 13°20'17" N., long 144°41'55" E., on left bank 500 ft (152 m) upstream from Fena Valley Reservoir, 1.4 mi (2.3 km) south of Fena Dam spillway, and 4.1 mi (6.6 km) southeast of Agat School.

DRAINAGE AREA.--1.95 mi^2 (5.05 km^2).

PERIOD OF RECORD.--March 1960 to March 1971. October 1971 to current year.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 120 ft (37 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--15 years (water years, 1961-70, 1972-76), 10.6 ft^3/s (0.300 m^3/s), 7,680 acre-ft/yr (9.47 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,370 ft^3/s (95.4 m^3/s) Oct. 19, 1960, gage height, 10.06 ft (3.066 m), from rating curve extended above 110 ft^3/s (3.12 m^3/s) on basis of slope-area measurements at gage heights 7.46 ft (2.274 m) and 10.06 ft (3.066 m); minimum, 0.37 ft^3/s (0.010 m^3/s) May 21, 22, 26, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft^3/s (39.6 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 11	0415	2090	59.2	7.52	2.292
May 21	1315	*2520	71.4	8.45	2.576
Aug. 6	0130	1990	56.4	7.28	2.219

Minimum discharge, 3.0 ft^3/s (0.085 m^3/s) May 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.9	12	11	30	32	9.4	7.1	3.4	9.3	6.9	8.4	6.2
2	4.6	20	10	15	48	9.6	5.6	3.6	8.3	7.1	44	6.1
3	4.5	11	11	30	21	6.9	5.1	5.0	8.2	7.4	142	5.8
4	11	9.0	9.5	10	19	6.3	5.1	4.6	7.6	6.3	38	6.5
5	6.6	8.4	15	7.0	20	6.1	5.5	3.4	7.0	5.4	103	53
6	5.8	8.1	11	7.0	14	5.8	4.9	3.6	7.2	5.6	284	17
7	6.9	7.1	10	6.0	27	5.6	4.5	3.4	6.7	5.5	62	9.6
8	24	7.0	9.5	4.8	22	5.5	30	3.2	6.6	6.4	53	30
9	17	16	9.0	17	51	5.5	8.0	3.8	12	29	35	19
10	11	12	8.5	6.0	22	5.4	6.0	3.4	8.1	9.8	25	9.7
11	8.6	214	8.0	5.2	51	5.1	5.0	8.8	33	6.9	19	30
12	8.0	27	8.0	5.0	19	5.1	4.5	34	105	8.7	15	30
13	21	64	7.5	4.6	16	5.2	4.0	17	35	7.9	14	18
14	32	26	7.0	4.9	13	5.0	4.2	20	22	18	25	58
15	24	22	7.0	4.3	12	5.0	4.2	13	15	7.5	21	29
16	14	34	7.0	3.8	11	4.9	4.1	6.6	15	6.7	83	16
17	9.4	56	6.5	3.7	10	4.8	4.1	5.1	8.0	5.7	23	9.9
18	7.7	68	6.5	3.7	9.4	4.8	3.9	4.5	6.5	7.8	14	8.4
19	7.2	250	6.0	3.7	9.9	5.0	4.0	6.0	5.7	22	11	8.3
20	6.4	242	6.0	3.6	8.7	7.1	3.7	43	12	40	9.0	7.3
21	7.1	76	6.0	3.7	8.3	4.5	3.7	330	9.2	37	123	24
22	7.0	51	5.5	3.7	7.8	4.6	3.7	325	7.2	14	19	8.6
23	15	77	5.5	7.0	7.6	4.3	3.8	70	8.7	10	12	7.0
24	7.6	52	5.5	4.6	7.4	4.7	3.6	37	15	22	9.0	11
25	6.3	39	5.0	99	7.0	4.2	3.6	25	17	14	8.0	7.1
26	15	32	5.0	164	6.9	4.9	3.5	76	15	36	7.3	12
27	13	25	6.0	55	6.6	8.3	3.4	39	13	17	7.2	6.8
28	33	20	6.0	26	6.5	12	3.5	23	9.0	11	7.0	6.2
29	28	15	5.0	23	11	9.7	3.5	18	7.4	23	6.7	6.0
30	21	13	5.0	25	---	16	3.6	13	7.1	12	6.5	5.8
31	15	---	4.5	25	---	11	---	11	---	9.1	7.8	---
TOTAL	402.6	1513.6	233.0	611.3	505.1	202.3	159.4	1162.4	446.8	425.7	1241.9	472.3
MEAN	13.0	50.5	7.52	19.7	17.4	6.53	5.31	37.5	14.9	13.7	40.1	15.7
MAX	33	250	15	164	51	16	30	330	105	40	284	58
MIN	4.5	7.0	4.5	3.6	6.5	4.2	3.4	3.2	5.7	5.4	6.5	5.8
AC-FT	799	3000	462	1210	1000	401	316	2310	886	844	2460	937

CAL YR 1975	TOTAL	3305.08	MEAN	9.06	MAX 250	MIN .94	AC-FT	6560
WTR YR 1976	TOTAL	7376.40	MEAN	20.2	MAX 330	MIN 3.2	AC-FT	14630

NOTE.--No gage-height record Dec. 4 to Jan. 8.

16848100 ALMAGOSA RIVER NEAR AGAT

LOCATION.--Lat 13°20'43" N., long 144°41'36" E., on right bank 400 ft (122 m) upstream from Fena Valley Reservoir and 3.5 mi (5.6 km) southeast of Agat.
DRAINAGE AREA.--1.32 mi^2 (3.42 km^2).
PERIOD OF RECORD.--April 1972 to current year.
REVISED RECORDS.--WDR-HI-75: Drainage area.
GAGE.--Water-stage recorder and concrete control. Altitdue of gage is 155 ft (47 m), from topographic map.
REMARKS.--Records good. Up to 3.9 ft^3/s (0.11 m^3/s) diverted above upstream station (see sta 16848000) for domestic use. Periodic determinations of water temperature for the current year are published on page 412 of this report.
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,200 ft^3/s (62.3 m^3/s) May 21, 1976, gage height, 7.32 ft (2.231 m), from rating curve extended above 81 ft^3/s (2.29 m^3/s) on basis of slope-area measurement at gage height 7.32 ft (2.231 m); minimum, 0.19 ft^3/s (0.005 m^3/s) June 4, 5, 1972.
EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft^3/s (19.8 m^3/s) revised, and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 11	0415	785	22.2	5.25	1.600	Aug. 3	1430	720	20.4	5.10	1.554
Jan. 26	1030	855	24.2	5.39	1.643	Aug. 5	0630	1130	32.0	5.88	1.792
May 21	1315	*2200	62.3	7.32	2.231	Aug. 6	0145	1190	33.7	5.99	1.826

Minimum discharge, 1.0 ft^3/s (0.028 m^3/s) May 7-9.

REVISIONS.--The peak discharges and annual maximum (*) for water years 1972-75 have been revised as shown in the following table. They supersede figures published in the reports for 1972-75.

Water year	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
1972	July 26, 1972	1430	732	20.7	5.13	1.564
1972	Aug. 2, 1972	2200	*1640	46.4	6.64	2.024
1972	Sept. 17, 1972	0530	1030	29.2	5.71	1.740
1972	Sept. 24, 1972	0300	660	18.7	4.95	1.509
1973	Oct. 17, 1972	2030	*880	24.9	5.44	1.658
1974	Apr. 28, 1974	0915	676	19.1	4.99	1.521
1974	May 17, 1974	1245	680	19.3	5.00	1.524
1974	July 7, 1974	1700	668	18.9	4.97	1.515
1974	Aug. 12, 1974	0430	648	18.4	4.92	1.500
1974	Aug. 27, 1974	1115	*1010	28.6	5.68	1.731
1974	Sept. 14, 1974	1300	875	24.8	5.43	1.655
1975	Oct. 7, 1974	1600	*1020	28.9	5.70	1.737
1975	Oct. 24, 1974	1830	700	19.8	5.05	1.539

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	10	3.9	3.9	31	5.0	4.4	1.1	4.1	3.9	9.5	3.4
2	2.7	15	3.6	5.2	41	4.0	3.2	1.1	3.7	3.4	32	3.3
3	2.7	8.0	4.4	6.6	27	3.2	2.5	1.5	3.7	3.1	113	3.0
4	6.9	6.3	3.3	3.8	19	3.2	2.2	1.2	3.2	2.7	54	3.2
5	3.7	5.8	4.4	2.4	20	3.2	2.3	1.1	3.0	2.4	107	35
6	2.9	5.3	4.5	2.8	13	3.1	1.9	1.1	3.0	2.2	134	19
7	3.5	4.0	3.2	2.4	28	3.0	1.8	1.0	2.6	2.0	37	10
8	16	3.7	2.9	2.2	25	3.0	20	1.0	2.5	3.2	21	22
9	16	9.3	2.8	2.5	42	2.9	6.9	1.5	5.1	18	15	17
10	10	6.7	2.8	2.1	31	2.7	4.4	1.1	3.0	8.7	12	10
11	8.4	59	2.7	1.8	41	2.7	3.3	3.0	5.8	4.8	11	24
12	7.4	25	2.6	1.8	26	2.6	2.6	22	15	12	8.5	34
13	28	42	2.6	1.6	16	2.6	2.1	12	8.2	9.4	7.3	26
14	32	18	2.6	1.5	12	2.5	1.7	19	5.4	16	29	31
15	29	11	2.6	1.6	9.6	2.6	1.5	11	4.4	8.2	11	34
16	16	18	2.6	1.5	7.8	2.4	1.5	5.2	5.4	6.3	22	20
17	9.8	15	2.5	1.5	6.6	2.2	1.6	3.4	4.1	4.7	10	11
18	7.3	21	2.4	1.5	5.6	2.2	1.5	2.5	3.9	4.1	8.2	9.0
19	6.3	61	2.2	1.5	5.6	2.4	1.7	2.0	3.3	22	9.3	7.5
20	4.8	94	2.1	1.5	4.9	2.5	1.7	28	7.6	35	7.3	6.2
21	5.1	32	2.1	1.4	4.4	1.8	1.5	290	5.4	31	40	20
22	3.9	17	2.0	1.5	4.0	2.0	1.5	163	4.6	14	16	8.0
23	4.8	22	1.9	2.7	3.8	1.8	1.7	35	4.5	9.7	10	5.5
24	3.9	11	1.8	1.7	3.5	1.7	1.5	18	7.9	22	7.9	6.4
25	3.3	9.9	1.7	77	3.3	1.7	1.4	11	8.4	12	6.6	5.0
26	6.7	7.5	1.6	157	3.2	1.8	1.3	17	11	37	5.5	6.8
27	8.4	6.4	1.7	70	3.1	2.8	1.3	9.9	8.5	20	5.0	4.4
28	29	5.6	1.9	40	3.0	6.5	1.2	7.2	6.5	14	4.5	3.9
29	26	4.8	1.6	26	4.4	7.0	1.2	6.0	5.2	21	4.1	3.7
30	25	4.4	1.5	27	---	7.6	1.2	5.2	4.5	16	3.8	3.4
31	16	---	1.5	30	---	6.9	---	4.5	---	10	4.8	---
TOTAL	348.3	558.7	80.0	484.0	444.8	99.6	82.6	686.6	163.5	378.8	766.3	395.7
MEAN	11.2	18.6	2.58	15.6	15.3	3.21	2.75	22.1	5.45	12.2	24.7	13.2
MAX	32	94	4.5	157	42	7.6	20	290	15	37	134	35
MIN	2.7	3.7	1.5	1.4	3.0	1.7	1.2	1.0	2.5	2.0	3.8	3.0
AC-FT	691	1110	159	960	882	198	164	1360	324	751	1520	785

CAL YR 1975 TOTAL 1826.25 MEAN 5.00 MAX 94 MIN .30 AC-FT 3620
WTR YR 1976 TOTAL 4488.90 MEAN 12.3 MAX 290 MIN 1.0 AC-FT 8900

16848500 MAULAP RIVER NEAR AGAT

LOCATION.--Lat 13°21'14" N., long 144°41'44" E., on right bank 100 ft (30 m), revised, upstream from Fena Valley Reservoir and 3.2 mi (5.1 km) southeast of Agat.

DRAINAGE AREA.--1.15 mi² (2.98 km²).

PERIOD OF RECORD.--January 1972 to current year.

REVISED RECORDS.--WRD Hawaii 1973: 1972. WDR HI-75-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 130 ft (40 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published on page 412 of this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,800 ft³/s (51.0 m³/s) May 21, 1976, gage height, 8.21 ft (2.502 m), from rating curve extended above 38 ft³/s (1.08 m³/s), on basis of slope-area measurement at gage height 8.21 ft (2.502 m); minimum, 0.33 ft³/s (0.009 m³/s) June 10-12, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 28	1615	854	24.2	6.06	1.847	Aug. 5	0615	1310	37.1	7.21	2.198
May 21	1330	*1800	51.0	8.21	2.502	Aug. 6	0145	1030	29.2	6.49	1.978
July 12	1615	651	18.4	5.47	1.667	Aug. 21	1345	678	19.2	5.56	1.695
Aug. 3	1415	708	20.1	5.66	1.725						

Minimum discharge, 1.5 ft³/s (0.042 m³/s) May 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	6.5	4.3	16	20	5.6	3.8	1.8	3.6	3.4	4.8	3.4
2	3.2	7.2	4.3	7.6	34	4.5	3.1	1.8	3.6	3.2	24	3.2
3	2.8	5.3	12	14	12	3.6	3.1	2.4	3.4	3.1	101	3.2
4	4.1	4.6	4.5	4.3	11	3.6	3.6	2.1	3.2	2.9	29	3.8
5	3.4	5.2	7.6	3.2	16	3.2	4.5	1.8	3.2	3.1	86	46
6	2.9	4.9	5.9	3.8	8.0	3.1	2.7	1.8	3.4	2.9	94	9.5
7	2.9	4.1	4.3	2.9	29	3.1	2.7	1.8	3.1	2.7	16	5.9
8	19	3.9	4.1	2.7	11	3.1	26	1.7	3.1	14	20	13
9	9.8	9.7	4.0	3.2	37	2.9	4.5	2.4	4.3	18	8.0	19
10	5.5	6.1	4.0	2.6	11	2.7	3.6	1.8	3.1	4.3	6.7	5.0
11	4.7	39	3.8	2.3	31	2.7	3.1	4.3	4.8	3.4	7.6	29
12	6.0	20	3.4	2.6	18	2.6	2.7	23	7.6	42	5.6	31
13	23	28	3.6	2.3	8.7	2.7	2.6	14	3.8	6.7	5.3	12
14	19	8.0	3.6	2.3	6.9	2.6	2.4	11	3.2	18	26	31
15	15	6.4	3.4	2.2	6.4	2.9	2.3	11	3.1	5.0	6.9	15
16	7.4	14	3.2	2.2	5.9	2.4	2.3	3.4	4.8	5.3	8.7	12
17	5.7	8.7	3.1	2.1	5.3	2.4	2.6	2.9	3.2	4.0	5.0	5.9
18	7.1	16	3.1	2.1	5.0	2.4	2.3	2.7	4.5	3.6	4.8	5.6
19	7.6	59	2.9	2.1	5.3	2.6	2.3	2.7	3.2	27	5.9	4.5
20	4.8	63	2.9	1.9	4.5	2.9	2.2	29	6.1	29	4.5	4.3
21	4.7	14	2.7	1.9	4.3	2.3	2.1	200	4.0	36	37	20
22	4.1	9.1	2.7	2.1	4.1	3.1	2.1	110	3.4	8.0	6.1	8.0
23	4.4	23	2.7	3.2	4.1	2.4	2.3	16	3.6	6.4	5.9	4.1
24	3.7	7.6	2.7	2.7	4.0	2.3	2.1	9.1	6.1	24	5.0	5.3
25	3.4	8.3	2.6	70	3.8	2.2	1.9	6.7	5.0	9.5	4.3	4.0
26	3.3	6.4	2.6	88	3.8	2.3	1.9	6.4	12	31	4.1	9.1
27	7.1	5.6	2.7	48	3.6	3.4	1.9	5.3	6.1	9.9	4.0	3.8
28	38	5.6	2.9	17	3.4	11	1.8	4.5	4.5	7.6	4.0	3.4
29	17	5.0	2.4	18	5.3	12	1.8	4.3	4.0	11	3.6	3.2
30	13	4.5	2.3	17	---	6.7	1.9	4.1	3.8	5.9	3.6	3.2
31	15	---	2.3	19	---	6.1	---	3.8	---	4.8	3.8	---
TOTAL	271.0	408.7	116.6	369.3	322.4	115.4	102.2	493.6	130.8	355.7	551.2	326.4
MEAN	8.74	13.6	3.76	11.9	11.1	3.72	3.41	15.9	4.36	11.5	17.8	10.9
MAX	38	63	12	88	37	12	26	200	12	42	101	46
MIN	2.8	3.9	2.3	1.9	3.4	2.2	1.8	1.7	3.1	2.7	3.6	3.2
AC-FT	538	811	231	733	639	229	203	979	259	706	1090	647

CAL YR 1975	TOTAL	1461.93	MEAN 4.01	MAX 63	MIN .33	AC-FT	2900	
WTR YR 1976	TOTAL	3563.30	MEAN 9.74	MAX 200	MIN 1.7	AC-FT	7070	

16849000 FENA DAM SPILLWAY NEAR AGAT

LOCATION.--Lat 13°21'28" N., long 144°42'12" E., on left bank 3.5 mi (5.6 km) southeast of Agat and 5.8 mi (9.3 km) southwest of Yona.

DRAINAGE AREA.--5.88 mi^2 (15.23 km^2).

PERIOD OF RECORD.--September 1951 to July 1952, November 1952 to current year. Daily mean gage heights published since October 1973.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete-dam control. Datum of gage is 111.35 ft (33.939 m) above mean sea level (from U.S. Navy construction plans).

REMARKS.--Gage-height records good. About 10 ft^3/s (0.28 m^3/s) is diverted from Fena Valley Reservoir and tributary springs for military and civilian use. Discharge records represent flow over spillway only.

AVERAGE DISCHARGE.--20 years (1953-73), 17.9 ft^3/s (0.507 m^3/s), 12,970 acre-ft/yr (16.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined, occurred Oct. 15, 1953 (gage height, at least 4.5 ft or 1.37 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 2.67 ft (0.814 m), May 21; minimum, -0.99 ft (-0.302 m) May 11.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-.90	.10	.04	.01	.37	.13	.07	-.65	.01	.06	.21	.22
2	-.86	.14	.03	.14	.44	.10	.04	-.69	-.01	.04	.49	.20
3	-.84	.08	.09	.07	.30	.07	.01	-.63	-.02	.03	.90	.19
4	-.71	.05	.06	.12	.22	.06	.01	-.62	-.02	.02	.69	.19
5	-.59	.06	.09	.03	.24	.05	.03	-.71	-.04	.01	.96	.58
6	-.54	.04	.09	.02	.17	.04	.00	-.79	-.03	.00	1.13	.60
7	-.48	.01	.05	.02	.26	.03	-.02	-.84	-.03	-.01	.48	.42
8	-.14	.01	.03	.02	.32	.02	.20	-.91	-.06	.01	.42	.48
9	.14	.09	.03	.02	.43	.01	.11	-.93	.01	.17	.36	.55
10	.08	.11	.03	.02	.33	.00	.04	-.95	.02	.22	.31	.43
11	.05	.58	.02	-.01	.44	.00	.01	-.90	.06	.10	.31	.53
12	.05	.21	.02	-.02	.29	-.01	-.01	-.41	.17	.26	.29	.70
13	.16	.40	.01	-.03	.21	-.01	-.02	.15	.12	.19	.28	.56
14	.28	.15	.01	-.04	.16	-.01	-.04	.24	.07	.24	.38	.62
15	.22	.09	.02	-.04	.14	.01	-.06	.15	.05	.15	.44	.70
16	.12	.14	.01	-.05	.13	-.01	-.08	.07	.09	.12	.45	.52
17	.07	.15	.01	-.07	.13	-.02	-.07	.02	.06	.09	.34	.42
18	.04	.21	.00	-.09	.12	-.02	-.08	-.01	.04	.06	.29	.37
19	.06	.55	-.02	-.12	.12	-.02	-.11	-.04	.03	.50	.30	.36
20	.02	.70	-.02	-.15	.11	.02	-.18	.24	.08	.60	.29	.34
21	.02	.25	-.03	-.18	.09	.00	-.21	1.27	.11	.60	.62	.54
22	.01	.15	-.03	-.22	.09	.01	-.26	1.11	.06	.27	.48	.45
23	.04	.24	-.05	-.14	.08	-.02	-.29	.83	.06	.19	.36	.38
24	.02	.13	-.08	-.08	.07	-.03	-.32	.24	.11	.33	.32	.36
25	.00	.12	-.07	.59	.07	-.06	-.36	.19	.16	.24	.31	.34
26	.04	.09	-.06	1.06	.07	-.07	-.40	.24	.17	.46	.28	.35
27	.09	.07	-.04	.63	.06	-.05	-.46	.17	.19	.32	.27	.35
28	.26	.06	-.03	.39	.05	.16	-.52	.09	.13	.24	.25	.30
29	.23	.06	-.04	.27	.09	.13	-.55	.06	.09	.28	.23	.27
30	.23	.05	-.04	.30	---	.16	-.60	.04	.08	.30	.21	.25
31	.17	---	-.04	.30	---	.13	---	.03	---	.22	.25	---
MEAN	-.09	.17	.00	.09	.19	.03	-.14	-.13	.06	.20	.42	.42
MAX	.28	.70	.09	1.06	.44	.16	.20	1.27	.19	.60	1.13	.70
MIN	-.90	.01	-.08	-.22	.05	-.07	-.60	-.95	-.06	-.01	.21	.19

WTR YR 1976 MEAN .10 MAX 1.27 MIN -.95

MARIANA ISLANDS, ISLAND OF GUAM

16858000 YLIG RIVER NEAR YONA

LOCATION.--Lat 13°23'28" N., long 144°45'06" E., on right bank 2.2 mi (3.5 km) upstream from mouth, 1.9 mi (3.1 km) southwest of Yona, and 5.6 mi (9.0 km) south of Agana.

DRAINAGE AREA.--6.48 mi² (16.78 km²).

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

REVISED RECORDS (FISCAL YEARS).--WSP 1937: 1957-58. WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 20 ft (6.1 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--24 years, 29.6 ft³/s (0.838 m³/s), 21,440 acre-ft/yr (26.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,900 ft³/s (139 m³/s) Sept. 9, 1963, gage height, 19.77 ft (6.026 m), from floodmarks, from rating curve extended above 620 ft³/s (17.6 m³/s) on basis of slope-area measurements at gage heights 11.24 ft (3.426 m) and 15.87 ft (4.837 m), maximum gage height, 20.63 ft (6.288 m) May 21, 1976; minimum, 0.07 ft³/s (0.002 m³/s) May 20, 1973, but may have been less during period of diversion from gage pool May 15 to June 20, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 11	0615	4040	114	17.64	5.377
Jan. 26	0915	3380	95.7	15.66	4.773
May 21	a1500	*4110	116	20.63	6.288
July 12	1630	2410	68.3	14.94	4.554
July 19	1330	2320	65.7	a14.6	4.450
July 21	1515	2570	72.8	a15.5	4.724
Aug. 2	0645	3230	91.5	a17.7	5.395
Aug. 5	0730	3150	89.2	17.43	5.313
Aug. 21	1400	2890	81.8	16.56	5.047

Minimum discharge, 5.5 ft³/s (0.156 m³/s) May 1, 2, 10, 11.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	31	18	181	216	18	23	6.1	19	12	13	14
2	14	39	18	45	293	18	16	6.0	18	11	391	13
3	13	27	19	100	116	14	14	19	17	11	228	12
4	25	25	17	34	61	15	13	7.5	16	11	173	13
5	38	22	54	19	57	12	12	6.5	15	9.9	589	268
6	17	21	28	32	41	11	12	9.0	14	9.4	574	68
7	14	19	20	16	205	11	11	17	14	9.0	103	30
8	61	19	19	14	89	11	200	6.7	13	12	82	26
9	36	72	17	14	233	9.8	24	7.3	21	25	50	27
10	21	67	16	12	78	9.3	17	6.3	13	11	42	21
11	19	657	15	11	219	8.9	14	8.4	13	9.4	41	157
12	17	57	14	12	67	8.4	13	156	59	224	35	207
13	53	276	13	11	46	9.1	12	147	19	23	36	41
14	168	42	13	10	37	8.8	11	200	13	132	34	81
15	129	33	13	9.7	32	9.7	11	139	12	24	28	76
16	38	39	13	9.0	29	7.8	10	22	47	20	32	33
17	29	55	12	9.0	26	7.2	10	17	13	15	25	29
18	28	57	11	8.1	24	6.9	9.5	15	12	44	25	26
19	49	524	10	7.8	23	8.8	11	14	11	395	26	24
20	26	430	10	7.8	21	14	8.6	237	24	611	22	22
21	23	92	10	7.4	19	7.6	8.2	1000	17	500	409	62
22	22	53	9.2	7.7	18	17	7.9	800	12	65	32	32
23	22	143	8.9	8.7	17	7.4	9.6	100	29	45	24	20
24	19	40	8.9	9.8	16	7.0	7.8	50	39	126	21	20
25	17	39	8.3	514	15	6.5	7.3	40	38	28	20	21
26	17	31	8.0	932	14	6.4	6.9	100	30	173	18	33
27	90	28	11	492	14	7.9	6.5	50	48	84	18	18
28	283	28	9.8	159	13	157	6.4	30	17	118	17	16
29	108	24	8.0	190	38	39	6.9	25	15	91	15	15
30	95	22	7.8	180	---	93	6.4	24	13	35	15	15
31	38	---	7.2	110	---	33	---	22	---	18	15	---
TOTAL	1544	3012	447.1	3173.0	2077	600.5	526.0	3287.8	641	2901.7	3153	1440
MEAN	49.8	100	14.4	102	71.6	19.4	17.5	106	21.4	93.6	102	48.0
MAX	283	657	54	932	293	157	200	1000	59	611	589	268
MIN	13	19	7.2	7.4	13	6.4	6.4	6.0	11	9.0	13	12
AC-FT	3060	5970	887	6290	4120	1190	1040	6520	1270	5760	6250	2860

CAL YR 1975	TOTAL	8976.83	MEAN 24.6	MAX 657	MIN .40	AC-FT	17810
WTR YR 1976	TOTAL	22803.10	MEAN 62.3	MAX 1000	MIN 6.0	AC-FT	45230

NOTE.--No gage-height record May 21-28.

MARIANA ISLANDS, ISLAND OF GUAM

16865000 PAGO RIVER NEAR ORDOT

LOCATION.--Lat 13°26'08" N., long 144°45'14" E., on left bank 0.8 mi (1.3 km) south of Ordot, 2.6 mi (4.2 km) south of Agana, and 3.6 mi (5.8 km) southeast of Asan.

DRAINAGE AREA.--5.67 mi² (14.69 km²).

PERIOD OF RECORD.--September 1951 to current year.

REVISED RECORDS (FISCAL YEARS).--WSP 1937: 1954(M), 1958(M). WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 25 ft (7.6 m), from topographic map. Prior to Apr. 10, 1972, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good except those above 400 ft³/s (11.3 m³/s), which are fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--25 years, 26.1 ft³/s (0.739 m³/s), 18,910 acre-ft/yr (23.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,090 ft³/s (286 m³/s) May 21, 1976, gage height, 20.15 ft (6.142 m), from floodmarks, from rating curve extended above 320 ft³/s (9.06 m³/s) on basis of slope-area measurements at gage heights 13.22 ft (4.029 m), 15.07 ft (4.593 m), and 18.87 ft (5.752 m); no flow for many days in 1959 and 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,700 ft³/s (76.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 11	0530	3890	110	14.65	4.465	Aug. 2	0530	3360	95.2	13.32	4.060
Jan. 26	0830	3530	100	13.74	4.188	Aug. 5	0630	4800	136	16.26	4.956
May 21	1500	*10090	286	†20.15	6.142	Aug. 21	1330	4150	118	15.20	4.633
July 21	1430	4460	126	15.74	4.798						

Minimum discharge, 3.6 ft³/s (0.102 m³/s) Mar. 25, 26.

† From floodmarks.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	24	16	129	158	24	34	4.8	16	8.3	19	9.4
2	10	22	14	38	229	27	21	4.4	14	7.4	356	8.3
3	9.9	19	18	30	75	12	16	22	13	7.0	314	7.4
4	33	16	14	25	46	10	13	9.4	12	7.8	174	8.3
5	25	14	48	12	38	8.3	12	6.3	13	6.7	749	252
6	14	14	21	19	32	7.4	11	11	11	6.3	626	56
7	12	12	14	10	91	7.0	14	5.9	10	6.3	82	26
8	100	12	13	9.4	58	7.4	125	4.8	9.4	9.9	76	19
9	29	28	12	8.3	140	6.3	21	5.1	17	8.8	40	16
10	20	78	11	7.8	54	5.9	16	4.4	8.8	6.3	31	14
11	16	441	11	7.4	78	5.9	13	4.4	8.3	5.9	36	185
12	14	45	9.9	10	51	5.5	11	127	92	5.9	26	229
13	54	185	9.4	7.4	32	5.9	10	92	15	5.5	28	36
14	169	35	8.8	7.4	26	5.5	9.9	120	11	76	26	45
15	140	27	8.3	7.0	22	6.7	8.8	120	9.9	9.4	11	36
16	40	62	7.8	6.7	19	5.1	8.3	19	9.4	8.3	32	24
17	29	64	8.3	6.7	17	4.8	7.8	14	8.3	6.7	14	21
18	24	64	7.4	6.3	16	4.4	7.0	12	8.8	54	9.4	22
19	28	555	7.4	5.9	16	7.0	7.8	11	7.8	197	12	16
20	21	363	7.8	5.9	14	7.8	6.7	177	13	297	6.3	14
21	17	87	8.3	5.9	13	5.1	6.7	1910	17	408	488	23
22	17	49	6.7	5.5	12	4.4	5.9	1330	8.3	61	34	13
23	15	219	6.3	5.5	12	4.0	8.3	96	9.9	34	22	12
24	12	41	6.7	7.4	12	3.8	6.3	49	13	54	18	38
25	12	39	6.3	456	11	3.8	5.9	121	16	36	16	17
26	32	30	5.9	724	11	3.6	5.5	43	13	110	14	31
27	17	25	5.9	314	11	4.8	5.5	29	30	52	13	13
28	146	26	5.9	80	11	96	5.9	24	13	36	11	11
29	197	19	5.5	100	28	31	5.9	21	10	61	11	14
30	94	18	5.5	116	---	116	4.8	23	8.8	31	10	11
31	35	---	5.5	94	---	140	---	19	---	22	10	---
TOTAL	1393.9	2633	335.6	2267.5	1333	586.4	434.0	4439.5	446.7	1645.5	3314.7	1227.4
MEAN	45.0	87.8	10.8	73.1	46.0	18.9	14.5	143	14.9	53.1	107	40.9
MAX	197	555	48	724	229	140	125	1910	92	408	749	252
MIN	9.9	12	5.5	5.5	11	3.6	4.8	4.4	7.8	5.5	6.3	7.4
AC-FT	2760	5220	666	4500	2640	1160	861	8810	886	3260	6570	2430

CAL YR 1975 TOTAL 6901.87 MEAN 18.9 MAX 555 MIN .07 AC-FT 13690
WTR YR 1976 TOTAL 20057.20 MEAN 54.8 MAX 1910 MIN 3.6 AC-FT 39780

16890600 ADEIDDO RIVER, BABELTHUAP

LOCATION.--Lat 07°36'01" N., long 134°35'38" E., on right bank at Ngardmau, 0.3 mi (0.5 km) upstream from left-bank tributary, and 0.6 mi (1.0 km) northwest of Mount Megilon.

DRAINAGE AREA.--4.43 mi^2 (11.47 km^2).

PERIOD OF RECORD.--October 1969 to current year.

REVISED RECORDS.--WDR HI-75-1: 1970(M), 1972-73(P).

GAGE.--Water-stage recorder. Altitude of gage is 15 ft (4.6 km), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the * current year are published on page 412 of this report.

AVERAGE DISCHARGE.--7 years, 33.8 ft^3/s (0.957 m^3/s), 24,490 acre-ft/yr (30.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,310 ft^3/s (65.4 m^3/s) Jan. 22, 1975, gage height, 15.44 ft (4.706 m), from rating curve extended above 82 ft^3/s (2.32 m^3/s) on basis of field estimate at gage height 15.44 ft (4.706 m); minimum, 2.7 ft^3/s (0.076 m^3/s) Mar. 24, 25, 31, Apr. 1, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft^3/s (17.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 17	1000	665	18.8	7.57	2.307	Jan. 12	1000	688	19.5	7.70	2.347
Nov. 27	0600	1840	52.1	13.49	4.112	Feb. 1	1300	814	23.1	8.37	2.551
Dec. 20	1700	772	21.9	8.15	2.484	Apr. 7	2330	*1950	55.2	14.00	4.267

Minimum discharge, 7.5 ft^3/s (0.21 m^3/s) June 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	31	34	30	110	11	8.4	14	10	14	32	19
2	33	121	32	36	26	19	8.2	15	9.5	16	29	27
3	31	41	45	30	20	14	9.5	14	8.6	15	29	21
4	94	50	56	27	18	15	8.6	13	8.6	14	25	20
5	47	45	36	27	17	12	9.0	13	9.0	15	27	26
6	40	38	32	25	26	12	14	13	8.2	15	33	51
7	65	35	40	22	30	13	419	12	8.0	15	75	28
8	43	35	36	27	19	12	611	13	7.8	24	65	25
9	83	32	61	77	19	11	94	24	8.8	29	44	25
10	89	28	38	26	17	11	67	14	10	25	38	21
11	60	26	34	22	21	10	53	22	9.5	20	34	20
12	68	24	34	119	22	12	44	15	10	17	33	19
13	52	23	94	36	18	10	38	15	18	60	31	19
14	55	22	64	30	16	9.5	32	13	20	92	30	19
15	44	23	55	27	28	9.5	30	13	12	47	41	18
16	60	24	47	27	17	11	27	17	10	52	32	18
17	135	26	43	24	19	9.2	25	14	9.7	40	32	17
18	133	30	51	23	16	8.8	23	13	19	36	27	17
19	78	22	43	24	15	8.8	22	12	12	33	26	26
20	67	20	150	22	15	8.8	21	11	11	31	29	25
21	85	19	78	28	14	9.2	20	11	27	28	29	18
22	62	17	60	22	14	8.4	19	11	19	26	24	17
23	52	17	55	19	13	8.2	18	10	20	25	24	17
24	49	17	59	18	13	8.2	18	10	23	24	22	16
25	46	17	51	18	12	8.8	17	15	17	25	23	15
26	42	32	51	22	12	8.8	17	12	15	23	21	15
27	36	319	44	18	12	11	16	11	15	21	24	29
28	34	56	38	17	12	10	16	10	14	21	27	18
29	36	43	35	16	12	9.2	15	15	13	20	22	15
30	46	38	34	16	---	14	14	12	15	19	20	15
31	31	---	32	17	---	9.5	---	11	---	23	19	---
TOTAL	1838	1271	1562	892	603	332.9	1733.7	418	397.7	865	967	636
MEAN	59.3	42.4	50.4	28.8	20.8	10.7	57.8	13.5	13.3	27.9	31.2	21.2
MAX	135	319	150	119	110	19	611	24	27	92	75	51
MIN	31	17	32	16	12	8.2	8.2	10	7.8	14	19	15
AC-FT	3650	2520	3100	1770	1200	660	3440	829	789	1720	1920	1260

CAL YR 1975 TOTAL 14528.2 MEAN 39.8 MAX 716 MIN 5.9 AC-FT 28820
WTR YR 1976 TOTAL 11516.3 MEAN 31.5 MAX 611 MIN 7.8 AC-FT 22840

16890900 TABAGATEN RIVER, BABELTHUAP

LOCATION.--Lat 07°27'00" N., long 134°32'05" E., on left bank 0.3 mi (0.5 km) downstream from unnamed tributary, 0.7 mi (1.1 km) northeast of Mount Karukail, and 1.0 mi (1.6 km) south of Ngatpang.

DRAINAGE AREA.--6.34 mi^2 (16.42 km^2).

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 20 ft (6.1 m), from topographic map.

REMARKS.--Records fair except those for period of no gage-height record Oct. 1 to Dec. 2, which are poor. Periodic determinations of water temperature for the current year are published on page 412 of this report.

AVERAGE DISCHARGE.--6 years, 49.6 ft^3/s (1.40 m^3/s), 35,940 acre-ft/yr (44.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,580 ft^3/s (101 m^3/s) Dec. 23, 1973, gage height, 8.79 ft (2.679 m), from rating curve extended above 124 ft^3/s (3.51 m^3/s); minimum, 0.80 ft^3/s (0.023 m^3/s) Mar. 23, 24, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft^3/s (19.8 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 27	a0300	a800	22.7	--	--	Apr. 8	0100	*1680	47.6	7.27	2.216
Dec. 20	1700	1270	36.0	6.71	2.045	Aug. 1	1500	938	26.6	6.07	1.850

Minimum discharge, 10 ft^3/s (0.28 m^3/s) Apr. 4-6.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	25	70	35	123	12	13	12	14	73	205	26
2	35	70	100	39	46	36	12	12	18	46	118	28
3	40	30	79	32	31	18	12	12	18	47	73	33
4	200	25	74	28	28	18	11	20	13	38	61	33
5	60	130	53	26	26	22	11	13	13	34	84	31
6	45	60	45	29	30	19	40	37	12	36	97	68
7	100	40	74	28	26	91	665	27	12	37	196	35
8	55	35	67	46	22	35	729	40	12	32	158	29
9	50	30	195	114	25	25	145	84	18	47	95	30
10	70	25	110	40	20	22	87	37	23	54	85	26
11	45	30	86	31	26	19	60	34	63	39	118	24
12	70	20	73	93	21	18	47	75	20	32	92	22
13	45	15	204	43	19	18	40	51	103	126	66	21
14	42	15	138	34	17	16	35	38	45	171	54	20
15	38	50	109	32	128	16	32	31	31	78	140	18
16	35	45	81	35	26	16	29	28	27	73	80	17
17	40	30	65	27	48	14	29	28	26	54	66	16
18	125	20	106	25	26	15	25	26	58	44	52	16
19	55	40	104	38	22	13	23	22	31	39	63	32
20	45	50	385	26	20	12	21	20	32	34	98	43
21	40	40	200	27	18	15	20	19	49	31	55	25
22	70	30	125	28	17	12	18	17	34	29	47	20
23	45	35	88	29	16	12	17	16	34	26	45	17
24	35	30	74	25	15	12	17	16	52	36	38	16
25	38	25	62	26	15	11	16	19	33	40	34	16
26	35	50	100	22	14	15	16	16	29	31	32	15
27	32	500	66	20	13	19	14	14	36	26	44	18
28	30	100	50	20	15	15	13	14	40	23	33	16
29	30	70	42	30	14	12	13	26	32	21	33	14
30	40	60	37	22	---	27	12	18	29	20	29	13
31	30	---	52	24	---	16	---	14	---	67	26	---
TOTAL	1665	1725	3114	1074	867	621	2222	836	957	1484	2417	738
MEAN	53.7	57.5	100	34.6	29.9	20.0	74.1	27.0	31.9	47.9	78.0	24.6
MAX	200	500	385	114	128	91	729	84	103	171	205	68
MIN	30	15	37	20	13	11	11	12	12	20	26	13
AC-FT	3300	3420	6180	2130	1720	1230	4410	1660	1900	2940	4790	1460

CAL YR 1975 TOTAL 19763.7 MEAN 54.1 MAX 815 MIN 5.3 AC-FT 39200
WTR YR 1976 TOTAL 17720 MEAN 48.4 MAX 729 MIN 11 AC-FT 35150

16891200 GIHMEL RIVER, BABELTHUAP

LOCATION.--Lat 07°21'59" N., long 134°32'06" E., on right bank at Garuruon, 400 ft (122 m) downstream from dam, and 0.5 mi (0.8 km) upstream from coast road.

DRAINAGE AREA.--1.09 mi² (2.82 km²).

PERIOD OF RECORD.--October 1969 to current year.

REVISED RECORDS.--WDR HI-75-1: 1973(M), 1974(P).

GAGE.--Water-stage recorder. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records fair. An 8-inch (20 cm) pipeline diverts an average of about 0.75 ft³/s (0.021 m³/s) from above the dam, 400 ft (122 m) upstream from the gage, for consumption on the island of Koror. Periodic determinations of water temperature for the current year are published on page 413 of this report.

AVERAGE DISCHARGE.--7 years, 3.17 ft³/s (0.090 m³/s), 2,300 acre-ft/yr (2.84 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 534 ft³/s (15.1 m³/s) revised, Jan. 22, 1975, gage height, 7.34 ft (2.237 m), from rating curve extended above 16 ft³/s (0.45 m³/s); no flow for many days during 1973-74.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) revised, and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 10	0530	220	6.23	5.27	1.606
Apr. 8	0200	*267	7.56	5.63	1.716

Minimum discharge, 0.02 ft³/s (0.001 m³/s) Apr. 24-26.

REVISIONS.--The peak discharges and annual maximum (*) for water years 1973-75 have been revised and, revised daily discharges, in cubic feet per second for high-water periods in these years, are given below. These figures supersede those published in the reports for 1973-75.

Water year	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
1973	Aug. 22, 1973	0930	*270	7.65	5.65	1.722
1974	Jan. 8, 1974	1000	237	6.71	5.40	1.646
	Jan. 16, 1974	1100	*421	11.9	6.68	2.036
	Mar. 6, 1974	0330	132	3.74	4.71	1.436
	Aug. 4, 1974	1930	413	11.7	6.67	2.033
1975	Oct. 7, 1974	1030	171	4.84	4.86	1.481
	Dec. 29, 1974	2330	188	5.32	5.00	1.524
	Jan. 22, 1975	1300	*534	15.1	7.34	2.237

Date	Discharge (ft³/s)
Oct. 2, 1972...	23
7.....	27
Dec. 2, 1972...	27
Aug. 21, 1973...	31
22.....	43
27.....	21
Oct. 2, 1973...	46
3.....	44
4.....	38
5.....	29
6.....	19
Nov. 10, 1973...	46
11.....	34
12.....	25
20.....	23

Date	Discharge (ft³/s)
Jan. 8, 1974...	34
16.....	135
17.....	92
18.....	41
19.....	21
Mar. 6, 1974...	21
10.....	23
Aug. 4, 1974...	46
5.....	25
Oct. 2, 1974...	21
7.....	36
8.....	41
9.....	33
10.....	38
11.....	19

Date	Discharge (ft³/s)
Oct. 29, 1974...	19
30.....	27
31.....	19
Nov. 1, 1974...	27
3.....	27
7.....	17
8.....	17
10.....	33
Dec. 30, 1974...	48
31.....	17
Jan. 22, 1975...	102
23.....	43
24.....	23
June 10, 1975...	17
12.....	19
June 13, 1975...	29
June 14, 1975...	29
16.....	19
23.....	19
July 4, 1975...	21
5.....	19
6.....	21
7.....	17
15.....	21
30.....	23
31.....	31
Aug. 1, 1975...	23
13.....	21
Sept. 27, 1975...	23
28.....	19

Month	Total	Mean	Maximum	Minimum	Runoff in (Ac-ft)
October 1972	120.7	3.89	27	0.32	239
December 1972	43.72	1.41	27	.10	87
Cal Yr 1972	982.15	2.68	27	.10	1950
August 1973	149.16	4.81	43	.36	296
Wtr Yr 1973	560.09	1.53	43	0	1110
October 1973	274.7	8.86	46	1.2	545
November 1973	214.16	7.14	46	.24	425
Cal Yr 1973	894.09	2.45	46	0	1770
January 1974	421.40	13.6	135	.66	836
March 1974	96.99	3.13	23	.24	192
August 1974	172.66	5.57	46	.96	342
Wtr Yr 1974	1450.62	3.97	135	0	2880
October 1974	360.6	11.6	41	2.0	715
November 1974	228.3	7.61	33	1.0	453
December 1974	154.8	4.99	48	1.1	307
Cal Yr 1974	1686.89	4.62	135	.04	3350
January 1975	287.2	9.26	102	1.5	570
June 1975	267.8	8.93	29	1.3	531
July 1975	245.2	7.91	31	1.7	486
August 1975	121.76	3.93	23	.40	242
September 1975	107.99	3.60	23	.10	214
Wtr Yr 1975	1884.30	5.16	102	.01	3740

16891200 GIHMEL RIVER, BABELTHUAP--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	1.1	6.2	1.2	7.5	.06	.06	.04	.12	1.3	15	1.3
2	2.4	3.0	14	1.2	1.4	.38	.06	.04	.14	.58	6.6	3.1
3	3.5	.83	9.0	1.1	.58	.06	.06	.03	.14	.51	7.2	3.6
4	22	.91	9.0	.66	.42	.04	.06	.03	.14	.28	5.5	3.2
5	6.6	8.8	5.5	.51	.28	.06	.06	.03	.14	.25	6.2	3.5
6	4.2	4.2	4.0	.58	.51	.04	.58	.04	.14	1.5	7.2	8.0
7	16	2.4	4.6	.55	.48	2.0	87	.06	.14	.66	20	5.0
8	7.2	13	12	1.9	.21	.21	75	.22	.14	6.1	20	4.0
9	4.5	5.2	34	6.5	1.4	.04	14	.12	.17	1.1	9.9	3.2
10	4.8	2.5	12	.83	.16	.04	8.3	.12	.12	3.2	6.6	2.2
11	2.8	1.6	6.9	.58	.42	.06	4.8	.81	.12	1.3	6.2	1.7
12	7.0	1.2	5.8	4.8	.35	.08	2.8	4.5	.12	.83	5.0	1.3
13	2.7	.99	17	.83	.17	.10	2.2	4.4	3.5	5.6	3.5	1.2
14	2.8	.74	9.0	.55	.10	.06	1.4	3.2	2.2	18	2.5	.91
15	1.6	3.2	6.2	.48	12	.04	1.2	1.9	1.6	5.5	4.8	.66
16	1.6	3.0	4.8	.32	.99	.04	.83	.51	.55	8.2	2.8	.55
17	2.5	1.9	3.5	.23	1.9	.04	.58	.85	.66	4.2	2.7	.45
18	13	1.2	9.4	.17	.74	.06	.42	.74	4.8	2.7	1.7	.38
19	4.5	7.9	9.3	.45	.45	.04	.35	.35	1.1	2.0	9.9	2.6
20	2.7	3.5	32	.23	.32	.06	.28	.23	.51	1.4	12	2.4
21	1.9	1.9	16	.19	.28	.06	.19	.17	.55	1.2	5.0	.66
22	2.7	1.2	8.3	.23	.26	.06	.12	.14	1.3	1.1	3.8	.42
23	1.4	6.0	11	.28	.12	.06	.06	.14	3.1	.83	3.8	.23
24	1.3	1.2	6.2	.08	.08	.06	.02	.12	5.8	1.7	2.7	.12
25	1.4	2.9	4.8	3.6	.12	.06	.02	.12	1.9	1.4	2.7	.08
26	.91	6.6	8.4	.21	.04	.06	.02	.12	1.1	1.1	2.4	.06
27	.51	41	5.0	.08	.04	.10	.03	.12	.74	.55	5.1	.06
28	.45	12	3.5	.06	.08	.06	.04	.12	.51	.48	2.7	.06
29	.32	6.2	2.5	.45	.06	.06	.04	.12	.35	.32	2.0	.06
30	6.9	5.0	2.0	2.1	---	.12	.04	.16	.28	.21	1.6	.06
31	2.8	---	1.6	.66	---	.06	---	.12	---	4.5	2.2	---
TOTAL	136.99	151.17	283.5	31.61	31.45	4.27	200.62	19.67	32.18	78.60	189.3	51.06
MEAN	4.42	5.04	9.15	1.02	1.08	.14	6.69	.63	1.07	2.54	6.11	1.70
MAX	22	41	34	6.5	12	2.0	87	4.5	5.8	18	20	8.0
MIN	.32	.74	1.6	.06	.04	.04	.02	.03	.12	.21	1.6	.06
AC-FT	272	300	562	63	62	8.5	398	39	64	156	375	101

CAL YR 1975 TOTAL 1712.26 MEAN 4.69 MAX 102 MIN .01 AC-FT 3400
WTR YR 1976 TOTAL 1210.42 MEAN 3.31 MAX 87 MIN .02 AC-FT 2400

16891300 GADEN RIVER, BABELTHUAP

LOCATION.--Lat 07°22'56" N., long 134°33'42" E., on left bank 1,000 ft (305 m) upstream from confluence with Kumekuneyel River, 1.0 mi (1.6 km) southwest of Mount Kabekobekushi, and 1.8 mi (2.9 km) north of Airai.

DRAINAGE AREA.--4.23 mi^2 (10.96 km^2).

PERIOD OF RECORD.--October 1969 to current year.

REVISED RECORDS.--WDR HI-75-1: 1970-72(P), 1973(M), 1974(P).

GAGE.--Water-stage recorder. Altitude of gage is 7 ft (2.1 m), from topographic map. Prior to Dec. 9, 1974, at site 300 ft (91 m) downstream at datum 0.30 ft (0.09 m) lower.

REMARKS.--Records fair except those above 300 ft^3/s (8.50 m^3/s), which are poor. No diversion above gage. Periodic determinations of water temperature for the current year are published on page 413 of this report.

AVERAGE DISCHARGE.--7 years, 33.4 ft^3/s (0.946 m^3/s), 24,200 acre-ft/yr (29.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,520 ft^3/s (99.7 m^3/s) Jan. 22, 1975, gage height, 17.24 ft (5.255 m), from rating curve extended above 118 ft^3/s (3.34 m^3/s); minimum, 1.6 ft^3/s (0.045 m^3/s) Mar. 23, 24, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Nov. 27	0300	1330	37.7	10.91	3.325	Apr. 8	a0200	*2840	80.4	†15.56	4.743
Dec. 9	0530	1520	43.0	11.64	3.548	Aug. 1	1500	1500	42.5	11.55	3.520
Dec. 20	1930	1080	30.6	9.94	3.030						

Minimum discharge, 3.6 ft^3/s (0.102 m^3/s) June 8, 9.

† From floodmarks.
a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	17	48	25	50	10	10	6.6	5.2	31	236	17
2	23	47	73	26	23	27	9.7	6.4	7.4	20	79	20
3	27	20	45	24	16	15	8.9	6.1	5.8	20	61	20
4	133	18	58	20	14	13	8.1	5.6	4.9	17	45	20
5	40	94	37	19	14	17	7.8	5.6	4.7	16	45	23
6	31	48	33	19	16	12	30	5.4	4.3	25	51	40
7	66	30	36	18	15	25	928	5.4	5.2	18	91	22
8	36	37	48	29	12	17	1020	20	4.1	23	107	20
9	35	26	206	44	21	13	105	30	27	20	60	21
10	49	22	51	20	12	12	61	15	14	25	49	19
11	32	20	42	17	19	11	45	15	33	20	45	17
12	45	19	40	55	16	13	37	30	13	17	45	16
13	31	17	107	22	13	11	33	30	93	40	36	15
14	29	16	58	19	11	10	28	20	31	92	32	14
15	25	38	50	17	95	10	26	15	24	39	55	13
16	23	31	40	16	19	10	23	13	24	49	40	12
17	27	25	37	14	31	8.6	21	12	24	35	36	11
18	86	21	60	13	22	9.7	19	11	37	29	30	10
19	37	59	48	18	16	8.1	17	11	22	26	32	25
20	29	36	281	14	14	7.6	16	10	19	24	53	30
21	26	27	109	15	13	9.2	15	8.9	24	22	32	17
22	39	23	62	18	13	7.1	13	8.4	32	21	28	15
23	28	25	55	14	12	6.6	12	7.6	36	19	29	12
24	23	20	49	12	11	6.6	11	7.4	49	32	25	11
25	25	25	42	22	11	7.1	11	7.1	29	28	24	10
26	21	37	67	14	10	11	10	6.6	25	26	23	9.0
27	19	392	45	12	9.9	19	9.4	7.6	23	20	25	15
28	17	72	37	13	12	11	8.6	7.4	20	19	22	13
29	16	48	32	20	10	8.6	7.8	6.8	19	18	20	11
30	29	41	29	14	---	29	7.4	6.4	17	16	19	9.2
31	21	---	28	16	---	13	---	5.8	---	44	18	---
TOTAL	1099	1351	1945	619	550.9	388.2	2558.7	353.1	676.6	851	1493	507.2
MEAN	35.5	45.0	62.7	20.0	19.0	12.5	85.3	11.4	22.6	27.5	48.2	16.9
MAX	133	392	281	55	95	29	1020	30	93	92	236	40
MIN	16	16	28	12	9.9	6.6	7.4	5.4	4.1	16	18	9.0
AC-FT	2180	2680	3860	1230	1090	770	5080	700	1340	1690	2960	1010

CAL YR 1975 TOTAL 13905.3 MEAN 38.1 MAX 900 MIN 2.0 AC-FT 27580
WTR YR 1976 TOTAL 12392.7 MEAN 33.9 MAX 1020 MIN 4.1 AC-FT 24580

NOTE.--No gage-height record Aug. 25 to Sept. 29.

16891400 SOUTH FORK NGARDOK RIVER, BABELTHUAP

LOCATION.--Lat 07°26'15" N., long 134°35'03" E., on right bank 0.3 mi (0.5 km) upstream from left-bank tributary, 0.6 mi (1.0 km) northwest of Garasho Mountain, and 1.3 mi (2.1 km) west of village of Ngarsul.

DRAINAGE AREA.--2.26 mi^2 (5.85 km^2).

PERIOD OF RECORD.--March 1971 to current year.

REVISED RECORDS.--WDR HI-75-1: 1971(M), 1972, 1973(P), 1974.

GAGE.--Water-stage recorder. Altitude of gage is 65 ft (20 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 413 of this report.

AVERAGE DISCHARGE.--5 years, 20.5 ft^3/s (0.581 m^3/s) 14,850 acre-ft/yr (18.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,750 ft^3/s (163 m^3/s), Dec. 13, 1974, gage height, 9.19 ft (2.801 m), from rating curve extended above 41 ft^3/s (1.16 m^3/s) on basis of field estimate at gage height 7.57 ft (2.307 m); minimum, 0.55 ft^3/s (0.016 m^3/s) Mar. 8, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft^3/s (22.7 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 20	1900	1330	37.7	4.92	1.500
Apr. 7	2300	*2460	69.7	6.32	1.926
Aug. 1	1730	2240	63.4	6.08	1.853

Minimum discharge, 1.8 ft^3/s (0.051 m^3/s) June 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	8.7	21	13	41	4.4	5.7	4.0	2.6	11	191	8.0
2	13	24	26	13	15	16	5.2	4.4	3.6	11	80	10
3	13	8.7	35	11	11	6.8	4.8	4.4	2.9	12	40	9.9
4	97	7.4	32	10	9.9	5.7	4.4	3.6	2.6	10	30	9.9
5	26	24	21	9.0	8.7	7.4	4.4	3.6	2.6	10	43	12
6	20	16	18	10	10	5.7	16	4.4	2.3	14	43	21
7	42	12	24	9.0	8.0	26	633	3.6	2.6	9.3	88	12
8	23	9.9	21	15	7.4	11	486	9.9	2.0	14	69	11
9	23	8.0	59	30	8.7	8.0	57	17	2.6	76	41	12
10	25	6.2	29	12	6.2	6.8	34	6.8	28	27	31	9.3
11	18	5.2	20	9.3	11	5.7	23	6.8	33	18	30	8.7
12	27	4.8	21	44	7.4	6.2	18	18	9.3	14	25	8.0
13	18	4.0	86	18	6.2	5.2	16	17	56	33	28	7.4
14	18	4.0	45	14	5.7	4.8	14	10	20	120	22	7.4
15	14	11	38	12	23	4.8	12	7.4	15	30	62	6.8
16	13	13	26	10	8.7	4.8	10	6.8	59	33	31	6.2
17	16	9.3	21	9.3	19	4.4	9.9	6.2	23	22	26	5.7
18	65	6.2	28	8.7	9.3	5.2	8.7	5.2	44	19	20	5.2
19	24	8.7	33	11	7.4	4.4	8.0	4.4	20	17	24	13
20	18	11	233	8.7	6.2	4.0	7.4	4.0	16	14	35	16
21	16	8.0	50	8.7	5.7	5.2	6.8	4.0	16	12	21	8.7
22	36	6.2	40	9.3	5.7	3.6	6.8	4.0	22	11	18	7.4
23	19	9.9	30	8.7	5.2	3.6	6.2	3.6	20	10	18	6.2
24	15	4.8	25	8.0	4.8	3.6	5.7	3.6	29	14	14	5.7
25	15	5.7	20	8.7	4.8	4.8	5.2	3.6	17	18	13	5.2
26	13	13	30	6.8	4.8	4.8	5.2	3.2	14	14	12	4.8
27	11	150	20	6.8	4.4	8.7	4.8	3.2	20	11	14	11
28	10	48	17	9.3	5.2	4.8	4.4	3.2	14	9.9	11	6.2
29	9.9	28	15	8.0	4.8	4.8	4.4	3.2	12	8.7	9.9	5.2
30	12	22	14	7.4	---	22	4.4	2.9	10	8.0	9.3	4.8
31	9.9	---	15	8.7	---	7.4	---	2.9	---	32	8.7	---
TOTAL	697.8	497.7	1113	367.4	275.2	220.6	1431.4	184.9	521.1	662.9	1107.9	264.7
MEAN	22.5	16.6	35.9	11.9	9.49	7.12	47.7	5.96	17.4	21.4	35.7	8.82
MAX	97	150	233	44	41	26	633	18	59	120	191	21
MIN	9.9	4.0	14	6.8	4.4	3.6	4.4	2.9	2.0	8.0	8.7	4.8
AC-FT	1380	987	2210	729	546	438	2840	367	1030	1310	2200	525

CAL YR 1975 TOTAL 7924.4 MEAN 21.7 MAX 769 MIN 1.5 AC-FT 15720
WTR YR 1976 TOTAL 7344.6 MEAN 20.1 MAX 633 MIN 2.0 AC-FT 14570

CAROLINE ISLANDS, YAP ISLANDS

16892400 ARINGEL STREAM, YAP

LOCATION.--Lat 09°31'01" N., long 138°05'11" E., on right bank at Aringel and 0.3 mi (0.5 km) upstream from mouth.

DRAINAGE AREA.--0.24 mi² (0.62 km²).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 35 ft (10.7 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 413 of this report.

AVERAGE DISCHARGE.--8 years, 1.11 ft³/s (0.031 m³/s), 804 acre-ft/yr (991,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 457 ft³/s (12.9 m³/s) Sept. 15, 1973, gage height, 6.68 ft (2.036 m), from floodmark in well, from rating curve extended above 20 ft³/s (0.57 m³/s); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	a2300	222	6.29	5.10	1.554	June 16	1330	292	8.27	5.58	1.701
Oct. 17	a1700	*340	9.63	5.90	1.798	Aug. 6	0730	241	6.83	5.24	1.597
May 12	0700	295	8.35	5.60	1.707	Aug. 19	1300	266	7.53	5.41	1.649

No flow for many days.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	.01	.20	.05	1.5	0	4.5	.04	.04	.07	.06	.02
2	.19	.01	1.7	.04	.50	0	1.1	.03	.02	.40	2.1	.01
3	.13	.01	1.5	.05	.25	0	.85	.02	.01	.27	.39	.01
4	2.0	0	.90	.03	.14	0	2.2	.02	.01	.13	.16	9.2
5	1.0	0	1.5	.05	.10	0	4.7	.73	.01	.07	1.6	.33
6	.90	0	.25	.04	.06	0	1.9	.44	.02	.07	16	1.2
7	.80	0	.10	.03	.04	0	1.4	.16	.16	.14	6.8	.25
8	.39	0	.03	.03	.03	0	.50	.07	.06	.08	.58	.23
9	8.0	0	.01	.02	.02	0	.19	.04	.03	1.1	1.2	1.8
10	10	0	.01	.02	.02	0	.08	.17	.03	.35	.31	.35
11	1.0	0	.01	.02	.01	0	.06	6.6	.06	.16	.37	.23
12	1.5	0	.01	.01	.01	.01	.06	27	.13	.11	1.5	6.5
13	3.0	0	.01	.01	0	0	.03	.77	5.7	3.3	1.4	9.9
14	.75	0	.01	.01	0	0	.02	.33	2.2	6.9	.85	1.5
15	2.0	0	.01	.01	0	.01	.02	.23	.31	1.9	8.0	1.4
16	2.0	0	.01	.01	0	.01	.02	.65	7.8	1.8	6.1	.47
17	15	.30	1.2	.01	0	.01	.01	2.4	4.6	.97	1.3	2.3
18	2.5	1.0	.39	.01	0	.01	0	1.5	3.3	7.9	.69	6.0
19	1.5	3.0	.37	.01	0	0	0	.65	.61	9.2	20	1.4
20	.53	6.0	.25	.01	0	.01	.01	.21	.29	1.8	1.0	.33
21	.25	.30	9.6	.01	0	.01	0	.08	.16	1.9	.33	.16
22	3.5	.20	.53	.01	0	0	0	.05	.11	.61	.21	.08
23	.44	1.2	.25	.02	0	0	.01	1.2	.08	.33	.16	.04
24	.17	.60	.35	.40	0	0	.01	.27	.04	.37	.07	.03
25	.13	.15	.66	.30	0	.01	.01	.11	7.0	2.4	.06	.04
26	.10	.10	1.3	2.0	0	0	0	.23	1.1	.73	.90	.06
27	.05	.05	2.2	.40	0	0	0	.29	.47	.85	.25	.08
28	.03	.04	1.5	.15	0	0	1.2	.14	.33	.31	.10	.03
29	.02	.03	.41	.15	0	.35	.25	.08	.29	.14	.06	.02
30	.02	.05	.19	.25	---	1.7	.08	.07	.14	.08	.03	.01
31	.01	---	.10	.15	---	2.2	---	.04	---	.06	.03	---
TOTAL	58.26	13.05	25.56	4.31	2.68	4.33	19.21	44.62	35.11	44.50	72.61	43.98
MEAN	1.88	.44	.82	.14	.092	.14	.64	1.44	1.17	1.44	2.34	1.47
MAX	15	6.0	9.6	2.0	1.5	2.2	4.7	27	7.8	9.2	20	9.9
MIN	.01	0	.01	.01	0	0	0	.02	.01	.06	.03	.01
AC-FT	116	26	51	8.5	5.3	8.6	38	89	70	88	144	87

CAL YR 1975 TOTAL 416.63 MEAN 1.14 MAX 42 MIN 0 AC-FT 826
WTR YR 1976 TOTAL 368.22 MEAN 1.01 MAX 27 MIN 0 AC-FT 730

NOTE.--No gage-height record Oct. 9-19.

16892800 DALOLAB STREAM, YAP

LOCATION.--Lat 9°31'04" N., long 138°06'04" E., on left bank at Talagu and 0.9 mi (1.4 km) upstream from mouth.

DRAINAGE AREA.--0.09 mi² (0.23 km²).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 150 ft (46 m), from topographic map.

REMARKS.--Records fair except those for period of no gage-height record, which are poor. No diversion above station. Periodic determinations of water temperature for the current year are published on page 413 of this report.

AVERAGE DISCHARGE.--8 years, 0.376 ft³/s (0.011 m³/s), 273 acre-ft/yr (337,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 180 ft³/s (5.10 m³/s) Sept. 15, 1973, gage height, 4.80 ft (1.463 m), from floodmark in well, from rating curve extended above 17 ft³/s (0.48 m³/s); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 75 ft³/s (2.12 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2230	96	2.72	3.83	1.167	Aug. 6	0800	105	2.97	3.96	1.207
Oct. 17	1600	*116	3.29	4.10	1.250	Aug. 19	a1300	110	3.12	4.02	1.225
May 12	a0700	91	2.58	3.76	1.146						

No flow for many days.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	0	.05	.01	.60	0	1.5	0	.01	.05	.02	.01
2	.05	0	.60	.01	.19	0	.39	0	.01	.40	1.5	.01
3	.03	0	.50	.01	.05	0	.22	0	.01	.20	.12	.01
4	.50	0	.30	.01	.02	0	.69	0	.01	.10	.04	4.0
5	.25	0	1.0	.01	.01	0	1.8	.25	.01	.05	.62	.15
6	.30	0	.04	.01	.01	0	.59	.10	.01	.03	6.2	.44
7	.30	0	.01	0	.01	0	.40	.05	.10	.03	2.0	.06
8	.04	0	.01	0	0	0	.22	.03	.04	.03	.17	.06
9	3.3	0	0	0	0	0	.03	.02	.03	.10	.27	.86
10	3.1	0	0	0	0	0	.01	.10	.02	.05	.06	.15
11	.58	0	0	0	0	0	.01	2.0	.04	.04	.19	.10
12	.36	0	0	0	0	0	0	8.0	.10	.04	1.2	3.0
13	.70	0	0	0	0	0	0	.25	2.0	.70	.44	4.3
14	.24	0	0	0	0	0	0	.10	1.0	1.8	.22	.59
15	1.2	0	0	0	0	0	0	.08	.20	1.0	2.1	.54
16	.49	0	0	0	0	0	0	.20	1.5	.70	2.3	.08
17	5.5	.10	.27	0	0	0	0	.70	2.0	.60	.50	1.3
18	.40	.20	.06	0	0	0	0	.50	1.5	2.0	.30	3.3
19	.69	1.0	.05	0	0	0	0	.20	.25	3.0	7.0	.33
20	.10	1.5	.04	0	0	0	0	.05	.15	.80	.70	.04
21	.03	.10	4.4	0	0	0	0	.01	.10	.70	.20	.01
22	1.8	.05	.14	0	0	0	0	0	.07	.25	.10	.01
23	.12	.40	.02	.01	0	0	0	.61	.05	.10	.10	0
24	.04	.20	.08	.22	0	0	0	.05	.03	.05	.05	0
25	.02	.07	.21	.38	0	0	0	.01	3.0	.30	.03	.01
26	.01	.05	.44	.72	0	0	0	.08	.50	.20	.30	.01
27	.01	.03	.54	.14	0	0	0	.12	.30	.20	.08	.01
28	.01	.02	.44	.03	0	.01	1.0	.03	.20	.05	.03	0
29	.01	.01	.06	.05	0	.04	.04	.01	.20	.03	.02	0
30	.01	.01	.02	.06	---	.33	.01	.01	.10	.02	.01	0
31	0	---	.01	.02	---	.65	---	.01	---	.01	.01	---
TOTAL	20.29	3.74	9.29	1.69	.89	1.03	6.91	13.57	13.54	13.63	26.88	19.38
MEAN	.65	.12	.30	.055	.031	.033	.23	.44	.45	.44	.87	.65
MAX	5.5	1.5	4.4	.72	.60	.65	1.8	8.0	3.0	3.0	7.0	4.3
MIN	0	0	0	0	0	0	0	0	.01	.01	.01	0
AC-FT	40	7.4	18	3.4	1.8	2.0	14	27	27	27	53	38

CAL YR 1975 TOTAL 140.58 MEAN .39 MAX 15 MIN 0 AC-FT 279
WTR YR 1976 TOTAL 130.84 MEAN .36 MAX 8.0 MIN 0 AC-FT 260

NOTE.--No gage-height record Nov. 6 to Dec. 5, May 31 to July 27.

16892900 PEMGOY STREAM, YAP

LOCATION.--Lat 9°31'07" N., long 138°06'18" E., on right bank at Talagu, 100 ft (30 m) upstream from Talagu Stream, and 0.8 mi (1.3 km) upstream from mouth.

DRAINAGE AREA.--0.17 mi^2 (0.44 km^2).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder. Concrete control since Mar. 30, 1974. Altitude of gage is 100 ft (30 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 413 of this report.

AVERAGE DISCHARGE.--8 years, 0.589 ft^3/s (0.0167 m^3/s), 427 acre-ft/yr (526,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 240 ft^3/s (6.80 m^3/s) Sept. 15, 1973, gage height, 4.72 ft (1.439 m), from rating curve extended above 11 ft^3/s (0.31 m^3/s); no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft^3/s (1.98 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 9	2300	74	2.10	3.06	0.933	Aug. 6	a0700	106	3.00	3.47	1.058
Oct. 17	1730	82	2.32	3.17	.966	Aug. 19	1300	*110	3.12	3.52	1.073
May 12	a0700	a100	2.83	--	--	Sept. 4	0500	75	2.12	3.07	.936

No flow for many days.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.14	.03	.10	.04	.71	.01	1.9	.03	.03	.10	.10	.06
2	.08	.02	1.2	.05	.34	.03	.48	.02	.05	1.1	2.0	.06
3	.06	.02	.87	.05	.11	.01	.38	.01	.04	.38	.30	.05
4	1.1	.02	.42	.04	.06	.01	.69	.01	.03	.13	.20	5.6
5	.47	.02	2.2	.03	.05	.02	2.7	.50	.03	.07	1.0	.52
6	.66	.02	.14	.02	.04	.01	.81	.20	.10	.07	7.0	1.1
7	.69	.03	.08	.01	.03	.01	.52	.10	.20	.09	4.0	.28
8	.14	.03	.05	.01	.02	0	.20	.05	.09	.08	.50	.18
9	3.2	.03	.04	.02	.01	0	.08	.03	.05	.16	.80	1.9
10	5.1	.03	.04	.02	.01	0	.04	.15	.07	.16	.20	.52
11	.84	.02	.04	.02	.01	0	.03	4.0	.09	.12	.25	.38
12	1.3	.02	.03	.02	.01	.01	.02	18	.38	.12	.64	4.9
13	1.8	.02	.04	.02	.01	0	.02	.50	3.6	1.7	1.0	5.7
14	.64	.02	.05	.02	.01	.01	.02	.20	1.9	3.3	.42	1.7
15	1.1	.03	.04	.03	.01	.01	.02	.15	.18	2.1	3.2	1.7
16	1.5	.02	.03	.03	.01	.01	.02	.40	2.1	1.6	3.1	.58
17	6.4	.20	.21	.03	.01	.01	.01	1.5	5.2	1.1	1.4	1.7
18	1.6	.58	.11	.02	.01	0	.01	1.2	3.5	4.2	.81	3.8
19	.52	2.4	.11	.02	.01	0	.01	.50	.42	6.1	10	1.7
20	.28	3.7	.06	.02	.03	.02	0	.15	.16	2.1	1.2	.47
21	.12	.14	4.7	.03	.03	.01	0	.05	.10	1.8	.42	.20
22	2.5	.10	.28	.02	.02	0	0	.04	.08	.58	.25	.11
23	.52	1.1	.08	.04	.02	0	0	1.5	.16	.18	.38	.07
24	.20	.42	.14	.31	.02	.01	0	.13	.10	.10	.22	.05
25	.10	.10	.20	.20	.02	.03	.01	.06	5.5	.92	.11	.09
26	.08	.06	.47	1.1	.02	.01	.01	.90	.93	.47	.58	.07
27	.05	.05	1.1	.28	.01	0	.01	.42	1.5	.50	.38	.06
28	.05	.04	1.0	.07	.01	.03	2.4	.13	1.0	.20	.18	.05
29	.05	.04	.13	.07	.01	.10	.11	.07	.47	.15	.10	.05
30	.05	.05	.07	.12	---	.81	.04	.05	.18	.10	.07	.04
31	.04	---	.05	.07	---	.85	---	.03	---	.08	.06	---
TOTAL	31.38	9.36	14.08	2.83	1.66	2.02	10.54	31.08	28.24	29.86	40.87	33.69
MEAN	1.01	.31	.45	.091	.057	.065	.35	1.00	.94	.96	1.32	1.12
MAX	6.4	3.7	4.7	1.1	.71	.85	2.7	18	5.5	6.1	10	5.7
MIN	.04	.02	.03	.01	.01	0	0	.01	.03	.07	.06	.04
AC-FT	62	19	28	5.6	3.3	4.0	21	62	56	59	81	67

CAL YR 1975 TOTAL 224.62 MEAN .62 MAX 20 MIN 0 AC-FT 446
WTR YR 1976 TOTAL 235.61 MEAN .64 MAX 18 MIN 0 AC-FT 467

16893000 TALAGU STREAM, YAP

LOCATION.--Lat 09°31'08" N., long 138°06'13" E., on left bank at Talagu, 300 ft (91 m) upstream from mouth, and 0.9 mi (1.4 km) upstream from mouth of Pengoy Stream.

DRAINAGE AREA.--0.07 mi² (0.18 km²).

PERIOD OF RECORD.--April 1968 to current year.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 413 of this report.

GAGE.--Water-stage recorder and concrete control since Apr. 3, 1975. Altitude of gage is 130 ft (40 m), from topographic map.

AVERAGE DISCHARGE.--8 years, 0.356 ft³/s (0.010 m³/s), 258 acre-ft/yr (318,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 213 ft³/s (6.03 m³/s) Sept. 15, 1973, gage height, 3.98 ft (1.213 m), from rating curve extended above 29 ft³/s (0.82 m³/s); no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 9	2300	85	2.41	2.57	0.783	Aug. 6	0700	108	3.06	2.76	0.841
Oct. 17	1730	*128	3.62	2.91	.887	Aug. 19	1300	113	3.20	2.80	.853
May 12	0700	127	3.60	2.90	.884	Sept. 4	0500	a55	1.56	--	--

No flow for many days.

a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.02	.05	.02	.40	0	1.0	.02	.04	.07	.06	.06
2	.06	.02	.53	.05	.20	0	.24	.01	.04	.41	1.4	.06
3	.04	.01	.47	.07	.07	0	.26	0	.03	.21	.19	.06
4	.52	.01	.26	.05	.04	0	.43	.01	.02	.09	.08	3.7
5	.29	.01	.98	.04	.03	0	1.5	.24	.02	.07	.34	.19
6	.32	.01	.16	.03	.03	0	.42	.07	.06	.05	4.4	.39
7	.34	.01	.08	.02	.02	0	.37	.04	.14	.05	2.0	.16
8	.12	.01	.06	.02	.02	0	.24	.03	.08	.04	.20	.19
9	2.5	.01	.05	.02	.01	0	.07	.02	.06	.10	.40	.84
10	3.4	.01	.05	.02	.01	0	.04	.08	.07	.07	.15	.19
11	.42	.01	.04	.02	.01	0	.03	1.9	.08	.04	.15	.12
12	.71	.01	.04	.02	.01	0	.02	8.0	.24	.04	.53	2.7
13	.96	.01	.04	.02	0	0	.02	.26	2.0	.70	.61	3.0
14	.39	0	.04	.02	0	0	.01	.09	1.3	1.7	.16	.66
15	.84	0	.03	.02	0	0	.01	.08	.21	.95	1.5	.71
16	.80	0	.03	.02	0	0	.01	.14	1.4	.71	1.6	.21
17	5.3	.12	.17	.02	0	0	.01	.61	2.7	.61	.56	.86
18	.80	.19	.10	.02	0	0	.01	.56	1.5	2.1	.29	2.4
19	.47	.98	.09	.01	0	0	0	.26	.29	3.2	7.3	.66
20	.24	1.6	.06	.01	0	0	0	.08	.14	.90	.80	.16
21	.12	.08	3.3	.02	0	0	0	.05	.09	.80	.25	.08
22	1.4	.05	.29	.02	0	0	0	.04	.08	.26	.15	.05
23	.21	.34	.08	.03	0	0	0	.59	.08	.09	.25	.05
24	.07	.19	.14	.16	0	0	0	.14	.07	.07	.10	.04
25	.05	.06	.21	.16	0	0	0	.06	2.9	.27	.06	.07
26	.04	.04	.47	.47	0	0	0	.19	.52	.19	.30	.07
27	.03	.03	.61	.15	0	0	0	.26	.34	.21	.12	.06
28	.03	.02	.61	.05	0	0	.97	.12	.32	.10	.08	.04
29	.02	.02	.12	.05	0	.01	.10	.07	.29	.06	.06	.02
30	.03	.02	.06	.06	---	.24	.04	.05	.12	.04	.05	.02
31	.02	---	.04	.04	---	.40	---	.04	---	.04	.06	---
TOTAL	20.66	3.89	9.26	1.73	.85	.65	5.80	14.11	15.23	14.24	24.20	17.82
MEAN	.67	.13	.30	.056	.029	.021	.19	.46	.51	.46	.78	.59
MAX	5.3	1.6	3.3	.47	.40	.40	1.5	8.0	2.9	3.2	7.3	3.7
MIN	.02	0	.03	.01	0	0	0	0	.02	.04	.05	.02
AC-FT	41	7.7	18	3.4	1.7	1.3	12	28	30	28	48	35

CAL YR 1975 TOTAL 133.35 MEAN .37 MAX 14 MIN 0 AC-FT 264
WTR YR 1976 TOTAL 128.44 MEAN .35 MAX 8.0 MIN 0 AC-FT 255

16893100 BURONG STREAM, YAP

LOCATION.--Lat 09°31'59" N., long 138°07'05" E., on left bank at Dugor and 0.1 mi (0.2 km) upstream from mouth.

DRAINAGE AREA.--0.29 mi² (0.75 km²).

PERIOD OF RECORD.--April 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 413 of this report.

AVERAGE DISCHARGE.--8 years, 0.954 ft³/s (0.027 m³/s), 691 acre-ft/yr (852,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 303 ft³/s (8.58 m³/s) Sept. 15, 1973, gage height, 5.09 ft (1.551 m), from rating curve extended above 15 ft³/s (0.42 m³/s); no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 17	1730	*150	4.25	4.08	1.244
May 12	0700	119	3.37	3.79	1.155
Aug. 19	1300	145	4.11	4.04	1.231

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	.03	.27	.05	.74	0	1.1	.07	.02	.17	.06	.08
2	.17	.02	1.4	.04	.51	0	.44	.03	.04	1.3	9.2	.06
3	.11	.02	.87	.07	.17	0	.51	.02	.02	.48	.62	.05
4	2.0	.01	.82	.04	.13	0	.62	.02	.01	.15	.21	9.1
5	1.1	.02	3.9	.02	.08	0	3.6	1.8	.01	.04	.28	.65
6	.90	.01	.37	.02	.05	0	.87	.44	0	.07	7.7	2.0
7	1.1	.02	.19	.03	.03	0	.92	.17	.05	.07	6.2	.44
8	.37	.01	.13	.05	.02	0	.37	.07	.10	.04	.54	.25
9	5.4	.01	.08	.03	.02	0	.08	.04	.05	.02	1.0	4.0
10	10	.01	.06	.01	.02	0	.04	1.1	.03	.01	.34	.62
11	.82	.01	.05	.01	.01	0	.02	4.1	.17	.05	.30	.44
12	1.3	.01	.05	.01	.01	0	.01	21	.39	.10	.23	7.6
13	4.4	0	.05	.01	0	0	.01	.87	3.9	1.2	.25	12
14	.70	.01	.05	.01	0	0	0	.34	2.4	4.8	.23	1.9
15	1.2	0	.05	.01	0	0	0	.48	.30	2.1	3.4	2.5
16	1.8	0	.05	.01	0	0	0	.54	.17	1.3	5.6	.65
17	13	1.0	.30	.01	0	0	0	2.3	7.9	.92	1.5	1.5
18	2.7	1.4	.19	.01	0	0	0	1.2	5.5	4.7	.51	11
19	1.5	3.1	.21	0	0	0	0	.65	.70	10	15	2.5
20	.54	6.5	.08	0	0	0	0	.21	1.0	2.5	1.6	.62
21	.28	.40	7.4	.01	0	0	0	.11	.37	2.1	.48	.30
22	3.3	.25	.76	.01	0	0	0	.05	.21	.62	.25	.21
23	.51	.21	.23	.02	0	0	0	1.6	.23	.21	.23	.15
24	.23	.21	.21	.37	0	0	0	.34	.11	.15	.15	.10
25	.19	.11	.19	.23	0	0	0	.13	10	1.8	.13	.15
26	.13	.08	.19	.82	0	0	0	.39	1.3	.58	.65	.10
27	.08	.05	.54	.36	0	0	0	.48	1.7	.28	.30	.08
28	.06	.05	1.3	.11	0	0	5.0	.23	1.5	.15	.19	.07
29	.04	.03	.28	.13	0	.11	.28	.13	.82	.08	.13	.05
30	.08	.05	.15	.34	---	.90	.08	.07	.30	.06	.08	.05
31	.05	---	.10	.08	---	.59	---	.04	---	.05	.10	---
TOTAL	54.40	13.63	20.52	2.92	1.79	1.60	13.95	39.02	39.30	36.10	57.46	59.22
MEAN	1.75	.45	.66	.094	.062	.052	.47	1.26	1.31	1.16	1.85	1.97
MAX	13	6.5	7.4	.82	.74	.90	5.0	21	10	10	15	12
MIN	.04	0	.05	0	0	0	0	.02	0	.01	.06	.05
AC-FT	108	27	41	5.8	3.6	3.2	28	77	78	72	114	117

CAL YR 1975 TOTAL 336.96 MEAN .92 MAX 33 MIN 0 AC-FT 668
WTR YR 1976 TOTAL 339.91 MEAN .93 MAX 21 MIN 0 AC-FT 674

16893200 MUKONG STREAM, GAGIL-TOMIL

LOCATION.--Lat 09°32'06" N., long 138°09'59" E., on right bank 0.2 mi (0.3 km) upstream from mouth and 1.6 mi (2.6 km) southwest of Gatjapar.

DRAINAGE AREA.--0.36 mi^2 (0.93 km^2).

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1972-75, December 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5 ft (1.5 m), from topographic map.

REMARKS.--Records fair. No diversion above station. Periodic determinations of water temperature for the current year are published on page 413 of this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39 ft^3/s (1.10 m^3/s) Jan. 22, 1975, gage height, 2.69 ft (0.820 m); maximum gage height, 2.78 ft (0.847 m) Aug. 19, 1976; minimum, 0.11 ft^3/s (0.003 m^3/s) for several days in 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft^3/s (0.71 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 10	0200	32	0.91	2.63	0.802	Aug. 19	1600	*38	1.08	2.78	0.847
May 12	1030	30	.85	2.42	.738	Sept. 13	1330	30	.85	2.40	.732
June 17	2130	27	.77	2.23	.680	Sept. 18	1000	33	.94	2.53	.771
June 25	0600	32	.91	2.48	.756						

Minimum discharge, 0.12 ft^3/s (0.003 m^3/s) Mar. 15-17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.1	1.0	.94	1.9	.25	2.7	1.7	1.5	1.8	1.3	1.3
2	1.9	1.0	4.0	1.2	1.9	.34	2.7	.96	1.2	3.3	2.2	1.1
3	1.6	.90	3.0	1.1	1.4	.34	3.2	.82	1.0	2.4	1.6	1.0
4	4.9	.80	2.2	.88	1.1	.30	3.2	.75	.96	1.7	1.3	6.7
5	2.5	.70	5.7	.88	.88	.43	7.4	.75	.82	1.5	2.2	2.5
6	3.8	.66	2.0	.82	.76	.56	4.1	.75	2.0	1.4	9.8	9.5
7	3.4	.66	1.5	.76	.70	.43	2.7	.68	1.3	1.6	7.9	2.6
8	1.9	.66	1.3	.82	.66	.34	1.6	.68	.96	1.3	3.9	2.1
9	4.2	.66	1.0	.94	.66	.30	1.0	.61	.82	1.2	4.6	3.4
10	14	.61	.94	.88	.66	.25	.66	1.2	.75	1.1	2.6	2.4
11	3.7	.61	.88	.82	.66	.25	.61	3.5	.75	1.0	2.3	2.6
12	2.6	.56	.94	.76	.61	.30	.56	19	1.0	1.0	1.9	11
13	4.2	.52	1.1	.76	.56	.25	.52	4.4	5.0	1.9	1.9	15
14	2.3	.52	1.1	.82	.61	.21	.48	3.5	3.0	4.0	1.7	6.2
15	2.6	.61	1.0	.82	.56	.18	.52	2.7	1.5	5.1	3.7	12
16	4.4	.70	.94	.76	.52	.15	.48	3.5	2.9	3.6	4.6	3.6
17	7.9	1.3	1.9	.82	.48	.15	.48	5.2	12	2.8	3.3	4.2
18	6.8	2.9	1.5	.76	.43	.15	.43	9.7	10	4.3	2.3	17
19	2.6	1.1	1.3	.66	.43	.18	.43	4.5	3.2	13	14	11
20	2.3	6.3	1.1	.61	.43	.34	.43	2.4	2.9	6.1	6.3	3.9
21	1.9	2.2	8.4	.56	.43	.34	.38	1.9	2.2	5.8	2.7	2.9
22	7.5	3.3	3.1	.61	.38	.25	.34	1.7	2.3	3.0	2.5	2.4
23	2.5	7.7	1.6	.70	.38	.18	.34	7.1	1.9	2.4	2.7	2.1
24	1.9	3.6	1.6	1.3	.38	.18	.30	2.6	1.9	2.2	1.9	1.8
25	1.4	2.2	1.6	1.6	.34	.61	.30	1.9	15	2.1	1.7	3.5
26	1.2	1.4	1.7	3.2	.30	.52	.30	1.6	4.8	1.9	2.6	2.0
27	1.3	1.2	1.8	2.6	.25	.38	.30	1.4	4.2	1.9	1.9	1.7
28	1.2	1.1	1.9	1.5	.25	.61	9.0	1.3	3.9	1.6	1.7	1.5
29	1.1	1.0	2.0	1.3	.25	1.2	2.3	1.2	2.7	1.4	1.7	1.3
30	1.2	.90	1.2	1.2	---	2.5	1.3	1.1	2.1	1.3	1.4	1.3
31	1.2	---	1.1	1.0	---	2.5	---	1.1	---	1.4	1.3	---
TOTAL	102.4	67.47	60.40	32.38	18.87	14.97	49.06	90.20	94.56	85.1	101.5	139.6
MEAN	3.30	1.58	1.95	1.04	.65	.48	1.64	2.91	3.15	2.75	3.27	4.65
MAX	14	7.7	8.4	3.2	1.9	2.5	9.0	19	15	13	14	17
MIN	1.1	.52	.88	.56	.25	.15	.30	.61	.75	1.0	1.3	1.0
AC-FT	203	94	120	64	37	30	97	179	188	169	201	277

CAL YR 1975 TOTAL 725.36 MEAN 1.99 MAX 27 MIN .11 AC-FT 1440
WTR YR 1976 TOTAL 836.51 MEAN 2.29 MAX 19 MIN .15 AC-FT 1660

16893700 WICHEN RIVER AT ALTITUDE 55 M, MOEN

LOCATION.--Lat 07°26'45" N., long 151°52'02" E., on left bank at Peniesence, 1.0 mi (1.6 km) upstream from mouth, and 1.6 mi (2.6 km) west of Saint Xaviers Academy.

DRAINAGE AREA.--0.23 mi^2 (0.60 km^2).

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 180 ft (55 m), from topographic map.

REMARKS.--Records fair to poor. No diversion above station. Periodic determinations of water temperature for the current year are published on pages 413-414 of this report.

AVERAGE DISCHARGE.--8 years, 1.06 ft^3/s (0.030 m^3/s), 768 acre-ft/yr (947,000 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 193 ft^3/s (5.47 m^3/s) Nov. 25, 1969, gage height, 4.08 ft (1.241 m), from rating curve extended above 15 ft^3/s (0.42 m^3/s); minimum, 0.01 ft^3/s (<0.001 m^3/s) Mar. 29-31, 1969, for several days in March and April 1973, and for many days in February and March 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 70 ft^3/s (1.98 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 2	2200	72	2.04	2.90	3.205
May 18	0300	*107	3.03	3.32	1.012

Minimum discharge, 0.04 ft^3/s (0.001 m^3/s) Mar. 22-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.1	.44	.49	1.2	.90	.30	.30	.44	.34	.49	.22
2	1.2	3.0	.55	.44	.90	.60	5.9	.26	.30	.39	.49	.19
3	.88	4.6	.49	.39	1.2	.44	5.2	1.6	.26	.30	.39	3.0
4	.70	4.1	.39	.30	.50	.34	3.2	1.1	.22	.26	1.9	1.3
5	.79	3.2	.34	.30	.40	.30	2.9	1.2	.22	.34	1.2	.88
6	3.8	4.0	.39	.26	.30	.26	1.7	1.4	.22	.26	.70	.55
7	1.5	3.8	.26	.26	.25	.22	1.9	1.1	.22	.22	.79	3.1
8	1.2	3.5	.34	.19	.20	.19	1.3	1.1	.39	.19	2.0	3.6
9	1.7	6.1	1.2	.16	.20	.16	.97	.97	1.2	.16	.97	2.9
10	1.3	6.8	1.4	.13	.15	.16	1.4	.70	1.0	.19	1.8	2.2
11	1.3	3.3	1.7	.13	.15	.19	1.1	1.6	.97	.19	1.2	3.2
12	1.1	2.3	1.2	.11	4.0	.16	.79	2.2	.49	.22	.97	4.3
13	.79	1.5	1.1	.09	2.0	.13	3.5	1.9	.88	.49	3.2	3.2
14	.97	2.9	.70	.09	1.5	.11	1.3	2.1	1.4	1.5	6.8	2.2
15	1.2	2.0	.97	.09	.90	.09	.97	6.2	1.2	.79	11	1.5
16	.79	1.3	1.4	.07	.70	.07	.79	4.5	.97	2.9	4.2	1.0
17	.62	1.1	1.5	.07	.55	.07	.88	8.5	2.4	1.7	2.6	.80
18	.49	.79	1.5	.07	.45	.09	.88	23	4.0	1.2	1.6	2.0
19	.55	.79	2.0	.05	.35	.07	2.4	8.5	2.3	1.2	1.3	1.8
20	.55	.97	1.6	1.2	1.0	.07	3.0	6.6	2.0	1.0	1.2	1.0
21	.49	1.2	1.5	.34	.60	.05	3.8	4.4	1.5	4.1	1.2	.80
22	.39	.79	1.2	.88	.45	.05	3.0	4.3	1.3	1.6	.88	.60
23	.39	.79	.88	.30	.30	.05	1.9	2.6	2.3	1.2	.79	1.8
24	.30	2.8	1.4	.19	.25	.05	1.3	2.2	1.6	1.2	.62	4.5
25	.26	2.3	.97	.55	.20	.05	.97	1.4	1.4	2.9	.55	2.5
26	.22	1.4	.79	.26	.15	.13	.62	1.1	1.1	1.7	.44	1.5
27	.22	1.1	.62	.19	5.0	.09	.49	.88	1.1	1.2	.44	1.0
28	2.4	.79	.79	5.2	2.0	.30	.39	.62	.70	.97	.39	.80
29	.97	.62	.55	3.0	1.2	.79	.30	.55	.55	.79	.44	.60
30	.62	.49	.44	2.2	---	.70	.39	.55	.44	.70	.34	.40
31	1.5	---	.39	1.4	---	.49	---	.44	---	.49	.30	---
TOTAL	30.59	69.43	29.00	19.40	27.05	7.37	53.54	93.87	33.07	30.69	51.19	53.44
MEAN	.99	2.31	.94	.63	.93	.24	1.78	3.03	1.10	.99	1.65	1.78
MAX	3.8	6.8	2.0	5.2	5.0	.90	5.9	23	4.0	4.1	11	4.5
MIN	.22	.49	.26	.05	.15	.05	.30	.26	.22	.16	.30	.19
AC-FT	61	138	58	38	54	15	106	186	66	61	102	106

CAL YR 1975	TOTAL 297.04	MEAN .81	MAX 7.3	MIN .01	AC-FT 589
WTR YR 1976	TOTAL 498.64	MEAN 1.36	MAX 23	MIN .05	AC-FT 989

NOTE.--No gage-height record Feb. 1 to Mar. 2.

16893800 WICHEN RIVER AT ALTITUDE 18 M, MOEN

LOCATION.--Lat 07°27'05" N., long 151°52'18" E., on left bank at Peniesence and 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--0.60 mi² (1.55 km²).

PERIOD OF RECORD.--April 1955 to March 1956 (published as "at Peniesence"), June 1968 to current year. All figures of discharge above 3 ft³/s (0.085 m³/s) prior to April 1956, published in WSP 1751, are unreliable and should not be used.

REVISED RECORDS.--WSP 2137: Drainage area.

GAGE.--Water-stage recorder and concrete control since Mar. 29, 1973. Altitude of gage is 60 ft (18 m), from topographic map. Prior to Apr. 1, 1956, nonrecording gage at site 100 ft (30 m) downstream at different datum.

REMARKS.--Records fair to poor. No diversion above station. Periodic determinations of water temperature for the current year are published on page 414 of this report.

AVERAGE DISCHARGE.--8 years, 2.91 ft³/s (0.082 m³/s), 2,110 acre-ft/yr (2.60 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 910 ft³/s (25.8 m³/s) June 4, 1972, gage height, 6.80 ft (2.073 m), from rating curve extended above 26 ft³/s (0.74 m³/s); minimum, 0.02 ft³/s (0.001 m³/s) Feb. 14, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 170 ft³/s (4.81 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 28	1300	172	4.87	3.25	0.991	Apr. 2	2230	300	8.50	4.18	1.274
Feb. 27	1430	220	6.23	3.62	1.103	May 18	a0330	*605	17.1	†5.72	1.743

Minimum discharge, 0.12 ft³/s (0.003 m³/s) Jan. 17-20.

†From floodmarks.
a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	3.2	.74	1.3	3.2	2.1	.85	1.2	.80	.85	.85	.64
2	3.9	10	1.2	.85	2.2	1.5	26	.85	.60	1.0	.85	.47
3	3.0	21	1.5	.74	3.2	1.3	25	5.4	.47	.74	.74	15
4	2.2	17	1.0	.64	2.1	1.0	13	3.9	.47	.55	5.8	5.1
5	2.1	10	.74	.47	1.5	.85	9.0	4.5	.40	.85	3.0	3.0
6	16	15	1.2	.40	1.2	.64	5.4	5.4	.40	.55	1.9	2.1
7	5.7	10	.85	.33	.74	.47	10	4.1	.33	.47	2.3	12
8	3.2	9.3	.74	.27	.64	.40	4.3	3.7	.50	.40	5.3	15
9	5.4	22	3.6	.22	.64	.33	2.8	3.7	2.6	.33	2.4	8.8
10	3.9	32	5.7	.22	.64	.27	4.1	2.4	2.8	.33	4.4	6.2
11	3.9	8.5	8.5	.18	.55	.33	3.2	6.3	2.4	.33	3.0	11
12	2.8	6.0	5.1	.18	17	.33	2.2	8.0	1.3	.27	2.2	16
13	2.2	4.1	4.1	.18	6.0	.27	14	6.5	3.1	1.3	11	9.6
14	2.6	8.2	2.6	.15	3.4	.22	4.3	7.0	3.7	4.7	30	5.7
15	3.0	6.2	4.1	.15	2.2	.18	2.8	15	3.0	2.8	54	3.9
16	1.9	4.1	5.7	.18	1.6	.15	2.2	10	2.6	12	14	2.8
17	1.5	3.9	6.2	.15	1.3	.18	1.9	20	8.6	6.0	6.8	2.2
18	1.8	3.0	6.2	.12	1.0	.18	1.8	70	14	4.1	4.3	5.1
19	1.3	2.2	7.8	.12	.85	.18	8.3	25	6.5	3.9	3.2	4.3
20	1.6	3.4	6.2	3.8	2.6	.18	15	15	4.5	2.8	3.2	2.8
21	1.6	3.7	4.8	1.5	1.5	.15	15	10	3.2	16	3.4	2.1
22	1.5	2.2	3.4	2.2	1.0	.15	11	10	2.6	4.5	2.6	1.5
23	1.2	2.1	2.6	1.3	.64	.15	5.4	6.0	6.0	3.2	2.4	4.2
24	1.0	8.8	4.9	.64	.55	.15	3.7	4.0	4.3	2.4	1.9	17
25	.74	6.8	2.8	2.2	.40	.15	2.4	3.0	3.0	11	1.6	6.8
26	.64	4.8	2.4	1.3	.33	.70	1.9	2.0	2.1	5.1	1.3	3.9
27	1.0	3.0	2.2	.74	24	.47	1.5	1.5	2.2	3.2	.85	2.6
28	9.6	1.9	2.4	41	8.1	1.8	1.2	1.3	1.5	2.2	.74	2.1
29	3.4	1.3	1.8	19	3.4	2.8	.85	1.1	1.2	1.8	1.0	1.5
30	2.1	.85	1.3	7.8	---	2.2	1.2	1.0	1.0	1.5	.64	1.0
31	5.2	---	1.2	5.1	---	1.5	---	.90	---	1.2	.74	---
TOTAL	101.08	234.55	103.57	93.43	92.48	21.28	200.30	258.75	86.17	96.37	176.41	174.41
MEAN	3.26	7.82	3.34	3.01	3.19	.69	6.68	8.35	2.87	3.11	5.69	5.81
MAX	16	32	8.5	41	24	2.8	26	70	14	16	54	17
MIN	.64	.85	.74	.12	.33	.15	.85	.85	.33	.27	.64	.47
AC-FT	200	465	205	185	183	42	397	513	171	191	350	346

CAL YR 1975 TOTAL 974.89 MEAN 2.67 MAX 32 MIN .03 AC-FT 1930
WTR YR 1976 TOTAL 1638.80 MEAN 4.48 MAX 70 MIN .12 AC-FT 3250

NOTE.--No gage-height record May 14 to June 2.

16894200 NACHIPONONG STREAM, MOEN

LOCATION.--Lat 07°25'45" N., long 151°51'31" E., on left bank at Wichap, 300 ft (91 m) downstream from dam site, and 0.2 mi (0.3 km) upstream from mouth.

DRAINAGE AREA.--0.16 mi² (0.41 km²).

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Concrete control since Aug. 10, 1971. Altitude of gage is 33 ft (10.1 m), from topographic map.

REMARKS.--Records fair to poor. No diversion above station. Periodic determinations of water temperature for the current year are published on page 414 of this report.

AVERAGE DISCHARGE.--8 years, 0.588 ft³/s (0.017 m³/s), 426 acre-ft/yr (525,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 104 ft³/s (2.95 m³/s) May 18, 1976, gage height, 3.26 ft (0.994 m), from rating curve extended above 11 ft³/s (0.31 m³/s); no flow Mar. 26-31, 1969, March and April 1973, Dec. 10, 1973, Jan. 9, Mar. 21-24, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 40 ft³/s (1.13 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 2	2200	57	1.61	2.46	0.750
May 18	0300	*104	2.95	3.26	.994

No flow Jan. 19, Mar. 21-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.51	.43	.43	.25	.51	.22	.25	.34	.31	.22	.34	.10
2	.40	3.0	.55	.22	.43	.22	5.7	.22	.25	.25	.37	.10
3	.31	3.8	.47	.20	.59	.43	3.7	1.4	.17	.20	.28	1.5
4	.25	3.6	.37	.15	.34	.28	2.8	.43	.12	.15	1.6	.43
5	.31	3.1	.28	.15	.34	.25	1.7	.55	.10	.22	.51	.25
6	2.8	3.7	.25	.10	.25	.22	1.1	.79	.17	.15	.40	.17
7	.69	2.9	.20	.09	.20	.15	.96	.47	.12	.12	1.1	2.4
8	.51	3.3	.31	.07	.20	.12	.69	1.0	.10	.10	3.1	2.8
9	1.0	5.5	.66	.05	.20	.09	.51	.51	.80	.09	1.7	2.2
10	1.0	4.3	.71	.06	.15	.12	.79	.40	.57	.08	2.3	1.1
11	1.1	2.4	.74	.04	.09	.17	.55	1.4	.43	.08	1.2	2.1
12	.74	1.7	.43	.04	2.3	.09	.40	2.1	.31	.09	1.8	2.8
13	.64	1.3	.40	.03	.59	.07	2.7	1.3	.37	.31	4.0	1.6
14	.96	3.1	.25	.03	.51	.05	.64	1.9	.69	1.0	6.2	1.1
15	.79	2.6	.28	.04	.31	.03	.51	4.9	.43	.31	9.3	.80
16	.47	1.6	.43	.04	.22	.03	.43	3.0	.65	4.0	3.6	.60
17	.40	1.4	.55	.02	.20	.04	.55	8.6	2.3	1.1	2.0	.50
18	.34	.96	1.6	.01	.20	.03	.47	29	2.6	.55	1.3	1.0
19	.43	.79	2.2	.01	.20	.02	2.2	5.5	1.3	.40	.96	.85
20	.37	2.4	.79	.75	.43	.03	2.5	4.0	1.5	.34	.84	.60
21	.34	1.2	.59	.12	.17	.02	2.6	3.1	.96	2.7	.64	.50
22	.22	.74	.47	1.3	.12	.02	1.7	2.7	1.1	.59	.47	.40
23	.20	.99	.37	.17	.10	.02	1.1	1.9	1.5	.47	.47	.90
24	.15	3.6	.58	.07	.08	.02	.84	1.6	.90	.40	.43	4.0
25	.20	1.7	.34	.17	.07	.02	.69	1.1	.74	1.0	.31	1.5
26	.15	1.1	.28	.07	.06	.15	.51	.96	.55	.55	.22	1.0
27	.10	.90	.25	.05	1.3	.05	.43	.74	.47	.37	.20	.60
28	.84	.74	.25	6.9	.79	.09	.34	.59	.37	.34	.15	.40
29	.28	.59	.22	2.0	.31	1.5	.28	.56	.31	.55	.17	.30
30	.22	.47	.20	1.4	---	.51	.31	.70	.25	.73	.15	.20
31	.94	---	.20	.79	---	.40	---	.37	---	.40	.10	---
TOTAL	17.66	63.91	15.65	15.39	11.26	5.46	37.95	82.13	20.44	17.86	46.21	32.80
MEAN	.57	2.13	.50	.50	.39	.18	1.27	2.65	.68	.58	1.49	1.09
MAX	2.8	5.5	2.2	6.9	2.3	1.5	5.7	29	2.6	4.0	9.3	4.0
MIN	.10	.43	.20	.01	.06	.02	.25	.22	.10	.08	.10	.10
AC-FT	35	127	31	31	22	11	75	163	41	35	92	65

CAL YR 1975 TOTAL 205.83 MEAN .56 MAX 6.7 MIN .01 AC-FT 408
WTR YR 1976 TOTAL 366.72 MEAN 1.00 MAX 29 MIN .01 AC-FT 727

16896800 CHUN STREAM, DUBLON ISLAND

LOCATION.--Lat 07°22'36" N., long 151°52'13" E., on right bank at Chun, 0.4 mi (0.6 km) upstream from mouth, and 1.8 mi (2.9 km) west of Peniennk.

DRAINAGE AREA.--0.09 mi² (0.23 km²).

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Concrete control since Sept. 10, 1971. Altitude of gage is 50 ft (15 m), from topographic map.

REMARKS.--Records poor. No diversion above station. Periodic determinations of water temperature for the current year are published on page 414 of this report.

AVERAGE DISCHARGE.--8 years, 0.501 ft³/s (0.014 m³/s), 363 acre-ft/yr (448,000 m³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41 ft³/s (1.16 m³/s) May 18, 1976, gage height, 3.24 ft (0.988 m), from rating curve extended above 1.9 ft³/s (0.054 m³/s); minimum, 0.01 ft³/s (<0.001 m³/s) many days February to April 1969, March and April 1973, Mar. 23, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 16 ft³/s (0.45 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 2	0200	33	0.935	3.17	0.966	Apr. 2	2100	26	0.736	2.90	0.884
Nov. 20	1500	17	.481	2.80	.853	May 18	0300	*41	1.16	3.24	.988
Mar. 29	0430	18	.510	2.78	.847						

Minimum discharge, 0.01 ft³/s (<0.001 m³/s) Mar. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	.95	.23	.20	.52	.20	.23	.26	.42	.26	.23	.15
2	.50	3.1	.26	.18	.42	.18	3.3	.20	.33	.26	.75	.20
3	.40	1.8	.18	.15	1.1	.20	2.7	1.2	.29	.23	.33	.40
4	.30	1.5	.23	.20	.56	.20	2.0	.56	.26	.23	.85	.50
5	.61	1.4	.15	.15	.42	.20	2.7	.47	.23	.20	.52	.30
6	2.3	1.8	.37	.11	.33	.18	1.2	.70	.20	.20	.37	.25
7	.90	1.0	.20	.09	.29	.15	.90	.56	.20	.20	.60	.70
8	.65	1.5	.23	.08	.26	.15	.70	1.3	.26	.18	.60	1.2
9	1.6	3.3	.15	.08	.26	.13	.56	.70	.58	.15	.40	1.0
10	1.2	2.5	.29	.09	.23	.13	.52	.56	.42	.13	.90	.90
11	.85	1.2	1.3	.06	.20	.15	.47	1.3	.33	.13	.60	1.1
12	.65	.90	.57	.05	1.4	.09	.42	.85	.23	.15	.60	1.1
13	.56	.85	.42	.04	.65	.09	.33	.75	.20	.47	.70	1.1
14	.65	1.2	.26	.04	.47	.08	.26	1.8	.59	.67	2.0	.90
15	.56	.85	.37	.04	.33	.08	.23	1.9	.33	.47	3.5	.70
16	.42	1.0	.37	.04	.29	.06	.20	1.4	.29	1.9	1.7	.60
17	.33	.61	.54	.05	.26	.06	.23	3.0	.66	1.1	1.3	.50
18	.26	.37	1.7	.05	.26	.06	.20	7.9	1.4	.70	1.0	.80
19	.33	.26	1.2	.05	.29	.05	1.2	2.6	.90	.52	.80	.60
20	.26	1.6	.95	.94	.65	.05	1.3	2.3	.85	.42	.70	.50
21	.20	.85	.75	.32	.33	.05	1.3	1.3	.65	1.2	.60	.40
22	.18	.52	.52	.52	.29	.04	1.0	1.2	.56	.65	.50	.30
23	.15	.42	.42	.23	.26	.04	.70	.90	.75	.52	.40	.40
24	.13	1.0	.52	.18	.23	.08	.56	1.0	.52	.42	.35	.50
25	.13	.95	.37	.76	.23	.05	.42	.75	.47	.42	.30	.40
26	.11	.61	.29	.23	.23	.13	.33	.61	.37	.42	.25	.30
27	.09	.47	.68	.15	.56	.06	.29	.52	.33	.33	.25	.30
28	2.3	.42	.37	1.6	.42	.09	.23	.42	.29	.29	.20	.25
29	.47	.29	.29	1.3	.26	1.3	.23	.55	.26	.26	.20	.25
30	.38	.29	.23	1.1	---	.26	.29	.75	.26	.29	.18	.20
31	2.1	---	.20	.70	---	.26	---	.56	---	.26	.16	---
TOTAL	20.17	33.51	14.61	9.78	12.00	4.85	25.00	38.87	13.43	13.63	21.84	16.80
MEAN	.65	1.12	.47	.32	.41	.16	.83	1.25	.45	.44	.70	.56
MAX	2.3	3.3	1.7	1.6	1.4	1.3	3.3	7.9	1.4	1.9	3.5	1.2
MIN	.09	.26	.15	.04	.20	.04	.20	.20	.20	.13	.16	.15
AC-FT	40	66	29	19	24	9.6	50	77	27	27	43	33

CAL YR 1975 TOTAL 181.01 MEAN .50 MAX 3.3 MIN .05 AC-FT 359
WTR YR 1976 TOTAL 224.49 MEAN .61 MAX 7.9 MIN .04 AC-FT 445

NOTE.--No gage-height record Aug. 8 to Sept. 30.

16897200 TUMUNU STREAM, DUBLON ISLAND

LOCATION.--Lat 07°22'42" N., long 151°52'51" E., on left bank at Roro, 0.1 mi (0.2 km) upstream from mouth, and 1.1 mi (1.8 km) west of Penienuk.

DRAINAGE AREA.--0.26 mi² (0.67 km²).

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Concrete control since Aug. 13, 1971. Altitude of gage is 15 ft (4.6 m), from topographic map.

REMARKS.--Records poor. Normally no diversion above station. Periodic determinations of water temperature for the current year are published on page 414 of this report.

AVERAGE DISCHARGE.--8 years, 1.15 ft³/s (0.033 m³/s), 833 acre-ft/yr (1.03 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 168 ft³/s (4.76 m³/s) Feb. 18, 1970, gage height, 5.08 ft (1.548 m), from rating curve extended above 5.4 ft³/s (0.15 m³/s); no flow Mar. 9-13, Apr. 6-11, 13, 1975, during testing of upstream diversion under construction.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft³/s (0.85 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 2	0200	60	1.70	3.32	1.012
May 18	0230	*164	4.64	4.90	1.494

Minimum discharge, 0.02 ft³/s (0.001 m³/s) Jan. 24, during short regulation of flow, and Mar. 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.89	3.0	.56	.56	1.8	.50	.62	.72	.94	.50	.98	.37
2	.89	8.2	.56	.50	1.4	.50	5.9	.50	.78	.45	1.4	.50
3	1.4	5.3	.50	.42	2.3	.45	6.6	1.2	.67	.42	.78	1.1
4	2.4	5.2	.56	.45	1.4	.45	4.9	.89	.62	.38	2.3	1.4
5	1.9	4.8	.42	.42	1.2	.42	7.3	.89	.72	.38	1.4	.89
6	4.9	6.0	.72	.38	.94	.38	4.2	1.4	.78	.38	1.0	.78
7	2.8	3.5	.50	.35	.78	.35	3.0	1.5	.84	.35	1.4	2.1
8	2.0	3.8	.56	.32	.67	.32	2.3	3.4	.84	.35	1.5	4.0
9	3.6	7.6	.50	.28	.62	.28	1.7	2.6	1.7	.35	1.1	3.0
10	2.8	7.5	.78	.25	.56	.28	1.5	1.9	1.4	.32	2.2	2.7
11	2.2	3.7	2.7	.21	.50	.32	1.3	3.8	1.4	.32	1.6	3.4
12	1.9	2.6	1.5	.21	2.6	.25	1.1	3.0	1.1	.35	1.5	3.6
13	1.5	2.0	1.4	.18	1.6	.21	.94	2.7	.94	.89	1.7	3.4
14	1.6	3.3	1.0	.18	1.1	.18	.78	4.0	2.1	1.4	5.8	2.6
15	1.5	2.2	1.1	.21	.84	.18	.72	6.1	1.6	1.3	9.4	2.1
16	1.2	2.4	1.3	.15	.72	.15	.67	4.9	1.4	4.8	4.6	1.8
17	.94	2.2	1.5	.15	.67	.12	.67	8.4	2.2	3.6	3.2	1.5
18	.84	1.7	3.5	.09	.62	.09	.62	35	4.5	2.4	2.4	2.5
19	.84	1.4	3.6	.12	.56	.12	2.3	9.6	3.1	1.8	1.8	1.8
20	.72	3.8	2.9	1.4	1.1	.09	3.5	8.1	2.4	1.7	1.7	1.4
21	.62	3.2	2.3	.67	.78	.07	3.6	4.5	1.9	3.2	1.4	1.2
22	.50	2.1	1.8	.84	.62	.07	3.2	3.5	1.5	2.0	1.0	.94
23	.42	1.8	1.4	.56	.50	.07	2.3	2.4	1.7	1.6	1.0	1.1
24	.35	2.6	1.4	.32	.45	.09	1.8	2.9	1.4	1.4	.84	1.5
25	.38	2.2	1.1	1.4	.42	.07	1.5	2.0	1.1	1.4	.80	1.3
26	.25	1.7	.84	.84	.38	.25	1.3	1.4	.89	1.1	.70	1.0
27	.28	1.3	1.4	.62	.78	.18	1.0	1.2	.78	.89	.60	.94
28	4.4	1.0	1.0	3.0	1.0	.35	.89	.94	.67	.78	.50	.89
29	1.4	.84	.78	3.7	.56	2.6	.72	1.2	.62	.62	.45	.84
30	1.1	.72	.67	3.2	---	.89	.62	1.9	.56	.67	.42	.50
31	5.0	---	.56	2.3	---	.72	---	1.4	---	.67	.38	---
TOTAL	51.52	97.66	39.41	24.29	27.47	11.00	67.55	123.94	41.15	36.77	55.85	51.15
MEAN	1.66	3.26	1.27	.78	.95	.35	2.25	4.00	1.37	1.19	1.80	1.71
MAX	5.0	8.2	3.6	3.7	2.6	2.6	7.3	35	4.5	4.8	9.4	4.0
MIN	.25	.72	.42	.09	.38	.07	.62	.50	.56	.32	.38	.37
AC-FT	102	194	78	48	54	22	134	246	82	73	111	101

CAL YR 1975 TOTAL 437.45 MEAN 1.20 MAX 8.2 MIN 0 AC-FT 868
WTR YR 1976 TOTAL 627.75 MEAN 1.72 MAX 35 MIN .07 AC-FT 1250

16897600 NANEPIL RIVER

LOCATION.--Lat 06°55'11" N., long 158°12'36" E., on left bank 1.4 mi (2.3 km) northeast of Mount Tamatanansakir and 1.4 mi (2.3 km) southeast of Rekisau.
DRAINAGE AREA.--2.93 mi² (7.59 km²).
PERIOD OF RECORD.--March 1970 to current year.
GAGE.--Water-stage recorder. Altitude of gage is 390 ft (119 m), from topographic map.
REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published on page 414 of this report.
AVERAGE DISCHARGE.--6 years, 54.6 ft³/s (1.546 m³/s), 39,560 acre-ft/yr (48.8 hm³/yr).
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,820 ft³/s (250 m³/s) Aug. 4, 1976, gage height, 9.68 ft (2.950 m), from rating curve extended above 168 ft³/s (4.76 m³/s) on basis of slope-area measurement of gage height 9.68 ft (2.950 m); minimum, 1.6 ft³/s (0.045 m³/s) Nov. 17-23, 1972, Feb. 6, Oct. 21, 22, 1973.
EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,200 ft³/s (90.6 m³/s) revised, and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 2	0300	4020	114	7.46	2.274
Aug. 4	1330	*8820	250	9.68	2.950
Sept. 8	1100	3680	104	7.99	2.435

Minimum discharge, 3.4 ft³/s (0.096 m³/s) Jan. 13.

REVISIONS.--The peak discharges and annual maximum (*) for water years 1970-75 have been revised as shown in the following table. They supersede figures published in the reports for 1970-75.

Water year	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
1970	Sept. 4, 1970	1100	*3060	86.7	6.85	2.088
1971	Apr. 27, 1971	1100	*3920	111	7.40	2.256
	July 22, 1971	0930	3660	104	7.24	2.207
1972	Oct. 2, 1971	1930	4320	122	7.65	2.332
	Jan. 30, 1972	0830	3820	108	7.34	2.237
	May 4, 1972	2230	3890	110	7.38	2.249
	May 18, 1972	a2100	4580	130	†7.80	2.377
	May 31, 1972	a1300	*5000	142	†8.04	2.451
	July 28, 1972	1100	3490	98.8	7.13	2.173
1972	Sept. 14, 1972	0630	4680	133	7.86	2.396
	Sept. 30, 1972	1730	3360	95.2	7.05	2.149
1973	Apr. 27, 1973	0730	*3920	111	7.40	2.256
1974	Oct. 29, 1973	1230	3350	94.9	†7.04	2.146
	Nov. 6, 1973	0600	5000	142	8.04	2.451
	July 11, 1974	0530	*5220	148	8.16	2.487
1975	Oct. 12, 1974	1930	*4460	126	7.73	2.356

† Floodmark in well.
a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	274	79	27	12	157	140	9.0	22	7.6	55	20
2	41	43	26	14	73	66	93	24	13	22	565	14
3	30	20	153	10	109	42	34	205	241	8.4	510	36
4	19	42	188	8.7	16	18	16	54	51	5.9	698	31
5	106	106	161	6.4	10	11	14	56	30	7.8	76	21
6	108	47	55	5.4	7.3	7.8	11	102	196	13	69	160
7	34	66	27	5.0	5.7	6.4	8.1	175	35	11	46	94
8	18	24	241	4.5	5.2	5.2	15	31	42	7.8	144	511
9	45	14	64	4.2	5.2	5.2	42	17	158	16	61	46
10	40	13	93	4.0	7.0	7.0	79	59	173	274	30	28
11	168	12	75	4.2	6.7	21	53	209	31	223	30	91
12	36	107	103	3.8	26	183	47	148	16	36	107	36
13	65	91	37	3.4	92	91	27	182	52	14	52	17
14	212	26	58	5.9	37	247	15	50	28	13	64	12
15	44	58	41	7.6	12	54	12	32	15	280	24	8.6
16	21	23	60	13	7.8	77	19	49	12	88	16	6.7
17	14	29	326	7.3	6.4	160	59	94	82	16	22	6.1
18	11	43	125	87	280	350	113	240	39	11	17	5.3
19	49	19	74	23	63	54	160	139	27	7.8	64	4.6
20	96	18	71	14	57	23	102	41	31	9.3	58	4.8
21	32	18	28	10	26	199	56	20	21	8.1	80	5.0
22	68	16	18	7.6	12	301	338	16	15	7.0	60	51
23	56	18	16	5.4	9.3	77	98	11	280	8.7	40	18
24	35	342	50	5.4	7.6	53	54	145	35	12	51	27
25	97	96	15	6.2	25	259	38	48	38	8.7	20	15
26	229	26	37	4.7	342	386	136	13	101	8.4	12	8.2
27	71	16	43	7.6	33	69	27	11	18	6.4	138	6.1
28	40	11	72	19	13	24	27	29	11	117	19	5.3
29	18	8.5	24	27	16	41	16	17	7.8	109	21	6.1
30	19	8.0	503	36	---	112	12	32	8.7	141	13	4.8
31	29	---	118	20	---	76	---	22	---	81	14	---
TOTAL	1906	1634.5	2981	407.3	1322.2	3182.6	1861.1	2280.0	1829.5	1578.9	3176	1299.6
MEAN	61.5	54.5	96.2	13.1	45.6	103	62.0	73.5	61.0	50.9	102	43.3
MAX	229	342	503	87	342	386	338	240	280	280	698	511
MIN	11	8.0	15	3.4	5.2	5.2	9.1	9.0	7.8	5.9	12	4.6
AC-FT	3780	3240	5910	808	2620	6310	3690	4520	3630	3130	6300	2580

CAL YR 1975 TOTAL 18089.4 MEAN 49.6 MAX 503 MIN 2.2 AC-FT 35880
WTR YR 1976 TOTAL 23458.7 MEAN 64.1 MAX 698 MIN 3.4 AC-FT 46530

16897900 LUI RIVER

LOCATION.--Lat 06°55'36" N., long 158°12'55" E., on right bank 300 ft (91 m) upstream from right-bank tributary and 1.3 mi (2.1 km) southeast of Rekisau.

DRAINAGE AREA.--0.47 mi² (1.22 km²).

PERIOD OF RECORD.--March 1970 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 270 ft (82 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published on page 414 of this report.

AVERAGE DISCHARGE.--6 years, 5.73 ft³/s (0.162 m³/s), 4,150 acre-ft/yr (5.12 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,190 ft³/s (33.7 m³/s) Aug. 4, 1976, gage height, 5.92 ft (1.804 m), from rating curve extended above 37 ft³/s (1.05 m³/s), on basis of slope-area measurement at gage height 5.92 ft (1.804 m); minimum, 0.13 ft³/s (0.004 m³/s) Feb. 2-4, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 11	1500	583	16.5	4.39	1.338	Aug. 4	1330	*1190	33.7	5.92	1.804
Dec. 17	1200	839	23.8	5.12	1.561	Sept. 8	1300	767	21.7	4.93	1.503

Minimum discharge, 0.38 ft³/s (0.011 m³/s) Jan. 23-26, Feb. 8, 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	29	5.3	4.6	.97	7.4	8.3	2.0	3.1	1.7	4.9	5.8
2	8.0	6.8	5.5	2.8	8.0	7.0	14	2.3	1.8	2.8	52	3.5
3	6.7	3.3	18	2.1	7.1	6.7	6.5	18	22	1.6	48	3.5
4	4.0	4.7	15	1.6	1.8	2.8	3.4	7.0	8.7	1.0	69	3.8
5	22	8.8	17	1.2	.97	1.6	2.4	5.9	3.7	.97	8.7	3.1
6	19	5.4	6.1	.97	.66	1.1	4.7	8.1	15	1.1	9.3	23
7	5.4	3.6	4.0	.81	.54	.89	3.2	14	5.3	1.1	5.0	13
8	2.7	2.3	22	.73	.43	.81	2.7	4.6	23	.89	18	93
9	3.7	1.7	6.9	.66	.38	.97	5.1	3.0	8.1	1.2	7.8	8.8
10	5.4	1.6	8.6	.60	.60	.97	11	5.1	4.8	23	3.7	4.7
11	29	1.6	7.1	.54	.60	1.5	9.2	23	2.7	18	4.4	5.7
12	5.7	14	9.0	.48	2.8	7.7	6.3	15	3.1	5.5	8.5	5.9
13	4.2	14	6.7	.48	6.3	5.6	3.5	24	3.6	2.4	7.1	2.9
14	25	5.5	7.2	.54	3.9	12	2.6	7.0	2.3	1.8	9.8	2.0
15	5.8	5.5	6.2	.60	1.3	9.6	2.5	8.1	1.8	32	4.1	1.4
16	3.2	3.1	6.3	.73	.73	17	3.3	6.4	1.6	9.0	2.4	1.1
17	2.3	2.8	50	.54	.66	8.1	9.6	13	3.7	3.1	3.5	1.0
18	2.2	4.9	16	6.2	22	35	12	27	12	2.0	2.8	.97
19	8.6	2.5	11	3.0	6.7	5.3	16	14	5.0	1.5	6.3	.81
20	7.5	3.2	11	1.3	2.9	2.9	11	6.4	5.7	1.3	7.0	.73
21	3.4	2.4	4.8	.97	1.7	25	8.0	4.8	4.8	1.3	7.8	.73
22	10	2.2	3.2	.60	1.1	25	37	3.3	3.8	1.2	3.2	6.2
23	4.6	2.1	4.0	.43	.89	8.5	14	2.3	16	1.0	8.8	2.7
24	6.4	43	3.6	.48	.73	5.8	7.3	10	4.2	.90	14	15
25	4.8	13	2.3	.48	1.6	23	5.9	6.4	3.3	.80	3.5	5.0
26	51	3.8	4.7	.43	26	44	9.4	2.5	12	.70	2.3	2.8
27	9.4	2.4	6.0	.81	4.7	9.8	3.4	1.8	3.0	.65	18	1.4
28	6.3	1.7	11	1.7	2.1	4.5	3.9	2.7	2.0	12	4.4	1.2
29	3.2	1.3	4.6	2.8	3.5	6.8	3.3	2.5	1.4	4.5	6.8	2.0
30	3.5	1.2	49	2.2	---	14	2.7	1.8	3.7	2.9	3.7	1.6
31	8.1	---	16	1.6	---	7.4	---	2.4	---	6.7	3.7	---
TOTAL	285.8	197.4	348.1	42.98	111.66	308.74	232.2	254.4	191.2	144.61	358.5	223.34
MEAN	9.22	6.58	11.2	1.39	3.85	9.96	7.74	8.21	6.37	4.66	11.6	7.44
MAX	51	43	50	6.2	26	44	37	27	23	32	69	93
MIN	2.2	1.2	2.3	.43	.38	.81	2.4	1.8	1.4	.65	2.3	.73
AC-FT	567	392	690	85	221	612	461	505	379	287	711	443

CAL YR 1975 TOTAL 1930.46 MEAN 5.29 MAX 51 MIN .18 AC-FT 3830
WTR YR 1976 TOTAL 2698.93 MEAN 7.37 MAX 93 MIN .38 AC-FT 5350

16898200 LUI RIVER AT MOUTH

LOCATION.--Lat 06°57'07" N., long 158°13'16" E., on right bank 0.4 mi (0.6 km) upstream from mouth and 1.3 mi (2.1 km) west of Tolenot Peak.
DRAINAGE AREA.--2.06 mi^2 (5.34 km^2).
PERIOD OF RECORD.--March 1970 to current year.
GAGE.--Water-stage recorder. Altitude of gage is 40 ft (12 m), from topographic map.
REMARKS.--Records good. During dry periods, water is diverted from dam, 500 ft (152 m) upstream, to Tawannu River pump-station pool for domestic use in Kolonia. Periodic determinations of water temperature for the current year are published on page 415 of this report.
AVERAGE DISCHARGE.--6 years, 27.4 ft^3/s (0.776 m^3/s), 19,850 acre-ft/yr (24.5 hm^3/yr).
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,360 ft^3/s (180 m^3/s) Aug. 4, 1976, gage height, 8.91 ft (2.716 m), from rating curve extended above 288 ft^3/s (8.16 m^3/s) on basis of slope-area measurement at gage height 8.91 ft (2.716 m); minimum, 0.26 ft^3/s (0.007 m^3/s) Jan. 20, 1973, during short regulation of flow.
EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2000 ft^3/s (56.6 m^3/s) revised, and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 17	1200	2280	64.6	5.93	1.807
Aug. 4	1400	*6360	180	8.91	2.716
Sept. 8	1230	2600	73.6	6.23	1.899

Minimum discharge, 0.55 ft^3/s (0.016 m^3/s) Mar. 9, during short regulation of flow.

REVISIONS.--The peak discharges and annual maximum (*) for water years 1970-75 have been revised and, revised daily discharges, in cubic feet per second, for high-water periods in these years, are given below. These figures supersede those published in the reports for 1970-75.

Water year	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
1970	June 17, 1970	0200	*804	22.8	4.14	1.262
	Aug. 21, 1970	1430	792	22.4	4.12	1.256
1971	Mar. 15, 1971	2230	2090	59.2	5.74	1.750
	Apr. 27, 1971	1200	2010	56.9	5.66	1.725
	May 23, 1971	2300	1580	44.7	5.20	1.585
	July 17, 1971	1530	*4790	136	7.92	2.414
	July 22, 1971	0930	1270	36.0	4.82	1.469
1972	Oct. 2, 1971	2000	2000	56.6	5.65	1.722
	Apr. 27, 1972	1600	2610	73.9	6.24	1.902
	May 4, 1972	2300	*2720	77.0	6.34	1.932
	May 31, 1972	1300	2330	66.0	5.98	1.823
	July 28, 1972	1000	1950	55.2	5.60	1.707
	Sept. 14, 1972	0600	2110	59.8	5.76	1.756
1973	June 14, 1973	0930	*2810	79.6	6.42	1.957
1974	Oct. 29, 1973	1300	2480	70.2	6.12	1.865
	Mar. 11, 1974	1300	*2570	72.8	6.20	1.890
	July 11, 1974	0500	2390	67.7	6.04	1.841
1975	Nov. 15, 1974	1845	*1100	31.2	4.60	1.402

Date	Discharge (ft^3/s)
July 17, 1971	374
22	106
Oct. 2, 1971	204
25	87
Apr. 4, 1972	155
27	209
May 4, 1972	330
5	117
15	91
18	150
29	148
May 30, 1972	289
31	293
July 7, 1972	115
11	109
12	220
28	368
31	271
Sept. 5, 1972	128
10	128
13	150
14	427
29	94
Sept. 30, 1972	128
Apr. 9, 1973	134
14	176
27	172
May 2, 1973	148
15	116
June 14, 1973	289
Oct. 10, 1973	101
23	102
29	193
Mar. 11, 1974	201
15	93
Apr. 10, 1974	209
July 11, 1974	230
14	141
Nov. 12, 1974	91
13	120
15	111
28	156
Mar. 2, 1975	99
13	143
Apr. 25, 1975	177

Month	Total	Mean	Maximum	Minimum	Runoff in (Ac-ft)
July 1971	1326	42.8	374	12	2630
Wtr Yr 1971	11927.2	32.7	374	5.0	23660
October 1971	1046	33.7	204	11	2070
Cal Yr 1971	10838.7	29.7	374	4.2	21500
April 1972	900.9	30.3	209	6.5	1790
May 1972	1963.3	63.3	330	8.7	3890
July 1972	1834	59.2	368	10	3640
September 1972	1760.8	58.7	427	7.3	3490
Wtr Yr 1972	11427.3	31.2	427	4.2	22670
Cal Yr 1972	10469.0	28.6	427	2.6	20770
April 1973	1076.04	35.9	176	.70	2130
May 1973	963.0	31.1	148	9.4	1910
June 1973	995.6	33.2	289	9.6	1970
Wtr Yr 1973	5965.24	16.3	289	.70	11830
October 1973	1033.2	33.3	193	4.3	2050
Cal Yr 1973	7534.24	20.6	289	.70	14940
March 1974	973.8	31.4	201	7.8	1930
April 1974	1045	34.8	209	12	2070
July 1974	1140	36.8	230	12	2260
Wtr Yr 1974	10059.2	27.6	230	4.0	19950
November 1974	1078.8	36.0	156	9.8	2140
Cal Yr 1974	10375.7	28.4	230	4.0	20580
March 1975	627.9	20.3	143	3.5	1250
April 1975	590.4	19.7	177	1.5	1170
Wtr Yr 1975	7885.08	21.6	177	.46	15640

16898200 LUI RIVER AT MOUTH--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	89	18	26	6.8	20	35	12	13	11	21	26
2	30	31	21	17	26	18	55	11	10	12	155	18
3	31	19	51	13	22	20	33	39	136	8.9	220	19
4	24	26	57	11	9.5	11	18	32	46	7.4	710	18
5	103	37	76	9.1	6.8	8.5	13	26	24	7.4	50	14
6	95	28	32	8.0	5.6	6.8	27	33	70	8.3	47	106
7	33	18	20	7.0	4.9	6.0	18	62	29	7.8	28	61
8	19	13	90	6.2	4.4	5.3	14	25	20	6.2	79	446
9	18	11	33	5.6	4.3	5.5	16	16	119	6.2	43	45
10	26	11	32	5.2	4.3	5.6	37	26	51	76	20	24
11	85	11	30	5.0	4.0	6.3	31	111	28	80	19	25
12	32	31	41	4.7	11	16	26	73	18	31	31	24
13	24	61	33	4.6	17	12	17	130	19	14	34	14
14	109	26	32	4.7	13	23	12	46	17	11	44	11
15	31	28	30	4.6	7.0	24	12	47	13	119	23	9.5
16	19	19	30	4.0	5.3	47	15	31	11	67	15	8.5
17	14	14	215	3.7	4.7	24	30	57	13	19	17	7.8
18	13	19	76	17	85	148	34	160	111	13	15	7.0
19	29	13	51	9.7	28	25	65	85	29	11	36	6.3
20	30	13	49	6.2	15	13	52	36	24	9.3	30	5.8
21	18	12	26	5.0	10	104	38	43	21	8.1	28	5.3
22	37	13	18	4.1	8.0	130	196	24	18	7.2	15	18
23	21	12	17	3.5	6.8	36	58	16	51	11	26	11
24	21	153	16	3.4	6.0	23	35	26	23	9.3	87	141
25	19	69	12	3.5	7.0	110	29	32	19	7.4	24	25
26	187	25	16	3.2	106	226	41	12	50	6.5	14	14
27	40	17	26	5.0	23	55	21	10	18	6.2	83	9.7
28	30	12	36	5.6	12	23	18	12	13	22	25	9.3
29	18	11	21	13	13	29	20	13	11	31	28	9.5
30	18	9.3	229	9.5	---	67	18	11	16	16	19	8.5
31	28	---	102	8.9	---	33	---	11	---	23	16	---
TOTAL	1223	851.3	1536	237.0	476.4	1281.0	1034	1268	1041	673.2	2002	1147.2
MEAN	39.5	28.4	49.5	7.65	16.4	41.3	34.5	40.9	34.7	21.7	64.6	38.2
MAX	187	153	229	26	106	226	196	160	136	119	710	446
MIN	13	9.3	12	3.2	4.0	5.3	12	10	10	6.2	14	5.3
AC-FT	2430	1690	3050	470	945	2540	2050	2520	2060	1340	3970	2280

CAL YR 1975 TOTAL 8750.58 MEAN 24.0 MAX 177 MIN .46 AC-FT 17360
WTR YR 1976 TOTAL 12770.10 MEAN 34.9 MAX 710 MIN 3.2 AC-FT 25330

16898600 LUPWOR RIVER

LOCATION.--Lat 06°54'15" N., long 158°09'45" E., on left bank about 300 ft (91 m) upstream from 50-ft (15-m) waterfall, 1.8 mi (2.9 km) above mouth, and 2.1 mi (3.4 km) west of Mount Tanatamansakir.

DRAINAGE AREA.--1.12 mi² (2.90 km²).

PERIOD OF RECORD.--September 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 100 ft (30 m), from topographic map.

REMARKS.--Records good except those above 100 ft³/s (2.83 m³/s), which are fair. Periodic determinations of water temperature for the current year are published on page 415 of this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,090 ft³/s (87.5 m³/s) Aug. 4, 1976, gage height, 8.26 ft (2.518 m), from rating curve extended above 26 ft³/s (0.74 m³/s), on basis of estimate of peak flow; minimum, 0.40 ft³/s (0.011 m³/s) Feb. 18, 19, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 750 ft³/s (21.2 m³/s) revised, and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 26	1700	1030	29.2	5.74	1.750	Aug. 2	0400	1880	53.2	7.29	2.222
Apr. 22	0700	1710	48.4	6.47	1.972	Aug. 4	1345	*3090	87.5	8.26	2.518
June 9	1400	1300	36.8	6.05	1.844	Sept. 8	1145	1210	34.3	6.40	1.951

Minimum discharge, 1.0 ft³/s (0.028 m³/s) Jan. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	54	5.9	8.2	1.8	23	17	3.5	7.2	3.3	14	8.2
2	7.0	16	4.4	6.2	7.1	11	14	3.4	5.3	4.9	207	4.9
3	5.8	8.5	22	4.9	13	9.3	9.0	11	21	3.0	143	11
4	4.9	7.9	27	3.7	3.7	5.6	6.3	6.2	10	2.5	282	8.2
5	13	29	15	2.8	2.2	4.1	7.3	6.8	7.4	2.8	20	5.5
6	10	18	9.2	2.5	1.8	3.3	5.6	10	28	2.3	15	53
7	7.0	29	7.3	2.2	1.5	2.7	4.2	25	8.6	2.2	9.3	27
8	5.1	9.0	39	1.9	1.4	2.2	3.9	7.8	9.0	1.9	37	162
9	5.9	6.3	13	1.7	1.3	2.0	6.1	5.9	41	2.5	13	17
10	5.2	5.3	15	1.6	1.4	1.9	8.2	13	50	43	7.5	10
11	12	4.3	10	1.6	1.3	2.3	7.7	21	11	33	8.0	11
12	6.1	9.5	15	1.4	2.2	17	6.0	23	7.4	8.7	45	9.5
13	7.2	9.3	11	1.3	9.8	17	4.6	36	10	5.4	11	6.2
14	30	5.0	11	1.8	5.6	38	3.8	10	7.2	4.4	12	4.8
15	11	6.0	8.0	1.6	2.5	11	3.3	7.2	5.7	56	8.8	3.9
16	6.6	4.5	8.4	2.7	1.8	10	3.5	7.7	4.5	18	6.0	3.2
17	5.2	4.5	70	1.4	1.5	9.5	6.5	14	14	7.0	8.2	2.8
18	4.4	5.7	23	8.7	34	63	15	41	9.4	5.3	6.4	2.5
19	9.2	3.9	13	3.4	15	9.6	19	37	6.9	4.1	9.8	2.2
20	16	3.6	11	2.2	12	6.5	15	12	14	3.7	10	2.0
21	6.3	3.2	7.4	2.1	6.3	19	10	7.8	7.5	3.2	12	1.9
22	8.3	3.1	6.2	1.6	4.2	44	129	5.9	5.6	3.0	6.2	16
23	10	3.3	5.4	1.2	3.1	16	17	4.7	52	3.1	13	8.2
24	27	51	8.4	1.2	2.5	12	11	13	13	4.7	25	4.9
25	21	15	5.0	1.1	3.8	56	8.2	8.1	11	3.8	8.0	3.7
26	21	6.4	6.7	1.0	39	91	13	6.3	19	3.0	5.8	2.8
27	12	4.9	6.5	1.2	8.0	17	7.3	4.9	6.9	2.5	25	2.2
28	9.1	3.8	10	1.8	4.6	8.6	6.8	6.4	5.3	44	6.9	4.0
29	6.2	3.0	5.7	2.5	4.0	8.2	5.3	4.5	4.3	21	6.2	3.1
30	5.9	2.6	98	2.8	---	18	4.1	19	3.9	30	4.7	2.2
31	5.7	---	17	2.5	---	15	---	7.0	---	30	10	---
TOTAL	311.3	335.6	514.5	80.8	196.4	553.8	377.7	389.1	406.1	362.3	995.8	403.9
MEAN	10.0	11.2	16.6	2.61	6.77	17.9	12.6	12.6	13.5	11.7	32.1	13.5
MAX	30	54	98	8.7	39	91	129	41	52	56	282	162
MIN	4.4	2.6	4.4	1.0	1.3	1.9	3.3	3.4	3.9	1.9	4.7	1.9
AC-FT	617	666	1020	160	390	1100	749	772	805	719	1980	801

CAL YR 1975 TOTAL 3024.98 MEAN 8.29 MAX 98 MIN .49 AC-FT 6000
WTR YR 1976 TOTAL 4927.30 MEAN 13.5 MAX 282 MIN 1.0 AC-FT 9770

16899500 MUTUNTE RIVER

LOCATION.--Lat 05°22'25" N., long 163°00'24" E., on left bank at dam, 0.3 mi (0.5 km) upstream from mouth, and 1.1 mi (1.8 km) northwest of Mount Buache.

DRAINAGE AREA.--0.60 mi² (1.55 km²).

PERIOD OF RECORD.--May 1971 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 46 ft (14.0 m) from stadia survey.

REMARKS.--Records good. Water is diverted from diversion dam above station through a 6-in (0.15-m) pipe for domestic use in Tafunsak. Periodic determinations of water temperature for the current year are published on page 415 of this report.

AVERAGE DISCHARGE.--5 years, 6.41 ft³/s (0.182 m³/s), 4,640 acre-ft/yr (5.72 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,430 ft³/s (40.5 m³/s) July 16, 1976, gage height, 2.94 ft (0.896 m), from rating curve extended above 140 ft³/s (3.96 m³/s); minimum, 0.60 ft³/s (0.017 m³/s) Mar. 17, 1976, during short regulation of flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 22	0045	914	25.9	2.68	0.817	July 16	1145	*1430	40.5	2.94	0.896
Mar. 11	1615	770	21.8	2.60	.792	Aug. 2	1615	806	22.8	2.62	.799
Mar. 22	1130	740	21.0	2.58	.786	Sept. 8	0800	1070	30.3	2.76	.841

Minimum discharge, 0.60 ft³/s (0.017 m³/s) Mar. 17, during short regulation of flow.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	4.1	3.5	32	2.3	4.9	3.7	2.8	9.9	2.9	2.6	3.5
2	14	2.9	2.8	5.1	15	4.1	18	3.5	3.7	2.8	54	2.9
3	4.3	2.8	4.1	14	3.5	7.2	6.1	4.1	3.5	3.1	22	3.1
4	8.3	4.3	12	4.7	2.6	3.3	6.1	6.1	6.2	2.8	6.1	2.8
5	3.7	2.9	33	3.7	2.4	4.9	10	3.7	3.9	7.0	16	2.8
6	18	2.6	3.9	3.3	2.3	30	4.5	7.5	6.1	4.5	5.4	3.3
7	5.8	2.6	6.3	3.1	2.3	14	5.1	9.9	3.7	5.6	3.5	16
8	3.5	2.4	8.0	2.9	2.3	4.5	4.3	9.4	8.8	3.3	4.7	150
9	3.9	43	4.3	2.8	2.3	3.5	6.7	17	4.7	15	3.3	13
10	18	4.6	8.8	2.8	2.4	3.3	8.6	4.9	3.7	4.5	3.3	8.0
11	4.9	8.6	5.4	2.8	2.9	43	4.7	3.3	3.7	4.1	4.1	7.7
12	3.5	5.1	27	2.6	2.6	7.2	3.5	3.7	3.5	3.1	8.8	6.5
13	3.9	4.3	5.4	2.6	2.6	4.5	2.9	20	18	2.9	5.1	5.8
14	3.7	3.1	9.9	2.8	4.7	3.9	2.8	13	7.7	2.9	6.3	5.6
15	2.6	2.8	3.9	2.6	2.9	4.5	5.4	4.9	8.6	2.9	4.1	5.4
16	2.3	2.8	3.3	2.6	3.5	3.5	3.7	5.8	6.7	65	3.3	4.9
17	2.3	6.2	5.4	3.3	16	3.1	3.7	9.1	13	4.5	2.8	5.4
18	2.4	3.5	34	11	13	15	9.9	4.5	18	3.1	2.8	4.9
19	2.4	13	29	8.8	3.3	2.4	23	2.9	50	3.1	2.6	4.5
20	2.6	4.9	23	3.7	2.8	3.3	16	2.8	9.6	7.0	16	4.1
21	2.6	2.9	16	2.9	2.6	3.7	35	2.5	5.1	3.5	3.5	3.9
22	2.4	2.8	4.9	2.8	79	51	7.0	2.3	4.3	2.9	2.8	5.4
23	2.4	2.6	4.3	2.6	4.1	4.7	25	2.5	3.7	2.9	2.8	5.1
24	2.4	4.9	3.5	2.5	15	21	18	4.3	4.5	2.8	2.8	28
25	15	3.1	3.1	2.5	7.7	14	7.0	2.5	3.7	2.8	2.6	7.0
26	3.9	2.6	3.1	2.8	34	36	4.7	2.3	3.5	2.6	2.8	5.1
27	18	2.4	2.8	2.8	5.1	6.7	3.9	2.5	11	2.6	2.6	3.9
28	4.5	2.8	4.9	2.5	3.7	7.5	3.5	3.3	4.7	2.3	21	3.7
29	3.3	2.4	21	2.5	3.3	4.3	3.1	2.2	3.5	2.5	6.9	3.7
30	3.1	2.4	16	2.5	---	4.5	2.9	2.2	3.1	2.3	3.9	3.7
31	4.5	---	15	2.3	---	3.9	---	2.0	---	4.1	3.5	---
TOTAL	207.2	155.4	327.6	145.9	246.2	327.4	258.8	167.5	240.1	181.4	232.0	329.7
MEAN	6.68	5.18	10.6	4.71	8.49	10.6	8.63	5.40	8.00	5.85	7.48	11.0
MAX	35	43	34	32	79	51	35	20	50	65	54	150
MIN	2.3	2.4	2.8	2.3	2.3	2.4	2.8	2.0	3.1	2.3	2.6	2.8
AC-FT	411	308	650	289	488	649	513	332	476	360	460	654

CAL YR 1975 TOTAL 2367.4 MEAN 6.49 MAX 50 MIN 2.3 AC-FT 4700
WTR YR 1976 TOTAL 2819.2 MEAN 7.70 MAX 150 MIN 2.0 AC-FT 5590

16899600 OKAT RIVER

LOCATION.--Lat 05°20'32" N., long 162°59'30" E., on left bank 1.6 mi (2.6 km) upstream from mouth and 1.9 mi (3.1 km) northwest of Mount Crozer.

DRAINAGE AREA.--1.60 mi^2 (4.14 km^2).

PERIOD OF RECORD.--July 1971 to current year.

REVISED RECORDS.--WDR Hawaii 1974: 1971-72(P), 1973(M).

GAGE.--Water-stage recorder. Altitude of gage is 10 ft (3.0 m), from topographic map.

REMARKS.--Records poor. No diversion above station. Periodic determinations of water temperature for the current year are published on page 415 of this report.

AVERAGE DISCHARGE.--5 years, 21.9 ft^3/s (0.620 m^3/s), 15,870 acre-ft/yr (19.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,060 ft^3/s (30.0 m^3/s) Aug. 2, 1976, gage height, 8.22 ft (2.505 m), from rating curve extended above 230 ft^3/s (6.51 m^3/s); minimum, 1.7 ft^3/s (0.048 m^3/s) Feb. 15, 20, 21, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft^3/s (19.8 m^3/s) revised, and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 22	1230	878	24.9	7.35	2.240	June 18	2330	728	20.6	6.84	2.085
Apr. 21	1200	720	20.4	6.90	2.103	Aug. 2	1615	*1060	30.0	8.22	2.505

Minimum discharge, 3.4 ft^3/s (0.096 m^3/s) Feb. 12, 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	9.8	7.4	98	4.4	18	21	11	54	12	9.8	15
2	39	7.4	5.5	51	30	17	33	19	10	12	149	14
3	15	7.4	8.5	71	8.0	20	23	44	8.8	24	80	17
4	24	8.5	35	31	4.6	12	17	28	15	12	44	13
5	12	6.3	71	24	4.1	41	55	16	9.5	29	66	13
6	28	5.8	17	21	4.4	93	21	23	12	17	39	15
7	12	5.3	20	15	4.8	67	20	40	9.2	22	35	60
8	11	5.0	24	13	4.1	28	16	38	33	13	65	330
9	13	40	18	11	4.1	20	16	95	15	47	32	52
10	54	12	28	10	3.9	17	35	35	11	18	33	32
11	17	20	19	9.8	4.1	94	15	23	15	19	39	28
12	12	14	65	8.2	3.7	34	17	17	13	13	34	22
13	12	11	37	7.4	3.9	21	12	81	45	12	24	19
14	13	9.0	40	7.4	10	25	10	95	29	15	24	17
15	10	8.0	19	6.8	4.6	17	25	41	39	13	43	16
16	8.8	8.0	15	6.3	9.8	17	15	40	26	89	29	16
17	7.9	25	23	7.4	61	15	11	40	51	19	20	15
18	8.2	11	83	20	42	65	19	26	43	15	18	15
19	6.8	25	77	16	12	24	106	19	140	15	17	15
20	6.6	14	78	9.5	8.5	17	68	17	61	36	22	15
21	6.6	11	76	6.8	7.7	22	156	15	34	14	16	14
22	6.0	10	30	5.8	81	205	64	13	25	12	15	20
23	6.0	9.0	22	5.5	16	60	115	12	24	15	16	16
24	5.5	16	17	5.0	52	99	83	17	28	12	17	71
25	24	8.8	14	6.0	29	56	45	11	17	12	14	19
26	12	7.4	14	7.4	96	96	31	9.8	15	19	15	14
27	45	6.3	11	6.6	27	46	21	11	33	18	14	10
28	14	6.3	23	5.5	19	38	17	11	27	12	32	8.8
29	10	5.8	71	4.8	16	39	14	8.2	15	11	19	7.9
30	8.8	5.3	64	4.6	---	38	12	8.2	14	10	22	7.4
31	9.2	---	66	4.4	---	24	---	8.8	---	11	14	---
TOTAL	528.4	338.4	1098.4	506.2	575.7	1385	1113	873.0	871.5	598	1016.8	927.1
MEAN	17.0	11.3	35.4	16.3	19.9	44.7	37.1	28.2	29.1	19.3	32.8	30.9
MAX	71	40	83	98	96	205	156	95	140	89	149	330
MIN	5.5	5.0	5.5	4.4	3.7	12	10	8.2	8.8	10	9.8	7.4
AC-FT	1050	671	2180	1000	1140	2750	2210	1730	1730	1190	2020	1840

CAL YR 1975 TOTAL 7035.2 MEAN 19.3 MAX 123 MIN 4.6 AC-FT 13950
WTR YR 1976 TOTAL 9831.5 MEAN 26.9 MAX 330 MIN 3.7 AC-FT 19500

16899620 MELO RIVER

LOCATION.--Lat 05°21'06" N., long 162°59'29" E., on left bank 0.35 mi (0.56 km) upstream from mouth and 1.7 mi (2.7 km) southwest of Mount Buache.

DRAINAGE AREA.--0.48 mi^2 (1.24 km^2).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 20 ft (6.1 m), from topographic map.

REMARKS.--Records poor. Periodic determinations of water temperature for the current year are published on page 415 of this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 784 ft^3/s (22.2 m^3/s) Mar. 22, 1976, gage height, 5.78 ft (1.762 m), from rating curve extended above 12 ft^3/s (0.34 m^3/s); minimum, 1.5 ft^3/s (0.042 m^3/s) Nov. 20, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s (8.50 m^3/s) revised, and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 1	a0200	592	16.8	†5.14	1.567	May 3	2000	348	9.86	4.14	1.262
Feb. 22	0100	586	16.6	5.12	1.561	June 13	1430	550	15.6	a5.0	1.52
Mar. 11	1600	326	9.23	4.03	1.228	June 18	a2330	a600	17.0	--	--
Mar. 22	1130	*784	22.2	5.78	1.762	Aug. 2	a1600	450	12.7	†4.60	1.402
Mar. 26	0230	312	8.84	3.96	1.207	Sept. 8	0830	482	13.7	4.73	1.442
Apr. 21	1330	550	15.6	5.00	1.524						

Minimum discharge, 1.6 ft^3/s (0.045 m^3/s) Feb. 12.

† From floodmark.
a About.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	4.9	4.2	30	2.7	7.4	6.0	4.5	13	4.5	3.5	4.0
2	15	3.5	3.5	15	12	6.7	15	6.7	4.0	4.5	50	3.3
3	6.3	3.5	5.6	20	3.5	8.1	8.1	18	3.5	10	30	4.9
4	10	6.0	12	12	2.4	4.9	6.5	11	5.8	4.5	8.5	3.2
5	5.3	3.3	20	8.0	2.1	9.7	11	8.1	4.5	12	17	3.0
6	12	2.7	7.3	5.5	2.0	32	6.5	9.4	6.8	7.0	8.6	3.8
7	6.3	2.5	8.3	5.1	2.5	19	8.6	14	4.2	9.0	7.3	16
8	5.1	2.5	10	4.7	2.0	9.5	6.0	14	9.2	5.0	16	79
9	5.6	18	8.0	4.2	2.0	8.1	5.8	25	5.3	18	7.3	17
10	16	5.8	12	3.8	2.0	6.3	13	12	5.3	7.0	6.8	9.5
11	6.8	7.8	8.0	4.0	2.2	30	6.5	8.1	5.4	8.0	15	8.3
12	5.3	6.0	25	3.5	1.8	11	7.5	7.3	4.9	5.0	15	6.0
13	5.7	5.1	15	3.3	1.8	8.1	5.3	27	21	4.5	8.6	5.1
14	5.3	4.0	15	3.3	4.5	7.6	4.2	24	11	5.0	8.0	4.2
15	4.2	3.6	8.0	3.2	2.1	6.6	8.1	12	15	4.5	10	3.8
16	3.5	3.8	6.0	3.0	4.5	6.0	5.3	13	10	30	8.1	3.8
17	3.2	11	10	4.5	16	5.6	5.4	13	20	8.0	5.8	4.2
18	3.2	4.7	30	9.0	12	22	12	8.3	18	6.0	5.1	3.3
19	2.8	11	25	7.0	4.9	8.3	27	6.5	50	6.0	4.7	2.8
20	3.5	6.0	25	5.8	3.6	6.3	21	5.3	20	14	11	2.5
21	2.8	4.7	25	4.2	3.6	18	41	5.1	12	5.5	4.9	2.2
22	2.5	4.5	12	3.6	34	59	14	4.7	10	4.5	3.8	3.6
23	2.4	4.2	10	3.5	7.6	13	28	5.1	9.0	6.0	4.5	2.7
24	2.2	7.6	8.0	3.3	18	28	21	7.3	9.0	4.5	4.9	9.6
25	13	4.0	6.0	3.5	10	17	13	4.2	7.0	4.0	3.5	5.4
26	4.7	3.8	6.0	3.8	39	33	8.6	3.6	6.0	7.0	4.5	3.2
27	17	3.5	5.0	3.8	9.8	13	6.8	5.3	12	7.0	3.2	2.7
28	6.3	3.6	10	3.3	7.3	11	5.8	5.1	10	5.0	15	2.4
29	4.7	3.3	25	3.0	6.0	9.4	4.9	3.3	6.0	4.0	7.3	2.1
30	4.4	3.2	18	2.8	---	9.6	4.0	3.3	5.0	3.5	5.1	2.0
31	5.3	---	20	2.7	---	6.8	---	3.5	---	4.0	3.8	---
TOTAL	210.4	158.1	402.9	192.4	221.9	441.0	335.9	297.7	322.9	227.5	306.8	223.6
MEAN	6.79	5.27	13.0	6.21	7.65	14.2	11.2	9.60	10.8	7.34	9.90	7.45
MAX	20	18	30	30	39	59	41	27	50	30	50	79
MIN	2.2	2.5	3.5	2.7	1.8	4.9	4.0	3.3	3.5	3.5	3.2	2.0
AC-FT	417	314	799	382	440	875	666	590	640	451	609	444

CAL YR 1975 TOTAL 2889.5 MEAN 7.92 MAX 32 MIN 1.9 AC-FT 5730
WTR YR 1976 TOTAL 3341.1 MEAN 9.13 MAX 79 MIN 1.8 AC-FT 6630

NOTE.--No gage-height record Dec. 8 to Jan. 7, June 14 to Aug. 3.

16899750 MALEM RIVER

LOCATION.--Lat 05°18'21" N., long 163°01'46" E., on left bank 1.2 mi (1.9 km) upstream from mouth and 1.8 mi (2.9 km) southeast of Mount Crozer.

DRAINAGE AREA.--0.48 mi² (1.24 km²).

PERIOD OF RECORD.--July 1971 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 95 ft (29 m) from stadia survey.

REMARKS.--Records good. Water is diverted through 6-in (0.2-m) pipe from dam above station for domestic use in village of Malem. Periodic determinations of water temperature for the current year are published on page 415 of this report.

AVERAGE DISCHARGE.--5 years, 8.00 ft³/s (0.227 m³/s), 5,800 acre-ft/yr (7.15 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,550 ft³/s (43.9 m³/s) Mar. 22, 1976, gage height, 6.20 ft (1.890 m), from rating curve extended above 110 ft³/s (3.12 m³/s); minimum, 0.14 ft³/s (0.004 m³/s) Nov. 20, 1974, during flushing at dam upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 11	1645	1300	36.8	5.95	1.814	Apr. 21	1300	980	27.8	5.60	1.707
Mar. 22	1145	*1550	43.9	6.20	1.890	Sept. 8	1000	638	18.1	5.13	1.564

Minimum discharge, 0.37 ft³/s (0.010 m³/s) Aug. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	2.6	2.5	47	1.4	4.2	6.4	4.2	21	4.0	2.2	2.2
2	10	2.5	1.7	10	1.8	4.0	10	19	4.5	3.6	4.2	1.9
3	6.0	2.9	3.8	27	1.5	7.3	8.5	27	3.5	11	5.0	3.9
4	7.5	4.1	6.1	8.9	1.4	3.6	5.7	14	6.3	5.0	7.3	2.2
5	4.3	2.3	25	6.6	1.3	20	16	8.0	3.7	9.8	18	2.4
6	6.3	2.0	4.3	5.6	1.3	41	9.0	9.6	4.8	7.8	5.5	4.6
7	4.3	1.9	5.9	4.9	1.3	27	9.0	15	3.3	6.7	3.6	23
8	3.7	1.8	8.2	4.3	1.6	8.5	6.7	18	14	4.6	18	165
9	5.6	3.0	4.5	3.8	1.3	5.8	5.8	31	13	23	4.8	23
10	42	3.0	14	3.3	1.3	4.8	5.2	13	5.3	7.3	5.2	9.8
11	9.4	4.7	7.7	3.2	1.2	154	4.6	8.2	5.8	8.5	4.0	15
12	6.0	6.4	34	3.0	1.1	21	6.0	6.4	8.5	5.5	3.7	6.7
13	6.5	4.7	9.2	2.6	1.2	9.6	4.5	61	7.8	4.3	2.8	5.2
14	7.3	2.5	24	3.0	16	12	3.7	28	13	6.2	12	4.3
15	4.7	2.0	7.1	2.5	1.8	7.3	4.8	12	15	4.8	4.3	3.9
16	3.7	1.9	5.2	2.3	2.1	5.7	4.3	10	10	18	3.2	3.6
17	3.3	6.4	11	2.7	28	5.8	4.0	10	17	5.8	3.2	3.3
18	4.0	3.8	14	6.1	13	22	14	7.5	9.0	4.5	3.2	2.9
19	3.0	9.6	28	6.9	4.0	8.0	42	5.7	42	4.3	2.7	2.8
20	2.7	4.9	19	3.7	2.5	5.3	37	7.0	16	17	4.9	2.6
21	2.7	2.7	27	2.3	2.2	5.5	82	5.3	8.0	5.0	2.7	2.8
22	2.6	2.2	8.9	2.0	25	148	17	5.1	7.5	3.9	2.4	2.9
23	2.5	3.0	6.6	1.9	4.3	16	37	4.2	34	3.7	2.1	2.6
24	2.3	5.5	5.4	1.8	10	68	43	5.8	11	9.0	2.1	7.8
25	3.7	2.7	4.9	1.8	7.5	32	14	3.9	6.9	4.3	2.1	4.5
26	2.6	2.0	4.9	1.8	44	53	9.0	3.5	5.7	3.6	2.8	3.0
27	24	1.8	3.7	2.0	7.5	15	6.9	3.0	8.7	3.0	2.0	4.7
28	5.4	1.9	8.1	1.8	5.4	14	5.7	3.5	14	2.8	5.1	2.8
29	3.5	1.8	45	1.7	4.1	11	5.0	2.8	6.0	2.7	6.4	2.4
30	2.9	2.0	39	1.6	---	15	4.3	2.8	4.8	2.5	3.0	2.0
31	2.9	---	24	1.5	---	8.7	---	3.5	---	2.4	2.5	---
TOTAL	227.4	98.6	412.7	177.6	195.1	763.1	431.1	358.0	330.1	204.6	151.0	323.8
MEAN	7.34	3.29	13.3	5.73	6.73	24.6	14.4	11.5	11.0	6.60	4.87	10.8
MAX	42	9.6	45	47	44	154	82	61	42	23	18	165
MIN	2.3	1.8	1.7	1.5	1.1	3.6	3.7	2.8	3.3	2.4	2.0	1.9
AC-FT	451	196	819	352	387	1510	855	710	655	406	300	642

CAL YR 1975 TOTAL 2927.3 MEAN 8.02 MAX 63 MIN 1.6 AC-FT 5810
WTR YR 1976 TOTAL 3673.1 MEAN 10.0 MAX 165 MIN 1.1 AC-FT 7290

16899800 TOFOL RIVER

LOCATION.--Lat 05°19'53" N., long 163°01'25" E., on left bank 25 ft (7.6 m) downstream from right-bank tributary, 0.7 mi (1.1 km) upstream from mouth, and 1.2 mi (1.9 km) northeast of Mount Crozer.

DRAINAGE AREA.--0.44 mi² (1.14 km²).

PERIOD OF RECORD.--June 1971 to current year.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 98 ft (29.9 m) from stadia survey.

REMARKS.--Records fair. Water is diverted through 8-in. (20-cm) pipe from dam above station for domestic use on Lelu. Periodic determinations of water temperature for the current year are published on page 415 of this report.

AVERAGE DISCHARGE.--5 years, 6.27 ft³/s (0.178 m³/s), 4,540 acre-ft/yr (5.60 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 ft³/s (36.0 m³/s) Mar. 22, 1976, gage height, 5.56 ft (1.695 m), from rating curve extended above 79 ft³/s (2.24 m³/s); minimum, 0.78 ft³/s (0.022 m³/s) Feb. 11, 1976, during short regulation of flow at dam upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 450 ft³/s (12.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Dec. 30	1945	590	16.7	4.42	1.347	Apr. 21	1345	710	20.1	4.66	1.420
Mar. 11	1745	755	21.4	4.75	1.448	May 13	2115	500	14.2	4.20	1.280
Mar. 22	1200	*1270	36.0	5.56	1.695	Aug. 2	1715	770	21.8	4.78	1.457
Mar. 26	0230	532	15.1	4.28	1.305	Sept. 8	1015	576	16.3	4.39	1.338

Minimum discharge, 0.78 ft³/s (0.022 m³/s) Feb. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	3.1	2.6	31	1.4	4.2	6.3	3.6	17	3.6	2.4	2.0
2	10	2.1	1.9	9.4	2.0	3.7	8.2	17	3.1	3.2	37	1.9
3	4.1	2.0	3.0	31	1.6	5.3	6.5	27	2.7	6.2	9.1	3.2
4	6.0	3.0	5.1	8.4	1.4	3.1	4.7	12	5.3	3.6	7.6	2.0
5	3.5	2.0	19	6.0	1.4	19	14	6.8	2.7	5.8	16	1.9
6	8.2	1.9	3.5	5.3	1.4	25	7.9	9.1	3.2	5.1	6.3	3.1
7	4.0	1.8	6.3	4.2	1.3	19	6.3	15	2.6	5.8	4.4	15
8	3.2	1.7	6.3	3.6	1.3	8.4	5.5	14	8.7	4.0	5.3	122
9	3.8	4.0	4.4	3.2	1.3	5.6	4.2	25	6.8	15	3.7	20
10	21	2.7	10	2.9	1.2	4.7	3.8	12	4.0	5.5	3.4	10
11	5.6	3.5	5.6	2.7	1.3	74	3.6	8.2	5.1	6.0	4.4	9.8
12	4.1	3.4	22	2.5	1.3	18	5.3	6.5	5.6	4.2	5.5	5.8
13	3.7	3.1	6.3	2.3	1.3	9.8	3.6	44	13	4.1	3.5	4.6
14	3.8	2.2	16	2.3	5.6	8.2	3.2	22	14	6.2	10	3.8
15	3.2	2.1	5.5	2.0	1.5	7.1	4.2	12	13	4.2	4.7	3.4
16	2.8	1.9	4.4	2.0	2.7	4.7	3.8	14	9.8	21	3.5	3.1
17	2.7	5.8	7.4	2.4	20	4.7	3.4	11	11	5.5	3.1	2.9
18	2.9	3.2	22	3.8	8.7	15	7.9	7.6	7.0	4.2	3.5	2.6
19	2.5	7.1	23	3.8	2.9	5.6	33	5.6	28	3.8	3.0	2.6
20	2.3	3.7	17	2.6	2.2	4.2	25	4.9	12	6.7	6.8	2.3
21	2.2	2.5	24	2.0	2.2	4.2	68	4.2	8.2	4.0	2.9	2.3
22	2.0	2.3	9.8	1.8	16	72	17	3.8	6.8	3.5	2.6	4.9
23	2.0	2.6	6.8	1.7	3.1	14	27	3.6	6.0	4.3	2.4	2.9
24	1.9	4.7	5.3	1.6	7.9	36	27	5.6	5.8	6.6	2.4	12
25	4.9	2.6	4.6	1.8	4.9	21	13	3.2	4.6	3.8	2.2	3.8
26	2.4	2.1	4.7	1.7	28	44	8.2	2.9	4.4	3.2	2.4	2.7
27	14	2.0	3.6	1.7	5.8	16	6.0	2.6	9.0	2.8	2.0	4.9
28	3.6	2.1	5.5	1.6	4.2	15	4.9	3.0	12	2.6	3.8	2.8
29	2.7	1.9	25	1.4	3.7	15	4.1	2.6	4.6	2.7	3.0	2.3
30	2.4	1.9	22	1.4	---	14	3.7	2.4	4.0	2.5	2.2	2.1
31	2.4	---	17	1.4	---	7.9	---	2.4	---	2.6	2.0	---
TOTAL	161.9	85.0	319.6	149.5	137.6	508.4	339.3	313.6	240.0	162.3	171.1	262.7
MEAN	5.22	2.83	10.3	4.82	4.74	16.4	11.3	10.1	8.00	5.24	5.52	8.76
MAX	24	7.1	25	31	28	74	68	44	28	21	37	122
MIN	1.9	1.7	1.9	1.4	1.2	3.1	3.2	2.4	2.6	2.5	2.0	1.9
AC-FT	321	169	634	297	273	1010	673	622	476	322	339	521

CAL YR 1975 TOTAL 2229.6 MEAN 6.11 MAX 38 MIN 1.7 AC-FT 4420
WTR YR 1976 TOTAL 2851.0 MEAN 7.79 MAX 122 MIN 1.2 AC-FT 5650

SAMOA ISLANDS, ISLAND OF TUTUILA

16912000 PAGO STREAM AT AFONO

LOCATION.--Lat 14°16'03" S., long 170°39'02" W., on left bank 0.2 mi (0.3 km) south of Afono and 0.3 mi (0.5 km) upstream from mouth.

DRAINAGE AREA.--0.60 mi^2 (1.55 km^2).

PERIOD OF RECORD.--October 1958 to current year. Prior to July 1960, published as Afono Stream at Afono.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 30 ft (9 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record Dec. 10 to Jan. 26, which are fair. About 0.06 ft^3/s (0.002 m^3/s) is diverted above station for domestic use in Afono. Periodic determinations of water temperature for the current year are published on page 415 of this report.

AVERAGE DISCHARGE.--17 years (water years 1960-76), 3.20 ft^3/s (0.091 m^3/s), 2,320 acre-ft/yr (2.86 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,350 ft^3/s (38.2 m^3/s) July 5, 1969, gage height, 5.49 ft (1.673 m), from rating curve extended above 22 ft^3/s (0.62 m^3/s); minimum, 0.17 ft^3/s (0.005 m^3/s) Sept. 22, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 382 ft^3/s (10.8 m^3/s) June 28, gage height, 3.83 ft (1.167 m), from rating curve extended above 12 ft^3/s (0.34 m^3/s), no other peak above base of 210 ft^3/s (5.95 m^3/s); minimum, 0.26 ft^3/s (0.007 m^3/s) Oct. 15, Nov. 22-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.42	.34	.42	.68	.93	1.0	.58	1.1	1.9	2.2	1.9	.58
2	.34	.85	.38	.62	.85	1.6	.42	.85	1.6	1.8	1.6	.58
3	.34	.64	7.6	.56	.78	1.2	.52	.71	1.4	1.5	1.4	.58
4	.31	.38	4.8	.52	3.0	1.5	.47	.58	1.5	1.3	2.6	.52
5	.34	.34	2.8	.50	1.9	1.2	.38	.52	1.2	1.3	7.2	.52
6	.34	.31	2.2	.50	1.2	1.4	.38	.58	1.5	1.2	13	.47
7	.31	.29	9.8	5.0	.85	1.2	.38	.47	2.9	1.3	3.4	.47
8	.34	.64	4.0	2.0	.78	.93	.47	.42	1.8	1.9	3.0	.47
9	.31	1.3	1.8	1.5	.71	.85	.42	.52	1.3	1.3	2.5	.47
10	.31	.64	1.3	1.1	1.1	.93	.34	.47	1.0	.93	1.9	.47
11	.31	.42	1.1	1.0	1.0	.85	.34	.42	1.0	.93	1.6	.42
12	.31	.31	1.0	.90	3.4	1.2	.34	.42	.93	.85	1.4	.47
13	.29	.31	.92	.80	26	1.1	.34	.38	.85	1.8	1.3	.42
14	.29	.71	13	.70	13	.93	.34	9.5	1.1	41	1.2	.38
15	.26	.78	5.0	1.5	6.9	.78	.34	19	.85	6.2	1.1	.34
16	.29	.47	1.7	10	3.8	.85	.34	32	1.3	3.2	1.0	.38
17	.31	.34	1.4	6.0	2.6	.64	.34	5.4	1.8	4.0	.93	.34
18	.29	.31	1.3	3.0	2.2	.64	.31	3.0	2.2	2.8	.93	.34
19	.29	.29	1.2	10	1.9	.64	.29	2.2	1.4	2.2	.85	.34
20	.29	.29	1.6	9.0	1.8	.64	.31	1.8	1.0	6.8	.85	.38
21	.29	.31	2.0	3.0	1.5	.58	.57	1.4	.85	8.8	.93	.34
22	.29	.26	1.4	1.5	1.6	.93	.42	1.3	.78	3.6	.85	.42
23	.29	.26	1.0	1.3	1.8	.64	.31	1.1	.71	2.6	.78	.74
24	.29	.26	.82	1.1	2.3	.58	.47	6.8	.64	2.0	.78	1.7
25	.29	1.7	.70	1.7	1.6	.66	1.7	4.0	.64	1.8	.71	.47
26	.31	1.2	.70	1.5	2.0	.78	1.2	10	.64	9.0	.78	.42
27	.34	2.8	.90	1.3	1.6	1.1	7.5	22	.71	6.0	.64	.34
28	.38	1.2	1.2	1.2	1.3	1.0	5.7	6.2	28	6.2	.64	.34
29	.31	.58	1.0	1.2	1.1	.78	2.6	3.4	9.6	5.4	.64	.42
30	.29	.42	.88	1.0	---	.64	1.8	2.6	3.0	2.8	.64	.38
31	.29	---	.76	.93	---	.58	---	2.5	---	2.2	.64	---
TOTAL	9.66	18.95	74.68	71.61	89.50	28.35	29.92	141.64	74.10	134.91	57.69	14.51
MEAN	.31	.63	2.41	2.31	3.09	.91	1.00	4.57	2.47	4.35	1.86	.48
MAX	.42	2.8	13	10	26	1.6	7.5	32	28	41	13	1.7
MIN	.26	.26	.38	.50	.71	.58	.29	.38	.64	.85	.64	.34
AC-FT	19	38	148	142	178	56	59	281	147	268	114	29

CAL YR 1975 TOTAL 1007.49 MEAN 2.76 MAX 102 MIN .26 AC-FT 2000
WTR YR 1976 TOTAL 745.52 MEAN 2.04 MAX 41 MIN .26 AC-FT 1480

NOTE.--No gage-height record Dec. 10 to Jan. 26.

SAMOA ISLANDS, ISLAND OF TUTUILA

16917500 LEELE STREAM AT MOUTH, AT FAGASA

LOCATION.--Lat 14°17'28" S., long 170°43'09" W., on left bank at Fagasa and 200 ft (61 m) upstream from mouth.

DRAINAGE AREA.--0.23 mi^2 (0.60 km^2).

PERIOD OF RECORD.--July 1966 to September 1976 (discontinued as a regular station; converted to a low-flow partial-record station).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 10 ft (3 m), from topographic map.

REMARKS.--Records good. Small diversion above station for local village use. Periodic determinations of water temperature for the current year are published on page 415 of this report.

AVERAGE DISCHARGE.--10 years, 1.50 ft^3/s (0.043 m^3/s), 1,090 acre-ft/yr (1.34 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 390 ft^3/s (11.0 m^3/s) Aug. 30, 1970, gage height, 3.82 ft (1.164 m), from rating curve extended above 13 ft^3/s (0.37 m^3/s) on basis of slope-area measurement at gage height 3.61 ft (1.100 m); minimum, 0.03 ft^3/s (0.001 m^3/s) Sept. 3, 4, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 120 ft^3/s (3.40 m^3/s) May 15, gage height, 3.13 ft (0.954 m), from rating curve extended above 21 ft^3/s (0.60 m^3/s) on basis of slope-area measurement at gage height 3.61 ft (1.100 m), no other peak above base of 78 ft^3/s (2.21 m^3/s); minimum, 0.14 ft^3/s (0.004 m^3/s) Apr. 17-19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	.18	.27	.61	.33	.37	.24	1.7	.73	.67	.73	.30
2	.30	.56	.24	.51	.30	.46	.21	.73	.67	.56	.61	.30
3	.27	.27	6.9	.46	.30	.37	.30	.61	.61	.56	.61	.27
4	.27	.16	3.2	.41	.80	.56	.21	.46	.61	.51	1.2	.27
5	.27	.17	1.5	.67	.73	.46	.21	.51	.56	.41	4.0	.27
6	.30	.18	2.6	.61	.56	.56	.18	.46	.97	.37	5.1	.24
7	.30	.18	6.0	.88	.41	.51	.21	.41	1.9	.46	1.7	.24
8	.30	.60	1.7	1.2	.37	.51	.18	.37	.97	.88	1.3	.24
9	.27	.51	.80	.73	.33	.46	.18	.41	.67	.46	1.1	.24
10	.27	.27	.61	.73	.41	.41	.18	.41	.56	.37	.80	.24
11	.27	.21	.67	.61	.41	.41	.18	.46	.56	.33	.80	.27
12	.27	.21	.51	.56	1.7	.46	.18	.46	.56	.51	.67	.24
13	.24	.18	.41	.51	5.0	.46	.18	.37	.56	7.8	.61	.21
14	.24	2.4	3.9	.56	3.8	.37	.18	3.5	.61	24	.56	.21
15	.24	.41	3.1	.67	11	.33	.16	16	.51	5.7	.51	.18
16	.24	.18	1.1	1.7	2.3	.33	.16	14	.90	2.0	.51	.18
17	.24	.16	.73	2.3	1.1	.30	.14	2.3	1.2	1.7	.46	.21
18	.24	.16	.80	1.5	.97	.27	.14	1.4	1.4	1.1	.46	.24
19	.21	.16	2.6	1.3	.67	.27	.14	.97	.88	.80	.46	.24
20	.18	.16	2.8	2.6	.88	.27	.21	1.2	.61	5.4	.41	.24
21	.18	.16	2.0	1.2	.73	.27	.21	1.2	.56	4.8	.41	.21
22	.18	.16	1.6	2.0	.97	.24	.58	.88	.41	1.8	.41	.21
23	.18	.16	1.1	1.1	.73	.24	.30	.80	.37	1.4	.41	.21
24	.18	.16	.80	.80	.80	.21	.18	9.0	.37	.88	.41	.41
25	.18	2.5	.61	.73	.61	.21	1.0	2.6	.46	.88	.37	.24
26	.18	1.1	.56	.61	.51	.24	.46	6.4	.37	1.4	.56	.30
27	.18	.97	.51	.56	.46	.56	3.4	12	.51	1.3	.41	.21
28	.18	.67	1.1	.51	.41	.33	2.8	2.8	4.0	5.1	.37	.18
29	.18	.41	.97	.41	.37	.24	1.4	1.4	2.8	2.6	.51	.21
30	.18	.30	.73	.37	---	.21	3.3	1.1	.97	1.4	.33	.18
31	.16	---	.67	.37	---	.21	---	1.1	---	.97	.33	---
TOTAL	7.29	13.90	51.09	27.78	38.16	11.10	17.40	86.01	26.86	77.12	27.12	7.19
MEAN	.24	.46	1.65	.90	1.32	.36	.58	2.77	.90	2.49	.87	.24
MAX	.41	2.5	6.9	2.6	11	.56	3.4	16	4.0	24	5.1	.41
MIN	.16	.16	.24	.37	.30	.21	.14	.37	.37	.33	.33	.18
AC-FT	14	28	101	55	76	22	35	171	53	153	54	14

CAL YR 1975 TOTAL 484.90 MEAN 1.33 MAX 22 MIN .16 AC-FT 962
WTR YR 1976 TOTAL 391.02 MEAN 1.07 MAX 24 MIN .14 AC-FT 776

16920500 AASU STREAM AT AASU

LOCATION.--Lat 14°17'51" S., long 170°45'30" W., on right bank at Aasu and 200 ft (61 m) upstream from mouth.

DRAINAGE AREA.--1.03 mi² (2.67 km²).

PERIOD OF RECORD.--October 1958 to current year.

REVISED RECORDS.--WSP 1937: Drainage area. (FISCAL YEARS).--WSP 2137: 1959-60(P). (WATER YEARS).--1960(P), 1961(M), 1962-65(P).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 5 ft (1.5 m) by hand levels from high-tide mark.

REMARKS.--Records good. Small diversion above station for domestic use. Recording rain gage located at station. Periodic determinations of water temperature for the current year are published on page 416 of this report.

AVERAGE DISCHARGE.--17 years (water years 1960-76), 6.03 ft³/s (0.171 m³/s), 4,370 acre-ft/yr (5.39 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 498 ft³/s (14.1 m³/s) Sept. 7, 1972, gage height, 5.16 ft (1.573 m), from rating curve extended above 20 ft³/s (0.57 m³/s) on basis of slope-area measurement at gage height 4.57 ft (1.393 m); minimum, 0.12 ft³/s (0.003 m³/s) Oct. 21, 23, 24, 27, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 141 ft³/s (3.99 m³/s) May 27, gage height, 3.23 ft (0.985 m), no peak above base of 180 ft³/s (5.10 m³/s), from rating curve extended as explained above; minimum, 0.52 ft³/s (0.015 m³/s) Nov. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	.63	1.7	4.0	2.7	3.0	1.3	3.2	7.2	2.4	6.4	1.7
2	.87	1.1	1.6	2.7	2.5	3.2	1.1	2.2	6.5	2.2	6.1	1.6
3	.81	.87	4.7	2.1	3.6	3.0	1.1	2.2	5.6	2.8	5.5	1.6
4	.81	.60	5.4	1.9	8.5	3.4	1.0	2.2	4.8	2.5	5.8	1.5
5	.87	.63	3.8	2.2	8.5	2.8	.95	1.9	4.5	2.2	9.3	1.4
6	.95	.63	8.5	2.1	4.9	2.7	.87	1.8	5.0	1.9	11	1.3
7	.95	1.2	17	3.3	3.6	2.4	.87	1.8	7.5	2.4	7.4	1.3
8	.95	4.9	8.6	3.2	3.0	2.1	.87	1.7	5.0	3.6	6.1	1.2
9	.87	4.4	6.9	3.2	3.2	2.1	.87	1.7	4.0	2.2	6.1	1.2
10	.81	1.9	5.4	2.5	2.8	1.9	.87	1.7	3.5	1.9	5.8	1.2
11	.81	1.3	6.1	2.4	2.8	2.1	.87	1.8	3.2	2.7	5.2	1.0
12	.81	1.1	5.2	2.2	7.4	1.9	.81	1.6	3.0	5.8	4.9	1.0
13	.74	1.0	4.4	2.1	7.6	1.8	.87	1.5	2.8	14	4.3	.95
14	.81	7.1	7.4	1.9	9.3	1.7	.87	5.4	3.6	29	4.1	.87
15	.74	3.0	6.9	2.1	31	2.2	.74	18	2.8	20	3.8	.87
16	.68	1.9	4.9	3.0	14	1.8	.74	41	3.0	13	3.6	.87
17	.63	1.6	4.0	4.9	11	1.6	.68	18	5.5	11	3.2	.87
18	.68	1.5	3.8	3.8	10	1.6	.74	14	6.1	9.5	3.2	.81
19	.63	1.4	4.0	3.6	8.3	1.5	.74	10	3.6	7.8	3.0	.81
20	.57	1.4	5.4	11	7.3	1.4	.74	8.6	3.0	18	2.8	.95
21	.57	1.4	5.4	5.4	6.6	1.4	.74	7.8	2.7	17	2.7	.81
22	.63	1.4	4.7	4.9	6.6	1.6	1.2	10	2.5	11	2.5	.81
23	.63	1.3	3.8	3.8	5.6	1.5	1.0	8.0	2.2	8.8	2.4	1.0
24	.57	1.6	3.0	4.4	5.4	1.3	.81	20	2.2	8.1	2.2	1.1
25	.57	2.4	2.8	4.9	4.7	1.2	.95	8.0	3.0	7.4	2.2	.81
26	.68	1.9	2.5	5.9	4.0	1.5	.95	15	2.5	7.7	2.7	.81
27	.63	2.7	2.5	4.7	3.6	2.1	5.4	50	2.7	8.1	2.2	.68
28	.68	2.1	2.7	3.8	3.4	1.7	6.9	18	2.7	15	2.1	.68
29	.63	1.6	2.4	3.4	3.2	1.3	5.9	13	3.4	11	2.7	.74
30	.57	1.5	2.2	3.2	---	1.2	4.2	10	2.7	8.1	1.9	.68
31	.57	---	2.1	2.8	---	1.1	---	8.0	---	7.0	1.8	---
TOTAL	22.82	56.06	149.8	111.4	195.1	60.1	45.65	308.1	116.8	264.1	133.0	31.12
MEAN	.74	1.87	4.83	3.59	6.73	1.94	1.52	9.94	3.89	8.52	4.29	1.04
MAX	1.1	7.1	17	11	31	3.4	6.9	50	7.5	29	11	1.7
MIN	.57	.60	1.6	1.9	2.5	1.1	.68	1.5	2.2	1.9	1.8	.68
AC-FT	45	111	297	221	387	119	91	611	232	524	264	62

CAL YR 1975 TOTAL 2042.29 MEAN 5.60 MAX 80 MIN .57 AC-FT 4050
WTR YR 1976 TOTAL 1494.05 MEAN 4.08 MAX 50 MIN .57 AC-FT 2960

NOTE.--No gage-height record May 21 to June 10.

SAMOA ISLANDS, ISLAND OF TUTUILA

16931000 ATAULOMA STREAM AT AFAO

LOCATION.--Lat 14°20'10" S., long 170°48'02" W., on left bank at Afao, 100 ft (30 m) upstream from highway bridge, and 300 ft (91 m) upstream from mouth.

DRAINAGE AREA.--0.24 mi² (0.62 km²).

PERIOD OF RECORD.--October 1958 to current year.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 20 ft (6 m) by hand levels from high-tide mark.

REMARKS.--Records good. No diversion above station. Recording rain gage located at station. Periodic determinations of water temperature for the current year are published on page 416 of this report.

AVERAGE DISCHARGE.--17 years (water years 1960-76), 1.42 ft³/s (0.040 m³/s), 1,030 acre-ft/yr (1.27 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 605 ft³/s (17.1 m³/s) Aug. 10, 1967, gage height, 3.99 ft (1.216 m), from rating curve extended above 26 ft³/s (0.74 m³/s); minimum, 0.04 ft³/s (0.001 m³/s) Oct. 24-26, Oct. 28-31, Nov. 1, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 255 ft³/s (7.22 m³/s) May 27, gage height, 2.96 ft (0.902 m), from rating curve extended above 26 ft³/s (0.74 m³/s), no other peak above base of 160 ft³/s (4.53 m³/s); minimum, 0.10 ft³/s (0.003 m³/s) Oct. 21, 23-28, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.48	.14	.39	.38	.30	.34	.26	.74	1.3	.92	1.2	.42
2	.26	.23	.71	.30	.26	.48	.20	.48	1.2	.74	1.0	.39
3	.20	.17	.92	.26	.26	.38	.23	.48	1.1	.92	.90	.36
4	.17	.12	.92	.23	.43	.48	.20	.30	.86	.74	1.4	.33
5	.26	.12	.63	.26	.48	.38	.17	.68	.80	.63	3.3	.33
6	.26	.12	2.0	.26	.30	.34	.14	.53	1.6	.68	.70	.33
7	.23	.72	4.2	.43	.23	.34	.36	.34	1.4	.58	1.7	.33
8	.20	2.2	1.6	.53	.23	.30	.20	.26	.99	.87	1.2	.30
9	.17	1.1	1.1	.53	.20	.26	.17	.23	.80	.58	1.0	.30
10	.17	.43	.74	.48	.23	.26	.20	.23	.74	.53	.90	.30
11	.14	.26	1.8	.63	.23	.38	.20	.30	.74	2.2	.90	.30
12	.34	.23	1.1	.58	.66	.38	.20	.20	.74	2.0	.78	.27
13	.23	.20	.74	.43	.63	.38	.20	.17	.58	9.6	.73	.27
14	.17	1.4	1.1	.48	1.1	.26	.23	2.5	1.1	12	.68	.25
15	.17	.74	1.1	.68	8.1	2.2	.17	16	.68	3.4	.63	.23
16	.14	.43	.74	.74	1.5	.68	.17	13	.74	2.3	.58	.23
17	.20	.30	.93	.92	.99	.38	.20	2.4	1.1	1.8	.58	.25
18	.12	.23	.68	.63	.86	.30	.23	1.8	1.3	1.8	.54	.23
19	.14	.20	.53	.58	.63	.26	.20	1.3	.80	1.3	.50	.23
20	.12	.17	.99	2.5	.63	.26	.20	.99	.58	4.8	.50	.23
21	.10	.14	.92	1.1	.68	.23	.23	.99	.53	3.6	.50	.23
22	.12	.12	.74	.74	1.0	.30	.38	1.9	.48	2.3	.46	.33
23	.10	.12	.58	.53	.74	.26	.20	1.2	.43	1.8	.46	.30
24	.10	.12	.48	.74	1.1	.23	.12	10	.43	1.3	.46	.33
25	.10	.62	.38	.43	.74	.26	.12	3.2	4.2	1.3	.46	.21
26	.10	.26	.34	.53	.58	.34	.12	3.3	1.3	1.4	.50	.25
27	.10	.52	.48	.38	.58	.38	1.0	22	.92	1.2	.42	.21
28	.10	.23	.48	.34	.53	.26	3.5	3.8	4.6	2.9	.39	.21
29	.12	.14	.38	.30	.38	.17	2.3	2.6	2.0	2.4	.46	.23
30	.12	.12	.30	.30	---	.14	1.6	1.9	1.1	1.7	.39	.21
31	.10	---	.30	.26	---	.20	---	1.5	---	1.5	.42	---
TOTAL	5.33	11.90	28.30	17.48	24.58	11.81	13.70	95.32	35.14	69.79	24.64	8.39
MEAN	.17	.40	.91	.56	.85	.38	.46	3.07	1.17	2.25	.79	.28
MAX	.48	2.2	4.2	2.5	8.1	2.2	3.5	22	4.6	12	3.3	.42
MIN	.10	.12	.30	.23	.20	.14	.12	.17	.43	.53	.39	.21
AC-FT	11	24	56	35	49	23	27	189	70	138	49	17

CAL YR 1975 TOTAL 475.40 MEAN 1.30 MAX 25 MIN .10 AC-FT 943
WTR YR 1976 TOTAL 346.38 MEAN .95 MAX 22 MIN .10 AC-FT 687

SAMOA ISLANDS, ISLAND OF TUTUILA

16944200 PAPA STREAM AT NUUULI

LOCATION.--Lat 14°18'48" S., long 170°42'33" W., on right bank 500 ft (150 m) downstream from Tauese Stream and 0.8 mi (1.3 km) northwest of Nuuuli.

DRAINAGE AREA.--0.78 mi^2 (2.02 km^2).

PERIOD OF RECORD.--July 1966 to September 1967, November 1968 to September 1976 (discontinued).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 30 ft (9.1 m), from topographic map.

REMARKS.--Records fair except those below 1.0 ft^3/s (0.03 m^3/s), which are poor. Diversion by frequent pumping from gage pool for public water supply. Periodic determinations of water temperature for the current year are published on page 416 of this report.

AVERAGE DISCHARGE.--8 years (water years, 1967, 1970-76), 4.18 ft^3/s (0.118 m^3/s), 3,030 acre-ft/yr (3.74 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,640 ft^3/s (46.4 m^3/s) Apr. 29, 1975, gage height, 5.40 ft (1.646 m), from rating curve extended above 66 ft^3/s (1.87 m^3/s) on basis of flow-over-road measurement at gage height 3.32 ft (1.012 m); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 9, 1967, reached a stage of 3.32 ft (1.012 m), from floodmarks, discharge, 470 ft^3/s (13.3 m^3/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 765 ft^3/s (21.7 m^3/s) May 15, gage height, 3.93 ft (1.198 m), from rating curve extended as explained above, no other peak above base of 300 ft^3/s (8.50 m^3/s); no flow for many days each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	0	0	0	0	0	5.4	2.3	1.6	1.5	0
2		.16	0	0	0	0	0	1.6	1.8	1.1	.95	0
3		0	20	0	0	0	0	.54	1.6	1.1	.64	0
4		0	12	0	.36	.19	0	.22	1.1	.78	6.7	0
5		0	2.8	.02	0	0	0	1.5	.78	.38	33	0
6		0	11	0	0	.12	0	1.5	3.8	.19	25	0
7		0	26	1.8	0	0	0	.27	2.8	.25	6.0	0
8		2.0	5.7	.17	0	0	0	0	1.6	3.4	3.9	0
9		1.2	2.1	.02	0	0	0	.03	.78	.78	3.1	0
10		0	.78	.05	.61	0	0	0	.38	.38	2.1	0
11		0	.78	.08	.56	0	0	.29	.24	0	1.8	0
12		0	.09	0	6.9	0	0	.02	.19	.52	1.1	0
13		0	.05	0	34	0	0	0	.06	11	.95	0
14		6.8	11	.06	10	0	0	32	1.0	68	.54	0
15		2.5	6.4	.22	59	0	0	83	.19	11	.46	0
16		.27	1.6	2.6	11	.01	0	75	.86	4.8	.27	0
17		0	.32	3.4	5.1	0	0	9.6	2.1	4.5	.15	0
18		0	.22	1.1	4.2	0	0	6.0	3.1	2.3	.09	0
19		0	6.5	.64	2.0	0	0	3.4	1.3	1.6	.02	0
20		0	7.0	4.5	1.8	0	.02	2.5	.64	15	0	0
21		0	6.0	1.8	1.6	0	0	2.8	.21	12	0	0
22		0	4.5	3.5	3.1	0	5.4	1.6	0	4.5	0	0
23		0	2.3	.95	1.5	0	.05	1.3	0	3.1	0	0
24		0	1.1	.22	1.1	0	0	17	0	2.1	0	1.1
25		5.6	.54	.12	.46	0	5.0	6.3	.26	1.6	0	0
26		1.1	.18	0	.22	0	.43	15	0	3.4	.16	0
27		1.8	.08	0	.06	.05	13	61	.19	1.8	0	0
28		.27	1.5	0	0	0	28	10	20	6.3	0	0
29		0	1.3	0	0	0	6.3	5.1	7.8	4.5	0	0
30		0	.22	0	---	0	9.9	3.6	2.8	2.5	0	0
31		---	.03	0	---	0	---	3.4	---	2.1	0	---
TOTAL	0	21.70	132.09	21.25	143.57	.37	68.10	349.97	57.88	172.58	88.43	1.1
MEAN	0	.72	4.26	.69	4.95	.012	2.27	11.3	1.93	5.57	2.85	.037
MAX	0	6.8	26	4.5	59	.19	28	83	20	68	33	1.1
MIN	0	0	0	0	0	0	0	0	0	0	0	0
AC-FT	0	43	262	42	285	.7	135	694	115	342	175	2.2

CAL YR 1975 TOTAL 1630.37 MEAN 4.47 MAX 224 MIN 0 AC-FT 3230
WTR YR 1976 TOTAL 1057.04 MEAN 2.89 MAX 83 MIN 0 AC-FT 2100

16948000 AFUELO STREAM AT MATUU

LOCATION.--Lat 14°18'07" S., long 170°41'07" W., on left bank 0.2 mi (0.3 km) northwest of Matuu and 0.3 mi (0.5 km) upstream from mouth.

DRAINAGE AREA.--0.25 mi^2 (0.65 km^2).

PERIOD OF RECORD.--March 1958 to current year. Prior to July 1960, published as Matuu Stream at Matuu.

REVISED RECORDS.--WSP 1937: Drainage area. WSP 2137: (FISCAL YEARS) 1958-60, (WATER YEARS) 1960-65.

GAGE.--Water-stage recorder. Altitude of gage is 80 ft (24.4 m), from topographic map.

REMARKS.--Records fair. Small diversion above station for domestic use since September 1972. Periodic determinations of water temperature for the current year are published on page 416 of this report.

AVERAGE DISCHARGE.--18 years, 1.42 ft^3/s (0.040 m^3/s), 1,030 acre-ft/yr (1.27 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 502 ft^3/s (14.2 m^3/s) Apr. 29, 1975, gage height, 4.59 ft (1.399 m), from rating curve extended above 8.4 ft^3/s (0.24 m^3/s) on basis of slope area measurement of peak flow; minimum, 0.01 ft^3/s (<0.001 m^3/s) Sept. 16, 17, 20-26, 28, 29, 1975, Apr. 5-7, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 143 ft^3/s (4.05 m^3/s) May 15, gage height, 3.00 ft (0.914 m), from rating curve extended as explained above, no other peak above base of 95 ft^3/s (2.69 m^3/s); minimum, 0.01 ft^3/s (<0.001 m^3/s) Apr. 5-7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.06	.03	.20	.08	.16	.06	1.5	.71	.56	.56	.06
2	.03	.12	.04	.14	.05	.16	.07	.66	.56	.52	.37	.06
3	.03	.04	5.8	.10	.06	.18	.07	.44	.48	.52	.28	.07
4	.03	.04	2.8	.10	4.4	.28	.05	.28	.37	.34	1.7	.14
5	.04	.05	2.0	.16	.71	.20	.01	.25	.31	.25	6.2	.18
6	.03	.06	3.8	.14	.27	.22	.01	.56	1.1	.20	7.6	.14
7	.03	.07	6.5	1.4	.09	.07	.01	.25	1.4	.28	1.4	.12
8	.03	.49	1.4	.76	.05	.06	.02	.16	.71	.76	1.2	.16
9	.03	.18	.66	.44	.17	.06	.03	.18	.44	.25	.81	.14
10	.03	.08	.31	.48	.87	.09	.03	.14	.31	.20	.66	.12
11	.03	.09	.56	.37	.48	.08	.03	.18	.37	.18	.52	.12
12	.04	.08	.48	.28	3.9	.12	.02	.12	.34	.20	.44	.14
13	.04	.04	.25	.28	11	.20	.03	.12	.31	2.4	.37	.16
14	.04	1.7	4.8	.71	7.5	.09	.03	6.0	.48	16	.34	.16
15	.04	.61	3.0	.93	14	.03	.03	17	.31	2.7	.31	.16
16	.04	.20	.76	2.2	2.0	.03	.03	14	.38	1.2	.28	.16
17	.03	.09	.41	1.8	1.0	.04	.03	1.8	1.0	1.0	.25	.14
18	.04	.08	.34	.71	.76	.02	.04	1.1	1.2	.71	.22	.08
19	.03	.07	1.8	.61	.52	.04	.03	.81	.48	.56	.18	.05
20	.03	.06	2.0	1.4	.66	.05	.21	.71	.28	5.1	.16	.08
21	.03	.10	1.4	.71	.56	.04	.82	.81	.18	3.8	.16	.07
22	.03	.08	1.0	1.4	1.3	.04	1.4	.48	.14	1.5	.16	.18
23	.03	.06	.66	.61	.52	.04	.16	.28	.16	.93	.14	.78
24	.03	.04	.44	.48	.66	.04	.04	3.0	.12	.52	.18	2.8
25	.03	3.1	.31	.93	.37	.06	1.7	1.6	.12	.52	.22	.06
26	.04	.76	.18	.66	.31	.07	.66	6.2	.06	1.5	.18	.08
27	.04	.86	.06	.18	.25	.28	11	13	.08	1.1	.16	.10
28	.04	.20	.22	.14	.20	.14	9.3	2.4	6.6	2.3	.18	.10
29	.04	.06	.34	.10	.18	.08	1.8	1.2	2.5	1.7	.22	.14
30	.04	.03	.10	.12	---	.06	2.0	.81	.86	.56	.18	.14
31	.05	---	.18	.14	---	.06	---	1.0	---	.81	.10	---
TOTAL	1.07	9.50	42.63	18.68	52.87	3.09	29.72	77.04	22.36	49.17	25.73	6.89
MEAN	.035	.32	1.38	.60	1.82	.10	.99	2.49	.75	1.59	.83	.23
MAX	.05	3.1	6.5	2.2	14	.28	11	17	6.6	16	7.6	2.8
MIN	.03	.03	.03	.10	.05	.02	.01	.12	.06	.18	.10	.05
AC-FT	2.1	19	85	37	105	6.1	59	153	44	98	51	14

CAL YR 1975 TOTAL 456.32 MEAN 1.25 MAX 40 MIN .01 AC-FT 905
WTR YR 1976 TOTAL 338.75 MEAN .93 MAX 17 MIN .01 AC-FT 672

16960000 ALEGA STREAM AT ALEGA

LOCATION.--Lat 14°16'58" S., long 170°38"19" W., on left bank 300 ft (91 m) upstream from left-bank tributary, 0.2 mi (0.3 km) northwest of Alega, and 0.3 mi (0.5 km) upstream from mouth.

DRAINAGE AREA.--0.19 mi^2 (0.49 km^2).

PERIOD OF RECORD.--March 1958 to September 1976 (discontinued as a regular station; converted to a low-flow partial-record station). Prior to July 1960, published as West Branch Alega Stream at Alega.

REVISED RECORDS.--WSP 1937: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 180 ft (55 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published on page 416 of this report.

AVERAGE DISCHARGE.--18 years, 1.21 ft^3/s (0.034 m^3/s), 877 acre-ft/yr (1.08 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 232 ft^3/s (6.57 m^3/s) Apr. 8, 1970, gage height, 4.48 ft (1.366 m), from recorded range in stage, from rating curve extended above 8.3 ft^3/s (0.24 m^3/s); minimum, 0.17 ft^3/s (0.005 m^3/s) many days during July and August 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 40 ft^3/s (1.13 m^3/s) June 28, gage height, 2.44 ft (0.743 m), from rating curve extended above 10.1 ft^3/s (0.29 m^3/s), no peak above base of 52 ft^3/s (1.47 m^3/s); minimum, 0.19 ft^3/s (0.005 m^3/s) for many days during October and November.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	.22	.22	.30	.38	.38	.26	.83	1.1	.66	.78	.56
2	.30	.34	.26	.30	.38	.51	.22	.42	.94	.61	.72	.51
3	.30	.19	1.0	.26	.38	.34	.26	.42	.82	.61	.66	.51
4	.30	.19	.94	.26	.56	.38	.26	.38	.82	.56	.82	.51
5	.30	.19	.78	.26	.42	.30	.28	.30	.78	.51	2.6	.56
6	.30	.19	.67	.26	.38	.34	.30	.34	.94	.51	3.0	.56
7	.30	.19	2.0	1.2	.34	.30	.30	.34	1.1	.56	1.4	.56
8	.30	.34	.88	.61	.34	.34	.30	.30	.82	.61	1.3	.51
9	.30	.22	.42	.61	.30	.34	.22	.47	.72	.51	1.1	.56
10	.30	.19	.38	.42	.50	.30	.22	.38	.66	.51	1.0	.61
11	.30	.19	.34	.38	.51	.34	.22	.34	.66	.51	.94	.61
12	.30	.19	.30	.34	.88	.34	.22	.30	.66	.47	.88	.56
13	.30	.19	.34	.34	4.0	.30	.22	.30	.61	.61	.78	.56
14	.30	.34	2.4	.30	2.5	.30	.22	2.4	.78	1.6	.78	.56
15	.34	.22	1.5	.51	2.1	.26	.26	3.9	.66	.78	.72	.51
16	.30	.19	.66	2.0	1.2	.26	.30	7.8	.78	.61	.72	.51
17	.30	.19	.51	1.6	.82	.34	.26	2.1	.78	1.1	.66	.47
18	.30	.19	.47	.94	.78	.34	.26	1.5	.82	.72	.66	.42
19	.30	.19	.42	2.0	.61	.26	.26	1.1	.72	.61	.61	.47
20	.30	.19	.51	1.9	.61	.30	.26	.94	.72	1.9	.61	.51
21	.26	.19	.56	1.1	.56	.30	.74	.82	.66	1.9	.61	.51
22	.26	.19	.47	.82	.61	.42	.30	.78	.66	1.1	.61	.72
23	.26	.19	.38	.66	.51	.30	.26	.72	.66	.94	.61	.57
24	.22	.22	.34	.61	.56	.30	.26	1.4	.61	.78	.61	.59
25	.22	.44	.30	.66	.51	.38	.45	1.0	.61	.72	.61	.38
26	.26	.19	.30	.56	.61	.30	.30	2.1	.61	2.0	.61	.38
27	.26	.64	.34	.51	.47	.36	1.4	4.9	.61	1.3	.56	.38
28	.22	.30	.42	.47	.42	.30	1.3	2.1	3.9	1.5	.56	.38
29	.19	.22	.34	.47	.38	.26	.72	1.4	1.6	1.3	.56	.38
30	.19	.22	.30	.42	---	.26	.78	1.3	.88	1.0	.56	.38
31	.19	---	.30	.42	---	.26	---	1.3	---	.88	.61	---
TOTAL	8.61	7.14	19.05	21.49	22.62	10.01	11.61	42.68	26.69	27.98	27.25	15.30
MEAN	.28	.24	.61	.69	.78	.32	.39	1.38	.89	.90	.88	.51
MAX	.34	.64	2.4	2.0	4.0	.51	1.4	7.8	3.9	2.0	3.0	.72
MIN	.19	.19	.22	.26	.30	.26	.22	.30	.61	.47	.56	.38
AC-FT	17	14	38	43	45	20	23	85	53	55	54	30

CAL YR 1975 TOTAL 374.62 MEAN 1.03 MAX 24 MIN .19 AC-FT 743
WTR YR 1976 TOTAL 240.43 MEAN .66 MAX 7.8 MIN .19 AC-FT 477

16963900 LEAFU STREAM NEAR AUASI

LOCATION.--Lat 14°16'27" S., long 170°34'26" W. on right bank 35 ft (11 m) upstream from upper village intake, 0.1 mi (0.2 km) north of Auasi, and 0.2 mi (0.3 km) upstream from mouth.

DRAINAGE AREA.--0.11 mi^2 (0.28 km^2).

PERIOD OF RECORD.--February 1972 to current year.

REVISED RECORDS.--WDR HI-75-1: 1972(P), 1973-74.

GAGE.--Water-stage recorder. Altitude of gage is 120 ft (37 m), from topographic map.

REMARKS.--Records good. No diversion above station. Periodic determinations of water temperature for the current year are published on page 416 of this report.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39 ft^3/s (1.10 m^3/s) July 29, 1973, gage height, 2.56 ft (0.780 m), from recorded range in stage, from rating curve extended above 11 ft^3/s (0.31 m^3/s); minimum, 0.02 ft^3/s (0.001 m^3/s) Sept. 17-19, 26-30, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27 ft^3/s (0.76 m^3/s) May 15, gage height, 2.28 ft (0.695 m), from rating curve extended as explained above, no other peak above base of 17 ft^3/s (0.48 m^3/s); minimum, 0.02 ft^3/s (0.001 m^3/s) Sept. 17-19, 26-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.04	.04	.06	.07	.04	.04	.15	.07	.06	.08	.03
2	.04	.04	.05	.05	.06	.05	.04	.15	.07	.05	.07	.03
3	.04	.04	.07	.05	.05	.04	.04	.11	.07	.05	.06	.03
4	.04	.04	.04	.04	.05	.04	.04	.06	.13	.06	.07	.03
5	.04	.04	.04	.05	.10	.04	.04	.05	.08	.06	.32	.03
6	.04	.04	.04	.07	.05	.04	.04	.04	.11	.05	.31	.03
7	.04	.04	.08	1.1	.04	.04	.03	.04	.10	.18	.13	.03
8	.04	.05	.07	.28	.04	.04	.03	.04	.08	.18	.10	.03
9	.04	.05	.05	.23	.04	.04	.03	.04	.05	.08	.08	.03
10	.04	.04	.04	.10	.04	.04	.03	.04	.05	.07	.08	.03
11	.04	.04	.05	.07	.04	.04	.03	.04	.05	.07	.07	.03
12	.04	.04	.08	.06	.06	.04	.03	.03	.05	.06	.07	.03
13	.04	.04	.05	.05	.38	.04	.03	.03	.05	.13	.07	.03
14	.04	.10	.64	.05	.38	.03	.03	.04	.05	.11	.06	.03
15	.04	.05	.25	.05	.31	.03	.03	1.5	.05	.10	.05	.03
16	.04	.04	.08	1.5	.13	.03	.03	2.7	.07	.10	.05	.03
17	.03	.03	.06	.55	.08	.03	.03	.25	.08	.34	.05	.02
18	.04	.03	.08	.16	.07	.03	.03	.13	.11	.16	.04	.02
19	.04	.03	.11	.90	.06	.03	.03	.18	.07	.11	.04	.02
20	.04	.03	.13	.66	.06	.03	.03	.07	.07	.15	.04	.04
21	.04	.03	.28	.20	.06	.03	.04	.06	.06	.23	.04	.03
22	.03	.03	.16	.15	.06	.04	.03	.05	.06	.16	.04	.05
23	.03	.03	.10	.10	.05	.04	.03	.04	.05	.11	.04	.03
24	.03	.03	.07	.08	.05	.04	.03	.07	.05	.10	.04	.03
25	.03	.03	.07	.07	.05	.05	.03	.11	.04	.08	.04	.03
26	.03	.03	.13	.06	.05	.05	.03	.34	.04	.37	.04	.02
27	.03	.04	.13	.05	.05	.10	.13	1.5	.05	.18	.04	.02
28	.04	.04	.31	.05	.04	.05	.16	.31	.21	.26	.04	.02
29	.03	.03	.11	.05	.04	.04	.07	.15	.13	.23	.04	.02
30	.04	.04	.08	.05	---	.04	.19	.11	.07	.13	.04	.02
31	.04	---	.07	.06	---	.04	---	.10	---	.10	.03	---
TOTAL	1.16	1.18	3.56	7.00	2.56	1.26	1.40	8.53	2.22	4.12	2.27	.85
MEAN	.037	.039	.11	.23	.088	.041	.047	.28	.074	.13	.073	.028
MAX	.04	.10	.64	1.5	.38	.10	.19	2.7	.21	.37	.32	.05
MIN	.03	.03	.04	.04	.04	.03	.03	.03	.04	.05	.03	.02
AC-FT	2.3	2.3	7.1	14	5.1	2.5	2.8	17	4.4	8.2	4.5	1.7

CAL YR 1975 TOTAL 81.20 MEAN .22 MAX 11 MIN .03 AC-FT 161
WTR YR 1976 TOTAL 36.11 MEAN .099 MAX 2.7 MIN .02 AC-FT 72

NOTE.--No gage-height record Feb. 17 to Mar. 24.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than 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 floodflow 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 those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of the stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1976

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		Hawaii, Island of Kauai				
16011000	Waiakoali Stream near Waimea	Lat 22°07'42", long 159°37'27", 0.3 mi (0.5 km) upstream from mouth and 12 mi (19 km) northeast of Waimea.	1.58 (4.09)	1909-13≠, 1914-17, 1919-25≠, 1961-62, 1964, 1966-70, 1972-76	10- 2-75 7- 1-76 8-16-76	0.33 .85 .94
16012000	Kawaikinana Stream near Waimea	Lat 22°08'12", long 159°37'58", 0.6 mi (1.0 km) upstream from mouth and 12 mi (19 km) northeast of Waimea.	.84 (2.18)	1911-13, 1915-17, 1919-25≠, 1961-62, 1964, 1966-76	10- 2-75 7- 1-76 8-16-76	.25 .59 .60
16029500	Mokihana Stream near Waimea	Lat 21°59'38", long 159°40'07", 500 ft (152 m) upstream from mouth and 2.5 mi (4.0 km) north of Waimea.	4.83 (12.51)	1962, 1964-76	10- 2-75 6- 8-76	0 .61
16058500	South Fork Wailua River near rock Quarry	Lat 22°01'44", long 159°25'03", 7.5 mi (12.1 km) upstream from mouth and 4.6 mi (7.4 km) northwest of Lihue.	20.2 (6.16)	1974-76	10- 1-74 6- 3-75 6-24-75 6-27-75 7-11-75 7-23-75 8-26-75 9-26-75 10-28-75 6- 3-76 9- 1-76	c4.8 c2.8 c4.0 c3.2 c2.2 c2.0 c2.1 c1.5 2.7 3.4 2.3
		Hawaii, Island of Oahu				
16201000	Right Branch of North Fork Kaukonahua Stream near Wahiawa	Lat 21°31'11", long 157°56'53", 200 ft (61 m) above confluence with Left Branch and 4.5 mi (7.2 km) east of Leilehua High School in Wahiawa.	1.17 (3.03)	1913-53≠, 1960-62, 1966, 1968-76	1-22-76 4-13-76 7-13-76 8-25-76	2.5 10 1.9 1.1
16214000	Pearl Harbor Springs at Waiawa, near Pearl City	Lat 21°23'36", long 157°59'11", 0.7 mi (1.1 km) west of Pearl City and 1.5 mi (2.4 km) east of Waipahu Post Office.	-	1931-34≠, 1937-64≠, 1967-68, 1970-76	1-22-76 6-10-76	14 13
16224000	Pearl Harbor Springs at Kalauao, near Aiea	Lat 21°23'05", long 157°56'46", 300 ft (91 m) downstream from Highway 90 and 0.8 mi (1.3 km) west of Aiea Post Office.	-	1931-62≠, 1964-65≠, 1966-68, 1970-76	1-22-76 6-11-76	17 15

≠ Operated as a continuous-record gaging station.
c Not previously published.

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Hawaii, Island of Oahu--Continued				
16264100	Kahanaiki Stream at Highway 61, near Kailua	Lat 21°22'49", long 157°46'06", at bridge on Highway 61 and 1.9 mi (3.1 km) southwest of Kailua Post Office.	1.45 (3.76)	1960-63, 1965-66, 1971-76	6-22-76	0.93
16283400	Kahaluu Stream near Kahaluu	Lat 21°27'14", long 157°50'17", 600 ft (183 m) above Ahuimanu Stream and 0.6 mi (1.0 km) south of Kahaluu.	1.29 (3.34)	1962-63, 1966, 1972-76	6-22-76	2.3
*16283480	Ahuimanu Stream near Kahaluu	Lat 21°27'06", long 157°50'13", at bridge on Ahuimanu Road and 0.8 mi (1.3 km) south of Kahaluu.	2.31 (5.98)	1962-63, 1965-66, 1968, 1972-76	6-22-76	1.5
16295995	Kahana Stream at Mauka trail crossing, near Kahana	Lat 21°32'17", long 157°53'29", 1.8 mi (2.9 km) upstream from main bridge on Kamehameha Highway and 2.8 mi (4.5 km) southwest of Kaaawa School.	3.18 (8.24)	1960-62, 1966, 1971-72, 1974-76	6-28-76	16
16297000	Kawa Stream near Kahana	Lat 21°32'33", long 157°53'00", 0.1 mi (0.2 km) above confluence with Kahana Stream and 1.0 mi (1.6 km) south of Kahana.	2.09 (5.41)	1914-17≠, 1958b, 1961-62, 1966, 1971-72, 1974-76	6-28-76	1.4
		Hawaii, Island of Molokai				
16403400	Kapuhi Stream at altitude 1,000 ft (305 m) near Pelekunu	Lat 21°07'50", long 156°53'02", 500 ft (152 m) upstream from Kawailena Stream, 2.2 mi (3.5 km) south of former village of Pelekunu, and 5.4 mi (8.7 km) north of Kamalo.	.51 (1.32)	1968-76	10- 2-75 1- 6-76 6- 9-76 9-16-76	.51 1.2 1.8 .68
16403500	Kawailena Stream near Pelekunu	Lat 20°07'52", long 156°53'05", 800 ft (244 m) upstream from mouth, 2.2 mi (3.5 km) south of former village of Pelekunu, and 5.5 mi (8.8 km) north of Kamalo.	.65 (1.68)	1968-76	10- 2-75 1- 6-76 6- 9-76 9-16-76	1.2 1.4 1.3 1.3
16403600	Kapuhi Stream near Pelekunu	Lat 21°07'57", long 156°52'56", on left bank 400 ft (122 m) downstream from Kawailena Stream, 2.1 mi (3.4 km) south of former village of Pelekunu, and 5.6 mi (9.0 km) north of Kamalo.	1.20 (3.11)	1968-70≠, 1974-76	10- 2-75 1- 6-76 6- 9-76 9-16-76	1.7 2.5 2.8 2.0
16403700	Kawainui Stream at altitude 1,000 ft (305 m) near Pelekunu	Lat 20°07'46", long 156°52'31", 400 ft (122 m) upstream from Kawaipoko Stream, 2.4 mi (3.9 km) south of former village of Pelekunu, and 5.4 mi (8.7 km) north of Kamalo.	.79 (2.05)	1968-76	10- 1-75 3-24-76 6-10-76 9-16-76	.93 5.9 4.5 1.4
16403800	Kawaipoko Stream near Pelekunu	Lat 21°07'48", long 156°52'30", 300 ft (91 m) upstream from mouth, 2.4 mi (3.9 km) south of former village of Pelekunu, and 5.4 mi (8.7 km) north of Kamalo.	.26 (.67)	1968-76	10- 1-75 3-24-76 6-10-76 9-16-76	.09 1.9 .77 .36
		Hawaii, Island of Maui				
*16502000	Hahalawe Gulch near Kipahulu	Lat 20°40'54", long 156°02'50", at old ditch intake, 0.7 mi (1.1 km) upstream from mouth, and 1.8 mi (2.9 km) northeast of Kipahulu Church.	.43 (1.11)	1927-69≠, 1970-76	10- 9-75 11-19-75 3- 3-76	2.7 1.8 1.6
		Mariana Islands, Island of Guam				
16807300	Fonte River at dam, near Nimitz Hill	Lat 13°27'26"N., long 144°43'37" E., at old diversion dam, 0.4 mi (0.6 km) south of Navy Headquarters building on Nimitz Hill, and 1.3 mi (2.1 km) south of Coontz Junction at Adelup.	.69 (1.79)	1961-73, 1975-76	4-27-76	.47

* Also a crest-stage partial-record station.
≠ Operated as a continuous-record gaging station.
b Previously published with discharge measurements at miscellaneous sites.

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Mariana Islands, Island of Guam--Continued				
16808200	Faata Springs at Agat	Lat 13°22'35" N., long 144°39'47" E., 0.7 mi (1.1 km) south of Agat Junior High School and 0.8 mi (1.3 km) southwest of Santa Rita Catholic Church.	-	1963-73, 1975-76	4-27-76	0.28
16808500	Taleyfac River near Agat	Lat 13°21'35" N., long 144°38'57" E., 800 ft (244 m) upstream from bridge on Highway 2 at Biyae and 1.7 mi (2.7 km) south of Mount Carmel School in Agat.	1.95 (5.08)	1959-70, 1972-73, 1975-76	4-27-76	1.2
16809200	Cetti River above tributary, near Umatac	Lat 13°18'59" N., long 144°39'24" E., 20 ft (6.1 m) upstream from left-bank tributary, 0.2 mi (0.3 km) upstream from mouth, and 1.3 mi (2.1 km) north of Sanchez School in Umatac.	.37 (.96)	1961-62, 1964-66, 1969-70, 1972-73, 1975-76	4-28-76	.61
16809400	Cetti River near Umatac	Lat 13°18'58" N., long 144°39'23" E., 30 ft (9.1 m) downstream from left-bank tributary, 0.2 mi (0.3 km) upstream from mouth, and 1.3 mi (2.1 km) north of Sanchez School in Umatac.	.75 (1.94)	1960-67≠, 1968-70, 1972-73, 1975-76	4-28-76	.80
16809600	La Sa Fua River near Umatac	Lat 13°18'23" N., long 144°39'45" E., 0.6 mi (1.0 km) north of Sanchez School in Umatac and 0.8 mi (1.3 km) upstream from mouth.	1.06 (2.75)	1953-60≠, 1961-63, 1956, 1969-70, 1972-73, 1975-76	5- 7-76 9- 3-76 9-28-76	.85 1.8 2.2
16812000	Madog River near Umatac	Lat 13°17'24" N., long 144°40'30" E., 50 ft (15 m) downstream from right-bank tributary and 1.1 mi (1.8 km) southeast of Sanchez School in Umatac.	.36 (.93)	1960-76	4-29-76	.26
16813000	Piga Stream near Umatac	Lat 13°17'56" N., long 144°40'49" E., on left bank of Astaban River right-bank tributary, 0.3 mi (0.5 km) west of Mount Bolanos, and 1.3 mi (2.1 km) east of Sanchez School in Umatac.	-	1955, 1961-65, 1967-76	4-29-76	.15
16814000	Astaban River at Umatac	Lat 13°17'41" N., long 144°40'15" E., 200 ft (61 m) upstream from mouth and 0.7 mi (1.1 km) southeast of Sanchez School in Umatac.	.38 (.98)	1960-76	4-29-76	.24
16815800	Laelae River at Umatac	Lat 13°17'50" N., long 144°39'51" E., 100 ft (30 m) upstream from mouth and 0.2 mi (0.3 km) east of Sanchez School in Umatac.	.96 (2.49)	1960-76	4-29-76	.98
16817000	Toguan River near Umatac	Lat 13°17'03" N., long 144°39'36" E., at Highway 4 bridge, 100 ft (30 m) upstream from mouth, and 0.9 mi (1.4 km) south of Umatac.	.48 (1.24)	1952, 1960-76	4-29-76	.24
16820000	Geus River above Siligin Spring tributary, near Merizo	Lat 13°16'38" N., long 144°40'56" E., 100 ft (30 m) upstream from Siligin Spring tributary, 0.1 mi (0.2 km) upstream from dam, and 1.5 mi (2.4 km) northeast of Merizo School.	.51 (1.32)	1960-76	12-19-75 4-29-76	.25 .31
16820500	Siligin Spring near Merizo	Lat 13°16'38" N., long 144°40'55" E., 120 ft (37 m) upstream from mouth of Siligin Spring tributary, 0.1 mi (0.2 km) upstream from diversion dam, and 1.5 mi (2.4 km) northeast of Merizo School.	-	1954, 1961-76	12-19-75 4-29-76	.10 .07
16820700	Geus River below Siligin Spring tributary, near Merizo	Lat 13°16'35" N., long 144°40'53" E., 100 ft (30 m) upstream from diversion dam, 300 ft (91 m) downstream from Siligin Spring tributary, and 1.4 mi (2.3 km) northeast of Merizo School.	.68 (1.76)	1962-76	12-19-75 4-29-76	.73 .66
16825000	Ajayan River near Inarajan	Lat 13°15'16" N., long 144°42'56" E., 0.4 mi (0.6 km) upstream from mouth and 2.4 mi (3.9 km) southwest of Inarajan Catholic Church.	1.16 (3.00)	1962-73, 1975-76	5- 7-76	.52

≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Measurements Date	Measurements Discharge (ft^3/s)
		Mariana Islands, Island of Guam--Continued				
16828000	Agfayan River near Inarajan	Lat 13°16'05" N., long 144°43'42" E., 0.6 mi (1.0 km) upstream from mouth and 1.2 mi (1.9 km) west of Inarajan Catholic Church.	1.66 (4.30)	1962-65, 1967-73, 1975-76	5- 7-76	1.2
16830000	Pasamano River near Inarajan	Lat 13°16'59" N., long 144°43'26" E., 25 ft (7.6 m) upstream from confluence with Yledigao River and 1.7 mi (2.7 km) northwest of Inarajan Catholic Church.	1.42 (3.68)	1960-73, 1975-76	5- 3-76	1.8
16831000	Yledigao River near Inarajan	Lat 13°17'00" N., long 144°43'26" E., 75 ft (23 m) upstream from confluence with Pasamano River and 1.7 mi (2.7 km) northwest of Inarajan Catholic Church.	1.08 (2.80)	1960-73, 1975-76	5- 3-76	1.3
16833000	Fintasa River near Inarajan	Lat 13°17'18" N., long 144°43'54" E., 100 ft (30 m) upstream from falls, 0.4 mi (0.6 km) upstream from confluence with Fensol River, and 1.5 mi (2.4 km) northwest of Inarajan Catholic Church.	.80 (2.07)	1960-73, 1975-76	5- 3-76	1.7
16834000	Fensol River near Inarajan	Lat 13°17'09" N., long 144°44'08" E., 300 ft (91 m) upstream from confluence with Fintasa River and 1.1 mi (1.8 km) northwest of Inarajan Catholic Church.	.40 (1.04)	1960-73, 1975-76	5- 3-76	.35
16842000	Asalonso River near Talofofo	Lat 13°19'43" N., long 144°45'34" E., 10 ft (3.0 m) downstream from left-bank tributary, 500 ft (152 m) downstream from bridge on Highway 4, and 1.6 mi (2.6 km) south of Talofofo.	1.85 (4.79)	1952, 1961-73, 1975-76	4-30-76	.76
16853000	Ugum River above Bubulao River, near Talofofo	Lat 13°19'08" N., long 144°43'46" E., 50 ft (15 m) upstream from Bubulao River, 0.8 mi (1.3 km) northwest of NASA Tracking Station, and 2.8 mi (4.5 km) southwest of Talofofo.	2.66 (6.89)	1961-70, 1973, 1975-76	4-30-76	4.4
16854000	Bubulao River near Talofofo	Lat 13°19'08" N., long 144°43'45" E., 50 ft (15 m) upstream from mouth, 0.8 mi (1.3 km) northwest of NASA Tracking Station, and 2.8 mi (4.5 km) southwest of Talofofo.	2.93 (7.59)	1961-70, 1973, 1975-76	4-30-76	7.2
16854500	Ugum River above Talofofo Falls, near Talofofo	Lat 13°19'16" N., long 144°44'01" E., 300 ft (91 m) upstream from Talofofo Falls and 0.9 mi (1.4 km) north of NASA Tracking Station.	5.76 (14.92)	1973, 1975-76	4-30-76	10
16855000	Ugum River near Talofofo	Lat 13°20'02" N., long 144°44'55" E., 0.4 mi (0.6 km) upstream from confluence with Talofofo River, 1.3 mi (2.1 km) south of Talofofo, and 4.2 mi (6.8 km) north of Inarajan.	7.13 (18.47)	1952-71≠, 1973, 1975-76	4-30-76	14
16859000	Manengon River near Yona	Lat 13°24'02" N., long 144°45'01" E., 200 ft (61 m) downstream from left-bank tributary, 0.2 mi (0.3 km) upstream from mouth, and 1.7 mi (2.7 km) west of Saint Francis School at Yona.	2.04 (5.28)	1960-62, 1964-66, 1968-70, 1973, 1975-76	5- 4-76	2.3
		Caroline Islands, Palau Islands				
16890620	Ngechutrong River, Babelthuap	Lat 7°36'08" N., long 134°35'25" E., 300 ft (91 m) upstream from Adeiddo River and 0.9 mi (1.4 km) northwest of Mount Megilon.	.24 (.62)	1974-76	10- 2-75 11- 6-75 12-12-75 1- 8-76 1-31-76 2-24-76 3-23-76 4-14-76 6- 2-76 6-30-76 8-10-76 9- 1-76	3.3 2.0 1.9 2.0 .93 .72 .50 2.0 .39 .52 2.2 .90

≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Measurements Date	Measurements Discharge (ft^3/s)
		Caroline Islands, Palau Islands--Continued				
16890650	Galkatan River, Babelthuap	Lat 7°35'45" N., long 134°34'49" E., 0.9 mi (1.4 km) upstream from Adeiddo River and 1.5 mi (2.4 km) west of Mount Megilon.	1.50 (3.88)	1974-76	10- 2-75	12
					11-11-75	10
					1- 8-76	9.3
					1-31-76	5.4
					2-24-76	4.1
					3-25-76	1.6
					6- 2-76	4.1
					8-10-76	12
					9- 1-76	6.3
16890700	Almiokan River, Babelthuap	Lat 7°31'12" N., long 134°33'51" E., 0.5 mi (0.8 km) upstream from unnamed tributary and 4.6 mi (7.4 km) northeast of Ngatpang village.	7.05 (18.26)	1973-76	1-13-76	62
					8-12-76	64
					9-21-76	27
16890800	Ngatpang River, Babelthuap	Lat 7°27'40" N., long 134°32'15" E., 0.2 mi (0.3 km) upstream from unnamed tributary and 0.4 mi (0.6 km) southeast of Ngatpang village.	.35 (.91)	1973-76	1-12-76	1.8
					7-15-76	2.9
					8-12-76	6.5
					9-21-76	.79
16891320	Kumekumeyel River, Babelthuap	Lat 7°23'01" N., long 134°33'34" E., 100 ft (30 m) upstream from confluence with Gaden River, 1.1 mi (1.8 km) west of Mount Kabekobekushi, and 1.9 mi (3.1 km) north of Airai.	1.55 (4.02)	1970-76	10-21-75	9.7
					11-17-75	6.5
					3-19-76	2.5
					5-20-76	4.7
					7-29-76	5.4
					8-24-76	8.9
16891430	North Fork Ngardok River, Babelthuap	Lat 7°27'50" N., long 134°35'49" E., 500 ft (152 m) upstream from right-bank tributary, 1.4 mi (2.3 km) upstream from confluence with South Fork Ngardok River, and 2.5 mi (4.0 km) upstream from mouth.	9.37 (24.27)	1975-76	8-19-75	c87
					1-15-76	53
					7-19-76	67
					8-11-76	114
					9-17-76	24
16891440	North Fork Ngardok River tributary, Babelthuap	Lat 7°27'49" N., long 134°35'47" E., 5 ft (1.5 m) upstream of North Fork Ngardok River and 2.4 mi (3.9 km) north of Ngarsol mountain.	1.73 (4.48)	1975-76	8-19-75	c15
					1-15-76	8.5
					7-19-76	5.0
					8-11-76	14
					9-17-76	2.7
16891700	Unnamed west coast stream, Arakabesan	Lat 7°21'14" N., long 134°27'10" E., 0.1 mi (0.2 km) upstream from mouth and 0.15 mi (0.24 km) north of village of Arakabesan.	.03 (.08)	1970-76	10- 8-75	.20
					11-28-75	.08
					12-29-75	.11
					2- 6-76	.04
					3-10-76	.03
					6- 4-76	.02
					7-20-76	.01
					8-18-76	.03
					9-15-76	.04
16891750	Unnamed south coast stream, Arakabesan	Lat 7°20'41" N., long 134°27'29" E., 0.1 mi (0.2 km) upstream from mouth and 0.6 mi (1.0 km) southeast of village of Arakabesan.	.03 (.08)	1970-76	10- 8-75	.18
					11-28-75	.05
					12-29-75	.15
					2- 4-76	.09
					3-10-76	.06
					6- 4-76	.03
					7-20-76	.03
					8-18-76	.06
					9-15-76	.08
16891770	Unnamed west coast stream, Malakal	Lat 7°19'44"N., long 134°27'25" E., 200 ft (61 m) upstream from mouth and 1.5 mi (2.4 km) southwest of Madalai.	.01 (.03)	1971-76	10- 8-75	.01
					11-28-75	.004
					12-29-75	.02
					2- 6-76	.002
					6- 4-76	e.01
					8-17-76	.01
					9-16-76	.004

c Not previously published.
e Estimated.

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Caroline Islands, Palau Islands--Continued				
16891780	Unnamed north coast stream, Malakal	Lat 7°19'51" N., long 134°27'33" E., 0.2 mi (0.3 km) upstream from mouth and 1.3 mi (2.1 km) southwest of Madalai.	0.02 (.05)	1971-76	10- 8-75 11-28-75 12-29-75 2- 6-76 3-10-76 6- 4-76 7-22-76 8-17-76 9-16-76	0.05 .02 .03 .01 .01 e.01 .01 .08 .02
		Caroline Islands, Yap Islands				
16892500	Tamaney Stream, Yap	Lat 9°29'45" N., long 138°05'34" E., at abandoned German dam, 0.5 mi (0.8 km) northwest of Inuf, and 2.3 mi (3.7 km) southwest of Colonia.	.21 (.54)	1968-76	10- 9-75 12- 5-75 1- 9-76 2-18-76 4- 2-76 5-21-76 7- 6-76 8-11-76	.14 .12 .04 e.01 .32 .15 .09 .74
16892600	Ripu Stream, Yap	Lat 9°30'05" N., long 138°06'02" E., 1,000 ft (305 m) upstream from mouth and 1.6 mi (2.6 km) southwest of Colonia.	.24 (.62)	1968-76	10- 9-75 12- 5-75 1- 9-76 2-18-76 4- 2-76 5-21-76 7- 2-76 8-11-76	.17 .93 .07 e.01 .84 .12 .09 .86
16893300	Bileiy Spring, Gagil-Tomil	Lat 9°32'19" N., long 138°10'59" E., on right bank at Binau, 200 ft (61 m) downstream from main spring, and 0.6 mi (1.0 km) upstream from mouth.	-	1968-74≠, 1975-76	10- 7-75 12- 3-75 1- 8-76 4- 1-76 5-19-76 8- 9-76	.10 .04 .08 .05 .42 .09
16893310	Bileiy Stream, Gagil-Tomil	Lat 9°32'15" N., long 138°11'11" E., 0.3 mi (0.5 km) downstream from Bileiy Spring, 0.4 mi (0.6 km) upstream from mouth, and 0.4 mi (0.6 km) south of Gatjapar.	.15 (.39)	1968-76	10- 7-75 12- 3-75 1- 8-76 2-18-76 4- 1-76 5-19-76 7- 7-76 8- 9-76	.64 .20 .19 .10 .11 1.7 .42 .71
		Caroline Islands, Truk Islands				
16895100	Afeibung Stream, Tol	Lat 7°20'55" N., long 151°37'22" E., 0.3 mi (0.5 km) upstream from mouth and 0.6 mi (1.0 km) northwest of Mount Tumuital.	.08 (.21)	1968-71, 1973-76	10- 8-75	.36
		Caroline Islands, Island of Ponape				
16898000	Lui River tributary No. 2	Lat 6°55'20" N., long 158°12'55" E., 0.3 mi (0.5 km) upstream from mouth and 1.5 mi (2.4 km) southeast of Rekisau.	.04 (.10)	1970-76	2- 4-76	.27
16898300	Tawannu River	Lat 6°56'57" N., long 158°12'50" E., 1.3 mi (2.1 km) northeast of Rikisau and 1.8 mi (2.9 km) west of Tolenot Peak.	1.00 (2.59)	1970-75≠, 1976	11-17-75 1-15-76 2- 3-76 3- 2-76 3- 9-76	7.7 3.9 6.2 6.6 4.2
16898500	Pilenkiel River	Lat 6°56'23" N., long 158°11'26" E., 100 ft (30 m) downstream from right-bank tributary, 0.6 mi (1.0 km) west of Rekisau, and 0.9 mi (1.4 km) upstream from mouth.	1.93 (5.00)	1971-73, 1975-76	2-25-76	6.4
16898550	Kirictilang River	Lat 6°55'25" N., long 158°10'15" E., at small right-bank tributary, 0.1 mi (0.2 km) downstream from road bridge, and 0.1 mi (0.2 km) southeast of Tolen Palikir Mountain.	.96 (2.49)	1972-73, 1975-76	2-25-76	3.0

≠ Operated as a continuous-record gaging station.
e Estimated.

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Caroline Islands, Island of Ponape--Continued				
16898700	Lehnnasi River	Lat 6°49'23" N., long 158°10'43" E., 0.8 mi (1.3 km) upstream from mouth and 0.8 mi (1.3 km) northwest of Kipar.	8.75 (22.66)	1971, 1973, 1976	2-12-76	39
16899000	Senpen River	Lat 6°52'33" N., long 158°16'53" E., 0.1 mi (0.2 km) downstream of confluence of two branches 0.6 mi (1.0 km) southeast of Tolenarawi Peak, and 1.4 mi (2.3 km) southwest of Retau.	6.13 (15.88)	1971, 1973, 1976	2-10-76	25
16899100	Lataw River	Lat 6°53'04" N., long 158°16'52" E., 0.1 mi (0.2 km) upstream from left-bank tributary, 0.5 mi (0.8 km) northeast of Tolenarawi Peak, and 1.3 mi (2.1 km) west of Retau.	2.54 (6.58)	1971, 1973, 1976	2-10-76	6.1
		Samoa Islands, Island of Tutuila				
16902500	Vaisa Stream at Onenoa	Lat 14°15'27" S., long 170°34'44" W., 30 ft (9 m) downstream from unnamed tributary, 0.1 mi (0.2 km) southeast of Onenoa, and 0.1 mi (0.2 km) upstream from mouth.	.12 (.31)	1964-65, 1968-69, 1972, 1974-76	9-13-76	.05
16903000	Afimuao Stream at Onenoa	Lat 14°15'34" S., long 170°34'53" W., 200 ft (61 m) downstream from unnamed tributary, 0.2 mi (0.3 km) southwest of Onenoa, and 0.2 mi (0.3 km) upstream from mouth.	.06 (.16)	1959-61, 1963-65, 1968-69, 1974-76	9-13-76	.01
16905000	Lepa Stream at Aoa	Lat 14°16'21" S., long 170°35'17" W., 0.5 mi (0.8 km) upstream from mouth and 0.6 mi (1.0 km) southwest of Aoa.	.09 (.23)	1959-61, 1963-65, 1967-71, 1974-76	11-11-75	.02
16907000	Panota Stream at Masausi	Lat 14°15'54" S., long 170°36'09" W., 0.1 mi (0.2 km) southeast of Masausi and 0.2 mi (0.3 km) upstream from mouth.	.06 (.16)	1959-60, 1962-64, 1968, 1970-71, 1974, 1976	11-11-75	.02
16908000	Vaipito Stream at Masausi	Lat 14°16'05" S., long 170°36'18" W., 0.2 mi (0.3 km) south of Masausi and 0.3 mi (0.5 km) upstream from mouth.	.08 (.21)	1959-60, 1962-64, 1967-70, 1974, 1976	11-11-75	.01
16909500	Talalca Stream at Masefau	Lat 14°15'51" S., long 170°38'07" W., 50 ft (15 m) downstream from right-bank tributary, 0.5 mi (0.8 km) southwest of Masefau, and 0.5 mi (0.8 km) upstream from mouth.	.47 (1.22)	1959-60, 1962-64, 1967-71, 1974, 1976	11-11-75	.06
16910000	Tagau Stream at Masefau	Lat 14°15'47"S., long 170°38'20" W., 0.4 mi (0.6 km) upstream from mouth and 0.6 mi (1.0 km) southwest of Masefau.	.01 (.03)	1959-60, 1962-64, 1968, 1974, 1976	11-11-75	.02
16911000	Pago Stream tributary at Afono	Lat 14° 16'07" S., long 170°38'56" W., 200 ft (61 m) upstream from mouth and 0.3 mi (0.5 km) southeast of Afono.	.10 (.26)	1959-60, 1962-64, 1971, 1974-76	10-23-75	.05
16917000	Leele Stream at Fagasa	Lat 14°17'32" S., long 170°43'01" W., 0.1 mi (0.2 km) southeast of Fagasa and 0.2 mi (0.3 km) upstream from mouth.	.19 (.49)	1959-61, 1963-65, 1968, 1971, 1974-76	9-27-76	.08
16919000	Leaveave Stream near Aasu	Lat 14°18'28" S., long 170°45'06" W., 0.6 mi (1.0 km) upstream from mouth and 0.9 mi (1.4 km) southeast of Aasu.	.60 (1.55)	1959-60, 1962-63, 1968, 1974-76	11- 4-75	.34
16919200	Leaveave Stream tributary No. 2 near Aasu	Lat 14°18'24" S., long 170°45'03" W., 50 ft (15 m) upstream from mouth and 0.8 mi (1.3 km) southeast of Aasu.	.16 (.41)	1960, 1962-63, 1968, 1974-76	11- 4-75	.05

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Samoa Islands, Island of Tutuila--Continued				
16919400	Leaveave Stream tributary No. 1 near Aasu	Lat 14°18'21" S., long 170°45'01" W., 50 ft (15 m) upstream from mouth and 0.8 mi (1.3 km) southeast of Aasu.	0.15 (.39)	1960, 1962-63, 1968, 1974-76	11- 4-75	0.05
16920000	Aasu Stream near Aasu	Lat 14°18'16" S., long 170°45'29" W., 300 ft (91 m) downstream from 100 ft (30 m) waterfall, 0.5 mi (0.8 km) south of Aasu, and 0.5 mi (0.8 km) upstream from mouth.	.82 (2.12)	1959-63, 1968, 1974-76	11- 4-75	.56
16928000	Afutele Stream at Agugulu	Lat 14°20'05" S., long 170°49'06" W., 30 ft (9 m) downstream from right-bank tributary at Agugulu and 0.1 mi (0.2 km) upstream from mouth.	.17 (.44)	1959-61, 1963-65, 1968-71, 1974, 1976	9-28-76	.11
16929000	Vaialae Stream at Utumea	Lat 14°19'56" S., long 170°48'50" W., 0.1 mi (0.2 km) north of Utumea and 0.1 mi (0.2 km) upstream from mouth.	.15 (.39)	1959-61, 1963-65, 1968-71, 1974, 1976	9-28-76	.16
16930000	Soonapule Stream at Seetaga	Lat 14°19'42" S., long 170°48'36" W., 50 ft (15 m) upstream from Utanuatele Stream and 0.1 mi (0.2 km) north of Seetaga.	.16 (.41)	1959-61, 1963-64, 1968-71, 1974, 1976	10-31-75 9-15-76	.06 .08
16930200	Utanuatele Stream at Seetaga	Lat 14°19'41" S., long 170°48'35" W., 200 ft (61 m) upstream from mouth and 0.2 mi (0.3 km) north of Seetaga.	.21 (.54)	1960-61, 1963-64, 1968-71, 1974, 1976	9-15-76	.03
16932000	Asili Stream near Asili	Lat 14°19'46" S., long 170°47'42" W., 0.4 mi (0.6 km) north of Asili and 0.5 mi (0.8 km) upstream from mouth.	.55 (1.42)	1959-61, 1963-65, 1968, 1970, 1974-76	9-15-76	.76
16932500	Asili Stream at Asili	Lat 14°20'04" S., long 170°47'40" W., 100 ft (30 m) upstream from highway bridge at Asili and 0.1 mi (0.2 km) upstream from mouth.	.66 (1.71)	1958-59≠, 1960-61, 1963-65, 1967-69, 1974-76	9-15-76	.54
16934000	Leafu Stream near Leone	Lat 14°19'47" S., long 170°46'55" W., 30 ft (9 m) upstream from reservoir, 0.9 mi (1.4 km) upstream from mouth, and 1.0 mi (1.6 km) north of Leone.	.69 (1.79)	1959-64, 1968-69, 1971-74, 1976	9-22-76 9-22-76	.84 .94
16935000	Fusfua Stream at Malaeloa	Lat 14°19'58" S., long 170°46'12" W., 40 ft (12 m) downstream from unnamed tributary, 0.8 mi (1.3 km) north of Malaeloa, and 2.1 mi (3.4 km) upstream from mouth.	.29 (.75)	1959-61, 1963-65, 1971, 1973-74, 1976	9-22-76	.06
16936000	Leaveave Stream at Mapusagafou	Lat 14°19'12" S., long 170°45'00" W., 0.1 mi (0.2 km) upstream from Puna Stream and 0.7 mi (1.1 km) north of Mapusagafou.	.15 (.39)	1959-65, 1968, 1971, 1974, 1976	10-29-75	.08
16937000	Vaitele Stream at Lepine	Lat 14°18'51" S., long 170°43'35" W., 0.7 mi (1.1 km) north of Lepine and 1.1 mi (1.8 km) upstream from mouth.	.18 (.47)	1959-61, 1963-65, 1967-69, 1971, 1974, 1976	10-29-75	.23
16938000	Vaitele Stream tributary at Lepine	Lat 14°18'57" S., long 170°43'21" W., 0.2 mi (0.3 km) upstream from mouth and 0.7 mi (1.1 km) northeast of Lepine.	.09 (.23)	1959-61, 1963-65, 1967-69, 1974, 1976	9-27-76	.05

≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		Samoa Islands, Island of Tutuila--Continued				
16941000	Mapusagatuai Stream at Mapusaga	Lat 14°19'38" S., long 170°44'48" W., 0.3 mi (0.5 km) west of Mapusaga and 1.2 mi (1.9 km) upstream from mouth.	0.08 (.21)	1959-61, 1963-65, 1968-70, 1974, 1976	10-29-75	0.04
16943000	Mataalii Stream near Nuuuli	Lat 14°18'42" S., long 170°42'51" W., 0.6 mi (1.0 km) upstream from mouth and 1.1 mi (1.8 km) northwest of Nuuuli.	.14 (.36)	1959-61, 1963-65, 1968-69, 1974-76	9-14-76	.15
16944000	Papa Stream near Nuuuli	Lat 14°18'31" S., long 170°42'29" W., 0.3 mi (0.5 km) upstream from Tauese Stream and 0.9 mi (1.4 km) northwest of Nuuuli.	.57 (1.48)	1959-61, 1963-64, 1967-68, 1974-76	9-14-76	.74
16945000	Amaile Stream at Nuuuli	Lat 14°18'31" S., long 170°41'48" W., 0.3 mi (0.5 km) upstream from mouth and 0.5 mi (0.8 km) north of Nuuuli.	.19 (.49)	1959-61, 1963-64, 1968-69, 1974-76	9-14-76	.04
16946000	Avau Stream at Faganeanea	Lat 14°18'34" S., long 170°41'35" W., 0.2 mi (0.3 km) upstream from mouth and 0.4 mi (0.6 km) southwest of Faganeanea.	.09 (.23)	1959-61, 1963-65, 1967-69, 1974-76	9-14-76	.10
16947000	Afu Stream at Faganeanea	Lat 14°18'16" S., long 170°41'25" W., 0.2 mi (0.3 km) northwest of Faganeanea and 0.3 mi (0.5 km) upstream from mouth.	.22 (.57)	1959-61, 1963-65, 1967-69, 1971, 1974-76	9-14-76	.01
16949700	Vaima Stream at Pago Pago	Lat 14°17'30" S., long 170°42'20" W., 0.6 mi (1.0 km) upstream from mouth and 1.1 mi (2.8 km) southwest of Pago Pago.	.05 (.13)	1959-65, 1967-68, 1970, 1975-76	9-23-76	.18
16952500	Lalolaeauta Stream at Aua	Lat 14°16'25" S., long 170°39'31" W., 300 ft (91 m) upstream from Amano Stream and 0.4 mi (0.6 km) east of Aua.	.14 (.36)	1959-61, 1963-65, 1968-70, 1974-76	9-16-76	.05
16953000	Mataginalie Stream at Aua	Lat 14°16'19" S., long 170°39'50" W., 0.2 mi (0.3 km) north of Aua and 0.2 mi (0.3 km) upstream from mouth.	.03 (.08)	1959-61, 1963-65, 1968-69, 1971, 1974-76	9-16-76	.10
16955000	Anasosopo Stream at Anasosopo	Lat 14°17'14" S., long 170°39'44" W., 400 ft (122 m) upstream from highway bridge at Anasosopo and 0.1 mi (0.2 km) upstream from mouth.	.05 (.13)	1959-61, 1963-65, 1968, 1971, 1974-76	9-16-76	.05
16956000	Vaitele Stream at Laulilituai	Lat 14°17'05" S., long 170°39'07" W., 200 ft (61 km) upstream from left-bank tributary, 0.5 mi (0.8 km) north of Laulilituai and 0.7 mi (1.1 km) upstream from mouth.	.19 (.49)	1959-61, 1963-65, 1968, 1970, 1974-76	9-21-76	.36
16957000	Lesea Stream at Laulilituai	Lat 14°17'19" S., long 170°39'00" W., 0.1 mi (0.2 km) upstream from mouth and 0.3 mi (0.5 km) northeast of Laulilituai.	.02 (.05)	1959-61, 1963-65, 1968, 1974-76	9-21-76	.19
16958000	Visa Stream at Alega	Lat 14°17'21" S., long 170°38'37" W., 0.2 mi (0.3 km) upstream from mouth and 0.5 mi (0.8 km) southwest of Alega.	.10 (.26)	1959-61, 1963-65, 1967-69, 1971, 1974-76	9-21-76	.09
16959000	Visa Stream at Aumi	Lat 14°17'27" S., long 170°38'36" W., 100 ft (30 m) upstream from highway bridge and 0.2 mi (0.3 km) east of Aumi.	.16 (.41)	1957-58≠, 1963-64, 1968-71 1974-76	9-21-76	.04

≠ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Measurements Date	Measurements Discharge (ft^3/s)
		Samoa Islands, Island of Tutuila--Continued				
16960500	Alega Stream tributary at Alega	Lat 14°16'57" S., long 170°38'16" W., 300 ft (91 m) upstream from mouth and 0.2 mi (0.3 km) north of Alega.	0.04 (.10)	1961, 1963-65, 1967-69, 1974, 1976	10- 7-75	0.15
16961000	Muliolevai Stream at Auto	Lat 14°16'37" S., long 170°37'54" W., 400 ft (122 m) downstream from unnamed tributary, 0.5 mi (0.8 km) northwest of Auto, and 0.5 (0.8 km) upstream from mouth.	.22 (.57)	1959-61, 1963-65, 1968-69, 1974, 1976	9-21-76	.13
16963000	Televai Stream at Amouli	Lat 14°16'25" S., long 170°34'55" W., 50 ft (15 m) downstream from right-bank tributary, 0.1 mi (0.2 km) upstream from Tuavaa Stream, and 0.3 mi (0.5 km) north of Amouli.	.10 (.26)	1959-61, 1963-65, 1968-71, 1974-76	11-11-75	.02
16964000	Leafu Stream at Auasi	Lat 14°16'28" S., long 170°34'26" W., 0.1 mi (0.2 km) north of Auasi and 0.2 mi (0.3 km) upstream from mouth.	.12 (.31)	1959-61, 1963-65, 1968-71, 1976	10- 1-75	.06
16965000	Vaialili Stream at Alao	Lat 14°16'15" S., long 170°34'08" W., 0.2 mi (0.3 km) upstream from Vaifusi Stream and 0.5 mi (0.8 km) southwest of Alao.	.10 (.26)	1959-61, 1963-65, 1968, 1970-71, 1974-76	9-13-76	.03

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 or 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 made 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 1976

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Hawaii, Island of Kauai					
16038000	Waimea River at Waimea	Lat 21°57'23", long 159°39'59", 150 ft (46 m) upstream from highway bridge at Waimea and 0.2 mi (0.3 km) upstream from mouth.	86.5 (224.0)	1944-76d	10-21-75	6.48	-
16052000	Hanapepe River at Hanapepe	Lat 21°54'47", long 159°35'33", 400 ft (122 m) upstream from bridge on Highway 50 and 0.5 mi (0.8 km) upstream from mouth.	26.6 (68.9)	1950-76d	2- 6-76	4.69	-
**16052500	Lawai Stream near Koloa	Lat 21°54'11", long 159°30'21", on right bank at private road bridge, 0.9 mi (1.4 km) upstream from mouth and 2.4 mi (3.9 km) southwest of Koloa.	6.62 (17.15)	1962-63, 1964-72≠, 1973-76	4- 3-76	-	e400
**16055000	Huleia Stream near Lihue	Lat 21°57'20", long 159°25'23", at highway bridge, 3.7 mi (6.0 km) southwest of Lihue, and 4.5 mi (7.2 km) upstream from mouth.	17.6 (45.6)	1912-15≠, 1962-67, 1968-70≠, 1971-76	3-19-76	-	e1,200
16071800	Wailua River near Kapaa	Lat 22°03'00", long 159°20'26", at State Park 600 ft (183 m) upstream from highway bridge, 850 ft (259 m) upstream from mouth, and 2.5 mi (4.0 km) southwest of Kapaa.	52.6 (136.2)	1962-76d	10-20-75	5.82	-
16073500	Konohiki Stream near Kapaa	Lat 22°04'01", long 159°20'21", at culvert on private road, 1.8 mi (2.9 km) upstream from mouth and 2.4 mi (3.9 km) southwest of Kapaa High School.	3.38 (8.75)	1964-67, 1970-76	11-26-75	4.52	45
16081200	Akulikuli Stream near Kapaa	Lat 22°06'25", long 159°22'07", at Kahuna road crossing, 800 ft (244 m) upstream from mouth and 3.5 mi (5.6 km) northwest of Kapaa armory.	.40 (1.04)	1964-76	3- 1-76	4.43	230
16084500	Kapaa Stream at old highway crossing, near Kealia	Lat 22°06'28", long 159°19'52", at abutment of old highway bridge, 100 ft (30 m) upstream from road crossing, 1.4 mi (2.2 km) northwest of Kealia and 2.1 mi (3.4 km) upstream from mouth.	14.0 (36.3)	1962-76	3-19-76	11.27	5,370
16085000	Honaikawaa Stream near Kealia	Lat 22°07'23", long 159°18'12", at culvert on Highway 56, 1.6 mi (2.6 km) southeast of Anahola School and 1.6 mi (2.6 km) north of Kealia.	.85 (2.20)	1964-76	1-20-76	4.44	/
16097900	Puukumu Stream near Kilauea	Lat 22°13'02", long 159°25'18", at culvert on Highway 56, 0.8 mi (1.3 km) northwest of Kilauea School and 0.9 mi (1.4 km) upstream from mouth.	.91 (2.36)	1964-68, 1971-76	7-20-76	4.41	103

** Also a water-quality partial-record station.
/ Discharge not determined.
≠ Operated as a continuous-record gaging station.
d Gage height only.
e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Hawaii, Island of Kauai--Continued					
16104200	Hanalei River at Highway 56 Bridge near Hanalei	Lat 22°12'50", long 159°28'43", at highway bridge, 1.6 mi (2.6 km) northeast of Hanalei and 2.4 mi (3.9 km) upstream from mouth.	21.0 (54.4)	1963-76d	10-20-75	8.10	-
16130000	Nahomalu Valley near Mana	Lat 22°02'41", long 159°45'17", on left bank 1.1 mi (1.8 km) northeast of Mana and 5.3 mi (8.5 km) northwest of Kekaha School.	3.81 (9.87)	1962-63, 1964-71≠, 1972-76	2- 6-76	2.90	146
		Hawaii, Island of Oahu					
16210500	Kaukonahua Stream at Waialua	Lat 21°33'56", long 158°07'26", 0.2 mi (0.3 km) upstream from Highway 99, 0.4 mi (0.6 km) southeast of Waialua High School and 1.3 mi (2.1 km) southwest of Weed Circle.	38.7 (100.2)	1963, 1968-76	2- 6-76	20.43	2,650
16211200	Poamoho Stream at Waialua	Lat 21°34'00", long 158°06'40", at culvert crossing of Kaheaka Road, 0.2 mi (0.3 km) upstream from Highway 83 and 1.1 mi (1.8 km) east of Waialua High School.	10.9 (28.2)	1967-76	2- 7-76	15.79	e1,500
16211300	Makaleha Stream near Waialua	Lat 21°33'49", long 158°09'21", 1.0 mi (1.6 km) southwest of Dillinghan Ranch and 1.9 mi (3.1 km) southwest of sugar mill at Waialua.	4.15 (10.75)	1958-63, 1964-65≠, 1966-76	2- 7-76	6.55	895
16211400	Manini Gulch at Kaena	Lat 21°34'50", long 158°15'12", 180 ft (55 m) upstream from Highway 99, 1.7 mi (2.7 km) west of Camp Erdman and 2.0 mi (3.2 km) east of Kaena Point.	1.08 (2.80)	1974-76	2- 7-76	3.19	316
16211500	Makua Stream at Makua	Lat 21°31'59", long 158°13'49", on left bank, 20 ft (6 m) upstream from old concrete highway ford, 140 ft (43 m) downstream from Farrington Highway box culvert, 0.1 mi (0.2 km) north of Makua cemetery, and 4.5 mi (7.2 km) southeast of Kaena Point lighthouse.	4.28 (11.09)	1958-76	2- 7-76	8.0	3,220
16211700	Makaha Stream at Makaha	Lat 21°28'47", long 158°12'31", 0.9 mi (1.4 km) upstream from Farrington Highway and 1.1 mi (1.8 km) north of junction of Farrington Highway and Makaha Valley Road.	5.25 (13.60)	1966-76	2- 7-76	16.4	4,310
16211800	Kaupuni Stream at altitude 374 ft (114 m), near Waianae	Lat 21°28'20", long 158°09'26", at abandoned diversion dam, 2.6 mi (4.2 km) northeast of Waianae cenetery and 2.8 mi (4.5 km) northeast of junction of Waianae Valley Road and Farrington Highway.	3.58 (9.27)	1961-72≠, 1973-76	2- 7-76	6.59	1,730
16212200	Mailiilii Stream near Waianae	Lat 21°27'34", long 158°08'05", at bridge at Lualualei Naval Reservation and 3.4 mi (5.5 km) east of cenetery near Waianae.	1.51 (3.91)	1958-76	2- 7-76	5.89	1,340
16212300	Nanakuli Stream at Nanakuli	Lat 21°23'08", long 158°08'11", 0.7 mi (1.1 km) upstream from Highway 90 and 0.6 mi (1.0 km) northeast of Nanakuli Post Office.	3.98 (10.31)	1968-76	2- 7-76	26.2	3,320

≠ Operated as a continuous-record gaging station.
d Gage height only.
e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft³/s)
		Hawaii, Island of Oahu--Continued					
16212450	Kaloi Gulch tributary near Honouliuli	Lat 21°22'41", long 158°03'45", at culvert on private road, 1.8 mi (2.9 km) west of Honouliuli and 2.8 mi (4.5 km) northwest of Ewa Post Office.	1.70 (4.40)	1968-76	11-25-75	7.89	e500
**16212500	Honouliuli Stream near Waipahu	Lat 21°22'40", long 158°02'10", at bridge on Farrington Highway and 1.8 mi (2.9 km) west of Waipahu Post Office.	11.0 (28.5)	1956-76	11-25-75	6.64	1,990
16212601	Waikele Stream at Wheeler Field	Lat 21°28'44", long 158°03'07", at culvert 0.3 mi (0.5 km) west of east-west runway at Wheeler Field, and 1.9 mi (3.1 km) southwest of Wahiawa Post Office.	6.35 (16.45)	1958, 1960-76	2- 7-76	13.32	1,200
16212700	Waikakalaua Stream near Wahiawa	Lat 21°27'50", long 158°01'38", 0.2 mi (0.3 km) downstream from Kamehameha Highway and 2.4 mi (3.9 km) south of Wahiawa Post Office.	7.49 (19.40)	1958-76	11-26-75	5.04	551
16212750	Huliwai Gulch near Kunia Camp	Lat 21°26'43", long 158°03'47", 200 ft (61 m) upstream from Highway 75 and 1.2 mi (1.9 km) south of Kunia Camp.	.84 (2.18)	1974-76	2- 7-76	13.07	297
16223000	Waimalu Stream near Aiea	Lat 21°23'48", long 157°56'56", 1,300 ft (400 m) upstream fron bridge on Moanalua Road and 1.2 mi (1.9 km) northwest of Aiea High School.	5.97 (15.46)	1952-70≠, 1973-76	11-26-75	3.10	1,520
16227000	Halawa Stream at Aiea	Lat 21°22'26", long 157°55'42", 0.7 mi (1.1 km) southeast of Aiea Post Office and 6.2 mi (10.0 km) northwest of Honolulu Post Office.	8.78 (22.74)	1954-62, 1966-72, 1976	11-25-75	3.96	1,200
**16228200	Moanalua Stream near Aiea	Lat 21°22'37", long 157°53'03", on right bank 1.1 mi (1.8 km) northeast of Tripler Hospital and 2.9 mi (4.7 km) east of Aiea sugar refinery.	3.34 (8.65)	1969-76	11-25-75	5.18	1,460
**16228600	Moanalua Stream at Tripler Hospital	Lat 21°21'52", long 157°54'05", on right bank 0.5 mi (0.8 km) west of Tripler Hospital and 1.6 mi (2.6 km) northeast of Aliamanu School.	4.44 (11.50)	1971-76	11-25-75	15.12	e1,700
16228900	Kaiihi Stream near Kaneohe	Lat 21°22'35", long 157°49'32", on right bank 800 ft (244 m) downstream fron Likelike Highway, and 2.8 mi (4.5 km) southwest of Castle High School in Kaneohe.	.60 (1.55)	1967-71≠, 1972-76	11-26-75	2.90	270
16235400	Waolani Stream at Honolulu	Lat 21°20'00", long 157°51'04", at Wyllie Street bridge and 1.8 mi (2.9 km) northeast of Honolulu Post Office.	1.28 (3.32)	1958-76	11-26-75	1.96	388
16237500	Pauoa Stream at Honolulu	Lat 21°19'18", long 157°51'03", at Lusitana Street bridge and 1.1 mi (1.8 km) northeast of Honolulu Post Office.	1.43 (3.70)	1958-76	11-26-75	.85	455
**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 (0.5 km) downstream fron confluence of Manoa and Palolo Streams and 0.6 mi (1.0 km) upstream from point of discharge into Ala Wai Canal.	9.35 (24.22)	1968-76	11-26-75	7.15	2,750

** Also a water-quality partial-record station.
≠ Operated as a continuous-record gaging station.
e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Hawaii, Island of Oahu--Continued					
16247500	Wailupe Gulch at Aina Haina	Lat 21°17'46", long 157°45'29", at Ani Street bridge and 1.0 mi (1.6 km) upstream from Kalanianaole Highway in Aina Haina.	2.35 (6.09)	1958-76	11-26-75	-	e370
16247900	Kuliouou Valley at Kuliouou	Lat 21°17'50", long 157°43'35", at Kuliouou, 300 ft (91 m) downstream of single-lane wooden bridge and 0.6 mi (1.0 km) upstream from Highway 72.	1.18 (3.06)	1958-59, 1970-76	11-26-75	27.71	216
16248800	Inoaole Stream at Waimanalo	Lat 21°20'31", long 157°42'40", 30 ft (9 m) upstream from culvert on Hihimanu Street and 0.8 mi (1.3 km) northwest of Waimanalo Post Office.	1.21 (3.13)	1958-76	11-26-75	4.46	282
16249000	Waimanalo Stream at Waimanalo	Lat 21°21'12", long 157°43'52", on right bank 40 ft (12 m) upstream from Highway 72 and 2.3 mi (3.7 km) northwest of Waimanalo Post Office.	2.16 (5.59)	1967-70≠, 1971-76	11-26-75	4.58	e750
16249100	Kaelepulu Stream tributary at Kailua	Lat 21°21'44", long 157°44'22", 30 ft (9 m) upstream from Kalanianaole Highway, 1.6 mi (2.6 km) northwest of Waimanalo School and 2.4 mi (3.9 km) south of Kailua Post Office.	.16 (.41)	1963-76	11-27-75	2.58	77
16260500	Maunawili Stream at Highway 61, near Kailua	Lat 21°22'51", long 157°45'48", on right bank at downstream side of bridge on Highway 61, 0.6 mi (1.0 km) west of Maunawili School and 1.6 mi (2.6 km) southwest of Kailua Post Office.	5.34 (13.83)	1958-67, 1968-71≠, 1972-76	11-27-75	9.46	1,200
16264800	Kawainui Canal at Kailua	Lat 21°24'15", long 157°45'28", at head of canal and 1.2 mi (1.9 km) northwest of Kailua Post Office.	11.0 (28.5)	1957-60, 1963-64, 1967-76d	11-27-75	4.02	-
**16270900	Luluku Stream at altitude 220 ft (67 m), near Kaneohe	Lat 21°23'42", long 157°48'46", on left bank 0.5 mi (0.8 km) upstream from mouth, 1.4 mi (2.2 km) southwest of Castle High School, and 1.9 mi (3.1 km) south of Kaneohe Post Office.	.44 (1.14)	1967-71≠, 1972-75, 1976	2- 6-76	3.71	112
16274499	Keaahala Stream at Kamehameha Highway, at Kaneohe	Lat 21°25'12", long 157°48'15", 35 ft (11 m) upstream from bridge on Kamehameha Highway in Kaneohe.	.62 (1.61)	1959-76	11-25-75	-	e500
16279500	Heeia Stream at Kaneohe	Lat 21°25'17", long 157°49'01", 60 ft (18 m) downstream from culvert on Kahekili Highway, 0.7 mi (1.1 km) west of Kaneohe Post Office and 0.8 mi (1.3 km) southwest of Heeia.	1.80 (4.66)	1965-66, 1968-76	11-25-75	5.59	1,190
*16283480	Ahuimanu Stream near Kahaluu	Lat 21°27'04", long 157°50'13", at bridge on Ahuimanu Road and 0.8 mi (1.3 km) south of Kahaluu.	2.31 (5.98)	1963-76	11-26-75	8.39	e800
16304500	Kaluanui Stream at Hauula	Lat 21°35'57", long 157°54'24", on left downstream wingwall of concrete bridge, 1.2 mi (1.9 km) southeast of cemetery in Hauula and 1.4 mi (2.2 km) northeast of Sacred Falls.	2.12 (5.49)	1958-76	11-26-75	3.08	e300
16310501	Malaekahana Stream at altitude 30 ft (9 m), near Kahuku	Lat 21°39'47", long 157°57'11", at abandoned plantation railroad bridge, 1.1 mi (1.8 km) southwest of junction of plantation road and Highway 83, and 1.2 mi (1.9 km) south of Kahuku Hospital.	4.05 (10.49)	1959-76	11-25-75	8.02	e300

* Also a low-flow partial-record station.
** Also a water-quality partial-record station.
≠ Operated as a continuous-record gaging station.
d Gage height only.
e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft³/s)
		Hawaii, Island of Oahu--Continued					
16311000	Oio Stream near Kahuku	Lat 21°41'32", long 157°59'48", 0.6 mi (1.0 km) southwest of junction of Plantation Road and Highway 83 and 2.7 mi (4.3 km) west of Kahuku Hospital.	2.13 (5.52)	1958-76	2- 7-76	7.55	e210
16317800	Kaunala Gulch near Sunset Beach	Lat 21°40'59", long 158°02'12", on downstream left bank wingwall of road bridge on Highway 83 near Sunset Beach and 2.9 mi (4.7 km) northeast of Waimea.	1.98 (5.13)	1973-76	2- 7-76	2.88	e230
16318000	Paumalu Gulch at Sunset Beach	Lat 21°40'19", long 158°02'28", 0.4 mi (0.6 km) upstream from Highway 83 at Sunset Beach and 2.2 mi (3.5 km) northeast of Waimea.	2.59 (6.71)	1968-76	2- 7-76	3.37	e100
16331000	Waimea Gulch near Kawailoa Camp	Lat 21°37'29", long 158°04'58", at culvert on Ashley Road, 0.1 mi (0.2 km) upstream from Highway 83 and 1.1 mi (1.8 km) north of Kawailoa Camp.	2.23 (5.78)	1968-76	2- 7-76	1.79	38
16340000	Anahulu River near Haleiwa	Lat 21°35'28", long 158°04'45", 1.7 mi (2.7 km) southeast of junction of Emerson Road and Kamehameha Highway and 2.5 mi (4.0 km) east of Waialua School at Haleiwa.	13.5 (35.0)	1958-76	11-25-75	5.77	1,760
16350000	Opaeula Stream near Haleiwa	Lat 21°35'09", long 158°06'01", 0.6 mi (1.0 km) upstream from Kamehameha Highway and 2.1 mi (3.4 km) northeast of Waialua.	5.96 (15.44)	1956-76	4-29-76	11.39	717
		Hawaii, Island of Molokai					
16411300	Kakaako Gulch at Highway 46, near Mauna Loa	Lat 21°08'49", long 157°11'36", at Highway 46, 1.6 mi (2.6 km) northeast of Mauna Loa, and 1.8 mi (2.9 km) upstream from Kamakahi Gulch.	.55 (1.42)	1964-76	2- 6-76	.76	4.1
16411320	Kakaako Gulch above Kamakahi Gulch, near Mauna Loa	Lat 21°10'11", long 157°11'56", 0.1 mi (0.2 km) upstream from Kamakahi Gulch, 1.7 mi (2.7 km) downstream from Highway 46, and 2.5 mi (4.0 km) northeast of Mauna Loa.	1.40 (3.63)	1964-76	2- 6-76	-	e2
16411400	Kakaako Gulch near Mauna Loa	Lat 21°10'39", long 157°12'31", on left bank 1.0 mi (2.0 km) downstream from Kamakahi Gulch and 3.0 mi (4.8 km) north of Mauna Loa School.	5.34 (13.83)	1963-72≠, 1973-76	3- 4-76	2.19	397
16411600	Kaunala Gulch near Mauna Loa	Lat 21°07'01", long 157°15'43", at Sand Haul Road, 3.2 mi (5.2 (km) east of Laau Point lighthouse, and 3.3 mi (5.3 km) southwest of Mauna Loa.	.28 (.73)	1964-76	2- 6-76	1.10	10
16411640	Halena Gulch near Mauna Loa	Lat 21°05'53", long 157°13'47", 2.7 mi (4.3 km) southwest of Mauna Loa and 5.5 mi (8.8 km) east of Laau Point.	2.07 (5.36)	1965-76	2- 6-76	2.27	239
16411800	Kaluapeelua Gulch at Hoolehua	Lat 21°09'55", long 157°04'22", 0.4 mi (0.6 km) south of Hoolehua and 2.1 mi (3.4 km) west of Kualapuu.	1.46 (3.78)	1964-76	2- 6-76	1.32	21
16411900	Kaluapeelua Gulch tributary near Molokai Airport	Lat 21°08'57", long 157°07'12", 1.7 mi (2.7 km) southwest of Molokai Airport and 5.1 mi (8.2 km) west of Kualapuu.	1.56 (4.04)	1964-76	3- 4-76	6.76	101

≠ Operated as a continuous-record gaging station.
e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Hawaii, Island of Molokai--Continued					
16413500	Manawainui Gulch near Kualapuu	Lat 21°07'42", long 157°03'25", at bridge on Highway 46, 0.5 mi (0.8 km) south of Holomua School and 2.3 mi (3.7 km) southwest of Kualapuu.	10.4 (26.9)	1965-76	3- 4-76	7.51	764
16414100	Unnamed gulch at Kaunakakai	Lat 21°05'14", long 157°00'45", at bridge on Highway 45, 0.6 mi (1.0 km) southeast of Kaunakakai and 0.8 mi (1.3 km) northwest of Kaniloloa.	1.19 (3.08)	1965-76	-	-	No flow
16415400	Wawaia Gulch at Kamalo	Lat 21°03'25", long 156°52'20", at Highway 45, 0.3 mi (0.5 km) upstream from mouth, and 0.5 mi (0.8 km) northeast of Kamalo.	2.12 (5.49)	1964-76	2- 6-76	1.47	460
16419000	Pohakupili Gulch near Halawa	Lat 21°07'59", long 156°44'15", at Highway 45, 0.5 mi (0.8 km) upstream from mouth and 1.9 mi (3.1 km) south of Halawa.	.48 (1.24)	1964-76	3-17-76	5.67	59
		Hawaii, Island of Maui					
16500100	Kepuni Gulch near Kahikinui House	Lat 20°37'21", long 156°15'16", on right bank 120 ft (37 m) upstream from bridge on Highway 31, 400 ft (122 m) upstream from Kamole Gulch, 1.1 mi (1.8 km) east of Kahikinui House, and 8.5 mi (13.7 km) west of Kaupo.	1.91 (4.95)	1963-72≠, 1973-76	11-24-75	4.86	244
16500300	Hawelewele Gulch near Kaupo	Lat 20°38'01", long 156°11'08", 700 ft (213 m) upstream from Piilani Highway 31 and 3.9 mi (6.3 km) west of Kaupo.	11.3 (29.3)	1967-76	11-24-75	7.65	3,550
16500800	Kukuiula Gulch near Kipahulu	Lat 20°39'18", long 156°04'44", at Highway 31, 1.3 mi (2.1 km) west of Kipahulu and 3.2 mi (5.2 km) east of Kaupo.	.76 (1.97)	1963-68≠, 1969-76	3-17-76	2.01	200
*16502000	Hahalawe Gulch near Kipahulu	Lat 20°40'54", long 156°02'50", on left bank at old ditch intake, 0.7 mi (1.1 km) upstream from mouth, and 1.8 mi (2.9 km) northeast of Kipahulu Church.	.43 (1.11)	1927-69≠, 1970-76	3-17-76	3.34	470
16502400	Pukuilua Gulch near Hana	Lat 20°42'00", long 156°00'14", at Highway 31, 0.4 mi (0.6 km) southwest of Puuiki, and 4.0 mi (6.4 km) south of Hana.	.48 (1.24)	1963-76	11-20-75	3.23	141
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 (1.6 km) south of Hana.	.90 (2.33)	1963-76	11-20-75	10.24	572
16502900	Kawaipapa Gulch at Hana	Lat 20°46'08", long 156°00'04", 1,000 ft (305 m) upstream from Highway 36 and 0.3 mi (0.5 km) northwest of Hana Hospital.	5.83 (15.10)	1965-76	11-20-75	6.82	3,010
16603300	Unnamed gulch at Maliko Bay	Lat 20°56'26", long 156°21'04", at Hana Highway, 0.5 mi (0.8 km) west of Maliko Bay, and 1.3 mi (2.1 km) north of Hamakuapoko.	.43 (1.11)	1963-76	-	-	No flow
16603700	Kalialinui Gulch tributary near Pukalani	Lat 20°49'02", long 156°19'44", at Lower Kula Road and 1.4 mi (2.3 km) south of Pukalani.	1.17 (3.03)	1967-76	1-16-76	7.34	452
16603800	Kaluapulani Gulch tributary near Pukalani	Lat 20°48'52", long 156°18'32", at Haleakala Highway, 1.5 mi (2.4 km) west of Olinda Prison Camp, and 2.3 mi (3.7 km) southeast of Pukalani.	.45 (1.17)	1963-76	1-16-76	6.23	205

* Also a low-flow partial-record station.
≠ Operated as a continuous-record gaging station.

Annual maximum discharge at crest-stage partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum Date	Gage height (feet)	Annual maximum Discharge (ft³/s)
		Hawaii, Island of Maui--Continued					
16603850	Kalialinui Gulch near Kahului	Lat 20°52'47", long 156°26'06", 600 ft (183 m) upstream from Hansen Road, 0.5 mi (0.8 km) northeast of Puunene Hospital, and 2.5 mi (4.0 km) southeast of Kahului Post Office.	17.9 (46.4)	1967-76	1-16-76	-	757
**16607000	Iao Stream at Wailuku	Lat 20°53'38", long 156°30'27", 560 ft (171 m) upstream from Market Street bridge at Wailuku and 1.9 mi (3.1 km) upstream from mouth.	8.24 (21.4)	1951≠, 1952-76	3- 4-76	4.00	2,390
16616500	Unnamed gulch at Maluhia Camp	Lat 20°57'26", long 156°31'41", at Kahekili Highway, 0.6 mi (1.0 km) east of Maluhia Camp and 1.8 mi (2.9 km) northwest of Waihee.	.12 (.31)	1964-76	-	-	No flow
16619700	Poelua Gulch near Kahakuloa	Lat 21°00'58", long 156°34'58", at Highway 30 (bypass), 1.3 mi (2.1 km) southeast of Nakalele Point lighthouse, and 2.2 mi (3.5 km) northwest of Kahakuloa.	1.18 (3.06)	1965-76	3- 4-76	7.87	255
16623400	Honokeana Gulch near Honokahua	Lat 20°59'39", long 156°40'13", at Honoapiilani Highway, 1.1 mi (1.8 km) southwest of Honokahua and 1.1 mi (1.8 km) south of Hawea Point.	.59 (1.53)	1964-76	3- 4-76	4.19	95
16630200	Honokowai Stream at Honokowai	Lat 20°56'58", long 156°41'07", 0.5 mi (0.8 km) southeast of Honokowai and 1.1 mi (1.8 km) northwest of Puukolii.	5.59 (14.48)	1962-63, 1965-76	3- 4-76	3.66	382
16643300	Kauaula Stream near mouth, near Lahaina	Lat 20°52'09", long 156°39'43", 0.7 mi (1.1 km) upstream fron Honoapiilani Highway (bypass) and 1.3 mi (2.1 km) southeast of Lahaina lighthouse.	4.12 (10.67)	1960, 1962, 1964-76	3- 4-76	-	e10
16646200	Olowalu Stream at Olowalu	Lat 20°49'23", long 156°37'15", on downstream side of center pier of plantation road bridge, 0.6 mi (1.0 km) northeast of Olowalu, and 5.5 mi (8.8 km) southeast of Lahaina.	4.08 (10.57)	1962-72≠, 1973-76	3- 4-76	2.26	113
16647500	Malalowaiaole Gulch near Maalaea	Lat 20°46'56", long 156°31'32", at Honoapiilani Highway, 200 ft (61 m) upstream from mouth, 0.2 mi (0.3 km) north of McGregor Point, and 1.2 mi (1.9 km) southwest of Maalaea.	.64 (1.66)	1964-76	3- 4-76	-	e2
16650500	Waikapu Stream near Kihei	Lat 20°49'02", long 156°29'00", at railroad bridge beside Lower Maalaea Road, 2.5 mi (4.0 km) northeast of Maalaea, and 2.5 mi (4.0 km) northwest of Kihei.	6.97 (18.05)	1963-76	3- 4-76	2.91	303
16658500	Waiakoa Gulch tributary near Waiakoa	Lat 20°44'56", long 156°19'22", at Upper Kula Road, 1.0 mi (1.6 km) southeast of Waiakoa and 1.0 mi (1.6 km) northeast of junction of Lower and Upper Kula Roads.	.98 (2.54)	1964-76	11-24-75	1.58	23
16659000	Waiakoa Gulch at Kihei	Lat 20°47'14", long 156°27'41", 0.3 mi (0.5 km) northeast of Kihei and 0.4 mi (0.6 km) upstream from mouth.	10.1 (26.2)	1963-76	11-24-75	5.97	109
16660000	Kulanihakoi Gulch near Kihei	Lat 20°46'06", long 156°27'03", on right bank 0.5 mi (0.8 km) northeast of Lihue Cemetery, 0.8 mi (1.3 km) upstream from mouth and 1.3 mi (2.1 km) southeast of Kihei.	14.4 (37.3)	1963-70≠, 1971-76	11-24-75	-	e27

** Also a water-quality partial-record station.
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e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft³/s)
		Hawaii, Island of Maui--Continued					
16663500	Kamaole Gulch at Kamaole	Lat 20°43'36", long 156°27'02", at Kihei Road, 350 ft (107 m) upstream from mouth, and 0.2 mi (0.3 km) south of Kamaole.	4.28 (11.09)	1972-76	11-24-75	-	e3
16664000	Liilioholo Gulch at Kamaole	Lat 20°43'04", long 156°26'55", on upstream side of Kihei Road, 300 ft (91 m) upstream from mouth, and 0.8 mi (1.3 km) south of Kamaole.	4.12 (10.67)	1972-76	11-24-75	-	e2
		Hawaii, Island of Hawaii					
16701300	Waiakea Stream at Hilo	Lat 19°42'38", long 155°05'02", 0.3 mi (0.5 km) upstream from Kinoole Street bridge and 1.3 mi (2.1 km) southeast of Hilo Post Office.	35.8 (92.7)	1968-76	1- 7-76	3.72	254
16701400	Palai Stream at Hilo	Lat 19°40'56", long 155°04'04", at Highway 11, 300 ft (91 m) south of Palai Street intersection and 3.5 mi (5.6 km) southeast of Hilo Post Office.	5.08 (13.16)	1965-76	1- 7-76	4.77	428
16717400	Kalaoa Mauka Stream near Hilo	Lat 19°48'07", long 155°06'03", at culvert on Highway 19, 1.0 mi (1.6 km) north of Papaikou and 5.1 mi (8.2 km) north of Hilo Post Office.	.24 (.62)	1963-76	1- 7-76	3.46	38
16717600	Alia Stream near Hilo	Lat 19°50'38", long 155°06'21", on left bank 10 ft (3.0 m) downstream from culvert on Highway 19 at Pepeekeo, 2.0 mi (3.2 km) south of Honomu, and 8.0 mi (12.9 km) north of Hilo.	.58 (1.50)	1962-72≠, 1973-76	1- 7-76	3.93	329
16717650	Kapehu Stream near Pepeekeo	Lat 19°51'52", long 155°06'11", at culvert on Highway 19, 1.0 mi (1.6 km) southeast of Honomu, 2.2 mi (3.5 km) north of Pepeekeo, and 9.4 mi (15.1 km) north of Hilo.	1.09 (2.82)	1963-76	1- 7-76	7.90	727
16717850	Keehia Gulch near Ookala	Lat 20°01'08", long 155°18'45", at culvert on Highway 19, 1.7 mi (2.7 km) west of Ookala, and 4.1 mi (6.6 km) southeast of Paauiio.	.62 (1.61)	1963-76	7- 1-76	2.05	36
16717920	Ahualoa Gulch at Honokaa	Lat 20°05'12", long 155°29'17", at Highway 24, 1.1 mi (1.8 km) northwest of Honokaa Hospital, and 1.5 mi (2.4 km) upstream from mouth.	2.27 (5.88)	1963-76	8- 3-76	5.95	14
16717950	Honokaia Gulch tributary near Honokaa	Lat 20°02'58", long 155°32'19", at culvert, 4.8 mi (7.7 km) southwest of Honokaa Hospital, and 5.5 mi (8.8 km) southeast of Kukuihaele.	2.42 (6.27)	1963-76	-	-	No flow
16752600	Hapahapai Gulch at Kapaau	Lat 20°14'00", long 155°48'00", at Highway 27, 300 ft (91 m) east of Kapaau Post Office.	1.52 (3.94)	1963-76	-	-	No flow
16755800	Luahine Gulch near Waimea	Lat 20°03'11", long 155°44'35", at culvert 5.1 mi (8.2 km) northwest of Waimea and 5.7 mi (9.2 km) east of Kawaihae.	.32 (.83)	1963-76	1-16-76	2.21	47
16756500	Keanuiomano Stream near Kamuela	Lat 20°01'48", long 155°42'05", on left bank 150 ft (46 m) upstream from Highway 25 at Waiaka and 2.0 mi (3.2 km) west of Kamuela.	4.30 (11.14)	1964-72≠, 1973-76	1-16-76	5.57	745

≠ Operated as a continuous-record gaging station.
e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1976--Continued

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Annual maximum Date	Gage height (feet)	Discharge (ft^3/s)
		Hawaii, Island of Hawaii--Continued					
16759040	Paiakuli Reservoir tributary near Waimea	Lat 20°02'16", long 155°38'08", at Highway 19, 2.1 mi (3.4 km) west of Puukapu Reservoir, and 2.6 mi (4.2 km) northeast of Waimea.	0.27 (.70)	1963-76	8-12-76	2.06	47
16759060	Kanakoa Gulch near Waimea	Lat 19°57'32", long 155°41'02", at bridge, 1.4 mi (2.2 km) north of Saddle Road Junction and 4.5 mi (7.2 km) south of Wainea.	50.6 (131.1)	1963-76	-	-	No flow
16759080	Popoo Gulch near Waikii	Lat 19°52'11", long 155°43'51", at bridge on Highway 19, 2.0 mi (3.2 km) north of Keamuku and 5.2 mi (8.4 km) west of Waikii.	33.1 (85.7)	1963-76	-	-	No flow
16759180	Keopu Stream near Kailua	Lat 19°38'54", long 155°58'15", at county road bridge, 1.9 mi (3.1 km) east of Kailua, and 2.3 mi (3.7 km) northwest of Holualoa Post Office.	2.61 (6.76)	1962, 1965-76	-	-	No flow
16759300	Waiaha Stream at Luawai, near Holualoa	Lat 19°38'12", long 155°55'45", on right bank at Luawai, 1.8 mi (2.9 km) northeast of Holualoa School, and 4.2 mi (6.8 km) southeast of Honokohau School.	8.74 (22.64)	1961-76	9-29-76	3.40	143
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 (0.3 km) upstream from Highway 11 at Naalehu.	2.87 (7.43)	1963-76	1- 5-76	5.84	871
16770000	Hionanoa Gulch at Pahala	Lat 19°11'45", long 155°29'11", at bridge, 0.6 mi (1.0 km) southwest of Pahala, and 4.1 mi (6.6 km) north of Punaluu.	9.41 (24.37)	1963-76	1- 5-76	15.50	6,600

DISCHARGE MEASUREMENTS MADE AT MISCELLANEOUS SITES DURING WATER YEAR 1976

Stream	Tributary to	Location	Drainage area mi^2 (km^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Hawaii, Island of Maui				
Diversion ditch from Wailuanui Stream at Wailua	Pacific Ocean	Lat 20°50'27", long 156°08'17", 0.3 mi (0.5 km) southeast from Keanae Valley Lookout Park, 0.5 mi (0.8 km) south of Wailua Homesteads, 0.9 mi (1.4 km) south of Keanae School.			3-30-76 8-10-76 10-14-76	1.6 .46 .57
Banana Spring	Waiokamilo Stream	Lat 20°49'55", long 156°09'22", 1.0 mi (1.6 km) southwest of Keanae Valley Lookout Park and 2.0 mi (3.2 km) south of Keanae.		1969	8-13-76	2.5
Waiokamilo Stream	Pacific Ocean	Lat 20°50'39", long 156°08'44", 0.2 mi (0.3 km) west of Keanae Valley Lookout Park and 0.8 mi (1.3 km) south of Keanae School.			8-13-76	2.8
Diversion ditch from Waiokamilo Stream at intake	Pacific Ocean	Lat 20°50'41", long 156°08'43", 0.2 mi (0.3 km) west of Keanae Valley Lookout Park and 0.7 mi (1.1 km) south of Keanae School.			8-13-76	2.8
Diversion ditch from Waiokamilo Stream at outlet	Pacific Ocean	Lat 20°50'53", long 156°08'32", 100 ft (30 m) upstream from Hana Highway and 0.5 mi (0.8 km) south of Keanae School.			3-30-76 8-10-76 8-13-76	3.5 1.3 2.2
Diversion ditch from Piinaau Stream at Keanae	Pacific Ocean	Lat 20°51'28", long 156°09'11", 0.3 mi (0.5 km) south of Hana Highway, 0.4 mi (0.6 km) southwest of Waialohe Pond and 0.8 mi (1.3 km) west of Keanae School.			3-30-76	1.4
Iao Stream	Pacific Ocean	Lat 20°53'01", long 156°32'54", at Iao Needle Park, 0.7 mi (1.1 km) upstream from Kepaniwai Park and 2.7 mi (4.3 km) southwest of Wailuku Federal Building.		1974, 1975	12- 3-75	46
Honokohau Stream	Pacific Ocean	Lat 20°58'43", long 156°35'41", 3.6 mi (5.8 km) above mouth, 4.4 mi (7.1 km) southeast of Honokohua Post Office, and at altitude 580 ft (177 m).		1968, 1975	1-22-76	.76
Honokohau Stream	Pacific Ocean	Lat 20°59'13", long 156°35'56", 2.8 mi (4.5 km) above mouth, 4.0 mi (6.4 km) southeast of Honokahua Post Office and at altitude 440 ft (134 m).			1-22-76	.69
		Mariana Islands, Island of Guam				
Agana River at Agana	Philippine Sea	Lat 13°28'23" N., long 144°45'13" E., 0.2 mi (0.3 km) southeast of Leary Junction, and 0.5 mi (0.8 km) northeast of Government House, Agana.		1959	10-14-59 5-28-76 6- 8-76	b5.2 47 8.2
Agana Springs at Agana	Agana River	Lat 13°27'42" N., long 144°45'30" E., 1 mi (1.6 km) southeast of Leary Junction in Agana.		1961	7-24-61 5-28-76 6- 8-76	b.60 2.5 1.4
*16817000 Toguan River near Umatac	Pacific Ocean	Lat 13°17'03" N., long 144°39'36" E., at Highway 4 bridge, 100 ft (30 m) upstream from mouth, and 0.9 mi (1.4 km) south of Umatac.	0.48 (1.24)	1952, 1960-75	5-21-76	a2,180
		Caroline Islands, Island of Ponape				
*16897800 Tawenjokola River at mouth	Pacific Ocean	Lat 06°56'42" N., long 158°13'50" E., 0.1 mi (0.2 km) upstream from mouth and 1.4 mi (2.2 km) southwest of Tolenot Peak.	10.9 (28.2)	1970-71, 1973	8- 4-76	a26,710 a2,730

* Also a low-flow partial-record station.
a Result of indirect measurement of peak flow.
b Not previously published.

Water-quality partial-record stations are particular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrologic analyses. The data are collected usually less than quarterly.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF KAUAI

16052500 LAWAI STREAM NEAR KOLOA (LAT 21°54'11" LONG 159°30'21")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 08...	1350	2.0	250	190	77	9	11	12	31

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 08...	46	1.5	2.5	83	0	68	6.7	19	41

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
JAN. 08...	.2	20	179	.24	.27	.01	130	60

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
JAN. 08...	1350	2.0	250	7.3	19.0

16055000 HULEIA STREAM NEAR LIHUE (LAT 21°57'20" LONG 159°25'23")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
JAN. 08...	1515	19	25	10	51	12	6.9	8.2	12

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
JAN. 08...	33	.7	2.0	48	0	39	3.8	14	17

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF KAUAI--Continued

16055000 HULEIA STREAM NEAR LIHUE--Continued

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
JAN. 08...	.2	14	100	.14	.39	.00	30	5

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
JAN. 08...	1515	19	171	7.3	19.5

HAWAII, ISLAND OF OAHU

16208500 RIGHT BRANCH OF SOUTH FORK KAUKONAHUA STREAM NEAR WAHIAWA (LAT 21°29'58" LONG 157°59'07")

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)
MAY 27...	1400	34	35	10	8	1	1.1	1.3	6.0

DATE	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
MAY 27...	60	.9	.4	9	0	7	9.1	3.3	9.9

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
MAY 27...	.1	3.9	31	.04	.03	.00	190	20

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
MAY 27...	1400	34	50	6.2	20.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU--Continued

16212500 HONOULIULI STREAM NEAR WAIPAHU (LAT 21°22'40" LONG 158°02'10")

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
FEB.											
06...	1030	113	6.4	19.2	1800	.16	.03	11	11	11	1.1

16216500 WAIMANO FLOOD CHANNEL AT PEARL CITY (LAT 21°23'49" LONG 157°58'17")

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
FEB.										
06...	1130	59	6.6	250	.08	.09	1.6	1.7	1.8	.38

16227700 MOANALUA STREAM TRIBUTARY NEAR KANEOHE (LAT 21°23'27" LONG 157°50'53")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)
NOV.											
26...	1425	1.2	2	20	9	4.1	2.3	9.3	49	.9	1.1

DATE	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)
NOV.										
26...	13	0	11	33	3.7	17	.1	10	54	.08

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
NOV				
26...	1425	1.2	87	5.8

16227900 MOANALUA STREAM TRIBUTARY NEAR AIEA (LAT 21°23'07" LONG 157°51'42")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT				
19...	1345	2.7	428	3.1
19...	1545	2.7	94	.69
19...	1645	3.5	76	.72
19...	1750	2.6	23	.16
NOV				
25...	1318	3.1	629	5.3
25...	1323	4.4	683	8.1
25...	1325	6.2	763	13
26...	2230	1.2	237	.77
NOV				
26...	2300	4.0	62	.67
27...	0015	4.5	68	.83
27...	0030	4.1	31	.34
27...	0130	4.9	103	1.4
27...	0135	5.4	163	2.4
27...	0140	5.1	110	1.5
27...	0225	3.3	12	.11
27...	0325	2.4	15	.10

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU--Continued

16228200 MOANALUA STREAM NEAR AIEA

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)
NOV. 26...	1220	7.0	7	36	12	6.3	4.9	13	43	.9	1.3
FEB. 06...	0945	91	65	--	--	--	--	--	--	--	--

DATE	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)
NOV. 26...	29	0	24	58	6.1	25	.1	16	87	.12
FEB. 06...	--	--	--	--	--	--	--	--	--	--

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
FEB. 06...	0945	91	.06	.02	1.9	1.9	2.0	.11

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NOV. 26...	1220	7.0	140	5.9	--

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
FEB. 06...	0945	91	69	6.7	--

DATE	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NOV. 25...	250	178	335
26...	63	85	60
27...	171	102	105

16228600 MOANALUA STREAM AT TRIPLER HOSPITAL (LAT 21°21'48" LONG 157°54'05")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
FEB. 06...	1230	128	119	6.4	60	.76	.04	.87	.91	1.7	.14

16247100 MANOA-PALOLO DRAINAGE CANAL AT MOILILI (LAT 21°17'24" LONG 157°49'17")

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
FEB. 06...	1345	137	6.6	30	1.4	.04	1.1	1.1	2.5	.24

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU--Continued

16270900 LULUKU STREAM AT ALTITUDE 220 FT NEAR KANEOHE (LAT 21°23'42" LONG 157°48'47")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAY 06...	1015	.63	150	6.0	20.5	0	2	240	230	41	0	8.2

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
MAY 06...	38	.8	.7	57	0	47	91	2.9	16

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
MAY 06...	.0	25	99	.13	.12	.01	10	0

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)
MAY 06...	.15	.12	.00	.00	.00	.15	.02	.01	1	1

DATE	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)
MAY 06...	<10	0	0	0	<50	0	10	3	180	10	<100	1

DATE	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	OIL AND GREASE (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAY 06...	10	0	.0	.0	0	0	0	0	.9	1	3	.01

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU--Continued

16284500 WAIHEE STREAM AT KAHALUU (LAT 21°27'32" LONG 157°50'26")

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)
JAN., 1976												
14...	1010	177	7.2	21.0	10	.49	.72	.68	1.4	1.9	.25	28
29...	0840	185	6.9	19.0	10	.36	1.2	1.6	2.8	3.2	.36	46
FEB.												
19...	1145	200	6.7	20.5	8	.44	1.8	1.9	3.7	4.1	.47	20
MAR.												
05...	1125	171	6.1	20.5	15	.50	.40	1.1	1.5	2.0	.26	31
19...	1120	168	6.6	21.0	5	.34	.19	.32	.51	.85	.10	16
APR.												
15...	0920	180	6.3	20.5	10	.22	1.0	1.1	2.1	2.3	.34	34
MAY												
12...	0840	177	6.6	20.6	7	.36	.54	.66	1.2	1.6	.13	18
JUNE												
17...	1210	192	6.5	23.3	10	.24	1.6	.80	2.4	2.6	.04	53
JULY												
28...	1007	--	--	--	--	--	--	--	--	--	--	73
28...	1010	205	7.6	24.0	7	.48	2.9	1.1	4.0	4.5	.52	--
AUG.												
23...	0945	185	6.5	24.5	25	.09	1.4	.80	2.2	2.3	.58	66
SEP.												
22...	0940	155	6.4	24.0	9	.07	.18	.35	.53	.60	.22	31
OCT.												
21...	0945	214	6.7	22.5	10	.04	3.6	.50	4.1	4.1	.90	34

HAWAII, ISLAND OF MOLOKAI

16405100 MOLOKAI TUNNEL AT EAST PORTAL (LAT 21°08'38" LONG 156°55'17")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT.						JUNE					
21...	1715	1.4	--	--	19.5	02...	1515	3.6	--	--	18.5
DEC.						JULY					
16...	1350	1.1	--	--	18.5	13...	1145	2.6	--	--	19.5
FEB.						SEP.					
10...	1330	3.2	--	--	18.0	02...	1420	3.4	--	--	19.0
APR.											
06...	1315	.01	--	--	17.5						

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF MAUI

16607000 IAO STREAM AT WAILUKU (LAT 20°53'38" LONG 156°30'27")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
DEC. 03...	1230	46	5	1	28	3	6.8	2.7	5.0

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
DEC. 03...	27	.4	.5	31	0	25	6.2	3.8	6.5

DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
DEC. 03...	.1	17	58	.08	.00	.00	40	0

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC. 03...	1230	46	85	6.9	20.0
JAN. 27...	1230	40	114	7.2	19.5
APR. 30...	1100	1500	55	7.1	18.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

Samples are collected at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin. Such sites are referred to as miscellaneous sites.

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU

212312157475700 KAMOOALII STREAM ABOVE HAWAIIAN ELECTRIC COMPANY SUBSTATION NEAR KANEOHE (LAT 21°23'12" LONG 157°47'57")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA+MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAY 07...	1000	.87	190	6.0	22.0	0	15	76	1000	62	2	8.3

DATE	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)
MAY 07...	10	14	33	.8	1.1	73	0	60	4.0	20	.0	21

DATE	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)
MAY 07...	116	.16	.29	.27	.00	.00	.00	.29	.03	.02	0	0

DATE	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)
MAY 07...	<10	0	0	0	<50	0	10	0	220	20	<100	0

DATE	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	OIL AND GREASE (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAY 07...	10	10	.0	.0	0	0	0	0	1.1	1	3	.01

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU--Continued

212320157474200 KAMOOALII STREAM AT OLD PALI ROAD NEAR KANEOHE (LAT 21°23'20" LONG 157°47'42")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
MAY 07...	0845	.52	235	6.1	23.0	0	4	80	0	22	6.0	15

DATE	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)
MAY 07...	29	.7	1.0	99	0	81	9.3	19	.1	19	143	.19

DATE	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)
MAY 07...	.48	.46	.00	.00	.00	.48	.02	.00	0	0	<10	0

DATE	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)
MAY 07...	10	0	<50	0	10	1	690	160	<100	0	120

DATE	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	OIL AND GREASE (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAY 07...	120	.0	.0	0	0	40	30	2.8	1	6	.01

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU--Continued

212330157484500 KUOU STREAM BELOW BOARD OF WATER SUPPLY WELLS NEAR KANEOHE (LAT 21°23'30" LONG 157°48'45")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAY 06...	1215	.20	225	6.5	21.5	0	2	825	B150	72	7	15

DATE	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)
MAY 06...	8.5	15	31	.8	1.3	80	0	66	18	18	.0	34

DATE	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)
MAY 06...	150	.20	.15	.12	.02	.00	.02	.15	.02	.02	1	0

DATE	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)
MAY 06...	<10	0	0	0	<50	0	10	1	430	40	<100	1

DATE	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	OIL AND GREASE (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAY 06...	60	40	.2	.2	0	0	10	0	1.7	1	3	.00

B Results based on colony count outside the acceptable range (non-ideal colony count).

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU--Continued

212422157483200 ANOLANI STREAM AT LIKELIKE HIGHWAY KANEOHE (LAT 21°24'22" LONG 157°48'32")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)
MAY 06...	1100	1.9	185	6.9	23.0	4	10	240	540	53	0	11

DATE	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)
MAY 06...	6.1	16	39	1.0	1.2	74	0	61	4.0	20	.1	27

DATE	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)
MAY 06...	123	.17	.07	.07	.02	.00	.02	.09	.03	.02	2	1

DATE	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)
MAY 06...	<10	0	10	0	<50	0	10	1	1400	210	<100	2

DATE	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	OIL AND GREASE (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAY 06...	110	90	.0	.0	0	0	0	0	1.9	1	12	.06

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

HAWAII, ISLAND OF OAHU--Continued

212732157502200 KAHALUU STREAM AT ALTITUDE 10 FT AT KAHALUU (LAT 21°27'32" LONG 157°50'22")

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)
JAN., 1976												
14...	1030	277	7.1	22.5	5	.61	.05	.45	.50	1.1	.11	7
29...	0920	340	6.6	20.0	4	.81	.05	.18	.23	1.0	.09	5
FEB.												
19...	1130	296	6.6	21.0	9	1.4	.09	.35	.44	1.8	.07	11
MAR.												
05...	1150	223	6.3	21.0	7	.59	.04	.44	.48	1.1	.08	13
19...	1135	249	6.8	22.0	4	.73	.04	.64	.68	1.4	.03	7
APR.												
15...	0905	273	6.7	21.0	5	.81	.17	.41	.58	1.4	.06	9
MAY												
12...	0830	269	6.8	21.1	3	.64	.02	.23	.25	.89	.04	5
JUNE												
17...	1150	287	6.6	23.3	5	.75	.09	.42	.51	1.3	.22	18
JULY												
28...	0948	--	--	--	--	--	--	--	--	--	--	4
28...	0950	300	6.7	24.0	1	.73	.00	.23	.23	.96	.07	--
AUG.												
23...	0930	363	7.0	25.0	2	.21	1.6	.00	1.6	1.8	.10	6
SEP.												
22...	0920	300	6.7	24.0	1	.19	1.2	.10	1.3	1.5	.09	2
OCT.												
21...	0925	301	6.8	23.0	3	.57	.77	.13	.90	1.5	.29	3

212742157503200 KAHALUU STREAM AT HIGHWAY 83 AT KAHALUU (LAT 21°27'42" LONG 157°50'32")

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)
JAN., 1976												
14...	0900	50000	8.1	23.5	10	.08	.05	.59	.64	.72	.11	13
29...	0850	43000	7.4	23.0	10	.15	.05	.00	.00	.15	.05	8
FEB.												
19...	1050	34000	7.4	21.5	10	.22	.22	.44	.66	.88	.11	21
MAR.												
05...	1030	25900	7.3	21.0	10	.30	.17	.51	.68	.98	.10	22
19...	1045	36400	7.5	22.0	7	.15	.10	.00	.02	.17	.05	15
APR.												
15...	0830	42600	7.9	21.5	7	.09	.13	.08	.21	.30	.06	19
MAY												
12...	0755	17100	7.3	22.8	6	.25	.27	.49	.76	1.0	.07	27
JUNE												
17...	1115	40000	7.1	26.1	10	.11	.29	.33	.62	.73	.12	--
JULY												
28...	0914	--	--	--	--	--	--	--	--	--	--	23
28...	0915	19300	7.4	26.0	10	.23	.28	.30	.58	.81	.11	--
AUG.												
23...	0845	44800	8.0	27.0	10	.02	.19	.20	.39	.41	.09	24
SEP.												
22...	0840	48800	8.0	26.0	9	.01	.14	.23	.37	.38	.07	14
OCT.												
21...	0840	50000	7.8	26.0	8	.10	.12	.21	.33	.43	.07	15

PERIODIC DETERMINATIONS OF WATER TEMPERATURE

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)
HAWAII, ISLAND OF OAHU			
16210900 POAMOHO TUNNEL NEAR WAHIAWA (LAT 21°31'12" LONG 157°58'51")			
Oct. 28, 1975	1540	0.52	22.0
Dec. 16, 1975	1025	4.40	20.0
Jan. 29, 1976	1605	.66	18.0
Mar. 8, 1976	1030	2.02	18.0
Apr. 22, 1976	1600	10.2	18.5
June 1, 1976	1530	3.96	22.0
July 14, 1976	1055	.92	22.0
Aug. 30, 1976	1000	2.37	22.0
MARIANA ISLANDS, ISLAND OF SAIPAN			
16801000 SOUTH FORK TALOFOFO STREAM (LAT 15°12'58" N. LONG 145°46'31" E.)			
Oct. 10, 1975	----	1.02	25.0
Nov. 6, 1975	1440	.97	25.0
Nov. 21, 1975	1350	2.01	25.0
Feb. 27, 1976	----	.29	25.0
Mar. 12, 1976	----	.21	25.0
Mar. 26, 1976	----	.14	25.0
Apr. 9, 1976	----	.24	25.0
Apr. 22, 1976	----	.17	25.0
Aug. 12, 1976	----	2.94	25.0
Aug. 31, 1976	----	2.39	25.0
16801500 MIDDLE FORK TALOFOFO STREAM (LAT 15°13'05" N. LONG 145°46'36" E.)			
Oct. 10, 1975	1005	.62	25.0
Nov. 6, 1975	1330	.67	25.0
Nov. 21, 1975	1440	.86	25.0
Jan. 29, 1976	1010	.32	25.0
Feb. 27, 1976	1330	.27	25.0
Mar. 12, 1976	1025	.36	25.0
Mar. 26, 1976	1415	.29	26.0
Apr. 22, 1976	1030	.24	25.0
June 7, 1976	1400	.41	25.0
June 23, 1976	1240	.34	25.0
Aug. 31, 1976	1410	.23	25.0
MARIANA ISLANDS, ISLAND OF GUAM			
16808300 FINILE CREEK AT AGAT (LAT 13°22'39" N. LONG 144°39'26" E.)			
Oct. 3, 1975	1650	.72	26.5
Nov. 6, 1975	1205	1.09	27.0
Dec. 3, 1975	1640	1.93	26.0
Mar. 2, 1976	1335	1.65	26.0
Apr. 9, 1976	1615	1.26	26.0
Sept. 8, 1976	1145	1.88	26.0
16816000 UMATAC RIVER AT UMATAC (LAT 13°17'48" N. LONG 144°39'46" E.)			
Nov. 4, 1975	1605	6.70	26.0
Dec. 1, 1975	1645	5.81	27.0
Dec. 18, 1975	1530	2.99	27.0
Jan. 2, 1976	1245	5.50	27.0
Mar. 2, 1976	1510	5.99	26.0
June 1, 1976	1620	5.59	30.0
16835000 INARAJAN RIVER NEAR INARAJAN (LAT 13°16'41" N. LONG 144°44'15" E.)			
Nov. 5, 1975	1615	12.5	26.0
Dec. 2, 1975	1600	14.7	27.0
Jan. 7, 1976	1600	6.38	26.0
Feb. 4, 1976	1345	45.3	26.0
Mar. 3, 1976	1540	13.0	26.0
Apr. 8, 1976	1435	18.3	27.0
June 2, 1976	1255	14.2	27.0
Sept. 7, 1976	1540	19.9	27.0

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)
MARIANA ISLANDS, ISLAND OF GUAM			
16840000 TINAGA RIVER NEAR INARAJAN (LAT 13°17'10" N. LONG 144°45'04" E.)			
Nov. 5, 1975	1510	4.64	26.5
Dec. 2, 1975	1440	5.54	27.0
Jan. 6, 1976	1530	3.58	25.0
Feb. 4, 1976	1145	13.2	26.0
Mar. 3, 1976	1240	4.63	27.0
June 2, 1976	1120	4.98	27.0
Sept. 7, 1976	1350	7.61	27.0
16847000 IMONG RIVER NEAR AGAT (LAT 13°20'17" N. LONG 144°41'55" E.)			
Nov. 10, 1975	1430	14.6	27.0
Dec. 4, 1975	1530	8.16	27.0
Mar. 10, 1976	1510	4.65	27.0
May 18, 1976	1530	4.43	27.0
16848100 ALMAGOSA RIVER NEAR AGAT (LAT 13°20'43" N. LONG 144°41'36" E.)			
Nov. 10, 1975	1255	10.5	27.0
Dec. 4, 1975	1415	3.27	27.0
Mar. 10, 1976	1355	2.41	27.0
May 18, 1976	1415	2.38	27.0
16848500 MAULAP RIVER NEAR AGAT (LAT 13°21'14" N. LONG 144°41'44" E.)			
Nov. 10, 1975	1110	8.88	26.5
Dec. 4, 1975	1210	4.68	27.0
Mar. 10, 1976	1140	2.80	27.0
May 18, 1976	1200	2.90	26.0
16858000 YLIG RIVER NEAR YONA (LAT 13°23'28" N. LONG 144°45'06" E.)			
Nov. 4, 1975	1310	23.6	26.5
Dec. 1, 1975	1445	20.2	27.0
Mar. 2, 1976	1030	20.3	26.0
Apr. 7, 1976	1200	12.8	27.0
16865000 PAGO RIVER NEAR ORDOT (LAT 13°26'08" N. LONG 144°45'14" E.)			
Nov. 5, 1975	1245	15.8	27.0
Dec. 2, 1975	1255	15.5	27.0
Jan. 6, 1976	1120	20.0	25.0
Mar. 4, 1976	1615	9.77	27.0
June 1, 1976	1312	15.2	28.0
CAROLINE ISLANDS, PALAU ISLANDS			
16890600 ADEIDDO RIVER, BABELTHUAP (LAT 07°36'01" N. LONG 134°35'38" E.)			
Oct. 2, 1975	1125	35.4	25.0
Nov. 6, 1975	1235	36.4	25.5
Dec. 12, 1975	1312	31.7	25.0
Feb. 24, 1976	1216	12.9	24.0
Mar. 23, 1976	1210	8.25	25.0
June 2, 1976	0937	9.36	25.5
June 30, 1976	1251	14.0	25.0
16890900 TABAGATEN RIVER, BABELTHUAP (LAT 07°27'00" N. LONG 134°32'05" E.)			
Oct. 29, 1975	1210	30.5	25.0
Dec. 2, 1975	1202	53.7	25.5
Jan. 31, 1976	1025	20.0	25.0
Mar. 5, 1976	1040	30.7	25.0
Mar. 25, 1976	1448	11.2	25.0
Apr. 13, 1976	1027	43.3	25.0
May 21, 1976	1117	20.6	26.0
June 21, 1976	1254	41.6	25.0

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)

CAROLINE ISLANDS, PALAU ISLANDS

16891200 GIHMEL RIVER, BABELTHUAP
(LAT 07°11'59" N. LONG 134°32'06" E.)

Oct. 9, 1975	1220	4.36	28.0
Feb. 20, 1976	1453	.34	32.0
May 17, 1976	1355	.77	29.0

16891300 GADEN RIVER, BABELTHUAP
(LAT 07°22'57" N. LONG 134°33'40" E.)

Oct. 9, 1975	1035	30.1	25.5
Oct. 21, 1975	1100	26.6	25.0
Nov. 17, 1975	1307	27.1	24.5
Jan. 12, 1976	1430	118	24.5
Feb. 19, 1976	1545	15.3	25.5
Mar. 19, 1976	1315	8.01	25.0
Apr. 9, 1976	1216	96.6	25.0
May 20, 1976	1235	10.7	26.0
June 16, 1976	1343	18.1	25.5
July 29, 1976	1040	18.2	25.0

16891400 SOUTH FORK NGARDOK RIVER, BABELTHUAP
(LAT 07°26'15" N. LONG 134°35'03" E.)

Nov. 1, 1975	1215	8.39	26.0
Dec. 11, 1975	1320	19.9	26.0
Feb. 26, 1976	1122	4.20	24.5
Mar. 24, 1976	1225	3.97	25.5
Apr. 17, 1976	1105	9.93	26.0
June 3, 1976	0940	3.27	25.5
July 1, 1976	1002	10.2	25.0

CAROLINE ISLANDS, YAP ISLANDS

16892400 ARINGEL STREAM, YAP
(LAT 09°31'01" N. LONG 138°05'11" E.)

Oct. 7, 1975	1440	.87	26.0
Dec. 4, 1975	1040	.87	25.0
Dec. 22, 1975	1230	.58	27.0
Jan. 5, 1976	1405	.06	26.0
Feb. 3, 1976	1630	.25	25.5
June 16, 1976	1010	.17	25.0
July 6, 1976	0940	.10	24.5
July 26, 1976	1400	.73	26.0
Aug. 10, 1976	1520	.20	26.0
Aug. 26, 1976	1415	.76	25.0
Sept. 16, 1976	1320	.48	26.0

16892800 DALOLAB STREAM, YAP
(LAT 09°31'04" N. LONG 138°06'04" E.)

Oct. 8, 1975	1440	.04	26.0
Dec. 5, 1975	1020	.78	25.0
Dec. 23, 1975	1250	.14	26.0
Feb. 3, 1976	1110	.05	25.5
Apr. 2, 1976	1325	.07	25.0
May 20, 1976	1435	.08	27.5
July 27, 1976	1435	.07	25.0
Aug. 11, 1976	1250	.10	26.0
Aug. 26, 1976	1510	.28	26.0
Sept. 16, 1976	1420	.17	26.0

16892900 PEMGOY STREAM, YAP
(LAT 09°31'07" N. LONG 138°06'18" E.)

Oct. 9, 1975	0850	.33	25.0
Dec. 4, 1975	1350	.40	26.0
Dec. 23, 1975	1040	.08	25.0
Jan. 27, 1976	1340	.20	25.0
Feb. 3, 1976	1015	.11	24.5
Feb. 17, 1976	1055	.03	25.0
Mar. 2, 1976	1445	.07	25.5
Apr. 2, 1976	1205	.10	25.0
May 3, 1976	1445	.09	25.0
May 20, 1976	1110	.10	26.0
June 16, 1976	1400	14.2	23.0
July 6, 1976	1045	.08	25.0
July 27, 1976	----	.54	25.0
Aug. 11, 1976	1110	.16	25.0
Sept. 17, 1976	0930	.16	26.0

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)

CAROLINE ISLANDS, YAP ISLANDS

16893000 TALAGU STREAM, YAP
(LAT 09°31'08" N. LONG 138°06'13" E.)

Oct. 9, 1975	0940	0.07	25.0
Dec. 4, 1975	1435	.21	26.0
Dec. 23, 1975	1125	.08	25.0
Jan. 27, 1976	1415	.14	25.0
Feb. 3, 1976	0935	.06	25.0
Apr. 2, 1976	1225	.08	25.0
May 20, 1976	1220	.13	26.0
June 16, 1976	1515	8.17	23.5
July 27, 1976	----	.24	25.0
Aug. 11, 1976	1200	.23	25.0
Sept. 17, 1976	1015	.12	27.0

16893100 BURONG STREAM, YAP
(LAT 09°31'59" N. LONG 138°07'05" E.)

Oct. 7, 1975	1230	1.20	26.0
Nov. 5, 1975	1110	.07	26.0
Dec. 3, 1975	1337	.36	29.0
Dec. 22, 1975	1050	.87	24.0
Jan. 9, 1976	0940	.06	25.0
Jan. 27, 1976	1115	.33	26.0
Feb. 3, 1976	1502	.14	26.0
Apr. 1, 1976	1330	.98	26.5
May 3, 1976	1230	.06	26.0
May 19, 1976	1410	.43	26.5
June 15, 1976	1330	.29	26.0
July 6, 1976	1250	.06	28.0
July 26, 1976	1135	.62	25.5
Aug. 10, 1976	1450	.27	25.5
Aug. 26, 1976	1300	.84	26.0
Sept. 16, 1976	1120	.57	26.0

16893200 MUKONG STREAM, GAGIL-TOMIL
(LAT 09°32'06" N. LONG 138°09'59" E.)

Oct. 7, 1975	0940	3.89	26.0
Nov. 5, 1975	0945	.86	26.0
Dec. 3, 1975	1000	2.93	25.0
Dec. 22, 1975	0915	3.58	25.0
Jan. 8. 1976	1415	.77	25.0
Jan. 27, 1976	0935	1.89	25.0
Feb. 3, 1976	1335	1.42	26.0
Feb. 18, 1976	1410	.45	27.0
Mar. 3, 1976	0935	.33	26.0
Mar. 12, 1976	0920	.31	26.0
Apr. 1, 1976	1100	2.41	25.5
Apr. 15, 1976	1030	.67	26.0
May 3, 1976	1120	.80	27.0
May 19, 1976	1020	4.80	26.0
June 15, 1976	1030	1.53	27.0
July 7, 1976	1010	1.84	26.0
July 26, 1976	1030	2.04	26.0
Aug. 9, 1976	1430	4.01	27.0
Aug. 26, 1976	1130	2.98	26.0
Sept. 16, 1976	0950	3.48	25.5

CAROLINE ISLANDS, TRUK ISLANDS

16893700 WICHEN RIVER AT ALTITUDE 55 M, MOEN
(LAT 07°26'45" N. LONG 151°52'02" E.)

Oct. 1, 1975	1145	1.20	26.0
Oct. 8, 1975	1510	1.08	25.0
Oct. 15, 1975	1425	1.02	26.0
Oct. 28, 1975	1400	2.12	25.0
Oct. 29, 1975	0940	1.30	27.0
Nov. 7, 1975	1255	2.00	25.0
Nov. 17, 1975	1418	.48	25.0
Dec. 1, 1975	1440	.36	25.0
Dec. 15, 1975	1435	.65	25.0
Dec. 29, 1975	0930	.27	27.0
Jan. 2, 1976	1415	.26	26.0
Jan. 14, 1976	1355	.11	26.0
Feb. 4, 1976	1135	.46	25.0
Feb. 10, 1976	1107	.46	25.0
Mar. 2, 1976	1105	.47	26.0
Mar. 16, 1976	1355	.16	26.0
Mar. 29, 1976	1345	.81	25.0

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)

CAROLINE ISLANDS, TRUK ISLANDS

16893700 WICHEN RIVER AT ALTITUDE 55 M, MOEN--Continued

Apr.	14, 1976	1345	0.76	26.0
Apr.	30, 1976	0910	.55	25.5
May	14, 1976	1341	.96	26.0
June	3, 1976	0920	.83	27.0
June	16, 1976	1005	.45	25.5
June	30, 1976	0915	.40	25.0
July	30, 1976	1325	.48	25.5
Sept.	9, 1976	1410	.81	26.0

16893800 WICHEN RIVER AT ALTITUDE 18 M, MOEN
(LAT 07°27'05" N. LONG 151°52'18" E.)

Oct.	1, 1975	1300	1.09	25.0
Oct.	8, 1975	1610	2.74	26.0
Oct.	15, 1975	1514	1.73	26.0
Nov.	7, 1975	1404	2.29	26.0
Dec.	1, 1975	1621	.72	25.0
Dec.	29, 1975	1100	.61	26.0
Jan.	2, 1976	1558	1.08	26.0
Jan.	22, 1976	1310	2.33	24.0
Feb.	4, 1976	1250	1.05	26.5
Feb.	10, 1976	1240	.40	26.0
Mar.	2, 1976	1210	.49	26.5
Mar.	16, 1976	1504	.21	26.5
Mar.	29, 1976	1455	1.18	25.0
Apr.	30, 1976	1200	.57	26.0
May	14, 1976	1450	1.14	25.0
June	3, 1976	1045	.61	27.0
June	30, 1976	1035	.53	27.0
July	8, 1976	1420	.38	25.5
July	30, 1976	1415	.73	25.0
Sept.	9, 1976	1520	.33	26.0

16894200 NACHIPONONG STREAM, MOEN
(LAT 07°25'45" N. LONG 151°51'31" E.)

Oct.	1, 1975	0930	.57	25.0
Oct.	7, 1975	1439	.52	26.0
Oct.	28, 1975	0955	.66	25.0
Nov.	17, 1975	0951	.58	25.0
Dec.	1, 1975	1033	.13	26.0
Dec.	15, 1975	0945	.20	25.0
Dec.	29, 1975	1409	.11	27.0
Jan.	14, 1976	1109	.05	26.0
Feb.	4, 1976	0940	.37	26.0
Feb.	10, 1976	0900	.18	27.0
Mar.	2, 1976	1345	.19	25.0
Mar.	16, 1976	0930	.06	26.0
Mar.	29, 1976	1015	.40	26.0
Apr.	14, 1976	0930	.36	26.0
Apr.	30, 1976	1430	.12	25.0
May	14, 1976	0932	.38	25.5
June	2, 1976	1445	.20	27.0
June	16, 1976	1322	.11	26.0
June	30, 1976	1245	.06	25.5
July	30, 1976	0900	.14	25.0
Sept.	9, 1976	0948	.09	25.0

16896800 CHUN STREAM, DUBLON ISLAND
(LAT 07°22'36" N. LONG 151°52'13" E.)

Oct.	9, 1975	1150	1.08	25.0
Oct.	17, 1975	1030	.30	25.0
Nov.	18, 1975	1255	.21	25.0
Dec.	3, 1975	1202	.12	26.0
Dec.	16, 1975	1135	.19	26.0
Jan.	5, 1976	1600	.06	26.0
Feb.	3, 1976	1156	.92	26.5
Mar.	1, 1976	1306	.21	27.0
Mar.	15, 1976	1300	.07	26.0
Mar.	30, 1976	1140	.25	25.0
Apr.	20, 1976	1220	.97	25.0
Apr.	29, 1976	1020	.18	26.0
May	25, 1976	1347	.26	25.0
June	1, 1976	1240	.14	26.0
June	14, 1976	1145	.05	25.0
June	29, 1976	1150	.13	25.0
Sept.	1, 1976	1220	.11	26.0

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)

CAROLINE ISLANDS, TRUK ISLANDS

16897200 TUMUNU STREAM, DUBLON ISLAND
(LAT 07°22'42" N. LONG 151°52'51" E.)

Oct.	3, 1975	1205	0.84	25.0
Oct.	9, 1975	0955	4.31	26.0
Oct.	17, 1975	1155	1.34	26.0
Nov.	18, 1975	1027	.30	25.0
Dec.	3, 1975	1103	.41	26.0
Dec.	16, 1975	1000	.29	25.0
Jan.	5, 1976	1300	.26	27.0
Jan.	21, 1976	1100	.56	25.0
Feb.	3, 1976	1005	1.65	25.0
Mar.	1, 1976	1030	.53	27.0
Mar.	15, 1976	1105	.19	27.0
Apr.	20, 1976	1050	2.42	25.0
Apr.	29, 1976	1145	.43	26.0
May	25, 1976	1127	.96	25.0
June	1, 1976	1055	.90	27.0
June	14, 1976	1040	.21	25.0
June	29, 1976	1025	.25	26.0
July	7, 1976	1003	.35	25.0
Sept.	1, 1976	1120	.22	25.5

CAROLINE ISLANDS, ISLAND OF PONAPE

16897600 NANEPIL RIVER
(LAT 06°55'11" N. LONG 158°12'36" E.)

Oct.	8, 1975	1010	17.9	24.0
Oct.	21, 1975	1155	19.3	24.0
Nov.	5, 1975	1210	66.0	24.0
Dec.	22, 1975	1035	20.7	24.0
Jan.	14, 1976	1130	2.34	24.0
Jan.	29, 1976	1200	32.1	24.0
Feb.	9, 1976	1609	5.25	24.5
Feb.	24, 1976	1155	7.66	24.0
Mar.	17, 1976	1340	37.7	25.0
Apr.	7, 1976	1210	8.50	24.5
Apr.	27, 1976	1145	26.8	24.5
May	5, 1976	1105	53.3	24.5
May	26, 1976	1130	13.2	24.0
June	16, 1976	1205	11.1	25.0
July	1, 1976	1220	6.50	25.0
July	14, 1976	1140	9.40	25.0
July	28, 1976	1310	6.26	26.0
Aug.	16, 1976	1627	13.1	25.0
Aug.	18, 1976	1046	17.0	26.0
Aug.	20, 1976	1033	27.5	24.0
Sept.	15, 1976	1420	8.99	25.5

16897900 LUl RIVER
(LAT 06°55'36" N. LONG 158°12'55" E.)

Oct.	8, 1975	1305	2.80	24.0
Oct.	21, 1975	1035	3.22	24.0
Nov.	5, 1975	1100	5.42	25.0
Nov.	20, 1975	0945	2.24	25.0
Dec.	22, 1975	0927	3.70	24.0
Jan	14, 1976	1015	.47	24.0
Jan.	29, 1976	0955	3.98	24.0
Feb.	9, 1976	1505	.39	25.5
Feb.	24, 1976	0945	.75	27.5
Mar.	17, 1976	1035	6.27	25.5
Apr.	27, 1976	1020	4.09	24.0
May	26, 1976	1000	2.52	24.0
June	16, 1976	1015	1.76	25.0
July	1, 1976	1000	1.80	25.5
July	14, 1976	1315	1.69	26.0
July	28, 1976	1120	.61	26.0
Aug.	25, 1976	1045	4.33	25.0
Sept.	15, 1976	1020	1.62	25.0

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)

CAROLINE ISLANDS, ISLAND OF PONAPE

16898200 LUI RIVER AT MOUTH
(LAT 06°57'07" N. LONG 158°13'16" E.)

Oct. 20, 1975	1450	24.5	24.0
Dec. 2, 1975	1420	18.0	25.0
Dec. 22, 1975	1447	15.4	24.0
Jan. 15, 1976	1410	4.33	24.0
Feb. 3, 1976	1350	21.1	27.0
Feb. 10, 1976	1723	4.19	28.0
Mar. 2, 1976	1405	11.3	24.0
Mar. 16, 1976	1405	11.2	27.0
Apr. 5, 1976	1430	13.4	26.0
Apr. 20, 1976	1435	45.4	25.0
May 6, 1976	1500	31.8	24.0
May 25, 1976	1140	20.9	24.0
June 17, 1976	1400	9.63	25.0
June 30, 1976	1115	23.1	25.0
July 19, 1976	1435	10.4	27.0
July 29, 1976	1045	10.4	25.0
Aug. 16, 1976	1000	20.1	25.5
Aug. 17, 1976	1016	22.3	26.0
Aug. 30, 1976	1350	19.5	25.0
Sept. 20, 1976	1415	5.93	25.0

16898600 LUPWOR RIVER
(LAT 06°54'15" N. LONG 158°09'45" E.)

Oct. 9, 1975	1010	4.97	24.0
Oct. 23, 1975	1025	14.1	23.0
Nov. 6, 1975	1048	9.72	24.0
Nov. 19, 1975	1045	4.22	24.0
Dec. 23, 1975	1047	6.00	25.0
Jan. 13, 1976	1300	1.30	26.0
Jan. 28, 1976	1009	1.65	25.5
Feb. 11, 1976	1007	1.17	25.5
Feb. 25, 1976	1130	2.14	24.0
Mar. 23, 1976	1040	11.0	25.0
Apr. 8, 1976	1310	4.06	26.0
May 4, 1976	1145	4.74	24.0
May 27, 1976	1020	4.86	24.0
June 15, 1976	1150	6.41	26.0
June 29, 1976	1100	4.36	26.0
July 13, 1976	0945	5.62	25.0
July 27, 1976	1430	2.84	26.5
Sept. 14, 1976	1035	5.07	26.0

CAROLINE ISLANDS, ISLAND OF KUSAIE

16899500 MUTUNTE RIVER
(LAT 05°22'25" N. LONG 163°00'24" E.)

Oct. 6, 1975	1120	14.0	26.0
Oct. 14, 1975	1120	4.38	26.0
Oct. 28, 1975	1650	3.65	25.0
Nov. 19, 1975	1020	5.43	25.0
Dec. 1, 1975	1005	3.38	26.0
Dec. 22, 1975	1035	5.36	26.0
Dec. 30, 1975	1135	4.94	26.0
Jan. 14, 1976	1635	2.72	26.0
Jan. 21, 1976	1135	3.04	26.0
Feb. 3, 1976	1047	3.04	24.0
Mar. 1, 1976	1345	6.35	27.0
June 17, 1976	1100	12.3	26.0
June 22, 1976	1120	4.25	26.5
July 19, 1976	1050	3.18	26.0
Aug. 9, 1976	1250	3.44	26.0
Aug. 24, 1976	1117	2.58	25.0

16899600 OKAT RIVER
(LAT 05°20'32" N. LONG 162°59'30" E.)

Oct. 18, 1975	1430	6.81	26.0
Nov. 24, 1975	1300	33.2	26.0
Dec. 2, 1975	1315	6.14	26.0
Jan. 14, 1976	1245	6.82	26.0
Feb. 4, 1976	1154	4.64	25.0
Mar. 16, 1976	1645	14.9	28.0
July 14, 1976	1200	12.3	26.0
Aug. 12, 1976	1630	72.3	26.0
Sept. 28, 1976	0855	8.63	26.0

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)

CAROLINE ISLANDS, ISLAND OF KUSAIE

16899620 MELO RIVER
(LAT 05°21'06" N. LONG 162°59'29" E.)

Oct. 18, 1975	1300	1.15	26.0
Nov. 24, 1975	0930	16.4	26.0
Feb. 12, 1975	1135	1.30	29.0
Feb. 24, 1976	1150	7.80	28.0
Mar. 9, 1976	1205	6.77	28.0
June 3, 1976	----	3.04	26.0
Aug. 3, 1976	1040	3.87	26.0
Aug. 31, 1976	1100	3.41	26.0

16899750 MALEM RIVER
(LAT 05°18'21" N. LONG 163°01'46" E.)

Oct. 8, 1975	1020	2.98	26.0
Oct. 17, 1975	1630	2.92	24.0
Nov. 18, 1975	1000	2.88	26.0
Dec. 10, 1975	1300	10.8	26.0
Dec. 31, 1975	0900	18.3	26.0
Jan. 13, 1976	0930	2.70	26.0
Jan. 20, 1976	1200	3.34	26.0
Jan. 27, 1976	1245	1.65	26.0
Feb. 11, 1976	1445	1.05	29.0
Feb. 19, 1976	0955	3.91	28.0
Mar. 3, 1976	0937	6.02	28.0
Mar. 17, 1976	1000	5.21	28.0
June 8, 1976	1510	2.43	26.0
June 28, 1976	1114	12.6	26.0
July 15, 1976	0945	5.14	26.0
July 27, 1976	1310	2.87	26.0
Aug. 10, 1976	1110	4.50	26.0
Aug. 30, 1976	1205	2.78	26.0

16899800 TOFOL RIVER
(LAT 05°19'53" N. LONG 163°01'25" E.)

Oct. 16, 1975	0930	2.80	25.0
Oct. 17, 1975	1540	2.70	26.0
Nov. 17, 1975	1410	3.34	26.0
Dec. 22, 1975	1600	9.36	26.0
Dec. 30, 1975	1500	4.53	26.0
Jan. 13, 1976	1500	1.74	26.0
Jan. 20, 1976	1500	2.13	26.0
Jan. 31, 1976	1330	1.28	25.5
Mar. 8, 1976	1610	7.44	28.0
June 18, 1976	1230	5.57	26.0
June 28, 1976	1455	8.11	26.0
Aug. 10, 1976	1445	3.14	26.0

SAMOA ISLANDS, ISLAND OF TUTUILA

16912000 PAGO STREAM AT AFONO
(LAT 14°16'03" S. LONG 170°39'02" W.)

Oct. 23, 1975	0840	.25	26.0
Dec. 4, 1975	0850	4.22	24.0
Jan. 20, 1976	0910	3.49	25.0
Jan. 26, 1976	1055	1.40	25.0
Mar. 25, 1976	0915	.62	25.0
Apr. 26, 1976	0915	1.41	25.0
May 27, 1976	1015	51.6	24.0
June 28, 1976	0900	.60	24.5
July 28, 1976	0900	4.04	24.0
Aug. 30, 1976	0900	.69	24.0
Sept. 30, 1976	0830	.45	24.0

16917500 LEELE STREAM AT MOUTH, AT FAGASA
(LAT 14°17'28" S. LONG 170°43'09" W.)

Nov. 5, 1975	1005	.16	25.0
Nov. 24, 1975	1000	.17	26.5
Dec. 15, 1975	0950	2.77	25.5
Dec. 23, 1975	0855	1.16	25.0
Jan. 15, 1976	1020	.75	25.0
Feb. 4, 1976	1015	.55	25.0
Feb. 18, 1976	0840	1.10	25.5
Mar. 22, 1976	1155	.30	26.0
Apr. 21, 1976	1010	.27	26.0
May 24, 1976	0845	.94	25.0
May 26, 1976	0850	12.3	24.5
July 14, 1976	0845	20.6	24.0
July 23, 1976	0830	1.47	25.0
Aug. 24, 1976	0900	.38	25.5
Sept. 27, 1976	0820	.14	24.5

DATE	TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)

SAMOA ISLANDS, ISLAND OF TUTUILA

16920500 AASU STREAM AT AASU
(LAT 14°17'51" S. LONG 170°45'30" W.)

Nov. 4, 1975	1205	0.56	25.0
Jan. 12, 1976	0945	2.01	24.5
Mar. 29, 1976	1115	1.69	25.5
June 2, 1976	1045	7.35	25.0
June 10, 1976	1110	3.09	25.0
July 26, 1976	1135	7.46	25.0
Aug. 31, 1976	0925	2.07	24.0

16931000 ATAULOMA STREAM AT AFAO
(LAT 14°20'10" S. LONG 170°48'02" W.)

Oct. 22, 1975	1000	.17	26.0
Oct. 31, 1975	0920	.07	25.5
Nov. 17, 1975	0910	.32	26.0
Dec. 2, 1975	1135	.24	25.5
Dec. 18, 1975	0910	.64	24.5
Dec. 31, 1975	0925	.22	26.0
Jan. 20, 1976	1005	2.91	24.0
Jan. 31, 1976	0805	.33	25.0
Mar. 1, 1976	0930	.39	25.5
Mar. 31, 1976	0900	.19	24.5
Apr. 30, 1976	1000	1.89	24.5
May 18, 1976	0955	2.06	24.5
June 17, 1976	1015	1.15	24.5
June 30, 1976	0945	1.14	24.0
July 30, 1976	0955	1.78	24.5
Aug. 11, 1976	0945	.84	25.0
Aug. 25, 1976	0915	.52	25.0
Sept. 1, 1976	0940	.42	25.0

16944200 PAPA STREAM AT NUUULI
(LAT 14°18'48" S. LONG 170°42'33" W.)

Oct. 1, 1975	1330	.87	26.0
Nov. 10, 1975	0910	.36	24.5
Dec. 8, 1975	0955	5.61	24.0
Jan. 9, 1976	1035	.32	25.0
Jan. 27, 1976	0900	.20	24.5
Apr. 20, 1976	0945	.14	25.0
June 21, 1976	1110	.40	24.5
July 15, 1976	0810	14.1	24.0
July 21, 1976	0950	12.2	24.0
Aug. 5, 1976	0925	6.29	24.0
Aug. 12, 1976	1000	1.42	25.0
Aug. 23, 1976	1230	.15	27.0

TIME (24 HR)	DISCHARGE (CFS)	TEMP. (°C)

SAMOA ISLANDS, ISLAND OF TUTUILA

16948000 AFÚELO STREAM AT MATUU
(LAT 14°18'07" S. LONG 140°41'07" W.)

Oct. 28, 1975	1035	.04	27.5
Dec. 1, 1975	1215	.02	29.0
Jan. 7, 1976	1080	.16	25.0
Jan. 27, 1976	1000	.20	25.0
Feb. 9, 1976	0925	.03	26.0
Mar. 19, 1976	1225	.04	27.0
Apr. 20, 1976	1105	.03	26.0
May 25, 1976	0845	1.67	24.5
May 25, 1976	0910	1.63	24.5
June 29, 1976	0925	2.28	24.0
July 15, 1976	0945	2.64	25.0
Aug. 2, 1976	1255	.32	24.0
Aug. 12, 1976	0855	.37	25.0
Sept. 7, 1976	0945	.07	24.0

16960000 ALEGA STREAM AT ALEGA
(LAT 14°16'58" S. LONG 170°38'19" W.)

Oct. 7, 1975	0905	.29	24.0
Nov. 20, 1975	0840	.24	26.0
Dec. 16, 1975	0915	.68	25.0
Jan. 19, 1976	0840	.79	24.0
Feb. 17, 1976	0940	.84	25.0
May 19, 1976	1000	1.12	24.5
July 20, 1976	0845	1.77	24.0
Aug. 23, 1976	0845	.60	23.5
Sept. 23, 1976	0930	.40	24.0

16963900 LEAFU STREAM NEAR AUASI
(LAT 14°16'27" S. LONG 170°34'26" W.)

Oct. 1, 1975	0900	.03	25.5
Nov. 6, 1975	0945	.03	26.0
Nov. 20, 1975	0950	.04	27.5
Dec. 9, 1975	0915	.09	25.5
Jan. 13, 1976	0955	.08	25.5
Jan. 28, 1976	0920	.11	25.0
Mar. 24, 1976	1300	.08	26.5
June 16, 1976	0925	.07	25.0
July 7, 1976	1225	.05	26.0
Aug. 9, 1976	0910	.08	24.5
Sept. 9, 1976	0850	.03	25.0

HAWAII, ISLAND OF KAUAI

220354159205601. Local number, 2-0320-01.
LOCATION.--Lat 22°03'54", long 159°20'56", Hydrologic Unit 20070000, in Wailua Houselots, Wailua. Owner: Kauai County, Department of Water.
AQUIFER.--Koloa Volcanic Series, Pleistocene (?) age.
WELL CHARACTERISTICS.--Drilled basal water-table well, diameter 8 in (0.20 m), depth 240 ft (73 m), cased to 193 ft (59 m), open end.
DATUM.--Land-surface datum is 155 ft (47 m) above mean sea level. Measuring point: Top edge of steel pumpbase at breather hole, 155.98 ft (47.54 m) above mean sea level.
REMARKS.--Water-quality records for 1960, 1966, 1972-75 are available in files of district office; those for 1976 are published elsewhere in this report. Water from this well is used for domestic supply.
PERIOD OF RECORD.--February 1960, June 1973 to September 1975 records available in files of district office; November 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.04 ft (6.11 m) above mean sea level, Feb. 17, 1960; lowest measured, 1.27 ft (0.39 m) below mean sea level, Sept. 11, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 6	a0.59	JAN 15	a1.53	MAR 2	11.83	MAY 12	a1.20	JUN 29	7.88	AUG 17	a-0.99

a Well being pumped.

HAWAII, ISLAND OF OAHU

211718157491001 (Formerly 211718157490801). Local number, 3-1749-07 tube E.
LOCATION.--Lat 21°17'18", long 157°49'08", Hydrologic Unit 20060000, at Kainuki High School grounds near Olokele Street, Honolulu. Owner: State of Hawaii.
AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled observation artesian basal water-table well, diameter 0.5 in (0.01 m), depth 378 ft (115 m), cased to 378 ft (115 m), open end.
DATUM.--Land-surface datum is 14 ft (4 m) above mean sea level. Measuring point: Top of iron cover 0.5 ft (0.2 m) above ground, 14.85 ft (4.53 m) above mean sea level.
REMARKS.--Tube E is one of five sampling tubes installed on Sept. 7, 1951 in existing 8 in (0.20 m) well. The bottom of each tube is at different depths to obtain water samples for determining vertical distribution of the chloride concentration. Water-quality records for 1973-75 are available in files of district office; those for 1976 are published elsewhere in this report.
PERIOD OF RECORD.--February 1957, September 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.88 ft (8.80 m) above mean sea level, Feb. 6, 1957; lowest measured, 19.51 ft (5.95 m) Aug. 31, 1962.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 4	24.83	DEC 24	25.22	FEB 25	26.03	APR 15	27.42	JUN 28	24.51	AUG 18	22.67
26	25.14	JAN 15	24.93	MAR 19	26.86	MAY 26	27.33	JUL 15	22.87	SEP 8	22.36
DEC 11	25.32	FEB 4	25.32	22	27.02	JUN 15	26.05	21	22.95	22	22.79

212154158015201. Local number, 3-2101-03.
LOCATION.--Lat 21°21'54", long 158°01'52", Hydrologic Unit 20060000, in Honouliuli. Owner: Hawaii Meat Co.
AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled observation artesian basal water-table well, diameter 10 in (0.25 m), depth 355 ft (108 m), cased to 165 ft (50 m), open hole.
DATUM.--Land-surface datum is 11 ft (3.4 m) above mean sea level. Measuring point: Top of lowest horizontal flange, 11.16 ft (3.40 m) above mean sea level.
PERIOD OF RECORD.--April 1910 to June 1921, September 1923 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.16 ft (8.89 m) above mean sea level, April 1918; lowest measured, 11.51 ft (3.51 m) above mean sea level, Oct. 15, 1973.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 10	13.21	MAR 25	14.37	MAY 5	13.92	JUN 16	13.57	JUL 22	13.91	SEP 13	13.10

212238157561101. Local number, 3-2256-10.
LOCATION.--Lat 21°22'38", long 157°56'11", Hydrologic Unit 20060000, in Pearl Harbor Navy Reservation near Kamehameha Highway, Aiea. Owner: U.S. Navy.
AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled industrial artesian basal water-table well, diameter 12 in (0.30 m), depth 173 ft (53 m), cased to 143 ft (44 m), open hole.
DATUM.--Land-surface datum is 10 ft (3 m) above mean sea level. Measuring point: Top of 10 in (0.25 m) stilling pipe for water-level recorder, 26.15 ft (7.97 m) above mean sea level (since Sept. 9, 1968).
REMARKS.--Recording gage installed Sept. 9, 1968.
PERIOD OF RECORD.--January 1928 to August 1930, September 1934 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.90 ft (7.89 m) above mean sea level, Jan. 16, 1928; lowest, 14.02 ft (4.27 m) above mean sea level, Oct. 11, 1973.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.45	15.03		17.15	17.02	17.24	16.53	16.07	15.74	15.57	15.71	14.90
10	15.31	15.15	No	17.23	17.29	17.12	16.43	16.10	15.62	15.40	15.05	14.85
15	15.38	15.03	record	17.12	17.48	17.04	16.32	15.97	15.55	15.31	15.05	14.77
20	15.31	14.98		17.14	17.44	16.83	16.43	15.88	15.64	15.28	14.98	14.79
25	15.18	15.34		17.13	17.50	16.56	16.35	15.85	15.45	15.33	14.88	14.72
EOM	15.03		17.07	17.05	17.46	16.50	16.15	15.85	15.38	15.20	14.85	14.77

WTR YEAR 1976 MAX 17.63 FEB 17, 1976 MIN 14.65 SEP 24, 1976

212927158014807. Local number, 3-2901-07.
LOCATION.--Lat 21°29'27", long 158°01'48", Hydrologic Unit 20060000, at Kamehameha Highway and Wilikina Drive, Wahiawa. Owner: U.S. Army.
AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Dug domestic high-level water-table well, size 8 x 8 ft (2 x 2 m), length of 30-degree inclined shaft 1,148 ft (350 m).
DATUM.--Land-surface datum is 850 ft (259 m) above mean sea level. Measuring point: Top of pump chamber floor at recorder, 287.00 ft (87.48 m) above mean sea level.
REMARKS.--Recorder is located on the pump chamber floor at the bottom of shaft. Recording gage installed November 1938. Water pumped continually for domestic supply.
PERIOD OF RECORD.--August 1936 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 284.40 ft (86.69 m) above mean sea level, May 12, 1969; lowest, 273.17 ft (83.26 m) above mean sea level, Mar. 11, 1946.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	278.67	278.28	277.96				No	277.87	277.79	278.82	277.83	277.73
10	278.54	278.25	278.09				record	277.90	278.49	278.64	277.77	278.79
15	278.43	278.10	277.75	No	No	No		278.20	277.85	278.69	278.80	277.50
20	278.43	278.06	277.68	record	record	record	277.49	278.14	278.70	278.15	278.15	278.41
25	278.30	278.25	No				277.66	278.24	278.06	278.85	277.80	277.59
EOM	278.35	277.96	record				277.71	278.33	278.53	278.24	278.48	278.34

Note: Well being pumped throughout the year.

213327157524401. Local number, 3-3352-01 (formerly 405).
LOCATION.--Lat 21°33'27", long 157°52'44", Hydrologic Unit 20060000, at mouth of Kahana Valley and 700 ft (180 m) southwest of Kamehameha Highway (Highway 83), Kahana. Owner: Mary E. Foster Estate.
AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled artesian basal water-table well, diameter 10 in (0.25 m), depth 441 ft (134 m), cased to 177 ft (54 m), open hole.
DATUM.--Land-surface datum is 6 ft (2 m) above mean sea level. Measuring point: Top of blind flange, 5.76 ft (1.76 m) above mean sea level.
REMARKS.--Water-quality records for 1935 to 1975 are available in files of district office; those for 1976 are published elsewhere in this report.
PERIOD OF RECORD.--April 1935 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.3 ft (6.5 m) above mean sea level, Mar. 29, 1966; lowest measured, 14.90 ft (4.54 m) above mean sea level, Oct. 28, 1946.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 11	16.31	MAY 19	16.16	JUN 29	15.65	SEP 28	15.23

213455158065301. Local number, 3-3406-01.
LOCATION.--Lat 21°34'55", long 158°06'53", Hydrologic Unit 20060000, near Weed Circle, Waialua. Owner: Waialua Sugar Co., Inc.
AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled irrigation artesian basal water-table well, diameter 6 in (0.15 m), depth 201 ft (61 m), cased to 114 ft (35 m), open hole.
DATUM.--Land-surface datum is 5 ft (2 m) above mean sea level. Measuring point: Top of blind flange on well, 4.69 ft (1.43 m) above mean sea level.
PERIOD OF RECORD.--March 1911 to April 1921, February 1924 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.35 ft (4.07 m) above mean sea level, December 1914; lowest measured, 9.19 ft (2.80 m) above mean sea level, Apr. 24, 1946.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 4	10.72	FEB 6	11.55	MAR 16	11.95	JUN 4	10.95	JUL 16	10.98	SEP 1	10.91
DEC 22	11.75										

213446158104901. Local number, 3-3410-08.
LOCATION.--Lat 21°34'46", long 158°10'49", Hydrologic Unit 20060000, near Dillingham Air Force Base south of Farrington Highway, Mokuleia. Owner: Waialua Sugar Co., Inc.
AQUIFER.--Basalt of Waianae Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled observation artesian basal water-table well, diameter 1.0 in (0.03 m), depth 447 ft (136 m), cased to 447 ft (136 m), perforated 410 to 447 ft (125 to 136 m).
DATUM.--Land-surface datum is 16 ft (5 m) above mean sea level. Measuring point: Top of 12 in (0.30 m) stilling well 20.53 ft (6.26 m) above mean sea level.
REMARKS.--Recording gage installed during the period January 1963 to February 1972. Present one-inch galvanized pipe was installed inside of existing 6-inch well and space between the two casings grouted on Sept. 13, 1948.
PERIOD OF RECORD.--January 1929 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 19.98 ft (6.69 m) above mean sea level, Jan. 5, 1969; lowest measured, 16.08 ft (4.90 m) above mean sea level, Aug. 6, 1929.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 4	18.12	FEB 6	18.37	APR 22	18.07	JUN 4	17.96	JUL 16	17.94	SEP 1	18.04
DEC 22	18.45	MAR 16	18.67								

213722157551701. Local number, 3-3755-05.
LOCATION.--Lat 21°37'22", long 157°55'17", Hydrologic Unit 20060000, at mouth of Kaipapau Valley, Hauula. Owner: Consolidated Amusement Co., Ltd.
AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled observation artesian basal water-table well, diameter 12 in (0.30 m), depth 192 ft (58 m), cased to 92 ft (28 m), open end.
DATUM.--Land-surface datum is 16 ft (5 m) above mean sea level. Measuring point: Top of PVC stilling well for water-level recorder, 23.22 ft (7.08 m) above mean sea level.
REMARKS.--Water-quality records for 1937-54, 1956-64 are available in files of district office. Recording gage installed July 8, 1968.
PERIOD OF RECORD.--July 1956 to July 1964, July 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 21.77 ft (6.64 m) above mean sea level, Feb. 24, 1969; lowest measured, 16.68 ft (5.08 m) above mean sea level, Oct. 4, 1962.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	17.00	17.21	17.79	17.61	17.86	18.08	18.17	18.17	17.70	17.39	No	17.19
10	17.07	17.25	17.89	17.62	17.98	18.21	18.10	18.12	17.64	17.39	record	17.18
15	17.12	17.29	17.90	17.64	18.08	18.24	18.11	18.06	17.56	17.39	17.34	17.17
20	17.16	17.29	17.89	17.68	18.12	18.26	18.12	17.92	17.53	17.36	17.32	17.24
25	17.15	17.46	17.79	17.74	18.07	18.22	18.18	17.87	17.49	17.42	17.26	17.27
EOM	17.18	17.66	17.68	17.76	18.05	18.22	18.17	17.78	17.39	17.48	17.21	17.40

WTR YEAR 1976 MAX 18.38 MAR 14, 1976 MIN 16.85 OCT 5, 1975

HAWAII, ISLAND OF OAHU--Continued

214125158013401. Local number, 3-4101-03.
LOCATION.--Lat 21°41'25", long 158°01'34", Hydrologic Unit 20060000, on Kamehameha Highway at Waialee. Owner: State of Hawaii.
AQUIFER.--Basalt of Koolau Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled observation artesian basal water-table well, diameter 8 in (0.20 m), depth 61 ft (18 m), cased to 36 ft (11 m), open hole.
DATUM.--Land-surface datum is 22 ft (7 m) above mean sea level. Measuring point: Top of 4-inch (0.10 m) pipe, 21.89 ft (6.67 m) above mean sea level.
PERIOD OF RECORD.--February 1929 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.60 ft (4.75 m) above mean sea level, Nov. 14, 1932; lowest measured, 11.70 ft (3.57 m) above mean sea level, May 27, 1947.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	13.14	JAN 13	13.11	APR 7	12.85	MAY 21	13.02	JUN 29	12.84	SEP 24	13.07
DEC 11	13.36										

HAWAII, ISLAND OF MOLOKAI

210425156483001. Local number, 4-0448-02.
LOCATION.--Lat 21°04'25", long 156°48'30", Hydrologic Unit 20050000, 100 ft (30 m) north of Highway 45, and 0.8 mi (1 km) west of Pukoo. Owner: P. Friel.
AQUIFER.--East Molokai Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Dug observation basal water-table well, 4 x 6 ft (1 x 2 m), depth 22 ft (7 m).
DATUM.--Land-surface datum is 19 ft (3 m) above mean sea level. Measuring point: Top of 2 x 2 in (0.05 x 0.05 m) steel plate bolted to top of concrete well wall, 21.23 ft (6.47 m) above mean sea level.
REMARKS.--Recording gage was operated during the period Aug. 8, 1970 to Jan. 22, 1973. Water-quality records for 1970 to 1973 are available in files of district office.
PERIOD OF RECORD.--August 1970 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.11 ft (1.86 m) above mean sea level, Nov. 26, 1970; lowest measured, 3.75 ft (1.14 m) above mean sea level, Sept. 16, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 11	3.78	MAR 8	3.94	MAY 4	4.06	JUN 1	3.87	JUL 12	3.89	SEP 14	4.02
JAN 6	3.88										

210605157012001. Local number, 4-0601-01.
LOCATION.--Lat 21°06'05", long 157°01'20", Hydrologic Unit 20050000, in Kaunakakai Gulch, Kaunakakai. Owner: State of Hawaii.
AQUIFER.--Basalt of East Molokai Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 12 in (0.30 m), depth 59 ft (18 m), cased to 20 ft (6 m), open hole.
DATUM.--Land-surface datum is 51 ft (16 m) above mean sea level. Measuring point: Top of 15 in (0.38 m) surface casing 51.95 ft (15.83 m) above mean sea level.
REMARKS.--Water-quality records for 1954 to 1975 are available in files of district office; those for 1976 are published elsewhere in this report.
PERIOD OF RECORD.--May 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.30 ft (1.01 m) above mean sea level, Jan. 20, 1969; lowest measured, 1.6 ft (0.5 m) above mean sea level, Dec. 5, 1964.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	2.52	JAN 6	2.48	APR 7	2.39	JUN 3	2.47	JUL 14	2.55	SEP 15	2.67
DEC 18	2.47	FEB 11	2.52								

203912156255901. Local number, 6-3925-01.
LOCATION.--Lat 20°39'12", long 156°25'59", Hydrologic Unit 20020000, 0.75 mi (1.2 km) east of Makena. Owner: State of Hawaii.
AQUIFER.--Hana Volcanic Series, Pleistocene (?) age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 8 in (0.20 m), depth 382 ft (116 m), cased to 363 ft (111 m), open hole.
DATUM.--Land-surface datum is 352 ft (107 m) above mean sea level. Measuring point: Top of 2 in (0.05 m) pipe attached to the casing cover, 352.29 ft (107.38 m) above mean sea level.
PERIOD OF RECORD.--August 1964, March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.47 ft (0.14 m) above mean sea level, Aug. 24, 1964; lowest measured, 0.39 ft (0.12 m) below mean sea level, May 29, 1973, May 22, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	-0.18	JAN 26	-0.10	MAR 18	-0.08	MAY 6	-0.23	JUN 25	-0.25	AUG 24	-0.32
NOV 26	.03										

204827156242201. Local number, 6-4824-01.
LOCATION.--Lat 20°48'27", long 156°24'22", Hydrologic Unit 20020000, on Waiakoa Road 1,000 ft (305 m) south of intersection with Kalaloa Gulch, and 4 mi (6 km) east of Kihei. Owner: State of Hawaii.
AQUIFER.--Kula Volcanic Series, Pleistocene (?) age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 12 in (0.30 m), depth 647 ft (197 m), cased to 598 ft (182 m), screened 598 to 638 ft (182 to 194 m), open hole.
DATUM.--Land-surface datum is 593 ft (181 m) above mean sea level. Measuring point: Top of 3 in (0.08 m) pipe attached to the steel casing cover, 594.75 ft (181.28 m) above mean sea level.
REMARKS.--Water-quality records for 1971 are available in files of district office.
PERIOD OF RECORD.--March 1971, May 1972 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.20 ft (1.58 m) above mean sea level, Jan. 17, 1974; lowest measured, 3.68 ft (1.12 m) above mean sea level, Oct. 29, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	3.68	JAN 27	3.98	MAR 19	4.34	MAY 7	4.14	JUN 28	3.87	AUG 26	3.78
DEC 1	4.23										

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 (1.1 km) north of Maalaea and 0.9 mi (1.4 km) southwest of intersection of Honoapiilani Highway and Kihei Road. Owner: State of Hawaii.
AQUIFER.--Wailuku Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 8 in (0.20 m), depth 219 ft (67 m), cased to 187 ft (57 m), open hole.
DATUM.--Land-surface datum is 166 ft (51 m) above mean sea level. Measuring point: Top of 8 in (0.20 m) casing, 166.60 ft (50.78 m) above mean sea level.
REMARKS.--Water-quality records for 1965, 1967 are available in files of district office. Recording gage was operated during the period January to July 1974.
PERIOD OF RECORD.--September 1972 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.57 ft (1.70 m) above mean sea level, Jan. 16, 1974; lowest measured, 4.90 ft (1.49 m) above mean sea level, July 22, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	4.99	JAN 27	5.01	MAY 5	5.05	JUN 28	4.96	AUG 24	4.91	SEP 30	5.20
DEC 3	5.08	MAR 19	5.18								

HAWAII, ISLAND OF MAUI--Continued

204909156281401. Local number, 6-4928-02.
LOCATION.--Lat 20°48'27", long 156°28'14", Hydrologic Unit 20020000, at Puunene Airport on Mokulele Highway 2.5 mi (4.0 km) north of intersection with Kihei Road, Kihei. Owner: Hawaiian Commercial and Sugar (H.C. & S. Co.).
AQUIFER.--Honomanu Volcanic Series.
WELL CHARACTERISTICS.--Dug basal water-table well, 6 x 9 ft (2 x 3 m) vertical shaft, depth 53 ft (16 m).
DATUM.--Land-surface datum is 50 ft (15 m) above mean sea level. Measuring point: Top of angle iron at well, 50.08 ft (15.26 m) above mean sea level.
REMARKS.--Recording gage installed Mar. 22, 1972. Water-quality records for 1973 are available in files of district office.
PERIOD OF RECORD.--March 1972 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.24 ft (1.29 m) above mean sea level, Feb. 9, 10, 1974; lowest, 3.18 Ft (0.97 m) above mean sea level, June 23, 24, 1972.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.39	3.37	3.56	3.46	3.73	3.63	3.72	3.61	3.51	3.40	3.42	3.47
10	3.41	3.35	3.62	3.38	3.69	3.74	3.78	3.63	3.47	3.42	3.47	3.53
15	3.37	3.31	3.55	3.41	3.59	3.88	3.83	3.65	3.44	3.40	3.46	3.51
20	3.36	3.27	3.38	3.56	3.45	3.80	3.86	3.58	3.42	3.39	3.39	3.58
25	3.37	3.53	3.38	3.55	3.45	3.71	3.72	3.53	3.43	3.39	3.36	3.61
EOM	3.35	3.70	3.39	3.49	3.55	3.70	3.61	3.52	3.41	3.42	3.44	3.62

WTR YEAR 1976 MAX 3.91 MAR 1, 2, 1976 MIN 3.23 NOV 20, 1975

205552156193101. Local number, 6-5519-01.
LOCATION.--Lat 20°55'52", long 156°19'31", Hydrologic Unit 20020000, at Haiku School 1.0 mi (1.6 km) north of Haiku and 2.7 mi (4.3 km) northeast of Paia. Owner: State of Hawaii.
AQUIFER.--Kula Volcanic Series, Pleistocene (?) age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 8 in (0.20 m), depth 400 ft (122 m), cased to 363 ft (111 m), perforated 363 to 383 ft (111 to 117 m).
DATUM.--Land-surface datum is 365 ft (111 m) above mean sea level. Measuring point: Top of 2.5 in (0.06 m) coupling pipe on top of casing cover, 366.26 ft (111.64 m) above mean sea level.
PERIOD OF RECORD.--May 1972 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.75 ft (1.75 m) above mean sea level, Dec. 10, 1973; lowest measured, 4.89 Ft (1.49 m) above mean sea level, July 22, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	5.23	JAN 27	5.28	MAR 5	5.17	APR 26	5.37	JUN 18	5.03	AUG 17	5.03
DEC 1	5.39										

205856156400101. Local number, 6-5840-01.
LOCATION.--Lat 20°58'56", long 156°40'01", Hydrologic Unit 20020000, on sugar plantation road 0.9 mi (1.4 km) east of Kahana and 1.5 mi (2.4 km) southwest of Honokabua. Owner: State of Hawaii.
AQUIFER.--Honolua Volcanic Series, Pliocene (?) age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 8 in (0.20 m), depth 274 ft (84 m), cased to 274 ft (84 m), perforated 264 to 274 ft (80 to 84 m). Hole was drilled to depth of 284 ft (87 m) but plugged back 10 ft (3 m) with cement.
DATUM.--Land-surface datum is 257 ft (78 m) above mean sea level. Measuring point: Top of 2.2 in (0.06 m) coupling pipe on top of casing cover 257.46 ft (78.47 m) above mean sea level.
REMARKS.--Recording gage installed Aug. 6, 1975.
PERIOD OF RECORD.--June 1964, March 1972 to September 1975; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.36 ft (1.02 m) above mean sea level, Jan. 15, 1974; lowest measured, 2.48 ft (0.76 m) above mean sea level, June 21, 1972.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	2.95	2.77	2.79	2.80	2.83	2.72	2.77	2.78	2.88	2.92	2.89	2.98
10	2.95	2.73	2.92	2.73	2.74	2.79	2.85	2.87	2.83	2.93	2.98	3.06
15	2.90	2.74	2.80	2.80	2.68	2.89	2.88	2.88	2.82	2.89	2.96	3.02
20	**	2.69	2.68	2.85	2.70	2.85	2.87	2.82	2.84	2.89	2.88	3.13
25	2.77	2.96	2.70	2.77	2.66	2.73	2.83	2.86	2.90	2.87	2.83	3.15
EOM	2.71	2.83	2.74	2.78	2.73	2.73	2.74	2.86	2.85	2.94	2.96	3.17

WTR YEAR 1976 MAX 3.27 SEPT. 29, 30, 1976 MIN 2.47 FEB. 13, 14, 1976

** No record.

193017154502101. Local number, 8-3080-02.
LOCATION.--Lat 19°30'17", long 154°50'21", Hydrologic Unit 20010000, 0.5 mi (0.8 km) south of intersection of Highway 132 and Highway 137 near Pahoa. Owner: County of Hawaii.
AQUIFER.--Puna Volcanic Series, Holocene age.
WELL CHARACTERISTICS.--Dug basal water-table well, diameter 66 in (1.7 m), depth 46 ft (13 m), with two horizontal infiltration tunnels 2 x 50 ft (0.6 x 15 m) extending in opposite directions from 3 ft (0.9 m) above bottom of well.
DATUM.--Land-surface datum is 39 ft (12 m) above mean sea level. Measuring point: Top of steel manhole cover at 1-inch (0.03 m) hole, 39.50 ft (12.04 m) above mean sea level.
REMARKS.--Water-quality records for 1972-75 are available in files of district office; those for 1976 are published elsewhere in this report. Water from the shaft is pumped frequently for domestic use.
PERIOD OF RECORD.--March 1972 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.66 ft (1.12 m) above mean sea level, Sept. 21, 1976; lowest measured, 2.00 ft (0.61 m) above mean sea level, Jan. 11, 1974.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	a2.33	DEC 30	3.35	FEB 19	a2.81	MAY 21	3.64	JUL 26	3.30	SEP 21	3.66

a Well being pumped.

193339154594801. Local number, 8-3389-01.
LOCATION.--Lat 19°33'39", long 154°59'48", Hydrologic Unit 20010000, 4.9 mi (7.9 km) southeast of Keaau on Orchid Land Estate subdivision. Owner: County of Hawaii.
AQUIFER.--Puna Volcanic Series, Holocene age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 8 in (0.2 m), depth 475 ft (145 m), cased to 403 ft (123 m), perforated 403 to 475 ft (123 to 145 m).
DATUM.--Land-surface datum is 427 ft (130 m) above mean sea level. Measuring point: Top of casing, 428.14 ft (130.50 m) above mean sea level.
PERIOD OF RECORD.--September 1974 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.37 ft (6.21 m) above mean sea level, Feb. 14, 1975; lowest measured, 16.35 ft (4.98 m) above mean sea level, Nov. 5, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	16.35	DEC 30	17.70	FEB 19	18.42	JUN 1	18.42	JUL 26	18.09

194134155005601. Local number, 8-4100-01.
LOCATION.--Lat 19°41'34", long 155°00'56", Hydrologic Unit 20010000, 5.5 mi (8.9 km) southeast of Hilo Post Office and 5.0 mi (8.0 km) northeast of Keaau. Owner: Hawaiian Paradise Corporation.
AQUIFER.--Kau Volcanic Series, Holocene age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 10 in (0.3 m), depth 55 ft (17 m), cased to 39 ft (12 m), perforated 39 to 55 ft (12 to 17 m).
DATUM.--Land-surface datum is 45 ft (14 m) above mean sea level. Measuring point: Top of casing, 46.84 ft (14.28 m) above mean sea level.
REMARKS.--Water-quality records for 1972-75 are available in files of district office; those for 1976 are published elsewhere in this report.
PERIOD OF RECORD.--March 1972 to September 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.34 ft (1.63 m) above mean sea level, Nov. 15, 1973; lowest measured, 2.24 ft (0.68 m) above mean sea level, Mar. 9, 1972.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 11	4.60	JAN 15	4.56	MAR 16	4.37	JUN 2	4.32	AUG 11	4.34

194819155582301. Local number, 8-4858-01.
LOCATION.--Lat 19°48'19", long 155°58'23", Hydrologic Unit 20010000, 3.4 mi (5.5 km) north of Huehue Ranch and 2.3 mi (3.7 km) southeast of Kaupulehu. Owner: Kona Village Resort.
AQUIFER.--Hualalai Volcanic Series, Holocene age.
WELL CHARACTERISTICS.--Drilled basal water-table well, diameter 4 in (0.1 m), depth 528 ft (161 m).
DATUM.--Land-surface datum is 498 ft (152 m) above mean sea level. Measuring point: Top of concrete block at well opening, 498.05 ft (151.81 m) above mean sea level.
REMARKS.--Water-quality records for 1972 are available in files of district office. Water level affected by pumping from two wells located within 100 ft (30 m).
PERIOD OF RECORD.--April 1974 to August 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.16 ft (0.66 m) above mean sea level, Aug. 26, 1975; lowest measured, 0.63 ft (0.19 m) above mean sea level, July 9, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 14	1.95	FEB 4	0.93	APR 8	c0.84	JUN 3	0.76	AUG 4	c1.17	SEP 22	c1.12
DEC 4	1.05										

c Nearby well being pumped.

195947155485801. Local number, 8-5948-01.
LOCATION.--Lat 19°59'47", long 155°48'58", Hydrologic Unit 20010000, 0.7 mi (1.1 km) east of Hapuna Beach Park and 3.1 mi (5.0 km) southeast of Kawaihae. Owner: State of Hawaii.
AQUIFER.--Hamakua Volcanic Series, Pleistocene age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 10 in (0.3 m), depth 268 ft (82 m), cased to 246 ft (75 m), screened 246 to 266 ft (75 to 81 m).
DATUM.--Land-surface datum is 244 ft (74 m) above mean sea level. Measuring point: Hole in punpbase, 245.0 ft (74.7 m) above mean sea level.
REMARKS.--Water-quality records for 1970, 1973-75 are available in files of district office; those for 1976 are published elsewhere in this report.
PERIOD OF RECORD.--March 1973 to August 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.2 ft (0.67 m) above mean sea level, Sept. 20, 1976; lowest measured, 1.4 ft (0.43 m) above mean sea level, June 22, 1973, June 3, 1974.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 9	a2.1	FEB 3	a1.7	MAY 27	a1.7	AUG 2	a2.0	SEP 20	a2.2

a Well being pumped.

200132155471001. Local number, 8-6147-01.
LOCATION.--Lat 20°01'32", long 155°47'10", Hydrologic Unit 20010000, on Highway 26, 3.1 mi (5.0 km) east of Kawaihae and 2.8 mi (4.5 km) northeast of Hapuna Beach Park. Owner: State of Hawaii.
AQUIFER.--Pololu Volcanic Series, Pleistocene age.
WELL CHARACTERISTICS.--Drilled observation basal water-table well, diameter 8 in (0.2 m), depth 1,008 ft (307 m), cased to 997 ft (304 m), perforated 997 to 1,008 ft (304 to 307 m). Hole was drilled to 1,040 ft (317 m) but was finally plugged back to 1,008 ft (307 m).
DATUM.--Land-surface datum is 982 ft (299 m) above mean sea level. Measuring point: Top of pipe coupling on casing cover 982.7 ft (299.5 m).
REMARKS.--Water-quality records for 1963 are available in files of district office.
PERIOD OF RECORD.--June 1963, July to August 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.5 ft (1.7 m) above mean sea level, Aug. 25, 1975; lowest measured, 4.4 ft (1.3 m) above mean sea level, Sept. 20, 1976.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 9	5.4	DEC 24	5.1	FEB 18	5.2	MAY 27	5.2	AUG 2	5.2	SEP 20	4.4

201603155521801. Local number, 8-7652-01.
LOCATION.--Lat 20°16'03", long 155°52'18", Hydrologic Unit 20010000, 0.3 mi (0.5 km) west of Upolu Point Airfield, 3.1 mi (5.0 km) northwest of Hawi, and 1.9 mi (3.1 km) west of Hoea Camp. Owner: Kohala Corporation.
AQUIFER.--Pololu Volcanic Series, Pleistocene age.
WELL CHARACTERISTICS.--Dug observation basal water-table well.
DATUM.--Land-surface datum is 7.43 ft (2.26 m) above mean sea level. Measuring point: Top of 4 in (0.1 m) steel I-beam placed across sump, 7.75 ft (2.36 m) above mean sea level.
REMARKS.--Water-quality records for 1973-74 are available in files of district office; those for 1976 are published elsewhere in this report.
PERIOD OF RECORD.--March 1973 to August 1975 records available in files of district office; October 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.09 ft (0.94 m) above mean sea level, Aug. 22, 1974; lowest measured, 1.45 ft (0.44 m) above mean sea level, July 9, 1975.

WATER LEVEL, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	2.96	FEB 3	1.85	APR 7	1.95	JUN 3	1.86	AUG 4	2.53	SEP 23	2.17

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
		HAWAII, ISLAND OF KAUAI						
220018159444701	2-0044-10 W33 KAUNALEWA	22 00 18	159 44 47	01	75-11-07	8000	22.5	2120
					76-01-21	8500	21.0	3350
					76-03-12	7200	21.0	3100
					76-05-14	6000	21.5	2300
					76-06-30	5250	21.5	1900
					76-09-07	5600	22.0	2900
220016159442701	2-0044-15 S14 KSCO	22 00 16	159 44 27	01	75-11-07	8000	22.5	2650
					76-01-21	2000	23.5	560
					76-03-12	2900	22.0	825
					76-05-14	3200	21.5	1100
					76-06-30	4800	22.0	1800
					76-09-07	2800	22.5	850
220136159205501	2-0120-01 W7 WAILUA	22 01 36	159 20 55	01	75-11-06	800	25.0	160
					76-01-15	850	24.0	155
					76-03-02	850	23.5	150
					76-05-10	840	24.5	150
					76-06-29	860	24.5	150
					76-08-17	810	24.5	150
220148159453501	2-0145-10 W45F MANA	22 01 48	159 45 35	01	75-11-07	2000	22.5	570
					76-01-21	1800	21.0	480
					76-05-14	1250	20.5	300
					76-06-30	1450	21.0	350
220354159205601	2-0320-01 W9-1A WAILUA	22 03 54	159 20 56	01	75-11-06	360	24.0	46
					76-01-15	400	22.0	42
					76-05-12	400	22.5	46
					76-08-17	400	22.5	46
220341159453901	2-0345-04 S16 SAKIMANA	22 03 41	159 45 39	01	75-11-07	1650	21.5	400
					76-01-21	1650	21.5	430
					76-03-12	1700	22.0	415
					76-05-14	1650	21.5	360
					76-06-30	1720	22.0	440
					76-09-07	1600	22.5	450
220530159450401	2-0545-01 W59 SAKIMANA	22 05 30	159 45 04	01	75-11-07	810	24.0	158
					76-03-12	880	23.0	150
					76-05-14	940	24.0	160
220827159185401	2-0818-01 W90A ANAHOLA	22 08 27	159 18 54	01	76-01-09	270	23.0	24
					76-06-23	265	23.0	25
221141159252501	2-1125-01 CNTY DOW	22 11 41	159 25 25	01	76-01-13	150	24.5	13
221151159265001	2-1126-02 HANALEI	22 11 51	159 26 50	01	75-11-04	200	23.0	16
221201159293401	2-1229-03 W73 HANALEI	22 12 01	159 29 34	01	75-11-04	220	22.5	20
					76-01-05	220	23.0	21
					76-02-26	220	22.0	20
					76-05-11	220	22.5	22
					76-06-22	210	22.5	20
221247159324801	2-1232-01 W67 CNTY DOW	22 12 47	159 32 48	01	75-11-04	125	22.5	21
					76-05-11	140	22.0	20
221318159335901	2-1333-01 W66 HAENA	22 13 18	159 33 59	01	75-11-04	170	22.5	20
					76-01-05	210	22.0	20
					76-02-26	170	21.0	18
					76-05-11	215	21.5	20
					76-06-22	210	21.0	19
215454159274201	2-5427-01 W16A KOLOA	21 54 54	159 27 42	01	75-11-10	240	23.5	26
					76-03-16	250	23.0	26
					76-05-13	250	22.0	26
					76-07-14	250	23.0	25
215528159303001	2-5530-02 W23 MSCO LAWAI	21 55 28	159 30 30	01	75-11-10	250	22.5	27
					76-01-23	250	22.0	26
					76-03-16	245	21.5	26
					76-05-13	255	22.0	28
					76-07-02	255	22.5	46
					76-09-03	250	22.0	26

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF KAUAI--Continued					
215535159302601	2-5530-03 W22 LAWAI	21 55 35	159 30 26	01	75-11-10	215	22.5	24
					76-01-23	220	22.0	23
					76-03-16	215	23.0	22
					76-05-13	220	22.0	24
					76-09-03	220	22.0	23
215522159342601	2-5534-03 W25-1 HANAPEPE	21 55 22	159 34 26	01	76-01-23	450	22.0	38
					76-03-16	460	22.0	36
					76-05-10	450	22.5	--
					76-05-13	460	23.0	36
					76-07-02	460	22.0	34
215635159355001	2-5535-01 S7 KAUHAKANI	21 56 35	159 35 50	01	76-01-23	610	22.0	145
					76-03-16	880	22.0	150
					76-05-13	700	22.0	143
					76-07-02	750	22.5	140
					76-09-08	730	22.0	140
215803159401201	2-5540-02 W26 WAIMEA	21 58 03	159 40 12	01	75-11-07	540	23.0	88
					76-01-21	530	23.5	99
					76-03-12	600	23.5	102
					76-05-14	640	23.5	105
					76-06-30	650	23.5	110
215854159424601	2-5542-02 S11 KSCO KEKAHA	21 58 54	159 42 46	01	75-11-07	690	23.5	122
					76-01-21	650	23.5	96
					76-03-12	660	23.5	100
					76-05-14	690	23.5	109
					76-06-30	720	23.5	120
215843159422901	2-5542-03 S10 KSCO	21 58 43	159 42 29	01	75-11-07	840	23.5	152
					76-01-21	610	23.0	92
					76-03-12	720	23.5	126
					76-05-14	870	23.5	170
					76-06-30	890	23.5	170
					76-09-08	700	23.5	170
215906159395601	2-5939-01 S9 CNTY DOW	21 59 06	159 39 56	01	75-11-07	400	24.0	79
					76-01-21	450	23.0	57
					76-03-12	490	22.5	70
					76-05-13	440	21.5	72
					76-06-30	590	22.5	110
					76-09-08	500	22.0	82
215937159434201	2-5943-01 S13 WAIAWA	21 59 37	159 43 42	01	75-11-07	1100	23.5	232
					76-01-21	1100	23.5	222
					76-03-12	960	23.5	182
					76-05-14	1200	23.5	220
					76-06-30	1150	23.5	250
					76-09-07	1000	23.5	270
			HAWAII, ISLAND OF OAHU					
211646157465201	3-1646-01 W18 WAIALAE	21 16 46	157 46 52	01	75-11-04	850	22.0	210
					75-12-24	725	20.0	165
					76-02-04	775	22.5	180
					76-03-19	850	23.0	190
					76-05-04	850	22.5	195
					76-07-21	950	23.5	240

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF OAHU--Continued					
211718157491002	3-1749-07 W25 TUBE D	21 17 18	157 49 10	02	75-11-04	1350	22.5	370
					75-11-26	--	23.0	355
					75-12-11	--	23.0	350
					75-12-24	1450	22.5	325
					76-01-15	--	22.5	380
					76-02-04	1300	22.5	350
					76-02-25	--	23.0	330
					76-03-19	1150	23.0	310
					76-03-22	--	22.5	300
					76-04-15	--	23.0	310
					76-05-26	--	23.0	300
					76-06-15	1250	23.0	330
					76-06-28	--	23.0	360
					76-07-15	--	23.0	400
					76-07-21	1450	23.5	380
					76-08-18	--	23.0	400
					76-09-08	1450	23.0	410
					76-09-22	--	23.5	380
211718157491001	3-1749-07 W25 TUBE E	21 17 18	157 49 08	01	75-11-04	725	22.0	188
					75-11-26	--	23.0	162
					75-12-11	--	23.0	190
					75-12-24	725	22.0	162
					76-01-15	--	22.5	170
					76-02-04	700	22.5	156
					76-02-25	--	23.0	150
					76-03-19	625	22.5	131
					76-03-22	--	22.5	130
					76-04-15	--	23.0	130
					76-05-26	--	23.0	120
					76-06-15	540	23.0	110
					76-06-28	--	23.0	120
					76-07-15	--	23.0	140
					76-07-21	625	23.0	130
					76-08-18	--	23.0	150
					76-09-08	660	23.5	160
					76-09-22	--	23.5	160
211832157515501	3-1851-19 W102 TUBE A	21 18 32	157 51 55	01	75-11-07	16000	23.0	7000
					75-12-29	19000	23.0	7000
					76-02-09	14000	23.0	6880
					76-03-24	18000	23.0	6880
					76-05-04	16000	23.0	5600
					76-06-15	12000	23.0	7200
					76-07-21	16000	22.0	7400
					76-09-14	17000	23.5	7600
211832157515502	3-1851-19 W102 TUBE B	21 18 32	157 51 55	02	75-11-07	1075	23.0	270
					75-12-29	1100	23.0	278
					76-02-09	1100	23.0	285
					76-03-24	1100	23.5	288
					76-05-04	1100	23.0	295
					76-06-15	1100	23.0	300
					76-07-21	1150	22.5	300
					76-09-14	1125	23.5	310
212038157422501	3-2042-13 W420-1A PAC	21 20 02	157 42 07	01	75-10-14	5000	25.5	1680
					76-01-09	6000	24.5	1720
					76-03-29	4800	24.5	1550
					76-05-13	6000	24.0	1700
212133158035501	3-2103-03 S14 NAVY	21 21 33	158 03 55	01	75-11-10	1100	23.0	220
					75-12-30	1050	23.0	205
					76-02-11	1075	23.0	210
					76-03-25	1075	23.5	215
					76-05-05	1075	23.0	218
					76-06-16	1050	23.5	220
					76-07-22	1075	23.5	220
					76-09-13	1000	24.0	220

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF OAHU--Continued					
212106157533701	3-2153-02 W153 DAMON EST	21 21 06	157 53 37	01	75-11-07	390	21.0	76
					75-12-29	420	21.0	75
					76-02-09	400	21.5	75
					76-03-24	410	22.5	76
					76-05-04	400	21.5	70
					76-06-15	410	22.5	76
					76-07-21	420	22.0	74
					76-09-14	415	22.0	74
212155157551001	3-2155-04 W160 ALIAMANU	21 21 55	157 55 10	01	75-11-07	600	22.0	139
					76-03-24	580	24.5	140
					76-05-04	580	23.0	138
					76-06-16	600	22.5	140
					76-07-21	650	22.5	150
					76-09-13	600	23.0	140
212237158002001	3-2200-03 W234 NAVY	21 22 37	158 00 20	01	75-11-07	8480	22.5	2700
					75-12-30	8300	22.0	2700
					76-02-11	7500	22.5	2700
					76-03-22	7040	23.5	2700
					76-05-05	7500	22.0	2600
					76-06-16	7000	23.5	2800
					76-07-22	8000	23.0	2700
212259157554201	3-2255-35 W189-3A C&H	21 22 59	157 55 42	01	75-11-07	850	21.5	198
					75-12-29	800	22.5	180
					76-02-09	825	22.5	205
					76-03-24	825	22.0	202
					76-05-04	825	22.0	190
					76-06-14	810	22.5	190
					76-07-21	850	23.0	200
					76-09-14	800	23.0	190
212238157561102	3-2256-12 W187C NAVY AIEA	21 22 38	157 56 11	02	75-11-06	640	24.5	152
					75-12-29	625	22.5	151
					76-02-09	600	22.5	150
					76-03-25	600	24.5	149
					76-05-06	600	24.5	150
					76-06-14	600	28.0	150
					76-07-21	600	28.5	150
					76-09-10	580	27.0	150
212300158004801	3-2300-06 W253 CNTY BWS	21 23 00	158 00 48	01	75-12-30	540	22.0	118
					76-02-11	490	22.5	100
					76-03-25	520	23.0	109
212343158001001	3-2300-11 W238 WATANABE	21 23 43	158 00 10	01	75-11-07	800	22.0	170
					75-12-30	750	22.0	170
					76-02-11	750	22.5	165
					76-03-25	750	23.0	172
					76-05-05	750	22.5	165
					76-06-16	750	22.5	170
					76-07-22	800	22.5	170
					76-09-13	750	22.5	170
212358158010901	3-2301-09, 10 W247J,I	21 23 58	158 01 09	01	75-11-07	440	22.5	70
					75-12-30	580	22.0	115
					76-02-11	560	23.0	102
					76-03-25	540	24.0	102
					76-05-05	500	24.0	86
					76-06-16	480	24.0	82
					76-07-22	460	24.0	77
					76-09-13	440	24.5	73

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF OAHU--Continued					
212327157573901	3-2357-21 W198-3 SUYETANI	21 23 27	157 57 39	01	75-11-06	800	21.0	182
					75-12-29	800	21.0	198
					76-02-09	650	21.5	141
					76-03-24	600	22.5	130
					76-05-06	560	22.0	122
					76-06-14	560	22.5	120
					76-07-21	560	23.5	120
					76-09-10	650	21.5	150
212332157582201	3-2358-02 W201 NAVY	21 23 32	157 58 22	01	75-11-06	1200	20.0	330
					75-12-29	5000	20.0	1620
					76-02-09	7500	20.5	1800
					76-03-22	3400	20.5	950
					76-05-05	3200	20.0	900
					76-06-15	2200	20.5	640
					76-07-21	2200	21.0	620
					76-09-10	1400	20.5	440
212318157583401	3-2358-19 W205-1 NAVY	21 23 18	157 58 34	01	75-11-06	1125	24.0	320
					75-12-29	1200	24.0	330
					76-02-09	1200	23.5	330
					76-03-22	1100	24.0	305
					76-05-05	1100	23.5	298
					76-06-15	1100	24.5	300
					76-07-21	1100	24.5	290
					76-09-10	1200	25.5	340
212342157584301	3-2358-22 W204-4	21 23 42	157 58 43	01	75-11-07	580	20.5	129
					75-12-29	750	20.0	180
					76-02-09	800	20.5	192
					76-03-22	770	21.5	192
					76-05-05	700	20.5	166
					76-06-15	650	21.0	160
					76-07-22	600	21.0	140
					76-09-13	570	21.0	130
212343157584701	3-2358-29 W204-9	21 23 43	157 58 47	01	75-11-07	1200	20.0	165
					75-12-29	1200	20.0	320
					76-02-09	1500	20.5	420
					76-03-22	1600	20.5	430
					76-05-05	1100	20.0	300
					76-06-15	1000	20.5	260
					76-07-22	900	20.5	240
					76-09-13	775	20.5	190
212336157591801	3-2359-05 W204-11 OSHITA	21 23 36	157 59 18	01	75-11-07	1400	22.0	365
					75-12-29	1900	22.0	510
					76-02-09	1900	22.5	880
					76-03-22	1850	22.5	480
					76-05-05	1700	22.0	460
					76-06-15	1500	22.5	420
					76-07-22	1500	22.5	400
					76-09-13	1300	22.5	380
212422157485601	3-2448-01 W416 STATE	21 24 22	157 48 56	01	75-10-22	220	21.5	20
					75-12-12	197	21.0	20
					76-01-20	195	19.5	19
					76-05-14	195	21.0	20
					76-06-29	198	20.0	20
212501158080701	3-2508-02 S2 CNTY RWS	21 25 01	158 08 07	01	75-11-03	1290	28.5	280
					75-12-17	1300	28.0	280
					76-01-29	1250	28.5	280
					76-03-12	1275	28.5	280
					76-04-20	1200	28.5	280
					76-06-03	1200	28.5	280
					76-07-17	1400	28.0	280
					76-09-02	1200	29.0	280

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF OAHU--Continued					
212506157582301	3-2558-10 S16 NAVY	21 25 06	157 58 23	01	75-11-06	690	21.5	175
					75-12-29	750	21.5	175
					76-05-05	650	21.5	152
					76-06-16	650	22.0	160
					76-07-21	700	22.0	160
212617158033801	3-2603-01 W330-8	21 26 17	158 03 38	01	75-11-07	360	22.0	48
					76-05-05	360	22.0	50
					76-06-16	360	22.5	50
					76-07-22	360	23.0	47
					76-09-13	350	22.5	47
212656158071801	3-2607-01 W277-97	21 26 56	158 07 18	01	75-12-19	340	24.0	45
					76-02-05	340	24.5	44
					76-03-11	340	25.0	45
212752158120201	3-2712-30 BWS KAHAILE	21 27 52	158 12 02	01	76-01-12	530	25.5	82
212803158000701	3-2800-01 W250-4A	21 28 03	158 00 07	01	75-11-03	165	22.0	18
					75-12-18	160	21.5	19
					76-02-05	160	22.5	16
					76-03-08	160	21.5	16
					76-04-23	160	22.0	18
					76-06-03	160	22.0	18
					76-07-16	160	22.0	18
212813158080201	3-2808-01 W277-92	21 28 13	158 08 02	01	75-11-03	1200	26.5	160
					75-12-17	1140	26.0	150
					76-01-29	1160	26.5	160
					76-03-12	1160	27.0	160
					76-07-16	1400	26.0	160
					76-09-02	1190	26.5	160
212828158092001	3-2809-06 CNTY BWS	21 28 28	158 09 20	01	75-10-31	410	23.0	32
					75-12-19	380	22.5	31
					76-01-30	395	23.0	33
					76-03-11	415	23.0	42
					76-04-19	385	23.5	41
					76-06-03	395	23.0	34
					76-07-15	420	22.0	32
					76-09-02	375	23.5	33
212859158124301	3-2812-01 S1 CNTY BWS	21 28 59	158 12 43	01	75-10-31	560	25.0	90
					75-12-19	275	23.0	39
					76-01-30	360	23.5	56
					76-03-12	395	23.5	66
					76-04-20	405	24.0	68
					76-06-03	520	25.5	91
					76-07-15	580	26.0	98
					76-09-02	490	25.0	91
212853158130401	3-2813-03 CNTY BWS	21 28 53	158 13 04	01	76-02-23	530	25.0	92
212927158014801	3-2901-07 S4 ARMY	21 29 27	158 01 48	01	75-10-29	175	22.5	18
					75-12-22	170	21.5	18
					76-02-05	175	22.0	19
					76-03-15	175	22.5	19
					76-04-13	165	23.0	20
					76-06-04	170	23.0	19
					76-07-19	170	22.5	19
					76-09-07	170	22.0	18
212945158014301	3-2901-09 W330-6 CNTY BWS	21 29 45	158 01 43	01	75-10-30	195	22.0	20
					75-12-17	195	21.5	20
					76-01-26	185	22.0	20
					76-03-10	185	22.0	22
					76-04-16	180	22.5	20
					76-05-24	195	21.5	21
					76-07-14	185	22.0	20
					76-09-01	185	22.0	20

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF OAHU--Continued					
212939158112301	3-2911-02 WDCO MAKAHA	21 29 39	158 11 23	01	75-10-31	260	21.0	28
					75-12-19	260	21.0	27
					76-01-30	255	21.5	25
					76-03-11	255	22.0	26
					76-04-19	255	22.0	26
					76-06-03	255	22.0	26
					76-07-15	260	21.0	26
					76-09-02	250	21.5	26
213224158135901	3-3213-06 W277-101 PAGE	21 32 24	158 13 59	01	75-10-31	875	25.0	215
					75-12-19	850	24.5	210
					76-01-30	845	24.5	210
					76-03-12	840	24.5	208
					76-04-20	820	24.5	215
					76-06-03	820	25.0	210
					76-07-15	900	25.0	210
					76-09-02	800	25.5	210
213243157510001	3-3251-01 W406 KAAAWA	21 32 43	157 51 00	01	75-12-11	975	22.0	230
					76-05-19	950	22.0	235
					76-06-29	950	23.0	240
					76-09-28	850	22.5	--
213327157524401	3-3352-01 W405 KAHANA	21 33 27	157 52 44	01	75-12-11	280	22.5	37
					76-05-19	270	22.5	37
					76-06-29	280	22.5	34
					76-09-28	260	22.0	--
213427158055501	3-3405-02 W323-2 CNTY BWS	21 34 27	158 05 55	01	75-10-28	525	22.5	104
					75-12-23	560	22.0	115
					76-02-06	555	22.0	116
					76-03-16	560	23.0	117
					76-04-22	540	23.5	117
					76-05-27	540	22.5	110
					76-07-14	530	22.5	110
					76-08-27	520	23.0	110
213411158074501	3-3407-25 W320 CNTY BWS	21 34 11	158 07 45	01	75-11-04	1900	23.0	560
					75-12-22	1750	22.5	540
					76-02-04	1660	22.5	515
					76-04-22	1300	23.5	380
					76-06-04	1750	23.5	540
					76-07-16	2000	22.0	560
					76-09-01	1800	23.5	500
213444158075501	3-3407-30 W318-2 WSCO	21 34 44	158 07 55	01	76-04-22	2200	25.5	540
					76-06-04	2500	25.0	700
					76-07-15	2800	25.5	1300
					76-09-01	3450	25.0	950
213438158091101	3-3409-16 W308 MOKULEIA	21 34 38	158 09 11	01	75-11-04	775	22.5	175
					75-12-22	750	22.0	170
					76-02-06	745	21.5	170
					76-03-16	750	22.5	168
					76-04-22	740	23.0	170
					76-06-04	745	23.0	170
					76-07-16	800	22.0	170
					76-09-01	725	22.5	170
213446158104901	3-3410-08 W286 WSCO	21 34 46	158 10 49	01	75-11-04	870	22.5	235
					75-12-22	850	21.0	240
					76-02-06	820	21.0	240
					76-03-16	820	22.5	240
					76-04-22	850	23.0	240
					76-06-04	880	22.0	230
					76-07-16	880	23.0	250
					76-09-01	810	23.5	260

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF OAHU--Continued					
213512158061601	3-3506-03.04 W329A,B WSCO	21 35 12	158 06 16	01	75-11-04	480	22.0	88
					76-02-04	460	22.0	85
					76-03-16	450	22.5	80
					76-04-21	450	22.5	82
					76-05-26	460	22.0	84
					76-09-01	460	22.0	86
213513157534701	3-3553-07 W402-2D BWS	21 35 13	157 53 47	01	76-01-13	425	21.0	87
					76-06-29	380	21.0	71
213636158053701	3-3605-03 W334C WSCO	21 36 36	158 05 37	01	75-11-04	2100	21.5	620
					75-12-17	1500	21.0	440
					76-02-04	1800	21.5	550
					76-03-10	1460	21.5	425
					76-04-21	1400	22.0	430
					76-05-26	2100	21.5	660
					76-07-14	2400	21.0	680
					76-09-01	2000	22.0	660
213636158053702	3-3605-21 W334U WSCO	21 36 36	158 05 37	02	75-11-04	1400	22.0	390
					75-12-17	1340	21.5	380
					76-02-04	1310	21.5	380
					76-03-10	1350	22.0	385
					76-04-21	1240	22.0	380
					76-05-26	1275	22.0	380
					76-07-14	1600	22.0	400
					76-09-01	1300	22.0	390
213656157550401	3-3655-01 W394 BWS	21 36 56	157 55 04	01	75-10-17	235	21.5	34
					75-12-11	245	21.0	34
					76-01-13	245	21.0	34
					76-04-07	250	21.5	34
					76-05-19	240	21.0	34
					76-06-29	240	21.0	34
					76-09-28	230	21.0	34
213831157560201	3-3856-01 TO 06 W377A,F	21 38 31	157 56 02	01	75-10-28	250	21.5	35
213902157561601	3-3956-04 W366 KAHAWAI	21 39 02	157 56 16	01	75-10-17	395	22.0	77
					75-12-11	380	21.5	74
					76-01-13	400	21.5	72
					76-04-07	395	21.5	75
					76-05-19	400	22.0	78
					76-06-29	420	21.5	86
					76-09-24	510	21.0	110
214050157573301	3-4057-01 W353A KAHUKU	21 40 50	157 57 33	01	75-10-17	500	21.5	107
					75-12-12	480	21.0	99
					76-01-19	430	21.0	86
					76-04-07	430	22.0	92
					76-05-21	440	21.0	90
					76-06-29	510	21.0	100
214029157570101	3-4057-06 W357 CAMPBELL	21 40 29	157 57 01	01	76-09-24	510	22.0	110
					75-10-17	1850	22.5	570
					75-12-12	1400	21.5	385
					76-01-19	1400	22.0	390
					76-05-21	1400	22.5	400
214157158000101	3-4100-01 W338 DEL WEBB	21 41 57	158 00 01	01	76-09-24	1400	21.5	400
					75-10-17	5000	21.0	1650
					75-12-11	970	23.0	240
					76-01-13	5500	20.0	1580
					76-04-07	5000	20.0	1500
					76-06-29	5500	20.0	1600
214131158011601	3-4101-08 W337-6 CNTY BWS	21 41 31	158 01 16	01	76-09-24	1100	20.5	290
					75-12-12	240	20.0	36
					76-01-13	240	20.0	34
					76-04-07	235	21.0	33
					76-05-21	240	20.0	34
					76-06-29	250	20.0	32
					76-09-24	230	20.0	32

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
HAWAII, ISLAND OF OAHU--Continued								
214159157591001	3-4159-01 W341-A CAMPBELL	21 41 59	157 59 10	01	76-09-24	1100	25.0	280
214233157583501	3-4258-04 W345 KAHUKU	21 42 33	157 58 35	01	75-10-17	1700	25.0	540
					75-12-11	1700	21.0	535
					76-01-13	1900	22.0	540
					76-04-07	1750	22.0	530
					76-05-19	1900	22.0	530
					76-06-29	2000	23.5	540
					76-09-24	1800	24.0	530
HAWAII, ISLAND OF MOLOKAI								
210402156495801	4-0449-01 S6 UALAPUE	21 04 02	156 49 58	01	75-11-11	340	21.5	62
					76-03-09	340	20.5	60
					76-05-04	360	21.0	63
					76-07-12	340	22.0	62
210419156570501	4-0457-01 S4 CITY DOW	21 04 19	156 57 05	01	75-11-11	350	23.0	71
					76-03-09	370	22.5	72
					76-05-04	280	22.5	51
					76-07-12	260	23.0	50
210605157012001	4-0601-01 W11 MO RANCH	21 06 05	157 01 20	01	75-10-22	280	24.0	28
					75-12-18	280	24.0	33
					76-02-11	280	23.0	34
					76-04-07	275	23.0	33
					76-06-03	300	23.0	35
					76-07-14	300	23.0	34
					76-09-15	280	23.5	22
210638157032601	4-0603-01 DW14 MO RANCH	21 06 38	157 03 26	01	75-11-11	2800	23.0	750
					76-03-09	2250	22.5	450
					76-05-04	2500	23.0	550
					76-07-14	2600	23.5	650
210856157011201	4-0801-01 W16 MHC KALAE	21 08 56	157 01 12	01	75-10-21	405	--	76
					76-02-06	116	--	26
					76-06-03	392	--	82
					76-09-11	385	--	83
210903157013001	4-0901-01 W17 DEL MONTE	21 09 03	157 01 30	01	75-10-21	266	--	48
					75-11-14	229	--	44
					76-02-10	224	--	40
					76-03-16	227	--	42
					76-03-31	369	--	83
					76-05-11	228	--	42
					76-09-30	400	21.0	82
HAWAII, ISLAND OF MAUI								
203835156065001	6-3806-01 KAUPO RANCH	20 38 35	156 06 50	01	76-06-29	720	--	180
203911156035001	6-3903-01 PRYOR KIPAHULU	20 39 11	156 03 50	01	76-01-14	143	20.0	25
204126156262101	6-4126-02 78-1 A & B	20 41 26	156 26 21	01	75-10-28	1800	19.5	460
					75-11-26	1800	21.0	480
					76-01-26	1800	20.5	480
					76-03-18	1900	19.5	460
					76-05-06	1900	19.0	470
					76-06-25	2000	19.0	490
					76-08-24	2000	21.0	490

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENT-I-FIER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
			HAWAII, ISLAND OF MAUI--Continued					
204601156001501	6-4600-01 W55 HANA RANCH	20 46 01	156 00 15	01	75-10-09	540	21.0	116
					75-11-19	560	21.0	116
					76-01-13	540	19.5	114
					76-04-20	550	20.0	94
					76-06-15	540	21.0	92
204636156002601	6-4600-02 STATE HANA	20 46 36	156 00 26	01	75-11-19	2400	18.5	675
204634156271101	6-4627-08 W225 HASHIMOTO	20 46 34	156 27 11	01	75-10-28	1650	23.0	340
					75-11-26	1650	24.0	345
					76-01-26	1650	23.0	345
					76-03-18	1750	24.0	350
					76-05-06	1590	23.0	350
					76-06-25	1570	23.0	--
					76-08-24	1640	23.0	340
204635156270101	6-4627-14 226 HASHIMOTO	20 46 35	156 27 01	01	75-10-28	1325	22.5	275
					75-11-26	1300	23.5	280
					76-01-26	1380	21.0	280
					76-03-18	1380	22.0	275
					76-05-06	1480	22.5	280
					76-06-25	1460	22.5	280
204845156255001	6-4825-01 515 HC&S KIHEI	20 48 45	156 25 50	01	75-10-15	1600	--	330
					75-11-16	1610	--	335
					75-12-10	1590	--	325
					76-01-13	1640	--	345
					76-05-05	1630	--	360
					76-07-06	1680	--	350
					76-08-08	1840	--	400
					76-09-11	1630	--	340
204931156371201	6-4937-01 S10 PNR MILL	20 49 31	156 37 12	01	75-10-03	4020	--	1220
					75-10-31	3520	--	1050
					75-12-04	3400	--	1000
					75-12-26	3920	--	1200
				/	76-01-29	4060	--	1220
					76-03-31	4300	--	1300
					76-04-30	4740	--	1500
					76-05-27	4850	--	1500
					76-07-01	5380	--	1700
					76-07-29	5020	--	1600
					76-09-02	5680	--	1800
205102156282501	6-5128-02 S16 HC&S	20 51 02	156 28 25	01	75-10-14	1950	--	620
					75-11-16	1970	--	630
					75-12-10	2060	--	660
					76-01-13	2010	--	650
					76-05-05	2140	--	660
					76-07-06	2090	--	640
					76-08-08	1860	--	600
					76-09-11	1910	--	620
205243156243201	6-5224-02 S22 HC&S	20 52 43	156 24 32	01	75-10-14	1540	--	560
					75-11-16	1540	--	560
					75-12-10	1540	--	560
					76-01-13	1510	--	555
					76-05-05	1500	--	560
					76-07-06	1520	--	550
					76-08-08	1510	--	550
					76-09-11	1510	--	560
205305156304401	6-5330-05 533 WSCO	20 53 05	156 30 44	01	75-10-28	340	20.5	58
					75-12-03	360	21.5	58
					76-01-27	360	20.0	57
					76-03-19	350	20.0	52
					76-05-05	350	20.0	53
					76-08-26	340	21.0	54

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF MAUI--Continued					
205329156305502	6-5330-09 15A CNTY DWS	20 53 29	156 30 55	02	75-10-28	400	22.5	58
					75-12-03	440	23.5	70
					76-01-27	420	23.0	66
					76-05-05	460	23.0	80
					76-08-26	460	23.0	82
205329156305501	6-5330-10 15B CNTY DWS	20 53 29	156 30 55	01	75-10-28	380	22.5	58
					75-12-03	400	23.0	66
					76-01-27	380	23.0	56
					76-03-19	390	22.0	62
205330156305401	6-5330-11 15F CNTY DWS	20 53 30	156 30 54	01	76-03-19	300	22.0	36
					76-05-05	320	22.0	34
					76-06-28	330	22.0	34
					76-08-26	320	23.0	--
205322156394501	6-5339-01 291 CNTY DWS	20 53 22	156 39 45	01	75-10-23	1275	21.5	315
					76-04-29	1400	20.0	320
					76-06-24	1400	22.0	340
					76-08-23	1220	22.0	--
					76-09-30	1330	22.0	310
205320156394501	6-5339-02 292 CNTY DWS	20 53 20	156 39 45	01	75-10-23	1100	21.5	280
					76-01-23	1130	21.0	242
					76-03-12	1060	21.0	215
					76-04-29	1220	20.0	270
					76-06-24	1220	21.5	--
					76-08-23	1100	21.0	250
					76-09-30	960	21.0	--
205343156401101	6-5340-02 S5 PWCO KAHOMA	20 53 43	156 40 11	01	75-10-03	4010	--	1200
					75-10-31	4280	--	1300
					75-12-04	3140	--	925
					75-12-26	4190	--	1280
					76-01-29	4460	--	1350
					76-03-31	1550	--	410
					76-04-30	2400	--	700
					76-05-27	2730	--	800
					76-07-01	3360	--	980
					76-07-29	3720	--	1100
					76-09-02	4000	--	1200
205416156244301	6-5424-01 S24 HC&S	20 54 16	156 24 43	01	75-10-15	2280	--	610
					75-11-15	2310	--	610
					75-12-10	2350	--	630
					76-01-13	2340	--	625
					76-05-05	2220	--	580
					76-07-07	2310	--	600
					76-08-08	2300	--	610
					76-09-16	2290	--	610
205511156222101	6-5522-01 S31 HC&S	20 55 11	156 22 21	01	75-10-15	1240	--	290
					75-11-15	1260	--	295
					75-12-10	1220	--	290
					76-01-13	1230	--	290
					76-05-06	1070	--	245
					76-07-07	1200	--	300
					76-08-08	1230	--	300
					76-09-16	1260	--	300

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
HAWAII, ISLAND OF MAUI--Continued								
205651156401001	6-5640-01 S36 PNR MILL	20 56 51	156 40 10	01	75-10-03	1780	--	490
					75-10-31	1810	--	490
					75-12-04	1220	--	320
					75-12-26	1790	--	490
					76-01-29	1770	--	480
					76-04-05	637	--	146
					76-04-30	1450	--	400
					76-05-27	1550	--	410
					76-07-01	1660	--	450
					76-07-29	1540	--	410
					76-09-02	1580	--	430
205837156384601	6-5838-01 STATE NAPILI	20 58 37	156 38 46	01	75-10-24	700	--	165
					75-12-02	690	22.5	162
					76-03-12	690	21.0	157
					76-08-23	670	22.0	150
					76-09-30	670	21.0	148
HAWAII, ISLAND OF HAWAII								
190347155354301	8-0335-01 STATE NAALEHU	19 03 47	155 35 43	01	75-10-02	129	18.5	9.0
190832155310801	8-0831-01 HWN INVEST	19 08 32	155 31 08	01	75-12-05	540	18.0	128
					76-05-17	530	18.0	130
190832155310901	8-0831-02 HWN INVEST CO	19 08 32	155 31 09	01	75-10-02	645	18.0	170
191108155281701	8-1128-02 HWN ORCHARDS	19 11 08	155 28 17	01	75-12-05	115	19.0	11
					76-05-17	117	19.0	9.5
					76-07-08	117	19.0	12
191114155294801	8-1129-01 BREWER ORCHARD	19 11 14	155 29 48	01	76-05-17	90	17.5	--
192108155021201	8-2102-01 W9-10 STATE	19 21 08	155 02 12	01	75-11-05	850	26.0	212
					75-12-22	890	26.0	228
					76-02-06	860	26.0	228
					76-04-19	910	25.0	--
					76-06-18	860	25.5	240
					76-07-27	950	25.5	230
					76-09-21	900	26.0	230
192457154571801	8-2487-02 CNTY DWS	19 24 57	154 57 18	01	76-02-06	515	23.5	124
192738155534201	8-2753-01 W12-4 CNTY DWS	19 27 38	155 53 42	01	75-12-05	510	19.0	119
					76-02-03	500	19.0	115
192731155534101	8-2753-02 W12-8 CNTY DWS	19 27 31	155 53 41	01	76-04-08	470	19.0	110
					76-06-04	560	18.5	130
					76-08-05	650	18.5	150
					76-09-22	695	19.0	168
192728154530101	8-2783-01 W9-9 STATE	19 27 28	154 53 01	01	75-11-07	13000	53.5	5800
					75-12-30	11800	53.0	4500
					76-02-06	8500	54.0	3250
					76-05-21	13200	53.0	4800
					76-07-26	16500	54.0	6100
193017154502101	8-3080-02 S9 CNTY DWS	19 30 17	154 50 21	01	75-11-05	825	25.5	115
					76-02-19	810	25.0	100
193113154555801	8-3185-01 W9-11 HAW BEACH	19 31 13	154 55 58	01	75-11-05	128	22.0	16
					76-01-12	120	21.5	16
					76-05-21	118	21.0	14
					76-07-27	112	21.0	12
					76-09-21	118	21.5	11

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
		HAWAII, ISLAND OF HAWAII--Continued						
193510155570801	8-3557-01 12-5 CNTY DWS	19 35 10	155 57 08	01	75-10-15	140	19.5	13
					75-12-04	160	19.5	18
					76-02-04	200	19.5	30
					76-04-08	200	19.5	26
					76-06-04	170	19.5	20
					76-08-05	185	19.5	21
					76-09-23	180	20.0	23
193508155570701	8-3557-03 CNTY DWS	19 35 08	155 57 07	01	76-08-05	150	20.0	20
193505155570701	8-3557-04 CNTY DWS	19 35 05	155 57 07	01	76-06-04	210	19.5	--
193805155020201	8-3802-03 PUNA SGR CO	19 38 05	155 02 02	01	75-11-07	78	18.5	5.5
					75-12-30	78	18.0	6.0
					76-02-19	80	18.5	5.0
					76-06-01	85	18.5	5.0
					76-08-06	83	18.5	3.5
194037155035301	8-4003-01 8-3 CNTY DWS	19 40 37	155 03 53	01	75-11-07	85	19.5	5.0
					76-08-06	90	19.5	2.5
194040155035201	8-4003-02 CNTY DWS	19 40 40	155 03 52	01	76-01-14	81	19.5	5.0
					76-03-15	81	19.5	3.0
					76-06-01	86	20.0	4.0
194134155005601	8-4100-01 HAW PARADISE	19 41 34	155 00 56	01	75-11-11	1225	18.5	380
					76-01-15	1050	18.0	315
					76-03-16	1150	18.0	340
					76-06-02	1125	18.5	320
					76-08-11	1190	18.0	340
194222155034801	8-4203-06 8-28 HECO HILO	19 42 22	155 03 48	01	75-11-11	142	24.5	24
					76-03-15	120	23.0	16
					76-06-01	108	24.0	11
					76-08-12	105	24.0	14
194337155041801	8-4304-01 HELCO WAIAKEA	19 43 37	155 04 18	01	75-11-11	7000	20.0	2650
					76-01-14	5500	19.5	1800
					76-03-15	4100	19.5	1400
					76-08-06	12300	20.0	4200
194818155582301	8-4858-02 KONA VIL	19 48 18	155 58 23	01	76-09-22	1900	--	380
194820155582401	8-4858-03 IS COPRA TRADE	19 48 20	155 58 24	01	76-04-08	2000	20.5	480
					76-08-04	2500	20.5	520
194945155534401	8-4953-01 STATE KIHOLO	19 49 45	155 53 44	01	76-02-04	1250	21.0	330
195043155053801	8-5005-02 PEPEEKEO SGR	19 50 43	155 05 38	01	75-11-11	175	22.0	18
					76-02-02	170	22.0	22
					76-05-18	185	22.0	14
					76-07-28	190	22.0	14
					76-09-17	200	22.0	20
195048155051701	8-5005-03 HILO COAST PRO	19 50 48	155 05 17	01	76-07-28	10250	17.5	3200
195049155051601	8-5005-04 HILO COAST PRO	19 50 49	155 05 16	01	75-11-11	12800	18.0	5750
195546155480301	8-5548-01 BOISE CASCADE	19 55 46	155 48 03	01	75-10-14	1950	28.5	560
					75-12-23	1900	28.5	554
					76-09-22	2150	28.5	560
195724155455301	8-5745-01 BOISE CASCADE	19 57 24	155 45 53	01	75-12-23	260	26.0	26
					76-07-29	290	26.0	23
195722155455201	8-5745-02 BOISE CASCADE	19 57 22	155 45 52	01	75-12-23	260	26.0	28
					76-06-14	260	25.5	26
					76-09-22	280	26.5	24
195857155142301	8-5814-01 CNTY DWS	19 58 57	155 14 23	01	76-08-02	470	19.0	99
195947155485801	8-5948-01 STATE HAPUNA	19 59 47	155 48 58	01	75-10-09	1490	25.5	430
					76-02-03	1400	25.0	420
					76-05-27	1400	25.5	410
					76-08-02	1600	25.5	430

WATER QUALITY DATA, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

STATION NUMBER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED CHLORIDE (CL) (MG/L)
			HAWAII, ISLAND OF HAWAII--Continued					
200039155494001	8-6049-03 MAUNAKEA HTL	20 00 39	155 49 40	01	75-10-09	12500	25.0	4600
					75-12-23	10000	25.0	3550
					76-05-27	14000	25.0	4700
					76-08-02	15000	25.0	5000
					76-09-20	13800	25.0	4700
200122155480901	8-6148-01 W14 CNTY DWS	20 01 22	155 48 09	01	75-10-09	1210	27.0	360
					76-08-02	1400	27.0	360
					76-09-20	1250	27.0	360
200121155480801	8-6148-02 CNTY DWS KAWAI	20 01 21	155 48 08	01	76-08-02	1400	26.5	460
201603155502201	8-7650-01 S2 KOHALA SGP	20 16 03	155 50 22	01	75-10-10	830	23.0	162
					75-12-03	600	23.0	112
					76-02-03	390	21.0	62
					76-04-07	415	21.0	71
201603155521801	8-7652-01 S1 KOHALA SGP	20 16 03	155 52 18	01	75-10-10	1900	22.0	540
					76-02-03	1775	21.0	530
					76-04-07	1600	21.5	510
					76-06-03	1700	21.5	420
					76-08-04	2000	22.0	530
					76-09-23	1850	22.0	480

	Page
Aasu, Tutuila, Aasu Stream at	374
Aasu Stream, at Aasu, Tutuila	374,416
near Aasu, Tutuila	387
Accuracy of field data and computed results	14-15
Acre-foot, definition of	3
Adeiddo River, Babelthuap, Palau Islands	345,412
Afao, Tutuila, Ataulona Stream at	375
Afeibung Stream, Tol, Truk Islands	385
Afinuao Stream at Onenoa, Tutuila	386
Afono, Tutuila, Pago Stream at	372
Afu Stream at Faganeanea, Tutuila	388
Afuelo Stream at Matuu, Tutuila	377,416
Afutele Stream at Agugulu, Tutuila	387
Agat, Guam, Almagosa River near	340
Fena Dam spillway near	342
Finile Creek at	335
Imong River near	339
Maulap River near	341
Agfayan River near Inarajan, Guam	383
Ahualoa Gulch at Honokaa, Hawaii	397
Ahuimanu Stream near Kahaluu, Oahu	381,393
Aiea, Oahu, Kalauao Stream at Moanalua Road, at	140
North Halawa Stream near	142
Ajayan River near Inarajan, Guam	382
Akulikuli Stream near Kapaa, Kauai	390
Alakahi Stream near Kamuela, Hawaii	310-311
Alapai Gulch at Naalehu, Hawaii	398
Alega, Tutuila, Alega Stream at	378
Alega Stream at Alega, Tutuila	378,416
Alega Stream tributary at Alega, Tutuila	389
Algae, definition of	3
Alia Stream near Hilo, Hawaii	397
Almagosa River near Agat, Guam	340,412
Almlokan River, Babelthuap, Palau Islands	384
Amaile Stream at Nuuuli, Tutuila	388
Anahola, Kauai, Anahola Stream at	100
Anahola ditch above Kaneha Reservoir, near Kealia, Kauai	94-95
Anahola ditch wasteway near Kealia, Kauai	92-93
Anahola Stream, at Anahola, Kauai	100-101
near Kealia, Kauai	96-97
Anahulu River near Haleiwa, Oahu	394
Anasosopo Stream at Anasosopo, Tutuila	388
Aquifer, definition of	3
Aringel Stream, Yap, Yap Islands	351,413
Artesian, definition of	3
Artificial substrate, definition of	9
Asalonso River near Talofofo, Guam	383
Ash mass, definition of	4
Asili Stream, at Asili, Tutuila	387
near Asili, Tutuila	387
Astaban River at Umatac, Guam	382
Ataulona Stream at Afao, Tutuila	375,416
Auasi, Tutuila, Leafu Stream near	379
Avau Stream at Faganeanea, Tutuila	388
Bacteria, definition of	3
Bed material, definition of	4
Bileiy Spring, Gagil-Tomil, Yap Islands	385
Bileiy Stream, Gagil-Tomil, Yap Islands	385
Biomass, definition of	4
Blue-green algae, definition of	7
Bubulao River near Talofofo, Guam	383
Burong Stream, Yap, Yap Islands	355,413
Cells/volume, definition of	4
Cetti River, above tributary, near Umatac	382
near Umatac	382
Cfs-day, definition of	4
Chlorophyll, definition of	4
Chun Stream, Dublon Island, Truk Islands	360,414
Coliform organisms, definition of	4
Collection and computation of data	12-14
Collection and examination of data	16
Collection of the data	17
Color unit, definition of	4
Contents, definition of	5
Continuing record station, definition of	5
Control, definition of	5
Control structure, definition of	5
Cooperation	2
Cubic foot per second, definition of	5
Dalolab Stream, Yap, Yap Islands	352,413
Definition of terms	3-10
Denni Spring, Saipan	332
Diatoms, definition of	7
Discharge, definition of	5
Dissolved, definition of	5
Diversity index, definition of	5
Downstream order and station numbers	10
Drainage area, definition of	5
Drainage basin, definition of	6
Dry mass, definition of	4
Eleele, Kauai, Hanapepe River below Manuahi Stream near	66
Explanation of gronnd-water level records	17-18
Explanation of stage and water-discharge records	12-15
Explanation of water-quality records	16-17
Faata Springs at Agat, Guam	382
Fagasa, Tutuila, Leele Stream at mouth, at	373
Fecal coliform bacteria, definition of	4
Fecal streptococcal bacteria, definition of	4
Fena Dam spillway near Agat, Guam	342
Fensol River near Inarajan, Guam	383
Finile Creek at Agat, Guam	335,412
Fintasa River near Inarajan, Guam	383
Fonte River at dam, near Nimitz Hill, Guam	381
Fuafua Stream near Malaeloa, Tutuila	387
Gaden River, Babelthuap, Palau Islands	349,413
Gage height, definition of	6
Gaging station, definition of	6
Galkatan River, Babelthuap, Palau Islands	384
Geus River, above Siligin Spring tributary, near Merizo, Guam	382
below Siligin Spring tributary, near Merizo, Guam	382
Gihmel River, Babelthuap, Palau Islands	347-348,413
Green algae, definition of	7
Ground-water records	417-439
Guam, discharge measurements at miscellaneous sites in	399
gaging-station records in	335-344
low-flow partial-record stations in	381-383
map of	36
water-temperature records in	412
Hahalawe Gulch near Kipahulu, Maui	381,395
Haiku ditch at Honopou Gulch, near Kailua, Maui	260-261
Haiku Stream near Heeia, Oahu	180-182
Halaulani Stream at altitude 400 ft (122 m), near Kilauea, Kauai	102-103
Halawa, Molokai, Halawa Stream near	209
Papio Gulch at	232
Halawa Stream, at Aiea, Oahu	392
near Halawa, Molokai	209-217
Haleiwa, Oahu, Helemano Stream at	205
Halena Gulch near Mauna Loa, Molokai	394
Hanalei, Kauai, Hanalei River near	106
Wainiha River near	108
Hanalei River, at Highway 56 Bridge near Hanalei, Kauai	391
near Hanalei, Kauai	106-107
Hanalei tunnel outlet near Lihue, Kauai	104-105
Hanapepe River, at Hanapepe, Kauai	390
below Manuahi Stream, near Eleele, Kauai	66-67
Hanawi Stream near Nahiku, Maui	236-237
Hapahapai Gulch at Kapaau, Hawaii	397
Hardness of water, definition of	6
Hauani Gulch near Kamuela, Hawaii	318-319

	Page
Hawaii, island of, crest-stage partial-record stations in	397-398
gaging-station records in	276-331
ground-water records in	423-425
map of	32-33
water-quality records, at ground-water sites in	437-439
Hawelewele Gulch near Kaupo, Maui	395
Heeia, Oahu, Haiku Stream near	180
North Fork Waihee Stream near	185
South Fork Waihee Stream near	183
Waihee Stream near	187
Heeia Stream at Kaneohe, Oahu	393
Helemano Stream at Haleiwa, Oahu	205-206
Hilea Gulch tributary near Honuapo, Hawaii	324-325
Hilea Gulch tributary No. 2 near Honuapo, Hawaii	326-327
Hionamoa Gulch at Pahala, Hawaii	398
Holualoa, Hawaii, Right Branch Waiaha Stream near	320
Homaikawaa Stream near Kealia, Kauai	390
Honaunau, Hawaii, Kiilae Stream near	322
Honokaia Gulch tributary near Honokaa, Hawaii	397
Honokeana Gulch near Honokahua, Maui	396
Honokohau, Maui, Honokohau Stream near	272
Kahakuloa Stream near	264
Honokohau Stream near Honokohau, Maui	272-273
Honokowai Stream at Honokowai, Maui	396
Honolii Stream near Papaikou, Hawaii	296-299
Honolulu, Oahu, Kalihi Stream near	150
Moanalua Stream near	149
Nuuanu Stream below reservoir 2 wasteway, near	162
Palolo Stream near	170
Pukele Stream near	168
Waiakeakua Stream at	166
Waihi Stream at	164
Honopou Stream near Huelo, Maui	252-253
Honouliuli Stream near Waipahu, Oahu	392,402
Honuapo, Hawaii, Hilea Gulch tributary near	324
Hilea Gulch tributary No. 2 near	326
Huelo, Maui, Honopou Stream near	252
Koolau ditch at Haipuaena, near	248
Lowrie ditch at Honopou Gulch, near	258
Manuel Luis ditch at Puohokanoa Gulch, near	250
New Hamakua ditch at Honopou, near	256
Spreckels ditch at Haipuaena weir, near	246
Wailoa ditch at Honopou, near	254
Huleia Stream near Lihue, Kauai	390,400
Huliwai Gulch near Kunia Camp, Oahu	392
Humuula, Hawaii, Wailuku River near	280
Hydrologic bench-mark station, definition of	11
Hydrologic conditions	2-3
Hydrologic Unit, definition of	6
Iao Stream at Wailuku, Maui	396,406
Illustrations	23-47
Imong River near Agat, Guam	339,412
Inarajan, Guam, Inarajan River near	337
Tinaga River near	338
Inarajan River near Inarajan, Guam	337,412
Inoaole Stream at Wainanalo, Oahu	393
Instantaneous discharge, definition of	5
Introduction	1
Kaelepulu Stream tributary at Kailua, Oahu	393
Kahaluu, Oahu, Kahaluu Stream near	381
Waihee Stream near	189
Kahakuloa Stream near Honokohau, Maui	264-271
Kahana, Oahu, Kahana Stream at altitude 30 ft (9 m), near	193
Kahana Stream, at altitude 30 ft (9 m), near Kahana, Oahu	193-194
at Mauka trail crossing, near Kahana, Oahu	381
Kahanaiki Stream at Highway 61, near Kailua, Oahu	381
Kahoma Stream at Lahaina, Maui	274-275
Kailiili, Maui, Opana tunnel at	262
Kailua, Maui, Haiku ditch at Honopou Gulch, near	260
Kailua, Oahu, Makawao Stream near	172
Kakaako Gulch, above Kanakahi Gulch, near Mauna Loa, Molokai	394
at Highway 46, near Mauna Loa, Molokai	394
near Mauna Loa, Molokai	394
Kalaoa Mauka Stream near Hilo, Hawaii	397
Kalauao Stream at Moanalua Road, at Aiea, Oahu	140-141
Kalaupapa, Molokai, Waikolu Stream at altitude 900 ft (274 m), near	227
Waikolu Stream below pipeline crossing, near	229
Kalialinui Gulch near Kahului, Maui	396
Kalialinui Gulch tributary near Pukalani, Maui	395
Kalihi, Oahu, Kalihi Stream at	153
Kalihi Stream, at Kalihi, Oahu	153-161
near Honolulu, Oahu	150-152
near Kaneohe, Oahu	392
Kaloi Gulch tributary near Honouliuli, Oahu	392
Kaluanui Stream, at Hauula, Oahu	393
near Punaluu, Oahu	199-200
Kaluapeelua Gulch at Hoolehua, Molokai	394
Kaluapeelua Gulch tributary near Molokai Airport, Molokai	394
Kaluapulani Gulch tributary near Pukalani, Maui	395
Kamakoa Gulch near Waimea, Hawaii	398
Kanananui Stream, at Maunawai, Oahu	203-204
at Pupukea Military Road, noar Maunawai, Oahu	201-202
Kamaole Gulch at Kamaole, Maui	397
Kamooalii Stream, at Kaneohe, Oahu	178-179
below Kuou Stream, near Kaneohe, Oahu	174-177
Kamuela, Hawaii, Alakahi Stream near	310
Hauani Gulch near	318
Kawaiki Stream near	304
Kawainui Stream near	302
Kohakohau Stream near	314
Upper Hamakua ditch above Alakahi Stream, near	308
Upper Hamakua ditch above Waimea Reservoir diversion, near	312
Upper Hamakua ditch below Kawaiki Stream, near	306
Waikoloa Stream at Marine dam, near	316
Kaneohe, Oahu, Kamooalii Stream at	178
Kamooalii Stream below Kuou Stream, near	174
Moanalua Stream near	144
Moanalua Stream tributary near	148
Kapaa, Kauai, Kapaa Stream at Kapahi ditch intake, near	90
Left Branch Opaekaa Stream near	84
North Fork Wailua River near	82
Wailua ditch near	80
Kapaa Stream, at Kapahi ditch intake, near Kapaa, Kauai	90-91
at old highway crossing, near Kealia, Kauai	390
Kapahi ditch near Kealia, Kauai	88-89
Kapehu Stream near Pepeekeo, Hawaii	397
Kapuhi Stream, at altitude 1,000 ft (305 m), near Pelekunu, Molokai	381
near Pelekunu, Molokai	381
Kauai, island of, crest-stage partial-record stations in	390-391
gaging station records in	48-109
ground-water records in	417
low-flow partial-record stations in	380
map of	24-25
water-quality records, at ground-water sites in	426-427
at partial-record stations in	400-401
Kauaikinana Stream near Waimea, Kauai	380
Kauaula Stream near mouth, near Lahaina, Maui	396
Kaukonahua Stream, at Waialua, Oahu	391
North Fork, above Right Branch, near Wahiawa, Oahu	110-111
Right Branch of North Fork, near Wahiawa, Oahu	380
Right Branch of South Fork, near Wahiawa, Oahu	401
South Fork, at East Pump Reservoir, near Wahiawa, Oahu	112-113
Kaumana, Hawaii, Olaa flume Spring near	278
Wailuku River near	282
Kaunakakai, Molokai, Kaunakakai Gulch at	231
Kaunakakai Gulch at Kaunakakai, Molokai	231
Kaunala Gulch, near Mauna Loa, Molokai	394
near Sunset Beach, Oahu	394
Kaupuni Stream at altitude 374 ft (114 m), near Waianae, Oahu	391
Kawa Stream near Kahana, Oahu	381
Kawaiki Stream near Kanuela, Hawaii	304-305
Kawaikoi Stream near Waimea, Kauai	48-49

	Page
Kawailena Stream near Pelekunu, Molokai	381
Kawainui Canal at Kailua, Oahu	393
Kawainui Stream, at altitude 1,000 ft (305 m) near Pelekunu, Molokai	381
near Kamuela, Hawaii	302-303
near Pelekunu, Molokai	218-219
Kawaipapa Gulch at Hana, Maui	395
Kawaipoko Stream near Pelekunu, Molokai	381
Keaahala Stream at Kamehameha Highway, at Kaneohe, Oahu	393
Kealia, Kauai, Anahola ditch above Kaneha Reservoir, near	94-95
Anahola ditch wasteway near	92
Anahola Stream near	96
Kapahi ditch near	88
Lower Anahola ditch near	98
Makaleha ditch near	86
Keanae, Maui, Koolau ditch near	242
West Wailuaiki Stream near	240
Keanuiomano Stream near Kamuela, Hawaii	397
Keehia Gulch near Ookala, Hawaii	397
Keopu Stream near Kailua, Hawaii	398
Kepuni Gulch near Kahikinui House, Maui	395
Kiilae Stream near Honaunau, Hawaii	322-323
Kilauea, Kauai, Halaulani Stream at altitude 400 ft (122 m), near	102
Kipahulu, Maui, Palikea Stream below diversion dam, near	234
Kipapa Stream near Wahiawa, Oahu	117-121
Kirictilang River, Ponape	385
Kohakohau Stream near Kamuela, Hawaii	314-315
Kokee ditch near Waimea, Kauai	50-51
Konohiki Stream near Kapaa, Kauai	390
Koolau ditch, at Haipuaena, near Huelo, Maui	248-249
at Nahiku weir, near Nahiku, Maui	238-239
near Keanae, Maui	242-243
Kukuiula Gulch near Kipahulu, Maui	395
Kula diversion from Haipuaena Stream near Olinda, Maui	244-245
Kulanihakoi Gulch near Kihei, Maui	396
Kuliouou Valley at Kuliouou, Oahu	393
Kumekumeyel River, Babelthuap, Palau Islands	384
Kusaie, island of, gaging-station records in	367-371
map of	44
water-temperature records in	415
Laelae River at Umatac, Guam	382
Lahaina, Maui, Kahoma Stream at	274
Lalolamauta Stream at Aua, Tutuila	388
La Sa Fua River near Umatac, Guam	382
Lataw River, Ponape	386
Lawai Stream near Koloa, Kauai	390,400
Leafu Stream, Tutuila, at Auasi	389
near Auasi	379,416
near Leone	387
Leaveave Stream, Tutuila, at Mapusagafou	387
near Aasu, Tutuila	386
Leaveave Stream tributary No. 1 near Aasu, Tutuila	387
Leaveave Stream tributary No. 2 near Aasu, Tutuila	386
Leele Stream, at Fagasa, Tutuila	386
at mouth, at Fagasa, Tutuila	373,415
Lehnmasi River, Ponape	386
Lepa Stream at Aoa, Tutuila	386
Lesea Stream at Laulii tuai, Tutuila	388
Lihue, Kauai, East Branch of North Fork Wailua River near	78
Hanalei tunnel outlet near	104
North Fork Wailua River at altitude 650 ft (198 m), near	76
North Wailua ditch below Waikoko Stream, near	72
North Wailua ditch near	70
South Fork Wailua River near	68
Stable storm ditch near	74
Liilioholo Gulch at Kanaole, Maui	397
Lower Anahola ditch near Kealia, Kauai	98-99
Lowrie ditch at Honopou Gulch, near Huelo, Maui	258-259
Luahine Gulch near Wainea, Hawaii	397
Lui River, Ponape	363,414
at mouth, Ponape	364-365,415
Lui River tributary No. 2, Ponape	385
Luluku Stream at altitude 220 ft (67 m), near Kaneohe, Oahu	393,404
Lupwor River, Ponape	366,415
Madog River near Umatac, Guam	382
Mailiilii Stream near Waianae, Oahu	391
Makaha, Oahu, Makaha Stream near	115
Makaha Stream, at Makaha, Oahu	391
near Makaha, Oahu	115-116
Makaleha ditch near Kealia, Kauai	86-87
Makaleha Stream near Waialua, Oahu	391
Makawao Stream near Kailua, Oahu	172-173
Makaweli River near Waimea, Kauai	64-65
Makua Stream at Makua, Oahu	391
Malaekahana Stream at altitude 30 ft (9 m), near Kahuku, Oahu	393
Malalowaiaole Gulch near Maalaea, Maui	396
Malem River, Kusaie	370,415
Manawainui Gulch near Kualapuu, Molokai	395
Manengon River near Yona, Guam	383
Manini Gulch at Kaena, Oahu	391
Manoa-Palolo Drainage Canal at Moiliili	392,403
Manuel Luis ditch at Puohokamoa Gulch, near Huelo, Maui	250-251
Mapusagatuai Stream at Mapusaga, Tutuila	388
Mataalii Stream near Nuuuli, Tutuila	388
Matagimalie Stream at Aua, Tutuila	388
Matuu, Tutuila, Afuelo Stream at	377
Maui, island of, crest-stage partial-record stations in	395-397
discharge measurements at miscellaneous sites in	399
gaging-station records in	234-275
ground-water records in	421-422
low-flow partial-record stations in	381
map of	30-31
water-quality records, at ground-water sites in	434-437
at partial-record stations in	406
Maulap River near Agat, Guam	341,412
Maunawai, Oahu, Kamananui Stream at	203
Kamananui Stream at Pupukea Military Road, near	201
Maunawili Stream at Highway 61, near Kailua, Oahu	393
Mean concentration, definition of	8
Mean discharge, definition of	5
Melo River, Kusaie	369,415
Metamorphic stage, definition of	6
Micrograms per gram, definition of	6
Micrograms per liter, definition of	6
Milligrams of carbon per area, definition of	8
Milligrams of oxygen per area, definition of	8
Milligrams per liter, definition of	6
Moanalua Stream, at Tripler Hospital, Oahu	392,403
near Aiea, Oahu	392,403
near Honolulu, Oahu	149
near Kaneohe, Oahu	144-147
Moanalua Stream tributary, near Aiea, Oahu	402
near Kaneohe, Oahu	148,402
Mokihana Stream near Waimea, Kauai	380
Molokai, island of, crest-stage partial-record stations in	394-395
gaging-station records in	209-233
ground-water records in	420
low-flow partial-record stations in	381
map of	28-29
water-quality records, at ground-water sites in	434
at partial-record stations in	405
Molokai tunnel, at east portal, Molokai	224,405
at west portal, Molokai	225-226
Moomoonui Gulch at Hana, Maui	395
Mountain View, Hawaii, Waiakea Stream near	276
Mukong Stream, Gagil-Tomil, Yap	356,413
Muliolevai Stream at Auto, Tutuila	389
Mutunte River, Kusaie	367,415
Nachiponong Stream, Moen, Truk Islands	359,414
Nahiku, Maui, Hanawi Stream near	236
Koolau ditch at Nahiku weir, near	238
Nahomalu Valley near Mana, Kauai	391
Nanakuli Stream at Nanakuli, Oahu	391
Nanepil River, Ponape	362,414
National stream-quality-accounting network, definition of	11
Natural substrate, definition of	9

	Page
New Hamakua ditch at Honopou, near Huelo, Maui	256-257
Ngardok River, North Fork, Babelthuap, Palau Islands	384
South Fork, Babelthuap, Palau Islands	350,413
Ngatpang River, Babelthuap, Palau Islands	384
Ngechutrong River, Babelthuap, Palau Islands	383
Ninole Gulch near Punaluu, Hawaii	328-329
North Fork Ngardok River tributary, Babelthuap, Palau Islands	384
North Halawa Stream near Aiea, Oahu	142-143
North Wailua ditch, below Waikoko Stream, near Lihue, Kauai	72-73
near Lihue, Kauai	70-71
Numbering system for wells and miscellaneous sites	10-11
Nuuanu Stream below reservoir 2 wasteway, near Honolulu, Oahu	162-163
Nuuuli, Tutuila, Papa Stream at	376
Oahu, island of, crest-stage partial-record stations in	391-394
gaging-station records in	110-208
ground-water records in	417-420
low-flow partial-record stations in	380-381
map of	26-27
water-quality records, at ground-water sites in	427-434
at miscellaneous sites in	407-411
at partial-record stations in	401-405
water-temperature records in	412
Oio Stream near Kahuku, Oahu	394
Okat River, Kusaie	368,415
Olaa flume Spring near Kaumana, Hawaii	278-279
Olinda, Maui, Kula diversion from Haipuaena Stream near	244
Olowalu Stream at Olowalu, Maui	396
Opaekaa Stream, Left Branch, near Kapaa, Kauai	84-85
Opaeula Stream, near Haleiwa, Oahu	394
near Wahiawa, Oahu	207-208
Opana tunnel at Kailiili, Maui	262-263
Ordot, Guam, Pago River near	344
Organic mass, definition of	4
Organism count/area, definition of	6
Organism count/volume, definition of	6
Organism, definition of	6
Other data available	15
Paauau Gulch at Pahala, Hawaii	330-331
Pago River near Ordot, Guam	344,412
Pago Stream at Afono, Tutuila	372,415
Pago Stream tributary at Afono, Tutuila	386
Pahala, Hawaii, Paauau Gulch at	330
Paiakuli Reservoir tributary near Waimea, Hawaii	398
Palai Stream at Hilo, Hawaii	397
Palau Islands, gaging-station records in	345-350
low-flow partial-record stations in	383-385
map of	37-38
water-temperature records in	412-413
Palikea Stream below diversion dam, near Kipahulu, Maui	234-235
Palolo Stream near Honolulu, Oahu	170-171
Panota Stream at Masausi, Tutuila	386
Papa Stream, at Nuuuli, Tutuila	376,416
near Nuuuli, Tutuila	388
Papaaloa, Hawaii, Pohakupuka Stream near	300
Papaikou, Hawaii, Honolii Stream near	296
Papio Gulch at Halawa, Molokai	232-233
Partial-record station, definition of	6
Particle-size, definition of	7
Particle-size classification, definition of	7
Pasamano River near Inarajan, Guam	383
Paumalu Gulch at Sunset Beach, Oahu	394
Pauoa Stream at Honolulu, Oahu	392
Pearl City, Oahu, Waiawa Stream near	138
Pearl Harbor Springs, at Kalauao, near Aiea, Oahu	380
at Waiawa, near Pearl City, Oahu	380
Pelekunu, Molokai, Kawainui Stream near	218
Pelekunu Stream near	220
Pilipililau Stream near	222
Pelekunu Stream near Pelekunu, Molokai	220-221
Pengoy Stream, Yap, Yap Islands	353,413
Percent composition, definition of	7
Pesticides, definition of	7
Pesticide program, definition of	11
Phytoplankton, definition of	7
Picocurie, definition of	7
Piga Spring near Umatac, Guam	382
Piihonua, Hawaii, Wailuku River at	284
Pilenkiel River, Ponape	385
Pilipililau Stream near Pelekunu, Molokai	222-223
Plankton, definition of	7
Poamoho Stream at Waialua, Oahu	391
Poamoho tunnel near Wahiawa, Oahu	114,412
Poelua Gulch near Kahakuloa, Maui	396
Pohakupili Gulch near Halawa, Molokai	395
Pohakupuka Stream near Papaaloa, Hawaii	300-301
Polychlorinated biphenyls, definition of	8
Ponape, island of, discharge measurement at miscellaneous site in	399
gaging-station records in	362-366
low-flow partial-record stations in	385-386
map of	43
water-temperature records in	414-415
Popoo Gulch near Waikii, Hawaii	398
Primary productivity, definition of	8
Publications	15,17,18
Publications of techniques of water-resources investigations	19-20
Pukele Stream near Honolulu, Oahu	168-169
Pukuilua Gulch near Hana, Maui	395
Punaluu, Hawaii, Ninole Gulch near	328
Punaluu, Oahu, Kaluanui Stream near	199
Punaluu ditch near	195
Punaluu Stream near	197
Punaluu ditch near Punaluu, Oahu	195-196
Punaluu Stream near Punaluu, Oahu	197-198
Puukumu Stream near Kilauea, Kauai	390
Radiochemical program, definition of	12
Records of discharge collected by agencies other than the Geological Survey	15
Ripu Stream, Yap, Yap Islands	385
Saipan, island of, gaging-station records in	332-334
map of	35
water-temperature records in	412
Sediment	17
Sediment, definition of	8
Senpen River, Ponape	386
Siligin Spring near Merizo, Guam	382
Solute, definition of	9
Soonapule Stream at Seetaga, Tutuila	387
Special networks and programs	10
Specific conductance, definition of	9
Spreckels ditch at Haipuaena weir, near Huelo, Maui	246-247
Stable storm ditch near Lihue, Kauai	74-75
Stage-discharge relation, definition of	9
Streamflow, definition of	9
Substrate, definition of	9
Suspended-sediment concentration, definition of	8
Suspended sediment, definition of	8
Suspended-sediment discharge, definition of	8
Suspended-sediment load, definition of	8
Tabagaten River, Babelthuap, Palau Islands	346,412
Tagau Stream at Masefau, Tutuila	386
Talagu Stream, Yap, Yap Islands	354,413
Talaloa Stream at Masefau, Tutuila	386
Taleyfac River near Agat, Guam	382
Talofofo Stream, Middle Fork, Saipan	334,412
South Fork, Saipan	333,412
Tamaney Stream, Yap, Yap Islands	385
Tawannu River, Ponape	385
Tawenjokola River at mouth, Ponape	399
Taxonomy, definition of	10
Televai Stream at Anouli, Tutuila	389
Time-weighted average, definition of	9
Tinaga River near Inarajan, Guam	338,412
Tofol River, Kusaie	371,415
Toguan River near Umatac, Guam	382,399
Tons per acre-foot, definition of	9
Tons per day, definition of	9
Total coliform bacteria, definition of	3
Total load, definition of	9
Total organism count, definition of	6
Total sediment discharge, definition of	8

	Page
Tritium network, definition of	11
Truk Islands, gaging-station records in	357-361
low-flow partial-record stations in	385
map of	40-42
water-temperature records in	413-414
Trust Territory, map of	34
Tumunu Stream, Dublon Island, Truk Islands	361,414
Tutuila, island of, gaging-station records in	372-379
low-flow partial-record stations in	386-389
map of	45
water-temperature records in	415-416
Ugum River, above Bubulao River, near Talofofo, Guam	383
above Talofofo Falls, near Talofofo, Guam	383
near Talofofo, Guam	383
Umatac, Guam, Umatac River at	336
Umatac River at Umatac, Guam	336,412
Unnamed gulch, at Kaunakakai, Molokai	395
at Maliko Bay, Maui	395
at Maluhia Camp, Maui	396
Unnamed north coast stream, Malakal, Palau Islands	385
Unnamed south coast stream, Arakabesan, Palau Islands	384
Unnamed west coast stream, Arakabesan, Palau Islands	384
Unnamed west coast stream, Malakal, Palau Islands	384
Upper Hanakua ditch, above Alakahi Stream, near Kamuela, Hawaii	308-309
above Waimea Reservoir diversion, near Kamuela, Hawaii	312-313
below Kawaiki Stream, near Kamuela, Hawaii	306-307
Utanuatele Stream at Seetaga, Tutuila	387
Vaialae Stream at Utumea, Tutuila	387
Vaialili Stream at Alao, Tutuila	389
Vaima Stream at Pago Pago, Tutuila	388
Vaipito Stream at Masausi, Tutuila	386
Vaisa Stream at Onenoa, Tutuila	386
Vaitele Stream, at Lauliituai, Tutuila	388
at Lepine, Tutuila	387
Vaitele Stream tributary at Lepine, Tutuila	387
Visa Stream, at Alega, Tutuila	388
at Aumi, Tutuila	388
Wahiawa, Oahu, Kipapa Stream near	117
North Fork Kaukonahua Stream above Right Branch, near	110
Opaeula Stream near	207
Poamoho tunnel near	114
South Fork Kaukonahua Stream at East Pump Reservoir, near	112
Waiaha Stream, at Luawai, near Holualoa, Hawaii	398
Right Branch, near Holualoa, Hawaii	320-321
Waiakea Stream, at Hilo, Hawaii	397
near Mountain View, Hawaii	276-277
Waiakeakua Stream at Honolulu, Oahu	166-167
Waiakoa Gulch at Kihei, Maui	396
Waiakoa Gulch tributary near Waiakoa, Maui	396
Waiakoali Stream near Waimea, Kauai	380
Waialae Stream at altitude 3,820 ft (1,164 m), near Waimea, Kauai	52-53
Waiawa Stream near Pearl City, Oahu	138-139
Waihee Stream, at Kahaluu, Oahu	405
near Heeia, Oahu	187-188
Waihee Stream, near Kahaluu, Oahu	189-190
North Fork, near Heeia, Oahu	185-186
South Fork, near Heeia, Oahu	183-184
Waihi Stream at Honolulu, Oahu	164-165
Waikakalaua Stream near Wahiawa, Oahu	392
Waikane, Oahu, Waikane Stream at altitude 75 ft (23 m), at	191
Waikane Stream at altitude 75 ft (23 m), at Waikane, Oahu	191-192
Waikapu Stream near Kihei, Maui	396
Waikele Stream, at Waipahu, Oahu	122-137
at Wheeler Field, Oahu	392
Waikoloa Stream at Marine Dam, near Kamuela, Hawaii	316-317
Waikolu Stream, at altitude 900 ft (274 m), near Kalaupapa, Molokai	227-228
below pipeline crossing, near Kalaupapa, Molokai	229-230
Wailoa ditch at Honopou, near Huelo, Maui	254-255
Wailua ditch near Kapaa, Kauai	80-81
Wailua River, East Branch of North Fork, near Lihue, Kauai	78-79
near Kapaa, Kauai	390
North Fork, at altitude 650 ft (198 m), near Lihue, Kauai	76-77
North Fork, near Kapaa, Kauai	82-83
South Fork, near Lihue, Kauai	68-69
South Fork, near rock Quarry, Kauai	380
Wailupe Gulch at Aina Haina, Oahu	393
Wailuku River, at Piihonua, Hawaii	284-295
near Humuula, Hawaii	280-281
near Kaumana, Hawaii	282-283
Waimalu Stream near Aiea, Oahu	392
Waimanalo Stream at Waimanalo, Oahu	393
Waimano Flood channel at Pearl City, Oahu	402
Waimea, Kauai, Kawaikoi Stream near	48
Kokee ditch near	50
Makaweli River near	64
Waialae Stream at altitude 3,820 ft (1,164 m), near	52
Waimea River near	54
Waimea Gulch near Kawailoa Camp, Oahu	394
Waimea River, at Waimea, Kauai	390
near Waimea, Kauai	54-63
Wainiha River near Hanalei, Kauai	108-109
Waipahu, Oahu, Waikele Stream at	122
Waolani Stream at Honolulu, Oahu	392
Water analysis	16
Water temperature	16
Wawaia Gulch at Kanalo, Molokai	395
Weighted average, definition of	10
West Wailuaiki Stream near Keanae, Maui	240-241
Wet mass, definition of	4
Wichen River, at altitude 18 m, Moen, Truk Islands	358,414
at altitude 55 m, Moen, Truk Islands	357,413-414
WRD, definition of	10
WSP, definition of	10
Yap Islands, gaging-station records in	351-356
low-flow partial-record stations in	385
map of	39
water-temperature records in	413
Yledigao River near Inarajan, Guam	383
Ylig River near Yona, Guam	343,412
Yona, Guam, Ylig River near	343
Zooplankton, definition of	7