

Surface Water Supply of Hawaii 1958-59

Prepared under the direction of J. V. B. WELLS, Chief, Surface Water Branch

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1639

*Prepared in cooperation with the
State of Hawaii*



UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

PREFACE

This report was prepared by the Geological Survey in cooperation with the State of Hawaii by personnel of the Water Resources Division, L. B. Leopold, chief, under the general direction of J. V. B. Wells, chief, Surface Water Branch, succeeded by E. L. Hendricks, and F. J. Flynn, chief, Basic Records Section.

The data were collected and computed under the supervision of H. S. Leak, district engineer, Honolulu.

CALENDAR FOR WATER YEAR 1959

OCTOBER 1958

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOVEMBER 1958

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

DECEMBER 1958

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

JANUARY 1959

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

FEBRUARY 1959

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

MARCH 1959

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

APRIL 1959

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

MAY 1959

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JUNE 1959

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

JULY 1959

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

AUGUST 1959

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

SEPTEMBER 1959

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

CONTENTS

	Page
Scope of work.....	1
Cooperation.....	1
Division of work.....	1
Definition of terms and abbreviations.....	1
Downstream order and station numbers.....	2
Explanation of data.....	3
Accuracy of field data and computed results.....	5
Publications.....	6
Records of discharge collected by agencies other than the Geological Survey.....	6
Gaging-station records.....	10
<u>Island of Kauai</u>	
Kawakoi Stream (head of Waimea River) near Waimea.....	10
Mohihi Stream at altitude 3,500 ft, near Waimea.....	11
Kokee ditch near Waimea.....	12
Waimea River at altitude 890 ft, near Waimea.....	13
Kekaha ditch at camp 1, near Waimea.....	14
Waimea River near Waimea.....	15
Makaweli River near Waimea.....	16
Hanapepe River below Manuahi Stream, near Eleele.....	17
South Fork Waialua River near Lihue.....	18
North Fork Waialua River:	
North Waialua ditch near Lihue.....	19
Stable storm ditch near Lihue.....	20
North Fork Waialua River at altitude 650 ft, near Lihue.....	21
East Branch of North Fork Waialua River near Lihue.....	22
Waialua ditch near Kapaa.....	23
North Fork Waialua River near Kapaa.....	24
Kapaa Stream:	
Makaleha Stream:	
Makaleha ditch near Kealia.....	25
Kapahi ditch near Kealia.....	26
Kapaa Stream at Kapahi ditch intake, near Kapaa.....	27
Anahola Stream:	
Anahola ditch:	
Anahola ditch wasteway near Kealia.....	28
Anahola ditch above Kaneha Reservoir, near Kealia.....	29
Anahola Stream near Kealia.....	30
Lower Anahola ditch near Kealia.....	31
Puu Ka Ele Stream (head of Kilauea Stream):	
Ka Loko ditch near Kilauea.....	32
Puu Ka Ele ditch near Kilauea.....	33
Ross ditch near Kilauea.....	34
Pohakuhonu Stream (head of Kahiliholo Stream):	
Kalihiwai ditch near Kilauea.....	35
Pohakuhonu Stream near Kilauea.....	36
Halaulani Stream at altitude 400 ft, near Kilauea.....	37
Kalihiwai River:	
Hanalei ditch near Kilauea.....	38
Hanalei River:	
Hanalei tunnel outlet near Lihue.....	39
Wainiha River near Hanalei.....	40
<u>Island of Oahu</u>	
North Fork Kaukonahua Stream:	
Mauka ditch near Wahiawa.....	41
North Fork Kaukonahua Stream near Wahiawa.....	42
South Fork Kaukonahua Stream at East Pump Reservoir, near Wahiawa.....	43
Right Branch of South Fork Kaukonahua Stream near Wahiawa.....	45
Kaukonahua Stream:	
Poamoho Stream:	
Poamoho tunnel near Wahiawa.....	47
Poamoho Stream near Wahiawa.....	48
Waikele Stream:	
Kipapa Stream near Wahiawa.....	49
Waikele Stream at Waipahu.....	50
Pearl Harbor Springs at Waiawa, near Pearl City.....	51
Morikone pond outlet at Pearl City.....	52
Waiawa Stream near Pearl City.....	53
Hawaiian Electric Co. tunnel at Waiawa, near Pearl City.....	54
Waimalu Stream near Aiea.....	55
Pearl Harbor Springs at Kalauao, near Aiea.....	56
Kalauao Stream at Moanalua Road at Aiea.....	57
North Halawa Stream (head of Halawa Stream) near Aiea.....	58
Halawa Stream near Aiea.....	59
Moanalua Stream near Honolulu.....	60
Kalihi Stream near Honolulu.....	61
Nuuanu Stream below reservoir 2 wasteway, near Honolulu.....	62
East Branch Manoa Stream near Honolulu.....	63
West Branch Manoa Stream near Honolulu.....	64
Manoa Stream:	
Pukele Stream (head of Palolo Stream) near Honolulu.....	65
Waiomao Stream above Pukele Stream, near Honolulu.....	66
Palolo Stream near Honolulu.....	68

Gaging-station records--Continued

	Page
<u>Island of Oahu--Continued</u>	
Maunawili Stream:	
Maunawili ditch near Waimanalo.....	69
Haiku Stream (head of Heeia Stream) near Heeia.....	70
Iolekaa Stream mauka near Heeia.....	71
Kahaluu Stream near Heeia.....	72
Waihee Stream near Heeia.....	73
Waiahole tunnel at Waianu, near Waiahole.....	74
Waiahole tunnel wasteway at intake 31, near Waiahole.....	75
Waiahole tunnel at north portal, near Waiahole.....	76
Waiahole tunnel at adit 8, near Waipahu.....	77
Waiahole Stream at altitude 250 ft, near Waiahole.....	78
Punaluu Stream:	
Punaluu ditch near Punaluu.....	79
Punaluu Stream near Punaluu.....	80
<u>Island of Molokai</u>	
Halawa Stream near Halawa.....	81
Waikolu Stream at altitude 900 ft, near Kalaupapa.....	82
Waikolu Stream below pipeline crossing, near Kalaupapa.....	83
Waialala Springs near Kalae.....	84
Kaunakakai Gulch at Kaunakakai.....	85
Kawela Gulch:	
Right Branch of East Fork Kawela Gulch near Kamalo.....	86
Punaula Gulch near Fukoo.....	87
<u>Island of Maui</u>	
Palihea Stream (head of Oneo Gulch) below diversion dam, near Kipahulu.....	88
Right Branch Hahalawe Stream near Kipahulu.....	89
Makapipi Stream:	
Makapipi ditch near Nahiku.....	90
Hanawi Stream near Nahiku.....	91
Kapaula Gulch near Nahiku.....	92
Koolau ditch at Nahiku weir, near Nahiku.....	93
Waiohue Gulch near Nahiku.....	94
West Wailuaiki Stream near Keanae.....	95
Palaohulu Stream:	
Taro patch feeder ditch at Keanae.....	96
Koolau ditch near Keanae.....	97
Honomanu Stream near Keanae.....	98
Haipuaena Stream:	
Kula diversion from Haipuaena Stream near Olinda.....	99
Haipuaena Stream at Kula pipeline intake, near Olinda.....	100
Haipuaena diversion ditch at Kolea Gulch, near Keanae.....	101
Haipuaena Stream above Spreckels ditch, near Huelo.....	102
Spreckels ditch at Haipuaena weir, near Huelo.....	103
Koolau ditch at Haipuaena, near Huelo.....	104
Manuel Luis ditch at Puohokamoa Gulch, near Huelo.....	105
Puohokamoa Stream above Spreckels ditch, near Huelo.....	106
Waikamoi Stream above reservoir at Kula pipeline intake, near Olinda.....	107
Kaaiea Gulch near Huelo.....	108
Naililihaele Stream near Huelo.....	109
Hoolawanui Stream near Huelo.....	110
Honopou Stream near Huelo.....	111
Wailoa ditch at Honopou, near Huelo.....	112
New Hamakua ditch at Honopou, near Huelo.....	113
Old Hamakua ditch at Honopou, near Huelo.....	114
Lowrie ditch at Honopou Gulch, near Huelo.....	115
Haiku ditch at Honopou Gulch, near Kailua.....	116
Kahakuloa Stream near Honokohau.....	117
Honokohau Stream near Honokohau.....	118
Honokowai Stream:	
Honokowai ditch near Lahaina.....	119
Olowalu Stream:	
Olowalu ditch near Olowalu.....	120
<u>Island of Hawaii</u>	
Waiakea Stream at middle flume house, near Mountain View.....	121
Waiakea Stream near Hilo.....	122
Wailuku River above Hilo Boarding School ditch intake, near Hilo.....	124
Kapehu Stream:	
Kapehu ditch:	
Kapehu ditch diversion near Hilo.....	125
Kapehu ditch near Hilo.....	126
Waimanu Stream:	
Waiilikahi Stream near Waimanu.....	127
Awini ditch at East Honokane Iki Gulch, near Niulii.....	128
Honokane Iki Stream:	
East Honokane Iki intake to Awini ditch at East Honokane Iki Gulch, near Niulii.....	129
Kohala ditch at Pololu, near Niulii.....	130
Kehena ditch near Kohala.....	131
Kohakohau Stream near Kamuela.....	132
Waikoloa Stream near Kamuela.....	133
Waikoloa Stream at Marine Dam, near Kamuela.....	134
Hauani Stream near Holualoa.....	135
Waiaha Stream near Holualoa.....	136
Killae Stream near Honaunau.....	138
Revisions of records for discontinued stations:	
Pearl Harbor Springs at Kaluaoopu, near Pearl City, Oahu.....	139
Manoa Stream at upper Manoa Valley, near Honolulu, Oahu.....	140
Funafun Stream at elevation 539 ft, near Punaluu, Oahu.....	142

CONTENTS

VII

Revisions of records for discontinued stations--Continued	Page
Koloa Gulch near Laie, Oahu.....	143
Hoolawaliili Stream near Huelo, Maui.....	143
Discharge at partial-record stations and miscellaneous sites:	
Crest-stage partial-record stations.....	144
Measurements at miscellaneous sites.....	146
Index.....	147

SURFACE WATER SUPPLY OF HAWAII, JULY 1, 1958, TO JUNE 30, 1959

SCOPE OF WORK

This volume contains records of daily flow of streams and ditches at 129 gaging stations in the State of Hawaii during the period July 1, 1958, to June 30, 1959. Since the beginning of stream-gaging work in Hawaii in 1910, records of flow of streams and ditches have been obtained at about 610 stations for periods ranging from a few months to 48 years. In addition, partial-record stations have been operated at many other points, and discharge measurements have been made at miscellaneous sites. The records for the fiscal year 1959 at gaging stations, partial-record stations, and miscellaneous sites are given in this report. Rather extensive studies of ground water have also been made on all the inhabited islands; most of the results of these studies have been published in bulletins of the Territorial Division of Hydrography.

COOPERATION

The work during the fiscal year 1959 was done under cooperative agreement with the State of Hawaii through the Department of Land and Natural Resources. Assistance in collecting records was rendered also on the island of Kauai by the Kekaha Sugar Co. Ltd., the McBryde Sugar Co. Ltd., the East Kauai Water Co. Ltd., the Kilauea Sugar Co. Ltd., and the Lihue Plantation Co. Ltd.; on the island of Oahu by the Waialua Agricultural Co. Ltd. and Waiahole Water Co. Ltd.; on the island of Maui by the Poiner Mill Co. Ltd., the East Maui Irrigation Co. Ltd., the Maui County Engineer, Maui County Board of Water Works, and State of Hawaii Board of Agriculture and Forestry; and on the island of Hawaii by the City of Hilo Water Works, the Kohala Ditch Co. Ltd., and the Oloa Sugar Co. Ltd.

Acknowledgment of records collected by individuals or corporations is made in connection with the description of each station for which such records were furnished.

DIVISION OF WORK

The stream-gaging work was done by the Water Resources Division of the Geological Survey under the direction of personnel shown in the preface.

Information of a more detailed nature than that published for most of the gaging stations given in this report is on file in the district office, Room 225, Federal Building, Honolulu. Provisional records of discharge prior to publication, and other unpublished data concerning the gaging-station records may usually be obtained from the district office.

DEFINITION OF TERMS AND ABBREVIATIONS

The terms of streamflow and other hydrologic data, as used in this report, are defined as follows:

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied herein only to those gaging stations where a continuous record of discharge is obtained.

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

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel, expressed as volume per unit of time.

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, a long reach of the channel, or an artificial structure.

The drainage area of a stream at a specified location is that area, measured in a horizontal plane, which is so enclosed by a topographic divide that direct surface runoff from precipitation normally would drain 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.

Cubic foot per second (cfs) is the rate of discharge of a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

Acre-foot is the quantity of water required to cover an acre to the depth of 1 foot and is equivalent to 43,560 cubic feet.

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

In the State of Hawaii the unit most commonly used in measuring water is "million gallons." This is used with two meanings-- (1) to indicate a rate of flow and (2) to express an actual quantity of water. In the former sense "million gallons a day" is inferred, 1,000,000 gallons being taken as the unit of quantity and 24 hours as the unit of time. With this meaning the term is generally used in connection with pumping and irrigation. In the latter sense "million gallons" as an absolute quantity is used in the measurement of storage capacities of reservoirs.

The following convenient approximate relations exist between cubic feet per second, million gallons a day, and acre-feet: 1 cubic foot per second flowing 24 hours equals about 2 acre-feet; 1,000,000 gallons equals about 3 acre-feet; and 1,000,000 gallons a day equals about 1.55 cubic feet per second.

DOWNSTREAM ORDER AND STATION NUMBERS

Beginning with the report for the year ending June 30, 1950, the order of listing gaging-station records was changed. Proceeding in a downstream direction along the main stem, all stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them. Tributary streams are indicated by indentation. This downstream order and the system of indentation show which gaging stations are on tributaries between any two stations on a main stem.

The order of listing used in previous reports listed first all stations on the main stem from headwaters toward mouth, then all stations on the uppermost tributary to the main stem from the tributary's source to mouth.

As an added means of identification, each gaging station and partial-record station has been assigned a station number. The numbers have been assigned in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and regular gaging stations, so that the station number for a

partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive. In this report the station number is shown just to the left of the station name.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage and measurements of discharge. In addition, observations of factors affecting the stage-discharge relation, weather records, and other information are used to supplement base data in determining the daily flow. All records of stage are obtained from water-stage recorders that give continuous records of fluctuations. Measurements of discharge are made with a current meter by the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in Water-Supply Paper 888 and are also outlined in standard textbooks on the measurement of stream discharge. Occasionally discharge is determined from a weir or rating flume, using standard formulas.

Rating tables giving the discharge for any stage are prepared from stage-discharge relation curves defined by discharge measurements. If extensions to the rating curves are necessary to define the extremes of discharge, 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, and by other methods), velocity-area studies, and logarithmic plotting. For several stations the high-water ratings have been developed by the use of models. The application of the daily mean gage height to those rating tables gives the daily mean discharge, from which the monthly and the yearly mean discharge are computed. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on individual discharge measurements and notes 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 essentially the shifting-control method.

The data herein presented generally comprise a description of the station, a skeleton rating table, and a table showing the daily discharge and monthly and yearly discharge of the stream.

The description of the station gives the location, drainage area, records available, type and history of gages, average discharge, extremes of discharge, general remarks, and notations of revisions of the previously published record. The location of the gaging station and the drainage area are obtained from the most accurate maps available. Under "Gage" are given the type of gage currently in use and 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 records available. Under "Average discharge" is given the average discharge for the number of years indicated. It is not given for stations having fewer than five complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. Under "Extremes" are given the maximum discharge and gage height and the minimum discharge. In the first paragraph, the data given are for the complete current water year unless otherwise specified. In the second paragraph, the data given are for the periods of record within the calendar year dates in the heading (not necessarily those for the complete years indicated by the heading dates). Reliable information concerning major floods that

have occurred outside the period of record are given in the third or last paragraph under "Extremes." Unless otherwise qualified, the maximum discharge corresponds to the crest stage obtained by use of a water-stage recorder. If the maximum gage height did not occur at the same time as the maximum discharge, it is given separately. Information pertaining to the accuracy of the records and conditions which affect the natural flow at the gaging station is given under "Remarks."

Previously published 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 reports. In order to make it easier to find such revised records, a paragraph headed "Revisions (fiscal years)" 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 fiscal years for which figures are revised in that report. In listing the fiscal years only one number is given; for instance, 1933 stands for the fiscal year July 1, 1932, to June 30, 1933. If no daily, monthly, or annual figures of discharge are concerned in the revision, that 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 figure was first published is given.

Skeleton rating tables are published for all stations except for ditch or spring stations.

The daily table gives, in general, the discharge corresponding to the daily mean gage height. For stations subject to sudden or rapid diurnal fluctuation, the daily mean gage height may not indicate the true daily mean discharge, which must be obtained by averaging the discharge for parts of the day.

Records of daily discharge are published on the basis of Hawaiian standard time.

In the table of daily discharge, the figures for the maximum and the minimum day are underlined. If the figure is repeated, it is underlined only on the first day of its occurrence.

In the monthly summary below the daily table, the line headed "Total" gives the sum of the daily figures in million gallons. The mean for the month is given both in terms of million gallons a day (line headed "mgd") and in cubic feet per second (line headed "cfs"). The line headed "Ac-ft" gives the discharge for the month in acre-feet.

In the yearly summary below the monthly summary, the figures of maximum are the maximum daily discharges, not the momentary discharges when the water was at crest stage. Likewise, the minimums in this summary are the minimum daily discharges.

Peak discharges and the times of their occurrence and corresponding gage heights of most stations are listed below the table of daily and monthly discharge. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for canals, ditches, springs, or for any stream for which the peaks are subject to substantial control by man.

Footnotes to the table of daily discharge indicate periods when discharge was computed or estimated by unusual or special methods during periods of no gage-height record or by other effects that reduce the degree of accuracy of the records.

Data collected at partial-record stations and at miscellaneous sites are given at the end of each report. 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 at miscellaneous sites are given in a third table.

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 interpretation of records.

The station description states the degree of accuracy of the records. "Excellent" indicates that, in general, the error in the daily records is believed to be less than 5 percent; "good," less than 10 percent; "fair," less than 15 percent; and "poor," probably more than 15 percent. The records of monthly and yearly mean discharge and runoff are, in general, more nearly accurate than the daily records.

Computations are carried to not more than three significant figures, except that monthly and yearly total discharge (million gallons and acre-feet) above 10,000 are carried to four significant figures.

PUBLICATIONS

The following table lists, by years and numbers, the papers on the surface-water supply of Hawaii published during the period 1903-59 and, used in conjunction with the list of stations maintained, which is given in Water-Supply Paper 795, provides a convenient index for finding the data for any station. Except as indicated, the year or years covered by each report begin July 1 and end on June 30. The data for any particular station will be found in the reports covering the years during which that station was maintained, unless, owing to undeveloped rating curves, publication was postponed. Occasionally data are revised and republished in later papers. Discharge measurements made during any year at points other than regular gaging stations are included in the data published for that year.

Numbers of water-supply papers containing data on the surface water supply of Hawaii, 1903-59

Year	WSP	Year	WSP	Year	WSP	Year	WSP	Year	WSP
1903	*77	1920-21	535	1930-31	725	1940-41	955	1950-51	1219
1909-11†	318	1921-22	555	1931-32	740	1941-42	965	1951-52	1249
1912†	356	1922-23	575	1932-33	755	1942-43	985	1952-53	1289
1913†	375	1923-24	595	1933-34	770	1943-44	1015	1953-54	1349
1913-15	450	1924-25	615	1934-35	795	1944-45	1045	1954-55	1399
1915-16	445	1925-26	635	1935-36	815	1945-46	1065	1955-56	1449
1916-17	465	1926-27	655	1936-37	835	1946-47	1095	1956-58	1569
1917-18	465	1927-28	675	1937-38	865	1947-48	1125	1958-59	1639
1918-19	515	1928-29	695	1938-39	885	1948-49	1155		
1919-20	516	1929-30	710	1939-40	905	1949-50	1185		

* This paper, entitled "Water resources of Molokai," by Waldemar Lindgren, contains data on both the surface and ground-water supplies of the island named.

† Calendar years. Data for the last half of the calendar year 1913 appears not only in Water-Supply Paper 375 but also in Water-Supply Paper 450, the first of the reports covering a year ending June 30.

A summary of records of flow in streams and ditches in Hawaii was published in 1939 by the Territorial Planning Board. This report, entitled "Surface-water resources of the Territory of Hawaii, 1901-38," gives, by gaging stations for the periods of record, (1) monthly-discharge tables, which show for each month the maximum, minimum, and mean daily discharge and the total discharge, and (2) duration-discharge tables. Nearly all available records of flow up to December 1938 were considered in making the summary.

Some of these records are not contained in publications of the Geological Survey; some are revisions of records published in the Survey's water-supply papers.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The following table lists the gaging stations in the State of Hawaii at which records of discharge were collected during the fiscal year July 1958 to June 1959 by agencies other than the Geological Survey. The records for these stations are not contained in the publications of the Geological Survey, and, except as indicated, have not been published elsewhere.

Records of discharge collected by agencies other than the Geological Survey			
Stream	Location	Period	Operated by
Island of Kauai			
Hanamaulu ditch.....	Lat 22°01'38", long 159°25'25", 3,500 ft below intake and 4.5 miles northwest of Lihue, at altitude 450 ft.	1927-59	Lihue Plantation Co.
Kealia ditch.....	Lat 22°07'48", long 159°22'24", 500 ft west of Kaneha Reservoir, 4,000 ft below intake, and 4.7 miles northwest of Kealia, at altitude 800 ft.	1940-59	Do.
Kealia River.....	Lat 22°07'37", long 159°22'52", 2,000 ft west of Kaneha Reser- voir and 5.3 miles northwest of Kealia, at altitude 800 ft.	1936-59	Do.
Koloa ditch.....	Lat 21°58'32", long 159°28'25", 3 miles below intake and 6.4 miles west of Lihue, at altitude 700 ft.	1927-59	Do.
Lower Lihue ditch.....	Lat 22°01'20", long 159°25'18", 2,000 ft below Upper Lihue ditch and 4 miles northwest of Lihue, at altitude 500 ft.	1927-59	Do.
Upper Lihue ditch.....	Lat 22°01'30", long 159°25'24", 1.7 miles below intake and 4.3 miles northwest of Lihue, at altitude 525 ft.	1927-59	Do.
Waimea ditch.....	Lat 21°57'50", long 159°40'09", about 300 ft above Waimea plantation reservoirs and 1.6 miles north of Waimea, at alti- tude 120 ft.	1957-59	Do.
Waimea Valley ditch.....	Lat 22°02'33", long 159°38'32", 6.2 miles northwest of Waimea and 6.8 miles northwest of Kekaha, at altitude 525 ft.	1903-59	Kekaha Sugar Co., Ltd.
Island of Oahu			
Alewa Heights Springs...	Lat 21°21'05", long 157°49'33", 3.8 miles northeast of Honolulu Post Office and 4.4 miles east of Tripler Hospital, at altitude 680 ft.	1932-59a	Board of Water Supply, City and County of Honolulu.
Booth Springs.....	Lat 21°20'10", long 157°49'42", 2.4 miles north of University of Hawaii and 2.9 miles north- east of Honolulu Post Office, at altitude 685 ft.	1929-59a	Do.
Haiku tunnel.....	Lat 21°24'39", long 157°50'08", 2.0 miles southwest of St. Anna School and 2.6 miles west of Castle High School, at altitude 550 ft.	1941-59	Do.
Herring Springs.....	Lat 21°19'36", long 157°49'18", in Makiki valley, 2.9 miles northeast of Honolulu Post Office, at altitude 970 ft.	1925-59a	Do.
Kahaluu tunnel.....	Lat 21°26'18", long 157°51'32", 2.3 miles southwest of Kahaluu and 5.3 miles south of Waiahole School, at altitude 585 ft.	1947-59	Do.
Kahana development tunnel.	Lat 21°31'05", long 157°54'22", 6.3 miles south of Hauula School and 7.1 miles east of Leilehua High School, at altitude 800 ft.	1931-59	Waiahole Water Co., Ltd.
Kahuawai Springs.....	Lat 21°20'05", long 157°49'48", 2.8 miles northeast of Honolulu Post Office, at altitude 618 ft.	1925-59a	Board of Water Supply City and County of Honolulu.
Kalihi tunnels.....	Lat 21°22'20", long 157°50'03", 3.9 miles east of Tripler Hospital and 4.7 miles northeast of Honolulu Post Office at altitude 650 ft.	1926-59a	Do.
Kipapa ditch.....	Lat 21°25'15", long 159°00'50", 2.2 miles north of Waipahu Post Office and 3.0 miles southeast of Kipapa School, at altitude 370 ft.	1918-59	Waiahole Water Co., Ltd.

a Published in biennial reports of Honolulu Sewer and Water Commission and of Honolulu Board of Water Supply.

Records of discharge collected by agencies other than the Geological Survey--Continued

Stream	Location	Period	Operated by
Island of Oahu--Continued			
Kuou Springs.....	Lat 21°23'30", long 157°48'47", 1.5 miles southwest of Castle High School and 2.4 miles south of St. Anns School, at altitude 230 ft.	1955-59	Board of Water Supply, City and County of Honolulu.
Luluku tunnels.....	Lat 21°23'40", long 157°49'17", 1.9 miles southwest of Castle High School and 2.3 miles south- west of St. Anns School, at altitude 570 ft.	1927-59	Do.
Makiki Springs.....	Lat 21°19'15", long 157°49'48", 2.3 miles northeast of Honolulu Post Office, at altitude 350 ft.	1926-59a	Do.
Manoa tunnels.....	Lat 21°19'59", long 157°47'33", 4.9 miles northeast of Honolulu Post Office, at altitude 800 ft.	1925-59a	Do.
McCandless ditch.....	Lat 21°24'07", long 157°55'43", 1.4 miles north of Aiea Post Office and 5 miles east of August Ahrens School, at altitude 550 ft.	1949-59	Waiahole Water Co., Ltd.
Nuuanu tunnels.....	Lat 21°21'06", long 157°49'10", 3.5 miles north of University of Hawaii and 4.1 miles northeast of Honolulu Post Office, at altitude 780 ft.	1926-59a	Board of Water Supply, City and County of Honolulu.
Nuuanu tunnel No. 3.....	Lat 21°21'16", long 157°49'14", 2.7 miles north of University of Hawaii and 4.2 miles northeast of Honolulu Post Office, at altitude 830 ft.	1931-59a	Do.
Palolo tunnel.....	Lat 21°19'38", long 157°46'27", 3.1 miles northwest of Aiea Haina School and 3.7 miles southwest of Waimanalo village, at altitude 1,000 ft.	1926-59a	Do.
Uwau development tunnel.	Lat 21°29'29", long 157°53'16", 2.2 miles west of Waiahole School and 3.6 miles northwest of Kahalua, at altitude 840 ft.	1934-59	Waiahole Water Co., Ltd.
Waianae tunnel.....	Lat 21°28'27", long 158°09'21", 2.6 miles northeast of Waianae School and 3.7 miles northeast of Maile.	1951-59	Board of Water Supply, City and County of Honolulu.
Waiawa ditch.....	Lat 21°26'55", long 157°57'30", 3.9 miles southeast of Kipapa School and 5.2 miles northeast of Waipahu Post Office, at altitude 680 ft.	1918-59	Waiahole Water Co., Ltd.
Waiawa Intake.....	Lat 21°27'45", long 157°55'29", 5.9 miles east of Kipapa School and 7.4 miles northeast of Waipahu Post Office, at altitude 750 ft.	1918-59	Do.
Waihee tunnel.....	Lat 21°26'59", long 157°51'42", 1.6 miles south of Waiahole School and 3.7 miles north- west of St. Anns School, at altitude 218 ft.	1956-59	Board of Water Supply, City and County of Honolulu.
Waikakalaua ditch.....	Lat 21°27'15", long 158°01'45", 2.5 miles east of Kunia School and 3.1 miles south of Wahiawa Post Office, at altitude 760 ft.	1918-59	Waiahole Water Co., Ltd.
Waikane No. 1 develop- ment tunnel.	Lat 21°30'16", long 157°53'25", 4.2 miles southwest of Kaaawa School, at altitude 780 ft.	1928-59	Do.
Waikane No. 2 develop- ment tunnel.	Lat 21°29'50", long 157°53'13", 2.1 miles west of Waikane and 2.2 miles northwest of Waiahole School, at altitude 780 ft.	1928-59	Do.
Waimanalo tunnel.....	Lat 21°20'13", long 157°45'01", 2.1 miles southwest of Waimanalo village and 3.8 miles north of Aiea Haina, at altitude 462 ft.	1940-59	Board of Water Supply, City and County of Honolulu.
Island of Maui			
Everett ditch.....	Lat 20°51'35", long 156°31'43", below intake, 2.6 miles south- west of Wailuku Post Office, at altitude 880 ft.	1935-59	Wailuku Sugar Co.
Haiku ditch.....	Lat 20°55'46", long 156°20'38", at Hamakuapoko, 0.9 mile north of Maui High School and 2.3 miles northeast of Paia School, at altitude 250 ft.	1924-59	East Maui Irrigation Co.
Honolua ditch.....	Lat 20°57'10", long 156°39'29", at Mahinahina weir, 2.1 miles east of Honokowai and 4.06 miles north of Lahainaluna High School, at altitude 710 ft.	1912-59	Baldwin Packers, Ltd.
Iao-Waikapu ditch.....	Lat 20°52'56", long 156°31'06", at tunnel outlet, 1 mile south- west of Wailuku Post Office and 2 miles northwest of Waikapu, at altitude 740 ft.	1923-59	Wailuku Sugar Co.

Records of discharge collected by agencies other than the Geological Survey--Continued			
Stream	Location	Period	Operated by
Island of Maui--Continued			
Kahoma tunnel.....	Lat 20°54'20", long 156°38'06", 2,000 ft above outlet and 2.0 miles northeast of Lahainaluna High School, at altitude 2,000 ft.	1920-59	Pioneer Mill Co.
Kaluauui ditch.....	Lat 20°53'38", long 156°18'20", at Ohia-Kuiaha Gulch, 0.6 mile northwest of Kaupakulua School and 2.8 miles southeast of Haiku School, at altitude 960 ft.	1954-59	East Maui Irrigation Co.
Kanaha ditch.....	Lat 20°53'45", long 156°39'37", at intake, 0.2 mile northeast of Lahainaluna High School, at altitude 520 ft.	1921-59	Pioneer Mill Co.
Kauaula tunnel.....	Lat 20°52'40", long 156°38'44", at outlet, 1.5 miles southeast of Lahainaluna School and 2.9 miles east of Lahaina, at altitude 940 ft.	1920-59	Do.
Kauhikoa ditch.....	Lat 20°53'35", long 156°20'12", 0.45 mile northeast of Maunaolu College and 2.0 miles southeast of Paia School, at altitude 890 ft.	1928-59	East Maui Irrigation Co.
Launiupoko ditch.....	Lat 20°51'42", long 156°38'30", at outlet, 1.25 miles east of Launiupoko, at altitude 980 ft.	1921-59	Pioneer Mill Co.
Lowrie ditch.....	Lat 20°54'57", long 156°20'15", at Hamakuaopoko, 0.9 mile east of Maui High and 1.8 miles north of Maunaolu College, at altitude 520 ft.	1949-59	East Maui Irrigation Co.
Mailepai Stream.....	Lat 20°58'02", long 156°39'00", 2.1 miles southeast of Kahana Church and 2.7 miles south of Honokahua School, at altitude 760 ft.	1912-59	Baldwin Packers, Ltd.
Maniania ditch.....	Lat 20°53'09", long 156°32'30", below intake, 2.4 miles south- west of Wailuku Post Office and 3 miles northwest of Waikapu, at altitude 800 ft.	1923-59	Wailuku Sugar Co.
North Waiehu Stream.....	Lat 20°54'44", long 156°31'24", 1.8 miles northwest of Wailuku Post Office and 2.7 miles northwest of KMVI Radio Station, at altitude 540 ft.	1922-59	Do.
Old Kaluauui ditch.....	Lat 20°53'32", long 156°19'59", at Hamakuaopoko, 2.2 miles west of Kapakulua School and 2.8 miles south of Haiku School, at altitude 980 ft.	1924-54	East Maui Irrigation Co.
South Waikapu ditch.....	Lat 20°51'28", long 156°31'55", 1.4 miles west of Waikapu and 2.6 miles southwest of Wailuku Post Office, at altitude 1,100 ft.	1933-59	Wailuku Sugar Co.
Spreckels ditch.....	Lat 20°56'41", long 156°32'39", 1,000 ft below intake, 2 miles west of Waiehe, and 5.0 miles northwest of Wailuku Post Office, at altitude 460 ft.	1931-59	Do.
Do.....	Lat 20°52'56", long 156°30'05", at Waiale, 0.6 mile southeast of Wailuku Post Office, at altitude 240 ft.	1929-59	East Maui Irrigation Co.
Ukumehame ditch.....	Lat 20°48'56", long 156°35'24", 2.3 miles east of Olowalu, at altitude 200 ft.	1931-59	Pioneer Mill Co.
Waihee ditch.....	Lat 20°56'20", long 156°32'58", below intake, 4.35 miles northwest of Wailuku Post Office, at altitude 600 ft.	1931-59	Wailuku Sugar Co.
Wailoa ditch.....	Lat 20°52'56", long 156°19'56", at Kamaole, 1.7 miles north- west of Kokomo and 3.4 miles south of Haiku School, at altitude 1,160 ft.	1924-59	East Maui Irrigation Co.
Island of Hawaii			
Aiili flume.....	Lat 19°13'43", long 155°30'56", 1.5 mile northwest of Pahala and 4.9 miles northeast of Honuapo, at altitude 2,680 ft.	1943-59	Hawaiian Agricultural Co.
Awini weir.....	Lat 20°08'21", long 155°43'55", at east branch Honokane Nui Stream, 8.0 miles south of Niulii, at altitude 1,840 ft.	1927-59	Kohala Sugar Co.
Keaiwa Reservoir.....	Lat 19°15'13", long 155°30'06", 2.1 miles northwest of Pahala and 5.8 miles northeast of Honuapo, at altitude 3,060 ft.	1943-59	Hawaiian Agricultural Co.

Records of discharge collected by agencies other than the Geological Survey--Continued

Stream	Location	Period	Operated by
Island of Hawaii--Continued			
Kohala ditch.....	Lat 20°11'50", long 155°45'10", at main weir, 1.75 miles south of Makapala village, at altitude 980 ft.	1942-59	Kohala Sugar Co.
Lower Hamakua ditch.....	Lat 20°07'10", long 155°34'50", at weir No. 1, 0.8 mile south- west of Kukuihaele and 8.1 miles from intake at Kawainui, at altitude 980 ft.	1910-59	Hawaiian Irrigation Co.
Do.....	Lat 20°05'06", long 155°28'35", at weir No. 2, 0.8 mile south- west of Haina and 1.0 mile northwest of Honokaa High School, at altitude 960 ft.	1910-59	Do.
Do.....	Lat 20°04'44", long 155°27'18", at weir No. 3, 0.8 mile east of Honokaa High School and 1.7 miles southeast of Haina, at altitude 910 ft.	1958-59	Do.
Lower Lyman Springs.....	Lat 19°42'10", long 155°10'20", 2.0 miles northwest of Kamama and 5.7 miles south- west of Hilo, at altitude 1,622 ft.	1951-59	Board of Water Supply, County of Hawaii.
Pahoehoe Springs.....	Lat 19°46'36", long 155°06'40", 1.2 miles southwest of Papaikou and 3.8 miles northwest of Hilo, at altitude 480 ft.	1953-59	Do.
Puukumau Inlet.....	Lat 20°11'47", long 155°49'47", at southeast corner of Puukumau Reservoir, 3.25 miles south of Hawi, at altitude 1,820 ft.	1958-59	Kohala Sugar Co.
Puukumau Outlet.....	Lat 20°11'50", long 155°50'22", at southwest corner of Puukumau Reservoir, 3 miles south of Hawi, at altitude 1,800 ft.	1942-59	Do.

ISLAND OF KAUAI

100. Kawaikoi Stream near Waimea

Location--Lat 22°08'00", long 159°37'15", on left bank at old trail crossing, 12.5 miles northeast of Waimea.

Drainage area--4.1 sq mi, approximately.

Records available--April 1909 to December 1916, July 1919 to June 1959.

Gage--Water-stage recorder and concrete control. Altitude of gage is 3,420 ft (by barometer). Prior to May 26, 1910, staff gage at site 300 ft downstream at different datum.

Average discharge--40 years (1919-59), 21.9 mgd (33.9 cfs).

Extremes--Maximum discharge during year, 1,270 mgd (1,960 cfs) Aug. 8 (gage height, 7.75 ft), from rating curve extended above 300 mgd as explained below; minimum, 2.7 mgd (4.2 cfs) June 24, 25, 28, 29.
1909-16, 1919-59: Maximum discharge, 6,900 mgd (10,700 cfs) Dec. 18, 1916 (gage height, 15.2 ft), from rating curve extended above 300 mgd on basis of slope-area measurements at gage heights 12.12 and 13.43 ft; minimum, 0.74 mgd (1.15 cfs) Sept. 21, 22, 1953.

Remarks--Records good.

Revisions (fiscal years)--WSP 555: 1920-21. WSP 1185: 1914-17(M), 1920-38(M), 1940-43(M), 1947(M).

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Sept. 6

Sept. 7 to June 30

2.2	4.8	3.8	115	2.0	1.95	3.4	55.5
2.4	8.6	4.2	195	2.2	4.1	3.8	115
2.7	17.8	4.6	275	2.4	7.4	4.2	195
3.0	32	5.0	355	2.7	15.4	4.6	275
3.4	60	6.0	620	3.0	27.5	5.0	355

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.7	10.0	12.4	5.4	10.4	29	18.1	18.7	10.6	192	4.0	4.5
2	14.8	129	41	5.8	8.9	*12.3	12.5	14.4	9.4	45	3.85	4.2
3	34	66	28	5.3	17.0	15.3	12.2	15.9	8.9	25.5	3.75	4.1
4	25	46	23.5	5.0	12.7	8.7	11.7	34.5	19.9	19.6	3.6	4.0
5	11.9	67	15.3	4.5	8.7	87	9.2	16.1	9.9	14.8	3.6	3.85
6	7.2	36	55	4.4	7.4	43	8.3	10.6	8.1	115	7.9	4.1
7	65	29.5	85	4.1	6.8	12.5	7.6	8.5	7.2	26	59	4.0
8	55	510	24.5	4.0	8.1	9.4	7.2	7.6	6.8	73	70	3.85
9	31	68	11.4	3.85	12.0	8.3	6.7	7.6	*6.5	350	109	4.0
10	27.5	30.5	8.9	3.85	22.5	48	6.3	39	6.3	112	28	4.0
11	37.5	21.5	7.6	3.85	18.9	21.5	5.9	21	5.8	23.5	47	3.75
12	28.5	17.8	7.2	3.6	9.0	11.2	45	16.5	5.8	16.1	29	3.85
13	18.6	16.4	7.0	*3.75	6.8	8.7	206	79	6.3	13.2	27	3.85
14	17.1	15.7	8.7	4.2	7.4	7.4	39	22.5	6.1	10.9	13.9	3.6
15	38	18.2	50	71	8.3	6.8	33.5	45	5.8	9.6	25.5	3.5
16	42	17.8	31	41	6.5	6.5	16.4	18.1	5.3	8.5	30.5	3.4
17	*12.9	13.1	17.6	65	7.6	6.7	176	21	5.0	7.6	19.2	3.25
18	21	10.4	17.8	31.5	6.3	18.8	112	146	4.7	7.2	18.2	3.15
19	85	9.1	43	21	44	12.0	*43	25	19.7	7.0	11.3	3.0
20	229	9.3	56	46	31.5	7.6	21.5	30.5	13.8	*6.7	10.2	2.9
21	44	89	90	60	80	6.3	16.8	157	7.7	6.3	34	2.9
22	48	27	15.8	37	54	5.8	25	41	5.4	5.8	13.9	2.9
23	48	14.3	11.9	340	85	5.6	17.4	32	4.7	5.4	9.2	2.8
24	44	10.9	9.6	67	17.6	15.3	12.8	25	4.2	5.3	8.0	2.7
25	34	29	8.5	22.5	11.9	5.0	10.9	25.5	4.2	4.8	7.0	2.8
26	18.6	41	8.3	15.7	9.6	4.7	9.6	24	4.1	4.7	6.3	2.9
27	16.0	*17.8	8.1	14.6	8.5	4.5	8.9	15.1	4.0	4.5	5.9	2.9
28	12.8	12.1	7.0	134	7.6	52	8.3	12.2	3.75	4.2	5.6	2.7
29	10.9	9.6	6.3	23	7.2	210	7.6	-	3.6	4.1	5.3	6.3
30	10.7	15.7	5.9	17.8	6.7	47	7.4	-	3.5	4.1	5.0	7.8
31	10.4	13.7	-----	12.8	-----	63	33	-----	3.85	-----	4.7	-----
Total	1,297.1	1,421.4	723.3	1,079.50	546.9	789.9	951.8	929.3	221.00	1,132.2	629.20	111.55
Mean:	41.8	45.9	24.1	34.8	18.2	25.5	30.7	33.2	7.13	37.7	20.3	3.72
mgd	64.7	71.0	37.3	53.8	28.2	39.5	47.5	51.4	11.0	58.3	31.4	5.76
cfs	3,980	4,360	2,220	3,310	1,680	2,420	2,920	2,850	678	3,470	1,930	342
Ac-ft												
Calendar year 1958:	Max	510	Min	3.05	Mean(mgd)	25.1	Mean(cfs)	38.8	Ac-ft	28,150		
Fiscal year 1958-59:	Max	510	Min	2.7	Mean(mgd)	26.9	Mean(cfs)	41.6	Ac-ft	30,160		

Peak discharge (base, 1,500 mgd)--No peak above base.

* Discharge measurement made on this day.

130. Mohihi Stream at altitude 3,500 ft, near Waimea

Location--Lat 22°07'05", long 159°36'15", on left bank at upper trail crossing, 3.8 miles northeast of confluence of Waiahulu and Poomau Streams and 12 miles northeast of Waimea.

Drainage area--1.6 sq mi, approximately.

Records available--June 1920 to October 1926, October 1936 to June 1959. April 1909 to December 1911 (fragmentary), July 1947 to June 1952, published as Mohihi Stream near Waimea; records 1909-11 at site 2 miles downstream not equivalent, owing to inflow.

Gage--Water-stage recorder. Altitude of gage is 3,500 ft (from topographic map).

Average discharge--28 years (1920-26, 1937-59), 5.21 mgd (8.06 cfs).

Extremes--Maximum discharge during year, 363 mgd (562 cfs) Dec. 29 (gage height, 4.85 ft), from rating curve extended above 50 mgd; minimum, 0.28 mgd (0.43 cfs) June 24, 25.
1920-26, 1936-59: Maximum discharge, 1,250 mgd (1,930 cfs) Aug. 15, 1950 (gage height, 7.23 ft), from rating curve extended above 50 mgd; minimum, 0.02 mgd (0.03 cfs) Sept. 22, 23, 1953.

Remarks--Records good except those above 50 mgd, which are poor.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.18	1.9	10.3
.9	.34	2.1	15.8
1.1	.90	2.5	31.5
1.3	1.94	3.0	62
1.5	3.75	3.5	112
1.7	6.4		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.12	1.41	2.0	0.77	2.4	2.35	8.3	5.9	2.65	42	0.74	0.74
2	1.04	27	3.35	.87	2.0	*2.0	5.0	4.5	2.35	12.5	.70	.70
3	1.05	15.3	4.1	.83	2.6	2.35	4.9	3.25	2.35	8.0	.67	.64
4	3.2	6.0	2.35	.77	2.7	1.70	4.2	7.2	3.55	5.1	.64	.60
5	2.1	15.5	1.76	.70	1.82	13.4	3.05	5.1	2.5	3.85	.67	.54
6	1.04	10.5	1.59	.64	1.53	16.8	2.5	3.35	1.94	10.5	.83	.60
7	4.1	5.0	16.6	.57	1.41	3.6	2.2	2.6	1.76	6.6	2.5	.70
8	15.3	106	9.0	.54	1.41	2.2	2.1	2.1	1.64	8.1	7.5	.80
9	4.9	32	2.55	.54	1.82	1.70	1.76	2.0	*1.53	45	18.7	.74
10	3.85	10.1	1.59	.54	14.8	8.3	1.70	10.8	1.47	29	8.3	1.22
11	4.6	5.9	1.22	.54	9.9	6.4	1.53	9.2	1.41	6.7	9.0	.87
12	6.3	4.5	1.04	.54	3.2	2.55	11.6	7.3	1.35	3.85	6.4	.74
13	2.7	3.65	.99	*.57	2.0	1.76	47	23	1.59	2.95	6.2	.77
14	2.75	3.25	.99	.72	2.45	1.41	13.6	6.4	1.59	2.4	3.15	.74
15	4.6	2.95	2.4	17.9	2.5	1.26	9.1	7.0	1.41	1.94	3.9	.64
16	6.4	2.75	5.5	12.8	1.76	1.17	5.4	5.3	1.22	1.70	6.4	.57
17	*2.25	2.4	3.65	19.0	1.59	1.12	30.5	6.1	1.12	1.53	6.3	.49
18	*38.5	2.0	2.5	8.9	1.35	2.5	31	30	1.04	1.35	5.2	.44
19	18.2	1.76	4.9	5.9	7.5	2.45	*15.9	9.9	1.08	1.26	3.1	.40
20	62	1.64	9.4	6.6	5.2	1.47	8.1	6.6	1.17	*1.26	2.2	.38
21	12.4	15.9	13.3	13.7	13.3	1.22	6.0	27.5	1.12	1.17	7.1	.36
22	10.9	5.5	4.0	5.3	11.3	1.08	5.0	17.4	1.04	1.12	4.2	.34
23	10.3	3.0	2.1	108	19.8	1.04	4.4	8.7	.90	1.08	2.25	.32
24	7.5	2.1	1.47	30	5.0	.90	3.55	5.9	.83	.99	1.70	.28
25	6.3	2.1	1.30	9.0	2.75	.83	3.15	4.9	.80	.94	1.41	.28
26	4.0	6.1	1.17	5.3	2.0	.80	2.75	4.5	.80	.90	1.26	.34
27	2.95	*3.65	1.17	3.85	1.70	.74	2.6	3.85	.80	.83	1.12	.40
28	2.25	2.4	1.04	17.4	1.53	9.4	2.4	3.05	.77	.80	1.04	.34
29	2.0	1.76	.80	6.7	1.35	63	2.2	-	.70	.77	.90	.32
30	1.76	2.1	.90	4.4	1.22	22.5	2.1	1.47	.70	.74	.87	.36
31	1.59	2.2	-----	3.15	-----	27.5	5.3	-----	.80	-----	.80	-----
Total	247.95	304.42	104.73	287.04	129.69	205.50	248.89	233.40	43.98	204.93	113.75	16.46
Mean	8.00	9.82	3.49	9.26	4.32	6.63	8.03	8.34	1.42	6.83	3.67	0.549
cfs	12.4	15.2	5.40	14.3	6.68	10.3	12.4	12.9	2.20	10.6	5.68	0.849
Ac-ft	761	934	321	881	398	631	764	716	135	629	349	51

Calendar year 1958: Max 108 Min 0.41 Mean(mgd) 5.08 Mean(cfs) 7.86 Ac-ft 5,690
Fiscal year 1958-59: Max 108 Min 0.28 Mean(mgd) 5.87 Mean(cfs) 9.08 Ac-ft 6,570

Peak discharge (base, 200 mgd)--July 20 (10 a.m.) 282 mgd (436 cfs), 4.52 ft; Aug. 8 (11:30 a.m.) 255 mgd (395 cfs), 4.39 ft; Dec. 29 (12:30 a.m.) 363 mgd (562 cfs), 4.85 ft.

* Discharge measurement made on this day.

140. Kokee ditch near Waimea

Location.--Lat 22°06'25", long 159°40'45", on left bank 1,000 ft west of road and 10.5 miles north of Waimea.

Records available.--September 1926 to June 1959.

Gage.--Water-stage recorder and suppressed weir. Altitude of gage is 3,310 ft (by barometer).

Average discharge.--32 years (1927-59), 15.9 mgd (24.6 cfs).

Extremes.--1926-59: Maximum daily discharge, 68 mgd (105 cfs) Dec. 2, 1929, Mar. 4, 1933; no flow occasionally.

Remarks.--Records good. Kokee ditch diverts water at altitude 3,400 ft from all streams tributary to Waimea River from Mohihi Stream west for irrigation near Kekaha. Flow regulated by headgates.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.1	11.7	15.7	8.8	16.8	30	7.1	24	22	41	7.9	7.2
2	13.9	36.5	27	9.3	14.6	18.0	5.9	19.8	20.5	40	7.7	6.8
3	24.5	40	28.5	8.8	22	22	7.7	23	20.5	32	7.5	6.6
4	26	30	23	8.2	19.6	*15.7	6.3	35	28.5	26	7.4	6.5
5	16.2	42	18.8	7.7	14.6	39	13.5	27.5	20.5	22	7.2	6.2
6	9.8	33.5	16.0	7.4	12.8	36	16.8	20.5	18.0	37	10.0	6.3
7	19.8	24.5	39	7.0	12.2	20.5	15.7	18.0	16.8	33	31.5	6.3
8	35.5	48	30	6.8	12.6	16.8	15.7	16.8	16.8	39	40	6.2
9	29	37	16.8	6.6	16.8	14.6	14.6	16.8	15.7	46	42	6.3
10	29	22	14.2	6.6	21	27.5	13.9	21	14.6	46	31	6.3
11	32	27.5	12.4	6.3	24.5	27.5	13.3	30.5	*14.4	33.5	35.5	6.0
12	30.5	23	11.3	6.0	14.6	16.8	17.7	24	13.7	26	30.5	6.0
13	20.5	22	11.1	6.0	12.0	14.6	17.4	39	14.2	22	30.5	5.8
14	19.2	19.2	12.2	6.8	12.0	13.1	15.8	15.5	13.7	18.0	20.5	5.7
15	31.5	23	30	54	15.1	12.4	21.5	22	13.1	16.8	26	5.5
16	33	22	32	32	11.1	11.5	18.4	21	12.2	15.7	27	5.2
17	16.8	18.0	23	40	12.2	11.3	19.7	33.5	11.5	13.9	24.5	5.0
18	*45	15.7	20.5	32	10.6	21	5.2	42	11.1	13.1	22	4.9
19	42	13.3	27.5	24.5	30	18.0	17.7	27	21	12.6	16.8	4.8
20	40	13.3	33.5	32	23	12.6	25.5	24.5	19.2	12.4	14.2	4.8
21	35.5	39	37	39	39.5	10.9	20	24.5	13.9	11.5	30	4.5
22	39	29	23	23.5	33	10.0	15.7	20.5	11.3	*10.9	21	4.5
23	37	19.2	16.8	42	40	9.7	14.4	19.9	10.2	10.4	14.6	4.5
24	37	15.7	14.6	24	27.5	9.3	12.4	26.5	9.7	10.0	12.2	4.4
25	33.5	24	13.3	15.7	19.2	8.8	14.6	35.5	9.5	9.7	10.9	4.4
26	23	33.5	12.4	18.6	16.8	8.4	26	33.5	9.3	9.3	9.7	4.5
27	20.5	22	12.0	20.5	14.6	8.2	24.5	27.5	8.8	8.9	9.1	4.5
28	15.7	*16.8	10.6	37	13.9	20.5	23	23	8.4	8.6	8.6	4.5
29	14.4	13.5	*9.8	29	13.1	49	22	-	8.4	8.4	8.2	6.1
30	13.7	18.0	9.3	24.5	12.0	39	20.5	-----	8.2	8.2	7.5	8.9
31	13.1	16.8	-----	19.2	-----	22.5	37	-----	8.6	-----	7.4	-----
Total	805.5	770.3	601.3	589.8	555.7	595.2	519.5	712.3	444.3	641.9	578.9	169.2
Mean:												
mgd	26.0	24.8	20.0	19.0	18.5	19.2	16.8	25.4	14.3	21.4	18.7	5.64
cfs	40.2	38.4	30.9	29.4	28.6	29.7	26.0	39.3	22.1	33.1	28.9	8.73
Ac-ft	2,470	2,360	1,850	1,810	1,710	1,830	1,590	2,190	1,360	1,970	1,780	519
Calendar year 1958: Max	49			Min	4.6	Mean(mgd)	18.1	Mean(cfs)	28.0	Ac-ft	20,280	
Fiscal year 1958-59: Max	49			Min	4.4	Mean(mgd)	19.1	Mean(cfs)	29.6	Ac-ft	21,440	

* Discharge measurement made on this day.

160. Waimea River at altitude 890 ft, near Waimea

Location.--Lat 22°04'45", long 159°39'15", on right bank in Waimea Canyon, 0.5 mile upstream with Koale Stream and 8.8 miles north of Waimea.

Drainage area.--20.0 sq mi.

Records available.--February to October 1916, October 1917 to June 1918, May 1925 to June 1959. Prior to July 1, 1952, published as Waiahulu Stream near Waimea.

Gage.--Water-stage recorder. Altitude of gage is 890 ft (by barometer). Prior to May 25, 1925, at datum 1.55 ft lower.

Average discharge.--31 years (1925-48, 1951-59), 31.2 mgd (48.3 cfs).

Extremes.--Maximum discharge during year, 2,280 mgd (3,530 cfs) Dec. 29 (gage height, 7.58 ft), from rating curve extended above 70 mgd on basis of slope-area measurement at gage height 11.45 ft; minimum, 9.2 mgd (14.2 cfs) date unknown.
1916, 1917-18, 1925-59: Maximum discharge, 18,100 mgd (28,000 cfs) Aug. 17, 1950 (gage height, 18.3 ft, from floodmarks), from rating curve extended above 320 mgd; minimum, 5.2 mgd (8.0 cfs) Nov. 4, 1927.

Remarks.--Records good except those for periods of fragmentary gage-height record, which are fair, and those for periods of no gage-height record, which are poor. Kokee ditch diverts water above station for irrigation near Kekaha (see p. 12).

Revisions (fiscal years).--WSP 1095: 1928(M).

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Nov. 22				Nov. 23 to June 30			
1.49	9.5	3.0	106	1.44	9.4	2.1	33.0
1.5	9.7	3.5	182	1.5	10.8	2.5	43.5
1.6	12.4	4.0	299	1.7	16.9	2.5	56
1.8	18.6	4.5	424	1.9	24.0	3.0	106
2.0	25.5	5.0	590				
2.2	34.5	5.5	800				
2.5	53						

Note.--Same as preceding table above 3.0 ft.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.3	10.5	11.0	9.7	13.9	20.5	30.5	34	15.3	f82	10.0	10
2	10.5	112	18.1	10.2	13.0	15.3	21	24	15.0	38.5	9.8	10
3	13.0	56	19.3	10.0	15.4	14.3	21.5	26	14.3	23	9.8	10
4	16.4	28.5	12.4	10.0	*14.8	14.0	21	40	16.7	16.9	9.8	9.5
5	13.3	54	12.2	9.7	12.7	56	17.6	*20	14.7	14.7	9.6	9.5
6	11.3	26.5	25.5	9.7	11.9	74	16.3	18.2	13.4	f78	11	9.5
7	26	17.2	75	9.7	11.3	19.3	16.3	17.6	12.8	25	50	11
8	69	717	38	9.5	11.0	15.3	16.6	17.6	12.5	29.5	60	10
9	17.4	118	13.9	9.5	11.3	14.0	16.6	17.6	12.5	130	90	10
10	16.5	29.5	11.6	9.5	14.9	26	16.3	f45	12.0	60	26	12
11	17.2	19.4	10.5	9.5	30	29.5	16.3	f37	12.0	24.5	44	11.5
12	23	16.0	10.2	9.5	15.4	15.9	f44	21.5	12.0	17.2	28	11
13	13.3	14.5	10.0	9.5	12.7	13.7	450	f141	12.0	13.7	24	10.5
14	13.0	13.6	10.0	9.7	12.1	12.8	f114	33	12.0	12.5	15	10
15	19.1	13.0	18.8	50	12.4	*12.2	41	47	11.7	12.0	24	9.6
16	28.5	13.0	*27	37	11.9	12.0	25.5	24	11.7	11.7	30	9.6
17	13.2	12.4	16.0	60	11.3	12.0	400	21.5	11.4	11.1	22	*9.6
18	220	11.9	12.8	26.5	11.0	12.8	f361	150	11.1	10.8	20	9.6
19	68	11.3	21	19.7	22.5	15.3	f163	33.5	*13.3	10.8	13	9.6
20	328	11.0	35.5	22.5	22	12.8	30	24.5	12.5	10.5	12	9.6
21	42	63	86	56	89	12.2	26	f158	11.4	10.5	32	9.8
22	51.5	21	19.1	19.6	26	12.0	32	75	11.1	10.5	15	9.8
23	28	13.9	15.3	569	135	11.7	26	29.5	10.8	10.5	11.5	10.0
24	25.5	12.1	11.6	176	25	11.7	22	22.5	10.8	10.5	11.5	10.0
25	23.5	11.6	10.8	30	16.9	11.4	20	22	10.8	10.5	11	10.0
26	15.2	22.5	10.5	20.5	14.3	11.4	19	19.9	10.8	10.2	11	10.0
27	13.0	14.7	10.2	17.3	15.7	11.4	18	18.2	10.8	10.2	10.5	10.0
28	11.9	12.1	10.2	129	15.1	86	18	16.3	10.5	10.2	10.5	10.0
29	11.3	11.0	10.0	27	12.5	485	17	-	10.5	*10.2	10.5	10.0
30	11.0	10.8	9.7	18.0	12.2	72	17	-	10.2	10.2	10.5	10.2
31	*10.8	11.3	-----	15.4	-----	135	38	-----	10.5	-----	10	-----
Total	1,173.7	1,507.3	600.2	1,428.2	647.2	1,261.5	2,091.5	1,154.4	377.1	715.9	652.0	301.9
Mean:												
mgd	37.9	48.6	20.0	46.1	21.6	40.7	67.5	41.2	12.2	23.9	21.0	10.1
cfs	58.6	75.2	30.9	71.3	33.4	63.0	104	63.7	18.9	37.0	32.5	15.6
Ac-ft	3,600	4,630	1,840	4,380	1,990	3,870	6,420	3,540	1,160	2,200	2,000	926
Calendar year 1958:	Max	717	MIn	9.5	Mean(mgd)	30.6	Mean(cfs)	47.3	Ac-ft	34,280		
Fiscal year 1958-59:	Max	717	MIn	9.5	Mean(mgd)	32.6	Mean(cfs)	50.4	Ac-ft	36,560		

Peak discharge (base, 1,200 mgd).--July 20 (11:30 a.m.) 1,210 mgd (1,870 cfs), 6.32 ft; Aug. 8 (12 m.) 1,850 mgd (2,860 cfs), 7.15 ft; Dec. 29 (3 a.m.) 2,280 mgd (3,530 cfs), 7.58 ft; Jan. 17 (time unknown) 2,160 mgd (3,340 cfs), 7.46 ft.

* Discharge measurement made on this day.

f Fragmentary gage-height record; discharge computed from partly estimated gage heights.

Note.--No gage-height record Jan. 13, 17, Jan. 20 to Feb. 5, Feb. 18, Apr. 9, 10, May 5 to June 17; discharge estimated on basis of recorded range in stage and records for Kawaiki Stream and stations near Waimea.

220. Kekaha ditch at camp 1, near Waimea

Location.--Lat 22°02'35", long 159°38'30", on right bank 0.2 mile downstream from lower intake and 6.2 miles northeast of Waimea.

Records available.--November 1907 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 520 ft (by barometer). Prior to July 12, 1921, staff gages at several sites within 1 mile of present site at various datums.

Average discharge.--40 years (1918-24, 1925-59), 35.7 mgd (55.2 cfs).

Extremes.--1907-59: Maximum daily discharge, 67 mgd (104 cfs) Jan. 6, Mar. 3, 6, 7, 17, 18, 24-26, 29-31, 1921; no flow at times.

Remarks.--Records good except those for periods of fragmentary or no gage-height record, which are fair. Ditch diverts water from Waimea River 1 mile downstream from mouth of Waialae Stream. Flow regulated by headgates. Water used for irrigation in vicinity of Kekaha.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	36.5	32	39	30	34.5	41	34.5	41	39	a51	28	26
2	44	44	41	32	34.5	36.5	34.5	51	44	a51	28	26
3	36.5	51	51	30	34.5	34.5	34.5	51	44	a45	26	26
4	51	51	41	30	*34.5	32	34.5	51	46	a41	26	26
5	51	51	36.5	30	34.5	39	34.5	51	41	f41	26	26
6	36.5	51	36.5	28	34.5	36.5	34.5	46	36.5	f51	32	28
7	36.5	51	46	28	32	39	34.5	39	34.5	f51	51	26
8	51	44	51	28	32	39	34.5	39	34.5	f51	46	26
9	51	28	48	28	34.5	34.5	34.5	41	34.5	f51	44	34.5
10	51	32	39	28	44	39	36.5	46	36.5	f46	44	46
11	51	46	34.5	32	51	51	36.5	51	36.5	a37	51	34.5
12	51	51	32	36.5	51	44	36.5	51	34.5	a37	51	34.5
13	48	51	32	30	46	36.5	32	34.5	36.5	a49	51	39
14	51	48	30	30	44	32	34.5	34.5	34.5	f46	46	34.5
15	51	46	44	46	36.5	*32	34.5	34.5	34.5	f36.5	44	30
16	51	41	51	51	36.5	30	34.5	36.5	32	a36	46	28
17	46	39	51	48	36.5	30	30	36.5	32	a35	48	*28
18	48	39	51	41	34.5	39	32	36.5	32	a34	51	26
19	51	34.5	48	46	46	46	34.5	36.5	*34.5	f32	51	26
20	51	32	44	51	51	36.5	34.5	36.5	32	f30	44	25
21	51	46	44	51	51	30	32	36.5	f32	f30	48	25
22	51	46	51	51	51	30	34.5	36.5	30	a29	48	25
23	51	39	48	41	51	30	32	36.5	f28	a29	44	25
24	51	36.5	41	34.5	51	32	34.5	44	30	f28	36.5	25
25	51	36.5	36.5	36.5	48	30	34.5	51	30	f28	32	25
26	51	51	36.5	36.5	39	28	34.5	51	30	a28	30	25
27	46	51	41	34.5	36.5	28	36.5	41	32	a28	30	26
28	39	46	36.5	36.5	34.5	32	36.5	34.5	f32	a28	30	26
29	36.5	36.5	32	34.5	34.5	34.5	39	-	f30	*28	28	26
30	34.5	36.5	32	34.5	32	36.5	36.5	-----	f30	28	28	25
31	32	39	-----	-----	-----	-----	34.5	39	a31	-----	28	-----
Total	1,438.0	1,326.5	1,245.0	1,128.5	1,211.0	1,093.5	1,076.0	1,175.0	1,064.5	1,135.5	1,216.5	849.0
Mean:												
mgd	46.4	42.8	41.5	36.4	40.4	35.3	34.7	42.0	34.3	37.8	39.2	28.3
cfs	71.8	66.2	64.2	56.3	62.5	54.6	53.7	65.0	53.1	58.5	60.7	43.8
Ac-ft	4,410	4,070	3,820	3,460	3,720	3,360	3,300	3,610	3,270	3,480	3,730	2,610
Calendar year 1958:	Max	51	Min	25	Mean(mgd)	38.6	Mean(cfs)	59.7	Ac-ft	43,230		
Fiscal year 1958-59:	Max	51	Min	26	Mean(mgd)	38.2	Mean(cfs)	59.1	Ac-ft	42,840		

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of twice-daily ditchman's readings and records for nearby stations.

f Fragmentary gage-height record; discharge computed from partly estimated gage heights.

310. Waimea River near Waimea

Location--Lat 21°58'55", long 159°39'50", on right bank 1.2 miles upstream with Makaweli River and 1.8 miles north of Waimea.

Drainage area--57.8 sq mi.

Records available--July 1910 to October 1919, November 1943 to June 1959.

Gage--Water-stage recorder. Altitude of gage is 25 ft (by hand levels from estuary at confluence with Makaweli River). Prior to Oct. 5, 1911, staff gage at site 1 mile downstream at different datum. Oct. 5, 1911, to June 30, 1918, staff gage at present site at different datum.

Average discharge--15 years (1944-59), 78.7 mgd (122 cfs).

Extremes--Maximum discharge during year, 4,690 mgd (7,250 cfs) Dec. 29 (gage height, 9.85 ft), from rating curve extended above 3,900 mgd as explained below; minimum, 0.70 mgd (1.08 cfs) June 26.

1943-59: Maximum discharge, 24,000 mgd (37,100 cfs) Feb. 7, 1949 (gage height, 19.3 ft), from rating curve extended above 3,900 mgd on basis of slope-area measurements at gage heights 10.28 and 18.7 ft; minimum, less than 0.01 mgd (0.02 cfs) Sept. 27, 1948.

Remarks--Records good except those below 8 mgd, which are fair. Several ditches divert most of flow for irrigation of sugarcane.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

2.9	0.55	4.5	115
3.1	2.15	5.0	240
3.3	5.6	5.5	430
3.5	12.0	6.3	695
3.8	28	7.0	1,420
4.1	56		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.15	2.15	6.2	2.75	13.3	2.1	96	26	15.5	*251	1.45	0.88
2	2.65	179	4.0	2.45	8.8	4.7	54	20.5	6.6	86	1.45	.76
3	2.75	239	27	2.45	6.2	2.05	67	13.8	4.2	50	1.55	.76
4	10.1	55	8.1	2.3	7.6	1.69	72	21.5	3.6	25	1.55	.82
5	15.4	91	3.3	2.75	4.8	19.1	42	36.5	4.4	14.4	1.35	.82
6	5.2	104	2.3	2.6	2.9	130	*30.5	15.7	2.45	*88	1.45	.82
7	1.85	46	146	2.6	2.15	23	22	13.8	2.9	58	15.0	.88
8	154	1150	164	2.45	3.05	4.6	20	9.5	4.0	19.6	83	.88
9	23	383	18.1	2.45	6.7	2.15	15.5	5.6	2.8	427	91	.94
10	16.6	100	5.6	2.75	130	4.7	12.9	4.6	1.65	380	81	22
11	31.5	56	2.9	2.9	150	56	10.6	143	1.65	68	31	2.1
12	39.5	17.0	2.45	7.2	*31.5	8.6	13.8	32.5	1.45	23.5	17.5	1.08
13	16.5	*9.7	2.9	4.0	11.6	3.15	1,010	236	9.5	13.3	*8.9	3.7
14	9.1	7.6	2.9	2.6	18.7	1.75	236	85	10.6	*4.6	8.5	1.90
15	10.3	7.8	5.2	84	19.4	1.15	98	74	4.3	2.3	3.1	1.25
16	40	13.3	52	80	10.9	1.01	82	49	2.15	1.75	75	1.01
17	13.4	19.3	26	107	4.7	1.01	856	*33.5	1.35	1.45	76	.94
18	346	6.8	14.2	79	2.75	4.3	698	183	1.25	1.35	72	.88
19	132	4.0	35.5	33.5	15.3	21.5	303	97	1.08	1.25	23.5	.82
20	625	2.9	122	17.3	65	5.0	132	38.5	1.45	1.25	4.4	.82
21	111	80	224	81	88	1.85	33	262	1.35	1.25	16.2	.82
22	44	50	48	36.5	26	1.15	71	224	1.35	1.25	33	.82
23	81	22	14.7	1,280	178	1.01	62	79	1.25	1.45	6.0	.82
24	52	9.1	6.4	*494	38	1.15	42	43	1.35	*1.51	3.45	.88
25	45	3.9	4.4	98	8.8	1.08	34.5	29	1.25	1.25	2.1	*.84
26	23	30.5	3.45	50	3.8	.94	27	24	1.35	1.25	1.15	.70
27	11.3	26.5	5.2	25.5	2.9	.94	22	25.5	1.65	1.25	1.01	.76
28	5.5	9.9	5.6	117	2.15	26.5	18.1	21.5	1.95	1.25	1.01	.88
29	3.0	4.0	3.45	63	1.75	1.40	15.5	-	1.45	1.15	1.08	.94
30	2.6	2.3	*2.9	27.5	1.65	155	13.8	-----	1.35	1.25	.94	.94
31	2.6	6.0	-----	18.1	-----	315	23.5	-----	1.35	-----	.88	-----
Total	1,877.98	2,717.75	968.75	2,733.65	866.40	1,940.18	4,275.7	1,907.0	98.53	1,530.61	665.52	52.46
Mean:	60.6	87.7	32.3	88.2	28.9	62.6	138	68.1	3.18	51.0	21.5	1.75
mgd	93.8	136	50.0	138	44.7	96.9	214	105	4.92	78.9	33.3	2.71
cfs	5,760	8,340	2,970	8,390	2,660	5,950	13,120	5,850	302	4,700	2,040	161
Ac-ft												
Calendar year 1958: Max	1,280		Min	0.60	Mean(mgd)	44.6	Mean(cfs)	69.0	Ac-ft	49,990		
Fiscal year 1958-59: Max	1,280		Min	0.70	Mean(mgd)	53.8	Mean(cfs)	83.2	Ac-ft	60,240		

Peak discharge (base, 5,600 mgd)--No peak above base.

* Discharge measurement made on this day.

360. Makaweli River near Waimea

Location--Lat 21°58'15", long 159°38'55", on left bank 0.7 mile upstream from mouth, 1.9 miles northeast of Waimea, and 3.8 miles northwest of Makaweli.

Drainage area--25.0 sq mi.

Records available--July 1943 to June 1959.

Gage--Water-stage recorder. Altitude of gage is 29 ft (by hand levels from estuary at confluence with Waimea River). July 27, 1943, to June 15, 1959, at datum 1.0 ft higher.

Average discharge--15 years (1944-59), 51.8 mgd (80.1 cfs).

Extremes--Maximum discharge during year, 2,520 mgd (3,900 cfs) Jan. 17 (gage height, 5.84 ft, from floodmark in well), from rating curve extended above 430 mgd on basis of slope-area measurement at gage height 10.65 ft; minimum daily, 4.6 mgd (7.1 cfs) Mar. 7-10.

1943-59: Maximum discharge, 8,800 mgd (13,600 cfs) Jan. 19, 1952 (gage height, 11.19 ft, from rating curve extended above 1,300 mgd on basis of slope-area measurement at gage height 9.46 ft; minimum recorded, 2.05 mgd (3.15 cfs) July 19, 1951.

Remarks--Records poor. Okoleke ditch diverts all low water from Okoleke River 9 miles above station for irrigation near Makaweli.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	f41	a12	a12	a6.5	a12	a7	f47	a7	a7	f86	g4.7	g5.9
2	a13	a200	a16	a7	a11	a7.5	a12	a7	a6	f35	g4.7	g5.9
5	a11	a500	a10	a6.5	a14	a7	f120	a6.5	a7	a7	g5.3	g5.9
4	a110	a36	a9	a6.5	a11	a7	62	a6.5	a6	a7	*g5.9	g5.6
5	a24	a65	a8.5	a5.5	a9	a7	f40	a6.5	a5.5	a19	g5.9	g5.3
6	a13	a190	a8	a5.5	a8.5	a7	*a34	a6.5	a5	*a15	g36.5	g5.9
7	a30	a26	f306	a5.5	a9	a7	a12	a6.5	a4.6	a7.5	g29.5	g7.7
8	a65	a700	f191	a5.5	a36	a7	a12	a6.5	a4.6	a13	g21.5	g5.9
9	a16	a200	a15	a5.5	a8	a7	a8.5	a6.5	a4.6	f249	g17.3	g5.3
10	a15	a48	a9	f26.5	f200	a7	a8.5	a65	a4.6	206	g21.5	g21.5
11	a12	a20	a8	f75	203	a7	a8	a26	a5	a15	g11.4	g11.4
12	a11	a17	a7.5	a6	*f61	a7	f63	a60	f24	a13	g9.5	g27.5
13	a15	*a16	a7.5	a6.5	f39	a7	464	a140	f31	a11	*g7.7	a15
14	a12	a15	a8	a5	f36	a7	86	a20	a7.5	*a10	g11.4	a13
15	a9	a17	f34	f60	f37.5	a7	a24	a15	a6.5	a8	g17.3	g11.4
16	a8	f27	f43	f28	a30	a7	a18	a14	a5.5	a7	g84	6.2
17	a7.5	a10	a13	f40	a19	a7	a400	*a13	a5	a6	g89	6.2
18	a240	a9	f34.5	f38	a16	f75	360	f35.5	a4.7	a6	245	5.8
19	a60	a8.5	f34	a8.5	f104	a18	26	a15	a4.7	a6	g21.5	5.8
20	a360	a8	f65	a8	f30.5	a8	a14	a13	a4.7	a6	g13.3	5.5
21	a50	f49	160	a16	a18	a7	a13	f169	a4.7	a6	g13.3	5.5
22	a36	a12	f28	a30	a14	a42	a13	f76	a4.7	a6	g17.3	*5.5
23	a42	a9.5	a16	f1020	a13	a18	a13	f33.5	a4.7	a6	g11.4	5.5
24	a48	a8.5	a12	353	a11	a8	a12	a14	a4.7	*g5.9	g9.5	5.5
25	a60	a26	a10	80	a9	a7	a11	a10	a5	g5.9	g7.7	*5.5
26	a26	f77	f37	a15	a8.5	a7	a10	f26	a6	g5.9	g7.7	17.3
27	a16	a20	f34	a14	a8.5	a7	a11	a14	a5	g5.9	g9.5	7.4
28	a10	a10	a14	a13	a8	f35	a10	a8	a5	g5.9	g11.4	6.2
29	a9.5	a8.5	a10	a13	a8	555	a9	-	a5	g5.9	g7.7	5.8
30	a9	a10	*a9.5	a13	a8	78	a8	-----	a5.5	g5.0	g5.9	9.4
31	a8	a28	a12	-----	-----	104	a7	-----	a8	-----	g5.9	-----
Total	1,387.0	2,383.0	1,079.5	1,933.5	999.5	1,088.5	1,916.0	826.5	211.8	790.9	770.2	304.0
Mean:												
mgd	44.7	76.9	36.0	62.4	33.3	35.1	61.8	29.5	6.83	26.4	24.8	10.1
cfs	69.2	119	55.7	96.5	51.5	54.3	95.6	45.6	10.6	40.8	38.4	15.6
Ac-Ft	4,280	7,310	3,310	5,930	3,070	3,340	5,880	2,540	650	2,430	2,360	933
Calendar year 1958:	Max 1,020	Min 5.5	Mean(mgd) 33.2	Mean(cfs) 51.4	Ac-ft 37,210							
Fiscal year 1958-59:	Max 1,020	Min 4.6	Mean(mgd) 37.5	Mean(cfs) 58.0	Ac-ft 42,010							

Peak discharge (base, 1,300 mgd)--Aug. 8 (time unknown) 1,580 mgd (2,440 cfs), 4.56 ft; Oct. 23 (6:30 a.m.) 1,650 mgd (2,550 cfs), 4.66 ft; Dec. 29 (1:30 a.m.) 2,490 mgd (3,850 cfs), 5.80 ft; Jan. 17 (time unknown) 2,520 mgd (3,900 cfs), 5.84 ft.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage, 10 discharge measurements, occasional staff-gage readings and records for stations on nearby streams.

f Fragmentary gage-height record; discharge computed from partly estimated gage heights.

g Computed from once-daily staff-gage readings and recorder graph when water was high enough to enter well.

490. Hanapepe River below Manuahi Stream, near Eleele

Location.--Lat 21°57'20", long 159°33'15", on left bank just downstream from Manuahi Stream, 4 miles northeast of Eleele.

Drainage area.--18.8 sq mi.

Records available.--May 1917 to January 1921, December 1926 to June 1959. Prior to July 1952, published as "at Koula, near Eleele." August 1910 to December 1916 at site half a mile upstream; records not equivalent due to inflow.

Gage.--Water-stage recorder. Altitude of gage is 150 ft (by barometer). Prior to Dec. 15, 1926, staff gage and Dec. 16, 1926, to June 30, 1951, water-stage recorder, at same site at datum 1.00 ft higher.

Average discharge.--35 years (1917-20, 1927-59), 54.2 mgd (83.9 cfs).

Extremes.--Maximum discharge during year, 2,250 mgd (3,480 cfs) Oct. 23 (gage height, 6.39 ft); minimum, 4.9 mgd (7.6 cfs) Mar. 20, 21, 22, 23, 1917-21, 1926-59: Maximum discharge, 10,400 mgd (16,100 cfs) Dec. 17, 1949 (gage height, 11.74 ft); from rating curve extended above 2,400 mgd by test on model of station site; minimum, 3.3 mgd (5.1 cfs) May 21, 1954.

Remarks.--Records good. Hanapepe ditch diverts water from river 3 miles above station for irrigation in vicinity of Makawell.

Revisions (fiscal years).--WSP 740: 1931.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used Feb. 2 to Apr. 8)

0.5	3.6	2.3	178
.7	7.6	2.6	250
.9	14.3	3.0	355
1.1	24.5	3.5	520
1.3	36	4.0	710
1.5	55	5.0	1,260
2.0	123		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	53	16.7	16.4	8.5	9.6	7.9	10.5	7.2	6.5	25	6.3	6.1
2	15.8	335	22	9.0	9.0	7.8	9.6	7.2	6.1	11.8	6.1	6.1
3	13.2	476	13.2	6.5	12.0	7.6	19.6	6.9	6.5	8.5	6.5	6.1
4	140	64	10.9	6.2	9.9	7.4	12.4	8.3	6.1	8.2	8.6	5.8
5	47	93	10.2	7.6	9.0	7.4	9.6	6.9	5.6	12.4	6.3	5.8
6	15.2	225	9.6	*7.4	8.5	7.4	9.0	6.9	5.4	11.1	21	7.2
7	55	46	316	7.2	8.2	7.4	8.8	6.9	5.2	6.9	21	6.3
8	98	625	93	7.2	15.6	7.4	*9.1	6.9	5.0	11.9	9.9	6.3
9	23	325	18.0	7.2	9.9	7.2	8.2	6.9	5.0	5.43	9.9	36.5
10	20.5	79	11.3	10.1	161	7.4	8.2	20.5	5.2	27.4	9.9	9.1
11	17.1	35.5	9.9	38	182	7.4	7.6	13.9	5.2	32	7.2	6.7
12	13.5	22.5	9.3	8.4	58	7.2	9.7	30.5	7.1	11.6	6.1	18.9
13	20	21	9.3	7.2	34	7.2	258	*81	12.0	9.3	6.1	8.5
14	14.4	*19.9	9.6	6.9	55	7.2	30.5	13.5	6.5	7.9	5.8	7.4
15	10.9	23.5	25.5	17.5	144	7.2	14.3	9.9	5.8	7.4	11.2	6.5
16	9.6	49	73	11.4	23.5	7.2	11.6	8.8	5.4	6.9	42	6.3
17	8.8	14.7	16.1	14.2	*14.4	7.2	200	8.2	5.2	6.7	56	6.1
18	296	12.0	38.5	11.3	12.0	67	189	12.9	5.0	6.5	276	6.1
19	98	10.9	43	10.4	151	10.6	39.5	9.6	5.0	6.5	27	6.1
20	436	10.2	116	9.6	33	7.9	19.0	8.8	4.9	6.3	9.9	5.8
21	86	43	251	10.8	13.5	7.4	15.2	125	4.9	6.3	35	5.8
22	60	16.9	45	19.4	11.3	21.5	12.8	48	4.9	6.3	14.8	*6.1
23	66	12.8	20	1100	10.2	13.1	11.3	17.1	5.0	6.1	9.3	6.1
24	67	10.5	14.8	330	9.6	7.9	9.9	9.0	5.0	6.1	7.9	6.1
25	90	37	12.4	98	9.0	7.4	9.6	7.9	5.2	6.1	7.2	6.1
26	47	148	46	36.5	8.8	7.2	9.0	12.3	*5.8	6.1	6.7	7.2
27	27	36.5	18.0	20.5	8.5	7.4	9.6	9.0	5.2	6.1	12.8	6.5
28	15.0	14.0	11.3	14.8	8.2	27	8.8	6.9	5.2	6.1	10.1	6.1
29	11.6	10.5	9.6	12.4	8.2	357	9.2	-	5.4	6.1	7.2	6.3
30	10.9	13.1	8.8	11.3	8.2	21.5	7.6	-	5.4	6.1	6.7	6.7
31	9.3	17.8	-----	10.2	-----	12.8	7.4	-----	6.4	-----	6.3	-----
Total	1,894.8	2,864.0	1,287.7	1,881.7	1,055.1	701.0	993.6	515.5	177.1	1,075.0	672.8	236.7
Mean	61.1	92.4	42.9	60.7	35.2	22.6	32.1	18.4	5.71	35.8	21.7	7.89
mgd	94.5	143	66.4	93.9	55.5	35.0	49.7	28.5	8.83	55.4	33.6	12.2
cfs	5,810	8,790	3,950	5,770	3,240	2,150	3,050	1,580	543	3,300	2,060	726

Calendar year 1958: Max 1,100 Min 6.9 Mean(mgd) 33.0 Mean(cfs) 51.1 Ac-ft 36,900
Fiscal year 1958-59: Max 1,100 Min 4.9 Mean(mgd) 36.6 Mean(cfs) 56.6 Ac-ft 40,970

Peak discharge (base, 2,300 mgd).--No peak above base.

* Discharge measurement made on this day.

600. South Fork Wailua River near Lihue

Location--Lat 22°02'10", long 159°22'55", on right bank 0.3 mile upstream from Wailua Falls and 5 miles north of Lihue.

Drainage area--22.4 sq mi.

Records available--December 1911 to June 1957, August, September 1957, November 1957 to February 1958, June 1958 to June 1959.

Gage--Water-stage recorder. Altitude of gage is 230 ft (by barometer). Prior to Nov. 18, 1918, at site 0.3 mile upstream at different datum. Nov. 18, 1918, to June 30, 1957, at site 10 ft downstream from present site at datum 2.48 ft higher. July 1, 1957, to June 23, 1958, at site 10 ft downstream at present datum.

Average discharge--36 years (1921-24, 1925-57, 1958-59), 66.6 mgd (103 cfs).

Extremes--Maximum discharge during year, 6,640 mgd (10,300 cfs) Oct. 23 (gage height, 16.07 ft); minimum, 2.0 mgd (3.1 cfs) June 25.

1911-59: Maximum discharge, 30,200 mgd (46,700 cfs) Nov. 12, 1955 (gage height, 11.52 ft, datum then in use), from rating curve extended above 4,200 mgd by logarithmic plotting; minimum, 1.09 mgd (1.69 cfs) Sept. 21, 1953.

Remarks--Records good. Several ditches divert about 20 mgd for irrigation of cane lands above station.

Revisions (fiscal years)--WSP 1249: 1941-47(M), 1948-51(P).

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.49	2.1	3.0	56
1.5	2.2	4.0	140
1.8	6.6	6.0	426
2.1	14.0	8.0	875
2.5	29	10.0	1,620

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	19.1	29	59	4.8	47	4.3	44	15.9	17.8	6.9	4.3	3.3
2	*5.4	644	31.5	*4.8	25	3.85	35	14.7	9.5	5.4	4.3	3.15
3	3.85	773	8.6	4.8	10.2	3.7	64	10.4	5.0	4.4	4.0	3.15
4	26.5	90	7.3	4.4	10.2	3.7	43	6.1	4.6	4.0	4.0	3.15
5	7.1	135	7.3	4.0	9.1	4.1	27	5.9	4.6	20.5	4.3	3.15
6	6.1	277	7.3	3.7	7.9	4.4	30.5	5.8	4.4	33.5	7.8	3.3
7	10.0	122	29.0	3.55	9.7	4.0	26	5.4	4.3	6.6	6.2	3.4
8	*18.3	862	191	3.55	33.5	3.7	23.5	5.4	4.3	4.5	4.7	3.15
9	4.1	483	33.5	3.7	44	3.3	*22.5	6.3	4.6	653	6.2	5.0
10	3.3	191	9.3	34	63	3.7	19.6	10.8	4.4	439	33.5	4.9
11	*3.15	95	7.3	49	102	4.0	17.9	52	4.1	100	14.4	3.4
12	5.3	34	6.1	7.7	65	3.4	17.7	*80	4.0	53	4.6	3.3
13	31.5	85	5.4	8.2	41	3.15	405	107	4.4	24	3.85	3.7
14	57	76	5.4	3.7	147	2.9	66	42	5.1	12.5	3.7	3.15
15	7.1	97	15.6	4.1	247	3.05	25	29.5	10.7	10.2	3.85	3.05
16	3.85	106	45	4.3	48	2.9	19.2	24	9.2	9.3	4.4	2.9
17	3.4	62	7.9	4.6	23.5	2.9	297	22	4.1	6.6	39.5	2.7
18	176	46	6.6	4.8	*14.5	61	338	15.3	3.55	6.3	365	*2.45
19	70	11.0	7.1	15.6	250	30	92	10.5	3.4	6.6	42	2.45
20	1060	9.3	37.5	13.6	72	8.3	47	6.1	3.4	7.1	5.9	2.3
21	*192	33	227	3.55	27	6.4	38.5	34.5	3.4	5.6	4.8	2.2
22	114	34	69	3.55	38.5	6.6	33	50	3.4	5.4	4.4	2.2
23	158	36.5	24	1370	25	26	29	12.7	3.55	5.0	4.0	2.1
24	140	41	7.3	772	5.4	11.0	22	9.5	3.3	4.7	3.85	2.1
25	190	42	6.1	248	4.6	7.3	17.3	10.0	3.15	4.6	4.3	2.1
26	121	269	8.7	132	4.3	4.9	24	6.5	3.3	4.6	4.0	2.3
27	89	90	10.6	44	4.4	16.8	22.5	8.6	3.4	4.6	14.2	2.55
28	*42	33	9.5	93	4.4	79	13.7	18.5	3.15	4.4	11.5	2.2
29	*20.5	8.6	14.1	55	4.3	781	7.5	---	3.05	4.0	*4.6	2.3
30	9.8	8.4	5.2	25.5	4.3	89	12.6	---	3.15	3.85	4.0	2.8
31	10.0	59	---	30.5	---	70	16.6	---	*8.0	---	3.4	---
Total	2,605.35	4,861.8	1,170.2	2,964.00	1,391.8	1,258.35	1,896.6	605.4	156.30	1,460.15	629.55	87.90
Mean:												
mgd	84.0	157	39.0	95.6	46.4	40.6	61.2	21.6	5.04	48.7	20.3	2.93
cfs	130	243	60.3	148	71.8	62.8	94.7	33.4	7.80	75.4	31.4	4.53
Ac-ft	8,000	14,920	3,590	9,100	4,270	3,860	5,820	1,860	480	4,480	1,930	270
Calendar year 1958:	Max	---	Min	---	Mean(mgd)	---	Mean(cfs)	---	Ac-ft	---		
Fiscal year 1958-59:	Max	1,370	Min	2.1	Mean(mgd)	52.3	Mean(cfs)	80.9	Ac-ft	58,580		
Peak discharge (base, 3,700 mgd).--July 20 (about 10 a.m.) 4,830 mgd (7,470 cfs), 14.50 ft; Oct. 23 (10 p.m.) 6,640 mgd (10,300 cfs), 16.07 ft.												

* Discharge measurement made on this day.

610. North Wailua ditch near Lihue

Location.--Lat 22°03'40", long 159°27'55", on left bank 300 ft downstream from intake diversion dam on North Fork Wailua River, 8 miles west of Wailua, and 8.5 miles northwest of Lihue.

Records available.--July 1932 to June 1959 in reports of Geological Survey. October 1925 to June 1932 in files of Lihue Plantation Co.

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

Average discharge.--27 years (1932-59), 12.1 mgd (18.7 cfs).

Extremes.--1932-59: Maximum daily discharge, 38 mgd (59 cfs) Dec. 21, 1933, Apr. 24, 1934; no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are poor. Water used for power and irrigation in vicinity of Lihue.

Revisions (fiscal years).--WSP 770: 1933.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	18.8	14.8	13.4	13.1	13.1	12.8	14.1	11.8	12.4	16.0	12.8	11.2
2	14.1	16.8	13.8	13.8	13.1	13.1	14.1	11.2	13.1	15.1	12.4	10.9
3	15.1	16.8	13.1	13.1	13.1	12.8	16.1	11.2	12.1	13.8	13.1	10.9
4	15.8	14.1	12.8	12.8	13.1	12.4	14.4	12.1	12.1	13.8	13.3	10.9
5	14.7	15.1	13.1	12.8	12.8	14.1	13.8	11.5	11.5	14.4	12.4	10.6
6	14.4	15.4	13.4	12.4	12.8	13.8	14.1	11.2	11.8	13.8	14.4	13.1
7	15.1	10.0	17.8	12.4	12.8	12.4	13.8	10.9	11.5	13.1	14.1	12.7
8	14.7	15.4	16.1	12.1	14.4	*12.4	13.4	11.2	12.4	14.6	13.4	12.4
9	*14.4	13.4	14.1	12.1	13.1	12.1	13.1	11.7	12.8	18.2	14.1	15.8
10	14.4	11.8	13.4	13.8	15.8	14.7	13.1	14.4	13.1	16.8	13.1	13.4
11	14.4	13.4	13.1	15.1	16.3	13.1	12.8	12.4	12.4	14.4	13.1	12.8
12	14.4	13.4	13.1	13.1	14.4	12.1	15.0	13.6	14.2	13.4	12.8	15.1
13	14.7	13.4	13.1	13.1	14.2	12.1	18.0	13.4	13.8	*15.1	13.4	13.8
14	14.1	13.8	13.8	13.1	15.4	11.8	14.1	12.1	12.8	12.8	12.4	12.8
15	14.1	14.4	14.4	14.7	15.1	11.8	*13.4	12.1	11.8	12.4	13.8	11.8
16	13.4	14.4	14.4	13.8	15.8	11.5	13.1	11.8	11.8	12.4	15.1	11.8
17	13.4	13.4	14.1	14.4	13.1	13.0	17.0	11.8	11.2	12.1	16.4	11.2
18	17.2	13.4	13.8	14.1	13.1	15.0	14.0	13.5	10.9	11.8	14.7	10.9
19	15.4	13.1	13.8	13.8	14.6	11.5	12.8	12.4	10.9	11.8	11.8	10.6
20	17.3	13.1	15.1	13.8	12.1	11.8	12.8	13.1	10.9	11.5	12.4	10.6
21	14.7	14.7	15.4	*14.1	12.1	11.5	12.8	15.4	10.6	11.5	12.8	10.6
22	15.4	13.8	13.8	14.2	12.1	13.1	12.5	14.1	10.9	11.2	12.1	10.3
23	14.7	13.4	13.4	18.9	12.1	13.0	12.2	13.1	10.6	11.2	12.1	10.3
24	15.8	13.1	13.1	16.8	13.1	13.1	11.9	13.1	10.6	11.8	12.1	*10.0
25	15.4	*15.8	13.1	15.8	14.1	12.8	11.9	13.2	12.4	12.1	12.4	10.6
26	15.4	16.1	15.1	15.1	13.8	12.4	11.5	*13.8	12.8	11.2	12.1	12.8
27	14.4	14.4	14.1	14.1	13.8	12.4	11.2	12.4	11.8	11.8	13.4	10.9
28	13.4	13.4	13.4	15.1	13.4	14.9	11.5	12.4	10.9	10.9	12.1	10.3
29	14.9	13.4	13.1	13.8	13.1	16.8	11.5	-	12.1	10.9	11.8	12.3
30	15.8	14.1	13.1	13.8	13.1	14.7	11.5	-----	11.8	13.1	12.8	12.1
31	15.4	13.4	-----	13.4	-----	15.8	11.8	-----	14.4	-----	11.5	-----
Total	465.2	435.0	417.3	432.5	406.9	404.8	413.3	350.9	372.4	391.0	404.2	353.5
Mean:												
mgd	15.0	14.0	13.9	14.0	13.6	13.1	13.3	12.5	12.0	13.0	13.0	11.8
cfs	23.2	21.7	21.5	21.7	21.0	20.3	20.6	19.3	18.6	20.1	20.1	18.3
Ac-ft	1,430	1,330	1,280	1,330	1,250	1,240	1,270	1,080	1,140	1,200	1,240	1,080
Calendar year 1958:	Max 20.5			Min 9.3		Mean(mgd) 12.9		Mean(cfs) 20.0		Ac-ft 14,440		
Fiscal year 1958-59:	Max 18.9			Min 10.0		Mean(mgd) 13.3		Mean(cfs) 20.6		Ac-ft 14,870		

* Discharge measurement made on this day.

Note.--No gage-height record Jan. 17-26; discharge estimated on basis of records for stations on nearby streams.

620. Stable storm ditch near Lihue

Location.--Lat 22°04'00", long 159°26'45", on left bank 100 ft downstream from intake, 7.8 miles northwest of Lihue, and 8.2 miles west of Kapaa.

Records available.--December 1936 to June 1959.

Gage.--Water-stage recorder and sharp-crested weir. Altitude of gage is 710 ft (by barometer).

Average discharge.--22 years (1937-59), 7.40 mgd (11.4 cfs).

Extremes.--1936-59: Maximum daily discharge, 46 mgd (71 cfs) Apr. 3, 1948; no flow at times each year.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Ditch diverts water from North Fork Waialua River for irrigation of sugarcane in vicinity of Lihue. Flow regulated by headgates.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	38.5	10.6	0.08	a14	0	0	0.12	0	0.02	38	28	14.8
2	33	.40	0	*a27	0	0	.19	0	.07	36.5	23	21.5
3	16.8	.23	0	14.2	0	12.5	.19	0	13.5	33	24.5	21.5
4	.60	.15	0	.26	0	23	.12	0	21.5	31	27	21.5
5	.50	.23	0	.26	0	31	.19	0	19.8	35	*24.5	19.8
6	.40	.15	0	12.8	0	29.5	.19	0	*19.8	15.5	31.5	24.5
7	.50	.15	.08	19.8	0	24.5	.19	0	18.2	.26	33	24.5
8	.40	.23	0	19.8	0	24.5	.12	0	22.5	.34	29.5	23
9	.23	.15	0	18.2	0	23	.12	0	24.5	.34	33	33
10	23.5	.08	0	30.5	0	*29.5	.07	.07	23.5	.34	29.5	26
11	34.5	.08	0	10.5	0	26	.07	.19	19.8	.19	29.5	21.5
12	34.5	0	0	.34	0	23	.12	.19	25.5	.12	26	33
13	36.5	0	0	.34	.06	23	.12	.12	29.5	.07	29.5	28
14	22.5	0	0	16.4	.19	21.5	.07	.12	24.5	0	24.5	23
15	13.2	0	0	26.5	.07	21.5	.02	.07	19.8	0	29.5	21.5
16	31	0	0	28	.02	21.5	.02	0	18.2	0	19.6	21.5
17	31	0	0	12.3	.02	23	.19	.02	18.2	0	.34	19.8
18	13.4	0	0	.26	.02	12.9	.12	.07	17.8	0	.26	19.8
19	.60	0	0	.19	.12	.12	.12	.02	19.8	0	.12	18.2
20	.60	17.5	0	.19	.12	.07	.07	.02	19.8	14.6	.12	18.2
21	.40	33	0	.19	.07	.02	.12	.02	19.8	21.5	.12	18.2
22	.31	15.7	0	a.19	.07	.02	.19	.02	19.8	21.5	14.3	18.2
23	.31	.15	0	a.12	.07	.02	.12	.02	19.8	21.5	28	18.2
24	.31	.23	0	a.12	.07	.02	.12	.07	18.2	23	28	*17.6
25	.31	.15	0	a.12	.07	.02	.12	.02	23	23	26	17.8
26	.31	.08	.08	a.07	0	0	.02	.02	24.5	19.8	24.5	24.5
27	.31	.07	.12	a.07	0	.02	.02	.02	21.5	21.5	26.5	18.2
28	.23	.15	.19	a.07	0	.12	0	.02	19.8	19.8	24.5	18.2
29	21.5	.08	.19	a.07	0	.16	0	-	21.5	19.8	12.0	23
30	33	.08	.19	.07	0	.02	0	-	19.8	25.5	.43	21.5
31	31	.08	-----	.07	-----	.12	0	-----	31	-----	.34	-----
Total	420.22	79.72	0.93	253.00	0.97	370.62	3.08	1.10	614.99	422.16	627.63	650.0
Mean:												
mgd	13.6	2.57	0.031	8.16	0.032	12.0	0.099	0.039	19.8	14.1	20.2	21.7
cfs	21.0	3.98	0.048	12.6	0.050	18.6	0.153	0.060	30.6	21.8	31.3	33.6
Ac-ft	1,290	245	2.8	776	3.0	1,140	9.5	3.4	1,890	1,300	1,930	1,990
Calendar year 1958: Max		38.5		Min	0	Mean(mgd)	5.46	Mean(cfs)	8.45	Ac-ft	6,110	
Fiscal year 1958-59: Max		38.5		Min	0	Mean(mgd)	9.44	Mean(cfs)	14.6	Ac-ft	10,580	

* Discharge measurement made on this day.
 a No gage-height record; discharge estimated on basis of recorded range in stage and records for nearby stations.

630. North Fork Waialua River at altitude 650 ft, near Lihue

Location.--Lat 22°03'50", long 159°26'20", on right bank 0.5 mile downstream from intake of Stable storm ditch and 7.8 miles northwest of Lihue.

Drainage area.--6.6 sq mi, approximately.

Records available.--September 1914 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 650 ft (from topographic map). Prior to Sept. 9, 1944, at same site at datum 2.0 ft higher.

Average discharge.--38 years (1921-59), 46.2 mgd (71.5 cfs).

Extremes.--Maximum discharge during year, 1,800 mgd (2,790 cfs) Oct. 23 (gage height, 7.78 ft), from rating curve extended above 470 mgd on basis of slope-area measurement at 10.65 ft; minimum, 0.35 mgd (0.54 cfs) June 28, 29.
1914-59: Maximum discharge, 8,550 mgd (13,200 cfs) Nov. 12, 1955 (gage height, 13.53 ft), from rating curve extended above 470 mgd on basis of slope-area measurement at 10.65 ft; minimum, 0.22 mgd (0.34 cfs) Oct. 27, 1953.

Remarks.--Records good. Since 1925 Hanalei tunnel (see p. 39) has discharged its water into river, and North Waialua and Stable storm ditches have diverted water above station for irrigation in vicinity of Lihue.

Revisions (fiscal years).--WSP 555: 1921. WSP 1569: 1915-27(M), 1943-47(M), 1948-56(P).

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 17					Jan. 18 to June 30				
1.2	0.78	2.6	54	1.15	0.31	1.6	5.0		
1.3	1.43	3.0	94	1.2	.51	1.8	9.4		
1.5	3.6	3.5	160	1.3	1.12	2.0	16.0		
1.7	7.0	4.0	245	1.4	2.05				
2.0	16.0	5.0	490						
2.3	29.5								

Note.--Same as preceding table above 2.0 ft.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	42	42	30	11.0	27	25.5	37.5	22.5	21	43	2.05	7.3
2	8.2	234	32	5.4	25.5	25.5	34.5	20.5	24	22.5	.56	.61
3	38	197	27	11.4	24.5	12.8	78	21	*8.5	6.8	3.6	.51
4	91	69	24	21	22	1.59	35	24	.84	4.2	3.25	.51
5	53	99	26	20	20	16.4	29.5	20.5	.78	12.0	.61	.47
6	35	119	28.5	6.9	23.5	10.0	31.5	19.8	.66	25.5	16.5	1.47
7	64	62	214	1.85	27	1.43	27	19.0	.61	31	7.8	2.4
8	*59	216	102	1.85	56	1.27	26	19.4	.56	43	4.6	.56
9	49	138	40	1.85	31.5	1.20	24	24	.56	222	9.1	.28
10	30	64	31	61	91	*9.4	23.5	61	1.03	133	2.35	.78
11	13.0	50	27	68	104	1.65	22.5	54	.56	56	2.55	.47
12	17.0	40	25.5	28.5	61	1.06	57	52	12.8	41	.56	13.6
13	30	38	25.5	24.5	104	1.00	192	46	9.3	33	2.15	1.38
14	28	42	28	10.4	104	.94	47	26	1.59	29.5	.47	.56
15	32	47	51	26	98	.94	34	24.5	.61	27.5	5.6	.51
16	10.3	52	50	12.1	49	.88	29.5	22	.56	26	39	.51
17	5.9	32.5	34.5	34	39	1.13	145	22	.56	*24.5	103	.47
18	161	33	33.5	42	35.5	101	116	40	.56	24	208	.42
19	99	*29	34.5	36.5	173	33.5	47	24	.56	24	68	.42
20	300	10.5	50	33.5	59	26	35	24.5	.56	9.2	44	.42
21	94	*16.5	85	43	52	24	31.5	70	.56	.97	47	.42
22	102	20.5	39	45	47	59	28.5	41	.56	.84	22	.42
23	132	31	31	43	59	32	*26.5	51	.56	.78	1.85	*.42
24	111	27.5	28	187	36	24.5	24	24.5	.51	.84	.90	.42
25	122	69	27	108	31.5	23.5	24	27	1.06	.78	.96	.38
26	104	99	61	85	29	22.5	23	33	3.2	.72	.78	4.8
27	70	52	35.5	54	28	22.5	22.5	23	.56	.85	4.1	.47
28	50	33.5	29	*106	27	68	21.5	21.5	.51	.66	1.01	.42
29	18.1	23.5	24.5	47	25.5	192	23	23	.68	.61	9.9	3.3
30	7.5	35.5	24.5	36.5	24.5	55	22	22	.53	12.5	21	.98
31	5.4	31	-----	29.5	-----	70	29.5	-----	25.5	-----	20.5	-----
Total	1,952.4	2,059.0	1,296.5	1,611.75	1,525.0	866.19	1,343.5	857.7	120.43	857.23	653.75	73.40
Mean:	63.0	66.4	43.2	52.0	50.8	27.9	43.3	30.6	3.88	28.6	21.1	2.45
28 cfs	97.5	103	66.8	80.5	78.6	43.2	67.0	47.3	6.00	44.3	32.6	3.79
Ac-ft	5,990	6,320	3,980	4,950	4,680	2,660	4,120	2,630	370	2,630	2,010	225
Calendar year 1958:	Max 413	Min 0.58	Mean(mgd) 30.3	Mean(cfs) 46.9	Ac-ft 33,970							
Fiscal year 1958-59:	Max 413	Min 0.38	Mean(mgd) 36.2	Mean(cfs) 56.0	Ac-ft 40,560							

Peak discharge (base, 1,200 mgd).--July 20 (8:30 a.m.) 1,440 mgd (2,230 cfs), 7.18 ft; Oct. 23 (9 p.m.) 1,800 mgd (2,790 cfs), 7.73 ft; Nov. 13 (10:30 p.m.) 1,220 mgd (1,890 cfs), 6.73 ft; Jan. 17 (3 p.m.) 1,440 mgd (2,230 cfs), 7.18 ft.

* Discharge measurement made on this day.

680. East Branch of North Fork Wailua River near Lihue

Location.--Lat 22°04'10", long 159°25'05", on right bank 1,200 ft upstream from mouth and 7.5 miles northwest of Lihue.

Drainage area.--6.2 sq mi, approximately.

Records available.--July 1912 to June 1959.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 500 ft (by barometer). Prior to Oct. 1, 1914, staff gage at site 725 ft downstream at different datum. Oct. 1, 1914, to May 10, 1934, water-stage recorder located at site 75 ft upstream at same datum.

Average discharge.--39 years (1920-59), 30.4 mgd (47.0 cfs).

Extremes.--Maximum discharge during year, 1,900 mgd (2,940 cfs) Feb. 11 (gage height, 6.85 ft), from rating curve extended above 600 mgd; minimum, 8.3 mgd (12.8 cfs) June 22-26, 28, 29.

1912-59: Maximum gage height, 14.7 ft, from floodmarks, Nov. 12, 1955 (discharge not determined); minimum discharge, 4.4 mgd (6.8 cfs) July 3, 13, 1926.

Remarks.--Records good except those for period of no gage-height record, which are poor.

Revisions (fiscal years).--WSP 770: 1932-33.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.1	8.0	2.5	119
1.3	14.3	3.0	208
1.6	29.5	4.0	469
2.0	62		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	28	26.5	20	14.7	29	18.5	25.5	16.4	16.0	61	15.8	11.2
2	16.4	135	20	15.1	26.5	16.4	23	15.1	19.4	37	12.3	10.9
3	22.5	111	16.0	14.7	26	16.4	29.5	14.7	16.4	24	12.6	10.6
4	31	46	14.3	13.3	23	15.1	23	16.8	16.4	19.5	13.6	10.6
5	16.8	59	14.3	12.6	21	49	20	14.7	14.7	23	11.9	10.3
6	13.6	64	14.3	11.9	20	33	19.5	14.0	14.3	31.5	21.5	10.9
7	25.5	38.5	44	11.9	19.0	17.7	18.5	13.3	14.3	19.0	24.5	10.9
8	*30	181	32.5	11.6	34.5	16.0	18.1	13.6	14.0	26	16.4	10.6
9	19.0	102	18.5	11.9	22.5	15.6	17.2	25.5	13.6	170	27.5	13.6
10	19.7	55	16.0	251	29	24	16.4	44	13.6	*106	20.5	10.6
11	19.5	42	15.1	50	29.5	18.5	16.0	171	12.9	40	20.5	10.6
12	19.5	35	14.3	27.5	29.5	*15.1	22.5	52	16.8	29.5	14.7	17.2
13	24.5	31.5	13.6	23.5	25.5	14.3	97	39.5	22	24	17.2	11.9
14	22	31	14.4	22.5	78	14.0	28	26	19.7	21	14.3	10.6
15	20	33.5	24.5	42	57	13.6	22.5	23	14.3	19.0	19.8	9.7
16	19.0	36	26.5	33.5	30	13.3	*20	20	13.3	17.7	26.5	9.7
17	15.6	24.5	18.1	37	24.5	14.7	75	a18	12.6	16.4	48	9.4
18	91	22.5	17.2	31.5	23	54	70	a36	12.3	15.6	97	9.2
19	51	20	19.5	28.5	57	20	32	a21	12.3	15.1	30	8.9
20	179	19.0	24.5	*27.5	30	16.4	26.5	a24	11.9	14.3	25.5	8.9
21	55	31.5	44	34	40	15.1	24	a58	11.6	14.0	24	8.6
22	56	*23.5	22.5	36.5	26.5	22	22	a40	11.2	14.0	18.5	8.6
23	73	19.5	16.5	277	30.5	18.2	20.5	a24	11.9	13.6	16.0	8.6
24	56	18.5	16.8	*165	22.5	15.1	19.5	a21	11.2	13.3	35.1	8.3
25	53	35	16.4	93	21	14.3	18.5	a26	11.6	12.9	14.7	8.3
26	48	57	23	68	19.5	14.0	18.1	a30	11.6	12.6	14.3	10.0
27	36	35.5	18.1	50	19.0	30.5	17.2	*a18	11.2	12.6	16.3	8.9
28	29.5	24	16.0	85	18.5	61	16.4	16.8	10.9	12.6	14.0	8.6
29	26.5	21	14.7	44	17.7	156	16.4		10.9	11.9	*12.9	9.2
30	26	20.5	14.7	38	17.2	38	17.7		10.9	12.6	12.6	9.7
31	23	20.5	-----	32	-----	34	-----		18.0	-----	11.6	-----
Total	1,165.6	1,419.5	602.3	1,612.7	866.9	833.8	835.5	852.4	431.8	859.7	660.1	305.1
Mean:												
mgd	37.6	45.8	20.1	52.0	28.9	26.9	27.0	30.4	13.9	28.7	21.3	10.2
cfs	58.2	70.9	31.1	80.5	44.7	41.6	41.8	47.0	21.5	44.4	33.0	15.8
Ac-ft	3,580	4,360	1,850	4,950	2,660	2,560	2,560	2,620	1,330	2,640	2,030	936
Calendar year 1958:	Max	277	Min	7.8	Mean(mgd)	25.0	Mean(cfs)	38.7	Ac-ft	28,040		
Fiscal year 1958-59:	Max	277	Min	8.3	Mean(mgd)	28.6	Mean(cfs)	44.3	Ac-ft	32,080		
Peak discharge (base, 1,000 mgd).--Oct. 10 (2 a.m.) 1,870 mgd (2,890 cfs), 6.82 ft; Oct. 23 (9:30 p.m.) 1,340 mgd (2,070 cfs), 6.02 ft; Feb. 11 (12:30 p.m.) 1,900 mgd (2,940 cfs), 6.85 ft.												

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of recorded range in stage and records for nearby stations.

690. Wailua ditch near Kapaa

Location.--Lat 22°04'25", long 159°24'05", on right bank 2,000 ft downstream from Wailua Reservoir, 5.2 miles west of Kapaa, and 7 miles north of Lihue.

Records available.--November 1936 to June 1959 in reports of Geological Survey. April 1932 to November 1936 in files of East Kauai Water Co.

Gage.--Water-stage recorder. Altitude of gage is 462 ft (by estimating slope of 2,000-foot length of ditch on basis of levels by Lihue Plantation Co.).

Average discharge.--22 years (1937-59), 10.6 mgd (16.4 cfs).

Extremes.--1936-59: Maximum daily discharge, 41 mgd (63 cfs) June 4, 1937; no flow at times.

Remarks.--Records fair. Ditch diverts water from North Fork Wailua River to reservoir 2,000 ft above station and thence to fields for irrigation of sugarcane. Flow regulated by gates at reservoir.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1	27	11.8	0.80	8.8	0.95	*4.7	0.87	4.8	0.30	20.5	17.1	14.9	
2	*17.0	11.8	.80	8.8	1.03	4.8	.87	4.4	.18	19.3	17.1	*14.9	
3	10.3	10.8	7.1	8.3	.87	5.1	.80	3.3	0	12.8	17.1	14.5	
4	10.3	10.6	11.3	8.3	1.91	7.3	.72	2.6	0	9.3	17.1	14.5	
5	9.8	11.3	11.8	8.3	1.82	5.8	.64	2.6	5.6	9.8	16.0	14.5	
6	10.8	11.8	12.8	10.3	1.82	1.58	.72	2.6	8.8	9.8	12.4	13.8	
7	29	6.9	7.8	11.3	1.74	1.50	.87	2.65	8.8	*9.8	10.3	13.8	
8	35.5	.87	8.3	12.8	1.74	1.42	1.03	2.65	8.8	9.8	10.3	13.8	
9	38	.80	6.6	15.4	1.34	.87	1.99	8.8	5.3	10.3	10.3	13.8	
10	22	.95	6.6	*17.1	1.66	1.26	.95	1.42	12.2	1.82	9.8	14.5	
11	12.3	1.19	8.3	11.8	1.66	1.11	.95	1.42	13.8	1.74	10.3	14.5	
12	11.8	1.11	8.8	6.2	1.58	1.03	1.03	1.42	8.9	1.74	10.3	14.5	
13	11.8	1.19	8.8	6.8	1.58	1.03	1.19	1.26	1.66	1.74	10.3	14.9	
14	22.5	1.26	9.3	9.8	1.58	1.03	1.26	1.11	3.8	6.3	10.3	14.5	
15	28.5	8.7	7.9	10.8	1.50	1.11	1.26	1.19	5.5	9.8	10.3	14.5	
16	30	13.8	7.6	7.4	1.42	5.7	1.19	1.19	5.8	10.3	10.3	14.5	
17	16.3	13.3	8.3	3.3	1.26	8.3	1.26	1.11	6.0	9.8	10.3	13.8	
18	10.3	13.3	8.3	3.2	1.34	4.4	1.26	1.11	7.3	9.3	9.8	13.8	
19	9.8	13.8	8.3	3.1	1.34	1.50	1.11	1.11	11.6	9.3	9.3	13.8	
20	8.5	11.3	8.5	3.2	1.34	1.42	1.11	1.19	13.3	7.5	11.8	14.9	
21	7.8	9.8	8.8	3.0	1.26	1.34	1.03	1.19	13.3	9.3	12.8	14.9	
22	9.8	*5.4	8.3	2.85	1.26	1.19	1.03	1.26	13.3	9.3	12.8	14.5	
23	9.8	.80	8.3	2.75	1.19	1.19	1.11	1.34	13.3	9.3	14.5	14.5	
24	9.8	.72	8.3	2.4	1.26	1.19	1.19	*8.1	13.3	11.3	15.4	13.8	
25	8.3	.80	8.3	2.05	1.26	1.19	1.19	.36	9.8	12.3	18.2	13.3	
26	6.5	.80	8.8	1.91	1.58	1.19	1.26	.30	5.2	12.5	18.2	13.3	
27	6.4	.87	8.8	1.82	1.82	1.19	1.26	.36	.95	12.3	18.2	13.3	
28	6.8	.95	8.8	7.4	1.74	1.19	1.26	.30	4.5	12.3	18.2	12.8	
29	7.3	.87	8.8	15.4	3.5	1.11	*6.4	-	7.3	13.8	18.2	14.9	
30	7.8	.95	8.8	17.1	4.8	.95	9.8	-	11.4	16.0	15.5	16.0	
31	10.3	.95	-----	6.9	-----	.87	6.8	-----	16.6	-----	14.5	-----	
Total	461.9	179.48	241.80	236.58	49.47	74.03	52.29	54.33	240.09	293.94	417.0	428.0	
Mean:	mgd	14.9	5.79	8.06	7.70	1.65	2.39	1.69	1.94	7.74	9.80	13.5	14.3
	cfs	23.1	8.96	12.5	11.9	2.55	3.70	2.61	3.00	12.0	15.2	20.9	22.1
	Ac-ft	1,420	551	742	732	152	227	160	167	737	902	1,280	1,310
Calendar year 1958:	Max	38			Min	0	Mean(mgd)	6.20	Mean(cfs)	9.59	Ac-ft	6,950	
Fiscal year 1958-59:	Max	38			Min	0	Mean(mgd)	7.48	Mean(cfs)	11.6	Ac-ft	8,380	

* Discharge measurement made on this day.

710. North Fork Wailua River near Kapaa

Location.--Lat 22°02'55", long 159°22'25", on right bank 1.1 miles upstream from confluence with South Fork, 4.0 miles southwest of Kapaa, and 5.0 miles north of Lihue.

Drainage area.--18.7 sq mi.

Records available.--July 1952 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 30 ft (from topographic map).

Average discharge.--7 years, 73.5 mgd (114 cfs).

Extremes.--Maximum discharge during year, 3,580 mgd (5,540 cfs) Oct. 23 (gage height, 7.88 ft), from rating curve extended above 2,400 mgd on basis of slope-area measurement at gage height 19.88 ft; minimum, 3.7 mgd (5.7 cfs) July 3, June 18, 19, 21, 22, 29, 1952-59: Maximum discharge, 34,400 mgd (53,200 cfs) Nov. 12, 1955 (gage height, 19.88 ft in gage well, 20.8 ft from floodmarks), from rating curve extended above 930 mgd on basis of slope-area measurement of peak flow; minimum, 1.37 mgd (2.12 cfs) Oct. 28, 1953.

Remarks.--Records good except those for period of no gage-height record, which are fair. Wailua ditch diverts water between this station and station at altitude of 650 ft.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.1	2.9	2.5	103
1.3	7.2	3.0	195
1.5	14.1	3.5	328
1.8	30.5	4.0	500
2.1	54	5.0	1,000

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	32	63	65	39	96	55	75	78	8.6	77	8.1	7.5
2	6.2	440	89	37.5	77	50	60	48	50	56	7.5	11.8
3	42	444	*61	37.5	47	26	130	46	39.5	32.5	7.0	6.0
4	156	126	57	34.5	57	16	60	52	23.5	18.5	6.4	6.0
5	66	179	53	43	51	80	50	47	21.5	18.5	8.4	6.0
6	9.9	231	47	33.5	52	50	55	45	21.5	45	23.5	6.7
7	64	145	296	14.6	61	19	*40	43	16.4	47	*23	7.2
8	71	588	171	7.0	106	17	39	43	8.1	53	17.7	5.7
9	26.5	396	73	7.0	73	16	37.5	47	8.1	45.6	25	16.7
10	39	151	60	290	126	36	34.5	141	7.5	329	32	5.9
11	*38.5	118	61	106	154	20	37	320	7.5	135	7.8	4.5
12	38.5	103	63	43	118	18	93	*144	18.2	89	8.4	7.0
13	60	84	63	27	94	15	412	125	63	68	7.8	5.0
14	43	65	64	44	253	14	104	76	37	44	9.1	4.5
15	23.5	103	94	70	207	13	76	67	9.3	10.7	11.6	4.5
16	5.9	111	90	56	103	12	65	59	6.2	50	44	4.2
17	5.4	74	57	*68	84	14	281	64	8.0	49	156	3.85
18	244	52	53	82	75	220	272	83	5.7	47	357	*3.7
19	206	43	56	73	239	70	114	60	5.7	46	113	3.85
20	844	29	77	67	112	40	86	56	5.7	35	65	4.0
21	170	51	155	100	*110	36	76	117	5.7	15.6	63	3.85
22	124	57	79	95	100	110	87	86	6.0	7.2	43	3.85
23	209	67	82	844	110	70	65	37	6.0	7.0	12.4	4.0
24	191	61	54	572	75	34	61	25	*5.2	7.0	5.7	4.0
25	214	114	46	298	70	32	59	77	5.2	6.2	5.0	4.0
26	188	221	74	210	65	30	57	80	8.9	6.0	5.0	4.7
27	133	136	68	145	80	70	56	62	15.9	6.0	5.4	4.5
28	70	82	56	227	55	150	48	38	11.8	6.2	5.4	4.0
29	43	68	46	80	55	480	19.4	-	5.7	6.4	4.7	3.85
30	32	53	45	52	50	110	24.5	-	5.7	7.0	4.7	4.0
31	39	34.5	-----	69	-----	130	80	-----	22	-----	4.7	-----
Total	3,216.4	4,469.5	2,515	3,871.6	2,935	2,051	2,713.9	2,156	467.1	1,780.8	1,097.3	165.15
Mean:												
mgd	104	144	77.2	125	97.8	66.2	87.5	77.0	15.1	59.4	35.4	5.50
cfd	181	223	119	193	151	102	135	119	23.4	91.9	54.8	8.51
Ac-ft	9,870	13,720	7,100	11,860	9,010	6,290	8,330	6,620	1,430	5,470	3,370	507
Calendar year 1958:	Max 844		Min 3.8		Mean(mgd) 63.8		Mean(cfs) 84.6		Mean(ac-ft) 98.7		Ac-ft 71,520	
Fiscal year 1958-59:	Max 844		Min 3.7		Mean(mgd) 74.6		Mean(cfs) 115		Mean(ac-ft) 115		Ac-ft 83,600	
Peak discharge (base, 2,300 mgd).--	Oct. 23 (9 p.m.) 3,580 mgd (5,540 cfs), 7.88 ft;	Dec. 29 (time unknown) 2,490 mgd (3,850 cfs), 6.79 ft;	Feb. 11 (1:30 p.m.) 2,830 mgd (4,380 cfs), 7.13 ft.									

* Discharge measurement made on this day.

Note.--No gage-height record Nov. 21 to Jan. 7; discharge estimated on basis of recorded range in stage and records for nearby stations.

770. Makaleha ditch near Kealia

Location.--Lat 22°06'55", long 159°22'05", on left bank at end of last tunnel from which flow enters Mimino Reservoir, 3.9 miles northwest of Kealia and 4.1 miles northwest of Kapaa.

Records available.--December 1936 to June 1959 in reports of Geological Survey. July 1925 to November 1936 in files of East Kauai Water Co.

Gage.--Water-stage recorder and Parshall flume. Prior to December 1936, water-stage recorder at site 150 ft downstream at different datum.

Average discharge.--22 years (1937-59), 4.24 mgd (6.56 cfs).

Extremes.--1936-59: Maximum daily discharge, 17.9 mgd (27.7 cfs) Oct. 31, 1954, Aug. 3, 20, 1955, July 18, 20, Aug. 26, Sept. 7, 1958, and May 18, 1959; no flow at times.

Remarks.--Records good. Ditch diverts water from Makaleha Stream for irrigation of sugarcane. Diversion is regulated by headgates.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.9	11.4	9.3	7.4	0.49	3.5	0.49	0.06	0.06	15.4	9.5	4.9
2	9.5	16.6	11.1	7.8	.46	6.7	.36	.05	.14	14.2	5.6	4.7
3	10.2	8.8	7.8	6.9	.40	6.0	.36	.05	.10	11.1	7.4	4.6
4	6.9	7.4	6.4	5.4	.20	5.0	.31	.06	2.5	8.8	8.0	4.6
5	6.4	7.4	7.0	5.3	.14	8.8	.25	.06	6.0	11.4	5.6	4.4
6	5.9	7.4	7.9	5.0	.12	.54	.22	1.71	6.3	12.9	10.3	6.0
7	9.7	7.4	17.9	5.0	.10	.25	.20	5.4	5.8	9.5	*13.1	6.4
8	12.0	9.6	14.9	5.9	.32	.20	.17	5.4	5.8	11.8	8.6	5.4
9	9.2	9.5	8.3	5.8	.20	.20	.14	*6.4	5.8	12.4	14.2	8.7
10	8.0	7.8	6.9	11.1	7.9	.31	.12	3.4	6.0	1.07	10.4	5.4
11	8.3	7.4	5.9	9.8	5.8	.22	.10	.27	5.7	.60	10.4	5.8
12	9.1	6.4	5.8	6.9	.31	3.2	.10	.31	8.7	.46	6.9	12.5
13	13.0	6.0	5.4	6.4	.28	5.4	.61	.39	10.1	4.5	11.4	7.8
14	10.6	6.4	7.5	7.5	2.35	5.3	.39	.25	5.1	6.4	6.9	6.4
15	9.6	7.4	10.7	13.1	.92	5.0	.25	.22	.03	5.8	10.5	5.1
16	8.7	7.4	11.4	10.4	.53	4.8	.17	.17	2.6	5.7	13.6	5.4
17	6.7	6.9	7.8	12.9	.36	8.9	.72	.12	5.7	4.1	16.6	4.6
18	17.9	7.8	7.8	11.4	.36	10.2	1.37	.17	5.4	2.7	17.9	4.6
19	16.6	6.4	10.0	9.3	.46	.47	.57	.10	5.8	2.7	10.9	4.6
20	17.9	5.8	13.1	11.4	.29	.34	.34	.08	5.7	4.1	11.5	4.6
21	13.1	*12.2	14.8	12.6	.72	.20	.25	.12	5.8	5.1	12.0	4.7
22	14.8	8.8	10.4	10.1	.35	.31	.20	.17	5.6	5.0	7.6	4.6
23	15.4	7.8	6.9	16.6	.43	.17	.17	3.7	8.1	5.0	6.4	4.2
24	15.4	6.9	6.4	16.3	.25	.14	.14	8.4	*5.9	5.0	5.9	4.2
25	14.9	17.6	6.9	15.4	.20	.08	.12	6.9	7.4	5.3	5.7	4.2
26	15.4	17.9	10.7	12.6	.17	.08	.10	8.9	6.6	5.0	5.7	*5.5
27	13.1	15.4	7.4	7.2	.12	.41	.10	3.4	5.8	4.2	5.4	4.2
28	8.3	8.8	6.0	1.20	.12	1.34	.08	.08	5.6	3.0	5.3	4.2
29	6.9	7.2	5.5	.97	.10	4.8	.08	-	5.7	3.6	5.0	5.9
30	9.1	7.4	5.4	.75	.10	1.34	.08	-----	5.6	8.6	5.0	5.1
31	7.4	11.1	-----	.60	-----	.75	.08	-----	10.0	-----	5.0	-----
Total	342.9	282.1	263.3	258.12	24.55	84.95	8.64	56.34	165.43	195.23	278.3	163.3
Mean:												
mgd	11.1	9.10	8.78	8.33	0.818	2.74	0.279	2.01	5.34	6.51	8.98	5.44
cfs	17.2	14.1	13.6	12.9	1.27	4.24	0.432	3.11	8.26	10.1	13.9	8.42
Ac-ft	1,050	866	808	792	75	261	27	173	508	599	854	501
Calendar year 1958:	Max 17.9		Min 0		Mean(mgd)	4.75	Mean(cfs)	7.35	Ac-ft	5,320		
Fiscal year 1958-59:	Max 17.9		Min 0.03		Mean(mgd)	5.82	Mean(cfs)	9.00	Ac-ft	6,510		

* Discharge measurement made on this day.

790. Kapahi ditch near Kealia

Location.--Lat 22°06'00", long 159°22'30", on right bank 500 ft downstream from intake and 4.0 miles west of Kealia.

Records available.--April 1909 to May 1914, May 1915 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 360 ft (by barometer). Prior to Nov. 26, 1936, water-stage recorder at site 61 ft upstream at datum 2.52 ft higher.

Average discharge.--41 years (1917-20, 1921-59), 4.90 mgd (7.58 cfs).

Extremes.--1909-59: Maximum daily discharge, 89.2 mgd (138 cfs) Feb. 6, 1913; no flow at times.

Remarks.--Records good. Ditch diverts water from Kapaa Stream for irrigation in vicinity of Kapaa. Flow regulated by headgates.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.6	8.5	4.5	3.2	0.13	6.3	0.10	0.10	0.04	9.2	3.7	2.0
2	3.45	3.75	6.2	3.05	.87	3.7	.10	.10	.72	3.15	2.4	2.0
3	1.17	.23	4.2	2.4	.45	3.7	.10	.48	5.9	.74	2.7	2.0
4	3.19	.10	3.6	2.3	.88	3.45	.10	.62	7.8	.45	2.5	1.92
5	1.45	.13	3.6	2.4	.19	5.7	.07	.45	3.6	.35	2.3	2.1
6	2.9	.16	5.4	2.5	.19	3.9	.10	.86	3.35	.35	3.7	2.2
7	3.75	.13	9.2	2.5	.19	.40	.10	2.65	3.05	*2.95	3.15	2.3
8	5.5	.48	.27	2.3	.23	6.6	.07	2.8	3.05	4.7	1.46	2.1
9	3.6	.23	3.2	2.4	.19	9.1	.07	.52	3.05	3.9	.16	2.4
10	3.45	.19	4.2	*18.9	.61	7.3	.56	.11	3.05	.15	.13	2.2
11	3.35	5.9	3.7	2.2	.27	3.7	.23	.27	3.05	.04	2.1	2.1
12	3.05	7.0	3.35	.23	.27	3.25	.19	.07	1.67	.07	2.9	5.6
13	4.8	6.1	3.15	2.55	.23	3.15	.23	.10	.16	3.3	4.2	2.6
14	4.9	6.8	3.55	3.8	.60	3.6	.10	.07	.18	3.6	3.05	2.3
15	3.45	5.3	4.2	5.5	.11	3.35	.10	.04	.16	3.45	*5.0	2.1
16	3.35	2.55	4.9	4.4	.07	3.35	.10	.07	2.4	3.15	4.5	2.0
17	3.1	1.14	4.0	4.5	.07	3.95	.25	.37	3.05	4.2	5.5	1.83
18	2.35	2.6	3.7	1.87	.04	2.1	.18	.23	2.7	5.5	2.5	1.83
19	.23	4.3	4.2	.16	.07	.13	.13	.23	2.8	3.95	5.8	1.92
20	.55	3.95	2.65	3.6	1.26	.10	.13	.19	2.7	2.8	6.4	1.83
21	4.3	1.91	1.02	6.1	.13	.10	.13	.19	2.6	2.6	6.6	1.83
22	13.9	.10	.16	5.1	.13	.43	.93	.23	2.5	2.5	4.2	1.83
23	15.8	.13	2.4	3.6	.13	.23	.50	.31	3.35	2.5	3.25	1.83
24	9.1	.13	3.35	.45	.10	.16	.35	.76	2.8	2.5	3.05	1.83
25	2.15	4.1	3.25	.27	.10	.16	.51	.30	2.8	2.4	2.9	1.74
26	.16	7.2	4.4	.19	.07	.84	.51	.10	1.93	2.3	2.6	*2.0
27	.13	6.9	3.15	.16	.07	.37	.65	.07	.23	2.8	2.6	1.83
28	5.8	5.5	2.5	.27	.07	.19	1.74	.04	1.78	4.3	2.6	1.74
29	5.5	4.3	2.7	.16	.10	.50	1.46	-	2.5	3.35	2.4	2.2
30	5.7	4.3	2.9	.19	.10	.13	.74	-----	2.5	5.4	2.2	2.0
31	4.8	4.9	-----	.16	-----	.13	.13	-----	4.2	-----	2.2	-----
Total	131.53	99.21	107.40	87.41	7.92	80.07	10.44	12.33	79.65	86.65	98.75	64.16
Mean:												
mgd	4.24	3.20	3.58	2.82	0.264	2.58	0.337	0.440	2.57	2.89	3.19	2.14
cfs	6.56	4.95	5.54	4.36	0.408	3.99	0.521	0.681	3.98	4.47	4.94	3.31
Ac-ft	404	304	330	268	24	246	32	38	244	266	303	197
Calendar year 1958:	Max 18.9	Min 0.04	Mean(mgd) 2.45	Mean(cfs) 3.79	Ac-ft 2,750							
Fiscal year 1958-59:	Max 18.9	Min 0.04	Mean(mgd) 2.37	Mean(cfs) 3.67	Ac-ft 2,660							

* Discharge measurement made on this day.

800. Kapaa Stream at Kapahi ditch intake, near Kapaa
(Formerly published as Kapaa River at Kapahi ditch intake, near Kapaa)

Location--Lat 22°06'05", long 159°22'30", on right bank 4 miles northwest of Kapaa and 4.5 miles northwest of Waialua.

Drainage area--3.3 sq mi, approximately.

Records available--July 1936 to June 1959. Prior to July 1958 published as Kapaa River at Kapaa ditch intake, near Kapaa.

Gage--Water-stage recorder and masonry control. Altitude of gage is 365 ft (by barometer).

Average discharge--23 years, 13.4 mgd (20.7 cfs).

Extremes--Maximum discharge during year, 1,350 mgd (2,090 cfs) Oct. 23 (gage height, 3.08 ft), from rating curve extended above 380 mgd by logarithmic plotting; no flow for many days.

1936-59: Maximum discharge, 4,960 mgd (7,670 cfs) Jan. 25, 1956 (gage height, 5.34 ft), from rating curve extended above 380 mgd by logarithmic plotting; no flow at times.

Remarks--Records good except those for period of no gage-height record and those above 380 mgd, which are fair. Entire low flow is diverted into several ditches above station. Records do not include flow of Kapahi ditch (see p.

Cooperation--Records for July 1 to Dec. 14, 1936, furnished by East Kauai Water Co.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

-0.03	0	0.8	54
0.0	.10	1.0	90
.2	2.55	1.2	140
.4	11.5	1.5	235
.6	28.5		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.05	1.89	0	0.06	10.3	2.1	12.2	10.3	8.6	21	0	
2	0	.97	.19	.21	8.9	0	12.9	8.6	21	4.2	0	
3	9.5	72	0	.99	11.5	0	18.1	9.8	5.6	3.75	0	
4	16.5	14.9	0	.74	9.1	0	13.6	12.9	2.3	3.1	0	
5	3.65	24.5	0	.54	8.6	40	11.5	9.7	0	4.4	0	
6	0	33.5	.05	.23	8.6	17.6	10.9	7.1	0	17.8	2.35	
7	6.4	12.2	21	0	8.6	10.9	10.3	1.09	0	1.74	4.5	
8	2.85	146	11.6	0	25.5	3.0	10.3	.89	0	1.10	2.05	
9	0	.47	2.2	0	12.9	0	9.1	18.9	0	11.0	8.2	
10	.02	15.0	0	103	9.7	16.1	8.0	22.2	0	53	4.1	
11	0	4.1	0	5.9	12.3	9.7	8.0	100	0	17.3	1.88	
12	0	0	0	4.1	17.3	3.75	17.3	30	3.35	13.6	0	
13	1.62	0	0	1.33	14.9	.62	58	24	4.4	3.95	0	
14	.41	.62	.31	.59	131	0	*15.7	12.9	6.9	0	0	
15	0	9.1	3.2	2.0	56.5	0	11.5	13.6	4.0	0	0	
16	0	16.8	3.0	1.37	15.0	0	10.3	10.9	1.4	0	8.0	
17	1.37	6.1	0	3.9	12.2	1.42	50	9.7	0	0	17.2	
18	54	3.55	0	3.75	10.9	43	33.5	18.2	0	0	44	
19	16.9	0	0	4.1	24.5	12.9	12.9	10.9	0	1.56	1.36	
20	114	0	2.95	2.55	*13.0	9.7	10.9	9.7	0	1.19	6.9	
21	11.9	5.8	14.9	1.30	22	9.1	10.3	15.2	0	0	.53	
22	3.55	4.8	4.8	6.0	17.9	18.3	9.1	15.0	0	0	0	
23	16.2	4.1	1.43	219	20	11.5	9.1	8.1	0	0	0	
24	12.7	4.1	0	94	11.5	9.7	8.0	3.75	0	0	0	
25	17.5	14.0	0	37.5	10.9	9.1	8.0	*3.75	0	0	0	
26	20.5	23.5	.70	24	9.7	7.5	8.0	4.4	.8	0	0	
27	9.1	4.5	.45	13.8	9.1	116	7.5	6.1	2.0	0	0	
28	.75	.01	.86	73	8.6	66	6.6	9.1	.6	0	0	
29	0	0	.33	18.9	8.6	140	7.0	-	0	0	0	
30	0	0	0	15.0	7.5	21	9.7	-----	0	.40	0	
31	0	0	-----	12.2	-----	16.5	19.2	-----	2.0	-----	0	-----
Total	322.47	565.07	67.97	650.08	527.1	595.49	447.5	406.58	62.95	258.09	101.07	0
Mean:	10.4	18.2	2.27	21.0	17.6	19.2	14.4	14.5	2.03	8.60	3.26	0
cfs	16.1	28.2	3.31	32.5	27.2	29.7	22.3	22.4	3.14	13.3	5.04	0
Ac-ft	990	1,730	209	2,000	1,620	1,830	1,370	1,250	193	792	310	0
Calendar year 1958:	Max	219	Min	0	Mean(mgd)	10.7	Mean(cfs)	16.6	Ac-ft	12,000		
Fiscal year 1958-59:	Max	219	Min	0	Mean(mgd)	11.0	Mean(cfs)	17.0	Ac-ft	12,300		

Peak discharge (base, 1,400 mgd)--No peak above base.

* Discharge measurement made on this day.

Note.--No gage-height record Mar. 15 to Apr. 1; discharge estimated on basis of recorded range in stage and records for stations on nearby streams.

870 (revised). Anahola ditch wasteway near Kealia

Location.--Lat 22°08'10", long 159°22'30", on right bank 300 ft downstream from wasteway gates on Anahola ditch, 500 ft north of Kaneha Reservoir, 3.8 miles west of Anahola, and 4.9 miles northwest of Kealia.

Records available.--July 1936 to June 1959.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 820 ft above mean sea level (by hand levels from East Kauai Water Co. bench mark).

Average discharge.--23 years, 3.46 mgd (5.35 cfs).

Extremes.--1936-59: Maximum daily discharge, 54 mgd (84 cfs) Nov. 12, 1955; no flow at times.

Remarks.--Records fair. Water that passes station flows into Kaupaku Stream and thence into Anahola Stream 2 miles below the Anahola Stream station.

Cooperation.--Records for July to November 1936 furnished by East Kauai Water Co.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.26	0.38	4.4	1.92	4.5	0.51	4.4	2.3	2.3	0.32	0.26	0.32
2	.26	11.0	6.8	.38	3.95	.45	4.7	2.15	4.2	.32	.26	.38
3	.32	17.4	4.4	.38	9.6	.45	6.8	3.65	3.35	.26	.26	.38
4	.32	10.4	5.4	.32	4.7	.45	4.7	5.2	4.9	.26	.26	.38
5	.32	15.9	6.2	.32	3.8	9.0	3.4	3.1	2.3	.38	.26	.38
6	.32	14.2	7.9	.32	3.4	9.0	2.95	2.95	2.15	.45	.32	.38
7	.32	11.2	16.5	.26	3.25	3.95	2.8	2.15	1.85	.45	.32	.38
8	.26	20	12.1	.26	9.2	3.25	2.6	2.0	1.85	.51	.26	.38
9	.26	16.8	6.0	.26	5.3	2.95	2.45	4.0	1.21	12.6	.32	.45
10	.26	9.9	3.15	.19	9.2	12.3	2.3	9.8	.26	16.7	.32	.32
11	.26	7.7	.45	.05	8.2	5.8	2.15	11.7	.26	8.0	.32	.32
12	.32	6.6	.38	0	11.3	3.6	7.2	8.3	.26	5.7	.32	.38
13	.32	6.6	.38	0	8.0	3.1	18.3	6.2	.32	4.5	.32	.32
14	.26	11.0	.38	0	18.0	2.8	*9.0	3.6	.38	3.8	.32	.32
15	.32	10.7	.38	.13	10.1	2.6	5.5	6.8	.32	3.4	.32	.32
16	.32	9.7	.38	.03	6.0	2.6	3.8	3.25	.32	3.1	.32	.26
17	.26	5.5	.32	.13	4.7	5.7	11.4	2.95	.32	2.45	.32	.26
18	6.7	6.6	.32	.06	4.4	15.6	10.7	2.25	.32	2.0	6.8	.26
19	14.7	4.7	.32	.06	*14.3	5.0	4.9	.38	.32	1.35	6.4	.26
20	19.1	*3.95	.32	4.2	6.8	3.6	3.95	.32	.26	.32	4.2	.26
21	13.6	9.6	.32	10.6	10.4	3.1	3.4	.38	.26	.26	10.4	.26
22	16.8	5.3	2.1	7.5	8.4	7.4	3.4	.38	.26	.26	5.0	.26
23	14.7	4.9	4.2	26.5	9.4	4.4	3.1	.32	.32	.26	3.4	.26
24	13.6	4.6	3.6	20.5	4.7	2.95	2.6	.32	.32	.26	3.1	.26
25	12.2	17.1	3.95	15.8	3.95	2.6	2.6	2.05	.32	.26	2.8	.26
26	13.7	16.4	7.2	12.5	3.6	2.45	2.45	3.95	.32	.26	2.3	.32
27	9.8	11.3	5.7	8.7	3.25	13.0	2.3	2.6	.26	.26	.61	.32
28	6.2	6.4	3.4	17.3	1.97	12.7	2.15	2.3	.26	.26	.32	.32
29	1.50	4.9	2.95	8.7	.38	18.9	2.15	-	.26	.32	.32	.32
30	.32	4.7	3.1	6.8	.45	7.7	3.1	-	.26	.32	.32	.32
31	.32	6.6	-----	5.1	-----	5.7	5.2	-----	.32	-----	.32	-----
Total	148.20	292.03	113.00	149.27	195.20	173.61	146.45	95.35	30.61	69.59	51.37	9.61
Mean:												
mgd	4.78	9.42	3.77	4.82	6.51	5.60	4.72	3.41	0.987	2.32	1.66	0.320
cfs	7.40	14.6	5.83	7.46	10.1	8.66	7.30	5.28	1.53	3.59	2.57	0.495
Ac-ft	455	896	347	458	599	533	449	293	94	214	158	29

Calendar year 1958: Max 26.5 Min 0 Mean(mgd) 4.32 Mean(cfs) 6.68 Ac-ft 4,840
 Fiscal year 1958-59: Max 26.5 Min 0 Mean(mgd) 4.04 Mean(cfs) 6.25 Ac-ft 4,520

* Discharge measurement made on this day.

880. Anahola ditch above Kaneha Reservoir, near Kealia

Location.--Lat 22°08'00", long 159°22'30", on left bank at point of discharge into Kaneha Reservoir, 500 ft below wasteway gates and 5 miles northwest of Kealia.

Records available.--December 1921 to June 1959. May 1915 to December 1921 at site 0.3 mile upstream; records not equivalent owing to diversion.

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

Average discharge.--35 years (1922-25, 1927-59), 3.09 mgd (4.78 cfs).

Extremes.--1921-59: Maximum daily discharge, 40 mgd (62 cfs) Nov. 12, 1947; no flow at times.

Remarks.--Records good. Ditch diverts water from Anahola Stream to Kaneha Reservoir, where it is stored for irrigation. Flow sometimes diverted by Anahola ditch wasteway (see p. 28).

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.1	10.0	0.09	1.26	0.06	7.0	0.04	0.09	0.06	10.1	2.45	1.42
2	4.4	8.4	.09	3.45	.06	3.9	.04	.09	.06	9.6	1.42	1.26
3	11.4	.06	.06	2.55	.06	3.1	.06	.09	.06	*4.9	1.34	1.18
4	11.3	.04	.06	2.1	.06	2.25	.09	.06	.06	3.65	1.50	1.11
5	4.8	.04	.06	1.91	.06	6.3	.09	.06	.06	5.3	1.34	1.11
6	3.2	.04	.06	1.91	.06	.02	.09	.06	.06	11.3	6.1	1.42
7	7.9	.04	.16	*1.82	.06	.02	.06	.06	.06	6.0	9.2	1.34
8	7.3	.20	.12	1.75	.06	.02	.06	.06	.06	8.9	3.55	1.34
9	6.2	.16	.06	2.5	.06	.04	.06	.06	.06	8.9	10.0	4.7
10	4.4	.12	1.99	11.2	.09	.06	.06	.12	1.50	.09	4.2	1.75
11	6.8	.09	3.8	7.2	.09	.04	.06	.16	1.34	.06	3.7	1.34
12	10.3	.06	3.55	3.35	.09	.04	.16	.09	1.42	.06	2.25	2.15
13	10.8	.06	3.1	3.35	.09	.04	.24	.06	5.4	.06	3.85	1.75
14	8.6	.09	3.9	4.3	.12	.04	.12	.09	6.6	.06	2.25	1.42
15	10.3	.09	7.8	11.2	.09	.04	.09	.12	1.91	.06	*5.2	1.18
16	8.2	.06	8.6	5.6	.09	.06	.04	.09	1.73	.06	5.7	1.26
17	5.7	.06	5.0	9.2	.09	.06	.14	.09	1.50	.29	12.4	1.11
18	10.2	.06	3.8	5.7	.06	.20	.09	7.7	1.42	.48	10.0	1.04
19	.28	.06	5.2	4.0	.09	.06	.09	3.2	4.9	1.01	.06	.97
20	.24	.06	11.0	3.75	.06	.09	.06	*2.25	2.25	1.82	.10	.97
21	.09	.06	12.8	.06	.06	.09	.06	6.1	1.73	1.73	.16	.97
22	.09	.06	3.3	.06	.06	.09	.06	6.7	1.42	1.64	.06	.97
23	.09	.06	.06	.46	.09	.09	.04	3.9	3.05	1.58	.06	.83
24	.04	.06	.06	.09	.06	.09	.04	4.9	1.73	1.58	.06	.83
25	.09	.16	.06	.06	.06	.09	.04	1.37	3.2	1.50	.06	.83
26	.12	.16	.06	.06	.06	.06	.04	.06	1.82	1.42	.36	1.04
27	.12	.12	.06	.06	.06	.16	.06	.06	1.42	1.42	1.66	.83
28	.09	.06	.06	.06	1.22	.19	.06	.06	1.34	1.34	1.64	.71
29	4.2	.06	.04	.06	2.55	.22	.06	-	1.26	1.26	1.58	1.60
30	7.9	.06	.04	.06	2.35	.06	.06	-----	1.26	3.6	1.50	1.54
31	4.6	.09	-----	.06	-----	.06	.06	-----	3.95	-----	1.42	-----
Total	157.85	20.74	75.04	89.37	8.07	24.58	2.32	37.75	53.26	89.67	95.17	39.93
Mean:												
mgd	5.09	0.669	2.50	2.88	0.269	0.793	0.075	1.35	1.72	2.99	3.07	1.33
cfs	7.88	1.04	3.87	4.46	0.416	1.23	0.116	2.09	2.66	4.63	4.75	2.06
Ac-ft	484	64	230	274	25	75	7.1	116	163	275	292	123

Calendar year 1958: Max 21 Min 0 Mean(mgd) 1.54 Mean(cfs) 2.36 Ac-ft 1,720

Fiscal year 1958-59: Max 12.8 Min 0.02 Mean(mgd) 1.90 Mean(cfs) 2.94 Ac-ft 2,130

* Discharge measurement made on this day.

890. Anahola Stream near Kealia
(Formerly published as Anahola River near Kealia)

Location.--Lat 22°08'55", long 159°21'20", on right bank just upstream from intake of Lower Anahola ditch, 4.5 miles northwest of Kealia.

Drainage area.--5.5 sq mi, approximately.

Records available.--August to November 1910, December 1910 to November 1912 (fragmentary), December 1912 to June 1959. Prior to July 1958 published as Anahola River near Kealia.

Gage.--Water-stage recorder and concrete dam and orifice control. Datum of gage is 295.11 ft above mean sea level (Highway Department bench mark). Aug. 22 to Nov. 2, 1910, water-stage recorder, Dec. 15, 1910, to Dec. 29, 1912, staff gage, and Dec. 30, 1912, to May 3, 1934, water-stage recorder, at site an eighth of a mile upstream at different datum.

Average discharge.--40 years (1919-59), 13.6 mgd (21.0 cfs).

Extremes.--Maximum discharge during year, 1,400 mgd (2,170 cfs) Oct. 23 (gage height, 5.46 ft), from rating curve extended above 90 mgd; minimum, 1.95 mgd (3.02 cfs) June 28, 1910, 1912-59: Maximum discharge, about 12,700 mgd (19,600 cfs) Jan. 25, 1956 (gage height, 14.6 ft, from floodmark), from rating curve extended above 380 mgd; minimum, 1.28 mgd (1.98 cfs) Oct. 27, 1953.

Remarks.--Records fair. Anahola ditch diverts water 3 miles above station for irrigation in vicinity of Kealia (see p. 26).

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.1	1.65	2.0	39
1.3	2.9	2.5	109
1.5	5.1	3.0	214
1.7	10.5	3.5	360

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.2	15.9	6.8	4.5	7.8	10.0	9.9	4.3	3.95	13.0	3.9	3.15
2	*4.6	132	7.2	4.5	7.0	5.9	9.4	4.3	4.5	7.9	3.15	3.0
3	23.5	85	6.6	4.2	22.5	5.9	10.5	4.5	4.5	*4.6	2.9	2.8
4	17.8	26	6.4	4.2	8.4	5.6	9.4	5.3	5.3	4.3	3.15	2.75
5	5.1	46	6.8	3.95	7.2	4.3	8.0	4.6	4.1	4.9	2.75	2.7
6	3.75	42	24.5	3.8	6.8	13.8	7.8	4.5	3.95	66	3.8	3.15
7	15.5	21.5	50	*3.75	6.6	6.4	7.8	4.2	3.75	6.1	9.5	2.8
8	8.4	232	11.3	3.75	9.9	5.9	7.2	4.2	3.65	14.8	4.2	2.6
9	4.7	71	7.0	3.8	8.0	5.6	*6.6	20.5	3.55	159	8.8	3.6
10	3.95	29.5	6.4	74	18.5	26.5	6.6	21	3.55	53	4.7	3.45
11	4.3	21.5	5.9	4.8	9.9	8.0	6.4	83	3.35	9.4	3.75	3.15
12	5.1	15.5	5.8	4.2	11.4	6.1	12.8	13.5	3.35	6.8	3.35	3.1
13	13.2	12.0	5.3	3.8	9.0	5.9	57	12.0	3.65	5.3	3.55	3.0
14	5.3	15.5	5.4	3.95	91	5.6	17.5	6.4	4.5	5.1	3.15	2.75
15	8.2	16.2	6.4	7.0	15.5	5.4	9.9	6.6	3.65	5.0	4.2	2.55
16	10.2	14.5	7.5	4.6	8.9	5.3	8.4	5.4	3.35	4.7	5.0	2.55
17	8.3	9.4	5.6	5.4	7.8	8.4	48	5.0	3.15	4.5	11.5	2.45
18	114	8.9	5.3	5.4	*7.2	48	21.5	6.3	3.1	4.3	38.5	2.4
19	51	8.0	5.1	4.3	32	8.9	7.8	5.1	3.55	4.2	5.9	2.25
20	231	*7.5	12.6	4.5	9.9	6.8	6.8	*4.7	3.45	3.95	5.1	2.25
21	32.5	8.9	19.4	7.2	26	6.3	6.4	4.7	3.25	3.95	*41	2.2
22	60	7.5	5.9	17.8	8.9	7.5	6.3	6.1	3.1	3.75	7.2	2.2
23	45	7.0	5.1	319	14.7	7.0	5.9	5.3	3.25	3.55	5.3	2.1
24	28.5	6.4	4.8	124	7.8	6.3	5.6	5.4	3.15	3.45	4.8	2.05
25	23	47	4.8	55	7.0	5.8	5.3	4.7	3.15	3.35	5.5	2.2
26	25.5	43	5.6	33.5	6.8	5.6	5.1	5.0	3.0	3.15	5.0	2.8
27	14.5	21	5.8	17.0	6.4	7.0	5.3	4.3	2.75	3.1	4.2	2.2
28	9.9	9.4	4.6	6.0	6.3	35.5	5.1	4.1	2.6	3.1	3.9	2.05
29	8.9	7.8	4.5	13.5	6.1	105	5.0	-	2.55	2.9	3.65	2.4
30	10.5	7.5	4.2	9.9	5.9	17.0	5.0	-----	2.55	3.6	3.45	2.4
31	8.0	8.4	-----	8.4	-----	11.3	4.7	-----	2.7	-----	3.15	-----
Total	813.40	1,005.8	262.4	823.70	401.2	512.3	339.0	265.0	107.95	420.75	217.90	79.05
Mean												
mgd	26.2	32.4	8.75	26.6	13.4	16.5	10.9	9.46	3.48	14.0	7.03	2.64
cfs	40.5	50.1	13.5	41.2	20.7	25.5	16.9	14.6	5.38	21.7	10.9	4.08
Ac-ft	2,500	3,080	805	2,530	1,230	1,570	1,040	813	331	1,290	669	243
Calendar year 1958: Max	319				Min 2.1		Mean(mgd) 14.0		Mean(cfs) 21.7		Ac-ft 15,630	
Fiscal year 1958-59: Max	319				Min 2.05		Mean(mgd) 14.4		Mean(cfs) 22.3		Ac-ft 16,100	
Peak discharge (base, 900 mgd).--July 20 (9 a.m.) 1,230 mgd (1,900 cfs), 5.22 ft; Aug. 8 (10:30 a.m.) 924 mgd (1,430 cfs), 4.74 ft; Oct. 10 (2 a.m.) 1,180 mgd (1,830 cfs), 5.14 ft; Oct. 23 (7:30 p.m.) 1,400 mgd (2,170 cfs), 5.46 ft; Nov. 14 (1:30 a.m.) 966 mgd (1,490 cfs), 4.81 ft; Feb. 11 (12 m.) 980 mgd (1,490 cfs), 4.80 ft.												

* Discharge measurement made on this day.

910. Lower Anahola ditch near Kealia

Location.--Lat 22°08'00", long 159°19'30", on left bank 100 ft downstream from last wastewater, 1.3 miles southwest of mouth of Anahola Stream, and 2.5 miles northwest of Kealia.

Records available.--December 1936 to June 1959 in reports of Geological Survey. July 1925 to December 1936 in files of East Kauai Water Co.

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

Average discharge.--22 years (1937-59), 2.34 mgd (3.62 cfs).

Extremes.--1936-59: Maximum daily discharge, 12.0 mgd (18.6 cfs) June 1, 1938; no flow at times.

Remarks.--Records good. Ditch diverts water from Anahola Stream for irrigation of sugarcane. Flow regulated by spillways and gates.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.4	1.54	0	6.8	0.01	3.75		0	0.28	3.85	3.85	0
2	4.2	.04	0	5.2	.02	4.8		0	2.1	3.8	3.4	2.15
3	3.1	.02	2.4	4.2	.02	5.1		0	6.0	*3.7	3.1	2.8
4	2.35	3.45	3.1	3.85	.05	4.7		0	7.8	3.55	3.2	3.05
5	2.15	2.2	3.85	3.55	.05	3.7		0	6.4	3.5	3.05	3.2
6	1.91	.02	3.4	3.55	.05	.50		0	5.2	4.5	3.25	2.3
7	1.85	2.85	5.3	*3.5	.04	.28		.04	4.2	4.4	4.4	.05
8	3.75	1.33	3.4	3.4	.04	5.8		.02	4.2	4.0	4.2	1.98
9	4.3	.04	1.41	3.55	.04	7.8		.20	4.8	1.95	4.2	3.0
10	3.6	.04	3.3	5.2	1.63	9.6		.75	4.1	.18	3.0	2.9
11	3.5	.04	.86	4.5	2.85	3.15		.67	3.8	.14	.11	2.65
12	3.6	.02	2.8	4.2	2.8	3.95		.40	3.6	.14	1.24	2.8
13	4.0	.02	4.7	3.8	.09	2.05		.96	3.8	.14	3.2	2.6
14	4.2	.02	4.6	3.8	.05	1.75		.05	4.4	.14	2.85	2.45
15	4.1	.02	4.9	4.5	.05	5.3		.07	3.8	4.0	*3.1	2.45
16	4.2	0	5.0	3.0	.04	6.4		.05	3.5	7.3	3.5	2.9
17	3.8	.02	4.5	1.16	6.1	7.8		.04	3.3	5.4	4.6	2.6
18	3.75	1.49	4.2	.07	5.2	6.0		.04	3.2	1.07	3.3	2.4
19	0	3.55	5.0	.04	.21	.04		.02	3.25	1.02	1.59	2.45
20	0	*3.1	5.1	.04	.07	.04		*.84	3.4	4.6	1.46	2.15
21	0	.81	6.2	.04	.04	.02		1.47	3.3	3.85	.14	2.15
22	0	0	6.1	.04	.04	.02		1.36	3.2	3.7	.04	2.1
23	0	0	6.3	3.05	.04	.02		2.45	3.2	3.8	.04	1.97
24	0	0	7.3	.04	.04	0		5.1	3.2	3.5	.04	2.05
25	0	0	7.8	.04	.04	0		5.1	3.25	3.5	4.9	2.05
26	0	0	6.2	.02	.04	0		3.5	3.2	3.3	1.88	2.45
27	0	0	2.8	.02	.04	0		.31	3.1	3.25	.04	2.15
28	0	0	1.80	0	.02	.02		.28	2.9	3.4	.04	1.91
29	0	0	5.1	0	.02	.02		-	2.8	3.25	.02	*2.1
30	0	0	6.0	0	.02	0		-----	2.85	3.4	0	2.35
31	1.52	0	-----	0	-----	0		-----	3.2	-----	0	-----
Total	64.29	20.62	123.42	71.16	19.75	82.61	0	23.72	115.33	92.33	67.74	68.06
Mean:												
mgd	2.07	0.665	4.11	2.30	0.658	2.66	0	0.847	3.72	3.08	2.19	2.27
cfs	3.20	1.03	6.36	3.56	1.02	4.12	0	1.31	5.76	4.77	3.39	3.51
Ac-ft	197	63	379	218	61	254	0	73	354	283	208	209
Calendar year 1958:	Max 9.6	Min 0				Mean(mgd) 1.58		Mean(cfs) 2.44		Ac-ft 1,770		
Fiscal year 1958-59:	Max 9.6	Min 0				Mean(mgd) 2.05		Mean(cfs) 3.17		Ac-ft 2,300		

* Discharge measurement made on this day.

942. Ka Loko ditch near Kilauea

Location--Lat 22°10'35", long 159°23'00", on left bank 35 ft downstream from Moloaa ditch, 400 ft upstream from Ka Loko Reservoir, and 3.5 miles southeast of Kilauea,

Records available--August 1932 to June 1959.

Gage--Water-stage recorder and Parshall flume. Altitude of gage is 750 ft (from topographic map).

Average discharge--26 years (1933-59), 3.50 mgd (5.42 cfs).

Extremes--1932-59: Maximum daily discharge, 63 mgd (98 cfs) Dec. 10, 1935; minimum daily, 0.46 mgd (0.71 cfs) Nov. 21, 22, 1949.

Remarks--Records good. Ditch diverts water from Moloaa and Puu Ka Ele Streams, 0.5 mile southeast and 1.5 miles southwest of station, respectively. Water used for irrigation in vicinity of Kilauea. Flow regulated by wasteway gates.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1	3.2	5.5	1.21	2.3	3.65	2.8	0.90	1.96	1.68	2.7	1.77	1.52	
2	1.86	2.1	1.21	2.5	3.55	2.05	.90	1.86	2.5	2.65	1.45	1.45	
3	5.9	19.5	1.80	2.15	5.3	1.86	.90	1.96	1.77	1.60	1.45	1.45	
4	10.7	7.4	2.85	2.05	3.95	1.86	.98	2.25	2.25	2.05	1.45	1.45	
5	2.95	7.0	4.0	1.86	2.9	3.95	.98	1.86	1.52	2.55	1.45	1.37	
6	1.86	4.4	4.2	1.86	2.7	1.85	.98	1.86	1.45	9.6	2.3	1.45	
7	3.55	2.15	14.6	1.77	2.7	1.21	.98	1.68	1.45	5.95	4.9	1.29	
8	3.65	1.78	7.0	1.66	5.5	1.06	.98	1.77	1.37	5.0	1.86	1.29	
9	2.05	2.2	4.4	1.77	3.85	1.06	.98	2.4	1.37	2.3	4.0	1.52	
10	1.77	2.15	3.75	3.85	6.4	2.95	.98	6.0	1.37	13.2	2.2	1.29	
11	1.86	3.5	3.43	2.2	4.8	*1.68	.98	9.8	1.29	4.2	1.45	1.29	
12	2.1	*3.65	3.25	1.96	3.75	1.21	.98	1.72	1.29	5.55	1.37	1.29	
13	1.96	3.35	3.0	1.86	3.45	1.13	.98	2.0	1.45	2.7	1.37	1.29	
14	1.86	3.0	3.1	1.86	9.3	1.06	3.05	.98	1.68	2.4	1.37	1.29	
15	2.35	3.6	3.65	3.1	1.72	1.06	3.55	.90	1.21	2.25	1.94	1.21	
16	3.05	4.5	4.4	1.96	1.21	1.06	2.9	1.29	1.29	2.05	2.1	1.21	
17	2.05	2.8	3.0	2.75	2.65	1.38	6.8	1.29	*1.21	1.86	5.8	1.21	
18	20	2.7	3.1	2.8	3.0	10.3	2.15	1.60	1.13	1.77	12.3	1.21	
19	9.2	2.3	2.8	2.05	7.4	2.3	1.94	1.52	1.29	1.77	2.95	1.21	
20	24.5	2.15	6.1	2.05	4.0	1.60	2.25	1.96	1.37	1.68	2.15	1.21	
21	7.1	2.4	8.1	3.0	3.85	1.45	2.8	2.9	1.21	1.60	13.6	1.21	
22	9.5	2.15	3.56	2.75	.98	2.0	2.9	3.15	1.21	1.52	3.55	1.21	
23	8.4	2.05	2.9	30	.98	2.15	2.6	2.5	1.29	1.60	2.5	1.29	
24	7.7	1.86	2.8	22.5	2.35	3.25	2.4	2.65	1.21	1.60	2.15	1.29	
25	6.9	4.4	2.8	11.7	2.4	2.4	2.3	2.05	1.21	1.52	2.05	1.29	
26	6.6	4.4	*3.45	7.7	2.3	2.15	2.25	2.3	1.21	1.52	1.86	1.37	
27	6.0	2.5	3.25	*5.6	2.3	11.4	*2.15	1.86	1.21	*1.52	1.86	1.29	
28	4.4	1.77	2.5	10.3	2.25	3.95	2.15	1.77	1.21	1.45	1.86	1.29	
29	3.9	1.68	2.3	5.4	2.15	.98	2.2	-	1.21	1.45	1.80	1.37	
30	4.5	1.37	2.15	4.5	2.05	.90	3.45	-----	1.21	2.35	1.60	1.37	
31	3.9	1.29	-----	3.9	-----	.90	2.3	-----	2.05	-----	1.52	-----	
Total	175.42	130.50	114.47	151.73	102.59	75.06	62.64	65.84	44.17	106.66	89.60	39.48	
Mean	mgd	5.98	4.21	3.82	4.89	3.42	2.42	2.02	2.35	1.42	3.56	2.89	1.32
	cfs	9.25	6.51	5.91	7.57	5.29	3.74	3.13	3.64	2.20	5.51	4.47	2.04
Ac-ft		538	400	351	466	315	230	192	202	136	327	275	121
Calendar year 1958: Max	32	Min	0.90	Mean(mgd)	3.41	Mean(cfs)	5.28	Ac-ft	3,820				
Fiscal year 1958-59: Max	30	Min	0.90	Mean(mgd)	3.17	Mean(cfs)	4.90	Ac-ft	3,560				

* Discharge measurement made on this day.

950. Puu Ka Ele ditch near Kilauea

Location.--Lat 22°11'05", long 159°24'20", on left bank 200 ft upstream from Puu Ka Ele Reservoir and 2 miles south of Kilauea.

Records available.--August 1932 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 430 ft (by barometer).

Average discharge.--26 years (1933-59), 2.74 mgd (4.24 cfs).

Extremes.--1932-59: Maximum daily discharge, 21 mgd (32 cfs) Sept. 2, 1943; no flow at times each year.

Remarks.--Records good. Ditch diverts water from Puu Ka Ele Stream 0.8 mile south of station. Water used for irrigation of sugarcane in vicinity of Kilauea. Flow regulated by wasteway gates.

Discharge, in million gallons a day, fiscal year July 1956 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	*2.1	3.8	3.3	2.75	1.73	0	0	2.2	2.4	3.2	1.92	2.0
2	1.83	5.0	3.3	2.75	1.73	0	0	2.1	3.2	2.2	1.64	2.0
3	2.6	4.9	3.55	2.5	1.94	0	0	2.3	2.5	2.0	2.2	1.92
4	4.3	4.5	3.8	2.4	1.64	0	0	1.70	2.75	2.45	2.2	1.83
5	2.95	4.5	3.65	2.3	*1.64	0	0	1.31	*2.3	3.1	1.64	1.73
6	2.5	1.22	3.45	2.3	1.29	0	0	1.31	2.2	8.0	3.05	1.92
7	2.75	0	6.6	2.1	1.94	0	0	1.23	2.1	4.1	4.8	1.73
8	2.75	0	5.0	2.1	.36	0	0	1.23	2.0	4.8	2.3	1.64
9	2.5	0	4.2	2.2	.32	0	0	2.75	2.0	4.6	3.5	1.83
10	2.5	0	3.95	2.85	.46	0	0	2.7	2.0	.30	2.5	1.54
11	2.5	0	3.8	2.3	.52	0	0	1.48	2.0	0	2.0	1.64
12	2.5	0	3.65	2.2	.46	2.85	0	0	2.1	0	1.92	1.92
13	2.4	0	3.45	2.2	.39	3.95	.20	0	2.1	0	1.92	1.64
14	2.2	2.6	3.45	2.2	1.47	3.8	3.15	0	2.1	2.2	1.73	1.54
15	2.4	3.8	3.45	2.5	.57	3.65	4.1	0	2.0	2.75	1.92	1.54
16	2.75	3.95	3.55	2.2	.52	3.55	3.45	0	2.0	*2.6	2.85	1.47
17	2.35	3.65	3.2	2.4	.12	5.0	2.1	0	2.0	2.5	6.4	1.39
18	4.6	3.55	3.3	2.5	0	12.5	0	0	1.92	2.4	10.0	1.31
19	4.2	3.45	3.1	2.3	0	6.2	0	0	2.0	2.3	4.5	1.23
20	4.8	3.45	3.65	2.2	0	4.9	2.95	1.20	1.92	2.2	3.3	1.23
21	4.1	3.65	4.3	2.4	0	4.5	3.65	3.25	1.92	2.2	8.0	1.23
22	4.3	3.45	3.55	2.4	0	6.1	3.65	3.65	1.83	2.0	4.9	1.23
23	4.3	3.45	3.3	2.5	0	2.75	3.3	3.2	1.83	1.92	3.65	1.23
24	4.3	3.3	3.2	3.5	0	0	3.1	3.5	1.73	1.92	3.2	1.23
25	4.3	4.1	3.2	2.5	0	0	2.95	2.75	1.83	1.92	3.15	1.23
26	4.1	4.1	*3.3	2.3	0	0	2.85	2.95	1.73	1.83	2.75	1.64
27	4.1	3.8	3.2	2.0	0	.83	.95	2.5	1.54	1.73	2.5	1.23
28	3.95	3.55	2.95	2.45	0	.66	0	2.4	1.54	1.64	2.3	1.23
29	3.65	3.45	2.75	2.0	0	1.03	1.83	-	1.54	1.54	2.3	1.47
30	3.8	3.45	2.5	1.92	0	0	2.95	-----	1.64	2.55	2.2	1.39
31	3.65	3.45	-----	1.83	-----	0	2.3	-----	3.1	-----	2.1	-----
Total	102.03	88.12	107.65	79.05	16.70	62.27	43.48	45.71	63.82	70.95	99.34	46.16
Mean:	3.29	2.84	3.59	2.55	0.557	2.01	1.40	1.83	2.06	2.36	3.20	1.54
cfs	5.09	4.39	5.55	3.95	0.862	3.11	2.17	2.52	3.19	3.65	4.95	2.38
Ac-ft	313	270	330	243	51	191	133	140	196	218	305	142
Calendar year 1958:	Max 12.5	Min 0	Mean(mgd) 1.66	Mean(cfs) 2.57	Ac-ft 1,860							
Fiscal year 1958-59:	Max 12.5	Min 0	Mean(mgd) 2.26	Mean(cfs) 3.50	Ac-ft 2,530							

* Discharge measurement made on this day.

952. Ross ditch near Kilauea

Location--Lat 22°11'10", long 159°24'35", on left bank 1,000 ft downstream from intake on Puu Ka Ele Stream and 1.7 miles south of Kilauea.

Records available--October 1956 to June 1959.

Gage--Water-stage recorder and Parshall flume.

Extremes--1956-59: Maximum daily discharge, 10.6 mgd (16.4 cfs) Jan. 18, 1957; no flow Jan. 26, Jan. 31 to Feb. 3, Feb. 7, 8, 1959.

Remarks--Records good except those for periods of no gage-height record, which are poor. Ditch diverts water from Puu Ka Ele Stream for irrigation in vicinity of Kilauea. Flow regulated by headgates.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	*2.95	3.7	3.65	1.65	2.95	2.8	2.6	0	1.11	1.3	1.15	1.15
2	1.76	4.7	3.65	2.05	2.95	2.75	2.6	0	1.50	1.2	.92	1.30
3	4.8	6.0	3.5	1.60	3.1	2.75	2.55	0	1.20	.8	.92	1.25
4	3.4	5.6	3.35	1.40	2.95	2.7	2.5	.02	1.20	1.0	1.06	1.20
5	3.95	5.6	2.95	1.35	2.95	3.0	2.45	.04	1.02	1.2	.88	1.11
6	2.1	5.6	2.45	1.30	2.9	2.95	2.45	.03	1.02	1.7	1.80	1.06
7	1.88	5.0	4.6	1.25	2.9	2.75	2.35	0	.92	2.2	2.0	.97
8	2.3	6.0	4.2	1.25	3.15	2.75	2.3	0	.92	1.4	1.2	.79
9	3.0	6.4	3.6	1.35	3.1	2.75	2.3	.13	.92	1.7	1.6	.88
10	1.7	5.2	3.35	2.85	3.25	2.95	2.3	1.95	.92	6.0	1.3	.63
11	1.7	5.0	3.1	1.94	3.15	2.8	2.3	5.6	.88	4.0	.8	.79
12	1.7	*4.8	2.8	1.60	3.0	2.2	1.52	4.2	.88	2.5	.7	1.02
13	1.8	4.6	2.5	1.50	2.95	1.55	2.5	1.76	.88	2.2	.7	.83
14	1.7	4.6	2.5	1.50	3.45	1.40	.75	1.20	1.02	1.8	.8	.63
15	1.8	4.6	2.6	2.1	3.15	1.35	.09	1.23	.85	1.6	.88	.70
16	3.6	4.6	2.95	1.45	3.0	1.30	.02	.92	.79	*1.4	1.22	1.02
17	1.8	4.3	2.45	1.88	2.95	1.50	2.6	1.93	*.72	1.35	1.88	1.82
18	5.2	4.2	2.7	2.2	2.95	*2.9	3.9	2.7	.70	1.30	5.1	1.94
19	5.0	*3.9	2.3	2.0	3.25	2.35	1.55	2.6	.70	1.25	3.45	1.1
20	5.2	3.7	3.5	1.82	3.1	1.88	.61	2.15	.74	1.20	1.94	.1
21	5.2	3.95	3.7	2.45	3.0	1.70	.05	1.49	.74	1.20	4.9	.1
22	4.5	3.7	3.15	2.1	2.95	2.05	.05	1.70	.7	1.11	4.3	.5
23	4.4	3.65	2.6	4.1	2.95	2.2	.04	1.55	.7	1.06	2.3	.7
24	4.4	3.65	2.3	3.95	2.95	2.6	.04	1.55	.7	1.0	2.05	1.2
25	4.4	4.2	2.5	3.7	2.9	2.55	.03	1.25	.7	1.0	2.05	1.4
26	4.2	4.3	*3.0	3.45	2.8	2.5	0	1.35	.7	1.0	2.2	1.6
27	4.2	4.1	2.25	3.25	2.8	5.0	.35	1.15	.7	1.0	*1.52	1.4
28	3.95	3.9	1.82	3.35	2.8	6.4	*.67	1.15	.7	.97	1.20	1.2
29	3.6	3.7	1.60	3.25	2.8	8.0	.19	-	.7	.97	1.06	1.2
30	3.8	3.7	1.55	3.1	2.8	3.1	.04	-	.7	1.29	1.11	1.4
31	3.5	3.8	-----	3.0	-----	2.7	0	-----	.9	-----	1.02	-----
Total Mean:	103.49	140.75	87.17	69.74	89.90	84.18	41.70	37.65	26.61	47.70	54.01	31.19
mgd	3.54	4.54	2.91	2.25	3.00	2.72	1.35	1.34	0.858	1.59	1.74	1.04
cfs	5.17	7.02	4.50	3.48	4.64	4.21	2.09	2.07	1.33	2.46	2.69	1.61
Ac-ft	318	432	268	214	276	258	128	116	82	146	166	96
Calendar year 1958: Max	7.4			Min	0.12	Mean(mgd)	2.92	Mean(cfs)	4.52	Ac-ft	3,270	
Fiscal year 1958-59: Max	6.4			Min	0	Mean(mgd)	2.23	Mean(cfs)	3.45	Ac-ft	2,500	

* Discharge measurement made on this day.

Note.--No gage-height record July 8-24, Sept. 24-26, Mar. 22 to Apr. 16, Apr. 24-27, May 7-14, June 19-30; discharge estimated on basis of recorded range in stage, ditchman's readings, appearance of recorder graph, and records for nearby stations.

960. Kalihiwai ditch near Kilauea

Location.--Lat 22°10'55", long 159°25'55", on right bank 0.1 mile upstream from Kalihiwai Reservoir and 2.4 miles southwest of Kilauea.

Records available.--June 1934 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 410 ft (by barometer).

Average discharge.--24 years (1934-42, (1943-59), 2.53 mgd (3.91 cfs).

Extremes.--1934-59: Maximum daily discharge, 29.5 mgd (45.6 cfs) July 16, 1937; no flow at times.

Remarks.--Records good. Ditch diverts low-water flow from most branches of Pohakuhonu Stream at intakes, about 1 mile south of station. Diversion of flow to Kahilihilo Stream, 0.1 mile above station, regulated by gates. Water discharges into Kalihiwai Reservoir, where it is stored for irrigation in vicinity of Kilauea.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	*3.7	2.65	3.6	2.35	0.37	0.08	0.25	a0.04	0.47	4.8	1.62	0.86
2	2.85	8.2	3.8	2.35	.33	.08	.21	.93	.52	5.3	1.46	.37
3	7.2	8.8	3.25	2.15	.29	.08	.25	1.82	.47	3.45	1.54	.37
4	11.4	4.0	3.45	1.87	.25	.06	.25	1.78	.47	3.05	1.54	.33
5	5.3	2.6	3.6	1.87	.29	.11	.25	1.62	*.92	5.9	1.58	.33
6	3.6	.76	4.2	1.78	.37	.11	.25	.76	1.54	11.7	3.05	.37
7	5.1	.58	15.5	1.70	.47	.08	.25	.47	1.54	5.2	4.4	.37
8	5.1	.95	5.6	1.70	.42	.08	.25	.47	1.70	8.8	2.25	.33
9	3.15	.70	2.85	1.70	.42	.08	.25	.58	1.87	7.6	4.0	.52
10	2.75	.58	2.55	18.6	.47	.11	.25	.58	1.87	.82	2.85	.37
11	2.75	.52	2.15	4.0	.58	.08	.29	.64	1.70	.52	1.41	.33
12	2.95	.47	1.87	2.95	.58	.08	.29	.47	2.05	.47	.42	.42
13	2.95	.37	1.96	2.65	.64	.11	.25	.42	2.6	.37	.42	.33
14	2.65	.37	2.05	2.55	.82	.11	.25	.37	2.75	1.14	.42	.29
15	3.85	.52	2.45	2.85	.70	.11	.21	.37	1.96	2.05	.70	.25
16	4.7	.47	2.85	2.55	.64	.08	.17	.37	1.62	*1.96	3.25	.25
17	4.8	.37	2.55	2.65	.58	.08	.25	.37	1.54	1.96	4.5	.21
18	23	.29	3.75	2.65	.52	.21	.17	.37	1.54	1.96	10.9	.21
19	11.3	.29	3.35	2.65	.70	.17	.17	.37	1.78	2.05	5.8	.21
20	23.5	.25	9.0	2.65	.64	.14	.14	1.52	1.62	2.05	3.9	.21
21	3.85	1.61	10.1	3.15	.58	.14	.14	3.7	1.62	2.05	11.3	.21
22	.95	2.85	4.8	3.65	.42	.14	.11	3.25	1.54	1.96	5.0	.21
23	.95	2.85	*3.85	27.5	.42	.14	.08	1.61	2.1	1.87	3.8	.21
24	.95	2.65	3.45	5.8	.37	.11	.08	.64	1.54	1.96	3.45	.76
25	.95	13.7	3.25	.88	.33	.08	.08	.64	1.54	1.96	3.15	1.02
26	.88	12.8	3.35	.76	.29	.08	.04	.58	1.54	1.96	2.75	1.38
27	.82	8.1	2.95	.64	.21	.08	a.04	.52	1.54	1.96	1.82	1.09
28	.76	5.4	2.75	.64	.14	.17	a.04	.52	1.46	1.70	.58	1.09
29	.70	4.5	2.55	.58	.11	.42	a.04	-	1.46	1.62	1.09	1.38
30	1.54	4.4	2.35	.47	.11	.25	a.04	-----	1.46	1.70	1.96	1.30
31	2.55	4.0	-----	.42	-----	.25	a.04	-----	1.78	-----	1.87	-----
Total	147.50	96.60	119.78	108.51	13.06	3.90	5.36	25.58	48.11	89.89	92.58	15.58
Mean:	4.76	3.12	3.99	3.50	0.435	0.126	0.173	0.914	1.55	3.00	2.99	0.519
cfs	7.36	4.83	6.17	5.42	0.675	0.195	0.268	1.41	2.40	4.64	4.63	0.803
Ac-ft	453	296	368	353	40	12	16	79	146	276	284	48
Calendar year 1958:	Max 27.5	Min 0.02	Mean(mgd)	2.26	Mean(cfs)	3.50	Ac-ft	2,530				
Fiscal year 1958-59:	Max 27.5	Min 0.04	Mean(mgd)	2.10	Mean(cfs)	3.25	Ac-ft	2,350				

* Discharge measurement made on this day.
 a No gage-height record; discharge estimated on basis of one outside staff-gage reading and estimated leakage in ditch when gates are closed.

970. Pohakuhonu Stream near Kilauea

Location.--Lat 22°10'35", long 159°25'35", on left bank 0.75 mile upstream from confluence with Halaulani Stream, 1.25 miles above stone dam, and 2.5 miles southwest of Kilauea.

Drainage area.--1.8 sq mi, approximately.

Records available. October 1957 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 380 ft (from topographic map).

Extremes.--Maximum discharge during year, 765 mgd (1,180 cfs) Oct. 10 (gage height, 5.62 ft), from rating curve extended above 200 mgd from slope-area measurement at gage height 11.0 ft; minimum, 0.80 mgd (1.24 cfs) June 27, 28.
1957-59: Maximum discharge, that of Oct. 10, 1958; minimum, that of June 27, 28, 1959.

Maximum stage known, 11.0 ft Jan. 24, 1956 (corrected), from floodmarks (discharge, 3,620 mgd or 5,600 cfs, from rating curve extended above 200 mgd from slope-area measurement at peak flow).

Remarks.--Records good. Kalihiwai ditch diverts an average of about 3 mgd about 0.5 mile above station for domestic water supply and irrigation of sugarcane.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.29	0.80	1.0	20
.3	.98	1.3	36.5
.5	3.2	1.6	58
.7	8.2	2.0	92

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.7	4.0	3.4	2.2	4.0	2.9	3.05	1.69	1.94	2.4	1.19	1.11
2	1.80	28	3.85	2.35	3.6	2.35	2.8	1.58	1.94	2.05	1.11	1.02
3	6.8	23	3.05	1.94	5.7	2.2	2.65	1.48	1.80	1.48	1.11	1.02
4	11.8	7.5	3.4	1.80	3.6	2.1	2.5	1.58	1.94	1.48	1.19	1.02
5	2.8	8.0	3.4	1.80	*3.15	14.2	2.35	1.48	1.58	3.1	1.11	.95
6	1.94	12.0	3.95	1.69	2.9	9.2	2.2	1.48	1.48	10.4	2.85	1.02
7	2.75	7.3	22.5	1.58	2.9	3.2	2.2	1.38	1.48	2.55	4.5	.95
8	2.65	*58	7.5	1.58	5.8	2.8	2.1	1.38	1.38	5.7	1.94	.95
9	1.80	15.1	4.5	1.58	4.1	2.5	1.80	8.2	1.28	*32	3.5	1.11
10	1.69	7.0	3.4	90	9.1	7.0	1.80	8.1	1.19	22	2.2	1.02
11	1.58	5.3	3.05	6.2	6.9	3.85	1.80	20.5	1.19	6.5	1.58	.95
12	1.58	4.5	2.9	4.0	9.8	2.8	3.25	5.3	1.28	4.5	1.28	1.11
13	1.48	4.2	2.65	3.2	5.5	2.5	13.9	4.2	1.38	3.6	1.28	1.02
14	1.48	6.6	2.65	2.9	17.0	2.35	5.1	2.8	1.48	2.9	*1.19	.95
15	1.69	*10.8	3.2	4.0	5.6	2.2	3.2	2.8	1.19	2.5	1.48	.95
16	2.1	9.5	4.2	3.05	4.5	2.1	2.5	2.2	*1.19	2.35	3.35	.95
17	2.65	5.1	2.8	3.6	3.85	2.8	13.3	1.94	1.11	2.1	4.8	.95
18	27	4.5	3.85	3.2	3.8	*16.1	6.8	4.0	1.11	1.94	10.9	.95
19	6.7	3.6	3.2	3.05	28.5	4.0	3.2	2.5	1.19	1.80	2.5	.95
20	*40	3.4	10.0	3.4	6.6	2.9	2.8	2.2	1.11	1.80	1.80	.88
21	5.2	5.4	14.5	4.9	6.5	2.65	2.5	5.9	1.11	1.69	7.8	.88
22	6.8	3.85	5.1	5.6	4.7	3.25	2.5	4.7	1.02	1.69	2.35	.88
23	6.1	3.6	*3.85	83	4.8	2.8	2.2	4.3	1.19	1.58	1.80	.88
24	4.5	3.2	3.2	26	3.6	2.65	2.1	4.5	1.02	1.48	1.58	.88
25	4.5	26	3.05	13.1	3.2	2.2	1.94	2.8	1.02	1.48	1.66	.88
26	3.2	16.0	3.4	8.6	3.05	2.1	1.80	2.65	1.02	1.38	1.58	.88
27	2.8	8.7	2.9	6.5	2.8	8.2	1.80	2.1	1.02	1.28	1.28	.80
28	2.9	5.3	2.5	18.1	2.5	12.3	*1.80	1.94	1.02	1.19	1.28	.80
29	3.4	4.5	2.35	7.0	2.5	26.5	1.80	-	.95	1.11	1.19	.88
30	3.6	4.5	2.1	4.3	2.5	2.35	4.7	2.1	1.02	1.19	1.19	.95
31	3.4	4.2	-----	4.7	-----	3.6	1.80	-----	1.28	-----	1.11	-----
Total	169.39	312.45	140.00	325.92	172.70	161.00	101.64	105.68	39.91	127.22	73.68	28.54
Mean:												
mgd	5.46	10.1	4.67	10.5	5.76	5.19	3.28	3.77	1.29	4.24	2.38	0.951
cfs	8.45	15.6	7.23	16.2	8.91	8.03	5.07	5.85	2.00	6.56	3.68	1.47
Ac-ft	520	959	430	1,000	550	494	312	324	122	390	226	88
Calendar year 1958:	Max	90	Min	0.95	Mean(mgd)	4.63	Mean(cfs)	7.16	Ac-ft	5,180		
Fiscal year 1958-59:	Max	90	Min	0.80	Mean(mgd)	4.82	Mean(cfs)	7.46	Ac-ft	5,400		

Peak discharge (base, 225 mgd).--July 20 (9:30 a.m.) 244 mgd (378 cfs), 3.25 ft; Aug. 8 (11 a.m.) 225 mgd (348 cfs), 3.10 ft; Oct. 10 (4 a.m.) 765 mgd (1,180 cfs), 5.62 ft; Oct. 23 (9 p.m.) 337 mgd (521 cfs), 3.78 ft.

* Discharge measurement made on this day.

975. Halaulani Stream at altitude 400 ft, near Kilauea

Location--Lat 22°10'35", long 159°25'15", on left bank 0.5 mile upstream from confluence with Pohakuhona, 1 mile above stone dam, and 2.5 miles southwest of Kilauea.

Drainage area--1.1 sq mi, approximately.

Records available--November 1957 to June 1959.

Gage--Water-stage recorder. Altitude of gage is 400 ft (from topographic map).

Extremes--Maximum discharge during year, 446 mgd (690 cfs) Oct. 10 (gage height, 4.78 ft), from rating curve extended above 130 mgd on basis of slope-area measurement at gage height 8.30 ft; minimum, 2.35 mgd (3.64 cfs) June 28.
1957-59: Maximum discharge, that of Oct. 10, 1958; minimum, that of June 28, 1959.

Remarks--Records good.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.8	2.0	1.6	18.5
.9	3.05	1.8	26
1.0	4.3	2.1	44
1.1	5.8	2.5	77
1.2	7.7	3.0	136
1.4	12.2		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1	7.1	7.3	5.8	4.4	5.5	5.1	6.2	3.9	3.8	7.5	2.95	3.2	
2	4.9	35	6.8	4.8	5.2	4.3	6.0	3.9	4.2	*7.3	2.75	3.05	
3	14.0	27	5.5	4.2	9.1	4.2	5.8	3.9	4.0	4.9	2.95	3.05	
4	19.9	10.7	6.5	4.0	5.5	4.0	5.5	4.2	4.5	4.8	2.95	3.05	
5	7.3	12.3	6.8	3.8	4.9	15.5	5.0	3.9	3.7	6.1	2.85	3.05	
6	5.4	16.4	8.3	3.8	4.8	11.1	4.9	3.9	3.55	19.3	5.8	3.2	
7	8.8	10.3	29	3.7	4.9	5.4	4.8	3.8	3.4	6.8	8.6	2.95	
8	8.7	65	11.5	3.7	9.4	4.6	4.6	3.8	3.4	11.8	4.4	2.85	
9	5.4	21.5	7.3	3.9	6.2	4.4	4.4	8.7	3.3	5.3	8.3	3.4	
10	4.6	11.2	6.4	52	12.0	10.4	4.3	12.1	3.3	27	5.0	2.95	
11	4.7	8.3	5.6	6.9	8.5	*5.8	4.2	21.5	3.2	9.2	3.8	2.85	
12	4.9	6.9	5.4	5.2	12.6	4.8	8.0	7.5	3.5	6.6	3.4	3.2	
13	4.7	7.1	4.9	4.8	8.1	4.6	19.0	6.8	4.3	5.5	3.4	2.85	
14	4.8	9.8	5.0	4.6	26	4.3	8.1	4.9	4.3	4.8	*3.2	2.75	
15	7.8	*15.2	5.8	6.2	8.8	4.2	6.0	5.2	3.4	4.4	4.4	2.65	
16	6.3	12.8	7.6	4.9	6.9	4.0	5.2	4.2	3.4	4.0	7.1	2.65	
17	8.9	7.9	5.2	5.9	6.0	5.9	15.8	3.9	*5.2	3.8	11.0	2.55	
18	39.5	6.8	5.6	5.6	5.6	22	10.1	6.3	3.05	3.7	20.5	2.45	
19	19.1	5.8	5.2	4.9	27	6.4	6.2	4.4	3.55	3.7	7.1	2.45	
20	*51	5.6	14.2	5.6	8.5	5.4	5.5	4.0	3.4	3.55	5.2	2.45	
21	12.3	8.3	17.4	7.5	9.3	4.8	5.2	7.8	3.2	3.55	17.7	2.45	
22	17.2	6.0	7.7	10.0	6.9	6.2	5.2	7.8	2.95	3.3	6.9	2.45	
23	13.6	6.0	6.0	*86	6.9	5.2	4.8	5.6	3.45	3.2	5.2	2.45	
24	12.5	5.6	5.4	29.5	5.5	5.2	4.6	5.7	2.95	3.2	4.6	2.45	
25	11.4	30	*5.2	16.3	5.2	4.6	4.4	4.6	3.05	3.2	4.6	2.45	
26	9.6	22	6.0	13.4	4.9	4.3	4.3	4.9	3.05	3.05	4.2	2.65	
27	7.5	14.1	5.2	9.0	4.6	23.5	*4.2	4.2	2.85	3.05	3.8	2.45	
28	6.2	8.5	4.8	19.6	4.4	17.5	4.2	3.9	2.85	2.95	3.7	2.35	
29	5.6	6.9	4.4	8.5	4.3	32.5	4.2	-	2.75	2.85	3.4	2.85	
30	6.4	6.9	4.3	7.1	4.2	9.0	4.6	-----	2.95	3.05	3.4	2.55	
31	5.6	7.1	-----	6.0	-----	6.9	4.2	-----	3.75	-----	3.3	-----	
Total	345.7	424.3	224.8	355.8	241.7	256.1	189.5	165.3	106.25	226.15	176.45	82.70	
Mean:	mgd	11.2	13.7	7.49	11.5	8.06	8.26	6.11	5.90	3.43	7.54	5.69	2.76
	cfs	17.3	21.2	11.6	17.8	12.5	12.8	9.45	9.13	5.31	11.7	8.80	4.27
Ac-ft	1,060	1,300	690	1,090	742	786	582	507	326	694	542	254	
Calendar year 1958:	Max	86	Min	2.6	Mean(mgd)	7.58	Mean(cfs)	11.7	Ac-ft	8,490			
Fiscal year 1958-59:	Max	86	Min	2.35	Mean(mgd)	7.66	Mean(cfs)	11.9	Ac-ft	8,570			
Peak discharge (base, 145 mgd).--July 20 (10 a.m.) 352 mgd (545 cfs), 4.31 ft; Aug. 8 (11:30 a.m.) 274 mgd (424 cfs), 3.89 ft; Oct. 10 (3 a.m.) 446 mgd (690 cfs), 4.78 ft; Oct. 23 (8 p.m.) 346 mgd (535 cfs), 4.28 ft; Nov. 14 (1 a.m.) 196 mgd (303 cfs), 3.43 ft; Nov. 19 (1:30 p.m.) 173 mgd (268 cfs), 3.28 ft; Dec. 29 (1 a.m.) 175 mgd (271 cfs), 3.29 ft; Feb. 9 (11 p.m.) 176 mgd (272 cfs), 3.26 ft.													

* Discharge measurement made on this day.

995. Hanalei ditch near Kilauea

Location.--Lat 22°11'10", long 159°26'10", on right bank 205 ft upstream from Kalihiwai Reservoir, 215 ft downstream from inverted siphon across Kalihiwai River, and 2.4 miles southwest of Kilauea.

Records available.--July 1956 to June 1959 in reports of Geological Survey. July 1951 to June 1956 in files of Kilauea Sugar Co.

Gage.--Water-stage recorder and sharp-crested weir. Altitude of gage is 390 ft (from topographic map). Prior to Mar. 5, 1959, at site 150 ft downstream and at datum 0.25 ft higher.

Extremes.--1956-59: Maximum daily discharge, 19.3 mgd (29.9 cfs) Sept. 17, 1956; no flow at times.

Remarks.--Records fair prior to Mar. 5, good thereafter. Ditch diverts water from Kalihiwai River, 2.2 miles southwest of station. Water used for irrigation of sugar-cane in vicinity of Kilauea.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.0			2.0					0	9.8	8.9	5.5
2	7.4			4.4					0	*9.8	8.0	7.7
3	5.3			5.8					0	9.5	8.0	8.0
4	1.77			7.0					0	9.2	8.6	8.0
5	0			7.0					*4.4	9.5	8.3	7.8
6	0			6.8					7.1	5.2	8.2	6.9
7	0			7.1					7.0	.02	8.4	4.4
8	0			7.1					4.3	5.3	8.0	8.0
9	0			7.1					5.3	1.85	9.0	8.9
10	0			2.55					6.8	.04	7.6	8.9
11	0			0					6.7	.02	5.0	8.0
12	3.95			0					6.7	.02	7.0	9.0
13	9.4			0					7.1	.02	6.8	8.9
14	9.6			0					3.25	.33	8.3	8.4
15	9.6			0					.19	8.0	9.6	7.4
16	9.6			0					*4.1	*8.0	10.0	7.2
17	9.6			0					6.8	8.0	8.5	6.8
18	3.45			0					7.0	2.35	.06	6.4
19	0			0					7.4	.04	.06	6.4
20	0			0					7.4	5.7	6.9	6.2
21	0			3.4					7.2	7.8	6.3	6.0
22	0			8.1					7.1	7.8	.06	5.9
23	0			3.3					7.1	8.6	.04	5.8
24	0			0					7.2	9.4	.02	5.8
25	0			0					8.3	9.4	.02	5.8
26	0			0					8.9	9.4	.02	6.4
27	0			0					7.7	9.2	5.9	5.5
28	0			0					7.2	8.6	8.4	5.1
29	0			0					7.0	8.4	7.9	6.4
30	0			0					6.8	8.6	4.4	7.6
31	0		-----	0	-----				8.9	-----	.04	-----
Total	78.67	0	0	71.65	0	0	0	0	174.94	179.89	176.32	209.1
Mean:												
mgd	2.54	0	0	2.31	0	0	0	0	5.64	6.00	5.69	6.97
cfs	3.93	0	0	3.57	0	0	0	0	8.73	9.28	8.80	10.8
Ac-ft	241	0	0	220	0	0	0	0	537	552	541	642
Calendar year 1958: Max	10.4			Min 0				Mean(mgd)	0.833	Mean(cfs)	1.29	Ac-ft 933
Fiscal year 1958-59: Max	10.0			Min 0				Mean(mgd)	2.44	Mean(cfs)	3.78	Ac-ft 2,730

* Discharge measurement made on this day.

1000. Hanalei tunnel outlet near Lihue

Location.--Lat 22°05'00", long 159°28'15", on right bank at end of Hanalei tunnel, 2.2 miles downstream from intake on Kaapoko Stream and 9.8 miles northwest of Lihue.

Records available.--July 1932 to June 1959 in reports of Geological Survey. October 1925 to June 1932 in files of Lihue Plantation Co.

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

Average discharge.--27 years (1932-59), 19.0 mgd (29.4 cfs).

Extremes.--1932-59: Maximum daily discharge, 64 mgd (99 cfs) Apr. 11, 25, 26, 1942; no flow at times.

Remarks.--Records fair. Tunnel diverts water from Kaapoko Stream and Hanalei River and empties into north branch of North Fork Wailua River, from which it is later diverted and used for irrigation in vicinity of Lihue and Kapaa. Flow regulated by spillway and headgates.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	34	23	18.0	15.2	7.4	17.6	19.6	16.4	16.8	29	18.0	16.0
2	24	37	19.2	15.6	8.8	18.0	18.8	15.2	17.2	26	16.0	15.6
3	28.5	35.5	17.6	14.9	8.9	16.8	24	16.4	16.4	21.5	18.0	15.6
4	31	23	17.2	14.5	8.9	16.4	18.8	16.8	16.8	21	18.9	16.0
5	25.5	28	17.6	14.5	8.9	25.5	18.0	16.0	16.0	24	16.8	15.6
6	21.5	28.5	18.0	14.5	14.7	21	19.6	15.6	16.0	24	22	18.4
7	27.5	22	35.5	14.5	19.2	17.2	18.0	15.2	16.0	21.5	22.5	19.4
8	26	38	23.5	14.5	25	*16.8	17.6	15.6	17.2	25.5	21	17.2
9	26	29.5	17.6	14.1	21.5	16.8	17.2	16.1	18.0	38	25	25.5
10	26	21	16.4	19.0	34.5	22.5	17.2	24.5	18.2	31.5	20	18.0
11	26	20	15.6	19.8	35	18.0	16.8	18.8	16.8	23	20.5	16.8
12	26.5	18.8	15.6	14.9	28	16.8	23	18.9	21.5	20	18.8	24
13	28	18.8	15.6	14.9	26.5	16.4	35.5	19.2	21	*18.8	20	18.8
14	25.5	19.6	16.4	15.4	29	16.0	22.5	16.4	18.4	18.0	17.6	17.8
15	25.5	20	18.7	19.4	27.5	16.0	*19.6	17.2	16.4	17.6	21	16.8
16	24.5	21	19.4	17.2	21.5	15.6	18.4	15.6	16.4	17.2	25	16.8
17	22.5	18.4	16.8	18.8	20	17.2	27	16.0	16.4	16.8	31	15.6
18	40	18.8	16.8	17.2	19.8	29.5	27	21.5	15.6	16.8	35.5	15.6
19	35.5	17.6	17.6	16.8	32	18.8	18.4	16.8	16.1	16.4	24	15.2
20	42	18.0	18.0	16.8	23.5	17.8	17.2	17.2	16.4	16.4	20.5	15.2
21	28	22.5	21.5	17.8	23	16.8	16.0	28	16.4	15.6	21.5	15.2
22	31	19.6	16.4	*19.0	22.5	23.5	16.0	23.5	16.4	15.6	19.2	15.2
23	28.5	18.0	15.6	40	23	18.8	15.6	19.6	16.0	15.6	18.0	15.2
24	28	18.0	15.2	18.1	18.8	17.2	15.2	18.0	18.0	16.4	17.6	*14.9
25	28.5	24	15.2	10.9	16.4	16.8	14.9	19.2	18.0	16.8	17.6	14.9
26	28	24	18.0	9.5	18.0	16.4	14.9	*20	18.8	15.6	16.8	17.8
27	24	20	15.6	7.4	18.0	16.4	14.9	17.2	16.8	16.4	16.8	15.6
28	21.5	18.0	14.9	14.2	17.6	22.5	14.9	16.8	16.0	15.2	16.0	14.9
29	21	17.6	14.5	7.2	17.2	28	14.9	-	17.6	15.2	16.0	17.5
30	21.5	18.8	14.5	6.6	17.2	23.5	14.9	-----	16.4	19.5	16.0	16.4
31	20	18.0	-----	6.3	-----	25	17.5	-----	24	-----	15.6	-----
Total	848.0	695.0	532.5	479.3	614.1	595.4	583.9	507.7	536.0	604.9	623.2	506.3
Mean:												
mgd	27.4	22.4	17.8	15.5	20.5	19.2	18.8	18.1	17.3	20.2	20.1	16.9
cfs	42.4	34.7	27.5	24.0	31.7	29.7	29.1	28.0	26.8	31.2	31.1	26.1
Ac-ft	2,600	2,130	1,650	1,470	1,880	1,850	1,790	1,580	1,640	1,860	1,910	1,550

Calendar year 1958: Max 43 Min 0 Mean(mgd) 11.9 Mean(cfs) 18.4 Ac-ft 13,360

Fiscal year 1958-59: Max 43 Min 6.3 Mean(mgd) 19.5 Mean(cfs) 30.2 Ac-ft 21,850

* Discharge measurement made on this day.

1080. Wainiha River near Hanalei

Location.--Lat 22°08'10", long 159°33'40", on left bank, at Puwainui Falls, 1.5 miles upstream from Wainiha powerplant intake, and 6.0 miles southwest of Hanalei.

Drainage area.--10.2 sq mi.

Records available.--August 1952 to February 1956, October 1957 to June 1959. July 1914 to June 1916 at site half a mile downstream; records not equivalent. Gage-height records collected in this vicinity from April 1923 to December 1940 are contained in files of McBryde Sugar Co.

Gage.--Water-stage recorder. Altitude of gage is 960 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,960 mgd (3,030 cfs) July 20 (gage height, 4.97 ft), from rating curve extended above 660 mgd on basis of slope-area measurement at gage height 7.72 ft; minimum, 28 mgd (43 cfs) June 22-25.
1952-56, 1957-59: Maximum discharge recorded, 10,200 mgd (15,800 cfs) Dec. 1, 1957 (gage height, 7.72 ft), from rating curve extended above 660 mgd on basis of slope-area measurement of peak flow; minimum, 22.5 mgd (34.8 cfs) Feb. 12, 1954.
Flood of Feb. 17, 1956, reached a stage of about 14.1 ft (discharge not determined).

Remarks.--Records good. Water passing station is used for power by McBryde Sugar Co.

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1-20				July 20 to June 30			
1.4	41	2.6	195	1.2	28	2.5	165
1.7	63	3.0	310	1.4	38.5	3.0	300
2.0	94	3.5	530	1.6	50	3.5	530
2.3	135	4.0	850	1.8	65	4.0	850
				2.0	84	4.5	1,350

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	120	57	54	41	38.5	39.5	53	50	41	384	*35	31.5
2	55	525	86	48	37	39	47	41	65	154	30.5	30.5
3	79	366	28	38	43	41	88	41	41	88	41	30
4	112	78	47	33	38	35.5	44	57	41	71	49	31.5
5	66	225	50	33	35.5	100	*38.5	44	35	72	38.5	31
6	43	260	50	31.5	34.5	94	41	38.5	37.5	82	95	52
7	176	79	465	31.5	33.5	44	36.5	35.5	35	68	102	50
8	138	766	132	32	81	41	35.5	34	43	185	96	41
9	82	332	54	31	53	37	34.5	33	54	732	144	139
10	93	72	44	50	404	116	34	175	48	425	68	47
11	91	54	38.5	97	233	61	33.5	80	41	69	73	37
12	90	47	38.5	38.5	80	44	156	60	92	50	58	92
13	90	53	42	41	75	38.5	404	81	64	44	69	50
14	66	62	51	52	74	36.5	68	44	45	38.5	44	38.5
15	90	73	98	176	68	35.5	60	52	35	36	76	35.5
16	82	87	112	100	44	34.5	47	*41	36.5	34.5	173	35.5
17	64	47	70	145	41	40	270	51	33.5	33	193	31.5
18	530	47	81	94	38.5	196	174	186	31.5	33	376	30
19	212	38.5	90	74	203	48	67	66	33	33.5	63	29
20	577	41	135	76	62	41	47	75	33.5	32.5	47	29
21	109	170	224	127	89	36.5	41	425	33	31	67	28.5
22	142	78	67	156	91	71	41	158	34	31	48	28
23	123	53	47	938	105	45	41	75	31	31	41	28
24	121	48	44	301	54	36.5	35.5	57	30	34.5	36.5	28
25	119	136	47	106	44	35	34	62	46	39	36	*29
26	78	190	77	57	38.5	33.5	33.5	75	57	33.5	34	53
27	56	85	44	47	38	33.5	33	47	39.5	33.5	34.5	34
28	41	50	38	121	36.5	75	32.5	44	33.5	30.5	34	32.6
29	38.5	47	35.5	65	35	285	33	-	43	30	31	46
30	*43	71	34	56	34.5	103	33.5	-----	*36	35	33.5	45
31	41	55	-----	44	-----	119	49	-----	89	-----	31	-----
Total	3,767.5	4,312.5	2,453.5	3,280.5	2,282.0	2,035.0	2,195.5	2,210.0	1,355.5	2,994.0	2,297.5	1,243.5
Mean:												
mgd	122	139	81.8	106	76.1	65.6	70.8	78.9	43.7	99.8	74.1	41.4
cfs	189	215	127	164	118	101	110	122	67.6	154	115	64.1
Ac-ft	11,560	13,230	7,530	10,070	7,000	6,250	6,740	6,780	4,160	9,190	7,050	3,820
Calendar year 1958:	Max	938	Min	28.5	Mean(mgd)	77.3	Mean(cfs)	120	Ac-ft	86,610		
Fiscal year 1958-59:	Max	938	Min	28	Mean(mgd)	83.4	Mean(cfs)	129	Ac-ft	93,580		

Peak discharge (base, 2,000 mgd).--No peak above base.

* Discharge measurement made on this day.

2030. Mauka ditch near Wahiawa
(Formerly published as Kaukonahua ditch near Wahiawa)

Location.--Lat 21°30'45", long 157°59'20", on left bank 3 miles northeast of Wahiawa.

Records available.--March 1947 to June 1959. Prior to July 1958 published as Kaukonahua ditch near Wahiawa.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 1,100 ft (from topographic map).

Average discharge.--12 years, 3.08 mgd (4.77 cfs).

Extremes.--1947-59: Maximum daily discharge, 10.1 mgd (15.6 cfs) Jan. 27, 1948; no flow at times.

Remarks.--Records good. Ditch diverts water from North Fork Kaukonahua Stream for domestic use.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.1	3.3	4.7	4.3	4.1	2.3	2.05	2.0	2.2	3.25	3.0	2.5
2	4.9	3.05	4.7	5.1	4.0	2.2	1.94	1.18	2.05	5.1	4.0	2.2
3	<u>6.6</u>	1.22	4.6	5.7	3.85	2.2	1.85	.94	1.85	3.3	5.2	2.3
4	2.4	.54	4.5	4.5	3.75	2.1	1.89	.85	1.85	3.5	4.1	2.05
5	<u>2.0</u>	*2.6	5.5	4.2	3.6	3.0	1.61	.78	1.69	3.2	4.2	1.94
6	2.9	3.85	5.7	4.0	3.5	4.2	1.53	.73	*1.61	2.5	5.6	1.77
7	4.0	3.5	6.0	4.2	3.5	2.6	1.53	.68	1.53	2.4	4.1	2.4
8	3.5	5.4	5.1	3.85	3.6	2.1	1.53	.68	1.46	2.5	3.5	2.4
9	3.1	1.54	4.7	3.6	3.3	2.05	1.32	.69	1.39	<u>6.8</u>	3.6	2.9
10	3.2	.83	4.6	2.9	5.4	*1.85	1.25	1.39	1.32	4.8	3.6	2.6
11	2.7	.68	4.5	4.7	5.5	2.3	1.18	3.35	1.32	4.2	3.1	*2.25
12	2.7	.58	4.6	4.1	4.8	2.6	1.12	3.85	4.0	3.5	2.8	3.6
13	3.65	.50	4.6	4.5	4.2	2.05	3.25	3.9	4.1	3.3	2.5	3.4
14	3.0	.54	4.6	4.1	5.1	1.77	2.4	2.1	6.0	3.1	3.0	3.1
15	3.7	.60	5.2	5.5	3.85	<u>1.61</u>	1.39	1.61	3.5	3.0	4.5	2.7
16	3.2	.87	4.5	4.8	3.5	1.77	1.12	1.32	2.8	2.9	4.5	2.8
17	4.1	.42	5.6	4.3	3.5	1.94	1.59	1.06	2.4	2.8	3.75	2.2
18	5.8	.36	6.5	4.0	3.4	5.3	5.9	4.1	2.1	2.7	5.7	1.77
19	4.1	<u>.31</u>	6.5	4.2	5.4	3.5	3.1	2.8	2.1	2.5	4.7	1.61
20	4.0	.31	<u>7.0</u>	4.1	3.6	2.8	2.05	4.0	1.94	2.4	3.85	1.46
21	3.4	.39	6.3	5.1	3.4	2.3	1.61	<u>7.1</u>	1.77	<u>2.3</u>	3.5	1.53
22	3.75	1.37	5.4	<u>5.9</u>	3.3	3.1	1.53	5.7	1.69	2.7	3.4	1.69
23	3.2	5.1	*5.1	3.5	3.2	2.6	1.39	4.1	1.77	3.0	5.2	1.46
24	4.1	4.7	4.8	<u>1.41</u>	3.1	3.5	1.18	3.4	1.69	3.0	3.1	1.39
25	3.85	<u>6.5</u>	4.7	<u>3.2</u>	3.0	2.7	1.12	3.0	1.53	2.8	3.0	1.44
26	4.1	6.3	4.8	3.0	2.9	2.3	1.06	2.9	1.77	2.7	2.9	2.9
27	3.3	5.9	4.6	2.85	2.7	2.7	1.25	3.1	1.46	2.6	2.8	1.61
28	3.1	5.2	4.5	5.0	2.6	2.4	1.06	2.5	<u>1.25</u>	4.3	2.6	<u>1.18</u>
29	3.0	5.1	<u>4.2</u>	4.6	2.5	3.75	1.06	-	2.25	3.1	<u>2.5</u>	<u>1.18</u>
30	2.9	5.5	<u>4.3</u>	4.2	<u>2.4</u>	3.0	1.00	-----	2.35	3.0	3.75	2.35
31	2.9	4.8	-----	4.1	-----	2.3	2.15	-----	2.35	-----	3.0	-----
Total	112.25	81.86	152.4	129.51	110.55	80.89	53.81	69.78	67.09	97.25	113.05	64.68
Mean	3.62	2.64	5.08	4.18	3.68	2.61	1.74	2.49	2.16	3.24	3.65	2.16
mgd	5.60	4.08	7.86	6.47	5.69	4.04	2.69	3.85	3.34	5.01	5.65	3.34
cfs	344	251	488	397	359	248	165	214	206	298	347	198
Ac-ft												
Calendar year 1958: Max	7.0			Min	0.12	Mean(mgd)	3.05	Mean(cfs)	4.72	Ac-ft	3,410	
Fiscal year 1958-59: Max	7.1			Min	0.31	Mean(mgd)	3.10	Mean(cfs)	4.80	Ac-ft	3,480	

* Discharge measurement made on this day.

2040. North Fork Kaukonahua Stream near Wahiawa

Location--Lat 21°30'55", long 157°59'20", on left bank 3 miles northeast of Wahiawa and 8.6 miles north of Pearl City.

Drainage area--4.86 sq mi.

Records available--September 1946 to June 1959.

Gage--Water-stage recorder and concrete control. Altitude of gage is 970 ft (from topographic map).

Average discharge--12 years (1947-59), 22.1 mgd (34.2 cfs).

Extremes--Maximum discharge during year, 1,690 mgd (2,610 cfs) Oct. 23 (gage height, 12.07 ft), from rating curve extended above 190 mgd as explained below; minimum, 0.29 mgd (0.45 cfs) June 29.

1946-59: Maximum discharge, 2,200 mgd (3,400 cfs) Nov. 28, 1954 (gage height, 15.55 ft), from rating curve extended above 190 mgd on basis of slope-area measurements at gage heights 8.39 and 15.55 ft; no flow at times in 1953.

Remarks--Records good except those for period of no gage-height record, which are poor. Poamoho tunnel diverts water from Poamoho Stream into North Fork Kaukonahua Stream about 1 mile above station. Mauka ditch (formerly known as Kaukonahua ditch) diverts water 2.6 miles above station for domestic use in Wahiawa (see p. 41).

Revisions (fiscal years)--WSP 1289: 1947-52. WSP 1569: 1955(M), drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.39	1.6	37.5
.4	.80	2.0	74
.5	1.45	2.4	131
.6	2.35	3.0	245
.8	5.0	4.0	424
1.0	9.1	5.0	584
1.3	20	6.0	744

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.0	29	10.0	5.4	10.6	2.6	1.63	7.3	5.2	10	1.47	0.76
2	29	417	10.6	10.5	9.1	2.35	1.19	2.7	4.4	50	6.2	.55
3	339	160	10.0	64	8.2	2.25	1.32	1.63	3.8	22	58	.60
4	195	45	7.3	8.2	7.7	2.1	1.38	3.5	26	6.8	6.8	.60
5	35.5	*147	36.5	5.2	6.6	11.0	.80	1.26	3.4	9.5	4.2	.55
6	20.5	108	64	3.8	6.1	37	.72	1.12	*2.9	4.0	30.5	.47
7	44	40	84	4.6	5.5	4.1	.76	1.06	2.8	3.2	8.0	.55
8	31.5	633	17.8	4.7	6.6	2.35	.80	1.19	2.6	2.5	2.7	.86
9	25.5	147	11.2	59	5.9	1.90	.68	1.72	2.35	500	1.99	5.6
10	21.5	61	9.7	78	51	*1.63	.64	15.9	2.6	50	2.6	1.90
11	13.9	45	8.2	10.0	79	2.35	.60	28.5	2.25	26	1.36	1.20
12	13.9	37	7.0	4.1	36.5	3.4	.72	44	38	11.5	.93	26.5
13	69	34.5	8.0	4.8	22	2.15	13.0	31	30	6.5	.72	15.8
14	18.1	52	7.3	3.65	46	1.45	6.6	6.4	154	5.5	1.00	6.0
15	41	79	19.1	15.2	15.5	1.19	1.36	3.65	15.3	4.7	11.0	1.68
16	21.5	71	7.9	12.0	8.9	1.06	.76	2.7	6.6	4.1	12.6	1.26
17	50	31.5	34.5	4.7	7.5	1.32	3.65	2.25	5.0	3.8	3.9	.86
18	234	27.5	36	3.05	6.4	50	83	28.5	4.1	3.4	139	.55
19	51	22	50	3.25	55	9.8	9.3	12.0	3.8	2.8	10.7	.43
20	47	21	64	3.25	10.7	4.0	3.3	25.5	3.4	3.2	5.7	.37
21	26.5	28.5	39	8.2	7.3	1.72	2.15	391	2.9	3.5	6.1	.37
22	31.5	34.5	14.3	11.5	5.9	5.0	1.72	71	2.8	2.5	5.1	.39
23	20.5	17.9	*10.9	663	5.4	3.9	1.45	26.5	2.5	1.4	2.45	.39
24	45	12.1	9.1	294	4.7	9.2	2.15	13.5	2.3	*1.06	1.72	.39
25	50	111	8.2	78	4.1	3.25	2.9	9.1	2.2	1.00	1.32	.39
26	89	67	9.1	49	3.65	1.72	2.8	7.5	2.0	.86	1.06	4.0
27	24.5	33.5	7.3	27.5	3.25	2.6	3.4	9.7	1.8	.80	.80	.99
28	18.7	17.9	6.4	30	3.15	3.0	3.25	6.1	1.5	14.1	.68	.37
29	16.1	13.9	5.4	20.5	2.9	23.5	2.9	-	2.5	2.4	.60	.34
30	15.3	16.3	5.4	13.9	2.7	7.3	3.05	-	3.9	.93	4.8	5.9
31	14.6	11.8	-----	11.8	-----	2.6	7.6	-----	1.5	-----	2.4	-----
Total	1,723.6	2,562.3	618.2	1,617.30	449.85	207.79	164.93	754.16	321.90	777.25	336.42	80.62
Mean												
mgd	55.6	82.7	20.6	52.2	15.0	6.70	5.32	26.9	10.4	25.9	10.9	2.69
cfs	86.0	128	31.9	80.8	23.2	10.4	8.23	41.6	16.1	40.1	16.9	4.16
Ac-ft	5,290	7,860	1,900	4,960	1,380	638	506	2,310	988	2,390	1,030	247
Calendar year 1958:	Max 663		Min 0.43		Mean(mgd)	25.3		Mean(cfs)	39.1	Ac-ft	28,320	
Fiscal year 1958-59:	Max 663		Min 0.34		Mean(mgd)	26.3		Mean(cfs)	40.7	Ac-ft	29,500	

Peak discharge (base, 1,100 mgd).--July 3 (9:30 p.m.) 1,390 mgd (2,140 cfs), 10.09 ft; Aug. 2 (6:30 a.m.) 1,160 mgd (1,790 cfs), 8.68 ft; Aug. 8 (2:30 p.m.) 1,570 mgd (2,430 cfs), 11.27 ft; Oct. 9 (11:30 p.m.) 1,380 mgd (2,140 cfs), 10.12 ft; Oct. 23 (10 a.m.) 1,690 mgd (2,610 cfs), 12.07 ft; Apr. 9 (time and discharge unknown).

* Discharge measurement made on this day.

Note.--No gage-height record Mar. 23 to Apr. 23; discharge estimated on basis of records for stations on nearby streams.

2080. South Fork Kaukonahua Stream at East Pump Reservoir, near Wahiawa

Location--Lat 21°29'32", long 157°59'55", on right bank at dam on East Pump Reservoir, 2 miles southeast of Wahiawa and about 7.5 miles north of Waipahu.

Drainage area--4.04 sq mi.

Records available--July 1957 to June 1959.

Gage--Water-stage recorder and Ogee-type dam control. Datum of gage is 860.35 ft above mean sea level, datum of 1929.

Extremes--1957-58: Maximum discharge during fiscal year, 1,060 mgd (1,640 cfs) Nov. 21 (gage height, 5.96 ft); minimum, 0.67 mgd (1.04 cfs) Oct. 28, 29.
 1958-59: Maximum discharge during fiscal year, 1,270 mgd (1,960 cfs) Feb. 21 (gage height, 6.40 ft); minimum, 0.46 mgd (0.71 cfs) June 19.
 Flood of Feb. 25, 1956, is the highest known since 1946 and reached a stage of 8.85 ft (affected by backwater from Wahiawa Reservoir).

Remarks--Records good except those for periods of no gage-height record, which are poor. Koolau ditch diverts water into Koolau Reservoir (capacity, 43,000,000 gal), and Ku Tree Reservoir (capacity, 293,000,000 gal) located on tributary.

Rating table, July 1, 1957, to June 30, 1959 (gage height, in feet, and discharge, in million gallons a day)
 (Shifting-control method used May 19, 1959, to June 22, 1959)

1.2	0.30	2.6	74
1.3	.80	3.0	156
1.5	2.75	3.5	235
1.7	6.2	4.0	360
2.0	16.0	4.5	510
2.3	39.0		

Discharge, in million gallons a day, fiscal year July 1957 to June 1958

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.2	5.0	12.8	3.9	4.6	210	5.8	8.0	3.6	2.2	1.80	2.1
2	15.0	*3.0	11.0	1.60	1.32	46	5.6	5.0	1.90	1.95	2.6	20
3	5.0	5.0	11.8	1.24	.93	12.5	4.4	3.9	1.32	1.85	9.4	3.6
4	6.7	13.2	7.7	1.15	.80	11.6	4.1	3.9	1.15	2.1	4.3	2.25
5	12.0	7.3	6.6	1.15	.80	6.6	3.75	3.75	205	2.5	2.35	4.5
6	10.0	34	4.6	1.07	0.71	71	3.6	3.0	*143	2.1	1.80	2.35
7	4.5	95	3.75	1.00	1.07	16.9	3.3	2.6	18.2	2.1	2.3	1.80
8	3.9	5.0	3.3	1.00	*3.5	7.3	3.3	2.5	10.0	*1.69	7.5	6.9
9	3.5	15.0	2.9	.93	11.0	6.2	3.6	2.35	7.3	1.60	6.2	*32
10	9.0	9.4	2.5	.93	2.3	11.4	3.75	2.1	5.8	1.60	12.0	7.7
11	20	6.8	3.0	.93	3.2	12.6	3.3	2.0	5.2	1.80	10.8	7.7
12	11.5	7.5	3.3	.93	1.15	7.0	2.9	1.90	4.6	1.80	6.5	6.6
13	4.6	5.4	2.35	.93	.93	6.4	2.6	1.80	4.4	1.69	8.0	4.2
14	19.0	4.8	3.2	.93	.86	11.0	2.35	1.80	3.9	1.80	*4.5	3.45
15	7.2	54	2.25	.93	.80	22	2.25	1.69	3.45	1.90	4.1	2.6
16	5.0	8.0	1.80	1.00	2.2	*17.5	2.1	1.60	3.15	5.8	51	2.35
17	4.5	5.2	1.80	5.9	1.4	10.0	2.1	1.45	3.0	3.9	12.0	2.1
18	4.2	6.8	*2.1	3.0	.80	15.4	2.0	1.45	2.9	3.0	6.5	2.1
19	4.0	6.0	2.6	3.4	.80	23.5	2.0	1.18	2.5	1.90	4.2	2.1
20	9.0	5.8	1.60	1.32	1.00	21.5	1.90	1.21	2.35	1.60	3.75	1.90
21	6.0	3.75	1.41	1.15	114	56	*1.69	1.12	2.3	1.60	3.45	1.90
22	3.5	3.15	1.41	1.32	17.4	13.0	1.80	1.03	2.1	1.60	4.1	2.75
23	2.0	3.9	1.32	.86	9.7	10.0	1.90	1.03	2.1	1.41	2.75	32
24	15.0	110	1.32	.80	10.0	13.0	1.69	1.03	1.90	1.15	2.1	7.7
25	6.0	75	1.41	.80	8.8	9.1	1.50	.96	1.75	1.07	2.3	8.0
26	4.0	15.5	1.60	.80	4.6	15.5	1.41	.85	1.62	1.07	12.0	12.0
27	8.0	12.0	2.5	.80	6.6	7.7	1.32	*.85	2.0	15.0	3.15	12.9
28	20	12.2	5.0	.67	3.75	8.0	24	*12.0	2.6	9.5	2.25	35
29	7.0	106	1.80	.75	5.8	12.3	18.5		5.2	3.4	1.90	10.3
30	8.0	69	3.0	.80	16.0	6.6	125		8.3	1.80	1.69	5.8
31	30	20.5		1.10		5.6	38		4.6		1.80	
Total	270.3	776.20	111.72	43.07	287.11	703.2	281.51	72.05	465.19	82.08	199.09	246.65
Mean:	8.72	25.0	3.72	1.39	9.57	22.7	9.08	2.57	15.0	2.74	6.42	8.22
mgd	13.5	39.7	5.75	2.15	14.6	35.1	14.0	3.98	25.2	4.24	9.93	12.7
cfs	830	2,380	343	132	881	2,160	864	221	1,430	252	611	757
Ac-ft												

Calendar year 1957: Max - Min - Mean(mgd) - Mean(cfs) - Ac-ft -
 Fiscal year 1957-58: Max 210 Min 0.67 Mean(mgd) 9.69 Mean(cfs) 15.0 Ac-ft 10,860

Peak discharge (base, 900 mgd)--Nov. 21 (2 a.m.), 1,060 mgd (1,640 cfs), 5.96 ft; Dec. 6 (7:30 p.m.) 1,010 mgd (1,560 cfs), 5.82 ft; Mar. 5 (6 a.m.), 1,040 mgd (1,610 cfs), 5:90 ft.

* Discharge measurement made on this day.
 Note.--No gage-height record July 1 to Aug. 2, Feb. 17-27, Mar. 21 to Apr. 8; discharge estimated on basis of records for stations on nearby streams.

2080. South Fork Kaula Stream at East Pump Reservoir, near Wahila--Continued

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.3	24	10.7	5.8	8.0	3.15	2.35	2.5	5.2	8.0	2.25	1.00
2	28.5	230	11.0	8.3	7.3	3.0	2.1	2.1	4.4	43	2.5	.75
3	125	83	10.7	33	6.8	3.0	2.0	1.69	4.1	15.1	6.2	.80
4	75	27.5	8.0	7.1	6.2	3.0	1.80	1.60	3.75	16.3	3.7	.86
5	16.2	121	18.5	5.4	5.8	3.5	1.69	1.50	3.6	8.9	2.75	1.00
6	10.7	*57	41	4.8	5.6	19.6	1.60	1.41	3.65	5.6	11.3	1.15
7	19.0	28	36.5	5.2	5.2	3.8	2.3	1.41	3.3	4.6	7.5	1.15
8	23.5	*376	10.7	4.8	5.8	2.5	2.5	1.41	2.9	3.75	3.6	1.41
9	*20.5	87	8.3	4.1	5.6	2.0	1.80	1.60	2.6	309	3.0	1.50
10	37	37.5	8.0	25.5	*15.0	*1.80	1.60	2.25	2.9	66	4.2	1.32
11	16.0	26.5	7.7	4.8	9.8	2.6	1.41	3.9	3.0	19.5	3.15	*.94
12	18.5	22.5	6.6	4.2	8.8	4.1	1.41	15.4	23	12.5	2.6	3.7
13	51	23	6.8	8.8	6.6	2.6	4.0	18.6	39	9.1	2.25	1.8
14	21	41	7.2	4.8	15.6	1.90	5.0	3.3	154	7.5	2.1	2.7
15	44	35	13.3	16.0	7.4	1.69	2.0	1.90	16.5	6.4	14.0	1.07
16	19.5	25	9.4	9.7	4.8	1.50	1.60	1.50	8.0	5.6	8.0	1.15
17	44	17.7	11.0	6.6	4.6	1.90	1.65	1.41	6.2	5.2	5.1	.93
18	172	14.5	28	5.8	4.5	17.6	49	23.2	5.2	4.8	45	.61
19	57	12.5	36	7.5	59	7.3	7.7	8.3	5.0	4.2	5.4	.51
20	47	11.8	45	6.4	9.7	5.6	*3.75	30.8	4.8	4.1	1.32	.56
21	24	22	26	20	6.0	3.0	2.35	243	4.6	3.75	2.6	.61
22	34	13.5	12.8	80	5.0	2.6	2.1	99	3.9	3.6	2.6	.80
23	26	14.0	10.3	334	4.8	3.15	1.80	32	3.45	3.15	1.69	*.87
24	35	11.0	8.6	209	4.2	3.9	1.60	15.5	3.15	3.0	1.24	.80
25	42	121	8.0	49.5	3.9	3.75	1.60	10.3	3.0	2.9	1.00	.95
26	35.5	63	*7.5	24	3.75	2.75	1.69	8.3	2.75	2.75	.93	1.41
27	18.3	28.5	6.8	17.4	3.45	3.3	1.69	9.1	2.5	2.5	.93	1.41
28	14.5	16.4	6.4	16.4	3.3	4.1	1.60	6.0	2.35	11.4	.86	.93
29	12.8	12.8	5.8	15.9	3.0	11.9	1.90	-	2.8	3.45	.93	.80
30	11.3	12.5	5.6	10.0	3.0	6.4	2.1	-----	3.45	2.5	.93	10.6
31	12.2	10.3	-----	8.6	-----	3.0	2.35	-----	2.35	-----	1.00	-----
Total	1,117.3	1,625.5	432.2	961.2	242.50	139.99	118.04	548.98	335.40	598.15	150.63	44.05
Mean:												
mgd	36.0	52.4	14.4	31.0	8.08	4.52	3.81	19.6	10.8	19.9	4.86	1.47
cfs	55.7	81.1	22.3	48.0	12.5	6.99	5.99	30.3	16.7	30.8	7.52	2.27
Ac-ft	3,430	4,990	1,330	2,950	744	430	362	1,680	1,050	1,840	462	135
Calendar year 1958:	Max	376	Min	0.85	Mean(mgd)	16.1	Mean(cfs)	24.9	Ac-ft	18,010		
Fiscal year 1958-59:	Max	376	Min	0.51	Mean(mgd)	17.3	Mean(cfs)	26.8	Ac-ft	19,380		

Peak discharge (base, 900 mgd).--Aug. 2 (8 a.m.) 920 mgd (1,420 cfs), 5.60 ft; Aug. 8 (7:30 p.m.) 972 mgd (1,500 cfs), 5.73 ft; Oct. 23 (11:30 a.m.) 1,150 mgd (1,780 cfs), 6.14 ft; Feb. 21 (8 p.m.) 1,270 mgd (1,960 cfs), 6.40 ft.

* Discharge measurement made on this day.

2085. Right Branch of South Fork Kaukonahua Stream near Wahiawa

Location.--Lat 21°30'00", long 157°59'06", on left bank 500 ft below spillway of Ku Tree Reservoir, 1 mile above confluence with South Fork Kaukonahua Stream, and 3 miles east of Wahiawa Post Office.

Drainage area.--0.86 sq mi.

Records available.--August 1957 to June 1959.

Gage.--Water-stage recorder and masonry control. Altitude of gage is 980 ft (from topographic map).

Extremes.--1957-58: Maximum discharge during fiscal year, 498 mgd (771 cfs) Mar. 5 (gage height, 5.34 ft), from rating curve extended above 110 mgd by logarithmic plotting; no flow June 13-22.

1958-59: Maximum discharge during fiscal year, 208 mgd (322 cfs) Feb. 21 (gage height, 4.36 ft), from rating curve extended as explained above; no flow May 25, 26.

Remarks.--Records fair.

Rating table, Aug. 31, 1957, to June 30, 1959 (gage height, in feet, and discharge, in million gallons a day)

0.06	0	1.5	6.60
.1	.02	2.0	14.5
.2	.09	2.5	28.0
.3	.20	3.0	50
.5	.51	3.5	87
.8	1.38	4.0	147
1.1	3.10		

Discharge, in million gallons a day, August 1957 to June 1958

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			4.9	3.4	4.6	16.7	2.35	1.35	0.51	0.02	0.05	0.01
2			4.6	2.25	1.35	9.6	1.76	.65	.26	.02	.03	.01
3			4.4	1.96	1.07	2.75	1.47	.53	.10	.02	.01	.01
4			3.95	1.57	.44	1.71	1.30	.89	.05	.05	.02	.01
5			4.3	1.34	.29	1.30	1.18	.72	1.17	.03	.02	.01
6			4.9	1.30	1.44	12.0	1.10	.48	.24	.02	.01	.01
7			4.8	1.06	4.5	5.0	1.10	.46	2.35	.02	.02	.01
8			4.6	.70	*3.1	1.51	1.14	.46	1.06	*.02	.21	.03
9			4.4	.62	3.85	1.05	1.10	.39	.67	.01	.06	.03
10			4.2	.62	3.5	2.5	1.38	.34	.43	.01	.06	.01
11			4.8	.09	3.8	3.4	.97	.25	.29	.02	.03	*.01
12			4.4	.59	2.25	1.49	1.19	.20	.35	.02	.03	.01
13			4.2	.88	1.52	.94	1.06	.15	.39	.02	.05	0
14			4.2	.58	.88	.82	.79	.22	.06	.02	.03	0
15			3.65	1.11	.62	4.5	.74	.29	.05	.03	.03	0
16			3.15	2.05	2.4	5.1	.72	.14	.05	.05	.03	0
17			2.95	3.8	1.29	3.85	.67	.22	.03	.03	.02	0
18			*3.85	3.7	.66	12.4	.72	.08	.03	.02	.02	0
19			3.3	2.95	.48	7.5	.76	.06	.04	.02	.02	0
20			2.6	1.62	1.55	9.1	.43	.10	.03	.03	.02	0
21			2.35	2.3	13.4	5.4	*.51	.07	.03	.03	.02	0
22			2.1	.99	1.46	2.95	.78	.06	.03	.02	.02	0
23			1.62	.78	1.14	2.5	.65	.07	.03	.02	.01	.03
24			1.79	.38	1.10	2.85	.42	.18	.03	.03	.01	.02
25			2.3	1.13	.96	2.45	.26	.11	.03	.03	.01	.05
26			3.05	.72	1.60	3.8	.24	.20	.03	.03	.01	.07
27			4.9	.52	2.35	*2.3	.29	*.02	.03	.05	.01	.03
28			4.4	.30	1.52	5.8	1.67	3.65	.03	.05	.01	.27
29			3.25	.26	1.75	6.4	1.86	-	.06	.05	.01	.06
30			4.2	.13	13.7	2.45	11.3	-----	.03	.05	.01	.06
31		5.4	-----	2.2	-----	1.96	4.7	-----	.03	-----	.01	-----
Total												
Mean:			112.11	41.90	78.57	142.38	44.61	12.34	148.11	0.84	0.90	0.75
mgd			3.74	1.35	2.62	4.59	1.44	0.441	4.78	0.028	0.029	0.025
cfs			5.79	3.09	4.05	7.10	2.23	0.682	7.40	0.043	0.045	0.039
Ac-ft			344	129	241	437	137	38	455	2.6	2.8	2.3
Calendar year		Max	Min	Mean(mgd)	Mean(cfs)	Ac-ft						
Fiscal year		Max	Min	Mean(mgd)	Mean(cfs)	Ac-ft						

Peak discharge (base, 200 mgd).--Mar. 5 (3:30 p.m.) 498 mgd (771 cfs), 5.34 ft.

* Discharge measurement made on this day.

2085. Right Branch of South Fork Kaukonahua Stream near Wahiawa--Continued

Discharge, in million gallons a day, fiscal year July 1958 to June 1959												
Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.08	1.96	1.23	0.96	0.65	0.11	0.03	0.06	0.44	2.2	0.01	0.01
2	.08	19.4	1.25	1.29	.57	.07	.02	.04	1.19	2.2	.01	.01
3	*6.2	6.7	1.16	1.17	.61	.04	.01	.02	2.3	.02	.02	.01
4	2.25	2.3	.91	.76	.55	.02	.01	.01	.31	1.79	.05	.02
5	.74	*9.3	1.10	.56	.48	.40	.01	.01	.33	.72	.06	.03
6	.39	3.85	1.36	.46	.48	.58	.01	.01	*.43	.43	.52	.03
7	6.4	2.7	1.40	.49	.51	.16	.07	.01	.19	.44	1.00	.03
8	*4.0	*52	.69	.55	.54	.07	.02	.03	.22	.34	.43	.03
9	1.87	10.3	.59	.35	.77	.03	.02	.02	.05	7.7	.12	.04
10	5.8	3.45	.72	.50	*2.35	.03	.02	.05	.08	1.94	.20	.03
11	1.45	2.45	.59	.46	.96	.04	.02	.02	.06	.61	.12	.02
12	1.16	2.25	.49	.46	.55	.35	.03	2.75	4.2	.39	.03	.01
13	1.37	2.2	1.07	.81	.51	.11	2.8	2.55	2.05	.24	.02	.01
14	1.17	2.4	.85	.44	.51	.03	1.10	.34	13.4	.14	.02	.02
15	4.5	2.3	3.1	1.60	.38	.02	.29	.21	.92	.08	.42	.03
16	1.62	3.75	1.40	1.54	.36	.04	.12	.08	.41	.03	1.27	.03
17	2.25	2.25	2.95	.83	.43	.03	1.36	.08	.30	.07	.20	.03
18	11.2	1.52	*14.4	.43	.40	1.17	10.2	2.9	.22	.06	.23	.03
19	4.2	1.30	11.6	.86	3.35	.25	.93	1.02	.38	.20	.09	.03
20	2.7	1.70	12.7	.82	.55	.11	.33	3.65	.24	.20	.36	.02
21	1.47	3.15	7.0	2.65	.42	.03	.18	42	.17	.05	.83	.01
22	2.3	1.78	2.15	7.1	.22	.01	.24	12.2	.16	.04	.44	.02
23	1.68	1.32	1.47	30.5	.26	.03	.37	3.4	.13	.03	.06	.01
24	2.75	1.36	1.22	14.7	.17	.19	.14	1.68	.08	.03	.02	.01
25	1.46	1.50	1.22	2.7	.06	.30	.01	.90	.19	.01	0	.01
26	1.32	1.80	1.18	1.71	.06	.10	.01	.87	.12	.01	.01	.02
27	.97	2.1	.91	1.18	.07	.06	.01	1.13	.13	.01	.01	.03
28	.87	1.14	.85	1.10	.03	.01	.02	.57	.07	.03	.01	.02
29	.83	1.10	.85	.76	.03	1.59	.02	-	.59	.04	.01	.02
30	.81	1.92	.68	.62	.03	.49	.01	-----	.66	.02	.01	.02
31	.57	1.18	-----	.67	-----	.13	.03	-----	.16	-----	-----	-----
Total	74.26	152.43	77.09	79.03	16.86	6.60	18.44	76.61	27.10	29.35	6.56	0.64
Mean:												
mgd	2.40	4.92	2.57	2.55	0.562	0.213	0.595	2.74	0.874	0.978	0.212	0.021
cfs	3.71	7.61	3.98	3.95	0.870	0.330	0.921	4.24	1.35	1.51	0.328	0.032
Ac-ft	228	468	237	243	52	20	57	235	83	90	20	2.0
Calendar year 1958:	Max 117	Min 0	Mean(mgd) 1.68	Mean(cfs) 2.60	Ac-ft 1,890							
Fiscal year 1958-59:	Max 52	Min 0	Mean(mgd) 1.55	Mean(cfs) 2.40	Ac-ft 1,740							

Peak discharge (base, 200 mgd).--Feb. 21 (6:30 p.m.) 208 mgd (322 cfs), 4.36 ft.

* Discharge measurement made on this day.

2109. Poamoho tunnel near Wahiawa

Location.--Lat 21°31'10", long 157°58'50", on left bank about 5 ft downstream from tunnel outlet and 3.5 miles northeast of Wahiawa Post Office.

Records available.--July 1958 to June 1959.

Gage.--Water-stage recorder and 7-foot concrete flume. Altitude of gage is 1,120 ft (from topographic map).

Extremes.--1958-59: Maximum daily discharge, 116 mgd (179 cfs) Aug. 8; no flow July 1, Dec. 21, 22, June 5-8, 16-30.

Remarks.--Records good except those for period of no gage-height record, which are poor. Water from Poamoho Stream basin is diverted by Poamoho tunnel to Kaukonahua Stream basin.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a0	5.5	2.0	1.00	1.60	0.65	0.10	1.45	1.54	3.05	0.04	0.02
2	a5.0	87	2.15	1.48	1.67	.62	.03	.40	1.48	18.2	.04	.02
3	*a70	22.5	2.25	6.3	1.60	.59	.03	.25	1.24	2.95	5.3	.02
4	a65	*7.5	1.67	1.50	1.36	.53	.03	.19	1.12	5.0	.03	.02
5	a16	27	7.3	.91	1.48	5.4	.03	.18	*1.00	2.75	.03	0
6	a8.0	19.8	12.7	.77	1.54	7.8	.03	.15	.86	1.36	.06	0
7	*a6.4	7.6	16.1	.77	*1.48	1.00	.03	.14	.77	1.00	.03	0
8	5.6	116	3.55	.86	1.48	.59	.04	.15	.73	.86	.02	0
9	5.9	24.5	2.5	3.1	1.42	.50	.04	.19	.69	93	.02	2.1
10	3.65	11.7	2.25	8.5	14.5	.47	.04	5.5	.77	13.1	.03	.03
11	2.45	8.5	1.95	1.03	24	.77	.04	6.3	.62	5.0	.03	.03
12	2.4	6.8	1.74	.03	11.1	1.01	.04	12.7	3.75	3.3	.02	.03
13	9.5	6.3	1.67	.04	4.8	.53	5.2	7.9	3.45	2.3	.02	.20
14	2.9	7.7	1.60	.04	7.4	.40	1.59	1.60	24	1.95	.02	.04
15	8.7	9.9	2.85	.60	3.35	.34	1.10	.91	2.85	1.60	.02	.01
16	*3.45	7.6	1.82	.46	2.1	*.32	.04	.65	1.30	1.42	.02	0
17	9.7	4.5	3.45	.04	1.88	.38	1.58	.44	.95	.59	.02	0
18	36	5.8	*2.5	.04	1.60	4.9	23.5	8.7	.82	.03	16.9	0
19	8.5	3.3	11.1	.05	15.0	1.84	2.55	2.6	.69	.02	.03	0
20	8.6	2.65	9.3	.03	3.05	.02	1.00	5.2	.65	.02	.03	0
21	4.6	3.5	5.0	.03	1.81	0	.59	73	.62	.02	.04	0
22	4.0	4.7	2.25	11.8	1.54	0	.44	18.1	.56	.02	.04	0
23	3.2	3.35	1.81	71	1.42	.21	.38	6.7	.59	.14	.04	0
24	5.8	2.4	1.48	30	1.18	1.10	.21	3.6	.91	.04	.04	0
25	5.6	21	1.42	9.0	1.00	.08	.12	2.65	.59	.04	.04	0
26	14.1	10.3	1.74	4.9	.91	.03	.11	2.15	.56	.04	.04	0
27	3.6	5.0	1.42	3.0	.86	.69	.22	2.55	.50	.04	.04	0
28	2.65	3.1	1.42	1.37	.82	.27	.16	1.74	.42	.15	.03	0
29	2.5	2.55	1.00	1.42	.77	7.9	.11	.70	.70	.04	.02	0
30	2.7	2.5	.91	1.00	.69	1.35	.11	3.7	.04	.04	.02	0
31	2.1	2.15	1.48	1.48	.44	.44	2.85	2.15	2.15	.02	.02	0
Total	328.60	450.70	108.90	162.55	113.41	40.73	42.34	166.09	60.58	158.07	23.35	2.52
Mean:	10.6	14.5	3.63	5.24	3.78	1.31	1.37	5.93	1.95	5.27	0.753	0.084
mgd	16.4	22.4	5.62	8.11	5.85	2.03	2.12	9.18	3.02	8.15	1.17	0.130
cfs	1,010	1,380	334	499	348	125	130	510	186	485	72	7.7
Ac-ft												
Calendar year 1958:	Max	-	Min	-	Mean(mgd)	-	Mean(cfs)	-	Ac-ft	-		
Fiscal year 1958-59:	Max	116	Min	0	Mean(mgd)	4.54	Mean(cfs)	7.02	Ac-ft	5,090		

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for Poamoho Stream.

2110. Poamoho Stream near Wahiawa

Location.--Lat 21°31'25", long 157°58'55", on left bank just below concrete diversion dam, 3.5 miles northeast of Wahiawa and 9.5 miles north of Waipahu.

Drainage area.--1.79 sq mi.

Records available.--January 1947 to June 1959.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 1,150 ft (from topographic map).

Average discharge.--12 years, 2.65 mgd (4.10 cfs).

Extremes.--Maximum discharge during year, 1,000 mgd (1,550 cfs) Oct. 23 (gage height, 6.06 ft), from rating curve extended above 48 mgd by test on model of station site; no flow at times.

1947-59: Maximum discharge, that of Oct. 23, 1958; no flow at times.

Remarks.--Records good. Poamoho tunnel diverts water into North Fork Kaukonahua Stream about 175 ft above station.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.07	0	1.0	10
.08	.01	1.2	16.2
.1	.02	1.4	25.5
.2	.20	1.6	39.5
.4	.99	1.8	56
.6	2.85	2.0	74
.8	5.75	2.2	96

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.71	0.11	0.01	0	0.35	0.23	1.25	0.23	0.03	0.03	1.11	0.64
2	3.35	13.0	.01	0	.32	.20	1.25	.23	.05	.06	1.52	.52
3	37.5	.08	.01	.01	.29	.20	1.04	.20	.03	.05	9.4	.52
4	2.5	.03	.01	0	.29	.20	.88	.20	.03	.08	2.6	.49
5	.05	.74	0	0	.26	.26	.88	.20	*.01	.06	1.60	.45
6	.03	.23	.03	0	.26	.38	.83	.20	.02	.05	4.3	.42
7	.03	.03	.10	0	.26	.29	.79	.20	.05	.02	2.6	.45
8	.02	43	0	0	.26	.29	.83	.20	.03	.03	1.18	.79
9	.03	.11	0	.43	.26	.26	.74	.18	.03	.53	1.18	2.95
10	.03	.01	0	1.92	.35	.26	.64	.26	.02	.09	1.98	*1.77
11	.03	0	0	2.4	.45	.26	.60	.38	.02	.09	.94	.83
12	.03	0	0	1.50	.45	.26	.60	.35	.02	.06	.79	1.73
13	.06	0	0	1.41	.38	.26	1.38	.32	.02	.06	.64	1.62
14	.05	0	0	1.25	.38	.26	.88	.29	.09	.05	.79	1.42
15	.06	0	0	4.1	.35	.23	.79	.29	.07	.05	1.50	.64
16	.05	0	0	3.4	.35	.23	.60	.29	.06	.03	2.25	.49
17	.06	0	0	1.60	.32	.23	.45	.29	.05	.94	1.65	.35
18	.61	0	0	1.11	.32	4.2	.52	.29	.03	1.33	8.3	.29
19	.03	0	.03	.99	.42	2.7	.42	.26	.02	1.25	4.0	.26
20	.03	0	0	1.18	.38	1.77	.38	.26	.02	1.11	2.15	.20
21	.03	0	0	1.70	.35	1.04	.38	.53	.02	1.04	3.2	.20
22	.05	.01	0	3.65	.32	1.04	.38	.23	.02	.99	2.5	.42
23	.05	.01	0	88	.29	1.33	.35	.18	.02	*.94	1.25	.35
24	.06	0	0	.66	.26	1.50	.45	.13	.05	.88	.94	.29
25	.06	.16	0	.56	.23	1.50	.52	.11	.06	.83	.83	.26
26	.07	0	0	.49	.23	1.11	.52	.09	.05	.79	.79	.87
27	.07	0	0	.38	.23	1.11	.45	.05	.05	.79	.69	.45
28	.09	0	0	.38	.23	1.50	.45	.05	.05	4.1	.64	.23
29	.07	0	0	.35	.23	1.50	.45	-	.02	1.18	.60	.23
30	.07	0	0	.35	.23	1.60	.42	-----	.02	1.18	1.88	.57
31	.07	0	-----	.35	-----	1.41	.32	-----	.02	-----	1.48	-----
Total	46.95	57.52	0.20	118.17	9.30	27.61	20.44	6.49	1.08	18.67	65.28	20.70
Mean:												
mgd	1.51	1.86	0.007	3.81	0.310	0.891	0.659	0.232	0.035	0.622	2.11	0.690
cfs	2.34	2.88	0.011	5.89	0.480	1.38	1.02	0.359	0.054	0.962	3.31	1.07
Ac-ft	144	177	0.6	363	29	85	63	20	3.3	57	200	64
Calendar year 1958:	Max	88	Min	0	Mean(mgd)	1.20	Mean(cfs)	1.86	Ac-ft	1,350		
Fiscal year 1958-59:	Max	88	Min	0	Mean(mgd)	1.08	Mean(cfs)	1.67	Ac-ft	1,210		
Peak discharge (base, 130 mgd).--	July 3 (11:30 p.m.)	315 mgd (487 cfs), 3.32 ft;	Aug. 8 (2:30 p.m.)	440 mgd (681 cfs), 3.70 ft;	Oct. 23 (11 a.m.)	1,000 mgd (1,550 cfs), 6.06 ft.						

* Discharge measurement made on this day.

2128. Kipapa Stream near Wahiawa

Location.--Lat 21°28'15", long 157°57'50", on left bank 1,700 ft downstream from Forest Reserve Boundary, 4.9 miles southeast of Wahiawa Post Office, and 6.3 miles northeast of Waipahu.

Drainage area.--4.29 sq mi.

Records available.--January 1957 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 690 ft (from topographic map).

Extremes.--Maximum discharge during year, 1,480 mgd (2,290 cfs) Oct. 23 (gage height, 9.50 ft), from rating curve extended above 190 mgd on basis of slope-area measurement at gage height 7.96 ft; no flow June 18-25, 28-30.
1957-59: Maximum discharge, 1,520 mgd (2,350 cfs) Dec. 6, 1957 (gage height, 9.57 ft), from rating curve extended above 190 mgd on basis of slope-area measurement at gage height 7.96 ft; no flow June 18-25, 28-30, 1959.

Remarks.--Records good except those for periods of no gage-height record, which are poor.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

2.0	0	3.6	39
2.2	.16	4.0	87
2.4	.80	4.1	82
2.6	2.54	4.5	141
2.8	5.75	5.0	210
3.0	11.0	5.5	292
3.2	19.2	6.0	390

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.50	5.5	4.0	1.8	2.65	*0.35	0.70	1.65	0.75	9.9	0.32	0.25
2	1.33	127	4.5	2.8	2.3	.30	.50	.47	.64	14.3	.32	*.18
3	155	33.6	2.2	5.0	2.1	.32	.44	.21	.50	3.85	.47	.16
4	85	12.2	1.60	2.0	1.80	.30	.35	.15	-.44	9.8	.55	.16
5	11.0	42	6.3	1.2	1.60	.45	.30	.14	.44	3.85	.38	.14
6	5.4	35.6	18.2	1.0	1.37	12.7	*2.25	.14	.38	1.70	.44	.16
7	4.9	13.4	19.4	1.4	1.19	1.30	.23	.12	.35	1.12	.64	.15
8	6.1	219	3.95	*1.0	1.12	.47	.23	.14	.27	.75	.35	.16
9	6.9	48	2.2	.64	.99	.32	.30	.15	.25	102	.25	.15
10	4.8	16.1	1.70	7.3	3.7	.30	.70	.37	.25	14.5	.32	.16
11	4.1	9.4	1.44	.99	7.6	.50	.38	9.6	.21	12.9	.25	.10
12	2.65	6.8	1.19	.50	8.9	.60	.21	17.9	.32	5.2	.18	.18
13	18.3	5.4	1.06	.64	3.85	.32	.50	14.1	2.4	2.9	.15	.23
14	5.1	7.7	1.19	.70	5.3	.25	3.05	2.2	.58	2.1	.15	.36
15	7.7	11.2	2.8	8.8	3.1	.21	.64	.93	6.6	1.52	1.58	.20
16	4.0	8.5	3.15	5.1	1.37	.21	.27	.47	2.2	1.19	1.18	.12
17	15.3	3.9	5.0	2.1	1.19	1.24	3.35	.35	1.52	.93	1.38	.06
18	68	*3.08	9.5	1.19	.93	7.6	38.5	8.7	.88	.80	66	0
19	16.4	2.55	13	.93	11.8	3.1	5.3	4.9	.64	.70	5.3	0
20	16.0	2.4	24	.86	3.2	2.2	1.90	5.1	.65	.55	2.2	0
21	*9.5	7.4	9.5	2.75	1.44	.60	.99	26	.47	.47	2.2	0
22	6.6	2.4	7	34	.99	.44	.70	31	.44	*.47	3.05	0
23	4.1	3.4	4.0	388	.88	.64	.50	10.7	.41	.47	.93	0
24	8.5	2.0	3.1	185	.70	1.25	.35	4.5	.35	.44	.47	0
25	10.6	42	2.6	35.5	.60	.93	.30	2.75	.35	.41	.38	0
26	31.5	41	2.4	20	.80	.47	.30	1.80	.38	.38	.32	.02
27	6.4	12	2.2	10.0	.47	5.8	.27	1.44	.32	.35	.32	.12
28	3.9	10	2.0	10.2	.44	1.60	.23	.99	.23	.55	.25	0
29	3.5	7	1.8	8.6	.41	10.1	.25	-	.35	.70	.21	0
30	3.05	6.5	1.6	4.1	.38	4.0	.23	-	.47	.38	.27	0
31	2.4	3.8	-----	3.2	-----	1.19	.35	-----	.32	-----	.41	-----
Total	498.33	750.60	162.58	745.30	72.86	59.86	62.57	146.97	81.63	195.18	91.22	3.06
Mean	mgd	16.1	24.2	5.42	24.0	2.43	1.93	5.25	2.63	6.51	2.94	0.10
	cfs	24.9	37.4	8.39	37.1	3.76	2.99	8.12	4.07	10.1	4.55	0.155
Ac-ft	1,530	2,300	499	2,290	224	184	192	451	251	599	280	9.4

Calendar year 1958: Max 388 Min 0.08 Mean(mgd) 8.23 Mean(cfs) 12.7 Ac-ft 9,220
Fiscal year 1958-59: Max 388 Min 0 Mean(mgd) 7.86 Mean(cfs) 12.2 Ac-ft 8,810

Peak discharge (base, 200 mgd).--July 3 (10 a.m.) 410 mgd (634 cfs), 6.10 ft; Aug. 2 (5 a.m.) 442 mgd (684 cfs), 6.25 ft; Aug. 8 (2:30 p.m.) 1,120 mgd (1,730 cfs), 8.53 ft; Oct. 23 (8 p.m.) 1,480 mgd (2,290 cfs), 9.50 ft; Mar. 14 (2 a.m.) 879 mgd (1,050 cfs), 7.18 ft; Apr. 9 (6:30 a.m.) 283 mgd (438 cfs), 5.45 ft; May 18 (5:30 a.m.) 271 mgd (419 cfs), 5.38 ft.

* Discharge measurement made on this day.
Note.--No gage-height record Aug. 25 to Sept. 2, Sept. 17 to Oct. 8; discharge estimated on basis of records for nearby streams.

2130. Waikele Stream at Waipahu

Location--Lat 21°23'10", long 158°00'50", on left bank at Farrington Highway bridge, 0.3 mile south of Waipahu, and 2.5 miles west of Pearl City.

Drainage area--44.9 sq mi.

Records available--June 1951 to March 1952 (fragmentary), April 1952 to June 1959.

Gage--Water-stage recorder and concrete control. Datum of gage is 2.67 ft above mean sea level, datum of 1929.

Average discharge--7 years (1952-59), 25.7 mgd (39.8 cfs).

Extremes--Maximum discharge during year, 1,520 mgd (2,350 cfs) Aug. 8 (gage height, 6.90 ft), from rating curve extended above 470 mgd on basis of slope-area measurement at gage height 14.82 ft; minimum, 9.1 mgd (14.1 cfs) July 1, 17, June 19, 30, 1951-59; Maximum discharge, 8,790 mgd (13,600 cfs) revised, Nov. 28, 1954 (gage height, 14.82 ft), from rating curve extended above 470 mgd on basis of slope-area measurement of peak flow; minimum recorded, 6.4 mgd (9.9 cfs) Sept. 28-30, 1953.

Revisions--The maximum discharge for the fiscal year 1955 has been revised to 8,790 mgd (13,600 cfs) Nov. 28, 1954 (gage height, 14.82 ft), from rating curve extended as explained above, superseding figure published in WSP 1399.

Remarks--Records good. Flow regulated by plantation operation.

Revisions (fiscal years)--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.9	6.7	3.1	119
2.1	11.3	3.5	230
2.3	17.9	4.0	380
2.5	31	4.5	530
2.7	52	5.0	710

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.3	14.1	14.9	13.0	19.6	15.5	23	19.6	17.9	16.0	11.9	13.8
2	10.1	227	13.8	13.8	19.6	14.5	22.5	19.6	19.6	18.0	16.8	13.3
3	136	39	13.5	14.9	17.5	14.5	23.5	19.0	17.9	19.0	17.9	12.7
4	149	30	13.5	17.9	17.9	14.5	22	19.0	16.8	17.5	13.3	12.1
5	27	52	13.8	17.1	16.4	16.8	20	19.0	16.0	21.5	13.5	12.7
6	17.1	45	17.1	14.9	16.0	22	20.5	18.5	15.6	16.4	13.5	12.4
7	12.7	23	36	14.1	16.4	21	21.5	18.5	16.0	16.4	13.5	15.2
8	11.9	463	19	13.5	18.5	15.0	22	18.5	17.1	16.4	13.5	11.9
9	11.6	250	16.0	13.3	26.5	13.3	21.5	18.5	16.8	13.5	14.1	11.3
10	11.9	85	14.9	13.5	19.0	12.1	21.5	18.5	15.6	50	17.1	12.1
11	12.4	48	13.5	14.9	21.5	12.1	20	19.0	15.2	27	13.5	11.6
12	13.3	38	13.5	15.6	18.5	13.3	22	30	16.0	19.6	13.8	11.3
13	14.3	33.5	14.9	14.1	22	16.0	25	58	15.6	17.5	13.0	14.5
14	13.1	30	16.8	14.5	19.0	17.5	26	33	83	15.2	12.7	14.9
15	14.1	37.5	14.5	13.3	20	13.5	25	29	28	14.9	13.3	10.8
16	12.4	29.5	14.1	13.0	20	12.4	24	26.5	17	14.9	13.8	10.6
17	11.9	25	13.8	13.8	16.8	13.3	37	22.5	15.6	15.2	16.0	10.3
18	68	25	13.5	15.6	15.2	19.6	150	23.5	15.2	16.8	54	10.6
19	33.5	23.5	14.1	19.0	15.2	19.0	54	33	15.6	17.9	19.0	10.1
20	23	22.5	16.8	14.5	15.6	18.5	32	26	17.1	15.6	13.5	13.8
21	18.7	19.8	17.9	13.8	15.6	17.5	32	89	23	14.9	13.5	16.4
22	12.7	19.6	16.8	14.9	18.5	17.9	33	155	21	14.9	13.5	13.0
23	11.3	17.9	14.9	477	18.5	20.5	33	71	16.8	14.1	16.0	13.3
24	10.6	18.5	13.5	531	17.5	20	33	37.5	15.6	14.1	14.9	15.0
25	12.7	23.5	14.5	160	*16.5	17.9	33	26	16.4	16.0	13.8	11.3
26	27	50	13.8	64	17.5	18.5	31	23	17.5	17.5	13.8	9.9
27	15.6	22.5	14.9	41	19.0	19.0	26	21.5	19.6	14.5	13.8	10.8
28	13.8	16.4	14.1	35	18.5	21.5	22.5	18.5	19.6	13.5	13.5	13.3
29	13.0	14.9	13.3	33.5	19.5	22	20.5	20.5	21.5	12.1	13.3	10.8
30	13.0	16.4	13.3	22.5	21.1	25	20	-----	17.5	11.9	13.3	9.9
31	14.1	15.2	-----	20.5	-----	22.5	19.6	-----	16.0	-----	14.9	-----
Total	776.1	1,804.1	465.0	1,707.5	553.4	536.7	936.6	930.7	612.1	644.3	482.0	367.7
Mean	25.0	58.2	15.5	55.1	18.4	17.3	30.2	33.2	19.7	21.5	15.5	12.3
mgd	38.7	90.0	24.0	85.3	28.5	26.8	46.7	51.4	30.5	33.3	24.0	19.0
cfs	2,380	5,540	1,430	5,240	1,700	1,650	2,870	2,860	1,880	1,980	1,480	1,130
Ac-ft												

Calendar year 1958: Max 1,210 Min 10.1 Mean(mgd) 31.3 Mean(cfs) 48.4 Ac-ft 35,020
 Fiscal year 1958-59: Max 531 Min 9.9 Mean(mgd) 26.9 Mean(cfs) 41.6 Ac-ft 30,140

Peak discharge (base, 700 mgd)--Aug. 8 (8 p.m.) 1,520 mgd (2,350 cfs), 6.90 ft; Oct. 24 (1 a.m.) 1,350 mgd (2,090 cfs), 6.56 ft.

* Discharge measurement made on this day.

2140. Pearl Harbor Springs at Waiawa, near Pearl City

Location.--Lat 21°23'35", long 157°59'10", on right bank at rear of Oahu Sugar Co.'s pumping plant 9, 0.7 mile west of Pearl City and 9.8 miles northwest of Honolulu.

Records available.--March 1931 to June 1934, July 1937 to June 1959.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 0.73 ft below mean sea level, datum of 1929.

Average discharge.--25 years (1931-34, 1937-59), 12.0 mgd (18.6 cfs).

Extremes.--1931-34, 1937-59: Maximum daily discharge, 18.7 mgd (28.9 cfs) Feb. 27, 1949; minimum daily, 6.0 mgd (9.3 cfs) for several days in 1941 and 1947.

Remarks.--Records good except those for periods of no gage-height record, which are fair. Oahu Sugar Co.'s pump 9 diverts about 3 mgd at times when water is needed for irrigation of sugarcane. Surface runoff from floods not included in figures of discharge given below.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.2	7.9	12.0	8.2	12	9.5	12.3	12.6	13.0	10.2	11.2	9.5
2	8.6	10.2	10.2	8.2	12	9.8	12.3	12.6	13.0	10.2	11.2	8.6
3	8.6	10.9	8.6	7.9	12	9.8	12.3	10.6	13.0	10.2	11.2	9.8
4	11.2	7.6	8.6	8.6	12	9.8	12.3	12.3	12.3	12.0	10.6	10.2
5	8.6	7.6	8.9	11.2	12	9.8	12.3	12.6	12.3	12.0	11.2	10.6
6	11.6	8.6	8.6	8.2	12	12.3	12.3	12.6	12.0	10.6	10.9	11.6
7	8.9	12.0	12.0	8.6	12	12.3	12.6	12.6	13.0	11.2	10.9	11.6
8	8.2	11.6	9.2	7.9	12	8.2	*12.3	12.6	13.0	*10.9	10.9	9.8
9	7.3	11.6	8.9	8.6	12	9.8	12.0	12.6	12.3	10.9	10.9	8.9
10	7.3	11.6	8.6	9.2	12	8.6	12.0	12.6	10.9	11.6	10.9	8.6
11	7.3	11.6	8.6	9.2	12	8.6	12.0	12.6	11.2	11.6	7.9	8.6
12	7.6	11.6	8.6	12.3	12	8.6	9.5	13.0	11.6	11.6	8.9	8.9
13	11.2	11.6	8.9	8.9	12	12.3	10.9	13.0	12.6	9.5	11.2	11.6
14	7.6	11.6	11.6	8.6	11	12.3	12.0	13.0	12.6	9.5	11.2	12.0
15	7.0	11.6	8.9	8.6	12	10.6	11.6	13.0	12.6	9.5	11.2	8.6
16	*7.0	11.6	8.6	8.9	12	9.8	12.0	13.0	10.9	9.8	11.2	9.2
17	6.7	11.6	8.6	8.9	10	8.2	12.3	13.0	10.9	9.8	11.2	10.2
18	7.9	12.0	8.6	8.9	10	8.6	12.6	13.4	10.2	11.2	10.2	11.2
19	10.9	12.0	8.6	11.6	10	8.2	13.0	13.4	10.6	11.6	11.2	11.2
20	10.6	12.0	8.6	8.9	10	12.3	12.6	*13.0	10.2	10.6	8.6	11.2
21	7.0	12.0	11.2	8.9	10	12.3	12.6	13.0	12.3	10.6	8.9	11.6
22	7.0	12.0	8.6	9.8	12	7.3	12.6	13.0	12.6	10.2	9.8	11.6
23	6.7	12.0	8.6	11.6	12	7.0	12.6	13.0	10.2	10.2	10.9	10.9
24	6.7	12.0	8.2	12	12	7.3	12.6	13.0	10.6	9.5	11.2	10.9
25	7.3	11.2	8.6	12	12	12.0	13.0	13.0	9.8	11.2	8.9	10.2
26	7.3	9.2	8.6	12	12	12.3	13.0	13.0	10.6	11.2	10.9	9.5
27	7.6	10.2	8.6	12	12	12.3	12.6	13.0	12.0	9.2	*11.2	10.6
28	7.9	*10.6	11.2	12	*12	12.3	13.0	13.0	12.3	9.5	8.6	11.6
29	7.9	9.8	8.6	12	12.3	10.6	12.6	-	12.3	11.2	10.6	10.6
30	8.2	10.2	8.6	12	12.6	12.3	12.6	-----	10.9	11.2	11.2	8.6
31	8.2	12.0	-----	12	-----	12.3	12.6	-----	10.2	-----	11.6	-----
Total	254.1	338.0	276.0	307.7	349.9	317.4	381.0	358.1	362.0	318.5	328.5	308.0
Mean:												
mgd	8.20	10.9	9.20	9.93	11.7	10.2	12.3	12.8	11.7	10.6	10.5	10.3
cfs	12.7	16.9	14.2	15.4	18.1	15.8	19.0	19.8	18.1	16.4	16.2	15.9
Ac-ft	780	1,040	847	944	1,070	974	1,170	1,100	1,110	977	1,000	945

Calendar year 1958: Max 13.8 Min 6.7 Mean(mgd) 10.7 Mean(cfs) 16.6 Ac-ft 11,950

Fiscal year 1958-59: Max 13.4 Min 6.7 Mean(mgd) 10.7 Mean(cfs) 16.6 Ac-ft 11,960

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 24 to Nov. 28, Dec. 7 to Jan. 7; discharge estimated on basis of pumpage record and probable increase and decrease in flow.

2150. Morikone pond outlet at Pearl City

Location--Lat 21°23'30", long 157°59'10", on left bank of Waiawa Springs flow, 0.7 mile west of Pearl City, 1.5 miles east of Waipahu, and 9.8 miles northwest of Honolulu.

Records available--August 1951 to June 1959.

Gage--Water-stage recorder and submerged orifice control.

Average discharge--7 years (1952-59), 0.966 mgd (1.49 cfs).

Extremes--1951-59: Maximum daily discharge, 2.1 mgd (3.2 cfs) Jan. 12, 1956; no flow on Aug. 31, 1952.

Remarks--Records poor. Surface runoff from floods not included in figures of discharge given below.

Revisions (fiscal years)--WSP 1399: 1952-53.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.0	0.97	0.61	0.80	0.93	0.96	0.87	0.92	0.69	0.76	1.1	1.07
2	.98	1.06	.74	.74	.98	.70	.83	.92	.72	.81	1.1	1.05
3	.90	1.11	.58	.75	1.03	.77	.85	1.02	.70	.76	1.0	1.13
4	.97	.92	.68	.81	1.05	.71	.95	1.02	.75	.80	1.0	1.11
5	.90	.84	.68	1.01	.98	.91	.98	1.20	.74	.99	.95	1.13
6	1.0	.81	.57	1.05	1.10	.99	1.18	1.21	.62	.82	1.0	1.22
7	1.1	.89	.67	.87	1.10	1.00	1.20	1.21	.71	.82	1.0	1.25
8	1.0	.91	.87	1.09	1.13	1.03	1.52	1.21	.70	1.10	1.1	1.28
9	.80	.98	.97	1.20	1.20	1.35	1.40	1.22	.87	1.45	1.2	1.32
10	.80	.98	.89	1.29	1.54	1.13	1.38	1.04	.77	1.45	1.0	1.28
11	.80	.92	.92	1.21	1.55	1.01	1.37	1.05	.74	1.56	1.1	1.28
12	.75	.92	.94	1.32	1.53	.97	1.21	1.13	.73	1.54	1.2	1.10
13	.70	.89	1.02	1.41	1.21	.85	1.15	1.19	.75	1.51	1.1	1.16
14	.70	1.03	1.03	1.35	1.36	.85	1.06	.98	.75	1.27	1.1	1.16
15	.60	.86	1.02	1.28	1.18	.77	.94	.96	.75	1.38	1.0	1.17
16	.80	.87	.83	1.12	1.07	.69	.84	.97	.74	1.38	1.1	1.22
17	.85	.92	.80	1.05	.97	.70	.97	.97	.72	1.33	1.0	1.47
18	.90	.75	.76	.99	.89	.53	1.26	1.09	.72	1.33	.95	1.56
19	.96	.75	.85	1.07	.84	.63	1.04	1.10	.75	1.30	.90	1.47
20	1.10	.76	.76	1.09	1.05	.83	1.01	1.21	.79	1.27	.90	1.50
21	1.26	.76	.96	1.00	1.05	.88	1.10	.65	1.07	1.3	.80	1.59
22	1.18	.69	.95	1.02	1.01	.91	.92	.66	1.08	1.2	.80	1.45
23	1.08	1.03	.76	1.09	1.13	.86	1.00	.75	1.08	1.2	.80	1.36
24	1.00	1.09	.86	1.52	1.05	.93	.99	.76	.72	1.3	.90	1.27
25	1.08	.95	.86	1.22	.94	1.02	.97	.70	1.12	1.4	.95	1.11
26	1.21	.89	.90	1.15	1.12	1.12	1.20	.59	1.06	1.3	.95	1.11
27	1.18	.88	.84	1.22	1.17	1.20	1.11	.63	1.04	1.3	.95	1.10
28	.97	*.81	.95	1.13	1.27	1.14	1.21	.66	1.05	1.3	1.14	1.07
29	.97	.78	.75	1.08	1.26	1.15	1.20	-	1.05	1.5	1.15	1.07
30	1.06	.72	.84	1.04	1.02	.99	.99	-	1.12	1.2	1.17	1.12
31	1.14	.59	-----	.96	-----	.89	.90	-----	.88	-----	1.11	-----
Total	29.74	27.33	24.84	33.91	33.69	28.47	33.60	27.02	25.98	36.63	31.52	36.98
Mean:												
mgd	0.959	0.892	0.828	1.09	1.12	0.918	1.08	0.965	0.838	1.22	1.02	1.23
cfs	1.48	1.36	1.28	1.69	1.73	1.42	1.67	1.49	1.30	1.89	1.58	1.90
Ac-ft	91	84	76	104	103	87	103	83	80	112	97	113
Calendar year 1959: Max		1.99	Min	0.53	Mean(mgd)	1.15	Mean(cfs)	1.78	Ac-ft	1,290		
Fiscal year 1958-59: Max		1.56	Min	0.53	Mean(mgd)	1.01	Mean(cfs)	1.56	Ac-ft	1,130		

* Discharge measurement made on this day.

Note.--No gage-height record July 1-19, Apr. 21 to May 27; discharge estimated on basis of records for nearby stations.

2160. Waiawa Stream near Pearl City

Location.--Lat 21°23'55", long 157°58'50", on left bank 100 ft upstream from bridge on Farrington Highway, 0.6 mile northwest of Pearl City, and 2.0 miles northeast of Waipahu.

Drainage area.--26.4 sq mi.

Records available.--June 1952 to June 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1.81 ft above mean sea level, datum of 1929.

Average discharge.--7 years, 16.4 mgd (25.4 cfs).

Extremes.--Maximum discharge during year, 4,730 mgd (7,320 cfs) Oct. 23 (gage height, 13.32 ft), from rating curve extended above 700 mgd on basis of slope-area measurement at gage height 17.1 ft; minimum, 1.92 mgd (2.97 cfs) May 17, June 7, 1952-59; Maximum discharge, 10,900 mgd (16,900 cfs) Nov. 28, 1954 (gage height, 19.27 ft), from rating curve extended as explained above; minimum, 1.67 mgd (2.58 cfs) June 8, 1957.

Remarks.--Records good. Small quantity of water diverted occasionally for irrigation.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.5	1.92	3.0	75
1.6	2.90	3.5	151
1.8	5.5	4.0	263
2.0	9.3	5.0	493
2.2	15.2	6.0	730
2.5	30.5	7.0	1,020

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.0	8.6	3.8	4.6	4.9	2.9	4.1	3.1	3.8	2.7	2.5	2.5
2	8.2	485	3.7	4.5	4.4	2.9	3.7	3.1	3.55	12.0	2.6	2.5
3	837	88	3.8	5.2	3.95	3.55	3.45	3.1	3.3	11.3	2.6	2.5
4	91	38.5	4.1	6.2	3.7	3.7	3.45	3.1	3.1	6.5	2.5	2.5
5	27.5	99	10.0	4.6	3.55	4.2	3.3	3.0	3.0	6.7	2.5	2.5
6	13.0	63	30.5	4.1	3.45	3.95	3.2	3.0	3.0	5.4	2.5	2.7
7	9.4	31.5	4.0	4.8	3.3	4.4	3.2	3.0	2.9	4.4	2.5	2.6
8	12.8	894	10.9	5.3	3.3	3.8	*3.2	3.0	3.0	4.1	2.4	2.6
9	14.2	189	6.5	5.8	3.5	6.0	3.2	3.0	2.9	329	2.5	2.6
10	13.6	45	5.4	6.4	3.2	5.2	3.2	3.0	2.9	50	2.5	2.7
11	16.4	24.5	5.5	6.7	3.35	5.2	3.2	3.0	2.9	20.5	2.5	2.7
12	10.8	15.4	5.1	5.1	3.3	6.0	3.45	6.3	2.9	12.8	2.5	2.7
13	38.5	11.8	4.4	4.8	3.45	4.9	3.7	6.0	2.9	7.2	2.4	2.8
14	15.4	11.8	3.8	5.8	3.2	4.4	3.55	11.0	52	5.4	2.4	2.8
15	24.5	16.0	4.4	6.5	3.85	4.1	3.45	5.8	12.3	4.2	2.4	2.7
16	*19.9	13.8	4.5	7.0	3.1	4.4	3.3	4.4	5.2	3.55	2.6	2.7
17	20.5	9.8	4.1	6.7	3.1	5.2	3.85	3.7	3.8	3.3	2.4	2.6
18	150	7.2	3.8	6.2	3.1	6.0	53	13.1	3.2	3.1	88	2.7
19	46	5.8	4.5	5.1	9.8	5.1	14.0	*21.5	3.0	3.0	11.0	2.6
20	33.5	5.1	8.0	4.6	8.2	4.8	6.7	21	2.9	2.9	4.5	2.6
21	23	5.9	10.3	4.4	4.8	4.5	4.9	39.5	2.9	2.9	3.1	2.7
22	15.2	6.2	6.5	4.2	4.2	4.2	4.1	87	2.9	3.0	2.7	2.7
23	12.1	4.6	5.8	959	3.3	4.8	3.7	48	2.8	2.9	2.7	2.6
24	14.6	3.95	5.4	888	3.2	4.9	3.45	16.5	2.8	2.8	2.6	2.6
25	24.5	50	4.6	97	3.1	4.4	3.3	10.3	2.6	2.7	2.5	2.6
26	63	45	5.1	39	*2.95	3.95	3.2	7.2	2.7	2.7	2.6	2.6
27	17.2	14.0	5.7	18.9	3.0	3.7	3.2	5.4	2.8	2.6	2.6	2.8
28	9.3	*8.0	4.5	18.6	3.0	3.55	3.2	4.5	2.7	2.6	*2.5	2.7
29	7.8	6.0	4.4	18.0	2.9	22	3.1	-	2.7	2.6	2.5	3.0
30	7.6	5.2	5.1	7.8	3.0	16.5	3.1	-----	2.7	2.6	2.6	2.8
31	7.2	4.5	-----	5.8	-----	5.5	3.1	-----	2.7	-----	2.6	-----
Total	1,607.7	2,217.15	224.2	2,186.5	115.15	167.70	170.55	398.6	153.05	525.25	154.8	79.7
Mean	51.9	71.5	7.47	70.5	3.84	5.41	5.50	14.2	4.94	17.5	4.99	2.66
cfs	80.3	111	11.6	109	5.94	8.37	8.31	22.0	7.64	27.1	7.72	4.12
Ac-ft	4,930	6,800	688	6,710	353	515	523	1,220	470	1,610	475	245
Calendar year 1958; Max	1,360	Min	2.7	Mean(mgd)	27.6	Mean(cfs)	42.7	Ac-ft	30,950			
Fiscal year 1958-59; Max	959	Min	2.4	Mean(mgd)	21.9	Mean(cfs)	33.9	Ac-ft	24,550			

Peak discharge (base, 800 mgd).--July 3 (10 a.m.) 2,740 mgd (4,240 cfs), 10.60 ft; Aug. 2 (6 a.m.) 2,200 mgd (3,400 cfs), 9.70 ft; Aug. 8 (about 7 p.m.) 4,470 mgd (6,920 cfs), 10.80 ft; Oct. 23 (12 m.) 4,730 mgd (7,320 cfs), 13.32 ft; Apr. 9 (12 m.) 1,310 mgd (2,030 cfs), 7.77 ft.

* Discharge measurement made on this day.

2190. Hawaiian Electric Co. tunnel at Waiiau, near Pearl City

Location.--Lat 21°23'30, long 157°57'55", on right bank of ditch at Hawaiian Electric Co.'s Waiiau powerplant, 0.6 mile east of Pearl City and 8.8 miles northwest of Honolulu.

Records available.--October 1939 to December 1945, July 1952 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 2.91 ft above mean sea level, datum of 1929. Prior to July 1, 1952, water-stage recorder at site 120 ft downstream at datum 2.27 ft lower.

Average discharge.--9 years (1940-41, 1944-45, 1952-59), 10.5 mgd (16.2 cfs).

Extremes.--1939-45, 1952-59: Maximum daily discharge, 17.3 mgd (26.8 cfs) Mar. 26, 27, 1940; minimum daily, 6.0 mgd (9.3 cfs) Aug. 3, 1941.

Remarks.--Records good. Flow regulated by valves. Water used for cooling condensers of powerplant, and afterwards for irrigation of sugarcane.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.6	12.8	12.2	11.6	12.2	12.2	11.6	12.2	12.2	12.2	11.6	11.0
2	12.2	12.8	12.2	11.6	12.2	12.2	11.6	12.2	12.2	12.2	12.2	11.0
3	12.2	12.2	12.2	11.6	12.2	12.2	11.6	12.2	12.2	11.6	12.2	*11.0
4	12.2	12.8	12.2	11.6	12.2	12.2	11.6	12.2	12.2	11.6	12.2	11.0
5	12.2	12.2	11.6	11.6	12.8	11.6	11.6	12.2	12.2	11.6	11.6	11.0
6	12.2	12.8	12.2	*11.6	12.2	11.6	11.6	12.2	12.2	11.6	11.6	11.0
7	12.2	12.8	12.2	11.6	12.8	11.6	*11.6	11.6	11.6	11.6	12.2	11.0
8	12.8	13.5	12.2	11.6	12.2	11.6	11.6	12.2	12.2	11.6	11.6	11.0
9	12.8	12.8	11.6	11.6	12.2	11.6	11.6	12.2	12.2	11.6	11.6	11.0
10	12.8	12.8	11.6	12.2	12.2	11.6	11.6	11.6	12.2	11.6	12.2	11.0
11	12.8	12.8	11.6	11.6	12.2	11.6	11.6	11.6	11.6	11.6	11.6	11.0
12	12.8	12.8	12.2	11.6	12.2	11.6	11.6	12.2	12.2	11.6	11.6	10.4
13	12.8	12.8	12.2	12.2	12.2	11.6	11.6	12.2	12.2	11.6	11.6	11.0
14	*12.8	12.8	12.2	11.6	12.2	11.6	12.2	12.2	12.2	11.6	11.6	11.0
15	12.8	12.8	11.6	11.6	12.2	11.6	12.2	12.2	11.6	*12.8	11.6	11.0
16	12.8	12.8	11.6	11.6	12.2	11.6	12.2	12.2	12.2	12.8	11.6	11.0
17	12.8	12.8	11.6	11.6	12.2	11.6	12.2	12.2	12.2	12.2	11.6	10.4
18	12.8	12.8	11.6	11.6	12.2	11.6	12.2	11.6	12.2	12.8	11.6	10.4
19	12.2	12.8	11.6	11.6	12.2	11.6	12.8	12.2	12.2	12.8	11.6	11.0
20	12.2	12.8	11.6	11.6	11.6	11.6	12.8	12.2	12.2	12.2	11.6	11.0
21	12.8	12.8	11.6	11.6	12.2	11.6	12.8	12.2	11.6	12.2	11.6	11.0
22	12.8	12.2	11.6	11.6	12.2	11.6	12.2	12.2	11.6	12.2	11.6	11.0
23	12.8	12.2	11.6	11.6	12.2	11.6	12.2	12.2	11.6	12.2	11.6	11.0
24	12.8	12.2	11.6	12.2	*11.9	11.0	12.2	12.8	11.6	12.8	11.6	11.0
25	12.8	12.8	11.6	12.2	11.6	11.6	12.2	12.8	11.6	12.2	11.0	11.0
26	12.2	12.8	11.6	12.2	11.6	11.6	12.2	12.8	11.6	12.8	11.0	11.0
27	12.2	*12.8	11.6	12.2	11.6	11.6	12.2	12.2	11.6	12.2	11.0	11.0
28	12.8	12.2	11.6	12.2	11.6	11.6	12.2	12.2	11.6	12.2	11.0	10.4
29	12.8	12.2	11.6	12.2	11.6	11.6	12.2	-	11.6	12.2	11.0	10.4
30	12.8	12.2	11.6	12.2	11.6	11.6	12.2	-----	11.6	11.6	11.0	10.4
31	12.8	12.2	-----	11.6	-----	11.6	12.2	-----	11.6	-----	11.0	-----
Total	389.6	392.1	354.0	365.0	362.7	361.4	372.2	341.0	369.8	361.8	358.4	326.4
Mean:												
mgd	12.6	12.6	11.8	11.8	12.1	11.7	12.0	12.2	11.9	12.1	11.6	10.9
cfs	19.5	19.5	18.3	18.3	18.7	18.1	18.6	18.9	18.4	18.7	17.9	16.9
Ac-ft	1,200	1,200	1,090	1,120	1,110	1,110	1,140	1,050	1,130	1,110	1,100	1,000
Calendar year 1958: Max	13.5			Min	8.2	Mean(mgd)	11.0	Mean(cfs)	17.0	Ac-ft	12,300	
Fiscal year 1958-59: Max	13.5			Min	10.4	Mean(mgd)	11.9	Mean(cfs)	18.4	Ac-ft	13,360	

* Discharge measurement made on this day.

2230. Waimalu Stream near Aiea

Location.--Lat 21°23'35", long 157°57'00", on right bank, just downstream from bridge on Moanalua Highway, 1.5 miles northwest of Aiea and 1.6 miles east of Pearl City.

Drainage area.--6.07 sq mi.

Records available.--January 1952 to June 1959.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 0.1 ft (revised), based on tide level. Prior to Jan. 30, 1957, at same site at datum 3.5 ft higher.

Average discharge.--7 years, 4.84 mgd (7.49 cfs).

Extremes.--Maximum discharge during year, 2,460 mgd (3,810 cfs) Oct. 24 (gage height, 8.50 ft), from rating curve extended above 380 mgd by logarithmic plotting; no flow Sept. 25, Sept. 28 to Oct. 1, 1952-59; Maximum discharge, that of Oct. 24, 1958; no flow Sept. 25, Sept. 28 to Oct. 1, 1958.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Small quantities of water diverted for irrigation.

Revisions.--WSP 1569: Drainage area.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.31	0.76	0.99	0	0.80	0.40	1.00	0.24	0.59	0.56	0.26	0.34
2	3.4	201	.87	1.04	.45	.60	.60	.25	.51	4.9	.21	.38
3	261	27	.68	.29	.36	.80	.40	.26	.42	2.65	18	.34
4	15.5	7.4	.68	.21	.39	1.00	.35	.24	.47	1.33	18	.38
5	1.79	34.6	.75	1.04	.42	1.50	.28	.24	.38	1.88	.21	31
6	1.42	13.8	16.9	*2.25	.43	4.5	.26	.24	.51	1.10	.26	.34
7	1.35	4.8	7.8	1.31	.48	1.30	.25	.26	.34	*.67	.24	.51
8	1.61	279	1.34	1.33	.43	1.00	*.25	.26	.42	*.84	.34	.59
9	1.44	50	.63	1.27	.35	.80	.25	.31	.81	198	.38	.47
10	1.44	8.4	.68	1.10	.35	.70	.27	.92	.38	21	.50	.38
11	2.05	3.5	.72	.82	.37	.70	.23	.82	.34	9.2	.74	.47
12	2.15	2.05	.68	.63	.40	.74	.25	7.6	.34	5.0	1.14	.63
13	5.4	1.33	.42	.63	.48	.60	.25	19.5	.42	2.65	.59	.63
14	2.05	1.27	.38	.59	.48	.50	.26	1.95	11.4	1.70	.42	.55
15	*1.95	1.16	.44	.47	.59	.40	.30	.87	5.2	1.22	.54	.47
16	1.79	.99	.42	.44	.35	.56	.45	.68	1.85	.82	.31	.31
17	7.0	.76	.40	.43	.37	1.10	1.90	.55	1.59	.55	.29	.42
18	46	.63	.60	.46	.40	1.30	61	3.25	.99	.47	*29	.42
19	11.1	.51	.42	.42	.47	1.50	8.5	*2.95	.82	.29	3.45	.50
20	8.9	.42	.31	.42	*.50	.90	4.1	3.1	.82	.31	1.10	.51
21	4.0	.38	.24	.43	.90	.80	2.1	21.5	.68	.21	.92	.37
22	2.45	.31	.16	24	.89	.70	.76	47	.59	.32	.77	.73
23	2.65	.38	.19	*182	.60	.70	.54	15.3	.55	18	.72	1.13
24	4.0	.26	.08	*416	*.80	.80	.42	3.95	.51	.39	.59	.76
25	4.4	*23	0	50	.85	.60	.35	1.84	.55	.63	.47	.68
26	14.1	15.7	.04	15.0	.56	.50	.32	1.16	.38	.47	.34	.63
27	2.45	2.4	.04	5.5	.45	.42	.30	.93	.42	.34	.36	.72
28	1.33	1.22	0	19.0	.35	.35	.27	.68	.34	.47	.86	.76
29	1.04	1.42	0	9.5	.30	7.0	.23	-	.34	.31	.87	.72
30	.99	1.19	0	2.7	.30	4.0	.24	-	.38	.29	.63	.68
31	.76	1.04	-----	1.60	-----	2.0	.25	-----	.42	-----	.47	-----
Total	415.82	686.68	36.86	739.88	14.45	38.77	86.93	136.85	33.26	258.75	47.14	16.13
Mean:	13.4	22.2	1.23	23.9	0.482	1.25	2.80	4.89	1.07	8.62	1.52	0.538
mgd	20.7	34.3	1.90	37.0	0.746	1.93	4.33	7.57	1.66	13.3	2.35	0.832
cfs	1,280	2,110	113	2,270	44	119	267	420	102	794	145	50
Ac-ft												
Calendar year 1958:	Max 449	Min 0	Mean(mgd) 8.16	Mean(cfs) 12.6	Ac-ft 9,140							
Fiscal year 1958-59:	Max 416	Min 0	Mean(mgd) 6.88	Mean(cfs) 10.6	Ac-ft 7,710							
Peak discharge (base, 250 mgd).--July 3 (1 p.m.) 960 mgd (1,490 cfs), 6.12 ft; Aug. 2 (5:45 a.m.) 1,110 mgd (1,720 cfs), 6.42 ft; Aug. 8 (7 p.m.) 1,970 mgd (3,050 cfs), 7.80 ft; Oct. 24 (12:30 a.m.) 2,460 mgd (3,810 cfs), 8.50 ft; Apr. 9 (9 a.m.) 798 mgd (1,230 cfs), 5.72 ft.												

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 16-22, Oct. 26 to Jan. 17, Jan. 19 to Feb. 2, May 10, 11; discharge estimated on basis of records for nearby streams.

2240. Pearl Harbor Springs at Kalauao, near Aiea

Location.--Lat 21°23'05", long 157°56'45", on left bank 900 ft downstream from Oahu Sugar Co.'s pump 6, 1.1 miles west of Aiea, and 7.6 miles northwest of Honolulu.

Records available.--March 1931 to June 1959.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 1.38 ft below mean sea level, datum of 1929.

Average discharge.--28 years, 16.0 mgd (24.8 cfs).

Extremes.--1931-59: Maximum daily discharge, 25 mgd (39 cfs) Feb. 17-26, 1938, Feb. 23, 24, 1955; minimum daily, 7.2 mgd (11.1 cfs) Aug. 25, Sept. 2, 1947.

Remarks.--Records good. When water is needed for irrigation of sugarcane, Oahu Sugar Co.'s pump 6 diverts about 7 mgd as a high-lift pump or 9 mgd as a low-lift pump. Surface runoff from floods not included in figures of discharge given below.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.2	18.5	17.2	12.1	19.0	12.1	19.0	18.5	19.8	13.8	12.5	10.6
2	15.9	19.0	13.3	11.3	19.0	12.5	19.0	13.8	13.8	13.3	18.5	10.6
3	12.9	19.0	13.8	11.3	16.3	11.7	19.4	13.3	14.6	14.2	18.0	11.7
4	17.6	17.6	12.1	14.2	16.7	12.1	19.4	12.9	14.2	19.4	10.6	18.0
5	16.7	15.0	12.9	16.7	16.7	12.9	19.4	12.5	14.2	18.0	10.6	17.6
6	17.6	14.6	15.4	12.1	16.7	19.0	19.4	13.3	14.2	13.3	10.6	18.0
7	13.3	16.7	14.2	11.3	16.3	16.3	19.4	19.8	20.5	12.9	10.6	16.3
8	15.8	19.0	14.6	11.3	19.4	12.1	19.4	19.8	19.4	12.5	10.6	10.6
9	17.6	19.0	14.2	11.0	19.4	11.3	19.4	16.7	13.8	16.3	18.0	10.6
10	17.2	19.0	12.5	*11.7	16.7	11.7	19.0	16.3	13.3	16.7	17.2	10.6
11	17.2	19.0	11.7	13.3	16.3	12.9	18.0	19.4	12.9	19.0	10.6	10.6
12	17.2	17.2	12.9	17.6	14.2	19.0	12.1	18.0	12.9	19.0	11.0	11.7
13	14.6	17.6	15.9	11.3	13.8	19.0	16.7	19.8	19.8	12.9	10.6	18.0
14	12.1	12.9	16.0	11.3	14.6	19.0	17.2	19.8	19.8	15.4	11.7	16.3
15	*12.9	13.3	12.1	12.1	19.4	19.0	12.5	19.8	19.4	13.3	12.5	10.2
16	15.4	15.9	11.3	12.1	19.0	19.0	12.9	19.8	12.9	14.2	19.0	9.8
17	13.8	19.0	18.0	11.7	12.1	19.0	21	19.0	13.3	13.3	17.6	16.7
18	17.6	15.9	12.1	16.7	12.5	19.0	21	14.2	12.9	19.8	10.6	17.6
19	19.0	15.4	12.1	14.6	16.7	19.0	20.5	19.8	12.9	18.0	11.7	17.6
20	19.0	14.6	12.9	13.8	15.9	19.0	19.8	*19.8	12.9	12.9	10.6	17.2
21	19.0	15.4	17.6	15.4	15.9	16.3	19.4	20.5	19.8	11.7	12.5	15.4
22	17.6	15.9	12.5	15.9	19.4	11.3	19.4	21	19.4	14.2	18.0	9.8
23	19.0	15.9	12.9	18.0	18.0	11.3	19.4	21	11.7	12.9	18.0	9.8
24	15.0	19.0	12.9	18.5	13.3	12.9	19.8	20.5	12.5	13.3	16.7	9.8
25	19.0	13.8	14.6	18.5	14.6	19.0	19.8	20.5	12.9	19.0	10.6	9.8
26	19.0	17.6	13.3	18.5	*14.4	19.0	19.8	20.5	14.6	17.6	10.6	11.0
27	19.0	*14.6	16.3	16.7	17.6	19.0	19.8	20.5	19.0	13.3	10.6	17.6
28	15.4	12.9	18.0	19.0	16.3	16.7	19.8	20.5	19.0	13.8	10.6	11.3
29	12.9	12.9	15.4	19.0	19.0	19.0	19.8	-	19.4	13.3	12.1	9.8
30	15.9	18.0	14.2	19.0	19.0	19.0	19.4	-----	13.3	12.9	18.5	9.5
31	19.0	18.0	-----	19.0	-----	19.0	19.4	-----	13.3	-----	17.2	-----
Total	509.4	512.2	424.9	455.0	498.2	492.4	580.3	511.3	482.4	450.2	418.5	394.1
Mean:												
mgd	16.4	16.5	14.2	14.7	16.6	15.9	18.7	16.3	15.6	15.0	13.5	13.1
cfs	25.4	25.5	22.0	22.7	25.7	24.6	28.9	28.3	24.1	23.2	20.9	20.3
Ac-ft	1,560	1,570	1,300	1,400	1,530	1,510	1,780	1,570	1,480	1,380	1,280	1,210
Calendar year 1958: Max	20.5			Min	10.6	Mean(mgd)	16.7	Mean(cfs)	25.8	Ac-ft	18,700	
Fiscal year 1958-59: Max	21			Min	9.5	Mean(mgd)	15.7	Mean(cfs)	24.3	Ac-ft	17,570	

* Discharge measurement made on this day.

2245. Kalauso Stream at Moanalua Road at Aiea

Location.--Lat 21°23'07", long 157°56'22", on left bank of stream at Moanalua Road Bridge, 0.4 mile northwest of Aiea Post Office and 2.3 miles southeast of Pearl City Post Office.

Drainage area.--2.59 sq mi.

Records available.--June 1957 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 12.75 ft above mean sea level, datum of 1929. July 22, 1953, to June 19, 1957, at site 0.1 mile downstream; base flow not equivalent due to spring inflow.

Extremes.--Maximum discharge during year, about 750 mgd (1,160 cfs) Oct. 23 (gage height, 5.10 ft), from hydrologic comparison with nearby streams; minimum, about 0.1 mgd (0.2 cfs) at times.

1953-59: Maximum discharge, 1,050 mgd (1,620 cfs) Nov. 28, 1954 (gage height, 7.29 ft, at site 0.1 mile downstream), from rating curve extended above 240 mgd.
1957-59: Minimum daily discharge, 0.08 mgd (0.12 cfs) June 25-30, 1958.

Remarks.--Records poor.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	*0.10	0.30	0.15	0.10	0.15	0.13	0.18	0.10	0.11	0.11	0.10	0.10
2	.30	.45	.15	.10	.13	.20	.16	.10	.12	1.30	.10	.10
3	.62	5.4	.15	.11	.12	.25	.15	.10	.13	.45	.10	.10
4	5.8	.80	.15	.12	.12	.30	.14	.10	.12	.14	.10	.10
5	1.3	6.4	.40	.14	.12	.40	.13	.10	.11	.14	.10	.10
6	.50	1.40	3.5	.18	.12	1.50	.13	.10	.11	.12	.10	.10
7	.40	1.00	2.0	.12	.14	.80	*.12	.10	.11	*.11	.10	.10
8	.30	.92	1.00	.11	.12	.35	.12	.10	.11	.11	.11	.11
9	.30	19.0	.40	*.10	.12	.20	.12	.11	.11	*.30	.12	.11
10	.30	5.0	.25	.10	.12	.15	.13	.12	.11	7.0	.12	.11
11	.30	2.0	.20	.10	.12	.14	.13	.12	.11	2.5	.13	.11
12	.35	.50	.15	.10	.12	.14	.15	.40	.11	.90	.15	.12
13	.50	.35	.13	.10	.12	.14	.15	2.5	.35	.80	.12	.12
14	*.38	.30	.13	.10	.12	.12	.13	.15	1.50	.25	.11	.11
15	.35	.30	.13	*.10	.12	.12	.17	.11	1.00	.15	.11	.12
16	.35	.25	.13	.10	.12	.13	.25	.10	.50	.10	.11	.12
17	1.50	.20	.13	.10	.12	.14	.80	.10	.40	.10	.11	.12
18	15.0	.17	.15	.10	.12	.16	.22	.30	.30	.10	*5.7	.12
19	4.0	.16	.13	.10	.12	.20	1.20	*.90	.25	.10	.30	.12
20	1.50	.15	.12	.10	*.12	.15	.30	1.30	.23	.10	.15	.12
21	.70	.14	.11	.20	.15	.13	.12	3.4	.15	.10	.13	.12
22	.50	.14	.11	6.0	.13	.13	.10	6.5	.13	.10	.12	.12
23	.60	.14	.10	*1.40	.14	.14	.10	2.5	.12	.10	.12	.12
24	.80	.14	.10	*.80	.12	.14	.10	.40	.11	.10	.12	.12
25	.90	*8.0	.10	8.0	.13	.12	.10	.15	.11	.12	.11	.12
26	2.5	5.0	.10	1.50	*.11	.12	.10	.12	.11	.12	.10	.12
27	.60	2.5	.10	.50	.11	.12	.10	.11	.10	.11	*.10	.12
28	.40	1.00	.10	1.50	.11	.12	.10	.11	.10	.11	.11	.12
29	.35	.30	.10	.60	.11	2.0	.10	-	.10	.11	.10	.12
30	.30	.20	.10	.25	.11	.50	.10	-	.10	.10	.10	.12
31	.30	.15	.10	.13	-----	.25	.10	-----	.10	-----	.10	-----
Total	103.48	198.39	10.57	240.86	3.68	9.29	27.78	20.30	6.92	45.45	9.25	3.41
Mean:												
mgd	3.34	6.40	0.352	7.77	0.123	0.300	0.896	0.725	0.223	1.52	0.299	0.114
cfs	5.17	9.90	0.545	12.0	0.190	0.460	1.39	1.12	0.345	2.35	0.461	0.176
Ac-ft	318	609	32	739	11	28	85	62	21	139	28	10

Calendar year 1958: Max 168 Min 0.08 Mean(mgd) 2.51 Mean(cfs) 3.88 Ac-ft 2,810

Fiscal year 1958-59: Max 140 Min 0.10 Mean(mgd) 1.86 Mean(cfs) 2.88 Ac-ft 2,080

Peak discharge (base, 150 mgd)--July 3 (2 p.m.) discharge unknown; Aug. 2 (4 a.m.) discharge unknown; Aug. 8 (5 p.m.) discharge unknown; Oct. 23 (10 a.m.) about 750 mgd (1,160 cfs), 5.1 ft; Apr. 9 (8 a.m.) discharge unknown.

* Discharge measurement made on this day.
Note.--Stage-discharge relation indefinite July 1 to June 14; discharge estimated on basis of measurements and records for stations on nearby streams.

2260. North Halawa Stream near Aiea

Location--Lat 21°23'45", long 157°53'35", on left bank 2.7 miles above confluence with South Halawa Stream and 2.7 miles northeast of Aiea Post Office.

Drainage area--3.45 sq mi.

Records available--August 1929 to June 1933, July 1953 to June 1959.

Gage--Water-stage recorder. Altitude of gage is 320 ft (from topographic map), revised.

Average discharge--8 years (1931-33, 1953-59), 4.72 mgd (7.30 cfs).

Extremes--Maximum discharge during year, 832 mgd (1,290 cfs) Oct. 23 (gage height, 11.51 ft), from rating curve extended above 70 mgd; no flow at times.

1929-33, 1953-59: Maximum discharge, 4,300 mgd (6,650 cfs) Feb. 28, 1932 (gage height, 13.36 ft), from rating curve extended above 270 mgd; no flow several times each year.

Remarks--Records good. Continuous records of rainfall are obtained at station.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used Feb. 13-18)

4.4	0	5.6	14.5
4.6	.27	6.0	28.5
4.8	1.08	6.5	52
5.0	2.7	7.0	85
5.2	5.4	8.0	174
5.4	9.3		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.64	2.9	1.48	0.09	1.33	0	0.75	0	0.12	0	0	0
2	5.5	83	1.26	.01	1.14	0	.58	0	.06	0	0	0
3	100	25.5	1.20	5.5	.96	0	.37	0	.01	.01	0	0
4	14.5	10.4	1.08	1.27	.85	0	.22	0	0	.01	0	0
5	5.4	30.5	7.8	.47	.70	3.3	.14	0	0	.03	0	0
6	3.1	16.0	19.3	.24	.58	7.6	.05	0	0	.07	0	0
7	2.25	9.8	15.0	.15	.50	1.19	0	0	0	.04	0	0
8	1.89	100	4.6	.08	.43	.50	0	0	0	.04	0	0
9	2.7	30.5	2.8	0	.37	.34	0	0	0	118	0	0
10	2.8	10.5	2.05	0	1.37	.20	0	0	0	18.6	0	0
11	3.2	6.1	1.72	0	1.64	.14	0	0	0	7.9	0	0
12	3.7	4.4	1.33	0	1.48	.05	0	8.0	0	3.3	0	0
13	7.5	3.65	1.14	0	.85	0	0	7.5	0	*1.63	0	0
14	4.3	4.4	1.02	0	.70	0	0	1.53	8.8	.85	0	0
15	7.1	6.8	1.02	0	.70	0	0	.64	2.55	.43	0	0
16	6.2	5.6	1.26	0	.47	0	0	.40	.34	.27	0	0
17	11.0	4.1	1.08	0	.32	0	4.0	.27	.12	.18	0	0
18	*27.5	2.8	1.02	0	.20	.02	36	*1.14	.06	.11	14.0	0
19	14.6	2.05	2.15	0	5.1	1.24	5.3	1.03	.02	0	1.24	0
20	15.8	1.89	3.1	0	2.45	.64	2.05	2.15	0	0	1.19	0
21	8.5	3.15	3.1	0	1.20	.43	1.20	12.0	0	0	1.88	0
22	6.3	2.5	2.05	17.8	.64	.32	.85	9.9	0	0	2.6	0
23	4.2	2.3	1.33	100	.50	.18	.64	3.9	0	0	.29	0
24	8.3	1.64	.96	116	.34	.15	.43	1.43	0	0	.11	0
25	9.6	21	.54	21.5	.22	.01	.27	.58	0	0	.03	0
26	17.0	*14.9	.47	8.5	.14	0	.18	.32	0	0	0	0
27	5.8	6.6	.43	4.4	.05	0	.13	.24	0	0	0	0
28	3.55	3.65	.34	15.2	0	0	.01	.17	0	0	0	0
29	3.1	2.5	.22	6.2	0	11.9	0	-	0	0	0	0
30	2.35	2.05	.15	2.7	0	4.3	0	-----	0	0	0	0
31	1.98	1.64	-----	1.80	-----	1.53	0	-----	0	-----	0	0
Total	310.36	422.82	81.00	301.91	25.23	34.00	53.17	51.20	12.08	151.47	20.34	0
Mean	10.0	13.6	2.70	9.74	0.841	1.10	1.72	1.83	0.390	5.05	0.656	0
mgd	15.5	21.0	4.18	15.1	1.30	1.70	2.66	2.83	0.603	7.81	1.01	0
cfs	952	1,300	249	927	77	104	163	157	37	465	62	0
Ac-ft												0
Calendar year 1958: Max	267			Min	0	Mean(mgd)	4.81	Mean(cfs)	7.44	Ac-ft	5,390	
Fiscal year 1958-59: Max	118			Min	0	Mean(mgd)	4.01	Mean(cfs)	6.20	Ac-ft	4,490	

Peak discharge (base, 300 mgd)--July 3 (12 m.) 418 mgd (647 cfs), 9.68 ft; Aug. 2 (5:30 a.m.) 350 mgd (511 cfs), 9.16 ft; Aug. 8 (5 p.m.) 468 mgd (724 cfs), 9.94 ft; Oct. 23 (12 p.m.) 832 mgd (1,290 cfs), 11.51 ft; Apr. 9 (7:30 a.m.) 518 mgd (801 cfs), 10.19 ft.

* Discharge measurement made on this day.

2270. Halawa Stream near Aiea

Location.--Lat $21^{\circ}22'25''$, long $157^{\circ}55'40''$, on right bank 0.7 mile southeast of Aiea Post Office and 6.2 miles northeast of Honolulu Post Office.

Drainage area.--8.78 sq mi.

Records available.--April 1953 to June 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 16.52 ft above mean sea level, datum of 1929.

Average discharge.--6 years, 7.59 mgd (11.7 cfs).

Extremes.--Maximum discharge during year, 1,480 mgd (2,290 cfs) Oct. 23 (gage height, 8.71 ft); minimum, 0.21 mgd (0.32 cfs) Oct. 15.
1953-59: Maximum discharge, 2,300 mgd (3,560 cfs) Mar. 5, 1958 (gage height, 10.59 ft); no flow at times.

Remarks.--Records fair except those for period of no gage-height record, which are poor. At times, the Oahu Sugar Co. installs flashboards on the control diverting the entire flow for irrigation.

Revisions (fiscal years).--WSP 1449: 1955(M). WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used July 1 to Aug. 7, Feb. 15-18)

1.2	0.21	2.5	39.5
1.4	2.06	3.0	82
1.6	5.8	3.5	143
1.9	13.1	4.0	209
2.2	23	4.5	290

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.9	2.6	1.14	0.35	1.61	0.92	0.83	0.85	1.4	1.75	2.75	1.14
2	4.5	128	1.03	.35	1.14	1.03	.74	1.42	1.2	2.2	2.4	1.24
3	207	33	.92	1.69	1.03	1.24	.66	1.75	1.1	2.4	1.75	1.61
4	48	15.4	.83	.74	1.14	1.36	.52	1.61	1.1	2.05	1.61	1.49
5	22.5	37	5.6	.52	1.24	1.87	.46	1.61	1.0	1.49	1.90	1.14
6	13.7	20.5	21	*.40	1.24	6.3	.46	1.75	.90	1.49	1.75	1.14
7	10.1	11.6	17.4	.40	1.36	1.36	.46	1.61	.90	1.90	1.75	.92
8	13.1	229	4.5	.35	1.24	1.49	*.50	1.14	.80	2.05	1.90	.74
9	15.7	87	2.6	.35	.92	1.49	4.46	1.24	.80	1.65	1.61	.74
10	14.6	19.5	1.75	.30	.92	1.24	.52	1.36	.80	30	1.36	.59
11	15.7	10.6	1.24	.30	1.03	1.24	.40	1.14	.70	11.9	1.24	.59
12	15.1	7.1	1.03	.35	1.24	1.36	.66	11.9	.70	6.0	1.61	.74
13	21	5.2	.83	.30	1.61	1.14	1.03	19.3	.70	3.9	1.75	.92
14	17.4	4.5	.66	.30	1.61	1.03	.74	5.4	15	3.0	1.90	1.36
15	*12.0	7.3	.66	.30	1.03	.92	1.14	2.5	5	2.75	2.05	1.61
16	6.2	6.4	.59	.30	.92	1.03	1.14	1.89	3.5	2.6	1.75	1.75
17	8.2	4.3	.59	.30	1.03	1.75	1.78	1.62	2.6	2.6	1.49	1.75
18	31	3.35	.52	.35	1.14	1.90	81	2.4	2.4	2.05	11.4	1.75
19	17.5	2.4	.46	.30	2.25	2.4	7.7	3.35	2.0	1.49	4.1	1.75
20	17.0	1.75	1.03	.35	2.6	1.75	3.35	4.5	2.05	1.49	2.6	1.75
21	10.6	2.75	1.61	.40	1.61	1.49	1.90	15	2.2	1.75	2.6	1.49
22	7.7	2.05	1.03	17.9	1.49	1.36	1.49	12	1.61	1.90	4.4	2.15
23	6.0	2.6	.66	165	1.14	1.36	1.14	6	1.61	1.36	1.75	1.61
24	7.7	1.61	.59	222	1.14	1.49	1.03	3.0	1.90	1.24	1.24	2.1
25	10.0	19.1	.52	33	1.61	1.14	1.14	.92	2.5	1.24	1.24	2.2
26	18.5	*19.2	.52	12.0	1.36	.92	.83	1.9	2.4	1.03	*1.14	2.1
27	6.7	6.8	.40	6.4	1.24	.83	.74	1.7	1.61	*1.18	1.24	2.05
28	3.0	3.35	.35	15.4	1.03	.74	.83	1.5	1.36	1.61	1.24	2.05
29	3.5	2.2	.35	7.3	.83	8.8	.66	-	1.03	1.75	1.49	2.6
30	3.7	1.61	.35	3.0	.83	3.7	.83	-----	1.49	2.2	1.49	2.75
31	3.9	1.24	-----	1.90	-----	1.36	1.14	-----	1.75	-----	1.03	-----
Total	595.3	698.81	70.76	492.90	38.58	56.01	96.08	111.92	64.21	263.35	67.53	45.82
Mean:	19.2	22.5	2.36	15.9	1.29	1.81	3.10	4.00	2.07	8.78	2.18	1.53
mgd	29.7	34.8	3.65	24.6	2.00	2.80	4.80	6.19	3.20	13.6	3.37	2.37
Ac-ft	1,830	2,140	217	1,510	118	172	295	343	197	808	207	141
Calendar year 1958: Max	807	Min	0.30	Mean(mgd)	10.3	Mean(cfs)	15.9	Ac-ft	11,530			
Fiscal year 1958-59: Max	229	Min	0.30	Mean(mgd)	7.13	Mean(cfs)	11.0	Ac-ft	7,980			
Peak discharge (base, 300 mgd).--July 3 (1 p.m.) 799 mgd (1,240 cfs), 7.28 ft; Aug. 2 (6:30 a.m.) 576 mgd (891 cfs), 6.94 ft; Aug. 8 (6 p.m.) 1,170 mgd (1,810 cfs), 7.92 ft; Oct. 23 (11:30 p.m.) 1,480 mgd (2,290 cfs), 8.71 ft; Apr. 9 (9 a.m.) 732 mgd (1,130 cfs), 6.45 ft.												

* Discharge measurement made on this day.

Note.--No gage-height record Feb. 21 to Mar. 19; discharge estimated on basis of records for stations on nearby streams.

2280. Moanalua Stream near Honolulu

Location.--Lat 21°22'50", long 157°52'20", on left bank 5 miles upstream from mouth and 5 miles north of Honolulu Post Office.

Drainage area.--2.73 sq mi.

Records available.--June 1926 to June 1959.

Gage.--Water-stage recorder and concrete weir. Datum of gage is 339.12 ft above mean sea level (city and county of Honolulu bench mark).

Average discharge.--33 years, 2.07 mgd (3.20 cfs).

Extremes.--Maximum discharge during year, 1,940 mgd (3,000 cfs) Oct. 23 (gage height, 9.57 ft), from rating curve extended above 80 mgd as explained below; no flow for many days.
1926-59: Maximum discharge, 2,960 mgd (4,580 cfs) Nov. 18, 1930 (gage height, 11.58 ft), from rating curve extended above 80 mgd by test on model of station site; no flow at times each year.

Remarks.--Records good except those for periods of shifting-control, which are fair. Continuous records of rainfall are obtained at station.

Revisions (fiscal years).--WSP 935: 1931(M). WSP 1569: Drainage area.

Rating table, fiscal year 1958-59, except periods of shifting-control (gage height, in feet, and discharge, in million gallons a day)

-0.2	0	0.8	5.8
0.0	.03	1.1	13.8
.2	.30	1.5	34
.4	1.13	2.0	72
.6	2.9	3.0	165

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0.12	0.04	0	1.55		0	0	0.03	0	0	
2	0	94	.02	0	.63		0	0	.02	0	0	
3	103	30.5	.02	0	.02		0	0	.01	0	0	
4	10.6	11.5	.02	0	0		0	0	0	0	0	
5	1.94	32	3.1	0	0		0	0	0	0	0	
6	.45	16.0	17.0	0	0		0	0	0	0	0	
7	.06	9.7	7.2	0	0		0	0	0	0	0	
8	.02	109	1.98	0	0		0	0	0	0	0	
9	.02	33.5	.86	0	0		0	0	0	79	0	
10	.02	10.3	.43	0	0		0	0	0	10.3	0	
11	.01	5.2	.17	0	0		0	0	0	2.35	0	
12	0	3.05	.06	0	0		0	4.9	0	1.20	0	
13	1.14	1.96	.04	0	0		0	4.5	0	*.61	0	
14	.68	1.62	.02	0	0		0	.31	.85	.21	0	
15	1.36	1.62	.02	0	0		0	.08	.11	.06	0	
16	.94	1.62	.01	0	0		0	.03	.02	.03	0	
17	4.1	1.01	0	0	0		0	.02	.01	.02	0	
18	22	.71	0	0	0		13.2	*.36	0	0	3.75	
19	7.3	.48	0	0	0		2.5	.21	0	0	.01	
20	10.0	.33	0	0	0		.21	.30	0	0	0	
21	4.5	.29	0	0	0		0	3.95	0	0	0	
22	2.05	.13	0	8.3	0		.01	2.35	0	0	0	
23	1.00	.15	0	*126	0		0	.97	0	0	0	
24	2.1	.07	0	*138	0		0	.44	0	0	0	
25	3.65	12.4	0	37	0		0	.19	0	0	0	
26	16.6	10.2	0	17.8	0		0	.07	0	0	0	
27	3.7	2.7	0	10.0	0		0	.04	0	0	0	
28	1.41	1.14	0	10.4	0		0	.03	0	0	0	
29	.81	*.55	0	8.2	0		0	-	0	0	0	
30	.48	.25	0	4.2	0		0	-----	0	0	0	
31	.23	.10	-----	2.8	-----		0	-----	0	-----	0	-----
Total	202.17	392.20	30.99	362.7	2.20	0	15.92	18.75	1.05	93.78	3.76	0
Mean:												
mgd	6.52	12.7	1.03	11.7	0.073	0	0.514	0.670	0.034	3.13	0.121	0
cfs	10.1	19.6	1.59	18.1	0.113	0	0.795	1.04	0.053	4.84	0.187	0
Ac-ft	620	1,200	95	1,110	6.8	0	49	58	3.2	288	12	0

Calendar year 1958: Max 281 Min 0 Mean(mgd) 4.09 Mean(cfs) 6.33 Ac-ft 4,580
Fiscal year 1958-59: Max 138 Min 0 Mean(mgd) 3.08 Mean(cfs) 4.77 Ac-ft 3,440

Peak discharge (base, 150 mgd).--July 3 (2 p.m.) 534 mgd (826 cfs), 5.72 ft; Aug. 2 (5 a.m.) 445 mgd (689 cfs), 5.10 ft; Aug. 8 (3:30 p.m.) 572 mgd (885 cfs), 5.91 ft; Oct. 23 (11 p.m.) 1,940 mgd (3,000 cfs), 9.57 ft; Apr. 9 (7 a.m.) 226 mgd (350 cfs), 3.55 ft.

* Discharge measurement made on this day.

Notes.--Shifting-control method used Oct. 24 to Nov. 4, Jan. 18-21.

2290. Kalihi Stream near Honolulu

Location.--Lat 21°22'00", long 157°50'50", on right bank at Kioi Pool, 0.4 mile upstream from Catholic Orphanage and 4.1 miles north of Honolulu Post Office.

Drainage area.--2.61 sq mi.

Records available.--September 1913 to June 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 464.40 ft above mean sea level, datum of 1929. Prior to Oct. 12, 1923, water-stage recorder at same site at datum 2.00 ft lower.

Average discharge.--42 years (1916-20, 1921-59), 4.52 mgd (6.99 cfs).

Extremes.--Maximum discharge during year, 1,180 mgd (1,830 cfs) Oct. 23 (gage height, 8.52 ft); minimum not determined.

1913-59: Maximum discharge, about 5,400 mgd (about 8,400 cfs) Nov. 18, 1930, by observing, on model of station site, the hydraulic conditions which would produce floodmarks of 13.8 ft in gage shelter; minimum, 0.06 mgd (0.09 cfs) Oct. 22, 1933.

Remarks.--Records fair except those for periods of no gage-height record, which are poor. Water for domestic use diverted from stream above station.

Revisions (fiscal years).--WSP 795: 1921-30(M), 1932(M). WSP 1399: 1931(M). WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

2.09	0.38	3.0	19.2
2.1	.45	3.5	38
2.2	1.28	4.0	63
2.3	2.4	4.5	95
2.5	5.8	5.0	134
2.7	10.4		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.28											
2	7.9	4.8	3.9	2.0	4.1	1.28	1.4	1.0	1.1	1.2	1.58	1.28
3	*86	110	3.9	2.25	3.75	1.18	1.4	.9	1.0	1.6	1.48	1.18
4	8.0	20	3.55	2.85	1.28	1.3	.9	1.0	1.0	1.6	1.5	1.09
5	4.8	12	3.4	1.91	3.1	1.18	1.3	.9	1.0	1.1	1.5	1.09
6		30	15.4	1.58	3.1	2.9	1.2	.9	.95	.75	1.6	1.09
7	3.55	17	3.4	1.48	2.95	3.15	1.1	.9	.90	.70	1.7	1.00
8	3.1	15	12.0	1.48	2.95	1.58	1.1	.8	.92	*.91	1.5	1.00
9	3.1	150	6.2	1.58	2.65	1.28	1.1	.9	.86	2.3	1.4	1.0
10	3.25	30	5.2	1.58	2.4	1.18	1.1	.9	.92	12.1	1.4	1.0
11	3.4	15	4.4	*1.58	2.95	1.09	1.0	1.9	.95	12.8	1.3	.95
12	2.95	11	4.2	1.28	4.0	1.69	1.0	1.2	.82	6.7	1.3	1.0
13	3.55	9	3.9	1.18	2.95	1.38	1.0	1.5	1.6	4.8	1.2	1.1
14	3.4	8.5	3.75	1.18	2.5	1.18	2.6	3.2	1.5	4.1	1.1	1.3
15	2.65	8.5	3.55	1.09	2.4	1.09	1.1	1.2	1.4	3.25	1.2	1.1
16	4.7	8	3.4	2.15	2.25	1.00	1.0	1.1	1.9	3.1	1.3	.90
17	3.9	7	3.4	1.58	2.0	1.18	.9	.9	1.0	2.95	1.2	.80
18	9.1	6.5	3.1	1.09	1.91	1.18	6	1.0	1.0	2.8	1.4	.66
19	24.5	6	3.2	1.09	1.94	2.85	36	3.7	.95	2.65	1.6	.59
20	11.9	5.5	3.55	1.18	6.4	1.91	2.4	1.6	.90	2.25	3.2	.59
21	10.9	5	3.4	1.58	2.95	1.48	2.0	2.3	.90	2.0	2.5	.52
22	6.7	5	3.55	1.58	2.25	1.18	1.7	14	.90	2.0	*5.3	.52
23	6.5	5	2.8	2.15	2.15	1.58	1.5	4.8	.80	2.0	4.1	.45
24	5.2	4.6	2.25	69	2.0	1.18	1.3	2.2	.80	1.80	2.65	.45
25	8.0	4.5	2.25	109	1.80	1.38	1.1	1.5	.85	1.80	2.15	.45
26	7.6	*22	2.15	18.9	1.69	1.09	1.1	1.5	.75	1.80	2.0	.45
27	18.4	11.0	2.15	11.6	1.58	1.00	1.1	1.3	.70	1.69	*1.80	.45
28	8.9	6.5	2.25	6.9	1.48	1.18	1.1	1.1	.70	1.69	1.58	.45
29	5.6	5.2	2.0	12.9	1.28	1.18	1.1	1.2	.65	1.80	1.38	.38
30	5.2	4.6	1.91	7.1	1.28	2.4	1.2	1.2	.80	1.58	1.38	*.52
31	4.8	4.4	1.69	5.4	1.28	3.0	1.1	1.1	1.4	1.69	1.84	*1.32
32	4.2	4.1	4.4	4.4	1.8	1.3	1.3	1.3	.80	1.28	1.28	1.28
Total	281.03	535.7	150.40	298.97	77.59	69.61	79.6	68.8	43.22	197.81	70.92	24.70
Mean:												
mgd	9.07	17.3	5.01	9.64	2.59	2.25	2.57	2.46	1.39	6.59	2.29	0.823
cfs	14.0	26.8	7.75	14.9	4.01	3.48	3.98	3.81	2.15	10.2	3.54	1.27
Ac-ft	862	1,640	462	918	238	214	244	211	133	607	218	76
Calendar year 1958:	Max 130		Min 0.66		Mean(mgd) 5.35		Mean(cfs) 8.29		Ac-ft 6,000			
Fiscal year 1958-59:	Max 130		Min 0.38		Mean(mgd) 5.20		Mean(cfs) 8.05		Ac-ft 5,820			

Peak discharge (base, 400 mgd).--Aug. 2 (time and discharge unknown); Aug. 8 (time and discharge unknown); Oct. 23 (11:30 p.m.) 1,180 mgd (1,830 cfs), 8.52 ft; Apr. 9 (6 a.m.) 820 mgd (1,270 cfs), 7.92 ft.

* Discharge measurement made on this day.
Note.--No gage-height record Aug. 2-25, Dec. 29 to Apr. 6, May 3-19, June 8-15; discharge estimated on basis of records for stations on nearby streams.

2320. Nuuanu Stream below reservoir 2 wasteway, near Honolulu

Location.--Lat 21°20'55", long 157°49'40", on right bank near Pali Road in upper Nuuanu Valley, 0.2 mile downstream from reservoir 2 wasteway and 3.5 miles northeast of Honolulu Post Office.

Drainage area.--3.35 sq mi.

Records available.--October 1913 to June 1959.

Gage.--Water-stage recorder and sharp-crested weirs. Datum of gage is 631.71 ft above mean sea level, datum of 1929. Prior to Sept. 7, 1915, staff gage at same site at datum 0.03 ft lower. Sept. 7, 1915, to Apr. 4, 1918, staff gage at same site and datum.

Average discharge.--40 years (1917-20, 1922-59), 4.86 mgd (7.52 cfs).

Extremes.--Maximum discharge during year, 330 mgd (511 cfs) Apr. 9 (gage height, 4.69 ft), from rating curve extended above 300 mgd as explained below; minimum, 0.76 mgd (1.18 cfs) June 15.

1913-59: Maximum discharge, 4,520 mgd (6,990 cfs) Jan. 16, 1921 (gage height, 8.74 ft, from floodmarks); from rating curve extended above 300 mgd by test on model of station site; minimum, 0.06 mgd (0.09 cfs) Sept. 10, 11, 1925.

Remarks.--Records good. Reservoirs 2, 3, and 4 (capacities, 21, 34, and 1,630 acre-ft, respectively) regulate flow. Honolulu Board of Water Supply diverts ground water from tunnels in drainage area.

Revisions (fiscal years).--WSP 985: 1921-35(M). WSP 1569: Drainage area. Revised figures of discharge, in million gallons a day, for the fiscal years 1931 and 1935 superseding those published in WSP 725 and 795, are given herewith:

Nov. 18, 1930..... 316
Feb. 27, 1935..... 148

Month	Mgd-days	Maximum	Minimum	Mean		Runoff in acre-feet
				(mgd)	(cfs)	
November 1930.....	-	316	7.1	21.6	33.4	1,990
Calendar year 1930.....	-	316	2.4	11.6	17.9	13,010
Fiscal year 1930-31.....	-	316	0.78	7.27	11.2	8,140
February 1935.....	379.0	148	5.3	13.5	20.9	1,160
Fiscal year 1934-35.....	2,579.9	148	1.1	7.07	10.9	7,920
Calendar year 1935.....	2,308.20	148	2.7	6.32	9.78	7,080

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used July 3-16)

0.3	0.69	1.3	9.7
.5	1.45	1.6	19.0
.7	2.8	2.0	37.5
.9	3.5	3.0	105
1.1	5.2		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.25	4.1	4.5	3.6	5.8	2.95	2.45	2.0	2.0	1.58	2.0	1.45
2	8.4	48	4.4	3.5	5.4	2.9	2.4	1.90	1.90	2.05	2.0	1.45
3	20.5	10.4	4.1	4.2	5.0	2.95	2.35	1.90	1.90	1.45	2.05	1.45
4	2.7	6.1	4.1	3.15	4.6	2.8	2.25	1.90	1.90	1.50	1.90	1.41
5	2.3	19.0	11.0	3.05	4.5	3.95	2.2	1.86	1.76	1.33	2.0	1.41
6	2.1	8.9	10.1	2.95	4.3	3.25	2.15	1.86	1.86	1.29	2.1	1.37
7	2.2	8.2	9.6	3.0	4.1	2.8	2.15	1.81	1.72	1.25	1.86	1.41
8	2.4	79	5.8	3.05	4.1	2.5	2.15	1.90	1.68	1.54	1.72	1.41
9	2.3	28.5	5.4	3.0	4.1	2.55	2.1	1.86	1.72	77	1.86	1.57
10	2.6	14.0	5.0	2.9	4.5	2.75	2.05	2.85	1.68	*8.3	1.68	1.25
11	2.3	11.4	4.5	2.8	5.4	2.7	2.0	2.3	1.63	5.2	1.68	1.33
12	2.25	10.0	4.5	2.75	4.2	2.6	2.0	2.7	2.8	4.0	1.63	1.37
13	2.45	9.0	4.2	2.8	3.85	2.4	3.35	3.75	2.3	3.4	1.58	1.45
14	2.15	8.7	4.2	2.9	3.9	2.4	2.15	2.25	8.1	3.15	1.68	1.29
15	3.2	8.7	4.3	3.3	3.7	2.35	2.0	2.1	2.7	*2.95	1.68	1.13
16	2.7	7.4	4.2	2.8	3.6	2.4	1.95	1.85	1.81	2.85	1.54	1.13
17	5.5	6.8	3.9	2.7	3.5	2.45	6.9	2.0	1.81	2.75	1.74	1.09
18	11.6	6.2	4.0	2.6	3.7	3.6	4.7	2.7	1.75	2.7	8.9	1.05
19	5.8	5.8	4.2	2.7	7.2	2.95	3.2	2.35	1.58	2.6	27.7	1.01
20	5.4	5.6	4.0	2.75	3.85	2.45	2.7	2.9	1.58	2.45	1.81	1.01
21	3.35	5.6	3.9	2.55	3.55	2.35	2.5	7.7	1.54	2.4	2.6	1.09
22	3.3	5.6	3.7	11.9	3.45	2.5	2.4	4.4	1.50	2.35	1.95	1.01
23	2.8	5.2	3.6	23	3.4	2.4	2.25	2.9	1.50	2.3	1.72	1.01
24	3.9	5.1	3.55	46	3.35	2.45	2.15	2.5	1.54	2.35	1.68	1.01
25	3.6	12.5	3.5	14.4	3.2	2.25	2.15	2.3	1.45	2.2	1.68	1.13
26	9.6	8.2	3.55	11.1	3.2	2.2	2.15	2.15	1.41	2.2	*1.58	1.09
27	3.6	6.0	3.4	8.0	3.15	2.25	2.15	2.0	1.37	2.25	1.54	.98
28	3.3	5.2	3.4	10.8	3.1	2.85	2.1	2.15	1.33	2.2	1.54	.94
29	3.0	*4.7	3.3	9.4	3.05	13.9	2.15	-	1.45	2.1	1.54	1.01
30	3.0	4.8	3.15	7.4	3.0	3.35	2.05	-	1.81	2.1	2.1	1.17
31	2.85	4.5	3.4	6.4	---	2.6	2.3	-	1.45	---	1.54	---
Total	133.40	371.2	141.05	211.45	121.75	94.80	93.85	78.84	60.33	151.69	62.98	36.28
Mean:												
mgd	4.30	12.0	4.70	6.82	4.06	3.06	3.03	2.82	1.95	5.06	2.03	1.21
cfs	6.65	18.6	7.27	10.6	6.29	4.73	4.69	4.36	3.02	7.83	3.14	1.87
Ac-ft	409	1,140	433	649	374	291	288	242	185	466	193	111
Calendar year 1958: Max	125				Min	1.33	Mean(mgd)	4.83	Mean(cfs)	7.47	Ac-ft	5,410
Fiscal year 1958-59: Max	79				Min	0.94	Mean(mgd)	4.27	Mean(cfs)	6.61	Ac-ft	4,780

Peak discharge (base, 150 mgd).--Aug. 2 (2:30 a.m.) 244 mgd (378 cfs), 4.35 ft; Aug. 8 (3 p.m.) 220 mgd (340 cfs), 4.21 ft; Oct. 24 (12:30 a.m.) 307 mgd (475 cfs), 4.61 ft; Apr. 9 (8 a.m.) 350 mgd (511 cfs), 4.69 ft.

* Discharge measurement made on this day.

2390. East Branch Manoa Stream near Honolulu

Location.--Lat 21°19'50", long 157°48'10", on right bank just downstream from highway bridge, 400 ft upstream from confluence with West Branch and 4.2 miles northeast of Honolulu Post Office.

Drainage area.--1.06 sq mi.

Records available.--May 1913 to January 1921, August 1925 to June 1959.

Gage.--Water-stage recorder and combination Parshall flume and concrete weir. Datum of gage is 294.50 ft above mean sea level (Honolulu Board of Water Supply bench mark). Prior to May 20, 1914, staff gage at site 200 ft upstream at different datum. May 20, 1914, to Jan. 16, 1921, water-stage recorder at site 50 ft upstream at different datum. Aug. 18, 1925, to Oct. 18, 1933, water-stage recorder at present site at datum 0.41 ft higher.

Average discharge.--40 years (1913-20, 1926-59), 3.18 mgd (4.92 cfs).

Extremes.--Maximum discharge during year, 275 mgd (425 cfs) July 3 (gage height, 3.56 ft), from rating curve extended above 28 mgd by test on model of station site; minimum, 1.15 mgd (1.78 cfs) June 27, 28.
1913-21, 1925-59: Maximum gage height, 10.4 ft Jan. 16, 1921, from floodmarks, site and datum then in use (discharge, 2,000 mgd or 3,090 cfs, estimated from rating curve extended above 37 mgd); minimum discharge, 0.4 mgd (0.6 cfs) June 7, 8, 1926.

Remarks.--Records good. Honolulu Board of Water Supply at times diverts a small amount of ground water from tunnels in drainage area.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used June 14-21)

0.3	1.15	1.2	11.5
.4	1.85	1.4	18.3
.6	3.5	1.6	26.5
1.8	5.6	2.0	47
1.0	7.9	2.4	81

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.85	6.4	3.6	4.1	3.4	2.75	2.55	2.25	2.0	2.6	1.71	2.0
2	9.3	38	4.2	3.9	3.35	2.75	2.5	2.15	1.85	3.9	1.93	2.0
3	58	10.1	3.6	3.8	3.25	2.9	2.5	2.15	1.85	2.1	2.0	2.1
4	5.5	7.7	3.6	3.4	3.25	2.65	2.5	2.15	1.85	2.5	1.85	2.0
5	3.6	17.3	6.0	3.4	3.0	4.1	2.4	2.1	1.78	2.1	1.93	2.0
6	3.25	7.6	10.5	3.4	2.9	3.15	2.35	2.1	1.93	*1.78	2.1	1.93
7	4.1	9.0	7.4	3.5	3.0	2.65	2.4	2.1	1.85	1.78	2.0	1.93
8	4.9	*4.5	4.4	3.4	3.1	2.65	2.35	2.1	1.78	2.5	1.93	1.71
9	4.0	11.2	4.3	3.7	2.9	2.75	2.35	2.1	1.78	5.8	2.55	1.71
10	7.4	6.7	4.1	3.5	3.15	2.75	2.35	2.5	1.78	8.0	2.0	1.64
11	4.1	5.7	3.8	3.5	4.4	3.45	2.25	3.1	1.78	6.6	1.85	1.69
12	5.0	5.3	3.8	3.6	3.25	2.9	2.25	7.6	2.7	4.3	1.71	1.71
13	6.2	4.8	3.6	4.1	3.1	2.75	3.4	3.7	2.95	3.15	1.57	2.65
14	4.2	5.4	3.7	3.9	2.9	2.65	2.4	2.25	8.0	2.65	1.78	1.66
15	8.3	6.5	3.9	4.5	2.8	2.75	2.25	2.1	3.1	2.4	1.71	1.43
16	5.0	4.9	3.9	3.9	2.8	3.1	2.15	1.93	2.15	2.35	1.71	1.43
17	11.8	4.6	3.5	3.9	2.8	3.2	8.3	*2.1	2.1	2.25	7.1	1.43
18	19.0	4.1	3.5	3.8	3.05	5.3	12.7	7.8	1.78	2.15	16.7	1.43
19	12.3	3.8	3.9	3.7	8.0	3.8	3.1	2.7	1.93	2.25	3.25	1.43
20	10.0	4.0	4.7	3.8	3.4	3.1	2.65	4.0	1.71	2.15	2.5	1.43
21	5.9	3.9	3.9	3.35	3.15	2.8	2.5	3.6	1.71	2.25	3.9	1.40
22	7.2	3.85	3.4	24	3.1	3.35	2.4	3.1	1.64	2.25	2.65	1.36
23	5.0	3.6	3.4	21.5	3.0	2.9	2.35	2.5	1.71	2.15	2.15	1.36
24	11.1	3.7	3.35	25.5	2.9	2.9	2.25	2.35	1.71	2.25	2.1	1.36
25	9.6	17.6	3.35	7.2	2.8	2.9	2.25	2.1	1.71	2.1	*1.94	1.36
26	16.7	9.4	3.35	5.4	2.8	2.9	2.25	2.25	1.64	2.0	1.93	1.22
27	5.8	5.6	3.4	4.2	2.8	3.95	2.25	2.35	1.57	2.25	1.93	1.15
28	4.8	4.3	3.25	7.2	2.8	3.1	2.25	2.15	1.50	2.35	1.93	1.15
29	5.0	4.0	3.25	4.3	2.8	11.5	2.35	-	1.57	1.93	1.93	1.29
30	4.7	3.8	3.15	3.7	2.75	3.4	2.35	-----	1.78	1.71	3.45	2.25
31	*4.2	3.6	-----	3.4	-----	2.75	2.35	-----	1.64	-----	2.15	-----
Total	247.80	271.45	123.80	184.55	96.70	104.55	91.25	79.38	64.83	141.75	85.74	49.21
Mean:												
mgd	7.99	8.76	4.13	5.95	3.22	3.37	2.94	2.84	2.09	4.72	2.77	1.64
cfs	12.4	13.6	6.39	9.21	4.98	5.21	4.55	4.39	3.23	7.30	4.29	2.54
Ac-ft	760	833	380	566	297	321	280	244	199	435	265	151
Calendar year 1958:	Max 80	Min 1.36	Mean(mgd) 4.32	Mean(cfs) 6.68	Ac-ft 4,840							
Fiscal year 1958-59:	Max 63	Min 1.15	Mean(mgd) 4.22	Mean(cfs) 6.53	Ac-ft 4,730							

Peak discharge (base, 200 mgd).--July 3 (11 a.m.) 275 mgd (425 cfs), 3.56 ft; Aug. 2 (4:30 a.m.) 225 mgd (348 cfs), 3.35 ft; Aug. 8 (4:30 p.m.) 216 mgd (334 cfs), 3.31 ft.

* Discharge measurement made on this day.

2400. West Branch Manoa Stream near Honolulu

Location.--Lat 21°19'55", long 157°48'10", on left bank 100 ft upstream from highway bridge and 4.2 miles northeast of Honolulu Post Office.

Drainage area.--1.14 sq mi.

Records available.--May 1913 to January 1921, August 1925 to June 1959.

Gage.--Water-stage recorder and combination Parshall flume and V-notch weir. Datum of gage is 290.84 ft above mean sea level (Honolulu Board of Water Supply bench mark). Prior to June 17, 1914, staff gage at same site at different datum. June 17, 1914, to Jan. 16, 1921, water-stage recorder at site 150 ft upstream at different datum. Aug. 4, 1925, to Mar. 15, 1928, water-stage recorder at present site at datum 3.40 ft lower.

Average discharge.--40 years (1913-20, 1926-59), 2.47 mgd (3.82 cfs).

Extremes.--Maximum discharge during year, 332 mgd (514 cfs) Apr. 9 (gage height, 3.71 ft), from rating curve extended above 73 mgd by test on model of station site; minimum, 0.23 mgd (0.36 cfs) June 24, 25, 27.

1913-21, 1925-59: Maximum gage height, 10.4 ft Jan. 16, 1921, from floodmarks, site and datum then in use (discharge, 2,100 mgd or 3,250 cfs, estimated from rating curve extended above 40 mgd); minimum discharge, about 0.05 mgd (0.08 cfs) Mar. 16, 22, 1926.

Remarks.--Records fair. Small quantity of water is diverted above station occasionally for irrigation.

Revisions (fiscal years).--WSP 1569: 1930-32(M), drainage area.

Rating tables, fiscal year 1958-59 (gage height in feet, and discharge, in million gallons a day)
(Shifting-control method used July 1, 2)

July 1 to Dec. 29				Dec. 30 to June 30			
0.1	0.21	0.6	6.2	0.08	0.23	0.5	2.85
.2	.63	1.0	10.6	.1	.32	.7	4.5
.3	1.18	1.3	20.7	.2	.82	.8	6.2
.4	1.85	1.6	36	.3	1.42		
.6	3.5	2.0	65				

Note.--Same as preceding table above 0.8 ft.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.25	3.5	1.58	1.10	1.31	0.40	0.76	0.46	0.82	1.33	0.60	0.55
2	3.1	27.5	1.93	1.03	1.18	.36	.86	.36	.71	3.4	.76	.50
3	11.2	12.2	1.52	1.89	1.07	.40	.60	.32	.68	1.49	.76	.46
4	4.2	6.8	1.39	.63	1.02	.36	.55	.32	.66	1.55	.55	.46
5	2.35	21	7.2	.48	.90	1.11	.50	.32	.60	1.17	.60	.46
6	1.72	8.4	4.8	.44	.85	.68	.46	.32	.66	*.87	.87	.41
7	1.93	6.4	4.8	.48	.85	.36	.46	.32	.55	*.82	.76	.46
8	2.85	*56	1.93	.40	.90	*.32	.46	.32	.50	.99	.60	.46
9	2.7	11.0	1.68	.72	.80	.28	.46	.32	.50	60	1.05	.46
10	6.6	6.3	1.52	.61	1.16	.28	.41	.61	.50	9.1	.82	.41
11	2.95	4.5	1.31	.40	1.98	.67	.41	1.02	.46	5.8	.55	.46
12	3.6	4.1	1.25	.40	1.22	.40	.36	3.7	2.3	3.7	*.46	.71
13	4.9	3.25	1.12	.66	.90	.28	1.38	1.84	3.1	2.6	.41	1.59
14	2.8	3.65	1.24	.53	.74	.24	.55	.76	7.2	2.1	.53	.90
15	5.7	4.8	1.31	1.02	.63	.24	.41	.60	2.75	1.75	.55	.60
16	3.0	3.1	1.84	.53	.58	.44	.32	.50	1.55	1.55	.50	.58
17	6.2	2.55	1.18	.53	.58	.42	3.3	*.48	1.17	1.36	1.40	.46
18	14.4	2.0	1.39	.40	.67	1.95	12.3	5.8	.87	1.23	12.1	.41
19	8.5	1.72	1.71	.44	7.1	.80	1.88	1.84	.87	1.11	7.1	.32
20	7.3	1.94	2.3	.71	1.52	.48	1.11	3.55	.76	.99	1.23	.32
21	3.9	1.91	1.74	.53	.96	.36	.82	3.6	.71	.93	2.05	.32
22	5.1	*2.2	*a1.2	13.8	.74	.75	.71	2.6	.66	.82	1.29	.52
23	3.25	1.57	a.85	23	.63	.44	.60	1.82	.71	.76	.82	.32
24	5.6	1.36	a.80	29.5	.53	.44	.55	1.36	.71	.76	.66	.28
25	5.3	10.9	a.75	6.7	.48	.40	.50	1.11	.66	.71	*.60	.28
26	10.5	6.4	a.75	4.7	.44	.40	.50	1.05	.60	.66	.60	.36
27	3.75	3.55	a.80	2.65	.44	.96	.50	1.05	.55	.82	.60	.28
28	2.9	2.25	a.70	4.3	.40	.44	.46	.87	.46	1.25	.55	.28
29	2.65	1.78	a.65	2.1	.40	7.6	.46	-	.50	.66	.50	.32
30	2.5	1.72	*a.55	1.65	.40	1.81	.50	-----	.83	.71	1.26	1.32
31	*2.0	1.45	-----	1.38	-----	.99	.50	-----	.78	-----	.60	-----
Total	144.70	235.82	51.79	103.51	31.38	25.06	33.44	37.02	34.36	110.99	36.75	15.03
Mean:	mgd	4.67	7.61	1.73	3.34	1.05	0.808	1.08	1.32	1.11	3.70	1.19
	cfs	7.23	11.8	2.68	5.17	1.62	1.25	1.67	2.04	1.72	5.72	1.84
	Ac-ft	444	724	159	318	96	77	103	114	105	341	113

Calendar year 1958: Max 83 Min 0.15 Mean(mgd) 2.44 Mean(cfs) 3.78 Ac-ft 2,730
Fiscal year 1958-59: Max 60 Min 0.24 Mean(mgd) 2.36 Mean(cfs) 3.65 Ac-ft 2,640

Peak discharge (base, 200 mgd).--Aug. 1 (4:30 a.m.) 236 mgd (365 cfs), 3.35 ft; Aug. 8 (4 p.m.) 239 mgd (370 cfs), 3.56 ft; Oct. 23 (11:30 p.m.) 270 mgd (418 cfs), 3.47 ft; Apr. 9 (7:30 a.m.) 332 mgd (514 cfs), 3.71 ft.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for East Branch Manoa Stream.

2440. Pukele Stream near Honolulu

Location.--Lat 21°18'35", long 157°47'30", on right bank 200 ft upstream from bridge on Palolo Belt Road, 0.6 mile upstream from confluence with Waioamao Stream, and 4.8 miles east of Honolulu Post Office.

Drainage area.--1.18 sq mi.

Records available.--June 1926 to June 1959. Records for April to December 1912, published in WSP 336, have been found unreliable and should not be used.

Gage.--Water-stage recorder and V-notch weir. Datum of gage is 344.78 ft above mean sea level (Honolulu Board of Water Supply bench mark).

Average discharge.--33 years 1.27 mgd (1.95 cfs).

Extremes.--Maximum discharge during year, 375 mgd. (580 cfs) Apr. 9 (gage height, 4.97 ft), from rating curve extended above 62 mgd by test on model of station site; minimum, 0.24 mgd (0.37 cfs) June 25-30.

1926-59: Maximum discharge, 1,680 mgd (2,600 cfs) Apr. 11, 1930 (gage height, 7.75 ft, from floodmarks), from rating curve extended above 62 mgd by test on model of station site; minimum (corrected), 0.05 mgd (0.08 cfs) Oct. 31, 1929.

Revisions.--The figures of maximum discharge for some fiscal years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Fiscal year	Date	Discharge		Gage height (feet)
			(mgd)	(cfs)	
655	1927	May 16, 1927	750	1,160	6.13
675	1928	Nov. 19, 1927	1,500	2,320	7.66
695	1929	Jan. 20, 1929	120	186	3.18
725	1931	Oct. 1, 1930	530	820	5.47
740	1932	Apr. 30, 1932	660	1,020	5.87
755	1933	June 31, 1933	180	279	5.94
770	1934	Apr. 26, 1934	137	212	3.55

Remarks.--Records good. A 2-inch pipe diverts water from stream above station.

Revisions (fiscal years).--WSP 835: 1930(M). WSP 1569: Drainage area. See also Records available. Revised figure of discharge, in million gallons a day, for the high-water period in the fiscal year 1932, superseding that published in WSP 740, is given herewith:

Apr. 30, 1932..... 68

Month	Maximum	Minimum	Mean		Runoff in acre-feet
			(mgd)	(cfs)	
April 1932.....	68	0.87	4.20	6.50	386
Fiscal year 1931-32.....	68	.19	2.90	4.49	3,250
Calendar year 1932.....	68	.19	1.92	2.97	2,150

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.40	1.50	1.22	0.46	0.82	0.28	0.46	0.43	0.72	0.43	0.43	0.46
2	4.3	36.5	1.22	.46	.77	.28	.50	.43	.67	.99	.43	.43
3	12.3	5.1	1.16	.43	.77	.28	.50	.40	.62	.40	.40	.43
4	1.22	3.85	1.10	.43	*.72	.26	.50	.40	.62	.43	.40	.40
5	.46	13.2	1.17	.43	.67	.46	.50	.40	.58	.40	.40	.40
6	.46	4.5	4.6	.40	.58	.62	.50	.40	.54	*.37	.40	.37
7	.68	4.9	2.5	.40	.54	.26	.50	.40	.50	.37	.37	.37
8	.57	33	1.16	.40	.50	.26	.46	.37	.50	.43	.37	.37
9	.87	8.0	1.10	.40	.46	.26	.50	.37	.46	41	.46	.34
10	1.74	3.5	1.10	.37	.46	.28	.43	.41	.46	4.0	.40	.34
11	.87	2.75	1.04	.37	.43	.34	.43	.37	.43	1.90	.37	.34
12	.62	2.25	.98	.37	.40	.28	.43	4.1	.46	1.36	.37	.31
13	2.15	2.05	.98	.37	.40	.28	.51	1.38	.43	.92	.37	.34
14	.98	2.05	.92	.37	.40	.31	.40	.43	1.24	.32	.34	.31
15	2.65	2.55	.87	.48	.40	.31	.40	.43	.50	.92	.34	.28
16	1.29	1.98	.82	.37	.37	.31	.37	*.43	.43	.98	.34	.28
17	4.2	1.90	.72	.34	.37	.34	4.7	.55	.43	.98	.46	.28
18	8.3	1.82	.67	.34	.40	.46	9.2	5.1	.43	.92	9.2	.28
19	4.8	1.74	.72	.34	1.43	.31	.80	.94	.43	.87	.86	.28
20	3.15	1.66	.67	.37	.37	.31	.50	1.45	.43	.82	.46	.26
21	1.66	1.58	.62	.58	.34	.31	.54	1.43	.43	.77	1.33	.26
22	2.35	1.50	.58	8.5	.34	.31	.54	1.22	.43	.72	.96	.26
23	1.43	1.43	.58	6.0	.37	.34	.58	.92	.40	.67	.58	.26
24	2.15	1.36	*.54	14.9	.37	.37	.58	.92	.40	.62	.58	.26
25	2.15	6.5	.50	2.95	.37	.34	.54	.87	.40	.58	*.60	.24
26	7.2	3.9	.50	1.16	.37	.31	.54	.87	.37	.54	.58	.24
27	1.90	1.82	.46	.72	.34	.31	.54	.87	.37	.54	.54	.24
28	1.29	1.29	.46	2.45	.34	.34	.50	.82	.34	.54	.50	.24
29	1.22	1.29	.46	1.16	.31	6.0	.50	-	.54	.46	.50	.24
30	1.16	1.29	.43	.82	.31	.88	.46	-----	.37	.43	.54	.24
31	*1.10	1.29	-----	.62	-----	.46	.50	-----	.34	-----	.46	-----
Total	75.82	158.05	29.85	47.76	14.72	16.44	28.41	27.09	15.07	65.28	24.34	9.35
Mean:												
mgd	2.45	5.10	0.995	1.54	0.491	0.550	0.916	0.968	0.486	2.18	0.785	0.312
cfs	3.79	7.89	1.54	2.38	0.760	0.820	1.42	1.50	0.752	3.37	1.21	0.483
Ac-ft	235	485	92	147	45	50	87	83	46	200	75	29
Calendar year 1958: Max	100	100	100	100	0.26	Mean(mgd)	1.75	Mean(cfs)	2.71	Ac-ft	1,960	
Fiscal year 1958-59: Max	41	41	41	41	0.24	Mean(mgd)	1.40	Mean(cfs)	2.17	Ac-ft	1,570	

Peak discharge (base, 90 mgd)--Aug. 2 (4 a.m.) 286 mgd (443 cfs), 4.43 ft; Aug. 8 (7 a.m.) 137 mgd (212 cfs), 3.81 ft; Apr. 9 (8 a.m.) 375 mgd (580 cfs), 4.97 ft.

* Discharge measurement made on this day.

2460. Waiomao Stream above Pukele Stream, near Honolulu

Location.--Lat 21°18'35", long 157°47'10", on left bank 300 ft west of road, 0.8 mile upstream from confluence with Pukele Stream, and 5 miles east of Honolulu Post Office.

Drainage area.--1.04 sq mi.

Records available.--April 1911 to December 1912, June 1926 to June 1959.

Gage.--Water-stage recorder and V-notch weir. Datum of gage is 373.66 ft above mean sea level (Honolulu Board of Water Supply bench mark). Apr. 12, 1911, to Dec. 31, 1912, staff gage at site 0.5 mile downstream at different datum.

Average discharge.--33 years (1926-59), 1.17 mgd (1.81 cfs).

Extremes.--Maximum discharge during year, 185 mgd (286 cfs) Aug. 2 (gage height, 4.40 ft), from rating curve extended above 58 mgd as explained below; no flow June 20-29, 1911-12, 1926-59; Maximum discharge, 1,000 mgd (1,550 cfs), revised, Apr. 11, 1930 (gage height, 6.27 ft), from rating curve extended above 58 mgd by test on model of station site; no flow at times.

Revisions.--The figures of maximum discharge for some fiscal years have been revised, as shown in the following table. They supersede figures published in the water-supply papers indicated.

WSP	Fiscal year	Date	Discharge		Gage height (feet)
			(mgd)	(cfs)	
655	1927	May 16, 1927	640	990	5.52
675	1928	Nov. 19, 1927	800	1,240	5.90
710	1930	Apr. 11, 1930	1,000	1,550	6.27
741	1932	Apr. 30, 1932	680	1,050	5.59

Remarks.--Records fair except those for period of no gage-height record, which are poor. Honolulu Board of Water Supply diverts ground water from tunnels in drainage area.

Revisions.--WSP 1569: Drainage area. Revised figures of discharge, in million gallons a day, for the high-water periods in the fiscal years 1930 and 1932, superseding those published in WSP 710 and 740, are given herewith:

Apr. 11, 1930..... 41
Apr. 30, 1932..... 46

Month	Maximum	Minimum	Mean		Runoff in acre-feet
			(mgd)	(cfs)	
April 1930.....	41	0.4	2.98	4.61	275
Fiscal year 1929-30.....	41	0	1.50	2.32	1,680
Calendar year 1930.....	41	.07	1.59	2.46	1,780
April 1932.....	46	.37	2.99	4.63	275
Fiscal year 1931-32.....	46	.02	1.95	3.02	2,190
Calendar year 1932.....	46	0	1.31	2.03	1,470

2460. Waiomao Stream above Pukele Stream, near Honolulu--Continued

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Aug. 8				Aug. 8 to June 30			
0.9	0.01	1.9	8.6	0.8	0	1.9	8.6
1.1	.26	2.1	13.3	.9	.02	2.1	13.3
1.3	1.12	2.4	24.5	1.1	.32	2.3	20.5
1.5	2.75	2.7	39	1.3	1.22	2.6	34
1.7	5.4			1.5	2.9	3.0	56
				1.7	5.4		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.23	1.48	0.44	0.50	0.44	0.08	0.70	0.15	0.25	0.47	0.10	0.17
2	5.6	30.5	.44	.41	.43	.07	.27	.10	.20	1.46	.09	.11
3	15.9	4.8	.81	.21	.35	.21	.19	.09	.18	.41	.10	.10
4	2.25	3.9	1.44	.17	*.28	.15	.19	.07	.18	.48	.08	.09
5	.90	12.5	1.35	.13	.21	1.61	.16	.07	.16	.35	.07	.11
6	.54	3.8	5.3	.13	.19	3.0	.14	.07	.20	*.23	.10	.09
7	.58	5.2	3.45	.13	.17	.34	.14	.10	.15	.38	.09	.07
8	1.11	*38.5	1.10	.09	.29	.28	.15	.12	.16	.35	.08	.07
9	1.13	6.2	.94	.07	.26	.13	.80	.10	.15	27	.26	.06
10	2.15	2.45	.84	.06	.32	.13	.15	.22	.15	4.5	.23	.05
11	.83	*1.50	.60	.06	.55	.52	.07	.13	.14	2.6	.17	.04
12	1.00	1.10	.44	.07	.48	.16	.08	6.0	.22	1.64	.10	.05
13	3.0	.89	.41	.17	.32	.07	.80	.90	.22	.84	.07	.21
14	1.02	1.00	.38	.10	.29	.09	.26	.30	.45	.56	.06	.17
15	2.45	2.05	.44	.27	.19	.08	.11	.24	.30	.41	.08	.04
16	1.32	2.35	.43	.11	.15	.13	.11	.17	.16	.32	.08	.03
17	3.65	.99	.56	.09	.13	.25	6.0	.54	.16	.25	.20	.01
18	8.6	.69	.32	.07	.17	1.20	10.0	5.8	.15	.19	13.0	.01
19	5.3	.52	.48	.06	2.65	.55	1.80	.90	.20	.19	1.79	.01
20	3.45	.65	.52	.15	.60	.20	.45	1.9	.11	.17	.99	0
21	1.65	.90	.48	.17	.35	.17	.30	.80	.08	.15	2.4	0
22	2.5	.56	.32	10.2	.23	.25	.25	.90	.05	.13	2.15	0
23	1.25	.44	.26	8.2	.19	.30	.21	.50	.06	.11	.64	0
24	3.2	.35	*.21	21	.15	.63	.18	.40	.06	.10	.44	0
25	3.0	7.3	.17	4.7	.11	.40	.16	.35	.07	.10	*.32	0
26	11.4	4.2	.15	2.0	.10	.40	.16	.30	.06	.09	.23	0
27	2.0	1.75	.22	1.10	.09	.75	.14	.29	.05	.09	.19	0
28	1.06	.99	.15	4.4	.08	.55	.12	.25	.04	.38	.15	0
29	1.26	.89	.10	1.89	.07	7.0	.17	-	.04	.17	.13	0
30	.75	.56	.09	.89	.06	1.95	.11	-----	.10	.11	.68	0
31	.65	.48	-----	.60	-----	.90	.60	-----	.11	-----	.32	0.02
Total	89.73	139.29	21.84	58.20	9.88	22.55	24.97	21.76	4.61	44.21	25.39	1.51
Mean(mgd)	2.89	4.49	0.728	1.88	0.329	0.727	0.805	0.777	0.149	1.47	0.819	0.050
Mean(cfs)	4.47	6.95	1.13	2.91	0.509	1.12	1.25	1.20	0.231	2.27	1.27	0.077
Ac-ft	275	427	67	179	30	69	77	67	14	136	78	4.6
Calendar year 1958: Max	121			MIn	0.01	Mean(mgd)	1.69	Mean(cfs)	2.61	Ac-ft	1,890	
Fiscal year 1958-59: Max	38.5			MIn	0	Mean(mgd)	1.27	Mean(cfs)	1.96	Ac-ft	1,420	

Peak discharge (base, 70 mgd).--Aug. 2 (3 a.m.) 185 mgd (286 cfs), 4.40 ft; Aug. 8 (5 a.m.) 142 mgd (220 cfs), 4.07 ft; Oct. 24 (1:30 a.m.) 87 mgd (134 cfs), 3.45 ft; Apr. 9 (5:30 a.m.) 114 mgd (176 cfs), 3.79 ft.

* Discharge measurement made on this day.
 Note.--No gage-height record Dec. 6 to Mar. 20; discharge estimated on basis of records for nearby streams.

2470. Palolo Stream near Honolulu

Location.--Lat 21°17'35", long 157°48'25", on left bank 250 ft downstream from bridge on Palolo Avenue and 3.9 miles east of Honolulu Post Office.

Drainage area.--3.63 sq mi.

Records available.--April 1952 to June 1959.

Gage.--Water-stage recorder and steel plate in concrete-lined channel. Altitude of gage is 95 ft (from topographic map).

Average discharge.--7 years, 3.64 mgd (5.63 cfs).

Extremes.--Maximum discharge during year, 882 mgd (1,360 cfs) Aug. 2 (gage height, 3.47 ft), from rating curve extended above 450 mgd as explained below; minimum daily, 0.30 mgd (0.46 cfs) June 27, 28, 1952-59; Maximum discharge, 2,100 mgd (3,250 cfs) Mar. 5, 1958 (gage height, 5.33 ft), from rating curve extended above 450 mgd by test on model of station site; minimum daily, 0.03 mgd (0.05 cfs) June 23-25, 1958.

Remarks.--Records fair except those for period of indefinite stage-discharge relation, which are poor.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59, except period of indefinite stage-discharge relation (gage height, in feet, and discharge, in million gallons a day) (Shifting-control method used Sept. 7-24, Oct. 2-16, Oct. 28 to Nov. 3, Feb. 18 to Mar. 14, Mar. 25, Apr. 3-5, 10-16, May 23-25, June 11-16, 28, 29)

1.1	0.18	1.6	2.20
1.2	.34	1.8	9.0
1.3	.55	2.0	28.0
1.4	.85	2.2	69
1.5	1.23	2.4	150

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.8	5.0	1.85	1.30	1.40	0.55	1.54	0.74	0.92	1.74	0.82	0.78
2	3.0	96	1.81	1.27	1.34	.55	1.08	.55	.84	4.5	.78	.75
3	31	17.0	2.05	1.00	1.29	.60	.89	.53	.75	.82	.75	.66
4	5.5	10.0	1.62	.78	1.19	.50	.89	.48	.75	.82	.72	.60
5	1.8	38	2.75	.66	.72	3.30	.78	.48	.72	.78	1.03	.60
6	1.5	17.0	12.6	.66	1.00	4.2	.69	.48	.81	*.66	.88	.48
7	1.8	*14.0	4.95	.69	.52	1.04	.69	.53	.69	.90	.85	.47
8	3.0	129	1.77	.66	1.08	1.00	.72	.58	.72	6.9	.83	.48
9	1.8	7.0	1.54	.66	1.00	.66	1.77	.53	.69	.82	1.49	.46
10	4.5	6.0	1.54	.66	1.07	.66	.76	.83	.69	7.1	1.04	.43
11	2.2	3.0	1.40	.66	1.24	1.35	.48	.69	.67	2.6	.96	.48
12	2.2	2.5	1.29	.72	1.00	.88	.50	2.1	.90	1.77	.85	.43
13	3.5	2.4	1.29	.72	.92	.58	2.15	5.2	.94	1.40	.82	.69
14	1.9	2.5	1.28	.69	1.00	.53	1.09	1.29	1.64	1.24	.84	.53
15	3.2	4.5	1.00	1.09	.82	.50	.60	.96	1.17	1.19	.85	.46
16	1.8	3.0	1.09	.60	.71	.59	.55	.88	.78	1.19	.82	.43
17	5.5	2.2	1.09	.72	.71	.81	20.2	1.47	.78	1.14	1.46	.37
18	38.5	2.0	1.04	.46	1.09	3.2	35	12.8	.75	1.14	2.1	.37
19	15.0	1.70	1.09	.55	5.7	1.44	2.40	1.77	.86	1.14	4.8	.36
20	4.2	1.80	1.09	.75	1.40	.96	1.34	4.20	.69	1.19	3.2	.37
21	3.0	2.4	1.00	.90	1.19	.85	1.04	3.4	.72	1.14	4.6	.34
22	9.0	1.50	.96	32	1.09	1.04	.92	1.87	.75	1.04	2.12	.32
23	4.5	1.20	.96	21	1.04	1.14	.89	1.34	.82	1.00	1.24	.32
24	8.8	.8	*.92	58	1.04	1.43	.78	1.19	.82	.92	1.14	.36
25	7.0	9.3	.82	11.3	1.00	1.19	.72	1.09	.69	.89	*1.03	.37
26	37.5	8.3	.85	4.8	.96	1.19	.72	1.04	.69	.85	1.00	.34
27	7.0	3.2	.89	3.2	.85	1.74	.66	1.04	.67	1.00	.92	.30
28	5.0	2.5	.82	7.0	.69	1.47	.63	.96	.63	1.25	.82	.30
29	5.5	2.0	.72	3.4	.58	23	.76	-	.69	.89	.75	.32
30	3.5	1.85	.66	1.70	.55	4.7	.55	-----	.73	.85	1.25	.46
31	3.2	1.77	-----	1.47	-----	1.77	1.41	-----	.63	-----	.96	-----
Total	226.7	399.42	52.72	160.03	34.59	63.42	83.20	67.92	24.60	130.05	60.62	13.63
Mean:	7.31	12.9	1.76	5.16	1.15	2.05	2.68	2.43	0.794	4.34	1.96	0.454
mgd	11.3	20.0	2.72	7.98	1.78	3.17	4.15	3.76	1.23	6.71	3.03	0.702
cfs	696	1,250	162	491	106	195	255	208	75	399	166	42
Ac-ft												
Calendar year 1958:	Max 532	Min 0.03	Mean(mgd) 5.09	Mean(cfs) 7.86	Ac-ft 5,700							
Fiscal year 1958-59:	Max 129	Min 0.30	Mean(mgd) 3.61	Mean(cfs) 5.59	Ac-ft 4,040							

Peak discharge (base 220 mgd).--Aug. 2 (3:30 a.m.) 882 mgd (1,360 cfs), 3.47 ft; Aug. 8 (6:30 a.m.) 852 mgd (1,320 cfs), 3.42 ft; Dec. 29 (2 p.m.) 255 mgd (395 cfs), 2.55 ft; Jan. 17 (6:30 p.m.) 238 mgd (368 cfs), 2.55 ft; Apr. 9 (8 a.m.) 720 mgd (1,110 cfs), 3.20 ft.

* Discharge measurement made on this day.
Note.--Stage-discharge relation indefinite July 1 to Aug. 29; discharge estimated on basis of recorded range in stage and records for Waialoa and Puakele Streams.

2500. Maunawili ditch near Waimanalo

Location.--Lat 21°20'45", long 157°45'10", on left bank 80 ft downstream from Aniani Nui Ridge tunnel and 2.1 miles west of Waimanalo.

Records available.--March 1954 to June 1959.

Gage.--Water-stage recorder and sharp-crested weir. Altitude of gage is 390 ft (from topographic map).

Average discharge.--5 years, 2.01 mgd (3.11 cfs).

Extremes.--1954-59: Maximum daily discharge, 7.0 mgd (10.8 cfs) Mar. 5, 1958; no flow at times.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Ditch diverts water from headwaters of Maunawili Stream for irrigation in vicinity of Waimanalo.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.05	2.6	2.1	2.5	2.45	1.40	2.2	2.4	0.4	2.05	2.1	2.05
2	*2.35	2.85	2.1	2.45	2.35	1.40	2.2	1.2	.4	2.05	2.2	2.05
3	3.25	2.0	2.1	2.5	2.3	*1.40	2.2	.6	.4	2.05	2.1	2.05
4	1.85	1.58	2.3	2.35	2.3	1.35	2.1	.5	.85	2.1	2.05	2.05
5	1.46	1.58	2.1	2.35	2.3	1.58	2.05	.5	.80	2.05	2.05	2.05
6	1.25	3.45	2.15	2.35	2.3	1.58	2.05	1.5	.80	2.75	2.1	2.1
7	1.15	5.8	2.15	2.35	2.25	1.46	.82	2.4	.95	2.9	2.1	2.1
8	1.20	2.5	2.15	2.35	2.1	1.40	0	2.3	.90	2.8	2.1	2.1
9	1.72	0	2.15	2.35	2.0	1.35	0	1.0	.90	2.8	2.1	*2.0
10	2.45	0	2.15	2.3	2.0	1.28	0	.5	1.38	1.64	2.1	2.0
11	2.3	1.2	2.2	2.3	2.0	1.56	0	.4	2.2	1.46	2.05	2.0
12	2.3	2.3	2.2	2.3	1.94	1.79	0	.8	2.35	1.30	2.05	1.94
13	2.35	2.3	2.2	2.3	1.94	2.1	.04	1.8	2.2	1.25	2.05	2.0
14	2.3	2.3	2.2	2.3	1.88	2.1	0	2.5	2.45	1.20	2.05	1.94
15	2.3	2.3	2.2	2.3	1.82	1.85	0	2.4	2.2	1.15	2.05	1.94
16	2.3	2.3	2.25	2.25	1.76	2.1	1.36	1.5	2.1	1.91	2.05	1.94
17	2.35	2.3	2.25	2.25	1.76	2.05	3.25	1.1	2.1	2.35	2.1	1.88
18	2.65	2.3	2.25	2.25	1.70	2.1	2.25	.6	2.1	2.3	3.05	1.88
19	2.75	2.3	2.25	2.25	1.70	1.94	1.26	.5	2.05	2.25	2.35	1.88
20	2.75	1.6	2.25	2.2	1.70	2.05	.33	.5	2.05	2.25	2.25	1.88
21	2.65	1.2	2.3	2.2	1.70	2.0	.27	.5	2.05	2.25	2.65	1.88
22	2.6	1.80	2.3	2.35	1.64	2.05	.43	.5	2.05	2.25	2.6	1.82
23	2.45	2.3	2.3	2.45	1.64	2.0	1.37	.4	2.05	2.25	2.3	1.82
24	2.6	2.3	2.3	1.27	1.64	2.0	2.45	.4	2.05	2.25	2.25	1.82
25	2.65	1.2	2.3	.85	1.58	2.0	2.35	.4	2.05	2.25	2.25	1.82
26	3.35	2.0	2.35	.80	1.58	2.0	1.09	.4	2.05	2.2	2.2	1.82
27	2.75	2.0	2.35	1.69	1.52	2.05	.51	.4	2.05	2.2	2.1	1.82
28	2.6	2.0	2.35	2.45	1.52	2.0	.47	.4	2.0	2.2	2.1	1.76
29	2.5	2.1	*2.35	2.35	1.46	2.65	.47	-	2.0	2.2	2.05	1.82
30	*2.5	2.1	2.35	*2.45	1.46	2.25	1.1	-----	2.0	2.2	2.05	1.94
31	2.5	2.1	-----	2.45	-----	2.25	2.5	-----	2.0	-----	2.05	-----
Total	72.23	63.66	66.75	68.06	56.29	57.09	55.52	28.2	51.91	62.86	67.65	58.15
mgd	2.33	2.05	2.22	2.20	1.88	1.84	1.15	1.01	1.67	2.10	2.18	1.94
cfs	3.61	3.17	3.43	3.40	2.91	2.85	1.78	1.56	2.58	3.25	3.37	3.00
Ac-ft	222	195	205	209	173	175	109	87	159	193	208	178
Calendar year 1958: Max	7.0			Min	0	Mean(mgd)	1.97	Mean(cfs)	3.05	Ac-ft	2,200	
Fiscal year 1958-59: Max	5.8			Min	0	Mean(mgd)	1.89	Mean(cfs)	2.92	Ac-ft	2,110	

* Discharge measurement made on this day.

Note.--No gage-height record Aug. 8 to Sept. 29, Jan. 30 to Mar. 3; discharge estimated on basis of records for nearby streams and Hawaii Water Authority log of operation.

2750. Haiku Stream near Heeia

Location.--Lat 21°24'45", long 157°49'35", on left bank 1.7 miles west of Kaneohe Post Office and 1.8 miles southwest of Heeia.

Drainage area.--0.97 sq mi.

Records available.--January 1914 to October 1919, July 1939 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 271.9 ft above mean sea level (levels by city and county of Honolulu). Prior to Apr. 28, 1914, staff gage and Apr. 29, 1914, to Oct. 25, 1919, water-stage recorder, at same site at different datum.

Extremes.--Maximum discharge during year, 749 mgd (1,160 cfs) Oct. 23 (gage height, 4.67 ft), from rating curve extended above 21 mgd as explained below; minimum daily, 0.40 mgd (0.62 cfs) June 19, 24, 25, 28.

1914-19, 1939-59: Maximum discharge, 1,150 mgd (1,780 cfs) Mar. 26, 1951 (gage height, 5.39 ft), from rating curve extended above 21 mgd by test on model of station site; minimum daily, 0.19 mgd (0.29 cfs) July 13, Oct. 17, 19-21, 23-26, 1945, Sept. 18-20, 1946.

Remarks.--Records good except those for period of no gage-height record, which are poor. Suburban Water System diverts ground water from tunnel in drainage area.

Revisions (fiscal years).--WSP 935: 1940. WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used July 15-29, Apr. 15-21)

0.9	0.21	1.9	14.5
1.0	.46	2.1	31
1.2	1.54	2.5	80
1.4	3.6	3.0	153
1.6	6.7		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.46	0.68	0.73	0.64	1.72	0.83	1.05	0.99	1.11	0.93	0.68	0.60
2	.65	14.7	.73	.64	1.63	.83	1.05	.99	1.11	.93	.68	.60
3	2.5	3.35	.68	.86	1.72	.83	.99	.99	1.05	.73	.68	.60
4	2.8	1.63	.68	.68	1.54	*.83	.99	.99	1.11	.99	.64	.56
5	.88	3.15	2.5	.68	1.54	1.54	.99	.99	1.11	.93	.60	*.52
6	.64	1.81	8.6	.64	1.72	1.81	.99	.99	1.05	1.38	.64	.46
7	.73	1.24	4.1	.64	1.72	1.11	.99	.99	1.05	1.05	.60	.46
8	.88	21	1.72	.64	1.63	1.05	.93	1.05	.99	1.38	.56	.46
9	.73	5.9	.99	.64	1.54	.99	.99	.99	.99	16.5	.56	.46
10	.52	2.65	.93	.64	1.72	.93	1.24	1.05	.93	2.8	.56	.46
11	.49	1.72	.88	.64	1.54	.93	1.24	1.19	.88	1.72	.56	.46
12	.56	1.24	.83	.64	1.54	.93	1.24	2.8	.93	1.07	.56	.46
13	.60	1.17	.78	.64	1.54	.88	1.46	2.4	.93	.64	.56	.49
14	.60	1.54	.88	.64	1.54	.88	*1.17	1.24	1.27	.60	.56	.49
15	.64	1.31	1.17	.68	1.54	.88	.99	1.05	1.05	.60	.56	.46
16	.64	1.05	1.05	.64	1.46	.93	.99	1.05	.93	.60	.56	.46
17	.73	1.05	.78	.64	1.38	.93	3.0	1.05	.93	.60	.56	.43
18	2.05	.99	.78	.64	1.38	.93	12.2	.99	.88	.64	1.15	.43
19	1.38	.93	*.73	.64	1.54	.93	1.72	.99	.88	.64	.73	.40
20	1.70	.93	.73	.73	1.31	.88	1.24	.99	.88	.68	.60	.43
21	1.31	.93	.68	.68	1.31	.88	1.11	1.46	.88	*.73	1.03	.46
22	.99	.99	.64	2.1	1.24	.88	1.05	1.24	.88	.73	1.31	.46
23	.88	.88	.64	90	1.24	.88	1.05	1.11	.88	.73	.78	.43
24	.99	.78	.64	24	1.24	.88	.99	1.05	.88	.73	.64	.40
25	1.31	2.0	.64	5.6	1.17	.88	.99	*.99	.88	.68	.64	.40
26	2.0	1.86	.64	3.25	.99	.93	.99	1.05	.88	.68	.60	.43
27	1.11	1.05	.64	2.25	.88	1.11	.93	1.05	.88	.68	.60	.43
28	.93	.88	.64	4.0	.83	.99	.93	1.11	.88	.73	.60	.40
29	.62	.78	.64	*2.8	.83	2.25	.93	-	.93	.73	.60	.43
30	.64	.78	.60	2.1	.83	1.72	.93	-	.93	.73	.64	.52
31	.64	.73	-----	1.81	-----	1.11	.99	-----	.88	-----	.60	-----
Total	53.36	79.70	36.67	151.82	41.81	32.36	46.35	32.83	29.84	42.76	20.64	14.05
Mean:												
mgd	1.72	2.57	1.22	4.90	1.39	1.04	1.50	1.17	0.963	1.43	0.666	0.468
cfs	2.66	3.98	1.89	7.58	2.15	1.61	2.32	1.81	1.49	2.21	1.03	0.724
Ac-ft	164	245	113	466	128	99	142	101	92	131	63	43

Calendar year 1958: Max 153 Min 0.37 Mean(mgd) 2.07 Mean(cfs) 3.20 Ac-ft 2,320
Fiscal year 1958-59: Max 90 Min 0.40 Mean(mgd) 1.60 Mean(cfs) 2.48 Ac-ft 1,790

Peak discharge (base, 100 mgd),--July 3 (1 p.m.) 334 mgd (517 cfs), 3.61 ft; Aug. 8 (1 p.m.) 187 mgd (289 cfs), 3.17 ft; Sept. 6 (2 p.m.) 153 mgd (237 cfs), 3.00 ft; Oct. 23 (9:30 p.m.) 749 mgd (1,160 cfs), 4.67 ft; Apr. 9 (time and gage height unknown) about 162 mgd (251 cfs).

* Discharge measurement made on this day.
Note.--No gage-height record Mar. 27 to Apr. 10; discharge estimated on basis of records for stations on nearby streams.

2780. Iolekaa Stream mauka near Heeia

Location--Lat 21°25'15", long 157°49'50", on left bank 0.7 mile upstream from confluence with Haiku Stream, 1.5 miles southwest of Heeia, and 1.8 miles west of Kaneohe Post Office.

Drainage area--0.28 sq mi.

Records available--March 1940 to June 1959.

Gage--Water-stage recorder and concrete control. Datum of gage is 320 ft above mean sea level (transit levels by U. S. Navy).

Average discharge--18 years (1940-42, 1943-59), 0.395 mgd (0.611 cfs).

Extremes--Maximum discharge during year, 71 mgd (110 cfs) Oct. 23 (gage height, 2.43 ft), from rating curve extended above 4.0 mgd by rating for Columbus-type control and test on model of station site; minimum, 0.30 mgd (0.46 cfs) Oct. 6.
1940-59: Maximum discharge, that of Oct. 23, 1958; minimum daily, 0.10 mgd (0.16 cfs) Oct. 31 to Nov. 9, Nov. 24, 27, 1946.

Remarks--Records good.

Revisions (fiscal years)--WSP 935: 1940. WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.20	1.0	2.7
.6	.36	1.1	4.0
.7	.64	1.2	5.8
.8	1.06	1.3	8.0
.9	1.75	1.5	13.5

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1	0.36	0.41	0.43	0.34	0.54	0.41	0.51	0.49	0.43	0.51	0.43	0.43	
2	.60	2.25	.43	.34	.54	.41	.49	.46	.43	.49	.43	.43	
3	2.85	.90	.43	.66	.51	.41	.49	.46	.43	.49	.43	.41	
4	.74	.57	.43	.34	.49	*.43	.46	.46	.43	.51	.43	.43	
5	.51	.91	.75	.32	.49	1.15	.46	.46	.43	.51	.43	*.41	
6	.43	*.65	1.54	.32	.49	.83	.46	.46	.46	.65	.46	.38	
7	.43	.54	1.15	.32	.49	.51	.46	.46	.49	.54	.43	.38	
8	.41	3.2	.61	.32	.46	.46	.46	.46	.49	.59	.43	.41	
9	.41	1.40	.51	.32	.46	.43	.48	.46	.49	6.1	.43	.38	
10	.41	.70	.49	.32	.49	.43	.46	.46	.49	1.06	.43	.38	
11	.41	.57	.46	.32	.46	.41	.46	.63	.49	.74	.43	.38	
12	.43	.49	.43	.32	.46	.41	.49	1.41	.51	.61	.43	.38	
13	.46	.46	.43	.34	.43	.41	.85	.96	.51	.54	.43	.38	
14	.41	.49	.43	.34	.46	.41	*.51	.61	.86	.54	.46	.38	
15	.41	.49	.43	.36	.43	.43	.51	.51	.54	.51	.43	.38	
16	.41	.46	.43	.34	.43	.43	.49	.49	.49	.51	.43	.38	
17	.48	.49	.43	.34	.43	.46	1.76	.49	.49	.51	.43	.38	
18	.86	.49	.43	.34	.43	.51	3.85	.46	.49	.51	.97	.38	
19	.83	.49	*.41	.36	.49	.46	.86	.46	.49	.49	.43	.41	
20	.61	.49	.38	.38	.43	.46	.61	.46	.49	.49	.41	.41	
21	.49	.49	.36	.36	.43	.46	.54	.72	.49	*.46	1.06	.41	
22	.51	.49	.34	.88	.43	.46	.51	.51	.49	.41	.57	.38	
23	.43	.46	.34	11.6	.43	.46	.49	.49	.49	.41	.46	.38	
24	.55	.46	.34	5.9	.43	.43	.49	.46	.49	.41	.43	.38	
25	.64	.90	.34	1.18	.43	.43	.49	.46	.49	.41	.43	.38	
26	.88	.67	.34	.61	.43	.43	.49	.46	.49	.41	.43	.38	
27	.54	.51	.34	.46	.41	.83	.49	.49	.49	.41	.41	.38	
28	.46	.46	.34	1.29	.41	.46	.49	.46	.49	.43	.43	.38	
29	.43	.46	.34	.75	.41	1.38	.49	-	-	.51	.43	.38	
30	.41	.46	.34	.64	.41	.67	.49	-	-	.51	.43	.41	
31	.41	.46	.34	.57	-----	.54	.49	-----	.49	-----	.43	-----	
Total	18.01	22.27	14.45	31.28	13.63	16.41	20.58	15.16	15.36	21.11	14.69	11.76	
Mean:													
mgd	0.581	0.718	0.492	1.01	0.454	0.529	0.664	0.541	0.495	0.704	0.474	0.392	
cfs	0.899	1.11	0.746	1.56	0.702	0.818	1.03	0.837	0.766	1.09	0.733	0.607	
Ac-ft	55	68	44	96	42	50	63	46	47	65	45	36	
Calendar year 1958: Max	11.6				0.26		Mean(mgd)	0.548		Mean(cfs)	0.848	Ac-ft	613
Fiscal year 1958-59: Max	11.6				0.52		Mean(mgd)	0.588		Mean(cfs)	0.910	Ac-ft	657
Peak discharge (base, 15 mgd)--Oct. 23 (10:30 p.m.) 71 mgd (110 cfs), 2.43 ft; Jan. 18 (1 a.m.) 18.7 mgd (28.9 cfs), 1.64 ft; Apr. 9 (7 a.m.) 39.5 mgd (61.1 cfs), 2.02 ft.													

* Discharge measurement made on this day.

2830. Kahaluu Stream near Heeia

Location.--Lat 21°26'20", long 157°51'20", on left bank 40 ft upstream from intake of Libby ditch, 0.5 mile upstream from forest-reserve boundary, and 3.0 miles northwest of Heeia.

Drainage area.--0.28 sq mi.

Records available.--October 1935 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 357.52 ft above mean sea level (levels by Wright, Harvey, & Wright).

Extremes.--Maximum discharge during year, 166 mgd (257 cfs) Oct. 23 (gage height, 4.88 ft, from floodmark), from rating curve extended above 9 mgd by test on model of station site; minimum, 0.15 mgd (0.23 cfs) June 27.

1935-59: Maximum discharge, 290 mgd (449 cfs) Sept. 27, 1937 (gage height, 5.47 ft, control then in use), from rating curve computed from 11 to 240 mgd by Parshall flume formula and extended above; minimum, 0.03 mgd (0.05 cfs) June 25, 1958.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Honolulu Board of Water Supply diverts ground water from tunnel in drainage area. Continuous records of rainfall are obtained at station.

Revisions.--WSP 1569: Drainage area.

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used Mar. 22 to Apr. 17)

	July 1 to May 18				May 19 to June 30	
	0.1	0.15	1.2	10.5	0.1	0.11
	.3	.98	1.5	16.2	.3	.84
	.6	3.2	1.8	22.9	.6	2.9
	.9	6.4	2.1	31		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.27	0.30	0.53	0.41	0.67	0.87	1.22	1.48	1.15	1.35	0.77	0.55
2	1.57	4.1	.53	.49	.62	.92	1.28	1.48	.98	1.22	.77	.47
3	6.4	1.29	.45	.90	.67	.87	1.28	1.48	.98	1.22	.77	.47
4	.62	.53	.45	.62	.62	*.92	1.28	1.48	1.10	1.28	.67	.39
5	.37	1.41	.65	.53	*.63	1.33	1.28	1.48	1.10	1.22	.62	*.45
6	.30	.84	2.55	.49	.58	1.35	1.28	1.41	1.04	1.28	.72	.35
7	.30	.58	1.22	.49	.67	.98	1.28	1.41	.98	1.28	.77	.35
8	.30	7.3	.53	.49	.67	.87	1.28	1.48	.98	1.48	.72	.35
9	.30	1.31	.45	.49	.67	.92	1.35	1.48	.87	5.9	.77	.35
10	.30	.62	.45	.49	.72	.98	1.35	1.48	.87	1.54	.77	.35
11	.27	a.58	.41	.49	.67	1.04	1.28	1.68	.92	1.48	.67	.35
12	.30	a.52	.41	.49	.67	1.04	1.35	2.4	1.04	1.41	.58	.32
13	.37	a.50	.41	.45	.67	1.04	1.48	1.55	1.15	1.35	.49	.35
14	.30	.49	.41	.49	.72	1.04	*1.41	1.22	1.28	1.22	.53	.43
15	.30	.49	.41	.58	.72	1.04	1.41	1.22	1.22	1.22	.58	.35
16	.30	.53	.37	.58	.72	1.10	1.48	1.15	1.15	1.22	.53	.29
17	.57	.58	.45	.58	.67	1.04	2.5	1.15	1.15	*1.12	.58	.26
18	1.25	.49	.41	.58	.72	1.15	3.0	1.15	1.15	1.22	1.40	.23
19	.62	.49	*.51	.58	.87	1.10	1.60	1.22	1.10	1.28	.59	.20
20	.67	.49	.58	.67	.82	1.10	1.54	1.22	1.04	*1.22	.59	.20
21	.49	.53	.58	.67	.87	1.10	1.54	1.41	1.10	1.28	.79	.26
22	.41	.49	.49	1.87	.82	1.10	1.54	1.41	1.07	1.15	.89	.23
23	.37	.49	.45	26.5	.82	1.15	1.48	1.28	1.04	1.04	.79	.20
24	.59	.49	.41	4.7	.82	1.15	1.48	1.28	1.10	1.04	.75	.18
25	.68	1.80	.41	a1.5	.77	1.15	1.48	1.28	1.35	.98	.79	.18
26	1.28	1.30	.41	a1.0	.77	1.15	1.48	*1.22	1.22	.92	.75	.18
27	.49	.67	.41	a.76	.82	1.41	1.48	1.15	1.22	.87	.67	.18
28	.41	.58	.41	a2.1	.82	1.28	1.48	1.15	1.15	.92	.59	.18
29	.33	.53	.37	a1.5	.82	2.25	1.48	-	1.41	.87	.59	.18
30	.30	.49	.37	a.94	.87	1.41	1.48	-----	1.22	.77	.63	.23
31	.27	.49	-----	a.67	-----	1.22	1.48	-----	1.35	-----	.59	-----
Total	21.10	31.30	16.29	53.10	21.97	35.18	46.33	38.80	34.48	40.35	21.72	9.06
Mean:												
mgd	0.681	1.01	0.543	1.71	0.732	1.13	1.49	1.59	1.11	1.34	0.701	0.302
cfs	1.05	1.56	0.840	2.65	1.13	1.75	2.31	2.15	1.72	2.07	1.08	0.467
Ac-ft	65	96	50	163	67	108	142	119	106	124	67	28

Calendar year 1958: Max 26.5 Min 0.08 Mean(mgd) 0.767 Mean(cfs) 1.19 Ac-ft 859
Fiscal year 1958-59: Max 26.5 Min 0.18 Mean(mgd) 1.01 Mean(cfs) 1.56 Ac-ft 1,140

Peak discharge (base, 30 mgd).--Aug. 8 (2:30 p.m.) 55 mgd (85 cfs), 2.81 ft; Oct. 23 (7:30 a.m.) 166 mgd (257 cfs), 4.88 ft; Apr. 9 (6 a.m.) 34 mgd (53 cfs), 2.20 ft.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for stations on nearby streams.

ISLAND OF OAHU

73

2840. Waihee Stream near Heeia

Location.--Lat 21°27'00", long 157°51'40", on left bank 70 ft upstream from intake of Kihe ditch, 120 ft downstream from forest-reserve boundary, 3.5 miles northwest of Heeia, and 4.4 miles northwest of Kaneohe.

Drainage area.--0.93 sq mi.

Records available.--December 1935 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 191.66 ft (corrected) above mean sea level (levels by Austin and Towill).

Average discharge.--23 years (1936-59), 6.45 mgd (9.98 cfs).

Extremes.--Maximum discharge during year, 466 mgd (721 cfs) Oct. 23 (gage height, 5.69 ft), from rating curve extended above 50 mgd; minimum, 5.2 mgd (8.05 cfs) July 1, 1935-59: Maximum discharge, that of Oct. 23, 1958; minimum, 2.75 mgd (4.25 cfs) Sept. 6, Oct. 31 to Nov. 2, 1955.

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are poor. Honolulu Board of Water Supply diverts ground water from tunnel in drainage area.

Revisions.--WSP 1569: Drainage area.

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Oct. 23				Oct. 24 to June 30			
0.8	4.8	2.0	32.5	0.8	5.5	1.6	23
.9	6.1	2.5	52	1.0	8.8	2.0	36
1.1	9.3	3.0	76	1.3	15.1		
1.3	13.1	3.5	104				
1.6	20.5						

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.2	5.6	5.3	5.6	7.8	7.1	7.4	7.2	7.8	7.6	6.9	6.4
2	6.4	13.9	5.3	5.8	7.8	7.1	7.2	7.2	7.8	7.2	6.9	6.4
3	27.5	7.8	5.3	7.4	7.4	7.1	7.1	7.2	7.6	7.2	6.9	6.4
4	8.9	6.6	5.3	5.8	7.4	*7.2	7.1	7.2	7.6	7.4	6.9	6.3
5	6.2	7.9	6.7	5.6	7.2	8.8	7.1	7.4	7.6	7.2	6.9	6.3
6	5.8	7.7	10.3	5.6	7.2	10.8	7.1	7.4	7.6	7.2	6.9	6.3
7	5.7	6.6	7.9	5.6	7.2	7.8	7.2	7.4	7.6	7.2	6.8	6.3
8	5.7	30	6.2	5.4	7.2	7.6	7.2	7.4	7.4	7.4	6.8	6.3
9	5.6	11.7	5.7	5.6	7.2	7.4	7.4	7.4	7.4	28	6.8	6.1
10	5.6	7.4	5.6	5.6	7.2	7.2	7.4	7.6	7.4	9.6	6.8	6.1
11	5.6	6.7	5.6	5.6	7.1	7.2	7.4	9.0	7.4	8.8	6.8	6.1
12	5.6	6.2	5.6	5.6	7.1	7.2	7.4	12.0	7.4	8.4	6.8	6.0
13	6.7	6.1	5.4	5.6	7.1	7.1	7.9	9.8	7.8	7.8	6.8	6.0
14	5.7	6.0	5.4	5.6	7.1	7.1	7.8	8.3	8.6	7.4	6.8	6.0
15	5.7	5.8	5.4	5.7	7.1	7.1	*7.2	7.9	7.9	7.4	6.8	6.0
16	5.6	5.7	5.3	5.6	7.1	7.2	7.1	7.8	7.6	7.2	6.8	6.0
17	5.6	5.7	*5.4	5.6	7.1	7.2	9.6	7.8	7.6	*7.1	6.8	6.0
18	9.7	5.6	5.6	5.6	7.2	7.4	15.5	7.8	7.6	7.1	10.8	6.0
19	7.1	5.8	5.7	5.7	7.6	7.2	8.8	7.6	7.4	7.1	8.9	6.0
20	7.9	5.6	5.6	5.7	7.2	7.2	8.1	7.6	7.4	6.9	6.8	6.0
21	6.5	5.4	5.6	5.7	7.1	7.2	7.9	8.1	7.4	6.9	6.9	6.0
22	6.0	5.4	5.4	7.3	7.1	7.4	7.8	9.0	7.4	6.9	6.8	6.0
23	5.6	5.6	5.4	7.7	7.1	7.4	7.4	8.1	7.4	6.8	6.6	6.0
24	6.0	5.6	5.4	d35	7.1	7.4	7.4	7.9	7.4	6.8	6.6	6.0
25	6.5	9.4	5.4	d13	7.1	7.4	7.2	7.9	7.4	6.8	6.6	6.0
26	9.5	6.8	5.6	d10	7.1	7.4	7.2	*7.8	7.2	6.8	6.4	6.0
27	5.6	5.7	5.6	d7.5	7.1	8.4	7.2	7.8	7.2	6.8	6.4	6.0
28	5.4	5.6	5.4	d9.0	7.1	7.6	7.4	7.8	7.2	6.8	6.4	5.8
29	5.4	5.4	5.4	*d8.6	7.1	13.4	7.4	-	7.4	6.8	6.4	5.8
30	5.4	5.4	5.4	8.3	7.1	8.6	7.4	-----	7.4	6.9	6.4	6.0
31	5.4	5.3	-----	7.9	-----	7.8	7.4	-----	7.4	-----	6.4	-----
Total	215.1	229.8	175.2	304.6	216.1	240.0	240.5	223.4	235.1	239.5	212.6	182.6
Mean:	6.94	7.41	5.77	9.83	7.20	7.74	7.76	7.98	7.52	7.98	6.86	6.09
mgd	10.7	11.5	8.95	15.2	11.1	12.0	12.0	12.3	11.6	12.3	10.6	9.42
cfs	660	705	532	935	663	737	738	686	715	735	552	560
Ac-ft												

Calendar year 1958: Max 77 Min 4.7 Mean(mgd) 6.61 Mean(cfs) 10.2 Ac-ft 7,400
 Fiscal year 1958-59: Max 77 Min 5.2 Mean(mgd) 7.43 Mean(cfs) 11.5 Ac-ft 8,320

Peak discharge (base, 90 mgd).--July 3 (2:30 p.m.) 102 mgd (158 cfs), 3.47 ft; Aug. 8 (6:30 p.m.) 206 mgd (319 cfs), 4.74 ft; Oct. 23 (9 a.m.) 466 mgd (721 cfs), 5.69 ft.

* Discharge measurement made on this day.
 † Doubtful gage-height record; discharge computed on basis of records for stations on nearby streams.
 Note.--No gage-height record July 14-29; discharge estimated on basis of records for stations on nearby streams.

2850. Waiahole tunnel at Waiaru, near Waiahole

Location.--Lat 21°29'05", long 157°53'15", on left bank in Waiahole tunnel at intake No. 29, 2.1 miles southwest of Waiahole.

Records available.--December 1950 to June 1959 in reports of Geological Survey. June 1916 to November 1950 in files of Waiahole Water Co.

Gage.--Water-stage recorder and Parshall flume.

Average discharge.--8 years (1951-59), 24.7 mgd (38.2 cfs).

Extremes.--1950-59: Maximum daily discharge, 74.0 mgd (114 cfs) July 28, 1954; minimum daily, 16.0 mgd (24.8 cfs) Jan. 24-29, 1952.

Remarks.--Records excellent except those for periods of no gage-height record, which are fair. Tunnel diverts water from headwaters of nearly all streams from Waiahole Valley to Kahana Valley for irrigation in central Oahu. Water may be diverted at various intakes above station.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	20.9	26.6	25.6	26.7	28.3	27.6	28.1	25.3	24.4	23.7	23.1	*22.0
2	25.9	58.9	*25.8	26.7	28.3	27.8	27.4	25.3	*24.4	23.7	23.5	21.8
3	55.5	37.4	25.6	37.5	28.1	27.8	27.2	25.3	24.4	24.0	26.4	21.8
4	29.4	26.2	25.6	26.9	28.1	27.8	26.9	25.3	24.4	25.3	23.3	21.8
5	22.9	44.8	32.3	26.5	28.1	32.1	26.9	25.3	24.4	23.7	22.9	21.8
6	22.0	36.6	a45.0	26.2	27.8	35.7	26.7	25.1	24.2	23.7	22.9	22.0
7	22.4	26.2	a45.0	26.2	27.8	28.1	26.7	25.1	24.2	23.5	22.9	22.0
8	22.4	60.5	28.5	26.2	27.8	27.8	26.7	25.1	24.0	30.0	22.9	22.0
9	22.2	34.9	27.6	32.5	27.8	27.6	26.5	24.9	24.0	63.2	22.9	22.0
10	21.8	26.5	26.9	28.7	29.7	27.4	26.5	25.6	24.2	31.4	22.9	22.0
11	21.4	25.6	26.7	26.9	32.3	27.4	26.2	31.9	24.2	29.7	22.6	22.0
12	21.4	25.3	26.7	28.5	31.4	27.2	26.2	35.4	24.9	26.2	22.6	22.6
13	31.0	25.3	26.5	26.5	34.2	27.2	26.9	30.0	25.1	25.1	22.6	22.6
14	22.4	27.2	26.7	26.2	38.9	26.9	26.2	25.8	36.7	24.6	22.6	22.2
15	22.2	28.8	27.8	27.4	29.2	26.7	26.0	25.3	26.0	24.2	22.6	22.0
16	22.1	27.2	26.5	26.5	28.3	27.2	26.0	24.9	24.6	24.2	23.3	21.8
17	33.1	25.3	27.2	26.2	28.1	27.6	31.1	25.1	24.4	24.0	22.4	21.8
18	54.9	25.3	26.9	26.2	28.1	29.0	39.4	25.8	24.2	23.7	49.5	21.6
19	28.5	25.1	28.8	26.2	32.5	28.1	27.8	24.9	24.0	23.5	24.0	21.6
20	31.0	25.1	30.0	26.0	28.5	27.4	26.7	25.3	24.0	23.5	23.1	21.4
21	24.4	25.1	29.0	26.0	28.1	27.2	26.2	43.2	24.0	23.5	23.1	21.4
22	23.3	25.6	27.2	43.3	27.8	27.4	26.0	30.0	23.7	23.3	23.1	21.2
23	22.6	25.8	26.9	71.5	27.8	26.9	26.0	26.0	23.5	23.1	22.6	21.2
24	34.5	25.3	26.7	64.9	27.8	26.9	25.8	25.3	23.5	23.3	22.6	21.2
25	33.9	52.9	26.7	38.2	27.8	26.9	25.8	25.1	23.5	23.3	22.6	21.2
26	40.0	39.0	26.7	31.2	27.8	26.9	25.8	24.9	23.5	23.1	22.6	21.2
27	24.9	28.3	26.9	29.0	27.6	32.9	25.8	24.6	23.5	23.3	22.4	20.9
28	23.7	26.5	26.9	31.9	27.6	a30.0	25.6	24.6	23.3	24.2	22.2	20.9
29	23.3	26.0	26.7	29.5	27.6	a36.0	25.6	-	23.3	23.1	22.2	20.9
30	23.3	25.8	26.9	28.8	27.4	29.2	25.6	-----	24.2	22.9	22.4	21.8
31	23.1	25.6	-----	28.5	-----	28.3	25.6	-----	23.3	-----	22.2	-----
Total	850.4	964.7	853.3	971.5	870.6	883.0	835.9	748.4	760.0	774.0	737.0	650.7
Mean:	27.4	31.1	28.4	31.3	29.0	28.5	27.0	26.7	24.5	25.8	23.8	21.7
mgd	42.4	46.1	43.9	48.4	44.3	44.1	41.8	41.3	37.9	39.9	36.8	33.6
cfs	2,610	2,960	2,620	2,980	2,670	2,710	2,570	2,300	2,330	2,380	2,260	2,000
Ac-ft												
Calendar year 1958:	Max 71.5	Min 17.6	Mean(mgd) 24.9	Mean(cfs) 38.5	Ac-ft 27,850							
Fiscal year 1958-59:	Max 71.5	Min 20.9	Mean(mgd) 27.1	Mean(cfs) 41.9	Ac-ft 30,390							

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for stations at north portal and wasteway.

2860. Waiahole tunnel wasteway at intake 31, near Waiahole

Location.--Lat 21°28'30", long 157°53'15", on left bank 150 ft below wasteway gates of intake No. 31 of Waiahole tunnel and 2.2 miles southwest of Waiahole.

Records available.--January 1951 to June 1959.

Gage.--Water-stage recorder and Parshall flume.

Average discharge.--8 years, 1.01 mgd (1.56 cfs).

Extremes.--1951-59: Maximum daily discharge, 62.1 mgd (96.1 cfs) Dec. 1, 1957; no flow most of time.

Remarks.--Records fair. Station measures releases from Waiahole tunnel.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0	0	0	0	0	0	0	0	0	0	0
2	.02	.12	0	0	0	0	0	0	0	0	0	0
3	.25	0	0	.03	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0
5	0	.05	.02	0	0	0	0	0	0	0	0	0
6	0	0	.06	0	0	.03	0	0	0	0	0	0
7	0	0	.04	0	0	0	0	0	0	0	0	0
8	0	5.60	0	0	0	0	0	0	0	0	0	0
9	0	4.87	0	.02	0	0	0	0	0	.18	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	.04	0	0	0	0
12	0	0	0	0	0	0	0	.05	0	0	0	0
13	.03	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	.01	0	0	0	0	0	0	0
15	0	0	0	0	.01	0	0	0	.02	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	.03	0	0	0	0	0	.02	0	0	0	0	0
18	.0a	0	0	0	0	0	6.15	0	0	0	0	.09
19	0	0	0	0	0	0	3.45	0	0	0	0	0
20	.02	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	.04	0	0	0	0
22	0	0	0	.06	0	0	0	0	0	0	0	0
23	0	0	0	7.14	0	0	0	0	0	0	0	0
24	.03	0	0	12.5	0	0	0	0	0	0	0	0
25	.02	.08	0	5.00	0	0	0	0	0	0	0	0
26	.06	.04	0	.02	0	0	0	0	0	0	0	0
27	0	0	0	0	0	.31	0	0	0	0	0	0
28	0	0	0	.05	0	0	0	0	0	0	0	0
29	0	0	0	0	0	.02	0	-	0	0	0	0
30	0	0	0	0	0	0	0	-----	0	0	0	0
31	0	0	-----	0	-----	0	0	-----	0	-----	0	-----
Total	0.54	10.76	0.12	24.82	0.02	0.36	9.62	0.13	0.02	0.18	0.09	0
Mean:												
mgd	0.017	0.347	0.004	0.801	0.0007	0.012	0.310	0.005	0.0006	0.006	0.003	0
cfs	0.026	0.537	0.006	1.24	0.001	0.019	0.480	0.008	0.0009	0.009	0.005	0
Ac-ft	1.7	33	0.4	76	0.1	1.1	30	0.4	0.1	0.6	0.3	0
Calendar year 1958:	Max 21.6	Min 0			Mean(mgd) 0.012	Mean(cfs) 0.019	Mean(mgd) 3.22	Mean(cfs) 4.98	Ac-ft 3,600			
Fiscal year 1958-59:	Max 12.5	Min 0			Mean(mgd) 0.128	Mean(cfs) 0.198	Ac-ft 144					

2870. Waiahole tunnel at north portal, near Waiahole

Location.--Lat 21°28'15", long 157°53'30", on right bank in Waiahole tunnel at the boundary of Territorial and private lands, 2.6 miles southwest of Waiahole.

Records available.--January 1951 to June 1959 in reports of Geological Survey. May 1916 to December 1950 in files of Waiahole Water Co.

Gage.--Water-stage recorder and Parshall flume.

Average discharge.--8 years (1951-59), 26.1 mgd (40.4 cfs).

Extremes.--1951-59: Maximum daily discharge, 81.0 mgd (125 cfs) July 28, 1954; minimum daily, 1.48 mgd (2.29 cfs) Dec. 9, 1956.

Remarks.--Records excellent except those for period of no gage-height record, which are good. Tunnel diverts water from headwaters of nearly all streams from Waiahole Valley to Kahana Valley for irrigation in central Oahu. Numerous intakes can divert water above station.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	24.0	30.5	29.5	30.0	31.8	31.2	31.0	28.8	27.2	25.5	*26.8	*25.2
2	28.7	35.3	*29.7	30.5	31.8	31.2	30.8	28.8	27.2	25.8	27.5	25.2
3	32.7	41.8	30.0	41.2	31.5	31.2	30.5	28.8	27.2	25.8	30.4	25.2
4	34.7	30.2	30.0	30.5	31.5	31.2	30.5	28.8	27.2	27.5	27.2	25.2
5	27.0	49.9	36.4	30.0	31.2	34.9	30.2	28.8	27.0	25.8	26.8	25.0
6	25.8	41.8	50.9	29.8	31.2	40.2	30.0	28.8	27.0	25.8	27.0	25.0
7	26.0	30.8	52.2	30.5	31.2	31.8	30.0	28.8	27.0	25.5	26.8	25.0
8	26.2	35.7	35.0	31.2	31.2	31.5	30.0	28.5	27.0	31.3	26.5	25.0
9	25.8	35.8	31.5	35.8	31.2	31.2	30.8	28.5	26.8	72.1	26.5	25.0
10	25.2	29.5	31.2	34.0	35.2	31.2	30.5	29.0	26.5	34.0	26.5	25.0
11	25.0	28.5	31.0	31.8	35.8	31.2	30.0	35.6	26.5	32.5	26.5	25.0
12	25.0	28.2	30.8	31.5	35.0	31.2	30.0	37.9	27.0	28.5	26.2	25.8
13	35.4	28.5	30.8	31.2	37.7	31.2	30.8	36.0	27.8	27.0	26.2	25.5
14	26.2	30.0	31.2	31.2	41.6	31.2	29.8	29.2	40.6	26.5	26.2	25.0
15	26.0	31.5	32.2	32.2	33.2	31.2	29.5	28.5	28.5	26.2	26.5	24.8
16	25.8	30.0	31.0	31.2	32.2	31.2	29.8	28.2	27.0	26.0	27.2	24.8
17	36.2	28.2	31.5	31.2	32.0	31.8	34.9	28.2	26.8	27.0	27.9	24.8
18	60.6	28.2	31.5	31.2	32.0	35.5	38.1	29.0	26.5	27.5	56.5	24.5
19	32.8	28.0	33.5	31.2	36.6	32.2	27.5	28.2	26.2	27.5	28.2	24.5
20	35.0	28.0	34.5	31.2	32.5	31.5	30.2	28.5	26.2	27.5	27.0	24.5
21	28.8	28.2	33.5	31.2	32.0	31.2	30.0	45.4	26.0	27.2	27.8	24.5
22	27.5	28.2	31.5	46.8	31.8	31.5	29.8	34.0	26.0	27.2	27.2	24.5
23	26.5	28.5	31.2	79.9	31.8	31.2	29.5	29.5	26.0	27.0	25.8	24.2
24	39.0	28.0	31.2	59.9	31.8	31.0	29.2	28.5	25.5	27.0	26.0	24.2
25	38.6	57.3	31.0	37.1	31.8	30.8	29.2	28.0	25.5	27.0	26.0	24.2
26	45.6	42.2	31.2	35.3	31.5	30.8	29.2	27.8	25.5	27.0	26.0	24.0
27	25.8	31.0	31.5	35.8	31.5	36.8	29.2	27.5	25.2	27.0	25.8	23.8
28	27.5	30.0	31.2	35.8	31.5	31.5	29.0	27.5	25.2	28.2	25.8	23.8
29	27.0	30.2	30.8	33.2	31.2	38.4	29.0	-	25.2	26.8	25.8	23.8
30	26.8	30.0	30.5	32.2	31.2	32.5	28.8	-----	26.2	26.8	25.8	24.8
31	26.8	29.5	-----	a32.0	-----	31.2	29.2	-----	25.2	-----	25.5	-----
Total	977.0	1,072.3	986.0	1,095.0	980.2	998.7	937.0	845.1	834.7	866.5	857.9	741.8
Mean:												
mgd	31.5	34.6	32.9	35.3	32.7	32.2	30.2	30.2	26.9	28.9	27.7	24.7
cfs	48.7	53.5	50.9	54.6	50.6	49.8	46.7	46.7	41.6	44.7	42.9	38.2
Ac-ft	3,000	3,290	3,030	3,360	3,010	3,060	2,880	2,590	2,560	2,660	2,630	2,280
Calendar year 1958:	Max 79.9	Min 3.48	Mean(mgd) 24.7	Mean(cfs) 38.2	Ac-ft 27,620							
Fiscal year 1958-59:	Max 79.9	Min 23.8	Mean(mgd) 30.7	Mean(cfs) 47.5	Ac-ft 34,350							

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for station at Waiuanu and waste-way at intake 31.

2872. Waiahole tunnel at adit 8, near Waipahu

Location.--Lat 21°27'00", long 157°57'30", on left bank at adit 8, 2,700 ft downstream from eastern boundary of Ewa Forest Reserve and 5.2 miles northeast of Waipahu Post Office.

Records available.--August 1956 to June 1959 in reports of Geological Survey. May 1916 to July 1956 in files of Waiahole Water Co.

Gage.--Water-stage recorder and concrete control.

Extremes.--1956-59: Maximum daily discharge, 97.4 mgd (151 cfs) Oct. 23, 1958; minimum daily, 6.0 mgd (9.3 cfs) Dec. 9, 1956.

Remarks.--Records good.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	*29.6	*34.8	55.7	*37.7	40.3	*58.7	58.3	35.7	33.7	31.2	31.5	29.5
2	32.0	76.2	35.4	38.3	40.3	58.7	59.0	35.0	33.4	30.9	32.1	*28.9
3	76.2	49.8	36.7	48.1	*39.6	39.0	58.0	35.0	33.1	30.9	34.3	28.9
4	46.0	36.4	36.7	38.7	39.6	39.0	38.0	34.7	33.1	32.5	31.5	28.6
5	33.4	57.0	43.4	38.3	39.6	40.9	58.0	34.7	33.1	30.9	31.2	28.6
6	31.8	48.8	55.8	38.3	39.3	48.4	58.0	34.7	33.1	30.9	30.9	28.6
7	32.1	36.7	60.5	38.7	39.6	39.6	38.0	34.7	33.1	30.9	30.9	28.6
8	32.1	78.3	40.6	39.6	39.6	39.6	58.0	34.7	33.1	34.2	30.9	28.6
9	31.8	49.3	39.0	42.7	39.3	39.3	58.0	34.7	32.8	74.7	30.9	28.3
10	31.5	37.7	38.7	45.0	41.5	39.0	58.7	35.0	32.5	39.8	30.5	28.3
11	31.2	34.7	38.3	40.3	44.1	39.0	37.7	41.1	32.1	37.8	30.5	28.3
12	30.9	34.1	38.3	40.0	43.0	39.0	37.7	41.7	32.8	34.1	30.5	28.9
13	40.7	34.1	38.3	40.0	45.4	39.0	38.3	43.6	32.8	32.5	30.2	28.9
14	31.8	36.4	38.3	39.6	49.4	39.0	37.3	35.7	44.8	31.5	29.9	28.3
15	31.5	38.2	39.6	40.6	41.3	38.7	37.0	34.7	34.7	31.5	30.2	28.3
16	30.9	36.7	38.7	39.6	40.3	38.7	36.7	34.4	32.8	31.2	30.5	28.0
17	40.3	34.1	39.0	39.6	40.0	39.0	40.0	34.1	32.5	31.8	30.5	28.3
18	72.2	33.7	38.7	39.6	40.0	41.0	48.3	35.0	32.1	32.5	38.9	28.3
19	38.6	33.7	40.6	39.6	45.4	39.6	33.6	34.4	32.1	32.5	32.8	28.3
20	40.9	33.7	42.3	39.6	40.6	38.7	37.3	34.4	31.8	32.5	31.5	28.0
21	34.4	34.1	41.3	39.3	40.3	38.3	37.0	46.2	31.8	32.1	31.8	28.0
22	32.8	33.7	39.3	52.8	40.0	38.7	36.7	40.8	31.8	32.1	31.5	28.0
23	32.1	34.4	38.7	97.4	39.6	38.3	36.7	38.0	31.5	31.8	30.5	28.0
24	43.1	33.7	38.7	87.7	39.3	38.0	36.4	35.0	31.5	31.5	30.2	28.0
25	43.8	62.0	38.7	53.0	39.3	38.0	36.4	34.4	30.9	31.5	29.9	28.0
26	53.1	52.8	38.7	48.2	39.3	37.7	36.0	34.4	30.9	31.5	29.6	27.7
27	34.4	37.7	39.0	44.7	39.3	42.7	36.0	34.4	30.9	31.5	29.6	27.7
28	33.1	36.0	39.0	47.5	39.3	39.0	36.0	34.1	30.9	32.5	29.6	27.7
29	32.5	36.7	38.3	43.7	39.0	44.6	36.0	-	30.9	31.5	29.6	27.7
30	32.5	36.4	38.0	41.6	39.0	40.0	36.0	-----	31.5	31.5	29.6	28.6
31	32.1	35.7	-----	40.6	-----	39.0	38.0	-----	30.9	-----	29.3	-----
Total	1,169.4	1,287.6	1,205.3	1,400.4	1,222.6	1,228.2	1,164.1	1,013.3	1,013.0	1,012.3	981.4	849.7
Mean:												
mgd	37.7	41.5	40.2	45.2	40.8	39.6	37.6	36.2	32.7	33.7	31.7	28.3
cfs	58.3	64.2	62.2	69.9	63.1	61.3	58.2	56.0	50.6	52.1	49.0	43.8
Ac-ft	3,590	3,950	3,700	4,300	3,750	3,770	3,570	3,110	3,110	3,110	3,010	2,610
Calendar year 1958:	Max 97.4	Min 10.6	Mean(mgd)	31.6	Mean(cfs)	48.9	Ac-ft	35,340				
Fiscal year 1958-59:	Max 97.4	Min 27.7	Mean(mgd)	37.1	Mean(cfs)	57.4	Ac-ft	41,580				

* Discharge measurement made on this day.

2910. Waiahole Stream at altitude 250 ft, near Waiahole

Location--Lat 21°28'35", long 157°52'30", on left bank 1.5 miles southwest of Waiahole School and 2.7 miles northwest of Kahaluu.

Drainage area--0.99 sq mi.

Records available--July 1955 to June 1959.

Gage--Water-stage recorder and concrete control. Altitude of gage is 250 ft (from topographic map).

Extremes--Maximum discharge during year, 580 mgd (897 cfs) Oct. 23 (gage height, 4.23 ft). From rating curve extended above 75 mgd on basis of field estimate of peak flow; minimum daily, 2.1 mgd (3.25 cfs) July 1.
1955-59: Maximum discharge, that of Oct. 23, 1958; minimum, 1.71 mgd (2.65 cfs) Sept. 9, 10, 16, 1957.

Remarks--Records fair. From Apr. 17 to June 30 about 1.8 million gallons were pumped daily upstream from station into Waiahole tunnel for irrigation in central Oahu.

Revisions--WSP 1569: Drainage area.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.1	2.4	3.75	4.5	5.6	4.9	4.9	5.2	5.1	5.1	2.7	*2.5
2	2.55	9.0	3.75	4.5	5.5	4.9	4.9	5.2	5.1	4.8	2.7	2.5
3	19.6	4.0	5.1	5.2	5.6	4.9	4.9	5.1	5.1	4.6	2.7	2.5
4	5.2	3.2	3.1	4.6	5.8	4.9	4.9	5.1	5.1	4.8	2.6	2.5
5	3.1	4.9	3.6	4.5	*5.6	5.6	4.9	5.1	5.1	4.6	2.6	2.5
6	2.75	4.7	6.5	4.2	5.4	5.9	4.7	5.1	5.0	4.6	2.6	2.4
7	2.75	3.6	6.0	3.75	5.6	5.0	4.7	4.9	5.0	4.6	2.6	2.4
8	2.75	36.5	4.0	2.75	5.6	5.0	4.7	5.0	5.0	4.8	2.6	2.4
9	2.5	16.0	5.6	2.75	5.3	*5.0	6.2	5.0	5.0	17.6	2.6	2.4
10	2.6	6.2	3.35	2.6	5.4	4.9	5.6	5.0	5.0	7.3	2.6	2.4
11	2.5	5.4	3.35	2.6	5.4	4.9	5.0	5.8	5.0	6.1	2.6	2.4
12	2.4	5.3	3.2	2.5	5.2	4.9	*4.9	8.6	5.0	5.6	2.5	2.4
13	3.8	5.1	3.2	2.75	5.2	4.9	5.3	7.9	5.0	5.0	2.5	2.4
14	2.95	5.3	3.35	2.6	5.4	4.9	5.0	5.8	6.8	4.8	2.5	2.4
15	2.6	5.3	3.35	2.6	5.4	4.9	5.0	5.5	5.3	4.8	2.6	2.4
16	2.5	5.1	3.2	2.5	5.4	4.9	4.9	5.4	5.1	4.5	2.6	2.6
17	2.7	5.1	*3.1	2.5	5.4	4.9	5.8	5.4	5.0	*3.35	2.6	2.4
18	5.1	5.0	2.95	2.5	5.4	5.0	15.9	5.4	5.0	2.95	5.0	2.4
19	3.35	4.8	3.1	2.5	5.5	5.0	9.4	5.2	5.0	2.85	2.85	2.4
20	3.1	4.8	3.2	2.6	5.5	4.9	5.4	5.2	5.0	2.85	2.6	2.3
21	2.75	4.6	3.35	2.5	5.2	4.9	5.2	5.6	4.8	2.95	2.95	2.4
22	2.6	4.6	3.1	3.75	5.2	4.9	5.3	5.9	4.8	2.85	2.7	2.3
23	2.5	4.6	2.95	137	5.2	4.9	5.1	5.4	4.8	2.85	2.95	2.3
24	2.95	4.6	3.1	5.5	5.2	4.9	5.1	*5.3	4.6	2.85	2.5	2.2
25	3.2	5.8	3.1	15.6	5.1	4.6	5.1	5.1	4.6	2.7	2.5	2.3
26	5.2	5.1	3.1	6.9	5.1	4.6	5.1	5.1	4.6	2.7	2.4	2.3
27	3.5	5.1	2.95	6.0	5.1	5.4	5.2	5.1	4.6	2.7	2.4	2.2
28	*2.5	4.0	2.95	6.4	5.0	4.9	5.2	5.1	4.8	2.7	2.4	2.2
29	2.4	3.2	3.35	5.9	5.0	7.4	5.2	-	4.8	2.7	2.4	2.2
30	2.4	3.35	4.1	5.6	4.9	5.5	5.2	-----	4.6	2.7	2.6	2.3
31	2.4	3.75	-----	5.6	-----	5.2	5.5	-----	4.6	-----	2.4	-----
Total	109.30	190.40	104.80	315.25	160.2	157.4	174.2	153.5	153.5	133.30	82.85	71.3
Mean:												
mgd	3.53	6.14	3.49	10.2	5.34	5.08	5.62	5.48	4.95	4.44	2.67	2.58
cfs	5.46	9.50	5.40	15.8	8.26	7.86	8.70	8.48	7.66	6.87	4.13	3.68
Ac-ft	335	584	322	987	492	483	535	471	471	409	254	219

Calendar year 1958: Max 137 Min 1.98 Mean(mgd) 7.79 Mean(cfs) 12.1 Ac-ft 8,730
Fiscal year 1958-59: Max 137 Min 2.1 Mean(mgd) 4.95 Mean(cfs) 7.66 Ac-ft 5,540

Peak discharge (base, 100 mgd)--July 3 (9 a.m.) 106 mgd (164 cfs), 2.44 ft; Aug. 8 (1 p.m.) 163 mgd (252 cfs), 2.82 ft; Oct. 23 (7 p.m.) 580 mgd (897 cfs), 4.23 ft.

* Discharge measurement made on this day.

3020. Punaluu ditch near Punaluu

Location.--Lat 21°33'40", long 157°54'10", on right bank of ditch 800 ft downstream from intake, 1.7 miles southwest of highway bridge at Punaluu, and 3.3 miles southeast of Hauula Post Office.

Records available.--May 1953 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 200 ft (from topographic map).

Average discharge.--6 years, 6.69 mgd (10.4 cfs).

Extremes.--1953-59: Maximum daily discharge, 21.5 mgd (33.3 cfs) July 3, Aug. 8, 1958; minimum daily, 0.02 mgd (0.03 cfs) Jan. 9, 14, 1955, Nov. 8, 9, 1957.

Remarks.--Records good. Ditch diverts water from Punaluu Stream for irrigation of sugar-cane in the Punaluu district.

1955	1955-Con.
July 7..... 6.6	July 11..... 11.4
8..... 9.9	12..... 11.2
9..... 9.8	13..... 11.1
10..... 10.4	14..... 11.0

Month	Mgd-days	Maximum	Minimum	Mean		Runoff in acre-feet
				(mgd)	(cfs)	
July 1954.....	244.76	12.0	0.11	7.90	12.2	751
Calendar year 1954.....	-	16.0	.04	5.68	8.79	6,370
Fiscal year 1954-55.....	-	16.2	.02	5.60	8.66	6,270

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.2	13.3	13.3	12.5	1.86	3.5	1.43	2.4	2.85	8.5	6.4	10.2
2	11.0	20.5	13.3	12.5	1.80	3.4	2.15	3.2	2.85	7.4	6.6	10.2
3	21.5	16.9	12.5	15.1	1.86	3.5	.34	3.2	2.85	7.6	6.9	10.2
4	20	15.1	12.5	13.3	1.86	3.4	.68	3.2	2.85	6.7	6.6	*10.2
5	14.2	17.9	14.2	12.5	1.80	3.75	.62	3.2	2.85	5.6	6.4	10.2
6	13.3	17.9	16.0	12.5	1.80	3.4	.56	3.2	2.85	6.8	6.4	10.2
7	13.3	16.0	17.9	12.5	1.74	3.15	.47	3.2	2.85	6.6	6.4	10.2
8	12.5	21.5	15.1	12.5	1.68	3.2	.38	3.2	5.8	6.8	6.0	10.2
9	12.5	21	14.2	9.9	2.3	*3.15	.34	3.2	11.7	8.8	5.8	10.2
10	11.7	17.9	14.2	5.4	2.7	2.3	.28	3.2	11.7	7.3	5.6	10.2
11	11.7	16.0	13.3	5.2	2.7	1.62	.26	3.55	11.7	7.0	5.5	10.2
12	11.7	15.1	13.3	4.4	2.55	1.62	*.24	3.15	11.7	6.9	8.5	10.2
13	12.5	15.1	13.3	3.75	2.3	1.62	.20	3.15	11.7	6.8	10.2	10.2
14	11.7	*15.1	13.3	3.65	2.3	1.50	.14	3.05	15.1	6.8	10.2	10.2
15	11.7	15.1	*13.3	3.65	2.25	1.56	.15	3.0	12.5	6.7	10.2	9.5
16	11.7	14.2	13.3	3.65	2.25	1.62	.16	3.0	11.7	*6.6	11.0	9.5
17	13.3	13.3	13.3	3.58	2.25	1.50	1.75	3.0	11.7	6.4	11.0	9.5
18	18.9	13.3	13.3	3.9	2.25	1.17	2.7	3.0	11.7	6.4	16.0	9.5
19	15.1	13.3	14.2	4.4	2.25	.83	2.45	2.9	11.7	6.3	11.7	9.5
20	15.1	13.3	14.2	4.4	2.25	1.12	2.4	3.0	11.7	6.4	11.7	9.5
21	14.2	13.3	14.2	4.4	2.25	1.56	2.4	3.3	11.7	6.4	11.7	9.5
22	13.3	13.3	13.3	4.5	2.25	1.62	2.25	3.05	11.0	6.4	11.0	9.5
23	13.3	13.3	13.3	5.6	2.25	1.62	2.0	3.0	11.0	6.4	11.0	9.5
24	13.3	12.5	13.3	.16	2.2	1.68	2.0	3.0	11.0	6.4	11.0	9.5
25	14.2	16.0	13.3	.12	2.3	1.50	1.93	*2.9	11.0	6.4	10.2	9.5
26	16.0	15.1	12.5	.09	3.4	1.33	1.93	2.85	11.0	6.6	10.2	9.5
27	14.2	14.2	13.3	1.45	3.4	.92	1.93	2.85	11.0	6.4	10.2	10.2
28	*13.3	15.1	13.3	2.45	3.4	.40	1.93	2.85	11.0	6.6	10.2	10.2
29	13.3	15.1	12.5	2.2	3.5	.32	1.93	-	11.0	6.4	10.2	9.5
30	13.3	14.2	12.5	2.1	3.5	.83	1.86	-	11.7	6.4	10.2	10.2
31	13.3	13.3	-----	2.1	-----	.10	1.86	-----	11.0	-----	10.2	-----
Total	425.3	477.2	409.5	184.42	71.20	58.79	39.72	85.80	292.75	203.8	285.2	296.9
Mean:												
mgd	13.7	15.4	13.6	5.95	2.37	1.90	1.28	3.06	9.44	6.79	9.20	9.90
cfs	21.2	23.8	21.0	9.21	3.67	2.94	1.98	4.73	14.6	10.5	14.2	15.3
Ac-ft	1,310	1,460	1,260	566	219	180	122	263	898	625	875	911
Calendar year 1958: Max	21.5			Min	0.04	Mean(mgd)	7.28	Mean(cfs)	11.3	Ac-ft	8,160	
Fiscal year 1958-59: Max	21.5			Min	0.09	Mean(mgd)	7.76	Mean(cfs)	12.0	Ac-ft	8,690	

* Discharge measurement made on this day.

3030. Punaluu Stream near Punaluu

Location.--Lat 21°33'35", long 157°54'05", on left bank at diversion dam, 1.8 miles southwest of Punaluu and 3.5 miles southeast of Hauula.

Drainage area.--2.78 sq mi.

Records available.--May 1953 to June 1959.

Gage.--Water-stage recorder and masonry control. Altitude of gage is 212 ft (from topographic map).

Average discharge.--6 years, 9.51 mgd (14.7 cfs).

Extremes.--Maximum discharge during year, 1,640 mgd (2,540 cfs) Oct. 23 (gage height, 4.85 ft), from rating curve extended above 110 mgd; no flow July 1, 1953-59; Maximum discharge, 1,760 mgd (2,720 cfs) Aug. 20, 1955 (gage height, 5.03 ft), from rating curve extended above 110 mgd; no flow at times.

Remarks.--Records good. Records do not include flow of Punaluu ditch.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.8	10.5
.1	.18	1.0	21
.2	.69	1.2	38
.3	1.53	1.5	79
.4	2.7	2.0	195
.6	5.9	2.5	355

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	1.33	0.99	0.91	16.5	10.5	12.7	10.3	10.5	3.8	5.0	0.99
2	.80	43	.99	.76	15.2	10.3	13.0	9.3	10.5	4.3	5.6	.99
3	61	8.1	.91	4.1	14.6	10.3	13.4	9.3	10.3	4.2	7.9	.91
4	22.5	3.9	.83	1.07	13.8	10.0	13.0	9.3	10.0	5.7	5.6	.91
5	3.7	12.8	4.2	1.24	13.8	49	13.0	9.3	10.0	5.0	5.0	.99
6	1.85	11.2	6.1	.69	13.4	25.5	12.6	9.1	9.8	6.1	5.2	.91
7	1.63	4.7	14.0	.83	13.4	14.2	12.6	9.1	9.8	5.4	5.0	.91
8	1.33	75	3.0	.93	13.4	13.0	12.6	9.3	6.9	7.2	5.2	.91
9	1.12	18.6	2.2	29.5	12.1	12.1	12.6	9.5	1.33	80	5.6	.91
10	.76	8.1	1.85	13.6	13.8	12.6	12.6	10.0	1.33	14.2	5.4	.83
11	.51	5.6	1.43	9.5	20.5	13.0	12.6	49	1.24	10.5	5.4	.91
12	.51	4.2	1.33	9.3	33.5	13.0	*12.6	28	1.53	8.8	2.3	.83
13	1.19	3.75	1.15	9.8	19.8	12.6	18.1	21	1.33	7.9	.51	.91
14	.51	*3.45	1.24	9.8	24	12.6	13.8	13.8	8.4	7.4	.51	.83
15	.51	3.45	*1.24	10.0	17.8	12.1	13.0	13.0	2.05	7.0	.51	.76
16	.43	2.3	1.07	9.5	15.9	12.1	12.6	11.7	1.63	*6.8	.63	.69
17	2.7	1.85	.91	9.3	14.6	12.6	18.9	11.3	1.53	6.3	.64	.69
18	17.6	1.74	1.34	8.3	14.2	15.9	39	10.9	1.43	6.3	22	.89
19	4.9	1.43	2.85	8.3	16.5	13.4	16.5	10.5	1.33	5.9	2.85	.63
20	4.4	1.33	2.05	8.1	14.6	12.6	13.8	10.3	1.33	5.9	1.96	.63
21	2.7	1.24	1.85	8.3	14.6	11.7	13.0	43	1.24	5.9	2.2	.69
22	2.3	1.76	1.24	17.3	13.4	11.7	12.6	17.8	1.24	5.6	1.85	.63
23	1.63	1.24	1.07	285	13.8	11.7	12.1	13.4	1.33	5.4	1.43	.63
24	2.85	.99	.91	124	13.0	11.3	11.7	*12.6	1.24	5.4	1.33	.63
25	3.15	6.6	.91	40	12.1	11.3	11.7	11.7	1.24	5.4	1.33	.63
26	6.0	3.15	.83	40	11.3	11.3	11.7	11.7	1.07	5.2	1.24	.57
27	2.3	2.2	1.43	24.5	11.3	19.3	11.3	11.3	1.07	5.4	1.15	.57
28	*1.74	1.53	.91	*32	10.9	13.8	11.3	10.5	1.06	5.6	1.07	.51
29	1.33	1.33	.83	22.5	10.5	23.5	11.3	-	.99	5.0	1.07	.57
30	1.24	1.24	.76	19.1	10.5	17.0	11.3	-----	1.24	5.4	1.24	.69
31	.91	1.07	-----	17.2	-----	15.9	11.3	-----	.99	-----	1.07	-----
Total	154.10	238.18	60.42	773.93	452.8	455.9	426.3	406.0	114.97	263.0	107.79	22.95
Mean:												
mgd	4.97	7.68	2.01	25.0	15.1	14.7	13.8	14.5	3.71	8.77	3.48	0.765
cfs	7.69	11.9	3.11	38.7	23.4	22.7	21.4	22.4	5.74	13.6	5.38	1.18
Ac-ft	473	731	185	2,380	1,390	1,400	1,310	1,250	353	807	331	70
Calendar year 1958:	Max 283	Min 0	Mean(mgd) 9.76	Mean(cfs) 15.1	Ac-ft 10,930							
Fiscal year 1958-59:	Max 283	Min 0	Mean(mgd) 9.52	Mean(cfs) 14.7	Ac-ft 10,680							

Peak discharge (base, 500 mgd).--Aug. 8 (12:30 p.m.) 500 mgd (774 cfs), 2.90 ft; Oct. 23 (7:30 p.m.) 1,640 mgd (2,540 cfs), 4.85 ft; Feb. 11 (6:30 p.m.) 588 mgd (879 cfs), 3.07 ft.

* Discharge measurement made on this day.

4000. Halawa Stream near Halawa

Location.--Lat 21°09'30", long 156°45'53", on right bank 600 ft downstream from confluence of two main branches, 1.5 miles west of Halawa, and 6.0 miles (revised) northeast of Pukoo.

Drainage area.--4.62 sq mi.

Records available.--August 1917 to July 1932, November 1937 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 200 ft (from topographic map). Prior to June 25, 1923, at site 350 ft upstream at different datum.

Average discharge.--35 years (1918-32, 1938-59), 19.0 mgd (29.4 cfs).

Extremes.--Maximum discharge during year, 1,750 mgd (2,710 cfs) Aug. 2 (gage height, 7.65 ft), from rating curve extended above 45 mgd on basis of slope-area measurement at gage height 6.7 ft; minimum, 2.3 mgd (3.6 cfs) June 28.
1917-32, 1937-59: Maximum discharge, 6,320 mgd (9,780 cfs) Apr. 2, 1948 (gage height, 12.30 ft), from rating curve extended above 45 mgd on basis of slope-area measurement at gage height 6.7 ft; minimum (corrected) 0.7 mgd (1.0 cfs) Oct. 26, 27, 1917.

Remarks.--Records fair. A 2-inch pipeline diverts water about a quarter of a mile above station for domestic use of Halawa village.

Revisions (fiscal years).--WSP 1569: 1948(M), drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.9	2.3	2.0	48
1.0	3.2	2.5	86
1.2	6.3	3.0	134
1.4	12.4	3.5	201
1.6	22.6	4.0	294
1.8	34.5		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.4	98	6.8	10.6	10.6	14.1	8.9	15.2	5.3	47	12.4	4.7
2	47	291	10.4	20.5	8.3	11.6	8.1	8.6	5.3	59	17.5	4.5
3	25.5	38	13.8	12.4	11.8	7.0	7.5	6.8	4.7	17.0	12.4	4.2
4	31	25.5	33.5	14.9	10.2	5.3	6.1	6.3	4.7	12.4	7.0	4.4
5	7.8	69	24	6.8	6.8	6.2	5.3	5.7	4.5	10.6	5.7	4.7
6	5.5	38.5	41	6.7	5.9	7.3	10.3	5.3	4.4	146	12.4	4.8
7	5.3	35.5	33.5	*14.3	10.4	12.4	29.5	11.5	4.4	54	20	17.2
8	21	70	12.4	5.9	10.6	8.1	18.3	11.1	4.1	36.5	15.1	7.5
9	19.7	28.5	10.6	5.5	12.1	11.6	8.9	5.5	3.8	152	16.3	4.8
10	19.6	17.0	20	8.9	24	17.0	7.3	8.3	3.65	47	8.9	4.2
11	8.9	*12.4	14.7	6.3	17.5	26.5	5.5	32	3.55	34.5	6.1	4.3
12	27	10.6	10.6	5.5	23	17.0	5.0	100	27.5	19.8	5.7	19.6
13	45	10.6	10.6	13.3	12.4	19.8	150	109	50	12.4	5.5	26
14	19.8	22.5	11.0	19.8	21.5	8.9	31	17.0	50	10.6	20	12.1
15	24.5	36	13.3	18.3	6.9	12.4	14.7	25	12.4	6.3	19.0	6.2
16	60	19.8	16.2	13.0	6.5	32	10.6	17.1	7.0	7.0	10.6	12.1
17	46	14.7	12.4	8.3	9.9	14.7	85	8.9	7.5	6.3	7.0	5.3
18	81	12.4	24.5	7.3	20	29.5	126	33.5	6.3	15.1	37	4.5
19	43	8.3	10.6	11.5	14.7	17.0	25.5	17.5	7.5	33.5	21.5	4.1
20	45	7.0	19.9	22	14.7	8.6	12.4	18.6	23.5	12.4	52	3.9
21	19.8	33.5	12.4	18.1	86	6.8	10.6	23.5	7.3	7.5	26	10.3
22	17.0	17.0	8.6	78	19.8	6.8	8.1	19.8	5.3	6.1	38.5	4.8
23	34	8.9	7.0	74	21.5	8.1	8.3	10.6	4.8	5.9	12.4	4.1
24	81	10.3	5.9	132	22	10.6	6.3	8.1	4.7	11.5	8.9	3.8
25	93	42	5.5	37	10.6	7.8	24	6.5	*10.2	7.5	7.8	3.9
26	60	25.5	5.9	57	8.1	5.9	15.6	5.9	12.4	6.3	7.0	4.8
27	19.8	29	14.3	19.8	7.3	19.2	7.5	6.1	10.5	12.3	*5.9	3.4
28	12.4	14.7	5.9	75	6.3	6.8	6.5	5.3	5.5	22.5	5.3	3.0
29	34.5	8.9	5.2	37.5	5.7	71	8.1	-	11.9	10.6	5.3	3.3
30	20.5	8.3	4.7	17.0	5.3	44	48	-----	12.3	24	10.1	15.3
31	14.7	7.3	-----	12.4	-----	21.5	37	-----	52	-----	5.3	-----
Total	995.7	1,090.7	425.2	837.1	584.7	617.0	755.9	548.9	380.20	856.2	444.6	215.8
Mean	32.1	35.2	14.2	27.0	19.5	24.4	19.6	12.3	28.5	14.3	7.19	
cfs	49.7	54.5	22.0	41.8	30.2	30.8	37.8	30.3	19.0	44.1	22.1	11.1
Ac-ft	3,060	3,350	1,300	2,570	1,790	1,890	2,320	1,680	1,170	2,630	1,360	662
Calendar year 1958: Max	291											
Fiscal year 1958-59: Max	291											
Min	2.55											
Min	3.0											
Mean(mgd)	20.4											
Mean(mgd)	21.2											
Mean(cfs)	31.6											
Mean(cfs)	32.8											
Ac-ft	22,800											
Ac-ft	23,790											

Peak discharge (base, 950 mgd).--Aug. 2 (2 a.m.) 1,750 mgd (2,710 cfs), 7.65 ft; Apr. 6 (6:30 p.m.) 1,280 mgd (1,980 cfs), 6.80 ft.

* Discharge measurement made on this day.

4055. Waikolu Stream at altitude 900 ft, near Kalaupapa

Location--Lat 21°08'43", long 156°55'17", on right bank 2.3 miles from mouth and 5.3 miles southeast of Kalaupapa Post Office.

Drainage area--1.99 sq mi.

Records available--May 1956 to June 1959.

Gage--Water-stage recorder. Altitude of gage is 900 ft (from topographic map).

Extremes--Maximum discharge during year, 790 mgd (1,220 cfs) Dec. 29 (gage height, 6.60 ft), from rating curve extended above 9 mgd on basis of shape of control section; minimum, 2.35 mgd (3.64 cfs) July 6.
1956-59: Maximum discharge, that of Dec. 29, 1958; minimum, 1.40 mgd (2.17 cfs) Oct. 10, 1957.

Remarks--Records fair except those for periods of no gage-height record, which are poor.

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Dec. 28				Dec. 29 to June 30			
0.6	1.61	1.4	19.5	0.4	1.55	1.4	28
.7	2.7	1.7	33.5	.5	2.7	1.7	42.5
.9	5.8	2.0	21.5	.7	5.85	2.0	60
1.1	10.1	2.5	95	.9	10.3	2.5	97
				1.1	16.3	3.0	141

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.8	37	5.0	3.4	4.1	5.4	a10.3	17.8	6.3	84	4.6	3.1
2	11.7	86	12.2	3.4	3.8	*5.6	a7.7	7.5	5.5	65	4.5	2.95
3	5.8	10.6	11.9	3.1	3.7	3.8	a6.5	6.3	5.0	17.4	4.5	2.95
4	3.25	7.3	5.4	2.85	3.8	3.4	a6.9	7.8	5.0	9.2	4.5	2.95
5	2.6	16.8	6.6	2.85	3.7	37	a6.9	7.3	4.6	5.7	4.5	3.4
6	2.45	11.2	6.0	2.85	3.4	38	a6.7	5.3	4.6	31	8.5	3.7
7	2.6	48	5.3	2.85	3.4	8.5	a6.9	5.5	4.6	33.5	30.5	5.2
8	14.7	42	4.1	*2.7	3.4	5.0	a6.5	5.7	4.5	30.5	29	4.8
9	13.9	14.7	3.55	2.7	8.4	8.2	a6.3	5.0	4.5	22.5	13.8	4.0
10	20	5.8	4.3	2.7	24.5	24	a5.8	4.6	4.5	21	10.6	3.5
11	9.4	5.0	5.0	2.7	11.1	31.5	a5.5	4.6	4.5	12.4	5.8	3.1
12	11.1	4.6	3.95	3.0	5.3	53	a5.3	17.3	5.5	7.3	8.2	3.8
13	15.5	*4.4	4.3	3.7	5.3	10.2	86	63	7.2	5.5	6.7	10.8
14	11.4	5.3	3.55	5.0	6.8	5.5	17.2	10.3	8.4	5.0	11.3	6.3
15	21.5	8.7	3.4	14.2	5.0	4.6	a9.4	24.5	6.1	4.6	17.1	3.8
16	45	5.6	3.55	16.6	3.7	6.6	a6.9	17.3	4.8	4.6	10.2	4.8
17	28.5	4.6	3.95	5.6	5.0	8.3	69	8.6	5.3	4.5	5.2	3.7
18	25.5	4.3	7.9	5.5	22	15.0	121	26	5.3	7.6	10.5	3.1
19	9.7	4.1	4.3	4.6	41	11.6	a13.5	28	9.2	19.8	5.5	2.95
20	10.3	4.6	3.95	5.6	5.8	5.3	a5.7	25.5	24	10.9	4.5	2.95
21	6.5	20	4.6	10.6	40	4.3	a5.3	16.4	6.5	7.5	6.3	2.95
22	4.1	6.4	3.55	52	8.6	4.1	a5.3	13.2	4.6	5.5	14.6	2.85
23	4.8	4.4	3.1	30	7.9	4.3	a6.1	9.8	4.5	4.8	6.4	2.85
24	14.1	4.4	3.1	33	8.6	5.5	a4.8	10.6	*4.1	4.6	4.5	2.7
25	12.9	11.0	3.1	7.0	4.3	5.3	a4.5	8.4	7.5	4.8	3.8	2.85
26	9.5	10.6	3.1	6.5	3.7	4.4	a4.1	7.9	9.5	5.0	*3.5	2.7
27	4.3	12.0	3.1	5.8	3.4	4.1	*a3.8	9.8	7.3	6.8	3.4	2.55
28	3.7	8.3	3.0	58	3.4	5.95	3.8	7.3	4.8	6.9	3.2	2.55
29	17.9	4.3	3.0	19.6	3.25	67	3.7	-	19.8	6.9	3.5	2.55
30	5.9	3.8	2.85	5.8	3.25	35.5	3.7	-	8.3	5.3	5.4	2.95
31	5.0	3.7	-----	4.6	-----	23.5	43	-----	19.3	-----	3.2	-----
Total	359.40	419.5	140.70	338.80	259.60	452.45	498.2	381.3	225.8	460.1	255.8	109.35
Mean:												
mgd	11.6	13.5	4.69	10.9	8.65	14.6	16.1	13.6	7.28	15.3	8.25	3.64
cfs	17.9	20.9	7.25	16.9	13.4	22.6	24.9	21.0	11.3	23.7	12.8	5.63
Ac-ft	1,100	1,290	432	1,040	797	1,390	1,530	1,170	693	1,410	785	336
Calendar year 1958:	Max 86	Min 2.25	Mean(mgd)	9.04	Mean(cfs)	14.0	Ac-ft	10,120				
Fiscal year 1958-59:	Max 121	Min 2.45	Mean(mgd)	10.7	Mean(cfs)	16.6	Ac-ft	11,970				

Peak discharge (base, 250 mgd)--Aug. 2 (1 a.m.) 399 mgd (617 cfs), 4.86 ft; Dec. 29 (4 p.m.) 790 mgd (1,220 cfs), 6.60 ft; Jan. 13 (8 a.m.) 350 mgd (542 cfs), 4.50 ft; Jan. 17 (9:30 p.m.) 570 mgd (882 cfs), 5.68 ft; Feb. 13 (4 a.m.) 300 mgd (464 cfs), 4.19 ft.

* Discharge measurement made on this day.
a No gage-height record; discharge estimated on basis of records for station on nearby stream and partial gage height at high stages.

4080. Waikolu Stream below pipeline crossing, near Kalaupapa

Location.--Lat 21°09'45", long 156°55'54", on left bank 0.7 mile upstream from mouth and 4.4 miles southeast of Kalaupapa Lighthouse.

Drainage area.--3.68 sq mi.

Records available.--June 1919 to July 1932, September 1937 to June 1959. Prior to November 1930, published as Waikolu Stream at pipeline crossing.

Gage.--Water-stage recorder and concrete control. Datum of gage is 253 ft above mean sea level (hand levels by Bureau of Reclamation). Prior to Nov. 18, 1930, water-stage recorder at site 500 ft upstream at different datum. Sept. 20, 1937, to July 1948, water-stage recorder at present site at datum 0.49 ft higher.

Average discharge.--29 years (1919-29, 1938-47, 1949-59), 12.0 mgd (18.6 cfs).

Extremes.--Maximum discharge during year, 2,150 mgd (3,330 cfs) Dec. 29 (gage height, 8.21 ft), from rating curve extended above 25 mgd by test on model of station site; minimum, 8.2 mgd (12.7 cfs) July 5-7, Oct. 10, 11, 12.
1919-32, 1937-59: Maximum discharge, 3,700 mgd (5,720 cfs) Jan. 26, 1948 (gage height, about 10.25 ft), from rating curve extended above 25 mgd by test on model of station site; minimum, 1.3 mgd (2.0 cfs) Nov. 1, 2, 1925, June 5, 1926.

Remarks.--Records fair except those for period of no gage-height record, which are poor. Kalaupapa water-supply system diverts water above station.

Revisions (fiscal years).--WSP 1155: 1932(M), 1938-48(M). WSP 1569: Drainage area.

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Dec. 29				Dec. 30 to June 30			
1.9	7.2	2.7	61	1.8	8.25	2.7	75
2.0	10.7	3.0	97	1.9	12.5	3.0	110
2.2	20.5	3.5	182	2.0	17.6	3.5	182
2.4	34			2.2	30.4	4.0	294
				2.4	46		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.2	103	11.6	9.6	12.0	12.0	16.1	26	13.0	132	11.7	9.8
2	20	165	18.8	9.6	11.0	*12.5	14.5	14.0	12.1	121	11.2	9.4
3	11.8	19.4	19.8	9.3	11.0	10.4	14.0	13.5	12.1	25	11.2	9.4
4	9.0	15.0	12.0	9.0	11.0	10.0	13.5	14.0	11.7	16.1	11.2	9.4
5	8.6	25.5	13.7	9.0	11.0	60	13.5	14.0	11.7	13.5	11.2	9.4
6	8.2	18.5	22	9.0	10.8	57	13.0	12.5	11.7	53	13.0	9.8
7	9.0	62	13.3	9.0	10.6	16.6	13.0	13.0	11.7	46	31.5	10.7
8	21	63	11.1	*8.6	12.5	12.8	13.5	12.5	11.7	43	32.5	10.3
9	22.5	22	10.7	8.6	20.5	16.1	13.0	12.1	11.7	31.5	17.0	9.8
10	37.5	12.8	11.1	8.6	30.1	38.5	13.0	12.1	11.2	26.5	15.5	9.4
11	18.3	11.6	12.0	8.6	16.5	41	13.0	11.7	11.2	18.2	12.1	9.4
12	18.8	10.7	10.7	9.0	12.0	74	12.5	23	11.7	14.0	13.0	9.4
13	23	*10.7	10.7	9.3	12.5	23	133	84	12.5	12.5	12.5	15.0
14	19.0	12.0	10.0	10.4	13.5	14.6	26	16.6	13.5	12.1	19.0	11.7
15	50	17.9	10.0	19.4	12.0	12.4	17.1	29	12.1	11.7	22	10.3
16	84	12.0	10.4	23.5	10.5	15.8	15.0	20.5	11.7	11.7	15.6	10.7
17	56	10.7	10.4	11.1	12.5	17.8	116	14.0	12.1	11.7	12.1	9.8
18	37	10.4	14.7	10.7	25	35	206	33.5	11.7	14.0	15.2	9.4
19	18.8	10.4	10.7	10.0	68	25	23	33.5	14.0	25.5	12.1	9.4
20	23	10.7	10.4	10.7	13.5	13.7	15.0	33.5	29	16.1	11.7	9.4
21	15.0	35.5	11.1	16.4	66	12.0	13.5	21	13.0	13.5	12.3	9.4
22	12.4	14.1	9.6	10.1	16.0	11.6	13.5	18.2	11.7	12.1	19.6	9.0
23	12.4	11.8	9.6	43	15.0	14.2	17.1	15.0	11.2	11.7	11.7	9.0
24	24	14.1	9.6	53	17.0	13.7	13.5	16.6	*10.7	11.7	10.3	9.0
25	24.5	24.5	9.3	15.6	11.5	15.0	12.5	14.0	11.7	11.7	9.4	9.0
26	18.6	17.2	9.3	13.5	10.0	12.8	12.1	14.0	13.5	11.7	*9.8	9.0
27	12.0	18.8	9.3	12.0	9.7	11.5	*12.1	15.0	11.7	13.0	10.3	9.0
28	10.7	16.0	9.3	14.0	9.7	11.1	12.1	13.5	10.7	12.5	10.3	9.0
29	36.5	11.6	9.0	51	9.6	162	12.1	.	23	13.0	10.7	9.0
30	14.6	10.7	9.0	19.0	9.6	43	11.7		12.5	11.7	10.3	9.4
31	12.4	10.4		14.0		29	57		21.5		10.3	
Total	699.8	807.8	349.2	691.5	511.5	854.2	900.9	570.3	409.3	777.7	436.3	292.7
Mean	22.6	26.0	11.6	22.3	17.0	27.6	29.1	20.4	13.2	25.9	14.1	9.76
cfs	35.0	40.2	17.9	34.5	26.3	42.7	45.0	31.6	20.4	40.1	21.8	15.1
Ac-ft	2,150	2,480	1,070	2,120	1,570	2,620	2,760	1,750	1,260	2,390	1,340	898
Calendar year 1958: Max	165				7.2							20,000
Fiscal year 1958-59: Max	206				8.2							22,410

Peak discharge (base, 450 mgd).--Aug. 1 (12 p.m.) 1,920 mgd (2,970 cfs), 7.85 ft; Dec. 29 (4:30 p.m.) 2,150 mgd (3,330 cfs), 8.21 ft; Jan. 13 (11 a.m.) 643 mgd (995 cfs), 5.18 ft; Jan. 17 (9:30 p.m.) 1,630 mgd (2,520 cfs), 7.30 ft.

* Discharge measurement made on this day.

Note.--No gage-height record Oct. 26 to Dec. 2; discharge estimated on basis of records for near-by stations.

4110. Waiatala Springs near Kalae

Location.--Lat 21°10'20", long 157°00'05"; on left bank on highway from Kalae to Kalaupapa Pali, 0.8 mile northeast of Kalae and 5.7 miles northeast of Kaunakakai Post Office.

Records available.--September 1940 to June 1959.

Gage.--Water-stage recorder and sharp-crested V-notch weir. Altitude off gage is 1,600 ft (from topographic map).

Average discharge.--18 years (1941-59), 0.016 mgd (0.025 cfs).

Extremes.--1940-59: Maximum daily discharge, 0.275 mgd (0.425 cfs) Mar. 11, 1942; minimum daily, 0.001 mgd (0.002 cfs) Feb. 8-16, 1956.

Remarks.--Records good. Maui County Water Works diverts entire flow for domestic supply, from tail bay at station.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.014	0.015	0.014	0.014	0.013	0.012	0.014	0.002	0.014	0.013	0.013	0.015
2	0.014	0.020	0.014	0.014	0.013	0.012	0.014	0.002	0.014	0.017	0.013	0.013
3	0.013	0.017	0.014	0.014	0.013	0.012	0.013	0.002	0.014	0.015	0.013	0.013
4	0.014	0.017	0.014	0.014	0.012	0.012	0.012	0.002	0.014	0.014	0.013	0.013
5	0.013	0.017	0.014	0.014	0.012	0.012	0.012	0.002	0.014	0.014	0.013	0.013
6	0.013	0.016	0.014	0.014	0.012	0.016	0.012	0.002	0.014	0.014	0.013	0.013
7	0.013	0.016	0.014	0.014	0.012	0.014	0.012	0.002	0.014	0.014	0.013	0.013
8	0.013	0.017	0.015	0.014	0.012	0.013	0.012	0.002	0.014	0.014	0.013	0.013
9	0.013	0.016	0.015	0.014	0.012	0.013	0.012	0.002	0.014	0.014	0.013	0.013
10	0.013	0.016	0.015	0.014	0.012	0.013	0.012	0.002	0.014	0.014	0.013	0.013
11	0.013	0.016	0.014	0.013	0.012	0.013	0.012	0.002	0.014	0.014	0.013	0.013
12	0.013	0.016	0.015	0.014	0.012	0.013	0.012	0.002	0.014	0.014	0.013	0.013
13	0.013	0.014	0.015	0.014	0.012	0.014	0.010	0.009	0.014	0.014	0.013	0.013
14	0.013	0.014	0.015	0.014	0.012	0.013	0.006	0.014	0.014	0.014	0.013	0.013
15	0.013	0.014	0.015	0.013	0.012	0.014	0.004	0.014	0.014	0.014	0.013	0.013
16	0.015	0.014	0.014	0.013	0.012	0.013	0.003	0.014	0.014	0.003	0.013	0.013
17	0.015	0.014	0.015	0.013	0.012	0.013	0.003	0.014	0.014	0.004	0.013	0.013
18	0.015	0.014	0.014	0.013	0.012	0.013	0.003	0.013	0.014	0.012	0.013	0.013
19	0.014	0.014	0.014	0.013	0.012	0.014	0.002	0.013	0.014	0.012	0.013	0.013
20	0.014	0.014	0.014	0.013	0.012	0.014	0.002	0.013	0.014	0.012	0.013	0.013
21	0.014	0.015	0.014	0.013	0.012	0.014	0.002	0.014	0.013	0.012	0.013	0.013
22	0.014	0.015	0.014	0.013	0.012	0.013	0.002	0.014	0.013	0.013	0.013	0.013
23	0.014	0.015	0.015	0.013	0.012	0.013	0.002	0.014	0.013	0.013	0.013	0.013
24	0.014	0.014	0.015	0.013	0.012	0.013	0.002	0.014	0.013	0.013	0.013	0.013
25	0.014	0.014	0.014	0.013	0.012	0.014	0.002	0.014	0.013	0.013	0.013	0.013
26	0.014	0.014	0.014	0.013	0.012	0.013	0.002	0.014	0.013	0.013	0.013	0.013
27	0.014	0.014	0.014	0.013	0.012	0.014	0.002	0.014	0.013	0.013	0.013	0.013
28	0.014	0.014	0.014	0.013	0.012	0.013	0.002	0.014	0.013	0.013	0.013	0.013
29	0.015	0.014	0.014	0.013	0.012	0.014	0.002	-	0.013	0.013	0.014	0.013
30	0.015	0.014	0.014	0.013	0.012	0.015	0.002	-----	0.014	0.013	0.014	0.013
31	0.015	0.014	-----	0.014	-----	0.015	0.002	-----	0.014	-----	0.013	-----
Total	0.428	0.468	0.430	0.417	0.363	0.416	0.204	0.240	0.425	0.385	0.405	0.390
Mean:	0.014	0.015	0.014	0.013	0.012	0.013	0.007	0.009	0.014	0.013	0.013	0.013
mgd	0.022	0.023	0.022	0.020	0.019	0.020	0.011	0.014	0.022	0.020	0.020	0.020
cfs	1.3	1.4	1.3	1.3	1.1	1.3	0.6	0.7	1.3	1.2	1.2	1.2
Ac-ft												
Calendar year 1958:	Max	0.020	Min	0.005	Mean(mgd)	0.014	Mean(cfs)	0.022	Ac-ft	16		
Fiscal year 1958-59:	Max	0.020	Min	0.002	Mean(mgd)	0.013	Mean(cfs)	0.020	Ac-ft	14		

4140. Kaunakakai Gulch at Kaunakakai
(Formerly published as Kaunakakai Stream at Kaunakakai)

Location.--Lat 21°06'21", long 157°00'34", on left bank 0.6 mile upstream from Molokai Ranch pipeline crossing, 1.3 miles northeast of Kaunakakai Post Office, and 1.7 miles upstream from mouth.

Drainage area.--6.57 sq mi.

Records available.--December 1949 to June 1959. Prior to July 1958 published as Kaunakakai Stream at Kaunakakai.

Gage.--Water-stage recorder. Altitude of gage is 240 ft (from topographic map).

Average discharge.--9 years (1950-59), 1.27 mgd (1.96 cfs).

Extremes.--Maximum discharge during year, 892 mgd (1,380 cfs) Dec. 29 (gage height, 6.55 ft), from rating curve extended above 130 mgd; no flow most of time.
1949-59: Maximum discharge, 1,120 mgd (1,730 cfs) Mar. 13, 1951 (gage height, 7.10 ft), from rating curve extended above 130 mgd; no flow most of time.

Remarks.--Records poor.

Revisions (fiscal years).--WSP 1289: 1950-51. WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.7	0	3.0	18
1.9	.96	3.3	30
2.1	2.15	3.5	43
2.4	4.9	3.8	70
2.7	9.5	4.2	125

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0			0	0	0	0	0.43		1.95		
2	0	29.5		0	0	0	0	0		10.5		
3	0	1.32		0	0	0	0	0		.21		
4	0	0		0	0	0	0	0		0		
5	0	0		0	0	0	0	0		0		
6	0	0		0	0	9.5	0	0		0		
7	0	4.4		0	0	.84	0	0		1.71		
8	0	16.4		0	0	0	0	0		0		
9	0	3.15		0	0	0	0	0		0		
10	0	0		0	0	0	0	0		0		
11	0	0		0	0	2.0	0	0		0		
12	0	0		0	0	17.2	0	0		0		
13	0	0		0	0	3.05	23	10.0		0		
14	0	0		0	0	.02	2.85	.04		0		
15	0	0		0	0	0	0	0		0		
16	.36	0		0	0	0	0	0		0		
17	1.64	0		0	0	0	25.5	0		0		
18	.82	0		0	0	0	119	0		0		
19	1.12	0		0	1.15	0	3.75	0		0		
20	0	0		0	0	0	.11	0		0		
21	0	0		0	4.5	0	0	0		0		
22	0	0		.10	.74	0	0	0		0		
23	0	0		2.35	0	0	0	0		0		
24	0	0		4.2	0	0	0	0		0		
25	0	0		.04	0	0	0	0		0		
26	0	0		0	0	0	0	0		0		
27	0	0		0	0	0	0	0		0		
28	0	0		1.04	0	0	0	0		0		
29	0	0		5.4	0	51	0	-		0		
30	0	0		0	0	4.6	0	0		0		
31	0	0		0	0	1.85	0	0		0		
Total	3.94	54.77	0	14.13	6.39	90.06	174.21	10.47	0	14.37	0	0
Mean:	0.127	1.77	0	0.456	0.213	2.91	5.62	0.374	0	0.479	0	0
mgd	0.196	2.74	0	0.706	0.330	4.50	8.70	0.579	0	0.741	0	0
cfs	12	168	0	43	20	276	535	32	0	44	0	0
Ac-ft												
Calendar year 1958:	Max 51	Min 0	Mean(mgd) 0.886	Mean(cfs) 1.37	Ac-ft 992							
Fiscal year 1958-59:	Max 119	Min 0	Mean(mgd) 1.01	Mean(cfs) 1.56	Ac-ft 1,130							

Peak discharge (base, 500 mgd)--Dec. 29 (5 p.m.) 892 mgd (1,380 cfs), 6.55 ft; Jan. 17 (10:30 p.m.) 522 mgd (808 cfs), 5.49 ft.

4150. Right Branch of East Fork Kawela Gulch near Kamalo
(Formerly published as Right Branch of East Fork Kawela Stream near Kamalo)

Location.--Lat 21°06'46", long 156°54'23", on left bank at Molokai Ranch pipeline intake, 4.7 miles northwest of Kamalo and 7.6 miles northeast of Kaunakakai.

Drainage area.--0.45 sq mi. Prior to July 1958 published as Right Branch of East Fork Kawela Stream near Kamalo.

Records available.--September 1946 to June 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 3,624.86 ft above mean sea level (Territorial Survey bench mark).

Average discharge.--12 years (1947-59), 1.58 mgd (2.44 cfs).

Extremes.--Maximum discharge during year, 213 mgd (330 cfs) Jan. 17 (gage height, 4.95 ft), from rating curve extended as explained below; no flow for many days.
1946-59: Maximum discharge, 882 mgd (1,360 cfs) Jan. 26, 1948 (gage height, 7.97 ft), from rating curve extended above 3.8 mgd by test on model of station site; no flow for many days.

Remarks.--Records fair except those for period of no gage-height record, which are poor. Molokai Ranch diverts low flow from gage pool.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

Discharge, in million gallons a day, fiscal year July 1958 to June 1959												
Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.65	15.5	0.32	0	0	0.03	0.44	2.45	0.44	30	0	0
2	2.65	29.5	4.5	3	0	0.51	0.09	0.37	0.13	11.3	0	0
3	1.06	3.75	3.8	4	0	0	0	0.13	0	2.85	0	0
4	.13	1.41	.87	0	0	0	0	.42	0	1.57	0	0
5	0	6.5	1.12	0	0	9.0	0	.42	0	.66	0	.70
6	0	4.6	.56	0	0	8.0	0	.01	0	2.6	2.85	.49
7	.16	32	.79	0	0	1.33	0	0	0	5.3	11.0	1.85
8	4.5	17.3	.14	0	0	.43	0	.05	0	4.7	6.5	.82
9	3.75	4.8	0	0	3.1	1.55	.14	0	0	2.8	2.1	.85
10	6.3	1.04	.14	0	8.7	7.2	.90	0	0	4.0	1.39	.04
11	1.81	.37	.55	0	3.15	8.6	.09	0	0	1.52	.49	0
12	3.0	.05	.48	0	.73	9.5	0	3.3	.59	.36	1.89	.93
13	4.2	0	.57	1.02	.65	1.20	28.5	17.2	.89	.02	1.86	3.85
14	2.9	.98	.04	1.53	1.80	.46	2.0	.64	1.01	0	3.45	.94
15	7.6	3.1	.01	5.3	.71	.28	.56	2.95	.44	0	3.85	.06
16	17.4	1.32	.58	5.4	.21	1.21	.19	1.90	.03	0	1.38	1.28
17	7.0	.37	.58	1.80	1.16	2.9	21.5	.43	0	0	.37	.09
18	8.1	.20	3.6	1.10	6.3	4.7	43	4.0	0	0	2.2	0
19	3.0	.01	.5	1.18	13.7	2.1	2.7	4.8	1.15	.63	.52	0
20	2.4	.33	1.5	1.84	8.8	.61	.38	5.0	4.9	.88	.23	0
21	1.31	8.2	.8	4.6	7.2	.23	3.05	.60	.36	2.5	0	0
22	.43	1.75	.4	19.7	1.42	.16	0	2.1	.17	.02	2.95	0
23	.43	.47	.2	8.0	.34	.54	.24	1.30	*.04	0	.75	0
24	3.9	.49	0	11.7	.48	1.13	.05	1.72	0	.01	.28	0
25	2.7	4.0	0	1.77	.05	.54	0	.72	2.15	.13	.07	0
26	2.85	4.5	0	1.75	0	.15	0	1.00	1.47	.17	0	0
27	.52	4.9	0	.77	0	0	0	1.33	.95	.98	0	0
28	.19	2.5	0	9.2	0	0	0	.57	.08	.84	0	0
29	3.35	.58	0	4.1	0	17.5	0	0	5.9	1.01	0	0
30	1.12	.22	0	.89	0	7.7	0	0	1.28	.19	0	.40
31	.96	.15	-----	.22	-----	4.1	4.1	-----	1.76	-----	0	-----
Total	96.37	150.69	21.65	83.07	58.50	91.44	104.94	55.86	23.98	72.90	45.43	11.80
Mean	3.11	4.86	0.722	2.68	1.95	2.95	3.39	2.00	0.774	2.43	1.47	0.393
mgd	4.81	7.52	1.12	4.15	3.02	4.56	5.25	3.09	1.20	3.76	2.27	0.608
cfs	296	462	66	255	180	281	322	171	74	224	139	36
Ac-ft												
Calendar year 1958: Max	32	Min	0	Mean(mgd)	2.21	Mean(cfs)	3.42	Ac-ft	2,480			
Fiscal year 1958-59: Max	43	Min	0	Mean(mgd)	2.24	Mean(cfs)	3.47	Ac-ft	2,510			
Peak discharge (base, 100 mgd).--Aug. 2 (1:30 a.m.) 106 mgd (164 cfs), 4.24 ft; Dec. 29 (4 p.m.) 151 mgd (234 cfs), 4.56 ft; Jan. 13 (10:30 a.m.) 144 mgd (223 cfs), 4.51 ft; Jan. 17 (9:30 p.m.) 213 mgd (330 cfs), 4.95 ft; Feb. 13 (4 a.m.) 102 mgd (158 cfs), 4.21 ft.												

* Discharge measurement made on this day.

Note.--No gage-height record Sept. 19 to Oct. 6; discharge estimated on basis of recorded range in stage.

4160. Punaula Gulch near Pukoo
(Formerly published as Punaula Stream near Pukoo)

Location.--Lat 21°05'50", long 156°48'48", on right bank 1.8 miles (revised) northwest of Pukoo and 5.2 miles northeast of Kamalo.

Drainage area.--0.24 sq mi.

Records available.--March 1947 to June 1959. Prior to July 1958 published as Punaula Stream near Pukoo.

Gage.--Water-stage recorder. Altitude of gage is 1,200 ft (from topographic map).

Average discharge.--12 years, 0.816 mgd (1.26 cfs).

Extremes.--Maximum discharge during year, 182 mgd (282 cfs) Aug. 2 (gage height, 4.28 ft), from rating curve extended above 3.3 mgd by test on model of station site; minimum, 0.05 mgd (0.08 cfs) June 27-29, 1947-59: Maximum discharge, 330 mgd (511 cfs) Apr. 2, 1948 (gage height, 6.35 ft), from rating curve extended above 3.3 mgd by test on model of station site; minimum, 0.01 mgd (0.02 cfs) Mar. 13, 1947, Feb. 19, 1954.

Remarks.--Records fair.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.45	0.05	1.2	5.8
.6	.18	1.4	9.8
.8	.81	1.6	14.7
1.0	2.6		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.35	9.0	0.21	0.71	0.21	0.10	0.27	0.92	0.11	7.7	0.38	0.12
2	2.9	12.5	.56	1.12	.18	.12	.18	.25	.10	6.6	.36	.11
3	1.00	3.4	.46	.30	.16	.08	.13	.16	.08	.72	.89	.11
4	1.01	.98	.60	1.45	.16	.06	.13	.13	.08	.58	.25	.11
5	.30	3.45	.81	.24	.13	2.05	.11	.12	.07	.25	.16	.08
6	.19	1.55	.46	.13	.12	2.95	.13	.10	.10	.51	.47	.08
7	.16	3.05	1.00	*.89	.12	.34	.89	.10	.10	1.46	1.56	.57
8	2.25	5.6	.32	.21	.12	.16	1.14	.13	.09	1.77	.83	.18
9	1.56	1.42	.19	.13	.36	.15	.85	.10	.08	5.2	1.03	.09
10	1.58	.54	.46	.10	.96	1.49	.23	.10	.07	2.3	.43	.07
11	.54	.35	.32	.08	.62	2.0	.15	2.3	.07	1.63	.21	.07
12	2.15	*.32	.19	.10	.51	1.17	.11	3.95	.70	.47	.23	.42
13	3.1	.25	.16	1.58	.42	.54	11.7	4.6	2.2	.27	.21	1.37
14	1.17	.78	.13	1.33	1.18	.21	.86	.32	3.25	.21	.71	.35
15	1.72	1.57	.13	2.25	.30	.21	.30	.69	.46	.18	.47	.15
16	4.5	1.10	.13	1.39	.18	.65	.18	.60	.18	.15	.25	.42
17	3.25	.58	.19	1.41	.21	.78	4.5	.18	.11	.12	.18	.16
18	4.6	.44	.60	.38	1.53	2.05	8.6	1.69	.10	.13	.83	.10
19	2.25	.25	.40	.38	6.1	.66	1.38	1.06	.16	.21	1.17	.07
20	2.65	.19	1.72	.36	.41	.25	.30	1.12	2.05	.21	1.62	.06
21	.84	3.6	.50	.91	3.65	.16	.19	1.15	.23	.13	.72	.25
22	.44	.90	.21	5.8	4.3	.15	.15	.91	.12	.11	1.36	.12
23	.64	.30	.15	4.7	.23	.13	.15	.30	.09	.11	.30	.08
24	5.0	.25	.11	7.0	.21	.18	.12	.19	.08	.37	.19	.06
25	5.1	2.1	.10	1.16	.15	.21	.45	.15	.30	.21	.15	.06
26	2.65	1.77	.11	3.2	.12	.13	.44	.12	*.47	.15	.12	.06
27	.54	1.44	.11	.89	.11	.29	.16	.11	.85	.53	.11	.06
28	.35	.47	.09	4.3	.10	.16	.11	.11	.19	.81	*.09	.05
29	1.21	.27	.05	1.55	.09	3.3	.11	-	.44	.41	.08	.05
30	.83	.21	.09	.44	.08	4.8	.22	-----	.74	.58	.12	.58
31	.76	.18	-----	.27	-----	1.52	5.6	-----	8.3	-----	.10	-----
Total	55.59	58.51	10.60	43.76	19.15	27.05	39.84	21.66	21.97	33.88	15.58	6.06
Mean												
mgd	1.79	1.89	0.353	1.41	0.638	0.873	1.29	0.774	0.709	1.13	0.503	0.202
cfs	2.77	2.92	0.546	2.18	0.987	1.35	2.00	1.20	1.10	1.75	0.778	0.313
Ac-ft	171	180	33	134	59	85	122	66	67	104	48	19

Calendar year 1958: Max 12.5 Min 0.03 Mean(mgd) 0.893 Mean(cfs) 1.38 Ac-ft 1,000
Fiscal year 1958-59: Max 12.5 Min 0.05 Mean(mgd) 0.969 Mean(cfs) 1.50 Ac-ft 1,090

Peak discharge (base, 70 mgd).--Aug. 2 (2 a.m.) 182 mgd (282 cfs), 4.28 ft; Jan. 13 (8 a.m.) 90 mgd (139 cfs), 3.23 ft; Mar. 31 (4 a.m.) 91 mgd (141 cfs), 3.24 ft.

* Discharge measurement made on this day.

5010. Palikea Stream below diversion dam, near Kipahulu

Location.--Lat 20°41'05", long 156°04'10", on left bank just downstream from old diversion dam, 2 miles northwest of Kipahulu and 2.5 miles upstream from mouth.

Drainage area.--6.29 sq mi.

Records available.--February 1927 to September 1929, December 1931 to June 1959. Published as Oheo Stream at elevation 1,550 ft, near Kipahulu, 1927-29. Published as Oheo Stream below diversion dam, near Kipahulu, 1930-56.

Gage.--Water-stage recorder. Datum of gage is 1,546 ft above mean sea level (by vertical angles). Prior to Sept. 6, 1929, at site 100 ft upstream at different datum.

Average discharge.--24 years (1927-29, 1932-35, 1940-59), 36.6 mgd (56.6 cfs).

Extremes.--Maximum discharge during year, 2,960 mgd (4,580 cfs) Feb. 13 (gage height, 10.8 ft, from floodmark), from rating curve extended above 2,100 mgd by critical-depth measurement of gage height 17.5 ft; minimum, 0.02 mgd (0.03 cfs) June 27-30. 1927-29, 1931-59: Maximum discharge, 9,100 mgd (14,100 cfs) Dec. 20, 1955 (gage height, 17.5 ft, from floodmark), from rating curve extended above 2,100 mgd by critical-depth measurement of peak flow; no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are poor. Small diversion below station for domestic water supply and livestock.

Revisions (fiscal years).--WSP 1155: 1932-35(M), 1937-40(M). WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.0	0	1.3	18.5
.1	.05	1.6	30.5
.2	.22	2.0	52
.3	.57	2.5	90
.4	1.14	3.0	140
.5	1.95	4.0	275
.6	3.0	5.0	470
.8	5.9	6.0	720
1.0	10.0		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	30.5	52	0.72	0.62	0.57	0.13	0.25	1.15	3.3	168	12.6	0.07
2	30.5	272	3.8	3.35	.45	.09	119	.37	1.21	190	9.4	.07
3	66	78	7.5	8.2	.34	.06	37	.22	6.0	20.5	53	.07
4	49	6.0	5.7	15.1	.25	.04	1.47	.15	1.07	6.6	7.7	.07
5	3.55	66	10.3	.94	.19	.08	.57	.08	.82	1.74	4.4	.11
6	9.7	52	2.7	.82	.17	2.85	26	.06	4.1	.77	95	.07
7	6.0	530	45	3.95	.19	.08	14.4	.05	.67	.53	92	23.5
8	16.5	420	1.10	.49	.25	.04	1.61	.07	.37	22.5	100	
9	31.5	122	.53	.41	108	.03	.57	.17	.28	104	9.3	.60
10	36	11.0	.34	.31	470	.03	.37	.07	.22	161	3.8	4.4
11	10.0	2.5	.37	6.3	224	.04	.22	.11	.17	35	.49	.25
12	19.4	1.42	.68	.77	349	6.2	.17	114	121	5.1	.31	11.5
13	23	1.07	.41	5.0	261	.11	*367	700	81	1.50	.27	27
14	11.2	.94	.28	*8.0	203	.04	25.5	80	37.5	.84	29	6.1
15	9.4	28	.19	39.5	22	.03	2.15	5	5.1	.53	60	5.8
16	27	15.8	.19	31.5	3.95	.04	.82	.8	.82	.41	22.5	22.5
17	58	1.07	.37	15.9	25.5	.04	243	.5	.49	.31	1.04	.39
18	115	6.8	47	20.5	82	2.05	526	40	.34	.25	101	.19
19	27.5	.57	19.9	7.9	256	.19	32.5	30	.80	.19	33	.15
20	10.8	.45	47	29.5	8.6	.04	1.99	20	26	.13	9.0	.11
21	5.0	43	9.2	64	2.15	.03	.88	500	.57	.09	3.6	.34
22	1.50	69	4.4	169	1.50	.03	.53	80	.31	.06	1.58	.13
23	.72	11.6	.88	666	.88	.03	.34	25	.22	.05	.77	.07
24	15.0	11.7	.53	.74	.62	.06	.28	5	.22	.06	.49	.05
25	25.5	7.7	.31	14.4	.49	.11	.54	*25	34.5	.08	.45	.04
26	44	*42	8.9	74	.41	7.9	.31	93	19.3	.09	.25	.03
27	1.41	36.5	57	16.7	3.1	137	.64	53	19.8	.07	.13	.02
28	.67	26.5	2.85	3.9	.34	1.86	5.4	12.0	.49	.13	.09	.02
29	.53	6.2	1.07	3.15	.28	2.65	5.8	-	75	.08	.07	.02
30	.37	1.28	.67	1.07	.19	2.7	34	-----	91	16.4	17.8	.02
31	.34	.77	-----	.72	-----	.45	2.5	-----	51	-----	.22	-----
Total	687.59	1,923.85	279.89	1,286.00	2,022.63	165.03	1,451.81	1,785.80	583.67	735.01	669.21	128.69
Mean:	mgd	22.2	62.1	9.33	41.5	67.4	5.32	46.8	63.8	18.8	24.5	21.6
	cfs	34.3	96.1	14.4	64.2	104	8.23	72.4	98.7	29.1	37.9	33.4
Ac-ft	2,110	5,900	859	3,950	6,210	506	4,460	5,480	1,790	2,260	2,050	395

Calendar year 1958: Max 666 Min 0.01 Mean(mgd) 25.5 Mean(cfs) 39.5 Ac-ft 28,950
 Fiscal year 1958-59: Max 700 Min 0.02 Mean(mgd) 32.1 Mean(cfs) 49.7 Ac-ft 35,970

Peak discharge (base, 1,600 mgd).--Oct. 23 (5:30 p.m.) 1,890 mgd (2,920 cfs), 8.97 ft; Jan. 13 (12 m.) 2,220 mgd (3,430 cfs), 9.61 ft; Jan. 18 (12:30 a.m.) 1,790 mgd (2,770 cfs), 8.75 ft; Feb. 13 (about 6 a.m.) 2,960 mgd (4,580 cfs), 10.8 ft.

* Discharge measurement made on this day.
 Note.--No gage-height record Feb. 13-25; discharge estimated on basis of records for Hahalawe Stream near Kipahulu.

5020. Right Branch Hahalawe Stream near Kipahulu

Location.--Lat 20°40'54", long 156°02'50", on left bank at old ditch intake, 0.7 mile upstream from mouth and 1.8 miles northeast of Kipahulu Church.

Drainage area.--0.43 sq mi.

Records available.--February 1927 to April 1937, April 1938 to June 1959. Prior to July 1956, published as Right Branch Kahalawe Stream near Kipahulu.

Gage.--Water-stage recorder and concrete control. Datum of gage is 885 ft above mean sea level (by vertical angles). Prior to Apr. 21, 1938, at same site at datum 8 ft lower.

Average discharge.--29 years (1927-34, 1935-36, 1938-59), 3.53 mgd (5.46 cfs).

Extremes.--Maximum discharge during year, 428 mgd (662 cfs) Feb. 13 (gage height, 3.67 ft), from rating curve extended above 54 mgd by test on model of station site; minimum, 0.62 mgd (0.96 cfs) Dec. 10.

1927-37, 1938-59: Maximum discharge, 2,300 mgd (3,560 cfs) Apr. 29, 1937 (gage height, 15.74 ft, datum then in use), from rating curve extended above 54 mgd by test on model of station site; minimum, 0.15 mgd (0.23 cfs) Dec. 18, 1929.

Remarks.--Records good.

Revisions (fiscal years).--WSP 1219: 1935(M), 1937(M).

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day) (Shifting-control method used June 19-22)

0.9	0.62	1.4	4.8
1.0	1.01	1.5	6.8
1.1	1.54	1.7	12.4
1.2	2.3	2.0	28.5
1.3	3.3	2.3	54

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.45	8.5	2.05	1.66	1.73	0.83	0.83	1.66	1.41	14.7	2.35	0.87
2	3.2	20	2.5	2.85	1.60	.85	7.0	1.25	1.30	14.1	2.05	.90
3	8.9	12.7	2.05	4.6	1.54	*.77	1.06	1.10	1.41	2.65	2.2	.97
4	4.3	4.3	2.75	12.4	1.41	.71	1.02	.97	1.30	1.80	1.20	1.05
5	1.80	6.2	1.95	2.2	1.30	.84	.87	.87	1.30	1.54	1.05	1.30
6	2.1	3.5	3.35	2.15	1.20	1.16	11.1	.83	1.76	1.35	2.95	1.66
7	2.2	30	7.2	4.6	1.20	.71	7.6	1.01	1.15	1.20	2.35	5.3
8	4.2	14.2	1.87	1.73	1.47	.68	1.95	.92	1.05	6.5	2.7	2.75
9	4.6	11.7	1.73	1.66	2.8	.65	1.30	.97	.92	13.3	1.71	1.20
10	3.1	3.05	1.47	1.54	5.0	.85	1.05	.83	.87	8.8	1.58	1.01
11	2.2	2.45	1.47	1.96	3.95	1.02	.92	2.0	.83	2.75	1.05	1.41
12	4.5	2.1	1.73	2.05	5.8	2.2	.83	8.7	13.3	2.2	.87	3.15
13	3.05	1.87	1.47	3.35	6.3	.79	22.5	45	10.2	1.73	.83	4.1
14	2.2	1.95	1.35	4.1	5.4	.75	*3.9	1.60	5.8	1.47	1.83	1.54
15	2.05	5.6	1.35	6.8	1.95	.79	1.73	1.15	1.66	*1.29	2.85	2.3
16	7.1	3.15	1.35	4.4	1.60	.86	1.30	.97	1.35	1.10	2.25	1.99
17	*7.4	1.80	1.41	3.35	2.55	.97	2.75	.83	1.20	1.05	1.20	1.15
18	10.2	4.0	4.1	3.4	4.4	2.95	22	8.5	1.05	1.05	4.4	1.01
19	5.8	1.60	4.1	2.1	9.2	1.05	2.9	7.5	1.92	.92	4.8	.82
20	4.8	1.47	5.9	3.3	1.87	.92	1.66	5.4	2.95	.83	1.91	.79
21	2.85	1.93	2.1	2.45	1.66	.71	1.30	26	1.10	.92	2.55	2.3
22	2.5	5.8	1.87	9.5	1.54	.68	1.10	7.4	1.01	.79	1.54	1.09
23	2.1	1.87	1.47	4.3	1.35	.86	1.01	2.7	.87	.83	1.20	.97
24	8.5	3.25	1.47	6.8	1.20	1.12	.92	1.80	.83	1.05	1.05	.87
25	8.4	8.7	1.30	3.45	1.15	.88	1.28	2.25	1.78	.97	1.60	.87
26	7.3	6.2	3.2	9.9	1.05	1.70	.92	5.2	1.01	1.20	1.01	.79
27	2.3	7.4	15.8	4.6	1.01	12.3	2.35	2.45	1.96	1.20	.92	.71
28	1.87	10.0	2.5	5.4	1.05	1.01	5.0	1.66	1.01	1.20	.87	.71
29	1.80	2.45	1.87	2.4	1.01	3.45	1.94	-	2.3	1.05	.85	.79
30	1.98	2.05	1.73	2.05	.92	1.49	8.4	-----	5.7	3.35	2.2	1.76
31	1.95	1.73	-----	1.54	-----	.83	1.66	-----	15.1	-----	1.01	-----
Total	127.30	189.52	84.46	158.29	74.21	45.16	118.15	141.52	85.40	92.89	56.81	46.13
Mean	4.11	6.11	2.82	5.11	2.47	1.46	3.81	5.05	2.75	3.10	1.83	1.54
mgd	6.36	9.45	4.38	7.91	3.82	2.26	5.89	7.81	4.25	4.80	2.83	2.38
cfs	391	582	259	486	228	139	363	434	262	285	174	142
Ac-ft												

Calendar year 1958: Max 43 Min 0.47 Mean(mgd) 3.11 Mean(cfs) 4.81 Ac-ft 3,490

Fiscal year 1958-59: Max 45 Min 0.65 Mean(mgd) 3.34 Mean(cfs) 5.17 Ac-ft 3,740

Peak discharge (base, 200 mgd).--Aug. 2 (12:30 a.m.) 298 mgd (461 cfs), 3.31 ft; Oct. 23 (9 p.m.) 276 mgd (427 cfs), 3.24 ft; Jan. 13 (12 m.) 233 mgd (361 cfs), 3.10 ft; Feb. 13 (6 a.m.) 428 mgd (662 cfs), 3.67 ft.

* Discharge measurement made on this day.

5060. Makapipi ditch near Nahiku

Location--Lat 20°48'17", long 156°06'25", on right bank at entrance to tunnel No. 1, 1.8 miles south of Nahiku and 4.7 miles southeast of Keanae.

Records available--July 1948 to June 1959.

Gage--Water-stage recorder and Parshall flume. Datum of gage is 1,300 ft above mean sea level (by vertical angles).

Average discharge--11 years, 2.97 mgd (4.60 cfs).

Extremes--1948-59: Maximum daily discharge, 7.8 mgd (12.1 cfs) Nov. 21, 1951; minimum daily, 0.42 mgd (0.65 cfs) Mar. 22, 23, 25, Apr. 13, 14, 1958.

Remarks--Records good.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.15	4.4	3.8	1.93	3.9	2.3	2.15	3.15	4.0	3.35	2.2	1.98
2	2.55	4.6	3.65	1.88	3.65	2.15	2.05	2.9	3.9	4.1	2.15	1.93
3	2.85	4.6	3.5	1.82	3.5	2.1	1.98	2.55	3.8	4.4	2.15	1.82
4	2.9	4.4	3.45	1.76	3.3	*1.97	1.88	2.4	3.6	4.2	2.05	1.71
5	2.85	4.5	3.35	1.71	3.0	2.0	1.82	2.3	3.45	4.2	2.05	1.71
6	2.8	4.6	4.1	1.66	2.8	2.8	1.76	2.15	3.5	4.1	3.15	1.66
7	2.65	5.2	3.9	1.66	3.5	2.1	1.66	2.55	3.05	3.9	3.3	1.62
8	2.8	5.7	3.6	1.60	3.05	1.98	1.60	2.35	2.85	4.4	3.35	1.71
9	3.65	5.9	3.55	1.55	3.5	1.93	1.55	2.05	2.65	5.0	3.35	1.66
10	4.1	5.5	3.15	1.50	3.65	2.9	1.50	1.93	2.55	5.0	3.6	1.60
11	4.1	5.2	3.0	1.46	4.3	3.45	1.46	1.93	2.4	4.6	3.3	1.60
12	4.6	4.6	2.8	1.46	4.9	3.75	1.41	2.3	3.0	4.4	3.2	1.60
13	5.0	4.1	2.6	*1.46	4.8	3.8	2.15	2.9	2.85	4.2	3.15	1.66
14	5.1	3.8	2.55	1.76	4.6	3.6	2.55	2.8	3.5	4.0	3.3	1.71
15	5.2	3.8	2.35	3.65	4.4	3.5	2.2	2.7	3.9	3.65	3.9	1.82
16	5.7	3.9	2.2	3.9	4.0	3.5	1.85	2.55	3.9	*3.45	3.75	1.88
17	6.5	3.6	2.1	3.65	4.0	1.85	2.35	2.45	3.9	3.2	3.2	1.88
18	*6.7	3.45	2.65	3.75	4.1	.65	2.8	3.05	3.9	3.3	3.6	1.93
19	6.5	3.2	2.4	3.05	4.3	.65	2.85	3.3	3.8	3.6	3.2	1.93
20	6.5	3.05	2.15	3.6	4.4	.65	3.0	3.75	3.8	3.75	3.15	1.93
21	6.0	3.3	2.2	4.4	4.3	.65	3.0	4.3	3.8	3.8	3.0	1.88
22	5.5	3.45	2.15	5.3	4.1	.62	2.9	5.1	3.75	3.75	3.0	1.88
23	4.8	3.3	2.15	5.5	3.9	.59	2.85	5.2	3.5	3.35	2.8	1.76
24	4.6	3.5	2.15	5.7	3.65	2.0	2.9	5.2	3.35	3.15	2.8	1.71
25	4.7	4.2	2.15	5.4	3.45	2.65	2.7	5.0	3.2	3.0	2.65	1.66
26	4.8	4.6	2.15	5.2	3.2	2.55	2.55	4.6	3.0	2.8	2.6	1.60
27	4.7	4.6	2.15	4.7	3.0	2.6	2.4	4.1	2.8	2.65	2.45	1.55
28	4.2	4.9	2.1	4.4	2.8	2.45	2.2	4.1	2.65	2.55	2.35	1.50
29	4.0	5.1	2.05	4.8	2.55	2.4	2.1	-	3.0	2.4	2.2	1.46
30	3.75	4.7	1.98	4.7	2.45	2.35	2.05	-----	2.9	2.4	2.2	1.41
31	3.5	4.1	-----	4.3	-----	2.3	2.45	-----	2.55	-----	2.1	-----
Total	135.75	133.85	81.88	99.21	111.05	68.79	68.67	89.66	102.80	110.65	89.25	51.95
Mean:	4.38	4.32	2.73	3.20	3.70	2.22	2.22	3.20	3.32	3.69	2.88	1.73
mgd	6.78	6.68	4.22	4.95	5.72	3.43	3.43	4.95	5.14	5.71	4.46	2.68
cfs	417	411	251	304	341	211	211	275	315	340	274	159
Ac-ft												
Calendar year 1958:	Max	6.7	Min	0.42	Mean(mgd)	2.88	Mean(cfs)	4.46	Ac-ft	3,230		
Fiscal year 1958-59:	Max	6.7	Min	0.59	Mean(mgd)	3.15	Mean(cfs)	4.84	Ac-ft	3,510		

* Discharge measurement made on this day.

5080. Hanawi Stream near Nahiku

Location.--Lat 20°48'35", long 156°07'00", on left bank 200 ft upstream from Koolau ditch intake and trail, 1.9 miles southwest of Nahiku, and 4.5 miles southeast of Keanae.

Drainage area.--3.49 sq mi.

Records available.--January 1914 to January 1916, November 1921 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 1,318 ft above mean sea level (by vertical angles). Jan. 9, 1914, to Jan. 6, 1916, at site 50 ft downstream in same pool at datum 0.12 ft lower.

Average discharge.--37 years (1922-59), 14.1 mgd (21.8 cfs).

Extremes.--Maximum discharge during year, 1,630 mgd (2,520 cfs) Jan. 18 (gage height, 7.93 ft), from rating curve extended above 260 mgd by test on model of station site; minimum, 1.72 mgd (2.66 cfs) June 28, 29.

1914-16, 1921-59: Maximum discharge, about 3,600 mgd (5,570 cfs) Jan. 18, 1916 (gage height, 11.6 ft, at present site), from rating curve extended above 260 mgd by test on model of station site; minimum, 1.1 mgd (1.7 cfs) Feb. 19, 20, 1944.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Water used for irrigation in central Maui.

Revisions (fiscal years).--WSP 1045: 1922-43(M). WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.2	1.38	2.0	34
.3	1.94	2.5	56
.4	2.6	3.0	85
.5	3.35	3.5	125
.7	5.3	4.0	176
1.0	10.1	4.5	250
1.3	15.3	5.0	370
1.6	21.5	5.5	600

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.0	140	5.7	5.0	4.5	3.7	3.05	21	7.4	133	3.5	3.5
2	10.0	47	10.6	2.8	4.1	4.8	3.0	7.4	5.2	129	3.2	4.0
3	7.2	21.5	11.8	2.7	3.85	9.0	2.8	3.35	4.4	27.5	3.9	3.5
4	4.2	11.1	13.0	2.6	*4.3	5.9	3.7	3.0	5.2	10.8	4.1	3.0
5	3.45	47	7.4	2.5	3.85	12.4	2.6	3.05	8.1	6.7	4.4	3.5
6	5.9	30	16.6	2.5	4.0	18.2	2.7	2.6	16.3	5.2	21.5	3.0
7	6.1	232	8.0	2.5	12.6	4.9	2.55	10.0	6.3	7.3	54	9.0
8	13.6	112	5.7	2.2	5.2	3.95	2.6	5.4	5.8	90	80	3.5
9	18.3	19.8	5.1	2.1	52	4.2	2.4	2.7	4.6	70	17.2	3.0
10	29.5	10.1	4.6	2.0	75	35.5	2.25	2.4	4.2	97	16.7	2.55
11	17.3	7.5	4.4	2.5	28	31.5	2.25	2.95	4.2	15.6	6.0	2.6
12	36.5	6.4	4.2	4.0	17.9	54	2.2	58	59	9.1	5.2	3.3
13	18.1	6.0	4.0	8.0	8.9	10.0	76	301	151	*8.3	5.4	4.1
14	15.3	7.5	4.0	15	7.0	6.4	16.2	5.3	43	6.5	19.2	10.5
15	32.5	11.6	3.9	90	5.2	5.9	*9.9	3.0	12.7	4.9	24	3.8
16	*111	7.7	3.9	43	4.5	8.0	6.0	2.6	11.2	4.4	13.7	4.5
17	102	6.0	4.8	31	31	6.9	159	2.5	8.8	4.4	5.0	3.0
18	54	5.3	23.5	25	52	8.5	268	13.1	7.9	11.8	5.3	2.6
19	15.3	4.9	15.9	9.8	75	12.4	15.7	150	24	30	3.85	2.4
20	23.5	5.8	10.4	43	10.1	6.9	5.4	206	38	17.6	3.5	2.35
21	11.6	11.7	7.7	73	10.7	4.6	3.8	398	8.3	10.7	3.35	2.25
22	8.0	23.5	5.0	170	6.8	4.3	3.2	109	5.9	6.1	4.9	2.15
23	5.9	6.7	4.5	172	5.2	4.7	3.8	34.5	4.9	5.2	4.1	2.05
24	35	35	4.7	29	5.3	4.5	5.2	68	4.5	4.9	5.1	2.0
25	26.5	35	4.5	9.8	4.2	4.3	3.1	40	7.7	4.4	4.0	1.94
26	12.6	14.6	6.0	6.7	3.85	4.2	2.7	62	5.6	4.0	3.7	1.88
27	7.0	20.5	4.5	4.9	4.4	7.4	2.55	38.5	4.3	3.85	3.5	1.77
28	6.0	22.5	4.0	49	4.3	3.95	2.6	19.4	3.85	3.6	3.0	1.77
29	6.7	9.7	3.5	37	3.6	3.6	2.35	-	16.2	3.8	4.0	1.83
30	5.6	7.2	3.0	8.7	3.35	3.5	2.35	-	6.4	4.8	4.5	2.15
31	5.4	6.0	-----	5.4	-----	3.3	20.5	-----	6.7	-----	3.5	-----
Total	659.05	931.6	214.9	861.7	460.60	301.40	639.45	1,574.75	501.65	740.45	343.30	97.49
Mean:												
mgd	21.3	30.1	7.16	27.8	15.4	9.72	20.6	56.2	16.2	24.7	11.1	3.25
cfs	33.0	46.6	11.1	43.0	23.8	15.0	31.9	87.0	25.1	38.2	17.2	5.03
Ac-ft	2,020	2,860	660	2,840	1,410	925	1,960	4,830	1,540	2,270	1,050	299

Calendar year 1958: Max 252 Min 1.94 Mean(mgd) 15.2 Mean(cfs) 23.5 Ac-ft 17,060
Fiscal year 1958-59: Max 398 Min 1.77 Mean(mgd) 20.1 Mean(cfs) 31.1 Ac-ft 22,460

Peak discharge (base, 850 mgd).--Aug. 1 (9 p.m.) 1,020 mgd (1,580 cfs), 6.10 ft; Aug. 7 (1 p.m.) 980 mgd (1,520 cfs), 5.98 ft; Oct. 23 (7 p.m.) 1,240 mgd (1,920 cfs), 6.85 ft; Jan. 13 (12:30 p.m.) 1,010 mgd (1,560 cfs), 6.07 ft; Jan. 18 (12:30 a.m.) 1,630 mgd (2,520 cfs), 7.93 ft; Feb. 13 (3:30 a.m.) 1,470 mgd (2,270 cfs), 7.53 ft; Feb. 21 (11 a.m.) 1,120 mgd (1,730 cfs), 6.48 ft; Mar. 13 (7 p.m.) 1,250 mgd (1,930 cfs), 6.90 ft.

* Discharge measurement made on this day.

Note.--No gage-height record Sept. 10 to Oct. 15, Feb. 15-17, May 26 to June 9; discharge estimated on basis of records for stations on nearby streams.

5100. Kapaula Gulch near Nahiku
(Formerly published as Kapaula Stream near Nahiku)

Location.--Lat 20°48'45", long 156°07'05", on right bank 40 ft upstream from intake to Koolau ditch, 300 ft upstream from ditch trail, 1.9 miles southwest of Nahiku, and 4 miles southeast of Keanae.

Drainage area.--0.69 sq mi.

Records available.--November 1921 to June 1959. Prior to July 1958 published as Kapaula Stream near Nahiku.

Gage.--Water-stage recorder. Datum of gage is 1,346 ft above mean sea level (by vertical angles).

Average discharge.--37 years (1922-59), 10.8 mgd (16.7 cfs).

Extremes.--Maximum discharge during year, 1,060 mgd (1,640 cfs) Jan. 17 (gage height, 6.42 ft), from rating curve extended above 220 mgd by logarithmic plotting; minimum, 0.73 mgd (1.13 cfs) June 26-29.

1921-59: Maximum discharge, 1,780 mgd (2,750 cfs) Apr. 6, 1938 (gage height, 8.40 ft), from rating curve extended above 220 mgd by logarithmic plotting; minimum, 0.2 mgd (0.3 cfs) Nov. 23-25, 1933, Oct. 2-5, 1938.

Remarks.--Records good. Water used for irrigation in central Maui.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used July 16-19)

0.4	0.38	1.5	16.8
.5	1.08	2.0	44
.7	3.35	2.5	83
.9	6.5	3.0	140
1.2	13.4	3.5	218

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.3	88	3.35	2.55	2.65	2.75	1.53	18.3	4.8	145	2.3	1.64
2	9.1	22	9.0	1.86	2.3	*3.75	1.53	6.6	2.8	119	1.86	1.98
3	7.3	14.3	10.3	1.86	1.98	6.7	1.30	2.55	2.1	16.2	2.45	*1.77
4	3.5	6.9	7.6	1.42	2.55	5.0	1.30	2.55	2.8	5.5	2.55	1.42
5	2.45	37	5.7	1.30	2.2	12.0	1.19	2.65	4.8	3.35	2.85	1.98
6	5.0	26.5	14.6	1.42	2.45	15.9	1.42	1.64	11.1	2.65	14.9	2.25
7	5.1	112	5.9	1.30	15.3	3.8	1.19	6.4	3.8	4.8	4.3	5.7
8	11.8	74	3.35	1.08	3.65	2.55	1.42	4.9	3.0	77	64	2.95
9	20.5	12.6	3.0	1.01	37.5	3.45	1.19	1.98	1.98	47	12.6	1.86
10	26.5	6.0	2.55	1.01	53	32.5	1.01	1.42	1.64	63	13.2	1.53
11	14.6	4.2	2.45	1.19	18.6	28	.94	1.98	1.42	8.7	4.5	1.64
12	31	3.65	2.55	1.64	8.8	42	1.94	30	44	4.2	3.35	2.3
13	17.5	3.8	2.45	5.2	3.8	8.8	36	78	101	4.1	3.65	3.3
14	3.35	5.1	2.2	13.9	3.8	4.5	13.8	3.9	30.5	3.8	12.7	6.9
15	25	8.9	1.98	6.5	2.65	4.2	*8.7	2.55	7.0	2.9	18.5	3.25
16	*80	5.0	1.98	36	2.3	5.4	6.1	1.86	5.1	2.55	10.8	3.25
17	18	3.65	2.3	28	22.0	5.3	96	1.42	4.5	2.8	3.8	2.2
18	33.5	3.1	13.7	21.5	50	6.9	123	99	5.8	3.0	4.1	1.53
19	9.6	2.65	11.3	8.7	60	9.3	7.3	110	14.4	28.5	2.65	1.19
20	19.9	3.8	9.3	38	7.3	4.8	3.1	123	28.5	14.4	2.2	1.08
21	10.1	8.3	5.6	55	8.3	3.0	2.2	197	5.0	8.0	1.98	1.08
22	6.0	20.5	3.1	113	4.7	2.65	1.98	79	3.0	4.2	3.65	1.01
23	4.2	5.1	2.55	95	3.95	3.25	2.55	33.5	2.2	3.1	3.25	.94
24	29.5	30.5	2.45	17.4	3.65	3.1	4.2	53	2.1	2.9	3.85	.87
25	22.5	32.5	2.45	6.0	2.65	2.9	2.43	28.5	4.2	2.55	3.35	.87
26	10.5	10.3	4.0	4.5	2.45	3.1	1.75	43	3.0	2.2	2.2	.80
27	4.4	*15.8	3.35	3.0	3.1	5.7	1.42	30.5	1.98	1.98	1.98	.73
28	3.35	2.5	2.3	44	3.1	2.55	1.75	12.6	1.75	1.86	1.53	.73
29	4.5	6.0	1.86	33	2.3	2.2	1.30	--	8.7	1.98	2.1	1.80
30	3.25	3.95	1.64	6.6	2.1	2.2	1.42	--	5.0	3.3	3.1	1.19
31	3.25	3.1	-----	3.5	-----	-----	1.86	21.5	3.75	-----	1.98	-----
Total	501.55	599.70	144.86	612.94	339.63	240.11	351.46	977.80	319.72	596.52	255.08	58.74
Mean:	16.2	19.3	4.83	19.8	11.3	7.74	11.3	34.9	10.3	19.9	8.23	1.96
cfs	25.1	29.9	7.47	30.6	17.5	12.0	17.5	54.0	15.9	30.8	12.7	3.03
Ac-ft	1,540	1,840	445	1,880	1,040	737	1,080	3,000	980	1,830	783	180
Calendar year 1958:	Max	113	Min	1.0	Mean(mgd)	10.8	Mean(cfs)	16.7	Ac-ft	12,040		
Fiscal year 1958-59:	Max	197	Min	0.73	Mean(mgd)	13.7	Mean(cfs)	21.2	Ac-ft	15,340		

Peak discharge (base, 450 mgd).--Aug. 1 (9:30 p.m.) 454 mgd (702 cfs), 4.52 ft; Oct. 23 (6 p.m.) 579 mgd (896 cfs), 4.95 ft; Jan. 17 (11:30 p.m.) 1,060 mgd (1,640 cfs), 6.42 ft; Feb. 21 (11:30 a.m.) 476 mgd (736 cfs), 4.60 ft; Mar. 15 (6:30 p.m.) 741 mgd (1,150 cfs), 5.47 ft.

* Discharge measurement made on this day.

5120. Koolau ditch at Nahiku weir, near Nahiku

Location.--Lat 20°48'55", long 156°07'15", on right bank between Kapaula and Waiohue Gulches, 1.8 miles southwest of Nahiku and 3.8 miles southeast of Keanae.

Records available.--February 1919 to June 1959. Gage-height records collected in this vicinity since 1904 are contained in files of East Maui Irrigation Co.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 1,289.14 ft above mean sea level, datum of 1929. Prior to Apr. 28, 1922, staff gage at same site and datum.

Average discharge.--40 years, 22.0 mgd (34.0 cfs).

Extremes.--1919-59: Maximum daily discharge, 60 mgd (93 cfs) Feb. 18, 24, 1956; no flow at times.

Remarks.--Records excellent. Flow regulated by spillways and gates. Ditch diverts water from nearly all streams from the Makapipi west to the Alo. Water used for irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	*20.5	44	25.5	15.8	22.5	16.1	12.7	44	25.5	52	15.8	12.7
2	34.5	47	34.5	13.4	21	18.3	12.4	28	20	52	14.4	13.0
3	30	47	37	13.0	19.4	27	11.5	16.8	18.7	47	16.5	12.7
4	21.5	39.5	34.5	12.1	*19.8	*21.5	11.2	15.4	19.8	42	16.5	11.8
5	18.0	47	30	11.5	18.0	23	11.2	14.7	23.5	29.5	17.2	13.0
6	23	47	42	11.5	17.6	35.5	11.8	13.0	34.5	24	47	13.9
7	23.5	47	34.5	11.5	27.5	19.8	11.2	27	20.5	29.5	52	25.5
8	34.5	47	25	10.5	23	16.1	11.2	20	18.7	52	52	15.8
9	42	44	23	10.2	28.5	16.1	10.5	13.4	16.1	45	44	13.0
10	44	42	20.5	9.2	37	18.8	9.9	12.1	15.4	42	42	12.1
11	42	37	19.4	10.5	42	21	9.6	13.4	14.7	47	26	12.1
12	44	30	18.7	11.5	39.5	24.5	9.3	27	43	37	23	14.1
13	44	28	18.0	19.8	32	23.5	19.0	47	52	30.5	22.5	17.6
14	44	30	16.5	42	30.5	22.5	31	21.5	50	26.5	34.5	27.5
15	47	37	15.4	47	24.5	22.5	29	17.2	39.5	22.5	47	17.2
16	*48	31	14.7	47	22.5	22.5	21	14.4	34.5	21	37	18.0
17	50	25.5	15.1	44	34.5	18.6	41	13.0	30	20.5	23	14.4
18	47	24	34	44	42	24.5	47	52	27.5	28.5	25.5	12.7
19	44	22	34.5	34.5	44	26.5	20.5	54	42	50	20	12.1
20	47	23	34.5	37	34.5	21.5	8.3	54	44	50	18.0	11.5
21	44	37	25.5	47	37	18.0	10.6	57	30	39.5	16.8	11.2
22	37	44	19.8	50	26.5	16.5	13.4	52	24	26	21.5	10.2
23	30.5	29.5	18.0	50	23	17.2	17.2	50	21	23	21.5	9.9
24	42	42	16.8	47	22	17.6	20.5	*48	19.8	21.5	22	9.6
25	47	47	16.1	37	19.8	17.2	15.1	50	25.5	19.8	19.4	9.3
26	44	44	19.7	32	18.7	17.6	13.0	50	20.5	18.0	15.8	9.0
27	34.5	47	19.1	24.5	19.8	24	12.4	47	16.8	16.5	14.4	8.5
28	27.5	47	15.8	37	18.3	17.2	12.7	40	15.4	15.8	13.7	8.2
29	28	42	14.4	44	16.1	15.4	11.5	-	33	15.8	15.1	8.5
30	24.5	34.5	13.7	34.5	15.1	15.1	11.5	-----	24.5	20	18.3	9.3
31	23.5	27.5	-----	25.5	-----	13.4	30	-----	22	-----	13.7	-----
Total	1,131.0	1,180.5	706.2	885.2	796.6	629.0	515.2	911.9	842.4	962.4	786.1	394.4
Mean: mgd	36.5	36.1	23.5	28.6	26.6	20.3	16.6	32.6	27.2	32.1	25.4	13.1
cfs	56.5	56.9	36.4	44.3	41.2	31.4	25.7	50.4	42.1	49.7	39.3	20.3
Ac-ft	3,470	3,620	2,170	2,720	2,440	1,930	1,580	2,800	2,590	2,950	2,410	1,210
Calendar year 1958: Max	54			Min 0		Mean(mgd)	24.1	Mean(cfs)	37.3	Ac-ft	27,010	
Fiscal year 1958-59: Max	57			Min 6.3		Mean(mgd)	26.7	Mean(cfs)	41.3	Ac-ft	29,890	

* Discharge measurement made on this day.

5150. Waiohue Gulch near Nahiku
(Formerly published as Waiohue Stream near Nahiku)

Location.--Lat 20°49'05", long 156°07'45", on left bank 200 ft upstream from intake to Koolāu ditch, 300 ft upstream from ditch trail, 2.4 miles southwest of Nahiku, and 3.5 miles southeast of Keanae.

Drainage area.--0.32 sq mi.

Records available.--October 1921 to June 1959. Prior to July 1958 published as Waiohue Stream near Nahiku.

Gage.--Water-stage recorder. Datum of gage is 1,316.2 ft above mean sea level (by stadia traverse).

Average discharge.--37 years (1922-59), 7.56 mgd (11.7 cfs).

Extremes.--Maximum discharge during year, 356 mgd (551 cfs) Jan. 17 (gage height, 4.78 ft), from rating curve extended above 95 mgd on basis of slope-area measurements at gage heights 4.57 and 5.60 ft; minimum, 2.1 mgd (3.25 cfs) June 28, 30.

1921-59: Maximum discharge, 690 mgd (1,070 cfs) Dec. 13, 1921, Feb. 25, 1935, Apr. 7, 1938, from rating curve extended above 95 mgd as explained above; maximum gage height, 6.24 ft Apr. 7, 1938; minimum discharge, 1.36 mgd (2.10 cfs) Oct. 9, 10, 1953.

Remarks.--Records good. Water used for irrigation in central Maui.

Revisions (fiscal years).--WSP 1569: 1923-47(M), 1948-50(P), 1951(M), 1952-53(P), 1954-55(M), drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.5	1.61	1.6	24
.6	2.25	1.8	33.5
.8	4.1	2.0	44
1.0	7.0	2.5	76
1.2	11.1	3.0	117
1.4	16.5		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.95	48	4.1	4.0	3.8	3.75	3.05	9.1	4.4	60	3.25	2.8
2	7.0	10.6	7.4	2.9	3.55	3.8	2.95	4.3	3.7	50	2.9	2.9
3	4.5	9.4	6.7	2.9	3.35	6.2	2.9	2.95	3.25	9.1	3.45	2.9
4	3.55	6.1	6.8	2.65	3.8	3.85	2.8	2.8	3.8	5.0	3.6	2.8
5	3.05	17.2	5.4	2.65	3.35	8.7	2.7	2.8	4.4	3.9	3.8	3.2
6	3.25	13.0	10.8	2.7	3.35	8.4	2.9	2.55	6.8	3.45	9.1	3.5
7	4.0	4.7	5.4	2.7	14.9	3.55	2.7	3.95	3.8	5.9	18.3	5.5
8	7.6	32.5	4.1	2.55	4.4	3.25	2.95	3.2	3.45	32.5	23.5	3.35
9	10.1	8.9	3.8	2.5	16.3	4.3	2.7	2.5	2.95	28.5	6.9	2.9
10	11.3	5.7	3.55	2.5	21.5	17.8	2.55	2.4	2.9	27	7.6	2.7
11	7.1	4.9	3.35	2.65	9.7	13.1	2.5	2.8	2.8	7.0	3.9	2.95
12	13.1	4.6	3.55	2.9	7.2	15.6	*2.4	14.4	19.1	4.8	3.35	3.3
13	8.0	4.8	3.35	*3.95	4.4	6.7	18.8	24.5	43	4.6	3.45	4.2
14	7.3	5.6	3.15	8.3	4.6	4.5	7.3	3.05	15.8	4.2	6.3	5.3
15	10.6	8.9	3.05	27.5	3.8	5.3	5.3	2.9	5.6	3.7	8.8	3.45
16	4.1	5.0	3.05	14.9	3.45	5.1	3.8	2.55	5.1	*3.35	5.8	3.35
17	30	4.4	3.25	10.9	10.3	4.8	36.5	2.5	4.5	3.6	3.45	2.9
18	*19.2	4.1	8.1	9.2	17.8	6.3	46	39.5	4.1	7.6	4.4	2.7
19	8.3	3.7	5.8	5.0	24	8.0	4.7	39.5	8.6	16.8	3.25	2.65
20	13.5	4.1	6.0	17.6	4.8	4.8	3.25	4.1	13.9	10.1	2.95	2.55
21	7.1	6.2	4.4	19.5	6.4	3.9	2.9	78	4.5	5.6	2.95	2.55
22	5.7	13.6	3.35	49	4.1	3.9	2.9	25	3.7	3.9	4.4	2.5
23	5.1	4.2	3.05	48	3.8	4.4	3.55	11.2	3.25	3.55	3.35	2.4
24	17.0	20	3.05	8.5	3.7	4.1	3.9	18.1	3.25	3.55	4.1	2.4
25	15.1	16.9	2.9	5.1	3.35	3.9	2.95	12.1	4.5	3.25	3.55	2.3
26	7.0	7.8	4.0	5.0	3.15	4.3	2.65	17.2	3.55	3.05	2.95	2.25
27	5.0	12.2	3.55	4.0	3.9	6.2	2.55	12.1	3.15	2.95	2.9	2.25
28	4.5	12.0	2.9	26	3.35	3.7	2.8	7.4	2.95	2.9	2.8	2.15
29	5.4	5.1	2.8	15.4	3.05	3.45	2.55	-	6.4	3.15	3.55	2.25
30	4.5	4.5	2.7	5.3	2.95	3.45	2.55	-----	4.4	4.2	4.1	2.6
31	4.8	4.0	-----	4.1	-----	3.15	16.0	-----	3.45	-----	2.9	-----
Total	297.60	355.0	133.40	320.85	206.10	182.25	204.05	390.35	205.05	327.20	165.40	89.55
Mean	9.60	11.5	4.45	10.4	6.87	5.88	6.58	13.9	6.61	10.9	5.34	2.99
mgd	14.9	17.8	6.89	16.1	10.6	9.10	10.2	21.5	10.2	16.9	8.26	4.63
cfs	913	1,090	409	985	632	559	626	1,200	629	1,000	508	275
Ac-ft												

Calendar year 1958: Max 49 Min 2.05 Mean(mgd) 6.80 Mean(cfs) 10.5 Ac-ft 7,610
Fiscal year 1958-59: Max 78 Min 2.15 Mean(mgd) 7.88 Mean(cfs) 12.2 Ac-ft 8,830

Peak discharge (base, 300 mgd).--Jan. 17 (11 p.m.) 356 mgd (551 cfs), 4.78 ft; Mar. 13 (7 p.m.) 354 mgd (548 cfs), 4.77 ft.

* Discharge measurement made on this day.

5180. West Wailuaiki Stream near Keanae

Location.--Lat 20°49'15", long 156°08'37", on left bank 500 ft upstream from Koolau ditch crossing and trail bridge and 2.8 miles south of Keanae Post Office.

Drainage area.--3.66 sq mi.

Records available.--January 1914 to October 1917, November 1921 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 1,344 ft above mean sea level (by vertical angles).

Average discharge.--37 years (1922-59), 24.0 mgd (37.1 cfs).

Extremes.--Maximum discharge during year, 2,660 mgd (4,120 cfs) Jan. 17 (gage height, 10.23 ft), from rating curve extended above 420 mgd by logarithmic plotting; minimum, 1.92 mgd (2.95 cfs) June 28.

1914-17, 1921-59: Maximum discharge, 4,500 mgd (6,960 cfs) Jan. 14, 1923 (gage height, about 13.5 ft, from floodmarks), from rating curve extended above 420 mgd by logarithmic plotting; minimum, 0.3 mgd (0.5 cfs) July 26, 1922.

Remarks.--Records good. Water used for irrigation in central Maui.

Revisions.--WSP 1569: Drainage area.

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Aug. 1

Aug. 2 to June 30

0.8	4.5	2.6	81	0.4	1.6	1.0	7.6
1.0	7.0	3.0	121	.5	2.25	1.3	12.9
1.3	12.5	3.5	185	.6	3.05	1.7	25
1.7	25	4.0	270	.8	5.0		
2.2	51	5.0	510				

Note.--Same as preceding table above 1.7 ft.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1	6.2	225	7.5	6.0	7.6	6.4	3.85	28.5	13.1	308	4.5	*3.95	
2	14.6	49	19.2	3.75	6.6	*9.4	3.6	10.5	303	3.85	5.0		
3	14.9	25.5	18.2	3.5	6.1	15.8	3.5	6.8	38	38	4.4	3.75	
4	8.1	15.0	11.1	3.5	6.8	8.6	3.25	6.2	9.6	13.4	5.1	3.4	
5	5.0	66	9.1	3.15	6.2	26.5	3.05	6.2	11.8	9.1	5.4	5.0	
6	11.3	41	27	3.25	6.1	30.5	3.9	5.0	19.7	7.6	23.5	4.4	
7	7.6	308	8.6	3.3	18.0	8.4	3.7	7.5	9.1	11.6	77	11.5	
8	22.5	149	7.0	2.65	6.8	6.0	3.25	6.8	8.4	118	122	4.5	
9	43	51.5	6.2	2.5	50	7.9	3.4	4.9	*6.6	89	23	3.6	
10	52	14.6	5.6	2.4	49	54	2.75	4.4	6.1	126	23.5	3.3	
11	31	10.7	5.5	3.35	14.7	45	2.5	4.4	6.0	22.5	9.1	3.85	
12	53	9.5	5.7	5.6	12.9	69	*2.4	33.5	73	11.5	9.1	5.0	
13	30	9.1	5.0	11.7	7.8	14.1	103	195	154	9.1	9.1	6.2	
14	25	9.5	4.7	22.5	6.8	9.3	29.5	10.0	79	8.0	23.5	13.9	
15	45	13.1	4.3	115	5.7	8.5	14.8	6.9	16.2	6.8	26	5.0	
16	211	8.4	4.4	87	5.5	19.6	10.5	5.5	13.1	*6.2	15.6	5.6	
17	194	7.0	5.1	45	42	9.8	304	5.0	10.2	6.7	7.8	3.85	
18	79	6.3	25.5	46	70	9.6	334	186	9.0	23	7.5	3.4	
19	22	5.7	12.9	14.4	104	16.0	22.5	242	21	39.5	5.8	3.15	
20	37	8.1	11.1	66	14.2	10.3	10.2	272	47	24.5	5.4	2.95	
21	19.3	13.7	8.2	105	15.0	6.9	7.6	425	10.9	14.0	4.9	2.9	
22	11.8	31	5.7	246	10.0	6.9	6.6	133	8.4	8.8	8.9	2.65	
23	10.0	8.2	5.0	250	8.0	7.0	7.6	57	7.0	7.5	6.6	2.5	
24	55	45	5.5	44	7.0	6.6	8.8	92	6.9	6.8	7.3	2.5	
25	50	53	4.9	15.3	6.1	6.1	5.8	63	8.8	6.0	6.3	2.65	
26	22	15.7	8.2	10.9	5.5	5.7	5.0	77	6.3	5.5	5.4	2.25	
27	10.4	24	5.7	8.4	7.9	7.7	4.6	63	5.5	5.0	5.1	2.05	
28	8.1	25.5	5.0	64	7.1	4.9	4.5	27.5	5.2	4.8	4.3	1.99	
29	9.8	10.4	4.4	56	5.0	4.7	4.1	-	15.3	5.2	5.3	2.35	
30	7.0	8.4	3.85	13.8	4.5	5.4	4.2	-----	7.0	5.8	6.8	3.45	
31	6.6	6.9	-----	9.3	-----	4.3	35.5	-----	10.8	-----	3.95	-----	
Total	1,122.2	1,256.8	259.55	1,273.35	522.9	450.9	961.95	1,984.6	623.6	1,245.9	476.0	126.59	
Mean:	mgd	36.2	40.5	8.62	41.1	17.4	14.5	31.0	70.9	20.1	41.5	15.4	4.22
	cfs	56.0	62.7	13.3	63.6	26.9	22.4	48.0	110	31.1	64.2	23.8	6.53
	Ac-ft	3,440	3,860	793	3,910	1,610	1,380	2,950	6,090	1,910	3,820	1,460	388
Calendar year 1958:	Max	308	Min	2.15	Mean(mgd)	21.2	Mean(cfs)	32.8	Ac-ft	23,760			
Fiscal year 1958-59:	Max	425	Min	1.99	Mean(mgd)	28.2	Mean(cfs)	43.6	Ac-ft	31,610			

Peak discharge (base, 1,200 mgd).--Aug. 1 (9 p.m.) 1,370 mgd (2,120 cfs), 7.47 ft; Oct. 23 (5:30 p.m.) 1,990 mgd (3,080 cfs), 8.88 ft; Jan. 17 (11 p.m.) 2,660 mgd (4,120 cfs), 10.23 ft.

* Discharge measurement made on this day.

5220. Taro patch feeder ditch at Keanae

Location--Lat 20°51'40", long 156°09'00", on left bank 80 ft (revised) downstream from intake, 500 ft downstream from highway bridge over Palauhulu Stream at Keanae, 4.2 miles northwest of Nahiku, and 4.8 miles southeast of Kailua.

Records available--September 1934 to June 1959.

Gage--Water-stage recorder and Parshall flume. Altitude of gage is 51 ft (from topographic map).

Average discharge--24 years (1935-59), 2.31 mgd (3.57 cfs).

Extremes--1934-59: Maximum daily discharge, 7.9 mgd (12.2 cfs) June 30, 1941, Feb. 10, 1955; minimum daily, 0.05 mgd (0.08 cfs) Mar. 5, 1939.

Remarks--Records excellent. Ditch diverts water from Palauhulu Stream, 80 ft above station, for irrigation of taro lands at Keanae.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.95	4.1	2.45	1.95	2.9	2.6	2.5	2.8	3.25	6.5	3.1	2.75
2	2.35	2.25	2.7	1.85	2.9	*2.65	2.45	2.25	3.25	5.9	3.05	2.75
3	2.6	2.15	2.6	1.85	2.8	2.75	2.4	2.1	3.2	2.55	3.05	2.75
4	2.05	1.75	2.55	1.80	2.75	2.7	2.35	2.05	3.15	2.85	3.05	2.7
5	1.95	3.15	2.5	1.75	2.7	2.95	2.3	1.99	3.15	3.05	3.05	2.7
6	2.2	2.75	3.15	1.75	2.7	3.05	2.35	2.15	3.45	3.15	3.65	2.7
7	1.99	4.4	2.45	1.75	3.3	2.65	2.3	2.3	3.05	3.25	4.2	3.05
8	2.3	3.4	2.35	1.95	2.9	2.6	2.3	2.25	3.05	5.2	5.0	2.8
9	2.85	1.48	2.3	2.35	3.8	2.7	2.3	2.15	3.05	5.0	3.25	2.75
10	2.9	1.26	2.25	2.35	3.7	3.9	2.25	2.1	3.05	4.9	3.45	2.7
11	2.5	2.1	2.2	2.35	3.0	3.3	2.25	2.2	3.05	3.45	3.0	2.7
12	3.1	2.75	2.2	2.35	3.05	3.9	2.25	2.55	4.4	3.2	3.0	2.7
13	2.75	2.7	2.2	2.75	2.9	3.0	3.3	3.3	5.5	3.15	3.0	2.7
14	2.7	2.7	2.15	3.05	2.8	2.75	2.7	2.3	3.7	3.15	3.2	3.0
15	2.95	2.9	2.1	4.4	2.75	2.7	2.45	2.2	2.8	3.1	3.5	2.65
16	4.6	2.7	2.1	3.7	2.7	3.3	2.35	2.2	3.25	3.0	3.3	2.55
17	5.0	2.6	2.05	3.15	3.45	2.75	3.25	2.35	3.05	2.95	2.95	2.5
18	3.85	2.55	2.55	3.25	3.9	2.75	4.8	6.1	3.0	3.2	2.9	2.45
19	2.5	2.5	2.3	2.75	4.6	3.05	1.73	6.3	3.2	3.7	2.9	2.35
20	2.7	2.45	2.2	3.75	2.8	2.75	2.2	6.6	3.7	3.3	2.8	2.3
21	2.5	2.6	2.15	4.0	3.05	2.85	2.1	7.4	3.0	3.1	2.9	2.25
22	2.35	3.15	2.1	5.2	2.75	2.6	2.2	3.3	2.95	2.95	3.0	2.25
23	2.3	2.45	2.05	3.9	2.7	2.85	2.2	2.1	2.95	2.95	2.9	2.3
24	3.25	3.8	1.99	*3.4	2.7	2.6	2.1	3.05	*2.8	2.9	3.0	2.35
25	3.25	4.0	1.99	3.1	2.6	2.6	2.15	2.2	2.9	2.9	2.95	2.4
26	2.6	2.7	2.1	3.55	2.6	2.6	2.1	3.25	2.9	2.8	2.8	2.4
27	2.35	2.8	2.05	3.45	2.65	2.7	2.1	2.75	2.75	3.0	2.8	2.35
28	2.3	3.25	1.95	4.8	2.65	2.85	*2.15	2.9	2.75	3.1	2.75	2.35
29	2.3	2.6	1.90	4.1	2.55	2.5	2.15	-	3.2	3.1	2.75	2.35
30	2.2	2.5	1.85	3.05	2.5	2.6	2.3	-----	2.85	3.1	2.9	2.4
31	*2.15	2.45	-----	3.0	-----	2.5	2.8	-----	3.1	-----	2.75	-----
Total	83.34	84.94	67.48	92.40	89.15	87.25	75.13	85.19	99.65	104.25	96.90	76.95
Mean: mgd	2.69	2.74	2.25	2.98	2.97	2.81	2.42	3.04	3.21	3.48	3.13	2.56
cfs	4.16	4.24	3.48	4.61	4.60	4.35	3.74	4.70	4.97	5.38	4.84	3.96
Ac-ft	256	281	207	284	274	268	231	261	306	320	297	236
Calendar year 1958: Max	5.3			Min	1.26	Mean(mgd)	2.56	Mean(cfs)	3.96	Ac-ft	2,860	
Fiscal year 1958-59: Max	7.4			Min	1.26	Mean(mgd)	2.86	Mean(cfs)	4.43	Ac-ft	3,200	

* Discharge measurement made on this day.

5230. Koolau ditch near Keanae

Location.--Lat 20°49'53", long 156°10'30", on right bank on west side of Keanae Valley, 2.6 miles southwest of Keanae Post Office and 5.1 miles southeast of Kailua.

Records available.--January 1910 to December 1912, November 1917 to June 1959. Gage-height records collected in this vicinity since 1904 are contained in files of East Maui Irrigation Co.

Gage.--Water-stage recorder. Altitude of gage is 1,238 ft (from topographic map). Jan. 1, 1910, to Dec. 31, 1912, staff gage at same site and datum.

Average discharge.--41 years (1918-59), 67.0 mgd (104 cfs).

Extremes.--1910-12, 1917-59: Maximum daily discharge, 172 mgd (266 cfs) Apr. 19, 1935; no flow at times.

Remarks.--Records good except those for period of no gage-height record and those above 100 mgd, which are fair. Flow regulated by gates and spillways. Ditch diverts water at altitude 1,200 ft from nearly all streams from the Makapipl west to the Alo for power and irrigation in central Maui. No diversion above station except from several spillways.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	62	126	70	61	67	52	21.5	117	91	126	45	37
2	115	131	115	37	58	74	30	86	71	125	39	45
3	105	127	123	35	51	100	35	49	63	115	45	37
4	68	111	108	35	65	76	33	67	120	52	33	
5	48	125	84	31	53	65	31	47	84	83	53	43
6	85	126	124	31	53	113	37	39	113	67	138	41
7	76	120	100	31	93	71	33	68	67	99	131	85
8	109	125	67	29.5	67	51	33	59	63	130	127	47
9	126	110	58	28	124	50	31	39	*50	131	132	37
10	128	100	51	28	131	127	28	35	47	133	122	33
11	136	90	49	31	128	115	28	37	45	155	83	*35
12	132	80	51	45	121	119	26	66	110	106	75	47
13	131	75	45	86	83	83	81	112	125	91	75	60
14	132	85	43	136	78	51	123	50	127	75	116	96
15	132	95	41	128	58	51	101	39	117	63	150	47
16	125	80	39	133	53	70	80	41	106	53	108	53
17	125	65	45	131	119	51	113	37	91	55	67	39
18	125	60	108	132	126	56	121	123	80	72	76	35
19	136	52	110	116	127	92	83	125	121	130	53	31
20	124	68	114	110	112	52	47	125	126	137	47	31
21	124	100	80	125	116	35	39	125	92	119	45	29.5
22	111	115	51	125	87	35	37.5	131	67	79	83	28
23	94	80	45	130	67	39	58	137	58	63	58	26
24	119	110	47	*131	67	37	69	125	56	61	67	26
25	129	130	43	106	53	33	45	136	79	53	58	26
26	126	110	71	86	49	31	39	133	58	47	45	24.5
27	98	120	52	63	65	47	36	133	47	45	45	24.5
28	79	130	41	96	59	26	37	127	43	43	37	23
29	96	100	39	124	45	24.5	33	-	95	47	46	24.5
30	71	90	35	111	41	28	33	-	69	61	72	32
31	66	70	-----	79	-----	23	73	-----	63	-----	39	-----
Total	3,333	3,106	2,049	2,566.5	2,414	1,877.5	1,615.0	2,391	2,492	2,664	2,307	1,174.0
Mean:												
mgd	108	100	69.3	82.8	80.5	60.6	52.1	85.4	80.4	88.8	74.4	39.1
cfs	167	155	106	128	125	93.8	80.6	132	124	137	115	60.5
Ac-ft	10,230	9,530	6,290	7,880	7,410	5,760	4,960	7,340	7,650	8,180	7,080	3,600
Calendar year 1958: Max	136				Min	0.20	Mean(mgd)	69.3	Mean(cfs)	107	Ac-ft	77,650
Fiscal year 1958-59: Max	138				Min	21.5	Mean(mgd)	76.7	Mean(cfs)	119	Ac-ft	85,910

* Discharge measurement made on this day.

Note.--No gage-height record Aug. 7 to Sept. 2; discharge estimated on basis of records for stations at Halpuaena and Nahku.

5270. Honomanu Stream near Keanae

Location--Lat 20°50'05", long 156°11'20", on left bank at Spreckels ditch intake, 3.3 miles southwest of Keanae School and 4.5 miles southeast of Kailua.

Drainage area--3.17 sq mi.

Records available--November 1913 to June 1959.

Gage--Water-stage recorder, orifice and concrete control. November 1913 to Apr. 14, 1950, at site 500 ft upstream at different datum.

Average discharge--43 years (1916-59), 14.9 mgd (23.1 cfs).

Extremes--Maximum discharge during year, 660 mgd (1,020 cfs) Jan. 17 (gage height, 8.16 ft), from rating curve extended above 13 mgd by computation of flow through orifice and over dam; minimum, 0.60 mgd (0.93 cfs) June 28, 29.
1913-59: Maximum discharge, 2,310 mgd (3,570 cfs) Feb. 25, 1956 (gage height, 10.73 ft), from rating curve extended above 13 mgd by computation of flow through orifice and over dam; minimum, 0.08 mgd (0.12 cfs) Mar. 24, 1928.

Remarks--Records good except those above 15 mgd, which are poor.

Revisions--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used Jan. 19 to Feb. 12)

0.6	0.25	3.0	13.4
.8	1.25	4.0	16.0
1.0	2.7	5.0	18.5
1.2	4.4	5.5	21
1.4	6.4	6.0	50
1.6	8.2	6.5	120
2.0	10.3	7.0	238
2.5	11.9		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.0	113	4.0	4.7	3.5	4.2	3.1	22	4.9	175	3.5	1.84
2	15.4	27.5	12.0	1.64	3.1	6.2	2.45	*7.3	4.0	149	10.3	2.2
3	40	24	7.4	1.70	3.1	8.2	2.15	4.4	3.1	19.9	3.6	1.70
4	6.2	10.4	4.9	1.51	3.5	4.0	1.90	4.4	4.0	4.9	3.35	1.51
5	3.5	50	5.4	1.25	3.1	12.3	1.70	4.4	6.7	3.5	3.7	2.45
6	14.2	28.5	17.0	1.19	3.5	18.2	5.6	3.5	16.7	3.1	21.5	1.90
7	7.6	153	6.8	1.25	7.6	6.0	3.2	4.2	4.4	7.0	57	7.5
8	20.5	76	3.5	1.03	3.5	3.1	2.5	4.4	4.4	58	67	2.35
9	31	22	3.1	.97	30	10.3	1.90	3.1	3.1	45	14.0	1.70
10	32.5	9.5	2.45	.91	19.2	4.4	1.58	2.7	2.6	61	18.4	1.44
11	17.2	5.4	2.2	1.44	4.9	25	1.44	2.7	2.5	10.9	4.4	2.05
12	35.5	4.9	2.35	3.55	5.4	48	1.25	8.5	57	4.4	6.4	3.1
13	23.5	4.0	1.90	8.8	3.5	8.8	47	28	70	3.5	5.4	3.5
14	21	4.0	1.77	14.5	2.7	4.9	10.0	3.1	34.5	2.7	17.0	9.9
15	31.5	8.2	1.64	64	2.35	4.4	4.4	2.45	9.6	2.5	24	3.1
16	135	4.9	1.77	51	2.4	11.0	4.4	1.90	9.0	2.3	9.6	*2.8
17	110	4.0	2.3	27	25	5.4	39	1.70	5.6	2.35	4.0	1.98
18	62	3.5	21	23	43	5.4	183	94	4.0	7.3	3.5	1.58
19	14.1	2.7	6.9	6.4	59	16.5	11.3	131	13.3	21.5	3.1	1.32
20	23	4.0	7.6	53	6.2	8.1	4.9	159	27.5	16.2	2.6	1.19
21	13.2	7.6	4.4	53	18.7	4.0	4.0	173	4.9	7.1	2.35	1.14
22	6.4	16.5	2.7	128	7.8	3.5	3.5	59	3.5	4.0	6.3	1.08
23	6.4	4.0	2.15	131	4.0	4.0	4.3	30.5	3.1	3.5	4.4	.97
24	41	24.5	2.3	33	3.5	4.0	6.4	54	3.1	3.1	4.0	.97
25	46	39.5	2.05	10.3	3.1	3.5	3.5	41	3.5	2.45	4.5	.97
26	18.8	8.2	4.6	4.9	2.45	3.5	3.1	66	2.5	2.15	4.1	.75
27	5.4	11.3	3.1	*4.2	3.2	4.5	3.1	46	2.05	2.05	2.7	.69
28	*4.2	16.3	2.3	36.5	3.1	2.7	3.8	14.9	2.05	2.05	2.05	.69
29	9.4	4.9	1.64	34	2.45	3.1	3.65	-	8.0	2.45	2.55	.80
30	4.9	4.0	1.58	7.0	2.05	11.4	4.0	-	3.5	5.1	4.0	1.77
31	4.4	3.1	-----	4.4	-----	5.4	25	-----	18.7	-----	2.05	-----
Total	807.8	699.4	144.80	715.14	284.90	303.6	397.12	977.15	341.80	634.00	321.35	64.94
Mean:												
mgd	26.1	22.6	4.85	23.1	9.50	9.79	12.8	34.9	11.0	21.1	10.4	2.16
cfs	40.4	35.0	7.47	35.7	14.7	15.1	19.8	54.0	17.0	32.6	15.1	3.34
Ac-ft	2,480	2,150	444	2,190	874	932	1,220	3,000	1,050	1,950	986	199
Calendar year 1958:	Max 153			Min 0.91		Mean(mgd)	12.6		Mean(cfs)	19.5	Ac-ft	14,070
Fiscal year 1958-59:	Max 183			Min 0.69		Mean(mgd)	15.6		Mean(cfs)	24.1	Ac-ft	17,480

Peak discharge (base, 600 mgd)--Aug. 7 (2:30 p.m.) 610 mgd (944 cfs), 8.06 ft; Oct. 23 (6 p.m.) 635 mgd (982 cfs), 8.11 ft; Jan. 17 (11 p.m.) 660 mgd (1,020 cfs), 8.16 ft.

* Discharge measurement made on this day.

5310. Kula diversion from Haipuaena Stream near Olinda

Location.--Lat 20°48'24", long 156°13'27", on left bank 3.4 miles east of Olinda and 6.2 miles south of Kailua.

Records available.--July 1945 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 4,320 ft (from topographic map).

Average discharge.--13 years (1946-59), 0.447 mgd (0.692 cfs).

Extremes.--1945-59: Maximum daily discharge, 2.05 mgd (3.17 cfs) Mar. 20, 1948; minimum daily, 0.01 mgd (0.02 cfs) for several days in 1953, 1954, and 1955.

Remarks.--Records good except those for periods of doubtful or no gage-height record, which are fair. Kula diversion flume diverts water from Haipuaena Stream at station for domestic use and irrigation of truck crops in the Olinda and Kula areas.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.14	1.30	0.14	0.08	0.23	0.10	0.48	0.88	0.50	1.32	0.44	0.1
2	.67	.55	.84	.14	.18	.52	.27	.59	.30	.88	.85	.1
3	1.09	.53	.76	.30	.15	.28	.19	.30	.23	.93	.81	.1
4	.52	.74	.84	.12	.14	.32	.15	.27	.21	.52	.46	.05
5	.40	1.50	.65	.08	.11	.45	.11	.50	.25	.32	.30	d.04
6	.63	1.06	1.19	.06	.09	1.06	.36	.18	.76	.22	1.11	d.03
7	.57	1.13	.72	.06	.09	.81	.32	.21	.54	.44	1.53	.29
8	1.10	.90	.38	.06	.09	.40	.26	.26	.21	1.55	1.65	.12
9	1.22	.72	.28	.05	.94	.49	.21	.18	.15	1.47	1.19	d.06
10	1.11	.59	.19	.04	.81	1.47	.14	.12	.11	1.33	1.11	d.06
11	1.22	.38	.16	.03	.35	1.30	.10	.10	.10	.81	.59	d.04
12	1.47	.28	.14	.12	.38	1.33	.07	.59	1.46	.46	.72	.12
13	1.32	.23	.11	.59	.25	.55	.58	1.32	1.23	.30	.52	.20
14	1.08	.19	.10	.96	.18	.40	.93	.53	1.06	.22	.59	.18
15	1.45	.23	.09	.98	.19	.27	.65	.28	.70	.16	1.1	.10
16	1.66	.26	.08	1.41	.15	*.36	.52	.21	.35	.14	.6	.15
17	.61	.17	.22	1.50	.73	.40	.52	.18	.25	.11	.4	.10
18	1.21	.14	1.16	1.24	1.08	.34	.14	1.54	.16	.43	.2	d.08
19	1.16	.11	.88	.76	1.06	.93	.31	1.27	.43	1.11	.2	d.06
20	1.20	.10	.76	.95	.61	.65	.40	1.83	1.18	.93	.15	d.05
21	.94	.38	.40	1.00	1.40	.26	.26	1.27	.35	.55	.1	d.04
22	.77	.46	.23	.80	1.06	.18	.19	.88	.23	.32	.6	d.03
23	.68	.28	.17	.96	.50	.14	.25	.74	.16	.22	.4	d.02
24	1.23	.57	.12	1.03	.38	.14	.34	.88	.14	.21	.3	d.03
25	1.66	1.30	.10	.90	.26	.14	.18	1.34	.12	.16	.25	d.03
26	1.09	.68	.19	.53	.18	.18	.14	1.37	.10	.14	.2	d.08
27	.50	.50	.25	.35	.15	.25	.10	1.31	.09	.12	.15	d.03
28	.30	*.85	.17	.78	.12	.14	.11	.93	.08	.10	.1	d.03
29	.55	.34	.11	1.06	.11	.33	.38	-	.28	.10	.15	d.04
30	.70	.22	.09	*.68	.09	1.24	.30	-----	.51	.44	.25	d.05
31	.52	.16	-----	.34	-----	1.13	.60	-----	1.09	-----	.15	-----
Total	28.77	16.85	11.52	17.96	12.06	16.56	9.56	19.86	13.15	15.99	17.17	2.35
Mean:												
mgd	0.928	0.544	0.384	0.579	0.402	0.534	0.308	0.709	0.424	0.533	0.554	0.078
cfs	1.44	0.842	0.584	0.898	0.622	0.826	0.477	1.10	0.656	0.825	0.857	0.121
Ac-ft	88	52	35	55	37	51	29	61	40	49	53	7.2
Calendar year 1958:	Max 1.66			Min 0.02		Mean(mgd) 0.494		Mean(cfs) 0.764		Ac-ft 554		
Fiscal year 1958-59:	Max 1.83			Min 0.02		Mean(mgd) 0.498		Mean(cfs) 0.771		Ac-ft 557		

* Discharge measurement made on this day.

d Doubtful gage-height; discharge computed on basis of records for Waikamoi Stream above reservoir at Kula pipeline intake, near Olinda.

Note.--No gage-height record May 15 to June 4; discharge estimated on basis of records for Waikamoi Stream above reservoir at Kula pipeline intake, near Olinda.

5311. Haipuaena Stream at Kula pipeline intake, near Olinda

Location.--Lat 20°48'24", long 156°13'27", on left bank, at Kula pipeline intake, 3.4 miles east of Maui County Olinda Reservoir and 6.2 miles south of Kailua.

Drainage area.--0.26 sq mi.

Records available.--January to April 1946 (fragmentary), May 1946 to June 1959.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 4,320 ft (from topographic map).

Average discharge.--13 years, 0.531 mgd (0.822 cfs).

Extremes.--Maximum discharge during year, 60 mgd (93 cfs) Feb. 21 (gage height, 3.27 ft), from rating curve extended above 1.3 mgd; no flow for many days.
1946-59: Maximum discharge, 87 mgd (135 cfs) between Jan. 23 and Feb. 9, 1948 (gage height, 3.72 ft), from rating curve extended above 1.3 mgd; no flow at times each year.

Remarks.--Records fair. Kula pipeline diverts all water from Haipuaena Stream at low stages.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.85	0	1.5	3.5
.9	.03	1.6	4.7
1.0	.18	1.7	6.0
1.1	.52	1.8	7.6
1.2	.98	2.0	11.2
1.3	1.60	2.2	15.4
1.4	2.45		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	9.2	0	0	0	0	0	0.66	0	14.6	0	
2	.37	1.35	.29	0	0	0	0	.09	0	6.8	.88	
3	3.6	.98	.01	0	0	0	0	0	0	.40	.03	
4	.52	.30	.30	0	0	0	0	0	0	0	0	
5	.01	1.77	.03	0	0	1.02	0	0	0	0	0	
6	.01	.39	.25	0	0	1.09	0	0	.03	0	.56	
7	0	15.3	.04	0	0	.15	0	0	0	0	3.0	
8	.53	4.4	0	0	0	0	0	0	0	1.91	3.1	
9	.98	.57	0	0	.29	.03	0	0	0	1.14	.28	
10	1.06	.12	0	0	.24	1.61	0	0	0	3.7	.25	
11	.42	0	0	0	0	.89	0	0	0	.11	0	
12	1.21	0	0	0	0	1.96	0	.59	2.3	0	.04	
13	.75	0	0	0	0	0	5.2	2.35	1.84	0	0	
14	.15	0	0	.76	0	0	.42	.03	.98	0	.37	
15	.79	0	0	5.1	0	0	.01	0	.09	0	.6	
16	10.5	0	0	3.15	0	0	0	0	0	0	.1	
17	8.9	0	.05	1.54	.29	0	3.25	0	0	0	0	
18	3.35	0	1.20	.79	1.63	0	14.9	6.0	0	.29	0	
19	.61	0	.06	.04	2.85	.12	.69	8.5	.01	.45	0	
20	.96	0	.02	3.15	.10	.05	0	11.0	.65	.10	0	
21	.28	0	0	2.85	.78	0	0	9.3	0	.01	0	
22	0	.06	0	0	.18	0	0	3.25	0	0	0	
23	0	0	0	10.6	0	0	0	1.48	0	0	0	
24	1.62	.20	0	1.34	0	0	0	3.05	0	0	0	
25	2.4	.98	0	.10	0	0	0	1.98	0	0	0	
26	.45	.03	0	0	0	0	0	.69	0	0	0	
27	0	0	0	0	0	0	0	1.68	0	0	0	
28	0	.08	0	.77	0	0	0	.03	0	0	0	
29	0	0	0	1.10	0	0	0	0	0	0	0	
30	.08	0	0	*0	0	.98	0	0	.05	.01	0	
31	0	0	-----	0	-----	.21	.85	-----	2.95	-----	0	-----
Total	39.41	35.67	2.25	40.09	6.36	8.14	25.32	50.68	8.90	29.52	9.21	0
Mean:												
mgd	1.27	1.15	0.075	1.29	0.212	0.263	0.817	1.81	0.287	0.984	0.297	0
cfs	1.96	1.78	0.116	2.00	0.328	0.407	1.26	2.80	0.444	1.52	0.460	0
Ac-ft	121	109	6.9	123	20	25	78	156	27	91	28	0
Calendar year 1958: Max	15.3			Min 0			Mean(mgd) 0.533	Mean(cfs) 0.825		Ac-ft 597		
Fiscal year 1958-59: Max	15.3			Min 0			Mean(mgd) 0.700	Mean(cfs) 1.08		Ac-ft 785		

Peak discharge (base, 44 mgd).--July 16 (9:30 p.m.) 49 mgd (74 cfs), 3.03 ft; Aug. 1 (7 p.m.) 45 mgd (70 cfs), 2.96 ft; Aug. 7 (12 m.) 57 mgd (88 cfs), 3.20 ft; Oct. 25 (5 p.m.) 54 mgd (84 cfs), 3.13 ft; Jan 17 (11 p.m.) 52 mgd (80 cfs), 3.10 ft; Feb. 20 (12:30 a.m.) 57 mgd (88 cfs), 3.20 ft; Feb. 21 (7:30 p.m.) 60 mgd (93 cfs), 3.27 ft.

* Discharge measurement or observation of no flow made on this day.

5350. Haipuaena diversion ditch at Kolea Gulch, near Keanae

Location.--Lat 20°50'37", long 156°11'46", on right bank 15 ft downstream from end of tunnel in Kolea Gulch, 3.3 miles southwest of Keanae, and 3.7 miles southeast of Kailua.

Records available.--March 1938 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 1,866 ft (from topographic map).

Average discharge.--21 years, 1.98 mgd (3.06 cfs).

Extremes.--1938-59: Maximum daily discharge, 11.4 mgd (17.6 cfs) Aug. 14, 1950; minimum daily, 0.02 mgd (0.03 cfs) Feb. 27 to Mar. 2, Apr. 3, 4, 1956.

Remarks.--Records show. Ditch diverts water from Haipuaena Stream for East Maui Irrigation Co.'s hydroelectric plant about 1 mile downstream where it discharges into Koolau ditch for irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.76	3.2	1.56	1.51	1.56	1.56	1.56	2.1	1.76	3.9	1.56	1.36
2	2.3	2.2	1.96	1.25	1.56	1.76	1.42	1.67	1.62	3.5	1.62	1.42
3	2.65	2.2	*1.83	1.25	1.49	1.83	1.36	1.49	1.56	2.1	1.56	1.31
4	1.96	1.90	1.62	1.13	1.56	1.62	1.36	1.42	1.56	1.69	1.56	1.31
5	1.76	2.7	1.62	1.13	1.56	1.84	1.31	1.42	1.76	1.56	1.62	1.49
6	2.25	2.3	2.05	1.13	1.49	2.1	1.56	1.36	1.96	1.56	2.25	1.42
7	1.96	3.3	1.62	1.13	1.76	1.83	1.56	1.42	1.62	1.76	2.85	1.83
8	2.5	2.95	1.42	1.07	1.56	1.56	1.42	1.42	1.62	2.9	3.0	1.42
9	2.7	2.1	1.36	1.02	2.5	1.96	1.31	1.31	1.49	2.7	2.05	1.36
10	2.8	1.76	1.36	1.02	2.25	2.8	1.31	1.31	1.42	2.7	2.05	1.31
11	2.4	1.62	1.31	1.25	1.69	2.3	1.25	1.31	1.42	1.96	1.62	1.42
12	2.85	1.56	1.31	1.51	1.62	2.7	1.25	1.62	2.65	1.62	1.69	1.56
13	2.6	1.56	1.31	1.69	1.56	1.96	2.1	2.25	3.0	1.62	1.69	1.62
14	2.6	1.56	1.25	1.96	1.49	1.83	1.90	1.49	2.3	1.56	2.1	1.96
15	2.85	1.83	1.25	3.0	1.42	1.76	1.56	1.42	1.90	1.49	2.25	1.62
16	3.85	1.62	1.25	2.6	1.42	2.1	1.56	1.36	1.83	1.42	1.90	*1.49
17	3.4	1.49	1.31	2.2	2.25	1.83	1.68	1.31	1.72	1.42	1.62	1.42
18	2.8	1.49	2.05	2.2	2.85	*1.83	3.35	3.4	1.56	1.62	1.56	1.56
19	1.90	1.36	1.69	1.62	3.15	2.3	1.69	3.65	1.90	2.2	1.56	1.31
20	2.2	1.56	1.69	2.35	1.96	1.96	1.42	3.65	2.25	1.96	1.56	1.31
21	1.90	1.69	1.56	2.8	2.5	1.62	1.36	4.3	1.62	1.76	1.49	1.25
22	1.62	2.1	1.31	3.55	1.96	1.62	1.36	2.7	1.56	1.56	1.76	1.19
23	1.56	1.56	1.31	3.0	1.76	1.62	1.56	2.25	1.49	1.56	1.62	1.13
24	2.4	2.25	1.31	2.1	1.89	1.62	1.62	2.6	1.49	1.49	1.56	1.19
25	2.55	2.7	1.25	1.76	1.62	1.62	1.42	2.3	1.49	1.42	1.56	1.19
26	1.90	1.90	1.56	1.56	1.56	1.56	1.36	2.6	1.42	1.36	1.62	1.13
27	1.56	1.96	1.36	1.56	1.62	1.62	1.36	2.3	1.36	1.36	1.42	1.02
28	1.52	2.1	1.25	2.5	1.56	1.56	1.42	1.96	1.31	1.36	1.36	.96
29	1.76	1.62	1.25	2.5	1.49	1.56	1.42	-	1.76	1.42	1.49	1.07
30	1.62	1.56	1.19	1.90	1.36	2.1	1.36	-----	1.49	1.62	1.62	1.29
31	1.56	1.56	1.62	-----	-----	1.90	1.96	-----	1.76	-----	1.36	-----
Total	70.04	61.26	44.17	56.67	53.82	57.83	48.13	57.39	53.65	56.15	54.53	40.72
Mean:												
mgd	2.26	1.98	1.47	1.83	1.79	1.86	1.55	2.05	1.73	1.87	1.76	1.36
cfs	3.50	3.06	2.27	2.83	2.77	2.88	2.40	3.17	2.68	2.89	2.72	2.10
Ac-ft	215	188	136	174	165	177	148	176	165	172	167	125
Calendar year 1958: Max	3.85				Min 0.85	Mean(mgd)	1.80	Mean(cfs)	2.79	Ac-ft	2,020	
Fiscal year 1958-59: Max	4.3				Min 0.96	Mean(mgd)	1.79	Mean(cfs)	2.77	Ac-ft	2,010	

* Discharge measurement made on this day.

5360. Haipuaena Stream above Spreckels ditch, near Huelo

Location.--Lat 20°51'04", long 156°11'28", on left bank 200 ft upstream from Spreckels ditch, 2.8 miles west of Kanae, 3.3 miles southeast of Kailua, and 4.7 miles southeast of Huelo.

Drainage area.--1.19 sq mi.

Records available.--October 1913 to June 1959. Prior to July 1954, published as Haipuaena Stream near Huelo. December 1910 to September 1913 at site 600 ft downstream; records not equivalent owing to inflow from Spreckels ditch.

Gage.--Water-stage recorder. Concrete control since Feb. 8, 1951. Datum of gage is 1,512.22 ft above mean sea level (East Maui Irrigation Co. bench mark).

Average discharge.--43 years (1916-59), 9.70 mgd (15.0 cfs).

Extremes.--Maximum discharge during year, 553 mgd (856 cfs) Oct. 23 (gage height, 5.28 ft), from rating curve extended above 150 mgd; minimum daily, 0.23 mgd (0.36 cfs) June 27-29, 1913-59: Maximum discharge, 6,100 mgd (9,440 cfs) Aug. 12, 1940 (gage height, 6.91 ft), from rating curve extended above 150 mgd; minimum, slightly less than 0.1 mgd (about 0.2 cfs) several days during January, February, May, June 1945 and October 1953.

Remarks.--Records good except those for period of no gage-height record, which are fair. Haipuaena diversion ditch and Kula pipeline divert water above station.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

Discharge, in million gallons a day, fiscal year July 1958 to June 1959												
Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.45	95	3.2	4.1	2.55	2.45	1.84	13.7	4.4	155	2.45	0.83
2	12.8	15.6	10	.80	2.0	4.4	1.43	4.3	*5.15	113	3.8	1.14
3	21	14.2	6.5	.90	1.75	4.5	1.21	2.0	2.45	11.6	2.4	.83
4	4.4	6.6	4.0	.70	2.4	3.8	1.00	1.87	2.70	4.3	2.25	.58
5	2.2	32	5	.60	1.75	7.1	.83	1.59	4.0	2.75	2.85	1.50
6	7.4	24	14	.60	1.75	13.0	2.7	1.21	7.5	2.45	13.9	1.07
7	4.8	102	6	.70	9.0	4.3	1.88	1.46	2.75	5.5	29.5	5.2
8	12.7	52	2.5	.60	2.65	*1.94	1.23	1.63	2.9	50	48	*1.42
9	20.5	12.6	2.0	.50	24	7.8	.83	.94	1.67	42	39.1	.68
10	22.5	6.1	1.4	.40	15.5	32.5	.63	.73	1.35	44	11.3	.73
11	12.0	4.0	1.2	1.0	4.9	16.3	.49	.68	1.35	8.5	3.75	1.22
12	26	3.25	1.3	2.0	4.6	33.5	.41	5.2	38	3.9	4.3	2.15
13	18.9	2.9	1.0	6	2.65	8.3	30.5	17.5	61	2.75	4.1	2.6
14	15.5	3.35	.80	11	2.1	4.7	6.6	1.96	20.5	2.1	12.6	8.0
15	25	7.3	.90	60	1.59	4.9	2.9	1.43	5.8	1.75	17.2	2.2
16	104	3.6	.90	36	1.43	10.6	*2.25	1.00	5.6	1.51	8.3	1.96
17	74	2.45	1.5	18	14.3	5.1	15.5	.78	4.7	1.43	3.4	1.21
18	46	2.3	15	15.8	34	5.7	99	80	3.6	5.6	3.15	.88
19	10.1	1.67	5.5	5.7	54	15.3	5.5	95	8.6	15.5	2.1	.73
20	15.3	2.65	4.0	44	5.5	7.2	2.45	115	20.5	11.0	1.75	.58
21	8.7	5.0	2.8	37.5	17.2	3.25	1.75	166	4.1	5.5	1.51	.53
22	5.2	15.4	1.7	111	6.8	3.0	1.66	34	2.75	3.0	4.7	.45
23	4.1	3.25	1.1	94	3.25	3.55	2.5	16.3	2.0	2.2	3.2	.35
24	30	22.5	1.2	16.3	2.9	3.30	2.85	28.5	2.05	2.0	2.2	.32
25	31.5	32.5	1.0	6.6	2.0	2.95	1.35	16.6	2.55	1.59	2.2	.32
26	12.1	7.1	3.7	4.3	1.67	2.9	1.07	30.5	1.59	1.35	2.45	.29
27	4.6	10.8	2.1	3.15	1.81	4.1	.94	23	1.21	1.28	1.35	.23
28	3.4	*15.3	1.2	35	1.75	2.0	1.48	8.0	1.14	1.21	.94	.23
29	6.1	4.8	.80	23	1.38	2.3	1.34	-	5.9	1.67	1.45	.23
30	3.5	3.15	.70	6.0	1.07	8.8	1.28	-	2.35	3.25	3.0	.78
31	3.25	2.3	-----	3.4	-----	4.5	15.6	-----	8.4	-----	1.00	-----
Total	570.00	515.47	103.00	549.65	228.22	232.84	211.00	670.68	236.56	507.69	210.20	39.44
Mean	18.4	16.6	3.43	17.7	7.61	7.51	6.81	24.0	7.63	16.9	6.78	1.31
mgd	28.5	25.7	5.31	27.4	11.8	11.6	10.5	37.1	11.8	26.1	10.5	2.03
cfs	1,750	1,580	316	1,690	700	715	648	2,060	726	1,560	645	121
Ac-ft												
Calendar year 1958:	Max	104	Min	0.23	Mean(mgd)	9.16	Mean(cfs)	14.2	Ac-ft	10,260		
Fiscal year 1958-59:	Max	166	Min	0.23	Mean(mgd)	11.2	Mean(cfs)	17.3	Ac-ft	12,510		
Peak discharge (base, 350 mgd).--Aug. 1 (9 p.m.) 514 mgd (795 cfs), 5.17 ft; Aug. 7 (2:30 p.m.) 486 mgd (752 cfs), 5.09 ft; Oct. 23 (6:30 p.m.) 553 mgd (856 cfs), 5.28 ft; Feb. 21 (11:30 a.m.) 427 mgd (661 cfs), 4.92 ft.												

* Discharge measurement made on this day.

Note.--No gage-height record Sept. 1 to Oct. 17; discharge estimated on basis of record for nearby streams.

5380. Spreckels ditch at Haipuaena weir, near Huelo

Location.--Lat 20°51'15", long 156°11'25", on left bank near Spreckels ditch trail between Haipuaena and Puohokamoa Streams, 2.7 miles west of Keanae, 3.3 miles southeast of Kailua, and 4.5 miles southeast of Huelo.

Records available.--April 1922 to June 1959. May 1919 to April 1922 in files of East Maui Irrigation Co.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 1,470.96 ft 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 upstream at different datum.

Average discharge.--36 years (1922-29, 1930-59), 13.4 mgd (20.7 cfs).

Extremes.--1922-59: Maximum daily discharge, 97 mgd (150 cfs) Feb. 10, 1955, Feb. 18, 1956; no flow at times.

Remarks.--Records good except those for period of fragmentary gage-height record, which are fair. Flow regulated by gates and spillways. Spreckels ditch diverts water from all streams between Nuaailua and Kailua Streams, above Koolau ditch east of Puohokamoa and below Koolau ditch west of Puohokamoa. About 4 mgd is diverted from Spreckels ditch to East Maui Irrigation Co.'s hydroelectric plant at Kolea Gulch. Water used for irrigation in central Maui.

Revisions (fiscal years).--WSP 770: 1932-33.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.5	59	10.6	14.5	8.0	7.8	6.8	27	13.1	74	8.9	3.6
2	30.5	29.5	21	5.85	6.6	13.4	4.9	13.4	9.4	51	10.8	5.3
3	32.5	27	17.8	3.2	6.0	16.5	4.0	7.6	7.3	23.5	8.8	3.85
4	14.3	16.3	14.3	2.15	7.7	9.5	3.2	6.4	8.5	12.7	9.5	2.8
5	7.6	44	13.2	1.45	6.6	13.2	2.4	5.9	11.4	8.3	9.3	7.0
6	20.5	37.5	28	1.28	6.8	24.5	7.8	3.9	21.5	7.5	30	5.0
7	17.0	58	16.2	1.36	23	13.7	6.5	5.9	9.4	17.9	49	17.2
8	27.5	54	10.4	.72	9.3	6.9	4.5	6.5	9.3	59	56	6.3
9	38	31	7.3	.42	39	17.3	2.75	3.35	6.0	47	23	2.75
10	38	20.5	6.0	.42	35	47	1.85	2.5	4.9	45	25.5	11.4
11	28.5	14.8	5.1	3.5	17.6	28.5	1.36	2.15	4.7	22	12.5	13.9
12	42	11.8	5.9	5.2	16.9	46	.98	11.0	47	10.8	14.4	6.7
13	36	12.3	4.4	19.8	9.2	22	28	28.5	52	7.8	15.0	12.7
14	32.5	15.1	3.5	29	7.1	15.2	22	6.9	28	6.4	27	25.5
15	40	28.5	2.8	57	5.3	16.2	10.8	5.3	11.4	5.1	35	7.9
16	66	15.6	3.05	49	4.7	21	*8.6	3.75	16.2	4.4	22.5	7.5
17	74	9.5	4.6	*33	27	15.2	7.9	2.8	14.9	4.9	11.0	5.3
18	58	8.9	30	35.5	44	16.5	65	69	11.3	15.3	10.9	3.75
19	28	6.0	20.5	20	61	28.5	13.1	74	23.5	36	7.6	3.05
20	34	10.1	21.5	37.5	16.6	17.2	8.0	70	37	31	6.2	2.5
21	25.5	19.3	13.9	52	31.5	10.7	5.5	76	11.9	*18.3	*5.3	2.3
22	19.2	34.5	6.4	63	17.9	10.2	4.6	34.5	7.8	10.3	18.8	1.95
23	15.3	12.0	4.7	46	10.1	14.4	8.7	18.0	6.0	7.8	12.4	1.45
24	43	38	4.6	27	9.2	12.7	9.1	30	5.9	7.3	9.3	1.20
25	50	49	4.5	14.3	6.4	11.7	4.7	24.5	8.5	5.8	9.1	1.36
26	29	21.5	13.3	11.4	5.1	11.3	3.35	38.5	5.5	4.7	9.0	.84
27	16.5	26.5	7.5	9.5	7.4	15.4	2.8	35.5	4.6	4.2	5.7	.46
28	11.8	*31	4.4	42	6.7	7.1	4.8	22	4.2	4.4	3.9	.34
29	19.7	15.2	2.9	32	4.6	7.8	4.8	-	18.5	7.0	6.3	.63
30	13.4	10.7	2.4	12.5	3.35	23.5	5.0	-	10.0	12.6	14.2	3.4
31	12.4	8.0	-	9.5	-	13.0	23	-	15.5	-	4.4	-
Total	931.2	775.1	311.25	637.85	459.65	533.9	286.99	632.85	445.8	582.0	491.3	147.93
Mean:	30.0	25.0	10.4	20.6	15.3	17.2	9.26	22.6	14.4	19.4	15.8	4.93
cfs	46.4	38.7	16.1	31.9	23.7	26.6	14.3	35.0	22.3	30.0	24.4	7.63
Ac-ft	2,860	2,380	955	1,960	1,410	1,640	881	1,940	1,370	1,790	1,510	454
Fiscal year 1958: Max 75 Min 0.36 Mean(mgd) 16.5 Mean(cfs) 25.5 Ac-ft 18,480												
Fiscal year 1958-59: Max 76 Min 0.34 Mean(mgd) 17.1 Mean(cfs) 26.5 Ac-ft 19,180												

* Discharge measurement made on this day.

f Fragmentary gage-height record; discharge computed on basis of partly estimated gage heights.

5410. Koolau ditch at Haipuaena, near Huelo

Location.--Lat 20°51'17", long 156°11'19", on right bank 1,000 ft upstream from intake at Puohokamoa Stream, 3.3 miles southeast of Kailua, and 4.5 miles southeast of Huelo Church.

Records available.--April 1932 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Altitude of gage is 1,240 ft (from topographic map). Prior to Mar. 21, 1933, at datum 1.94 ft lower and Mar. 21, 1933, to Mar. 20, 1935, at datum 0.25 ft lower than present datum.

Average discharge.--27 years, 79.8 mgd (123 cfs).

Extremes.--1932-59: Maximum daily discharge, 193 mgd (299 cfs) Jan. 17, 1946; no flow Feb. 14-28, Mar. 7-18, 1933, Feb. 26 to Mar. 22, 1935.

Remarks.--Records good. Flow regulated by floodgates. Water used for domestic supply and and irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	68	171	76	74	72	58	25	146	99	176	50	41
2	137	162	132	42	63	84	32.5	94	76	176	46	48
3	123	162	136	41	57	108	39	55	67	139	52	41
4	75	118	114	39	67	82	37	52	76	125	58	37
5	52	183	90	35.5	59	81	35.5	52	88	89	59	48
6	95	165	155	37	59	135	42	44	127	78	162	45
7	83	166	108	37	111	78	37	68	76	110	169	97
8	126	178	76	34	72	55	37	66	67	176	176	50
9	160	156	67	32.5	169	71	35.5	44	59	169	146	41
10	162	108	59	31	169	176	32.5	39	52	169	144	37
11	155	99	55	37	133	144	31	41	52	149	85	40
12	169	89	59	50	127	165	29.5	73	146	108	80	51
13	162	83	52	91	85	104	101	150	176	94	79	67
14	162	94	50	155	82	61	134	57	169	80	123	108
15	169	135	48	176	67	63	96	42	131	67	150	52
16	183	92	46	*170	59	93	80	46	112	63	120	59
17	176	72	52	159	145	59	120	41	94	*63	72	42
18	176	67	125	162	176	72	176	174	85	84	78	37
19	155	59	119	120	176	132	104	183	132	162	59	35.5
20	154	78	122	134	118	65	55	183	155	162	52	34
21	140	118	85	176	148	41	46	183	94	123	50	34
22	114	157	59	183	94	41	42	176	76	85	89	32.5
23	94	85	52	176	76	43	67	169	63	72	66	31
24	152	144	52	169	72	43	76	169	63	67	69	29.5
25	173	176	50	118	59	37	50	155	85	59	63	29.5
26	144	149	76	94	55	35.5	42	149	63	52	52	28
27	103	157	61	67	68	57	41	149	52	52	48	26.5
28	60	170	48	139	66	31	43	143	50	48	42	26.5
29	106	113	44	176	50	29.5	39	-	111	52	51	28
30	76	89	41	128	46	40	39	-	76	67	77	35
31	72	76	-----	85	-----	28	94	-----	76	-----	44	-----
Total	3,996	3,868	2,309	2,168.0	2,800	2,312.0	1,858.5	2,943	2,848	3,114	2,611	1,311.0
Mean:												
mgd	129	125	77.0	102	93.3	74.6	60.0	105	91.9	104	84.2	43.7
cfs	200	193	119	158	144	115	92.8	162	142	161	130	67.6
Ac-ft	12,260	11,870	7,090	9,720	8,590	7,100	5,700	9,030	8,740	9,560	8,010	4,020
Calendar year 1958: Max	183			Min 5.8			Mean(mgd) 82.8		Mean(cfs) 128		Ac-ft 92,730	
Fiscal year 1958-59: Max	183			Min 25			Mean(mgd) 90.8		Mean(cfs) 140		Ac-ft 101,700	

* Discharge measurement made on this day.

5415 (revised). Manuel Luis ditch at Puohokamoa Gulch, near Huelo

Location.--Lat 20°51'48", long 156°11'00", on right bank at lower portal of tunnel between Haipuana and Puohokamoa Streams, 2.2 miles west of Keanae, 3 miles southeast of Kailua, and 4.4 miles southeast of Huelo.

Records available.--December 1917 to June 1959.

Gage.--Water-stage recorder and sharp-crested weir. Altitude of gage is 920 ft (from topographic map).

Average discharge.--40 years (1918-24, 1925-59), 5.67 mgd (8.77 cfs).

Extremes.--1917-59: Maximum daily discharge, 68 mgd (105 cfs) for one or more days in 1938, 1941, 1942, 1947, 1948, 1950, 1956; no flow at times.

Remarks.--Records good. Ditch is extension of Center ditch and picks up water from streams between the Kolea and Waikamoi Streams. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1	1.71	29.5	2.55	4.8	2.35	2.85	1.53	10.7	2.55	42	1.24	0.68	
2	9.2	11.2	7.2	1.08	1.99	3.15	1.31	3.35	1.80	43	1.23	.68	
3	7.7	10.0	4.6	.85	1.70	4.2	1.23	2.1	1.53	6.1	1.18	.68	
4	2.7	4.4	4.2	.74	1.80	2.25	1.08	1.80	1.61	2.65	1.26	.62	
5	1.70	16.4	4.0	.68	1.46	6.2	1.00	1.53	1.70	1.89	1.73	.85	
6	3.2	17.2	13.4	.68	1.46	8.4	1.41	1.31	3.3	6.2	6.4	.74	
7	2.9	36	4.4	.74	12.2	3.3	1.44	1.46	1.38	7.5	9.3	3.5	
8	5.5	38	2.65	.62	2.55	1.89	1.08	1.39	1.44	41	13.1	.85	
9	13.4	11.7	2.35	.56	1.0	5.2	.93	1.00	.93	29	3.65	1.22	
10	9.1	5.4	1.89	.51	12.2	20.5	.85	.85	.85	27.5	4.7	1.33	
11	5.9	3.45	1.70	.76	5.1	7.1	.79	.79	.79	6.8	1.61	1.89	
12	14.4	2.45	1.61	.82	6.2	13.0	.74	5.0	14.4	3.5	1.61	4.9	
13	11.6	1.70	1.38	2.85	3.1	6.7	14.1	9.2	31.5	2.55	1.61	2.1	
14	8.6	1.99	1.23	6.9	2.65	4.1	5.1	1.7	13.7	1.99	3.2	4.2	
15	12.2	6.3	1.15	28.5	1.99	5.0	2.05	1.00	3.85	1.70	6.6	2.55	
16	4.4	2.4	1.08	*20	1.70	8.6	1.46	.93	3.3	1.46	4.1	2.2	
17	42	1.61	1.08	6.2	6.0	3.9	2.4	.79	2.9	1.35	1.38	.74	
18	33	1.89	6.0	6.8	18.0	5.5	4.5	45	2.15	6.1	2.6	.62	
19	9.3	1.46	3.6	3.6	33.5	13.5	4.5	44	4.3	18.6	1.08	.56	
20	13.0	1.70	4.4	22.5	4.2	4.8	2.25	37	10.6	9.7	.85	.56	
21	6.8	3.1	2.75	14.9	14.1	2.75	1.70	58	2.25	4.5	.79	.56	
22	4.7	13.8	1.38	41	4.4	2.55	2.45	14.0	1.61	2.55	3.95	.51	
23	3.65	2.1	1.15	32	3.1	3.45	2.85	8.4	1.31	1.99	2.15	.51	
24	19.9	21	1.08	14.8	2.65	2.9	1.99	9.8	1.23	1.61	1.33	.45	
25	17.0	25	1.08	5.7	1.99	2.6	1.53	5.5	1.46	1.46	1.28	.45	
26	8.8	5.7	2.5	4.6	1.61	2.7	1.31	11.8	1.23	1.23	1.15	.39	
27	4.3	10.8	1.54	2.75	1.74	4.4	1.18	*6.5	1.00	1.23	.85	.39	
28	3.05	16.8	1.00	31.5	1.65	1.80	1.83	4.2	.93	1.08	.74	.34	
29	4.8	4.5	.85	21.5	1.23	2.05	2.45	-	4.1	1.15	.93	.28	
30	2.75	3.1	.79	5.1	1.08	4.9	3.05	-----	1.93	1.77	2.65	.50	
31	2.45	2.25	-----	3.1	-----	2.5	14.8	-----	1.84	-----	.79	-----	
Total	326.31	310.70	84.39	287.14	167.70	162.74	125.39	288.67	123.47	285.16	85.04	35.85	
Mean:													
mgd	10.5	10.0	2.81	9.26	5.59	5.25	4.04	10.3	3.98	9.51	2.74	1.20	
cfs	16.2	15.5	4.35	14.3	8.65	8.12	6.25	15.9	6.16	14.7	4.24	1.86	
Ac-ft	1,000	954	259	881	515	499	385	886	379	875	261	110	
Calendar year 1958: Max	48				0.28		Mean(mgd)	5.66		Mean(cfs)	8.78	Ac-ft	6,340
Fiscal year 1958-59: Max	58				0.28		Mean(mgd)	6.25		Mean(cfs)	9.67	Ac-ft	7,000

* Discharge measurement made on this day.

5528. Waikamoi Stream above reservoir at Kula pipeline intake, near Olinda

Location.--Lat 20°48'25", long 156°14'00", on left bank 1,500 ft upstream from Kula pipeline at Waikamoi intake and 3.0 miles east of Olinda.

Drainage area.--2.49 sq mi.

Records available.--July 1954 to June 1959. Prior to July 1956 published as Waikamoi Stream above reservoir at Kula pipeline intake, near Olinda.

Gage.--Water-stage recorder and concrete control. Datum of gage is 4,487 ft above mean sea level (levels by Maui County Waterworks).

Average discharge.--5 years, 1.85 mgd (2.86 cfs).

Extremes.--Maximum discharge during year, 1,210 mgd (1,870 cfs) Jan. 17 (gage height, 7.02 ft), from rating curve extended above 6.4 mgd on basis of computation of flow over dam; minimum, 0.01 mgd (0.02 cfs) June 22, 23.
1953-59: Maximum discharge, 1,680 mgd (2,600 cfs) Dec. 10, 1954 (gage height, 8.16 ft), from rating curve extended above 6.4 mgd on basis of computation of flow over dam; no flow at times.

Remarks.--Records good except those above 10 mgd, which are fair.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.0	0	1.0	6.2
.1	.01	1.2	12.5
.2	.05	1.5	25
.3	.14	2.0	56
.4	.28	2.5	100
.6	.74	3.0	160
.8	1.70	3.5	235

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.04	13.7	0.04	0.03	0.10	0.04	0.31	1.82	0.37	20.5	0.11	0.04
2	.28	4.5	.60	.05	.08	.18	.13	.43	.22	17.3	0.77	.03
3	3.95	1.24	.58	.05	.07	.11	.08	.18	.12	1.72	.43	.03
4	.64	.55	.40	.04	.07	.08	.07	.11	.10	.48	.23	*.03
5	.15	3.1	.43	.03	.08	1.28	.05	.12	.09	.25	.12	.03
6	.15	1.22	.69	.03	.08	1.64	.11	.08	.31	.11	.70	.03
7	.14	95	.50	.04	.07	.65	.12	.08	.23	.14	5.6	.08
8	.70	13.8	.18	.03	.08	.23	.11	.08	.08	3.15	7.4	.04
9	1.91	1.72	.08	.03	.33	.20	.08	.06	.05	3.45	1.10	.03
10	1.61	.55	.05	.03	.43	2.6	.05	.05	.04	5.5	1.05	.03
11	.89	.31	.04	.04	.16	1.58	.05	.04	.04	.89	.37	.03
12	2.2	.18	.04	.05	.12	3.9	.04	.42	4.0	.37	.31	.04
13	.48	.11	.04	.16	.08	.45	26.5	5.2	2.7	.19	.28	.05
14	.74	.07	.04	.48	.08	.23	2.95	.69	1.10	.11	.41	.05
15	1.42	.07	.03	5.4	.05	.12	.57	.26	.48	.07	1.75	.04
16	16.0	.07	.04	5.9	.05	*.11	.31	.14	.20	.04	.33	.04
17	18.4	.05	.04	2.4	.39	.14	53	.09	.11	.04	.14	.03
18	5.5	.04	1.23	2.0	2.1	.12	164	9.3	.11	.27	.09	.02
19	.93	.03	.48	.55	3.85	.33	4.3	16.2	.11	1.14	.07	.02
20	1.03	.04	.31	3.4	.48	.35	.60	25.2	1.37	.54	.05	.02
21	.69	.10	.23	5.2	2.5	.13	.25	18.0	.23	.25	.05	.02
22	*.41	.12	.09	17.0	1.01	.08	.13	1.50	.09	.11	.08	.01
23	.35	.07	.08	36	.33	.05	.12	3.3	.07	.08	.11	.01
24	2.7	.24	.04	6.5	.25	.05	.14	5.5	.05	.05	.08	.03
25	4.0	1.24	.04	.86	.11	.05	.07	4.1	.04	.04	.09	.03
26	1.34	.31	.05	.43	.07	.06	*.05	2.15	.04	.05	.10	.03
27	.37	.16	.05	.25	.05	.07	.06	3.85	.03	.04	.07	.03
28	.16	.28	.04	1.02	.04	.05	.07	.74	.03	.04	.05	.03
29	.20	.12	.04	1.47	.38	.13	.12	-	.09	*.04	.04	.03
30	.25	.07	.04	*.47	.03	1.83	.12	-----	.13	.08	.05	.03
31	.25	.04	-----	.20	-----	1.14	.89	-----	1.69	-----	.04	-----
Total	65.88	139.10	6.52	87.98	13.18	17.98	255.45	99.09	14.32	57.04	22.07	0.96
Mean:												
mgd	2.13	4.49	0.217	2.84	0.439	0.580	8.24	3.54	0.462	1.90	0.712	0.032
cfs	3.30	6.95	0.336	4.59	0.679	0.897	12.7	5.48	0.715	2.94	1.10	0.050
Ac-ft	202	427	20	270	40	55	784	304	44	175	68	2.9
Calendar year 1958:	Max 95	Min 0.01	Mean(mgd) 1.23	Mean(cfs) 1.90	Ac-ft 1,370							
Fiscal year 1958-59:	Max 164	Min 0.01	Mean(mgd) 2.14	Mean(cfs) 3.31	Ac-ft 2,390							
Peak discharge (base, 130 mgd).--Aug. 7 (2 p.m.) 509 mgd (788 cfs), 4.83 ft; Oct. 23 (6:30 p.m.) 183 mgd (283 cfs), 3.16 ft; Jan. 13 (3 p.m.) 163 mgd (252 cfs), 3.02 ft; Jan. 17 (11:30 p.m.) 1,210 mgd (1,870 cfs), 7.02 ft.												

* Discharge measurement made on this day.

5650. Kaaiea Gulch near Huelo
(Formerly published as Kaaiea Stream near Huelo)

Location.--Lat 20°52'02", long 156°12'17", on left bank 700 ft upstream from Hamakua ditch trail crossing, 2 miles southeast of Kailua, 3.2 miles southeast of Huelo, and 3.5 miles west of Keanae.

Drainage area.--0.53 sq mi.

Records available.--December 1921 to June 1959. Prior to July 1958 published as Kaaiea Stream near Huelo.

Gage.--Water-stage recorder and concrete weir. Altitude of gage is 1,310 ft (from topographic map). Prior to Aug. 1, 1934, water-stage recorder at site 40 ft downstream at different datum.

Average discharge.--37 years (1922-59), 4.60 mgd (7.12 cfs).

Extremes.--Maximum discharge during year, 260 mgd (402 cfs) Oct. 22 (gage height, 3.39 ft), from rating curve extended above 130 mgd; minimum, 0.50 mgd (0.77 cfs) June 28, 1921-59. Maximum discharge, 2,800 mgd (3,560 cfs) Nov. 18, 1930 (gage height, 7.93 ft, site and datum then in use), from rating curve extended above 50 mgd; minimum, 0.22 mgd (0.34 cfs) June 1, 1945.

Remarks.--Records good. Water used for irrigation in central Maui.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.27	0.8	8.6
.3	.63	1.0	15.3
.4	1.34	1.2	24.5
.5	2.45	1.5	42
.6	4.0	2.0	79

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.4	4.2	2.05	5.1	1.84	3.6	1.73	7.3	2.2	5.4	1.63	0.94
2	12.2	6.9	6.2	1.17	1.53	3.55	1.53	2.6	1.73	4.7	1.17	1.17
3	4.3	7.7	3.7	1.01	1.34	3.7	1.34	1.63	1.43	5.0	1.53	1.09
4	2.2	3.1	3.5	.87	2.2	1.84	1.17	1.43	1.63	2.75	1.63	.87
5	1.53	12.9	3.0	.80	1.43	6.1	1.09	1.17	2.19	1.84	3.35	1.25
6	1.84	14.7	10.9	.74	1.34	6.0	1.34	1.01	3.9	3.0	7.7	1.17
7	2.2	34	3.85	.74	12.0	2.45	1.34	1.01	1.53	5.3	8.5	4.2
8	4.2	21.5	2.05	.68	2.3	1.63	1.73	1.01	2.05	33	10.7	1.43
9	8.8	6.9	1.63	.63	12.8	7.1	1.09	.80	1.25	20	4.0	1.09
10	6.9	3.35	1.34	.63	10.7	18.0	.94	.80	1.09	15.6	4.4	.94
11	4.9	2.3	1.25	.94	4.5	5.5	.87	7.4	1.09	4.9	2.05	1.09
12	12.4	1.84	1.34	.94	4.0	*11.1	.80	5.1	15.1	2.45	1.73	2.05
13	10.1	1.63	1.17	2.05	2.2	6.6	11.6	8.4	28.5	1.84	1.84	2.75
14	7.4	2.85	1.01	6.1	1.95	3.5	4.9	1.34	11.2	1.53	4.5	6.1
15	12.4	9.1	.87	16.6	1.63	5.6	2.05	1.25	3.5	1.34	7.6	1.63
16	36	3.05	.87	10.0	1.34	6.2	1.53	1.09	3.5	1.17	4.4	1.75
17	22	1.84	.94	4.1	5.1	3.35	1.54	.87	3.8	1.09	2.05	1.17
18	22.5	2.05	4.8	5.1	14.3	8.2	28	36.5	2.9	6.9	2.75	1.01
19	5.5	1.34	2.45	3.5	31	16.2	2.75	25	5.0	15.2	1.53	.94
20	9.0	1.53	4.5	13.5	3.5	4.7	1.73	16.7	9.8	7.4	1.25	.87
21	4.3	2.6	2.45	9.2	14.6	2.6	1.43	55	2.45	3.5	1.17	.80
22	3.05	14.3	1.43	55	3.2	2.45	1.56	7.8	1.84	1.95	5.4	.74
23	2.2	2.45	1.17	33	2.6	3.5	*2.6	4.9	1.53	1.63	2.6	.68
24	12.4	17.1	1.09	7.7	2.45	3.3	1.73	6.2	1.54	1.34	1.53	.63
25	12.3	17.9	1.17	4.0	1.63	3.05	1.17	4.6	1.84	1.25	1.34	.63
26	5.6	4.7	3.05	3.7	1.43	3.35	1.01	12.5	1.53	1.17	1.17	.58
27	2.45	9.1	1.53	2.2	1.34	5.2	1.94	4.8	1.09	1.01	1.09	.54
28	1.84	12.5	1.01	25	1.25	2.05	1.34	3.5	1.01	*1.01	.94	.50
29	3.7	3.35	.87	13.2	1.09	2.6	1.25	-	4.8	1.84	1.25	.54
30	*1.90	2.3	.80	3.5	1.01	5.3	1.25	-	2.2	2.3	3.6	.78
31	1.96	1.84	-----	2.3	-----	2.6	17.5	-----	2.65	-----	1.09	-----
Total	240.47	268.72	71.99	234.00	147.60	160.92	100.85	215.05	123.67	249.31	95.50	59.93
Mean:	7.76	8.67	2.40	7.55	4.92	5.19	3.25	7.68	3.99	8.31	3.08	1.33
mgd	12.0	13.4	3.71	11.7	7.61	8.03	5.03	11.9	6.17	12.9	4.77	2.06
cfs	738	825	221	718	453	494	309	660	580	765	293	123
Ac-ft												

Calendar year 1958: Max 55 Min 0.39 Mean(mgd) 4.74 Mean(cfs) 7.33 Ac-ft 5,310
Fiscal year 1958-59: Max 55 Min 0.50 Mean(mgd) 5.34 Mean(cfs) 8.26 Ac-ft 5,980

Peak discharge (base, 250 mgd).--Oct. 22 (10 a.m.) 260 mgd (402 cfs), 3.39 ft.

* Discharge measurement made on this day.

5700. Nailiilihaele Stream near Huelo

Location.--Lat 20°52'28", long 156°13'06", on left bank 200 ft upstream from Wailoa ditch intake, 1,000 ft upstream from New Hamakua ditch trail, 1.5 miles south of Kailua, and 2.4 miles southeast of Huelo Church.

Drainage area.--3.57 sq mi (revised).

Records available.--December 1910 to December 1911, October 1913 to June 1918, August 1919 to June 1959. July to December 1912, at site 700 ft downstream; records not equivalent due to diversion.

Gage.--Water-stage recorder and masonry control. Datum of gage is 1,205 ft above mean sea level (by vertical angles). Dec. 9, 1910, to Dec. 31, 1911, staff gage at site 300 ft downstream at different datum. Oct. 8, 1913, to Mar. 20, 1922, at present site at datum 0.50 ft higher.

Average discharge.--38 years (1920-24, 1925-59), 23.8 mgd (36.8 cfs).

Extremes.--Maximum discharge during year, 1,160 mgd (1,790 cfs) Oct. 22 (gage height, 7.03 ft), from rating curve extended above 400 mgd by logarithmic plotting; minimum, 3.5 mgd (5.4 cfs) June 28, 29.

1910-18, 1919-59: Maximum discharge, 4,140 mgd (6,410 cfs) Nov. 18, 1930 (gage height, 10.74 ft), from rating curve extended above 400 mgd; minimum, 0.45 mgd (0.70 cfs) July 14, 1920.

Remarks.--Records good. Water used for irrigation in central Maui.

Revisions (fiscal years).--WSP 1569: 1925-56.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.9	2.9	3.0	70
2.0	4.9	3.5	135
2.2	10.6	4.0	215
2.4	19.2	4.5	315
2.7	40		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.1	25.6	12.6	26.5	12.6	17.2	11.0	37	15.4	300	9.0	5.9
2	67	48	37.5	7.4	10.6	25	10.0	13.5	12.6	275	7.2	6.6
3	27.5	49	23	6.2	10.0	17.7	9.0	9.0	10.6	39.5	8.0	6.2
4	12.6	21.5	19.6	5.4	13.4	10.6	8.0	8.4	11.0	17.3	9.9	5.2
5	9.6	101	16.3	4.9	9.3	39.5	7.4	7.2	14.6	12.9	19.4	7.4
6	14.6	93	66	4.7	8.4	41	10.1	6.4	28	19.9	56	6.7
7	14.4	216	21	4.7	48	12.9	9.6	6.6	10.3	36.5	69	23
8	30.5	131	12.9	4.3	11.8	9.6	13.8	8.6	13.0	185	91	8.4
9	61	46	10.6	4.1	91	38	8.0	5.6	8.7	108	25	6.2
10	67	23.5	9.6	4.1	69	122	7.2	5.2	7.7	99	31.5	5.2
11	36	17.3	9.0	5.8	20.5	41	6.4	4.9	*7.7	29	13.3	6.1
12	77	14.1	9.0	6.0	21	*95	6.2	30	90	15.9	12.9	10.9
13	63	13.3	7.7	13.5	12.6	34	89	56	156	12.9	13.4	12.0
14	59	15.7	7.2	31.5	11.0	19.8	31	8.4	52	11.0	43	35.5
15	90	45	6.4	11.6	9.6	29	13.4	8.0	20.5	9.6	58	9.0
16	244	17.3	6.4	71	8.7	42	10.0	6.6	21	8.7	33	9.0
17	150	11.4	6.4	28	41	19.2	15.2	5.6	20.5	8.7	12.9	6.6
18	141	11.8	35.5	39	108	46	208	212	16.4	38	15.4	5.9
19	38	9.0	15.4	20	180	89	16.5	179	34	74	10.0	5.4
20	52	11.3	23.5	97	19.2	29.5	11.4	155	69	38	8.7	5.2
21	28.5	17.5	14.2	80	94	16.4	9.6	311	15.9	18.0	8.4	5.2
22	21	85	8.7	298	22	15.9	9.3	61	12.2	11.4	33	4.9
23	16.2	13.3	7.2	185	16.7	18.6	12.5	36.5	10.3	10.0	15.4	4.7
24	72	91	6.9	50	15.6	18.0	10.6	53	9.6	9.3	9.6	4.5
25	78	113	6.9	24.1	11.0	17.1	7.4	35.5	12.6	8.7	8.0	4.3
26	39.5	25.5	15.9	21	9.6	17.6	6.6	96	9.3	7.7	7.4	4.1
27	16.8	53	9.0	14.1	9.0	22.5	6.4	42	7.7	7.2	6.6	3.9
28	13.7	64	6.4	158	8.4	11.8	7.6	25.5	7.4	7.2	6.4	3.7
29	21	*19.0	5.9	76	7.7	13.6	7.2	-	30.5	9.3	7.4	3.7
30	13.6	14.5	5.4	21	7.2	30	6.6	-----	12.6	12.8	14.6	4.8
31	13.3	11.8	-----	15.0	-----	16.4	77	-----	23	-----	6.6	-----
Total	1,599.9	1,656.8	442.1	1,442.3	916.9	974.9	662.0	1,431.5	770.1	1,438.5	670.0	230.2
Mean:	mgd	51.6	53.4	14.7	46.5	30.6	31.4	21.4	51.1	24.8	48.0	21.6
	cfs	79.8	82.6	22.7	71.9	47.3	48.6	33.1	79.1	38.4	74.3	33.4
	Ac-ft	4,910	5,080	1,360	4,430	2,810	2,990	2,030	4,390	2,360	4,410	2,060

Calendar year 1958: Max 298 Min 3.1 Mean(mgd) 29.9 Mean(cfs) 46.3 Ac-ft 33,450
 Fiscal year 1958-59: Max 311 Min 3.7 Mean(mgd) 33.5 Mean(cfs) 51.8 Ac-ft 37,540

Peak discharge (base, 750 mgd, revised).--Aug. 1 (9:30 p.m.) 1,000 mgd (1,550 cfs), 6.63 ft; Aug. 7 (2:30 p.m.) 758 mgd (1,170 cfs), 6.02 ft; Oct. 22 (10 a.m.) 1,160 mgd (1,790 cfs), 7.03 ft; Oct. 23 (6 p.m.) 750 mgd (1,160 cfs), 6.00 ft; Feb. 21 (12 p.m.) 834 mgd (1,290 cfs), 6.21 ft.

* Discharge measurement made on this day.

5850. Hoolawanui Stream near Huelo

Location.--Lat 20°53'15", long 156°14'55", on right bank 250 ft upstream from intake of Wailoa ditch, 2 miles west of Kailua, and 2 miles southwest of Huelo.

Drainage area.--1.34 sq mi.

Records available.--December 1910 to June 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,219.42 ft above mean sea level (East Maui Irrigation Co. bench mark). Prior to June 20, 1914, staff gage at site 180 ft downstream at different datum. June 20, 1914, to Oct. 24, 1933, water-stage recorder at site 80 ft downstream at datum 4.43 ft lower.

Average discharge.--47 years (1911-15, 1916-59), 7.85 mgd (12.1 cfs).

Extremes.--Maximum discharge during year, 546 mgd (845 cfs) Oct. 22 (gage height, 3.23 ft), from rating curve extended above 100 mgd by logarithmic plotting; minimum, 1.02 mgd (1.58 cfs) June 28, 1910-59; Maximum discharge, 3,240 mgd (5,010 cfs) Apr. 27, 1950 (gage height, 5.94 ft), from rating curve extended above 100 mgd by logarithmic plotting; minimum, 0.15 mgd (0.23 cfs) Oct. 25, 1917.

Remarks.--Records good. Water used for irrigation in central Maui.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.59	1.0	19.0
.4	1.39	1.2	31
.5	2.7	1.6	67
.6	4.5	2.0	131
.8	10.7	2.5	260

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.5	102	4.8	4.4	5.5	6.0	3.9	9.5	8.1	128	3.0	2.2
2	9.6	17.1	8.5	2.1	5.0	6.2	3.35	4.5	6.4	132	3.0	2.5
3	9.0	14.6	6.4	1.84	5.2	5.0	3.2	3.35	5.2	17.6	3.0	2.2
4	3.9	9.0	5.2	1.72	5.0	3.5	3.0	3.2	5.2	9.7	2.95	1.97
5	3.2	20.5	4.9	1.60	3.9	17.4	2.85	2.85	5.5	7.2	4.7	2.2
6	3.35	24	11.8	1.49	3.5	10.9	3.5	2.55	7.8	7.3	10.6	2.1
7	3.35	81	5.2	1.39	8.1	5.0	3.0	3.0	4.3	13.3	13.6	4.2
8	5.2	37	4.3	1.29	3.9	4.1	4.5	2.55	5.0	36	20.5	2.2
9	11.7	18.1	3.9	1.19	16.5	10.1	2.7	2.4	3.7	31.5	9.0	1.97
10	14.7	11.8	3.5	1.19	14.2	27.5	2.4	2.25	3.35	27	8.9	*1.72
11	9.2	9.1	3.35	1.39	6.6	*12.8	2.4	2.25	3.2	11.6	5.2	1.72
12	15.1	7.5	3.35	1.29	6.6	26.5	2.25	6.3	14.5	8.5	4.8	2.2
13	14.6	6.4	3.0	1.97	4.5	13.2	25.5	14.4	29	6.8	4.5	2.4
14	14.2	6.1	3.0	4.0	4.1	8.5	11.0	3.2	9.4	5.8	9.5	6.2
15	23.5	10.1	2.7	14.7	3.9	10.1	4.5	3.2	5.5	5.0	14.4	2.1
16	73	6.1	2.55	10.5	3.5	11.2	3.5	3.2	5.8	4.5	10.5	1.97
17	53	4.5	2.4	4.9	7.4	7.2	3.15	2.4	6.5	4.1	5.2	1.60
18	42	4.3	6.2	6.9	20.5	13.2	83	46	5.3	11.2	5.4	1.49
19	15.6	3.9	3.5	4.6	46	19.7	12.2	46	9.4	15.8	3.9	1.49
20	14.5	4.1	4.5	13.0	10.1	9.4	6.8	51	17.3	9.8	3.5	1.39
21	*10.4	5.0	3.7	16.5	23	6.8	5.2	123	5.8	6.1	3.35	1.39
22	8.5	16.1	2.7	114	9.7	6.4	4.3	25.5	5.0	4.8	10.5	1.39
23	6.8	4.3	2.4	41	8.5	6.8	4.5	15.4	4.3	*4.3	5.2	1.29
24	12.8	13.8	2.4	16.4	6.8	6.1	3.9	17.1	4.1	4.1	3.7	1.29
25	14.7	20.5	2.25	10.1	5.2	5.8	3.35	14.6	4.5	3.7	3.35	1.19
26	9.6	7.5	2.85	8.1	4.5	5.2	3.0	27.5	3.7	3.35	3.0	1.19
27	6.8	*11.0	2.25	5.8	4.1	5.0	3.0	16.5	3.2	3.2	2.85	1.10
28	5.8	12.9	1.97	36.5	3.9	3.9	3.2	11.6	3.0	3.2	2.5	1.10
29	7.0	6.8	1.84	18.9	3.5	4.9	3.0	-	7.4	3.35	3.0	1.10
30	5.0	5.5	1.72	9.4	3.2	7.1	2.55	-----	3.9	3.5	3.4	1.29
31	5.0	5.0	-----	6.8	-----	5.0	17.7	-----	4.2	-----	2.4	-----
Total	434.60	505.4	117.13	364.96	256.4	290.5	240.40	463.30	209.55	532.30	189.40	58.15
mgd	14.0	16.3	3.90	11.8	8.55	9.37	7.75	16.5	6.76	17.7	6.11	1.94
cfs	21.7	25.2	6.03	18.3	13.2	14.5	12.0	25.5	10.5	27.4	9.45	3.00
Ac-ft	1,330	1,550	359	1,120	787	892	738	1,420	643	1,630	581	178
Calendar year 1958:	Max 114	Min 1.19	Mean(mgd) 8.17	Mean(cfs) 12.6	Ac-ft 9,150							
Fiscal year 1958-59:	Max 132	Min 1.10	Mean(mgd) 10.0	Mean(cfs) 15.5	Ac-ft 11,230							
Peak discharge (base, 400 mgd).--Aug. 1 (9:30 p.m.) 510 mgd (789 cfs), 3.16 ft; Oct. 22 (10 a.m.) 546 mgd (845 cfs), 3.23 ft; Feb. 21 (1 p.m.) 448 mgd (693 cfs), 3.02 ft; Apr. 1 (8 p.m.) 448 mgd (693 cfs), 3.02 ft.												

* Discharge measurement made on this day.

5870. Honopou Stream near Huelo

Location.--Lat 20°53'20", long 156°15'20", on left bank just upstream from Walloa ditch Intake, 2.2 miles southwest of Huelo and 2.5 miles west of Kailua.

Drainage area.--0.64 sq mi.

Records available.--December 1910 to June 1959.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,208 ft above mean sea level (by vertical angles). Prior to June 19, 1914, staff gage at same site and datum.

Average discharge.--46 years (1911-14, 1916-59), 3.09 mgd (4.78 cfs).

Extremes.--Maximum discharge during year, 182 mgd (282 cfs) Oct. 22 (gage height, 3.09 ft), from rating curve extended above 70 mgd by model studies of station site; minimum, 0.42 mgd (0.65 cfs) June 26, 27, 28, 29, 30.

1910-59: Maximum discharge, 3,690 mgd (5,710 cfs) Nov. 18, 1930 (gage height, 7.28 ft), from rating curve extended above 70 mgd by model studies of station site; minimum, 0.01 mgd (0.02 cfs) for several days in 1933, 1934.

Remarks.--Records good. Water used for irrigation in central Maui.

Revisions (fiscal years).--WSP 1219: 1913-50(M). WSP 1249: 1948-50(P). WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.48	1.4	15.7
.6	1.26	1.7	25
.7	2.3	2.0	37
.9	5.0	2.5	68
1.1	8.6		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.46	26.8	2.7	1.71	3.4	3.1	2.05	3.5	3.55	29.5	1.56	1.08
2	3.65	7.6	4.0	.84	3.05	2.7	1.96	2.05	3.2	39	1.46	1.08
3	2.4	5.8	2.8	.68	3.3	2.3	1.86	1.76	2.7	5.0	1.36	1.00
4	1.66	4.1	2.4	.68	3.05	1.76	1.56	1.56	*2.7	5.2	1.26	1.00
5	1.56	7.0	2.3	.60	2.3	8.6	1.66	1.56	2.7	4.1	2.3	1.00
6	1.56	9.0	4.5	.60	2.05	5.3	1.76	1.46	2.8	5.8	3.15	1.00
7	1.56	22.5	2.3	.54	5.0	2.55	1.56	1.46	2.2	9.1	3.85	1.47
8	1.76	14.7	1.96	.54	2.2	2.2	1.80	1.36	2.3	21.5	5.0	.92
9	3.5	8.2	1.76	.54	6.3	4.6	1.46	1.26	1.86	13.1	2.55	.84
10	4.3	6.0	1.66	.48	5.4	*11.7	1.36	1.16	1.76	12.4	2.9	.76
11	2.8	5.0	1.56	.54	3.4	5.8	1.26	1.08	1.66	6.4	1.96	.76
12	4.4	4.1	1.56	.48	3.3	9.3	1.26	3.3	5.7	4.9	1.76	.84
13	4.4	3.7	1.46	.68	2.55	6.5	8.4	6.8	15.3	4.1	1.76	.92
14	4.3	3.3	1.36	1.26	2.4	4.9	6.1	1.56	4.0	3.55	2.2	1.43
15	7.2	4.9	1.26	4.9	2.2	6.3	2.2	1.46	2.8	3.05	3.55	.84
16	23	3.2	1.26	2.8	2.05	5.3	1.86	1.46	2.8	2.7	2.7	.76
17	23	2.55	1.16	1.26	2.55	4.0	1.80	1.26	2.9	2.4	1.76	.68
18	16.0	2.3	2.3	1.56	5.6	6.9	27.5	17.2	2.3	5.3	2.4	.60
19	8.2	2.05	1.26	1.56	18.8	12.6	4.9	11.8	3.3	7.8	1.76	.60
20	7.3	2.05	1.56	3.2	4.6	5.7	3.55	10.4	6.9	4.4	1.66	.60
21	5.2	2.2	1.36	2.68	8.5	4.6	2.9	31	2.7	3.3	1.56	.60
22	4.4	11.9	1.08	36.5	4.4	4.1	2.55	9.6	2.4	2.8	5.0	.54
23	3.85	2.05	1.00	14.2	4.0	4.1	2.55	6.4	2.2	2.7	2.05	.54
24	5.2	6.5	.92	7.0	3.55	3.55	2.05	6.1	2.2	2.3	1.66	.48
25	6.6	9.4	1.00	4.9	2.9	3.4	1.96	4.9	2.3	2.2	1.56	.48
26	4.1	3.7	1.00	4.3	2.7	3.3	1.76	7.8	1.96	2.05	1.46	.48
27	4.2	5.4	.92	5.4	2.4	2.9	1.66	4.7	1.66	1.86	1.36	.48
28	2.9	6.1	.84	14.5	2.3	2.4	1.66	4.3	1.66	1.76	1.26	.48
29	3.45	3.4	.76	8.7	2.05	2.95	1.66	-	3.0	1.76	1.36	.48
30	2.7	3.05	.76	4.9	1.86	3.85	1.46	-----	1.76	1.66	1.46	.54
31	2.55	2.8	-----	4.0	-----	2.4	8.6	-----	1.66	-----	1.16	-----
Total	168.16	201.05	50.76	130.53	118.16	149.66	104.97	148.25	94.93	214.69	66.79	23.28
Mean:	mgd	5.42	6.49	1.69	4.21	3.94	4.83	3.39	5.29	3.06	7.16	2.15
	cfs	8.39	10.0	2.61	6.51	6.10	7.47	5.25	8.18	4.73	11.1	3.33
	Ac-ft	516	617	156	401	363	459	322	455	291	659	205
												71
Calendar year 1958:	Max	36.5	Min	0.48	Mean(mgd)	3.38	Mean(cfs)	5.23	Ac-ft	3,790		
Fiscal year 1958-59:	Max	39	Min	0.48	Mean(mgd)	4.03	Mean(cfs)	6.24	Ac-ft	4,520		

Peak discharge (base, 130 mgd).--Oct. 22 (9 a.m.) 182 mgd (282 cfs), 3.09 ft; Mar. 13 (4:30 p.m.) 140 mgd (217 cfs), 2.94 ft.

* Discharge measurement made on this day.

ISLAND OF MAUI

5880. Wailoa ditch at Honopou, near Huelo

Location.--Lat 20°53'20", long 156°15'19", on right bank 100 ft downstream from intake at Honopou Stream, 0.5 mile west of Lupi, 2.2 miles southwest of Huelo, and 2.5 miles west of Kailua.

Records available.--November 1922 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 1,208 ft above mean sea level (by vertical angles).

Average discharge.--36 years (1923-59), 113 mgd (175 cfs),

Extremes.--1922-59: Maximum daily discharge, 195 mgd (302 cfs) for several days in 1954-56; no flow Jan. 24-27, 1923.

Remarks.--Records good except those for period of no gage-height record and those above 180 mgd, which are fair. Wailoa ditch receives water from Koolau ditch at Alo Stream and from all streams west to Halehaku Gulch at altitude of about 1,200 ft. Water used for irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	125	186	140	130	136	105	82	172	168	186	98	72
2	*188	186	180	76	120	158	79	152	148	186	98	79
3	186	188	188	69	112	172	79	104	128	188	103	72
4	147	187	180	63	133	136	76	93	*135	188	103	66
5	101	186	156	59	108	123	72	90	153	160	111	86
6	156	188	188	56	104	186	90	76	186	144	188	75
7	152	188	180	59	160	160	94	99	136	188	188	153
8	175	186	144	53	132	112	92	105	134	186	188	93
9	188	188	124	50	188	153	72	72	101	186	188	69
10	188	183	108	47	188	162	66	66	93	186	188	*63
11	188	172	101	63	186	132	59	66	86	188	156	66
12	188	168	101	72	186	132	56	106	168	183	148	102
13	188	156	90	156	152	130	120	124	188	164	144	122
14	188	168	82	186	140	125	118	86	188	144	186	168
15	186	188	79	188	116	130	93	86	183	120	188	97
16	180	168	76	188	104	180	90	79	180	108	183	101
17	186	136	82	186	175	160	90	72	172	104	132	72
18	186	128	168	188	188	180	97	73	157	132	144	66
19	186	108	172	180	188	180	90	29	181	188	104	59
20	188	126	180	175	186	180	86	29	188	188	90	59
21	188	176	157	188	188	130	*84	60	172	183	82	56
22	186	184	101	187	183	120	79	72	140	148	162	53
23	172	156	86	188	180	140	86	108	118	128	146	50
24	188	188	86	188	152	130	86	143	108	116	112	50
25	188	188	82	186	120	110	82	148	144	104	109	50
26	188	188	118	180	108	120	72	152	112	93	97	47
27	180	188	109	144	116	140	69	148	93	86	86	44
28	156	188	79	165	114	90	72	148	86	82	79	41
29	180	183	72	188	90	80	72	-	161	97	86	44
30	152	164	66	188	82	170	79	-	141	125	147	57
31	142	140	-----	164	-----	*121	112	-----	119	-----	79	-----
Total	5,390	5,307	3,675	4,210	4,315	4,347	2,594	2,758	4,465	4,479	4,135	2,232
Mean:												
mgd	174	171	122	136	144	140	83.7	98.5	144	149	133	74.4
cfs	269	265	189	210	225	217	130	152	223	231	208	115
Ac-ft	16,540	16,290	11,280	12,920	13,240	13,340	7,960	8,460	13,700	13,750	12,690	6,850
Calendar year 1958: Max	188			Min 29.5	Mean(mgd)	127	Mean(cfs)	196	Ac-ft	142,700		
Fiscal year 1958-59: Max	188			Min 29	Mean(mgd)	131	Mean(cfs)	203	Ac-ft	147,000		

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 13-30; discharge estimated on basis of twice-daily gage readings by East Maui Irrigation Co. and records for nearby stations.

5890. New Hamakua ditch at Honopou, near Huelo

Location.--Lat 20°53'28", long 156°15'22", on right bank 15 ft upstream from tunnel portal, 600 ft downstream from Honopou Stream crossing, 2.1 miles southwest of Huelo, and 2.5 miles west of Kailua.

Records available.--January 1918 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 1,170 ft above mean sea level (by vertical angles). Prior to May 15, 1921, at site 300 ft upstream at different datum.

Average discharge.--41 years, 25.6 mgd (39.6 cfs).

Extremes.--1918-59: Maximum daily discharge, 116 mgd (179 cfs) Feb. 13, 14, 27, 1932; no flow at times.

Remarks.--Records good except those for period of no gage-height record and those below 0.1 mgd, which are fair. Ditch diverts water from streams between Waikamoi Stream and Halehaku Gulch above Center and Lowrie ditches. Flow regulated by gates and spillways. Water used for irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.48	78	3.35	28	4.0	9.4	1.9	20.5	26.5	29.5	0.17	0.13
2	69	90	48	.88	3.15	26.5	1.7	12.4	6.4	32	.17	.14
3	71	90	*64	.66	3.3	22	1.6	5.8	2.1	.67	.17	.64
4	23.5	*52	37	.62	3.9	14.4	1.5	4.3	2.05	.24	.08	1.01
5	1.41	92	13.6	.58	2.45	9.4	1.3	3.9	5.5	.21	.06	.77
6	20	94	90	.55	1.90	3.35	1.3	3.4	36	1.86	.06	.66
7	11.2	90	52	.51	46	.36	2.0	2.45	3.05	3.2	.05	22.5
8	35.5	92	3.15	.47	3.95	.32	1.7	3.15	4.5	7.6	.06	1.09
9	90	90	2.55	.43	77	.28	1.2	1.20	1.20	4.1	.03	.77
10	90	70	2.15	.39	90	.26	1.1	1.09	1.15	2.7	.03	.62
11	88	31.5	1.99	.47	59	.24	1.0	1.04	1.09	.61	.02	.58
12	90	8.7	1.90	.47	67	.21	.95	18.5	51	.36	.02	1.22
13	90	3.15	1.69	10.5	8.2	.21	.91	29.5	20	.32	.02	1.26
14	90	13.8	1.55	67	5.4	.21	.85	.47	.06	.28	.03	36
15	92	72	1.34	92	3.1	10.7	.77	.43	.06	.26	.04	.77
16	92	26.5	1.87	92	2.25	22	.77	2.25	.06	.24	.04	.66
17	92	2.7	1.20	80	46	13.5	.71	1.48	.06	.21	.04	.55
18	92	2.6	52	88	92	19.8	.50	9.6	.06	.95	.04	.47
19	90	1.99	29.5	55	94	9.5	.40	.47	1.32	1.90	.04	.47
20	86	2.05	45	50	61	5.6	.36	.43	2.8	.40	.03	.43
21	80	35.5	19.8	94	83	7.3	.32	.40	.36	.24	.03	.43
22	51	73	1.20	94	59	3.8	.28	.26	.24	.21	.10	.39
23	12.2	11.0	1.04	96	10.1	10	.28	.26	.21	.21	.03	.39
24	65	51	.88	94	11.4	5	.28	.28	.21	.21	.03	.39
25	88	92	.82	70	2.8	2.8	.28	.28	.26	.21	.03	.36
26	82	78	16.7	34.5	2.55	4.6	.28	.28	.28	.19	.03	.36
27	31.5	80	3.05	4.4	2.15	6.8	.28	.28	.32	.19	.03	.32
28	5.6	88	.93	54	2.25	2.3	.28	.28	.28	.19	.01	.32
29	37.5	42	.71	98	1.83	2.0	-	-	.36	.19	.02	.36
30	4.6	9.5	.66	64	1.62	22	.28	-----	.24	.19	.04	.36
31	2.35	3.05	-----	10.6	-----	4.5	25	-----	.17	-----	.04	-----
Total	1,774.84	1,566.04	497.63	1,280.03	852.30	239.34	50.34	124.66	167.89	89.62	1.59	74.42
Mean:												
mgd	57.3	50.5	16.6	41.3	28.4	7.72	1.62	4.45	5.42	2.99	0.051	2.48
cfs	88.7	78.1	25.7	63.9	43.9	11.9	2.51	6.89	8.39	4.63	0.079	3.84
Ac-ft	5,450	4,810	1,530	3,930	2,620	735	154	383	515	275	4.9	228

Calendar year 1958: Max 96 Min 0.06 Mean(mgd) 26.2 Mean(cfs) 40.5 Ac-ft 29,410

Fiscal year 1958-59: Max 96 Min 0.01 Mean(mgd) 16.4 Mean(cfs) 28.5 Ac-ft 20,830

* Discharge measurement made on this day.

Note.--No gage-height record Dec. 22 to Jan. 20; discharge estimated on basis of twice-daily gage readings by East Maui Irrigation Co.

5900. Old Hamakua ditch at Honopou, near Huelo

Location.--Lat 20°53'31", long 156°15'16", on right bank 400 ft downstream from Honopou Stream and Wailoa ditch trail crossing in Honopou Gulch, 2.0 miles southwest of Huelo, 2.5 miles west of Kailua, and 5.0 miles east of Haiku.

Records available.--January 1918 to June 1922, November 1936 to June 1959.

Gage.--Water-stage recorder and modified Parshall flume. Datum of gage is 1.117 ft above mean sea level (by vertical angles).

Average discharge.--26 years (1918-22, 1937-59), 2.28 mgd (3.53 cfs).

Extremes.--1918-22, 1936-59: Maximum daily discharge, 39.5 mgd (61.1 cfs) Apr. 7, 1938; no flow at times.

Remarks.--Records good. Wailoa and New Hamakua ditches divert most of flow above this station. Water used for irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.06	13.8	0.10	0.19	0.13	0.10	0.02	0.05	0.23	21.5	3.25	1.04
2	*3.4	17.3	2.1	.08	.10	.07	.02	.05	.13	21.5	2.9	.98
3	3.85	16.7	.32	.06	.10	.06	.02	.05	.10	21	3.15	.85
4	.22	.49	.18	.05	.12	.05	.02	.05	.08	20	5.0	.13
5	.08	16.3	.15	.05	.08	.09	.02	.05	.08	7.1	5.0	.10
6	.07	16.8	6.6	.05	.07	.06	.02	.04	5.4	4.9	21	.08
7	.07	14.8	.44	.05	.10	.05	.03	.05	.13	21	21	.13
8	1.15	18.2	.12	.05	.06	.05	.03	.04	.08	22.5	21	.08
9	10.4	17.3	.08	.05	.07	.07	.03	.04	.07	21.5	21	.06
10	11.2	6.7	.07	.05	2.9	.08	.03	.05	.06	21.5	21	.06
11	5.1	2.15	.06	.05	.38	.05	.03	.05	.06	21	10.7	.05
12	14.0	.16	.06	.05	1.89	.05	.02	.08	13.7	19.0	6.9	.05
13	13.5	.12	.05	.06	.15	.05	.05	.10	22	8.3	13.2	.05
14	14.9	.12	.05	.36	.12	.05	.05	.06	21	4.0	19.9	.12
15	17.3	5.1	.05	11.9	.10	.05	.04	.06	19.0	3.05	21	.08
16	19.9	.19	.05	8.5	.08	.04	.04	.06	16.2	2.6	19.9	.07
17	19.0	.12	.05	.56	3.75	.03	.04	.05	15.6	2.3	14.0	.06
18	19.0	.08	2.05	2.85	15.3	.03	.19	.12	9.1	6.7	17.0	.05
19	17.3	.07	.12	.23	6.6	.05	.12	.07	16.5	21	11.1	.05
20	9.8	.07	.14	6.2	.07	.04	.07	.06	21	*21	9.8	.05
21	7.6	.08	.12	12.9	.07	.03	.04	.11	13.9	19.9	9.2	.05
22	.28	6.7	.07	7.7	.06	.02	.03	.05	1.77	8.0	20	.05
23	.15	.13	.05	.08	.06	.03	.04	.05	1.43	5.4	17.3	.05
24	7.7	8.8	.05	.04	.12	.02	.03	.05	1.22	4.7	11.1	.05
25	16.6	15.8	.05	.03	.12	.02	.03	.05	1.29	4.3	7.6	.05
26	10.0	1.81	.05	.02	.10	.02	.03	.07	1.50	3.8	1.43	.05
27	.19	3.85	.05	.06	.08	.02	.04	.06	1.16	3.55	1.29	.05
28	.13	12.7	.04	10.9	.08	.02	.05	.06	1.10	3.25	1.16	.05
29	.22	.22	.04	7.4	.07	.05	.05	-	14.4	3.45	1.16	.05
30	.13	.13	.04	.17	.06	.04	.05	-	5.6	6.0	7.7	.05
31	.10	.10	-----	.16	-----	.03	.07	-----	3.75	-----	1.16	-----
Total	223.40	196.89	13.40	70.90	32.99	1.40	1.35	1.68	207.64	353.80	347.40	4.64
Mean:												
mgd	7.21	6.35	0.447	2.29	1.10	0.045	0.044	0.060	6.70	11.8	11.2	0.155
cfs	11.2	9.82	0.692	3.54	1.70	0.070	0.068	0.093	10.4	18.3	17.3	0.240
Ac-ft	686	604	41	218	101	4.3	4.1	5.2	637	1,090	1,070	14
Calendar year 1958: Max	19.9			Min	0.01	Mean(mgd)	1.50	Mean(cfs)	2.32	Ac-ft	1,680	
Fiscal year 1958-59: Max	22.5			Min	0.02	Mean(mgd)	3.99	Mean(cfs)	6.17	Ac-ft	4,470	

* Discharge measurement made on this day.

5920. Lowrie ditch at Honopou Gulch, near Huelo

Location.--Lat 20°54'57", long 156°15'07", on left bank 0.2 mile downstream from siphon across Honopou Stream, 1.6 miles west of Huelo, and 2.7 miles northwest of Kailua.

Records available.--January 1910 to March 1927, February 1930 to June 1959. Published as "at Opana weir" 1910-27.

Gage.--Water-stage recorder and concrete control. Datum of gage is 598.0 ft above mean sea level, datum of 1929. Jan. 1, 1910, to Mar. 31, 1927, at site 1.5 miles downstream at different datum.

Average discharge.--45 years (1910-26, 1930-59), 27.8 mgd (43.0 cfs).

Extremes.--1910-27, 1930-59: Maximum daily discharge, 75 mgd (116 cfs) Oct. 31, 1921; no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are fair. Lowrie ditch diverts water from all streams between Kailua Stream and Halehuku Gulch. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.8	49	22.5	19.0	28.5	14.4	7.3	0.88	2.2	57	16.6	8.2
2	36	57	38	10.2	24	40	6.9	5.8	2.85	57	11.8	7.6
3	44	55	38.5	10.8	25	22.5	6.5	2.2	5.1	55	11.8	7.4
4	23.5	45	34	7.4	37.5	30	6.3	5.2	5.6	44	10.4	7.3
5	20	52	37.5	6.3	28.5	29.5	5.9	5.4	5.8	15.4	11.0	7.6
6	20	55	52	6.1	22.5	53	6.3	5.2	*18.0	19.0	52	7.4
7	19.0	41	34.5	6.3	37.5	40	6.3	5.0	14.7	50	55	16.4
8	21.5	46	25	5.8	31	a6.1	6.1	5.0	12.3	62	55	8.4
9	52	52	21.5	5.2	43	a6.8	5.6	4.6	8.6	57	50	*11.7
10	52	52	26	5.0	57	a6.5	5.6	5.9	10.2	57	51	10.9
11	48	47	35	5.4	45	3.1	5.0	14.4	9.5	57	14.8	7.6
12	55	37.5	25	5.4	47	2.95	4.6	21	29	50	17.8	11.8
13	55	35	15.2	7.6	37.5	2.7	23	21	50	35	16.6	9.4
14	55	35	14.0	24	32.5	2.45	19.6	4.6	55	27.5	27	18.9
15	57	47	12.8	51	28.5	30	4.1	3.9	44	24	42	8.4
16	80	32.5	12.8	55	21.5	35	3.25	5.4	29.5	21.5	44	14.0
17	60	24	11.3	44	24	15.1	3.1	5.0	23.5	19.0	11.1	13.5
18	57	30	32	49	52	2.7	5.3	14.0	19.1	24	22.5	9.3
19	57	26	20	30.5	57	2.7	1.83	2.7	39	57	16.6	5.6
20	52	21.5	26	31	52	2.3	1.49	2.35	55	57	17.8	5.6
21	*51	20	21.5	52	49	1.96	1.50	6.3	26.5	50	17.8	5.4
22	32.5	44	16.6	57	50	4.6	1.21	1.60	13.7	24	41	5.0
23	25	22.5	13.0	52	28.5	7.8	1.21	1.30	13.0	19.7	20.5	4.6
24	39.5	34.5	13.2	42	35	7.6	1.13	1.21	20	17.8	12.3	4.6
25	57	55	9.9	47	26	7.4	1.13	1.05	21.5	16.6	11.1	4.5
26	55	50	10.6	42	28.5	8.1	1.13	4.4	17.1	15.2	11.7	4.3
27	37.5	*46	10.9	31	28	11.2	1.13	2.6	8.6	16.8	9.0	4.2
28	28.5	57	7.6	37	26	7.8	.89	2.35	8.2	22.5	11.8	4.0
29	39	40	9.0	57	22.5	8.9	.74	-	32.5	20	12.7	4.0
30	32.5	28.5	8.2	52	15.2	10.1	1.00	-----	12.8	20	13.5	5.4
31	42	24	-----	37.5	-----	8.2	.74	-----	11.4	-----	9.3	-----
Total	1,297.3	1,261.0	654.1	891.5	1,038.7	431.46	145.68	154.90	624.25	1,074.8	725.5	243.0
Mean:	mgd	41.8	40.7	21.8	28.8	34.6	13.9	5.53	20.1	35.8	23.4	8.10
	cfs	64.7	63.0	33.7	44.6	53.5	21.5	7.27	8.56	31.1	55.4	36.2
	Ac-ft	3,980	3,870	2,010	2,740	3,190	1,320	447	475	1,920	3,300	2,230
Calendar year 1958:	Max	60	Min	0.19	Mean(mgd)	18.7	Mean(cfs)	28.9	Ac-ft	20,960		
Fiscal year 1958-59:	Max	62	Min	0.56	Mean(mgd)	23.4	Mean(cfs)	36.2	Ac-ft	26,230		

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of twice-daily gage readings by East Maui Irrigation Co.

5940. Haiku ditch at Honopou Gulch, near Kailua

Location.--Lat 20°55'05", long 156°14'55", on right bank of ditch and west side of Honopou Gulch, 160 ft below new Government Road, 2.5 miles northwest of Kailua, and 5 miles east of Haiku.

Records available.--January 1910 to December 1928, February 1930 to June 1959. Published as "at Peahi weir" January 1910 to June 1919, as "at Manawai Gulch" July 1919 to December 1928, and as "at Kapalalaea Gulch" February 1930 to January 1940.

Gage.--Water-stage recorder and concrete control. Datum of gage is 421.54 ft above mean sea level, datum of 1929. Jan. 1, 1910, to Oct. 6, 1914, water-stage recorder at site at Peahi weir on old Haiku ditch at different datum. Oct. 7, 1914, to Dec. 31, 1928, water-stage recorder at site 2.9 miles downstream at different datum. Feb. 19, 1930, to Feb. 20, 1940, water-stage recorder at site 0.9 mile downstream at different datum.

Average discharge.--47 years (1910-28, 1930-59), 20.1 mgd (31.1 cfs).

Extremes.--1910-28, 1930-59: Maximum daily discharge, 135 mgd (209 cfs) Nov. 13, 1934, Jan. 8, 9, Feb. 25-27, 1935, Jan. 27, 1938; no flow at times.

Remarks.--Records good. Haiku ditch diverts water from all streams between Kailua Stream and Maliko Gulch. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June		
1	0.51	45	3.7	2.05	4.9	3.2	11.6	12.3	34.5	63	2.2	0.95		
2	9.7	52	25	.54	4.3	18.8	10.7	8.9	20.5	63	2.1	.90		
3	24.5	60	9.0	.44	4.1	4.6	9.8	17.5	15.0	57	1.94	.90		
4	1.58	7.9	5.2	.37	4.2	6.8	9.4	13.8	14.5	18.5	1.85	.85		
5	.85	54	5.1	.50	3.5	7.3	8.8	12.0	13.2	2.7	1.85	.90		
6	.70	63	46	.30	3.4	3.7	9.0	11.1	*28	9.9	57	.85		
7	.70	47	7.8	.28	31	.16	9.8	10.9	2.9	67	67	2.75		
8	3.05	67	4.2	.24	3.7	.14	8.8	10.9	2.55	67	67	1.22		
9	45	63	3.8	.22	48	.12	7.9	9.6	4.9	67	36.5	1.08		
10	42	27.5	3.7	.22	57	.27	7.7	7.8	2.55	67	50	.75		
11	12.8	10.0	3.5	.20	6.7	.15	6.9	2.45	2.3	63	2.45	.70		
12	50	6.6	3.4	.20	10.8	.20	6.6	6.6	37	21.5	1.78	.95		
13	46	5.9	3.0	.24	3.3	.12	7.9	5.5	63	5.6	1.71	.80		
14	53	5.5	2.9	.44	3.3	.10	.57	.34	63	4.9	6.6	5.3		
15	60	24.5	2.7	47	2.8	.10	24	.28	31.5	4.4	60	.85		
16	67	5.2	2.8	52	2.55	.10	.22	.26	9.7	3.95	37.5	.80		
17	67	4.4	2.55	10.0	3.45	21	.26	.26	4.6	3.6	1.85	.62		
18	67	4.2	10.0	32.5	63	35.5	.90	.78	3.65	11.6	4.2	.58		
19	60	3.7	1.65	21	.99	67	12.4	.24	.85	23	63	1.71		
20	29	3.6	1.43	21	21.5	22	.22	.75	60	67	1.29	.54		
21	*29.5	3.4	1.15	67	49	27.5	.20	1.24	5.9	35.5	1.27	.51		
22	3.6	39.5	.95	67	16.1	30.5	.14	.62	2.1	3.25	25.5	.51		
23	3.0	3.75	.80	49	4.1	31.5	.18	.51	1.94	2.8	3.45	.48		
24	25.5	29.5	.70	43	3.8	21	.20	.48	1.85	2.7	1.85	.48		
25	63	29.5	.65	25	3.3	14.5	.20	.48	1.85	2.6	1.71	.48		
26	45	24.5	.65	7.6	3.2	19.5	11.4	.44	1.78	2.45	1.57	.44		
27	4.4	9.8	.65	5.2	3.0	28	16.0	.44	1.71	2.35	1.22	.44		
28	3.7	61	.54	*25.5	2.9	18.2	19.0	.30	.57	2.3	1.10	.40		
29	4.6	5.9	.48	33.5	2.8	13.9	24	-	21.5	2.3	1.10	.40		
30	3.8	3.8	.44	21.5	2.6	23	30.5	-----	2.45	2.6	1.15	.66		
31	3.6	3.5	-----	5.6	-----	14.2	36	-----	1.78	-----	1.00	-----		
Total	850.09	772.15	152.44	519.43	439.30	376.56	255.37	137.36	481.78	788.50	449.45	27.63		
Mean:	mgd	26.8	24.9	5.08	16.8	14.6	12.1	8.24	4.91	15.5	26.3	14.5		
	cfs	41.5	38.5	7.86	26.0	22.6	18.7	12.7	7.60	24.0	40.7	22.4		
	Ac-ft	2,550	2,370	468	1,590	1,350	1,160	784	422	1,480	2,420	1,380		
Calendar year 1958:	Max	67		Min	0.03			Mean(mgd)	14.2		Mean(cfs)	22.0	Ac-ft	15,940
Fiscal year 1958-59:	Max	67		Min	0.10			Mean(mgd)	14.3		Mean(cfs)	22.1	Ac-ft	16,060

* Discharge measurement made on this day.

6180. Kahakuloa Stream near Honokohau

Location.--Lat 20°58'54", long 156°33'26", on right bank 0.5 mile (revised) downstream from Kapuna Stream, 1.3 miles south of Kahakuloa, 2 miles west of Puu Makawana, and 4.3 miles southeast of Honokohau.

Drainage area.--3.47 sq mi.

Records available.--July 1939 to August 1943, September 1947 to June 1959. Records for January 1913 to December 1914 (fragmentary), at site 1 mile upstream, not equivalent owing to difference in drainage area.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 330 ft (from topographic map).

Average discharge.--14 years (1940-43, 1948-59), 11.5 mgd (17.8 cfs).

Extremes.--Maximum discharge during year, 550 mgd (851 cfs) Jan. 17 (gage height, 6.52 ft), from rating curve extended above 90 mgd on basis of slope-area measurement at gage height 8.35 ft; minimum, 3.8 mgd (5.9 cfs) June 27-29, 1939-43, 1947-59; Maximum discharge, 1,990 mgd (3,080 cfs) Dec. 14, 1942 (gage height, 7.02 ft, control then in use), from rating curve extended above 55 mgd by test on model of station site; minimum, 1.95 mgd (3.02 cfs) Feb. 9-11, 1954.

Remarks.--Records good.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

2.8	2.85	3.6	30
2.9	4.4	4.0	64
3.0	6.5	4.5	125
3.3	15.5	5.0	210

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1	4.3	7.4	8.8	2.4	7.5	8.1	8.2	15.5	7.2	6.2	7.5	4.7	
2	19.4	37.5	22.5	6.4	6.8	11.2	7.5	9.2	6.5	5.9	13.1	4.7	
3	18.0	36	12.9	5.3	7.1	15.9	6.8	6.8	8.1	9.7	8.1	4.7	
4	7.5	11.8	*13.9	4.9	6.3	7.0	6.3	6.1	6.1	7.0	6.3	4.9	
5	4.9	22	10.1	4.4	5.9	5.8	5.9	6.1	6.1	6.1	5.9	6.1	
6	4.3	32	4.0	4.4	8.6	37	8.6	5.7	9.1	6.3	8.9	5.7	
7	5.9	33	15.1	4.9	3.9	10.7	10.2	8.2	6.3	18.6	7.0	8.5	
8	8.2	29.5	8.0	4.3	9.6	7.5	14.7	8.0	7.4	13.8	13.1	5.3	
9	16.2	13.0	6.8	4.1	8.6	14.0	7.2	5.7	6.1	5.4	7.5	5.1	
10	12.7	8.5	6.5	4.1	8.2	4.5	6.5	6.5	5.7	4.0	6.8	4.4	
11	9.1	7.2	5.9	4.1	8.3	21	5.9	7.0	5.5	20.5	6.1	7.4	
12	37.5	6.5	5.9	4.1	10.4	26.5	5.7	33.5	*18.7	10.9	5.9	15.5	
13	24.5	6.1	5.7	5.5	6.3	28.5	51	76	36	8.2	5.7	6.2	
14	10.5	14.2	5.5	16.6	6.1	12.2	17.6	10.2	4.5	7.2	7.2	5.5	
15	12.1	51	5.3	21.5	6.1	13.4	9.1	9.8	13.8	6.8	6.5	4.4	
16	50	13.0	5.9	13.4	5.5	32.5	7.0	7.8	8.2	6.3	5.9	4.4	
17	40	7.8	5.5	5.9	6.1	15.4	31	6.3	7.2	6.3	5.3	*4.4	
18	26.5	6.8	5.5	7.5	11.4	15.8	132	39	6.3	9.9	10.5	4.3	
19	17.0	6.1	5.9	6.8	5.6	30	*14.6	27.5	7.2	25	7.0	4.1	
20	29	6.5	5.5	19.5	9.7	10.6	9.6	25	16.2	16.0	5.7	4.1	
21	12.1	6.8	5.9	14.4	28.5	8.0	8.0	57	6.8	15.4	5.7	4.4	
22	8.0	14.6	5.3	9.1	8.2	8.7	7.0	27	5.9	8.2	*15.3	4.4	
23	6.3	7.8	4.9	*6.5	6.8	15.7	7.5	13.8	5.5	6.8	10.4	4.1	
24	38	43	4.9	4.0	6.5	10.0	10.1	18.3	5.3	6.3	6.3	4.0	
25	87	63	4.9	15.3	5.9	8.0	6.8	9.6	5.1	6.1	6.3	4.0	
26	20.5	13.6	5.3	14.9	5.5	18.4	6.1	10.0	5.3	5.9	5.5	4.0	
27	8.8	14.2	5.7	8.9	5.7	5.1	5.9	11.5	5.1	7.8	5.3	3.8	
28	7.0	25	4.7	7.0	5.5	8.5	7.4	8.2	4.9	7.4	5.1	3.8	
29	*28	8.0	4.4	5.4	5.3	22.5	13.2	-	8.6	8.2	5.1	3.8	
30	9.8	6.8	4.4	13.4	5.1	19.7	9.3	-----	6.0	10.7	7.8	5.1	
31	7.5	6.1	-----	9.0	-----	9.6	31	-----	12.4	-----	5.1	-----	
Total	570.6	829.4	251.6	567.6	316.7	578.4	477.7	475.1	301.6	600.6	227.9	155.8	
Mean:	mgd	18.4	20.3	13.9	18.3	10.6	18.7	15.4	17.0	9.73	20.0	7.35	5.19
	cfs	28.5	31.4	8.30	28.3	16.4	28.9	23.8	26.3	15.1	30.9	11.4	8.03
	Ac-ft	1,750	1,950	772	1,740	972	1,780	1,470	1,460	926	1,840	699	478
Calendar year 1958:	Max	91	MIn	3.8	Mean(mgd)	12.7	Mean(cfs)	19.6	Ac-ft	14,220			
Fiscal year 1958-59:	Max	138	MIn	3.8	Mean(mgd)	14.1	Mean(cfs)	21.8	Ac-ft	15,820			

Peak discharge (base, 400 mgd).--Aug. 1 (11:30 p.m.) 513 mgd (794 cfs), 6.36 ft; Jan. 17 (11 p.m.) 550 mgd (851 cfs), 6.52 ft.

* Discharge measurement made on this day.

6200. Honokohau Stream near Honokohau

Location.--Lat 20°57'48", long 156°35'22", on right bank 1,000 ft upstream from intake of Honokohau ditch and 5 miles southeast of Honokohau.

Drainage area.--4.09 sq mi.

Records available.--March 1913 to September 1920, May 1922 to June 1959.

Gage.--Water-stage recorder and masonry control. Altitude of gage is 950 ft (by barometer).

Average discharge.--41 years (1916-20, 1922-59), 25.6 mgd (39.6 cfs).

Extremes.--Maximum discharge during year, 1,460 mgd (2,260 cfs) Jan. 17 (gage height, 6.97 ft), from rating curve extended above 120 mgd by logarithmic plotting; minimum, 10.7 mgd (16.6 cfs) Feb. 17, 18.
1913-20, 1922-59: Maximum discharge, 2,420 mgd (3,740 cfs) Dec. 14, 1942, Aug. 30, 1957, from rating curve extended above 120 mgd by logarithmic plotting; maximum gage height, 8.40 ft Dec. 14, 1942; minimum discharge, 5.4 mgd (8.4 cfs) May 1, 1945, Jan. 5, 1946.

Remarks.--Records good.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.9	7.3	3.5	147
2.2	17.1	4.0	250
2.5	34.5	4.5	395
2.9	67		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1	22.5	18.2	27	42	17.6	20	16.3	36	18.6	18.1	42	14.0	
2	54	91	50	18.6	17.1	20.5	15.9	24	17.1	17.3	39.5	18.1	
3	23.5	84	28.5	17.6	17.1	16.7	15.5	15.9	16.3	26.5	36.3	20.5	
4	13.6	26	32.5	16.3	16.7	15.2	15.5	15.9	16.3	15.5	22	15.9	
5	12.3	79	25.5	15.9	16.7	51	18.2	15.9	19.6	13.2	42	20.5	
6	21	82	64	16.3	17.6	50	15.5	14.8	30	12.6	47	23	
7	28	99	30.5	18.1	38	23.5	15.2	17.5	18.1	23.5	32	39.5	
8	33.5	95	21	15.5	23	16.7	26	17.3	21.5	154	49	18.7	
9	45	44	20	15.5	28	*25	15.9	14.4	17.1	71	24.5	18.5	
10	61	22	19.1	15.5	52	75	17.2	37	16.3	103	23	15.4	
11	34	19.1	19.1	15.9	27	46	15.2	16.9	15.9	34.5	17.6	37	
12	83	18.6	19.1	20.5	18.1	71	14.8	40	63	20.5	18.1	*33	
13	50	21.5	18.6	28.5	16.3	33	106	147	103	18.6	16.7	39.5	
14	37	45	18.6	49	15.9	19.1	25.5	16.1	65	17.6	55	17.7	
15	65	87	17.6	78	15.5	20.5	17.1	14.0	22.5	17.1	32.5	15.2	
16	144	37.5	18.6	55	15.5	39	15.9	12.6	17.1	16.7	26.5	15.5	
17	94	20.5	18.6	25	29	24.5	87	11.0	21	16.7	33	14.4	
18	122	21.5	26	27	74	61	252	137	15.5	18.1	66	14.0	
19	36	18.6	19.1	22.5	144	58	27	107	29	24.5	17.1	13.6	
20	49	24	28	54	21	22.5	*18.1	124	63	22	15.9	13.6	
21	23.5	23	22.5	43	39.5	16.7	15.9	185	16.3	19.6	16.0	13.6	
22	23.5	76	17.6	166	18.6	20	15.5	79	15.2	*16.7	22	13.6	
23	*15.9	39.5	17.1	82	16.7	36	16.3	31	14.8	16.3	18.9	13.2	
24	63	78	17.6	68	16.3	27	18.1	47	14.8	16.3	15.5	13.2	
25	78	133	17.1	35	15.9	19.5	15.2	22.5	19.6	16.3	15.2	13.6	
26	41	45	21.5	29.5	15.5	26.5	15.2	37.5	17.1	18.4	14.8	13.6	
27	16.7	51	18.1	20	15.5	55	14.8	31.5	16.3	20	14.4	12.9	
28	15.5	50	16.7	84	15.2	17.1	15.9	20.5	15.2	16.7	14.4	12.6	
29	51	22	16.3	56	15.2	44	29.5	-	34.5	22	15.4	12.6	
30	29	20	16.3	23	15.2	27	21.5	-----	37.5	21.5	24	30.5	
31	20.5	19.6	-----	19.1	-----	19.6	55	-----	26.5	-----	14.4	-----	
Total	1,405.0	1,674.4	702.2	1,192.3	802.7	1,014.6	979.7	1,288.3	831.7	1,163.4	839.9	565.0	
Mean	45.3	54.0	23.4	38.5	26.8	32.7	31.6	46.0	26.8	36.8	27.1	18.8	
mgd	70.1	83.6	36.2	59.6	41.5	50.6	48.9	71.2	41.5	60.0	41.9	29.1	
Ac-ft	4,310	5,140	2,150	3,660	2,460	3,110	3,010	3,950	2,550	3,570	2,570	1,730	
Calendar year 1958: Max	182				11.3		Mean(mgd)	30.7		47.5		Ac-ft	34,350
Fiscal year 1958-59: Max	252				11.0		Mean(mgd)	34.1		52.8		Ac-ft	38,210

Peak discharge (base, 700 mgd).--Aug. 1 (10:30 p.m.) 930 mgd (1,440 cfs), 5.90 ft; Jan. 17 (10:30 p.m.) 1,460 mgd (2,260 cfs), 6.97 ft.

* Discharge measurement made on this day.

6290. Honokowai ditch near Lahaina

Location--Lat 20°55'57", long 156°37'31", on left bank just downstream from intake on Kapa'oa Stream, 5.4 miles northeast of Lahaina Lighthouse.

Records available--July 1912 to January 1958, June 1958 to June 1959.

Gage--Water-stage recorder. Altitude of gage is 1,600 ft (from topographic map). Prior to Dec. 31, 1917, staff gage at site 0.5 mile downstream at different datum. Nov. 14, 1918, to May 27, 1921, water-stage recorder at site 1.5 miles downstream at different datum.

Average discharge--39 years (1919-57, 1958-59), 5.93 mgd (9.18 cfs).

Extremes--1912-59: Maximum daily discharge, 43 mgd (66 cfs) June 30, 1930; no flow at times.

Remarks--Ditch diverts water for power and irrigation from Amalu and Kapa'oa Streams just above station. Flow regulated by headgates at intake.

Cooperation--Records of daily discharges since July 1932 furnished by Pioneer Mill Co.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.1	20.5	5.0	6.9	4.2	4.4	4.9	8.0	4.7	24	7.8	3.75
2	11.7	13.0	7.5	4.1	4.0	5.0	4.5	5.6	4.4	18.5	6.7	3.8
3	6.2	9.0	4.3	*3.7	4.0	4.8	4.4	3.9	4.4	5.7	8.5	4.9
4	4.3	5.1	3.7	3.55	4.1	4.8	4.4	3.75	4.4	4.3	6.0	4.6
5	4.0	12.5	3.7	3.5	4.1	9.1	4.4	3.45	4.8	3.75	11.3	5.3
6	5.5	11.5	5.2	3.3	4.1	10.5	4.4	3.35	7.7	3.75	13.1	7.8
7	8.9	14.5	4.1	3.15	4.9	6.7	4.4	3.4	4.9	4.3	6.5	10.1
8	13.0	15.4	3.6	3.15	5.6	4.9	6.4	3.5	5.5	18.2	11.7	5.9
9	11.5	7.3	3.65	3.15	7.8	5.0	4.8	3.6	4.3	10.1	6.2	6.3
10	18.5	4.6	3.65	3.15	13.0	13.7	4.4	6.4	4.3	5.8	6.0	4.7
11	8.3	4.3	3.5	3.15	7.3	12.1	4.4	6.6	3.95	4.8	4.0	8.0
12	11.6	4.1	3.5	4.0	4.8	16.8	14.3	7.6	11.3	4.2	4.2	8.0
13	10.4	4.3	3.5	6.5	4.5	7.3	6.5	16.9	13.1	4.1	4.4	10.6
14	10.0	7.2	3.5	9.1	4.4	5.6	4.8	5.2	8.6	4.2	13.4	5.2
15	13.5	10.7	3.3	14.2	4.4	5.0	4.4	4.4	4.4	4.1	13.4	4.1
16	5.9	6.1	3.15	8.8	4.4	7.3	6.0	4.4	3.7	4.0	8.4	4.5
17	18.4	4.4	3.15	6.2	6.9	6.5	4.4	4.2	4.4	4.0	7.7	4.1
18	20	4.2	5.0	6.3	15.6	12.6	4.4	21	3.85	3.85	13.4	4.0
19	8.4	4.1	3.75	5.3	16.2	12.0	4.6	22	7.8	3.85	4.2	4.0
20	8.5	4.9	5.2	8.4	4.4	5.3	4.6	22	12.8	3.6	3.8	4.0
21	6.0	5.2	4.7	8.7	6.4	5.0	4.4	24.5	3.9	3.75	3.65	3.85
22	5.9	11.1	3.55	17.7	4.9	5.3	4.0	16.3	3.35	3.75	3.65	3.75
23	4.5	5.3	3.4	7.0	4.4	9.6	4.0	8.0	3.65	3.75	3.75	3.75
24	10.3	8.0	3.4	8.2	4.4	7.9	4.0	10.3	3.85	3.75	3.65	3.75
25	11.6	16.1	3.4	6.0	4.5	5.9	4.0	6.0	5.8	3.75	3.7	3.75
26	8.1	6.8	3.55	4.8	4.5	5.3	4.0	11.0	5.0	3.8	3.75	3.75
27	4.3	7.4	3.85	4.4	4.5	6.5	4.8	7.8	4.6	4.3	3.75	3.75
28	3.85	6.2	3.4	6.8	4.5	5.1	4.0	5.5	3.9	3.75	3.75	3.75
29	9.0	4.1	3.4	7.4	4.5	9.3	5.1	-	9.1	5.0	3.75	3.75
30	5.5	4.1	3.4	5.2	4.5	7.2	5.0	-	7.8	3.9	6.0	7.1
31	4.9	4.1	-----	4.5	-----	5.3	8.8	-----	4.4	-----	3.85	-----
Total	280.65	246.1	118.00	190.30	175.8	231.8	156.7	246.65	178.65	176.60	203.95	154.60
Mean	9.05	7.94	3.93	6.14	5.86	7.48	5.05	8.81	5.76	5.89	6.58	5.15
cfs	14.0	12.3	6.08	9.50	9.07	11.6	7.81	13.6	8.91	9.11	10.2	7.97
Ac-ft	861	755	362	584	540	711	481	757	548	542	626	474
Calendar year 1958: Max	-	-	Min	-	Mean(mgd)	-	Mean(cfs)	-	Ac-ft	-		
Fiscal year 1958-59: Max	24.5	Min	3.15	Mean(mgd)	6.46	Mean(cfs)	10.0	Ac-ft	7,240			

* Discharge measurement made on this day.

6460. Olowalu ditch near Olowalu

Location (revised).--Lat 20°49'33", long 156°36'47", on left bank, 1.2 miles northeast of Olowalu and 5.5 miles northeast of Lahaina.

Records available.--August 1911 to January 1958, June 1958 to June 1959.

Gage.--Water-stage recorder and Parshall flume. Prior to June 30, 1916, staff gage in tailrace of powerhouse 1,000 ft downstream at different datum. July 28, 1916, to June 8, 1919, staff gage and June 9, 1919, to June 21, 1932, water-stage recorder, at site 300 ft upstream at different datum. July 1, 1932, to Oct. 7, 1933, records obtained by combining flows of three stations about 1,000 ft downstream.

Average discharge.--40 years (1917-20, 1921-57, 1958-59), 4.96 mgd (7.67 cfs).

Extremes.--1911-59: Maximum daily discharge, 13.7 mgd (21.2 cfs) Apr. 17, 1935; no flow at times.

Remarks.--Ditch diverts water from Olowalu Stream at altitude of about 450 ft for irrigation. Regulated by headgates.

Cooperation.--Records of daily discharges since January 1932 furnished by Pioneer Mill Co.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.9	9.6	8.5	5.9	5.1	3.6	5.2	6.6	9.4	9.6	4.9	4.2
2	8.2	8.3	9.2	4.3	4.8	3.45	4.7	6.1	9.3	10.7	5.3	4.3
3	7.5	7.5	8.7	3.95	4.6	3.45	4.4	5.6	9.2	9.6	5.4	4.2
4	5.7	7.1	9.1	3.75	4.4	3.35	4.3	5.7	9.1	9.1	5.6	4.0
5	5.0	7.4	7.4	3.65	4.2	4.8	4.0	5.2	9.0	8.8	6.2	4.1
6	6.0	7.4	8.6	3.75	4.0	5.3	3.85	5.0	9.1	8.3	7.6	4.3
7	5.6	7.6	7.9	3.65	4.2	5.0	3.8	6.0	8.2	7.6	6.5	5.9
8	6.6	7.4	7.1	3.45	4.2	3.95	5.1	6.4	7.8	8.9	8.4	4.4
9	8.6	7.1	6.8	3.45	4.3	3.7	3.9	5.3	7.5	9.8	6.6	4.2
10	9.4	6.9	6.2	3.35	5.1	5.4	5.8	5.2	7.2	9.9	6.4	3.95
11	9.2	6.7	5.7	3.3	4.3	7.7	4.2	5.0	6.9	9.7	5.6	4.0
12	9.4	6.7	5.2	3.5	3.85	9.2	3.9	6.5	8.8	9.2	5.2	5.0
13	9.6	7.5	5.2	4.0	3.7	8.5	4.0	8.1	9.8	9.1	5.0	5.0
14	9.2	9.1	5.2	5.3	3.6	6.7	7.8	5.9	9.8	8.8	6.6	4.4
15	9.7	9.6	5.0	7.7	3.45	5.9	7.9	5.6	9.4	8.1	9.0	4.2
16	9.9	9.5	5.1	8.2	3.3	7.7	7.2	5.3	9.0	7.5	7.6	4.0
17	9.9	9.3	4.9	5.7	3.7	6.1	8.2	7.1	8.7	7.0	6.9	3.8
18	10.5	8.7	6.0	5.7	6.8	6.6	5.2	9.7	7.8	6.8	9.3	3.7
19	9.7	7.8	4.9	5.4	8.7	9.0	7.1	9.7	9.2	6.4	8.1	3.6
20	9.5	7.7	5.0	5.7	8.6	8.0	7.0	10.1	9.8	6.2	6.6	3.55
21	9.2	7.1	4.9	8.7	7.0	6.3	5.1	10.5	9.3	6.2	7.4	3.55
22	9.0	9.2	4.5	8.8	5.7	5.9	4.3	10.4	8.6	5.9	8.4	3.4
23	8.7	8.8	4.3	8.4	5.1	6.4	4.2	10.0	7.7	5.8	7.3	3.25
24	9.2	9.0	4.2	8.3	4.7	6.2	3.8	10.0	7.0	5.6	6.2	3.2
25	9.5	11.1	4.2	8.2	4.4	5.6	3.85	9.8	6.8	5.4	5.7	3.2
26	9.3	10.0	4.3	7.9	4.2	5.2	6.0	9.7	6.5	5.3	5.4	3.1
27	8.9	9.8	4.1	7.5	4.0	5.0	6.2	9.7	6.0	5.0	5.0	3.05
28	9.6	9.8	3.95	6.9	3.9	4.5	6.3	9.5	5.8	5.1	4.7	3.0
29	9.2	9.5	4.1	7.5	3.9	6.4	6.4	-	6.2	5.2	4.8	3.05
30	8.9	9.2	3.75	6.2	3.65	7.9	6.1	-----	5.4	4.9	4.5	3.6
31	8.8	8.6	-----	5.4	-----	6.0	6.6	-----	5.5	-----	4.2	-----
Total	263.4	261.0	173.00	177.30	141.35	182.80	166.40	209.4	249.8	225.5	196.2	117.20
Mean	8.50	8.42	5.77	5.72	4.71	5.90	5.37	7.48	8.06	7.52	6.33	3.91
cfs	13.2	13.0	8.93	8.85	7.29	9.13	8.31	11.6	12.5	11.6	9.79	6.05
Ac-ft	808	801	531	544	434	561	5.11	643	767	692	602	360
Calendar year 1958: Max	-	-	-	Min	-	Mean(mgd)	-	Mean(cfs)	-	Ac-ft	-	-
Fiscal year 1958-59: Max	11.1	-	-	Min	3.0	Mean(mgd)	6.47	Mean(cfs)	10.0	Ac-ft	7,250	-

* Discharge measurement made on this day.

7000. Waiakea Stream at middle flume house, near Mountain View

Location.--Lat 19°38'25", long 155°10'35", on left bank at middle flume house, 800 ft upstream from Olaa Sugar Co.'s main flume and 7.5 miles northwest of Mountain View.

Records available.--September 1930 to June 1959.

Gage.--Water-stage recorder and combined Parshall flume and concrete weir. Altitude of gage is 1,820 ft (by barometer).

Average discharge.--28 years (1931-59), 7.47 mgd (11.6 cfs).

Extremes.--Maximum discharge during year, 69 mgd (107 cfs) July 17 (gage height, 3.44 ft), from rating curve extended above 40 mgd by weir formulas; minimum, 0.54 mgd (0.84 cfs) Jan. 11, 12, 13.

1930-59: Maximum discharge, 166 mgd (257 cfs) Mar. 14, 1942 (gage height, 4.43 ft), from rating curve extended above 40 mgd on basis of weir formulas; no flow at times.

Remarks.--Records good. Large part of flow comes from three tunnels.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.38	1.5	9.6
.3	.73	2.0	15.3
.4	1.16	2.5	24
.6	2.24	3.0	41
1.0	5.1		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.1	9.1	16.0	5.9	10.7	6.8	0.77	5.5	20	4.4	5.5	5.3
2	4.2	9.1	14.7	5.7	10.2	6.3	2.6	4.5	18.3	10.2	5.3	4.9
3	6.4	9.1	14.1	5.8	9.1	5.9	1.74	4.3	16.7	10.2	5.9	4.6
4	5.9	8.2	13.5	5.7	8.6	5.4	1.18	4.3	14.7	8.6	5.7	4.3
5	5.8	8.6	11.8	5.9	8.2	5.0	.98	4.1	12.9	7.7	5.9	4.1
6	5.5	8.2	11.8	5.6	7.7	4.8	.94	3.9	12.4	6.8	7.6	3.85
7	5.1	14.8	11.8	5.4	7.2	4.4	.85	3.7	11.2	6.3	9.6	3.6
8	4.8	22	10.2	5.1	8.2	4.1	.81	3.45	10.2	6.6	11.8	3.4
9	4.8	26	9.6	5.0	15.7	3.85	.73	3.25	9.1	9.1	10.7	3.2
10	4.8	24	8.6	5.0	23	3.55	.66	3.15	8.2	8.6	11.2	4.6
11	5.1	24	7.7	6.8	21	3.25	.62	3.35	7.2	9.1	10.7	3.55
12	5.0	22	7.7	5.6	27	3.05	.54	2.85	9.2	8.6	10.7	3.15
13	5.6	19.2	6.8	5.2	27	2.95	1.16	2.8	8.2	8.2	10.7	3.05
14	6.8	17.5	6.3	4.9	26	2.75	1.89	2.75	7.2	8.8	10.7	3.0
15	*6.3	16.0	5.9	5.8	24	2.55	1.82	2.55	6.8	8.2	10.7	2.8
16	13.2	14.1	5.6	7.7	21	2.45	1.42	2.35	5.9	7.7	10.2	3.0
17	32	12.9	5.4	6.8	20	2.3	1.42	2.2	5.5	8.2	9.6	2.75
18	27	11.8	*5.7	7.2	19.2	2.15	5.9	4.8	5.1	7.7	10.2	2.6
19	28.5	10.7	6.3	6.8	21	1.96	4.0	7.6	4.8	7.7	9.6	2.45
20	27	10.2	6.3	7.1	*18.3	1.84	3.45	18.8	4.4	7.7	8.6	2.35
21	23	12.8	6.3	9.9	16.7	1.57	3.35	21	4.1	7.7	8.6	2.2
22	19.2	11.8	6.8	9.6	16.0	1.57	*3.0	16.3	3.9	7.7	*8.2	2.05
23	17.5	11.8	7.2	13.4	14.7	1.42	3.9	20	3.75	7.2	7.7	1.80
24	16.0	13.6	6.6	12.4	12.9	1.26	4.7	22	3.45	6.6	7.2	1.78
25	15.3	18.8	6.3	12.9	11.8	1.16	4.4	22	3.2	6.3	7.2	1.67
26	14.7	16.7	6.3	14.1	11.2	1.12	4.1	22	*3.0	6.3	6.8	1.57
27	13.5	16.7	6.3	13.5	10.2	1.16	4.1	23	2.95	5.9	6.3	1.47
28	12.4	21	5.8	13.5	9.1	.98	3.9	21	2.75	5.6	5.8	1.31
29	11.8	20	5.8	12.9	8.2	.89	3.75	-	2.65	5.4	5.7	1.26
30	10.7	19.3	5.9	12.4	7.7	.98	3.85	-----	3.0	5.6	7.3	1.21
31	10.2	17.5	-----	11.8	-----	.85	4.1	-----	4.3	-----	5.7	-----
Total	372.2	476.5	249.3	255.4	449.6	88.31	76.61	259.50	235.05	227.1	257.4	86.97
Mean:												
mgd	12.0	15.4	8.31	8.24	15.0	2.85	2.47	9.27	7.58	7.57	8.30	2.90
cfs	18.6	23.8	12.9	12.7	23.2	4.41	3.82	14.3	11.7	11.7	12.8	4.49
Ac-ft	1,140	1,460	765	784	1,380	271	235	796	721	697	790	267
Calendar year 1958: Max	32				Min 0.69	Mean(mgd)	6.17	Mean(cfs)	12.6	Ac-ft	9,140	
Fiscal year 1958-59: Max	32				Min 0.54	Mean(mgd)	8.31	Mean(cfs)	12.9	Ac-ft	9,310	

Peak discharge (base, 50 mgd).--July 17 (6 a.m.) 69 mgd (107 cfs), 3.44 ft; Aug. 8 (6 p.m.) 62 mgd (96 cfs), 3.35 ft.

* Discharge measurement made on this day.

7012. Waiakea Stream near Hilo

Location.--Lat 19°41'35", long 155°05'55", on right bank 2.5 miles south of Hilo Post Office.

Records available.--May 1957 to June 1959.

Drainage area.--97 sq mi, of which about 18 sq mi contribute directly to surface runoff.

Gage.--Water-stage recorder. Altitude of gage is 380 ft (from topographic map).

Extremes.--1957: No flow during period May to June.

1957-58: Maximum discharge during fiscal year, 790 mgd (1,220 cfs) Aug. 30 (gage height, 5.88 ft), from rating curve extended above 100 mgd by logarithmic plotting; no flow at times.

1958-59: Maximum discharge during fiscal year, 255 mgd (395 cfs) July 17 (gage height, 4.50 ft), from rating curve extended above 100 mgd by logarithmic plotting; no flow at times.

Remarks.--Records good. Records started May 15, 1957, no flow May 15 to June 30. Hawaii Board of Water Supply diverts water at 1,500-foot elevation at rate of about 25,000,000 gal per year.

Rating table, May 15, 1957, to June 30, 1959 (gage height, in feet, and discharge, in million gallons a day)

0.8	0	2.0	5.2
1.0	.05	2.5	16.5
1.2	.21	3.0	40
1.4	.64	3.5	81
1.6	1.50	4.0	150
1.8	3.0	5.0	390

Discharge, in million gallons a day, fiscal year July 1957 to June 1958

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1		0	*58	0	0	5.3	5.4					
2		0	88	0	0	.12	2.05					
3		0	47	0	0	.27	.24					
4		0	27	0	0	0	0					
5		0	16.8	0	0	20.5	0					
6		4.4	10.5	0	0	.34	0					
7		68	5.2	0	0	0	0					
8		26	1.54	0	0	0	0					
9		10.1	.11	0	0	0	0					
10		7.0	0	0	0	0	0					
11		12.8	0	0	0	8.8	0					
12		14.7	0	0	0	10.7	0					
13		3.2	0	0	0	.21	0					
14		.81	0	0	0	0	0					
15		.42	0	0	0	0	0					
16		0	0	0	0	7.1	0					
17		0	0	0	0	.99	0					
18		0	0	0	0	2.25	18.7					
19		0	0	0	0	.79	2.65					
20		0	0	0	0	0	8.5					
21		0	0	0	0	38	0					
22		0	0	106	0	75	0					
23		53	0	23	0	34	0					
24		160	0	.39	0	32	0					
25		47	0	.06	.47	48	0					
26		47	0	0	0	56	0					
27		44	0	0	0	32	0					
28		31.5	0	0	0	22.5	0					
29		172	0	0	0	22	0					
30		325	0	0	0	24	0					
31		*136	0	0	0	12.6	0					
Total	0	1,162.73	253.95	129.45	3.51	480.28	7.69	0	0	0	0	0
Mean:	0	37.5	8.46	4.18	0.117	15.5	0.248	0	0	0	0	0
mgd	0	58.0	13.1	6.47	0.181	24.0	0.384	0	0	0	0	0
cfs	0	3,570	779	397	11	1,470	24	0	0	0	0	0
Ac-ft												

Calendar year 1957: Max - Min - Mean(mgd) - Mean(cfs) - Ac-ft -
 Fiscal year 1957-58: Max 325 Min 0 Mean(mgd) 5.58 Mean(cfs) 8.63 Ac-ft 6,250

Peak discharge (base, 200 mgd).--Aug. 7 (12:30 p.m.) 238 mgd (368 cfs), 4.43 ft; Aug. 23 (10:30 p.m.) 375 mgd (580 cfs), 4.95 ft; Aug. 30 (6 p.m.) 790 mgd (1,220 cfs), 5.88 ft; Oct. 22 (10 p.m.) 378 mgd (585 cfs), 4.96 ft; Dec. 21 (11 p.m.) 212 mgd (328 cfs), 4.33 ft.

* Discharge measurement made on this day.

7012. Waiakea Stream near Hilo--Continued

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0	0.13	0	0			0	2.45	0		
2	0	0	0	0	0			0	.37	<u>13.5</u>		
3	.47	0	0	0	0			0	0	.03		
4	0	0	0	0	0			0	0	0		
5	0	0	0	0	0			0	0	0		
6	0	0	0	0	0			0	0	0		
7	0	15.4	<u>2.1</u>	0	0			0	0	0		
8	0	22	0	0	0			0	0	0		
9	0	22	0	0	0			0	0	0		
10	0	11.0	0	0	33.5			0	0	0		
11	0	8.6	0	0	11.6			0	0	0		
12	0	8.0	0	0	<u>54</u>			0	<u>2.95</u>	0		
13	0	2.85	0	0	33.5			0	1.04	0		
14	0	.76	0	0	28			0	0	0		
15	0	.12	0	0	18.9			0	0	0		
16	.76	.14	0	0	10.9			0	0	0		
17	<u>91</u>	0	0	0	8.9			0	0	0		
18	15.6	0	0	0	7.7			0	0	0		
19	12.2	0	0	0	*23			.06	0	0		
20	11.0	0	0	0	*6.1			31	0	0		
21	8.3	0	0	0	2.2			<u>54</u>	0	0		
22	2.6	0	0	0	.46			3.85	0	0		
23	.35	0	0	<u>26.5</u>	0			6.4	0	0		
24	0	0	0	4.7	0			18.8	0	0		
25	.03	17.8	0	0	0			9.8	0	0		
26	.25	1.02	0	2.15	0			12.0	0	0		
27	0	.11	0	.14	0			13.6	0	0		
28	0	<u>23.5</u>	0	0	0			5.7	0	0		
29	0	9.5	0	0	0			-	0	0		
30	0	2.65	0	0	0			-	0	0		
31	0	.84	0	0	0			-	0	0		
Total	142.56	144.29	2.23	33.49	234.76	0	0	163.21	6.81	13.53	0	0
Mean:												
mgd	4.60	4.65	0.074	1.08	7.92	0	0	5.83	0.220	0.451	0	0
cfs	7.12	7.19	0.114	1.67	12.1	0	0	9.02	0.340	0.698	0	0
Ac-ft	438	443	6.8	103	720	0	0	501	21	42	0	0
Calendar year 1958:	Max 91	Min 0	Mean(mgd) 1.55	Mean(cfs) 2.40	Ac-ft 1,730							
Fiscal year 1958-59:	Max 91	Min 0	Mean(mgd) 2.03	Mean(cfs) 3.14	Ac-ft 2,270							

Peak discharge (base, 200 mgd).--July 17 (11 a.m.) 255 mgd (395 cfs), 4.50 ft; Oct. 23 (8:30 a.m.) 205 mgd (317 cfs), 4.30-ft.

* Discharge measurement made on this day.

7040. Wailuku River above Hilo Boarding School ditch intake, near Hilo

Location.--Lat 19°42'55", long 155°09'10", on left bank 1,000 ft upstream from intake of Hilo Boarding School ditch, 0.8 mile west of reservoir 1, and 4 miles west of Hilo.

Drainage area.--125 sq mi.

Records available.--July 1928 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 1,060 ft (by barometer).

Average discharge.--28 years (1929-40, 1941-47, 1948-59), 176 mgd (272 cfs).

Extremes.--Maximum discharge during year, 17,400 mgd (26,900 cfs) July 17 (gage height, 21.45 ft), from rating curve extended above 3,400 mgd by logarithmic plotting; minimum, 2.8 mgd (4.33 cfs) June 30.

1928-59: Maximum discharge, 41,000 mgd (63,400 cfs) Aug. 11, 1940 (gage height, 28.6 ft, from floodmarks), from rating curve extended above 3,400 mgd by logarithmic plotting; minimum, 0.16 mgd (0.25 cfs) Mar. 9, 1941.

Remarks.--Records good. Board of Water Supply, County of Hawaii, diverts about 1 mgd above station for domestic supply, and water passing station is used for power by Hilo Electric Light Co. Since March 1938, Kapehu ditch (see p. 125) diverts water from Kapehu Stream into Wailuku River several hundred feet above Pukamaui Falls.

Revisions (fiscal years).--WSP 865: 1929-36(M). WSP 965: 1941.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used Jan. 15 to Feb. 17)

1.3	2.9	6.0	446
1.5	6.0	7.0	650
2.0	15	9.0	1,190
2.5	40	11.0	2,080
3.0	70	13.0	3,440
4.0	155	14.0	4,300
5.0	282		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	37.5	57	200	92	60	33	7.6	61	213	69	72	33
2	104	148	135	74	54	28.5	187	35	155	564	57	28.5
3	251	221	117	70	57	26.5	129	26.5	117	229	97	26.5
4	184	92	118	66	51	24.5	26	21.5	92	126	77	22.5
5	126	122	105	60	40	22	19.0	18.7	77	84	92	20.5
6	134	104	159	45	40	41	16.1	17.4	70	66	84	18.0
7	80	2,570	321	37.5	35	30.5	16.1	16.1	51	51	271	16.8
8	60	2,560	135	33	73	21	13.2	15.2	42	68	430	16.8
9	54	1,690	96	35	774	18.7	10.6	14.4	37.5	229	245	14.9
10	63	731	80	45	2,120	17.4	8.9	12.6	33	157	194	40
11	84	412	70	189	735	16.1	7.6	12.9	28.5	108	126	30.5
12	57	282	88	57	1,090	14.4	6.8	13.2	398	92	88	19.4
13	89	200	74	40	839	13.2	93	14.1	286	70	92	16.1
14	129	155	57	33	612	12.1	150	11.9	129	69	249	16.8
15	107	169	63	51	458	11.9	90	9.6	88	70	392	15.8
16	569	164	60	113	268	10.8	37.5	7.4	60	57	135	22.5
17	4,210	104	*65	63	226	11.1	37.5	7.2	45	57	88	22.5
18	988	84	84	98	213	10.3	110	182	37.5	82	117	15.8
19	492	66	155	70	*668	9.4	57	386	33	63	117	12.6
20	310	63	104	97	287	9.2	37.5	2,000	30.5	54	80	11.1
21	254	390	126	410	188	9.4	*28.5	1,910	28.5	48	*65	11.1
22	155	456	174	235	145	9.4	24.5	750	22.5	51	57	10.6
23	117	380	188	850	108	9.4	30.5	638	21	40	51	9.6
24	104	580	126	551	84	7.2	83	941	19.0	33	51	9.2
25	189	1,290	88	264	70	6.0	48	716	*20	33	51	7.4
26	375	446	80	293	60	5.3	30.5	784	24.5	28.5	42	6.2
27	145	318	96	237	51	10.1	26.5	777	21	33	35	4.3
28	100	768	84	180	45	9.4	28.5	337	19.7	30.5	30.5	3.6
29	77	541	152	160	42	6.0	22.5	53	35	35	29.5	3.2
30	77	325	202	100	37.5	6.4	26.5	-----	73	88	104	3.0
31	60	226	-----	74	-----	6.0	32.8	-----	61	-----	45	-----
Total	9,770.5	15,514	3,562	4,722.5	9,530.5	466.2	1,442.2	9,735.7	2,404.2	2,785.0	3,663.0	488.8
Mean:	mgd 315	500	119	152	318	15.0	46.5	348	77.6	92.8	118	16.3
cfs 487	774	184	235	492	23.2	71.9	538	120	144	183	25.2	
Ac-ft 29,980	47,610	10,930	14,490	29,250	1,430	4,430	29,880	7,380	8,550	11,240	1,500	
Calendar year 1958:	Max 4,210	Min 2.8	Mean(mgd) 163	Mean(cfs) 252	Ac-ft 182,500							
Fiscal year 1958-59:	Max 4,210	Min 3.0	Mean(mgd) 176	Mean(cfs) 272	Ac-ft 196,700							

Peak discharge (base, 5,600 mgd).--July 17 (10 a.m.) 17,400 mgd (26,900 cfs), 21.45 ft; Aug. 7 (6:30 p.m.) 8,190 mgd (12,700 cfs), 17.08 ft.

* Discharge measurement made on this day.

7070. Kapehu ditch diversion near Hilo

Location.--Lat 19°43'45", long 155°11'05", on left bank 40 ft downstream from gate on Kapehu ditch, 3.1 miles northwest of Piihonua, and 6.2 miles west of Hilo.

Records available.--May 1954 to June 1959.

Gage.--Water-stage recorder and de Fabritis type-H flume.

Average discharge.--5 years, 1.62 mgd (2.51 cfs).

Extremes.--1954-59: Maximum daily discharge, 11.0 mgd (17.0 cfs) Apr. 25, 1957; no flow at times.

Remarks.--Records good except those for period of no gage-height record, which are poor. Ditch diverts water from Kapehu ditch for fluming of sugarcane near Hilo.

Revisions (fiscal years).--WSP 1449: 1954-55.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.75	2.5	3.4	3.3	3.15	3.4	0.03	2.65	2.85	0.01	0.03	0.03
2	3.3	3.5	3.3	3.3	3.1	3.3	.03	2.35	2.65	.10	1.61	.03
3	3.8	3.3	3.25	3.3	3.2	3.2	.01	2.15	2.6	.02	2.0	.03
4	3.3	3.0	3.5	3.25	3.05	3.15	.26	2.0	2.6	.02	2.1	.02
5	3.1	3.2	3.3	3.15	3.0	3.05	.45	1.94	2.6	.02	1.94	.02
6	3.1	3.0	3.8	3.05	3.0	3.45	.45	1.90	2.1	.02	2.25	.02
7	2.75	4.9	3.85	3.0	3.0	3.05	.48	1.88	2.05	.02	2.75	.02
8	2.7	4.6	3.3	2.95	3.55	2.85	.65	1.88	2.05	.07	2.3	.02
9	2.65	4.8	3.25	3.05	5.6	2.75	.82	1.94	.93	.06	2.25	.01
10	2.85	4.2	3.25	3.15	6.3	2.65	.78	1.78	1.39	.04	2.4	.04
11	2.95	3.6	3.3	3.35	4.7	2.6	.72	1.82	2.5	.02	2.0	.02
12	2.75	3.4	3.4	2.7	5.6	2.5	.70	1.94	4.1	.02	2.0	.02
13	3.55	3.2	3.3	2.6	5.2	2.45	1.35	1.94	3.25	.02	2.15	.02
14	*3.5	3.1	3.3	2.55	4.9	2.4	1.28	1.75	2.7	.02	2.95	.02
15	3.1	3.4	3.3	3.1	4.2	2.35	1.15	1.63	2.65	.02	2.55	.02
16	4.3	3.2	3.4	3.15	3.9	2.35	.97	1.56	2.6	.02	2.15	.02
17	5.0	3.1	*3.45	2.65	4.2	2.35	1.07	1.48	2.55	.02	2.05	.02
18	2.85	3.05	3.55	2.75	4.3	2.25	1.99	2.95	1.48	.02	2.35	.02
19	2.7	2.95	3.6	2.6	*5.6	2.2	1.98	3.35	.04	.02	2.25	.03
20	2.6	3.0	3.4	3.15	4.2	2.3	2.25	6.4	.03	.02	2.1	.03
21	2.6	4.1	3.5	4.2	4.2	2.15	*2.0	6.1	.02	.02	*2.25	.02
22	2.5	3.8	3.75	3.6	3.9	2.2	1.94	4.0	.02	.02	2.55	.04
23	2.5	3.95	3.75	4.7	3.9	2.15	2.25	3.95	.02	.02	.81	.08
24	2.5	4.6	3.4	4.2	3.8	2.05	2.45	4.1	.02	.08	.22	.03
25	2.5	4.6	3.25	3.6	3.75	1.98	2.15	3.3	*.11	.15	.20	.28
26	2.5	3.8	3.3	4.2	3.75	2.0	1.90	4.1	0	.09	.18	.60
27	2.5	3.75	3.25	3.55	3.65	2.25	2.15	3.8	0	.06	.17	1.52
28	2.5	4.8	3.2	3.8	3.6	1.98	2.15	3.15	0	.05	.15	1.52
29	2.4	4.2	3.45	3.45	3.55	.61	2.0	-	0	.05	.16	1.48
30	2.4	3.65	3.4	3.3	3.5	.03	2.25	-----	0	.04	.12	1.48
31	3.0	3.55	-----	3.2	-----	.03	2.3	-----	.02	-----	.04	-----
Total	91.10	113.80	102.45	101.90	121.35	72.03	40.92	77.75	43.93	1.16	49.93	7.51
Mean:												
mgd	2.94	3.67	3.42	3.29	4.04	2.32	1.32	2.78	1.42	0.039	1.61	0.250
cfs	4.55	5.68	5.29	5.09	6.25	3.59	2.04	4.30	2.20	0.060	2.49	0.387
Ac-ft	280	349	314	313	372	221	126	239	155	3.6	153	23
Calendar year 1958:	Max 6.3			Min 0		Mean(mgd)	1.99	Mean(cfs)	3.08	Ac-ft	2,230	
Fiscal year 1958-59:	Max 6.4			Min 0		Mean(mgd)	2.26	Mean(cfs)	3.50	Ac-ft	2,530	

* Discharge measurement made on this day.

Note.--No gage-height record July 19 to Aug. 7; discharge estimated on basis of records for stations on nearby stream.

7080. Kapehu ditch near Hilo

Location--Lat 19°43'40", long 155°11'00", on left bank 0.9 mile downstream from intake, 3 miles west of Piihouua, and 6 miles west of Hilo.

Records available--March 1938 to June 1941, July 1942 to June 1948, July 1953 to June 1959.

Gage--Water-stage recorder and de Fabritis flume. Altitude of gage is 2,000 ft (from topographic map).

Average discharge--15 years (1938-41, 1942-48, 1953-59), 1.42 mgd (2.20 cfs).

Extremes--1938-41, 1942-48, 1953-59: Maximum daily discharge, 7.5 mgd (11.6 cfs) Nov. 23, 24, 1957; no flow at times.

Remarks--Records good except those for period of shifting control, which are fair. Ditch diverts water from Kapehu Stream 0.6 mile northwest of station for domestic use in Hilo. Flow sometimes diverted into Kapehu diversion ditch (see preceding page).

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.02	0.07	0	0.03	0.02	0.05	1.90	0.07	0.03	2.9	2.95	2.65
2	.17	.10	0	.04	.02	.05	3.05	.06	.08	5.0	1.32	2.6
3	.18	.09	0	.05	.02	.04	2.25	.06	.09	3.55	.98	2.65
4	.04	.06	.02	.06	.02	.04	1.74	.05	.06	2.95	.95	2.5
5	.03	.07	.01	.06	.02	.04	1.49	.05	.05	2.9	.95	2.45
6	.03	.06	.22	.06	.02	.05	1.45	.06	.58	2.75	1.06	2.45
7	.02	.87	.04	.06	.02	.05	1.42	.06	.78	2.65	1.31	2.45
8	.02	.59	.02	.06	.02	.04	1.14	.05	.78	3.15	1.36	2.45
9	.02	.76	.02	.06	.02	.04	.87	.05	.87	3.6	1.05	2.4
10	.02	.20	.02	.08	.52	.04	.85	.05	.39	3.45	1.08	2.6
11	.03	.07	.03	.06	.08	.04	.82	.05	.01	3.15	1.03	2.45
12	.02	.04	.02	.02	.24	.04	.78	.05	.22	2.95	1.00	2.25
13	.06	.03	.02	.02	.15	.04	1.08	.06	.10	2.85	1.05	2.2
14	.04	.03	.02	.02	.05	.05	1.11	.06	.21	2.85	1.30	2.3
15	.03	.12	.02	.03	.02	.05	1.03	.06	.16	2.8	1.17	2.2
16	.53	.05	.02	.02	.02	.05	.98	.06	.11	2.7	1.00	2.4
17	1.24	.04	.03	.02	.03	.06	.88	.06	.09	2.8	.95	2.25
18	.66	.04	.03	.02	.04	.06	.59	.09	1.09	2.95	.98	2.1
19	.43	.03	.03	.02	*.19	.06	.23	.13	2.7	2.75	*.98	2.0
20	.37	.04	.03	.21	.03	.05	.10	.78	2.65	2.7	.92	2.0
21	.35	.02	.03	.10	.03	.05	.10	.71	2.6	2.65	*.73	2.0
22	.34	0	.05	.03	.03	.05	.09	.06	2.5	2.75	.32	1.90
23	.31	.02	.08	.54	.03	.05	.09	.06	2.45	2.7	2.1	1.82
24	.23	.17	.04	.17	.04	.05	.08	.07	2.45	2.65	2.65	1.86
25	.23	.09	.04	.04	.04	.05	.07	.03	*2.35	2.65	2.75	1.51
26	.13	0	.05	.02	.04	.05	.06	.07	2.6	2.75	2.65	1.06
27	.11	.03	.06	.01	.04	.05	.06	.05	2.5	2.9	2.6	.03
28	.09	.15	.07	.02	.05	.05	.06	.03	2.45	3.0	2.55	.03
29	.08	.04	.09	.02	.06	1.18	.05	-	2.95	2.95	2.6	.03
30	.07	0	.04	.02	.05	1.82	.05	-----	3.15	3.15	3.25	.03
31	.08	0	-----	-----	-----	1.82	.06	-----	3.0	-----	2.7	-----
Total	5.98	3.88	1.15	1.99	2.10	6.16	24.53	3.04	40.05	89.35	48.29	57.82
Mean:												
mgd	0.193	0.125	0.038	0.064	0.070	0.199	0.791	0.109	1.29	2.98	1.56	1.93
cfs	0.299	0.193	0.059	0.099	0.108	0.308	1.22	0.169	2.00	4.61	2.41	2.99
Ac-ft	18	12	3.5	6.1	6.4	19	75	9.3	123	274	148	177
Calendar year 1958:	Max 5.2			Min 0		Mean(mgd) 1.13		Mean(cfs) 1.75		Ac-ft 1,270		
Fiscal year 1958-59:	Max 5.0			Min 0		Mean(mgd) 0.779		Mean(cfs) 1.21		Ac-ft 871		

* Discharge measurement made on this day.

Note.--Shifting-control method used July 17 to Sept. 17.

7370. Waillikahi Stream near Waimanu

Location.--Lat 20°07'40", long 155°39'55", on right bank 30 ft upstream from Waimanu trail bridge, 1.7 miles upstream from mouth, 1.9 miles southeast of head of Awini ditch, and 2.2 miles southwest of Waimanu.

Drainage area.--0.4 sq mi, approximately.

Records available.--March 1939 to June 1959. Prior to July 1941, published as Waimanuilili Stream near Waimanu.

Gage.--Water-stage recorder. Altitude of gage is 2,740 ft (by barometer).

Average discharge.--20 years, 6.56 mgd (10.1 cfs).

Extremes.--Maximum discharge during year, 485 mgd (750 cfs) Aug. 7 (gage height, 4.98 ft), from rating curve extended above 25 mgd by test on model of station site; minimum, 0.48 mgd (0.74 cfs) Jan. 12, 13.
1939-59: Maximum discharge, 544 mgd (842 cfs) Dec. 20, 1946 (gage height, 5.17 ft), from rating curve extended above 25 mgd by test on model of station site; minimum, 0.15 mgd (0.23 cfs) Mar. 17, 18, 1944.

Remarks.--Records good except those for period of no gage-height record, which are poor.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.36	1.4	11.3
.5	.78	1.6	17.4
.6	1.33	1.8	25
.7	2.02	2.2	46
.8	2.84	2.6	75
1.0	4.86	3.0	114
1.2	7.4		

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.1	43	5.4	1.40	1.81	0.89	1.40	54	2.2	14.3	5.6	1.74
2	17.1	9.7	3.2	1.27	1.68	8.1	1.10	6.5	1.81	88	8.0	2.8
3	3.85	61	5.1	1.27	1.40	1.88	.93	2.75	1.61	10.3	9.7	3.75
4	2.5	4.2	3.1	1.04	1.74	1.21	.88	3.4	2.3	3.8	5.8	2.0
5	2.0	19.0	5.7	.93	2.3	1.25	.83	2.6	6.0	2.25	9.6	1.61
6	1.74	16.9	13.2	.93	3.6	11.9	.83	1.68	6.1	1.74	10.8	5.9
7	1.47	110	11.9	.88	3.45	5.0	.78	2.05	2.85	5.4	17.3	3.05
8	5.0	18.2	5.3	.78	4.9	2.6	.68	1.88	2.65	19.8	11.5	2.1
9	5.0	17.6	4.7	.73	34	37	.84	1.27	3.45	9.2	8.0	2.2
10	6.0	8.4	4.2	.68	6.2	25	.60	1.10	2.75	8.6	16.0	5.0
11	15.5	3.7	3.7	.78	3.3	3.55	.56	.98	1.81	11.5	3.7	3.35
12	14.1	2.7	4.6	1.80	2.1	10.1	.52	1.54	23	4.1	5.9	3.65
13	19.4	2.2	3.05	5.2	1.54	5.7	21.5	21	14.8	2.45	21.5	1.88
14	28.5	5.4	2.45	4.5	1.33	2.25	8.2	3.35	4.8	2.0	23.5	7.9
15	27	23	2.45	19.8	1.21	2.15	5.6	2.75	4.3	1.74	11.8	3.05
16	90	7.6	1.94	23	1.21	11.0	3.6	2.15	2.5	1.47	5.7	3.1
17	69	5.1	2.1	8.7	13.6	9.0	1.74	2.8	4.3	1.40	2.7	2.1
18	22	7.8	6.1	8.6	9.3	2.35	66	40	6.1	1.33	3.15	1.47
19	17.0	2.6	7.8	4.5	12.8	13.4	4.3	35.5	9.6	15.8	3.75	1.21
20	8.4	3.5	7.7	16.0	2.35	7.3	1.81	55	5.4	14.4	1.95	1.15
21	6.0	21	*8.8	30.5	1.80	2.2	1.40	13.1	3.05	5.5	1.54	2.7
22	2.85	11.6	*8.6	70	3.0	2.7	1.15	5.8	14.9	5.2	a2.85	1.81
23	*2.2	3.55	6.6	4.1	*1.88	3.1	26	9.2	2.5	2.85	a2.5	1.81
24	9.0	44	3.65	8.3	1.82	2.35	11.0	19.8	1.81	4.8	*2.35	1.21
25	11.2	24	4.4	4.5	1.60	2.65	*4.2	7.8	1.90	3.9	2.6	1.04
26	12.3	6.5	2.7	3.9	1.15	5.9	1.95	28.5	2.35	5.8	2.45	.93
27	2.85	21.5	2.5	2.5	.98	3.3	1.47	8.9	1.88	4.2	1.47	1.15
28	2.1	35	1.68	6.1	.88	1.74	1.15	2.95	1.61	5.1	1.27	.88
29	2.95	8.6	1.70	16.2	.78	1.41	1.15	-	*6.4	17.2	6.9	1.61
30	9.5	3.2	2.2	4.2	.73	3.9	1.10	-----	3.85	7.2	5.1	4.7
31	11.1	3.65	-----	2.25	-----	1.74	13.3	-----	2.45	-----	2.2	-----
Total	431.71	554.20	144.52	255.34	124.24	192.62	186.37	318.35	151.03	261.33	237.18	76.85
Mean:												
mgd	13.9	17.9	4.82	8.24	4.14	6.21	6.01	11.4	4.87	8.71	7.65	2.56
cfs	21.5	27.7	7.46	12.7	6.41	9.61	9.30	17.6	7.54	13.5	11.8	3.96
Ac-ft	1,320	1,700	444	784	381	591	572	977	463	802	728	236

Calendar year 1958: Max 110 Min 0.33 Mean(mgd) 7.79 Mean(cfs) 12.1 Ac-ft 8,720
Fiscal year 1958-59: Max 110 Min 0.52 Mean(mgd) 8.04 Mean(cfs) 12.4 Ac-ft 9,000

Peak discharge (base, 150 mgd).--July 17 (8:30 a.m.) 161 mgd (249 cfs), 3.38 ft; Aug. 7 (1:30 p.m.) 485 mgd (750 cfs), 4.98 ft; Oct. 22 (9 a.m.) 164 mgd (254 cfs), 3.40 ft; Jan. 13 (3 p.m.) 160 mgd (248 cfs), 3.37 ft; Jan. 16 (2:30 p.m.) 153 mgd (237 cfs), 3.32 ft.

* Discharge measurement made on this day.

a No gage-height record; discharge estimated on basis of records for stations on nearby stream and ditch.

7430. Awini ditch at East Honokane Iki Gulch, near Niulii

Location.--Lat 20°09'55", long 155°43'10", at flume across East Honokane Iki Gulch, 4.5 miles southeast of Niulii.

Records available.--October 1927 to June 1949, July 1950 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 2,000 ft (from topographic map).

Average discharge.--29 years (1928-38, 1939-49, 1950-59), 12.1 mgd (18.7 cfs).

Extremes.--1927-49, 1950-59: Maximum daily discharge, 33 mgd (51 cfs) Jan. 8, 1935, Aug. 10, 1938; no flow at times.

Remarks.--Records good except those for periods of no gage-height record, which are poor. Ditch diverts water at altitude 2,000 ft from all streams between the Waikalooa and the Honokane. Flow regulated by gates and spillways. Water used for irrigation in vicinity of Kohala.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.8	26	10.5	4.3	4.0	4.9	8.0	18.8	10.7	*18.3	14.7	8.5
2	21	22	9	4.4	6	17.0	6.5	14.4	9.6	22.5	18.8	9.4
3	13.7	19.5	11	5.0	4.2	7.0	5.6	11.3	9.0	15.8	22	17.2
4	9.0	14.4	8	4.6	7.5	6.0	5.1	11.3	11.3	10.7	16.6	10.7
5	7.5	21	8.5	4.3	7	8.9	5.0	10.7	17.2	8.5	22	8.5
6	6.5	22.5	12	4.3	7.5	22.5	4.7	9.0	19.5	8.0	24.5	13.4
7	6.0	22	14	4.2	6	21	4.5	8.0	12.5	15.5	24.5	13.7
8	5.4	10.1	8	3.85	9	17.2	4.4	8.0	10.7	20	28	10.7
9	12.5	9.0	8	3.85	22	24.5	4.3	6.5	12.5	16.5	19.5	8.5
10	14.9	8.5	7.5	3.3	13	22.5	4.1	6.0	11.3	14.4	22.5	13.7
11	21	7.5	9	3.6	9	18.0	3.9	5.6	8.5	17.2	16.5	14.4
12	22	6.5	12	3.7	9	19.5	3.7	8.7	20.5	13.1	15.0	16.5
13	21	6.5	13	6	7	18.8	11.8	15.3	22.5	10.1	22	10.7
14	22.5	12.2	11	13	5.5	12.5	20	13.8	15.8	8.5	24.5	16.0
15	24.5	26	8.5	20	5.5	10.8	18.6	13.2	16.0	7.5	22.5	13.7
16	24.5	21	8	24	7	17.5	13.7	12.5	10.7	6.5	22	13.1
17	22	15.8	7	20	14	20	8.5	12.5	11.9	6.0	15.0	10.1
18	18.8	18.8	15	20	16	11.9	20.5	24.5	15.8	5.6	14.4	7.0
19	*18.0	12.5	22	15	17	20.5	13.7	24.5	18.0	16.5	15.0	5.6
20	14.8	11.9	19	16	12	19.5	9.6	24.5	16.2	18.0	11.3	5.2
21	18.8	22	17	22	9	11.9	8.0	22.5	11.0	12.5	9.6	7.5
22	16.5	20	15	17	14	10.1	7.0	18.8	19.5	11.3	18.9	7.0
23	13.7	11.9	8	4.5	9	12.5	19.6	20	11.3	9.6	22	6.0
24	16.5	20.5	*8	8	12	9.6	16.5	20	8.5	11.9	14.4	5.2
25	22.5	19.8	11.0	8.5	7	9.6	15.0	18.8	8.0	12.5	11.3	4.5
26	24.5	12.5	8.5	6.5	*5.5	18.0	10.1	22.5	9.0	11.7	*13.8	4.1
27	15.8	13.7	8.5	5.5	4.9	11.9	*8.5	20	8.5	15.7	9.6	3.9
28	11.9	16.5	5.6	4.5	4.5	8.0	7.0	13.1	7.0	14.3	8.0	3.5
29	12.5	13.1	4.9	13	4.2	7.0	7.3	-	15.8	24.5	15.1	3.9
30	19.5	9.6	5.0	5	3.9	15.6	7.5	-----	12.5	19.5	18.8	9.1
31	22	10.1	-----	4.2	-----	11.9	10.1	-----	10.1	-----	10.7	-----
Total	513.6	483.4	312.5	281.90	259.6	446.6	293.0	414.8	401.4	402.7	541.5	281.3
Mean:	16.6	15.6	10.4	9.09	8.65	14.4	9.45	14.8	12.9	13.4	17.5	9.38
mgd	25.7	24.1	16.1	14.1	13.4	22.3	14.6	22.9	20.0	20.7	27.1	14.5
cfs	1,580	1,480	960	865	797	1,370	899	1,270	1,230	1,240	1,660	863
Ac-ft												
Calendar year 1958: Max	28	28	28	28	28	28	28	28	28	28	28	28
Min	0	0	0	0	0	0	0	0	0	0	0	0
Mean(mgd)	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
Mean(cfs)	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6
Ac-ft	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800
Fiscal year 1958-59: Max	26	26	26	26	26	26	26	26	26	26	26	26
Min	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Mean(mgd)	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7
Mean(cfs)	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
Ac-ft	14,210	14,210	14,210	14,210	14,210	14,210	14,210	14,210	14,210	14,210	14,210	14,210

* Discharge measurement made on this day.

Note.--No gage-height record Sept. 1-24, Oct. 10 to Nov. 26; discharge estimated on basis of records for Kohala ditch at Pololu.

7440. East Honokane Iki intake to Awini ditch at East Honokane Iki Gulch near Niulii

Location.--Lat 20°09'55", long 155°43'15", on intake tunnel delivering water from East Honokane Iki Gulch to Awini ditch, on west side of gulch, 4.5 miles southeast of Niulii.

Records available.--October 1927 to June 1938, July 1939 to June 1949, July 1951 to June 1959.

Gage.--Water-stage recorder and sharp-crested weir. Altitude of gage is 2,000 ft (from topographic map).

Average discharge.--26 years (1928-36, 1937-38, 1939-40, 1941-49, 1951-59), 1.19 mgd (1.84 cfs).

Extremes.--1927-38, 1939-49, 1951-59: Maximum daily discharge, 8.4 mgd (13.0 cfs) Aug. 6, 1957; no flow at times.

Remarks.--Records good. Intake diverts water from East Honokane Iki Gulch to Awini ditch for irrigation in vicinity of Kohala.

Revisions (fiscal years).--WSP 725: 1928-30.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.84	6.5	0.12	0.23	0.12	0.68	0.56	1.42	1.01	*2.25	1.77	0.41
2	3.5	1.30	.10	.17	.12	3.0	.38	.44	.79	1.26	2.5	.62
3	1.16	1.11	.12	.14	.23	.97	.29	.35	.64	0	3.45	1.58
4	.64	1.01	.10	.14	.79	.56	.26	.32	1.00	0	2.35	.48
5	.44	1.43	.14	.12	.60	.64	.26	.29	2.35	0	3.95	.32
6	.58	1.30	.29	.12	.64	2.65	.23	.29	3.2	.37	4.8	.85
7	.29	1.56	.17	.12	.44	1.69	.23	.29	.97	3.55	4.5	.71
8	.47	.41	.13	.10	1.21	1.45	.30	.29	.98	5.1	4.6	.44
9	1.36	.26	.12	.10	5.1	3.95	.17	.29	1.30	3.3	3.0	.61
10	2.4	.96	.10	.08	3.1	1.52	.17	.29	.97	2.7	3.9	1.40
11	3.8	1.65	.10	.10	1.70	.41	.14	.29	.48	3.6	1.94	.87
12	3.95	1.21	.12	.10	.83	.44	.14	.35	3.35	2.05	1.70	1.28
13	4.0	.97	.12	.48	.60	.35	.57	.62	3.1	1.06	3.55	.48
14	4.1	1.36	.12	1.48	.52	.26	.26	.17	1.47	.79	4.2	2.15
15	3.8	7.5	.10	4.2	.48	.23	.14	.20	1.78	.64	4.1	.97
16	2.1	3.8	.10	4.1	.81	.41	.08	.14	.64	.56	3.4	.79
17	.38	1.30	.12	2.7	2.85	1.01	.06	.89	.96	.48	1.45	.35
18	.12	1.80	.17	2.6	3.65	1.06	.57	3.8	1.70	.41	1.25	.23
19	*1.94	.87	.23	2.05	3.75	4.3	.12	3.25	2.35	3.65	1.01	.17
20	3.55	.83	.20	2.15	1.30	3.15	.92	3.3	1.64	3.35	.75	.14
21	3.75	3.95	.17	2.1	1.18	1.06	1.16	2.1	.84	1.65	.64	.20
22	1.40	1.66	.17	.80	2.55	.92	.99	1.63	2.4	1.16	3.3	.14
23	1.01	1.16	.14	.23	1.01	1.11	4.9	1.92	.71	.83	2.4	.14
24	1.21	2.15	*.10	.23	1.69	.75	2.8	1.90	.38	1.23	.97	.12
25	2.55	1.88	.12	.20	.71	.71	2.35	1.45	.35	1.37	.64	.10
26	4.5	1.01	.10	.17	*.50	2.75	1.01	2.35	.41	1.53	*.70	.10
27	1.01	.97	.10	.14	.41	.87	*.68	1.60	.32	2.05	.48	.10
28	.68	.44	.08	.23	.38	.56	.52	1.25	.23	1.53	.38	.08
29	.71	.14	.08	.38	.35	.46	.61	-	1.90	4.5	1.66	.10
30	2.4	.10	.17	.17	.29	2.25	.64	-----	1.20	2.85	2.2	.41
31	3.05	.12	-----	.14	-----	1.04	1.17	-----	.82	-----	.56	-----
Total	62.49	50.91	3.99	26.07	37.91	41.21	22.58	31.48	40.24	53.72	72.10	16.32
Mean:												
mgd	2.02	1.64	0.133	0.841	1.26	1.33	0.728	1.12	1.30	1.79	2.33	0.544
cfs	3.13	2.54	0.206	1.30	1.95	2.06	1.13	1.73	2.01	2.77	3.61	0.842
Ac-ft	192	156	12	80	116	126	69	97	123	165	221	50

Calendar year 1958: Max 7.5 Min 0.08 Mean(mgd) 1.17 Mean(cfs) 1.81 Ac-ft 1,310
 Fiscal year 1958-59: Max 7.5 Min 0 Mean(mgd) 1.26 Mean(cfs) 1.95 Ac-ft 1,410

* Discharge measurement made on this day.

7510. Kohala ditch at Pololu, near Niulii

Location.--Lat 20°10'20", long 155°44'15", on right bank of open section of ditch in Pololu Valley just downstream from boundary between land of Honokane and land of Pololu, 2.8 miles upstream from mouth of Pololu Stream and 4 miles south of Niulii.

Records available.--August 1927 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 1,100 ft (from topographic map).

Average discharge.--30 years (1928-38, 1939-59), 27.0 mgd (41.8 cfs).

Extremes.--1927-59: Maximum daily discharge, 65 mgd (101 cfs) July 16, 1958; no flow at times.

Remarks.--Records good. Kohala ditch receives flow of Awini ditch at Honokane Gulch and diverts water at altitude of about 1,200 ft from Honokane and all streams west. Water is used for irrigation in vicinity of Kohala.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	37	60	23	18.9	17.4	22	24	49	27	42	33.5	26
2	45	46	21.5	18.9	16.6	41	21.5	41	25	60	43	26
3	36	41	26	19.7	17.8	26	20.5	31.5	25	*46	46	36
4	27	36	19.7	18.9	23	23	19.7	29.5	29.5	36	38.5	29.5
5	24	51	20.5	18.9	22.5	26.5	19.7	29.5	38.5	27	46	26
6	23	51	29	18.1	23	46	20.5	25	41	26	49	33
7	22.5	61	32	18.1	21.5	43	20.5	23	36	37	49	36.5
8	22.5	36	19.7	18.1	26	37	20.5	23	30.5	46	54	29.5
9	35.5	51	19.7	18.1	46	57	19.7	22.5	36	46	46	26
10	36	46	18.9	17.4	31	46	19.7	23	31.5	38.5	49	33.5
11	46	41	21.5	18.1	24.5	34	19.7	22.5	25	43	41	36
12	46	41	29	18.1	25	41	18.9	26	40	38.5	36	36
13	46	36	31.5	22.5	22.5	38.5	33	45	46	29.5	46	27
14	49	31	27	31.5	20.5	31.5	22.5	41	38.5	26	51	36.5
15	51	49	23	45	20.5	27	20.5	33.5	38.5	25	49	36
16	65	41	17.4	49	22.5	36	20.5	31.5	29.5	24	46	36
17	33	36	16.6	43	32.5	41	17.4	31.5	29.5	24	38.5	27
18	31.5	41	29	43	35.5	31.5	54	48	41	23	33.5	23
19	36	36	38	36	36.5	40	33.5	51	43	42	33.5	21.5
20	36	33.5	38.5	37	29.5	41	29.5	54	43	46	31.5	19.7
21	*42	43	40	48	26	29.5	27	46	31.5	33.5	27	21.5
22	38.5	43	32.5	43	33.5	27	23.5	43	45	31.5	38.5	21.5
23	36	31.5	20.5	17.7	26	29.5	36	46	31.5	27	41	21.5
24	38	44	18.6	24.5	29.5	26	38.5	46	26	31.5	33.5	20.5
25	41	49	*22.5	25	23	26	31.5	46	28	33.5	29.5	18.9
26	49	36	22.5	23	21.5	35.5	27	49	33.5	29	33.5	18.9
27	36	38	27	19.7	*20	29.5	24	46	26	38.5	*28	18.9
28	31.5	43	21.5	23	18.9	24	*23	33.5	23	31.5	25	18.1
29	31.5	27	19.7	29	18.9	23	23	-	36	46	31.5	18.9
30	38.5	22.5	19.7	19.9	18.9	36	23	-----	38.5	43	41	22.5
31	43	21.5	-----	18.9	-----	29.5	29.5	-----	31.5	-----	29.5	-----
Total	1,195.0	1,267.0	746.0	818.0	750.5	1,044.5	783.8	1,036.5	1,044.5	1,070.5	1,218.0	803.9
Mean	38.5	40.9	24.9	26.4	25.0	33.7	25.3	37.0	33.7	35.7	39.3	26.8
cfs	59.6	63.3	38.5	40.8	38.7	52.1	39.1	57.2	52.1	55.2	60.8	41.5
Ac-ft	3,660	3,890	2,290	2,510	2,300	3,210	2,410	3,180	3,210	3,290	3,740	2,470
Calendar year 1958: Max	65			Min 15.1	Mean(mgd)	31.1	Mean(cfs)	48.1	Ac-ft	34,810		
Fiscal year 1958-59: Max	65			Min 16.6	Mean(mgd)	32.3	Mean(cfs)	50.0	Ac-ft	36,160		

* Discharge measurement made on this day.

7550. Kehena ditch near Kohala

Location.--Lat 20°07'25", long 155°45'05", on right bank at old Honokane weir near head of West Branch of Honokane Nui Stream, 8.5 miles southeast of Kohala.

Records available.--December 1917 to November 1919, April 1928 to June 1959.

Gage.--Water-stage recorder and artificial control. Altitude of gage is 3,850 ft (from topographic map). Prior to Apr. 26, 1928, water-stage recorder at same site at different datum.

Average discharge.--31 years (1928-59), 7.74 mgd (12.0 cfs).

Extremes.--1917-19, 1928-59: Maximum daily discharge, 54 mgd (84 cfs) Mar. 23, 1919; no flow at times.

Remarks.--Records good. Intake on Honokane Nui Stream 2 miles upstream from station at altitude of about 4,200 ft. Kahua Ranch diverts small quantity of water from ditch 2 miles above station for watering stock. Water used for irrigation in vicinity of Hawi.

Revisions (fiscal years).--WSP 740: 1930.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.9	43	3.95	1.50	1.85	0.91	2.05	29.5	4.5	13.2	5.3	2.25
2	15.4	15.4	3.7	1.13	1.30	11.5	1.30	13.2	2.9	39	10.8	2.7
3	7.0	10.3	5.5	1.13	.82	3.4	.98	5.8	2.05	15.8	12.8	4.7
4	3.4	6.7	2.7	.98	.67	1.65	.82	5.3	2.9	7.7	7.4	2.7
5	2.25	26.5	2.5	.82	.53	1.30	.67	4.5	7.4	4.5	11.4	2.5
6	1.65	25	5.3	.67	.40	25	.53	2.7	14.1	2.7	24	7.6
7	1.30	45	6.8	.53	.40	25.5	.40	2.05	7.4	4.1	28	9.6
8	2.95	21	2.7	.40	2.55	11.1	.29	1.65	5.0	11.4	37.5	5.0
9	10.0	13.2	2.5	.40	27.5	40	.19	1.50	5.8	10.6	12.5	2.7
10	11.6	6.1	2.25	.29	20.5	29.5	.19	1.13	3.95	7.0	22	4.5
11	20	3.15	2.9	.19	9.4	10.0	.19	1.13	3.4	9.2	6.7	5.8
12	16.2	2.05	5.1	.29	3.7	12.8	.19	1.85	15.0	7.4	5.3	7.4
13	16.2	1.65	5.5	.82	2.05	11.3	19.5	31.5	15.8	3.7	14.8	3.7
14	24.5	1.85	8.0	2.05	2.05	4.5	25.5	11.5	6.4	2.25	25.5	14.4
15	35	12.0	8.6	15.7	1.85	2.7	14.6	4.7	3.7	1.50	21	8.3
16	45	8.2	5.3	28.5	1.65	4.6	5.8	4.2	2.5	1.13	9.6	8.6
17	39.5	3.7	4.2	23	15.2	16.8	2.9	4.2	3.15	1.13	5.0	4.2
18	21.5	3.7	15.9	20	22.5	5.0	39.5	29	9.8	.98	3.7	2.05
19	13.2	2.25	18.2	11.7	27	13.2	7.2	32.5	19.1	6.6	3.15	1.13
20	7.9	2.05	*13.2	15.0	7.1	16.9	1.30	42	11.1	11.7	2.5	.82
21	10.1	8.0	12.8	31.5	2.9	5.0	1.85	14.7	5.0	4.7	1.65	.67
22	*4.5	11.8	10.3	32.5	*2.65	3.7	.53	7.4	8.6	2.25	3.8	.53
23	2.9	3.95	8.9	12.5	2.7	5.3	4.3	12.7	4.7	2.05	*4.8	.40
24	3.7	16.4	7.6	8.0	2.7	4.5	*6.8	23	2.7	3.4	2.5	.40
25	8.3	22.5	9.6	9.2	2.05	4.5	1.85	16.4	8.8	5.3	2.5	.29
26	12.9	10.0	7.1	8.9	1.65	9.6	1.65	25	8.2	3.7	3.4	.29
27	4.7	10.6	8.3	5.5	1.30	5.0	2.05	15.5	4.5	5.5	1.65	.19
28	2.5	17.4	3.95	7.1	1.13	2.7	1.50	6.4	*3.15	3.15	1.13	.19
29	2.9	7.7	2.5	18.4	.98	4.6	1.30	-	15.2	9.5	2.85	.19
30	8.7	3.7	1.85	7.7	.82	13.8	1.13	-----	7.4	8.3	8.3	3.2
31	10.0	3.15	-----	3.4	-----	3.7	3.25	-----	4.2	-----	3.15	-----
Total	376.65	368.00	195.70	269.80	167.90	310.06	150.31	351.01	218.40	209.44	304.68	106.91
Mean:												
mgd	12.2	11.9	6.52	8.70	5.60	10.0	4.85	12.5	7.05	6.98	9.83	3.56
cfs	18.9	18.4	10.1	13.5	8.66	15.5	7.50	19.3	10.9	10.8	15.2	5.51
Ac-ft	1,160	1,130	601	828	515	952	461	1,080	670	643	935	328

Calendar year 1958: Max 45 Min 0 Mean(mgd) 8.78 Mean(cfs) 13.6 Ac-ft 9,840
 Fiscal year 1958-59: Max 45 Min 0.10 Mean(mgd) 8.30 Mean(cfs) 12.8 Ac-ft 9,300

* Discharge measurement made on this day.

7560. Kohakohau Stream near Kamuela

Location.--Lat 20°03'02", long 155°40'58", 0.2 mile below Kohala Forest Reserve Boundary and 2 miles northwest of Kamuela.

Drainage area.--2.34 sq mi.

Records available.--March 1956 to June 1959.

Gage.--Water-stage recorder. Altitude of gage is 3,500 ft (from topographic map).

Extremes.--Maximum discharge during year, 2,510 mgd (3,880 cfs) Aug. 7 (gage height, 10.76 ft), from rating curve extended above 21 mgd by test on model of station site; minimum, 0.31 mgd (0.48 cfs) Jan. 13.

1956-59: Maximum discharge, that of Aug. 7, 1958; minimum, 0.28 mgd (0.43 cfs) June 10, 11, 1957.

Remarks.--Records good except those above 21 mgd, which are fair. Parker Ranch pipeline diverts water above station.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.27	1.4	23
.6	.54	1.6	36
.7	1.14	2.0	66
.8	2.5	3.0	143
.9	4.5	4.0	232
1.0	7.2	5.0	345
1.2	13.8	6.0	530

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.5	67	3.2	0.84	1.35	0.40	0.72	27	2.15	13.4	3.6	1.46
2	15.7	12.6	3.2	.78	.98	.46	.58	11.9	1.35	7.4	12.7	2.35
3	5.3	9.2	7.1	.72	.78	.40	.50	2.85	1.06	20.5	16.3	3.6
4	3.0	5.7	2.5	.62	.67	.38	.46	1.86	1.06	6.6	6.0	1.71
5	1.71	31	3.7	.54	.62	.35	.46	1.14	3.0	2.5	8.6	1.24
6	1.24	30	17.3	.54	.62	.78	.43	.91	9.7	2.0	22	2.85
7	.98	41.7	12.2	.50	.85	2.15	.40	.79	3.0	1.06	30	5.2
8	2.5	28	5.5	.46	2.4	.98	.38	.67	2.65	8.5	51	2.85
9	7.0	20	5.4	.43	3.9	14.0	.38	.62	3.4	14.2	13.8	1.46
10	9.0	12.5	5.1	.40	14.0	27	.38	.58	1.58	8.6	29.5	5.2
11	25	4.2	4.5	.40	4.6	3.7	.35	.54	1.14	12.7	5.2	6.3
12	18.9	3.0	8.3	.40	1.71	8.0	.35	.72	22	6.3	4.8	5.5
13	21.5	1.86	4.2	.43	1.14	7.2	94	78	20.5	2.0	19.6	2.35
14	35.5	5.4	3.45	.46	2.35	1.86	17.6	11.1	3.8	1.24	29.5	16.3
15	53	35	4.8	13.7	.84	1.06	8.2	2.0	2.35	.98	28.5	7.2
16	104	12.8	*1.94	33	.67	2.65	2.0	1.24	2.35	.78	12.3	5.2
17	121	6.7	1.46	26.5	12.6	9.4	.91	1.14	5.8	.67	3.6	2.85
18	35	8.5	5.0	17.3	*14.5	1.86	466	37	12.3	.62	2.65	1.46
19	20.5	2.5	12.7	4.5	26.5	13.6	12.3	52	26.5	.72	3.0	1.06
20	10.5	4.1	11.6	7.9	3.95	13.6	*3.6	74	9.4	1.71	*2.15	.91
21	12.4	17.4	12.3	45	1.58	2.0	2.0	23	3.2	2.65	1.46	1.06
22	3.8	20.5	12.9	68	.98	1.71	1.24	14.2	9.4	3.6	1.24	.98
23	2.35	5.3	8.8	18.2	.78	2.0	6.3	17.6	2.5	1.71	1.46	.91
24	6.7	34	4.7	10.2	.67	2.0	15.1	33.5	*1.46	4.5	1.06	.78
25	*14.2	38.5	5.0	6.4	.62	1.86	2.65	17.2	3.2	4.0	2.65	.72
26	23.5	12.7	6.7	4.5	.58	4.0	1.24	39	4.8	2.5	3.0	.67
27	3.4	25.5	5.2	2.5	.54	3.0	.84	17.2	1.71	3.4	1.35	.67
28	1.86	34.5	1.58	3.95	*.50	1.24	.72	4.2	1.14	3.2	.98	.62
29	2.65	13.0	1.24	11.7	.46	.98	.62	-	9.2	12.3	4.5	.67
30	7.8	3.6	1.14	4.5	.43	5.0	.58	-----	4.5	7.8	7.5	2.85
31	12.7	3.2	-----	2.15	-----	1.06	.84	-----	1.46	-----	2.5	-----
Total	591.19	923.26	182.71	285.52	137.27	134.68	642.11	471.95	177.66	224.84	330.50	86.98
Mean:												
mgd	19.1	29.8	6.09	9.21	4.58	4.34	20.7	16.9	5.73	7.49	10.7	2.90
cfs	29.6	46.1	9.42	14.2	7.09	6.71	32.0	26.1	8.87	11.6	16.6	4.49
Ac-ft	1,810	2,830	561	876	421	413	1,970	1,450	545	690	1,010	267

Calendar year 1958: Max 417 Min 0.29 Mean(mgd) 10.3 Mean(cfs) 15.9 Ac-ft 11,530
 Fiscal year 1958-59: Max 466 Min 0.33 Mean(mgd) 11.5 Mean(cfs) 17.8 Ac-ft 12,840

Peak discharge (base, 200 mgd).--July 17 (8 a.m.) 288 mgd (415 cfs), 4.35 ft; Aug. 7 (11:30 a.m.) 2,510 mgd (3,880 cfs), 10.76 ft; Jan. 13 (3 p.m.) 1,680 mgd (2,600 cfs), 9.24 ft; Jan. 18 (12 m.) 1,760 mgd (2,720 cfs), 9.39 ft; Feb. 13 (4:30 p.m.) 235 mgd (364 cfs), 4.00 ft.

* Discharge measurement made on this day.

7570. Waikoloa Stream near Kamuela

Location.--Lat 20°03'17" long 155°40'02", on left bank 350 ft downstream from Parker Ranch boundary and 2.1 miles north of Kamuela.

Drainage area.--0.78 sq mi.

Records available.--May 1947 to June 1959.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 3,580 ft, revised (from topographic map).

Average discharge.--12 years, 5.04 mgd (7.80 cfs).

Extremes.--Maximum discharge during year, 608 mgd (941 cfs) Aug. 7 (gage height, 5.75 ft), from rating curve extended above 11 mgd by logarithmic plotting; minimum, 1.32 mgd (2.04 cfs) Jan. 12, 13.

1947-59: Maximum discharge, 860 mgd (1,330 cfs) Oct. 23, 1957 (gage height, 6.55 ft), from rating curve extended above 11 mgd by logarithmic plotting; minimum, 0.79 mgd (1.22 cfs) June 9, 1957.

Remarks.--Records good except those above 50 mgd, which are fair.

Revisions (fiscal years).--WSP 1155: 1948(M). WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.3	1.24	2.5	24
1.4	2.13	2.6	40
1.5	3.25	3.0	70
1.7	6.10	3.5	125
2.0	13.2	4.0	200

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.2	31.5	4.2	2.25	2.7	1.48	1.85	21	2.8	6.3	3.9	2.15
2	9.6	7.9	3.65	2.05	2.45	2.9	1.75	8.2	2.25	30.5	7.1	3.1
3	5.5	6.9	4.6	1.94	2.25	1.94	1.65	3.15	2.05	9.7	7.3	4.1
4	3.85	5.5	3.5	1.85	2.15	1.65	1.56	3.0	2.15	4.4	4.4	2.45
5	2.8	12.5	5.1	1.65	2.05	1.48	1.56	2.25	3.2	2.8	4.7	2.05
6	2.35	13.5	13.0	1.65	2.85	3.75	1.56	1.85	3.8	2.15	7.8	2.6
7	2.25	148	10.0	1.65	3.9	4.3	1.48	1.75	2.55	2.15	9.0	3.5
8	3.2	15.8	7.1	1.56	5.1	2.65	1.48	1.56	2.35	9.0	15.0	2.55
9	4.5	12.7	7.1	1.56	18.8	14.0	1.48	1.48	2.8	8.0	7.3	2.25
10	4.5	9.7	5.3	1.48	6.5	15.9	1.48	1.40	2.35	6.6	15.3	4.4
11	11.2	4.9	4.9	1.48	3.8	4.3	1.40	1.40	1.94	8.3	4.6	5.1
12	9.2	4.0	5.8	1.48	2.7	8.1	1.32	1.75	8.8	4.5	4.8	4.2
13	11.3	3.5	4.3	1.56	2.35	5.8	2.7	22.5	8.6	2.45	11.4	2.45
14	16.5	6.2	3.65	1.65	2.35	2.8	7.6	5.3	3.9	1.94	9.6	7.3
15	24.5	19.4	3.65	12.5	2.25	2.25	5.8	2.45	3.75	1.75	8.1	5.2
16	47	8.2	2.8	17.6	2.05	4.6	3.5	2.05	3.3	1.56	6.3	4.6
17	62	7.7	2.7	10.8	8.9	5.8	2.25	2.7	6.2	1.56	3.15	3.15
18	15.4	8.0	3.75	7.9	7.3	2.55	10.5	15.1	8.5	1.40	3.0	2.25
19	12.7	3.9	5.0	3.9	9.9	10.9	5.8	21	9.1	1.89	3.75	1.85
20	9.0	4.9	6.5	5.8	3.65	7.2	3.0	26	4.7	5.8	2.55	1.85
21	9.4	9.8	7.4	24	2.55	2.7	2.35	9.9	3.15	5.1	2.05	2.55
22	4.0	10.0	8.1	36	2.45	2.7	1.94	7.5	4.8	5.7	2.35	2.35
23	3.25	5.2	6.9	10.1	2.25	3.15	*9.2	7.3	2.45	3.15	3.0	2.05
24	8.0	18.9	4.7	8.6	2.15	3.0	9.9	11.7	1.94	4.7	2.15	1.85
25	*11.1	17.6	4.3	6.0	1.94	2.5	2.85	7.3	2.05	3.6	2.95	1.75
26	10.0	6.9	*5.0	4.6	1.94	4.3	2.05	13.2	2.25	3.0	3.1	1.75
27	3.9	14.6	3.8	3.65	1.85	3.4	1.75	6.8	*1.93	3.8	1.94	1.65
28	3.0	21.9	2.55	4.9	*1.62	2.25	1.65	3.65	1.75	3.9	1.65	1.56
29	3.65	9.0	2.55	11.2	1.48	1.99	1.56	-	2.85	9.8	*5.0	1.85
30	7.6	4.9	2.55	5.7	1.48	3.35	1.48	-	2.75	5.9	5.3	3.35
31	9.9	4.6	-	3.5	-	2.05	2.65	-	1.75	-	2.55	-
Total	336.35	458.10	154.25	200.56	113.71	135.74	213.90	213.24	112.56	161.40	171.09	87.81
Mean:	10.8	14.8	5.14	6.47	3.79	4.38	6.90	7.62	3.63	5.38	5.52	2.93
mgd	16.7	22.9	7.95	10.0	5.86	6.78	10.7	11.8	5.62	8.32	8.54	4.53
cfs	1,050	1,410	473	615	349	417	656	654	345	495	525	269
Ac-ft												
Calendar year 1958:	Max 148	Min 1.20	Mean(mgd) 6.60	Mean(cfs) 10.2	Ac-ft 7,400							
Fiscal year 1958-59:	Max 148	Min 1.32	Mean(mgd) 6.46	Mean(cfs) 10.0	Ac-ft 7,240							

Peak discharge (base, 100 mgd)--July 17 (7 a.m.) 162 mgd (251 cfs), 3.73 ft; Aug. 7 (1 p.m.) 608 mgd (941 cfs), 5.75 ft; Jan. 13 (5 p.m.) 200 mgd (309 cfs), 4.00 ft; Jan. 18 (2 p.m.) 266 mgd (412 cfs), 4.33 ft.

* Discharge measurement made on this day.

7580. Waikoloa Stream at Marine Dam, near Kamuela

Location.--Lat 20°02'48", long 155°39'58", on right bank 160 ft upstream from Marine Dam and 1.5 miles north of Kamuela.

Drainage area.--1.18 sq mi.

Records available.--May 1947 to June 1959.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 3,450 ft (from topographic map).

Average discharge.--12 years, 6.37 mgd (9.87 cfs).

Extremes.--Maximum discharge during year, 755 mgd (1,170 cfs) Aug. 7 (gage height, 5.90 ft), from rating curve extended above 14 mgd by logarithmic plotting; minimum, 1.22 mgd (1.89 cfs) Jan. 12.

1947-59: Maximum discharge, 1,180 mgd (1,830 cfs) Oct. 23, 1957 (gage height, 6.99 ft), from rating curve extended above 14 mgd by logarithmic plotting; minimum, 0.65 mgd (1.01 cfs) Dec. 1, 1954.

Remarks.--Records fair. Diversion above station for stock and domestic use.

Revisions.--WSP 1569: Drainage area.

Rating table, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

1.5	1.15	2.2	14.5
1.6	2.0	2.4	24
1.7	3.05	2.6	36.5
1.8	4.5	3.0	71
1.9	6.4	3.5	129
2.0	8.6	4.0	209

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.1	49	4.9	2.3	2.85	1.43	2.0	32	3.3	7.7	5.0	2.1
2	12.9	9.1	4.0	2.1	2.5	2.7	1.74	11.6	2.85	49	10.3	3.15
3	6.8	9.4	5.2	2.0	2.2	2.0	1.58	4.0	2.5	14.5	10.9	4.4
4	4.3	6.8	4.0	1.74	2.2	1.66	1.50	3.55	2.5	5.7	6.1	2.4
5	2.95	18.2	5.8	1.74	2.0	1.50	1.50	2.7	3.8	3.3	6.1	2.0
6	2.3	19.3	21	1.66	2.7	4.1	1.43	2.2	4.8	2.4	11.5	2.5
7	2.1	181	14.1	1.58	3.9	5.0	1.43	1.82	3.3	2.5	14.2	3.45
8	3.3	25	9.3	1.50	5.5	2.95	1.36	1.74	2.85	13.0	25.5	2.5
9	4.9	18.8	9.0	1.43	27.5	20.5	1.36	1.66	3.3	11.2	11.3	2.2
10	5.0	11.9	6.3	1.43	9.1	24	1.36	1.58	2.85	8.4	24	5.0
11	15.3	6.0	5.8	1.43	4.6	5.2	1.29	1.50	2.3	11.4	6.2	5.9
12	12.8	4.5	7.3	1.43	3.05	11.2	1.29	1.74	12.4	6.5	6.4	4.8
13	16.2	3.7	5.1	1.43	2.5	8.0	34.5	3.7	12.6	2.95	18.4	2.5
14	23.5	7.5	4.3	1.50	2.5	3.05	10.8	9.5	5.0	2.3	15.1	10
15	3.95	30.5	4.3	14.7	2.3	2.4	7.7	3.05	5.2	2.1	17.5	6.1
16	66	11.2	3.3	26.5	2.0	5.3	*4.0	2.5	4.0	1.82	9.0	5.4
17	84	10.4	2.85	15.7	11.9	6.9	2.4	2.85	8.4	1.74	4.2	3.35
18	22.5	10.4	4.2	11.1	9.7	2.85	119	22.5	13.7	1.74	4.0	2.2
19	17.7	4.9	5.4	4.7	14.6	16	7.7	34.5	13.3	2.2	4.9	1.82
20	12.1	5.7	7.3	5.5	4.4	10.5	3.3	46	7.5	8.4	3.3	1.74
21	12.9	13.1	9.2	35	2.85	3.05	2.5	16.2	4.2	7.0	2.7	2.6
22	4.7	14.3	10.8	54	2.6	2.95	2.1	10.4	6.5	7.9	3.05	2.4
23	3.45	6.0	9.1	16.6	2.3	3.45	*12.9	10.8	5.3	3.85	3.7	2.0
24	9.9	30	5.6	11.7	2.2	3.3	15.3	18.3	2.6	6.0	2.7	1.66
25	*15.4	27.5	5.2	7.8	2.0	3.2	3.45	12.1	2.7	4.6	3.6	1.58
26	15.2	9.4	*5.8	5.4	2.0	5.0	2.4	21	2.85	3.7	4.0	1.50
27	4.5	22	4.3	4.0	1.74	3.7	2.0	10.5	*2.3	4.7	2.4	1.50
28	3.3	30.5	2.7	5.0	*1.66	2.4	1.74	4.9	1.82	6.2	2.2	1.50
29	4.1	12.2	2.4	15.5	1.50	2.2	1.74	-	3.2	13.7	*5.5	3.6
30	9.3	6.0	2.7	7.2	1.43	4.1	1.66	-----	3.15	8.6	5.8	1.15
31	15.6	5.0	-----	4.0	-----	2.3	2.9	-----	2.1	-----	2.6	-----
Total	421.05	629.3	191.25	267.67	138.28	172.89	255.93	294.89	151.17	225.10	252.15	93.06
Mean:	13.6	20.3	6.38	8.63	4.61	5.58	8.26	10.5	4.88	7.50	8.13	3.10
mgd	21.0	31.4	9.87	13.4	7.13	8.63	12.8	16.2	7.55	11.6	12.6	4.80
cfs	1,290	1,930	587	821	424	531	785	905	464	691	774	286
Ac-ft												

Calendar year 1958: Max 191 Min 1.22 Mean(mgd) 8.81 Mean(cfs) 13.6 Ac-ft 9,860

Fiscal year 1958-59: Max 191 Min 1.29 Mean(mgd) 8.47 Mean(cfs) 13.1 Ac-ft 9,490

Peak discharge (base, 100 mgd).--July 17 (7:30 a.m.) 187 mgd (289 cfs), 3.89 ft; Aug. 7 (1 a.m.) 755 mgd (1,170 cfs), 5.90 ft; Oct. 22 (3 a.m.) 109 mgd (169 cfs), 3.34 ft; Jan. 13 (2 p.m.) 177 mgd (274 cfs), 3.82 ft; Jan. 18 (11:30 a.m.) 288 mgd (446 cfs), 4.37 ft.

* Discharge measurement made on this day.

7590. Hauani Stream near Kamuela

Location.--Lat 20°02'28", long 155°39'05", on left bank 1,350 ft below Hawaii County pipe-line intake and 1.8 miles northeast of Kamuela.

Drainage area.--0.47 sq mi (revised).

Records available.--March 1956 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 3,117.42 ft above mean sea level (Hawaii County Board of Water Supply bench mark).

Extremes.--Maximum discharge during year, 206 mgd (319 cfs) Aug. 7 (gage height, 3.53 ft), from rating curve extended above 7 mgd by slope-conveyance studies; minimum, 0.06 mgd (0.09 cfs) Jan. 12.

1956-59: Maximum discharge, 325 mgd (503 cfs) Oct. 23, 1957 (gage height, 4.65 ft), from rating curve extended above 7 mgd by slope-conveyance studies; minimum, 0.01 mgd (0.02 cfs) Apr. 3, 4, June 9, 10, 1957.

Remarks.--Records good except those for periods of fragmentary gage-height record, which are fair.

Rating tables, fiscal year 1958-59 (gage height, in feet, and discharge, in million gallons a day)

July 1 to June 8				June 9-30			
0.72	0.01	1.6	24	0.79	0.10	1.2	1.86
.8	.12	1.7	32	.8	.12	1.4	4.05
1.0	1.60	1.8	40	1.0	.74		
1.2	5.5	2.0	56				
1.4	12.6						

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.80	16.2	0.80	0.28	0.44	0.17	0.21	8.3	0.44	0.95	0.72	0.28
2	2.7	2.95	.80	.28	.38	.25	.17	1.60	.38	19.2	1.81	.44
3	.80	1.88	.90	.28	.38	.17	.17	.57	.33	3.25	2.65	.50
4	.50	1.20	.72	.25	.33	.14	.17	.57	.38	1.00	.80	.25
5	.44	4.4	.90	.25	.28	.14	.17	.38	.64	.58	.72	.17
6	.38	4.1	8.8	.21	.33	.12	.14	.28	.64	.33	1.95	.28
7	.38	5.5	2.8	.21	.44	.44	.12	.25	.38	.33	3.3	.44
8	.44	6.6	1.60	.17	.72	.38	.12	.21	.28	2.35	6.0	.25
9	.57	4.0	1.48	.17	7.2	5.2	.12	.17	.28	1.67	3.25	.29
10	.80	2.35	1.00	.21	1.59	5.3	.09	.17	.28	.98	4.5	.49
11	2.45	1.20	.80	.17	.72	.99	.07	.17	.21	1.63	.80	.95
12	2.6	.80	1.00	.21	.44	2.05	.07	.21	1.57	.80	.85	.60
13	3.85	.64	.72	.17	.38	1.32	f6.3	10.8	1.72	.38	4.0	.32
14	5.4	1.17	.72	.14	.38	.44	f2.0	1.74	.57	.28	2.85	2.05
15	10.9	7.4	.72	1.85	.33	.33	1.19	.38	.57	.25	3.3	.77
16	28	2.2	*.50	4.5	.28	.38	.44	.33	.65	.21	1.40	.85
17	38	2.75	.44	11.4	3.2	.80	.28	.38	1.94	.21	.57	.53
18	*5.8	2.0	.44	1.92	*1.96	.38	f21.5	7.2	2.9	.21	.57	.32
19	3.9	.80	.38	.57	3.3	3.65	2.15	11.0	2.5	.36	.57	.29
20	3.05	.80	.64	.68	.72	2.65	*.56	13.1	1.10	1.74	*.44	.29
21	2.5	2.4	1.00	14.8	.44	.44	.33	3.1	.57	.80	.44	.41
22	.80	2.8	1.00	17.9	.38	.44	.28	1.60	.72	1.10	.38	.32
23	.72	.90	1.32	4.6	.33	.44	3.45	1.33	.38	.50	.44	.29
24	2.2	10.4	.84	2.55	.33	.38	3.4	4.2	*.33	.80	.38	.23
25	3.55	6.4	.57	1.20	.28	.38	.44	2.0	.28	.64	.38	.21
26	4.1	1.88	.72	.72	.25	.44	.28	3.95	.25	.57	.38	.16
27	.80	5.7	.57	.57	.21	.38	.21	1.88	.21	.57	.28	.14
28	.64	10.6	.38	.76	.21	.25	.21	.72	.21	1.92	.25	.10
29	.72	2.2	.33	3.6	.21	.28	.21	-	.25	2.55	.44	.14
30	2.25	1.10	.33	.57	.17	.17	.17	-----	.28	1.42	.38	.38
31	2.6	.90	-----	.57	-----	.25	.73	-----	.17	-----	.33	-----
Total	133.84	163.72	33.02	72.39	26.61	29.55	45.75	76.59	21.41	47.38	45.18	12.74
Mean:												
mgd	4.32	5.28	1.10	2.34	0.887	0.955	1.48	2.74	0.691	1.58	1.46	0.425
cfs	6.68	8.17	1.70	3.62	1.37	1.47	2.28	4.24	1.07	2.44	2.28	0.658
Ac-ft	411	502	101	222	82	91	140	255	66	145	139	39
Calendar year 1958:	Max 107	Min 0.04	Mean(mgd)	1.91	Mean(cfs)	2.96	Ac-ft 2,140					
Fiscal year 1958-59:	Max 55	Min 0.07	Mean(mgd)	1.94	Mean(cfs)	3.00	Ac-ft 2,170					

Peak discharge (base, 50 mgd).--July 17 (7 a.m.) 116 mgd (179 cfs), 2.68 ft; Aug. 7 (12 m.) 206 mgd (319 cfs), 3.53 ft; Sept. 6 (8 p.m.) 98 mgd (152 cfs), 2.49 ft.

* Discharge measurement made on this day.
f Fragmentary gage-height record; discharge computed from partly estimated gage heights and records for stations on nearby streams.

7595. Waiaha Stream near Holualoa

Location.--Lat 19°38'20", long 155°56'35", on left bank half a mile upstream from Board of Water Supply office, 1.2 miles north of Holualoa Post Office, and 3.5 miles east of Kailua, Kona.

Drainage area.--About 7.3 sq mi.

Records available.--December 1957 to June 1959.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 1,940 ft (from topographic map).

Extremes.--1957-58: Maximum discharge during period December to June, 7.10 mgd (11.0 cfs) Mar. 7 (gage height, 1.00 ft); no flow for many days.
1958-59: Maximum discharge during fiscal year, 558 mgd (863 cfs) Jan. 18 (gage height, 4.76 ft), from rating curve extended above 8.3 mgd by logarithmic plotting; no flow for many days.

Remarks.--Records good except those above 8.3 mgd, which are fair, and those for periods of no gage-height record, which are poor. Kona Inn has an offstream reservoir about 1 mile upstream from gage and diverts water from stream. High flows may leave channel above station and enter adjacent streams.

Rating table, Dec. 18, 1957, to June 30, 1959 (gage height, in feet, and discharge, in million gallons a day)

0.25	0	0.9	5.20
.24	.01	1.2	12.0
.30	.02	1.5	25.0
.40	.15	2.0	52.0
.5	.54	2.5	96
.7	2.18	3.0	157

Discharge, in million gallons a day, December 1957 to June 1958

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1						-			0		0	0.02
2						-			0		0	.02
3						-			0		0	.03
4						-			0		0	.02
5						-			0		.01	.02
6						-			.49		.01	.04
7						-			.85		.01	.16
8						-			.05		.01	.06
9						-			.05		.01	.04
10						-			.13		.01	.22
11						-			.03		.05	.08
12						-			0		.01	.04
13						-			0		.02	.03
14						-			0		.01	.19
15						-			0		.01	.42
16						-			.18		.01	.06
17						-			.03		.03	.04
18						-			0		*.02	.03
19						0			0		.01	.02
20						0			0		.01	.01
21						0			0		.01	.01
22						0			0		.01	.01
23						0			0		.01	.01
24						0			0		*.01	.01
25						0			0		.01	.01
26						0			0		.10	.01
27						0			0		*.05	.01
28						0			0		.13	.01
29						0			0		.03	.01
30						0			0		.02	.01
31						0			0		.02	-----
Total						-	0	0	1.60	0	0.81	1.65
Mean: mgd						-	0	0	0.052	0	0.026	0.055
cfs						-	0	0	0.080	0	0.040	0.085
Ac-ft						-	0	0	4.9	0	2.5	5.1
Calendar year		. Max		Min		Mean(mgd)		Mean(cfs)		Ac-ft		
Fiscal year		: Max		Min		Mean(mgd)		Mean(cfs)		Ac-ft		

Peak discharge (base, 100 mgd).--No peak above base.

* Discharge measurement made on this day.

Note.--No gage-height record Mar. 8-26, May 9-17; discharge estimated on basis of records for stations on nearby streams.

7595. Waiaha Stream near Holualoa--Continued

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.01	0.01	0.01	0	0.01	0	0	0	0	0	0.01	0.02
2	.02	.01	.01	0	.01	0	0	0	0	0	0	.01
3	.01	.05	.01	0	0	0	0	0	0	0	0	.01
4	.01	.08	.01	0	0	0	0	0	0	.11	.01	.01
5	.01	.04	0	0	0	0	0	0	0	.10	.01	.01
6	.01	.01	0	0	0	0	0	0	0	.01	.01	.01
7	.01	.02	0	0	0	0	0	0	0	.01	.01	.01
8	.01	.80	0	0	0	0	0	0	0	.01	.01	.01
9	.01	.40	.01	0	0	0	0	0	0	0	.01	.01
10	0	.77	.03	0	0	0	0	0	0	0	.01	.01
11	0	.58	.01	0	0	0	0	0	0	0	.01	.01
12	.01	.18	.01	.01	0	0	0	0	0	0	.01	0
13	.01	.05	.01	.01	0	0	25	0	0	0	.01	0
14	.01	.02	.01	0	0	0	6.9	0	2.25	*0	.01	0
15	0	.01	.01	0	.01	0	.22	0	.02	0	.01	0
16	0	.01	0	0	0	0	.01	0	.01	0	.01	0
17	0	.01	0	.01	0	0	.01	0	.01	0	0	.02
18	0	0	0	.01	0	0	156	0	.01	0	0	.01
19	0	0	0	.01	0	0	*1.45	0	.01	0	0	.01
20	.01	0	0	.01	0	0	.08	0	0	.02	0	.01
21	.02	0	0	.01	0	0	.02	.19	0	.01	0	.01
22	.02	0	0	.06	0	0	.01	.22	0	.02	0	.01
23	.01	0	0	.12	0	0	.01	.03	0	.11	0	.01
24	.01	.01	0	4.3	0	0	.01	.01	0	.02	0	.01
25	.01	.01	0	.04	0	0	0	.01	0	.02	.01	.01
26	.01	.01	0	.80	0	0	0	.01	0	.04	.03	.01
27	.01	.01	0	.02	0	0	0	0	0	.02	.57	.01
28	.01	.73	0	.01	0	0	0	0	0	.01	.04	.01
29	0	*18.0	0	.01	0	0	0	-	0	.01	.01	.01
30	0	*.77	0	.01	0	.01	0	0	0	.01	.26	.01
31	.01	.02	-----	.01	-----	0	0	-----	0	-----	.17	-----
Total	0.25	22.61	0.13	5.45	0.03	0.01	189.72	0.47	2.31	0.74	1.24	0.27
Mean:												
mgd	0.008	0.729	0.004	0.176	0.001	0.0003	6.12	0.017	0.075	0.025	0.040	0.009
cfs	0.012	1.13	0.006	0.272	0.002	0.0005	9.47	0.026	0.116	0.039	0.062	0.014
Ac-ft	0.8	69	0.4	17	0.09	0.03	582	1.4	7.1	2.3	3.8	0.8
Calendar year 1958:	Max 18			Min 0		Mean(mgd) 0.089		Mean(cfs) 0.138		Ac-ft 100		
Fiscal year 1958-59:	Max 156			Min 0		Mean(mgd) 0.812		Mean(cfs) 0.947		Ac-ft 695		
Peak discharge (base, 100 mgd).--	Jan. 13 (4 p.m.)	199 mgd (308 cfs),	3.28 ft;	Jan. 18 (5 a.m.)	558 mgd (863 cfs),	4.76 ft.						

* Discharge measurement or observation of no flow made on this day.

7598. Killae Stream near Honaunau

Location.--Lat 19°24'52", long 155°50'56", on right bank 2.3 miles east of Belt Road and 3.2 miles southeast of Honaunau cemetery.

Records available.--April 1958 to June 1959.

Gage.--Water-stage recorder. Datum of gage is 2,898 ft above mean sea level (by stadia traverse).

Extremes.--1958: Maximum discharge during period April to June, 4.4 mgd (6.8 cfs) May 16 (gage height, 1.38 ft); minimum, 0.01 mgd (0.016 cfs) May 3.

1958-59: Maximum discharge during fiscal year, 67 mgd (104 cfs) Jan. 13 (gage height, 2.32 ft), from rating curve extended above 4 mgd on basis of logarithmic plotting; no flow at times.

Remarks.--Records good.

Rating tables, Apr. 27, 1958, to June 30, 1959 (gage height, in feet, and discharge, in million gallons a day)

Apr. 27, 1958, to Jan. 18, 1959				Jan. 18 to June 30, 1959			
0.55	0	1.0	0.62	0.5	0	0.9	0.40
.6	.02	1.1	1.14	.6	.03	1.0	.79
.7	.06	1.3	1.3	.7	.08	1.1	1.40
.8	.12	1.5	7.0	.8	.18		
.9	.30						

Discharge, in million gallons a day, 1958

Day	Apr.	May	June	Day	Apr.	May	June	Day	Apr.	May	June	Day	Apr.	May	June
1	-	0.04	0.33	9	-	0.04	0.26	17	-	0.63	0.21	25	-	0.28	0.14
2	-	.03	.36	10	-	.02	.21	18	-	*.31	.10	26	(*)	.31	.57
3	-	.41	.30	11	-	.19	.68	19	-	.30	.06	27	0.05	.16	.13
4	-	.19	.59	12	-	.12	.96	20	-	.22	.04	28	.05	.23	.05
5	-	.24	.22	13	-	.25	.76	21	-	.30	.04	29	.05	.50	.04
6	-	.29	.49	14	-	.15	.33	22	-	.12	.07	30	-	.22	-
7	-	.12	.57	15	-	.24	.55	23	-	.11	.33	31	-	.29	-
8	-	.07	.37	16	-	*.16	.13	24	-	.14	.11				

Total.....														7.68	9.07
Mean in million gallons a day.....														0.248	0.302
Mean in cubic feet per second.....														0.384	0.467
Runoff in acre-feet.....														24	28

Peak discharge (base, 20 mgd).--No peak above base.

* Discharge measurement made on this day.

Discharge, in million gallons a day, fiscal year July 1958 to June 1959

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.44	0.08	0.08	0	0.04	0	0	0	0.01	0.11	0.18	0.13
2	.84	.04	.09	.01	.03	0	0	0	0	.43	.38	.17
3	.33	.12	.05	.03	.01	0	0	0	0	.19	.27	.06
4	.10	.49	.04	.02	.01	0	0	0	0	.18	.10	.03
5	.13	.22	.03	.05	0	0	0	0	0	.08	.07	.04
6	.08	.06	.01	.05	0	0	0	0	0	.03	.05	.02
7	.05	.04	0	.05	0	0	0	0	0	.01	.30	.06
8	.11	1.02	.01	.02	0	0	0	0	0	.02	.05	.09
9	.04	3.2	.05	0	0	0	0	0	0	.13	.03	.08
10	.20	.28	.10	.01	0	0	0	.24	.01	.13	.40	.28
11	.12	.22	.06	.17	0	0	0	.07	.04	.17	.61	.13
12	.06	.35	.06	.14	0	0	0	.06	.10	.20	.10	.16
13	.05	.14	.13	.06	.02	0	2.3	.43	.63	.10	.28	.15
14	.04	.08	.09	.03	.22	0	.55	.03	.49	.05	.07	.07
15	.05	.05	.05	.02	.14	0	.23	0	.08	.02	.02	.84
16	.05	.03	.19	.80	0	0	.03	0	.03	.01	.01	.75
17	*.02	.04	.54	.10	.02	.05	0	0	.03	0	.01	.50
18	.01	.05	.07	.04	0	.14	5.4	.06	.02	.09	.01	.25
19	.09	.05	.04	.03	0	.04	.07	.07	.07	.09	.13	.09
20	1.26	.39	.04	.01	.04	.02	.02	.99	.05	.35	.09	.05
21	.19	.05	.43	0	.03	.02	.01	1.24	.04	.49	.05	.05
22	.08	.77	.09	0	0	0	0	.19	.01	.14	.36	.12
23	.04	.21	.06	.53	0	0	0	.05	.01	.18	.25	.10
24	.04	.10	.08	.82	0	0	0	.02	.01	.14	.22	.08
25	.02	.18	.04	.12	0	0	0	.03	.01	.11	.11	.06
26	.03	.11	.02	.76	0	0	0	.02	0	.07	.21	.03
27	.07	.07	*.01	.08	0	0	0	0	.05	.05	.22	.01
28	.12	.28	.01	.80	0	0	0	.03	.35	.28	.07	.02
29	.25	.87	0	.11	0	.01	0	-	.10	.17	.04	.04
30	.05	.86	0	.06	0	.32	0	-	.03	.14	.23	.03
31	.47	.26	-	.05	-	.01	0	-	.07	-	.09	-
Total	5.43	10.51	2.47	4.97	0.56	0.61	8.61	3.53	2.24	4.14	5.01	4.49
Mean	0.175	0.339	0.082	0.160	0.019	0.020	0.278	0.126	0.072	0.138	0.162	0.150
cfs	0.271	0.525	0.127	0.248	0.029	0.031	0.430	0.195	0.111	0.214	0.251	0.232
Ac-ft	17	32	7.6	15	1.7	1.9	26	11	6.9	13	15	14

Calendar year 1958: Max - 5.4 Min 0 Mean(mgd) - 0.144 Mean(cfs) - 0.223 Ac-ft - 161

Fiscal year 1958-59: Max 5.4 Min 0 Mean(mgd) - 0.144 Mean(cfs) - 0.223 Ac-ft - 161

Peak discharge (base, 20 mgd).--Aug. 9 (3 p.m.) 55 mgd (85 cfs), 2.23 ft; Jan. 13 (4:30 p.m.) 67 mgd (104 cfs), 2.32 ft; Jan. 18 (1 p.m.) 23.15 mgd (36.4 cfs), 1.88 ft.

* Discharge measurement made on this day.

2185. Pearl Harbor Springs at Kaluaopu, near Pearl City, Oahu

Location.--Lat 21°23'30", long 157°57'55", 0.2 mile downstream from Kamehameha Highway, 0.7 mile east of Pearl City, and 8.7 miles northwest of Honolulu.

Records available.--August 1931 to May 1937, February 1952 to June 1953 (discontinued). Records for November 1943 to October 1947 published in WSP 1015, 1045, 1065, 1095, and 1125, have been found to be unreliable and should not be used.

Gage.--Water-stage recorder and Parshall flume. Datum of gage is 0.90 ft below mean sea level.

Extremes.--Not determined.

Remarks.--Hawaiian Electric Co.'s pump diverts water when needed by Oahu Sugar Co. for irrigation of sugarcane. Surface runoff caused by floods not included in figures of discharges given herein.

Revisions.--Revised figures of discharge for the fiscal year 1936, superseding those published in WSP 815, are given herein.

Discharge, in million gallons a day, fiscal year July 1935 to June 1936

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.8	17.8	17.6	18.0	18.8	19.2	18.0	18.4	18.4	20.5	18.0	16.8
2	17.8	17.8	17.2	18.0	18.8	20.0	18.0	18.4	18.4	20.5	18.4	16.8
3	17.8	17.8	16.8	18.0	18.8	20.0	18.0	18.4	18.4	19.7	18.8	16.8
4	17.8	17.8	16.8	18.0	18.8	20.0	18.0	18.4	18.4	18.8	18.8	16.8
5	17.8	17.8	16.8	18.0	18.8	20.0	18.0	18.4	18.4	18.4	18.4	16.8
6	17.4	17.8	16.8	17.6	18.8	20.0	18.0	18.4	18.0	18.0	18.0	16.8
7	17.4	17.8	17.2	17.6	18.8	19.0	18.0	18.4	18.0	18.0	17.6	16.8
8	17.0	17.8	17.2	17.6	18.8	19.0	18.0	18.4	18.0	18.0	17.6	16.8
9	17.4	17.8	17.6	17.6	18.8	19.0	18.0	18.4	18.0	18.0	17.6	16.8
10	17.8	17.8	17.6	17.6	18.8	19.0	18.0	18.4	18.0	18.0	17.6	16.8
11	18.2	17.8	17.6	17.6	18.8	19.0	17.6	18.4	18.0	18.0	17.6	16.8
12	18.6	17.8	17.6	18.0	18.8	19.0	18.0	18.4	18.0	18.0	17.6	16.8
13	18.2	17.8	18.0	18.4	18.8	19.0	18.0	18.4	18.0	18.0	17.6	16.8
14	18.6	17.8	18.0	18.4	18.8	19.0	18.0	18.4	18.0	18.0	17.6	16.8
15	18.6	17.8	18.4	18.8	18.8	19.0	18.0	18.4	18.0	18.0	17.6	16.8
16	18.6	17.8	18.4	18.8	18.8	18.0	18.0	18.4	18.0	18.0	17.6	16.8
17	18.6	17.8	18.4	18.8	19.2	18.0	18.0	18.4	18.0	18.0	17.6	16.8
18	18.6	17.8	18.4	18.8	19.2	18.0	18.0	18.4	18.0	17.6	17.6	16.8
19	18.2	17.8	17.6	18.8	18.8	18.0	18.0	18.4	18.0	17.6	17.6	16.8
20	18.2	17.8	17.6	18.8	18.4	18.0	18.0	18.4	18.0	17.6	17.6	16.8
21	18.6	17.8	17.6	18.8	18.4	18.0	18.0	18.4	18.0	17.2	17.6	16.8
22	18.6	17.8	17.6	19.2	18.4	18.0	18.4	18.4	18.0	17.2	17.2	16.8
23	18.2	17.8	17.6	19.2	18.4	18.0	18.0	18.4	18.0	17.2	17.2	16.8
24	18.2	17.8	17.6	19.2	18.4	18.0	17.6	18.4	18.0	17.2	17.2	16.8
25	18.2	17.8	17.6	18.8	18.0	18.0	18.0	18.6	18.0	17.2	17.2	16.8
26	18.2	17.8	17.6	18.8	18.0	18.0	18.0	18.8	18.0	17.6	17.2	16.8
27	18.2	17.8	18.0	18.8	18.0	18.0	18.0	18.4	18.0	17.6	16.8	16.8
28	18.2	17.8	18.0	18.8	18.0	18.0	18.0	18.4	18.0	17.6	16.8	16.8
29	18.2	17.8	18.0	18.8	18.4	18.0	18.0	18.4	18.4	17.6	16.8	16.2
30	18.2	17.8	18.0	18.8	18.4	18.0	18.4	-	19.7	17.6	16.8	16.4
31	17.8	17.8	-----	18.8	-----	18.0	18.4	-----	20.5	-----	16.8	-----
Total	561.0	551.8	529.2	571.2	558.8	578.2	558.4	534.4	564.6	540.7	544.4	503.0
Mean:												
mgd	18.1	17.8	17.6	18.4	18.6	18.7	18.0	18.4	18.2	18.0	17.6	16.8
cfs	28.0	27.5	27.2	28.5	28.8	28.9	27.9	28.5	28.2	27.9	27.2	28.0
Ac-ft	1,720	1,690	1,620	1,750	1,720	1,770	1,710	1,640	1,730	1,660	1,670	1,540
Calendar year 1935: Max	-	-	-	Min	-	Mean(mgd)	-	Mean(cfs)	-	Ac-ft	-	-
Fiscal year 1935-36: Max	20.5			Min	16.2	Mean(mgd)	18.0	Mean(cfs)	27.9	Ac-ft	20,220	

2410. Manoa Stream at upper Manoa Valley, near Honolulu, Oahu

Location--Lat 21°19'30", long 157°48'25", 0.4 mile downstream from confluence of East and West Branches, and 3.8 miles northeast of Honolulu Post Office.

Drainage area--2.62 sq mi.

Records available--November 1910 to July 1913 (discontinued).

Gage--Staff gage. Altitude of gage is 220 ft (from topographic map). Prior to Aug. 11, 1911, at site 500 ft downstream at different datum.

Extremes--1910-13: Maximum discharge observed, 226 mgd (350 cfs) Feb. 6, 1911 (gage height, 7.20 ft); minimum observed, 0.3 mgd (0.4 cfs) Sept. 1-3, Oct. 8, 17-19, 21, 1912.

Remarks--Several small ditches divert water for irrigation upstream.

Revisions--Revised figures of discharge, in million gallons a day, for fiscal years 1911 and 1912, superseding those published in WSP 318, are given herein.

Discharge, in million gallons a day, November 1910 to June 1911

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1					-	6.4	6.5	7.1	5.5	2.1	3.1	9.0
2					-	7.7	4.9	7.1	12	2.1	7.8	18
3					-	5.9	4.4	12	7.8	2.6	7.8	15
4					-	5.9	3.8	9.0	4.2	2.1	3.1	10
5					-	11	6.0	9.7	3.6	2.1	2.6	7.1
6					-	26	5.5	11.2	3.1	2.1	5.5	7.1
7					6.0	8.4	4.4	14	3.1	2.1	5.5	10
8					6.0	6.4	6.0	11	6.2	2.1	3.7	7.9
9					5.4	5.9	4.4	10	7.1	2.1	3.7	7.1
10					13	5.9	7.1	19	8.3	1.7	4.2	6.2
11					7.1	4.8	7.1	11	3.6	2.6	3.1	5.5
12					6.0	4.8	16	8.4	3.1	2.6	3.1	6.2
13					7.8	4.8	7.1	7.1	3.1	3.1	4.2	10
14					4.8	4.2	6.5	6.2	3.1	2.6	4.9	14
15					8.4	4.2	5.5	8.4	3.1	2.1	4.9	5.5
16					4.5	3.9	4.4	5.5	3.6	4.2	4.2	7.9
17					7.1	3.9	8.4	5.5	3.1	2.6	3.1	4.2
18					6.0	3.9	6.0	4.2	2.6	5.5	3.1	3.1
19					9.0	3.9	4.9	4.2	3.1	25	5.5	3.1
20					4.8	3.9	4.4	3.1	2.6	10	9.1	3.6
21					3.8	3.3	4.4	3.1	2.1	9.0	25	8.5
22					3.8	4.8	4.4	2.6	9.0	5.5	10	3.6
23					4.3	4.2	8.4	1.7	7.1	16	5.5	3.6
24					3.8	25	28	11	3.6	10	4.2	3.1
25					3.8	11	14	5.5	4.8	7.1	3.7	7.1
26					17	19	9.1	11	8.3	5.5	3.1	4.2
27					36	26	19	10	3.1	5.5	29	7.9
28					8.4	6.4	26	7.8	3.1	9.0	8.5	3.1
29					12	7.1	9.7	-	2.6	4.2	11	7.9
30					7.8	21	8.4	-----	2.6	3.1	10	5.5
31					-----	11	7.7	-----	2.6	-----	10	-----
Total					-	270.6	262.4	327.2	140.8	156.3	212.2	215.0
Mean:					-	8.73	8.46	11.7	4.54	5.21	6.85	7.17
mgd					-	13.5	13.1	18.1	7.03	8.06	10.6	11.1
cfs					-	830	805	1,000	432	480	651	660
Ac-ft												
Calendar year	. Max		Min		Mean(mgd)		Mean(cfs)		Ac-ft			
Fiscal year	: Max		Min		Mean(mgd)		Mean(cfs)		Ac-ft			

2410. Manoa Stream at upper Manoa Valley, near Honolulu, Oahu--Continued

Discharge, in million gallons a day, fiscal year July 1911 to June 1912

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.4	<u>2.1</u>	2.1	<u>4.8</u>	<u>1.5</u>	<u>1.5</u>	1.1	<u>0.4</u>	1.0	0.8	0.7	0.7
2	3.1	<u>2.6</u>	2.1	<u>3.4</u>	<u>1.5</u>	<u>1.5</u>	1.1	<u>1.1</u>	1.1	.8	.7	.7
3	3.1	<u>2.6</u>	2.1	<u>3.8</u>	<u>1.5</u>	2.1	1.1	.5	<u>.8</u>	<u>.8</u>	.7	.7
4	2.6	<u>4.2</u>	2.4	<u>3.4</u>	<u>1.5</u>	1.5	1.0	.5	<u>.5</u>	<u>.8</u>	.7	.8
5	4.8	4.2	2.1	2.7	1.5	2.1	1.0	.5	<u>.5</u>	1.0	.9	.6
6	7.0	2.6	2.1	3.4	1.5	1.5	1.1	.5	.5	1.2	.6	.6
7	<u>14</u>	2.6	2.1	2.7	1.5	2.4	1.1	.6	.5	2.0	<u>.5</u>	<u>.7</u>
8	<u>4.2</u>	4.2	<u>1.5</u>	2.7	2.1	1.8	<u>1.9</u>	.7	.9	2.3	<u>.5</u>	<u>.5</u>
9	3.1	9.0	1.5	2.4	2.7	1.5	1.1	.5	2.7	2.6	.5	.5
10	5.4	7.8	1.8	2.1	2.7	1.5	1.1	.7	4.3	1.7	.5	.5
11	14	3.9	6.3	2.1	3.4	3.9	1.2	.5	<u>12</u>	1.2	.5	.5
12	6.1	6.4	3.0	2.1	<u>7.4</u>	1.8	.8	.5	6.5	1.0	.5	.5
13	5.4	6.4	2.1	2.1	<u>3.0</u>	1.8	.8	.5	7.1	1.7	.5	.6
14	4.2	4.8	2.1	2.1	2.7	1.5	1.2	.5	3.1	1.2	.6	.6
15	3.6	3.9	2.1	2.1	2.7	1.5	1.0	.5	2.5	1.7	.5	.6
16	5.4	3.9	1.5	2.1	3.4	2.1	.8	.5	2.1	<u>5.8</u>	.5	.5
17	4.2	10	5.9	1.5	2.1	2.7	.8	.5	1.8	<u>3.4</u>	.5	.6
18	3.1	5.2	4.3	1.5	2.1	3.4	.8	.5	1.6	2.4	.5	.7
19	3.1	<u>15</u>	2.4	1.5	1.5	2.7	.8	.5	1.4	1.7	.5	.7
20	3.1	<u>5.2</u>	6.9	1.5	1.5	2.4	.8	.5	1.4	1.4	.5	.5
21	4.2	3.4	17	1.5	1.5	<u>7.4</u>	.8	1.0	1.4	1.2	.6	.5
22	5.1	3.4	<u>20</u>	1.2	1.5	<u>5.9</u>	.8	.7	1.4	1.2	.5	.5
23	4.8	2.7	<u>17</u>	<u>.6</u>	1.5	2.7	.8	<u>8.5</u>	1.4	1.2	.5	.5
24	3.1	2.7	20	1.0	2.4	2.7	.8	<u>3.4</u>	.9	1.1	2.0	.5
25	3.1	2.7	6.9	1.2	1.8	2.7	.8	2.5	1.4	1.0	.9	.5
26	2.6	3.4	6.9	2.7	2.1	2.7	.6	1.7	.9	.9	1.7	.5
27	2.6	2.4	5.9	1.5	1.8	3.0	.6	1.5	.9	.8	<u>2.5</u>	.5
28	<u>2.1</u>	2.1	4.3	1.5	1.5	3.4	.6	1.0	.9	.8	<u>2.8</u>	.6
29	2.1	3.9	3.4	2.4	1.5	3.4	.5	1.0	.9	.8	1.1	.7
30	2.1	3.9	12	3.4	1.5	2.7	.5	-----	.9	.8	1.1	.7
31	2.1	2.4	-----	3.4	-----	2.4	.5	-----	.9	-----	.9	-----
Total	136.8	139.6	169.8	70.5	64.9	80.2	27.9	31.6	64.2	45.1	28.8	17.6
Mean:												
mgd	4.41	4.50	5.66	2.27	2.16	2.59	0.90	1.09	2.07	1.50	0.93	0.59
cfs	6.83	6.97	8.75	3.51	3.34	4.00	1.39	1.68	3.21	2.32	1.44	0.91
Ac-ft	420	428	521	216	199	246	85.6	97.0	197	138	88.3	54.0

Calendar year 1911: Max - Min - Mean(mgd) - Mean(cfs) - Ac-ft -
 Fiscal year 1911-12: Max 20 Min 0.4 Mean(mgd) 2.40 Mean(cfs) 3.71 Ac-ft 2,690

2990. Punaluu Stream at elevation 539 ft, near Punaluu, Oahu

Location.--Lat 21°32'30", long 157°54'20", 0.3 mile downstream from confluence of Kalena and Pio branches and 3.1 miles southwest of Punaluu.

Drainage area.--0.98 sq mi.

Records available.--May 1915 to April 1918 (discontinued).

Gage.--Water-stage recorder. Altitude of gage is 540 ft (from topographic map).

Extremes.--1915-16: Maximum discharge during year, 450 mgd (696 cfs) revised, Nov. 10 (gage height, 5.04 ft); minimum daily, 1.8 mgd (2.8 cfs) Apr. 11-24 (gage height, 0.7 ft).

1915-18: Maximum discharge, 700 mgd (1,080 cfs) Apr. 11, 1918 (gage height, 6.6 ft); minimum, 1.5 mgd (2.2 cfs) several days during October and November 1917.

Revisions.--The maximum discharge for the fiscal year 1916 has been revised to 450 mgd (696 cfs) Nov. 10, 1915 (gage height, 5.04 ft), superseding figures published in WSP 445.

Remarks.--No diversion above station.

Revisions.--Revised figures of discharge for the fiscal year 1916, superseding those published in WSP 445, are given herein.

Discharge, in million gallons a day, fiscal year July 1915 to June 1916

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.0	4.6	2.8	4.0	4.0	4.0	6.5	12	4.2	2.5	22	4.2
2	4.0	4.6	2.8	6.2	4.6	4.0	6.5	6.0	6.0	2.5	25	3.2
3	4.0	5.3	2.8	9.0	14	4.0	7.5	5.0	7.0	2.5	9.8	3.2
4	4.0	4.6	2.8	5.3	18	4.0	7.5	5.0	8.2	2.5	13	3.2
5	4.0	4.6	4.0	4.6	9.0	4.0	8.8	8.2	5.0	2.5	16	3.2
6	3.4	4.6	3.4	4.6	7.0	4.0	7.5	6.0	5.0	2.5	9.8	3.2
7	12	4.6	2.8	4.6	6.2	4.0	13	6.0	6.0	2.5	7.0	3.2
8	5.3	4.0	2.8	4.6	9.0	4.0	20	5.0	4.2	2.5	6.0	5.0
9	4.6	4.0	2.8	4.6	10	4.0	16	5.0	4.2	2.5	7.0	3.2
10	4.6	3.4	2.8	4.0	35	3.2	14	6.0	4.2	2.5	6.0	3.2
11	5.3	3.4	2.8	4.0	20	3.2	12	6.0	4.2	1.8	6.0	3.2
12	4.6	3.4	2.8	3.4	12	3.2	10	6.0	4.2	1.8	5.0	2.5
13	4.6	5.3	3.4	4.0	10	3.2	8.8	5.0	4.2	1.8	7.0	2.5
14	4.6	5.3	2.8	4.0	8.8	2.5	6.5	5.0	4.2	1.8	6.0	2.5
15	4.6	4.0	2.8	4.0	7.5	3.2	6.5	4.2	4.2	1.8	5.0	2.5
16	4.6	4.0	3.4	4.0	6.5	3.2	7.5	4.2	4.2	1.8	5.0	4.2
17	5.3	3.4	3.4	4.0	5.5	3.2	20	4.2	4.2	1.8	5.0	3.2
18	9.0	3.4	3.4	4.6	5.5	4.0	70	4.2	3.2	1.8	5.0	2.5
19	5.3	3.4	2.8	4.6	5.5	4.0	22	4.2	3.2	1.8	4.2	2.5
20	4.6	3.4	2.8	4.0	5.5	4.0	14	3.2	3.2	1.8	6.0	2.5
21	6.2	3.4	2.8	4.0	5.5	4.0	13	3.2	3.2	1.8	5.0	4.2
22	5.3	3.4	3.4	4.0	4.8	4.0	13	3.2	3.2	1.8	5.0	4.2
23	4.6	3.4	4.0	4.0	8.8	4.0	12	4.2	3.2	1.8	8.2	3.2
24	4.6	3.4	3.4	4.0	5.5	4.0	12	4.2	3.2	1.8	5.0	3.2
25	4.6	3.4	3.4	4.6	4.8	18	12	4.2	3.2	6.0	5.0	3.2
26	4.0	3.4	3.4	7.0	4.8	7.5	12	3.2	3.2	4.2	5.0	3.2
27	4.6	3.4	3.4	7.0	4.8	25	7.0	4.2	2.5	7.0	7.0	3.2
28	4.6	3.4	3.4	4.6	5.5	20	7.0	3.2	2.5	3.2	5.0	3.2
29	4.6	2.8	4.0	4.0	4.8	14	7.0	3.2	2.5	2.5	4.2	3.2
30	4.6	2.8	4.0	4.0	4.0	12	7.0	-	2.5	3.2	4.2	3.2
31	4.0	2.8	-----	4.0	-----	10	7.0	-----	3.2	-----	4.2	-----
Total	154.1	118.9	95.5	143.3	256.9	195.4	393.6	143.2	125.4	76.3	233.6	96.9
Mean:	4.97	3.84	3.18	4.62	6.56	6.30	12.7	4.94	4.05	2.54	7.54	3.23
mgd	7.69	5.94	4.92	7.15	13.2	9.75	19.6	7.84	6.27	3.93	11.7	5.00
cfs	473	365	293	440	788	600	1,210	439	385	234	717	297
Ac-ft												
Calendar year 1915:	Max	-	Min	-	Mean (mgd)	-	Mean (cfs)	-	Ac-ft	-		
Fiscal year 1915-16:	Max	70	Min	1.8	Mean (mgd)	5.55	Mean (cfs)	6.59	Ac-ft	6,240		

3060. Koloa Gulch near Laie, Oahu
(Formerly published as Koloa Stream near Laie)

Location--Lat 21°37'30", long 157°56'10", on left bank 2.2 miles northwest of Hauula and 2.0 miles south of Laie.

Drainage area--0.9 sq mi, approximately.

Records available--July 1914 to June 1918 (discontinued). Published as Koloa Stream near Laie.

Gage--Water-stage recorder and concrete control. Altitude of gage is 500 ft (from topographic map).

Extremes--1914-18: Maximum discharge, 755 mgd (1,170 cfs) Sept. 25, 1914 (gage height, 5.3 ft), from rating curve extended above 30 mgd; no flow at times.

Remarks--No diversion above station.

Revisions--Revised figures of discharge, in million gallons a day, for the fiscal year 1918, superseding those published in WSP 485, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1918		1918-Con.		1918-Con.	
Mar. 11	22.5	Apr. 2	19.5	Apr. 12	62
13	17	3	38	13	22.5
14	10	4	43	14	13.5
15	15	5	12	16	19.5
16	38	9	10	19	17
17	13.5	10	17		
Apr. 1	17	11	34		

Month	Maximum	Minimum	Mean	Runoff in acre-feet
March 1918.....	38	1.2	6.23	592
April.....	62	1.5	13.1	1,200
Fiscal year 1917-18.....	62	0	2.89	3,240

5860. Hoolawalilili Stream near Huelo, Maui

Location--Lat 20°53'17", long 156°14'35", on right bank just upstream from Wailoa ditch intake, 1.8 miles west of Kailua and 1.6 miles (corrected) southwest of Huelo.

Drainage area--0.55 sq mi.

Records available--January 1912 to December 1957 (discontinued). Monthly discharge only for some periods, published in WSP 1319. Records for April to December 1911, published in WSP 318, have been found to be unreliable and should not be used.

Gage--Water-stage recorder and concrete control. Altitude of gage is 1,245 ft (from topographic map). Prior to June 19, 1914, staff gage at same site and datum.

Average discharge--45 years, 4.87 mgd (7.54 cfs).

Extremes--1912-57: Maximum discharge, 657 mgd (1,020 cfs) Nov. 18, 1930 (gage height, 6.74 ft, control then in use), from rating curve extended above 22 mgd; minimum, 0.5 mgd (0.8 cfs) Dec. 11, 1919, Mar. 24, 1928, Nov. 17-24, 1933 (previously published minimum has been revised).

Remarks--No diversion above station. Water is diverted downstream from station for irrigation use in central Maui.

Revisions (fiscal years)--WSP 755: 1931-32. WSP 1449: 1934-39(M), 1941(M). WSP 1569: Drainage area. Revised figures of discharge, in million gallons a day, for the fiscal year 1926, superseding those published in WSP 635, are given herewith:

Date	Discharge	Date	Discharge	Date	Discharge
1926		1926-Con.		1926-Con.	
May 21	2.2	May 28	2.1	June 4	2.0
22	2.2	29	2.3	5	2.0
23	2.1	30	3.0	6	2.0
24	2.1	31	2.5	7	2.0
25	2.3	June 1	2.2	8	1.9
26	2.1	2	2.1	9	1.7
27	2.1	3	2.1	10	2.0

Month	Maximum	Minimum	Mean	Runoff in acre-feet
May 1926.....	4.6	2.1	2.69	256
June.....	11.0	1.7	2.95	271
Fiscal year 1925-26.....	22	1.7	3.20	3,560
Calendar year 1926.....	38	1.0	2.75	3,080

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 flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are generally presented in two tables. However, no records at low-flow partial-record stations are available in the 1959 fiscal year. A table of annual maximum discharge at crest-stage stations is given first, followed by a table of measurements made at miscellaneous sites for both low flow and high flow.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each fiscal year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent fiscal years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations							
Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge ^a
Island of Kauai							
280	Waimea River below Kekaha ditch intake.	Lat 22°02'40", long 159°38'35", 500 ft below Kekaha ditch intake, 6.5 miles north of Waimea, and 6.9 miles northeast of Kekaha.	45.0	1922-55*, 1956-59	11-11-55 10-23-56b/ 12- 1-57 12-29-58	b23.7 >19.0 22.7 15.78	b0.700 b(16,000) (†) b9,830 b(15,600) 4,350 (6,740)
Island of Oahu							
2113	Makaleha Stream near Waialua.	Lat 21°33'56", long 158°09'24", on left downstream wingwall of bridge on plantation road, 1.9 miles southwest of Sugar Mill, Waialua.	4.24	1958-59	2-28-58/ 8- 8-58	b7.5 3.28	(†) (†)
2115	Makua Stream at Makua.	Lat 21°32'05", long 158°13'25", 0.5 mile upstream from Farrington Highway and 0.55 mile northeast of cemetery, Makua.	4.07	1958-59	2-13-59	2.36	(†)
2117	Kaupuni Stream near Waianae.	Lat 21°27'46", long 158°09'55", 1.8 miles northeast of cemetery, Waianae, and 2.0 miles northeast from junction of Waianae Valley Road and Farrington Highway.	4.39	1958-59	8- 8-58	2.93	(†)
2122	Mailiiliili Stream at Lualualei Naval Reservation near Waianae.	Lat 21°27'34", long 158°08'05", on right downstream wingwall of bridge, at Lualualei Naval Reservation, 3.4 miles east of cemetery, Waianae.	1.76	1958-59	8- 8-58	1.28	(†)
2124.01	Awawani Stream at Gilbert near Barbers Point Lighthouse.	Lat 21°19'54", long 158°06'05", on center pier of railroad bridge, 0.15 mile southeast of Gilbert and 2.3 miles northwest of Barbers Point Lighthouse.	2.64	1959	2-13-59	.50	(†)
2125	Honouliuli Stream near Waipahu.	Lat 21°22'40", long 158°02'10", on left upstream wingwall of bridge on Farrington Highway, 1.8 miles west of Waipahu Post Office.	11.0	1956-59	8-14-58	.38	(†)
2126.01	Waikele Stream at Wheeler Field.	Lat 21°28'42", long 158°03'08", at culvert, 0.3 mile west of east-west runway at Wheeler Field.	5.93	1958-59	3- 5-58 4- 9-59	18.1 1.23	(†) (†)
2127	Waikakalaua Stream near Wahiawa.	Lat 21°27'50", long 158°01'38", 2.4 miles southeast of Wahiawa Post Office.	7.14	1958-59	10-23-58	9.62	400 (821)
2165	Waimano flood channel at Pearl City.	Lat 21°25'55", long 157°58'16", 200 ft below a bridge on a residential street at Pearl City and 0.6 mile above mouth.	2.59	1956-59	2-13-59	.58	(†)

† Discharge not determined.

* Operated as a continuous-record gaging station.

^a Discharge figures opposite date are in million gallons a day; figures in parentheses immediately below are in cubic feet per second.

^b Revised.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge ^{a/}
Island of Oahu--Continued							
2285	Moanalua Stream at altitude 100 ft, near Honolulu.	Lat 21°22'00", long 157°53'57", at left abutment of bridge in Moanalua Golf Course, 4.55 miles northwest of Honolulu Post Office.	4.16	1958-59	3- 5-58 10-23-58	7.05 6.32	1,750. (2,720) 1,340 (2,080)
2295	Waolani Stream at Honolulu.	Lat 21°20'00", long 157°51'04", on right downstream side of Wylie Street Bridge at Honolulu, 1.8 miles northeast of Honolulu Post Office.	1.28	1958-59	3- 5-58 4- 9-59	2.5 2.00	351 (545) 162 (251)
2375	Pauoa Stream at Honolulu.	Lat 21°19'18", long 157°51'03", on upstream side of Lusitana Street Bridge at Honolulu.	1.52	1958-59	4- 9-59	1.15	(+)
2472	Waialae-Nui Gulch at Honolulu.	Lat 21°16'51", long 157°47'04", 75 ft downstream from Kalaniana'ole Highway at Honolulu.	1.75	1958-59	8- 8-58	3.65	200 (310)
2475	Wailupe Stream at at Aina Haina.	Lat 21°17'48", long 157°45'29", on Ant Street Bridge, 1.0 mile upstream from Kalaniana'ole Highway at Aina Haina.	2.35	1958-59	8- 8-58	.88	(+)
2479	Kuliouou Stream at Kuliouou.	Lat 21°17'44", long 157°43'33", at footbridge, 0.4 mile upstream from Kalaniana'ole Highway at Kuliouou.	1.21	1958-59	8- 8-58	.30	(+)
2488	Pacific Ocean tributary at Waimanalo.	Lat 21°20'31", long 157°42'39", on upstream side of Hihimanu St. culvert, 0.8 mile northwest of Waimanalo Post Office.	1.21	1958-59	2-13-59	2.11	97 (150)
2605	Maunawili Stream near Kailua.	Lat 21°22'47", long 157°45'46", on upstream side of bridge on abandoned highway, 400 ft upstream from Kalaniana'ole Highway and 1.7 miles southwest of Kailua Post Office.	5.62	1958-59	3- 5-59 2-13-59	11.08 5.72	780 (1,210) 345 (534)
2744.99	Kealahala Stream at Kamehameha Highway, at Kaneohe.	Lat 21°25'12", long 157°48'18", 36 ft upstream from bridge at Kamehameha Highway in Kaneohe.	.59	1959	4- 9-59	2.33	(+)
2952	Waikane Stream at Waikane.	Lat 21°29'38", long 157°51'10", 200 ft downstream from bridge on Kamehameha Highway and 0.3 mile south of Waikane.	2.60	1958-59	10-23-58	5.97	(+)
2959	Makaa Stream at Kaaawa.	Lat 21°33'36", long 157°51'24", on left downstream wingwall of Kamehameha Highway Bridge at Kaaawa.	.53	1958-59	10-23-58	2.48	(+)
3045	Kaluauui Stream near Hauula.	Lat 21°35'55", long 157°54'25", on left downstream wingwall of abandoned railroad bridge, 0.6 mile upstream from bridge on Kamehameha Highway and 1.2 miles southeast of cemetery, Hauula.	2.12	1958-59	12- 6-57 10-23-58	3.21 4.50	1,380 (2,140) 1,050 (1,630)
3105.01	Malaekahana Stream at altitude 30 ft near Kahuku.	Lat 21°59'46", long 157°57'12", on right foundation and wing-wall of plantation railroad bridge, 1.3 miles south of Sugar Mill, Kahuku.	3.80	1959	10-23-58	8.85	1,310 (2,030)
3110	Olo Stream near Kahuku.	Lat 21°41'32", long 157°59'48", 0.6 mile upstream from Kamehameha Highway Bridge and 3.1 miles west of Sugar Mill, Kahuku.	2.22	1958-59	8- 8-58	2.33	61 (94)
3400	Anahulu River near Haleiwa. d/	Lat 21°35'28", long 158°04'45", 1.7 miles southeast from junction of Emerson Rd. and Kamehameha Highway and 2.5 miles east of Wai'alua School, Haleiwa.	11.9	1958-59	10-23-58	9.77	2,450 (3,790)
3500	Opaeula Stream near Haleiwa.	Lat 21°35'06", long 158°05'56", 0.6 mile upstream from Kamehameha Highway Bridge and 2.1 miles northeast of Wai'alua.	5.96	1958-59	10-23-58	6.46	820 (1,270)
Island of Maui							
6070	Iao Stream at Wailuku.	Lat 20°53'38", long 156°30'27", 560 ft upstream from Market Street Bridge at Wailuku and 1.9 miles above mouth.	8.24	1952-59	1-17-59	3.77	1,290 (2,000)

† Discharge not determined.

a Discharge figures opposite date are in million gallons a day; figures in parentheses immediately below are in cubic feet per second.

c Corrected.

d Formerly published as Anahulu Stream.

Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table. Those that are measurements of base flow are designated by an asterisk (*); measurements of peak flow by a dagger (†).

Discharge measurements made at miscellaneous sites during fiscal year 1959						
Stream	Tributary to	Location	Measured previously (fiscal year)	Date	Discharge	
					Million gallons a day	Cubic feet per second
Island of Kauai						
Kalalau Stream.	Pacific Ocean	Lat 22°09'45", long 159°38'10", 5.5 miles southwest of Kauai Electric Power House (drainage area, 1.6 sq mi, approximately).	1932-55*, 1956-58	7-26-58	3.49	5.40
Kalalau Stream tributary No. 3.	Kalalau Stream.	Lat 22°10'30", long 159°38'55", at mouth, 6.0 miles southwest of Kauai Electric Power House.	1946-49, 1956-58	7-26-58	1.29	2.00
Honopu Stream	Pacific Ocean	Lat 22°10'00", long 159°40'25", at mouth, 1.9 miles northwest of Mana.	1957-58	7-26-58	3.44	5.33
Miloli'i Stream.	....do.....	Lat 22°08'55", long 159°43'30", at mouth, 8.3 miles northwest of Mana.	1946-48, 1951, 1954-58	7-27-58	1.63	2.52
Island of Oahu						
Pearl Harbor Springs.	East Loch Pearl Harbor.	Lat 21°23'30", long 158°57'55", at Wai'au, at culvert below Kamehameha Highway, 1.9 miles northwest of Aiea Post Office.		10-19-58	2.42	3.74
Do.....	....do.....	Lat 21°23'28", long 157°57'44", at Wai'au, 2.0 miles northwest of Aiea Post Office.	1932-39*, 1940, 1943-47*, 1958	9-15-58 10-19-58	3.38 3.40	5.19 5.26
Do.....	....do.....	Lat 20°23'29", long 157°57'50", at Wai'au, near former gaging station, 2.0 miles northwest of Aiea Post Office.		7-18-58 10-19-58	3.34 1.35	5.17 2.09
Maunawili Stream.	Kawainui Swamp.	Lat 21°22'50", long 157°45'48", at bridge on Kalaiananole Highway, 1.6 miles southwest of Kailua Post Office.	1922, 1957-58	7- 2-58 7-30-58 9-25-58 10-30-58 12-11-58	3.37 7.56 4.87 13.8 5.93	5.21 11.7 7.54 21.4 9.18
				3- 4-59 6- 8-59	6.72 1.27	10.4 1.97
Kahanaiki Stream.	....do.....	Lat 21°22'49", long 157°46'06", at bridge, 1.85 miles southwest of Kailua Post Office.	1957-58	7- 2-58 7-30-58 9-25-58 10-30-58 12-11-58	.70 1.17 .50 2.98 1.15	1.09 1.81 .78 4.61 1.78
				3- 4-59 6- 9-59	1.52 .27	2.35 .41
Kahaluu Stream tributary No. 1.	Kahaluu Stream.	Lat 21°26'21", long 157°51'10", near culvert, 3.2 miles southeast of Waiahole School.	1953	9-19-58 12- 4-58 2-26-59 6- 5-59	.46 .52 .56 .44	.70 .81 .86 .68
Right Branch of Punaluu Stream tributary No. 1.	Punaluu Stream.	Lat 21°33'42", long 157°54'11", near gaging-station site, 3.35 miles southeast of Hauula School.	1958	7-28-58 9-15-58 1-12-59 2-24-59	.47 .68 .22 .60	.72 1.05 .34 .94
Left Branch of Punaluu Stream tributary No. 1.	....do.....	Lat 21°33'44", long 157°54'12", at end of road, 3.3 miles southeast of Hauula School.	1958	7-28-58 9-15-58 2-24-59	.44 .46 .62	.69 .71 .96
Island of Molokai						
Waikolu Stream.	Pacific Ocean	Lat 21°10'19", long 156°55'58", above pipeline crossing, 9.75 miles northwest of Pukoo Post Office.	1937-39, 1956-58	8-13-58	18.8	29.1
Island of Hawaii						
Kohakohau Stream.	Keanuimano Stream.	Lat 20°01'45", long 155°42'05", at bridge, at junction of Kohala, Kawaihae, and Waimea roads, 2.0 miles west of Kameula Post Office.	1955-58	11-28-58 3-24-59	0.28 1.29	0.44 1.99

* Operated as a continuous-record gaging station.

INDEX

	Page	Page
Accuracy of field data and computed results.....	5	118
Acre-foot, definition of.....	2	117
Agencies other than Geological Survey, records collected by.....	6-9	118
Aiea, Halawa Stream near.....	59	119
Kalaauo Stream at.....	57	7
North Halawa Stream near.....	58	Honolulu, East Branch Manoa Stream near.....
Pearl Harbor Springs near.....	56	63
Waimalu Stream near.....	55	Kalihi Stream near.....
Aiea Heights Springs near Honolulu.....	6	Manoa Stream at.....
Alili flume near Pahala.....	8	Moanalua Stream near.....
Anahola ditch above Kaneha Reservoir, near Kealia.....	29	Nuuanu Stream near.....
Anahola ditch wasteway near Kealia.....	28	Palolo Stream near.....
Anahola Stream near Kealia.....	30	Pukele Stream near.....
Awini ditch at East Honokane Iki Gulch, near Miulii.....	128	Waiomao Stream near.....
Awini weir near Miulii.....	8	West Branch Manoa Stream near.....
Booth Springs near Honolulu.....	6	Honomanu Stream near Keanae.....
Computations, accuracy of results of..	5	Honopou Stream near Huelo.....
Control, definition of.....	2	Hoolawalilili Stream near Huelo, Maui.....
Cooperation, record of.....	1	Hoolawanui Stream near Huelo.....
Cubic foot per second, definition of..	2	Huelo, Haipuena Stream near.....
Data, accuracy of.....	5	Honopou Stream near.....
explanation of.....	3-5	Hoolawalilili Stream near.....
Drainage area, definition of.....	2	Hoolawanui Stream near.....
East Honokane Iki intake to Awini ditch at East Honokane Iki Gulch, near Miulii.....	129	Kaaiea Gulch near.....
Eleele, Hanapepe River near.....	17	Koolau ditch near.....
Everett ditch near Wailuku.....	7	Lowrie ditch near.....
Gaging station, definition of.....	1	Manuel Luis ditch near.....
Hahalawe Stream, Right Branch, near Kipahulu.....	89	Nailililihalee Stream near.....
Haiku ditch, at Hamakuapoko.....	7	New Hamakua ditch near.....
at Honopou Gulch, near Kailua.....	116	Old Hamakua ditch near.....
Haiku Stream near Heeia.....	70	Puohokamoa Stream near.....
Haiku tunnel at altitude 550 ft.....	6	Spreckels ditch near.....
Haipuena diversion ditch at Kolea Gulch, near Keanae.....	101	Wailoa ditch near.....
Haipuena Stream, above Spreckels ditch, near Huelo.....	102	Iao-Waikapu ditch near Wailuku.....
at Kula pipeline intake, near Olinda	100	Iolekaa Stream mauka near Heeia.....
Halaulani Stream at altitude 400 ft, near Kilauea.....	37	Ka Loko ditch near Kilauea.....
Halawa Stream (Island of Molokai) near Halawa.....	81	Kaaiea Gulch near Huelo.....
Halawa Stream (Island of Oahu) near Aiea.....	59	Kahakuloa Stream near Honokohau.....
Hanalei, Wainiha River near.....	40	Kahaluu Stream near Heeia.....
Hanalei ditch near Kilauea.....	38	Kahaluu tunnel near Kahaluu.....
Hanalei tunnel outlet near Lihue.....	39	Kahana development tunnel near Hauula.....
Hanamauulu ditch near Hanamauulu.....	36	Kahoma tunnel at altitude 2,000 ft.....
Hanapepe River, below Manuahi Stream, near Eleele.....	17	Kahuawai Springs near Honolulu.....
Hanawi Stream near Nahiku.....	91	Kailua, Haiku ditch near.....
Hauani Stream near Kamuela.....	135	Kalaee, Waialala Springs near.....
Hawaii, island of, gaging-station records on.....	121-138	Kalaauo Stream at Moanalua Road at Aiea.....
measurements at miscellaneous sites on.....	146	Kalaupapa, Waikolu Stream near.....
Hawaiian Electric Co. tunnel at Waiau, near Pearl City.....	54	Kalihi Stream near Honolulu.....
Heeia, Haiku Stream near.....	70	Kalihi tunnels near Honolulu.....
Iolekaa Stream mauka near.....	71	Kalihiwai ditch near Kilauea.....
Kahaluu Stream near.....	72	Kaluanui ditch at altitude 960 ft.....
Waihee Stream near.....	73	Kamalo, Right Branch of East Fork Kawela Gulch near.....
Hering Springs at altitude 970 ft.....	6	Kamuela, Hauani Stream near.....
Hilo, Kapehu ditch near.....	126	Kohakohau Stream near.....
Kapehu ditch diversion near.....	125	Waikoloa Stream near.....
Waiakea Stream near.....	122-123	Kanaha ditch above Lahainaluna.....
Wailuku River near.....	124	Kapaa, Kapaa Stream near.....
Holualoa, Waiala Stream near.....	136-137	North Fork Wailua River near.....
Honauunau, Kilaee Stream near.....	138	Wailua ditch near.....
		Kapaa Stream at Kapahi ditch intake near Kapaa.....
		Kapahi ditch near Kealia.....
		Kapaula Gulch near Nahiku.....
		Kapehu ditch near Hilo.....
		Kapehu ditch diversion near Hilo.....
		Kauai, island of, crest-stage partial-record stations on.....
		gaging-station records on.....
		measurements at miscellaneous sites on.....
		Kauaula tunnel near Lahaina.....
		Kauhikoa ditch at altitude 890 ft.....
		Kaukonahua ditch. See Mauka ditch near Wahiawa.....
		Kaukonahua Stream, North Fork, near Wahiawa.....
		South Fork, at East Pump Reservoir, near Wahiawa.....

	Page		Page
Kaunakakai Gulch at Kaunakakai.....	85	Molokai, island of, measurements at	
Kawaikoi Stream near Waimea.....	10	miscellaneous sites on.....	146
Kawela Gulch, Right Branch of East		Morikone pond outlet at Pearl City....	52
Fork, near Kamalo.....	86	Mountain View, Waiakea Stream near....	121
Keala Reservoir near Pahala.....	8		
Kealia, Anahola ditch near.....	29	Nahiku, Hanawi Stream near.....	91
Anahola ditch wasteway near.....	28	Kapaula Gulch near.....	92
Anahola Stream near.....	30	Koolau ditch near.....	93
Kapahi ditch near.....	26	Makapii ditch near.....	90
Lower Anahola ditch near.....	31	Waiohne Gulch near.....	94
Makaleha ditch near.....	25	Naillilihaele Stream near Huelo.....	109
Kealia ditch near Kealia.....	6	New Hamakua ditch at Honopou, near	
Kealia River near Kealia.....	6	Huelo.....	113
Keanae, Haipuaena diversion ditch		Niulii, Awini ditch near.....	128
near.....	101	East Honokane Iki intake to Awini	
Honomanu Stream near.....	98	ditch near.....	129
Koolau ditch near.....	97	Kohala ditch near.....	130
Taro patch feeder ditch at.....	96	North Halawa Stream near Alea.....	58
West Wailuaki Stream near.....	95	North Waiehu Stream near Wailuku.....	8
Keheha ditch near Kohala.....	131	North Wailua ditch near Lihue.....	19
Kekaha ditch at camp 1, near Waimea..	14	Nuananu Stream below reservoir 2 waste-	
Kiilae Stream near Honaunau.....	138	way, near Honolulu.....	62
Kilauea, Halaulani Stream near.....	37	Nuananu tunnels near Honolulu.....	7
Hanalei ditch near.....	38		
Ka Loko ditch near.....	32	Oahu, island of, crest-stage partial-	
Kalihiwai ditch near.....	35	record stations on.....	144-145
Pohakuhonu Stream near.....	36	gaging-station records on.....	41-80
Puu Ka Ele ditch near.....	33	measurements at miscellaneous sites	
Ross ditch near.....	34	on.....	146
Kipahulu, Palikea Stream near.....	88	Old Hamakua ditch at Honopou, near	
Right Branch Hahalawe Stream near..	89	Huelo.....	114
Kipapa ditch near Waipahu.....	6	Old Kaluanui ditch at Hamakuapoko....	8
Kipapa Stream near Wahiawa.....	49	Olinda, Haipuaena Stream near.....	100
Kohakohau Stream near Kamuela.....	132	Kula diversion from Haipuaena Stream	
Kohala, Keheha ditch near.....	131	near.....	99
Kohala ditch, near Makapala.....	9	Waikamoi Stream near.....	107
at Pololu, near Niulii.....	130	Olowalu ditch near Olowalu.....	120
Kokee ditch near Waimea.....	12	Order of listing gaging stations.....	2
Koloa ditch near Lihue.....	6		
Koloa Gulch near Laie, Oahu.....	143	Pahoehoe Springs near Papaikou.....	9
Koolau ditch, at Haipuaena, near		Palikea Stream below diversion dam,	
Huelo.....	104	near Kipahulu.....	88
at Nahiku weir, near Nahiku.....	93	Palolo Stream near Honolulu.....	68
near Keanae.....	97	Palolo tunnel near Waimanalo.....	7
Kula diversion from Haipuaena Stream		Partial-record station, definition	
near Olinda.....	99	of.....	2
Kuou Springs at altitude 230 ft.....	7	Pearl City, Hawaiian Electric Co.	
		tunnel near.....	54
Lahaina, Honokowai ditch near.....	119	Morikone pond outlet at.....	52
Laie, Koloa Gulch near.....	143	Pearl Harbor Springs near.....	51,139
Launiupoko ditch at altitude 980 ft..	8	Walawa Stream near.....	53
Lihue, East Branch of North Fork		Pearl Harbor Springs at Kaluaao, near	
Wailua River near.....	22	Alea.....	56
Hanalei tunnel outlet near.....	39	Pearl Harbor Springs at Kaluaooou, near	
North Fork Wailua River near.....	21	Pearl City, Oahu.....	139
North Wailua ditch near.....	19	Pearl Harbor Springs at Walawa, near	
South Fork Wailua River near.....	18	Pearl City.....	51
Stable storm ditch near.....	20	Poamoho Stream near Wahiawa.....	48
Lower Anahola ditch near Kealia.....	31	Poamohu tunnel near Wahiawa.....	47
Lower Hamakua ditch.....	8	Pohakuhonu Stream near Kilauea.....	36
Lower Lihue ditch near Lihue.....	6	Publications on streamflow by the	
Lower Lyman Springs near Papaikou.....	9	Geological Survey.....	5-6
Lowrie ditch, at Hamakuapoko.....	8	Pukele Stream near Honolulu.....	65
at Honopou Gulch, near Huelo.....	115	Pukoo, Funaula Gulch near.....	87
Luluku tunnels at altitude 570 ft.....	7	Funaluu ditch near Funaluu.....	79
		Funaluu Stream, at elevation 539 ft,	
McCandless ditch at altitude 550 ft... 8	7	near Funaluu, Oahu.....	142
Mallepal Stream at altitude 760 ft.....	8	near Funaluu.....	80
Makaleha ditch near Kealia.....	25	Funaula Gulch near Pukoo.....	87
Makapii ditch near Nahiku.....	90	Funokamoa Stream above Spreckels	
Makaweli River near Waimea.....	15	ditch, near Huelo.....	106
Makiki Springs near Honolulu.....	16	Puu Ka Ele ditch near Kilauea.....	33
Maniaka ditch near Wailuku.....	8	Puuokumau Inlet near Hawi.....	9
Manoa Stream at upper Manoa Valley		Puuokumau Outlet near Hawi.....	9
near Honolulu, Oahu.....	140		
East Branch, near Honolulu.....	63	Ross ditch near Kilauea.....	34
West Branch, near Honolulu.....	64		
Manoa tunnels near Honolulu.....	7	South Waikapu ditch near Waikapu.....	8
Manuel Luis ditch at Puohokamoa Gulch,		Spreckels ditch, at Haipuaena weir,	
near Huelo.....	105	near Huelo.....	103
Maui, island of, crest-stage partial-		at Waiale.....	8
records stations on.....	145	near Wahee.....	8
gaging-station records on.....	88-120	Stable storm ditch near Lihue.....	20
Mauka ditch near Wahiawa.....	41	Stage-discharge relation, definition	
Maunawili ditch near Waimanalo.....	69	of.....	2
Million gallons, use of term.....	2	Station numbers.....	2-3
Moanalua Stream near Honolulu.....	60		
Mohihi Stream at altitude 3,500 ft,		Taro patch feeder ditch at Keanae.....	96
near Waimea.....	11	Terms and abbreviations, definition of..	1-2
Molokai, island of, gaging-station		Ukumehame ditch near Olowalu.....	8
records on.....	81-87		

	Page		Page
Upper Lihue ditch near Lihue.....	6	Waikoloa Stream near Kamuela.....	133
Uwau development tunnel near		Waikolu Stream, at altitude 900 ft,	
Kahaluu.....	7	near Kalaupapa.....	82
WSP, definition of.....	2	below pipeline crossing, near	
Wahiawa, Kipapa Stream near.....	49	Kalaupapa.....	83
Mauka ditch near.....	41	Waialoa ditch at Honopou, near	
North Fork Kaukonahua Stream near... 42		Huelo.....	112
Poamoho Stream near.....	48	at Kamaole.....	8
Poamoho tunnel near.....	47	Waialua ditch near Kapaa.....	23
Right Branch of South Fork		Waialua River, North Fork, at altitude	
Kaukonahua Stream near.....	45-46	650 ft, near Lihue.....	21
South Fork Kaukonahua Stream near... 43-44		North Fork, near Kapaa.....	24
Waiaha Stream near Holualoa.....	136-137	East Branch of, near Lihue.....	22
Waiahole Stream at altitude 250 ft,		South Fork, near Lihue.....	18
near Waiahole.....	78	Waialuku River above Hilo Boarding	
Waiahole tunnel, at adit 8, near		School ditch intake, near Hilo...	124
Waipahu.....	77	Waimalu Stream near Aiea.....	55
at north portal, near Waiahole.....	76	Waimanalo, Maunawili ditch near.....	69
at Waianu, near Waiahole.....	74	Waimanalo tunnel.....	7
Waiahole tunnel wasteway at intake 31,		Waianu, Waifilikahi Stream near.....	127
near Waiahole.....	75	Waimea, Kawaikoi Stream near.....	10
Waiakea Stream at middle flume house,		Kekaha ditch near.....	14
near Mountain View.....	121	Kokee ditch near.....	12
near Hilo.....	122-123	Makaweli River near.....	16
Waialala Springs near Kalaee.....	84	Mohihi Stream near.....	11
Waianae tunnel near Maile.....		Waimea River near.....	13,15
Waiawa ditch at altitude 680 ft.....	7	Waimea ditch near Waimea.....	6
Waiawa intake at altitude 750 ft.....	7	Waimea River, at altitude 890 ft, near	
Waiawa Stream near Pearl City.....	53	Waimea.....	13
Waiahee ditch near Waialuku.....	8	near Waimea.....	15
Waiahee Stream near Heeia.....	73	Waimea Valley ditch near Waimea.....	6
Waiahee tunnel at altitude 218 ft.....	7	Wainiha River near	
Waifilikahi Stream near Waianu.....	127	Hanalei.....	40
Waikakalaua ditch at altitude 760 ft..		Waiohue Gulch near Nahiku.....	94
Waikamoi Stream, above reservoir at		Waiohoo Stream above Pukele Stream,	
Kula pipeline intake, near		near Honolulu.....	66-67
Olinda.....	107	Waipahu, Waiahole tunnel near.....	77
Waikane development tunnels.....		Waikele Stream at.....	50
Waikele Stream at Waipahu.....	50	West Waialuaiki Stream near	
Waikoloa Stream at Marine Dam, near		Keanae.....	95
Kamuela.....	134	Work, divisor of.....	1
		scope of.....	1

