Surface Water Suppl
of Hawaii
1947–48

Prepared under the direction of C. G. PAULSEN, *Chief Hydraulic Engi*

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1

Prepared in cooperation with the Territory of Hawaii

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PREFACE

This report was prepared by the Geological Survey in cooperation with the Territory of Hawaii by personnel of the Water Resources Division under the direction of:

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CONTENTS

SURFACE WATER SUPPLY OF HAWAII, JULY 1, 1947, TO JUNE 30, 1948

SCOPE OF WORK

This volume contains results of measurements of the flow of streams and ditches in the Territory of Hawaii during the year ending June 30, 1948. Since the beginning of stream-gaging work in Hawaii, in 1910, records of flow of streams and ditches have been obtained at about 500 stations for periods ranging from a few months to 37 years. In addition, hundreds of miscellaneous measurements have been made, and rather extensive studies of ground water have been made on most of the islands.

In this volume are given the records of daily flow obtained at stations that were operated during the year ending June 30, 1948, and the results of miscellaneous measurements of stream flow made during that year. Most of the results of ground-water studies have been published in bulletins of the Territorial Division of Hydrography. See "Publications," on page 3 for a record of surface water-supply papers pertaining to Hawaii.

DEFINITION OF TERMS

The units in which stream-flow data are presented in this report are defined as follows:

"Second-feet" is an abbreviation for "cubic feet per second." A second-foot is the rate of discharge of water flowing in a channel having a cross-sectional area of 1 square foot and an average velocity of 1 foot a second.

An "acre-foot" is equivalent to 43,560 cubic feet and is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation.

In the Territory of Hawaii the unit most commonly used in measuring water is the "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 second-feet, million gallons a day, and acre-feet: 1 second-foot flowing 24 hours equals about 2 acre-feet; 1,000,000 gallons equals about 3 acre-feet or about 1.55 second-feet.

EXPLANATION OF DATA

The base data collected at gaging stations consist of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurements in determining the daily discharge. All records of stage are obtained from water-stage recorders that give continuous records of the fluctuations. Measurements of discharge are usually made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. Occasionally discharge is determined from a weir or rating flume, using standard formulas, and for several stations the high-water discharge has been determined from ratings developed by the use of models.

Rating tables giving the discharge for any stage are prepared from the discharge measurements. The application of the daily gage heights to these rating tables gives the discharge from which the daily, monthly, and yearly discharges are determined. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the discharge is determined by the "shifting-control method," in which correction factors based on individual discharge measurements and notes by engineers are used in applying the gage heights to the rating tables. At times the stage-discharge relation for a station may be temporarily changed by the presence of aquatic growth or debris on the control. For such times the discharge is computed by what is essentially the "shifting-control" method, described above.

The data presented in this report comprise, for each gaging station, a description of the station, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and runoff. Skeleton rating tables are published except for ditch, or spring stations. All rates of flow are expressed in million gallons a day.

The description of the station gives location, drainage area, records available, discharge corresponding to maximum and minimum recorded stages, average discharge if there has been more than 10 years of record, and under "Remarks," notes on accuracy of the records, diversions that decrease the flow at the gage and artificial regulation.

For some stations previously published records have been found to be in error on the basis of data or information obtained subsequently. 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 station description of each station for which revised records have been published. Listed therein are all the reports in which revisions appear, each followed by the fiscal years for which figures are revised in that report. In listing the report number, W means Water-Supply Paper. In listing the years, fiscal years are indicated by only one year, for instance, 1933 stands for the fiscal year July 1, 1932, to June 30, 1933. If there were no daily, monthly, or annual figures of discharge involved 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.

The table of daily discharge gives, in general, the discharge corresponding to the mean daily gage heights. But when, owing to sudden or rapid diurnal fluctuation, the discharge obtained from the rating table by applying the mean daily gage height would not be within 2 percent of the true mean, the mean has been obtained by averaging discharges for intervals during the day or by use of the graphic integrator.

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

In the table of monthly discharge the column headed "Maximum" gives the flow for the day when the total discharge was greatest. This does not correspond to the rate of flow at the crest of the flood. The maximum rate of flow is given in the station description under the heading "Extremes," and the corresponding stage is always taken from the water-stage recorder graph unless otherwise noted. Likewise, in the column headed "Minimum" the quantity given is the flow for the day when the total discharge was least. The columns headed "Mean" give the average flow in million gallons a day and cubic feet a second during

the month. The "total runoff in million gallons" is the sum of the daily flow, and the "total runoff in acre-feet" is computed from the total monthly discharges in million gallons. Peak discharges, above a determined base, with the times of their occurrence, are given below the table of monthly discharge for most stations.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily (1) on the permanency of the stage-discharge relation and (2) on the accuracy of observation of stage, measurements of flow, and interpretation of records.

A general statement under "Remarks" gives the accuracy of records, the terms "excellent," "good," "fair," and "poor" indicating that the record is probably accurate within 5, 10, 15, and 20 percent, respectively.

It should be borne in mind that the observation in each succeeding year may be expected to throw new light on data previously published.

Computations are carried to not more than three significant figures, except that monthly and yearly total runoff (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 1903-48 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 of 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. Miscellaneous 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, 1903-48

Year	Number	Year	Number	Year	Number
1903	*77	1923-24	595	1936-37	835
1909-11†	318	1924-25	615	1937-38	865
1912†	338	1925-26	635	1938-39	885
1913†	373	1926-27	655	1939-40	905
1913-15	430	1927-28	675	1940-41	935
1915-16	445	1928-29	695	1941-42	965
1916-17	465	1929-30	710	1942-43	985
1917-18	485	1930-31	725	1943-44	1015
1918-19	515	1931-32	740	1944-45	1045
1919-20	516	1932-33	755	1945-46	1065
1920-21	535	1933-34	770	1946-47	1095
1921-22	555	1934-35	795	1947-48	1125
1922-23	575	1935-36	815		

* 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 373 but also in Water-Supply Paper 430, the first of the reports covering a year ending June 30.

A summary of records of flow in streams and ditches in the Territory of 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 in the Territory 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 Territory of Hawaii at which records of discharge were collected during the fiscal year July 1947 to June 1948 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 beer published elsewhere.

Records of discharge collected by agencies other than the Geological Survey

ISLAND OF KAUI

Stream	Location	Period	Operated by
East Lawai storm ditch..	Near Government Road, below Kauai Belt Road crossing, near Kalaheo.	1924-48	McBryde Sugar Co.
Eleele ditch.....	Near Government Road, near Kalaheo..	1924-48	Do.
Hanalei ditch.....	Above Kalihiwai Reservoir, near Kilauea.	1923-48	Kilauea Sugar Plantation Co.
Hanamaula ditch.....	Below intake, near Hanamaulu.....	1925-48	McBryde Sugar Co.
Hanapepe field ditch....	Below Hanapepe River intake, near Eleele.	1924-48	Do.
Hanapepe Stream.....	At tidewater, near Eleele.....	1924-48	Do.
Kamooloa ditch.....	Below Kauai Belt Road crossing near Koloa.	1924-48	Do.
Koula (Hanapepe) ditch..	At Olokele Plantation boundary, near Makaweli.	1926-48	Gay & Robinson
Lawai Stream.....	½ mile above cannery, near Kalaheo..	1924-48	McBryde Sugar Co.
Lihue lower ditch.....	Below intake, near Lihue.....	1925-48	Lihue Plantation Co.
Lihue upper ditch.....	....do.....	1925-48	Do.
Olokele ditch.....	At powerhouse near Makaweli.....	1926-48	Gay & Robinson.
Wahiawa Stream.....	Above Alexander Reservoir, near Kalaheo.	1924-48	McBryde Sugar Co.
Wahiawa Stream, East Branch.	....do.....	1929-48	Do.
West Lawai ditch.....	Near camp 12, near Kalaheo.....	1924-48	Do.

ISLAND OF OAHU

Alewa Heights Spring....	Below reservoir 3.....	1932-48*	Board of Water Supply City and County of Honolulu.
Booth Springs.....	In Pauoa Valley, at altitude 685 feet.	1929-48*	Do.
Helemano ditch.....	About 3 miles below Upper Helemano Reservoir.	1933-48	Waialua Agricultural Co.
Hering Springs.....	In Makiki Valley, at altitude 970 feet.	1925-48*	Board of Water Supply City and County of Honolulu.
Kahuawai Springs.....	In Pauoa Valley, at altitude 618 feet.	1925-48*	Do.
Kalihi tunnels.....	At diversion, at altitude 650 feet..	1926-48*	Do.
Kamenanui ditch.....	In Kawailoa Gulch about 500 yards above third siphon from Government Road.	1934-48	Waialua Agricultural Co.
Kipapa Stream.....	At altitude 375 feet.....	1917-48	Waiahole Water Co.
Makiki Springs.....	In Makiki Valley, at altitude 350 feet.	1926-48*	Board of Water Supply City and County of Honolulu.
Manoa tunnels.....	Upper Manoa Valley.....	1925-48*	Do.
Nuuanu tunnels.....	At Lower Luakaha.....	1926-48*	Do.
Nuuanu tunnel 3.....	At overflow, in upper Nuuanu Valley	1931-48*	Do.
Palolo tunnel.....	Upper Palolo Valley.....	1926-48*	Do.
Wahiawa Reservoir Outlet	About 1,200 feet below dam.....	1912-48*	Wahiawa Water Co.
Waiahole Stream.....	At altitude 250 feet.....	1919-48	Waiahole Water Co.
Waiahole tunnel.....	At adit 8.....	1916-48	Do.
Waiawa Stream.....	At altitude 750 feet.....	1917-48	Do.
Waikakalaua Stream.....	....do.....	1917-48	Do.
Waimalu Stream.....	At altitude 535 feet, near Aiea.....	1947-48	Do.

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

ISLAND OF MAUI (WEST MAUI)

Everett ditch.....	Below intake, near Wailuku.....	1935-48	Wailuku Sugar Co.
Honokohau tunnel.....	At outlet of tunnel, at Mahinahina weir.	1917-48	Pioneer Mill Co.
Iao-Waikapu ditch.....	At lower end of tunnels, near Wailuku.	1923-48	Wailuku Sugar Co.
Kahoma tunnel.....	2,000 feet upstream from outlet, above Lahaina.	1920-48	Pioneer Mill Co.
Kama ditch.....	Below intake, near Wailuku.....	1933-48	Wailuku Sugar Co.
Kanaha ditch.....	At intake in Kanaha Gulch, above Lahainaluna.	1921-48	Pioneer Mill Co.
Kauaula tunnel.....	At outlet, above Lahaina.....	1920-48	Do.

ISLAND OF MAUI (WEST MAUI)--Continued

Stream	Location	Period	Operated by
K-3 Flume	Above Lahainaluna	1931-48	Pioneer Mill Co.
Launiupoko ditch	At outlet, above Lahaina	1921-48	Do.
Maniania ditch	Below intake, near Wailuku	1923-48	Wailuku Sugar Co.
North Waiehu Stream	Near end of Waiehu Camp road, near Wailuku.	1922-48	Do.
South Waikapu ditch	Above second lateral, near Waikapu	1935-48	Do.
Spreckels ditch	Below intake, near Waihee	1931-48	Do.
Ukumehame ditch	At outlet in Ukumehame Gulch, near Olowalu.	1931-48	Pioneer Mill Co.
Waihee ditch	Below intake, near Waihee	1931-48	Wailuku Sugar Co.

ISLAND OF MAUI (EAST MAUI)

Hanawi Stream	Below Government Road, near Nahiku	1927-32 1947-48	East Maui Irrigation Co.
Makapipi ditch	At west edge of Makapipi Gulch, near Nahiku, at altitude 1,300 feet.	1933-48	Do.

ISLAND OF HAWAII

Hionamoa Gulch	Below all development tunnels, near Pahala.	1926-48	Hawaiian Agricultural Co.
Honokaape ditch	At Kukuihaele Village	1923-48	Hawaiian Irrigation Co.
Keaiwa Gulch	Below all development tunnels, near Pahala.	1926-48	Hawaiian Agricultural Co.
Kohala ditch	At Awini weir in Honokane, near Niulii.	1917-48†	Kohala Ditch Co.
Do.	At Niulii weir, near Niulii	1917-48†	Do.
Lower Hamakua ditch	At main weir, near Kukuihaele	1921-48†	Hawaiian Irrigation Co.
Moaula Gulch	Below all development tunnels, near Pahala.	1929-48	Hawaiian Agricultural Co.
Noguchi tunnel 19	5.3 miles from Pahala, at altitude 3,500 feet.	1928-48	Do.
Pololu Inlet 1	At Pololu, near Niulii	1929-48	Kohala Ditch Co.
Pololu Inlet 2	In Waiakalae Gulch at Pololu, near Niulii.	1929-48	Do.
Pololu Inlet 3	In Opaepilau Gulch, above Kohala ditch, near Niulii.	1937-48	Do.
Pololu Inlet 5	In Niulii Gulch, above Kohala ditch, near Niulii.	1937-48	Do.
Pololu Inlet 6	In Waikane Gulch, above Kohala ditch, near Niulii.	1937-48	Do.
Puwaiole Stream	Above Kohala ditch, near Halawa	1937-48	Do.
Upper Hamakua ditch and Reservoir 3 weir.	At base of Puu Lala, near Honokaa	1907-12 1921-48‡	Hawaiian Irrigation Co.
Waiapuka Stream	Above Kohala ditch, near Niulii	1929-48	Kohala Ditch Co.
Waipuhi Stream	Above Kohala ditch, near Halawa	1933-48	Do.
Waipunalau Stream	....do	1929-48	Do.

† Records for some earlier years published in water-supply papers of Geological Survey.
‡ Records for 1913-20 published in water-supply papers of Geological Survey.

COOPERATION

The work during the year ending June 30, 1948, was done under cooperative agreement with the Territory of Hawaii through the commissioner of public lands. 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 Wahiawa Water Co. Ltd.; on the island of Maui by the Pioneer Mill Co. Ltd., and the East Maui Irrigation Co. Ltd., and the Maui County Engineer; and on the island of Hawaii by the City of Hilo Water Works, the Kohala Ditch Co. Ltd., and the Olaa 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 conducted by the water resources division of the Geological Survey, Carl G. Paulsen, chief hydraulic engineer, and Joseph V. B. Wells, chief of the surface water branch. The data were collected and prepared for publication under the direction of M. H. Carson, district engineer, Honolulu. The manuscript was typed in final form in the Washington office.

ISLAND OF KAUAI

Waimea River below Kekaha ditch intake, near Waimea

Location.- Lat. 22°02'40", long. 159°38'35", in Waimea Canyon, 500 feet downstream from Kekaha ditch lower intake and 6½ miles northeast of Waimea. Altitude of gage, 490 feet (by barometer).

Drainage area.- 45.0 square miles.

Records available.- July 1921 to June 1948.

Average discharge.- 22 years (1925-47), 39.4 million gallons a day (61.0 second-feet).

Extremes.- Maximum discharge during year not determined; no flow at times, owing to regulation.

1921-48: Maximum discharge, 10,700 million gallons a day (16,600 second-feet) Dec. 24, 1927 (gage height, 20.40 feet), from rating curve extended above 500 million gallons a day by test on model of station site; no flow occasionally, owing to regulation.

Remarks.- Records poor. Kokee and Kekaha ditches divert water above the station, taking practically all the water at low and medium stages for irrigation near Waimea and Kekaha

Revisions (fiscal years).- W 740: 1921-31. Revised figures of discharge for the fiscal year 1947, superseding those published in Water-Supply Paper 1095, are given herein:

Discharge, in million gallons a day, 1946-48

1946-47

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.1	0.2	0.4	0.1	2.3	1.4	a60	1.6	1.1	5.4	72	0
2	1.2	4.9	.2	.1	.2	.2	a75	0	0	.8	282	0
3	3.2	6.8	.1	.1	.2	.2	a95	4.5	5.7	7.0	507	0
4	.3	.3	.2	.1	259	6.2	a230	2.4	94	1.8	102	0
5	8.5	.2	.2	.1	73	.2	a127	0	8.1	0	11.7	0
6	4.8	.2	.1	.2	7.1	74	a81	.9	.1	0	.5	0
7	14.4	.3	.1	.1	.5	859	a60	3.7	0	49	0	0
8	98	.2	.2	.1	.6	338	a67	0	5.6	31	0	0
9	126	.2	.1	0	f1.2	654	a42	17.1	1.0	15.4	0	0
10	2.8	.2	.1	.2	.2	f179	f31	18.4	0	2.9	0	0
11	.2	1.0	0	.2	.2	a20	28	13.0	0	68	0	0
12	4.3	.2	0	.2	13.5	f175	20.5	13.5	0	22.5	0	0
13	9.7	.2	0	.1	218	f103	8.8	11.7	0	17.1	1.0	0
14	2.5	1.2	0	.2	285	f147	12.5	11.2	0	1.9	1.8	16.9
15	.3	.6	0	.2	186	a40	.2	11.2	0	0	0	11.7
16	51	.2	0	.1	3.7	f402	32.5	10.8	0	0	0	0
17	8.3	2.3	0	.1	.2	f200	9.9	2.8	0	0	16.9	0
18	2.4	.2	.1	.1	.2	f256	6.7	0	0	0	27.5	0
19	.4	.2	0	0	1.0	a24	4.0	0	0	0	.5	0
20	.2	.2	0	0	.2	920	.6	0	0	0	182	13.2
21	10.3	.2	0	0	.2	2,550	0	0	0	0	10.3	17.8
22	88	.1	0	.5	.2	2,430	0	0	0	0	0	2.9
23	13.5	.1	0	.3	.2	f460	0	0	0	0	0	0
24	.3	0	0	.4	.1	f540	0	0	4.2	0	0	1.3
25	.2	0	0	.3	.1	a245	0	0	9.5	0	0	12.4
26	1.6	0	0	.2	.1	a73	0	0	0	0	0	88
27	.7	0	0	.1	.1	a31	0	11.9	276	0	0	9.5
28	140	.1	0	4.8	.1	a15	.5	.3	290	0	0	26.5
29	20.5	.1	0	1.5	.1	a10	16.2	-	53	0	0	44
30	1.6	.1	0	11.8	1.6	a37	15.9	-	3.3	0	0	181
31	.3	.1	-	7.5	-	a102	7.8	-	8.2	-	0	-

a No gage-height record Dec. 11, 15, 19, Dec. 25 to Jan. 9; discharge computed on basis of records for station near Waimea.

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

Discharge, in million gallons a day, of Waimea River below Kekaha ditch intake, near Waimea, Kauai, 1946-48--Continued

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	26	0	0	-	0	-		300	37	316	5.5	3.5
2	223	0	0	-	0	-		260	28.5	464	1.3	20
3	25.5	0	0	-	0	-		135	18.3	260	1.3	1.8
4	13.0	-	-	-	0	-		95	29.5	131	5.4	0
5	7.1	-	-	-	0	14.3		75	13.5	63	0	0
6	.6	-	-	-	0	8.3		66	32	58	0	0
7	11.1	-	-	-	0	6.7		76	34.5	233	0	0
8	.9	-	-	-	0	.2		200	51	131	0	0
9	-	-	1.9	-	.6	0		106	50	81	0	0
10	21.5	-	.2	-	21.5	.2		59	60	78	0	0
11	42	-	-	-	715	51		45	633	67	0	0
12	50	-	-	-	580	557		37	245	95	1.0	0
13	.5	-	-	-	-	89		29	398	59	59	7.1
14	0	-	-	0	-	516		25	149	52	1.7	0
15	0	-	-	0	-	216		20.5	244	56	0	0
16	0	-	-	.2	-	-		16.8	112	20	0	0
17	0	-	-	0	-	-		13.0	197	4.8	0	0
18	0	-	-	0	-	-		7.2	65	.1	0	0
19	0	-	-	0	-	-		4.7	18.7	0	3.8	0
20	0	-	-	0	-	-		4.2	309	0	5.6	0
21	0	-	-	.5	-	-		9.5	557	0	.1	0
22	0	-	-	0	-	-		.4	419	0	0	0
23	0	-	-	0	-	-		1.8	576	0	1.0	0
24	0	-	-	0	-	-		15.0	111	233	68	0
25	0	-	-	581	-	-		58	66	305	58	0
26	0	-	-	194	-	-		28.5	182	76	9.6	0
27	.4	-	-	226	-	-		16.8	77	23.5	.3	0
28	3.4	-	-	24	-	-		13.0	114	7.1	30	1.4
29	0	-	-	1.1	-	-		24	172	3.1	3.1	81
30	0	-	-	0	-	-		-	115	2.3	0	20
31	0	-	-	0	-	-		-	84	-	12.8	-

Note.- No gage-height record Aug. 4 to Sept. 8, Sept. 11 to Oct. 13, Nov. 13 to Dec. 4, Dec. 18 to Jan. 31; data insufficient for computation of discharge.

Monthly discharge, in million gallons a day, 1946-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 1946	140	0.1	19.9	30.8	616	1,890
August	6.8	0	.66	1.02	20.6	63
September	.4	0	.06	.09	1.8	5.5
October	11.8	0	.96	1.49	29.7	91
November	285	.1	35.2	54.5	1,060	3,240
December	2,550	.2	348	538	10,790	33,120
Calendar year 1946	2,550	0	60.1	93.0	21,940	67,340
January 1947	230	0	33.3	51.5	1,030	3,170
February	18.4	0	4.82	7.46	135	414
March	290	0	24.5	37.9	760	2,330
April	68	0	7.43	11.5	223	684
May	507	0	39.2	60.7	1,220	3,730
June	181	0	14.2	22.0	425	1,300
Fiscal year 1946-47	2,550	0	44.7	69.2	16,310	50,040
July 1947	223	0	13.7	21.2	425	1,300
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Calendar year	-	-	-	-	-	-
January 1948	-	-	-	92.8	-	-
February	300	.4	60.0	260	1,740	5,340
March	633	13.5	168	145	5,200	15,950
April	464	0	94.0	13.4	2,820	8,650
May	68	0	8.63	7.9	268	821
June	81	0	4.49	6.95	135	414
Fiscal year	-	-	-	-	-	-

Waimea River near Waimea

Location.- Lat. 21°58'10", long. 159°39'50", 1.2 miles upstream from confluence with Makaweli River and 1.8 miles north of Waimea. Altitude of gage, 25 feet (hand levels from estuary at confluence with Makaweli River).

Drainage area.- 57.8 square miles.

Records available.- July 1910 to October 1919, November 1943 to June 1948.

Extremes.- Maximum discharge during year, 5,720 million gallons a day (8,850 second-feet) Dec. 17 (gage height, 10.79 feet); minimum, 0.1 million gallons a day (0.2 second-foot) Aug. 20.
1943-48: Maximum discharge, 9,280 million gallons a day (14,400 second-feet) Dec. 22, 1946 (gage height, 13.10 feet); minimum, that of Aug. 20, 1947.

Remarks.- Records good except those below 50 million gallons a day and those for periods of no gage-height record, which are poor.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	38	0.7	1.7	0.2	0.6	a1.5	18.5	238	54	280	23	25.5
2	168	.8	1.3	1.9	.8	a2.0	11.7	232	50	428	26	35.5
3	38	.9	60	.2	1.1	34	342	145	34	242	18.5	23.5
4	25.5	1.2	264	.2	1.1	82	98	120	51	142	26.5	8.2
5	18.3	1.2	35.5	.2	1.2	32	60	99	30	78	16.2	2.6
6	13.0	1.3	4.0	8.3	1.2	12.3	49	92	40	73	8.2	2.2
7	11.3	1.4	41	6.9	1.0	18.7	46	99	46	227	5.3	2.2
8	9.2	1.4	47	.3	.8	4.5	106	190	70	103	4.7	2.2
9	1.8	1.5	28	.3	1.0	1.8	87	136	72	113	4.5	2.2
10	8.8	2.4	16.8	.2	18.4	1.6	38.5	85	77	113	4.7	2.1
11	61	8.0	15.5	.7	407	27	8.1	68	548	104	4.9	2.7
12	22	1.2	18.3	1.1	440	446	15.8	58	235	131	4.9	4.3
13	10.8	8.8	42	.9	1,160	102	7.2	49	339	92	68	15.7
14	5.6	112	23	.8	843	384	2.6	42	171	66	21.5	7.8
15	2.3	39	8.0	.7	302	220	2.3	41	216	72	8.2	2.4
16	2.0	1.9	3.2	1.0	92	1,230	4.2	33	129	42	5.3	2.1
17	1.0	121	2.6	1.1	56	1,360	162	27.5	177	25	4.5	2.0
18	.4	22	2.1	.9	35	378	82	23.5	90	18.5	3.4	2.5
19	.6	.5	1.7	.8	18.0	317	32.5	25	36	11.0	3.8	2.9
20	.5	.2	.7	.9	9.0	458	21	24.5	262	6.8	22	2.7
21	.5	.2	.2	1.0	3.2	118	16.2	33	514	6.0	15.0	1.6
22	.4	.2	.2	1.4	2.1	62	536	17.9	369	6.0	4.3	1.6
23	.5	.2	.2	.7	1.4	77	380	17.0	490	5.3	8.8	1.7
24	.6	.4	.2	.7	1.9	92	1,760	24	131	183	75	1.6
25	.8	136	.2	274	114	56	604	81	84	292	79	1.4
26	.9	235	.2	235	25.5	36	862	52	164	102	39	1.4
27	1.0	66	.2	189	12.8	42	1,490	37.5	98	41	15.7	2.0
28	6.4	12.1	.2	44	a5.0	41	3,110	30	119	24.5	31	3.6
29	.7	1.5	.2	10.3	a3.0	24.5	1,640	51	169	19.0	27	66
30	.5	2.5	.2	1.8	a1.6	27	1,000	-	128	22.5	16.6	52
31	.6	10.3	-	1.0	-	25	436	-	102	-	21.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	168	0.4	14.5	22.4	451	1,380
August	235	.2	25.5	39.5	792	2,430
September	264	.2	20.6	31.9	618	1,900
October	274	.2	25.4	39.3	786	2,410
November	1,160	.6	119	184	3,560	10,920
December	1,360	1.5	184	285	5,690	17,470
Calendar year 1947	1,360	.2	45.2	69.9	16,500	50,640
January	3,110	2.3	420	650	13,030	39,980
February	238	17.0	74.9	116	2,170	6,660
March	548	30	164	254	5,100	15,640
April	428	5.3	104	161	3,130	9,600
May	79	3.4	19.9	30.8	617	1,890
June	66	1.4	9.47	14.7	284	872
Fiscal year 1947-48	3,110	.2	99.0	153	36,230	111,200

Peak discharge (base, 5,600 m.g.d.).- Dec. 17 (6 a.m.) 5,720 m.g.d. (8,850 sec.-ft.).
a No gage-height record; discharge computed on basis of records for nearby rivers.

Kawaikoi Stream near Waimea

Location.- Concrete control, lat. 22°08'00", long. 159°37'15", at old trail crossing, 12½ miles northeast of Waimea. Altitude of gage, 3,420 feet (by barometer).
Drainage area.- 4.1 square miles.
Records available.- April 1909 to June 1948. July 1917 to July 1919 (unpublished).
Average discharge.- 29 years (1919-48), 21.1 million gallons a day (32.6 second-feet).
Extremes.- Maximum discharge during year, 2,150 million gallons a day (3,330 second-feet) Dec. 17 (gage height, 9.00 feet), from rating curve extended above 180 million gallons a day; minimum, 2.5 million gallons a day (3.9 second-feet) Oct. 13.
1909-48: Maximum discharge, 5,650 million gallons a day (8,740 second-feet) Oct. 2, 1940 (gage height, 12.00 feet), from rating curve extended above 180 million gallons a day; minimum, 1.2 million gallons a day (1.9 second-feet) Sept. 29 to Oct. 2, Oct. 9-12, 1944, Feb. 19-25, 1945.
Highest stage known, 15.2 feet Dec. 18, 1916.
Remarks.- Records good. No diversions above station.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

2.0	2.7	2.6	14.4	4.0	141
2.1	3.8	2.8	21.5	4.5	241
2.2	5.1	3.0	30.5	5.0	355
2.3	6.8	3.2	42	5.5	500
2.4	8.9	3.4	59	6.0	670
2.5	11.4	3.7	93	6.5	870

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	69	4.6	8.7	4.4	5.0	6.8	9.4	39	11.2	128	8.5	17.6
2	98	4.1	6.6	3.5	4.6	16.0	16.8	71	10.4	135	7.6	34
3	41	3.95	104	3.15	4.3	12.2	143	29	27	74	6.8	10.9
4	18.5	4.4	81	3.1	4.1	14.2	32.5	23	20.5	28	6.8	8.6
5	12.9	3.95	15.9	8.0	3.95	9.5	15.4	19.6	13.5	20.5	6.3	5.4
6	11.7	3.7	9.5	11.4	3.8	9.4	12.3	19.2	34.5	17.7	6.0	4.8
7	24.5	3.35	17.4	6.2	3.6	8.1	41	26	14.0	33	5.6	4.6
8	11.4	3.25	12.6	6.3	3.45	8.5	44	67	12.6	36	5.3	4.4
9	18.1	3.35	6.5	5.6	4.2	6.5	21.5	26	16.4	20	5.1	4.2
10	37.5	3.7	5.4	4.0	6.5	7.5	13.2	17.0	12.3	28	5.0	4.1
11	23	4.3	6.6	3.15	97	53	11.2	14.4	62	41	5.1	7.8
12	20.5	7.3	7.9	2.9	47	272	39.5	12.9	42	42	6.9	31.5
13	24	10.0	12.0	2.7	228	45	12.6	11.7	98	23.5	29.5	19.2
14	15.6	35.5	7.2	5.8	42	218	10.2	11.1	28	29	9.4	12.6
15	17.2	9.8	5.3	10.0	23.5	61	8.9	10.2	24	27	6.8	8.7
16	12.0	5.0	5.3	10.0	12.9	273	20	9.4	25.5	19.2	5.1	6.0
17	8.5	72	5.0	4.3	12.0	419	85	8.7	62	14.1	6.6	4.8
18	6.8	8.6	5.4	3.25	8.7	139	16.8	8.1	22	11.7	7.2	4.4
19	6.3	5.0	4.4	3.35	7.2	95	10.9	7.8	14.4	10.6	6.3	4.1
20	5.8	4.1	3.95	5.5	6.3	214	9.6	7.4	15.0	9.6	6.1	3.8
21	5.6	3.7	3.6	6.6	5.8	32	8.7	7.2	72	9.2	10.6	4.2
22	6.0	3.7	3.45	4.4	5.3	23	95	7.2	62	8.7	15.1	3.8
23	6.6	3.95	3.35	3.6	4.8	71	40	6.8	57	8.3	35.5	3.45
24	5.6	3.6	3.15	3.05	97	29.5	517	11.5	18.5	43	34.5	3.35
25	5.1	13.9	3.05	252	63	21	67	13.5	17.0	36	25	3.25
26	6.3	32	2.9	61	13.3	17.0	148	8.1	113	15.1	12.3	3.25
27	6.5	16.8	2.8	65	8.7	21.5	447	6.8	38	10.2	8.7	4.3
28	6.5	5.8	2.7	14	7.4	14.9	752	8.5	74	8.7	21	22.5
29	5.4	4.4	2.8	8.5	6.5	12.3	445	10.1	101	16.9	9.1	24.5
30	4.7	19.7	3.25	6.5	5.8	11.4	312	-	71	10.4	6.1	11.4
31	4.6	6.0	-	5.4	-	10.6	75	-	44	-	6.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	98	4.6	17.6	27.2	545	1,670
August	72	3.25	10.1	15.6	314	962
September	104	2.7	12.1	18.7	362	1,110
October	252	2.7	17.3	26.8	537	1,650
November	228	3.45	24.9	38.5	746	2,290
December	419	6.5	69.4	107	2,150	6,600
Calendar year 1947	419	2.7	22.2	34.3	8,090	24,810
January	752	8.7	112	173	3,480	10,680
February	71	6.8	17.9	27.7	518	1,590
March	113	10.4	39.8	61.6	1,230	3,780
April	135	8.3	30.5	47.2	914	2,810
May	35.5	5.0	10.9	16.9	337	1,030
June	34	3.25	9.45	14.6	284	870
Fiscal year 1947-48	752	2.7	31.2	48.3	11,420	35,040

Peak discharge (base, 850 m.g.d.).- Nov. 13 (9 p.m.) 1,200 m.g.d. (1,860 sec.-ft.); Dec. 12 (7 a.m.) 1,450 m.g.d. (2,240 sec.-ft.); Dec. 17 (4:30 a.m.) 2,150 m.g.d. (3,330 sec.-ft.); Jan. 28 (11 a.m.) 1,450 m.g.d. (2,240 sec.-ft.); Apr. 1 (6 p.m.) 990 m.g.d. (1,530 sec.-ft.).

Mohihi Stream near Waimea
(Formerly published as Mohihi Stream at altitude 3,500 feet, near Waimea)

Location.- Lat. 22°07'05", long. 159°36'15", at upper trail crossing, 3.8 miles northeast of confluence of Waiahulu and Poomau Streams, and 12 miles northeast of Waimea. Altitude of gage, 3,350 feet (from topographic map).

Drainage area.- 1.6 square miles.

Records available.- June 1920 to October 1926, October 1936 to June 1948. April 1909 to December 1912 at site 2 miles downstream (fragmentary).

Average discharge.- 17 years (1920-26, 1937-48), 4.97 million gallons a day (7.69 second-feet).

Extremes.- Maximum discharge during year, 615 million gallons a day (952 second-feet) Dec. 17 (gage height, 5.60 feet), from rating curve extended above 21 million gallons a day; minimum, 0.69 million gallons a day (1.07 second-feet) Aug. 8, 9. Oct. 13, 14.
1920-26, 1936-48: Maximum discharge, 915 million gallons a day (1,420 second-feet) Oct. 2, 1940 (gage height, 6.40 feet, from floodmarks), from rating curve extended above 21 million gallons a day; minimum, 0.05 million gallons a day (0.08 second-foot) May 3, 4. 1941.

Remarks.- Records good except those for period of no gage-height record, which are fair. No diversions above station.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.0	0.84	1.50	1.1	1.63	1.50	2.45	12.1	2.25	20.5	2.35	3.15
2	15.6	.77	1.38	.88	1.50	3.75	2.7	12.9	3.3	35.5	2.2	5.6
3	8.4	.77	13.4	.80	1.38	4.8	34.5	8.2	2.45	22	2.05	2.8
4	3.7	1.13	9.0	.80	1.28	4.7	11.4	6.1	3.55	11.0	1.75	1.75
5	2.6	.98	3.0	.98	1.23	2.55	4.4	5.0	3.15	7.2	1.68	1.34
6	1.94	.80	2.3	1.76	1.13	1.98	3.05	4.6	4.0	5.9	1.60	1.18
7	3.0	.73	3.3	1.88	1.08	1.82	4.5	5.1	3.55	17.8	1.50	1.08
8	2.15	.69	2.1	1.50	1.03	1.75	11.6	15.3	3.15	8.7	1.39	1.00
9	1.57	.69	1.5	1.33	1.28	1.55	7.0	8.1	3.0	5.9	1.34	.97
10	8.8	.80	1.2	1.18	1.50	1.55	3.55	4.6	3.45	7.0	1.24	.93
11	7.7	.84	1.4	.98	45	11.8	2.7	3.65	35	7.4	1.24	.89
12	3.15	.93	1.6	.84	32.5	52	4.8	3.15	13.0	9.5	1.24	1.78
13	3.15	1.28	2.6	.77	128	16.4	3.0	2.9	29	6.1	3.1	2.6
14	2.7	10.0	1.5	.80	36	46	2.35	2.6	12.0	5.5	2.05	1.98
15	2.4	3.9	1.2	2.0	19.9	23	1.98	2.45	11.2	6.7	1.44	1.75
16	2.15	1.69	1.1	2.75	7.2	83	3.2	2.2	8.4	4.7	1.24	1.26
17	1.63	10.4	1.1	1.60	4.7	88	23	2.1	16.2	3.8	1.18	1.04
18	1.33	2.9	1.1	1.13	3.55	30	6.6	1.98	7.1	3.15	1.18	1.00
19	1.18	1.57	.98	.98	2.9	28.5	3.55	1.90	3.8	2.8	1.34	.93
20	1.08	1.23	.90	1.13	2.35	41	3.0	1.82	11.3	2.6	1.75	.81
21	1.03	1.03	.86	2.15	2.1	11.0	2.55	1.75	36	2.6	1.75	.81
22	.98	.98	.81	1.50	1.82	7.0	27	1.75	30.5	2.45	2.5	.81
23	.93	.93	.78	1.13	1.60	11.5	16.5	1.68	31.5	2.3	2.3	.78
24	.88	.84	.74	.93	5.1	9.9	96	2.9	9.3	16.9	9.5	.70
25	.84	8.7	.71	36	13.8	6.8	28	3.35	5.9	19.8	9.1	.70
26	.80	13.9	.70	27	3.9	4.8	53	2.2	18.4	6.7	4.4	.70
27	.80	7.8	.69	21.5	2.3	4.6	87	1.82	10.2	3.65	2.55	.74
28	1.91	2.5	.69	6.0	1.90	4.1	120	1.60	16.5	2.8	5.9	1.08
29	1.23	1.57	.78	3.15	1.60	3.25	72	1.75	21	2.6	3.05	7.2
30	1.03	2.1	.90	2.25	1.44	3.05	47	-	15.4	2.45	1.75	4.2
31	.93	1.81	-	1.88	-	2.8	22.5	-	12.0	-	1.80	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.6	0.80	2.99	4.63	92.6	284
August	13.9	.69	2.77	4.29	86.0	264
September	13.4	.69	1.99	3.08	59.8	184
October	36	.77	4.15	6.42	129	395
November	128	1.03	11.0	17.0	331	1,010
December	88	1.50	16.6	2.57	514	1,580
Calendar year 1947	128	.65	5.14	7.95	1,870	5,750
January	120	1.98	22.9	35.4	711	2,180
February	15.3	1.60	4.33	6.70	126	385
March	36	2.25	12.4	19.2	386	1,180
April	35.5	2.3	8.53	13.2	256	786
May	9.5	1.18	2.50	3.87	77.5	238
June	7.2	.70	1.72	2.66	51.6	158
Fiscal year 1947-48	128	.69	7.70	11.9	2,820	8,640

Peak discharge (base, 200 m.g.d.).- Nov. 13 (9:30 p.m.) 475 m.g.d. (735 sec.-ft.); Dec. 17 (4 a.m.) 615 m.g.d. (952 sec.-ft.); Jan. 24 (1 p.m.) 214 m.g.d. (331 sec.-ft.); Jan. 28 (11 a.m.) 257 m.g.d. (398 sec.-ft.).

Note.- No gage-height record Sept. 4 to Oct. 2; discharge computed on basis of records for nearby streams.

Kokee ditch near Waimea

Location.- Suppressed weir control, lat. 22°06'25", long. 159°40'45", 1,000 feet west of road and 10½ miles north of Waimea. Altitude of gage, 2,310 feet (by barometer).

Records available.- September 1926 to June 1948.

Average discharge.- 21 years (1927-48), 16.6 million gallons a day (25.7 second-feet).

Extremes.- Maximum discharge during year, 73 million gallons a day (113 second-feet) Dec. 14 (gage height, 2.64 feet); no flow sometime during period of missing record.
1926-48: Maximum discharge, 78 million gallons a day (121 second-feet) Dec. 7, 1946; no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent except those for Jan. 23 to Feb. 16, which are poor. Kokee ditch diverts water at altitude 3,400 feet from all streams tributary to Waimea River west of Mohihi stream for irrigation near Kekaha. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	32	6.3	10.8	5.2	6.9	9.6	21	14	7.6	24.5	18.2	17.8
2	46	5.6	8.3	4.7	6.3	18.6	20	16	6.9	20	17.0	30
3	42	5.3	24	3.8	5.6	14.5	25.5	14	6.6	13.2	17.0	17.0
4	24.5	6.4	46	3.65	5.3	19.5	25	13	6.8	17.6	15.8	12.1
5	17.0	6.1	23	7.5	5.0	13.2	29	12	6.3	24.5	15.8	10.2
6	13.9	5.3	12.5	11.6	4.8	12.3	24.5	12	6.6	21	14.6	9.2
7	26.5	4.8	23	8.1	4.6	11.2	30	12	6.1	21	13.9	8.9
8	15.8	4.6	19.4	7.3	4.2	11.0	32	14	5.8	17.9	13.2	8.3
9	16.5	4.6	10.6	6.9	4.6	9.2	30	12	6.6	14.3	12.8	8.0
10	33.5	4.6	8.3	5.2	6.6	8.9	24.5	12	6.1	12.8	12.3	7.6
11	28.5	5.3	8.5	4.1	23	33.5	22	11	10.2	12.4	12.3	9.8
12	20.5	6.2	11.7	3.65	44	52	40	11	19.5	11.9	13.0	24
13	25	12.9	17.0	3.25	50	46	23	10	44	9.2	29	23
14	19.5	27.5	10.8	3.8	43	63	19.5	9.6	35	8.7	17.0	17.0
15	18.2	15.3	7.8	13.0	29	54	18.2	9.0	33.5	12.7	14.4	13.4
16	14.6	7.4	7.3	11.4	18.2	19.2	19.4	8.3	33	24	11.9	9.8
17	10.8	35	6.8	6.2	19.5	11.7	45	8.0	52	23	12.8	8.3
18	9.2	13.3	6.9	4.2	14.1	37.5	17.7	7.4	31	21	13.4	7.8
19	8.1	7.6	6.1	3.65	11.9	25	11.5	7.1	24.5	19.5	12.8	7.1
20	7.4	6.1	5.3	4.8	10.2	19.7	10.6	6.6	23.5	19.5	12.3	6.8
21	7.4	5.3	4.7	8.3	9.2	32	9.8	6.3	35.5	18.2	14.7	6.9
22	7.4	5.2	4.6	5.6	8.3	42	36.5	6.1	44	17.0	19.5	6.8
23	8.0	5.2	4.2	4.2	7.8	28	45	5.8	37	17.0	19.8	6.4
24	7.4	4.7	4.2	3.4	28	22	50	6.1	29	29.5	30.5	6.1
25	6.9	10.1	3.95	32.5	45	26	48	5.6	26	39.5	27.5	6.0
26	7.3	32	3.8	46	20.5	32	50	5.3	26.5	25.5	19.5	5.8
27	7.4	22.5	3.65	48	13.4	27.5	55	5.8	21	22	15.8	6.9
28	7.8	9.2	3.65	21.5	11.7	19.5	20	6.9	24.5	19.5	21.5	13.2
29	7.1	6.6	3.65	12.8	9.8	21.5	19	7.4	30.5	23	16.4	22
30	6.4	18.1	3.8	9.4	8.9	15.8	17	-	22	19.5	11.9	18.6
31	6.1	11.5	-	8.0	-	21.5	15	-	26	-	11.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	46	6.1	16.4	25.4	509	1,560
August	35	4.6	10.3	15.9	321	984
September	46	3.65	10.5	16.2	314	965
October	48	3.25	10.4	16.1	322	987
November	50	4.2	16.0	24.8	479	1,470
December	63	8.9	25.1	38.8	777	2,390
Calendar year 1947	63	3.25	16.6	25.7	6,030	18,660
January	55	9.8	27.5	42.5	854	2,620
February	16	5.3	9.46	14.6	274	842
March	52	5.8	22.4	34.7	694	2,130
April	39.5	8.7	19.3	29.9	579	1,780
May	30.5	11.9	16.4	25.4	508	1,560
June	30	5.8	11.8	18.3	355	1,090
Fiscal year 1947-48	63	3.25	16.4	25.4	5,990	18,380

Note.- No gage-height record Jan. 23 to Feb. 16; discharge computed on basis of ditchman's notes.

Waiahulu Stream near Waimea

Location.- Lat. 22°04'45", long. 159°39'15", in Waimean Canyon, half a mile upstream from confluence with Koale Stream and 8¾ miles north of Waimea. Altitude of gage, 890 feet (by barometer).

Drainage area.- 20.0 square miles.

Records available.- February to October 1916, October 1917 to June 1918, May 1925 to June 1948. July 1918 to November 1920 at same site (fragmentary and unreliable; unpublished

Average discharge.- 23 years (1925-48), 29.0 million gallons a day (44.9 second-feet).

Extremes.- Maximum discharge during year, 2,550 million gallons a day (3,950 second-feet) Dec. 17 (gage height, 6.87 feet), from rating curve extended above 400 million gallons a day; minimum, 6.9 million gallons a day 10.7 second-feet) Oct. 14.
1916, 1917-18, 1925-48: Maximum discharge, 5,950 million gallons a day (9,210 secon feet) Dec. 24, 1927 (gage height, 9.92 feet), from rating curve extended above 400 million gallons a day; minimum, 5.2 million gallons a day (8.0 second-feet) Nov. 4, 192

Remarks.- Records fair except those for periods of faulty gage-height record, which are poor. Kokee ditch diverts water above station for irrigation near Kekaha.

Revisions (fiscal year).- W 1945: 1928(M).

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	21	8.5	7.0	7.3	8.1	9.7	18.3	172	48	176	16.3	25
2	129	8.3	17	7.3	7.9	12.2	17.6	200	52	210	15.7	40
3	29.5	8.3	130	7.3	7.7	13.0	205	110	53	130	15.7	25
4	13.5	8.1	80	7.1	7.7	16.3	53	99	57	59	14.7	15
5	10.7	7.9	35	7.3	7.9	12.5	25	89	52	52	14.7	14
6	9.7	7.9	12.2	7.5	7.9	11.4	19.7	89	59	45	14.7	14
7	11.4	7.9	19.8	8.3	7.7	11.2	30	94	52	82	13.8	14
8	10.4	7.9	19.4	8.5	7.7	10.9	56	172	48	71	13.5	13
9	9.2	7.9	10.9	7.9	7.9	10.7	33.5	99	52	50	13.2	13
10	15.3	8.1	9.5	7.7	8.1	10.4	21	80	52	56	13.2	13
11	23.5	8.3	15.6	7.5	129	34	18.6	75	148	59	13.0	20
12	11.9	27	11.7	7.3	79	380	35	71	148	71	20	37
13	12.7	13.6	14.1	7.1	423	63	19.0	67	129	45	33	25
14	11.7	9.5	11.9	7.1	136	360	18.3	67	66	33	20	15
15	9.9	52	9.7	7.9	49	160	18.3	63	42	35	15	12.7
16	9.9	11.9	8.7	9.2	25	577	21	59	42	25	14	12.5
17	9.2	9.2	8.5	8.7	16.9	761	116	59	56	20	13	11.7
18	8.5	8.3	8.3	7.7	14.1	249	43	59	45	17	13	11.7
19	8.3	8.1	8.1	7.5	12.7	171	31	56	29	16.0	13	11.7
20	8.1	7.9	8.1	7.5	11.9	309	29	56	29.5	15.4	14	11.4
21	8.1	7.9	7.9	7.9	11.2	64	27	56	115	15.4	18	11.4
22	8.1	8.1	7.7	8.3	10.7	38.5	220	56	102	15.0	40	11.4
23	8.1	42	7.7	7.7	10.2	79	122	52	107	15.4	50	11.4
24	8.1	25.5	7.7	7.5	57	55	955	52	42	69	40	11.4
25	8.1	14.4	7.7	215	80	37.5	278	63	32	94	30	11.4
26	8.1	10.2	7.7	89	16	27.5	395	56	114	36.5	25	11.2
27	8.1	9.2	7.5	88	11.9	26.5	901	52	48	21.5	15	11.4
28	8.7	11.2	7.5	17.3	10.9	25	1,370	45	72	17.3	27	17.3
29	8.7	9.5	7.5	10.9	10.4	21	1,080	48	114	17.6	20	30
30	8.3	46	7.3	9.2	9.9	19.7	720	-	80	16.6	13	21
31	8.7	10	-	8.5	-	19.3	328	-	59	-	17	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	129	8.1	15.0	23.2	464	1,430
August	52	7.9	13.9	21.5	431	1,320
September	130	7.0	17.4	26.9	522	1,600
October	215	7.1	20.1	31.1	623	1,910
November	423	7.7	40.1	62.0	1,200	3,690
December	761	9.7	116	179	3,600	11,030
Calendar year 1947	761	7.0	29.1	45.0	10,640	32,630
January	1,370	17.6	233	361	7,220	22,170
February	200	45	79.9	124	2,320	7,110
March	148	29	69.2	107	2,140	6,580
April	210	15.0	52.9	81.8	1,590	4,880
May	50	13.0	19.6	30.3	608	1,870
June	40	11.2	16.8	26.0	503	1,540
Fiscal year 1947-48	1,370	7.0	58.0	89.7	21,220	65,130

Peak discharge (base, 1,200 m.g.d.).- Nov. 13 (10 p.m.) 1,550 m.g.d. (2,400 sec.-ft.); Dec. 12 (7 a.m.) 1,680 m.g.d. (2,570 sec.-ft.); Dec. 17 (4 a.m.) 2,550 m.g.d. (3,950 sec.-ft.); Jan. 28 (3 a.m.) 2,000 m.g.d. (3,090 sec.-ft.).

Note.- Faulty gage-height record Aug. 31 to Sept. 5, Apr. 8-18, May 12 to June 14; discharge computed on basis of partly estimated gage-height records, recorded ranges in stage, and records for Kawaikoi Stream.

Kekaha ditch at camp 1, near Waimea

Location.- Lat. 22°02'35", long. 159°38'30", in Waimea Canyon, a quarter of a mile downstream from lower intake and 6¼ miles northeast of Waimea. Altitude of gage, 520 feet (by barometer).

Records available.- November 1907 to June 1948.

Average discharge.- 29 years (1918-24, 1925-48), 36.1 million gallons a day (55.9 second-feet).

Extremes.- Maximum discharge during year, 85 million gallons a day (101 second-feet) Nov. 11 (gage height, 4.09 feet); no flow Jan. 5-9.
1907-48: Maximum discharge, 71 million gallons a day (110 second-feet) Apr. 25, 1928 (gage height, 4.33 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Ditch diverts water from Waiahulu Stream and Koaie River, 3 miles above lower intake, for hydroelectric plant. Lower intake is on Waimea River, 300 feet downstream from power house and 1 mile downstream from confluence with Waialae River. Flow regulated by head gates. Water used for irrigation in vicinity of Kekaha.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	43	22	31	36	31	31	45	39	41	41	51	40
2	43	21	36	32	37	41	46	39	43	41	51	50
3	41	23	41	26	34	46	47	42	47	41	51	44
4	39	26	43	24	30	47	47	43	44	41	51	39
5	39	24	44	26	28	41	0	43	48	47	48	35
6	36	22	38	43	27	38	0	43	44	50	48	32
7	42	20	39	41	25	36	0	41	41	37	43	31
8	39	20	24.5	31	24	37	0	41	40	33	43	30
9	29	26	17.0	28	32	34	0	46	40	34	39	30
10	40	31	13.3	27	46	35	46	46	40	34	39	29
11	43	41	36	25	44	41	47	46	40	33	39	31
12	41	33	46	24	42	41	45	46	40	33	42	33
13	41	42	39	23	34	43	46	46	40	33	51	34
14	36	41	38	23	38	41	48	46	40	41	48	43
15	31	46	36	30	24	41	50	43	40	41	43	41
16	31	32	31	36	20	32	45	46	40	49	39	37
17	29	40	29	29	21	36	45	46	40	51	37	33
18	27	43	28	25	36	38	45	47	45	51	42	45
19	25	31	27	24	43	38	46	39	50	48	48	37
20	24	32	26	27	46	38	48	39	45	48	51	32
21	24	26	25	38	41	38	48	31	40	48	48	32
22	23	25	24	28	38	38	45	51	40	46	43	32
23	23	30	24	27	36	37	43	51	40	43	40	30
24	22	28	23	24	40	37	42	49	45	48	51	29
25	22	46	23	39	48	37	41	34	50	39	41	28
26	22	44	22	43	43	37	40	41	43	43	51	28
27	25	46	22	48	36	37	39	45	48	41	48	30
28	39	41	22	48	34	37	30	43	40	43	48	33
29	27	33	22	43	32	40	39	41	40	44	43	48
30	23	37	23	36	31	40	39	-	49	51	36	48
31	23	36	-	31	-	40	39	-	45	-	27	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	43	22	32.0	49.5	992	3,040
August	46	20	32.5	50.3	1,010	3,090
September	46	13.3	29.8	46.1	893	2,740
October	48	23	31.8	49.2	985	3,020
November	48	20	34.7	53.7	1,040	3,190
December	47	31	38.5	59.6	1,200	3,670
Calendar year 1947	53	0	34.3	53.1	12,520	38,380
January	50	0	36.8	56.9	1,140	3,500
February	51	31	43.2	66.8	1,250	3,850
March	50	40	42.5	65.8	1,320	4,050
April	51	33	42.4	65.6	1,270	3,910
May	51	27	44.8	69.3	1,380	4,270
June	50	28	35.5	54.9	1,060	3,260
Fiscal year 1947-48	51	0	37.0	57.2	13,550	41,590

Note.- No gage-height record Dec. 26 to Jan. 31, Feb. 26 to Apr. 6, June 1-13; discharge computed on basis of recorded range in stage, ditchman's notes, and records for nearby stations.

Makaweli River near Waimea

Location.- Lat. 21°58'15", long. 159°38'55", 0.7 mile upstream from confluence with Waimea River and 1.9 miles northwest of Waimea. Altitude of gage, 30 feet (hand levels from estuary at confluence with Waimea River).

Drainage area.- 25.0 square miles.

Records available.- July 1943 to June 1948. October 1911 to June 1917, staff gage at site 0.2 mile downstream.

Extremes.- Maximum discharge during year, 4,010 million gallons a day (6,200 second-feet) Mar. 20 (gage height, 8.68 feet), from rating curve extended above 150 million gallons a day; minimum, 4.5 million gallons a day (7.0 second-feet) July 31, Aug. 2, 1943-48: Maximum discharge, 5,450 million gallons a day (8,430 second-feet) Aug. 11, 1943 (gage height, 9.50 feet), from rating curve extended above 150 million gallons a day; minimum, 3.4 million gallons a day (5.8 second-feet) Oct. 21-24, 1944.

Remarks.- Records good except those below 20 million gallons a day, and those for periods of no gage-height record, which are poor.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	44	5.0	14.9	23.5	20	a11	12.9	34.5	18.0	100	60	29
2	66	5.0	a63	11.2	13.2	a12	11.3	32.5	14.0	161	30	39.5
3	28.5	5.8	155	9.0	12.4	96	76	26	14.3	119	24.5	23
4	50	8.4	a105	7.6	9.7	64	20.5	23	16.0	124	30.5	13.2
5	49	6.3	23	7.6	9.3	21.5	12.9	19.0	11.3	48	17.5	10.6
6	20.5	9.6	14.0	38.5	9.7	49	11.0	19.0	9.9	74	16.0	15.3
7	40	7.9	24.5	14.4	6.9	16.4	12.9	29.5	34	147	14.0	1.3
8	14.4	5.8	23.5	8.6	6.6	24.5	30.5	32.5	29	72	13.2	9.9
9	10.8	9.9	12.8	8.3	27.5	9.2	18.5	23	15.5	43	12.1	9.2
10	31.5	12.4	11.2	7.6	62	10.6	11.3	17.5	17.7	34.5	13.5	9.2
11	54	17.1	41	8.3	460	38.5	10.2	15.5	303	37.5	14.8	11.0
12	55	24	60	8.0	580	76	9.9	14.0	172	29.5	41	24
13	24.5	22	71	7.3	828	23.5	9.2	12.5	262	22	89	23.5
14	13.2	195	34	7.6	578	45	9.2	11.3	104	19.6	18.0	9.6
15	10.0	44	17.6	9.0	164	33.5	8.9	11.0	351	20	12.9	9.6
16	10.8	14.0	14.0	11.6	90	349	17.0	10.6	229	21.5	11.3	8.6
17	9.0	171	12.4	8.3	59	225	62	9.9	213	20.5	16.3	33
18	8.0	29	12.4	8.3	34.5	109	23	9.6	71	15.0	42	33
19	7.6	60	10.8	10.3	26	141	14.5	9.2	37.5	13.2	64	12.3
20	7.3	15	10.0	12.2	21	220	14.0	9.2	357	22.5	68	8.0
21	7.6	a11	9.3	10.1	17.5	61	12.9	8.9	546	14.7	27	16.9
22	6.9	a17	9.0	8.0	15.0	37.5	331	13.6	376	12.1	14.7	8.0
23	6.3	11.1	8.3	8.3	13.6	23.5	148	11.3	406	12.1	36	7.6
24	6.3	44	8.6	8.1	15.9	20.5	293	21	220	154	12.6	7.0
25	6.1	307	8.6	185	a23	18.0	117	29.5	96	210	147	6.5
26	5.8	407	8.3	65	a24	16.5	180	13.2	88	52	47	7.9
27	78	103	8.0	119	a14	36	208	9.9	53	39	47	7.6
28	23.5	39	8.3	37.5	a10	19.0	348	38	53	21	113	25
29	6.6	a17	9.3	16.7	a10	17.6	156	24	63	39	23	172
30	5.6	a25	9.8	12.0	a10	20.5	97	-	48	47	13.3	51
31	5.0	18.0	-	11.2	-	15.5	50	-	43	-	80	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	86	5.0	23.7	36.7	734	2,250
August	407	5.0	53.8	83.2	1,670	5,110
September	155	8.0	27.3	42.2	818	2,510
October	185	6.1	22.6	35.0	702	2,150
November	828	6.6	106	164	3,170	9,730
December	349	9.2	60.1	93.0	1,860	5,720
Calendar year 1947	828	5.0	34.8	53.8	12,700	38,990
January	348	8.9	75.4	117	2,340	7,170
February	38	8.9	18.6	28.8	539	1,650
March	546	9.9	138	214	4,270	13,110
April	210	12.1	58.2	90.0	1,740	5,350
May	147	11.3	37.7	58.3	1,170	3,590
June	172	6.5	21.7	33.6	652	2,000
Fiscal year 1947-48	828	5.0	53.7	83.1	19,660	60,340

Peak discharge (base, 1,000 m.g.d.).- Aug. 25 (12 p.m.) 1,340 m.g.d. (2,070 sec.-ft.); Nov. 13 (9 a.m.) 2,970 m.g.d. (4,600 sec.-ft.); Mar. 20 (1 p.m.) 4,010 m.g.d. (6,200 sec.-ft.).

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

Hanapepe River at Koula, near Eleele

Location.- Lat. 21°57'20", long. 159°33'15", just downstream from confluence with Manuahi Stream and 4 miles northeast of Eleele. Altitude of gage, 150 feet (by barometer).

Drainage area.- 18.8 square miles.

Records available.- May 1917 to January 1921, December 1926 to June 1948. August 1910 to December 1916 at site half a mile upstream; records not equivalent.

Average discharge.- 24 years (1917-20, 1927-48), 54.7 million gallons a day (84.6 second-feet).

Extremes.- Maximum discharge during year, 6,000 million gallons a day (9,280 second-feet) Mar. 20 (gage height, 9.05 feet), from rating curve extended above 2,400 million gallons a day by test on model of station site; minimum, 9.3 million gallons a day (14.4 second-feet) Feb. 20.
1910-21, 1926-48: Maximum discharge, that of Mar. 20, 1948; minimum, 6.2 million gallons a day (9.6 second-feet) Oct. 4, 5, 1939.

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

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Mar. 24						Mar. 25 to June 30			
0.6	14.5	1.4	88	2.8	515	-0.2	21.5	0.8	105
.8	25	1.6	124	3.2	700	0	32	1.2	167
1.0	41	2.0	220	3.7	980	.2	44	1.6	255
1.2	62	2.4	345			.4	59	2.0	330
						.6	80	2.5	520

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a140	31.5	29	29	34	16.7	16.8	16.8	25.5	189	83	88
2	a230	24	86	15.8	17.6	21	15.8	18.4	14.5	177	63	89
3	a100	28	417	17.2	15.4	179	29	17.5	11.3	166	55	63
4	a160	26	286	15.4	13.7	120	15.0	15.4	14.7	216	42	46
5	a150	23.5	70	28.5	13.3	39.5	13.7	14.1	11.7	74	39.5	42
6	a80	29	46	30.5	12.9	106	13.3	13.7	10.9	115	38.5	52
7	a130	25	64	16.1	12.9	36.5	17.3	24.5	55	175	33	42
8	a60	22	40	14.1	12.9	25.5	51	18.2	43	82	28	38
9	a50	30.5	34.5	15.0	31.5	21	17.6	13.7	40	57	26.5	35.5
10	81	39.5	37.5	12.9	84	30.5	14.1	12.5	23	50	30	33
11	103	32	47	14.8	256	67	13.3	12.1	159	66	28	36.5
12	284	57	70	15.0	891	55	12.5	12.1	155	54	49	123
13	205	36.5	63	13.3	1,270	24.5	11.3	11.7	424	43	79	53
14	78	313	70	14.9	752	21.5	11.3	10.9	129	43	35	43
15	53	64	37.5	16.3	250	28.5	11.7	10.9	518	48	27.5	38.5
16	45	35.5	28	17.1	90	205	36.5	11.3	412	57	34	32.5
17	34	413	28.5	12.1	98	130	56	10.5	368	46	47	67
18	31.5	60	26.5	11.7	56	68	21	10.2	108	36	98	69
19	26.5	90	23	14.4	35.5	102	15.8	9.9	56	34.5	115	40
20	266	37.5	21.5	16.9	25.5	232	19.0	9.9	563	43	92	39
21	25	25.5	23	12.9	20	50	18.3	9.9	286	34.5	72	38
22	24	67	19.6	14.3	17.6	30.5	591	17.9	420	33	42	34.5
23	27	45	18.6	12.9	17.2	25	163	15.2	250	32	78	31.5
24	26.5	99	18.5	11.7	17.2	21	150	27	588	83	222	30
25	22	988	17.6	113	19.4	17.2	49	26	180	145	353	32
26	26	567	16.0	69	22	17.6	56	12.5	126	46	121	38.5
27	309	136	16.8	129	15.8	29	49	11.3	77	49	224	49
28	50	56	16.8	40	15.0	19.0	93	88	69	35	274	58
29	25.5	42	17.2	30	15.4	27	43	100	66	48	73	415
30	24	49	16.8	16.8	16.8	33	35	-	53	46	52	80
31	36	35.5	-	16.3	-	21	26	-	50	-	186	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	309	22	85.7	133	2,660	8,150
August	988	22	114	176	3,530	10,830
September	417	16.8	56.9	88.0	1,710	5,240
October	129	11.7	26.0	40.2	807	2,480
November	1,270	12.9	139	214	4,150	12,730
December	232	16.7	58.7	90.8	1,820	5,580
Calendar year 1947	1,270	11.7	57.6	89.1	21,040	64,540
January	591	11.3	54.4	84.2	1,680	5,170
February	100	9.9	20.1	31.1	580	1,790
March	588	10.9	172	266	5,330	16,350
April	216	32	77.4	120	2,320	7,130
May	353	26.5	88.5	137	2,740	8,410
June	415	30	63.3	97.9	1,900	5,830
Fiscal year 1947-48	1,270	9.9	79.9	124	29,230	89,690

Peak discharge (base, 2,300 m.g.d.).- Aug. 25 10 p.m.) 5,780 m.g.d. (8,940 sec.-ft.); Sept. 3 (9 p.m.) 3,030 m.g.d. (4,690 sec.-ft.); Nov. 13 1 p.m.) 2,630 m.g.d. (4,070 sec.-ft.); Mar. 20 12 m.) 6 000 " "

Hanapepe ditch at Koula, near Eleele

Location.- Lat. 21°57'10", long. 159°33'00", at first flume downstream from siphon at Koula 3 miles downstream from intake and 4 miles northeast of Eleele. Altitude of gage, 490 feet (by barometer).

Records available.- January 1910 to June 1921, March 1927 to June 1948.

Average discharge.- 31 years (1910-20, 1927-48), 24.7 million gallons a day (38.2 second-feet).

Extremes.- Maximum discharge during year, 32 million gallons a day (50 second-feet) Mar. 20 (gage height, 3.02 feet); minimum, 6.7 million gallons a day (10.4 second-feet) Aug. 1, Nov. 11.
1910-21, 1927-48: Maximum discharge, 42 million gallons a day (65 second-feet) Apr. 9, 1945 (gage height, 3.36 feet); ditch dry occasionally, owing to closing of head gates.

Remarks.- Records good except those for Nov. 20 to Dec. 1, which are fair. Ditch diverts water from Hanapepe River 3 miles above station for irrigation in vicinity of Makaweli. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	20	12.6	14.3	17.6	18.8	a19	20	21.5	23	18.3	21.5	23
2	21.5	15.1	17.5	17.6	17.6	20	20	21.5	21.5	25	21.5	23
3	20	15.1	18.3	17.6	16.5	21.5	23	23	21.5	23	19.5	20
4	20	15.4	21	17.6	16.5	23	21.5	21.5	21.5	23	20	20
5	20	15.1	20	18.8	15.4	23	21.5	21.5	20	17.6	18.8	17.6
6	18.8	15.4	17.6	20	15.4	25	20	21.5	18.8	13.3	20	17.6
7	18.8	15.4	16.2	18.8	14.3	23	21.5	22	22	22	18.8	16.5
8	18.8	14.3	15.4	17.6	14.3	21.5	23	21.5	14.9	18.8	17.6	18.5
9	18.8	15.4	13.3	17.6	11.2	21.5	21.5	20	15.9	16.5	17.6	15.4
10	20	15.4	13.3	17.6	7.1	21.5	21.5	20	21.5	16.5	16.8	15.4
11	20	15.4	13.3	17.6	12.4	23	20	18.8	24	16.3	16.5	16.5
12	21	16.5	14.0	16.5	22	23	20	18.8	19.4	16.5	17.8	18.8
13	17.6	16.5	16.5	15.4	15.1	23	20	18.8	24.5	15.4	20	18.8
14	19.2	19.6	16.5	16.5	24	21.5	20	18.8	25	15.4	18.8	16.5
15	20	21.5	15.4	16.5	25	21.5	20	18.8	25	16.5	17.6	15.4
16	20	18.8	16.5	17.6	20	25	22	17.6	27	16.5	17.1	15.8
17	20	22.5	16.5	15.4	21	27	25	17.6	27	16.5	17.6	17.6
18	20	18.9	16.5	15.4	21.5	25	21	17.6	23	15.4	20	18.8
19	18.8	21.5	16.5	15.4	21.5	27	19.1	17.6	20	14.3	20	17.6
20	17.6	20	16.5	16.0	a21	27	21.5	17.6	14	16.4	21	16.5
21	17.6	20	16.5	16.5	a21	25	21.5	18.8	7.5	15.4	20	16.5
22	17.6	20	15.4	16.5	a21	23	27	15.9	7.5	14.3	18.8	15.4
23	16.5	20	15.4	16.5	a20	23	29	16.0	7.5	14.8	18.2	15.4
24	17.6	20	15.4	15.4	a20	21.5	27	19.7	7.5	18.8	21.5	14.3
25	17.6	20	15.4	18.6	a20	21.5	27	21.5	12.3	21	25	14.3
26	17.6	25.5	15.4	17.6	a21	22	26	18.8	17.6	17.6	23	14.4
27	21	25	15.4	20	a19	23	25	17.6	16.5	18.8	25	15.0
28	25	21.5	15.4	20	a18	21.5	24.5	20.5	16.5	17.6	27	15.7
29	23	18.8	16.5	20	a18	23	25	23	17.0	18.2	23	22
30	23	17.6	16.5	20	a19	23	25	-	16.5	20	21.5	25
31	13.1	15.4	-	18.8	-	21.5	19.3	-	16.5	-	25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25	13.1	19.4	30.0	600	840
August	25.5	14.3	18.2	28.2	564	1,730
September	21	13.3	16.1	24.9	482	1,480
October	20	15.4	17.5	27.1	543	1,670
November	25	7.1	18.3	28.3	548	1,680
December	27	19	22.9	35.4	710	2,180
Calendar year 1947	27	7.1	17.0	26.3	6,210	19,040
January	29	19.1	22.5	34.8	698	2,140
February	23	15.9	19.6	30.3	568	1,740
March	27	7.5	18.5	28.6	572	1,760
April	25	14.3	17.7	27.4	530	1,630
May	27	16.5	20.2	31.3	626	1,920
June	25	14.3	17.5	27.1	525	1,610
Fiscal year 1947-48	29	7.1	19.0	29.4	6,970	21,380

a No gage-height record; discharge computed on basis of records for Hanapepe River.

South Fork Wailua River near Lihue

Location.- Lat. 22°02'10", long. 159°22'55", a third of a mile upstream from Wailua Falls and 5 miles north of Lihue. Altitude of gage, 230 feet (by barometer).

Drainage area.- 22.4 square miles.

Records available.- December 1911 to June 1948. December 1911 to November 1918 at site a third of a mile upstream.

Average discharge.- 26 years (1921-24, 1925-48), 65.7 million gallons a day (102 second-feet).

Extremes.- Maximum discharge during year, 4,340 million gallons a day (6,710 second-feet) Nov. 12 (gage height, 7.54 feet), from rating curve extended above 1,550 million gallons a day by test on model of station site; minimum, 2.05 million gallons a day (3.17 second-feet) Oct. 19, 24, 25.

1911-48: Maximum discharge, 29,000 million gallons a day (44,900 second-feet) Jan. 16, 1920 (gage height, 11.25 feet), from rating curve extended above 9,000 million gallons a day; minimum, 1.15 million gallons a day (1.78 second-feet) June 9-11, 1947.

Remarks.- Records good. Lihue and Hanamaulu ditches divert water above station at altitudes of 600 and 500 feet, respectively, for irrigation in the vicinity of Lihue.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.8	1.85	1.2	7.6	2.0	47	3.5	390
.9	2.8	1.4	13.0	2.3	80	4.0	640
1.0	4.0	1.6	20.5	2.6	128	4.5	950
1.1	5.6	1.8	31.5	3.0	220	5.0	1,340

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.9	6.6	58	3.75	13.4	20.5	60	87	16.7	515	91	103
2	37.5	5.1	93	3.9	26	10.9	60	79	10.8	516	88	91
3	20	21.5	195	3.75	14.9	90	84	72	6.2	556	203	66
4	82	41	433	3.5	3.15	81	60	74	5.4	600	103	41
5	68	5.9	127	3.5	2.3	32.5	41	55	5.3	220	62	40
6	39.5	14.1	125	4.5	2.25	119	25	54	4.8	225	74	71
7	44	5.3	137	3.4	2.25	74	41	70	7.1	353	26.5	61
8	8.0	4.3	107	3.05	2.4	33.5	190	74	10.0	208	7.2	31.5
9	5.1	3.9	91	3.05	5.3	11.6	89	46	44	117	13.5	7.0
10	7.5	4.0	81	2.9	23	14.5	60	41	27	90	22.5	5.8
11	32.5	4.3	78	2.8	78	142	51	40	29.5	131	20.5	24
12	378	5.2	83	2.8	1,160	200	36	31.5	105	182	8.0	131
13	311	5.4	98	2.7	957	102	14.7	10.4	250	115	65	86
14	74	191	91	2.7	683	92	41	13.0	124	91	14.5	26
15	28	33.5	64	2.6	300	91	26	25.5	254	112	7.0	19.7
16	27.5	9.1	31.5	2.5	152	362	24	22	298	133	11.3	13.7
17	15.1	419	37	2.3	126	220	172	8.0	279	111	49	41
18	16.4	66	30	2.15	97	145	70	5.8	120	68	132	81
19	9.5	59	15.7	4.2	81	195	35.5	5.3	80	55	114	47
20	10.6	25	10.8	9.4	65	233	17.9	5.4	200	32	55	43
21	17.2	17.0	8.5	2.5	25.5	121	17.5	5.4	169	23.5	78	35
22	7.4	24	6.6	2.5	35.5	100	286	6.5	362	15.1	40	5.6
23	7.4	25	6.2	2.25	36.5	99	203	7.5	403	9.0	79	4.0
24	6.0	79	5.4	2.05	18.5	87	382	8.5	502	73	246	3.3
25	5.6	238	5.3	47	27.5	78	190	17.6	189	301	373	2.9
26	5.3	679	5.3	57	82	74	132	5.6	164	61	141	10.8
27	213	233	5.3	27	51	92	206	4.6	100	26	288	24.5
28	30	77	5.0	5.5	46	75	318	4.2	90	12.5	303	51
29	6.1	63	5.0	3.65	22	78	182	26	78	18.0	89	688
30	5.3	68	4.0	2.9	23	87	136	-	42	16.0	83	155
31	4.8	70	-	2.7	-	70	99	-	56	-	412	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	378	4.8	49.5	76.6	1,540	4,710
August	679	3.9	80.7	125	2,500	7,680
September	433	4.0	68.1	105	2,040	6,270
October	57	2.05	7.24	11.2	224	689
November	1,160	2.25	139	215	4,160	12,770
December	352	10.9	104	161	3,220	9,880
Calendar year 1947	1,160	1.22	43.5	67.3	15,860	48,690
January	382	14.7	108	167	3,350	10,280
February	87	4.2	31.2	48.3	905	2,780
March	502	4.8	130	201	4,030	12,370
April	600	9.0	166	257	4,990	15,300
May	412	7.0	106	164	3,300	10,120
June	688	2.9	67.0	104	2,010	6,170
Fiscal year 1947-48	1,160	2.05	88.2	136	32,270	99,020

Peak discharge (base, 2,900 m.g.d.).- Nov. 12 (6:30 a.m.) 4,340 m.g.d. (6,710 sec.-ft.); Apr. 1 (8:30 p.m.) 3,580 m.g.d. (5,540 sec.-ft.); June 29 (11 a.m.) 3,150 m.g.d. (4,870 sec.-ft.).

North Fork Wailua River at altitude 650 feet, near Lihue

Location.- Lat. 22°03'50", long. 159°26'20", 1½ miles upstream from intake of Kanaha dit and 7¼ miles northwest of Lihue. Altitude of gage, 650 feet (from topographic map). Prior to Sept. 9, 1944, at datum 2.00 feet higher.
Drainage area.- 6.6 square miles.
Records available.- August 1910 to June 1948. December 1910 to September 1914, at site feet downstream from confluence of main and east branches; records not equivalent.
Average discharge.- 27 years (1921-48), 50.2 million gallons a day (77.7 second-feet).
Extremes.- Maximum discharge during year, 2,800 million gallons a day (4,330 second-feet Apr. 1 (gage height, 10.31 feet), from rating curve extended above 600 million gallons a day by test on model of station site; minimum, 0.6 million gallons a day (0.9 second foot) Oct. 24, 25.
1910-48: Maximum discharge, 4,020 million gallons a day (6,220 second-feet) June 1943 (gage height, 9.96 feet, datum then in use), from rating curve extended above 600 millions gallons a day by test on model of station site; minimum, 0.3 million gallons a day (0.5 second-foot) Feb. 19, 20, Oct. 13-15, 1945.
Remarks.- Records good except those for Nov. 9-19, which are fair. Since 1925 Hanalei tunnel has discharged its water into river, and North Wailua and Stable storm ditches have diverted water above station for irrigation in vicinity of Lihue.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.7	1.4	4.5	2.3	34	3.8	178
1.1	1.1	1.6	8.3	2.6	51	4.2	242
1.2	1.9	1.8	13.6	3.0	83	4.6	326
1.3	3.1	2.0	20.5	3.4	125	5.0	436

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	70	7.8	42	9.9	50	32.5	33.5	63	8.8	324	62	54
2	66	1.7	70	1.5	33.5	43	39	76	9.5	115	53	48
3	56	14.8	142	.9	34.5	111	86	63	37.5	123	157	42
4	73	7.4	169	.9	29	62	39	45	46	120	54	30.5
5	78	10.3	70	5.6	13.9	42	31.5	42	31.5	34	53	29.5
6	68	8.3	75	14.7	4.8	87	30	42	34	32.5	41	52
7	70	5.4	91	1.3	4.2	48	68	45	89	55	30	29
8	48	1.5	54	.9	5.5	42	99	42	63	19.4	24	19.8
9	45	16.0	42	1.5	a11	42	48	36.5	45	22.5	22	18.0
10	64	37	39	.8	a24	48	36.5	33.5	42	27.5	22	16.6
11	66	26	39	8.5	a48	104	34	32	92	39	18.7	30.5
12	124	27.5	76	.8	a436	160	39	35.5	78	54	34.5	79
13	109	34	79	.7	a302	70	31	31	110	29.5	33.5	37
14	62	168	57	1.6	a208	82	29.5	29	73	35	18.0	25.5
15	51	75	42	1.4	a86	63	29	28	179	41	14.6	20
16	50	46	34	1.6	a51	175	42	27	170	47	25.5	15.9
17	52	143	41	.8	a46	118	97	27	114	35.5	38	47
18	45	51	33.5	.8	a46	91	42	8.8	74	19.8	45	50
19	39	101	30	2.5	a43	91	39	1.0	54	15.6	69	26.5
20	36.5	62	29.5	5.8	36.5	86	33	1.0	172	19.1	56	30.5
21	34	45	28	1.0	34	58	32.5	.9	147	16.9	57	26
22	32.5	62	27	1.1	33	48	94	2.4	142	14.9	32.5	18.7
23	33	48	28	1.4	31.5	56	56	7.8	190	16.4	59	15.2
24	20.5	80	11.8	.8	58	45	276	6.9	245	56	116	13.0
25	3.7	202	2.0	119	78	39	96	1.8	94	103	137	10.2
26	7.9	268	.9	96	52	42	136	.9	88	29.5	65	15.5
27	163	112	.9	88	36.5	57	216	.9	54	33	98	29
28	63	74	.9	56	36.5	42	304	16.6	51	21	96	31.5
29	39	54	2.0	58	33.5	48	202	7.0	58	26	47	336
30	36.5	57	2.9	36.5	32.5	42	158	-	53	53	34	80
31	14.2	45	-	34	-	36.5	88	-	44	-	181	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	163	3.7	55.5	85.9	1,720	5,280
August	268	1.5	61.0	94.4	1,890	5,800
September	169	.9	45.3	70.1	1,360	4,170
October	119	.7	17.9	27.7	554	1,700
November	436	4.2	64.6	100	1,940	5,950
December	175	32.5	68.1	105	2,110	6,480
Calendar year 1947	436	.5	35.1	54.3	12,810	39,320
January	304	29	83.4	129	2,580	7,930
February	76	.9	26.0	40.2	754	2,310
March	245	8.8	86.7	134	2,690	8,250
April	324	14.9	52.6	81.4	1,580	4,840
May	181	14.6	57.8	89.4	1,790	5,500
June	336	10.2	42.5	65.8	1,280	3,920
Fiscal year 1947-48	436	.7	55.3	85.6	20,250	62,130

Peak discharge (base, 1,200 m.g.d.).- Mar. 24 (8 a.m.) 1,750 m.g.d. (2,710 sec.-ft.); Apr. 1 (7 p.m.) 2,800 m.g.d. (4,330 sec.-ft.); May 31 (7 a.m.) 1,410 m.g.d. (2,180 sec.-ft.); June 29 (1:30 p.m.) 1,490 m.g.d. (2,310 sec.-ft.).
a No gage-height record; discharge computed on basis of records for nearby streams.

Hanalei tunnel outlet near Lihue

Location.- Sharp-crested brass weir, lat 22°05'00", long. 159°28'15", at end of Hanalei tunnel, 2¼ miles downstream from intake on Kaapoko Stream, and 9¾ miles northwest of Lihue. Altitude of gage, 1,210 feet (Lihue Plantation Co. levels).

Records available.- July 1932 to June 1948.

Average discharge.- 16 years, 24.4 million gallons a day (37.8 second-feet).

Extremes.- Maximum discharge during year, 67 million gallons a day (104 second-feet) Nov. 12 (gage height, 1.65 feet); no flow on several days during November and June, when water was shut out of ditch.
1932-48: Maximum discharge, 79 million gallons a day (122 second-feet) Jan. 4, 1943 (gage height, 1.85 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent. Tunnel diverts water from Kaapoko Stream and Hanalei River and empties it 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 head gates.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	34.5	22.5	23.5	23.5	32	18.7	18.4	24.5	19.1	6.0	1.60	0.13
2	35.5	18.4	32	19.5	23.5	20.5	21	27	18.0	4.1	1.34	.13
3	33.5	24.5	43	18.0	24	33	28.5	24	19.5	3.05	3.6	.13
4	36.5	19.9	47	17.7	19.9	28.5	19.9	20.5	21	4.1	1.34	.13
5	38	22.5	34.5	24.5	19.9	21	18.7	19.9	18.7	1.34	1.18	.09
6	36.5	20.5	30	27	18.7	28.5	18.4	21	19.9	1.18	.60	.13
7	37.5	20.5	33	19.1	18.4	21	26	20.5	31.5	1.11	.09	.09
8	26.5	18.4	29	19.5	19.5	19.9	29	20.5	23.5	.60	.09	.13
9	27	20.5	24	20.5	28.5	19.5	22.5	19.5	19.9	.47	.09	.09
10	39	25.5	22	18.0	32	21.5	19.5	18.7	20.5	.36	.09	.13
11	40	23.5	23	23	43	31.5	19.1	18.4	32	.73	.13	.13
12	42	29	33.5	18.0	52	36	20.5	18.4	28	.73	.13	.13
13	39.5	22.5	36.5	17.6	52	26	18.4	18.0	31	.47	.13	.09
14	28	47	32	20.5	50	31	18.0	17.8	24.5	.54	.13	.13
15	28	32	23.5	20.5	34.5	24	18.0	17.6	39	1.02	.13	.13
16	26.5	25.5	21.5	19.1	26.5	36.5	21	17.2	36.5	.73	.13	.13
17	26	42	25	17.2	23	37	26	17.2	32	.60	.17	.13
18	23.5	26.5	21.5	16.8	21	34.5	20.5	17.2	24	.36	.17	.13
19	21	36.5	19.7	18.7	19.9	30.5	20.5	17.2	21.5	.36	.17	.09
20	19.9	29.5	19.5	24	19.1	30	18.7	16.8	32	.36	.17	.09
21	20.5	24.5	18.7	18.0	18.4	22	18.7	16.8	20	.36	.17	.09
22	19.5	33.5	18.4	19.5	18.0	20.5	26	19.7	14.7	.36	.17	.09
23	19.5	27	19.1	18.7	17.6	26	23	20.5	15.0	.50	.26	0
24	20.5	41	18.7	17.6	23.5	21	39.5	20	9.1	1.02	.26	.04
25	18.7	50	18.0	45	25	19.9	28	18.0	2.45	1.91	.26	8.8
26	22.5	52	17.6	42	23.5	20.5	32	17.2	2.45	.73	.73	13.9
27	42	43	18.0	44	21	24	39	16.8	1.34	.60	1.51	16.4
28	28.5	34.5	18.7	36.5	19.9	19.9	44	18.4	1.34	.47	.96	7.2
29	21.5	28.5	19.9	36.5	19.5	22	42	19.3	1.51	.60	.13	10
30	21.5	30	21.5	25.5	19.5	20.5	39	-	1.51	.60	.13	21
31	19.5	25.5	-	25	-	19.1	29	-	1.34	-	.35	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	42	18.7	28.8	44.6	893	2,740
August	52	18.4	29.6	45.8	917	2,810
September	47	17.6	25.4	39.3	762	2,340
October	45	16.8	23.6	36.5	731	2,240
November	52	17.6	26.1	40.4	783	2,400
December	37	18.7	25.2	39.0	782	2,400
Calendar year 1947	52	.17	23.0	35.6	8,380	25,720
January	44	18.0	25.3	39.1	783	2,400
February	37	16.8	19.2	29.7	558	1,710
March	39	1.34	18.8	29.1	583	1,790
April	6.0	.36	1.18	1.83	35.4	109
May	3.6	.09	.529	.818	16.4	50
June	21	0	2.67	4.13	80.1	246
Fiscal year 1947-48	52	0	18.9	29.2	6,920	21,240

North Wailua ditch near Lihue

Location.- Sharp-crested weir, lat. 22°03'40", long. 159°27'55", 300 feet downstream from intake diversion dam on North Fork Wailua River, 8 miles west of Wailua, and 8½ miles northwest of Lihue. Datum of gage is 1,105.45 feet above mean sea level (Lihue Plantation Co. levels).

Records available.- July 1932 to June 1948. Records from 1926 to June 1932 collected by Lihue Plantation Co.

Average discharge.- 16 years, 12.3 million gallons a day (19.0 second-feet).

Extremes.- Maximum discharge during year, 31.5 million gallons a day (48.7 second-feet) Nov. 12 (gage height, 1.19 feet); no flow at times, when water was shut out of ditch. 1932-48: Maximum discharge, 59 million gallons a day (91 second-feet) Feb. 25, 193 (gage height, 1.57 feet, control then in use); no flow occasionally, when water was sh out of ditch.

Remarks.- Records excellent. Flow regulated by gates. Ditch diverts water from North Fo of Wailua River for power and irrigation in vicinity of Lihue.

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

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.8	14.0	11.8	14.9	15.0	12.3	10.4	11.3	13.0	6.7	5.4	0.25
2	8.2	12.2	13.2	13.6	13.8	13.6	12.8	11.9	12.0	.39	6.8	.25
3	15.4	13.9	4.7	12.6	13.2	12.8	10.7	11.8	13.1	.45	5.5	2.45
4	11.7	13.8	.94	11.4	12.0	12.8	12.2	11.6	13.1	.39	4.4	6.2
5	10.1	14.4	4.7	13.9	12.0	13.0	13.1	13.5	12.8	.18	6.8	6.4
6	11.9	14.9	10.4	15.0	11.3	12.2	12.4	13.5	12.4	.6	6.6	7.0
7	9.5	14.4	10.8	12.6	11.0	11.0	13.4	12.2	14.4	.32	7.3	9.3
8	10.5	13.3	10.6	12.6	11.3	10.8	12.1	11.9	13.9	5.6	8.8	11.4
9	12.8	13.6	11.4	13.7	13.7	11.0	12.0	11.7	12.6	9.3	9.2	11.4
10	14.4	14.6	11.3	11.6	15.2	11.2	12.3	11.6	12.5	9.2	11.9	11.4
11	15.7	14.7	11.3	14.1	17.3	12.3	12.2	11.6	11.5	9.9	11.9	11.3
12	13.0	15.8	5.6	12.3	6.1	9.2	12.3	11.9	9.8	10.5	12.9	8.5
13	.51	14.7	5.1	11.4	.95	9.2	12.5	11.4	3.05	10.8	12.4	5.0
14	6.1	6.3	7.5	12.8	1.00	9.1	12.0	11.8	.44	11.9	11.8	8.4
15	9.4	4.4	9.3	12.9	1.22	10.8	12.0	11.9	.51	11.9	11.9	10.6
16	11.2	10.8	13.1	12.0	4.4	9.6	12.1	11.6	.58	12.4	13.0	11.6
17	11.2	14.0	14.3	10.8	6.5	8.2	8.6	11.4	.44	11.9	11.6	13.1
18	10.9	12.2	14.1	10.5	10.9	9.0	11.0	11.3	.34	14.3	9.7	10.7
19	11.2	6.9	12.9	12.4	14.0	8.1	11.6	11.3	6.8	14.9	5.4	8.2
20	12.0	3.2	13.0	13.4	13.1	8.0	12.2	11.2	2.95	15.9	6.4	8.6
21	12.3	10.2	12.4	11.6	12.5	7.1	12.9	11.2	.49	14.3	6.5	8.5
22	12.8	12.3	12.2	12.5	11.9	10.1	8.9	12.2	.49	13.8	7.4	10.7
23	12.8	11.8	12.5	12.2	11.6	11.6	5.7	13.8	.57	14.1	7.2	11.4
24	13.1	12.8	12.8	11.4	13.1	10.5	3.4	13.3	.89	12.2	.65	12.2
25	12.3	5.0	11.9	17.8	8.9	9.9	.29	12.8	.29	6.5	.65	14.0
26	13.7	.65	11.6	16.2	10.6	10.4	.36	11.4	.32	9.2	4.8	14.9
27	7.3	.36	11.9	13.4	12.8	10.7	.44	11.2	4.6	8.4	5.2	14.6
28	3.75	3.45	12.2	15.4	12.6	10.2	.51	12.2	6.0	9.6	2.55	15.7
29	10.6	9.5	12.5	15.3	12.5	10.5	.29	13.1	6.6	12.4	8.1	6.3
30	13.5	10.8	13.1	14.2	12.5	10.3	1.68	-	5.3	10.6	10.0	.29
31	13.4	11.4	-	14.2	-	10.0	10.0	-	8.5	-	3.55	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.7	0.51	10.9	16.9	339	1,040
August	15.8	.36	10.7	16.6	330	1,010
September	14.3	.94	10.6	16.4	319	979
October	17.8	10.5	13.2	20.4	409	1,250
November	17.3	.95	10.8	16.7	323	991
December	13.6	7.1	10.5	16.2	324	996
Calendar year 1947	25	.36	11.5	17.8	4,180	12,830
January	13.4	.29	9.11	14.1	282	866
February	13.8	11.2	12.0	18.6	348	1,070
March	14.4	.29	6.46	10.0	200	615
April	15.9	.06	8.94	13.8	268	823
May	13.0	.65	7.62	11.8	236	725
June	15.7	.25	9.02	14.0	271	831
Fiscal year 1947-48	17.8	.06	9.97	15.4	3,650	11,200

Stable storm ditch near Lihue

Location.- Sharp-crested weir, lat. 22°04'00", long. 159°26'45", 100 feet downstream from intake, 7.8 miles northwest of Lihue, and 8.2 miles west of Kapaa.

Records available.- December 1936 to June 1948. Records for April 1931 to December 1936 collected by Lihue Plantation Co. from staff gage at site 1 mile downstream.

Average discharge.- 11 years (1937-48), 6.55 million gallons a day (10.1 second-feet).

Extremes.- Maximum discharge during year, 185 million gallons a day (286 second-feet) Apr. 1 (gage height, 3.71 feet); no flow for several periods during year.
1936-48: Maximum discharge, that of Apr. 1, 1948; no flow at times, when water was shut out of ditch.

Remarks.- Records good. Ditch diverts water from North Fork Wailua River for irrigation of sugarcane in vicinity of Lihue. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.12	31	0	29.5	0.07	0	0	0.02	28	20.5	0	0.02
2	.12	28	0	27	.12	0	0	0	18.6	45	0	.02
3	1.46	30.5	.07	25	.05	.06	0	0	.12	46	.11	0
4	.12	30.5	.07	23.5	.07	.12	0	0	.12	44	.02	0
5	.12	30.5	0	28	15.9	.07	.01	0	.12	32	.02	0
6	.12	30.5	.02	32	23.5	.12	.07	0	.12	30.5	.02	0
7	.12	30.5	.02	25	22	.12	.12	0	.12	35.5	0	0
8	.12	28	.02	25	23.5	.12	.12	0	.12	27	0	0
9	.12	16.3	0	27	23.5	.12	.05	0	.12	8.7	0	0
10	.12	.07	0	23.5	25	.12	0	0	.12	.12	0	0
11	.12	10.9	0	28	6.9	.12	0	0	.12	.12	0	0
12	.12	16.4	0	23.5	.67	.17	0	0	.12	.12	0	0
13	.18	.12	0	22	.57	.07	0	0	.12	.07	0	0
14	.12	.19	0	25	.42	.12	0	0	.12	.07	0	0
15	.12	.02	0	25	.02	.12	0	0	.12	.02	0	0
16	.12	0	0	25	.02	.18	0	0	.18	.02	0	0
17	.12	.02	0	22	.02	.12	.05	0	.12	.02	0	0
18	.12	0	0	22	0	.12	.02	16.2	.12	.02	0	0
19	.07	0	0	25	0	.12	.02	23.5	.07	.02	0	0
20	.07	.02	0	28	0	.12	0	23.5	.25	.02	0	0
21	.07	.07	0	23.5	0	.12	0	23.5	.12	.02	0	0
22	.07	.07	0	25	0	.07	0	27	.07	.02	0	0
23	.07	.07	0	23.5	0	.02	.02	26.5	.40	.02	0	0
24	14.7	.07	17.6	23.5	0	0	.25	27	.72	.02	.06	0
25	26.5	.12	25	12.7	0	0	.02	27	.07	.02	.02	8.7
26	30.5	.23	25	.12	0	0	.02	23.5	.07	0	.02	13.3
27	23	.02	25	.12	0	0	.07	23.5	.07	0	.02	.07
28	.32	.02	25	.12	0	0	.12	27	.07	0	0	.07
29	.24	.02	27	.07	0	0	.07	29	.02	0	0	.74
30	.24	.02	27	.02	0	0	.07	-	.02	0	0	.07
31	18.3	0	-	.02	-	0	.02	-	.02	-	.40	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	30.5	0.07	3.80	5.88	118	361
August	31	0	9.17	14.2	284	872
September	27	0	5.73	8.87	172	527
October	32	.02	20.0	30.9	620	1,900
November	25	0	4.74	7.33	142	437
December	.18	0	.075	.116	2.32	7.1
Calendar year 1947	37.5	0	11.0	17.0	4,010	12,310
January	.25	0	.036	.056	1.12	3.4
February	29	0	10.2	15.8	297	912
March	28	.02	1.63	2.52	50.6	155
April	46	0	9.66	14.9	290	890
May	.40	0	.022	.034	.69	2.1
June	13.3	0	.766	1.19	23.0	71
Fiscal year 1947-48	46	0	5.47	8.46	2,000	6,140

Kanaha ditch near Lihue

Location.- Sharp-crested weir, lat. 22°03'50", long. 159°25'30", 750 feet downstream fro intake and 7 miles northwest of Lihue. Altitude of gage, 540 feet (by barometer).

Records available.- August 1910 to June 1948.

Average discharge.- 28 years (1916-22, 1926-48), 5.48 million gallons a day (8.48 second feet).

Extremes.- Maximum discharge during year, 5.9 million gallons a day (9.1 second-feet) Ap 1 (gage height, 0.31 foot); no flow at times, when intake gate was closed.
1910-48: Maximum discharge recorded, 45 million gallons a day (70 second-feet) De 24, 1927 (gage height, 3.22 feet, site and datum then in use); no flow occasionally, when water was shut out of ditch.

Remarks.- Records poor. Ditch diverts water from North Fork Wailua River for domestic u only. Flow regulated by head gate.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.21	0.43	0.31	0.16	0.55	0.21	0.05	0.12	0.04	0.33	0.05	0.40
2	.21	.31	.21	.12	.55	.31	.05	.12	.03	.12	.05	.67
3	.21	.43	.21	.12	.49	.31	0	.21	.21	.16	.02	.67
4	.21	.31	.12	.07	.15	.16	0	.16	.21	.16	0	.67
5	.31	.31	.05	0	.17	.16	.05	.16	.21	.16	0	.67
6	.31	.31	.12	0	.55	.21	.05	.16	.21	.16	0	.67
7	.31	.21	.12	0	.55	.16	.05	.16	.21	.12	0	.55
8	.43	.21	.05	.07	.67	.16	.05	.12	.21	.05	0	.43
9	.73	.31	.05	.21	.80	.02	0	.12	.16	.05	0	.21
10	.73	.43	.16	.12	.94	0	0	.12	.12	.05	0	.21
11	.73	.43	.21	.21	.80	0	0	.12	.16	.12	.27	.21
12	.80	.31	.21	.12	.55	0	0	.16	.12	.12	.43	.21
13	.73	.21	.16	.12	.43	0	.11	.12	.16	.34	.43	.05
14	.73	.12	.16	.12	.31	0	.16	.12	.12	.31	.31	.05
15	.73	.05	.12	.21	.21	0	.16	.05	.12	.26	.31	.05
16	.55	.05	.12	.31	.21	0	.16	.05	.16	.26	.31	.05
17	.43	.12	.16	.21	.21	0	.05	.05	.21	.26	.31	.12
18	.43	.03	.12	.21	.21	0	0	0	.31	.21	.43	.12
19	.43	.05	.05	.31	.31	0	0	0	.21	.16	.31	.12
20	.43	.43	.05	.43	.43	0	0	0	.12	.16	.21	.21
21	.43	.67	.05	.31	.43	0	.02	0	.05	.16	.21	.21
22	.43	.67	.05	.21	.43	.02	.05	0	.05	.12	.21	.31
23	.43	.67	.05	.31	.43	.31	0	.01	.08	.39	.21	.25
24	.37	.67	.16	.21	.55	.55	.12	.01	.12	.21	.21	.21
25	.31	.67	.21	.80	.55	.55	0	0	.08	.21	.21	.21
26	.37	.43	.16	.94	.43	.55	0	0	.08	.12	.12	.16
27	.21	.33	.16	.94	.43	.61	.05	0	.05	.12	.05	.12
28	0	.31	.16	.80	.43	.55	.16	.03	.05	.12	.05	.12
29	0	.31	.16	.67	.43	.31	.12	.04	.05	.05	.05	.26
30	.37	.31	.16	.43	.43	.05	.12	-	.05	.05	.05	.16
31	.43	.31	-	.43	-	.05	.12	-	.05	-	.36	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-fee
July	0.80	0	0.419	0.648	13.0	40
August	.67	.03	.336	.520	10.4	32
September	.31	.05	.136	.210	4.08	13
Octcber	.94	0	.296	.458	9.17	28
November	.94	.15	.454	.702	13.6	42
Decemher	.61	0	.169	.261	5.25	16
Calendar year 1947	1.24	0	.348	.538	127	391
January	.16	0	.055	.085	1.70	5.
February	.21	0	.076	.118	2.21	6.
March	.31	.03	.129	.200	4.01	12
April	.39	.05	.170	.283	5.11	16
May	.43	0	.167	.258	5.17	16
June	.67	.05	.278	.430	8.35	26
Fiscal year 1947-48	.94	0	.224	.347	82.0	253

East Branch of North Fork Wailua River near Lihue

Location.- Lat. 22°04'10", long 159°25'05", 1,200 feet upstream from confluence with North Fork and 7½ miles northwest of Lihue. Altitude of gage, 500 feet (by barometer).

Drainage area.- 6.2 square miles.

Records available.- July 1912 to June 1948.

Average discharge.- 28 years (1920-48), 30.1 million gallons a day (46.6 second-feet).

Extremes.- Maximum discharge during year, 1,990 million gallons a day (3,080 second-feet) Apr. 1 (gage height, 8.68 feet), from rating curve extended above 270 million gallons a day by test on model of station site; minimum, 11.1 million gallons a day (17.2 second-feet) Oct. 18, 19, 24.

1912-48: Maximum discharge, 3,340 million gallons a day (5,170 second-feet) Dec. 24, 1927 (gage height, 10.57 feet), from rating curve extended above 500 million gallons a day; minimum, 4.4 million gallons a day (6.8 second-feet) July 3, 13, 1926.

Remarks.- Records good except those for Aug 4 to Sept. 2, which are fair. No diversions above station.

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

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.0	7.4	1.6	28	2.5	112
1.2	12.8	1.8	39	3.0	167
1.4	19.8	2.0	55	3.5	216

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	32	24.5	18	15.4	22	17.9	18.3	53	18.4	154	34.5	40
2	39	17.2	37	14.1	16.8	20	20.5	62	25	105	130	37
3	32.5	25	72	13.8	21	47	47	42	16.1	109	120	30
4	36	20	76	13.5	15.8	29.5	21	35	21	109	48	26.5
5	39	16	35.5	15.1	16.8	23.5	18.7	31.5	19.1	55	34	25
6	30.5	16	122	19.8	16.1	42	17.6	29.5	18.3	51	29.5	30.5
7	35	15	68	15.1	15.1	26	38.5	30.5	47	68	27	24.5
8	26	15	40	13.5	16.5	25	84	28	27.5	45	25	22
9	23.5	15	33	13.1	18.3	22.5	34	25	25	36	23	20
10	35	16	29	12.2	20	25	25	22.5	22.5	32	22.5	20
11	36	16	27.5	12.2	52	75	22	21.5	23.5	39	21.5	22
12	59	16	41	12.0	191	125	22.5	22	36	47	25	29
13	68	17	38	11.7	180	42	19.1	20	47	31	29	27
14	35	33	29	12.5	145	55	18.7	18.7	28.5	31.5	20.5	20.5
15	32.5	28	25	14.5	80	45	17.6	16.0	64	43	18.7	19.4
16	28.5	24	22.5	13.8	48	103	25	17.2	80	37	19.8	18.3
17	25.5	30	25	11.4	36.5	84	78	16.5	54	32.5	21.5	19.1
18	24	30	22.5	11.4	31	64	25	16.1	33.5	26	33	23.5
19	21	28	19.8	12.5	27.5	66	20	15.8	28	24.5	28	18.0
20	19.8	24	19.1	14.5	25	65	18.7	14.8	52	24	28.5	19.6
21	19.4	20	18.0	13.1	22.5	38	19.4	14.5	43	22.5	35.5	19.5
22	18.7	26	17.6	12.8	20.5	32.5	38.5	15.4	61	21.5	25	16.1
23	19.9	24	18.3	11.7	19.1	42	34	14.5	109	21	39	15.8
24	18.7	26	17.6	11.4	45	29.5	153	15.8	119	35	67	14.5
25	17.2	55	16.9	98	48	26	54	17.2	61	62	98	14.5
26	20	78	16.1	50	30	24.5	55	14.5	73	26	47	16.1
27	53	28	15.8	57	23	27	150	13.8	45	29	49	17.6
28	27	22	15.4	26.5	21	22.5	215	24	51	22.5	67	18.3
29	20	20	15.4	29.5	19.4	22.5	176	28	49	26.5	33	66
30	19.4	19	16.5	20	18.3	21	147	-	42	24.5	29	27.5
31	17.6	18	-	19.4	-	19.4	84	-	40	-	112	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	88	17.2	30.0	46.4	929	2,850
August	78	15	24.6	38.1	762	2,340
September	122	15.4	32.2	49.8	967	2,970
October	98	11.4	20.0	30.9	622	1,910
November	191	15.1	42.0	65.0	1,260	3,870
December	125	17.9	42.2	65.3	1,310	4,010
Calendar year 1947	191	9.1	24.9	38.5	9,100	27,940
January	215	17.6	55.4	85.7	1,720	5,270
February	62	13.8	24.0	37.1	697	2,140
March	119	18.3	44.5	68.9	1,380	4,230
April	154	21	46.3	71.6	1,390	4,270
May	130	18.7	43.2	66.8	1,340	4,110
June	66	14.5	23.9	37.0	718	2,200
Fiscal year 1947-48	215	11.4	35.8	55.4	13,100	40,170

Peak discharge (base, 1,000 m.g.d.).- Apr. 1 (7 p.m.) 1,990 m.g.d. (3,080 sec.-ft.); May 2 (5:30 p.m.) 1,520 m.g.d. (2,350 sec.-ft.).

Note.- No gage-height record Aug. 4 to Sept. 2; discharge computed on basis of records for nearby stations.

Wailua ditch near Kapaa

Location.- Lat. 22°04'25", long. 159°24'05", 2,000 feet downstream from Wailua Reservoir, 5½ miles west of Kapaa, and 7 miles north of Lihue. Altitude of gage, 462 ± 5 feet (by estimating slope of 2,000-foot length of ditch on basis of Lihue Plantation Co. levels

Records available.- November 1936 to June 1948. Records collected by East Kauai Water Co July 1922 to April 1932 at site 2 miles upstream, below intake, and April 1932 to Novem ber 1936 at present site.

Average discharge.- 11 years (1937-48), 13.0 million gallons a day (20.1 second-feet).

Extremes.- Maximum discharge during year, 30 million gallons a day (46 second-feet) June 17 (gage height, 2.88 feet); minimum, 0.4 million gallons a day (0.6 second-foot) Mar. 18-25, May 27-31.

1936-48: Maximum discharge, 46 million gallons a day (71 second-feet) Oct. 6, 1938 (gage height, 3.96 feet); no flow May 15 to June 4, 1940, Sept. 4, 5, 1943.

Remarks.- Records good except those below 3 million gallons a day and those for periods o no gage-height record, which are poor. Ditch diverts water from North Fork Wailua Riv to reservoir 2,000 feet above station and thence to fields for irrigation of sugarcane Flow regulated by gates at reservoir.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.1	29	2.9	16.6	15.0	2.9	1.8	0.5	0.8	0.4	8.5	2.3
2	11.2	17.3	2.9	25	3 1	2.9	1.8	.5	.8	.4	.7	6.2
3	16.3	10.1	2.9	18.0	17.9	2.9	1.8	.5	.9	.4	.7	6.2
4	16.3	13.9	2.9	10.1	26.5	2.9	1.8	.5	.9	.4	.7	6.2
5	10.2	18.7	2.9	10.1	26.5	2.8	1.8	.6	.9	.4	5.0	6.6
6	6.2	21	9.0	10.6	16.6	2.8	1.9	.6	.9	.4	10.6	6.6
7	8.1	26.5	4.0	10.6	8.8	2.8	1.9	.6	.9	.4	10.6	6.6
8	8.1	25	3.2	13.4	4.2	2.8	2.0	.6	12.6	.4	6.1	7.1
9	8.1	15.6	3.1	18.7	6.6	2.8	2.1	.6	10.1	.4	1.1	7.6
10	11.2	7.6	3.1	18.7	10.6	2.8	2.2	.6	2.0	.4	1.1	11.2
11	16.3	13.5	3.1	18.7	10.6	2.7	2.3	.6	2.0	.4	1.0	12.8
12	11.3	22.5	3.1	17.5	6.3	2.7	2.4	.6	1.9	.5	1.0	8.6
13	5.5	22.5	3.1	17.5	3.0	2.7	2.6	.6	1.9	.5	4.0	8.6
14	5.6	13.8	3.1	17.5	2.4	2.7	7.1	.6	1.8	.6	10.6	8.6
15	5.6	8.6	3.1	17.5	2.4	2.7	12.8	.6	1.7	.6	5.9	12.8
16	5.7	8.6	3.1	17.5	2.4	2.7	12.8	.7	1.9	.6	.7	16.3
17	5.7	8.6	3.1	16.3	2.5	2.7	4.8	.7	1.9	.6	3.0	24
18	5.7	10.1	3.1	13.4	2.5	2.6	.5	.7	1.0	.7	7.1	18.1
19	5.7	14.5	3.1	9.1	2.6	2.6	.5	.7	.4	2.6	7.1	9.1
20	5.7	18.7	3.1	9.6	2.6	2.6	.5	.7	.4	5.3	7.1	9.1
21	7.6	24	3.1	9.6	2.7	2.5	8.6	.8	.4	5.3	7.1	9.1
22	16.6	24	3.7	10.1	3.1	2.4	14.5	.9	.4	5.4	7.1	9.1
23	25	22.5	7.1	18.3	3.2	2.4	5.6	.9	.4	5.5	6.6	15.6
24	25	22	7.1	26.5	3.3	2.3	.4	.9	.4	5.6	11.2	21
25	26.5	22	15.3	17.8	3.1	2.2	.4	.8	.4	5.7	15.1	22.5
26	18.5	22	26.5	10.6	2.9	2.2	.4	.7	.5	5.6	15.1	22.5
27	9.0	22	19.3	10.1	2.9	2.2	.4	.7	.4	5.6	15.1	21
28	8.6	22	11.7	10.1	2.9	2.0	.5	.7	.4	13.0	15.1	16.4
29	13.8	14	11.7	10.1	2.9	1.9	.5	.7	.4	25	6.9	10.6
30	24	2.9	12.2	13.8	2.9	1.9	.5	-	.4	21	.4	10.6
31	29	2.9	-	22.5	-	1.8	.5	-	.4	-	.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	29	5.5	12.2	18.9	379	1,160
August	29	2.9	17.0	26.3	526	1,620
September	26.5	2.9	6.19	9.58	186	570
October	26.5	9.1	15.0	23.2	466	1,430
November	26.5	2.4	6.77	10.5	203	623
December	2.9	1.8	2.55	3.95	78.9	242
Calendar year 1947	33.5	1.8	10.8	16.7	3,950	12,140
January	14.5	.4	3.15	4.87	97.7	300
February	.9	.5	.862	1.02	19.2	59
March	12.6	.4	1.62	2.51	50.2	154
April	25	.4	3.80	5.88	114	350
May	15.1	.4	6.22	9.62	193	591
June	24	2.3	11.8	18.3	353	1,080
Fiscal year 1947-48	29	.4	7.28	11.3	2,670	8,180

Note.- No gage-height record Aug. 24 to Sept. 16, Dec. 22-31; discharge computed on basis of ditch man's notes and records for stations on nearby ditches.

Kapaa River at Kapahi ditch intake, near Kapaa

Location.- Concrete masonry dam, lat. 22°06'05", long. 159°22'30", 4 miles northwest of Kapaa and 4½ miles northwest of Wailua. Altitude of gage, 365 feet (by barometer).

Drainage area.- 3.3 square miles.

Records available.- December 1936 to June 1948. July 1910 to May 1915 at site half a mile upstream, published as Kapaa River at Kapaa; June 1913 to April 1920 at site three-quarters of a mile upstream, published as Kapaa River near Kealia.

Average discharge.- 11 years (1937-48), 12.7 million gallons a day (19.6 second-feet).

Extremes.- Maximum discharge during year, 1,420 million gallons a day (2,200 second-feet) Apr. 1 (gage height, 3.17 feet), from rating curve extended above 330 million gallons a day; no flow at times, when low flow was diverted into Kapahi ditch.

1936-48: Maximum discharge, 3,390 million gallons a day (5,250 second-feet) Mar. 19, 1937 (gage height, 4.50 feet), from rating curve extended above 330 million gallons a day; no flow at times, when low flow was diverted into Kapahi ditch.

Remarks.- Records fair. Entire low flow is diverted into several ditches above station.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

-0.05	0	0.4	11.5	0.9	72
0	.1	.5	19.0	1.0	92
.1	.4	.6	28.5	1.1	115
.2	1.9	.7	40	1.2	140
.3	5.3	.8	55	1.4	200

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	15.9	0.4	7.2	0	0	12.2	13.0	24.5	1.7	101	6.8	4.2
2	11.4	0	1.6	0	0	17.1	17.0	38	6.1	49	83	12.2
3	16.0	0	23	0	0	29	34.5	23	2.2	51	23.5	7.0
4	29.5	0	20	0	0	21	15.2	20	9.8	101	4.7	1.9
5	12.0	0	1.0	0	0	16.0	10.9	18.2	12.6	26.5	.1	11.4
6	16.8	0	92	0	0	27.5	9.6	19.8	10.3	27.5	1.5	23
7	8.9	0	35.5	0	0	16.0	52	21	39.5	36.5	3.9	3.9
8	4.5	0	13.8	0	6.2	17.5	84	21	20	24	3.6	0
9	.9	0	10.3	0	13.0	16.0	28.5	15.2	20.5	17.5	10.3	0
10	15.0	0	5.9	0	9.6	20	16.8	15.2	16.0	16.0	1.1	0
11	6.6	0	7.8	0	9.7	40	16.0	13.8	16.4	31	3.3	2.8
12	19.8	0	20	0	123	14.1	20.5	15.2	22	63	7.8	37.5
13	45	0	13.8	0	79	24.5	12.7	13.8	31	26.5	4.4	19.8
14	3.5	33.5	11.5	0	33	33	1.6	13.0	16.8	31	0	.7
15	8.1	5.2	9.0	0	32.5	25.5	0	12.2	30.5	34	0	0
16	6.0	.6	9.6	0	17.5	56	18.4	11.5	41	26.5	3.0	0
17	.4	42	13.8	0	14.1	40	36	1.5	29	23	6.2	0
18	.1	3.4	12.2	0	13.0	33	18.2	0	16.0	16.0	16.5	.1
19	.1	1.4	10.9	0	12.2	42	15.2	0	10.9	12.2	4.8	0
20	7.2	0	9.6	.1	9.3	36	13.8	2.7	22	4.7	11.8	8.1
21	.2	0	9.6	0	9.6	19.0	13.0	5.7	17.5	0	17.1	1.5
22	0	0	5.3	0	7.8	16.0	31	11.5	33	0	8.6	0
23	0	0	4.8	0	9.6	37.5	33.5	1.7	68	0	33.5	0
24	0	0	.8	0	70	16.8	89	.9	39	8.3	27	0
25	0	18.4	0	49	50	13.8	30.5	0	27.5	45	30.5	0
26	.4	61	0	16.5	24.5	14.5	26.5	0	45	.1	10.6	.1
27	9.2	12.2	0	18.1	16.8	19.0	102	0	25.5	0	7.6	0
28	1.0	.7	0	.4	15.2	13.8	177	0	28.5	0	14.5	0
29	0	0	0	.1	12.2	14.5	152	3.4	24.5	0	6.8	3.1
30	0	.4	0	0	13.0	15.2	104	-	23	2.3	15.2	0
31	0	5.0	-	0	-	13.8	41	-	19.6	-	39.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	45	0	7.69	11.9	238	732
August	61	0	5.94	9.19	184	565
September	92	0	11.6	17.9	349	1,070
October	49	0	2.72	4.21	84.2	258
November	123	0	20.0	30.9	601	1,840
December	56	12.2	23.6	36.5	730	2,240
Calendar year 1947	168	0	8.95	13.8	3,270	10,020
January	177	0	39.8	61.6	1,230	3,790
February	38	0	11.1	17.2	323	991
March	68	1.7	23.4	36.2	725	2,230
April	101	0	25.8	39.9	774	2,370
May	83	0	13.2	20.4	408	1,250
June	37.5	0	4.58	7.09	137	421
Fiscal year 1947-48	177	0	15.8	24.4	5,780	17,760

Peak discharge (base, 1,300 m.g.d.).- Apr. 1 (7 p.m.) 1,420 m.g.d. (2,200 sec.-ft.).

Anahola River near Kealia

Location.- Concrete dam and orifice control, lat. 22°08'55", long. 159°21'20", just upstream from intake of Lower Anahola ditch, 4½ miles northwest of Kealia. Datum of gage 295.11 feet above mean sea level (Highway Department bench mark).
Drainage area.- 5.5 square miles.
Records available.- August to November 1910, December 1912 to June 1948.
Average discharge.- 29 years (1919-48), 13.4 million gallons a day (20.7 second-feet).
Extremes.- Maximum discharge during year, 7,940 million gallons a day (12,300 second-feet) Apr. 1 (gage height, 11.06 feet), from rating curve extended above 230 million gallons a day; minimum, 3.55 million gallons a day (5.49 second-feet) Nov. 8, 1910, 1912-48: Maximum discharge, that of Apr. 1, 1948; minimum, slightly less than 1.4 million gallons a day (about 2.2 second-feet) Sept. 12, 13, 1923.
Remarks.- Records good except those for periods of no gage-height record, which are poor. Anahola ditch diverts water 3 miles above station for irrigation in vicinity of Kealia.

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Apr. 1

0.9	3.15	1.6	13.5	3.0	162
1.0	3.95	1.8	23	3.5	282
1.2	5.8	2.0	34.5	4.0	456
1.4	8.0	2.6	95		

Apr. 2 to June 30

0.9	2.85	1.6	11.7
1.0	3.55	1.8	22
1.2	5.1	2.0	34.5
1.4	7.1		

Note.- Same as preceding table above 2.0 feet.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.4	12.1	5.8	5.8	5.8	9.5	7.3	19.4	7.4	337	6.1	8.3
2	13.5	5.4	6.2	5.7	4.6	9.8	7.8	21.5	10.4	110	95	8.9
3	11.9	4.6	19.5	5.4	4.5	19.0	15.0	15.2	9.7	75	24.5	6.7
4	19.4	4.4	12.8	5.2	4.0	11.2	7.5	13.5	12.5	75	10.4	5.8
5	8.0	4.3	6.3	4.9	5.2	9.3	6.7	12.0	11.2	41	7.6	5.5
6	6.4	4.6	187	5.9	4.5	14.6	6.4	12.5	11.2	43	7.1	5.3
7	7.3	4.2	60	4.8	3.8	9.1	44	13.9	16.2	41	6.8	5.6
8	5.5	3.85	21	4.6	4.1	8.7	59	16.9	11.2	34	6.3	4.9
9	5.2	4.2	14	4.5	6.6	9.5	19.9	12.5	9.7	30.5	5.9	4.6
10	8.4	4.0	12	4.4	5.7	9.7	13.5	9.8	9.3	30	5.8	4.5
11	12.2	3.95	57	4.5	7.7	43	11.2	9.1	8.4	46	5.6	6.2
12	29	3.95	38	4.4	161	67	10.3	9.3	9.3	37	6.1	14.6
13	27	3.85	23.5	4.1	37.5	13.0	9.1	8.8	10.6	16.5	7.0	7.2
14	11.2	49	17.4	4.0	19.9	13.5	8.7	8.2	7.4	19.3	5.4	5.8
15	9.5	7.7	14.8	4.4	39.5	21	8.0	7.8	14.6	37	5.1	5.1
16	9.0	5.3	12.5	4.2	17.9	29	70	7.3	12.0	22.5	5.3	4.7
17	7.5	12.1	12.0	4.0	13.5	30	33.5	7.0	23	15.5	5.3	4.7
18	7.6	5.7	11.2	3.8	11.6	21.5	12.5	6.7	9.8	11.7	6.2	4.8
19	6.1	5.0	9.5	4.1	10.1	26	10.7	6.6	8.7	11.1	6.0	4.5
20	5.6	4.8	8.7	4.4	8.7	37.5	9.7	6.2	9.3	10.7	6.7	4.3
21	5.4	5.0	8.0	4.3	7.8	16.9	9.3	6.2	8.7	10.1	7.3	4.6
22	5.2	9.0	7.4	4.1	7.2	14.4	46	6.8	15.2	8.3	5.8	4.2
23	5.7	6.6	7.8	4.0	6.7	17.4	30	6.2	31	7.0	21	4.5
24	5.5	6.5	7.9	4.0	121	11.0	69	6.3	56	10.7	11.6	4.1
25	4.9	19.7	7.4	81	43	9.7	22	9.9	18.9	24.5	17.1	3.85
26	5.0	29.5	7.0	20	19.4	9.1	16.9	7.5	17.4	7.7	14.2	4.2
27	18.4	14.5	6.6	34	15.6	9.1	23.5	5.9	13.0	6.9	9.6	5.7
28	8.9	8.4	6.3	9.8	13.9	8.4	41	8.8	21.5	6.3	8.5	6.1
29	5.6	7.0	6.1	14	11.6	8.0	65	10.8	18.4	6.8	8.3	5.5
30	5.4	6.5	5.8	5.2	9.8	8.7	46	-	21.5	6.6	6.6	5.1
31	4.9	6.0	-	4.9	-	7.8	25.5	-	25	-	11.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	29	4.9	9.41	14.6	292	895
August	49	3.85	8.76	13.6	272	834
September	187	5.8	20.6	31.9	620	1,900
October	81	3.8	8.98	13.9	278	854
November	161	3.8	21.1	32.6	632	1,940
December	67	7.8	17.1	26.5	531	1,630
Calendar year 1947	187	3.05	12.6	19.5	4,600	14,100
January	70	6.4	24.7	38.2	765	2,350
February	21.5	5.9	10.1	15.6	292	898
March	56	7.4	15.1	23.4	468	1,440
April	337	6.3	38.0	58.8	1,140	3,490
May	95	5.1	11.5	17.8	356	1,090
June	14.6	3.85	5.66	8.76	170	521
Fiscal year 1947-48	337	3.8	15.9	24.6	5,820	17,840

Peak discharge (base, 900 m.g.d.).- Sept. 6 (5 p.m.) 1,140 m.g.d. (1,760 sec.-ft.); Jan. 18 (8:30 p.m.) 1,140 m.g.d. (1,760 sec.-ft.); Apr. 1 (7 p.m.) 7,940 m.g.d. (12,300 sec.-ft.); May 2 (6 p.m.) 1,140 m.g.d. (1,760 sec.-ft.).
Note.- No gage-height record Sept. 8-10, 24-30, Oct. 14-29; discharge computed on basis of records for nearby streams and ditches.

Anahola ditch above Kaneha Reservoir, near Kealia

Location.- Parshall flume, lat. 22°08'00", long. 159°22'30", at point of discharge into Kaneha Reservoir, 5 miles northwest of Kealia. Datum of gage is 821.8 feet above mean sea level (Lihue Plantation bench mark).

Records available.- May 1915 to June 1948.

Average discharge.- 25 years (1921-25, 1927-48), 3.29 million gallons a day (5.09 second-feet).

Extremes.- Maximum discharge during year, 78 million gallons a day (121 second-feet) Sept. 6 (gage height, 3.61 feet); minimum, 0.02 million gallons a day (0.03 second-foot) several times.

1915-48: Maximum discharge recorded, 130 million gallons a day (201 second-feet) Jan. 16, 1921 (gage height, 6.25 feet, site and datum then in use); no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent. Ditch diverts water from Anahola River to Kaneha Reservoir, where it is stored for irrigation. Flow regulated by wasteway gates.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.8	5.4	0.82	3.95	6.6	0.02	0.02	0.04	3.25	3.05	7.5	0.04
2	11.1	2.75	3.6	3.2	3.1	.02	.02	.06	9.1	.47	14.5	.04
3	11.0	2.45	18.9	3.2	3.4	.06	.06	.02	10.2	.32	2.95	3.4
4	14.5	2.55	11.3	2.9	2.45	.04	.02	.02	12.2	.72	.04	3.9
5	6.0	2.45	4.1	2.55	2.9	.04	.02	.04	7.8	.20	.04	3.5
6	6.9	4.5	25	4.2	2.35	.08	.02	.04	9.6	.13	.04	6.1
7	9.0	2.65	6.7	2.2	2.1	.06	.28	.04	15.4	.24	.04	4.9
8	4.7	2.2	.32	2.2	2.35	.08	.22	.06	11.7	.12	.04	3.3
9	4.7	2.65	.28	1.74	6.3	.08	.06	.04	7.3	.02	.04	3.1
10	12.8	2.75	.24	1.74	4.8	5.9	.06	.04	7.6	.02	2.15	4.8
11	11.0	2.65	.91	2.55	7.9	19.8	.06	.04	7.5	.06	3.0	10.4
12	17.2	4.0	.33	1.83	40	9.7	2.1	.04	5.3	.08	6.9	19.1
13	17.6	3.0	.16	1.65	6.9	.04	3.75	.04	.67	.04	5.8	6.3
14	7.6	24	.16	1.92	.52	.10	3.4	.04	.08	.02	3.3	4.6
15	4.2	5.0	.16	2.9	.52	.08	3.2	.02	.13	.04	2.65	4.4
16	1.74	4.1	.16	3.5	.32	.20	10.8	.04	.16	.04	4.1	3.3
17	1.71	12.6	.20	1.83	.28	.13	4.2	.04	.13	.04	4.0	3.65
18	4.4	3.75	.20	1.74	.24	.10	.06	.04	.13	.04	9.7	6.3
19	3.5	3.65	.16	2.3	.24	.13	.08	1.69	.10	.04	6.4	3.4
20	3.2	3.4	1.36	3.95	.24	.06	.08	1.92	.04	.02	8.7	3.2
21	3.0	3.5	2.75	2.35	.20	.04	.08	2.0	.02	.33	10.7	4.6
22	2.75	8.9	2.65	3.0	.16	.04	.23	2.55	.06	2.55	5.9	3.1
23	3.65	6.0	3.85	2.45	.16	.06	..06	2.1	.13	3.7	16.1	3.1
24	3.65	8.0	3.1	2.0	.65	.04	.28	2.55	.14	11.3	10.6	2.9
25	2.65	14.8	2.65	25.5	.19	.04	.04	8.1	.02	2.65	.08	9.2
26	4.8	22.5	2.35	10.1	.10	.04	.04	2.65	.08	.04	.08	4.7
27	17.1	5.8	2.35	16.0	.08	.06	.08	2.4	.06	.04	.06	6.0
28	7.7	1.32	2.3	5.9	.06	.04	.24	7.3	.10	2.45	.06	5.0
29	3.75	.89	2.45	7.0	.04	.04	.24	8.1	.06	5.9	.04	12.3
30	4.2	.89	3.5	3.75	.04	.04	.14	-	.06	4.7	.02	5.9
31	3.1	.75	-	3.55	-	.04	.04	-	.06	-	.04	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	17.6	1.71	7.06	10.9	219	672
August	24	.75	5.48	8.48	170	521
September	25	.16	3.43	5.31	103	316
October	25.5	1.65	4.31	6.67	134	410
November	40	.04	3.17	4.90	95.2	292
December	19.8	.02	1.20	1.86	37.2	114
Calendar year 1947	40	.02	3.92	6.07	1,430	4,380
January	10.8	.02	.967	1.50	30.0	92
February	8.1	.02	1.38	2.14	40.1	123
March	15.4	.02	3.52	5.45	109	335
April	11.3	.02	1.31	2.03	39.4	121
May	16.1	.02	4.05	6.27	126	385
June	19.1	.04	5.15	7.97	155	474
Fiscal year 1947-48	40	.02	3.43	5.31	1,260	3,860

Anahola ditch wasteway near Kealia

Location.- Sharp-crested weir, lat. 22°08'10", long. 159°22'30", 300 feet downstream from wasteway gates on Anahola ditch, 500 feet upstream from Kaneha Reservoir, 3.8 miles wes of Anahola, and 4.9 miles northwest of Kealia.

Records available.- December 1936 to June 1948.

Average discharge.- 11 years (1937-48), 3.13 million gallons a day (4.84 second-feet).

Extremes.- Maximum discharge during year, 119 million gallons a day (184 second-feet) Apr. 1 (gage height, 3.08 feet); no flow at times, when water was turned out of ditch. 1936-48: Maximum discharge, that of Apr. 1, 1948; no flow at times when water was turned out of ditch.

Remarks.- Records good. Water that passes station is returned to Anahola River.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.13	0.06	3.25	0.58	0.19	4.4	3.4	9.8	0.32	6.2	0.13	12.8
2	.13	0	.86	.64	.13	7.1	7.2	13.9	.38	1.24	.19	9.6
3	.13	0	.76	.64	.13	16.4	11.6	7.5	.38	1.00	13.1	1.59
4	.19	0	.51	.51	.06	8.7	4.5	5.7	.45	1.43	9.0	.26
5	.04	.06	.45	.51	.06	5.3	3.8	4.9	.45	.88	5.7	.26
6	.03	.06	1.08	.51	.06	15.1	3.4	5.7	.45	.94	4.5	1.15
7	.19	0	11.4	.51	.06	6.4	29.5	6.4	.51	1.12	3.9	.32
8	0	0	3.95	.64	.06	6.3	29	10.5	.51	1.34	3.4	.26
9	0	0	2.3	.64	.13	8.3	11.2	5.1	.51	1.12	3.1	.26
10	.26	0	1.49	.45	.13	2.45	6.2	4.2	.51	1.12	1.00	.26
11	.98	0	10.3	.26	.19	.98	5.3	3.8	.45	1.25	.19	.29
12	.32	0	16.2	.26	.51	19.6	4.7	5.0	3.45	1.24	.26	.79
13	.19	0	8.2	.26	19.7	10.4	.64	3.6	9.8	1.12	.19	.13
14	.13	.19	5.7	.32	14.4	16.9	.64	3.1	6.3	1.12	.13	.13
15	3.6	0	4.7	.51	19.5	13.1	.64	2.95	17.9	1.24	.13	.13
16	4.9	0	4.2	.51	12.3	21	.79	2.6	16.8	1.19	.19	.13
17	4.6	.13	5.8	.45	7.7	19.8	10.8	2.45	15.8	1.00	.19	.06
18	1.46	0	5.3	.38	6.8	17.8	6.2	2.45	6.4	1.00	.26	.13
19	.26	0	3.7	.45	4.9	17.1	4.9	.76	4.9	1.00	.19	0
20	.19	0	2.0	.51	3.95	17.9	3.95	.45	9.3	1.00	.19	0
21	.19	0	.38	.32	3.4	8.0	3.6	.45	7.1	.58	.22	0
22	.26	.06	.38	.51	3.1	6.6	14.4	.45	15.2	.32	.13	0
23	.26	0	.51	.51	2.95	18.3	10.7	.45	17.6	.26	.19	0
24	.26	.06	.58	.32	27	6.6	22.5	.45	20.5	.19	5.6	0
25	.26	.19	.58	.45	24.5	5.3	7.7	.51	14.9	8.6	22.5	0
26	.32	.26	.51	.19	10.4	4.9	9.5	.45	20	4.2	17.5	.13
27	.32	5.3	.58	.26	7.1	7.6	17.3	.45	8.5	3.8	11.3	.13
28	.19	4.2	.64	.13	6.0	4.7	30	.56	16.3	1.24	11.4	.06
29	.03	3.4	.64	.19	4.9	4.4	33	.45	17.7	.13	8.2	.30
30	.03	3.8	.64	.13	4.2	5.3	30.5	-	4.8	0	4.7	.03
31	0	3.4	-	.13	-	3.95	13.1	-	2.15	-	10.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.9	0	0.640	0.990	19.8	61
August	5.3	0	.683	1.06	21.2	65
September	16.2	.38	3.25	5.03	97.6	299
October	.64	.13	.409	.633	12.7	39
November	27	.06	6.15	9.52	185	566
December	21	.98	10.0	15.5	311	953
Calendar year 1947	34	0	2.68	4.15	980	3,010
January	33	.64	11.0	17.0	341	1,050
February	13.9	.45	3.62	5.60	105	322
March	20.5	.32	7.75	12.0	240	738
April	8.6	0	1.56	2.41	46.9	144
May	22.5	.13	4.45	6.89	138	423
June	12.8	0	.974	1.51	29.2	90
Fiscal year 1947-48	33	0	4.23	6.54	1,550	4,750

Lower Anahola ditch near Kealia

Location.- Parshall flume, lat. 22°08'00", long, 159°19'30", 100 feet downstream from last wasteway, 1.3 miles southwest of mouth of Anahola River, and 2.5 miles northwest of Kealia. Datum of gage, 276.11 feet above mean sea level (Highway Department bench mark).

Records available.- December 1936 to June 1948. Records collected by East Kauai Water Co. July 1925 to January 1935 at site half a mile downstream and January 1935 to December 1936 at present site.

Average discharge.- 11 years (1937-48), 2.65 million gallons a day (4.10 second-feet).

Extremes.- Maximum discharge during year, 10.2 million gallons a day (15.8 second-feet) Sept. 6 (gage height, 1.52 feet); no flow many times, when water was turned out of ditch.

1936-48: Maximum discharge, 16.5 million gallons a day (25.5 second-feet) Apr. 19, 1937 (gage height, 2.11 feet); no flow at times, when water was turned out of ditch.

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

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.9	6.3	7.0	4.4	4.5	1.20	0	0	3.45	0.21	3.65	0.01
2	5.9	5.0	6.1	5.5	4.1	2.75	0	0	3.45	0	4.0	.01
3	6.1	4.9	6.3	4.9	4.0	2.8	0	0	3.45	0	3.5	0
4	7.0	5.3	6.6	4.6	3.75	2.8	0	0	3.5	0	3.8	0
5	7.0	4.0	5.9	4.2	4.3	3.5	0	0	3.6	0	2.2	0
6	6.1	4.5	6.6	4.2	4.3	3.6	0	0	1.94	0	0	0
7	7.0	4.1	2.95	4.1	2.2	4.1	0	0	0	0	0	0
8	5.1	3.6	.21	4.1	.02	3.65	0	0	0	0	0	0
9	4.8	3.75	0	3.9	.02	3.35	0	0	0	0	0	0
10	5.8	3.6	0	3.9	3.45	3.1	0	0	0	0	0	1.81
11	6.6	4.0	0	3.9	4.6	3.1	0	0	0	0	0	4.5
12	7.0	3.5	0	4.0	1.88	3.6	1.43	0	0	0	0	4.6
13	7.0	3.45	0	3.8	.01	3.35	2.7	0	0	0	0	4.6
14	7.5	5.4	0	3.75	.32	3.2	3.0	0	0	0	0	4.5
15	7.5	5.4	0	4.1	1.85	3.35	3.35	0	0	0	0	4.2
16	7.5	4.5	3.3	4.4	2.7	1.98	3.5	0	0	0	0	4.1
17	7.5	5.2	5.5	3.8	2.7	0	.98	0	0	0	2.3	4.5
18	7.0	4.6	5.3	3.65	2.7	0	0	0	0	0	3.5	4.3
19	6.1	4.1	1.60	3.75	3.1	0	0	1.22	0	0	3.6	4.1
20	6.6	4.1	0	3.8	2.85	0	0	2.8	0	0	3.75	3.9
21	6.6	4.1	0	3.8	2.75	0	0	3.2	0	0	3.8	4.1
22	6.6	4.7	3.85	4.0	2.7	0	0	3.1	0	0	3.65	4.1
23	5.8	4.6	5.1	3.75	2.75	0	0	3.1	0	0	3.6	4.0
24	5.4	4.3	5.4	3.6	1.05	0	0	3.3	0	0	4.7	3.9
25	4.8	5.2	5.4	5.4	0	0	0	3.55	0	0	4.7	3.8
26	4.5	5.8	5.3	5.2	0	0	0	3.55	0	0	4.8	3.8
27	5.7	6.1	4.9	5.5	0	0	0	3.5	0	0	4.7	4.0
28	7.0	7.0	4.6	5.3	0	0	0	3.35	0	1.44	4.6	4.1
29	5.0	6.6	4.7	4.9	0	0	0	3.6	0	3.35	2.4	4.1
30	4.8	6.6	4.8	4.5	0	0	0	-	0	3.75	.01	4.3
31	4.5	7.0	-	4.1	-	0	0	-	0	-	.01	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.5	4.5	6.15	9.52	191	585
August	7.0	3.45	4.88	7.55	151	464
September	7.0	0	3.38	5.23	101	311
October	5.5	3.6	4.28	6.62	133	408
November	4.6	0	2.09	3.23	62.6	192
December	4.1	0	1.59	2.46	49.4	152
Calendar year 1947	8.5	0	3.97	6.14	1,450	4,440
January	3.5	0	.483	.747	15.0	46
February	3.6	0	1.18	1.83	34.3	105
March	3.6	0	.625	.967	19.4	60
April	3.75	0	.292	.452	8.75	27
May	4.8	0	2.17	3.36	67.3	206
June	4.6	0	2.84	4.39	85.3	262
Fiscal year 1947-48	7.5	0	2.51	3.88	918	2,820

Ka Loko ditch near Kilauea

Location.- Parshall flume, lat. 22°10'35", long. 159°23'00", 60 feet downstream from confluence of Ka Loko and Moloaa ditches, 400 feet upstream from Ka Loko Reservoir, and 3½ miles southeast of Kilauea. Altitude of gage, 750 feet (from topographic map).

Records available.- August 1932 to June 1948.

Average discharge.- 15 years (1933-48), 3.74 million gallons a day (5.79 second-feet).

Extremes.- Maximum discharge during year, 69 million gallons a day (107 second-feet) Mar. 2 (gage height, 3.32 feet); minimum, 0.68 million gallons a day (1.05 second-feet) Apr. 14.
1932-48: Maximum discharge, 108 million gallons a day (167 second-feet) Jan. 2, 193 (gage height, 4.41 feet); minimum, 0.19 million gallons a day (0.29 second-foot) May 2 1933.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Ditch diverts water from Moloaa and Puu Ka Ele Streams, half a mile southeast and 1½ miles southwest of station, respectively. Flow regulated by wasteway gates. Water use for irrigation in vicinity of Kilauea.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.55	3.9	2.35	2.05	2.05	3.8	2.7	1.16	2.65	9.7	3.2	5.7
2	4.6	1.98	2.8	1.98	1.47	3.9	2.6	1.23	3.6	2.9	13.5	5.3
3	4.1	1.63	8.1	1.80	1.54	7.2	2.4	1.02	5.2	3.5	7.4	3.35
4	6.5	1.54	4.1	1.71	1.39	5.0	2.4	2.9	5.7	1.93	4.4	2.95
5	2.85	1.6	2.65	1.63	2.7	3.55	2.3	4.1	4.5	1.23	3.35	2.85
6	2.65	1.5	17.3	1.98	1.47	5.3	2.25	7.6	6.2	1.16	3.15	2.95
7	2.9	1.4	12.6	1.54	1.31	3.45	12.4	6.0	7.1	1.16	2.95	2.95
8	2.15	1.4	5.6	1.47	1.4	3.15	14.3	7.1	4.6	.95	2.85	2.65
9	1.98	1.7	4.4	1.47	2.7	3.45	5.8	4.3	3.7	.75	2.75	2.55
10	3.45	1.6	3.9	1.39	2.7	3.75	3.8	3.55	3.7	.75	2.65	2.45
11	5.0	1.5	5.6	1.54	10	11.7	3.25	3.35	3.5	1.03	2.65	3.6
12	11.9	1.4	7.7	1.39	25	10.6	3.15	3.5	3.75	1.31	3.75	7.1
13	8.4	1.4	5.5	1.33	18	4.4	2.85	3.15	5.2	.81	3.9	3.35
14	3.95	12	3.55	1.39	16	7.9	2.75	2.95	3.2	.68	2.65	2.65
15	3.15	3.0	3.15	1.63	16.3	4.7	2.65	2.75	6.5	.75	2.45	2.45
16	3.35	2.3	2.95	1.71	7.0	11.8	9.5	2.65	7.3	.95	2.65	2.25
17	2.75	6.0	3.05	1.39	5.4	9.6	7.3	2.45	7.8	2.15	2.65	2.45
18	2.8	2.7	3.25	1.31	5.9	7.9	4.0	2.45	3.9	2.25	3.9	2.45
19	2.35	3.0	2.6	1.78	4.4	11.3	3.55	2.35	3.35	2.05	3.35	2.15
20	2.25	2.6	2.45	1.63	3.7	7.4	3.25	2.25	4.7	3.1	4.5	2.15
21	1.98	2.4	2.55	1.56	3.25	2.25	3.15	2.35	4.7	3.15	3.85	2.25
22	2.05	4.5	2.25	1.88	2.95	1.16	13.3	2.55	7.8	3.05	2.85	2.25
23	2.15	2.65	2.45	1.39	2.85	2.4	6.1	2.35	5.7	2.95	5.4	2.55
24	1.89	2.65	2.25	1.27	16.9	3.6	3.15	2.65	5.7	3.5	6.6	1.98
25	1.80	7.6	2.15	12.7	11.4	3.6	1.47	4.5	2.25	2.9	9.4	1.89
26	2.25	11.4	2.05	2.5	6.1	3.5	1.16	2.75	1.71	1.39	8.3	2.25
27	7.2	5.8	1.98	4.9	4.4	3.4	3.95	2.6	1.54	1.09	4.7	3.9
28	3.3	3.25	2.05	2.15	4.0	3.4	5.8	2.45	2.1	1.02	5.9	3.15
29	2.15	2.75	2.05	1.89	3.7	3.3	6.7	4.2	1.71	1.02	4.9	3.55
30	2.05	2.55	2.15	1.54	3.25	5.0	3.25	-	4.2	1.99	3.15	2.55
31	1.80	2.35	-	1.63	-	3.0	1.46	-	5.7	-	6.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.9	1.80	3.49	5.40	108	332
August	12	1.4	3.29	5.09	102	313
September	17.3	1.98	4.18	6.47	126	385
October	12.7	1.27	2.11	3.26	65.5	201
November	25	1.31	6.31	9.76	189	581
December	11.8	1.16	5.31	8.22	164	505
Calendar year 1947	25	.68	3.59	5.55	1,310	4,020
January	14.3	1.16	4.60	7.12	143	438
February	7.6	1.02	3.21	4.97	93.2	286
March	7.8	1.54	4.50	6.96	139	428
April	9.7	.68	2.04	3.16	61.2	188
May	13.5	2.45	4.51	6.98	140	429
June	7.1	1.89	3.02	4.67	90.6	278
Fiscal year 1947-48	25	.68	3.89	6.02	1,420	4,360

Note.- No gage-height record Aug. 5-22, Nov. 8-14, Dec. 25 to Jan. 5; discharge computed on basis of records for nearby ditches and recorded ranges in stage.

Puu Ka Ele ditch near Kilauea

Location.- Parshall flume, lat. 22°11'05", long. 159°24'20", 100 feet upstream from Puu Ka Ele Reservoir and 2 miles south of Kilauea. Altitude of gage, 430 feet (by barometer).

Records available.- August 1932 to June 1948.

Average discharge.- 15 years (1933-48), 3.20 million gallons a day (4.95 second-feet).

Extremes.- Maximum discharge during year, 33.5 million gallons a day (52 second-feet) Sept. 6 (gage height, 2.10 feet); no flow many times, when water was shut out of ditch. 1932-48: Maximum discharge, 38 million gallons a day (59 second-feet) May 7, 1943 (gage height, 2.28 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Ditch diverts water from Puu Ka Ele Stream, 1 mile southwest of station. Flow regulated by wasteway gate 100 feet above station. Water used for irrigation in vicinity of Kilauea.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.05	4.4	3.35	2.25	1.98	0.01	1.83	1.93	2.65	1.72	2.65	2.9
2	4.5	2.95	3.55	2.05	1.63	.01	2.8	3.15	2.95	0	6.7	5.1
3	4.3	2.65	7.6	2.05	1.54	.32	3.15	1.50	5.2	0	2.35	3.7
4	6.9	2.45	4.6	1.98	1.47	.01	2.65	1.33	6.0	0	.50	3.15
5	4.1	2.65	3.15	1.80	2.3	.01	2.55	1.63	4.1	0	0	2.95
6	3.95	2.45	10.2	2.05	1.71	.01	2.45	2.3	1.22	0	1.60	2.85
7	4.1	2.25	4.1	1.71	1.39	.32	4.1	.04	.55	0	1.84	2.55
8	3.25	2.25	5.5	1.80	1.47	.45	5.3	.04	1.74	0	2.35	2.35
9	3.05	2.65	5.0	1.71	2.35	.01	5.1	1.59	3.7	0	2.35	2.2
10	4.1	2.75	4.4	1.63	2.05	.48	3.8	2.15	4.0	0	1.28	2.1
11	5.7	2.55	5.4	1.71	4.8	.34	3.55	1.98	3.55	0	0	2.6
12	11.8	2.25	2.15	1.47	7.7	.44	3.35	1.89	3.45	0	0	4.0
13	8.5	2.15	2.8	1.47	.81	0	3.25	1.80	4.0	0	.20	2.5
14	5.9	9.4	4.1	1.54	.04	.08	3.15	2.15	3.25	0	0	2.3
15	5.5	3.7	3.6	1.71	.28	.36	2.95	2.85	2.8	0	1.39	2.2
16	5.0	2.85	3.45	1.71	.02	.22	4.4	2.75	.42	0	2.15	2.1
17	4.3	6.3	3.55	1.39	.01	.14	.57	2.75	.68	0	2.4	2.2
18	3.7	3.25	3.45	1.39	.02	0	.09	2.55	.30	0	4.0	2.2
19	3.35	3.65	3.15	1.71	.02	.07	2.15	2.55	.19	0	1.47	2.1
20	3.25	3.05	2.95	1.63	.01	.24	3.8	2.45	.56	0	0	2.1
21	3.05	2.85	2.95	1.54	0	.01	3.45	2.45	.64	0	0	2.1
22	2.95	4.8	2.65	2.15	0	0	4.5	2.2	.95	0	0	2.1
23	2.95	3.45	2.95	1.63	0	0	.47	1.23	1.59	0	0	2.2
24	2.85	3.25	2.75	1.47	.01	.08	.65	1.95	3.2	.31	0	2.1
25	2.75	8.8	2.55	7.2	.02	.11	.23	3.55	.52	3.95	.02	2.0
26	2.95	11.4	2.45	3.1	.01	0	.12	2.65	.48	3.35	.02	2.1
27	8.1	8.4	2.35	4.8	.01	0	.20	2.6	.19	2.75	0	3.0
28	4.3	5.2	2.35	2.65	0	0	.19	2.45	.42	2.55	0	2.6
29	3.25	4.4	2.35	2.25	.01	0	.59	3.6	.19	2.95	0	2.8
30	3.25	3.9	2.25	1.89	.29	0	.16	-	.19	3.25	0	2.3
31	2.95	3.45	-	1.80	-	0	.48	-	.19	-	.08	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.8	2.75	4.44	6.87	138	422
August	11.4	2.15	4.09	6.33	127	389
September	10.2	2.15	3.73	5.77	112	343
October	7.2	1.39	2.10	3.25	65.2	200
November	7.7	0	1.06	1.64	32.0	98
December	.48	0	.120	.186	3.72	11
Calendar year 1947	11.8	0	2.81	4.35	1,030	3,150
January	5.3	.09	2.32	3.59	72.0	221
February	3.6	.04	2.14	3.31	62.1	190
March	6.0	.19	1.93	2.99	59.9	184
April	3.95	0	.694	1.07	20.8	64
May	6.7	0	1.08	1.67	33.4	102
June	5.1	2.0	2.58	3.99	77.4	238
Fiscal year 1947-48	11.8	0	2.19	3.39	804	2,460

Note.- No gage-height record Mar. 15-17, June 9-30; discharge computed on basis of records for nearby ditches.

Kalihiwai ditch near Kilauea

Location.- Parshall flume, lat. 22°10'55", long. 159°25'55", 0.1 mile upstream from Kalihiwai Reservoir and 2.4 miles southwest of Kilauea. Altitude of gage, 410 feet (by barometer).

Records available.- June 1934 to June 1948.

Average discharge.- 13 years (1934-42, 1943-48), 2.70 million gallons a day (4.18 second-feet).

Extremes.- Maximum discharge during year, 58 million gallons a day (90 second-feet) Nov. 14 (gage height, 2.95 feet); minimum, 0.27 million gallons a day (0.42 second-foot) May 29, 30 (gage height, 0.10 foot).
1934-48: Maximum discharge recorded, 64 million gallons a day (99 second-feet) Mar. 7, 1938 (gage height, 3.17 feet); no flow Nov. 6, 7, 1945, Jan. 10, 1947.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Ditch diverts low-water flow from most branches of Pohakuhonu Stream at intakes, about 1 mile south of station. Diversion of flow to Kahililolo 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, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.2	1.63	2.45	2.15	3.05	4.7	3.2	3.8	3.8	2.25	3.2	0.57
2	3.85	1.39	2.45	1.80	2.45	5.5	3.5	6.0	4.5	.81	3.1	.52
3	3.25	1.31	3.6	1.80	2.45	5.4	5.0	5.5	7.4	.81	3.9	1.84
4	3.7	1.23	2.45	1.71	2.25	.75	3.6	5.1	5.6	.68	3.25	2.8
5	1.89	1.31	2.4	1.80	2.45	.63	3.4	3.9	2.45	.57	2.75	2.8
6	2.05	1.39	5.8	2.2	2.15	.68	3.25	1.84	2.6	.46	2.55	2.7
7	2.35	1.31	.95	1.71	2.05	.57	8.0	.75	1.72	.41	2.35	2.6
8	1.89	1.23	.81	1.71	2.05	.52	2.7	.81	.68	.36	2.25	2.4
9	1.80	1.39	.68	1.63	3.25	.46	1.91	.68	.63	.32	2.25	2.3
10	2.55	2.55	.57	1.54	3.55	.41	3.15	.63	2.0	1.69	2.25	2.2
11	3.65	2.85	.57	1.63	7.3	.52	3.25	2.45	3.2	2.7	2.25	2.6
12	3.95	2.75	.46	1.54	16	.57	3.15	2.35	2.85	2.85	2.55	3.2
13	1.79	3.0	.41	1.47	1.4	.52	2.85	2.9	2.85	2.65	2.45	2.3
14	.63	11.1	2.4	1.54	.95	.52	2.75	3.8	3.4	2.55	2.05	2.1
15	.63	4.3	3.35	1.63	.95	.52	2.65	3.7	2.4	2.3	1.98	2.0
16	.57	3.4	3.15	1.71	.68	.52	2.2	3.55	.98	3.55	1.98	1.9
17	.52	6.6	3.15	1.47	2.75	.57	.81	3.45	.95	3.55	2.2	2.0
18	1.25	3.8	3.15	1.39	5.0	.52	2.25	3.35	.88	3.25	2.95	2.0
19	1.80	4.5	2.85	1.63	3.85	.52	4.2	3.15	2.05	2.95	3.05	1.8
20	1.71	3.7	2.75	1.63	2.15	.52	4.5	3.05	2.05	2.95	3.3	1.8
21	1.71	2.95	2.75	1.70	.68	.46	4.1	3.1	.95	2.85	2.45	1.9
22	1.80	5.1	2,55	2.15	.63	.46	5.5	3.45	.95	2.55	2.25	2.15
23	1.71	2.95	2.8	1.63	2.4	.41	5.5	2.95	.95	2.55	3.15	2.05
24	1.63	2.95	2.55	1.54	2.7	2.0	1.95	3.2	.98	3.15	5.9	1.98
25	1.54	3.9	2.45	13.1	.95	3.55	.63	3.25	.70	3.25	4.2	1.98
26	1.72	.92	2.35	5.8	.75	3.4	3.65	2.95	.57	2.75	.52	1.98
27	3.45	.75	2.25	9.0	.68	3.3	4.5	2.75	.52	2.55	.41	2.5
28	2.45	1.98	2.25	4.3	.63	3.2	3.55	3.2	.52	2.45	.41	2.55
29	1.80	2.55	2.25	3.7	.57	3.2	2.4	3.8	.52	2.85	.36	5.3
30	1.71	2.55	2.25	2.95	2.75	3.2	1.02	-	.52	2.65	1.76	2.85
31	1.54	2.35	-	2.75	-	3.2	.68	-	2.25	-	2.85	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.2	0.52	2.10	3.25	65.1	200
August	11.1	.75	2.89	4.47	89.7	275
September	5.8	.41	2.30	3.56	68.8	211
October	13.1	1.39	2.66	4.12	82.3	253
November	16	.57	2.65	4.10	79.5	244
December	5.5	.41	1.65	2.55	51.3	157
Calendar year 1947	16	.19	2.69	4.16	981	3,010
January	8.0	.63	3.23	5.00	100	307
February	6.0	.63	3.08	4.77	89.4	274
March	7.4	.52	2.01	3.11	62.4	192
April	3.55	.32	2.19	3.39	65.8	202
May	5.9	.36	2.48	3.84	76.9	236
June	5.3	.52	2.26	3.50	67.7	208
Fiscal year 1947-48	16	.32	2.46	3.81	899	2,760

Note.- No gage-height record Nov. 11-14, Dec. 26 to Jan. 5, June 4-21; discharge computed on basis of records for nearby streams and ditches.

Hanalei River at altitude 625 feet, near Hanalei

Location.- Lat. 22°07'10", long. 159°28'05", 0.4 mile downstream from confluence with Kaapoko Stream and 6½ miles southeast of Hanalei. Altitude of gage, 625 feet (from topographic map).

Drainage area.- 7.4 square miles.

Records available.- January 1914 to June 1948.

Average discharge.- 30 years (1918-48), 46.1 million gallons a day (71.3 second-feet).

Extremes.- Maximum discharge during year, 13,800 million gallons a day (21,400 second-feet) Apr. 1 (gage height, 11.20 feet), from rating curve extended above 200 million gallons a day; minimum, 9.8 million gallons a day (15.2 second-feet) Oct. 18, 19, 24.
1914-48: Maximum discharge, that of Apr. 1, 1948; minimum, 5.8 million gallons a day (9.0 second-feet) Apr. 28, May 1-3, 1926.

Remarks.- Records fair. Since 1925 Hanalei tunnel has been diverting an average of about 25 million gallons of water a day from Hanalei River and its tributary Kaapoko Stream at points above 2 miles above station, for irrigation in vicinity of Lihue.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	39.5	18.4	23	14.2	23.5	22.5	20.5	61	25.5	590	130	79
2	41	11.3	34	12.8	15.6	28	32	82	23	302	87	77
3	34.5	24	117	11.6	18.5	113	100	55	27	222	189	59
4	42	13.4	129	11.6	14.2	58	27	37	34.5	265	85	53
5	58	13.4	32	23.5	13.8	34	21.5	32	24	90	68	49
6	37	13.5	68	25.5	12.8	80	19.7	35	33	79	54	77
7	36	12.9	81	13.8	12.2	33.5	64	35	91	93	48	50
8	23	11.3	32.5	12.8	17.0	28.5	93	33.5	41	59	42	45
9	22	12.9	25	12.2	18.2	25.5	42	27	28.5	52	41	42
10	56	16.6	22	11.3	31	34.5	27	23.5	28	48	42	44
11	46	16.1	22	12.8	162	141	25	21.5	97	97	41	54
12	82	22.5	91	11.0	524	281	32	21.5	67	117	62	113
13	46	15.7	58	11.0	478	66	21.5	19.7	107	64	53	56
14	27	155	28.5	11.9	598	100	19.7	18.4	52	67	39.5	48
15	27	23.5	21	12.8	145	56	18.8	18.0	212	83	37	45
16	23	19.7	19.2	12.6	67	190	44	16.7	159	74	44	41
17	19.6	114	23.5	10.4	45	219	169	16.3	115	61	61	66
18	17.8	19.5	18.4	9.8	35.5	136	32.5	15.6	54	47	73	64
19	15.8	78	16.0	11.6	29	107	29	15.2	40	44	108	44
20	15.2	19.5	15.2	15.4	25	101	23.5	14.6	263	47	92	49
21	14.5	18.9	14.2	11.6	22.5	47	23.5	14.9	198	42	86	43
22	13.7	27	13.5	11.9	20	37.5	69	18.7	177	39.5	52	39.5
23	17.9	20.5	13.8	10.7	18.8	68	40	34	215	47	128	39
24	14.8	51	13.2	10.1	123	37	391	24	315	98	198	37.5
25	13.4	175	12.2	223	84	29.5	68	18.9	132	150	250	30
26	19.8	277	11.9	63	41	29	129	14.9	146	50	110	25.5
27	163	73	11.9	86	30	42	262	14.2	84	52	129	33
28	22.5	33.5	11.9	32	26	27	409	28	102	41	201	44
29	14.8	27	12.2	31.5	23	30.5	285	42	137	54	79	385
30	14.2	29.5	13.5	19.7	22.5	27.5	226	-	98	90	64	54
31	12.2	23.5	-	18.4	-	22.5	91	-	86	-	200	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	163	12.2	33.2	51.4	1,030	3,160
August	277	11.3	44.7	69.2	1,390	4,260
September	129	11.9	33.5	51.8	1,000	3,080
October	223	9.8	25.4	39.3	786	2,410
November	598	12.2	89.9	139	2,700	8,270
December	281	22.5	72.6	112	2,250	6,910
Calendar year 1947	598	7.2	37.1	57.4	13,560	41,590
January	409	18.8	92.1	142	2,860	8,760
February	82	14.2	27.9	43.2	808	2,480
March	315	23	104	161	3,210	9,860
April	590	39.5	105	162	3,160	9,710
May	250	37	92.7	143	2,870	8,820
June	385	25.5	62.8	97.2	1,890	5,790
Fiscal year 1947-48	598	9.8	65.4	101	23,950	73,510

Peak discharge (base, 2,000 m.g.d.).- Nov. 14 (5 p.m.) 6,150 m.g.d. (9,520 sec.-ft.); Jan. 24 (10 a.m.) 2,100 m.g.d. (3,250 sec.-ft.); Mar. 21 (6 a.m.) 3,860 m.g.d. (5,970 sec.-ft.); Apr. 1 (6:30 p.m.) 13,800 m.g.d. (21,400 sec.-ft.); May 3 (2:30 p.m.) 2,100 m.g.d. (3,250 sec.-ft.); June 29 (2:30 p.m.) 2,200 m.g.d. (3,400 sec.-ft.).

Hanakapiai Stream near Hanalei

Location.- Lat. 22°11'20", long. 159°35'50", 1½ miles upstream from mouth and 6 miles west of Hanalei. Altitude of gage, 450 feet (by barometer).

Drainage area.- 2.6 square miles.

Records available.- December 1931 to June 1948.

Average discharge.- 16 years (1932-48), 10.9 million gallons a day (16.9 second-feet).

Extremes.- Maximum discharge during year, 580 million gallons a day (897 second-feet) Apr. 1 (gage height, 4.62 feet), from rating curve extended above 30 million gallons a day; minimum, 3.1 million gallons a day (4.8 second-feet) Oct. 18.
1931-48: Maximum discharge, 2,680 million gallons a day (4,150 second-feet) Dec. 23, 1937 (gage height, 8.41 feet), from rating curve extended above 60 million gallons a day; minimum, 1.50 million gallons a day (2.32 second-feet) Oct. 14, 15, 1945.

Remarks.- Records good except those for periods of faulty operation of recording gage, which are poor. No diversions.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	22.5	4.5	5.6	3.9	4.6	9.5	5.3	14.2	5.2	73	6.1	10.9
2	35.5	4.3	5.7	3.45	4.4	8.0	16.5	37.5	5.4	87	6.0	22
3	15.6	4.9	52	3.35	4.1	6.7	43	13.0	22	32.5	6.8	8.4
4	12	4.1	24	3.45	3.9	6.7	14.0	9.4	17.1	13.7	6.3	6.7
5	8.4	4.1	9.7	8.0	4.1	5.6	7.8	8.1	10.0	10.1	5.7	6.0
6	6.7	4.1	7.0	7.5	4.1	6.0	6.6	8.6	17.2	8.8	5.4	5.9
7	13	4.1	7.8	5.0	3.9	5.3	31.5	11.6	8.8	13.3	5.3	5.7
8	7.6	4.3	7.0	4.5	3.8	6.0	23.5	23.5	14.1	20	5.3	5.4
9	10	4.4	5.9	4.4	4.3	5.8	12.6	18.3	10.6	12.2	5.3	5.3
10	28	4.6	5.2	3.8	4.4	6.9	7.7	8.6	7.9	12.5	5.3	6.0
11	16	4.5	6.9	3.55	23	29	7.8	7.2	31.5	26	5.3	9.8
12	23	9.6	8.8	3.45	17.1	125	17.7	6.6	24.5	25	14.6	25
13	14	6.6	6.9	3.35	45	20	6.6	6.3	51	14.7	12	12.3
14	8.2	21	5.3	3.6	15.0	64	5.7	6.0	13.8	18.1	7.0	11.4
15	9.0	7.0	4.6	4.9	8.7	20.5	5.3	5.7	14.5	16.7	6.0	8.6
16	7.4	5.3	5.2	4.9	6.1	57	37	5.4	20.5	12.6	6.3	6.3
17	6.1	47	4.9	3.8	5.3	71	57	5.3	29	8.6	7.7	6.0
18	5.7	7.0	4.9	3.4	4.8	49	12.0	5.2	12.1	7.6	9.7	5.6
19	5.3	5.3	4.1	3.4	4.4	43	7.6	5.0	8.2	6.9	6.7	5.3
20	5.2	4.9	3.8	4.8	4.0	58	6.4	5.0	8.5	6.9	6.3	5.3
21	5.0	4.9	3.65	4.6	3.9	12.7	5.9	4.9	18.6	6.4	6.1	5.3
22	5.5	5.2	3.55	4.1	3.65	8.8	24	5.4	39	6.3	8.4	5.2
23	5.6	4.9	3.45	3.8	3.55	41	42	5.0	23.5	6.1	25	5.0
24	5.0	4.5	3.45	3.5	67	13.0	115	4.9	10.7	15.4	16.2	5.0
25	4.6	19.1	3.45	90	28	8.8	26.5	7.5	10.6	10.6	13.3	5.0
26	4.9	17	3.45	30	8.8	7.9	30.5	5.3	44	6.9	8.8	5.0
27	5.7	10	3.35	34	6.4	10.2	75	4.8	25	6.0	7.5	9.4
28	5.2	6.0	3.35	9.4	5.6	7.0	93	11.8	32	6.1	17.6	33.5
29	4.8	5.2	3.45	6.3	4.9	6.3	104	5.8	34	8.8	7.7	13.1
30	4.6	9.5	3.45	5.6	4.4	6.1	81	-	32	6.4	6.7	8.5
31	4.6	6.0	-	5.2	-	5.7	42	-	21.5	-	7.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	35.5	4.6	10.2	15.8	315	966
August	47	4.1	8.20	12.7	254	780
September	52	3.35	7.33	11.3	220	675
October	90	3.35	9.13	14.1	283	868
November	67	3.55	10.4	16.1	311	955
December	125	4.8	23.4	36.2	726	2,230
Calendar year 1947	130	3.0	11.5	17.8	4,190	12,860
January	115	5.3	31.3	48.4	970	2,980
February	37.5	4.8	9.17	14.2	266	816
March	51	5.2	20.1	31.1	623	1,910
April	87	6.0	16.8	26.0	505	1,550
May	25	5.3	8.51	13.2	264	810
June	33.5	5.0	9.10	14.1	273	837
Fiscal year 1947-48	125	3.35	13.7	21.2	5,010	15,380

Peak discharge (base, 400 m.g.d.).- Dec. 12 (5 a.m.) 475 m.g.d. (735 sec.-ft.); Jan. 24 (2 p.m.) 442 m.g.d. (684 sec.-ft.); Apr. 1 (5 p.m.) 580 m.g.d. (897 sec.-ft.); June 28 (4 p.m.) 442 m.g.d. (684 sec.-ft.).

Note.- Recorder friction roll not operating properly July 4-12, Aug. 12, 14, 27, 28, Sept. 3-9, Oct. 16, 17, 23-25, 27-30, Nov. 2, May 13, 22, 26, 27, 31; discharge computed on basis of records for Hanakoa Stream.

Hanakoa Stream near Hanalei

Location.- Lat. 22°11'00", long. 159°37'35", three-quarters of a mile upstream from mouth and 7⅞ miles west of Hanalei. Altitude of gage, 470 feet (by barometer).

Drainage area.- 1.1 square miles.

Records available.- December 1931 to June 1948.

Average discharge.- 16 years (1932-48), 3.57 million gallons a day (5.52 second-feet).

Extremes.- Maximum discharge during year, 270 million gallons a day (418 second-feet) Dec. 12 (gage height, 4.10 feet), from rating curve extended above 30 million gallons a day; minimum, 0.28 million gallons a day (0.43 second-foot) Oct. 14.
1931-48: Maximum discharge, 687 million gallons a day (1,060 second-feet) Dec. 21, 1946 (gage height, 5.98 feet); minimum, 0.17 million gallons a day (0.26 second-foot) Mar. 21, 22, 1934.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.10	1.3	3.9	2.1	31.5
1.0	.47	1.4	5.8	2.4	49
1.05	.79	1.5	8.2	2.8	80
1.1	1.20	1.7	14.2		
1.2	2.35	1.9	22		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.6	0.53	0.79	0.59	0.79	1.13	1.11	6.4	1.01	23.5	1.11	1.50
2	13.2	.47	.72	.43	.65	1.40	4.1	13.8	.79	36	.87	4.4
3	4.4	.53	22	.40	.59	1.02	23	4.3	3.9	10.6	.94	1.40
4	2.65	.53	8.3	.43	.53	1.02	5.6	3.1	3.0	4.5	.87	.87
5	1.60	.47	1.96	1.22	.59	.79	2.35	2.5	1.71	2.95	.79	.79
6	1.54	.47	1.50	.94	.53	.87	1.83	3.5	3.1	2.35	.79	.72
7	2.4	.47	1.40	.59	.47	.72	7.0	5.4	1.50	4.2	.72	.72
8	1.30	.47	1.11	.59	.47	1.02	6.5	11.5	1.50	9.1	.65	.65
9	2.3	.47	.72	.47	.56	.72	3.3	3.8	1.96	3.95	.65	.59
10	6.3	.53	.72	.43	.59	1.15	2.1	2.35	1.30	3.9	.65	.88
11	3.55	.47	1.26	.40	5.8	7.5	3.45	1.96	5.7	7.2	.72	1.57
12	3.5	.86	1.59	.36	3.4	79	4.8	1.71	5.5	5.7	1.99	3.7
13	2.9	.76	1.30	.32	16.3	8.5	1.71	1.60	16.4	3.3	2.25	1.92
14	1.60	4.0	.87	.40	3.65	36	1.50	1.50	3.7	3.75	.94	1.71
15	1.60	.79	.72	.76	1.71	10.4	1.30	1.30	3.1	3.45	.72	1.40
16	1.30	1.28	.79	.72	1.20	33.5	19.8	1.20	3.65	2.5	.65	.87
17	1.02	16.2	.72	.43	.94	48	16.5	1.11	6.8	1.71	.72	.79
18	.87	1.20	.65	.36	.87	27	3.2	1.02	2.8	1.50	.87	.65
19	.79	.79	.59	.40	.72	22	1.96	1.02	1.71	1.30	.72	.59
20	.79	.65	.53	.57	.65	29.5	1.60	1.02	1.40	1.20	.72	.59
21	.79	.65	.47	.59	.59	5.0	1.40	.94	4.0	1.20	.65	.59
22	.87	.65	.47	.47	.53	3.3	29	.87	9.4	1.11	1.11	.53
23	.79	.53	.47	.40	.47	20.5	12.2	.79	6.8	1.02	2.05	.53
24	.85	.47	.43	.36	22	5.0	71	1.68	2.35	5.2	2.9	.47
25	.59	2.3	.43	37	9.6	3.1	10.1	1.11	2.15	2.7	1.96	.47
26	.65	3.6	.40	10.3	2.1	2.35	25	.79	14.2	1.40	1.20	.47
27	.65	1.85	.40	14.0	1.30	2.5	66	.72	7.0	1.11	.94	1.39
28	.59	.87	.40	2.5	1.02	1.71	74	2.45	10.2	1.02	2.8	9.2
29	.53	.65	.43	1.40	.79	1.50	71	.87	12.8	1.40	1.02	2.5
30	.53	1.75	.43	1.02	.79	1.40	50	-	10.3	1.02	.79	1.26
31	.47	.87	-	.87	-	1.20	12.5	-	6.8	-	1.02	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.2	0.47	2.27	3.51	70.3	216
August	16.2	.47	1.49	2.31	46.1	142
September	22	.40	1.75	2.71	52.6	161
October	37	.32	2.57	3.98	79.7	245
November	22	.47	2.67	4.13	80.2	246
December	79	.72	11.6	17.9	359	1,100
Calendar year 1947	79	.32	3.81	5.89	1,390	4,270
January	74	1.11	17.3	26.8	535	1,640
February	13.8	.72	2.77	4.29	80.3	246
March	16.4	.79	5.05	7.81	157	480
April	36	1.02	4.99	7.72	150	460
May	2.9	.65	1.12	1.73	34.8	107
June	9.2	.47	1.46	2.26	43.7	134
Fiscal year 1947-48	79	.32	4.61	7.13	1,690	5,180

Peak discharge (base, 220 m.g.d.).- Dec. 12 (1:30 a.m.) 270 m.g.d. (418 sec.-ft.).

Kalalau Stream near Hanalei

Location.- Lat. 22°09'50", long. 159°38'15", 2 miles upstream from mouth and 9 miles southwest of Hanalei. Altitude of gage, 960 feet (by barometer).

Drainage area.- 1.6 square miles.

Records available.- November 1931 to June 1948.

Average discharge.- 16 years (1932-48), 4.45 million gallons a day (6.89 second-feet).

Extremes.- Maximum discharge during year, 300 million gallons a day (464 second-feet) Jan. 24 (gage height, about 3.6 feet), from rating curve extended above 18 million gallons a day; minimum, 3.45 million gallons a day (5.34 second-feet) Nov. 21, 22, 23, Dec. 7, 8, 9, 10.

1931-48: Maximum discharge, 562 million gallons a day (870 second-feet) Dec. 22, 1946 (gage height, 4.36 feet), from rating curve extended above 18 million gallons a day; minimum, 1.73 million gallons a day (2.68 second-feet) June 2, 1945.

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

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Apr. 1				Apr. 2 to June 30			
1.0	2.65	1.4	10.8	1.1	3.2	1.5	12.7
1.1	4.0	1.6	17.3	1.2	4.9	1.6	16.5
1.2	5.8	1.8	25.5	1.3	7.1	1.8	25.5
1.3	8.1			1.4	9.8		

Note.- Same as preceding table above 1.8 feet.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.3	4.7	4.5	4.2	4.0	3.75	4.4	10	5.7	11.6	5.8	5.3
2	8.1	4.7	4.5	4.2	3.85	3.6	4.4	11	5.6	12.9	5.6	5.3
3	5.8	4.7	5.5	4.2	3.75	3.6	13.3	7.0	5.6	10.7	5.6	5.3
4	5.4	4.7	5.6	4.2	3.85	3.6	7.4	6.4	5.6	8.2	5.6	5.3
5	4.7	4.5	4.7	4.2	3.85	3.6	5.8	6.0	5.6	7.1	5.6	5.3
6	4.5	4.5	4.7	4.2	3.75	3.6	5.1	6.6	5.6	6.9	5.6	5.3
7	4.7	4.5	4.5	4.2	3.75	3.45	5.1	7.5	5.6	7.1	5.6	5.3
8	4.5	4.5	4.5	4.2	3.6	3.45	4.9	9.0	5.6	11.4	5.6	5.1
9	4.7	4.5	4.5	4.0	3.75	3.45	4.7	6.8	5.8	9.3	5.6	5.1
10	4.7	4.5	4.5	4.0	3.75	3.45	4.5	6.0	5.8	8.4	5.6	5.1
11	4.7	4.5	4.7	4.0	3.85	4.3	4.9	5.7	6.3	8.2	5.6	5.3
12	4.9	4.7	4.4	4.0	3.85	70	6.4	5.6	6.3	7.4	5.6	5.3
13	5.1	4.5	4.4	4.0	8.3	11	4.9	5.4	7.2	6.9	5.6	5.3
14	4.9	4.7	4.4	4.0	6.2	30	4.7	5.3	6.7	6.7	5.6	5.3
15	4.9	4.5	4.4	4.0	4.5	13	4.5	5.3	6.3	6.4	5.3	5.1
16	4.9	4.5	4.4	4.0	4.2	25	6.5	5.3	6.0	6.2	5.3	5.1
17	4.9	5.3	4.4	4.0	3.75	35	8.4	5.3	6.5	6.0	5.3	5.1
18	4.9	4.7	4.2	4.0	3.75	20	6.5	5.3	6.3	6.0	5.3	5.1
19	4.9	4.5	4.2	4.0	3.75	16	5.6	5.3	6.0	6.0	5.3	5.1
20	4.9	4.5	4.2	4.0	3.6	17	5.3	5.3	5.8	6.0	5.3	5.1
21	4.9	4.5	4.2	4.0	3.45	7.0	4.9	5.3	6.0	6.0	5.3	5.1
22	4.9	4.5	4.2	4.0	3.45	5.0	26.5	5.3	6.7	6.0	5.3	5.1
23	4.9	4.5	4.2	4.0	3.45	12	21	5.3	7.1	6.0	5.3	5.1
24	4.7	4.5	4.2	4.0	6.8	6.0	90	5.8	6.7	8.9	5.3	4.9
25	4.7	4.8	4.2	6.8	6.8	4.7	17	5.6	6.5	8.2	5.3	4.9
26	4.7	4.9	4.2	5.4	5.1	4.6	35	5.4	7.9	6.9	5.3	4.9
27	4.7	4.7	4.2	5.4	4.4	4.6	84	5.4	7.6	6.2	5.3	4.9
28	4.7	4.5	4.2	4.4	4.0	4.5	100	5.4	8.4	6.0	5.3	5.8
29	4.7	4.5	4.2	4.0	3.85	4.4	90	5.4	9.4	5.8	5.3	5.1
30	4.7	4.5	4.2	4.0	3.75	4.4	60	-	9.4	5.8	5.3	4.9
31	4.7	4.5	-	4.0	-	4.4	18	-	8.4	-	5.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.1	4.5	4.98	7.67	154	472
August	5.3	4.5	4.60	7.12	143	438
September	5.6	4.2	4.44	6.87	133	409
October	6.8	4.0	4.25	6.58	132	404
November	8.3	3.45	4.29	6.64	129	395
December	70	3.45	10.9	16.9	338	1,040
Calendar year 1947	70	3.45	5.44	8.42	1,980	6,090
January	100	4.4	21.4	33.1	664	2,040
February	11	5.3	6.17	9.55	179	549
March	9.4	5.6	6.58	10.2	204	626
April	12.9	5.8	7.51	11.6	225	691
May	5.8	5.3	5.44	8.42	169	518
June	5.8	4.9	5.16	7.98	155	475
Fiscal year 1947-48	100	3.45	7.17	11.1	2,620	8,060

Peak discharge (base, 70 m.g.d.).- Dec. 12 (4 a.m.) 262 m.g.d. (405 sec.-ft.); Jan. 24 (time unknown) 300 m.g.d. (464 sec.-ft.).

Note.- No gage-height record Dec. 12-31, Jan. 24 to Feb. 21; discharge computed on basis of records for nearby streams.

MISCELLANEOUS DISCHARGE MEASUREMENTS

Measurements on the island of Kauai at other than regular gaging stations are listed below:

Miscellaneous discharge measurements on Kaui during fiscal year July 1947 to June 1948

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
Oct. 12	Koale	Waiahulu Stream	At altitude 3,300 feet, near Waimea.	2.88	1.86
Sept.13	Second Right Branch of Kalalau.	Kalalau Stream	At altitude 850 feet, near Hanalei.	2.59	1.67
Nov. 8	....do	....do	....do	2.15	1.39
Dec. 31	....do	....do	....do	2.47	1.60
Feb. 22	....do	....do	....do	4.18	2.70
23	....do	....do	....do	3.57	2.31
Apr. 27	....do	....do	....do	3.59	2.32
June 24	....do	....do	....do	3.65	2.36
Sept.13	Second Left Branch of Kalalau.	....do	100 feet downstream from ford on main trail, near Hanalei.	1.43	.924
Nov. 9	....do	....do	....do	1.74	1.12
Jan. 1	....do	....do	....do	1.79	1.16
Feb. 21	....do	....do	....do	2.30	1.48
24	....do	....do	....do	2.43	1.57
Apr. 28	....do	....do	....do	1.94	1.25
June 25	....do	....do	....do	1.79	1.16
Nov. 21	Mililii	Pacific Ocean	At altitude 100 feet, near Hanalei.	1.32	.853
22	....do	....do	....do	1.21	.782
23	....do	....do	....do	1.21	.782
25	....do	....do	....do	1.78	1.15
Mar. 21	....do	....do	....do	1.95	1.26
21	....do	....do	....do	1.98	1.28

Poamoho Stream near Wahiawa

Location.- Modified Columbus control, lat. 21°31'25", long. 157°58'55", just below concrete diversion dam, 3.5 miles northeast of Wahiawa. Altitude of gage, 1,150 feet (from topographic map).

Drainage area.- 1.8 square miles.

Records available.- January 1947 to June 1948.

Extremes.- Maximum discharge during period ending June 30, 1947, 916 million gallons a day (1,420 second-feet) Mar. 30 (gage height, 5.68 feet), from rating curve extended above 4 million gallons a day by test on model of station site; minimum, 0.02 million gallons a day (0.03 second-foot) Apr. 14-16.

Maximum discharge during year ending June 30, 1948, 580 million gallons a day (897 second-feet) Dec. 17 (gage height, 4.13 feet), from rating curve extended above 4 million gallons a day by test on model of station site; no flow Feb. 4, 5.

Remarks.- Records good except those for Nov. 9 to Dec. 10, which are poor. Poamoho tunnel diverts water into North Fork Kaukonahua Stream about 175 feet above station.

Rating table, period January 1947 to June 1948 (gage height, in feet, and discharge, in million gallons a day)

0.0	0.0	0.6	2.4
.1	.02	.8	5.4
.2	.10	1.0	10.3
.3	.34	1.2	16.5
.4	.77	1.5	31.5

Discharge, in million gallons a day, 1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1							-	0.97	13.9	1.11	0.63	1.64
2							-	.77	17.9	1.18	12.1	1.11
3							-	2.1	3.7	.68	4.6	1.89
4							-	1.45	1.54	.47	.10	1.31
5							-	.77	.91	.29	.78	.97
6							-	.73	.73	.20	1.31	.84
7							-	.64	1.72	.12	1.04	.77
8							-	.56	4.0	.09	2.95	.73
9							-	.56	4.7	.08	6.9	.73
10							-	.60	1.11	.06	2.2	.68
11							-	.51	.68	.05	1.31	.73
12							-	.47	.56	.04	1.35	4.6
13							-	.43	.47	.04	9.0	1.90
14							1.92	.34	.38	.03	2.35	4.9
15							1.31	.34	.34	.02	9.6	2.15
16							3.95	.34	.32	.65	11.4	1.04
17							3.2	.34	9.3	.97	7.7	.77
18							1.45	.32	2.75	.84	1.42	.73
19							1.18	.32	.97	.77	1.41	.60
20							1.11	.29	.68	.77	2.2	3.3
21							.97	.27	.56	.68	2.65	2.1
22							.84	.27	.68	.64	5.4	1.24
23							.77	.24	.60	.64	2.4	1.11
24							1.04	.22	.47	.60	1.74	4.5
25							.77	.22	.47	.64	1.64	3.95
26							.77	.22	.34	.56	2.3	4.8
27							2.45	.20	.38	.51	1.54	4.6
28							6.9	.15	.51	.47	5.1	5.0
29							2.1	-	19.5	.43	2.5	7.1
30							1.78	-	51	.38	1.45	5.8
31							1.11	-	2.75	-	1.69	-

Discharge, in million gallons a day, of Poamoho Stream near Wahiawa, Oahu, 1947-48--Continued

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.4	8.2	3.05	1.45	2.15	2.3	2.55	0.01	2.6	8.0	6.5	6.4
2	8.4	1.94	3.7	2.85	1.29	3.0	2.1	.01	1.74	10.1	4.6	6.0
3	4.7	1.25	9.3	1.54	.77	4.5	2.3	.01	2.3	35	3.05	5.1
4	6.9	.97	7.5	1.11	.68	8.0	2.0	0	6.4	19.2	2.55	4.0
5	3.7	1.12	4.9	2.65	.60	5.0	1.92	3.3	1.92	6.9	5.2	3.7
6	10.0	1.56	3.9	1.79	.56	6.0	1.92	3.45	1.92	5.8	3.45	5.6
7	8.5	.77	12.3	1.11	.56	4.5	1.83	3.9	14.8	6.8	5.2	3.45
8	4.4	.84	3.7	.97	.64	8.0	1.83	4.1	5.4	6.3	2.55	3.05
9	3.3	.97	3.05	.91	2.0	6.0	1.64	2.8	3.45	4.9	2.95	2.8
10	3.05	1.03	5.4	.77	.35	9.0	1.54	2.4	4.2	4.2	4.0	2.55
11	2.9	1.25	3.85	1.59	.10	9.9	1.54	2.3	12.0	4.0	2.5	2.4
12	2.4	1.34	4.0	1.66	.10	7.4	1.98	2.1	5.0	5.1	2.45	2.65
13	2.2	1.45	7.5	1.68	.10	5.1	2.3	2.0	13.5	3.85	6.0	3.7
14	1.92	8.9	5.7	.84	.09	4.4	1.38	1.92	10.3	3.3	4.4	2.65
15	2.4	2.2	3.45	.77	.09	3.85	1.25	1.74	20.5	5.2	2.8	2.1
16	2.2	2.55	2.9	.84	.08	8.9	1.11	1.64	16.2	8.9	2.4	2.0
17	1.54	10.3	2.8	.77	.08	24	1.54	1.45	12.5	5.0	5.3	3.1
18	1.38	2.9	2.65	.68	.06	7.6	1.74	1.45	7.6	3.55	6.0	3.0
19	1.31	3.85	2.2	.68	.06	8.0	2.6	1.38	5.6	3.45	9.0	2.1
20	1.25	1.74	5.9	.64	1.0	11.3	2.05	1.31	6.0	5.1	7.4	2.0
21	1.11	1.74	2.2	.56	4.0	5.4	1.51	1.31	5.6	3.05	5.1	2.0
22	1.04	4.7	2.1	.60	3.5	4.7	2.15	8.0	8.6	2.55	4.0	1.54
23	1.45	2.7	5.9	.56	3.2	4.4	2.8	1.83	13.9	4.0	3.45	1.45
24	1.11	9.4	2.1	.47	2.9	3.7	.09	1.31	11.8	2.8	8.2	1.38
25	.91	17.9	1.74	7.7	6.8	3.05	..08	9.7	6.4	2.55	5.8	1.31
26	2.1	10.8	1.54	6.2	5.0	2.9	.06	4.7	5.1	5.6	6.3	1.18
27	3.0	6.2	1.45	2.8	4.0	2.9	3.75	2.4	4.2	6.4	9.5	1.18
28	1.53	4.7	1.38	1.38	3.0	2.8	.01	1.74	4.1	3.45	7.4	1.54
29	.91	3.85	1.31	1.11	2.8	3.5	.01	4.3	9.9	4.5	5.6	1.92
30	1.11	3.85	1.45	.91	2.5	3.05	.01	-	5.0	4.4	5.8	1.64
31	1.79	3.7	-	1.52	-	2.55	.01	-	7.2	-	6.8	-

Peak discharge (base, 130 m.g.d.).- Dec. 17 (12 m.) 580 m.g.d. (897 sec.-ft.); Jan. 27 (6 a.m.) 140 m.g.d. (217 sec.-ft.); Apr. 3 (12 p.m.) 310 m.g.d. (480 sec.-ft.).

Note.- No gage-height record Nov. 9 to Dec. 10; discharge computed on basis of records for nearby streams.

Monthly discharge, in million gallons a day, 1947-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July						
August						
September						
October						
November						
December						
Calendar year						
January 14-31, 1947	6.9	0.77	1.87	2.89	33.6	103
February	2.1	.15	.523	.809	14.6	45
March	51	.32	4.64	7.18	144	442
April	1.18	.02	.467	.723	14.0	43
May	12.1	.10	3.51	5.43	109	334
June	7.1	.60	2.38	3.68	71.5	219
The period	-	-	-	-	387	1,190
July 1947	10.0	.91	2.96	4.58	91.9	282
August	17.9	.77	4.02	6.22	125	383
September	12.3	1.31	3.96	6.13	119	365
October	7.7	.47	1.58	2.44	49.1	151
November	6.8	.06	1.64	2.54	49.1	151
December	24	2.3	5.99	9.27	186	570
Calendar year 1947	-	-	-	-	1,010	3,090
January 1948	3.75	.01	1.54	2.38	47.6	146
February	9.7	0	2.50	3.87	72.6	223
March	20.5	1.74	7.60	11.8	236	725
April	35	2.55	6.47	10.0	194	595
May	9.5	2.4	5.04	7.80	156	480
June	6.4	1.18	2.78	4.30	83.5	256
Fimcal year 1947-48	35	0	3.85	5.96	1,410	4,320

North Fork Kaukonahua Stream near Wahiawa

Location.- Modified Columbus control, lat. 21°30'55", long. 157°59'20", 3 miles northeast of Wahiawa and 8.6 miles north of Pearl City. Altitude of gage, 970 feet (from topographic map).

Drainage area.- 4.9 square miles.

Records available.- September 1946 to June 1948.

Extremes. Maximum discharge for period ending June 30, 1947, 2,500 million gallons a day (3,870 second-feet) Dec. 22, Mar. 30 (gage heights, 9.58 and 9.63 feet, respectively), from rating curve extended above 120 million gallons a day by test on model of station site; minimum, 0.35 million gallons a day (0.54 second-foot) Mar. 26, 27, 28.

Maximum discharge during period ending June 30, 1948, 3,340 million gallons a day (5,170 second-feet) Apr. 3 (gage height, 11.34 feet), from rating curve extended above 120 million gallons a day by test on model of station site; minimum, 0.76 million gallons a day (1.18 second-feet) Oct. 24.

Remarks.- Records good except those for Apr. 19 to May 19, 1947, which are poor.

Rating table, September 1946 to June 1948 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.37	1.0	9.1	3.0	235
.4	.80	1.3	20	3.5	338
.5	1.45	1.6	37.5	4.0	458
.6	2.35	2.0	74	4.5	592
.8	5.0	2.5	143		

Discharge, in million gallons a day, 1946-48

1946-47

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			-	1.00	1.66	15.3	7.0	1.32	165	16.5	5.0	2.5
2			-	1.00	1.00	20	21.5	1.26	81	9.4	50	1.81
3			-	.80	.93	13.4	9.0	2.0	11.2	32	20	19.9
4			-	3.95	30	8.3	7.4	2.9	2.25	12.4	10	3.5
5			-	3.45	52	4.6	8.0	2.35	2.3	6.3	5	1.72
6			-	1.14	6.2	202	5.7	2.05	2.9	16.8	3	1.32
7			-	.71	2.8	104	4.5	1.83	3.9	9.3	2.5	1.12
8			-	4.4	3.85	20.5	2.8	1.00	7.9	13.6	25	1.06
9			-	21	6.0	15.8	2.8	1.00	2.8	11.8	70	1.00
10			-	10.5	38	40	2.45	1.00	2.5	8.4	10	1.00
11			-	2.3	153	11.7	2.25	.93	1.73	5.3	2.5	1.26
12			-	1.00	13.8	8.4	2.1	.86	.71	10.0	10	44
13			-	.71	8.0	5.8	2.4	.86	.63	4.0	40	7.7
14			-	.71	24.5	3.95	2.6	.86	.63	2.9	10	9.4
15			-	.67	107	16.5	1.99	.76	.58	2.7	60	3.45
16			-	.67	8.6	39.5	30	.71	.54	2.2	15	1.72
17			1.99	.40	5.2	80	11.9	.67	63	1.19	10	1.38
18			2.25	1.56	3.65	81	2.35	.67	6.2	1.06	5	1.32
19			1.99	1.41	3.25	16.1	1.90	.67	1.09	.92	4.6	1.19
20			1.38	1.00	3.05	26	1.72	.63	.67	.86	10.8	13.5
21			1.26	.86	2.8	422	1.63	.58	.50	.80	6.0	5.6
22			1.45	3.3	3.25	376	1.54	.58	.63	.76	15.5	3.25
23			3.45	8.7	3.15	36	1.54	.58	.71	.70	4.8	1.63
24			1.64	18.9	2.25	27.5	4.5	.63	.50	.72	2.8	15.6
25			.86	3.2	1.99	20	1.99	.67	.41	.80	2.6	18.8
26			.76	61	1.81	15.0	1.63	.63	.35	.72	5.3	39.5
27			.71	11.1	1.72	12.5	3.1	.50	.35	.64	2.45	60
28			6.8	6.1	14.2	10.6	23	.41	.35	.58	19.4	45
29			5.3	2.6	42	9.1	7.0	-	262	.55	6.1	39.5
30			2.15	2.35	141	10.9	7.3	-	291	.55	2.1	2.5
31			-	3.8	-	9.8	3.05	-	18.5	-	1.72	-

Note.- No gage-height record Apr. 19 to May 19; discharge computed on basis of records for other stations of the North Fork.

Discharge, in million gallons a day, of North Fork Kaukonahua Stream near Wahiawa, Oahu, 1946-48--Continued

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.7	108	22.5	2.8	9.6	2.45	16.5	10.6	5.2	39.5	76	58
2	84	3.9	18.1	5.6	1.94	3.2	8.5	16.2	2.6	45	13.3	33.5
3	28	1.90	121	3.15	1.26	68	32.5	57	2.9	605	7.0	26
4	37	1.97	43	1.81	1.06	83	5.7	14.5	23.5	418	4.4	15.3
5	23	3.75	19.0	12.9	1.00	11.2	3.8	12.4	2.45	43	16.1	12.6
6	163	5.3	128	4.7	.93	31.5	3.05	5.3	2.15	20.5	10.5	30
7	76	1.94	72	2.25	.93	9.0	2.8	4.8	74	30.5	10.7	10.6
8	22.5	2.45	13.1	1.81	.86	17.2	2.7	5.4	21.5	23	3.4	8.6
9	14.9	2.2	8.9	1.72	3.1	10.5	2.45	3.8	5.8	10.9	14.3	7.3
10	16.6	6.6	31.5	1.81	60	53	2.35	3.05	5.6	8.6	14.7	6.3
11	16.5	10.9	14.0	4.2	97	68	2.25	2.9	20.5	9.6	5.2	5.5
12	28.5	10.6	15.7	2.2	522	28.5	2.35	2.8	8.8	18.9	8.2	5.4
13	10.2	4.7	35.5	2.25	379	12.6	2.65	2.7	83	9.1	67	9.7
14	6.6	62	27	1.32	402	8.7	1.99	2.6	39.5	6.2	22.5	9.5
15	10.7	6.6	10.4	1.26	180	6.6	1.90	2.35	124	12.9	7.2	5.4
16	6.9	19.7	7.5	1.45	51	27	1.90	2.25	139	117	7.7	4.6
17	4.6	232	8.0	1.19	30	174	2.15	2.1	63	16.0	76	9.7
18	3.5	13.9	8.2	1.06	21.5	24.5	2.45	1.99	24	7.3	98	14.3
19	3.05	24	13.8	1.06	16.1	42	2.35	1.90	15.3	9.6	97	4.2
20	2.8	16.2	17.7	1.00	15.5	119	2.95	1.90	47	19.4	57	19.5
21	2.35	11.9	3.8	.93	9.8	14.6	1.90	2.1	20	6.1	33.5	9.5
22	2.15	63	3.15	.93	5.4	10.3	2.3	5.3	34.5	4.2	14.3	3.6
23	2.4	24	21	.86	4.4	7.7	48	2.4	93	7.8	10.6	2.7
24	3.2	57	3.1	.80	3.8	6.8	154	1.90	70	3.95	66	2.8
25	1.90	360	2.15	127	41	5.7	65	47	33.5	3.65	40	2.8
26	6.7	187	1.90	18.0	11.1	5.5	45	9.2	17.4	59	83	2.45
27	12.5	36.5	1.90	4.9	3.95	8.5	331	3.15	13.2	42	230	3.35
28	4.1	23.5	1.90	1.90	3.05	5.5	137	2.35	11.5	8.7	85	10.8
29	2.1	16.6	1.81	1.38	2.8	23	30	8.1	30	23	28	40
30	1.81	17.0	2.25	1.26	2.7	8.8	19.1	-	13.5	21	29	5.7
31	4.1	14.4	-	9.2	-	3.65	5.3	-	19.1	-	72	-

Peak discharge (base, 1,500 m.g.d.).- Aug. 1 (5 a.m.) 1,520 m.g.d. (2,350 sec.-ft.); Sept. 6 (11 p.m.) 1,760 m.g.d. (2,720 sec.-ft.); Nov. 14 (10 p.m.) 2,000 m.g.d. (3,090 sec.-ft.); Dec. 17 (12:30 p.m.) 2,000 m.g.d. (3,090 sec.-ft.); Jan. 27 (7 a.m.) 1,720 m.g.d. (2,660 sec.-ft.); Apr. 3 (12 p.m.) 3,340 m.g.d. (5,170 sec.-ft.).

Monthly discharge, in million gallons a day, 1946-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September 17-30, 1946	6.8	0.71	2.28	3.53	32.0	98
October	61	.40	5.75	8.90	178	547
November	153	.93	22.9	35.4	687	2,110
December	422	3.95	54.6	84.5	1,690	5,190
Calendar year	-	-	-	-	-	-
January 1947	30	1.54	6.02	9.31	187	573
February	2.9	.41	1.03	1.59	28.9	89
March	291	.35	30.1	46.6	933	2,860
April	32	.55	5.82	9.00	174	535
May	70	1.72	14.1	21.8	437	1,340
June	60	1.00	11.7	18.1	351	1,080
The period	-	-	-	-	4,700	14,420
July 1947	163	1.81	19.9	30.8	618	1,900
August	360	1.90	43.5	67.3	1,350	4,140
September	128	1.81	22.6	35.0	678	2,080
October	127	.80	7.18	11.1	223	683
November	522	.86	62.8	97.2	1,880	5,780
December	174	2.45	29.0	44.9	900	2,760
Calendar year 1947	522	.35	21.3	32.8	7,760	23,820
January 1948	331	1.90	30.4	47.0	942	2,890
February	57	1.90	8.21	12.7	238	731
March	139	2.15	34.4	53.2	1,070	3,270
April	605	3.65	55.0	85.1	1,650	5,080
May	230	3.4	43.5	67.3	1,350	4,140
June	58	2.45	12.7	19.6	380	1,170
Fiscal year 1947-48	605	.80	30.8	47.7	11,280	34,600

Right Branch of North Fork Kaukonahua Stream near Wahiawa

Location.- Concrete weir control, lat. 21°31'15", long. 157°56'55", 200 feet upstream fro intake of Wahiawa Water Co.'s tunnel, which is just downstream from confluence of Righ and Left Branches of North Fork Kaukonahua Stream, and 8 miles northeast of Wahiawa. Altitude of gage, 1,200 feet (from topographic map).
Drainage area.- 1.2 square miles.
Records available.- May 1913 to January 1933, February 1934 to June 1948.
Average discharge.- 29 years (1915-24, 1926-32, 1934-48), 7.34 million gallons a day (11. second-feet).
Extremes.- Maximum recorded discharge during year, 520 million gallons a day (805 second-feet) Nov. 14 (gage height, 6.53 feet), from rating curve extended above 40 million gallons a day by test on model of station site; minimum, 0.66 million gallons a day (1.02 second-feet) Oct. 24, 25, Mar. 3.
1913-48: Maximum discharge, 1,500 million gallons a day (2,320 second-feet) Aug. 1 1940 (gage height, 9.34 feet), from rating curve extended above 40 million gallons a d by test on model of station site; minimum, 0.09 million gallons a day (0.15 second-foo Mar. 22, 1926.
Remarks.- Records good except those below 3 million gallons a day, which are fair, and those for periods of no gage-height record, which are poor. No diversions above station.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

2.6	0.30	3.1	5.8	4.0	49
2.7	.75	3.2	8.3	4.5	88
2.8	1.35	3.3	11.4	5.0	144
2.9	2.45	3.4	15.1		
3.0	3.9	3.6	24		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.0	38.5	7.6	2.0	2.8	1.9	4.7	3.05	1.30	23	13.7	12.4
2	14.6	2.25	4.8	3.55	1.29	2.7	3.95	5.4	.83	16	6.0	9.0
3	12.0	1.68	31	1.90	1.05	20	7.9	18.4	7.0	120	3.6	7.0
4	9.9	1.46	11.5	1.57	.93	23	2.25	4.1	3.45	45	3.3	5.4
5	8.4	3.35	6.2	5.1	.87	6.0	2.0	5.3	1.05	10	7.0	9.4
6	43	1.68	37	2.35	.87	7.7	1.79	2.9	1.11	8.0	4.7	7.2
7	17.2	1.29	17.1	1.57	.81	3.45	1.68	2.9	31	9.0	5.2	4.7
8	7.2	1.35	5.2	1.35	.75	6.7	1.57	3.05	4.4	7.4	2.9	3.9
9	5.2	1.29	4.5	1.23	6.1	4.6	1.46	2.25	3.2	6.2	3.75	3.75
10	5.0	1.93	12.8	1.37	17.2	14.0	1.35	1.90	4.2	5.6	4.6	3.3
11	4.5	2.5	6.9	2.75	27.5	24	1.23	1.79	4.6	8.2	2.75	3.2
12	9.1	2.85	6.8	2.85	113	7.7	1.96	1.68	2.6	7.0	4.8	4.6
13	3.6	1.87	19.9	1.57	84	4.8	1.46	1.57	17.5	6.2	13.3	4.0
14	3.05	18.5	11.5	1.11	105	3.9	1.11	1.35	23	4.3	4.8	3.45
15	4.7	2.45	5.2	1.05	49	3.3	1.05	1.29	37.5	10	3.2	2.6
16	2.9	4.9	4.3	1.17	14.2	8.8	1.05	1.23	37	40	3.75	2.8
17	2.45	38	4.3	.99	8.9	34	1.11	1.11	12.6	7.0	18.6	5.9
18	2.25	3.6	4.5	.93	6.8	6.3	1.68	1.05	6.8	6.2	21.5	7.6
19	2.0	8.7	8.4	.93	5.0	12.2	2.65	1.05	5.0	5.6	31.5	2.45
20	1.90	3.2	6.7	.81	5.4	21.5	1.29	.99	15.3	8.0	12.1	4.9
21	1.68	3.15	3.05	.81	3.7	5.0	1.46	1.14	6.1	3.8	7.2	2.6
22	1.57	12.3	4.5	.81	3.2	3.9	1.66	2.6	10.9	3.4	5.2	2.1
23	2.9	5.0	9.7	.75	2.8	3.6	12.1	1.05	31	3.9	10.6	2.1
24	1.57	19.4	2.75	.66	2.9	3.3	32	.93	25.5	3.1	25.5	2.1
25	1.35	85	2.35	33.5	20	2.9	9.4	11.1	7.6	2.8	9.2	1.79
26	3.05	57	2.25	4.3	6.0	2.9	10.3	2.15	5.6	14	37.5	1.6
27	5.3	11.5	2.1	2.0	3.0	3.45	57	1.46	4.7	9.0	82	2.8
28	1.90	7.6	2.0	1.60	2.5	2.85	12.2	1.05	4.5	6.0	23.5	3.5
29	1.35	5.6	1.90	1.23	2.7	11.3	6.4	1.95	8.9	7.2	9.5	14.1
30	1.29	6.0	2.0	1.25	2.2	3.2	4.5	-	7.0	23	11.2	2.6
31	3.7	4.8	-	3.85	-	2.35	3.9	-	7.6	-	24.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	43	1.29	6.18	9.56	192	588
August	85	1.29	11.6	17.9	359	1,100
September	37	1.90	8.29	12.8	249	764
October	33.5	.66	2.80	4.33	86.9	267
November	113	.75	16.7	25.8	200	1,540
December	34	1.9	8.43	13.0	261	802
Calendar year 1947	113	.26	6.63	10.3	2,420	7,430
January	57	1.05	6.26	9.69	194	596
February	18.4	.93	2.96	4.58	85.8	263
March	37.5	.83	10.9	16.9	339	1,040
April	120	2.8	14.3	22.1	429	1,320
May	82	2.75	13.4	20.7	417	1,280
June	14.1	1.68	4.76	7.36	143	439
Fiscal year 1947-48	120	.66	8.89	13.8	3,260	10,000

Peak discharge (base, 400 m.g.d.).- Aug. 1 (3:30 a.m.) 426 m.g.d. (659 sec.-ft.); Sept. 6 (10:30 p.m.) 459 m.g.d. (710 sec.-ft.); Nov. 14 (10:30 p.m.) 520 m.g.d. (805 sec.-ft.); Dec. 17 (11:30 a.m.) 513 m.g.d. (794 sec.-ft.); Apr. 3 (time and discharge unknown).
Note.- No gage-height record Nov. 19 to Dec. 5, Mar. 30 to Apr. 28; discharge computed on basis o records for other stations on this stream.

Left Branch of North Fork Kaukonahua Stream near Wahiawa

Location.- Columbus control, lat. 21°31'10", long. 157°56'55", 140 feet upstream from intake of Wahiawa Water Co.'s tunnel, which is just downstream from confluence of Right and Left Branches of North Fork Kaukonahua Stream, and 8 miles northeast of Wahiawa. Altitude of gage, 1,200 feet (from topographic map).

Drainage area.- 1.5 square miles.

Records available.- May 1913 to June 1948.

Average discharge.- 31 years (1915-24, 1926-48), 10.9 million gallons a day (16.9 second-feet).

Extremes.- Maximum discharge during year, 1,530 million gallons a day (2,370 second-feet) Apr. 3 (gage height, 7.92 feet), from rating curve extended above 43 million gallons a day by test on model of station site; minimum, 1.03 million gallons a day (1.59 second-feet) Mar. 3.

1913-48: Maximum discharge, 5,400 million gallons a day (8,360 second-feet) Jan. 1, 1933 (gage height, 11.7 feet, from floodmark on well), from rating curve extended above 15 million gallons a day; minimum, 0.08 million gallons a day (0.12 second-foot) Mar. 2, 13, 1941.

Remarks.- Records fair. No diversions above station.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.7	0.93	2.4	10.4	3.6	115
1.8	1.45	2.6	17.4	3.9	166
1.9	2.15	2.8	27.5	4.3	250
2.0	3.1	3.0	42	4.7	350
2.2	5.9	3.3	74		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	23.5	44	18.9	2.8	5.0	2.9	10.5	3.7	2.15	36	15.5	31
2	24	3.45	7.9	4.4	2.35	4.2	5.7	6.7	1.29	22	9.0	18.0
3	21	2.9	68	3.1	1.94	24.5	13.6	24	12.3	344	5.6	13.1
4	17.3	2.6	23	2.35	1.73	30.5	3.7	6.1	5.4	71	4.8	f10.4
5	16.0	6.6	9.6	9.8	1.59	8.9	3.1	6.5	1.59	16.2	5.9	f12.1
6	91	5.1	77	4.3	1.52	19.9	2.8	3.7	1.52	11.6	6.8	a12.2
7	45	2.6	17.2	2.8	1.59	5.9	2.55	3.8	21.5	13.9	6.5	a7.3
8	14.2	2.95	8.2	2.45	1.35	12.0	2.35	3.8	10.4	9.5	3.7	a6.3
9	10.4	3.35	6.7	2.15	3.65	7.9	2.35	2.8	4.0	7.5	8.6	a5.9
10	11.2	9.6	20	4.1	13.8	27	2.15	2.55	5.6	6.5	11.4	5.3
11	8.9	8.4	8.6	4.9	36.5	28.5	2.0	2.35	5.2	11.0	4.6	4.8
12	21	8.5	9.7	2.85	95	12.3	3.1	2.15	6.6	8.5	8.8	5.4
13	7.7	5.0	15.8	a2.4	70	7.1	2.4	2.1	44	7.5	30.5	6.6
14	6.5	27.5	12.2	a1.9	90	5.9	1.80	1.94	15.2	5.1	10.1	5.3
15	9.0	5.3	7.3	a1.8	52	5.1	1.66	1.80	36	14.8	5.6	3.95
16	7.2	16.6	5.9	a2.0	14.5	8.8	1.52	1.73	69	50	12.2	4.2
17	5.3	65	7.5	a1.7	9.2	37.5	2.4	1.59	23	9.1	60	6.2
18	4.6	7.3	6.7	1.59	7.1	8.0	2.9	1.45	9.8	7.9	39	6.3
19	4.2	17.0	14.3	1.80	5.9	19.1	3.0	1.40	7.3	7.4	28.5	3.35
20	4.1	12.1	6.5	1.66	6.5	39	1.94	1.35	29	11.3	28.5	12.1
21	3.7	8.4	4.5	1.45	4.6	6.9	1.90	1.50	10.1	5.4	18.0	7.3
22	3.45	40	4.9	1.52	4.1	5.4	2.45	2.9	21.5	4.6	9.9	3.7
23	6.5	16.2	10.4	1.29	3.7	4.8	18.7	1.40	38.5	6.3	13.2	3.45
24	3.45	21.5	3.8	1.14	4.1	4.2	43	1.24	37.5	4.3	43	3.95
25	3.0	98	3.45	61	27	3.7	10.9	16.1	18.8	4.1	22.5	3.7
26	11.0	55	3.2	8.7	6.2	4.1	10.8	3.4	9.6	30	58	2.9
27	9.7	13.4	3.1	3.55	3.95	6.6	71	2.15	7.5	13.8	86	6.9
28	4.5	10.2	2.9	2.8	3.45	3.7	14.5	1.59	7.5	9.1	29	11.4
29	3.2	8.2	2.9	2.1	3.6	12.2	8.8	3.5	18.5	13.3	15.5	24.5
30	2.9	9.4	3.55	2.0	3.0	4.5	5.9	-	8.8	27.5	14.6	8.8
31	4.5	6.9	-	12.6	-	3.35	4.9	-	11.0	-	34	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	91	2.9	13.2	20.4	408	1,250
August	98	2.6	17.5	27.1	543	1,670
September	77	2.9	13.1	20.3	394	1,210
October	61	1.14	5.13	7.94	159	488
November	95	1.35	16.2	25.1	485	1,490
December	39	2.9	12.1	18.7	374	1,150
Calendar year 1947	139	.19	10.1	15.6	3,700	11,360
January	71	1.52	8.53	13.2	264	811
February	24	1.24	3.98	6.16	115	354
March	69	1.29	16.1	24.9	500	1,530
April	344	4.1	26.3	40.7	789	2,420
May	86	3.7	20.9	32.3	649	1,990
June	31	2.9	8.55	13.2	256	787
Fiscal year 1947-48	344	1.14	13.5	20.9	4,940	15,150

Peak discharge (base, 700 m.g.d.).- Sept. 6 (8 p.m.) 872 m.g.d. (1,350 sec.-ft.); Nov. 14 (9 p.m.) 778 m.g.d. (1,220 sec.-ft.); Apr. 3 (9:30 p.m.) 1,530 m.g.d. (2,370 sec.-ft.).

a No gage-height record; discharge computed on basis of records for the Right Branch.

f Computed on basis of partly estimated gage-height record.

Kaukonahua ditch near Wahiawa

Location.- Parshall flume, lat. 21°30'45", long. 157°59'20", 3 miles northeast of Wahiawa. Altitude of gage, 1,100 feet (from topographic map).
Records available.- March 1947 to June 1948.
Extremes.- Maximum discharge for period ending June 30, 1947, 10.7 million gallons a day (16.6 second-feet) Mar. 29 (gage height, 1.24 feet); minimum, 1.03 million gallons a day (1.59 second-feet) Mar. 26, 27.
Maximum discharge during year ending June 30, 1948, 17.2 million gallons a day (26.6 second-feet) Jan. 24 (gage height, 1.65 feet); minimum, 0.04 million gallons a day (0.06 second-foot) May 5.
Remarks.- Records excellent except those for periods of partly estimated or no gage-height record, which are fair. Ditch diverts water from North Fork of Kaukonahua Stream for domestic use.

Discharge, in million galllons a day, 1947-48

1947

Day	Mar.	Apr.	May	June	Day	Mar.	Apr.	May	June	Day	Mar.	Apr.	May	June
1	-	7.3	2.35	5.6	11	-	6.0	6.2	3.3	21	1.82	2.35	6.9	6.5
2	-	6.7	8.0	4.4	12	-	6.3	5.8	7.7	22	2.55	2.15	7.5	5.1
3	-	6.9	7.9	6.9	13	-	4.7	7.6	6.8	23	1.99	2.1	6.5	5.0
4	-	6.6	7.3	5.7	14	-	4.2	6.6	6.8	24	1.44	2.1	6.1	6.9
5	-	5.8	6.1	4.6	15	-	3.8	7.2	5.4	25	1.37	2.15	5.8	6.9
6	-	6.7	4.5	4.0	16	-	3.5	8.0	4.4	26	1.10	1.99	5.6	7.5
7	-	6.2	3.6	3.8	17	-	3.1	7.8	4.0	27	1.17	1.82	5.3	7.8
8	-	7.1	4.8	3.5	18	-	2.9	7.3	3.6	28	1.24	1.74	6.9	7.8
9	-	6.8	8.0	3.5	19	-	2.7	7.2	3.3	29	6.3	1.65	6.4	7.6
10	-	6.2	7.1	3.2	20	2.15	2.5	7.2	5.5	30	8.3	1.58	5.3	7.5
										31	7.5	-	5.1	-

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.2	6.9	5.0	5.0	6.2	5.7	7.1	6.6	4.3	6.8	8.6	7.8
2	7.6	5.7	4.8	6.1	3.8	5.3	6.8	7.3	2.5	7.1	7.9	7.5
3	7.3	5.0	6.2	5.2	3.1	8.2	7.5	8.6	2.6	6.5	7.5	7.5
4	7.6	3.8	5.1	4.0	2.7	8.6	6.4	7.2	6.5	1.55	7.1	7.3
5	7.5	5.1	4.5	6.1	2.5	7.3	5.4	7.2	3.3	4.2	7.4	7.0
6	8.0	5.4	6.0	5.9	2.4	7.9	5.0	6.5	3.0	9.4	7.2	7.0
7	8.0	4.3	8.0	4.6	2.35	7.2	4.6	6.5	8.5	9.4	7.0	7.0
8	7.6	4.4	7.5	3.8	2.15	7.5	4.3	6.9	7.9	7.9	6.6	7.0
9	7.6	3.5	7.2	3.5	3.7	7.3	4.0	5.4	6.5	7.5	6.9	6.9
10	7.6	5.7	7.8	3.6	7.5	8.3	3.8	4.7	6.2	7.3	7.3	6.8
11	7.6	6.0	7.3	6.2	8.3	8.3	3.6	4.4	7.1	7.3	7.0	6.5
12	7.8	6.2	7.3	5.0	9.4	7.9	4.6	4.0	7.1	7.6	7.0	6.6
13	7.8	5.4	7.6	3.9	9.4	7.5	4.4	3.8	8.3	7.3	8.0	7.1
14	7.6	7.5	7.6	3.2	8.8	7.3	3.2	3.6	6.8	7.1	7.6	6.8
15	7.2	5.8	7.1	3.0	8.9	7.1	3.0	3.4	8.0	7.5	7.2	6.2
16	7.1	6.5	6.8	3.5	8.3	7.6	2.8	3.1	8.6	8.6	7.4	6.1
17	6.8	7.7	6.8	2.7	7.9	7.9	3.5	3.0	7.8	7.6	8.0	6.9
18	6.5	5.3	6.8	2.5	7.6	7.9	4.6	2.8	6.8	7.2	8.2	7.1
19	6.2	5.7	6.6	2.5	7.5	8.0	4.8	2.6	6.4	7.5	8.0	5.8
20	6.1	5.4	6.6	2.35	7.3	8.3	3.75	2.5	7.3	7.9	7.7	6.6
21	5.7	5.0	6.6	2.1	7.1	7.5	3.5	2.5	6.5	7.3	7.2	6.9
22	5.3	7.1	6.5	2.1	6.8	7.2	3.8	5.6	7.1	7.2	6.6	5.8
23	6.5	5.7	7.2	1.99	6.4	6.9	7.8	2.5	7.6	7.5	6.4	5.4
24	5.6	6.2	6.2	1.74	6.1	6.8	7.4	2.25	7.5	7.1	7.0	5.7
25	4.8	8.2	5.8	4.7	7.9	6.4	7.9	8.8	6.9	6.8	6.8	5.4
26	5.9	7.5	5.6	7.6	7.1	6.2	8.3	6.5	6.5	7.5	7.4	4.7
27	6.9	5.8	5.2	5.7	6.4	6.8	10.1	4.4	6.2	8.3	7.6	5.8
28	6.1	5.3	5.0	4.6	5.7	6.1	8.6	3.0	5.9	7.6	7.4	7.1
29	4.8	5.0	5.0	3.7	5.8	7.3	7.9	5.0	6.6	6.5	7.2	7.8
30	4.5	5.0	5.2	3.2	5.2	6.6	7.3	-	6.1	7.6	7.0	6.6
31	5.6	4.7	-	6.9	-	5.6	7.1	-	6.2	-	7.3	-

Note.- Partly estimated or no gage-height record July 10-15, Oct. 30 to Dec. 3, May 4 to June 8; discharge computed on basis of recorded range in stage and records for nearby streams.

Monthly discharge, in million gallons a day, 1947-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
March 20-31, 1947	8.3	1.10	3.09	4.78	37.1	114
April	7.3	1.58	4.19	6.48	126	386
May	8.0	2.35	6.42	9.93	199	611
June	7.8	3.2	5.49	8.49	165	505
The period	-	-	-	-	527	1,620
July 1947	8.0	4.5	6.72	10.4	208	640
August	8.2	3.5	5.70	8.82	177	543
September	8.0	4.5	6.36	9.84	191	586
October	7.6	1.74	4.10	6.34	127	390
November	9.4	2.15	6.14	9.50	184	566
December	8.6	5.3	7.24	11.2	224	689
The period	-	-	-	-	1,640	5,030
January 1948	10.1	2.8	5.58	8.63	173	530
February	8.8	2.25	4.85	7.50	141	432
March	8.6	2.5	6.41	9.92	199	609
April	9.4	1.55	7.22	11.2	217	665
May	8.6	6.4	7.34	11.4	228	698
June	7.8	4.7	6.62	10.2	199	610
Fiscal year 1947-48	10.1	1.55	6.19	9.58	2,270	6,960

South Fork Kaukonahua Stream near Wahiawa

Location.- Masonry dam control, lat. 21°30'05", long. 157°56'50", at Canon Dam, 5.4 miles east of Wahiawa and 7.7 miles north of Pearl City. Altitude of gage, 1,070 feet (from topographic map).

Drainage area.- 1.9 square miles.

Records available.- May 1944 to June 1948.

Extremes.- Maximum discharge during year, 604 million gallons a day (935 second-feet) Nov. 14 (gage height, 5.25 feet), from rating curve extended above 80 million gallons a day by test on model of station site; minimum, 0.48 million gallons a day (0.74 second-foot) Oct. 25.

1944-48: Maximum discharge, 741 million gallons a day (1,150 second-feet) Nov. 8, 1944 (gage height, 5.80 feet), from rating curve extended above 13 million gallons a day by broad-crested weir formula (correction); minimum, 0.01 million gallons a day (0.02 second-foot) Feb. 21, 1945.

Remarks.- Records good except those for Apr. 1 to May 10, which are poor.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.6	0.50	1.0	2.55	1.5	25
.7	.74	1.1	6.2	1.7	38
.8	1.02	1.2	10.2	2.0	63
.9	1.38	1.3	14.5	2.4	110

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	28.5	22.5	9.9	1.63	3.3	2.0	14.3	4.0	1.88	31	15	39.5
2	40	2.9	7.6	1.88	1.36	2.4	7.5	7.7	.88	25	9.0	20.5
3	24.5	1.88	58	2.0	1.06	15.1	15.5	21	9.9	100	5.6	11.1
4	15.8	1.60	37	1.38	.91	21	4.0	6.2	7.0	40	4.6	8.5
5	11.0	2.35	12.4	5.1	.85	9.1	2.85	6.2	1.22	20	5.4	7.7
6	52	2.55	43	3.65	.82	24.5	2.25	4.3	1.51	11	5.0	7.4
7	44	1.47	29.5	1.68	.88	7.7	2.0	4.0	6.2	13	4.3	6.6
8	14.5	2.75	8.5	1.42	.82	11.2	1.88	4.0	7.3	9.0	3.5	5.8
9	11.5	4.0	7.0	1.31	1.36	9.0	1.77	2.9	2.2	7.8	5.0	5.4
10	12.4	10.1	19.4	1.14	23.5	26	1.68	2.25	3.95	6.7	6.2	5.0
11	10.6	4.7	7.4	2.1	22.5	19.3	1.53	1.88	4.1	9.0	f3.3	4.3
12	11.6	6.5	8.0	1.34	62	10.5	2.45	1.77	8.6	8.0	6.2	9.0
13	8.5	10.0	6.2	1.02	43	6.2	2.3	1.60	39.5	7.0	26	8.2
14	7.4	30	5.8	.91	83	5.0	1.38	1.42	6.8	6.0	10.9	5.4
15	7.0	5.8	5.0	.85	44	4.3	1.27	1.31	16.6	12	5.0	3.65
16	6.6	7.6	4.3	.95	21.5	6.8	1.13	1.16	37.5	50	13.6	3.65
17	5.4	25.5	6.2	.74	10.2	25.5	3.35	1.09	21	10	32.5	3.65
18	5.0	5.8	4.3	.67	7.7	11.7	3.3	.99	9.4	8.4	16.2	3.65
19	4.7	9.1	11.9	.88	6.6	39.5	2.0	.91	6.6	7.5	12.9	2.55
20	4.7	6.7	7.1	.72	6.8	31.5	2.55	.85	10.0	8.2	14.6	3.9
21	4.0	8.3	3.65	.62	5.0	7.7	1.88	1.65	7.0	5.6	9.6	6.8
22	4.0	21.5	4.0	.64	4.3	6.2	2.8	2.6	14.8	4.5	7.0	2.55
23	6.1	11.8	7.5	.55	4.0	5.4	19.3	1.04	27	4.8	17.8	1.88
24	3.3	13.4	2.9	.50	4.4	4.7	42	.80	20	4.3	29	2.9
25	2.55	40	2.25	65	30.5	4.3	14.6	16.1	13.5	3.9	16.8	3.3
26	9.0	28	2.0	19.0	7.3	4.3	10.9	3.9	8.1	16	16.4	2.0
27	6.2	10.2	1.88	5.4	4.3	6.0	70	1.88	7.0	11	45	7.5
28	5.7	8.1	1.88	2.25	3.3	3.65	14.2	1.14	10.4	8.2	28	15.5
29	2.9	6.6	1.88	1.47	2.9	6.1	10.3	4.6	27.5	11	11.9	13.9
30	2.55	12.7	2.95	1.27	2.25	4.0	7.0	-	15.5	22	10.2	5.9
31	2.55	7.3	-	6.1	-	2.9	5.4	-	27.5	-	17.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	52	2.55	12.1	18.7	375	1,150
August	40	1.47	10.7	16.6	332	1,020
September	58	1.88	11.0	17.0	329	1,010
October	65	.50	4.33	6.70	134	412
November	83	.82	13.7	21.2	410	1,260
December	39.5	2.0	11.1	17.2	344	1,050
Calendar year 1947	83	.08	7.90	12.2	2,880	8,850
January	70	1.13	8.82	13.6	273	839
February	21	.80	3.77	5.83	109	335
March	39.5	.88	12.3	19.0	381	1,170
April	100	3.9	16.0	24.8	481	1,480
May	45	3.3	13.4	20.7	414	1,270
June	39.5	1.88	7.59	11.7	228	699
Fiscal year 1947-48	100	.50	10.4	16.1	3,810	11,700

Peak discharge (base, 400 m.g.d.).- Sept. 6 (11:30 p.m.) 516 m.g.d. (798 sec-ft.); Nov. 14 (8:30 p.m.) 604 m.g.d. (935 sec.-ft.); May 27 (2 p.m.) 472 m.g.d. (730 sec.-ft.).

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record Apr. 1 to May 10; discharge computed on basis of records for Left and Right Branches of North Fork Kaukonahua Stream.

South Fork Kaukonahua Stream above Wahiawa Reservoir, near Wahiawa

Location.- Columbus type control, lat. 21°29'35", long. 157°59'55", 2 miles southeast of Wahiawa, and 7½ miles north of Waipahu. Altitude of gage, 930 feet (from topographic map).

Drainage area.- 3.3 square miles.

Records available.- October 1946 to June 1948.

Extremes.- Maximum discharge during year, 1,610 million gallons a day (2,490 second-feet) Apr. 3 (gage height, 9.91 feet), from rating curve extended above 80 million gallons a day by test on model of station site; minimum, 0.88 million gallons a day (1.36 second feet) Oct. 24.

1946-48: Maximum discharge, 1,960 million gallons a day (3,050 second-feet) Dec. 2 1946 (gage height, 11.05 feet), from rating curve extended above 80 million gallons a day by test on model of station site; minimum, 0.48 million gallons a day (0.74 second foot) Oct. 29, 1946.

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

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.76	0.9	6.6	2.5	131
.5	1.35	1.1	12.0	3.0	193
.6	2.2	1.3	19.5	4.0	322
.7	3.3	1.6	35.5	5.0	470
.8	4.7	2.0	68		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	30.5	50	28	3.5	8.1	4.6	21.5	10.6	7.0	22	6.7	117
2	117	7.0	15	5.0	3.05	6.1	13.1	14.4	3.7	19.2	6.1	61
3	37.5	3.5	80	3.5	1.78	26	27	87	2.95	383	5.6	28.
4	37	3.1	45	2.5	1.44	67	9.2	92	17.4	223	2.75	14.
5	20	8.0	20	11	1.29	14.8	6.8	114	3.3	31.5	2.55	12.
6	100	4.0	100	4.5	1.35	36	5.8	9.4	2.95	17.9	2.3	12.
7	60	2.8	45	3.5	1.29	15.4	5.1	9.4	8.1	18.6	3.2	10.
8	25	3.5	20	2.7	1.23	14.4	4.7	9.6	13.7	18.3	2.2	8.
9	19	5.0	11	2.2	1.56	15.8	4.6	6.8	5.3	11.4	6.8	7.
10	18	12	25	1.86	47	47	4.3	5.6	5.2	10.0	10.3	6.
11	17	10	12	2.5	44	42	4.1	5.3	8.7	8.9	9.0	6.
12	30	15.2	13	2.4	160	26	4.4	5.3	14.1	14.0	4.6	7.
13	15	12.0	23	1.78	139	15.4	4.6	4.7	72	11.8	45	13.
14	12	66	15	1.60	127	11.7	3.3	4.6	17.1	8.2	35.5	9.
15	16	12.9	10	1.44	92	9.7	3.2	4.1	40	10.6	11.0	6.
16	11	11.0	8.0	1.60	35	18.9	2.95	3.7	66	30	12.2	5.
17	9.0	62	9.0	1.35	18.2	52	3.3	3.3	56	15.3	59	5.
18	7.0	12.8	8.5	1.35	13.0	32.5	6.5	3.2	23.5	7.4	46	4.
19	6.5	11.6	17	1.60	16.5	69	3.6	2.95	14.1	16.8	29	4
20	6.2	9.6	10	1.44	16.3	127	3.45	2.65	16.2	10.1	27	4.
21	5.7	7.5	5.7	1.11	11.4	22	3.45	1.94	12.0	6.8	34.5	8
22	5.6	34.5	6.0	1.66	8.6	17.9	4.3	5.3	21	5.8	27	4
23	7.8	20.5	12	1.23	7.4	13.0	38.5	12.6	37.5	5.6	26.5	3
24	5.6	19.1	7.0	1.06	6.6	11.7	86	10.8	25.5	5.6	55	3
25	4.7	67	6.4	91	45	9.7	61	37.5	18.6	5.6	42	2
26	14	48	6.0	34	15.3	11.6	27.5	26	10.8	7.1	32.5	1
27	13	17.8	5.6	14.1	7.4	15.8	224	8.6	8.1	14.9	74	3
28	8.0	13.4	5.2	19.9	6.0	9.4	48	2.85	8.2	9.4	53	17
29	5.0	10.6	5.2	13.4	5.6	10.6	25.5	8.5	38	17.6	33	14
30	4.0	17.1	6.0	11.4	4.9	9.1	17.8	-	14.3	10.1	30.5	4
31	5.0	18.3	-	13.6	-	6.6	13.4	-	34.5	-	38	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-fee
July	117	4.0	21.7	33.6	672	2,06
August	67	2.8	19.2	29.7	596	1,83
September	100	5.2	19.3	29.9	580	1,78
October	91	1.06	8.38	13.0	260	79
November	160	1.23	28.2	43.6	847	2,60
December	127	4.6	25.4	39.3	789	2,42
Calendar year 1947	160	.68	15.0	23.2	5,460	16,76
January	224	2.95	22.3	34.5	691	2,12
February	114	1.94	17.7	27.4	513	1,57
March	72	2.95	20.2	31.3	626	1,92
April	383	5.6	32.6	50.4	976	3,00
May	74	2.2	24.9	38.5	773	2,37
June	117	1.86	13.7	21.2	411	1,26
Fiscal year 1947-48	383	1.06	21.1	32.6	7,730	23,73

Peak discharge (base, 700 m.g.d.).- Nov. 14 (11 p.m.) 960 m.g.d. (1,490 sec.-ft.); Jan. 27 (7 a.m. 935 m.g.d. (1,450 sec.-ft.); Apr. 3 (10 p.m.) 1,610 m.g.d. (3,490 sec.-ft.).

Note.- No gage-height record July 6 to Aug. 11, Sept. 1 to Oct. 8; discharge computed on basis of records for stations on nearby streams.

Pearl Harbor Springs at Waiawa, near Pearl City

Location.- Sharp-crested weir, lat. 21°23'40", long. 157°59'10", at rear of Oahu Sugar Co.'s pumping plant 9, on right bank of stream, 0.7 mile west of Pearl City and 9.8 miles northwest of Honolulu. Datum of gage is 0.7 foot above mean sea level.

Records available.- March 1931 to June 1934, July 1937 to June 1948.

Average discharge.- 14 years (1931-34, 1937-48), 11.5 million gallons a day (17.8 second-feet), unadjusted for pumpage.

Extremes.- Maximum daily discharge during year, 13.5 million gallons a day (20.9 second-feet) June 28; minimum daily, 6.0 million gallons a day (9.3 second-feet) Aug. 6-8, 12, 13.

1931-34, 1937-48: Maximum daily discharge, 17 million gallons a day (26 second-feet) Mar. 15-17, 1932, Mar. 3, 4, 8, 1933; minimum daily, 6.0 million gallons a day (9.3 second-feet) on several days in 1941 and 1947.

Remarks.- Records good except those for period of no gage-height record, which are fair. Oahu Sugar Co.'s pump 9 diverts about 3 million gallons a day 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, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.7	8.7	10.3	9.6	10.3	11.0	11.7	12.0	12.8	10	10.6	12.8
2	9.0	8.7	9.0	8.7	10.0	11.3	12.0	12.0	12.8	10	12.0	12.4
3	9.0	10.0	8.0	8.0	10.3	11.3	12.0	12.0	12.8	11	10.6	12.4
4	10.3	7.7	8.0	9.3	10.3	11.3	12.0	12.0	13.2	13	10.6	12.4
5	9.0	7.1	8.0	10.3	10.3	11.3	12.4	12.0	13.2	11	10.6	12.8
6	10.3	6.0	9.3	7.4	10.3	11.3	12.0	12.0	13.2	11	10.6	12.8
7	9.0	6.0	10.3	7.4	10.3	11.3	12.0	12.0	13.2	11	10.6	12.8
8	9.0	6.0	8.7	8.0	10.3	11.3	12.0	12.0	13.2	13	10.6	10.6
9	7.4	7.7	10.6	8.0	10.3	11.3	12.0	12.0	13.2	13	11.7	10.6
10	7.1	11.0	10.6	7.4	10.6	11.3	11.7	12.0	13.2	13	9.3	10.6
11	7.4	7.1	10.6	8.7	10.3	11.3	11.7	12.4	13.2	13	9.3	10.6
12	8.7	6.0	11.0	10.0	10.3	11.3	12.0	12.4	13	13	9.3	10.6
13	10.0	6.0	11.0	8.0	10.6	11.3	11.7	12.4	13	13	9.3	12.4
14	8.7	7.4	10.6	9.3	10.6	11.3	10.0	12.4	13	11	10.6	11.3
15	8.7	10.3	11.0	10.0	10.6	11.3	8.0	12.4	13	11	11.0	11.3
16	8.7	9.6	11.0	10.0	10.6	11.3	8.3	12.4	13	11	12.0	11.3
17	8.7	10.6	11.3	9.6	10.6	11.3	11.3	12.4	13	11	11.0	11.3
18	9.0	8.0	11.3	9.6	10.6	11.3	11.3	12.4	13	13	11.0	11.3
19	8.7	7.1	11.3	9.6	10.6	11.3	10.3	12.4	13	11	11.3	11.3
20	10.0	7.4	11.3	10.0	10.6	11.3	10.6	12.4	13	13	12.0	12.4
21	8.7	7.4	11.3	10.0	10.6	11.7	11.3	12.4	13	11	12.0	12.8
22	8.7	7.1	11.3	10.0	11.0	11.7	11.3	12.4	13	11	12.0	12.8
23	9.0	8.7	11.3	9.6	11.0	11.7	12.0	11.3	13	11	12.0	12.8
24	8.7	9.6	11.3	9.6	11.0	11.3	11.3	11.3	13	12	12.0	12.4
25	8.7	8.3	11.3	10.0	11.0	11.3	11.7	11.7	13	13	12.0	12.4
26	8.7	7.7	11.3	10.3	11.0	11.7	11.7	12.4	13	11	12.0	12.4
27	10.0	7.4	11.3	10.0	11.0	11.3	12.0	12.4	13	11.0	12.0	12.4
28	8.7	8.7	11.3	10.0	11.0	11.3	12.0	12.4	13	11.3	12.0	13.5
29	8.7	9.0	10.0	10.3	11.0	11.3	12.4	12.8	13	11.7	12.0	12.4
30	8.7	10.3	10.0	10.3	11.0	11.3	12.4	-	13	11.0	12.4	12.4
31	8.7	10.3	-	10.3	-	11.7	12.0	-	12	-	12.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.3	7.1	8.86	13.7	275	843
August	11.0	6.0	8.16	12.6	253	776
September	11.3	8.0	10.5	16.2	314	962
October	10.3	7.4	9.33	14.4	289	888
November	11.0	10.0	10.6	16.4	318	976
December	11.7	11.0	11.4	17.6	352	1,080
Calendar year 1947	11.7	6.0	9.92	15.3	3,620	11,110
January	12.4	8.0	11.5	17.8	355	1,090
February	12.8	11.3	12.2	18.9	353	1,080
March	13.2	12	13.0	20.1	403	1,240
April	13	10	11.7	18.1	350	1,070
May	12.8	9.3	11.2	17.3	347	1,070
June	13.5	10.6	12.0	18.6	360	1,110
Fiscal year 1947-48	13.5	6.0	10.8	16.7	3,970	12,180

Note.- No gage-height record Mar. 12 to Apr. 26; discharge computed on basis of pumpage and record at nearby springs.

Pearl Harbor Springs at Puukapu, near Pearl City

Location.- Sharp-crested weir, lat. 21°23'20", long. 157°58'10", on left bank of strear near levee, 0.4 mile east of Pearl City and 8.9 miles northwest of Honolulu. Datum gage is 0.5 foot below mean sea level.

Records available.- July 1931 to June 1948.

Average discharge.- 16 years (1931-35, 1936-48), 3.71 million gallons a day (5.74 secor feet).

Extremes.- Maximum daily discharge during year, 4.1 million gallons a day (6.3 second-feet) Mar. 28; minimum daily, 2.85 million gallons a day (4.41 second-feet) Aug. 18-1931-48: Maximum daily discharge, 6.0 million gallons a day (9.3 second-feet) Ju 4, 1932, Mar. 4, 1933; minimum daily, 1.55 million gallons a day (2.40 second-feet) July 22, 1931.

Remarks.- Records good except those for period of no gage-height record, which are fair About a million gallons a day is occasionally diverted from stream. Surface runoff from floods not included in figures of discharge given below.

Discharge, in million gallons, fiscal year July 1947to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.0	3.0	2.95	3.1	3.2	3.4	3.4	3.35	3.55	3.75	3.55	3.
2	2.95	3.0	2.95	3.1	3.2	3.4	3.5	3.35	3.55	3.75	3.55	3.
3	3.0	3.0	2.95	3.1	3.2	3.4	3.5	3.35	3.55	3.75	3.55	3.
4	3.0	2.95	2.95	3.1	3.2	3.4	3.5	3.35	3.55	3.75	3.55	3.
5	3.0	2.95	2.95	3.1	3.2	3.4	3.5	3.35	3.55	3.75	3.45	3.
6	3.0	2.95	2.95	3.1	3.2	3.4	3.5	3.35	3.55	3.75	3.45	3.
7	2.95	2.95	2.95	3.1	3.2	3.4	3.5	3.35	3.55	3.75	3.35	3.
8	3.0	2.95	2.95	3.1	3.2	3.4	3.5	3.45	3.65	3.75	3.35	3.
9	3.0	2.95	2.95	3.1	3.3	3.4	3.5	3.45	3.65	3.75	3.45	3.
10	3.0	2.95	2.95	3.1	3.3	3.4	3.6	3.45	3.65	3.75	3.45	3.
11	3.0	2.95	2.95	3.1	3.3	3.4	3.6	3.45	3.65	3.75	3.35	3.
12	3.0	2.95	3.1	3.1	3.3	3.4	3.45	3.45	3.65	3.75	3.2	3.
13	3.0	2.95	3.1	3.1	3.3	3.4	3.35	3.45	3.75	3.75	3.2	3.
14	3.0	2.95	3.1	3.1	3.3	3.4	3.35	3.45	3.9	3.75	3.2	3.
15	3.0	2.95	3.1	3.1	3.3	3.4	3.35	3.55	4.0	3.75	3.2	3.
16	3.0	2.95	3.1	3.1	3.35	3.4	3.35	3.55	4.0	3.75	3.3	3.
17	3.0	2.95	3.1	3.1	3.35	3.4	3.35	3.55	4.0	3.65	3.35	3.
18	3.0	2.85	3.1	3.1	3.35	3.4	3.35	3.55	4.0	3.65	3.45	3.
19	3.0	2.85	3.1	3.2	3.35	3.4	3.35	3.55	4.0	3.65	3.45	3.
20	3.0	2.85	3.1	3.2	3.35	3.4	3.35	3.55	4.0	3.65	3.45	3.
21	3.0	2.85	3.1	3.1	3.35	3.5	3.35	3.45	4.0	3.65	3.45	3.
22	3.0	2.85	3.1	3.1	3.35	3.5	3.35	3.45	3.9	3.75	3.45	3.
23	2.95	2.85	3.1	3.1	3.35	3.5	3.35	3.45	3.9	3.75	3.45	3.
24	2.95	2.85	3.1	3.1	3.35	3.5	3.35	3.45	4.0	3.65	3.45	3.
25	2.95	2.85	3.1	3.2	3.35	3.4	3.35	3.55	4.0	3.65	3.45	3.
26	2.95	2.95	3.1	3.2	3.35	3.4	3.35	3.55	4.0	3.65	3.45	3.
27	2.95	2.95	3.1	3.2	3.35	3.4	3.35	3.55	4.0	3.65	3.45	3.
28	3.0	2.95	3.1	3.2	3.35	3.4	3.35	3.55	4.1	3.65	3.45	3.
29	2.95	2.95	3.1	3.2	3.35	3.4	3.35	3.55	3.75	3.65	3.45	3.
30	3.0	2.95	3.1	3.2	3.35	3.4	3.35	-	3.75	3.65	3.45	3.
31	3.0	2.95	-	3.2	-	3.4	3.35	-	3.75	-	3.35	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-fee
July	3.0	2.95	2.99	4.63	92.6	28
August	3.0	2.85	2.93	4.53	90.8	27
September	3.1	2.95	3.04	4.70	91.4	28
October	3.2	3.1	3.13	4.84	97.0	29
November	3.35	3.2	3.30	5.11	99.0	30
December	3.5	3.4	3.41	5.28	106	32
Calendar year 1947	3.5	2.75	3.10	4.80	1,130	3,48
January	3.6	3.35	3.41	5.28	106	32
February	3.55	3.35	3.46	5.35	100	30
March	4.1	3.55	3.80	5.88	118	36
April	3.75	3.65	3.71	5.74	111	34
May	3.55	3.2	3.41	5.28	106	32
June	3.55	3.35	3.38	5.23	101	31
Fiscal year 1947-48	4.1	2.85	3.33	5.15	1,220	3,74

Note.- Doubtful gage-height record Dec. 1-3, Dec. 25 to Jan. 11, no gage-height record Dec. 4-24 discharge computed on basis of records for nearby springs.

Pearl Harbor Springs at Kaluaoopu, near Pearl City

Location.- Lat. 21°23'30", long. 157°57'55", on right bank of stream, a fifth of a mile below Kamehameha Highway, 0.7 mile east of Pearl City, and 8.7 miles northwest of Honolulu.

Records available.- August 1931 to June 1937, November 1943 to June 1948.

Extremes.- Not determined owing to faulty operation of control.

Remarks.- Records poor. Hawaiian Electric Co.'s pump diverts water when needed by Oahu Sugar Co. for irrigation of sugarcane.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr	May	June
1	18.1	13.8	32.5	19.3								
2	18.1	16.9	20.5	19.3								
3	18.1	22	22	24.5								
4	20.5	12.7	19.3	22								
5	24.5	13.8	24.5	28								
6	24.5	13.8	27	24.5								
7	22	14.5	35.5	19.3								
8	20.5	12.7	24.5	20.5								
9	20.5	-	22	20.5								
10	19.3	-	26	20.5								
11	19.3	-	26	27								
12	20.5	-	37	27								
13	23	-	37	20.5								
14	19.3	-	35.5	24.5								
15	19.3	-	31	23								
16	15.7	-	31	23								
17	18.1	-	31	23								
18	16.9	-	26	29.5								
19	23	26	18.1	19.3								
20	23	28	23	13.6								
21	20.5	24.5	28	15.7								
22	16.9	24.5	20.5	13.4								
23	13.4	28	20.5	12.2								
24	18.1	31	20.5	13.4								
25	18.1	24.5	24.5	18.1								
26	19.3	32.5	20.5	24.5								
27	22	24.5	24.5	26								
28	15.7	24.5	28	26								
29	16.9	27	22	18.1								
30	15.7	35.5	19.3	18.1								
31	13.8	35.5	-	-								

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	24.5	13.4	19.2	29.7	595	1,820
August	-	-	-	-	-	-
September	37	18.1	25.9	40.1	773	2,390
October	29.5	12.2	21.1	32.6	634	1,950
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Calendar year	-	-	-	-	-	-
January						
February						
March						
April						
May						
June						
Fiscal year						

Note.- Data insufficient to compute discharge on days for which no figures are given.

Pearl Harbor Springs at Kalauao, near Aiea

Location.- Sharp-crested weir, lat. 21°23'00", long. 157°56'50", on left bank of stream, a quarter of a mile downstream from Oahu Sugar Co. (formerly Honolulu Plantation) pur 6, 1.1 miles west of Aiea, and 7.6 miles northwest of Honolulu. Datum of gage is 1.1 feet below mean sea level.

Records available.- March 1931 to June 1948.

Average discharge.- 17 years, 15.5 million gallons a day (24.0 second-feet) unadjusted f pumpage.

Extremes.- Maximum daily discharge during year, 23 million gallons a day (36 second-feet Mar. 23; minimum daily, 7.2 million gallons a day (11.1 second-feet) Aug. 25, Sept. 2 1931-48: Maximum daily discharge, 25 million gallons a day (39 second-feet) Feb. 17-26, 1938; minimum daily, that of Aug. 25, Sept. 2, 1947.

Remarks.- Records good. When water is needed for irrigation of sugarcane, Oahu Sugar Co (formerly Honolulu Plantation) pump 6 diverts about 7 million gallons a day as a high lift pump or 9 million gallons a day as a low-lift pump. Surface runoff from floods not included in figures of discharge given below.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.7	8.7	12.3	10.3	14.5	14.9	15.3	16.4	16.8	15.3	14.9	12.7
2	9.7	9.0	7.2	11.7	14.2	14.9	15.3	16.4	16.8	17.2	17.2	14.5
3	11.7	12.7	9.0	10.7	10.3	14.9	15.3	16.8	16.8	17.2	14.5	14.9
4	13.4	8.1	11.3	11.7	10.7	14.9	15.3	16.8	16.8	17.2	14.5	13.1
5	13.8	9.0	9.7	13.8	11.0	14.9	15.3	16.8	16.8	17.2	14.9	15.6
6	13.8	9.0	11.0	11.0	10.7	14.9	15.3	16.8	16.8	17.2	14.9	16.0
7	11.3	8.7	13.1	10.3	11.0	14.9	15.3	16.8	16.8	14.9	14.9	12.0
8	10.0	8.1	9.7	10.3	12.0	14.9	15.3	16.8	16.8	15.3	16.8	13.1
9	10.7	10.7	10.3	10.3	11.3	14.9	13.1	16.8	16.8	14.9	16.8	13.1
10	10.0	12.3	10.3	10.3	12.0	14.9	15.3	16.8	16.8	17.2	14.9	13.8
11	10.0	9.0	10.3	10.7	14.2	14.9	15.3	16.8	16.8	17.2	14.5	14.5
12	11.3	12.0	9.7	13.8	14.2	14.9	12.3	16.8	17.2	14.9	14.5	16.8
13	13.4	12.3	13.1	10.0	14.2	14.9	15.6	16.8	17.2	17.2	14.5	16.0
14	11.7	12.3	13.1	10.0	14.2	14.9	12.7	16.8	17.2	14.9	16.8	12.7
15	9.4	12.7	13.1	10.3	14.5	14.9	12.7	16.8	17.2	17.2	15.6	15.6
16	9.0	14.2	13.4	10.3	14.5	14.9	12.7	14.9	17.2	17.2	16.0	13.8
17	9.0	16.4	10.7	11.0	14.9	14.9	13.1	16.8	17.2	17.2	13.8	12.3
18	8.7	11.0	13.4	13.8	14.9	14.9	13.8	14.2	17.2	17.2	15.3	12.7
19	10.7	12.3	10.3	14.2	14.9	14.9	12.3	14.2	17.2	14.9	17.2	15.3
20	12.3	12.3	11.3	11.0	14.9	14.9	13.1	16.4	17.2	17.2	13.8	16.0
21	8.1	10.7	13.8	11.3	14.9	14.9	15.6	16.4	17.2	14.2	14.5	12.0
22	9.4	9.0	10.3	13.8	14.9	14.9	16.0	16.8	17.2	14.2	16.8	13.4
23	9.4	10.7	10.0	10.7	14.9	14.9	16.0	14.2	23	14.5	16.0	13.8
24	9.4	11.7	10.3	10.7	12.3	14.9	16.0	14.2	19.9	14.9	13.1	13.4
25	9.0	7.2	10.7	11.3	14.9	14.9	16.0	16.0	14.9	17.2	13.8	14.2
26	10.7	12.7	11.3	14.2	14.9	14.9	16.0	16.4	17.2	14.9	13.8	15.3
27	12.7	13.1	13.8	14.2	14.9	14.9	16.4	16.4	17.2	17.2	13.8	16.0
28	7.8	9.7	13.8	14.2	14.9	15.3	16.8	16.8	17.2	14.5	13.8	11.3
29	8.7	11.0	10.7	14.2	14.9	15.3	16.4	16.8	13.8	17.2	16.8	14.2
30	8.7	13.1	11.3	14.5	14.9	15.3	16.4	-	14.5	14.5	17.2	14.2
31	9.4	13.1	-	14.5	-	15.3	16.4	-	14.9	-	16.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.8	7.8	10.4	16.1	323	991
August	16.4	7.2	11.1	17.2	343	1,050
September	13.8	7.2	11.3	17.5	338	1,040
October	14.5	10.0	11.9	18.4	369	1,130
November	14.9	10.3	13.6	21.0	410	1,260
December	15.3	14.9	15.0	23.2	464	1,420
Calendar year 1947	16.4	7.2	12.4	19.2	4,530	13,910
January	16.8	12.3	14.9	23.1	462	1,420
February	16.8	14.2	16.3	25.2	472	1,450
March	23	13.8	17.0	26.3	527	1,620
April	17.2	14.2	16.1	24.9	482	1,480
May	17.2	13.1	15.2	23.2	472	1,450
June	16.8	11.3	14.1	21.8	422	1,300
Fiscal year 1947-48	23	7.2	13.9	21.5	5,080	15,610

Moanalua Stream near Honolulu

Location.- Concrete weir control, lat. 21°22'50", long. 157°52'20", 5 miles upstream from mouth and 5 miles north of Honolulu post office. Datum of gage is 339.12 feet above mean sea level.
Drainage area.- 2.8 square miles.
Records available.- June 1926 to June 1948.
Average discharge.- 22 years, 2.19 million gallons a day (3.39 second-feet).
Extremes.- Maximum discharge during year, 610 million gallons a day (944 second-feet) Jan. 27 (gage height, 6.10 feet); no flow for several periods during year.
1926-48: Maximum discharge, 2,960 million gallons a day (4,580 second-feet) Nov. 18, 1930 (gage height, 11.58 feet), from rating curve extended above 71 million gallons a day by test on model of station site; no flow during dry weather.
Remarks.- Records good except those for periods of no gage-height record, which are poor. Continuous records of rainfall are obtained at station.
Revisions (fiscal year).- W 935: 1931(M).

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

-0.09	0	0.6	2.5	1.2	12.3
.1	.03	.7	3.5	1.4	17.7
.2	.16	.8	4.8	1.6	25
.3	.44	.9	6.4	1.8	34.5
.4	.96	1.0	8.1	2.1	53
.5	1.60	1.1	10.1	2.5	88

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.64	0	0.03	0		a0	0.01	1.41	0.27	10.5	0.06	5.4
2	9.7	0	.01	0		a0	4.0	1.44	.06	18.2	.02	2.95
3	2.6	0	.01	0		.01	1.11	9.4	.02	35.5	.01	1.18
4	2.1	0	29.5	0		.70	.37	2.7	.02	6.2	.01	.44
5	1.41	0	43	0	a0	.44	.12	1.87	.01	2.9	.01	.19
6	3.1	0	7.0	0		.33	.03	1.15	.01	9.2	.01	.07
7	5.3	0	12.8	0		.16	.02	.91	.83	7.9	.01	.02
8	2.15	0	3.35	0		.07	.01	2.45	.38	2.8	0	.02
9	1.02	0	1.54	0		.02	.01	1.39	.30	1.60	0	.02
10	.54	0	2.45	0		4.3	.01	.65	.29	1.79	0	.01
11	.38	0	4.5	0		8.7	.01	.36	.44	1.49	0	.01
12	.15	0	2.6	0		9.3	.01	.16	.32	1.73	0	.01
13	.04	0	2.15	0		4.0	.01	.10	2.35	.80	0	.01
14	.02	0	1.69	0		2.0	0	.03	2.3	6.2	0	0
15	.02	0	1.09	0	a12	1.04	0	.02	2.25	8.4	0	0
16	.01	0	.60			1.82	0	.01	7.5	2.1	0	0
17	.01	0	.33			13.1	0	.01	3.6	1.15	1.84	0
18	.01	0	.15			7.8	0	.01	1.78	.65	2.9	0
19	0	0	.07			4.6	0	.01	.96	.41	6.8	0
20	0	0	.02	a0		3.6	0	.01	.62	.24	2.25	0
21	0	0	.01			1.88	0	0	.41	.13	.91	0
22	0	0	.01		a0	1.09	0	0	1.97	.12	.36	0
23	0	0	0			.70	13.2	0	1.69		.12	0
24	0	0	0			.38	43	0	.98		.08	0
25	0	0	0	a1.4	a3.3	.19	21	2.55	.44		.07	0
26	0	10.4	0			.08	5.8	1.92	.22	a.10	.02	0
27	0	14.4	0			.06	84	1.01	.08		1.85	0
28	0	3.0	0			.02	10.4	.36	.06		3.7	0
29	0	1.22	0	a0	a0	.02	5.0	.70	.04		1.09	0
30	0	.40	0			.01	3.2	-	.03		.36	0
31	0	.12	-		-	.01	2.25	-	2.9	-	.54	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.7	0	0.942	1.46	29.2	90
August	14.4	0	.953	1.47	29.5	91
September	43	0	3.76	5.82	113	347
October	1.4	0	.14	.22	4.2	13
November	12	0	4.73	7.32	142	435
December	13.1	0	2.14	3.31	66.4	204
Calendar year 1947	53	0	1.55	2.40	564	1,730
January	84	0	6.24	9.65	194	594
February	9.4	0	1.06	1.64	30.6	94
March	7.5	.01	1.07	1.66	33.1	102
April	35.5	.10	4.03	6.24	121	371
May	6.8	0	.743	1.15	23.0	71
June	5.4	0	.344	.532	10.3	32
Fiscal year 1947-48	84	0	2.17	3.36	796	2,440

Peak discharge (base, 150 m.g.d.).- Sept. 4 (12 p.m.) 322 m.g.d. (498 sec.-ft.); Jan. 24 (10 p.m.) 297 m.g.d. (460 sec.-ft.); Jan. 27 (4:30 a.m.) 610 m.g.d. (944 sec.-ft.); Mar. 3 (1 a.m.) 171 m.g.d. (265 sec.-ft.).
a No gage-height record; discharge computed on basis of records for stations on nearby streams.

Kalihi Stream near Honolulu

Location.- Lat. 21°22'00", long. 157°50'45", at Kioi Pool, three-eighths of a mile upstream from Catholic Orphanage and 4.1 miles north of Honolulu post office. Datum of gage is 464.40 feet above mean sea level.
Drainage area.- 2.7 square miles.
Records available.- September 1913 to June 1948.
Average discharge.- 31 years (1916-20, 1921-48), 4.77 million gallons a day (7.38 second-feet).
Extremes.- Maximum discharge during year, 835 million gallons a day (1,290 second-feet) Nov. 14 (gage height, 8.85 feet); minimum, 0.97 million gallons a day (1.50 second-feet) Aug. 9.
1913-48: Maximum discharge, 10,900 million gallons a day (16,900 second-feet) Nov. 18, 1930 (gage height, 13.81 feet), from rating curve extended above 220 million gallons a day by test on model of station site; minimum, 0.06 million gallons a day (0.09 second-foot) Oct. 22, 1933.
Remarks.- Records good except those for periods of faulty gage-height record, which are poor. Water for domestic use diverted from stream above station.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.60	1.4	8.7	3.0	54
.9	1.28	1.7	14.8	3.5	74
1.0	2.2	2.0	22	4.0	98
1.1	3.5	2.3	30.5	4.6	133
1.2	5.1	2.6	40		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	f4.8	2.85	f3.25	2.1	1.46	2.85	5.4	4.9	2.0	11.7	2.6	5.9
2	f8.3	2.1	f4.0	1.91	1.28	3.0	7.4	6.8	1.91	24.5	2.2	4.9
3	f4.9	1.82	f26	1.82	1.28	3.5	4.6	22	1.91	68	2.1	3.1
4	5.4	1.55	f130	f1.82	1.21	6.3	3.1	7.4	1.82	29.5	1.91	2.7
5	f4.9	2.45	22.5	f1.82	1.71	4.0	2.7	6.7	1.64	10.2	1.82	2.45
6	f8.8	2.2	f32.5	1.82	1.46	5.1	2.45	5.1	1.91	6.8	1.73	2.45
7	f8.1	1.73	17.2	1.64	1.46	3.65	2.2	4.8	2.7	17.0	1.73	2.2
8	5.4	1.41	8.9	1.64	1.21	3.8	2.2	6.6	2.2	10.2	1.64	2.1
9	4.3	1.05	6.6	1.55	4.5	4.0	2.0	4.5	2.45	6.0	1.73	2.0
10	4.3	1.66	18.0	1.55	25	10.8	1.91	3.65	2.1	4.8	1.73	1.82
11	f3.25	2.7	12.3	1.55	19.1	12.7	1.91	3.35	1.91	5.6	1.55	1.73
12	f3.0	4.4	11.1	1.46	15.4	14.7	2.85	3.25	1.82	4.3	1.64	2.0
13	2.85	3.5	9.6	1.46	f45	7.4	2.05	2.85	2.45	4.3	2.65	1.91
14	2.7	f7.8	7.9	1.46	f100	5.4	1.82	2.7	2.1	3.5	2.2	1.73
15	3.0	f5.1	6.1	1.55	26.5	4.5	1.73	2.45	2.1	15.4	1.55	1.64
16	3.0	5.1	5.3	1.46	12.2	4.9	1.64	2.35	7.2	14.6	1.64	1.55
17	2.7	7.3	5.1	1.37	8.7	16.6	1.55	2.2	6.7	6.3	10.7	1.55
18	2.7	2.1	4.5	1.28	6.8	8.1	1.55	2.1	3.25	4.6	6.6	1.37
19	2.35	1.64	4.0	f1.28	5.8	5.8	1.64	2.0	2.45	4.0	9.8	1.28
20	2.45	1.28	3.5	1.70	4.9	5.1	1.64	2.0	2.6	4.0	4.1	1.37
21	2.2	2.95	3.25	1.37	4.5	4.1	1.55	2.0	2.0	3.25	3.1	1.28
22	2.0	3.35	3.95	1.37	4.0	3.65	2.15	2.1	3.35	3.1	2.85	1.28
23	2.0	2.2	4.1	1.46	3.65	3.5	23	1.82	4.4	3.0	2.5	1.21
24	1.73	4.7	3.25	1.37	5.0	3.0	f49	1.73	3.25	2.7	4.4	1.21
25	1.64	f10.0	2.85	f10.5	15.5	2.85	22	9.7	2.6	2.45	2.85	1.21
26	3.1	f25	2.6	6.1	6.3	2.85	10.3	6.3	2.2	3.2	2.35	1.13
27	3.25	f4.6	f2.45	2.7	4.6	2.85	f61	3.5	2.0	2.6	3.5	1.21
28	1.64	2.2	f2.2	1.91	4.0	2.6	12.9	2.6	2.0	2.75	4.7	1.27
29	1.73	1.73	2.35	1.64	3.5	2.85	8.9	2.2	2.45	2.55	2.7	2.4
30	2.5	2.1	2.2	1.55	3.25	2.45	7.0	-	2.15	3.2	2.7	1.46
31	2.2	1.13	-	1.64	-	2.2	5.8	-	2.4	-	4.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.8	1.64	3.59	5.55	111	341
August	25	1.05	3.86	5.97	120	367
September	130	2.2	12.3	19.0	368	1,130
October	10.5	1.28	2.06	3.19	63.8	196
November	100	1.21	11.3	17.5	339	1,040
December	16.6	2.2	5.33	8.25	165	507
Calendar year 1947	130	.66	4.88	7.55	1,780	5,470
January	61	1.55	8.26	12.8	256	785
February	22	1.73	4.47	6.92	130	398
March	7.2	1.64	2.65	4.10	82.0	252
April	68	2.45	9.47	14.7	284	872
May	10.7	1.55	3.16	4.89	38.0	301
June	5.9	1.13	1.98	3.06	59.4	182
Fiscal year 1947-48	130	1.05	5.67	8.77	2,080	6,370

Peak discharge (base, 450 m.g.d.).- Sept. 4 (8:30 a.m.) 550 m.g.d. (851 sec.-ft.); Nov. 14 (12:30 p.m.) 835 m.g.d. (1,290 sec.-ft.).
f Computed on basis of partly estimated gage-height record.
Note.- Faulty gage-height record July 8-10, July 13 to Aug. 13, Aug. 16-24, 28-31, Oct. 20-24; discharge computed on basis of records for nearby streams.

Nuuanu Stream below reservoir 2 wasteway, near Honolulu

Location.- Sharp-crested weirs, lat. 21°20'55", long. 157°49'40", on Pali road in upper Nuuanu Valley, a quarter of a mile downstream from reservoir 2 wasteway and 3.5 miles northeast of Honolulu post office. Datum of gage is 631.71 feet above mean sea level.
Drainage area.- 3.4 square miles.
Records available.- October 1913 to June 1948.
Average discharge.- 29 years (1917-20, 1922-48), 5.08 million gallons a day (7.87 second-feet).
Extremes.- Maximum discharge during year, 333 million gallons a day (515 second-feet) Sept. 4 (gage height, 4.73 feet); minimum, 1.45 million gallons a day (2.24 second-feet) Aug. 9.
1913-48: Maximum discharge, 4,520 million gallons a day (6,990 second-feet) Jan. 16, 1921 (gage height, 8.74 feet, from floodmarks), from rating curve extended above 300 million gallons a day by test on model of station site; minimum, 0.06 million gallons a day (0.09 second-foot) Sept. 10, 11, 1925.
Remarks.- Records good except those for periods of no gage-height record, which are fair. Reservoirs 2, 3, and 4 (capacities, 21, 34, and 1,630 acre-feet, respectively) regulate flow. Board of Water Supply diverts ground water from tunnels in drainage area.
Revisions (fiscal years).- W 985: 1921-35(M).

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.07	0.7	2.1	1.3	8.8
.2	.30	.8	2.6	1.5	14.9
.3	.60	.9	3.1	1.7	23
.4	.90	1.0	3.65	1.9	32.5
.5	1.25	1.1	4.6	2.1	43
.6	1.65	1.2	6.5	2.4	61

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.35	1.6	2.8	4.2	2.3	4.4	5.1	7.6	4.5	6.4	6.6	10.0
2	4.3	1.6	2.6	4.1	2.2	4.4	8.2	9.4	4.4	13.1	5.2	6.1
3	3.2	1.5	9.4	4.0	2.1	4.6	4.9	12.6	4.6	19.2	5.0	5.2
4	3.5	1.5	59	4.0	2.1	6.9	4.3	8.3	4.4	14.9	4.8	4.8
5	3.2	1.8	11.0	4.0	3.2	5.0	3.95	8.1	4.3	7.0	4.6	4.8
6	6.6	1.6	29	3.95	2.6	4.5	3.75	7.4	4.4	6.1	4.5	4.6
7	4.7	1.5	21.5	3.7	2.6	4.3	3.65	7.2	5.9	8.0	4.5	4.5
8	3.2	1.5	11.6	4.3	2.5	4.4	3.55	8.6	4.6	7.6	4.4	4.3
9	2.9	1.5	9.4	3.1	5.0	5.5	3.55	8.1	4.5	5.9	4.4	4.1
10	2.95	1.9	12.8	3.3	20	7.0	3.55	7.6	4.3	5.7	4.4	3.95
11	2.8	1.7	10.8	3.55	14	9.5	3.55	7.0	4.2	5.9	4.2	3.85
12	2.65	1.7	11.4	3.55	12	9.2	4.0	6.6	3.95	5.7	4.3	4.0
13	2.55	2.0	12.3	3.6	35	5.9	3.45	5.6	4.3	5.6	5.0	3.85
14	2.4	2.9	10.8	3.3	26	5.6	3.2	5.9	4.2	5.4	4.4	3.65
15	2.35	1.78	8.6	3.0	17	5.4	3.2	5.7	4.4	9.0	3.95	3.55
16	2.4	2.0	7.4	2.8	11	5.6	3.15	5.7	6.5	8.8	3.95	3.45
17	2.25	4.2	7.0	2.7	10	7.1	3.15	5.6	6.0	7.0	8.8	3.5
18	2.1	1.96	6.3	2.6	9.0	8.2	3.05	5.6	5.0	6.2	7.5	3.3
19	2.0	1.74	5.9	2.5	8.0	5.6	3.1	5.1	4.3	5.8	11.3	3.25
20	2.1	1.61	5.6	2.3	6.5	5.0	3.2	4.8	4.3	5.6	6.1	3.3
21	1.9	1.92	5.4	2.6	5.5	4.8	3.05	4.8	3.95	5.5	5.0	3.15
22	1.9	2.45	5.2	2.2	5.0	4.6	4.4	5.2	4.6	5.4	4.6	3.1
23	1.9	1.78	6.9	2.2	4.8	4.8	15.3	4.6	5.2	5.4	4.6	3.05
24	1.8	1.88	8.3	2.1	5.6	4.6	32	4.6	6.1	5.2	6.2	3.05
25	1.7	6.8	6.7	8.0	9.3	4.4	21	8.3	4.4	5.2	4.6	3.0
26	2.0	24	6.0	4.5	5.7	4.3	13.7	5.7	4.2	5.4	5.0	2.95
27	1.9	4.7	5.2	3.3	5.0	4.3	39	5.0	3.85	5.2	7.5	3.0
28	1.7	3.25	4.8	2.5	5.0	4.3	12.3	4.6	3.95	5.0	6.5	3.15
29	1.6	2.95	4.8	2.2	5.0	4.3	10.3	4.6	4.5	5.0	4.8	4.8
30	2.1	3.0	4.4	2.1	4.5	3.95	9.6	-	3.95	13.8	4.6	3.25
31	1.8	2.75	-	2.5	-	3.85	8.8	-	3.95	-	5.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.6	1.6	2.64	4.08	81.8	251
August	24	1.5	3.00	4.64	93.1	286
September	59	2.6	10.4	16.1	313	960
October	8.0	2.1	3.31	5.12	103	315
November	35	2.1	8.28	12.8	248	763
December	9.5	3.85	5.36	8.29	166	510
Calendar year 1947	59	.94	4.15	6.42	1,515	4,650
January	39	3.05	7.97	12.3	247	758
February	12.6	4.6	6.55	10.1	190	583
March	6.5	3.85	4.57	7.07	142	435
April	19.2	5.0	7.33	11.3	220	675
May	11.3	3.95	5.39	8.34	167	513
June	10.0	2.95	4.02	6.22	121	370
Fiscal year 1947-48	59	1.5	5.71	8.83	2,090	6,420

Peak discharge (base, 60 m.g.d.).- Aug. 26 (7:30 a.m.) 89 m.g.d. (138 sec.-ft.); Sept. 4 (6 a.m.) 333 m.g.d. (515 sec.-ft.); Nov. 20 (6 a.m.) 254 m.g.d. (393 sec.-ft.); Jan. 24 (5:30 p.m.) 113 m.g.d. (175 sec.-ft.); Apr. 30 (7 p.m.) 101 m.g.d. (156 sec.-ft.).
Note.- No gage-height record July 18 to Aug. 14, Oct. 1-3, Oct. 14 to Nov. 21 Apr. 15-21; discharge computed on basis of records for nearby streams.

West Branch Manoa Stream near Honolulu

Location.- Combined Parshall flume and concrete weir control, lat. 21°19'50", long. 157°48'15", 100 feet upstream from lower highway and 4 miles northeast of Honolulu post office. Datum of gage is 290.84 feet above mean sea level (Board of Water Supply bench mark).

Drainage area.- 1.1 square miles.

Records available.- August 1925 to June 1948. May 1913 to January 1921 at site 200 feet upstream.

Average discharge.- 29 years (1913-20, 1926-48), 2.62 million gallons a day (4.05 second-feet).

Extremes.- Maximum discharge during year, 319 million gallons a day (494 second-feet) Jan. 26 (gage height, 3.69 feet), from rating curve extended above 33 million gallons a day by test on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) Oct. 2, 3.

1913-21, 1925-48: Maximum gage height, 10.4 feet, Jan. 16, 1921, from floodmarks site and datum then in use, (discharge, 2,100 million gallons a day or 3,250 second-feet, estimated from rating curve extended above 40 million gallons a day); minimum discharge, about 0.05 million gallons a day (0.08 second-foot) Mar. 16, 22, 1926.

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

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.5	0.67	0.37	0.29	0.72	0.67	4.1	1.70	0.58	9.0	1.59	8.8
2	4.4	.55	1.17	.18	.51	.72	6.1	3.2	.58	6.7	1.71	3.4
3	3.8	.51	11.0	.18	.44	1.04	2.65	7.2	1.06	7.9	1.11	2.3
4	3.15	.44	31.5	.20	f.44	4.1	1.33	2.35	.72	3.05	.96	1.85
5	2.7	1.00	5.2	.52	1.1	1.74	1.00	2.7	.58	1.92	.86	1.78
6	8.8	.55	10.2	.58	.60	1.62	.86	1.58	.76	1.64	.77	1.58
7	6.2	.44	3.35	.51	.62	1.11	.72	1.60	1.46	2.85	.77	1.40
8	3.2	.55	2.3	.60	.52	.96	.72	2.1	1.23	1.64	.72	1.29
9	2.4	.44	1.78	.47	1.5	1.18	.67	1.29	1.79	1.35	1.19	1.17
10	2.2	.66	2.7	.41	.60	2.7	.67	1.11	1.11	1.17	1.38	1.01
11	2.2	.55	2.75	.52	.90	5.2	.62	1.06	.91	1.85	.19	1.01
12	1.85	.55	3.1	.22	1.2	4.5	1.44	1.01	.77	1.51	.91	1.51
13	1.52	.65	3.85	.50	11	1.70	.72	.91	1.21	1.17	3.6	1.25
14	1.35	3.05	2.8	.44	12	1.29	.58	.82	.96	1.40	2.1	.96
15	1.35	.96	2.0	.40	1.9	1.06	.55	.77	.86	7.8	1.17	.91
16	1.45	1.32	1.58	.40	1.5	1.01	.51	.72	5.5	f3.65	1.73	.82
17	1.11	2.5	1.82	.47	1.2	2.85	.55	.67	2.95	2.5	15.9	.77
18	1.01	1.11	1.46	.47	1.06	3.8	.58	.67	1.64	1.8	8.8	.72
19	.91	.72	1.06	.47	.96	1.78	.80	.62	1.17	1.4	8.3	.67
20	.96	.58	.91	.47	.86	1.40	.72	.58	1.26	1.2	3.6	.82
21	.86	1.08	.91	.47	.82	1.11	.64	.62	1.06	1.17	2.5	.72
22	.82	1.27	.94	.51	.77	1.01	2.7	.86	2.55	1.11	2.15	.62
23	.87	.72	2.85	.51	.72	1.06	11.7	.58	2.15	1.11	2.75	.58
24	.72	.86	.58	.51	1.26	.86	18.0	.55	3.5	.96	4.7	.58
25	.67	5.1	.44	3.9	7.0	.82	8.8	2.5	7.0	.91	2.3	.55
26	.98	13.8	.40	1.47	1.97	.77	11.2	2.25	1.38	1.33	3.05	.51
27	.96	2.95	.32	.72	1.23	.89	25	.91	1.01	1.01	7.0	.51
28	.67	1.58	.29	.51	.96	.67	5.6	.72	2.4	.87	8.0	.85
29	.62	1.23	.32	.47	1.01	1.04	3.65	.62	1.77	.96	2.9	4.2
30	1.10	1.56	.40	.44	.77	.72	2.6	-	2.0	3.0	2.15	1.38
31	.72	1.17	-	.60	-	.62	2.3	-	1.23	-	3.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.8	0.62	2.03	3.14	63.0	193
August	13.8	.44	1.58	2.44	49.1	151
September	31.5	.29	3.31	5.12	99.4	305
October	3.9	.18	.594	.919	18.4	56
November	12	.44	1.87	2.89	56.1	172
December	5.2	.62	1.61	2.49	50.0	153
Calendar year 1947	31.5	.08	1.69	2.61	617	1,890
January	25	.51	3.81	5.89	118	362
February	7.2	.55	1.46	2.26	42.3	130
March	7.0	.58	1.71	2.65	53.2	163
April	9.0	.87	2.46	3.81	73.9	227
May	15.9	.72	3.18	4.92	98.7	303
June	8.8	.51	1.48	2.29	44.5	137
Fiscal year 1947-48	31.5	.18	2.09	3.23	767	2,350

Peak discharge (base, 110 m.g.d.).- Sept. 4 (4 a.m.) 235 m.g.d. (364 sec.-ft.); Jan. 24 (6:30 p.m.) 193 m.g.d. (229 sec.-ft.); Jan. 26 (11:30 p.m.) 319 m.g.d. (494 sec.-ft.).

f Computed on basis of partly estimated gage-height record.

Note.- No gage-height record Oct. 11-14, Nov. 5-17, Apr. 17-20; discharge computed on basis of records for nearby streams.

East Branch Manoa Stream near Honolulu

Location.- Combined Parshall flume and concrete weir control, lat. 21°19'50", long. 157°48'10", just downstream from highway bridge, 450 feet upstream from confluence with West Branch, and 4 miles northeast of Honolulu post office. Datum of gage is 294.50 feet above mean sea level (Board of Water Supply bench mark).
Drainage area.- 1.0 square mile.
Records available.- May 1913 to January 1921, August 1925 to June 1948.
Average discharge.- 29 years (1913-20, 1926-48), 3.11 million gallons a day (4.81 second-feet).
Extremes.- Maximum discharge during year, 227 million gallons a day (351 second-feet) Sept. 4 (gage height, 3.36 feet), from rating curve extended above 5.7 million gallons a day by test on model of station site; minimum, 1.36 million gallons a day (2.10 second-feet) Oct. 22, 23, 24.
1913-21, 1925-48: Maximum gage height, 10.4 feet, Jan. 16, 1921, from floodmarks, site and datum then in use (discharge, 2,000 million gallons a day or 3,090 second-feet, estimated from rating curve extended above 37 million gallons a day); minimum discharge, 0.4 million gallons a day (0.6 second-foot) June 7, 8, 1926.
Remarks.- Records good except those for periods of no gage-height record, which are poor. Board of Water Supply, at times, diverts a small amount of ground water from tunnels in drainage area.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.15	0.7	4.5	1.3	16.8
.4	1.85	.8	5.7	1.6	27.5
.5	2.65	.9	7.3	1.9	43
.6	3.55	1.1	11.4		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.25	2.4	1.98	1.85	1.78	2.2	8.6	3.1	2.0	8.7	3.1	9.1
2	4.0	2.1	1.85	1.78	1.64	2.1	9.2	9.5	2.0	15.3	3.3	4.5
3	3.0	2.0	12.7	1.71	1.57	2.15	4.7	12.2	2.6	13.8	2.55	3.45
4	3.1	1.9	34.5	1.78	1.57	5.0	2.85	4.3	2.15	8.0	2.5	3.1
5	3.0	2.7	5.9	2.25	2.65	2.7	2.5	4.5	2.0	3.45	2.35	3.1
6	10	2.3	9.7	1.78	1.90	3.55	2.4	3.3	2.1	3.0	2.35	2.9
7	7.2	1.9	3.8	1.71	1.94	2.4	2.25	3.5	3.15	4.0	2.35	2.85
8	4.4	2.1	2.75	1.78	1.61	2.25	2.25	3.65	2.65	3.2	2.25	2.75
9	3.4	1.7	2.5	1.71	4.5	2.9	2.25	3.4	4.1	2.55	2.85	2.65
10	2.8	2.4	5.5	1.84	2.1	4.9	2.15	3.3	2.5	2.4	2.9	2.55
11	2.8	2.2	5.0	1.93	3.05	6.1	2.15	3.2	2.25	4.3	2.35	2.55
12	2.7	2.2	3.9	1.71	3.85	6.3	4.5	3.0	2.1	2.85	2.35	3.45
13	2.6	2.4	4.5	1.85	11.6	3.1	2.55	2.8	2.6	3.35	4.7	2.85
14	2.5	3.8	3.6	1.71	13.6	2.55	2.25	2.6	2.0	2.55	3.1	2.55
15	2.4	1.71	2.85	1.64	3.85	2.4	2.25	2.6	2.25	5.4	2.4	2.55
16	2.6	2.1	2.55	1.57	2.65	2.5	2.15	2.5	6.4	5.2	3.1	2.5
17	2.4	2.5	3.4	1.50	2.3	5.8	2.15	2.4	3.95	3.9	16.4	2.5
18	2.4	1.71	2.55	1.50	2.1	4.9	2.25	2.3	2.85	3.4	6.3	2.4
19	2.4	1.57	2.4	1.50	2.0	3.0	2.65	2.2	2.5	3.0	7.3	2.4
20	2.4	1.50	2.25	1.50	2.0	2.55	2.8	2.15	2.75	2.9	3.95	2.5
21	2.4	2.0	2.15	1.43	1.9	2.5	2.4	2.25	2.5	2.65	3.35	2.4
22	2.3	1.93	2.15	1.35	1.9	2.35	8.1	2.6	4.0	2.75	3.5	2.4
23	2.3	1.71	3.95	1.36	1.8	2.5	19.1	2.15	3.4	2.55	5.3	2.4
24	2.2	1.71	2.15	1.36	4.0	2.25	19.6	2.1	3.7	2.5	6.5	2.4
25	2.1	6.1	2.0	8.0	14	2.15	9.5	5.0	3.05	2.4	4.1	2.4
26	2.8	12.9	1.93	2.9	4.0	2.35	11.0	4.1	3.2	2.55	3.75	2.35
27	2.8	2.65	1.93	1.78	3.3	2.35	29.5	2.35	2.55	2.35	8.5	2.6
28	2.1	2.1	1.93	1.64	2.9	2.1	6.2	2.1	2.8	2.5	10.1	3.05
29	2.1	1.85	2.0	1.50	2.5	2.5	4.8	2.0	4.6	2.5	3.65	7.0
30	3.1	2.1	2.2	1.50	2.3	2.15	3.85	-	4.4	5.4	3.3	3.15
31	2.5	1.85	-	2.1	-	2.1	3.75	-	4.6	-	4.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10	2.1	3.10	4.80	96.0	295
August	12.9	1.50	2.58	3.99	80.1	246
September	34.5	1.85	4.55	7.04	137	419
October	8.0	1.36	1.92	2.97	59.5	183
November	14	1.57	3.56	5.51	107	328
December	6.3	2.1	3.05	4.72	94.6	290
Calendar year 1947	35.5	.66	2.78	4.30	1,020	3,120
January	29.5	2.15	5.89	9.11	183	561
February	12.2	2.0	3.49	5.40	101	310
March	6.4	2.0	3.02	4.67	93.7	288
April	15.3	2.35	4.31	6.67	129	397
May	16.4	2.25	4.35	6.73	135	413
June	9.1	2.35	3.11	4.81	93.4	286
Fiscal year 1947-48	34.5	1.36	3.58	5.54	1,310	4,020

Peak discharge (base, 120 m.g.d.).- Sept. 4 (4 a.m.) 227 m.g.d. (351 sec.-ft.); Nov. 14 (2 p.m.) 170 m.g.d. (201 sec.-ft.); Jan.24 (7 p.m.) 186 m.g.d. (257 sec.-ft.); Jan. 27 (5:30 a.m.) 126 m.g.d. (195 sec.-ft.); Mar. 3 (3 a.m.) 168 m.g.d. (260 sec.-ft.).
Note.- No gage-height record July 4 to Aug. 13, Nov. 17 to Dec. 1, Feb. 9-19, Apr. 16-20; discharge computed on basis of records for nearby streams.

Pukele Stream near Honolulu

Location.- Concrete weir control, lat. 21°19'15", long. 157°47'10", 200 feet upstream fr bridge on Palolo Belt Road, five-eighths of a mile upstream from confluence with Waio Stream, and 4¾ miles east of Honolulu post office. Datum of gage is 344.78 feet abov mean sea level (Board of Water Supply bench mark).
Drainage area.- 1.2 square miles.
Records available.- June 1926 to June 1948. April 1912 to September 1913, above present site and just below Mahoe Springs.
Average discharge.- 22 years, 1.30 million gallons a day (2.01 second-feet).
Extremes.- Maximum discharge during year, 32 million gallons a day (147 second-feet) Jan. (gage height, 3.46 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.30 million gallons a day (0.46 second-foot) Oct. 24, 25.
1912-13, 1926-48: Maximum discharge, 1,680 million gallons a day (2,600 second-fee Apr. 11, 1930 (gage height, 7.75 feet, from floodmarks), from rating curve extended above 14 million gallons a day by test on model of station site; minimum, 0.07 million gallons a day (0.11 second-foot) Nov. 15-25, 1945.
Remarks.- Records good. A 2-inch pipe diverts water from stream above station.
Revisions (fiscal year).- W 835: 1930(M).

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.1	0.32	1.6	4.2
1.2	.67	1.8	7.7
1.3	1.20	2.0	12.5
1.4	1.98	2.2	19.0
1.5	2.95	2.5	31

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.94	0.50	0.56	0.56	0.42	0.67	3.6	1.98	0.72	2.6	2.1	3.2
2	2.15	.50	.56	.53	.42	.67	4.3	5.4	.72	17.5	.94	1.84
3	1.18	.50	3.9	.53	.42	.64	3.95	9.0	.78	6.4	.83	1.20
4	1.20	.46	17.2	.50	.42	.64	1.28	2.9	.72	3.05	.78	1.0
5	1.15	.42	3.9	.50	.42	.64	.83	2.25	.72	1.59	.78	1.0
6	1.70	.42	3.85	.50	.42	.64	.78	1.82	.67	1.20	.78	1.0
7	1.98	.42	1.64	.50	.42	.60	.78	1.75	.83	2.3	.78	1.0
8	1.36	.39	1.09	.50	.42	.60	.78	1.67	.75	2.0	.78	1.0
9	1.20	.39	1.04	.46	.66	.64	.78	1.51	2.15	1.36	.78	.9
10	1.20	.39	2.85	.42	.46	1.38	.78	1.36	.94	1.15	.72	.9
11	1.20	.39	1.86	.42	.46	1.17	.78	1.28	.72	1.76	.72	.9
12	1.15	.39	1.60	.42	.94	2.85	1.24	1.20	.67	1.51	.72	.9
13	1.09	.39	1.98	.42	3.4	1.18	.72	1.20	.83	1.36	1.13	.9
14	1.04	.39	1.43	.42	5.0	.83	.67	1.15	.78	1.09	1.11	.8
15	.99	.39	1.09	.42	1.46	.83	.67	1.09	.78	1.88	.67	.8
16	.94	.39	1.04	.39	.83	.83	.64	1.04	2.45	10.3	.72	.7
17	.86	.39	1.04	.39	.83	2.9	.64	.94	2.4	1.79	6.7	.7
18	.83	.39	1.04	.36	.78	2.25	.64	.88	1.07	1.15	3.85	.7
19	.78	.36	.99	.32	.78	1.20	.64	.83	.83	1.09	3.1	.6
20	.72	.32	.99	.32	.72	.88	.82	.83	.83	.99	1.52	.6
21	.64	.36	.94	.32	.67	.83	.64	.78	.83	1.04	1.09	.6
22	.60	.39	.88	.32	.64	.83	3.85	.72	1.13	1.04	1.15	.6
23	.60	.39	1.32	.32	.64	.83	16.3	.72	.94	1.04	1.38	.6
24	.56	.36	.83	.32	.60	.78	18.9	.67	1.77	.94	2.55	.6
25	.56	1.43	.72	2.2	5.3	.78	11.0	2.75	1.04	.94	1.28	.6
26	.56	3.6	.67	.65	1.22	.72	4.7	2.75	1.09	.94	1.04	.6
27	.56	.56	.67	.50	.67	.67	30	.83	.94	.88	4.5	.6
28	.56	.50	.67	.46	.67	.67	5.1	.78	.94	.83	4.6	.6
29	.53	.50	.67	.42	.67	.64	3.45	.78	1.17	.78	1.67	.5
30	.50	.53	.64	.42	.67	.64	2.55	-	1.01	4.6	1.15	.5
31	.50	.56	-	.42	-	.60	2.65	-	3.0	-	1.32	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.15	0.50	0.963	1.49	29.8	92
August	3.6	.32	.560	.866	17.4	53
September	17.2	.56	1.92	2.97	57.7	177
October	2.2	.32	.491	.760	15.2	47
November	5.3	.42	1.05	1.62	31.4	96
December	2.9	.60	.969	1.50	30.0	92
Calendar year 1947	17.9	.28	1.05	1.62	382	1,170
January	30	.64	4.01	6.20	124	382
February	9.0	.67	1.75	2.71	50.9	156
March	3.0	.67	1.10	1.70	34.2	105
April	17.5	.78	2.50	3.87	75.1	230
May	6.7	.72	1.65	2.55	51.2	157
June	3.2	.56	.926	1.43	27.8	85
Fiscal year 1947-48	30	.32	1.49	2.31	545	1,670

Peak discharge (base, 80 m.g.d.).- Jan. 24 (7 p.m.) 95 m.g.d. (147 sec.-ft.); Apr. 2 (3:30 p.m.) 82 m.g.d. (127 sec.-ft.).

Waiomao Stream above Pukele Stream, near Honolulu

Location.- Concrete weir control, lat. 21°19'10", long. 157°46'45", 300 feet west of road, 1 mile upstream from confluence with Pukele Stream, and 5 miles east of Honolulu post office. Datum of gage is 373.49 feet above mean sea level (Board of Water Supply bench mark).

Drainage area.- 1.0 square mile.

Records available.- June 1926 to June 1948. April 1911 to December 1912 at highway bridge below present site.

Average discharge.- 22 years, 1.18 million gallons a day (1.83 second-feet).

Extremes.- Maximum discharge during year, 131 million gallons a day (203 second-feet) Jan. 24 (gage height, 3.96 feet); no flow Oct. 22-25, June 28.
1911-12, 1926-48: Maximum discharge, 602 million gallons a day (931 second-feet) Oct. 15, 1938 (gage height, 5.43 feet), from rating curve extended above 45 million gallons a day by test on model of station site; no flow in extremely dry weather.

Remarks.- Records excellent. Board of Water Supply diverts ground water from tunnels in drainage area.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.92	0	1.5	1.83	2.1	12.0
1.0	.01	1.6	2.7	2.2	15.5
1.1	.10	1.7	3.85	2.3	19.5
1.2	.30	1.8	5.3	2.4	24
1.3	.63	1.9	7.2	2.6	33.5
1.4	1.15	2.0	9.4		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a0.56	0.12	0.20	0.14	0.28	0.24	4.1	1.05	0.24	2.2	2.5	2.5
2	a1.96	.07	.30	.09	.16	.30	5.5	5.0	.20	18.8	.84	1.25
3	1.19	.05	4.0	.08	.10	.28	4.8	12.2	.33	5.6	.60	.71
4	1.36	.03	16.7	.06	.08	.48	1.22	2.45	.46	3.65	.37	.53
5	.84	.11	5.3	.10	1.07	.37	.73	1.85	.26	1.35	.30	.40
6	1.53	.09	7.7	.07	.88	.94	.46	1.05	.22	1.05	.26	.37
7	2.25	.05	3.75	.06	.55	.46	.37	.94	1.03	1.87	.24	.33
8	.94	.02	1.36	.05	.26	.28	.30	.94	.73	2.45	.18	.28
9	.60	.01	.73	.06	.93	.37	.28	.60	1.48	.89	.26	.24
10	.56	.01	2.75	.04	.75	1.27	.26	.43	.89	.56	.43	.20
11	.53	.01	2.95	.06	1.19	1.03	.22	.37	.43	.98	.24	.16
12	.37	.01	1.94	.06	1.22	5.6	1.50	.33	.30	1.35	.20	.20
13	.28	.06	2.35	.06	3.6	1.74	.78	.30	.82	.99	.66	.26
14	.24	.49	1.46	.09	6.2	1.05	.33	.26	.48	.56	1.24	.16
15	.22	.22	.73	a.07	2.55	.56	.26	.22	.33	1.61	.40	.14
16	.22	.14	.53	a.05	1.22	.63	.22	.18	2.1	11.0	.43	.10
17	.18	.43	.78	.04	.73	2.65	.18	.15	2.05	1.64	6.2	.10
18	.14	.16	.50	.02	.46	2.2	.20	.12	.74	.89	3.4	.09
19	.12	.08	.33	.01	.37	.99	.33	.10	.43	.79	2.6	.06
20	.10	.05	.26	.01	.28	.56	.47	.08	.46	.56	1.58	.06
21	.08	.18	.22	.01	.22	.46	.33	.10	.37	.43	.79	.07
22	.07	.24	.18	0	.18	.33	5.6	.16	.99	.37	.89	.06
23	.06	.09	.79	0	.16	.40	28.5	.10	.73	.51	.74	.05
24	.06	.08	1.25	0	.79	.37	23.5	.08	1.10	.37	2.85	.03
25	.06	1.43	.30	4.3	7.7	.26	14.2	3.75	.53	.28	1.27	.02
26	.10	5.7	.22	2.25	1.61	.30	4.1	3.0	.63	.28	.68	.01
27	.16	.80	.18	.75	.73	.28	33.5	.91	.40	.28	3.4	.01
28	.10	.40	.14	.37	.43	.22	4.8	.46	.30	.24	4.1	.03
29	.08	.26	.14	.22	.37	.41	2.8	.30	.79	.28	1.17	.41
30	.30	.28	.16	.14	.28	.30	1.76	-	.48	4.0	.73	.28
31	.20	.37	-	.26	-	.20	1.96	-	2.85	-	.94	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.25	0.06	0.499	0.772	15.5	47
August	5.7	.01	.388	.600	12.0	37
September	16.7	.14	1.94	3.00	58.2	179
October	4.3	0	.307	.475	9.52	29
November	7.7	.08	1.18	1.83	35.4	108
December	5.6	.22	.824	1.27	25.5	78
Calendar year 1947	36	0	.979	1.51	357	1,100
January	33.5	.18	4.63	7.16	144	441
February	12.2	.08	1.29	2.00	37.5	115
March	2.85	.20	.747	1.16	23.2	71
April	18.8	.24	2.19	3.39	65.8	202
May	6.2	.18	1.31	2.03	40.5	124
June	2.5	.01	.304	.470	9.12	28
Fiscal year 1947-48	33.5	0	1.30	2.01	476	1,460

Peak discharge (base, 50 m.g.d.).- Jan. 24 (7 p.m.) 131 m.g.d. (203 sec.-ft.); Jan. 27 (4 a.m.) 103 m.g.d. (159 sec.-ft.); Apr. 2 (4 a.m.) 96 m.g.d. (149 sec.-ft.); Apr. 16 (7:30 a.m.) 54 m.g.d. (84 sec.-ft.).

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

Haiku Stream near Heeia

Location.- Lat. 21°24'40", long. 157°49'40", on left bank of stream, 1.7 miles west of Kaneohe post office, and 1.8 miles southwest of Heeia. Datum of gage is 271.9 feet above mean sea level (levels by City and County of Honolulu).
Drainage area.- 1.0 square mile.
Records available.- January 1914 to October 1919,. July 1939 to June 1948.
Average discharge.- 14 years (1914-19, 1939-48), 2.39 million gallons a day (3.70 second-feet).
Extremes.- Maximum discharge during year, 250 million gallons a day (387 second-feet) Feb. 29 (gage height, 3.40 feet), from rating curve extended above 13 million gallons a day by test on model of station site; minimum, 0.39 million gallons a day (0.60 second-foot) Oct. 7.
1914-19, 1939-48: Maximum discharge, 952 million gallons a day (1,470 second-feet) Jan. 13, 1943 (gage height, 4.99 feet), from rating curve extended above 13 million gallons a day by test on model of station site; minimum, 0.17 million gallons a day (0.26 second-foot) Oct. 25, 1946.
Remarks.- Records fair except those for periods of no gage-height record, which are poor. Suburban Water System diverts ground water from tunnel in drainage area.
Revisions (fiscal year).- W 935: 1940.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.53	1.4	3.05	1.8	15.3
1.1	.92	1.5	4.2	1.9	23
1.2	1.45	1.6	5.9	2.0	30.5
1.3	2.1	1.7	9.2	2.1	38

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.92	0.84	0.92	0.76	0.84	1.18	1.08	1.7	1.97	2.0	1.34	1.08
2	1.08	.84	.97	.76	.84	1.18	1.34	2.3	1.58	2.1	1.63	1.03
3	1.32	.84	16.4	.76	.88	1.24	1.18	6.0	1.40	35	1.45	1.03
4	1.13	.84	2.95	.60	.84	1.24	1.13	2.75	1.34	3.0	1.40	1.03
5	.88	.84	1.34	.80	.97	1.18	1.08	2.45	1.34	2.0	1.34	1.03
6	.97	.84	9.6	.83	.92	1.24	1.03	1.7	1.34	1.7	1.34	1.03
7	1.29	.84	1.32	.81	.84	1.24	1.03	1.5	1.34	2.0	1.34	1.03
8	1.03	.84	.92	.83	.84	1.24	1.03	2.0	1.41	1.6	1.29	1.03
9	.88	.84	1.28	.84	1.00	1.34	1.03	1.4	1.45	1.4	1.29	1.03
10	.88	.84	1.75	.84	13.1	1.58	1.03	1.4	1.52	1.4	1.29	1.03
11	.84	.84	1.18	.84	3.55	2.2	1.03	1.4	1.45	1.5	1.29	.97
12	.84	.84	.97	.84	4.4	6.0	1.03	1.3	1.40	1.4	1.34	1.03
13	.84	.88	.88	.88	4.8	1.84	1.08	1.3	1.45	1.3	1.34	1.03
14	.84	.84	.84	.92	23.5	1.40	1.03	1.3	1.45	1.3	1.29	1.03
15	.84	.84	.80	.92	6.5	1.24	1.03	1.3	1.45	2.0	1.29	1.03
16	.88	.84	.80	.92	2.4	1.24	1.03	1.3	1.52	1.8	1.34	.97
17	.88	.84	.94	.92	1.58	2.95	1.03	1.3	1.71	1.5	1.40	.97
18	.88	.84	.84	.92	1.34	2.3	1.03	1.3	1.52	1.4	1.45	.97
19	.88	.84	.84	.92	1.24	1.78	1.08	1.2	1.45	1.4	2.05	.97
20	.84	.88	.84	.92	1.18	1.62	1.08	1.2	1.45	1.3	1.40	.97
21	.84	.88	.88	.92	1.18	1.34	1.08	1.24	1.45	1.3	1.34	.97
22	.84	.84	1.07	.92	1.13	1.24	1.13	1.24	1.52	1.4	1.29	.97
23	.88	.84	.97	.92	1.13	1.18	5.3	1.24	1.71	1.4	1.29	1.03
24	.88	.88	.92	.92	1.18	1.13	10.6	1.24	1.58	1.29	1.24	1.03
25	.88	.88	.88	1.37	1.71	1.13	11.9	3.15	1.52	1.24	1.18	1.03
26	.92	.88	.84	1.03	1.40	1.13	2.3	1.78	1.45	1.23	1.18	1.03
27	.88	.88	.84	.97	1.24	1.13	30	1.52	1.45	1.34	1.24	1.08
28	.88	.84	.84	.92	1.18	1.13	3.0	1.40	1.45	1.29	1.56	1.08
29	.88	.88	.84	.86	1.18	1.13	2.2	10.2	1.40	1.29	1.34	1.08
30	.88	.88	.80	.86	1.18	1.08	1.9	-	1.4	1.29	1.29	1.03
31	.84	.88	-	.86	-	1.08	1.9	-	1.4	-	1.23	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.32	0.84	0.921	1.42	28.5	88
August	.88	.84	.853	1.32	26.4	81
September	16.4	.80	1.84	2.85	55.2	169
October	1.37	.76	.892	1.38	27.6	85
November	23.5	.84	2.80	4.33	84.1	258
December	6.0	1.08	1.55	2.40	47.9	147
Calendar year 1947	34.5	.72	1.49	2.31	542	1,670
January	30	1.03	2.99	4.63	92.7	285
February	10.2	1.2	2.04	3.16	59.1	181
March	1.97	1.34	1.48	2.29	45.9	141
April	35	1.24	2.69	4.16	80.6	247
May	2.05	1.18	1.36	2.10	42.1	129
June	1.08	.97	1.02	1.58	30.6	94
Fiscal year 1947-48	35	.76	1.70	2.63	621	1,900

Peak discharge (base, 100 m.g.d.).- Sept. 6 (5 a.m.) 172 m.g.d. (266 sec.-ft.); Nov. 10 (3 p.m.) 207 m.g.d. (320 sec.-ft.); Jan. 27 (5 a.m.) 172 m.g.d. (266 sec.-ft.); Feb. 29 (2 p.m.) 250 m.g.d. (387 sec.-ft.); Apr. 3 (time unknown) 136 m.g.d. (210 sec.-ft.).
Note.- No gage-height record Jan. 27 to Feb. 3, Feb. 7-20, Mar. 30 to Apr. 23; discharge computed on basis of records for nearby streams.

Iolekaa Stream mauka near Heeia

Location.- Columbus type concrete control, lat. 21°26'30", long. 157°49'50", 0.7 mile upstream from confluence with Haiku Stream, 1.5 miles southwest of Heeia, and 1.8 miles west of Kaneohe post office. Datum of gage is 320 feet ±1.0 foot above mean sea level.

Drainage area.- 0.3 square mile.

Records available.- March 1940 to June 1948.

Extremes.- Maximum discharge during year, 20 million gallons a day (31 second-feet) Jan. 27 (gage height, 1.72 feet); minimum, 0.16 million gallons a day (0.25 second-foot) July 1.
1940-48: Maximum discharge, 69 million gallons a day (107 second-feet) Oct. 22, 1941 (gage height, 2.40 feet), from rating curve extended above 1.0 million gallons a day by rating for Columbus type control and test on model of station site; minimum daily, 0.10 million gallons a day (0.16 second-foot) Oct. 31 to Nov. 9, Nov. 24, 27, 1946.

Remarks.- Records fair except those for periods of faulty gage-height record, which are poor.

Revisions (fiscal year).- W 935: 1940.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.11	0.8	.88
.5	.20	.9	1.45
.6	.32	1.0	2.15
.7	.52	1.1	3.0

Discharge, in million gallons, fiscal year July1947 to June1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.19	0.18	0.30	0.18	0.18	0.24	0.26	0.31	0.42	0.36	0.31	0.30
2	.19	.18	.32	.19	.18	.24	.24	.38	.36	.81	.36	.30
3	.40	.18	.40	.20	.18	.24	.24	.69	.31	1.07	.31	.30
4	.29	.18	.77	.20	.18	.24	.24	.44	.30	.38	.30	.30
5	.21	.18	.32	.20	.27	.24	.24	.44	.30	.34	.30	.30
6	.27	.18	.31	.20	.20	.25	.24	.38	.30	.31	.30	.30
7	.35	.17	.28	.20	.19	.24	.24	.36	.30	.40	.30	.30
8	.24	.17	.26	.20	.18	.25	.24	.36	.34	.38	.30	.30
9	.21	.17	.25	.19	.20	.27	.24	.32	.34	.32	.30	.30
10	.21	.17	.26	.19	1.25	.30	.24	.32	.44	.30	.30	.30
11	.21	.17	.27	.19	.54	.57	.22	.32	.40	.31	.30	.30
12	.20	.17	.26	.19	.56	1.22	.25	.34	.36	.31	.30	.31
13	.20	.18	.25	.19	.53	.46	.24	.32	.38	.30	.30	.30
14	.20	.22	.24	.19	1.26	.32	.22	.32	.32	.30	.30	.30
15	.20	.18	.22	.19	.54	.28	.22	.31	.31	.36	.30	.30
16	.20	.18	.22	.19	.39	.27	.22	.31	.38	.36	.30	.28
17	.19	.18	.21	.19	.31	.62	.22	.30	.36	.32	.34	.28
18	.18	.18	.21	.19	.30	.48	.22	.30	.32	.31	.31	.28
19	.18	.18	.21	.19	.28	.34	.22	.30	.31	.31	.44	.28
20	.18	.18	.21	.18	.27	.30	.24	.30	.31	.31	.34	.28
21	.18	.20	.20	.18	.27	.26	.24	.30	.30	.31	.32	.30
22	.18	.22	.21	.18	.26	.25	.27	.30	.34	.31	.32	.30
23	.18	.19	.22	.18	.26	.24	1.42	.30	.36	.32	.32	.30
24	.18	.19	.21	.18	.27	.24	2.25	.30	.32	.32	.32	.30
25	.18	.24	.20	.33	.51	.22	1.07	.55	.31	.31	.32	.30
26	.18	.20	.20	.21	.28	.22	.44	.40	.31	.42	.32	.30
27	.18	.19	.20	.18	.27	.22	1.29	.36	.30	.31	.32	.31
28	.18	.20	.19	.18	.26	.22	.42	.34	.30	.30	.38	.34
29	.18	.22	.19	.18	.26	.24	.32	1.25	.30	.32	.32	.36
30	.18	.25	.19	.18	.25	.24	.32	-	.30	.32	.31	.34
31	.18	.26	-	.18	-	.24	.32	-	.30	-	.30	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.40	0.18	0.209	0.323	6.48	20
August	.26	.17	.192	.297	5.94	18
September	.77	.19	.259	.401	7.78	24
October	.33	.18	.194	.300	6.00	18
November	1.26	.18	.363	.562	10.9	33
December	1.22	.22	.321	.497	9.96	31
Calendar year 1947	1.26	.11	.221	.342	80.9	248
January	2.25	.22	.421	.651	13.0	40
February	1.25	.30	.387	.599	11.2	34
March	.44	.30	.332	.514	10.3	32
April	1.07	.30	.370	.572	11.1	34
May	.44	.30	.318	.492	9.86	30
June	.36	.28	.302	.467	9.06	28
Fiscal year 1947-48	2.25	.17	.305	.472	112	342

Peak discharge (base, 15 m.g.d.).- Jan. 27 (2:30 a.m.) 20 m.g.d. (31 sec.-ft.); Apr. 3 (3 p.m.) 17 m.g.d. (26 sec.-ft.).

Note.- Faulty gage-height record Sept. 3 to Oct. 3, Nov. 15-20, Jan. 1-11; discharge computed on basis of records for stations on nearby streams.

Kahaluu Stream near Heeia

Location.- Modified Parshall flume, lat. 21°26'20", long. 157°51'05", 40 feet upstream from intake of Libby ditch, half a mile upstream from forest-reserve boundary, and 3.5 miles northwest of Kaneohe. Datum of gage is 357.22 feet above mean sea level (levels by Wright, Harvey & Wright).

Drainage area.- 0.4 square mile.

Records available.- October 1935 to June 1948.

Average discharge.- 12 years (1936-48), 2.86 million gallons a day (4.43 second-feet).

Extremes.- Maximum discharge during year, 83 million gallons a day (128 second-feet) Jan. 27 (gage height, 3.40 feet), from rating curve extended above 8.4 million gallons a day by test on model of station site; minimum, 0.17 million gallons a day (0.26 second-foot) Jan. 26.

1935-48: Maximum discharge, 290 million gallons a day (449 second-feet) Sept. 27, 1937 (gage height, 5.47 feet, control then in use), from rating curve computed from 11 to 240 million gallons a day by Parshall flume formula and extended above; minimum daily, 0.07 million gallons a day (0.11 second-foot) Mar. 19, 1947.

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. Continuous records of rainfall are obtained at the station.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.15	0.4	1.40	0.7	3.75
.2	.42	.5	2.05	.8	4.8
.3	.84	.6	2.85	.9	6.0

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.58	0.42	0.42	0.54	0.42	0.54	0.54	0.62	0.89	1.04	0.54	0.52
2	.58	.42	.46	.50	.42	.65	.58	.76	.75	1.73	.77	.39
3	.63	.42	1.12	.47	.42	.70	.58	2.2	.75	4.7	.58	.36
4	.95	.42	4.1	.46	.42	.58	.58	.89	.75	2.15	.54	.36
5	.75	.46	1.42	.46	.42	.58	.58	.95	.75	.77	.54	.36
6	.90	.42	1.77	.46	.42	.58	.58	.70	.75	.50	.54	.36
7	1.04	.42	1.00	.46	.42	.58	.58	.70	.75	.77	.54	.36
8	.70	.42	.50	.46	.42	.63	.58	.70	1.48	.66	.54	.36
9	.62	.42	.42	.46	.50	.58	.62	.70	1.10	.58	.54	.36
10	.62	.42	.54	.46	3.35	.66	.62	.70	1.09	.54	.54	.36
11	.58	.39	.50	.46	.40	.66	.62	.70	.94	a.62	.50	.36
12	.76	.42	.46	.46	3.5	1.88	.70	.70	.84	a.54	.46	.36
13	.62	.42	.46	.46	1.67	.58	.66	.70	.89	a.52	.36	.36
14	.58	.50	.46	.46	2.25	.50	.62	.70	.84	a.50	.36	.36
15	.54	.42	.46	.46	1.27	.50	.62	.70	.79	a1.1	.36	.33
16	.54	.39	.46	.46	.54	.54	.62	.70	.84	a.90	.36	.33
17	.54	.42	.50	.46	.50	2.25	.62	.70	.89	a.68	.42	.33
18	.54	.39	.50	.46	.46	1.54	.66	.70	.84	a.62	.42	.33
19	.54	.39	.50	.46	.42	.46	.66	.70	.84	a.60	.49	.33
20	.54	.39	.50	.48	.42	.39	.66	.66	.84	a.58	.39	.33
21	.54	.46	.54	.46	.46	.39	.66	.66	.84	a.56	.36	.33
22	.50	.46	.77	.46	.46	.36	.70	.66	.97	a.58	.36	.33
23	.50	.42	.78	.42	.50	.36	3.35	.66	.94	.62	.36	.33
24	.50	.46	.54	.42	.54	.36	3.6	.66	.98	.62	.57	.33
25	.50	.78	.54	.97	.88	.39	1.58	1.09	.84	.62	.39	.33
26	.54	.54	.58	.54	.58	.39	.22	.75	.79	.70	.36	.33
27	.54	.46	.58	.46	.54	.42	5.6	.54	.75	.54	.36	.36
28	.50	.42	.62	.42	.50	.46	.99	.50	.75	.54	.36	.36
29	.50	.42	.62	.42	.50	.50	.70	1.48	.75	.50	.36	.42
30	.46	.42	.58	.42	.50	.50	.66	-	.75	.50	.36	.36
31	.42	.42	-	.42	-	.50	.66	-	.75	-	.39	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.04	0.42	0.602	0.931	18.6	57
August	.78	.39	.440	.681	13.6	42
September	4.1	.42	.757	1.17	22.7	70
October	.97	.42	.476	.736	14.8	45
November	3.5	.40	.803	1.24	24.1	74
December	2.25	.36	.645	.998	20.0	61
Calendar year 1947	4.3	.07	1.00	1.55	366	1,120
January	5.6	.22	1.00	1.55	31.0	95
February	2.2	.50	.789	1.22	22.9	70
March	1.48	.75	.862	1.33	26.7	82
April	4.7	.50	.863	1.34	25.9	79
May	.77	.36	.452	.699	14.0	43
June	.52	.33	.356	.551	10.7	33
Fiscal year 1947-48	5.6	.22	.670	1.04	245	751

Peak discharge (base, 30 m.g.d).- Nov. 11 (12 p.m.) 53 m.g.d. (82 sec.-ft.); Jan. 27 (4:30 a.m.) 83 m.g.d. (128 sec.-ft.); Apr. 3 (3 p.m.) 38 m.g.d. (59 sec.-ft.).

a No gage-height record; discharge computed on basis of records for Waihee Stream.

Waihee Stream near Heeia

Location.- Modified Parshall flume, lat. 21°27'05", long. 157°51'35", 70 feet upstream from intake of Kihe ditch, 120 feet downstream from forest-reserve boundary, and 4.1 miles northwest of Kaneohe. Altitude of gage, 193 feet.

Drainage area.- 1.1 square miles.

Records available.- December 1935 to June 1948.

Average discharge.- 12 years (1936-48), 6.45 million gallons a day (9.98 second-feet).

Extremes.- Maximum discharge during year, 430 million gallons a day (665 second-feet) Jan. 27 (gage height, 5.57 feet), from rating curve extended above 50 million gallons a day by test on model of station site; minimum, 4.1 million gallons a day (6.3 second-feet) Mar. 28.

1935-48: Maximum discharge, 465 million gallons a day (719 second-feet) Feb. 28, 1939 (gage height, 5.47 feet, control then in use), from rating curve computed from 20 to 230 million gallons a day by Parshall flume formula and extended above; minimum, 3.2 million gallons a day (5.0 second-feet) Oct. 1, 1946.

Remarks.- Records fair. A 2-inch pipeline diverts water above staion for domestic use.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.6	3.05	1.0	8.6	1.6	21.5
.7	4.2	1.1	10.4	1.8	27.5
.8	5.6	1.2	12.3	2.2	41
.9	7.0	1.4	16.8		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.8	4.6	4.8	5.3	5.2	5.6	5.6	5.7	7.4	8.0	7.4	6.8
2	4.8	4.6	4.8	5.3	5.2	6.3	5.7	6.7	6.8	11	7.2	6.4
3	5.0	4.6	7.4	5.3	5.2	6.6	5.6	13.4	6.6	52	7.1	6.3
4	5.5	4.6	20.5	5.3	5.2	6.0	5.6	7.5	6.5	18.8	7.1	6.0
5	5.2	4.8	8.0	5.3	5.2	5.9	5.6	7.4	6.6	10	7.0	6.0
6	5.6	4.6	10.2	5.3	5.2	6.2	5.6	6.6	6.4	8.0	7.0	6.0
7	6.0	4.6	7.8	5.3	5.2	5.9	5.6	6.4	6.3	9.0	6.8	6.0
8	5.3	4.6	6.2	5.3	5.2	5.9	5.6	6.2	6.8	8.0	6.8	6.0
9	5.2	4.6	5.7	5.3	5.5	5.9	5.6	6.0	6.8	7.4	6.7	6.0
10	5.0	4.6	7.6	5.3	10.0	7.0	5.6	6.0	9.0	7.4	6.6	6.0
11	4.9	4.6	6.4	5.3	6.5	6.6	5.6	5.9	7.2	8.0	6.6	6.0
12	5.1	4.6	6.2	5.3	13.5	10.1	5.9	5.7	7.0	7.4	6.6	6.0
13	4.9	4.6	6.0	5.3	9.2	6.3	5.6	5.7	7.0	7.2	6.6	6.0
14	4.9	5.6	5.7	5.3	39	5.7	5.5	5.7	6.8	7.2	6.6	6.0
15	4.8	4.9	5.6	5.3	13.7	5.7	5.5	5.7	6.8	10	6.6	6.0
16	4.8	4.9	5.5	5.2	6.9	5.3	5.3	5.7	7.2	9.6	6.8	5.9
17	4.8	5.2	5.5	5.2	6.0	13.1	5.3	5.6	7.0	8.0	6.8	5.9
18	4.8	4.8	5.5	5.2	5.7	9.4	5.3	5.5	7.0	7.2	6.6	5.9
19	4.8	4.6	6.0	5.3	6.1	7.2	5.3	5.5	6.9	7.0	7.0	5.9
20	4.8	4.8	5.6	5.3	6.3	6.4	5.3	5.5	6.2	7.0	6.6	6.0
21	4.6	4.9	5.3	5.3	6.2	6.2	5.3	5.6	6.9	7.0	6.6	6.0
22	4.6	4.9	6.6	5.3	6.0	6.0	6.4	5.6	7.4	7.0	6.6	6.0
23	4.6	4.8	6.3	5.3	5.9	5.9	12.9	5.6	8.4	7.0	6.6	6.2
24	4.6	5.0	5.6	5.3	6.0	5.7	18.8	5.7	7.5	7.0	7.4	6.2
25	4.6	6.1	5.5	7.7	7.1	5.7	10.2	7.6	7.2	7.0	7.0	6.2
26	4.9	5.3	5.5	5.6	6.0	5.6	6.7	6.8	7.2	7.4	6.6	6.2
27	4.8	4.9	5.5	5.3	5.9	5.6	40	6.6	7.2	7.1	6.4	6.2
28	4.6	4.8	5.5	5.3	5.7	5.6	8.8	6.6	7.0	7.1	6.4	6.4
29	4.6	4.8	5.3	5.3	5.6	5.6	6.9	6.5	7.0	7.1	6.4	7.0
30	4.6	4.8	5.3	5.3	5.6	5.5	6.3	-	7.0	7.2	6.4	6.2
31	4.6	4.6	-	5.3	-	5.3	6.2	-	7.0	-	6.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.0	4.6	4.91	7.60	152	467
August	6.1	4.6	4.83	7.47	150	459
September	20.5	4.8	6.58	10.2	197	606
October	7.7	5.2	5.38	8.32	167	512
November	39	5.2	7.67	11.9	230	706
December	13.1	5.3	6.45	9.98	200	613
Calendar year 1947	39	3.7	5.34	6.26	1,950	5,990
January	40	5.3	7.72	11.9	239	734
February	13.4	5.5	6.38	9.87	185	568
March	9.0	6.3	7.07	10.9	219	672
April	52	7.0	9.64	14.9	289	887
May	7.4	6.4	6.75	10.4	209	642
June	7.0	5.9	6.12	9.47	184	564
Fiscal year 1947-48	52	4.6	6.62	10.2	2,420	7,430

Peak discharge (base, 90 m.g.d.).- Sept. 4 (5 a.m.) 136 m.g.d. (210 sec.-ft.); Nov. 14 (8:30 p.m.) 390 m.g.d. (603 sec.-ft.); Dec. 19 (10 a.m.) 98 m.g.d. (152 sec.-ft.); Jan. 27 (2 a.m.) 430 m.g.d. (665 sec.-ft.); Apr. 3 (6 p.m.) 360 m.g.d. (557 sec.-ft.).

MISCELLANEOUS DISCHARGE MEASUREMENTS

Measurements on the island of Oahu at other than regular gaging stations are listed below:

Miscellaneous discharge measurements on Oahu during fiscal year July 1947 to June 1948

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
Aug. 18	Puea mauka ditch.	Canefields.....	At 2-foot Parshall flume below power plant, near Waianae.	1.54	0.995
Nov. 18	....do.....	....do.....	....do.....	1.64	1.06
Mar. 17	....do.....	....do.....	....do.....	2.82	1.82
June 17	....do.....	....do.....	....do.....	2.51	1.62
Apr. 8	City and county tunnel.	Pacific Ocean...	At 9-inch Parshall flume just below mouth of tunnel, near Waianae.	1.94	1.25
June 17	....do.....	....do.....	....do.....	.430	.278
July 16	Honua.....	....do.....	At weir 2 above flume intake, near Waianae.	.084	.054
Oct. 29	....do.....	....do.....	....do.....	.057	.037
Mar. 17	....do.....	....do.....	....do.....	.271	.175
June 16	....do.....	....do.....	....do.....	.098	.063
July 16	Tunnel 1 mouth...	Kanemini Stream.	At weir 1-A, near Waianae.....	.020	.013
Oct. 30	....do.....	....do.....	....do.....	.022	.014
Mar. 9	....do.....	....do.....	....do.....	.036	.023
June 16	....do.....	....do.....	....do.....	.022	.014
July 16	Tunnel 1 and springs.	....do.....	At weir 3, near Waianae.....	.074	.048
Oct. 30	....do.....	....do.....	....do.....	.070	.045
Mar. 9	....do.....	....do.....	....do.....	.144	.093
June 16	....do.....	....do.....	....do.....	.090	.058
July 16	Coffee House Springs.	Kukaki Stream...	At weir 4, near Waianae.....	.026	.017
Oct. 30	....do.....	....do.....	....do.....	.032	.021
Mar. 9	....do.....	....do.....	....do.....	.045	.029
June 16	....do.....	....do.....	....do.....	.036	.023
July 17	Kanewai.....	Honua Stream....	Above flume entrance, near Waianae.	2.15	1.39
Oct. 29	....do.....	....do.....	....do.....	2.16	1.40
Mar. 9	....do.....	....do.....	....do.....	2.09	1.35
June 16	....do.....	....do.....	....do.....	2.40	1.55
July 16	Tunnel 19.....	Kanewai Stream..	At weir 28, near Waianae.....	1.20	.776
Oct. 28	....do.....	....do.....	....do.....	1.13	.727
Mar. 9	....do.....	....do.....	....do.....	1.26	.813
June 16	....do.....	....do.....	....do.....	1.47	.950
July 16	Tunnel 2.....	....do.....	At weir 8, near Waianae.....	.438	.283
Oct. 29	....do.....	....do.....	....do.....	.451	.291
Mar. 9	....do.....	....do.....	....do.....	.526	.340
June 16	....do.....	....do.....	....do.....	.500	.323
July 16	Tunnel C.....	....do.....	At weir 7, near Waianae.....	.162	.105
Oct. 29	....do.....	....do.....	....do.....	.153	.099
Mar. 9	....do.....	....do.....	....do.....	.189	.122
June 16	....do.....	....do.....	....do.....	.198	.128
July 16	Tunnel 6-A.....	....do.....	At weir 20, near Waianae.....	.017	.011
Oct. 29	....do.....	....do.....	....do.....	.025	.015
Mar. 9	....do.....	....do.....	....do.....	.035	.023
June 16	....do.....	....do.....	....do.....	.022	.014
July 16	Tunnel 7.....	....do.....	At weir 21, near Waianae.....	.076	.049
Oct. 29	....do.....	....do.....	....do.....	.079	.051
Mar. 9	....do.....	....do.....	....do.....	.090	.058
June 16	....do.....	....do.....	....do.....	.090	.058
July 16	Tunnel 8.....	....do.....	At weir 22, near Waianae.....	.147	.095
Oct. 29	....do.....	....do.....	....do.....	.144	.093
Mar. 9	....do.....	....do.....	....do.....	.167	.108
June 16	....do.....	....do.....	....do.....	.167	.108
July 16	Tunnel 9.....	....do.....	At weir 23, near Waianae.....	.060	.039
Oct. 29	....do.....	....do.....	....do.....	.057	.037
Mar. 9	....do.....	....do.....	....do.....	.051	.033
June 16	....do.....	....do.....	....do.....	.057	.037
June 15	East Branch Kalalula.	Kalalula Stream.	At weir 30, near Waianae.....	.016	.010
July 15	West Branch Kalalula.	....do.....	At weir 25 above tunnel 14, near Waianae.	.071	.046
Oct. 28	....do.....	....do.....	....do.....	.063	.041
Mar. 8	....do.....	....do.....	....do.....	.084	.054
June 15	....do.....	....do.....	....do.....	.102	.066
July 15	Tunnel 14.....	West Branch Kalalula Stream.	At weir 24, near Waianae.....	.088	.057
Oct. 28	....do.....	....do.....	....do.....	.084	.054
Mar. 8	....do.....	....do.....	....do.....	.104	.067
June 17	....do.....	....do.....	....do.....	.102	.066
July 15	Tunnel 11.....	....do.....	At weir 9, near Waianae.....	.003	.002
Oct. 28	....do.....	....do.....	....do.....	.001	.001
Mar. 8	....do.....	....do.....	....do.....	.051	.033
June 15	....do.....	....do.....	....do.....	.236	.154
July 15	Tunnel 14.....	....do.....	At weir 10, near Waianae.....	.183	.118
Oct. 28	....do.....	....do.....	....do.....	.184	.119
Mar. 8	....do.....	....do.....	....do.....	.227	.147
June 15	....do.....	....do.....	....do.....	.269	.174
July 15	Tunnel 15.....	....do.....	At weir 13, near Waianae.....	.320	.207
Oct. 28	....do.....	....do.....	....do.....	.345	.223
Mar. 8	....do.....	....do.....	....do.....	.461	.24
June 15	....do.....	....do.....	....do.....	.330	.213
July 15	West Branch Kalalula.	Kalalula Stream.	At weir 14, below tunnel 15, above pipe-line diversion dam, near Waianae.	.580	.375
Oct. 28	....do.....	....do.....	....do.....	.388	.251
Mar. 8	....do.....	....do.....	....do.....	.535	.346
June 15	....do.....	....do.....	....do.....	.882	.570

MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements on Oahu during fiscal year July 1947 to June 1948--Continued

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
July 15	Kalalula.....	Honua Stream.....	At weir 15, near Waianae.....	0.017	0.011
Oct. 28	....do.....	....do.....	....do.....	.012	.008
Mar. 8	....do.....	....do.....	....do.....	.054	.035
June 15	....do.....	....do.....	....do.....	.011	.007
July 17	Hiu.....	....do.....	At weir 26 above flume intake, near Waianae.	.039	.025
Oct. 30	....do.....	....do.....	....do.....	.036	.023
Mar. 17	....do.....	....do.....	....do.....	.098	.063
June 17	....do.....	....do.....	....do.....	.039	.025
July 17	....do.....	....do.....	At weir 17, near Waianae.....	.070	.045
Oct. 30	....do.....	....do.....	....do.....	.124	.080
Mar. 17	....do.....	....do.....	....do.....	.607	.392
June 17	....do.....	....do.....	....do.....	.127	.082
July 17	Tunnel 16.....	....do.....	At weir 11 and Kumaipo Stream mauka, near Waianae.	.033	.041
Oct. 30	....do.....	....do.....	....do.....	.057	.037
Mar. 17	....do.....	....do.....	....do.....	.305	.197
June 17	....do.....	....do.....	....do.....	.034	.054
July 17	Kumaipo.....	....do.....	At weir 12 above diversion flume to Hiu Stream, near Waianae.	.071	.046
Oct. 30	....do.....	....do.....	....do.....	.057	.037
Mar. 17	....do.....	....do.....	....do.....	.660	.426
June 17	....do.....	....do.....	....do.....	.084	.054
July 17	Tunnel 17.....	Punanaula Stream....	At weir 16, near Waianae.....	.019	.012
Oct. 30	....do.....	....do.....	....do.....	.011	.007
Mar. 17	....do.....	....do.....	....do.....	.022	.014
June 17	....do.....	....do.....	....do.....	.029	.019
Aug. 18	Makaha tunnel...	Canefields.....	At mouth, in Makaha Valley, near Waianae.	2.06	1.33
Nov. 18	....do.....	....do.....	....do.....	1.70	1.10
Mar. 17	....do.....	....do.....	....do.....	1.77	1.15
June 17	....do.....	....do.....	....do.....	1.57	1.01
Aug. 18	Makaha mauka ditch.	....do.....	At 4-foot Parshall flume about 2,000 feet below tunnel in Makaha Valley, near Waianae.	2.12	1.37
Nov. 18	....do.....	....do.....	....do.....	1.74	1.13
June 17	....do.....	....do.....	....do.....	1.40	.905
July 7	Pearl Harbor Springs.	Pacific Ocean.....	All springs west of Puukapu gaging station, near Pearl City.	1.67	1.08

Halawa Stream near Halawa

Location.- Lat. 21°09'30", long. 156°46'00", about 500 feet downstream from confluence of two main branches, 1½ miles west of Halawa, and 6 miles northeast of Pukoo. Altitude of gage, 200 feet (from topographic map).
Drainage area.- 4.5 square miles.
Records available.- August 1917 to July 1932, November 1937 to June 1948.
Average discharge.- 24 years (1918-32, 1938-48), 19.4 million gallons a day (30.0 second-feet).
Extremes.- Maximum discharge during year, 4,010 million gallons a day (6,200 second-feet) Apr. 2 (gage height, 12.30 feet), from rating curve extended above 100 million gallons a day by logarithmic plotting; minimum, 2.6 million gallons a day (4.0 second-feet) Oct.-25.
1917-32, 1937-48: Maximum discharge, that of Apr. 2, 1948; minimum, 0.8 million gallons a day (1.2 second-feet) Oct. 13-15, 19, 1917.
Remarks.- Records fair except those for periods of incomplete or no gage-height record, which are poor. A 1-inch pipe line diverts water about a quarter of a mile above station for domestic use of Halawa village.

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Apr. 2						Apr. 3 to June 30			
0.6	2.7	1.3	13.5	3.5	133	0.3	3.6	1.1	36
.7	3.8	1.5	18.1	4.0	205	.4	5.7	1.4	59
.8	5.1	1.7	23.5	4.5	305	.5	8.5	1.7	87
.9	6.4	2.0	33	5.0	425	.6	11.8	2.0	120
1.0	7.9	2.5	53			.7	15.5	2.5	191
1.1	9.6	3.0	84			.9	25	3.0	271

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.6	6.1	39	8.6	10.1	4.7	15.3	14.6	17.1	155	15	64
2	45	5.0	14.6	6.7	6.1	7.6	48	58	8.8	362	20	23
3	20	4.3	64	6.4	17.0	5.1	30.5	67	131	127	10	14.6
4	14.3	3.8	107	5.4	6.5	6.3	11.9	22.5	25.5	92	8.2	10.8
5	12.8	8.9	27	5.1	6.1	7.7	8.6	30.5	12.1	76	9.2	10
6	35	5.2	28	5.0	5.8	14.9	6.8	13.7	10.2	45	8.2	9.0
7	29	3.7	23	4.4	4.7	26	5.9	39	12.6	20	8.0	7.2
8	10.6	8.5	11.3	4.2	3.8	36.5	5.8	17.1	39.5	12	7.8	6.4
9	10.2	4.9	9.1	3.95	52	29	5.8	13.5	113	10	17	6.2
10	11.0	6.0	35.5	3.7	42	39.5	5.0	9.4	21	9.0	31	5.8
11	8.1	11.9	31	4.4	43	13.3	8.5	8.2	15.8	13	12	5.6
12	11.8	16.2	41	13.5	34	164	15.3	9.2	12.7	18	12	8.4
13	8.8	11.1	17.5	5.5	88	32	9.5	8.2	19.4	13	55	6.8
14	6.6	78	12.5	6.0	38	19.0	5.1	6.8	16.0	12	24.5	7.4
15	9.6	10.8	9.8	7.2	25.5	22	4.3	6.1	16.7	256	14	5.8
16	6.4	10.2	8.6	5.0	11.5	18.0	3.7	5.6	23	40	11	5.4
17	5.5	93	10.9	4.1	8.8	59	4.1	5.1	25.5	18	113	6.4
18	4.8	11.9	10.1	3.6	13.2	32.5	4.3	4.8	13.9	12	29.5	5.6
19	4.4	8.1	7.6	3.45	10.7	29	3.45	4.6	10.4	10	51	5.2
20	7.4	6.4	6.0	3.45	6.7	25.5	5.6	4.3	14.9	21	35	10
21	5.0	9.0	5.4	3.15	6.0	17.1	6.2	4.4	9.6	12	19	7.0
22	4.3	15.0	117	5.1	5.1	10.9	3.7	4.1	10.1	10	14	5.6
23	6.1	8.8	113	3.6	4.6	10.0	270	5.0	28	18	11	13
24	4.7	17.1	23.5	2.9	12.6	11.2	260	93	15.4	22	58	11
25	4.4	61	12.3	7.4	21	7.4	128	24.5	13.3	16	17	10
26	31	38	10.0	71	8.8	9.2	490	66	22.5	34	22	9.0
27	31.5	12.0	8.2	13.0	5.5	13.2	115	38	13.4	14	31	15
28	11.3	10.6	8.9	6.6	4.6	7.8	53	12.1	26	9.7	19	26.5
29	7.4	7.6	12.2	5.1	13.1	12.6	23.5	13.0	108	25	15	20.5
30	10.4	8.8	14.7	4.6	5.6	7.8	26	-	81	43	13	30
31	11.1	9.2	-	21.5	-	6.0	41	-	152	-	20.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	45	4.3	12.9	20.0	399	1,220
August	93	3.7	16.5	25.5	511	1,570
September	117	5.4	28.0	43.3	839	2,570
October	71	2.9	8.18	12.7	254	778
November	88	3.8	17.3	26.8	520	1,600
December	164	4.7	22.8	35.3	707	2,170
Calendar year 1947	278	1.54	20.3	31.4	7,390	22,690
January	490	3.45	52.4	81.1	1,620	4,980
February	93	4.1	21.0	32.5	608	1,870
March	152	8.8	33.5	51.8	1,040	3,190
April	362	9.0	50.8	78.6	1,520	4,680
May	113	7.8	23.6	36.5	731	2,240
June	64	5.2	12.4	19.2	371	1,140
Fiscal year 1947-48	490	2.9	24.9	38.5	9,120	28,010

Peak discharge (base, 950 m.g.d.).- Dec. 12 (3 p.m.) 1,020 m.g.d. (1,580 sec.-ft.); Jan. 26 (8 p.m.) 2,250 m.g.d. (3,480 sec.-ft.); Feb. 24 (8 p.m.) 1,020 m.g.d. (1,580 sec.-ft.); Mar. 9 (12 m.) 1,180 m.g.d. (1,830 sec.-ft.); Apr. 2 (8 a.m.) 4,010 m.g.d. (6,200 sec.-ft.).
Note.- Incomplete or no gage-height record Apr. 6-14, Apr. 16 to May 12, May 14-16, 21-3, 25-30, June 4-27; discharge computed on basis of partly estimated gage-height record and records for Waiakeakua Stream.

Waiakeakua Stream near Wailau

Location.- Lat. 21°07'30", long. 156°49'40", three-quarters of a mile upstream from confluence with Pulena Stream, 3.2 miles south of Wailau, and 3.8 miles northwest of Pukoo. Datum of gage is 698 feet above mean sea level (levels by Bureau of Reclamation).

Drainage area.- 1.4 square miles.

Records available.- October 1919 to September 1929, September 1937 to June 1948.

Average discharge.- 19 years (1920-29, 1938-48), 7.65 million gallons a day (11.8 second-feet).

Extremes.- Maximum discharge during year, 1,360 million gallons a day (2,100 second-feet) Jan. 26 to Apr. 2 (gage heights, 9.90 and 9.87, respectively), from rating curve extended above 140 million gallons a day by logarithmic plotting; minimum, 2.8 million gallons a day (4.3 second-feet) Aug. 9.
1919-29, 1937-48: Maximum discharge, that of Jan. 26, Apr. 2, 1948; minimum, 1.3 million gallons a day (2.0 second-feet) Mar. 7, 1920.

Remarks.- Records fair except those for May 24-28, which are poor. No diversions.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.3	7.4	13.0	5.4	5.2	3.8	9.4	8.0	3.6	39.5	7.6	11.8
2	15.7	3.3	5.7	4.9	4.4	3.7	18.6	19.4	3.5	76	9.6	9.0
3	8.7	3.1	22	4.6	6.5	3.8	17.6	30	7.1	17.4	7.3	7.0
4	7.1	3.0	54	4.3	4.3	3.9	6.6	8.2	4.9	17.5	7.3	6.4
5	6.2	4.3	12.1	4.2	4.1	11.3	5.7	8.7	3.9	11.5	7.8	5.8
6	14.0	3.1	9.3	4.0	3.9	8.3	5.2	6.2	3.8	9.0	7.0	5.5
7	11.2	3.0	7.2	3.8	3.9	11.5	4.7	19.2	4.0	8.4	7.1	5.4
8	6.3	3.3	4.6	3.7	3.7	10.3	4.5	6.2	8.8	8.7	6.6	5.2
9	5.6	2.9	4.1	3.6	7.7	10.9	4.4	5.1	5.3	7.8	8.5	5.1
10	6.5	4.1	7.7	3.5	9.6	16.3	4.4	4.4	3.9	7.6	10.0	4.8
11	5.0	3.4	6.2	3.95	11.3	7.1	4.1	4.0	3.6	7.8	7.1	4.8
12	7.8	8.0	14.4	4.9	8.0	29	8.6	3.8	3.5	8.2	7.1	5.0
13	4.9	5.0	5.6	3.8	27	9.8	4.6	3.8	6.3	9.0	10.5	4.8
14	4.4	24	5.7	3.8	28	7.0	4.0	3.8	4.1	8.0	9.5	5.0
15	4.4	6.3	4.6	3.6	15.5	11.5	3.8	3.8	6.0	22.5	7.6	4.6
16	4.1	5.6	5.0	3.4	7.8	6.8	3.7	3.8	11.4	12.0	7.9	4.6
17	3.8	13.7	6.2	3.4	6.3	21	3.7	3.8	7.0	9.2	17.0	4.6
18	3.5	5.2	5.5	3.3	6.5	14.0	3.6	3.8	4.4	8.8	10.8	4.6
19	3.5	4.4	4.5	3.3	5.3	9.6	3.5	3.6	4.3	8.8	13.0	4.5
20	3.95	4.0	4.2	3.2	4.9	9.2	3.9	3.6	6.8	9.6	10.9	4.6
21	3.4	4.6	4.1	3.1	4.5	6.9	3.7	3.6	4.1	7.3	9.2	4.6
22	3.2	4.2	22.5	3.2	4.2	5.6	3.4	3.6	7.1	7.3	8.4	4.5
23	3.8	3.9	22	3.0	4.1	5.4	65	3.6	14.5	7.6	8.0	5.2
24	3.2	6.1	7.3	3.0	7.4	5.0	64	8.7	6.2	7.6	a12	4.9
25	3.2	19.0	5.7	8.4	6.0	4.6	78	4.0	8.2	8.2	a9.0	4.9
26	7.7	10.1	5.2	39.5	4.3	5.3	273	22	9.3	11.1	a13	4.7
27	7.3	5.4	4.7	6.6	4.0	7.3	73	9.2	5.5	7.6	a20	5.0
28	4.4	5.0	4.7	4.6	3.9	4.7	30.5	4.0	17.3	7.3	a9.0	5.8
29	3.6	4.3	5.8	4.2	4.4	6.1	18.3	3.8	57	8.2	8.4	5.5
30	4.1	5.7	16.0	4.4	3.8	4.5	22	-	24	9.7	8.4	5.8
31	4.6	4.2	-	12.2	-	4.3	27.5	-	28.5	-	9.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.7	3.2	5.89	9.11	182	560
August	24	2.9	5.99	9.27	186	570
September	54	4.1	9.99	15.5	300	919
October	39.5	3.0	5.51	8.53	171	524
November	28	3.7	7.35	11.4	220	677
December	29	3.7	8.66	13.4	268	824
Calendar year 1947	57	2.7	6.70	10.4	2,440	7,500
January	273	3.4	25.3	39.1	783	2,400
February	30	3.6	7.44	11.5	216	662
March	57	3.5	9.29	14.4	288	884
April	76	7.3	13.0	20.1	389	1,190
May	20	6.6	9.53	14.7	295	907
June	11.8	4.5	5.47	8.46	164	503
Fiscal year 1947-48	273	2.9	9.46	14.6	3,460	10,620

Peak discharge (base, 240 m.g.d.).- Sept. 4 (5 a.m.) 520 m.g.d. (805 sec.-ft.); Oct. 26 (2 p.m.) 364 m.g.d. (563 sec.-ft.); Dec. 12 (2 p.m.) 246 m.g.d. (381 sec.-ft.); Dec. 17 (8:30 a.m.) 274 m.g.d. (424 sec.-ft.); Jan. 26 (8 p.m.) 1,360 m.g.d. (2,100 sec.-ft.); Apr. 2 (9 a.m.) 1,360 m.g.d. (2,100 sec.-ft.).

a No gage-height record; discharge computed on basis of recorded range in stage and weather records.

Pulena Stream near Wailau

Location.- Lat. 21°07'40", long. 156°49'50", half a mile upstream from confluence with Walakeakua Stream, 3 miles south of Wailau, and 4 miles northwest of Pukoo. Datum of gage is 546 feet above mean sea level (levels by Bureau of Reclamation).
Drainage area.- 4.4 square miles.
Records available.- October 1919 to December 1928, September 1937 to June 1948.
Average discharge.- 18 years (1920-28, 1938-48), 22.2 million gallons a day (34.3 second-feet).
Extremes.- Maximum discharge recorded during year, 15,900 million gallons a day (24,600 second-feet) Jan. 26 (gage height, 13.16 feet), from rating curve extended above 220 million gallons a day by logarithmic plotting; minimum, not determined.
1919-28, 1937-48: Maximum discharge, that of Jan. 26, 1948; minimum, 3.0 million gallons a day (4.6 second-feet) June 28, July 14, 1920.
Flood of Jan. 20, 1929, reached a stage of at least 22 feet.
Remarks.- Records fair except those for periods of partly estimated or no gage-height record, which are poor. No diversions.

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 26

0.9	4.5	1.8	45
1.0	6.6	2.0	63
1.1	9.0	2.4	110
1.2	12.2	2.8	180
1.4	20	3.2	275
1.6	31		

Jan. 27 to June 30

0.5	8.3	1.8	72	4.5	970
.6	11.1	2.1	107	5.0	1,310
.8	17.0	2.5	170	5.5	1,700
1.0	24	3.0	290	6.0	2,140
1.2	32	3.5	460		
1.5	48	4.0	690		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	25.5	7.1	16.4	15.8	18.9	9.3	23.5	22	9.5	49		56
2	46	6.2	12.5	13.3	14.0	9.3	39	40	9.0	300		31.5
3	24.5	6.0	41	11.6	17.4	15.5	79	70	30			23.5
4	20	5.6	82	10.0	11.2	15.8	31	33	17	40		18.8
5	17.9	7.1	16.7	12.8	10.3	22.5	23	33	12			17.0
											20	
6	31.5	5.6	21	10.0	10.0	22	18.3	18.8	11			16.5
7	26.5	5.3	16.6	9.0	9.6	28	16.2	52	13			14.1
8	17.1	6.7	13.3	8.3	8.5	26.5	14.7	22.5	40			12.0
9	15.1	5.3	11.9	7.8	10.0	24.5	13.3	16.1	23	20		10.5
10	18.8	12.0	14.4	7.8	18.5	40	12.9	13.1	18			9.7
11	13.3	7.3	13.3	10.0	41	20	11.6	11	16			9.1
12	16.4	24	104	11.7	40	113	20.5	10	15			10.2
13	11.6	13.9	26	8.8	86	55	14.3	9.5	25		25	9.3
14	10.6	47	27	8.8	101	36	11.2	9.0	16			12.4
15	10.3	14.2	18.3	8.3	81	35.5	10.3	8.6	25	65		8.8
16	10.3	14.0	16.6	7.1	39	34	9.6	8.5	45			8.3
17	9.0	28.5	17.0	6.6	26	58	9.3	8.4	25			8.8
18	8.3	12.9	14.0	6.2	25	67	9.0	8.3	15	25	35	8.6
19	8.3	10.0	11.6	6.6	18.7	62	9.3	8.3	13			8.0
20	12.0	8.8	10.9	6.0	15.8	38	9.0	8.3	18.9			10.2
21	8.0	9.6	10.0	5.8	14.0	27	8.3	8.3	9.7			8.6
22	8.0	8.5	18.7	7.4	12.6	21	7.8	8.3	19.9			7.5
23	10.2	8.3	30.5	5.6	11.2	27.5	237	9.0	50	20	25	8.8
24	7.3	13.0	15.0	5.1	14.8	21	362	20	24.5			7.0
25	8.0	43	11.2	39.5	16.1	17.1	758	11	28			9.3
26	14.7	22.5	10.6	255	11.2	23.5	2,190	70	27.5			7.0
27	13.8	12.9	10.0	41	9.6	30	250	30	19.1		55	7.0
28	10.6	12.2	10.9	20.5	9.3	19.7	90	11	36.5	25	24	8.3
29	8.0	9.6	14.1	14.7	10.9	22	40	10	102		20.5	8.6
30	9.5	22	48	14.3	9.0	15.8	45	-	56		20	10.1
31	8.8	12.6	-	38	-	14.3	50	-	43	-	33.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	46	7.3	14.8	22.9	459	1,410
August	47	5.3	13.6	21.0	422	1,290
September	104	10.0	22.8	35.3	684	2,100
October	255	5.1	20.4	31.6	633	1,940
November	101	8.5	24.0	37.1	721	2,210
December	113	9.3	31.3	48.4	971	2,980
Calendar year 1947	255	4.5	20.1	31.1	7,340	22,530
January	2,190	7.8	143	221	4,420	13,560
February	70	8.3	20.3	31.4	588	1,800
March	102	9.0	26.2	40.5	813	2,490
April	300	20	36.1	55.9	1,080	3,330
May	55	20	26.9	41.6	833	2,560
June	56	7.0	12.8	19.8	386	1,180
Fiscal year 1947-48	2,190	5.1	32.8	50.7	12,010	36,850

Note.- Partly estimated or no gage-height record Jan. 27 to Feb. 5, Feb. 11 to Mar. 19, Apr. 1 to May 28, June 15-30; discharge computed on basis of recorded range in stage and records for nearby streams.

Pelekunu Stream near Pelekunu

Location.- Lat. 21°08'20", long. 156°52'50", three-quarters of a mile upstream from confluence with Lanipuni Stream, 1.8 miles south of Pelekunu, and 6.8 miles northwest of Pukoo. Datum of gage is 546 feet above mean sea level (levels by Bureau of Reclamation).

Drainage area.- 2.4 square miles.

Records available.- December 1919 to January 1929, September 1937 to June 1948.

Average discharge.- 17 years (1920-28, 1938-47), 10.4 million gallons a day (16.1 second-feet).

Extremes.- Maximum discharge during year, unknown (probably occurred Jan. 26); minimum recorded, 2.8 million gallons a day (4.3 second-feet) June 27.

1919-29, 1937-48: Maximum discharge determined, 3,080 million gallons a day (4,770 second-feet) Nov. 20, 1940 (gage height, 6.81 feet), from rating curve extended above 80 million gallons a day by logarithmic plotting; minimum, 1.46 million gallons a day (2.26 second-feet) Nov. 26, 27, 1943.

Flood that destroyed gage shelter Jan. 26, 1948, probably reached a higher stage than 6.81 feet, the maximum given.

Remarks.- Records good. No diversions.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.3	3.5	5.9	5.4	8.0							-
2	15.8	3.5	5.2	5.2	6.1							-
3	9.6	3.3	13.8	4.2	-							-
4	7.9	3.2	22	4.1	-							-
5	6.8	3.5	12.8	5.2	-							-
6	10.7	3.3	9.3	4.2	-							-
7	9.4	3.2	7.4	4.1	-							-
8	6.8	3.5	6.3	3.8	-							-
9	6.3	3.3	5.6	3.8	-							-
10	7.9	4.5	11.4	3.7	-							-
11	5.9	3.7	8.2	4.2	-							-
12	5.9	8.0	13.3	4.2	-							-
13	5.0	4.4	8.5	4.2	-							-
14	4.7	12.1	8.0	4.2	-							-
15	4.5	4.7	6.1	4.1	-							-
16	4.5	5.1	5.6	3.7	-							-
17	4.2	11.0	5.2	3.6	-							-
18	4.1	5.4	4.7	3.5	-							-
19	4.1	4.4	4.2	3.6	-							-
20	5.3	4.1	4.1	3.3	-							-
21	4.1	4.0	4.0	3.3	-							3.2
22	4.1	3.8	4.9	3.7	-							3.2
23	4.5	3.7	11.2	3.2	-							3.6
24	3.8	5.5	5.3	3.2	-							3.2
25	4.0	23	4.1	23	-							3.6
26	5.6	12.4	4.1	76	-							3.0
27	5.1	6.6	4.0	21.5	-							3.0
28	4.2	6.3	4.1	10.7	-							7.0
29	3.8	5.0	5.2	7.6	-							3.8
30	3.8	9.2	12.4	6.8	-							3.6
31	3.7	5.9	-	14.3	-							-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.8	3.7	6.05	9.36	187	575
August	23	3.2	5.91	9.14	183	562
September	22	4.0	7.56	11.7	227	696
October	76	3.2	8.25	12.8	256	785
November	-	-	-	-	-	-
December	-	-	-	-	-	-
The period	-	-	-	-	2,560	7,860
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June 21-30	7.0	3.0	3.72	5.76	37.2	114
Fiscal year	-	-	-	-	-	-

Note.- Station destroyed by flood Jan. 26. Reestablished June 21. Record Nov. 2 to Jan. 26 lost in flood.

Lanipuni Stream near Pelekunu

Location.- Lat. 21°08'40", long. 156°52'30", 0.4 mile upstream from confluence with Pelekunu Stream, 1½ miles southeast of Pelekunu, and 6.8 miles northwest of Pukoo. Datum of gage is 418 feet above mean sea level (hand levels from Geological Survey bench mark).

Drainage area.- 0.8 square mile.

Records available.- December 1918 (correction) to September 1929, September 1937 to June 1948

Average discharge.- 18 years (1920-29, 1938-47), 9.59 million gallons a day (14.8 second-feet).

Extremes.- Maximum discharge during year, unknown; minimum, 1.84 million gallons a day (2.85 second-feet) Oct. 24.

1919-29, 1937-48: Maximum discharge determined, 3,470 million gallons a day (5,370 second-feet) Mar. 18, 1943 (gage height, 9.02 feet), from rating curve extended above 35 million gallons a day by logarithmic plotting; minimum, 1.45 million gallons a day (2.24 second-feet) Jan. 29, 1944.

Remarks.- Records poor. No diversions.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.5	2.6	5.8	5.6	6.4	3.9	14.0	13	3.2	16.7		8.2
2	23.5	2.5	4.6	4.6	3.9	4.2	28	23	4.6	-		7.0
3	10.8	2.4	39	3.5	4.3	7.6	41	40	3.8	-		6.2
4	7.4	2.4	40	3.0	4.6	11.3	13.2	6.5	3.4	-		5.6
5	6.3	2.6	11.9	6.0	5.5	12.4	8.4	5.5	3.1	-		5.5
6	22	2.3	6.9	3.3	4.2	10.3	6.3	4.5	3.1	-		5.1
7	11.2	2.3	4.8	2.9	3.9	28.5	5.2	6.1	3.2	-		4.7
8	5.8	2.8	3.9	2.6	3.7	18.5	5.2	4.7	3.6	-		4.2
9	5.2	2.3	3.7	2.5	3.7	11.7	4.8	4.1	3.3	-		4.1
10	8.5	3.9	14.8	2.4	17.1	15.7	4.2	3.8	4.0	-		4.1
11	4.8	2.8	7.8	2.9	26.5	7.4	4.1	3.5	3.3	-		4.1
12	5.1	9.8	14.7	2.9	38	95	15.4	3.7	3.7	-		4.1
13	3.9	3.7	6.2	4.0	87	34.5	6.3	3.3	9.8	-		4.4
14	3.5	17.1	8.0	3.4	61	27.5	4.4	3.3	5.0	-		5.0
15	3.5	3.5	4.6	3.2	27	18.2	4.1	3.2	8.8	-		4.0
16	3.3	10.2	4.2	2.5	11.4	19.2	3.7	3.1	22.5	-		3.9
17	3.2	27.5	3.9	2.4	8.0	40	3.8	3.0	35.5	-		4.3
18	2.9	4.1	3.3	2.3	6.6	46	3.7	3.0	17.6	-		3.8
19	3.0	3.3	2.8	2.3	5.8	41.5	3.5	2.8	6.7	-		3.4
20	4.1	2.9	2.6	2.0	5.0	22.5	3.0	2.7	7.0	-		5.0
21	3.0	2.9	2.6	2.3	4.6	12.9	2.9	3.0	4.4	-		4.0
22	3.4	2.8	7.2	3.0	4.2	9.1	2.9	3.8	7.1	-		3.5
23	4.4	2.8	7.8	2.0	4.2	12.5	79	2.7	26	-		4.3
24	2.8	5.8	3.4	1.92	10.1	8.7	143	3.7	8.4	-		4.0
25	3.7	41	2.8	48	8.3	7.4	211	3.4	12.1	-		4.1
26	6.4	11.9	2.6	119	4.8	11.5	330	27.5	12.8	-		3.7
27	4.8	5.0	2.6	22	4.2	16.9	100	8.2	10.0	-		3.5
28	4.2	4.6	2.9	6.6	4.1	8.4	50	4.0	11.8	-		5.3
29	3.2	3.3	5.6	4.6	4.4	11.6	22	3.4	47	-		4.2
30	3.2	9.9	20	5.0	3.7	7.2	26	-	36.5	-		5.4
31	2.9	4.6	-	22.5	-	6.1	32	-	27	-		-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	23.5	2.8	6.21	9.61	192	591
August	41	2.3	6.66	10.3	207	634
September	40	2.6	8.37	13.0	251	770
October	119	1.92	9.72	15.0	301	924
November	87	3.7	12.9	20.0	386	1,190
December	95	3.9	19.0	29.4	588	1,810
Calendar year 1947	119	1.92	9.45	14.6	3,450	10,600
January	330	2.9	38.1	58.9	1,180	3,620
February	40	2.7	7.00	10.8	203	623
March	47	3.1	11.6	17.9	359	1,100
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	8.2	3.4	4.62	7.15	139	426
Fiscal year	-	-	-	-	-	-

Note.- No gage-height record Jan. 26 to Feb. 3, Apr. 2 to June 3; discharge computed on basis of records for nearby streams. Data insufficient for computation of discharge on days for which no figures are given.

Waikolu Stream below pipe-line crossing, near Kalaupapa

Location.- Concrete and stone dam, lat. 21°09'50", long. 156°56'00", three-quarters of a mile upstream from mouth and 3.9 miles southeast of Kalaupapa post office. Datum of gage is 253 feet above mean sea level (levels by Bureau of Reclamation).

Drainage area.- 4.0 square miles.

Records available.- August 1931 to July 1932, September 1937 to June 1948. June 1919 to November 1930 at site 500 feet upstream.

Extremes.- Maximum discharge during period ending Jan. 26, 1,900 million gallons a day (2,940 second-feet) Jan. 26 (gage height, 6.46 feet), from rating curve extended above 42 million gallons a day by logarithmic plotting; minimum, 5.5 million gallons a day (8.5 second-feet) Oct. 23-25, Nov. 23, 24, Dec. 2.
1919-32, 1937-48: Maximum discharge, 2,510 million gallons a day (3,880 second-feet) Apr. 9, 1938 (gage height, 6.01 feet), from rating curve extended above 50 million gallons a day by logarithmic plotting; minimum, 1.3 million gallons a day (2.0 second-feet) Nov. 1, 2, 1925, June 5, 1926.

Remarks.- Records good. Kalaupapa water-supply system diverts water above station.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.2	4.2	1.8	26.5
1.3	6.1	2.0	40
1.4	8.6	2.2	58
1.5	11.9	2.6	106
1.6	16.0	3.0	172

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.2	7.4	7.1	7.4	8.7	5.7	7.6					
2	18.1	7.4	7.4	6.6	6.4	5.5	19.9					
3	9.9	7.1	13.6	6.1	5.9	6.1	38					
4	9.6	7.1	30	6.1	5.9	7.9	14.3					
5	8.6	7.1	12.4	6.1	5.9	6.6	8.9					
6	10.9	7.1	9.0	6.1	5.9	8.6	7.4					
7	11.5	7.1	7.4	6.1	5.9	13.3	7.1					
8	8.4	7.1	6.8	5.9	5.7	13.0	6.8					
9	8.4	7.1	6.8	5.9	5.7	8.8	6.8					
10	8.9	7.1	15.9	5.9	5.9	8.5	6.6					
11	8.4	7.1	12.8	5.9	6.4	6.8	6.4					
12	8.1	7.8	8.1	5.9	7.8	81	14.7					
13	7.8	7.8	7.4	6.1	26	21.5	10.6					
14	8.1	11.2	7.1	6.8	13.7	24	6.8					
15	8.1	7.6	6.8	6.8	9.9	10.1	6.6					
16	7.8	7.6	6.8	6.1	13.2	15.4	6.4					
17	7.8	12.6	6.6	5.9	8.0	19.0	6.6					
18	7.8	7.8	6.6	5.7	6.1	34	6.8					
19	7.8	7.1	6.4	5.7	5.9	26	6.4					
20	7.8	6.8	6.1	5.7	5.7	10.2	6.1					
21	7.8	6.8	6.1	5.7	5.7	8.1	6.1					
22	7.8	6.8	6.1	5.7	5.7	7.4	6.1					
23	7.8	6.8	7.3	5.5	5.5	11.6	104					
24	7.6	6.8	8.0	5.5	15.3	11.3	153					
25	7.6	29	6.4	27.5	12.2	7.4	197					
26	8.4	17.0	6.1	81	7.4	9.0	-					
27	8.6	7.8	6.1	11.2	6.1	13.5	-					
28	8.1	7.1	6.1	7.1	5.9	8.4	-					
29	7.6	7.1	7.1	6.1	5.7	10.3	-					
30	7.6	9.6	12.9	6.1	5.7	7.8	-					
31	7.4	8.0	-	9.9	-	6.8	-					

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	18.1	7.4	8.72	13.5	270	830
August	29	6.8	8.64	13.4	268	822
September	30	6.1	8.78	13.6	263	808
October	81	5.5	9.49	14.7	294	903
November	26	5.5	7.99	12.4	240	736
December	81	5.5	14.0	21.7	434	1,330
Calendar year 1947	126	5.0	11.7	18.1	4,270	13,090
January	197	6.1	26.7	41.3	667	2,050
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	-	-	-	-	-	-
The period	-	-	-	-	2,440	7,480

Note.- Station severely damaged by flood Jan. 26.

Waialala Springs near Kalae

Location.- Right angle brass weir control, lat. 21°10'20", long. 157°00'05", on the highway from Kalae to the Kalaupapa Pali, 0.8 mile northeast of Kalae, and 5.7 miles northeast of Kaunakakai post office. Altitude of gage, 1,600 feet (from topographic map).

Records available.- September 1940 to June 1948.

Extremes.- Maximum daily discharge during year, 0.034 million gallons a day (0.053 second-foot) Feb. 27; minimum daily, 0.011 million gallons a day (0.017 second-foot) Dec. 17.
1940-48: Maximum daily discharge, 0.275 million gallons a day (0.425 second-foot) Mar. 11, 1942; minimum daily, 0.002 million gallons a day (0.003 second-foot) Jan. 2, 11-13, 1947.

Remarks.- Records good. Maui County Water Works diverts the entire flow for domestic supply, from tail bay at station.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.019	0.016	0.014	0.012	0.012	0.012	0.029	0.021	0.033	0.019	0.024	0.017
2	.019	.016	.014	.012	.012	.012	.028	.021	.033	.027	.024	.017
3	.019	.016	.013	.012	.012	.012	.028	.021	.032	.022	.024	.017
4	.019	.016	.013	.012	.012	.012	.028	.021	.031	.022	.024	.017
5	.019	.016	.013	.012	.012	.012	.028	.021	.030	.022	.024	.017
6	.019	.015	.013	.012	.012	.012	.028	.021	.030	.022	.024	.016
7	.019	.015	.013	.012	.012	.012	.028	.021	.029	.022	.024	.016
8	.019	.015	.013	.012	.012	.012	.028	.020	.028	.022	.024	.016
9	.019	.015	.013	.012	.012	.012	.027	.020	.028	.022	.024	.016
10	.019	.015	.013	.012	.012	.012	.027	.020	.027	.022	.024	.016
11	.019	.015	.013	.012	.012	.012	.027	.020	.026	.022	.024	.016
12	.019	.015	.013	.012	.012	.013	.026	.020	.026	.022	.024	.016
13	.018	.015	.013	.012	.012	.014	.026	.020	.025	.022	.024	.016
14	.018	.014	.012	.012	.012	.013	.026	.019	.024	.022	.024	.016
15	.018	.014	.012	.012	.013	.013	.026	.019	.024	.030	.024	.017
16	.018	.014	.012	.012	.012	.012	.026	.019	.023	.026	.024	.017
17	.018	.014	.012	.012	.012	.011	.026	.019	.022	.026	.024	.017
18	.018	.014	.012	.012	.012	.012	.026	.019	.022	.025	.024	.017
19	.018	.014	.012	.012	.012	.012	.026	.019	.021	.025	.023	.017
20	.018	.014	.012	.012	.012	.012	.025	.019	.020	.024	.023	.017
21	.017	.014	.012	.012	.012	.012	.024	.018	.020	.024	.022	.017
22	.017	.014	.012	.012	.012	.012	.024	.018	.020	.024	.022	.017
23	.017	.014	.012	.012	.012	.012	.024	.018	.020	.024	.022	.017
24	.017	.014	.012	.012	.012	.012	.024	.018	.020	.024	.021	.017
25	.017	.014	.012	.013	.013	.012	.023	.018	.019	.024	.021	.016
26	.017	.014	.012	.016	.013	.030	.023	.024	.019	.024	.021	.016
27	.017	.014	.012	.015	.012	.030	.023	.034	.019	.024	.020	.016
28	.016	.014	.012	.015	.012	.030	.023	.033	.019	.024	.019	.016
29	.016	.014	.012	.013	.012	.030	.022	.033	.019	.024	.017	.016
30	.016	.014	.012	.012	.012	.029	.022	-	.019	.024	.017	.016
31	.016	.014	-	.012	-	.029	.022	-	.019	-	.017	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.019	0.016	0.018	0.028	0.555	1.7
August	.016	.014	.015	.023	.452	1.4
September	.014	.012	.012	.019	.375	1.2
October	.016	.012	.012	.019	.384	1.2
November	.013	.012	.012	.019	.363	1.1
December	.030	.011	.016	.025	.482	1.5
Calendar year 1947	.030	.002	.013	.020	4.70	14
January	.029	.022	.026	.040	.793	2.4
February	.034	.018	.021	.032	.614	1.9
March	.033	.019	.024	.037	.747	2.3
April	.027	.019	.024	.037	.706	2.2
May	.024	.017	.022	.034	.697	2.1
June	.017	.016	.016	.025	.495	1.5
Fiscal year 1947-48	.034	.011	.018	.028	6.66	20

Note.- No gage-height record Dec. 18 to Feb. 10, Feb. 27 to Mar. 20; discharge computed on basis of recorded range in stage.

Kapuna Stream near Kalae

Location.- Soil Conservation Service type H (De Fabritis) flume, lat. 21°09'05", long. 156°59'00", 2.1 miles southeast of Kalae and 4.9 miles northeast of Kaunakakai post office. Altitude of gage, 1,900 feet (from topographic map).

Records available.- June 1940 to June 1948.

Extremes.- Maximum discharge during year, 4.0 million gallons a day (6.2 second-feet) Jan. 26 (gage height, 1.56 feet); no flow Oct. 22-24.
1940-48: Maximum discharge, 10.0 million gallons a day (15.5 second-feet) Mar. 11, 1942 (gage height, 2.00 feet); no flow during very dry weather.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.3	0.10	0.6	0.43
.1	.01	.4	.18	.8	.82
.2	.05	.5	.29	1.0	1.35

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.01	0.01	0.004	0.003	0.02	0.02	0.02	0.12	0.05	0.02	0.04	0.03
2	.01	.01	.004	.003	.02	.02	.02	.10	.05	.04	.05	.03
3	.01	.01	.004	.003	.02	.02	a.02	.08	.05	.05	.05	.03
4	.01	.01	.004	.003	.02	.01	a.02	.08	.04	.06	.05	.03
5	.01	.01	.004	.003	.02	.01	a.03	.07	.04	.06	.04	.03
6	.01	.01	.004	.003	.02	.01	a.03	.06	.04	.06	.04	.03
7	.01	.01	.004	.003	.02	.01	.03	.06	.04	.06	.04	.03
8	.01	.01	.004	.003	.02	.01	.03	.07	.03	.06	.03	.03
9	.01	.01	.004	.003	.02	.01	.03	.08	.03	.06	.03	.03
10	.01	.01	.004	.003	.01	.01	.03	.08	.03	.06	.02	.03
11	.01	.01	.003	.003	.01	.02	.03	.08	.03	.06	.02	.03
12	.01	.01	.003	.003	.01	.02	.04	.07	.03	.06	.02	.02
13	.01	.01	.003	.003	.01	.02	.04	.07	.03	.06	.02	.02
14	.01	.01	.003	.003	.01	.03	.03	.07	.03	.06	.02	.02
15	.01	.01	.003	.003	.01	.03	.03	.06	.03	.05	.03	.02
16	.01	.01	.003	.002	.01	.03	.03	.06	.03	.06	.03	.02
17	.01	.004	.003	.002	.01	.03	.03	.06	.02	.06	.03	.02
18	.01	.004	.003	.002	.01	.03	.03	.05	.02	.06	.03	.02
19	.01	.004	.003	.002	.01	.03	.03	.05	.02	.06	.03	.02
20	.01	.004	.003	.001	.02	.03	.03	.04	.02	.06	.03	.02
21	.01	.004	.003	.001	.01	.03	.03	.04	.02	.06	.03	.02
22	.01	.004	.003	0	.01	.03	.03	.03	.02	.05	.03	.02
23	.01	.004	.003	0	.01	.03	.04	.03	.02	.06	.03	.02
24	.01	.004	.004	0	.01	.03	.09	.03	.02	.05	.03	.02
25	.01	.004	.004	.002	.01	.03	.24	.03	.02	.05	.03	.02
26	.01	.004	.004	.01	.01	.03	1.50	.03	.02	.05	a.03	.02
27	.01	.004	.004	.01	.01	.03	.59	.05	.02	.04	a.03	.01
28	.01	.004	.004	.01	.02	.03	.29	.05	.02	.04	a.03	.02
29	.01	.004	.003	.01	.02	.03	.20	.05	.02	.04	.03	.01
30	.01	.004	.003	.01	.02	.02	.16	-	.02	.04	.03	.01
31	.01	.004	-	.01	-	.02	.15	-	.02	-	.03	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.01	0.01	0.01	0.16	0.31	1.0
August	.01	.004	.007	.011	.22	.7
September	.004	.003	.004	.006	.10	.3
October	.01	0	.004	.006	.12	.4
November	.02	.01	.014	.022	.43	1.3
December	.03	.01	.023	.036	.71	2.2
Calendar year 1947	.16	0	.015	.023	5.54	17.1
January	1.50	.02	.126	.195	3.90	12.0
February	.12	.03	.060	.093	1.75	5.4
March	.05	.02	.028	.043	.88	2.7
April	.06	.02	.053	.082	1.60	4.9
May	.05	.02	.032	.050	.98	3.0
June	.03	.01	.023	.036	.68	2.1
Fiscal year 1947-48	1.50	0	.032	.050	11.7	36.0

a No gage-height record; discharge interpolated.

Right Branch of East Fork Kawela Stream near Kamalo

Location.- Concrete v-notched weir, lat. 21°09'20", long. 156°54'30", at Molokai Ranch pipe-line intake, 4.7 miles northwest of Kamalo, and 7.6 miles northeast of Kaunakakai. Datum of gage is 3,624.86 feet above mean sea level (Territory of Hawaii bench mark).

Drainage area.- 0.2 square mile.

Records available.- Sept mber 1946 to June 1948.

Extremes.- Maximum discharge during period ending June 30, 1947, 117 million gallons a day (181 second-feet) Oct. 10 (gage height, 4.32 feet); no flow many times.
Maximum discharge during year ending June 30, 1948, 882 million gallons a day (1,36 second-feet) Jan. 26 (gage height, 7.97 feet); no flow many times.

Remarks.- Records good except those for periods of faulty gage-height record, which are fair. Molokai Ranch diverts low flow from stream above statior.

Discharge, in million gallons a day, 1946-48

1946-47

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			-	1.81	0.20	10.2	2.0	0	0	0	5.4	0.08
2			-	.66	0	9.7	24.5	0	3.9	0	29	.08
3			-	.01	.63	1.78	2.1	0	1.26	0	18.6	.41
4			-	2.35	9.4	1.61	2.25	0	.05	.16	16.2	.35
5			-	.07	13.8	.38	1.45	0	0	.40	3.35	.08
6			-	0	3.2	6.8	.73	0	.07	10.9	1.03	0
7			-	0	.61	13.1	2.45	0	2.55	7.9	.29	0
8			-	.81	.65	1.68	5.4	0	1.98	2.6	.23	0
9			-	9.6	.65	.20	1.68	12.9	.12	.97	.02	0
10			-	20.5	1.03	2.05	.47	1.49	0	.23	.66	0
11			-	2.45	1.06	.58	.52	.15	0	1.68	1.81	0
12			-	.23	.61	.02	.26	.01	0	6.9	6.4	2.8
13			-	0	.16	0	.40	0	.27	.62	2.95	2.2
14			-	0	.03	0	1.27	0	4.4	.05	.19	.39
15			-	0	7.1	1.04	.09	0	.36	0	0	0
16			-	0	.23	3.35	0	0	2.35	0	0	0
17			-	0	0	11.8	0	0	6.6	0	0	0
18			-	0	0	7.9	0	0	.18	0	0	.43
19			-	0	0	2.8	0	0	0	0	0	.08
20			-	0	0	30.5	0	0	0	0	0	2.35
21			-	0	0	29	0	0	0	0	9.3	.62
22			-	.04	.23	3.2	0	0	0	0	5.1	1.54
23			-	2.45	.15	5.0	0	0	.31	.01	.59	.76
24			-	1.61	0	20.5	0	0	.82	.01	.14	.36
25			-	.04	0	1.69	0	0	1.44	0	.17	1.84
26			-	3.8	0	.47	0	1.46	1.00	0	.22	4.6
27			-	2.1	0	.10	1.07	3.6	1.17	.59	.43	8.4
28			0.31	.64	17.7	.01	1.36	.34	3.6	.09	5.7	4.0
29			2.05	.35	11.2	0	.14	-	7.6	0	.43	2.25
30			1.63	3.9	4.1	1.09	0	-	1.40	.06	.02	8.8
31			-	1.75	-	1.88	0	-	.14	-	0	-

Discharge, in million gallons a day, of Right Branch of East Fork Kawela Stream near Kamalo, Molokai, 1946-48--Continued

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.46	0	0.34	0.64	2.75	0	1.52	1.2	1.60	5.3	1.06	3.25
2	5.5	0	.55	.19	.24	0	9.2	1.0	.20	15.2	.10	1.60
3	.71	0	5.4	0	.31	1.12	12.3	2.0	4.5	1.20	C	2.65
4	1.08	0	8.2	0	.05	2.8	4.8	.44	1.14	1.43	C	1.50
5	.44	0	1.43	.59	0	.38	1.88	.91	.10	.39	.93	0
6	3.25	0	.43	.25	0	2.85	.61	.24	0	.07	.06	.10
7	2.4	0	.01	0	0	2.3	.27	.13	.13	0	.39	0
8	.17	0	0	0	0	2.85	.01	.04	.26	3.4	.34	0
9	0	0	0	0	0	.51	0	.46	.10	.84	2.8	0
10	1.92	.07	1.87	0	0	1.71	0	.02	1.59	.24	4.6	0
11	.34	.04	1.84	.02	.38	.21	0	0	2.5	.23	.52	0
12	0	3.2	1.78	.18	1.41	11.2	1.1	0	4.3	1.78	E.4	0
13	0	.60	.27	.70	6.6	4.4	.28	0	4.7	1.08	E.0	0
14	0	4.5	.29	1.27	2.45	1.8	0	0	1.57	.24	E.0	2.65
15	0	.24	0	1.04	1.66	1.8	0	0	4.6	7.4	.13	1.04
16	0	.07	0	.16	1.09	2.6	0	0	9.6	2.95	.02	.04
17	0	3.6	.33	0	.63	4.5	0	0	12.3	.54	E.5	0
18	0	.28	0	0	.01	18.5	0	0	4.3	.04	5.9	0
19	0	0	0	0	0	8.4	0	0	1.12	.11	E.9	0
20	.68	0	0	0	0	2.5	0	0	2.9	1.33	3.05	.54
21	.11	0	0	0	0	.88	0	0	.96	.75		.39
22	.08	0	0	.04	0	.24	0	.39	3.9	.26		0
23	.52	0	3.5	0	0	4.30	22	0	7.5	.01		.56
24	.01	.79	1.03	0	1.19	2.30	25	.08	1.87	1.72		.19
25	0	13.5	0	12.4	3.05	.50	79	2.2	1.50	.57	.3	.07
26	1.78	5.1	0	29	.65	5.3	130	16.4	3.15	2.75		0
27	1.11	.46	0	1.96	.01	6.6	9.0	3.75	1.98	2.3		0
28	.47	.50	.01	.41	0	1.89	12	1.33	3.3	1.54		4.8
29	.05	.08	1.65	.05	0	2.85	3.1	5.1	10.6	2.15		1.7
30	0	3.35	5.8	0	0	.72	2.1	-	6.2	3.0	.16	.26
31	0	.83	-	3.75	-	.10	8.9	-	3.6	-	1.43	-

Note.- Recorder not operating properly Dec. 13-17, Jan. 12, 13, Jan. 25 to Feb. 8, May 21-29, June 22-30; discharge computed on basis of recorded range in stage and records for nearby streams.

Monthly discharge, in million gallons a day, 1946-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October 1946	20.5	0	1.78	2.75	55.2	169
November	17.7	0	2.42	3.74	72.7	223
December	30.5	0	5.43	8.40	168	517
Calendar year	-	-	-	-	-	-
January 1947	24.5	0	1.55	2.40	48.1	148
February	12.9	0	.712	1.10	20.0	61
March	7.6	0	1.34	2.07	41.6	128
April	10.9	0	1.11	1.72	33.2	102
May	29	0	3.49	5.40	108	332
June	8.8	0	1.41	2.18	42.4	130
The period	-	-	-	-	589	1,810
July 1947	5.5	0	.712	1.10	22.1	68
August	13.5	0	1.20	1.86	37.2	114
September	8.2	0	1.16	1.79	34.7	107
October	29	0	1.70	2.63	52.6	162
November	6.6	0	.749	1.16	22.5	69
December	18.5	0	3.10	4.80	96.1	295
Calendar year 1947	29	0	1.53	2.37	559	1,720
January 1948	130	0	10.4	16.1	323	991
February	16.4	0	1.23	1.90	35.7	110
March	12.3	0	3.29	5.09	102	313
April	15.2	0	1.96	3.03	58.8	181
May	8.5	0	1.77	2.74	55.0	169
June	4.8	0	.711	1.10	21.3	65
Fiscal year 1947-48	130	0	2.35	3.64	861	2,640

Left Branch Makamakaole Stream near Waihee

Location.- Combined orifice and concrete control, lat. 20°57'40", long. 156°33'45", at intake to Marshall Ranch diversion ditch on left branch, a quarter of a mile upstream from confluence with main stream, 2 miles northwest of Waihee, and 2¼ miles south of Kahakuloa village. Altitude of gage, 1,500 feet (by barometer).

Drainage area.- 0.4 square mile.

Records available.- July 1939 to June 1948.

Extremes.- Maximum discharge during year, 287 million gallons a day (444 second-feet) Apr. (gage height, 4.98 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.54 million gallons a day (0.84 second-foot) Oct. 24.

1939-48: Maximum discharge, that of Apr. 2, 1948; minimum, 0.43 million gallons a day (0.66 second-foot) Jan. 10, 11, 1946.

Remarks.- Records good. Marshall Ranch diversion ditch diverts water from gage pool for watering stock.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge in million gallons a day)

1.1	0.47	1.6	1.90	2.1	14.3
1.2	.54	1.7	3.0	2.2	19.5
1.3	.60	1.8	4.5	2.3	26
1.4	.72	1.9	6.8		
1.5	1.09	2.0	10.0		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.75	0.63	2.6	0.86	0.90	0.72	1.06	2.0	1.03	25	1.45	5.7
2	2.4	.61	2.0	.71	.80	.92	2.15	2.35	1.34	41	1.37	1.71
3	1.15	.59	5.6	.72	.77	.65	2.3	6.3	1.82	9.3	1.29	1.53
4	1.78	.58	5.7	.68	.71	.62	1.29	2.55	2.2	7.2	1.22	1.37
5	1.52	5.8	1.94	1.85	.69	.61	.90	1.90	1.80	7.2	1.22	1.03
6	1.76	1.22	2.2	.80	.67	.89	.80	1.53	1.09	3.45	1.22	.98
7	1.03	.94	1.45	.69	.68	3.65	.82	2.15	.93	2.65	1.15	.94
8	.90	.86	1.03	.65	.64	2.9	.86	2.05	1.93	2.6	1.22	.86
9	.86	.82	.90	.64	4.4	1.49	.77	1.37	2.15	2.25	1.37	.82
10	.82	.82	1.41	.61	5.9	1.13	.84	1.22	5.6	1.90	1.29	.77
11	.77	.79	1.68	1.27	1.85	.98	.82	1.29	1.76	2.1	1.22	.77
12	.90	1.65	1.24	.85	1.09	4.4	.75	9.9	1.62	3.2	1.22	.77
13	.72	1.99	.86	.68	.94	2.3	.75	2.65	2.75	2.35	1.45	.77
14	.80	1.15	.80	1.08	3.95	2.3	.69	1.45	1.37	3.0	1.29	.75
15	1.50	.90	.75	.80	2.05	1.30	.68	1.22	1.45	23	1.22	.72
16	1.33	.94	.72	.65	.98	2.3	.65	1.09	1.53	6.2	1.22	.72
17	.86	1.09	.86	.64	.86	4.2	.69	.98	1.62	2.65	1.73	.72
18	.75	.86	.69	.60	1.89	5.4	1.12	.94	1.15	2.35	1.37	.71
19	.71	.80	.65	.58	1.03	4.2	.71	.90	1.09	2.35	1.45	.69
20	.80	.77	.63	.57	.82	1.80	.65	.86	2.35	2.0	1.71	.72
21	.75	.75	.60	.57	.75	1.71	.63	.86	1.15	2.0	1.62	.71
22	.69	.72	1.69	.61	.72	1.22	.61	.90	1.22	1.80	1.53	.68
23	.67	.75	2.15	.56	.69	1.26	9.1	.80	2.8	1.62	1.45	.82
24	.63	.72	.90	.55	.69	1.38	9.8	.97	1.29	1.62	2.75	.71
25	.69	1.70	.72	5.0	.67	.90	18.0	1.80	1.62	1.53	1.67	.69
26	1.33	1.03	.68	1.98	.65	.86	56	5.9	2.6	1.71	2.2	.80
27	.86	.82	.63	3.55	.62	1.03	9.4	3.65	1.99	1.45	5.0	.85
28	1.13	.86	.68	1.62	.61	.82	4.9	1.22	2.55	1.37	2.1	1.41
29	.71	.77	2.05	1.15	.62	.77	2.45	1.23	5.7	2.95	1.53	.97
30	.69	.81	2.05	.98	.59	.77	2.35	-	7.6	1.80	1.37	1.73
31	.65	.75	-	.98	-	.75	4.9	-	19.2	-	1.53	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.4	0.63	0.997	1.54	30.9	95
August	5.8	.58	1.08	1.67	33.5	103
September	5.7	.60	1.53	2.37	45.9	141
October	5.0	.55	1.08	1.67	33.5	103
November	5.9	.59	1.27	1.96	38.2	117
December	5.4	.61	1.75	2.71	54.2	166
Calendar year 1947	15.6	.55	1.75	2.71	637	1,960
January	56	.61	4.43	6.85	137	422
February	9.9	.80	2.14	3.31	62.0	190
March	19.2	.98	2.72	4.21	84.4	259
April	41	1.37	5.65	8.74	170	520
May	5.0	1.15	1.59	2.46	49.4	152
June	5.7	.68	1.08	1.67	32.4	99
Fiscal year 1947-48	56	.55	2.11	3.26	772	2,370

Peak discharge (base, 90 m.g.d.).- Oct. 26 (2:30 p.m.) 106 m.g.d. (154 sec.-ft.); Jan. 26 (6 p.m.) 193 m.g.d. (299 sec.-ft.); Apr. 2 (7 a.m.) 287 m.g.d. (444 sec.-ft.).

Kahakuloa Stream near Honokohau

Location.- Columbus-type concrete control, lat. 20°58'50", long. 156°33'25", just downstream from confluence with lowest tributary, 1.3 miles south of Kahakuloa, and 2 miles west of Puu Makawana.

Drainage area.- 3.4 square miles.

Records available.- July 1939 to August 1943, September 1947 to June 1948. January 1913 to December 1914 fragmentary records at site about 1 mile upstream.

Extremes.- Maximum discharge during period, 1,620 million gallons a day (2,510 second-feet) Jan. 26 (gage height, 7.18 feet) from rating curve extended above 30 million gallons a day by logarithmic plotting; minimum, 3.05 million gallons a day (4.72 second-feet) Nov. 30.

1939-43, 1947-48: Maximum discharge, 1,990 million gallons a day (3,080 second-feet) Dec. 14, 1942 (gage height, 7.02 feet), from rating curve extended above 55 million gallons a day by test on model of station site; minimum, 2.9 million gallons a day (4.5 second-feet) June 22, 23, 1943.

Remarks.- Records good. No diversions.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			-	5.2	4.6	4.0	7.2	7.6	5.2	115	9.2	25.5
2			-	4.3	3.9	7.1	15.9	9.8	6.6	124	6.6	8.4
3			-	4.1	5.9	4.7	20	32.5	7.3	75	5.9	6.8
4			-	3.9	3.75	3.6	8.3	11.6	16.0	32.5	5.7	6.1
5			-	19.2	3.6	3.6	5.5	7.3	10.2	17.1	5.5	5.9
6			-	5.2	3.4	7.6	4.6	6.1	5.5	13.2	5.2	6.8
7			-	4.3	3.4	28	5.5	8.2	5.0	9.6	5.2	6.3
8			-	3.9	3.4	14.2	6.3	10.7	23.5	11.0	5.2	5.5
9			-	3.75	15.9	6.8	4.6	5.9	9.3	9.5	7.4	5.2
10			-	3.6	28	7.0	5.1	5.5	34.5	7.6	6.1	5.0
11			-	10.0	9.7	6.4	5.3	5.9	8.7	10.4	5.2	4.8
12			-	6.4	5.0	18.1	5.0	79	8.7	20.5	5.2	4.8
13			-	3.9	4.6	15.0	5.7	11.3	18.3	15.2	7.0	5.0
14			-	7.6	94	13.8	4.1	6.6	7.6	22	6.2	4.8
15			-	5.2	9.6	7.6	3.75	5.9	14.1	100	5.2	4.8
16			-	4.3	5.2	14.9	3.6	5.5	13.9	30	5.0	4.6
17			-	4.3	4.4	37.5	4.1	5.0	11.1	11.6	12.0	5.2
18			4.1	3.6	7.4	41	5.4	4.8	7.9	9.0	7.7	5.0
19			3.75	3.9	5.1	25	4.1	4.8	6.3	12.5	11.1	4.6
20			3.6	3.4	3.9	9.2	3.75	4.4	28	7.9	15.3	5.2
21			3.6	3.4	3.6	9.4	3.6	4.8	6.6	13.4	8.5	5.0
22			11.2	3.9	3.4	5.9	3.4	5.2	7.1	7.6	8.0	4.4
23			10.3	3.4	3.4	5.8	33	4.4	30	7.0	6.8	7.3
24			5.4	3.2	3.85	8.9	38.5	4.9	7.3	6.6	24.5	5.2
25			4.1	41	3.6	4.8	104	7.5	24	6.3	10.7	5.0
26			4.1	103	3.4	5.0	342	26.5	21	8.7	24.5	6.5
27			3.6	15.7	3.2	7.8	38.5	16.5	12.9	6.6	44	9.1
28			4.4	6.3	3.2	5.0	27	6.0	28	6.3	18.1	16.5
29			20	5.0	3.6	4.4	9.0	5.2	58	33.5	14.9	8.2
30			14.8	4.4	3.2	4.3	11.5	-	46	11.6	9.3	23
31			-	4.8	-	4.1	30	-	48	-	11.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September 18-30	20	3.6	7.20	11.1	93.0	285
October	103	3.2	9.81	15.2	304	933
November	94	3.2	8.47	13.1	254	780
December	41	3.6	11.0	17.0	340	1,040
Calendar year	-	-	-	-	-	-
January	342	3.4	24.8	38.4	768	2,360
February	79	4.4	11.0	17.0	319	980
March	58	5.0	17.3	26.8	537	1,650
April	124	6.3	25.4	39.3	761	2,340
May	44	5.0	10.4	16.1	323	991
June	25.5	4.4	7.35	11.4	220	677
The period	-	-	-	-	3,920	12,040

Honokohau Stream near Honokohau

Location.- Masonry dam control, lat. 20°57'45", long. 156°35'20", 1,000 feet upstream from intake of Honokohau ditch and 5 miles southeast of Honokohau. Altitude of gage, 950 fee (by barometer).
Drainage area.- 4.2 square miles.
Records available.- March 1913 to September 1920, May 1922 to June 1948.
Average discharge.- 30 years (1916-20, 1922-48), 25.5 million gallons a day (39.5 second-feet).
Extremes.- Maximum discharge during year, 980 million gallons a day (1,520 second-feet) Jan. 26 (gage height, 5.95 feet), from rating curve extended above 120 million gallons a day; minimum, 8.5 million gallons a day (13.2 second-feet) Nov. 30, Jan. 22, 23.
1913-20, 1922-48: Maximum discharge, 2,420 million gallons a day (3,740 second-feet Dec. 14, 1942 (gage height, 8.40 feet), from rating curve extended above 120 million gallons a day; minimum, 5.4 million gallons a day (8.4 second-feet) May 1, 1945, Jan. 5 1946.
Remarks.- Records good except those for periods of faulty gage-height record, which are fair. No diversions above station.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.9	6.4	2.5	29	3.7	184
2.0	8.7	2.7	42	4.1	276
2.1	11.5	3.0	73	4.6	432
2.3	18.9	3.3	114		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.0	10.1	25	16.2	12.2	15.6	22	a14	12.9	142	24.5	51
2	51	10.1	26	12.5	10.4	12.2	46	a14	11.5	146	14.9	22
3	32	9.8	109	11.5	11.8	9.3	57	a27	11.8	64	13.5	18.5
4	23	10.1	61	10.9	10.1	13.8	18.5	a15	15.5	50	13.2	16.9
5	34.5	44	15.3	85	9.3	14.2	12.9	a13	13.2	18.1	13.5	22
6	83	11.8	13.9	11.8	9.3	26	13.6	a12	13.2	15.7	12.9	21
7	27.5	10.1	12.5	10.7	9.3	55	14.2	f20	48	14.2	12.9	16.9
8	12.9	10.1	10.9	10.1	9.0	16.3	13.9	a18	32.5	27	12.5	15.3
9	11.8	9.5	10.7	10.1	10.7	12.2	10.1	a11	13.9	16.1	33.5	14.9
10	13.2	10.4	10.9	10.1	10.4	19.0	10.4	a11	38	13.5	24.5	14.9
11	72	10.7	52	14.4	14.0	11.4	10.1	a11	19.5	14.6	13.5	14.6
12	32	32	32.5	12.0	60	22	13.5	f51	20	20.5	14.2	17.0
13	11.8	35.5	16.0	13.0	15.3	20	14.1	a16	46	24.5	35.5	16.9
14	18.5	16.5	14.2	20.5	152	15.3	9.5	a12	24	32	25	16.1
15	26.5	10.7	10.7	12.2	16.0	10.9	9.0	a12	66	138	12.2	15.3
16	19.4	67	11.5	10.1	f9.5	26.5	8.7	a11	99	46	16.4	15.7
17	15.7	25	16.6	10.1	a9.5	118	9.3	a11	45	18.5	70	16.9
18	11.5	22.5	10.7	9.3	f15	96	10.1	10.7	42	23.5	28.5	18.9
19	10.9	11.2	10.1	10.7	f10	48	9.0	10.9	36.5	31.5	55	14.6
20	16.2	10.1	9.8	9.3	a9.5	25	8.7	10.9	112	17.3	70	24.5
21	11.5	13.0	9.8	11.7	a9.3	22.5	8.7	15.4	11.7	34	24	15.7
22	12.6	14.2	11.8	13.4	a9.0	11.2	8.5	13.9	30	15.7	21.5	14.6
23	11.5	13.9	14.7	9.5	a8.7	12.6	45	10.9	115	13.9	16.9	19.8
24	10.4	50	10.9	9.0	f11	16.6	45	10.7	74	13.5	44	15.3
25	23.5	170	10.1	122	f10	10.7	269	13.4	85	14.2	19.8	16.9
26	23	46	9.8	183	f9.5	14.2	409	59	43	21.5	67	21
27	27	12 9	9.5	23	a9.3	22.5	f42	21	25	18.1	97	21
28	14.9	18.8	15.0	15.3	f9.3	11.5	f56	11.8	89	18.3	66	31
29	11.2	11.2	68	11.2	9.8	12.5	a14	15.3	182	137	68	18.7
30	10.7	12.9	46	10.4	8.7	10.1	f13	-	71	74	31.5	41
31	10.7	11.5	-	25	-	10.1	f62	-	36.5	-	57	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	83	10.4	22.7	35.1	702	2,160
August	170	9.5	24.2	37.4	752	2,310
September	109	9.5	22.8	35.3	685	2,100
October	183	9.0	24.0	37.1	744	2,280
November	152	8.7	16.9	26.1	508	1,560
December	118	9.3	23.9	37.0	741	2,270
Calendar year 1947	183	8.7	21.8	33.7	7,980	24,470
January	409	8.5	41.7	64.5	1,290	3,970
February	59	10.7	16.7	25.8	483	1,480
March	182	11.5	48.0	74.3	1,490	4,570
April	146	13.5	41.1	63.6	1,230	3,780
May	97	12.2	33.2	51.4	1,030	3,160
June	51	14.6	20.0	30.9	599	1,840
Fiscal year 1947-48	409	8.5	28.0	43.3	10,250	31,480

Peak discharge (base, 700 m.g.d.).- Nov. 14 (3:30 p.m.) 890 m.g.d. (1,380 sec.-ft.); Dec. 17 (8 a.m.) 935 m.g.d. (1,450 sec.-ft.); Jan. 26 (4 p.m.) 980 m.g.d. (1,520 sec.-ft.); Apr. 1 (5 p.m.) 800 m.g.d. (1,240 sec.-ft.).
a Faulty gage-height record; discharge computed on basis of records for nearby streams.
f Computed on basis of partly estimated gage-height record.

Honokawai ditch near Lahaina

Location.- Lat. 20°56'00", long. 156°37'30", just downstream from intake on Honokawai Stream, 2½ miles upstream from Pioneer Mill Co.'s power house, and 7½ miles northeast of Lahaina. Altitude of gage, 1,900 feet (from topographic map).

Records available.- July 1912 to June 1948.

Average discharge.- 29 years (1919-48), 5.79 million gallons a day (8.96 second-feet).

Extremes.- Maximum daily discharge during year, 22.5 million gallons a day (34.8 second-feet) Oct. 26; minimum daily, 4.7 million gallons a day (7.3 second-feet) Nov. 21-25, 29, 30.
1912-32: Maximum discharge, 76 million gallons a day (118 second-feet) Aug. 11, 1929 (gage height, 2.17 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Ditch diverts water for power and irrigation from Honokawai Stream just above station. Flow regulated by head gates at intake.

Cooperation.- Records of daily discharges since July 1932 furnished by Pioneer Mill Co.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.8	5.0	5.9	5.9	6.0	5.6	8.5	9.1	5.5	9.4	6.6	10.2
2	12.2	5.0	6.7	5.4	5.4	5.4	14.4	8.9	5.0	11.3	5.9	8.7
3	10.2	5.0	16.2	4.9	5.4	4.8	11.8	10.0	4.9	5.7	5.6	7.5
4	8.4	5.1	9.5	4.9	4.9	6.1	8.4	8.7	4.9	5.8	5.6	6.6
5	9.1	10.0	5.4	13.0	4.7	7.2	6.2	8.0	4.9	5.6	5.6	7.3
6	16.0	5.6	5.0	5.3	4.7	8.2	5.5	7.4	4.8	5.3	5.6	7.7
7	9.1	5.1	5.1	4.9	4.7	10.2	6.0	8.3	8.2	5.2	5.6	6.2
8	5.6	5.1	5.1	4.8	4.7	6.0	5.4	8.1	6.2	7.5	5.4	5.8
9	5.5	5.1	5.1	4.8	4.8	5.1	5.1	6.4	5.4	5.7	10.5	5.8
10	5.5	5.1	5.1	4.8	5.0	5.4	4.9	6.4	6.1	5.4	9.7	5.8
11	8.7	5.1	8.9	4.9	6.5	5.1	4.8	5.8	7.1	5.4	5.8	5.8
12	9.3	10.8	8.6	5.2	11.8	5.3	4.9	7.4	7.1	5.3	6.9	5.7
13	5.5	12.3	5.6	4.8	7.4	7.6	6.6	6.2	12.2	5.7	11.8	6.7
14	5.1	7.6	5.9	7.4	10.2	7.3	4.9	5.8	6.8	5.5	7.8	6.3
15	7.4	5.3	5.3	5.3	6.5	5.4	4.8	5.8	11.0	9.1	5.6	6.3
16	6.4	10.6	5.1	4.9	5.2	7.5	4.8	5.3	12.2	8.7	5.6	6.1
17	6.4	9.1	6.0	4.9	5.1	13.6	4.8	5.0	8.3	5.5	14.8	6.4
18	5.1	5.8	5.2	4.8	4.8	17.7	4.9	4.9	8.9	5.7	9.6	7.9
19	5.0	5.4	5.0	4.8	5.0	11.6	4.9	4.9	9.0	6.8	12.1	6.3
20	7.0	5.2	5.0	4.9	4.8	9.6	4.9	4.9	9.1	5.7	12.9	9.2
21	5.2	5.1	5.1	4.8	4.7	8.4	4.9	5.2	8.2	9.3	7.5	6.9
22	5.6	5.2	5.0	5.8	4.7	5.2	4.9	6.0	7.9	5.6	6.8	6.2
23	5.8	6.0	5.2	5.0	4.7	4.9	8.0	5.2	14.3	5.4	6.1	6.1
24	5.1	11.9	5.4	4.9	4.7	6.5	10.1	5.0	10.9	5.4	7.9	6.0
25	6.9	20.5	5.0	10.0	4.7	5.4	17.7	5.2	11.8	5.4	6.3	6.2
26	6.9	10.4	5.0	22.5	4.8	6.0	15.6	10.2	7.2	5.6	13.0	6.4
27	10.4	5.7	5.0	9.3	4.8	9.2	13.3	6.0	6.2	7.6	13.5	7.4
28	6.0	6.8	5.8	7.1	4.8	5.8	13.4	5.0	11.7	6.9	11.7	8.0
29	5.2	5.1	16.4	5.4	4.7	6.1	10.2	7.5	15.8	19.2	11.9	7.3
30	5.1	5.4	13.9	5.0	4.7	5.4	9.8	-	9.8	13.4	9.0	6.3
31	5.0	5.4	-	10.6	-	5.3	11.4	-	6.3	-	12.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.0	5.0	7.11	11.0	220	677
August	20.5	5.0	7.12	11.0	221	678
September	16.4	5.0	6.72	10.4	202	618
October	22.5	4.8	6.48	10.0	201	617
November	11.8	4.7	5.50	8.51	165	506
December	17.7	4.8	7.19	11.1	223	684
Calendar year 1947	22.5	4.	6.47	10.0	2,360	7,250
January	17.7	4.8	7.93	12.3	246	754
February	10.2	4.9	6.64	10.3	193	591
March	15.8	4.8	8.31	12.9	258	791
April	19.2	5.2	7.14	11.0	214	657
May	14.8	5.4	8.56	13.2	266	815
June	10.2	5.7	6.84	10.6	205	629
Fiscal year 1947-48	22.5	4.7	7.14	11.0	2,610	8,020

Olowalu ditch near Olowalu

Location.- Parshall flume control, lat. 20°49'40", long. 156°36'40", 114 feet upstream from intake of pipe-line to hydroelectric plant, 1¼ miles northeast of Olowalu, and 7 miles east of Lahaina.

Records available.- August 1911 to June 1948.

Average discharge.- 30 years (1917-20, 1921-48), 4.93 million gallons a day (7.63 second-feet).

Extremes.- Maximum daily discharge during year, 10.5 million gallons a day (16.2 second-feet) Oct. 26, Apr. 29; minimum daily, 2.3 million gallons a day (3.6 second-feet) Oct. 24.
1911-32: Maximum discharge, 18 million gallons a day (28 second-feet) Dec. 25, 1920 (gage height, 1.53 feet, site and datum then in use); no flow occasionally, when water was shut out of ditch.

Remarks.- Ditch diverts water from Olowalu Stream at altitude of about 450 feet. Water used for power and irrigation. Regulated by head gates.

Cooperation.- Records of daily discharges since January 1932 furnished by Pioneer Mill Co.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.6	2.9	4.4	4.6	4.6	2.85	3.15	8.2	9.5	9.7	8.8	9.0
2	7.9	2.8	4.6	3.8	4.1	2.6	5.7	8.1	8.6	9.7	9.5	8.8
3	6.2	2.7	9.6	3.35	4.0	2.4	8.5	8.4	7.7	9.8	9.0	7.5
4	5.2	2.65	9.6	3.2	3.6	2.45	8.0	8.5	7.0	8.3	8.1	6.8
5	5.4	6.4	9.0	6.9	3.45	2.4	5.9	7.7	6.2	5.9	7.5	6.4
6	8.6	3.6	7.2	4.2	3.35	3.85	4.8	7.1	5.8	8.2	7.0	6.1
7	8.7	3.15	5.8	3.5	3.3	5.0	4.5	8.7	6.6	10.3	6.8	5.8
8	6.1	2.95	5.0	3.25	3.15	3.8	4.4	8.6	7.9	8.9	6.3	5.5
9	4.8	2.8	4.4	3.05	3.1	3.0	3.75	6.0	7.2	6.9	7.4	5.2
10	4.2	2.8	4.2	2.95	3.05	2.8	3.55	7.1	7.2	6.7	6.7	4.9
11	5.0	2.6	4.7	3.1	3.15	2.65	3.35	6.6	6.3	6.7	6.0	4.8
12	7.0	4.0	4.2	2.95	4.9	2.55	3.45	7.3	6.1	6.7	5.8	4.8
13	4.7	5.4	3.75	3.75	4.4	2.5	3.85	6.2	6.6	6.7	6.0	4.7
14	4.4	4.9	3.5	5.2	3.5	2.5	3.15	5.8	6.0	6.7	6.1	4.5
15	5.1	3.5	3.35	4.4	3.3	2.55	2.95	5.6	7.2	7.2	5.3	4.3
16	4.4	5.8	3.35	4.1	3.05	3.65	2.85	5.3	9.5	7.4	5.3	4.2
17	4.2	6.2	3.3	4.0	2.95	6.5	2.8	5.0	9.6	7.0	8.4	4.2
18	3.75	4.6	3.1	3.9	3.2	9.7	2.75	4.9	9.4	6.9	7.8	4.1
19	3.6	3.75	3.0	4.0	2.95	9.6	2.7	4.8	9.3	6.9	7.3	3.9
20	3.75	3.3	2.9	2.95	3.1	8.4	2.65	4.6	9.7	6.8	9.4	4.2
21	3.35	3.2	2.85	2.55	2.85	6.7	2.6	4.8	9.4	7.2	8.5	4.0
22	3.9	3.0	2.9	2.5	2.75	5.0	2.55	4.7	9.4	8.6	7.3	3.85
23	3.5	3.15	4.5	2.4	2.65	4.3	5.3	4.4	9.8	7.8	6.3	4.1
24	3.05	4.5	3.35	2.3	2.75	4.0	6.1	4.7	10.0	8.9	7.4	3.8
25	3.45	9.8	2.95	4.8	2.7	3.55	9.6	7.0	9.5	9.1	6.5	3.85
26	3.8	9.6	2.85	10.5	2.6	3.5	10.0	9.5	9.3	8.1	9.2	3.9
27	4.7	8.3	2.75	9.6	2.55	3.6	9.0	9.4	8.9	7.7	9.8	3.95
28	4.1	6.3	3.0	8.6	2.55	3.25	8.1	9.4	9.8	7.3	9.9	4.4
29	3.5	4.9	7.7	6.3	2.5	3.2	8.1	8.9	10.0	10.5	9.8	4.1
30	3.2	4.5	7.2	5.3	2.4	2.95	8.2	-	9.7	9.8	9.5	5.2
31	3.0	4.2	-	5.4	-	2.85	8.9	-	9.6	-	9.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.7	3.0	4.71	7.29	146	449
August	9.8	2.6	4.46	6.90	138	424
September	9.6	2.75	4.63	7.16	139	427
October	10.5	2.3	4.43	6.85	137	422
November	4.9	2.4	3.22	4.98	96.5	296
December	9.7	2.4	4.02	6.22	125	383
Calendar year 1947	10.5	2.3	4.30	6.65	1,570	4,820
January	10.0	2.55	5.20	8.05	161	495
February	9.5	4.4	6.80	10.5	197	605
March	10.0	5.8	8.35	12.9	259	794
April	10.5	5.9	7.95	12.3	238	732
May	9.9	5.3	7.68	11.9	238	731
June	9.0	3.8	5.03	7.78	151	463
Fiscal year 1947-48	10.5	2.3	5.54	8.57	2,030	6,220

Oheo Stream below diversion dam, near Kipahulu

Location.- Lat. 20°41'05", long. 156°04'10", just downstream from old diversion dam at elevation 1,550 feet, 2 miles northwest of Kipahulu, and 2½ miles upstream from mouth.

Drainage area.- 5.8 square miles.

Records available.- February 1927 to September 1929, December 1931 to June 1948.

Average discharge.- 11 years (1932-35, 1940-48), 45.1 million gallons a day (69.8 second-feet).

Extremes.- Maximum discharge during year, 4,940 million gallons a day (7,640 second-feet) Oct. 26 (gage height, 11.58 feet), from rating curve extended above 750 million gallons a day by test on model of station site; minimum, 0.03 million gallons a day (0.05 second-foot) Oct. 24, 25.

1927-29, 1931-48: Maximum discharge, 6,190 million gallons a day (9,580 second-feet) Jan. 4, 1933 (gage height, 11.95 feet), from rating curve extended above 400 million gallons a day; no flow in dry periods.

Remarks.- Records good above 0.5 million gallons a day and poor below. Small quantity of water is diverted below station for domestic supply and livestock.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.0	0	0.5	1.08	1.6	27.5	5.0	465
.1	.04	.6	1.79	2.0	51	6.0	760
.2	.14	.8	4.0	2.5	91	7.0	1,010
.3	.33	1.0	7.5	3.0	136	8.0	1,240
.4	.63	1.3	15.3	4.0	254		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.4	0.54	49	3.85	7.6	3.65	2.4	0.86	0.44	190	91	88
2	50	.48	27.5	11.8	3.5	1.00	2.15	.63	.27	42	47	17.9
3	20.5	.29	381	3.95	9.8	101	15.9	.94	.20	178	16.2	24.5
4	23	.21	299	.74	.60	107	1.10	.85	.16	474	4.0	6.8
5	17.9	115	82	29	.24	14.0	.39	.48	.12	114	16.3	14.9
6	85	1.88	53	1.86	.18	44	.33	.36	.10	9.4	6.3	22.5
7	20.5	.66	15.8	4.2	.14	13.7	.29	17.4	37	3.85	38	10.2
8	1.97	.82	8.4	.54	.12	14.8	.36	11.2	76	19.0	4.5	2.3
9	.96	.68	1.58	.39	1.88	23.5	.22	.75	215	6.1	34	.99
10	7.3	15.0	.99	.20	34	52	.18	.54	68	1.88	58	.68
11	24	10.0	2.1	.72	364	2.0	.53	.40	204	1.22	10.3	.51
12	45	148	1.83	21.5	418	.86	.25	.49	102	.86	6.9	.48
13	3.8	22	6.2	1.04	571	2.0	.26	.36	225	.63	102	.48
14	1.28	82	8.8	9.3	204	2.15	.13	.27	70	.54	13.5	11.0
15	.91	4.1	.97	1.02	536	.89	.14	.20	211	193	1.44	3.95
16	6.6	28	.79	.31	42	.51	.21	.13	331	111	.76	21
17	1.70	181	.63	.24	23	.55	.10	.11	263	10.0	77	31.5
18	.58	25	.54	.18	22.5	507	.07	.07	151	1.56	47	17.0
19	3.7	4.4	.39	.12	4.5	185	4.8	.06	104	1.85	105	1.01
20	13.4	2.0	.31	.07	1.84	67	3.2	.04	247	19.8	137	22.5
21	.67	1.16	.27	.06	1.08	26	1.40	.08	39	16.6	15.2	7.0
22	.63	12.0	138	.24	.81	3.0	.50	16.3	101	4.7	3.4	.78
23	22	9.0	98	.09	.63	.99	4.5	.58	216	29.5	1.28	.63
24	3.6	141	5.7	.03	9.7	.68	107	64	127	22.5	1.35	.51
25	32.5	580	1.70	14.1	1.17	.54	721	268	71	24.5	1.23	1.29
26	15.8	149	.90	1,030	.63	1.32	1,060	6.5	6.9	132	57	.77
27	47	17.5	.68	17.9	.48	29.5	50	1.33	2.2	128	78	.31
28	7.1	38	6.4	13.9	.39	34	25.5	.63	5.0	41	59	3.95
29	1.60	5.8	24.5	1.10	.66	47	7.7	.51	84	17	72	7.5
30	.79	18.6	77	.42	.36	23.5	14.7	-	47	238	46	27
31	1.21	4.9	-	14.8	-	1.37	3.85	-	4.2	-	208	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	85	0.58	15.0	23.2	466	1,430
August	580	.21	52.2	80.8	1,620	4,970
September	381	.27	43.1	66.7	1,290	3,960
October	1,030	.03	38.2	59.1	1,180	3,630
November	571	.12	75.4	117	2,260	6,940
December	507	.51	44.0	68.1	1,360	4,190
Calendar year 1947	1,030	.02	32.3	50.0	11,760	36,130
January	1,060	.07	65.5	101	2,030	6,230
February	268	.04	13.7	21.2	396	1,220
March	331	.10	97.1	150	3,010	9,230
April	474	.54	73.1	113	2,190	6,730
May	208	.76	43.8	67.8	1,360	4,170
June	88	.31	11.6	17.9	348	1,070
Fiscal year 1947-48	1,060	.03	47.9	74.1	17,510	53,770

Peak discharge (base, 1,600 m.g.d.).- Oct. 26 (11 a.m.) 4,940 m.g.d. (7,640 sec.-ft.); Jan. 25 (9 p.m.) 3,200 m.g.d. (4,950 sec.-ft.); Feb. 24 (12 p.m.) 2,520 m.g.d. (3,900 sec.-ft.); Apr. 4 (1:30 p.m.) 3,070 m.g.d. (4,750 sec.-ft.).

Right Branch Kahalawe Stream near Kipahulu

Location.- Columbus control, lat. 20°41'[illegible]", long. 156°03'00", at old ditch intake, 2 miles north of Kipahulu. Altitude of gage, 1,100 feet.
Drainage area.- 0.1 square mile.
Records available.- February 1927 to June 1948.
Average discharge.- 18 years (1927-34, 1935-36, 1938-48), 3.53 million gallons a day (5.46 second-feet).
Extremes.- Maximum discharge during year, 351 million gallons a day (543 second-feet) Nov. 15 (gage height, 3.46 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.58 million gallons a day (0.90 second-foot) Feb. 20, 21.
1927-48: Maximum discharge, 1,940 million gallons a day (3,000 second-feet) Apr. 29, 1937 (gage height, 15.74 feet, datum then in use), from rating curve extended above 22 million gallons a day; minimum, 0.15 million gallons a day (0.23 second-foot) Dec. 18, 1929.
Remarks.- Records good except those for periods of no gage-height record, which are poor. No diversions.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.62	1.4	4.8	1.9	23
1.0	1.01	1.5	6.8	2.0	29.5
1.1	1.54	1.6	9.3	2.2	47
1.2	2.3	1.7	12.4	2.4	73
1.3	3.3	1.8	17.4		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.95	1.47	8.7	1.87	1.52	1.41	1.9	2.0	3.05	17.9	3.9	8.1
2	4.2	1.35	5.6	2.75	1.35	1.30	1.9	1.3	1.47	9.7	6.4	3.55
3	3.65	1.15	19.8	1.80	2.15	1.95	3.0	1.2	1.42	39	2.6	3.1
4	3.65	1.15	29	1.54	1.15	3.55	1.2	1.2	1.49	33	2.15	2.3
5	2.7	15.9	9.6	1.89	1.05	1.80	1.2	1.1	1.25	19.6	2.4	3.0
6	7.5	1.80	8.7	1.41	.87	6.5	1.15	1.1	1.10	4.0	1.95	4.2
7	4.2	1.41	3.9	1.52	.83	3.9	1.15	2.5	2.8	9.1	2.6	6.8
8	2.05	1.41	2.75	1.30	.79	3.3	1.81	2.3	16.8	11.1	1.66	2.4
9	1.73	1.41	2.1	1.15	1.56	3.1	1.20	2.1	5.2	4.2	3.75	1.95
10	2.55	4.2	2.05	1.10	6.3	8.7	1.15	1.8	4.4	2.75	4.4	1.73
11	3.15	2.0	1.87	1.31	10.4	1.95	1.77	1.6	4.2	2.3	1.95	1.60
12	6.8	10.0	1.87	3.4	9.9	1.73	1.4	1.39	2.5	2.05	1.95	1.54
13	2.95	2.8	2.35	1.58	13.3	1.86	1.2	1.15	9.2	1.87	6.0	1.54
14	2.05	6.2	2.3	3.0	5.8	3.45	1.1	1.01	3.3	1.73	2.8	1.98
15	1.92	2.05	1.73	1.66	42	1.66	1.0	.87	5.1	15.1	1.73	1.66
16	2.7	2.95	1.60	1.35	5.5	1.41	.90	.79	5.8	7.1	1.54	2.35
17	1.66	11.4	1.47	1.15	5.0	2.9	.90	.79	2.95	2.6	10.8	2.9
18	1.35	3.4	1.35	1.05	6.5	18.1	.90	.75	4.1	1.87	4.0	2.1
19	1.67	2.2	1.20	.97	2.65	5.2	2.0	.68	4.1	2.15	8.4	1.47
20	2.05	1.95	1.15	.87	2.1	4.7	1.2	.65	11.4	2.7	9.6	1.97
21	1.47	1.95	1.10	.87	1.73	3.05	1.1	.74	2.85	1.87	3.8	1.57
22	1.47	4.6	21	1.25	1.47	1.87	1.1	2.8	5.8	1.66	2.55	1.41
23	2.9	2.2	3.5	.97	1.41	1.66	2.0	1.42	6.7	2.2	2.1	1.70
24	1.80	6.0	1.95	.87	8.4	1.41	7.0	3.6	5.7	2.5	3.2	1.54
25	3.7	10.3	2.4	2.5	1.95	1.30	20	16.9	4.5	2.0	2.45	1.54
26	3.45	8.3	1.73	17.3	1.66	1.60	70	2.3	2.45	1.69	7.6	1.96
27	4.4	3.45	1.54	2.4	1.47	3.55	30	1.47	2.1	2.35	6.8	2.35
28	3.1	2.95	2.15	1.47	1.41	2.95	17	1.62	3.55	1.84	5.5	5.2
29	1.95	2.1	8.1	1.20	1.60	2.95	9.0	6.7	9.4	10.1	4.4	3.9
30	1.54	2.85	6.6	1.05	1.30	6.0	5.0	-	5.6	5.2	3.05	9.1
31	2.1	2.1	-	3.15	-	1.9	2.8	-	3.4	-	10.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.5	1.35	2.85	4.41	88.4	271
August	15.9	1.15	3.97	6.14	123	377
September	29	1.10	5.31	8.22	159	488
October	17.3	.87	2.12	3.28	65.7	202
November	42	.79	4.77	7.38	143	439
December	18.1	1.30	3.44	5.32	107	327
Calendar year 1947	42	.29	2.87	4.44	1,050	3,210
January	70	.90	6.23	9.64	193	592
February	16.9	.65	2.20	3.40	63.8	196
March	16.8	1.10	4.64	7.18	144	442
April	39	1.66	7.37	11.4	221	679
May	10.8	1.54	4.27	6.61	132	406
June	9.1	1.41	2.88	4.46	86.5	265
Fiscal year 1947-48	70	.65	4.17	6.45	1,530	4,680

Peak discharge (base, 200 m.g.d.).- Nov. 15 (7 p.m.) 348 m.g.d. (538 sec.-ft.); Jan. 26 (time unknown) 265 m.g.d. (410 sec.-ft.); Feb. 25 (9 a.m.) 235 m.g.d. (364 sec.-ft.); Feb. 29 (10 p.m.) 250 m.g.d. (387 sec.-ft.); Mar. 8 (6:30 p.m.) 330 m.g.d. (511 sec.-ft.); Apr. 3 (6 p.m.) 348 m.g.d. (538 sec.-ft.).
Note.- No gage-height record Dec. 30 to Jan. 6, Jan. 12 to Feb. 11; discharge computed on basis of records for Oheo Stream.

Hanawi Stream near Nahiku

Location.- Lat. 20°48'35", long. 156°06'50", 200 feet upstream from Koolau ditch intake and trail, 1¾ miles southwest of Nahiku, and 4½ miles southeast of Keanae.

Drainage area.- 0.8 square miles.

Records available.- January 1914 to January 1916, November 1921 to June 1948.

Average discharge.- 26 years (1922-48), 13.4 million gallons a day (20.7 second-feet).

Extremes.- Maximum discharge during year, 2,350 million gallons a day (3,640 second-feet) Jan. 26 (gage height, 9.47 feet), from rating curve extended above 260 million gallons a day by test on model of station site; minimum, 1.9 million gallons a day (2.9 second-feet) Oct. 25, Nov. 9.
1914-16, 1921-48: Maximum discharge, 3,600 million gallons a day (5,570 second-feet) Jan. 18, 1916, by observing, on model of station site, the conditions which would produce floodmarks of 20 ft. gage height; minimum, 1.1 million gallons a day (1.7 second-feet) Feb. 19, 20, 1944.

Remarks.- Records good. No diversions above station. Water used for irrigation in central Maui.

Revisions (fiscal years).- W 1045: 1922-43(M).

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.9	1.6	19.0	4.0	170
.5	3.4	2.0	30.5	4.5	250
.7	5.4	2.5	52	5.0	370
1.0	9.2	3.0	81	5.6	670
1.3	13.6	3.5	119	6.2	1,050

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.0	3.3	13.7	3.95	4.1	6.3	7.0	4.8	3.6	236	7.7	17.1
2	15.8	3.0	22.5	3.6	2.9	3.45	8.4	4.3	4.5	60	21	9.2
3	14.0	2.85	96	3.4	7.6	9.3	64	4.1	15.0	152	7.2	7.2
4	6.1	2.95	119	3.65	3.15	23.5	11.4	4.1	24	61	5.9	5.4
5	7.8	30	17.8	43	2.55	7.1	6.7	4.1	6.5	13.8	5.2	4.5
6	15.6	3.75	8.4	5.8	2.3	12.6	6.7	4.0	3.85	10.6	4.6	4.1
7	9.6	3.15	6.1	5.5	2.2	58	8.8	6.4	11.4	9.5	4.3	3.65
8	6.2	3.85	5.1	3.65	2.1	13.0	12.2	6.6	7.8	8.9	3.95	3.4
9	5.2	3.75	4.4	3.15	2.55	16.9	6.4	4.3	7.0	8.5	5.2	3.15
10	6.6	4.4	4.0	2.85	3.1	17.6	5.3	8.7	16.9	7.9	7.1	3.0
11	5.6	4.1	3.85	2.7	33.5	6.7	4.7	13.3	71	33.5	4.3	2.9
12	6.0	33.5	3.65	2.55	131	23	9.6	16.3	56	43	4.6	2.75
13	4.2	10.8	3.6	2.45	205	16.4	8.7	5.2	76	19.1	20.5	2.7
14	4.9	7.4	3.4	5.8	40	9.3	4.3	4.6	17.6	32.5	5.7	2.85
15	5.5	4.6	3.4	3.9	126	5.7	3.85	4.1	23	58	3.85	2.85
16	5.0	10.1	3.3	2.6	7.9	17.4	3.6	3.85	116	16.4	3.6	3.65
17	3.75	50	3.25	2.3	5.0	135	3.4	3.65	135	11.0	7.0	3.85
18	3.4	12.0	3.15	2.25	3.85	278	3.25	3.4	129	13.8	5.6	3.9
19	3.25	6.0	3.1	2.1	3.4	101	3.25	3.4	61	16.9	5.1	2.75
20	3.5	4.5	3.0	2.05	3.0	64	3.0	3.15	113	10.6	6.0	3.5
21	3.3	4.4	2.9	3.7	2.85	19.5	2.85	11.5	16.8	14.6	5.1	2.85
22	3.6	6.0	3.55	4.5	2.6	7.1	2.7	52	57	7.9	5.1	2.6
23	3.85	4.6	3.1	2.4	2.45	5.6	5.0	6.5	73	6.6	4.7	2.85
24	3.25	15.6	2.85	2.05	2.45	5.9	36	3.9	22	5.9	9.5	2.6
25	13.3	114	2.7	61	2.25	5.3	1,040	7.2	22.5	5.8	10.1	2.7
26	6.0	18.7	2.55	277	2.25	7.8	825	6.7	29	9.0	26	3.0
27	10.1	7.1	2.6	17.9	2.2	13.8	30.5	5.5	26	23.5	51	3.1
28	7.2	7.2	2.85	7.4	2.4	6.1	10.0	4.4	66	19.8	68	4.1
29	5.3	5.3	9.9	4.1	2.45	5.6	8.2	4.1	198	74	23.5	2.6
30	4.3	11.2	15.5	3.4	2.2	6.6	13.5	-	74	14.1	10.4	3.7
31	3.85	6.6	-	6.7	-	5.5	7.0	-	48	-	30.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.8	3.25	6.52	10.1	202	620
August	114	2.85	13.1	20.3	405	1,240
September	119	2.55	12.6	19.5	379	1,160
October	277	2.05	16.0	24.8	497	1,530
November	205	2.1	20.5	31.7	615	1,890
December	278	3.45	29.5	45.6	913	2,800
Calendar year 1947	278	1.6	13.9	21.5	5,070	15,560
January	1,040	2.7	69.8	108	2,170	6,650
February	52	3.15	7.38	11.4	214	657
March	198	3.6	49.4	76.4	1,530	4,700
April	236	5.8	33.5	51.8	1,000	3,080
May	68	3.6	12.3	19.0	382	1,170
June	17.1	2.6	4.08	6.31	122	376
Fiscal year 1947-48	1,040	2.05	23.0	35.6	8,430	25,870

Peak discharge (base, 700 m.g.d.).- Sept. 3 (12 p.m., 840 m.g.d. (1,300 sec.-ft.); Oct. 26 (8:30 a.m.) 1,460 m.g.d. (2,260 sec.-ft.; Nov. 13 (1 p.m.) 1,190 m.g.d. (1,840 sec.-ft.); Dec. 17 (7 a.m.) 1,250 m.g.d. (1,930 sec.-ft.); Jan. 26 (9 a.m.) 2,350 m.g.d. (3,640 sec.-ft.); Apr. 3 (10 p.m.) 1,190 m.g.d. (1,840 sec.-ft.).

Kapaula Stream near Nahiku

Location.- Lat. 20°48'50", long. 156°07'05", 40 feet upstream from intake to Koolau ditch, 300 feet upstream from ditch trail, 1½ miles southwest of Nahiku, and 4 miles southeast of Kearae.
Drainage area.- 0.2 square mile.
Records available.- November 1921 to June 1948.
Average discharge.- 26 years (1922-48), 10.7 million gallons a day (16.6 second-feet).
Extremes.- Maximum discharge during year, 1,300 million gallons a day (2,010 second-feet) Jan. 26 (gage height, 7.11 feet), from rating curve extended above 140 million gallons a day; minimum, 1.03 million gallons a day (1.59 second-feet) Nov. 27.
1921-48: Maximum discharge, 1,780 million gallons a day (2,750 second-feet) Apr. 6, 1938 (gage height, 8.40 feet), from rating curve extended above 140 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Nov. 23-25, 1933, Oct. 2-5, 1938.
Remarks.- Records good except those for Sept. 8-29, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to May 11

0.5	1.10	1.4	18.6	3.2	160
.6	2.1	1.6	25	3.7	252
.7	3.3	1.8	32	4.0	320
.8	4.8	2.0	41	4.5	448
1.0	8.6	2.4	68		
1.2	13.3	2.8	106		

May 12 to June 30

0.5	1.20	1.4	12.8
.6	2.35	1.6	17.0
.7	3.8	1.8	23.5
.8	5.2	2.0	33
1.0	7.6	2.4	60
1.2	10.0		

Discharge, in million gallons, fiscal year July1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.2	2.2	11.4	3.5	3.45	3.8	4.7	3.9	2.45	134	4.7	15.0
2	27	1.90	13.2	2.2	2.45	3.35	6.5	2.7	2.8	51	16.9	7.0
3	15.2	1.60	58	1.90	7.1	6.2	49	2.35	13.9	51	4.5	5.4
4	7.0	1.60	79	2.1	2.8	21	9.9	2.1	19.5	78	3.3	4.1
5	5.2	29	15.0	31	2.1	6.3	4.1	1.90	5.5	12.6	2.95	3.35
6	21	3.3	5.6	4.4	1.80	12.0	3.8	1.80	2.7	8.0	2.7	3.1
7	12.6	2.35	3.75	4.4	1.60	47	5.6	3.4	9.8	6.2	2.6	2.65
8	5.7	2.45	3.3	2.8	1.50	13.0	10.2	7.1	7.7	6.1	2.6	2.35
9	4.2	2.8	3.0	2.2	1.94	13.5	4.0	2.8	7.9	5.7	3.3	2.2
10	7.6	2.95	2.7	1.90	2.1	17.2	2.95	5 9	11.8	5.2	4.8	2.1
11	5.4	3.6	2.5	1.70	28	5.2	2.45	11.1	43	22.5	3.3	2.1
12	5.8	34	2.4	1.50	68	24	4.9	15.7	35	42	3.5	1.96
13	3.3	14.0	2.3	1.40	104	17.2	10.5	3.3	42	18.3	19.9	1.96
14	3.7	8.5	2.2	5 4	32	9.8	2.7	2.45	12.8	25.5	5.3	1.96
15	5.0	3.75	2.2	4.0	76	4.3	2.35	2.0	21	30.5	3.5	2.1
16	4.0	11.8	2 0	2.45	5.0	18.0	2.0	1.80	71	17.1	2.95	2.6
17	3.05	45	1.9	2.0	2.6	87	1.90	1.60	76	12.4	5.1	3.1
18	2.45	10.9	1.8	1.70	2.0	131	1.80	1.50	76	12.4	5.5	3.55
19	2.1	4.4	1.8	1.50	1.80	55	1.80	1.40	37.5	16.2	4.4	2.65
20	2.1	3.2	1.7	1.40	1.80	45	1.60	1.30	68	10.4	5.3	2.5
21	2.1	2.6	1.7	1.81	1.60	18.2	1.40	11.1	11.9	13.7	4.4	2.95
22	2.45	4.1	2.3	3.3	1.40	7.6	1.40	31.5	38	5.7	4.2	2.65
23	2.7	3.75	1.9	2.35	1.30	5.9	1.71	5.2	45	4.2	3.8	2.35
24	2.45	11.5	1.7	1.80	1.30	5.2	34.9	2.45	17.8	3.6	8.0	1.84
25	11.5	79	1.6	59	1.20	4.4	462	4.2	20	3.3	8.3	1.96
26	6.2	15.8	1.5	150	1.10	6.9	390	5.1	24	7.0	26.5	2.1
27	12.1	4.6	1.5	12.2	1.10	14.3	21.5	5.0	24	15.3	42	2.5
28	6.8	5.2	1.7	5.5	1.20	4.5	7.2	3.55	41	15.0	49	3.65
29	4.4	3.6	11	2.8	1.30	3.75	5.7	2.8	141	56	18.7	2.35
30	3.45	11.7	17.0	2.2	1.20	4.2	11.1	-	67	12.6	7.0	3.35
31	2.7	5.3	-	5.3	-	3.3	6.6	-	34.5	-	24.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27	2.1	6.63	10.3	205	631
August	79	1.60	10.9	16.9	336	1,030
September	79	1.5	8.59	13.3	258	791
October	150	1.40	10.5	16.2	326	1,000
November	104	1.10	12.0	18.6	361	1,110
December	131	3.3	19.9	30.8	618	1,900
Calendar year 1947	150	.77	10.3	15.9	3,750	11,520
January	462	1.40	34.7	53.7	1,080	3,300
February	31.5	1.30	5.07	7.84	147	451
March	141	2.45	33.2	51.4	1,030	3,160
April	134	3.3	23.4	36.2	702	2,150
May	49	2.6	9.79	15.1	304	931
June	15.0	1.84	3.25	5.03	97.4	299
Fiscal year 1947-48	462	1.10	14.9	23.1	5,460	16,750

Peak discharge (base, 450 m.g.d.).- Oct. 26 (9 a.m.) 687 m.g.d. (1,060 sec.-ft.); Nov. 13 (1:30 p.m.) 625 m.g.d. (967 sec.-ft.); Dec. 17 (7 a.m.) 849 m.g.d. (1,310 sec.-ft.); Jan. 26 (12 m.) 1,300 m.g.d. (2,010 sec.-ft.); Apr. 1 (4 p.m.) 687 m.g.d. (1,060 sec.-ft.).
Note.- No gage-height record Sept. 8-29; discharge computed on basis of records for Hanawi Stream.

Koolau ditch at Nahiku weir, near Nahiku

Location.- Sharp-crested weir, lat. 20°48'55", long. 156°07'15", between Kapaula and Waiohue Streams, 3½ miles southwest of Nahiku, and 4 miles southeast of Keanae. Datum of gage is 1,289.14 feet above mean sea level.

Records available.- February 1919 to June 1948.

Average discharge.- 29 years, 21.7 million gallons a day (33.6 second-feet).

Extremes.- Maximum discharge during year, 57 million gallons a day (88 second-feet) Apr. 15 (gage height, 1.64 feet); no flow Jan. 27-30, when water was shut out of ditch.
1919-48: Maximum discharge, 63 million gallons a day (98 second-feet) Jan. 22, 1946 (gage height, 1.76 feet); no flow occasionally, when intake gates are closed.

Remarks.- Records excellent except those for periods of no gage-height record, which are fair. 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, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	23	15.3	32	16.7	17.8	16.4	24.5	22	14.6	42	35.5	41
2	38.5	14.0	35.5	13.6	14.0	14.0	26	20	16.9	34.5	50	29
3	38	13.0	52	12.7	23.5	25.5	47	18	20	34	33.5	22.5
4	24.5	13.0	52	12.3	15.8	41	39	16	27.5	40	27.5	17.0
5	28.5	38.5	50	41	14.6	23.5	26.5	15	23	42	23.5	19.0
6	45	18.4	42	21.5	13.3	32.5	25	14	16.7	42	20.5	19.9
7	38	15.3	31	19.9	12.3	44	30	17	29.5	40	18.1	16.4
8	25.5	16.0	25.5	15.1	12.0	49	40	19	26.5	38	16.4	15.0
9	21.5	16.4	22	14.3	13.5	42	25	15	24	33.5	19.4	14.0
10	22.5	16.7	19.5	11.4	14.8	48	21	19	25	31	23.5	13.0
11	23	16.7	17.8	10.8	42	32	19	23	33.5	37.5	18.1	12.7
12	27.5	38.5	16.4	9.5	52	35.5	26	29	33.5	55	17.1	12.7
13	19.9	38	15.3	9.2	52	45	35	20.5	33.5	52	39.5	12.3
14	19.8	34.5	14.6	15.9	45	34.5	21	17.8	33.5	52	22.5	12.5
15	26.5	23	13.6	13.2	50	25	18	16.0	33.5	55	17.0	12.0
16	23	35.5	13.3	9.8	27	33	16	15.0	29.5	52	15.6	13.6
17	19.5	50	12.7	8.4	19.5	42	14	14.0	26.5	50	26	14.6
18	16.4	48	12.0	7.6	18.1	45	13	13.3	25.5	45	25.5	15.8
19	15.6	31	11.4	7.3	18.1	42	13	13.0	27	50	22	12.0
20	15.0	23.5	11.1	7.1	16.0	42	12	12.3	28	48	27.5	13.3
21	14.3	21.5	10.4	8.8	14.6	39	12	20.5	26.5	48	23	12.3
22	14.6	26	12.7	11.7	13.3	28	11	33	32	40	22	11.4
23	18.4	22.5	11.1	8.4	12.3	28	15	21	32	33.5	20.5	11.4
24	13.6	30.5	10.1	7.4	12.0	26	46	15.6	29	29	32.5	10.4
25	29.5	48	9.8	19.8	10.8	24	52	23	40	27	34.5	10.4
26	22	48	9.5	50	10.1	28	46	21.5	48	36	48	11.1
27	35.5	38	9.2	37	9.8	41	0	19.9	48	45	50	11.4
28	28	35.5	9.8	25.5	10.1	25.5	0	17.9	48	43	48	14.6
29	22	26.5	27	17.4	10.1	23.5	0	16.4	48	48	42	11.1
30	19.2	35.5	36.5	15.0	8.9	24	0	-	48	45	31	15.2
31	17.0	27	-	24	-	21	27	-	45	-	45	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	45	13.6	24.0	37.1	745	2,290
August	50	13.0	28.2	43.6	874	2,680
September	52	9.2	21.5	33.3	646	1,980
October	50	7.1	16.2	25.1	502	1,540
November	52	8.9	20.1	31.1	603	1,850
December	49	14.0	32.9	50.9	1,020	3,130
Calendar year 1947	52	4.9	23.1	35.7	8,450	25,930
January	52	0	22.6	35.0	700	2,150
February	33	12.3	18.5	28.6	538	1,650
March	48	14.6	31.4	48.6	972	2,980
April	55	27	42.3	65.4	1,270	3,890
May	50	15.6	28.9	44.7	895	2,750
June	41	10.4	15.3	23.7	458	1,400
Fiscal year 1947-48	55	0	25.2	39.0	9,220	28,290

Note.- No gage-height record Jan. 6-26, Jan. 31 to Feb. 10; discharge computed on basis of records for stations at Hanawi and Kapaula Streams.

Waiohue Stream near Nahiku

Location.- Lat. 20°49'05", long. 156°07'40", 200 feet upstream from intake to Koolau ditch, 300 feet upstream from ditch trail, 2¼ miles southwest of Nahiku, and 3½ miles southeast of Keanae.

Drainage area.- 1.5 square miles.

Records available.- October 1921 to June 1948.

Average discharge.- 26 years (1922-48), 7.91 million gallons a day (12.2 second-feet).

Extremes.- Maximum discharge during year, 550 million gallons a day (851 second-feet) Dec. 17 (gage height, 5.37 feet), from rating curve extended above 50 million gallons a day; minimum, 2.2 million gallons a day (3.4 second-feet) Sept. 26, 27, Oct. 19, 20, 24, 25. 1921-48: Maximum discharge, 760 million gallons a day (1,180 second-feet) Apr. 7, 1938 (gage height, 6.24 feet), from rating curve extended above 50 million gallons a day; minimum, 1.37 million gallons a day (2.12 second-feet) Feb. 21, 1944, June 2, 1945.

Remarks.- Records good. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.6	2.05	1.1	8.4	2.0	45
.7	2.85	1.2	10.6	2.5	84
.8	3.8	1.4	16.3	3.0	137
.9	5.1	1.6	24	3.6	218
1.0	6.6	1.8	33.5		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	Jnly	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.8	3.05	8.5	3.05	5.4	3.45	4.6	3.6	2.55	83	5.0	10.1
2	9.3	2.95	13.8	2.75	2.85	2.65	4.8	3.4	3.25	32.5	14.5	6.2
3	7.4	2.85	30.5	2.55	5.2	5.1	21	3.3	12.0	44	4.7	5.1
4	4.1	3.6	38	2.55	3.05	10.5	6.7	3.25	8.0	37	4.1	4.2
5	6.6	15.2	9.8	14.7	2.7	4.6	4.3	3.05	3.45	9.1	3.8	3.95
6	10.1	3.4	5.6	3.3	2.6	6.7	4.1	2.85	2.7	7.1	3.5	3.8
7	5.6	3.05	4.7	3.05	2.45	26	5.3	3.55	6.3	6.3	3.4	3.5
8	4.2	3.5	4.1	2.7	2.45	7.8	7.3	4.2	4.4	5.6	3.25	3.3
9	3.8	3.3	3.8	2.45	2.8	8.2	4.1	2.85	4.3	5.4	4.4	3.25
10	4.1	3.5	3.6	2.35	3.3	10.2	3.4	4.7	6.0	4.8	4.7	3.15
11	6.5	3.5	3.3	2.3	16.9	4.4	3.15	11.9	18.1	14.8	3.5	3.05
12	5.9	17.3	3.25	2.3	33.5	17.1	4.4	10.6	15.0	31.5	3.5	2.95
13	3.95	6.7	3.05	2.3	49	9.3	5.8	3.3	22	11.5	9.4	2.85
14	6.0	6.0	3.05	4.1	16.7	5.9	3.15	2.95	6.8	14.9	3.95	3.05
15	5.2	3.8	2.95	2.95	30	3.7	2.85	2.75	11.7	28.5	3.25	2.85
16	4.4	10.0	2.85	2.6	4.8	9.6	2.75	2.6	32.5	9.7	3.15	3.4
17	3.7	25.5	2.7	2.45	3.6	46	2.7	2.55	32	6.8	5.9	3.4
18	3.4	7.2	2.6	2.3	3.25	58	2.7	2.35	32	6.4	4.8	3.8
19	3.5	4.4	2.55	2.2	2.95	23.5	2.7	2.35	19.3	8.9	4.4	2.85
20	3.3	3.8	2.45	2.2	2.75	20.5	2.6	2.3	35.5	7.0	5.5	3.3
21	3.15	3.8	2.45	2.7	2.7	9.7	2.45	5.7	8.5	9.6	4.4	2.85
22	3.4	5.2	3.2	2.95	2.6	5.0	2.45	13.9	24	5.4	4.1	2.7
23	3.5	4.6	2.6	2.35	2.55	4.3	3.3	3.2	22.5	4.7	3.8	3.05
24	3.15	10.3	2.3	2.2	2.55	4.8	21	2.7	12.8	4.2	6.5	2.7
25	6.7	36	2.3	37.5	2.35	4.6	210	3.1	11.7	4.4	6.2	2.75
26	4.2	9.7	2.2	62	2.3	5.8	187	3.5	12.5	6.8	14.0	2.85
27	8.8	4.8	2.2	6.6	2.3	8.9	9.8	3.5	12.2	8.6	23	3.05
28	4.7	5.6	2.45	4.6	2.45	4.7	5.4	2.9	22	8.3	22.5	3.7
29	4.1	4.2	7.1	3.15	2.45	4.3	4.8	2.6	67	27	11.6	2.75
30	3.5	7.3	8.6	2.85	2.3	4.3	5.7	-	33.5	8.2	6.4	4.3
31	3.3	4.6	-	5.2	-	3.85	4.7	-	22	-	15.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.1	3.15	4.95	7.66	153	471
August	36	2.85	7.38	11.4	229	702
September	38	2.2	6.22	9.62	187	573
October	62	2.2	6.36	9.84	197	605
November	49	2.3	7.29	11.3	219	671
December	58	2.65	11.1	17.2	343	1,050
Calendar year 1947	62	1.63	6.66	10.3	2,430	7,460
January	210	2.45	17.9	27.7	555	1,700
February	13.9	2.3	4.12	6.37	119	366
March	67	2.55	17.0	26.3	528	1,620
April	83	4.2	15.4	23.8	462	1,420
May	23	3.15	6.98	10.8	216	664
June	10.1	2.7	3.62	5.60	109	334
Fiscal year 1947-48	210	2.2	9.06	14.0	3,320	10,180

Peak discharge (base, 300 m.g.d.).- Dec. 17 (7 a.m.) 550 m.g.d. (851 sec.-ft.); Jan. 25 (5 p.m.) 530 m.g.d. (820 sec.-ft.); Apr. 1 (3:30 p.m.) 333 m.g.d. (515 sec.-ft.).

West Kopiliula Stream near Keanae

Location.- Lat. 20°49'10", long. 156°08'15", 600 feet upstream from Koolau ditch crossing and highway bridge and 3 miles southeast of Keanae post office. Datum of gage is 1,292.30 feet above mean sea level.
Drainage area.- 3.9 square miles.
Records available.- January 1914 to September 1917, October 1921 to June 1948.
Average discharge.- 24 years (1922-34, 1936-48), 18.5 million gallons a day (28.6 second-feet).
Extremes.- Maximum discharge during year, at least 5,050 million gallons a day (7,810 second-feet) Jan. 26 (gage height, at least 9.50 feet), from rating curve extended above 75 million gallons a day; minimum, 1.92 million gallons a day (2.97 second-feet) June 24-26.
1914-17, 1921-48: Maximum discharge, that of Jan. 26, 1948; minimum, 0.6 million gallons a day (0.9 second-foot) Sept. 15-17, 1917.
Remarks.- Records fair except those above 50 million gallons a day and those for periods of no gage-height record, which are poor. No diversions above station. Water used for irrigation in central Maui.
Revisions (fiscal years).- W 755: 1931-32.

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 28						Jan. 29 to June 30					
0.3	1.00	0.9	14.3	3.0	265	0.2	2.1	1.0	20.5	3.5	390
.4	1.95	1.1	22.5	3.5	400	.3	3.3	1.3	34	4.0	550
.5	3.2	1.4	40	4.0	555	.4	4.8	1.6	55	4.5	740
.6	5.5	1.8	73	4.5	750	.5	6.7	2.0	96	5.0	970
.7	8.3	2.2	120	5.0	1,000	.6	8.8	2.5	165		
.8	11.0	2.6	185			.8	14.0	3.0	260		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.0	3.2	12.7	3.5	4.1	7.5	6.4	5.4	3.4	198	6.9	15.5
2	17	2.9	14.3	2.95	2.95	5.0	7.9	4.4	5.1	45	12.4	10.0
3	9.0	2.7	71	2.7	9.2	6.4	69	4.1	17.0	46	5.4	7.2
4	5.0	3.5	152	3.35	3.35	21	16.1	4.3	15.8	100	4.5	4.8
5	10	25	23.5	39	2.8	8.0	8.8	3.3	5.9	17.4	4.4	4.1
6	15	7.0	13.2	6.1	2.6	15.3	7.7	3.2	3.6	12.6	3.6	3.6
7	9.5	3.0	8.8	5.8	2.3	63	8.7	4.7	9.8	10.0	3.3	3.05
8	6.0	3.5	6.6	3.35	2.3	16.7	12.2	9.7	6.4	8.2	3.05	2.95
9	3.8	3.0	5.2	2.8	2.6	15.0	6.3	3.75	7.2	7.3	4.9	2.7
10	4.5	3.3	4.3	2.6	3.55	17.2	4.9	6.0	11.4	8.3	6.7	2.6
11	4.8	3.5	3.7	2.45	31.5	11.7	4.3	11.7	40	15.8	3.6	2.45
12	5.5	30	3.55	2.2	69	29	7.9	16.4	39	32	3.6	2.45
13	3.5	17	3.35	2.3	196	24	13.6	4.5	48	17.3	16.2	2.45
14	5.5	9.0	3.1	10.6	47	17.0	4.9	3.6	17.4	21.5	5.6	2.75
15	4.1	4.5	2.95	5.8	111	10.4	4.1	3.05	18.2	33	3.45	2.45
16	3.9	20	2.95	2.95	12.0	27	3.55	2.7	86	15.4	3.05	3.7
17	3.1	45	2.8	2.45	6.3	116	3.35	2.45	92	10.6	6.6	3.2
18	2.8	20	2.8	2.3	4.9	343	3.2	2.35	80	10.1	5.2	3.3
19	2.95	6.1	2.6	2.2	3.7	151	2.95	2.45	36	15.4	3.9	2.8
20	3.2	4.1	2.45	2.2	3.2	59	2.8	2.45	74	11.1	4.9	3.05
21	3.1	3.7	2.3	4.8	2.95	25.5	2.7	12.4	16.7	12.8	3.95	2.8
22	3.2	5.7	3.1	4.1	2.8	11.1	2.6	21.5	42	7.3	3.6	2.1
23	3.35	7.9	2.7	2.45	2.6	7.7	4.4	6.9	38	5.9	3.6	2.35
24	2.95	10.5	2.3	2.3	2.7	8.8	45	7.6	17.7	5.3	8.6	1.92
25	12.8	98	2.1	105	2.3	7.7	354	4.7	18.1	5.0	9.8	2.1
26	9.0	17.7	2.1	341	2.3	9.6	1,100	5.7	21.5	7.1	21.5	2.45
27	12.6	7.0	2.1	23	2.2	15.3	260	5.8	22	12.6	38	2.35
28	8.0	7.9	2.45	9.0	2.3	7.4	17	4.1	35.5	14.2	46	5.5
29	5.0	4.6	11.7	4.9	2.8	7.1	8.0	3.7	237	49	17.8	2.85
30	4.0	15.7	17.6	3.7	2.3	6.2	12.4	-	72	12.	10.6	2.8
31	3.5	8.4	-	8.2	-	5.8	10.2	-	31	-	31	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	17	2.8	6.28	9.72	195	597
August	98	2.7	12.9	20.0	399	1,220
September	152	2.1	13.0	20.1	390	1,200
October	341	2.2	21.8	33.7	676	2,080
November	196	2.2	18.9	29.2	566	1,740
December	343	5.0	34.6	53.5	1,070	3,300
Calendar year 1947	343	1.28	15.1	23.4	5,510	16,920
January	1,100	2.6	62.9	97.3	1,950	5,990
February	31.5	2.35	6.17	9.55	179	549
March	237	3.4	37.3	57.7	1,160	3,550
April	198	5.0	25.5	39.5	764	2,340
May	46	3.05	9.47	14.7	294	901
June	15.5	1.92	3.74	5.79	112	344
Fiscal year 1947-48	1,100	1.92	21.2	32.8	7,760	23,810

Peak discharge (base, 1,000 m.g.d.).- Sept. 4 (2 a.m.) 1,120 m.g.d. (1,730 sec.-ft.); Oct. 26 (8:30 a.m.) 1,300 m.g.d. (2,010 sec.-ft.); Nov. 12 (1 p.m.) 1,360 m.g.d. (2,100 sec.-ft.); Dec. 17 (7:30 a.m.) 1,240 m.g.d. (1,920 sec.-ft.); Jan. 26 (time unknown) at least 5,050 m.g.d. (7,810 sec.-ft.); Apr. 1 (6:30 p.m.) 1,180 m.g.d. (1,830 sec.-ft.); Apr. 4 (1:30 a.m.) 1,020 m.g.d. (1,580 sec.-ft.).
Note.- Faulty gage-height record July 1-14, July 28 to Aug. 16, Jan. 26-29; discharge computed on basis of recorded range in stage and records for West Wailuanui and West Wailuaiki Streams.

East Wailuaiki Stream near Keanae

Location.- Lat. 20°49'05", long. 156°08'25", 1,000 feet upstream from Koolau ditch crossing and trail and 3 miles southeast of Keanae post office.
Drainage area.- 3.7 square miles.
Records available.- December 1913 to October 1917, July 1922 to June 1948.
Average discharge.- 26 years (1922-48), 19.7 million gallons a day (30.5 second-feet).
Extremes.- Maximum discharge during year, 2,340 million gallons a day (3,620 second-feet) Jan. 26 (gage height, 8.50 feet), from rating curve extended above 300 million gallons a day; minimum, 2.45 million gallons a day (3.79 second-feet) Oct. 19, 20, 25.
1913-17, 1922-48: Maximum discharge, 3,060 million gallons a day (4,730 second-feet) Apr. 6, 1938 (gage height, 9.26 feet), from rating curve extended above 300 million gallons a day; minimum, 1.0 million gallons a day (1.6 second-feet) Oct. 22, 23, 1917, Aug. 1, 2, 1922.
Remarks.- Records good except those for periods of no gage-height record, which are poor. No diversion above station. Water used for irrigation in central Maui.

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 26

0.5	2.1	1.4	11.5	3.6	151
.6	2.7	1.7	18.5	4.0	213
.7	3.35	2.0	28	4.5	310
.8	4.1	2.4	46	5.0	425
1.0	6.0	2.8	72	5.5	570
1.2	8.5	3.2	105	6.0	760

Jan. 27 to June 30

0.7	2.5	1.0	4.9	1.7	18.5
.8	3.2	1.2	7.3	2.0	28.5
.9	4.0	1.4	11.0	2.4	46

Note.- Same as preceding table above 2.4 feet.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.6	4.1	17.6	4.3	5.4	12.0	7.3	7.6	3.7	209	8.8	24
2	32	3.8	31	3.65	4.2	6.2	8.3	6.2	9.0	87	18.4	13.1
3	22	3.6	90	3.15	8.2	6.5	81	5.7	55	73	7.3	9.4
4	7.2	4.3	150	4.1	4.3	26	16.9	5.9	29	158	6.3	6.7
5	12.2	53	30.5	63	3.65	8.0	8.8	5.1	8.6	27.5	5.8	5.8
6	24.5	5.2	14.1	6.4	3.35	16.4	7.7	4.9	5.0	17.4	5.3	5.3
7	10.8	4.2	9.5	5.4	3.2	74	9.2	5.6	17.3	12.8	5.1	4.7
8	6.6	5.4	7.2	4.0	3.15	20	16.6	11.9	9.9	10.6	4.7	4.4
9	5.5	4.7	6.0	3.35	3.35	16	6.7	5.2	11.6	9.2	7.5	4.2
10	8.5	5.3	5.4	3.1	4.9	22	5.7	13.1	18.6	8.0	9.6	3.9
11	6.3	5.3	4.9	3.0	40	17.4	5.2	24.5	61	32	5.2	3.8
12	7.7	58	4.6	2.75	101	36.5	17.6	32	61	70	4.8	3.8
13	4.7	17.2	4.4	2.85	203	31.5	18.4	6.5	83	29.5	23.5	3.8
14	7.3	9.4	4.0	10.6	f40	17.6	6.0	5.2	27	46	6.7	4.4
15	7.4	5.7	4.0	5.9	f136	10.9	5.1	4.6	31.5	73	4.6	3.8
16	5.6	23.5	3.8	3.6	12.3	32	4.6	4.2	118	27.5	4.3	5.6
17	4.4	79	3.6	2.95	7.6	144	4.5	3.8	133	14.8	9.4	4.7
18	4.0	18.0	3.35	2.75	5.7	302	4.2	3.6	150	15.7	7.4	4.7
19	4.1	7.3	3.2	2.65	a4.8	148	4.0	3.8	69	27.5	5.5	3.2
20	4.8	5.7	3.0	2.5	a4.4	74	3.7	3.6	136	17.9	7.4	4.5
21	4.6	5.8	2.95	5.5	a3.95	33.5	3.6	19.4	28	23	6.1	3.2
22	4.6	7.9	4.2	6.1	3.65	11.9	3.4	46	68	10.4	5.5	3.0
23	4.8	5.9	3.45	3.0	3.5	9.2	5.4	8.3	84	8.3	5.3	3.6
24	4.0	16.9	2.9	2.6	3.6	9.3	59	4.5	35.5	7.3	14.8	2.9
25	23	116	2.7	139	3.15	8.4	925	5.1	37	7.0	14.1	3.2
26	8.4	19.2	2.65	363	2.95	11.4	866	6.8	41	10.3	45	4.1
27	19.2	7.8	2.65	33	2.85	19.2	54	6.5	46	21.5	70	3.6
28	8.9	9.0	3.2	10.3	3.5	7.7	16.2	4.8	75	22	91	13.2
29	7.0	6.0	18.8	5.7	3.6	6.8	10.9	4.0	f324	97	34	6.2
30	5.4	16.9	27	4.6	2.95	6.8	14.7	-	147	17.4	15.6	6.0
31	4.8	8.1	-	10.9	-	6.3	12.9	-	60	-	40	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	32	4.0	9.29	14.4	288	884
August	116	3.6	17.5	27.1	542	1,660
September	150	2.65	15.7	24.3	471	1,440
October	363	2.5	23.3	36.1	724	2,220
November	203	2.85	21.1	32.6	632	1,940
December	302	6.2	37.1	57.4	1,150	3,530
Calendar year 1947	363	1 92	18.5	28.6	6,740	20,680
January	925	3.4	71.4	110	2,210	6,790
February	46	3.6	9.26	14.3	268	824
March	324	3.7	64.0	99.0	1,980	6,080
April	209	7.0	39.7	61.4	1,190	3,650
May	91	4.3	16.1	24.9	499	1,530
June	24	2.9	5.76	8.91	173	530
Fiscal year 1947-48	925	2.5	27.7	42.9	10,130	31,080

Peak discharge (base, 600 m.g.d.).- Sept. 4 (3:30 p.m.) 605 m.g.d. (936 sec.-ft.); Oct. 25 (7:30 p.m.) 1,240 m.g.d. (1,920 sec.-ft.); Nov. 13 (2:30 p.m.) 1,360 m.g.d. (2,100 sec.-ft.); Dec. 17 (9 p.m.) 1,480 m.g.d. (2,290 sec.-ft.); Jan. 26 (4 p.m.) 2,340 m.g.d. (3,620 sec.-ft.); Apr. 1 (7 p.m.) 980 m.g.d. (1,520 sec.-ft.).
a No gage-height record; discharge computed on basis of records for nearby stations.
f Computed on basis of partly estimated gage-height record.

West Wailuaiki Stream near Keanae

Location.- Lat. 20°49'20", long. 156°08'35", 500 feet upstream from Koolau ditch crossing and trail bridge and 2¾ miles south of Keanae post office.
Drainage area.- 3.6 square miles.
Records available.- January 1914 to October 1917, November 1921 to June 1948.
Average discharge.- 26 years (1922-48), 25.0 million gallons a day (38.7 second-feet).
Extremes.- Maximum discharge during year, 2,980 million gallons a day (4,610 second-feet) Jan. 26 (gage height, 11.21 feet), from rating curve extended above 420 million gallons a day; minimum, 2.4 million gallons a day (3.7 second-feet) Sept. 27.
1914-17, 1921-48: Maximum discharge, 4,500 million gallons a day (6,960 second-feet), Jan. 14, 1923 (gage height, about 13.5 feet, from floodmarks), from rating curve extended above 420 million gallons a day; minimum, 0.3 million gallons a day (0.5 second-foot) July 26, 1922.
Remarks.- Records good except those for periods of no gage-height record, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 25

0.5	2.1	1.2	10.4	3.5	185
.6	2.65	1.4	15.0	4.0	270
.7	3.4	1.6	22	4.5	375
.8	4.4	1.8	30	5.0	510
.9	5.6	2.2	51	6.0	835
1.0	7.0	2.6	81	6.3	940
1.1	8.6	3.0	121		

Jan. 26 to June 30

0.8	3.9	1.4	14.0
.9	4.9	1.6	21
1.0	6.2	1.8	29.5
1.2	9.5	2.0	40

Note.- Same as preceding table above 2 feet.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.7	4.3	16.6	5.2	a5.2	9.7	8.2	8.8	4.6	325	10.3	24.5
2	41	3.9	24.5	4.0	a4.4	7.4	8.7	7.6	10.8	116	14.3	13.8
3	26	3.5	109	3.3	a8.0	6.2	8.9	7.6	95	143	8.1	10.1
4	9.0	4.7	185	4.1	4.9	22	19.8	8.1	39	195	7.0	7.4
5	11.7	56	38	63	4.2	9.6	10.6	7.0	12.6	40	6.5	6.5
6	23	6.7	18.1	8.1	3.9	17.2	9.5	6.4	7.4	24	5.7	5.8
7	12.0	4.9	12.3	6.6	3.7	87	10.5	6.3	16.6	19.5	5.3	5.3
8	8.0	5.9	9.1	4.9	3.4	21.5	18.2	12.0	11.2	17.7	4.9	4.7
9	6.4	4.9	7.5	3.9	3.65	17.5	8.4	6.5	21.5	15.6	7.2	4.4
10	9.6	5.5	6.4	3.4	4.9	20.5	7.3	11.2	21.5	14.0	8.7	4.2
11	7.0	5.3	5.7	3.25	40	24	6.6	25.5	61	41	5.3	3.9
12	8.0	62	5.2	2.95	100	43	27	33.5	79	101	4.9	3.85
13	5.4	22	4.8	2.95	267	36	31	8.8	91	42	17.8	3.9
14	6.9	10.3	4.4	12.8	41	19.4	8.4	6.6	33.5	66	6.8	4.3
15	7.3	6.7	4.1	6.4	123	12.7	6.9	5.8	29.5	97	4.7	3.9
16	5.7	21.5	4.0	4.3	15.0	43	6.0	5.2	132	43	4.4	5.4
17	4.6	80	3.6	3.3	10.2	192	6.0	4.7	162	26	7.8	4.4
18	4.1	20.5	3.3	2.95	7.8	449	5.5	4.6	181	26	6.6	4.4
19	4.2	9.1	3.2	2.8	6.4	180	5.1	4.7	85	a41	5.2	3.35
20	5.0	7.0	2.95	2.6	5.6	89	4.8	4.7	151	a17.2	6.3	4.2
21	5.0	6.4	2.9	5.8	5.0	41	4.4	21.5	32.5	20.5	6.0	3.3
22	4.8	7.8	3.9	5.8	4.4	15.6	4.2	51	65	10.9	5.6	3.1
23	4.8	6.2	3.5	3.1	4.2	12.1	3.9	9.1	92	9.0	5.2	3.4
24	4.0	14.4	3.0	2.7	4.1	11.9	6.5	5.9	37.5	8.1	11.9	3.0
25	19.8	116	2.6	277	3.7	10.8	1,360	5.8	39.5	7.7	13.2	3.3
26	9.0	20.5	2.5	486	3.3	12.6	1,460	7.4	52	8.7	44	3.75
27	18.5	9.5	2.45	a62	3.2	19.7	68	7.9	53	17.1	79	4.3
28	9.9	9.7	2.9	a25.5	3.7	9.7	18.0	5.9	88	19.8	104	28.5
29	7.8	6.9	15.9	a9.2	3.9	8.4	12.5	5.2	402	107	36.5	9.0
30	6.0	15.8	25.5	a5.7	3.2	8.1	13.8	-	166	18.2	15.5	6.5
31	5.1	9.9	-	a8.5	-	7.6	12.7	-	72	-	38	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	41	4.0	9.96	15.4	309	948
August	116	3.5	18.3	28.3	568	1,740
September	185	2.45	17.8	27.5	533	1,640
October	486	2.6	33.6	52.0	1,040	3,200
November	267	3.2	23.4	36.2	701	2,150
December	449	6.2	47.2	73.0	1,480	4,490
Calendar year 1947	486	1.65	21.9	33.9	8,000	24,550
January	1,460	3.9	103	159	3,180	9,760
February	51	4.6	10.5	16.2	305	937
March	402	4.6	75.6	117	2,340	7,200
April	325	7.7	54.6	84.5	1,640	5,020
May	104	4.4	16.3	25.2	507	1,560
June	28.5	3.0	6.55	10.1	196	603
Fiscal year 1947-48	1,460	2.45	34.9	54.0	12,780	39,250

Peak discharge (base, 1,200 m.g.d.).- Oct. 25 (7 p.m.) 2,220 m.g.d. (3,430 sec.-ft.); Nov. 13 (1 p.m.) 2,020 m.g.d. (3,130 sec.-ft); Dec. 17 (8 a.m.) 1,820 m.g.d. (2,820 sec.-ft.); Jan. 26 (3 p.m.) 2,980 m.g.d. (4,610 sec.-ft.); Mar. 3 (8 p.m.) 1,230 m.g.d. (1,900 sec.-ft.); Apr. 1 (7 p.m.) 1,700 m.g.d. (2,630 sec.-ft.).
a No gage-height record; discharge computed on basis of records for nearby streams.

East Wailuanui Stream near Keanae

Location.- Lat. 20°49'25", long. 156°08'40", 125 feet upstream from Koolau ditch intake, 250 feet upstream from trail, and 2½ miles south of Keanae post office.

Drainage area.- 0.6 square mile.

Records available.- November 1921 to June 1948. January 1914 to October 1917 at site 500 feet upstream.

Average discharge.- 26 years (1922-48), 5.74 million gallons a day (8.88 second-feet).

Extremes.- Maximum discharge during year, 1,030 million gallons a day (1,590 second-feet) Jan. 26 (gage height, 7.60 feet), from rating curve extended above 50 million gallons a day; minimum, 0.72 million gallons a day (1.11 second-feet) Sept. 26, 27.
1914-17, 1921-48: Maximum discharge, 1,050 million gallons a day (1,620 second-fee Feb. 12, 1925 (gage height, 6.96 feet), from rating curve extended above 100 million gallons a day; minimum, 0.1 million gallons a day (0.2 second-foot) Apr. 11, 1926.

Remarks.- Records good except those for periods of no gage-height record, which are poor. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.30	0.8	9.2	1.8	66
.4	.89	.9	12.5	2.2	102
.5	2.3	1.1	22	2.5	132
.6	4.2	1.3	33	3.0	189
.7	6.3	1.5	46		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.65	1.77	7.8	1.77	2.45	2.35	3.0	1.77	1.09	61	4.5	8.0
2	7.7	1.77	10.2	1.45	1.77	1.37	3.3	1.77	6.1	34.5	7.0	5.0
3	5.7	1.45	28.5	1.20	3.1	2.3	15	1.61	23	29.5	3.5	4.0
4	2.8	2.1	28.5	1.45	1.77	8.0	7.0	1.45	5.9	43	2.5	3.5
5	6.3	16.7	7.9	19.4	1.45	3.0	4.0	1.45	2.3	14	2.2	3.0
6	12.1	2.3	4.6	2.8	1.32	4.1	3.5	1.32	1.77	9.0	2.0	2.6
7	5.8	1.93	3.4	2.65	1.20	20.5	4.0	1.45	7.1	7.0	1.8	2.4
8	3.6	2.65	2.8	1.93	1.20	5.9	8.8	1.77	4.4	5.0	1.7	2.7
9	2.8	1.93	2.45	1.61	1.42	9.4	2.8	1.20	3.9	4.5	3.0	2.0
10	3.4	2.45	2.3	1.32	1.93	8.1	2.45	1.92	5.3	3.8	3.8	1.8
11	3.5	2.55	1.93	1.20	12.9	6.0	2.05	10.0	11.9	12	2.2	1.6
12	4.7	14.9	1.77	1.09	27.5	13	5.0	14.6	7.0	32	1.8	1.5
13	2.65	6.0	1.61	1.20	35.0	12	8.0	2.45	18.4	11	5.2	1.6
14	4.2	4.8	1.45	4.4	16.0	8.0	3.0	1.93	5.4	16	2.3	1.7
15	4.6	2.8	1.45	2.2	22	6.0	2.5	1.61	12.6	30	1.7	1.5
16	3.2	15.6	1.32	1.77	3.6	14	2.1	1.45	30	9.0	1.5	2.7
17	2.45	26.5	1.20	1.20	2.65	30	1.9	1.32	19.4	7.0	7.0	2.4
18	2.05	9.2	1.09	1.09	2.05	100	1.8	1.20	20	6.5	3.5	1.7
19	2.05	3.8	1.09	1.09	1.77	50	1.7	1.20	21	8.0	2.6	1.3
20	2.05	2.8	.99	1.09	1.61	25	1.6	1.20	30	6.0	3.9	1.8
21	2.3	2.8	.89	2.9	1.45	13	1.5	3.55	8.7	9.0	3.0	1.3
22	2.05	4.3	1.59	2.45	1.20	6.0	1.4	8.0	20	4.5	2.7	1.0
23	1.93	3.2	1.20	1.20	1.09	4.7	3.0	1.92	22.5	3.5	2.5	1.5
24	1.77	8.8	.89	1.09	1.09	4.3	20	1.32	15.3	3.2	4.5	1.0
25	8.3	33.5	.80	32	.99	4.0	50	1.45	11.8	3.0	6.0	1.2
26	3.0	8.5	.72	50	.89	5.0	200	1.77	9.0	3.5	13	1.5
27	10.5	3.8	.72	7.0	.89	7.0	30	1.77	10.0	6.0	20	1.7
28	4.8	4.7	.99	3.75	1.09	4.0	3.0	1.32	21	6.0	28	14
29	3.4	2.8	10.1	2.45	1.20	3.2	2.65	1.20	52	18	11	4.5
30	2.65	5.1	8.3	1.93	.89	3.0	2.3	-	37	8.0	8.0	3.6
31	2.3	3.2	-	5.0	-	2.9	2.3	-	18.8	-	14	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.1	1.77	4.11	6.36	127	391
August	33.5	1.45	6.60	10.2	205	628
September	28.5	.72	4.62	7.15	139	425
October	50	1.09	5.22	8.08	162	496
November	35	.89	5.12	7.92	153	471
December	100	1.37	12.5	19.3	386	1,180
Calendar year 1947	665	.42	5.61	8.68	2,050	6,280
January	200	1.4	12.9	20.0	400	1,230
February	14.6	1.20	2.59	4.00	75.0	230
March	52	1.09	14.9	23.1	463	1,420
April	61	3.0	13.8	21.4	414	1,270
May	28	1.5	5.69	8.80	176	541
June	14	1.0	2.79	4.31	83.6	257
Fiscal year 1947-48	200	.72	7.61	11.7	2,780	8,540

Peak discharge (base, 300 m.g.d.).- Oct. 25 (7 p.m.) 464 m.g.d. (718 sec.-ft.); Dec. 17 (time unknown) 1,000 m.g.d. (1,550 sec.-ft.); Jan. 26 (time unknown) 1,030 m.g.d. (1,590 sec.-ft.); Mar. 3 (8 p.m.) 410 m.g.d. (634 sec.-ft.); Apr. 7 (5 p.m.) 359 m.g.d. (555 sec.-ft.).

Note.- No gage-height record Dec. 11 to Jan. 7, Jan. 12-28, Apr. 5 to June 30; discharge computed on basis of records for West Kopiliula Stream.

West Wailuanui Stream near Keanae

Location.- Columbus type control lat. 20°49'40", long. 156°08'55", 150 feet upstream from Koolau ditch crossing and intake and 2½ miles south of Keanae post office.

Drainage area.- 0.7 square miles.

Records available.- December 1913 to October 1917, July 1922 to June 1948.

Average discharge.- 26 years (1922-48), 9.25 million gallons a day (14.3 second-feet).

Extremes.- Maximum discharge during year, 1,730 million gallons a day (2,680 second-feet) Jan. 25 (gage height, 7.3[illegible] feet), from rating curve extended above 130 million gallons a day; minimum, 1.00 million gallons a day (1.55 second-feet) Oct. 19, 20. 1913-17, 1922-48: Maximum discharge, that of Jan. 25, 1948; minimum, 0.2 million gallons a day (0.3 second-foot) July 16-21, 1922.

Remarks.- Records good. No diversions above station. Water used for irrigation of sugarcane in central Maui.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.75	1.3	5.8	1.8	22	3.5	245
.9	1.30	1.4	8.0	2.0	33.5	4.0	357
1.0	2.0	1.5	10.5	2.2	49	4.5	500
1.1	2.95	1.6	13.7	2.5	82	5.0	650
1.2	4.2	1.7	17.5	3.0	152		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.2	1.90	7.4	1.90	3.6	2.75	3.25	2.65	1.36	97	4.7	10.4
2	9.6	1.74	10.9	1.67	2.65	2.0	3.3	2.3	7.3	52	7.7	6.2
3	7.7	1.67	36	1.48	4.7	2.85	26	2.3	32	67	3.6	4.7
4	3.6	2.15	58	1.60	2.5	8.4	7.0	2.0	12.9	65	2.95	3.6
5	6.1	17.3	17.5	21.5	2.2	3.2	3.95	2.1	4.6	15.3	2.65	3.2
6	12.0	2.5	9.6	3.1	2.0	5.5	3.6	1.74	3.2	8.8	2.4	2.75
7	6.2	2.0	6.4	2.75	1.82	28	4.7	1.74	8.0	6.9	2.2	2.5
8	3.8	2.55	4.5	2.2	1.90	9.1	9.7	1.74	5.0	5.5	2.0	2.3
9	3.2	2.2	3.7	1.74	2.25	9.3	3.3	1.17	7.6	4.5	3.3	2.0
10	4.1	2.65	3.1	1.54	3.1	8.3	2.75	2.05	9.2	3.95	3.9	1.82
11	4.2	2.55	2.65	1.48	16.3	6.1	2.55	10.1	18.2	13.7	2.2	1.67
12	4.9	18.0	2.5	1.36	34	15.7	5.9	15.7	26.5	37.5	1.91	1.60
13	2.75	8.2	2.1	1.42	82	11.9	8.8	2.75	31.5	11.5	5.4	1.60
14	4.3	5.2	1.90	4.4	22	8.5	3.2	2.2	13.0	19.4	2.65	1.82
15	5.0	2.95	1.82	2.2	43	6.0	2.65	1.82	13.8	36	1.82	1.60
16	3.2	13.0	1.74	1.60	8.5	14.2	2.2	1.74	39	13.6	1.60	2.75
17	2.65	30	1.54	1.36	6.1	61	2.0	1.54	48	7.6	4.9	2.4
18	2.2	9.2	1.48	1.17	5.0	161	1.82	1.48	52	6.7	3.65	2.3
19	2.2	3.95	1.42	1.11	4.4	86	1.74	1.48	31	9.2	2.75	1.42
20	2.3	3.1	1.30	1.05	3.6	29.5	1.48	1.42	52	6.5	4.0	2.0
21	2.3	2.85	1.23	3.0	2.65	14.8	1.42	4.5	14.2	10.9	3.55	1.42
22	2.3	4.3	1.98	2.65	2.1	6.9	1.36	13.5	21.5	4.8	2.85	1.23
23	2.2	3.3	1.56	1.30	1.90	5.2	3.6	3.15	31.5	3.8	2.6	1.63
24	1.74	8.0	1.17	1.11	2.4	4.7	25.5	1.82	17.9	3.3	5.4	1.23
25	7.8	35.5	1.11	97	1.60	3.95	551	1.74	15.4	3.2	6.1	1.36
26	3.25	9.1	1.11	178	1.27	5.0	629	2.1	15.1	4.0	16.2	1.91
27	9.8	4.2	1.11	22.5	1.17	7.2	36	2.6	16.5	6.4	26.5	1.66
28	4.3	4.7	1.23	8.9	1.45	3.6	3.75	1.74	29.5	6.0	30	14.5
29	3.2	3.1	10.2	4.5	1.60	3.2	2.75	1.48	108	31	15.4	4.4
30	2.65	5.4	8.9	3.45	1.17	3.2	2.65	-	72	7.9	7.7	4.4
31	2.3	3.8	-	6.6	-	2.95	3.3	-	31	-	15.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.0	1.74	4.36	6.75	135	414
August	35.5	1.67	7.00	10.8	217	666
September	58	1.11	6.84	10.6	205	630
October	178	1.05	12.4	19.2	386	1,180
November	82	1.17	8.96	13.9	269	825
December	161	2.0	17.4	26.9	540	1,660
Calendar year 1947	178	.56	8.29	12.8	3,030	9,280
January	629	1.36	43.9	67.9	1,360	4,170
February	15.7	1.17	3.19	4.94	92.6	284
March	108	1.36	25.4	39.3	789	2,420
April	97	3.2	19.0	29.4	569	1,750
May	30	1.60	6.39	9.89	198	608
June	14.5	1.23	3.08	4.77	92.4	283
Fiscal year 1947-48	629	1.05	13.3	20.6	4,850	14,890

Peak discharge (base, 300 m.g.d).- Oct. 25 (8 p.m.) 850 m.g.d. (1,320 sec.-ft.); Dec. 19 (7:30 a.m.) 1,010 m.g.d. (1,560 sec.-ft.); Jan. 25 (10 p.m.) 1,730 m.g.d. (2,680 sec.-ft.); Mar. 3 (8 p.m.) 357 m.g.d. (552 sec.-ft.); Apr. 1 (7 p.m.) 410 m.g.d. (634 sec.-ft.).

Taro patch feeder ditch at Keanae

Location.- Concrete Parshall flume, lat. 20°51'40", long. 156°09'00", 25 feet downstream from intake, 500 feet downstream from highway bridge over Palauhulu (correction) Stream at Keanae, $4\frac{1}{4}$ miles northwest of Nahiku, and $4\frac{3}{4}$ miles southeast of Kailua.

Records available.- September 1934 to June 1948.

Average discharge.- 13 years (1935-48), 2.35 million gallons a day (3.64 second-feet).

Extremes.- Maximum discharge during year, 15.8 million gallons a day (24.4 second-feet) Oct. 25 (gage height, 2.56 feet); minimum, 0.06 million gallons a day (0.09 second-foot) Jan. 27.

1934-48: Maximum discharge, 19.4 million gallons a day (30.0 second-feet) Feb. 25, 1935, and Oct. 8, 1941 (gage heights, 2.86 and 2.92 feet, respectively), from rating curves extended above 4.5 million gallons a day by Parshall flume formula and logarithmi plotting, respectively; minimum, 0.05 million gallons a day (0.03 second-foot) Feb. 28, 1935, Apr. 7, 8, 1938, Mar. 5, 6, 1939.

Remarks.- Records excellent.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.64	1.69	2.15	1.60	1.64	1.82	2.1	2.3	1.74	3.5	2.3	2.4
2	2.1	1.69	2.4	1.52	1.43	1.96	2.05	2.3	2.0	2.05	2.4	2.25
3	2.05	1.64	3.2	1.52	1.62	1.82	2.8	2.3	2.7	3.05	2.3	2.2
4	1.69	1.64	3.3	1.52	1.39	2.4	2.3	2.3	1.05	3.05	2.3	2.15
5	1.66	2.65	2.5	2.6	1.35	2.0	2.1	2.25	1.55	1.78	2.3	2.1
6	2.2	1.85	2.25	1.78	1.31	2.5	2.05	2.2	1.96	1.60	2.25	2.05
7	1.96	1.69	2.2	1.60	1.31	2.9	2.1	2.1	2.2	1.52	2.2	2.0
8	1.74	1.64	2.15	1.43	1.31	2.55	2.3	2.15	2.2	2.25	2.2	1.96
9	1.64	1.64	2.1	1.39	1.39	2.5	2.05	2.05	2.2	2.6	2.15	1.92
10	1.73	1.69	2.05	1.39	1.43	2.6	2.0	2.05	2.25	2.55	2.2	1.87
11	1.60	1.69	2.0	1.39	2.1	2.5	1.92	2.25	2.55	2.7	2.05	1.82
12	1.92	2.55	1.96	1.39	2.7	2.65	2.1	2.6	2.65	3.1	2.05	1.82
13	1.60	2.4	1.92	1.39	3.1	2.7	2.5	2.1	2.85	2.75	2.2	1.78
14	1.56	2.2	1.87	1.60	1.32	2.55	2.0	2.0	2.35	3.0	2.1	1.78
15	1.92	1.78	1.85	1.39	2.0	2.35	1.96	1.96	2.35	3.55	2.05	1.74
16	1.78	2.3	1.78	1.35	1.14	2.65	1.87	1.96	3.4	2.7	2.05	1.74
17	1.78	3.15	1.69	1.35	.97	2.95	1.82	1.92	3.25	2.55	2.15	1.74
18	1.78	2.55	1.64	1.31	.83	3.5	1.78	1.87	3.4	2.5	2.15	1.69
19	1.78	2.25	1.60	1.31	1.42	1.84	1.74	1.87	2.9	2.65	2.1	1.69
20	1.78	2.1	1.60	1.31	2.05	1.53	1.74	1.60	3.55	2.5	2.15	1.64
21	1.78	2.05	1.60	1.31	2.0	1.19	1.69	2.05	2.5	2.55	2.15	1.60
22	1.78	2.1	1.69	1.31	1.96	.97	1.69	2.4	2.75	2.4	2.1	1.60
23	1.78	2.1	1.60	1.27	1.87	.89	1.74	2.0	3.1	2.35	2.05	1.64
24	1.78	2.15	1.60	1.32	1.87	1.56	2.75	1.92	2.55	2.3	2.15	2.60
25	2.25	3.2	1.60	2.85	1.78	2.25	7.6	1.92	2.7	2.3	2.1	1.60
26	1.92	2.5	1.60	3.25	1.78	2.25	6.0	1.87	2.65	2.3	2.6	1.60
27	2.30	2.2	1.60	1.57	1.78	2.45	1.59	1.96	2.65	2.35	2.8	1.60
28	1.96	2.2	1.56	2.05	1.78	2.25	2.2	1.87	2.95	2.4	2.95	1.64
29	1.74	2.1	1.92	1.82	1.78	2.2	2.2	1.78	4.6	3.25	2.4	1.64
30	1.69	2.25	2.15	1.60	1.78	2.15	2.25	-	3.0	2.45	2.2	1.74
31	1.69	2.15	-	1.82	-	2.1	2.3	-	2.2	-	2.45	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.3	1.56	1.83	2.83	56.6	174
August	3.2	1.64	2.12	3.28	65.8	202
September	3.3	1.56	1.97	3.05	59.1	181
October	3.25	1.27	1.62	2.51	50.3	154
November	3.1	.83	1.67	2.58	50.2	154
December	3.5	.89	2.21	3.42	68.4	210
Calendar year 1947	4.3	.83	1.91	2.96	698	2,140
January	7.6	1.59	2.36	3.65	73.3	225
February	2.6	1.60	2.07	3.20	58.8	184
March	4.6	1.05	2.60	4.02	80.8	248
April	3.55	1.52	2.55	3.95	76.6	235
May	2.95	2.05	2.25	3.48	69.6	214
June	2.4	1.60	1.82	2.82	54.6	168
Fiscal year 1947-48	7.6	.83	2.09	3.23	765	2,350

Koolau ditch near Keanae

Location.- Lat. 20°49'55", long. 156°10'30", on west side of Keanae Valley, $2\frac{3}{4}$ miles southwest of Keanae post office and 5.1 miles southeast of Kailua.

Records available.- January 1910 to December 1912 (staff gage), November 1917 to June 1948.

Average discharge.- 30 years (1918-48), 66.8 million gallons a day (103 second-feet).

Extremes.- Maximum capacity of ditch during year, limited to 141 million gallons a day (218 second-feet) by downstream conditions, was reached frequently; no flow Feb. 4-10, when water was shut out of ditch.
1910-12, 1917-48: Maximum discharge, 175 million gallons a day (271 second-feet) Jan. 4, 1922 (gage height, 6.36 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent except those above 100 million gallons a day and those for Oct. 25 to Dec. 8, which are fair. Flow regulated by gates and spillways. Ditch diverts water at altitude 1,200 feet from nearly all streams from the Makapipi west to the Alo for power and irrigation in central Maui. No diversions above station except from several spillways.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	72	41	94	45	55	56	73	6.0	37	137	90	136
2	120	37	109	35	42	54	73	6.0	61	126	125	113
3	120	35	138	31	63	62	134	6.2	80	118	63	86
4	74	37	134	33.5	43	110	124	2.4	103	141	68	64
5	88	120	140	124	38	74	83	0	68	133	62	57
6	137	53	129	64	35	105	72	0	46	129	53	57
7	112	41	99	57	33	125	92	0	100	115	48	48
8	76	49	76	41	33	120	112	0	80	101	44	44
9	62	46	64	35	35	116	68	0	78	90	62	41
10	80	52	55	31	50	129	57	26	84	79	83	37
11	74	50	48	29.5	100	100	53	65	127	97	51	35
12	88	126	44	28	120	103	69	96	140	140	46	35
13	55	122	41	28	125	137	104	53	141	141	114	35
14	65	102	39	73	120	118	55	48	129	135	67	39
15	85	64	37	52	125	90	46	44	129	138	46	37
16	64	105	35	35	100	104	41	39	141	141	41	49
17	51	138	33	29.5	72	74	39	35	137	133	78	46
18	44	134	31	26	60	62	37	35	134	119	74	49
19	41	86	29.5	24.5	54	36.5	37	35	122	137	59	33
20	46	68	28	24.5	47	26	33	33	127	130	80	42
21	44	59	28	46	42	14.0	31	67	108	130	68	33
22	44	81	38.5	49	38	53	29.5	124	114	101	62	31
23	46	64	32	28	36	83	47	66	122	83	57	35
24	37	87	28	25	33	87	139	41	115	76	89	29.5
25	96	137	24.5	60	31	76	122	56	118	68	115	31
26	78	133	24.5	135	29	88	131	59	118	91	140	36.5
27	121	94	23	130	27	128	32.5	59	118	118	138	39
28	91	98	27	100	30	79	7.3	46	129	114	136	76
29	68	68	105	58	35	68	4.5	41	140	133	133	49
30	55	112	120	47	28	68	4.0	-	131	103	118	61
31	48	84	-	90	-	59	6.2	-	122	-	139	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	137	37	73.6	114	2,280	7,000
August	138	35	81.4	126	2,520	7,740
September	140	23	61.8	95.6	1,850	5,690
October	135	24.5	52.1	80.6	1,610	4,950
November	125	27	56.0	86.6	1,680	5,150
December	137	14.0	84.0	130	2,600	7,990
Calendar year 1947	141	14.0	67.2	104	24,510	75,250
January	139	4.0	63.1	97.6	1,960	6,000
February	124	0	37.5	58.0	1,090	3,340
March	141	37	110	170	3,400	10,430
April	141	68	117	181	3,500	10,730
May	140	41	82.9	128	2,570	7,880
June	136	29.5	50.1	77.5	1,500	4,620
Fiscal year 1947-48	141	0	72.6	112	26,560	81,520

Note.- No gage-height record Oct. 25 to Dec. 8; discharge computed on basis of records for station at Haipuaena.

Honomanu Stream near Keanae

Location.- Columbus-type control, lat. 20°50'10", long. 156°11'20", 500 feet upstream from Spreckels ditch intake and trail bridge and 3 miles by trail northwest of Keanae.

Drainage area.- 3.3 square miles.

Records available.- November 1913 to June 1948.

Average discharge.- 32 years (1916-48), 15.7 million gallons a day (24.3 second-feet).

Extremes.- Maximum discharge during year, 1,780 million gallons a day (2,750 second-feet) Jan. 26 (gage height, 8.38 feet), from rating curve extended above 300 million gallons a day; minimum, 1.25 million gallons a day (1.93 second-feet) Oct. 25, Nov. 27, 28.
1913-48: Maximum discharge, that of Jan. 26, 1948; minimum, 0.08 million gallons a day (0.12 second-foot) Mar. 24, 1928.

Remarks.- Records good except those for periods of no gage-height record, which are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.86	1.6	15.0	3.0	162
.9	1.35	1.8	26	3.5	260
1.0	2.0	2.0	41	4.0	375
1.2	3.95	2.3	70	4.5	505
1.4	7.9	2.6	104	5.0	650

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.5	2.3	14.9	3.3	2.7	8.2	3.2	3.05	15.5	148	5.6	25
2	37.5	2.0	24	2.3	2.0	4.1	6.5	2.55	11.4	94	4.4	9.0
3	21.5	1.80	80	2.0	3.95	2.0	74	6.3	80	142	3.5	5.8
4	4.8	3.4	83	3.1	2.3	13.2	13.9	4.4	27	120	3.0	4.0
5	9.5	65	21.5	58	1.80	5.4	4.7	2.7	7.1	30	2.8	3.6
6	21.5	3.5	26	4.6	1.54	13.5	6.1	2.2	3.1	13	2.5	3.4
7	8.2	2.5	9.0	3.4	1.61	52	7.6	3.0	9.0	8.0	2.4	3.3
8	4.2	2.6	3.95	2.4	2.25	11.1	13.8	11	20.5	6.0	2.3	2.6
9	3.2	2.25	3.25	2.0	5.0	5.9	3.6	2.5	14.7	5.0	3.7	2.3
10	5.6	2.65	2.8	1.80	3.3	9.5	3.45	2.4	27	4.0	10	2.1
11	3.75	3.25	6.2	1.74	39.5	10.7	3.55	7.0	46	7.0	2.8	1.9
12	4.5	58	4.0	1.68	63	33	12.1	30	60	45	2.5	1.9
13	3.05	15.4	2.5	1.66	119	27	34.5	3.5	70	20	14	2.1
14	7.2	4.5	2.4	16.7	16.9	9.8	3.25	2.5	20.5	45	4.4	2.4
15	4.5	2.9	2.25	5.3	62	4.7	2.65	2.1	17.2	120	2.5	2.2
16	3.15	18.6	2.15	2.55	7.1	40	2.3	1.9	129	37	2.15	2.7
17	2.55	71	1.94	2.0	3.8	69	2.25	1.74	129	12	6.8	2.9
18	2.25	11.3	1.80	1.68	2.9	274	2.15	1.66	146	9.0	6.0	2.5
19	2.4	4.4	1.68	1.54	2.55	131	1.94	1.68	73	25	3.15	1.8
20	3.25	3.15	1.54	1.54	2.1	65	1.80	1.87	102	8.5	16.4	2.2
21	4.0	3.05	1.48	4.5	1.80	26	1.68	21.5	18.5	11	13.3	1.9
22	2.65	4.9	13.7	3.1	1.68	7.0	1.61	22.5	35.5	5.4	6.1	1.7
23	2.25	3.25	5.8	1.74	1.54	4.4	7.8	3.15	66	4.0	3.7	2.1
24	2.1	14.4	2.8	1.42	1.61	7.6	52	2.1	27	3.7	5.2	1.8
25	18.0	93	1.74	164	1.54	5.4	649	1.87	37	3.5	8.0	1.8
26	10.6	11.6	1.48	263	1.35	5.2	586	2.7	54	3.8	27	2.5
27	17.8	4.6	1.35	29	1.30	9.2	47	8.4	45	7.0	85	4.0
28	7.1	4.7	1.57	5.8	1.88	3.7	13.8	2.4	65	9.0	90	9.0
29	4.8	3.05	21.5	3.05	1.96	3.15	7.1	2.15	234	100	18	5.8
30	3.15	13.0	27.5	2.5	1.48	3.05	4.6	-	119	11	12	13.2
31	2.65	5.3	-	5.2	-	2.9	5.3	-	50	-	30	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	37.5	2.1	7.49	11.6	232	713
August	93	1.80	14.2	22.0	441	1,350
September	83	1.35	12.5	19.3	374	1,150
October	263	1.42	19.4	30.0	603	1,850
November	119	1.30	12.0	18.6	361	1,110
December	274	2.0	28.0	43.3	867	2,660
Calendar year 1947	274	1.10	14.5	22.4	5,280	16,220
January	649	1.61	50.9	78.8	1,580	4,850
February	30	1.68	5.55	8.59	161	494
March	234	3.1	56.7	87.7	1,760	5,400
April	148	3.5	35.2	54.5	1,060	3,240
May	90	2.15	12.9	20.0	399	1,230
June	26	1.7	4.25	6.58	128	391
Fiscal year 1947-48	649	1.30	21.8	33.7	7,970	24,440

Peak discharge (base, 700 m.g.d.).- Oct. 25 (6:30 p.m.) 981 m.g.d. (1,520 sec.-ft.); Dec. 18 (6 p.m.) 890 m.g.d. (1,380 sec.-ft.); Jan. 26 (10:30 a.m.) 1,780 m.g.d. (2,750 sec.-ft.); Mar. 3 (8 p.m.) 1,040 m.g.d. (1,610 sec.-ft.).

Note.- No gage-height record Feb. 3-16, Apr. 5 to May 13, May 23 to June 28; discharge computed on basis of records for nearby stations.

Haipuaena Stream near Huelo

Location.- Lat. 20°51'05", long. 156°11'30", 200 feet upstream from inflow of Spreckels ditch, 3.3 miles southeast of Kailua, and 4.7 miles southeast of Huelo. Datum of gage is 1,512.22 feet above mean sea level (East Maui Irrigation Co. bench mark).

Drainage area.- 1.1 square miles.

Records available.- October 1913 to June 1948.

Average discharge.- 32 years (1916-48), 10.3 million gallons a day (15.9 second-feet).

Extremes.- Maximum discharge during year, 2,100 million gallons a day (3,250 second-feet) Jan. 25 (gage height, 5.68 feet), from rating curve extended above 150 million gallons a day; minimum, 0.4 million gallons a day (0.6 second-foot) Sept. 27.
1913-48: Maximum discharge, 6,100 million gallons a day (9,440 second-feet) Aug. 12, 1940 (gage height, 6.91 feet), from rating curve extended above 150 million gallons a day; minimum, slightly less than 0.1 million gallons a day (about 0.2 second-foot) several days during January, February, May, and June, 1945.

Remarks.- Records poor. Haipuaena diversion ditch diverts water above station. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.7	1.4	9.4	2.8	2.2	4.8	2.3	2.7	4.5	98	3.0	14.2
2	17.7	1.2	17.3	1.8	1.5	2.9	3.0	2.5	3.0	55	2.6	5.4
3	14.3	1.0	62	1.4	2.6	1.4	39.5	3.9	44	78	2.0	3.4
4	4.1	1.1	47	1.5	1.6	7.8	7.5	3.5	8.9	65	1.6	2.6
5	6.2	38	11.8	44	1.3	3.1	3.2	2.4	3.0	15.6	1.5	2.2
6	16.6	2.4	10.4	4.2	1.1	8.7	3.3	2.1	1.7	5.9	1.4	1.9
7	7.6	1.5	5.4	3.0	1.2	32.5	5.3	2.5	8.5	3.8	1.3	1.8
8	4.1	1.6	3.0	a1.9	1.4	8.1	10.2	7.1	8.5	3.1	1.1	1.4
9	2.9	1.4	2.4	a1.5	2.8	5.3	2.8	2.4	7.5	2.6	2.1	1.3
10	4.2	2.0	2.0	a1.2	2.8	7.3	2.4	2.4	11.4	2.1	3.2	1.0
11	5.9	2.0	3.0	a1.1	26.5	6.3	2.2	5.6	20.5	6.9	1.4	.9
12	4.5	32	2.4	a1.0	36	19.2	3.8	19.6	26	29	1.3	.9
13	2.6	11.2	1.4	a.9	71	17.1	14.9	2.8	34	10.8	4.7	1.1
14	5.6	4.3	1.4	a10	9.3	7.7	2.0	1.4	9.9	19.4	2.2	1.3
15	4.4	2.4	1.1	a5.0	30.5	3.7	1.5	1.1	10.4	61	1.3	1.2
16	2.6	14.0	1.0	a1.7	4.9	24.5	1.3	.9	75	16.9	1.1	1.6
17	2.0	44	.9	a1.2	2.9	37.5	1.3	.7	58	6.4	4.0	1.7
18	1.4	9.1	.8	a.8	2.2	138	1.2	.7	68	5.4	3.4	1.4
19	1.5	3.7	.7	a.7	1.8	54	1.0	.7	33.5	11.8	1.9	.8
20	1.8	2.6	.6	a.7	1.5	31.5	.9	.7	64	5.2	7.4	1.2
21	1.8	2.5	.5	a3.1	1.4	15.2	.8	7.5	10.8	8.8	5.1	.9
22	1.7	4.2	6.7	a2.8	1.3	5.3	.8	10.7	19.7	3.5	3.0	.7
23	1.5	2.8	3.3	a.9	1.1	3.7	4.8	1.7	41	2.8	2.3	1.1
24	1.1	10.6	1.5	.7	1.3	5.0	33.5	.9	19.3	2.3	4.4	.8
25	9.3	58	.6	117	1.0	3.7	448	.8	24	2.1	6.6	.8
26	6.3	10.8	.5	144	.9	4.3	352	.8	21.5	2.3	21.5	1.8
27	11.6	4.5	.4	14.0	.8	6.7	17.8	4.0	20	5.8	41	2.9
28	5.0	4.7	.6	4.4	1.2	3.1	5.7	1.0	33.5	7.3	44	8.0
29	3.0	2.6	15.7	2.6	1.4	2.5	3.8	.8	133	55	14.6	2.6
30	2.2	7.8	19.1	2.0	.9	2.2	3.1	-	65	7.7	7.8	5.9
31	1.6	4.2	-	3.9	-	2.1	4.0	-	23	-	17.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	17.7	1.1	5.14	7.95	159	489
August	58	1.0	9.34	14.5	290	889
September	62	.4	7.76	12.0	233	715
October	144	.7	12.3	19.0	382	1,170
November	71	.8	7.21	11.2	216	664
December	138	1.4	15.3	23.7	475	1,460
Calendar year 1947	144	.2	8.59	13.3	3,130	9,610
January	448	.8	31.7	49.0	984	3,020
February	19.6	.7	3.24	5.01	93.9	288
March	133	1.7	29.4	45.5	911	2,800
April	98	2.1	20.0	30.9	600	1,840
May	44	1.1	6.98	10.8	216	664
June	14.2	.7	2.43	3.76	72.8	223
Fiscal year 1947-48	448	.4	12.7	19.6	4,630	14,220

Peak discharge (base, 350 m.g.d.).- Oct. 25 (6 p.m.) 1,200 m.g.d. (1,860 sec.-ft.); Nov. 13 (2 p.m.) 395 m.g.d. (611 sec.-ft.); Dec. 18 (7 p.m.) 495 m.g.d. (766 sec.-ft.); Jan. 25 (5 p.m.) 2,100 m.g.d. (3,250 sec.-ft.); Mar. 3 (7 p.m.) 950 m.g.d. (1,470 sec.-ft.); Mar. 29 (2 p.m.) 420 m.g.d. (650 sec.-ft.).

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

Kula diversion from Haipuaena Stream near Olinda

Location.- Modified Parshall flume, lat. 20°48'15", long. 156°13'30", 3.7 miles east of Olinda and 5.2 miles south of Kailua. Altitude of gage, 4,300 feet (from topographic map).

Records available.- July 1945 to June 1948.

Extremes.- Maximum discharge during period ending June 30, 1946, 2.1 million gallons a day (3.2 second-feet) Oct. 31 (gage height, 1.11 feet); minimum daily, 0.02 million gallons a day (0.03 second-foot) many times.

Maximum discharge recorded during year ending June 30, 1947, 2.35 million gallons a day (3.65 second-feet) Dec. 16 (gage height, 1.18 feet); minimum daily, 0.02 million gallons a day (0.03 second-foot) on several days in December and February.

Maximum discharge during year ending June 30, 1948, 3.75 million gallons a day (5.8 second-feet) (maximum capacity of ditch) Mar. 20 (gage height, 1.50 feet); minimum, 0.04 million gallons a day (0.06 second-foot) Jan. 30.

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

Rating table, fiscal years 1946-48 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.01	0.6	0.64
.2	.04	.7	.87
.3	.14	.9	1.41
.4	.28	1.1	2.05
.5	.45	1.5	3.75

Discharge, in million gallons a day, 1945-48

1945-46

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	-	0.56	0.43	0.03	1.07	0.05	0.02	1.10	0.05	1.08	0.55	0.02
2	-	.43	.70	.03	.95	.44	.02	.64	.04	.86	.36	.02
3	-	.25	.97	.03	.69	.69	.02	.38	.04	1.17	.51	.02
4	-	.17	.91	.03	.48	.54	.02	.28	.03	.88	.46	.02
5	-	.98	1.00	.08	.81	1.14	.02	.21	.03	.73	.28	.02
6	-	1.00	.94	.14	.91	1.04	.06	.15	.10	.69	.20	.02
7	-	1.26	1.40	.17	1.18	.51	.21	.15	.62	.58	.14	.02
8	-	.95	.91	.09	1.34	.35	.14	.20	.72	.67	.15	.02
9	-	1.11	.48	.19	1.20	.25	.10	.27	.65	1.22	.24	.02
10	-	1.02	.33	.26	.78	.18	.07	.33	.58	1.02	.18	.03
11	-	1.36	1.01	.13	.64	.15	.63	.35	.60	.54	.12	.03
12	-	.88	.42	.07	.51	.83	.70	.21	.49	.47	.10	.03
13	-	.57	.28	.04	.53	.75	.35	.27	.49	.47	.08	.02
14	0.02	.33	1.20	.03	.54	.35	.18	.22	.51	.68	.06	.02
15	.02	1.00	.93	.05	.58	.21	.11	.14	.42	.80	.05	.02
16	.72	.62	.82	.64	.42	.14	.66	.38	.38	.92	.04	.02
17	.34	.51	.47	.40	.28	.11	.24	a1.2	.40	1.00	.04	.02
18	.14	1.10	.38	.85	.22	.09	.81	a.90	.42	.51	.03	.02
19	.09	1.05	.27	.70	.17	.06	.71	a.60	.36	.47	.03	.02
20	.07	.89	.18	.36	.12	.05	.35	.44	.31	.45	.03	.02
21	.06	.79	.12	.25	.10	.05	.27	.28	.35	.49	.04	.02
22	.26	.64	.10	.17	.08	.04	.60	.20	.97	.47	.04	.02
23	.76	.65	.09	.12	.47	.04	.68	.17	1.57	.44	.04	.02
24	.53	.14	.08	.10	.78	.03	.45	.17	1.38	.54	.03	.02
25	.27	.12	.07	.09	.45	.03	.70	.13	1.21	.51	.03	.02
26	.14	.10	.04	.72	.26	.03	.87	.10	1.18	.53	.02	.37
27	.13	.29	.04	.81	.17	.02	1.18	.08	1.41	.45	.02	.66
28	.22	.33	.04	1.13	.12	.02	.69	.06	.68	.43	.02	.23
29	.18	.25	.03	.93	.08	.02	.49	-	.77	.43	.02	.13
30	.50	.20	.03	.51	.06	.02	.49	-	1.22	.63	.02	.52
31	.90	.27	-	1.07	-	.02	.88	-	1.29	-	.02	-

a No gage-height record; discharge computed on basis of records for Manuel Luis and Haipuaena ditches.

Discharge, in million gallons a day, of Kula diversion from Haipuaena Stream near Olinda, Maui, 1945-48--Continued

1946-47

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.25	0.18	0.03	0.54	0.16	0.55	0.56	0.03	1.10	0.49	0.52	0.27
2	.14	.17	.04	.76	.60	.35	.74	.03	.95	.41	.62	.21
3	.24	.52	.08	.30	.20	1.4	.56	.02	.71	.62	1.15	.15
4	.13	.61	.04	.27	.30	1.0	.45	.02	.36	.40	.92	.12
5	.08	.28	.04	.38	1.4	.80	.42	.02	.24	.54	.66	.10
6	.10	.17	.04	.22	.65	.77	.42	.02	.85	1.21	.62	.07
7	.34	.12	.04	.51	.27	.82	.50	.02	.88	1.00	.53	.05
8	.37	.33	.03	.68	.26	.83	1.34	.02	.91	.79	.47	.04
9	.93	.42	.03	.28	.25	.50	1.05	.02	.63	.54	.87	.03
10	.77	.34	.03	.17	.22	.36	.74	.16	.44	.36	1.13	.03
11	.56	.28	.03	.13	.30	.27	.94	.10	.24	.46	1.27	.03
12	.87	.14	.03	.13	.35	.22	1.29	.05	.17	1.50	1.25	.03
13	.78	.94	.03	.11	.70	.20	1.18	.03	.36	1.14	.93	.08
14	.49	.72	.11	.09	.25	.20	.78	.03	1.09	.60	.58	.08
15	.67	.30	.19	.08	.25	1.27	.43	.02	.66	.38	.36	.05
16	.95	.44	.24	.18	.23	.69	.31	.02	.39	.28	.27	.03
17	.62	.33	.18	.13	.23	.14	.24	.02	.27	.22	.21	.03
18	.83	.20	.24	.12	.20	.02	.18	.02	.24	.18	.18	.03
19	.83	.13	.39	.13	.16	.02	.15	.02	.18	.13	.14	.03
20	.95	.11	.20	.14	.16	.15	.12	.02	.13	.10	.21	.03
21	.85	.07	.11	.12	.14	.04	.10	.02	.11	.08	.68	.07
22	.64	.05	.07	.10	.18	.03	.08	.02	.12	.06	1.34	.06
23	.44	.04	.08	.11	.21	.88	.07	.02	.22	.05	.77	.20
24	.30	.04	.34	.13	.20	1.12	.05	.02	.88	.04	.82	.17
25	.22	.05	.27	.09	.18	1.25	.04	.02	.99	.04	.87	.12
26	.18	.05	.13	.16	.14	.95	.04	.54	.53	.04	1.00	.15
27	1.05	.03	.34	.20	.10	.52	.04	.80	.66	.04	.92	.85
28	.54	.05	.71	.13	.60	.36	.05	1.36	.97	.04	.92	1.00
29	.55	.07	.66	.25	1.0	.27	.04	-	.47	.04	.68	.80
30	.43	.07	.48	.55	1.2	.48	.04	-	.28	.07	.38	1.32
31	.30	.03	-	.20	-	1.03	.03	-	.55	-	.30	-

Note.- No gage-height record Oct. 29 to Dec. 4; discharge computed on basis of records for Manuel Luis and New Hamakua ditches.

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.72	0.13	1.10	0.53	0.20	0.81	0.17	0.10	0.69	0.45	0.75	0.62
2	1.04	.10	1.04	.28	.14	.63	.35	.08	.71	.17	.67	.53
3	1.20	.07	1.30	.30	.51	.25	1.04	.20	1.11	.15	.49	.43
4	1.07	.10	1.16	.22	.28	.81	.73	.24	.66	.13	.38	.33
5	1.11	1.25	1.19	1.21	.15	.62	.62	.18	.58	.09	.57	.27
6	1.24	.49	1.19	.52	.11	1.16	.58	.16	.43	.48	.50	.51
7	.82	.27	.76	.42	.47	1.25	.53	.25	.38	.47	.31	.45
8	.46	.21	.43	.25	.46	.92	.38	.75	.83	.50	.22	.27
9	.31	.17	.28	.18	.70	.76	.27	.55	.87	.64	.24	.20
10	.36	.14	.27	.14	.68	.64	.33	.50	.98	.35	.63	.14
11	.30	.17	.64	.15	1.03	.64	.38	.69	.81	.30	.28	.12
12	.40	1.32	.62	.22	1.12	.97	.55	.78	.85	1.03	.21	.11
13	.31	.77	.80	.32	1.03	1.29	1.03	.38	.77	.87	.81	.32
14	.24	.52	.66	1.19	1.00	1.00	.42	.24	.64	.73	.41	.21
15	.20	.33	.40	.60	1.74	.72	.27	.17	.55	1.13	.22	.21
16	.17	.27	.30	.30	.85	.68	.21	.13	.85	1.30	.15	.28
17	.14	1.18	.27	.20	.56	.40	.17	.10	.74	.92	.55	.33
18	.11	.70	.18	.14	.61	.45	.15	.09	.59	.79	.67	.25
19	.17	.46	.14	.12	.44	.90	.13	.08	1.01	1.04	.61	.17
20	.42	.30	.11	.10	.31	.55	.10	.09	2.05	.56	.94	.12
21	.21	.35	.09	.09	.24	.40	.09	.67	.90	.40	.69	.11
22	.15	.54	.60	.12	.20	.33	.07	.82	1.07	.31	.56	.09
23	.14	.38	1.02	.11	.15	.29	.90	.58	1.31	.30	.42	.08
24	.13	.66	.66	.07	.13	.28	1.5	.33	.75	.33	.46	.09
25	.47	.70	.31	.23	.13	.27	1.1	.25	.80	.29	.76	.13
26	1.04	.45	.21	.20	.11	.30	.65	.73	.65	.60	1.13	.18
27	.90	.42	.15	.86	.08	.40	.32	1.03	.45	.47	1.16	.44
28	.62	.45	.13	.52	.06	.33	.16	.46	1.1	.86	.86	.53
29	.35	.33	.28	.33	.07	.28	.08	.33	1.7	1.36	.60	.35
30	.22	.94	1.33	.24	.07	.22	.04	-	.65	.88	.51	.98
31	.17	.56	-	.21	-	.20	.12	-	.25	-	.60	-

Note.- No gage-height record Dec. 19-28, Jan. 23 to Feb. 9, Mar. 24 to Apr. 1; discharge computed on basis of records for Manuel Luis and Spreckels ditches.

Monthly discharge, in million gallons a day, of Kula diversion from Haipuaena Stream near Olinda, Maui, 1945-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 14-31, 1945	0.90	0.02	0.297	0.460	5.35	16
August	1.36	.10	.639	.989	19.8	61
September	1.40	.03	.489	.757	14.7	45
October	1.13	.03	.330	.511	10.2	31
November	1.34	.06	.533	.826	16.0	49
December	1.14	.02	.266	.412	8.25	25
Calendar year	-	-	-	-	-	-
January 1946	1.18	.02	.410	.634	12.7	39
February	1.2	.06	.343	.531	9.61	29
March	1.57	.03	.622	.962	19.3	59
April	1.22	.43	.671	1.04	20.1	62
May	.55	.02	.127	.196	3.95	12
June	.66	.02	.081	.125	2.44	7.5
The period	-	-	-	-	142	436
July 1946	1.05	.08	.529	.818	16.4	50
August	.94	.03	.234	.362	7.26	22
September	.71	.03	.174	.269	5.23	16
October	.76	.08	.238	.368	7.39	22
November	1.4	.10	.370	.572	11.1	34
December	1.4	.02	.564	.873	17.5	54
Calendar year 1946	1.57	.02	.364	.563	133	408
January 1947	1.34	.03	.419	.648	13.0	40
February	1.35	.02	.125	.193	3.49	11
March	1.10	.11	.535	.826	16.6	51
April	1.50	.04	.395	.611	11.8	36
May	1.34	.14	.696	1.08	21.6	66
June	1.32	.03	.208	.322	6.23	19
Fiscal year 1946-47	1.50	.02	.377	.583	138	422
July 1947	1.24	.11	.490	.758	15.2	47
August	1.32	.07	.475	.735	14.7	45
September	1.33	.09	.587	.908	17.6	54
October	1.21	.07	.334	.517	10.4	32
November	1.74	.08	.454	.702	13.6	42
December	1.29	.20	.605	.936	18.8	58
Calendar year 1947	1.74	.02	.446	.690	163	501
January 1948	1.5	.04	.434	.671	13.4	41
February	1.03	.08	.378	.585	11.0	34
March	2.05	.25	.830	1.23	25.7	79
April	1.36	.09	.597	.924	17.9	55
May	1.16	.15	.560	.866	17.4	53
June	.98	.08	.295	.456	8.85	27
Fiscal year 1947-48	2.05	.04	.504	.780	185	567

Haipuaena diversion ditch at Kolea Gulch, near Keanae

Location.- Parshall flume, lat. 20°50'50", long. 156°11'40", on Haipuaena diversion ditch, 15 feet downstream from end of tunnel in Kolea Gulch, 3.1 miles southwest of Keanae, and 3.7 miles southeast of Kailua. Altitude of gage, 1,800 feet (from topographic map).

Records available.- March 1938 to June 1948.

Extremes.- Maximum discharge during year, 18.9 million gallons a day (29.1 second-feet) Oct. 25 (gage height, 2.05 feet); minimum, 0.96 million gallons a day (1.49 second-feet) Oct. 27.

1938-48: Maximum discharge, 25 million gallons a day (39 second-feet) Aug. 12, 1940 (gage height, 2.43 feet); minimum, 0.02 million gallons a day (0.03 second-foot) Apr. 29, 1941.

Remarks.- Records excellent except those for periods of no gage-height record, which are fair. Ditch diverts water from Haipuaena Stream for East Maui Irrigation Co.'s hydroelectric plant about 1 mile downstream.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.83	1.52	2.5	1.70	1.31	1.6	1.3	1.6	2.5	8.0	2.3	3.25
2	3.6	1.42	3.0	1.52	1.25	1.4	1.3	1.3	3.5	7.4	2.05	2.2
3	3.0	1.36	6.6	1.42	1.42	.90	5.0	1.4	5.0	7.4	1.90	1.83
4	1.90	1.36	5.9	1.46	1.25	1.1	2.35	1.6	3.0	8.0	1.83	1.58
5	2.15	5.0	2.9	5.4	1.13	3.0	1.70	1.4	1.8	3.8	1.70	1.47
6	3.3	1.58	2.8	1.90	1.13	1.6	1.77	1.3	1.4	2.8	1.70	1.47
7	2.3	1.52	2.3	1.70	1.13	5.8	1.80	1.6	1.7	2.4	1.64	1.47
8	1.83	1.52	1.83	1.52	1.19	2.5	2.35	2.0	2.1	2.3	1.58	1.36
9	1.64	1.47	1.70	1.42	1.36	2.5	1.58	1.5	2.5	2.1	1.90	1.25
10	1.90	1.52	1.58	1.36	1.31	2.5	1.52	1.3	3.25	1.90	2.3	1.19
11	1.83	1.49	1.82	1.31	3.4	2.5	1.52	2.7	4.1	2.7	1.76	1.19
12	1.83	4.6	1.70	1.31	4.8	5.0	2.7	5.0	5.0	5.5	1.76	1.19
13	1.58	2.9	1.52	1.25	6.5	3.0	2.3	3.4	5.6	3.35	2.35	1.25
14	2.0	1.90	1.52	2.4	2.25	2.0	1.47	2.4	3.0	4.3	1.58	1.25
15	1.98	1.70	1.42	1.70	4.1	1.5	1.36	1.7	2.8	6.9	1.31	1.25
16	1.70	3.1	1.36	1.36	1.76	2.7	1.31	1.3	8.9	4.3	1.19	1.42
17	1.52	5.4	1.31	1.31	1.5	4.5	1.25	1.25	8.5	2.85	1.83	1.31
18	1.52	2.75	1.31	1.25	1.3	6.6	1.19	1.25	8.4	2.75	1.76	1.19
19	1.52	1.98	1.25	1.19	1.2	5.0	1.13	1.3	6.0	3.55	1.47	1.02
20	1.52	1.76	1.25	1.13	1.2	3.5	1.07	1.4	7.4	2.65	2.35	1.13
21	1.58	1.76	1.25	1.55	1.0	2.8	1.07	2.3	3.3	3.05	2.2	1.02
22	1.52	2.05	2.0	1.52	.90	2.6	1.07	3.0	3.9	2.35	1.76	.96
23	1.47	1.76	1.80	1.31	1.0	2.3	2.0	2.0	6.1	2.2	1.52	1.13
24	1.42	2.35	1.52	1.19	.70	2.1	3.0	2.0	4.2	1.98	1.94	1.02
25	2.5	6.7	1.25	2.95	1.0	2.5	6.0	1.3	4.5	1.90	2.35	1.02
26	2.3	2.7	1.19	3.35	.90	2.5	6.0	2.2	4.8	1.90	4.1	1.36
27	2.95	2.05	1.13	1.44	.80	2.5	1.6	1.5	4.4	2.5	5.7	1.68
28	2.2	1.98	1.25	1.64	.80	2.3	1.6	1.1	6.0	2.95	5.6	2.55
29	1.83	1.70	3.1	1.47	1.1	1.8	1.6	1.3	10.9	6.9	3.2	1.70
30	1.64	2.4	3.5	1.31	.90	1.5	1.6	-	7.5	3.05	2.5	2.1
31	1.58	1.98	-	1.58	-	1.3	1.8	-	4.5	-	3.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.6	1.42	1.98	3.08	61.4	189
August	6.7	1.36	2.36	3.65	73.3	225
September	6.6	1.13	2.12	3.28	63.6	195
October	5.4	1.13	1.71	2.65	52.9	162
November	6.5	.70	1.66	2.57	49.7	152
December	6.6	.90	2.69	4.16	83.4	260
Calendar year 1947	8.9	.19	1.93	2.99	704	2,160
January	6.0	1.07	2.04	3.16	63.3	194
February	5.0	1.1	1.84	2.85	53.4	164
March	10.9	1.4	4.73	7.32	147	450
April	8.0	1.90	3.79	5.86	114	349
May	5.7	1.19	2.28	3.53	70.8	217
June	3.25	.96	1.46	2.26	43.8	134
Fiscal year 1947-48	10.9	.70	2.39	3.70	877	2,690

Note.- No gage-height record Nos. 17 to Jan. 2, Jan. 22 to Feb. 16, Feb. 19 to Mar. 10; discharge computed on basis of records for Spreckels ditch.

Spreckels ditch at Haipuaena weir, near Huelo

Location.- Sharp-crested weir, lat. 20°51'20", long. 156°11'25", on Spreckels ditch trail between Haipuaena and Puohokamoa Streams, 3½ miles southeast of Kailua, and 5.1 miles southeast of Huelo. Datum of gage is 1,470.96 feet above mean sea level (East Maui Irrigation Co. bench mark).

Records available.- April 1922 to June 1948. February 1930 to October 1935 at site 100 feet upstream.

Average discharge.- 25 years (1922-29, 1930-48), 13.8 million gallons a day (21.4 second-feet).

Extremes.- Maximum discharge during year, 71 million gallons a day (110 second-feet) Oct. 25 (gage height, 1.98 feet); minimum, 0.32 million gallons a day (0.50 second-foot) Sept. 27.

1922-48: Maximum discharge, 139 million gallons a day (215 second-feet) Mar. 5, 1933 (gage height, 5.03 feet); no flow at times, when water was turned out of ditch.

Remarks.- Records excellent. Regulated by gates and spillways. Spreckels ditch diverts water from all streams between the Waailua and the Kailua, above Koolau ditch east of the Puohokamoa and below Koolau ditch west of the Puohokamoa. About 4 million gallons a day 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).- W 770: 1932-33.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.3	4.5	14.6	6.0	4.1	5.2	3.6	3.45	5.1	33	5.2	15.8
2	27	3.45	16.7	3.75	2.5	4.2	3.45	2.95	5.2	34	4.7	7.1
3	23	2.65	44	2.8	4.5	1.93	26	4.6	20.5	24.5	3.45	4.8
4	10.8	2.9	41	3.4	2.8	9.5	9.2	5.0	11.0	32.5	2.8	3.1
5	13.2	30	16.7	33	1.80	4.4	5.2	3.05	5.4	17.1	2.6	2.5
6	27.5	6.7	14.5	8.5	1.47	10.2	4.7	2.5	3.1	8.8	2.25	2.25
7	17.1	4.7	10.5	6.6	1.47	24	7.2	3.25	10.4	6.5	1.80	2.25
8	12.1	4.8	8.0	4.3	2.0	9.8	12.0	8.8	10.8	5.6	1.47	1.58
9	8.8	4.3	6.7	2.95	3.55	7.7	4.5	3.4	10.0	4.8	3.4	1.25
10	11.5	6.2	5.6	2.15	5.2	9.2	3.6	2.35	13.4	4.3	5.2	1.04
11	14.7	5.7	6.1	1.91	19.2	8.0	3.45	7.5	20.5	9.8	2.4	.90
12	13.4	32	6.2	1.69	32.5	19.3	3.9	13.5	26	31	1.84	.90
13	8.0	18.0	3.75	1.36	38	17.3	15.7	3.9	28.5	13.1	6.7	1.11
14	12.1	11.1	3.6	10.6	10.7	9.2	2.8	1.69	12.1	20.5	3.65	1.30
15	13.0	6.9	2.8	5.5	28.5	5.8	1.80	1.25	13.1	43	1.91	1.40
16	8.2	20	2.35	2.65	5.8	17.3	1.36	1.04	48	19.0	1.47	2.1
17	6.2	37.5	2.0	1.91	3.9	28.5	1.18	.90	45	8.2	6.0	2.15
18	4.8	16.0	1.47	1.18	2.8	54	1.18	.83	45	7.3	5.3	1.75
19	4.8	10.2	1.11	.69	2.35	32.5	1.04	.83	32	13.5	3.3	.90
20	6.2	7.6	.83	.62	2.0	29.5	.83	.90	33	7.8	9.0	1.24
21	6.2	7.6	.51	3.65	1.91	16.0	.76	11.4	11.0	11.2	7.0	.97
22	5.8	10.5	7.0	4.0	1.58	7.3	.62	12.4	16.8	5.8	4.8	.69
23	5.0	9.0	6.4	1.52	1.25	5.6	5.5	2.7	31	4.7	3.9	1.16
24	3.6	14.8	3.4	.69	1.47	6.9	28.5	1.11	19.8	4.1	8.1	.83
25	15.9	43	1.08	16.9	1.18	5.8	45	.97	26	3.75	8.6	.76
26	14.5	17.5	.43	50	.83	6.2	11.2	1.26	22.5	4.1	23	2.25
27	19.8	11.1	.32	15.8	.69	8.6	4.3	6.0	20.5	7.6	38.5	3.85
28	12.7	10.8	.55	7.2	1.51	4.8	4.3	1.5	34	14.9	32	9.6
29	9.8	7.6	17.5	4.8	2.4	3.6	4.3	1.11	45	41	16.0	3.8
30	6.9	12.9	20.5	3.45	.97	3.35	4.1	-	35	10.2	9.1	6.7
31	5.6	10.5	-	6.4	-	2.65	5.4	-	24.5	-	18.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27.5	3.6	11.5	17.8	358	1,100
August	43	2.65	12.6	19.5	390	1,200
September	44	.32	8.87	13.7	266	817
October	50	.62	6.97	10.8	216	663
November	38	.69	6.30	9.75	189	580
December	54	1.93	12.2	18.9	378	1,160
Calendar year 1947	54	.12	9.39	14.5	3,430	10,520
January	45	.62	7.31	11.3	227	696
February	13.5	.83	3.80	5.88	110	338
March	48	3.1	22.1	34.2	684	2,100
April	43	3.75	15.1	23.4	452	1,390
May	38.5	1.47	7.82	12.1	242	744
June	15.8	.69	2.87	4.44	86.0	264
Fiscal year 1947-48	54	.32	9.83	15.2	3,600	11,050

Koolau ditch at Haipuaena, near Huelo

Location.- Parshall flume, lat. 20°51'15", long. 156°11'15", 1,000 feet upstream from intake of Puohokamoa Stream, 3½ miles southeast of Kailua, and 4.7 miles southeast of Huelo.

Records available.- April 1932 to June 1948.

Average discharge.- 16 years, 79.7 million gallons a day (123 second-feet).

Extremes.- Maximum discharge during year, 217 million gallons a day (336 second-feet) Aug. 12 (gage height, 5.18 feet); minimum, 1.8 million gallons a day (2.8 second-feet) Feb. 5.
1932-48: Maximum discharge, 226 million gallons a day (350 second-feet) Nov. 23, 1941 (gage height, 5.32 feet); no flow at times, when water was shut out of ditch.

Remarks.- Records excellent. Flow regulated by flood gates. No diversions above station. Water used for domestic supply and irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	78	48	108	54	61	67	78	9.0	49	190	100	169
2	146	44	127	44	48	58	80	8.7	76	169	131	131
3	141	41	186	39	76	70	170	14.0	101	151	89	99
4	76	42	183	41	49	140	144	8.9	130	176	74	72
5	102	147	166	162	42	82	87	3.45	86	166	67	67
6	169	61	156	72	39	124	80	3.55	54	140	59	63
7	123	50	112	64	37	158	104	5.6	129	119	55	59
8	80	56	82	48	37	151	134	15.8	106	106	50	52
9	67	52	70	41	42	131	76	5.5	93	96	69	48
10	86	58	61	37	57	148	63	30	100	85	90	46
11	86	58	59	35.5	126	120	59	77	158	111	55	42
12	95	165	52	34	172	128	80	115	170	176	52	42
13	63	147	48	33	176	169	126	58	180	169	129	42
14	83	109	46	90	143	130	60	54	158	159	72	45
15	93	67	44	60	172	96	54	48	158	180	52	44
16	67	127	42	41	125	129	48	44	186	169	48	59
17	55	179	39	35.5	85	136	46	41	186	155	94	55
18	50	156	37	32.5	67	158	42	39	182	137	84	58
19	48	92	35.5	31	61	93	42	39	159	166	66	39
20	52	71	34	29.5	54	93	39	39	166	146	100	48
21	50	85	34	54	48	52	35.5	84	125	156	82	41
22	52	91	53	58	44	64	34	153	139	110	71	37
23	52	71	44	35.5	41	87	65	71	169	92	64	44
24	44	103	34	31	39	94	180	46	145	80	105	35.5
25	119	171	31	71	35.5	82	190	58	178	74	134	37
26	91	149	29.5	183	34	102	183	61	164	96	186	44
27	148	101	29.5	162	32.5	141	50	72	176	134	186	51
28	99	106	32.5	107	35.5	82	11.7	53	183	138	183	91
29	72	75	135	65	40	74	8.9	46	190	183	162	55
30	59	124	151	54	32.5	74	7.7	-	186	128	138	80
31	55	92	-	97	-	66	11.2	-	186	-	176	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	169	44	83.9	130	2,600	7,980
August	179	41	94.1	146	2,920	8,960
September	186	29.5	75.4	117	2,260	6,940
October	183	29.5	62.6	96.9	1,940	5,960
November	176	32.5	68.4	106	2,050	6,300
December	169	52	106	164	3,300	10,120
Calendar year 1947	190	16.8	79.9	124	29,180	89,550
January	190	7.7	77.1	119	2,390	7,330
February	153	3.45	44.9	69.5	1,300	4,000
March	190	49	144	223	4,470	13,710
April	190	74	139	215	4,160	12,760
May	186	48	97.5	151	3,020	9,280
June	169	35.5	59.8	92.5	1,800	5,510
Fiscal year 1947-48	190	3.45	88.0	136	32,210	98,850

Puohokamoa Stream near Huelo

Location.- Masonry dam control, lat. 20°51'20", long. 156°11'25", 650 feet upstream from Spreckels ditch inflow and trail crossing, 3 miles southeast of Kailua, and 4.4 miles southeast of Huelo. Datum of gage is 1,322.04 feet above mean sea level (East Maui Irrigation Co. bench mark).

Drainage area.- 2.6 square miles.

Records available.- December 1910 to June 1948.

Average discharge.- 31 years (1917-48), 21.5 million gallons a day (33.3 second-feet).

Extremes.- Maximum discharge during year, 1,210 million gallons a day (1,870 second-feet) Jan. 25 (gage height, 6.83 feet), from rating curve extended above 400 million gallons a day; minimum, 2.4 million gallons a day (3.7 second-feet) Oct. 25.
1910-48: Maximum discharge, 1,600 million gallons a day (2,480 second-feet) Aug. 12, 1940 (gage height, 7.81 feet), from rating curve extended above 400 million gallons a day; minimum, 0.1 million gallons a day (0.2 second-foot) Nov. 17, 1929, site and datum then in use.

Remarks.- Records good except those for period of no gage-height record, which are fair. Kula pipe line diverts small amount of water above station, at altitude 4,300 feet, for domestic supply.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge in million gallons a day)

0.7	1.4	1.3	21	2.7	205
.8	2.8	1.5	36	3.0	252
.9	5.0	1.7	53	3.5	340
1.0	7.8	1.9	74	4.0	440
1.1	11.4	2.1	100	4.5	550
1.2	15.8	2.4	147		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.8	5.0	19.3	8.0	7.8	12.7	8.0	8.5	6.2	a240	12.7	40
2	36	4.3	26	5.6	5.8	8.5	8.4	7.2	8.0	a190	10.7	17.9
3	34.5	3.9	139	4.8	8.8	4.8	82	9.9	76	a230	8.5	12.7
4	12.3	3.95	98	4.8	5.8	21	19.7	9.8	19.1	a210	7.2	10.3
5	17.8	76	29	95	4.8	8.5	10.7	7.0	8.7	a60	7.0	8.9
6	42	8.0	21	11.5	4.3	20.5	11.3	5.6	5.6	a27	5.8	7.8
7	19.4	5.6	15.0	8.6	4.6	69	17.4	7.7	23	a18	5.6	7.5
8	11.4	5.6	10.3	5.8	4.8	19.2	25.5	16.2	16.5	a14	5.0	6.1
9	8.9	5.3	8.2	4.8	5.9	14.1	9.6	6.4	17.5	a13	9.0	5.6
10	12.1	6.5	7.0	4.1	8.3	19.3	7.5	6.1	22	a11	12.9	5.0
11	16.3	5.8	6.7	3.9	56	11.4	7.2	14.1	46	a15	5.8	4.6
12	12.6	58	7.0	3.7	76	40	9.6	45	53	a55	5.9	4.3
13	7.8	26	5.3	3.5	136	35.5	26.5	8.0	80	32	21	4.8
14	14.2	12.4	4.0	17.8	23.5	19.6	7.0	5.8	24	55	8.8	5.4
15	13.2	7.5	4.6	9.4	59	10.7	5.8	5.0	24	137	5.6	5.0
16	7.8	36.5	4.3	4.8	14.5	46	5.0	4.6	169	46	5.0	6.3
17	6.4	87	4.1	3.9	10.0	74	4.8	4.1	134	22	14.3	6.7
18	5.0	22	3.7	3.2	7.8	217	4.3	3.9	153	19.1	12.6	5.6
19	5.0	11.4	3.5	2.8	6.7	96	4.1	3.9	82	34	7.2	3.9
20	5.8	8.9	3.0	2.7	5.8	72	3.7	4.1	144	18.4	20	4.6
21	6.0	38.5	2.8	7.2	5.0	33.5	3.0	17.9	32	27	16.2	3.7
22	6.1	12.1	11.2	6.6	4.6	15.8	2.7	28	50	13.6	10.6	3.2
23	5.6	8.5	11.4	3.55	4.3	12.3	13.9	6.4	95	10.7	8.4	3.9
24	4.3	22.5	5.2	2.7	4.3	13.2	76	4.3	51	9.6	13.1	2.8
25	25	123	3.5	142	3.9	10.7	471	4.1	58	8.9	17.9	2.7
26	16.2	26.5	2.8	243	3.5	12.4	521	5.5	51	9.4	54	5.4
27	27.5	13.2	2.7	35	3.2	19.2	47	14.0	46	20.5	93	6.5
28	13.4	13.8	3.2	14.6	4.4	10.3	17.9	4.8	84	23	105	12.0
29	9.2	8.9	37	9.6	5.1	8.2	12.7	4.1	267	126	41	7.0
30	7.0	17.4	38	7.2	3.2	7.5	10.3	-	141	26	26	13.6
31	5.8	13.0	-	12.1	-	7.2	13.6	-	54	-	44	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	42	4.3	13.7	21.2	425	1,310
August	123	3.9	21.5	33.3	667	2,050
September	139	2.7	17.9	27.7	538	1,650
October	243	2.7	22.3	34.5	692	2,120
November	136	3.2	16.6	25.7	498	1,530
December	217	4.8	31.3	48.4	970	2,980
Calendar year 1947	282	1.1	19.7	30.5	7,200	22,080
January	521	2.7	47.3	73.2	1,470	4,500
February	45	3.9	9.38	14.5	272	835
March	267	5.6	65.8	102	2,040	6,260
April	240	8.9	57.4	88.8	1,720	5,280
May	105	5.0	20.0	30.9	620	1,900
June	40	2.7	7.79	12.1	234	718
Fiscal year 1947-48	521	2.7	27.7	42.9	10,150	31,130

Peak discharge (base, 750 m.g.d.).- Oct. 25 (6 p.m.) 1,030 m.g.d. (1,590 sec.-ft.); Jan. 25 (6 p.m.) 1,210 m.g.d. (1,870 sec.-ft.); Mar. 3 (8 p.m.) 1,150 m.g.d. (1,780 sec.-ft.).

a No gage-height record; discharge computed on basis of records for nearly stations.

Manuel Luis ditch at Puohokamoa Gulch, near Huelo

Location.- Sharp-crested weir, lat. 20°51'50", long. 156°11'00", in Puohokamoa Gulch at lower portal of tunnel between Haipuaena and Puohokamoa Stream, 3 miles southeast of Kailua, and 4.4 miles southeast of Huelo.

Records available.- December 1917 to June 1948.

Average discharge.- 29 years (1918-24, 1925-48), 5.90 million gallons a day (9.13 second-feet).

Extremes.- Maximum discharge during year, 70 million gallons a day (108 second-feet) Apr. 29 (gage height, 3.15 feet); minimum, 0.28 million gallons a day (0.43 second-foot) Sept. 21, 27.
1917-48: Maximum discharge, 116 million gallons a day (179 second-feet) Jan. 14, 1923 (gage height, 4.93 feet), from rating curve computed from 10 to 75 million gallons a day and extended above; no flow Jan. 8, 1937, Oct. 2-5, 1939.

Remarks.- Records excellent. Ditch is extension of Center ditch and picks up water at altitude of 500 feet from streams between the Kolea and the Waiakamoi. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.2	0.85	7.7	2.6	4.2	4.0	4.1	0.85	2.25	43	6.1	14.9
2	13.2	.62	7.3	1.45	2.55	3.4	3.65	.79	5.6	50	8.1	7.8
3	10.7	.56	44	1.02	4.2	2.55	16.5	.85	18.4	35	5.4	6.3
4	4.3	.61	42	1.34	2.95	7.1	5.4	.62	5.2	58	4.5	5.5
5	4.1	25	8.0	33	1.70	4.3	4.6	.68	4.3	21	4.0	5.0
6	10.1	1.82	8.2	3.9	1.31	6.7	4.6	.62	3.0	9.4	3.75	4.9
7	4.3	1.00	4.0	3.05	1.08	28.5	5.3	.62	5.6	6.6	2.9	4.5
8	4.0	1.23	3.1	1.85	1.52	8.4	11.0	.74	5.2	6.1	2.35	3.2
9	3.0	1.00	2.45	1.16	2.8	9.4	4.6	.51	7.6	6.1	5.2	2.45
10	3.9	2.1	1.89	.74	5.7	8.5	3.9	.45	10.2	4.3	7.2	1.99
11	8.5	2.15	1.67	.62	24	7.7	3.9	.72	9.0	11.0	3.45	1.53
12	7.0	21	1.86	.56	42	21	3.15	8.2	14.1	36.5	2.85	1.15
13	3.45	6.0	1.00	.63	53	13.8	11.3	.85	28.5	19.9	8.0	1.61
14	4.2	4.6	.85	7.6	10.2	7.7	3.1	.68	7.3	22	5.4	2.3
15	5.2	2.35	.68	3.85	40	6.1	1.99	.62	11.2	56	2.65	1.98
16	3.1	11.3	.62	2.13	5.8	19.0	1.46	.79	54	13.8	2.15	4.2
17	2.25	30.5	.51	1.31	3.65	29	1.23	.93	29.5	5.5	8.7	3.85
18	1.53	5.2	.45	.68	2.55	65	1.08	.79	31	6.7	7.6	3.3
19	1.38	3.65	.39	.56	1.99	34	.74	.74	8.8	9.8	5.8	1.08
20	2.15	2.55	.34	.45	1.93	29.5	.56	.85	33	9.0	8.6	2.25
21	1.95	2.45	.28	2.15	2.1	13.7	.56	5.6	4.3	12.3	7.5	1.08
22	2.1	4.0	4.4	3.9	1.53	6.8	.51	9.0	7.4	7.1	7.3	.62
23	2.3	3.45	2.5	1.02	1.23	6.0	5.4	3.85	24	6.6	6.4	2.1
24	1.00	8.4	.80	.51	1.46	5.9	27.5	1.69	14.2	6.0	8.8	.85
25	6.0	41	.39	15.8	1.08	5.4	64	1.36	14.3	5.5	8.8	.85
26	3.9	8.3	.34	66	.74	6.0	68	2.35	9.6	6.6	24.5	5.3
27	5.0	4.8	.28	19.4	.62	6.6	30.5	4.9	10.8	9.2	38.5	8.7
28	3.9	4.4	.39	6.4	1.31	5.2	8.4	2.2	31	8.8	31.5	15.0
29	2.75	2.5	14.0	4.8	2.85	4.2	2.45	2.0	63	37.5	16.2	8.2
30	1.89	3.9	13.7	3.65	.85	4.1	1.31	-	38.5	9.6	8.5	10.9
31	1.38	3.75	-	5.3	-	3.25	1.34	-	22	-	19.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.2	1.00	4.28	6.62	133	407
August	41	.56	6.81	10.5	211	648
September	44	.28	5.80	8.97	174	534
October	66	.45	6.37	9.86	197	606
November	53	.62	7.56	11.7	227	696
December	65	2.55	12.3	19.0	383	1,170
Calendar year 1947	66	.22	6.83	10.6	2,490	7,560
January	68	.51	9.75	15.1	302	927
February	9.0	.45	1.89	2.92	54.8	168
March	63	2.25	17.2	26.6	533	1,640
April	58	4.3	18.0	27.9	539	1,650
May	38.5	2.15	9.09	14.1	282	865
June	15.0	.62	4.45	6.89	133	409
Fiscal year 1947-48	68	.28	8.66	13.4	3,170	9,720

Waiakamoi Stream below reservoir at Kula pipe-line intake, near Olinda

Location.- Concrete dam control, lat. 20°48'40", long. 156°13'55", on left bank of Waiakamoi Reservoir, 3 miles east of Olinda, and 4.7 miles south of Kailua. Altitude of gage, 4,250 feet (from topographic map).

Records available.- July 1945 to June 1948.

Extremes.- Maximum discharge for year ending June 30, 1946, 690 million gallons a day (1,070 second-feet) Jan. 17 (gage height, 21.86 feet); no flow on many days.
Maximum discharge for year ending June 30, 1947, 880 million gallons a day (1,360 second-feet) Dec. 20 (gage height, 22.39 feet); no flow on mary days.
Maximum discharge for year ending June 30, 1948, 2,350 million gallons a day (3,64 second-feet) Jan. 26 (gage height, 25.3 feet, from floodmarks); no flow on many days.

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

Rating table, fiscal years 1946-48 (gage height, in feet, and discharge, in million gallons a day)

17.6	1.45	18.0	14.8	19.4	121
17.7	3.55	18.2	24.5	19.9	184
17.8	6.8	18.5	42	20.4	268
17.9	10.5	18.9	72	20.9	381

Discharge, in million gallons a day, 1945-48

1945-46

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1		0	0	0	0	0	0	1.30	0	3.55	0.84	
2		0	0	0	0	0	0	.26	0	2.0	0	
3		0	0	0	0	.15	0	0	0	9.6	0	
4		0	0	0	0	.25	0	0	0	4.4	0	
5		.80	0	0	0	.17	0	0	0	2.4	0	
6		6.0	0	0	2.4	0	0	0	0	1.62	0	
7		2.5	0	0	1.09	0	0	0	0	.40	0	
8		1.8	0	0	.30	0	0	0	2.5	0	0	
9		3.2	0	0	5.3	0	0	0	0	2.6	0	
10		2.2	0	0	.18	0	0	0	3.3	2.4	0	
11		4.0	0	0	0	0	0	0	5.5	.30	0	
12		1.80	0	0	0	0	0	0	.74	0	0	
13		.40	0	0	.15	0	0	0	.34	1.00	0	
14		0	.63	0	0	0	0	0	9.1	1.25	0	
15		1.41	0	0	0	0	0	0	3.6	2.2	0	
16		3.5	0	0	0	0	0	7.1	1.80	1.62	0	
17		1.5	0	0	0	0	89	67	2.8	8.7	0	
18		3.35	0	0	0	0	9.5	1.91	9.1	3.5	0	
19		3.8	0	0	0	0	.45	.48	8.5	.97	0	
20		6.1	0	0	0	0	0	0	2.9	1.10	0	
21		4.1	0	0	0	0	0	0	7.0	3.3	0	
22		1.62	0	0	0	0	0	0	3.6	2.65	0	
23		11.7	0	0	0	0	13.2	0	5.8	.96	0	
24		9.7	0	0	0	0	13.9	0	4.7	8.6	0	
25		3.3	0	0	0	0	3.2	0	3.55	5.2	0	
26		.22	0	0	0	0	7.7	0	3.3	6.3	0	
27		0	0	0	0	0	5.2	0	15.2	2.4	0	
28		0	0	0	0	0	1.62	0	10.9	.45	0	
29		0	0	2.3	0	0	1.15	-	2.4	.21	0	
30		0	0	2.8	0	0	.25	-	5.1	1.9	0	
31		0	-	4.4	-	-	.37	-	4.7	-	0	

Note.- No gage-height record Aug. 1-8, 16, 17, Sept. 1-11, Apr. 28 to May 1; discharge computed on basis of recorded range in stage and record for Waiakamoi Stream near Huelo.

Discharge, in million gallons a day, of Waiakamoi Stream below reservoir at Kula pipe-line intake, near Olinda, Maui, 1945-48--Continued

1946-47

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0		0	0	1.30	5.4	2.65		0	1.45	0	0
2	0		0	0	2.3	4.1	12.1		0	0	0	0
3	0		0	0	.05	26.5	9.4		0	1.63	9.5	0
4	0		0	0	0	8.7	3.55		0	.20	21	0
5	0		0	0	35	2.4	1.80		30.5	.21	6.4	0
6	0		0	0	7.2	2.85	1.62		51	8.8	5.4	0
7	0		0	0	.62	1.56	.39		0	7.1	.28	0
8	0		0	0	0	2.4	6.4		0	4.1	0	0
9	0		0	0	.78	.08	3.8		0	2.0	3.65	0
10	2.95		0	0	0	0	2.85		0	.37	6.4	0
11	2.2		0	0	0	0	2.4		0	.12	11.8	0
12	.50		0	0	0	0	5.0		0	7.1	13.4	0
13	.15		0	0	0	0	5.0		0	5.4	6.8	0
14	0		0	0	0	0	3.1		7.5	3.1	1.01	0
15	2.7		0	0	0	.49	.61		3.1	.80	0	0
16	3.6		0	0	0	21	0		1.35	0	0	0
17	8.3		0	0	0	75	0		0	0	0	0
18	1.80		0	0	0	59	0		0	0	0	0
19	.32		0	0	0	18.5	0		0	0	0	0
20	3.45		0	0	0	262	0		0	0	0	0
21	3.05		0	0	0	180	0		0	0	.31	0
22	.40		0	0	0	30.5	0		0	.38	2.4	0
23	0		0	0	0	14.8	0		0	0	1.30	0
24	0		0	0	0	6.4	0		.36	0	1.45	0
25	0		0	0	0	8.5	0		2.4	0	1.62	0
26	0		0	0	0	5.4	0		0	0	2.0	0
27	21		0	0	0	1.80	0		.56	0	2.2	0
28	3.65		0	0	1.30	.05	0		13.6	0	2.65	2.2
29	0		.29	0	9.8	0	0		22.5	0	.95	1.02
30	0		0	.45	9.3	.84	0		5.8	0	0	3.3
31	0		-	1.30	-	6.1	0		3.1	-	0	-

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.97	0	1.70	0.40	0	0	0	0	5.0	19.2	1.56	5.5
2	5.6	0	4.1	0	0	0	0	0	5.8	13.5	1.23	3.55
3	4.0	0	7.8	0	0	0	10.2	0	9.1	11.6	0	1.63
4	2.2	0	19.1	0	0	0	5.0	0	5.7	16.0	0	0
5	2.2	4.2	5.6	.79	0	0	3.1	0	2.85	6.0	0	0
6	3.3	.83	5.0	.19	0	0	1.34	0	1.80	2.0	0	0
7	2.65	0	3.9	0	0	4.2	1.20	0	2.2	1.01	0	0
8	1.15	0	.95	0	0	3.3	0	5.5	5.8	.31	0	0
9	0	0	0	0	0	1.62	0	2.65	6.5	3.1	0	0
10	0	0	0	0	0	1.62	0	1.52	10.5	1.10	0	0
11	0	0	0	0	3.1	.36	0	3.1	10.1	0	0	0
12	0	7.7	.38	0	7.5	5.6	0	3.3	13.0	3.5	0	0
13	0	4.9	0	0	12.5	8.2	4.7	1.62	12.5	3.55	.07	0
14	0	1.00	1.64	0	4.1	5.0	.60	.06	6.6	2.85	.17	0
15	0	0	0	.04	7.9	2.85	0	0	4.6	8.4	0	0
16	0	0	0	0	2.65	9.1	0	0	20	6.2	0	0
17	0	5.4	0	0	.95	10.3	0	0	20	3.3	0	0
18	0	2.2	0	0	1.45	112	0	0	20.5	1.99	1.22	0
19	0	.13	0	0	.30	60	0	0	9.2	3.8	.69	0
20	0	0	0	0	0	10.0	0	0	12.4	1.34	3.45	0
21	0	0	0	0	0	5.1	0	.35	4.1	0	3.8	0
22	0	0	.40	0	0	2.35	0	3.8	3.75	0	2.2	0
23	0	0	3.3	0	0	.76	0	3.3	8.4	0	.70	0
24	0	0	.90	0	0	3.65	3.65	.55	4.4	0	.31	0
25	0	11.6	0	62	0	3.55	336	0	5.0	0	2.85	0
26	0	3.1	0	112	0	1.32	385	0	5.8	0	3.8	0
27	0	.65	0	7.1	0	1.62	17.9	5.2	6.9	0	10.0	0
28	.56	0	0	1.03	0	.20	5.4	2.65	7.1	0	10.6	0
29	0	0	0	0	0	0	3.2	1.62	30	10.7	3.8	0
30	0	0	3.5	0	0	0	0	-	15.0	3.3	2.0	0
31	0	1.79	-	0	-	0	0	-	6.1	-	4.3	-

Monthly discharge, in millions gallons a day, of Waihkamoi Stream below reservoir at Kula pipe-line intake, near Olinda, Maui, 1945-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-fe
July 1945	0	0	0	0	0	
August	11.7	0	2.35	3.64	73.0	22
September	.63	0	.021	.032	.63	
October	4.4	0	.306	.473	9.5	2
November	5.3	0	.314	.486	9.42	2
December	.25	0	.018	.028	.57	
The period	-	-	-	-	93.1	28
January 1946	69	0	4.69	7.25	146	44
February	67	0	2.79	4.32	78.0	24
March	15.2	0	3.76	5.82	116	35
April	9.6	0	2.72	4.21	81.6	25
May	0	0	0	0	.84	
June	0	0	0	0	0	
Fiscal year 1945-46	89	0	1.41	2.18	516	1,58
July 194	21	0	1.74	2.69	54.1	16
August	0	0	0	0	0	
September	.29	0	.010	.016	.29	
October	1.30	0	.056	.087	1.75	
November	35	0	2.26	3.50	67.6	20
December	262	0	24.0	37.1	744	2,28
Calendar year 1946	262	0	3.53	5.46	1,290	3,95
January 1947	12.1	0	1.96	3.03	60.7	18
February	0	0	0	0	0	
March	51	0	4.57	7.07	142	43
April	8.8	0	1.43	2.21	42.8	13
May	21	0	3.24	5.01	101	30
June	3.3	0	.217	.336	6.52	2
Fiscal year 1946-47	262	0	3.34	5.17	1,220	3,74
July 1947	5.8	0	.730	1.13	22.6	6
August	11.8	0	1.40	2.17	43.5	13
September	19.1	0	1.94	3.00	58.3	17
October	112	0	5.92	9.16	184	56
November	12.5	0	1.35	2.09	40.4	12
December	112	0	8.15	12.6	253	77
Calendar year 1947	112	0	2.61	4.04	953	2,92
January 1948	385	0	25.1	38.8	777	2,39
February	5.5	0	1.21	1.87	35.2	10
March	30	1.80	9.05	14.0	281	86
April	19.2	0	4.09	6.33	123	37
May	10.6	0	1.70	2.63	52.8	16
June	5.5	0	.356	.551	10.7	3
Fiscal year 1947-48	385	0	5.14	7.95	1,880	5,78

Waiakamoi Stream above Wailoa ditch, near Huelo

Location.- Lat. 20°51'45", long. 156°11'55", 500 feet upstream from intake of Wailoa ditch, a quarter of a mile upstream from Spreckels ditch trail, and 3.8 miles southeast of Huelo. Datum of gage is 1,293.59 feet above mean sea level.

Drainage area.- 4.4 square miles.

Records available.- January 1922 to June 1948.

Average discharge.- 26 years, 16.6 million gallons a day (25.7 second-feet).

Extremes.- Maximum discharge during year, 12,400 million gallons a day (19,200 second-feet) Jan. 26 (gage height, 12.76 feet), from rating curve extended above 370 million gallons a day by logarithmic plotting; minimum, 0.83 million gallons a day (1.28 second-feet) Oct. 25, June 23.
1922-48: Maximum discharge, that of June 26, 1948; minimum, 0.16 million gallons a day (0.25 second-foot) Feb. 11, 1945.

Remarks.- Records good. Haleakala ranch and Kula pipe lines divert small quantities of water above station. Water used for irrigation in central Maui.

Revisions (fiscal years).- W 615: 1923-24. W 740: 1922-31(M).

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.88	1.5	6.1	2.6	61	4.5	410
1.0	1.18	1.7	11.2	3.0	102	5.0	590
1.1	1.52	2.0	23	3.5	177	6.1	1,140
1.3	2.9	2.3	39	4.0	277	6.7	1,590

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.8	2.5	10.5	5.0	3.9	7.4	4.2	5.0	4.1	89	6.8	27
2	34.5	2.15	15.4	3.05	2.75	6.5	4.5	4.2	8.4	116	5.0	11.3
3	26	1.94	87	2.65	4.1	2.8	73	5.7	63	126	4.0	7.2
4	7.7	1.78	71	3.05	3.35	12.8	16.6	7.4	17.9	119	3.45	5.0
5	10.2	60	19.5	55	2.3	4.5	7.5	4.5	5.9	38	3.2	4.3
6	29.5	4.7	16.7	6.7	2.0	13.6	6.4	3.3	3.3	12.7	2.65	4.2
7	11.2	2.9	11.0	4.8	2.05	44	9.6	4.5	9.0	8.7	2.45	4.3
8	6.3	2.75	5.7	3.45	2.3	12.2	11.3	10.0	14.2	6.8	2.4	3.2
9	4.7	2.55	4.7	2.8	3.95	7.0	4.8	6.6	20	6.3	4.4	2.75
10	5.9	3.0	4.0	2.5	5.5	9.0	4.0	3.8	27	4.8	8.2	2.5
11	9.4	2.7	3.6	2.4	35	4.8	4.5	9.9	43	7.1	3.3	2.2
12	6.8	49	3.9	2.4	51	30	5.7	27	68	43	2.55	2.05
13	4.5	20	2.8	2.15	107	37	25.5	6.2	70	21	12.0	2.65
14	6.2	6.1	2.5	14.5	15.2	18.5	4.6	4.0	24.5	25.5	5.2	2.65
15	6.0	3.9	2.3	6.8	42	7.5	3.2	3.3	14.6	96	2.8	2.8
16	3.9	13.8	2.2	3.05	8.4	48	2.75	2.75	155	34	2.5	3.2
17	2.55	56	2.0	2.3	4.8	55	2.5	2.5	135	13.5	7.0	3.4
18	2.0	10.1	1.78	2.0	3.9	353	2.4	2.3	159	9.5	7.8	2.25
19	2.5	5.2	1.63	1.84	3.3	160	2.15	2.2	69	24.5	4.2	1.32
20	3.6	3.9	1.49	1.63	2.75	60	2.0	2.1	120	10.4	12.8	1.34
21	2.9	3.6	1.42	2.25	2.5	27	2.15	14.4	19.8	11.8	13.0	1.22
22	3.3	4.9	9.6	3.65	2.2	8.8	2.0	24.5	27	6.3	7.3	.91
23	2.15	4.0	10.0	2.05	2.0	6.3	13.9	6.7	79	4.8	4.7	1.40
24	1.57	10.8	4.0	1.06	2.15	11.4	63	3.5	27	4.2	6.0	1.49
25	9.2	103	1.94	266	1.94	8.4	1,380	2.55	38.5	3.9	8.8	1.34
26	11.0	15.0	1.52	362	1.68	6.8	1,590	4.6	43	4.4	33.5	2.15
27	12.9	7.0	1.38	33	1.56	10.9	55	15.1	41	10.4	73	2.7
28	6.8	6.6	1.73	8.0	2.1	5.6	17.2	4.4	58	15.8	86	8.5
29	4.5	4.5	19.0	4.5	2.7	4.3	10.4	2.55	206	105	24.5	6.6
30	3.45	11.3	29	3.6	1.89	4.0	5.6	-	117	16.8	13.2	7.8
31	2.8	7.5	-	5.0	-	3.7	8.6	-	35.5	-	32	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	34.5	1.57	8.12	12.6	252	773
August	103	1.78	14.0	21.7	433	1,330
September	87	1.38	11.6	17.9	349	1,070
October	362	1.06	26.4	40.8	819	2,510
November	107	1.57	10.9	16.9	326	1,000
December	353	2.8	32.0	49.5	991	3,040
Calendar year 1947	353	.33	15.3	23.7	5,570	17,100
January	1,590	2.0	108	167	3,350	10,270
February	27	2.1	6.74	10.4	196	600
March	206	3.3	55.6	86.0	1,720	5,290
April	126	3.9	33.2	51.4	995	3,050
May	86	2.4	13.1	20.3	405	1,240
June	27	.91	4.32	6.68	130	398
Fiscal year 1947-48	1,590	.91	27.2	42.1	9,970	30,570

Peak discharge (base, 900 m.g.d).- Oct. 25 (8:30 p.m.) 1,510 m.g.d (2,340 sec.-ft.); Dec. 18 (7:30 a.m.) 1,210 m.g.d. (1,870 sec.-ft.); Jan. 26 (11 a.m.) 12,400 m.g.d. (19,200 sec.-ft.).

Alo Stream near Huelo

Location.- Lat. 20°51'50", long. 156°11'45", just upstream from Spreckels ditch inflow and trail crossing and 3.8 miles southeast of Huelo. Datum of gage is 1,248.38 feet above mean sea level.

Drainage area.- 0.2 square miles.

Records available.- December 1910 to June 1948.

Average discharge.- 37 years (1911-48), 4.93 million gallons a day (7.63 second-feet).

Extremes.- Maximum discharge during year, 283 million gallons a day (438 second-feet) Oct. 25 (gage height, 3.42 feet), from rating curve extended above 50 million gallons a day; minimum, 0.54 million gallons a day (0.84 second-foot) Sept. 26, 27.
1910-48: Maximum discharge, 1,600 million gallons a day (2,480 second-feet) Nov. 18, 1930 (gage height, 6.90 feet), from rating curve extended above 15 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Nov. 22, 23, 193

Remarks.- Records good except those for periods of no gage-height record, which are fai
Water used for irrigation in central Maui.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.39	1.0	3.3	1.5	18.5
.6	.70	1.1	4.6	1.6	24
.7	1.07	1.2	6.6	1.9	46
.8	1.58	1.3	9.7	2.2	76
.9	2.3	1.4	13.5	2.5	113

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun
1	2.15	1.22	5.2	1.48	1.86	3.0	1.87	1.48	0.77	44	2.55	10.1
2	10.7	1.07	10	1.34	1.32	1.53	2.25	1.44	2.0	41	2.85	3.9
3	6.4	1.00	35	1.15	2.4	1.95	7.7	1.87	8.7	37	1.72	2.8
4	2.75	1.00	18	1.66	1.27	5.8	2.75	1.22	2.05	24.5	1.43	2.1
5	4.4	9.4	5.6	23.5	1.07	2.75	1.65	2.35	1.12	5.8	1.32	1.8
6	10.7	1.5	3.3	2.3	1.00	4.9	1.75	1.47	.92	3.7	1.17	1.7
7	4.8	1.3	2.5	1.90	1.06	22	3.85	2.1	5.9	2.9	1.03	1.3
8	3.2	1.2	2.0	1.43	1.00	5.5	6.6	4.0	2.95	2.35	.98	1.1
9	2.4	1.3	1.85	1.17	3.15	6.8	1.94	1.42	5.9	1.94	2.8	1.0
10	2.7	2.3	1.48	1.03	3.95	5.0	1.53	1.34	8.4	1.58	2.85	.9
11	14.8	2.1	1.32	.98	18.5	2.9	1.32	7.0	8.5	5.7	1.12	.9
12	6.1	8.5	1.12	.88	17.8	12.8	1.32	14.8	7.3	18.7	1.07	.8
13	2.6	6.0	1.05	.89	28.5	6.3	1.27	2.1	12.1	10.7	3.75	.8
14	6.3	4.1	.90	2.25	9.0	3.85	1.05	1.53	4.0	12.8	1.80	1.0
15	4.8	2.3	.81	1.84	14.8	2.4	.98	1.27	12.9	49	1.00	.9
16	2.7	10	.78	1.02	3.3	8.3	.92	1.07	19.9	8.8	1.00	1.3
17	2.25	17	.70	.88	2.3	26	.85	1.00	14.1	3.8	6.8	1.1
18	1.8	5.2	.68	.81	1.87	34.5	.81	.98	8.5	3.2	3.8	1.7
19	1.67	2.7	.84	.77	1.53	16.1	.77	.92	10.9	3.45	2.5	.9
20	1.89	1.9	.58	.70	1.32	9.7	.74	.85	33.5	3.4	5.1	1.1
21	1.42	1.8	.58	1.25	1.17	5.4	.70	1.77	8.2	8.5	2.2	.9
22	1.98	3.5	2.6	1.77	1.07	3.1	.67	7.1	18.0	2.85	2.0	.7
23	2.6	2.6	1.6	.85	1.00	2.5	10.3	1.32	17.7	2.1	2.45	1.1
24	1.38	10	.76	.70	1.03	2.15	28	.91	18.8	1.72	3.8	.7
25	5.6	25	.64	28	.88	1.95	74	.88	17.2	1.61	4.3	.7
26	2.9	9.0	.54	39	.85	3.8	91	1.16	5.6	2.75	17.2	.9
27	5.1	3.7	.54	5.7	.77	4.2	7.6	3.45	5.8	5.1	24	1.0
28	2.65	4.3	.70	3.5	1.38	2.0	3.05	.92	20	4.6	10.4	1.5
29	1.87	2.4	10	1.94	2.24	1.58	2.15	.85	37	17.1	13.0	.8
30	1.58	3.2	8.0	1.53	.88	1.53	1.79	-	25	5.7	4.2	3.7
31	1.43	3.0	-	3.75	-	1.88	3.3	-	14.6	-	10.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-fe
July	14.8	1.38	3.98	6.16	123	37
August	25	1.00	4.83	7.47	150	45
September	35	.54	3.97	6.14	119	36
October	39	.70	4.39	6.79	136	41
November	26.5	.77	4.20	6.50	126	38
December	34.5	1.53	6.82	10.6	211	64
Calendar year 1947	64	.35	4.55	7.04	1,660	5,10
January	91	.67	8.47	13.1	262	80
February	14.6	.85	2.35	3.64	66.2	20
March	37	.77	11.4	17.6	352	1,08
April	49	1.58	11.1	17.2	332	1,02
May	24	.96	4.51	6.98	140	42
June	10.1	.74	1.69	2.61	50.8	15
Fiscal year 1947-48	91	.54	5.66	8.76	2,070	6,36

Peak discharge (base, 250 m.g.d.).- Oct. 25 (6 p.m.) 283 m.g.d. (438 sec.-ft.).
Note.- No gage-height record Aug. 6 to Sept. 8, Sept. 14-30; discharge computed on basis of reco for Oopuola Stream.

Kaalea Stream near Huelo

Location.- Concrete weir control, lat. 20°52'05", long. 156°12'15", 700 feet upstream from Hamakua ditch trail crossing, 2 miles southeast of Kailua, and 3½ miles southeast of Huelo.

Drainage area.- 0.5 square mile.

Records available.- December 1921 to June 1948.

Average discharge.- 26 years (1922-48), 4.70 million gallons a day (7.27 second-feet).

Extremes.- Maximum discharge during year, 312 million gallons a day (483 second-feet) Oct. 25 (gage height, 3.60 feet); minimum, 0.48 million gallons a day (0.74 second-foot) Sept. 27.
1921-48: Maximum discharge, 2,300 million gallons a day (3,560 second-feet) Nov. 18, 1930 (gage height, 7.93 feet, site and datum then in use), from rating curve extended above 50 million gallons a day; minimum, 0.22 million gallons a day (0.34 second-foot) June 1, 1945.

Remarks.- Records good except those for June 28-30, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.26	0.7	6.1	1.4	36.5
.3	.60	.8	8.7	1.6	49
.4	1.30	.9	11.5	2.0	79
.5	2.4	1.0	15.2	2.5	126
.6	4.0	1.2	24.5		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.91	1.20	4.7	1.58	1.68	2.65	1.99	1.47	0.81	39	2.7	10.0
2	9.1	1.04	9.2	1.30	1.20	1.30	1.96	1.30	1.50	33.5	2.3	4.0
3	7.5	.95	34.5	1.20	1.99	1.28	9.3	1.58	6.0	29	1.68	2.55
4	2.55	1.00	15.9	1.47	1.12	5.5	3.1	1.30	2.15	24.5	1.47	1.91
5	4.5	10.2	5.0	25	.95	2.3	1.80	2.2	1.04	7.0	1.30	1.68
6	10.5	1.39	3.0	2.3	.88	4.7	1.80	1.60	.88	3.65	1.12	1.58
7	5.2	1.20	2.3	1.80	.81	18.2	3.25	2.1	6.0	2.55	1.04	1.30
8	2.8	1.12	1.80	1.30	.81	4.8	7.6	5.0	3.35	2.15	.95	1.12
9	2.0	1.20	1.58	1.04	1.96	4.6	2.0	1.80	4.9	1.80	2.4	.95
10	2.55	2.15	1.39	.88	3.55	4.9	1.58	1.39	6.5	1.47	3.05	.88
11	10.9	2.0	1.20	.81	16.4	2.3	1.39	4.1	7.7	3.45	1.20	.81
12	5.5	8.4	1.03	.75	16.9	10.0	1.30	14.2	8.4	16.7	1.04	.75
13	2.4	5.4	.88	.75	24	7.3	1.39	2.3	12.6	8.3	3.75	.81
14	5.2	3.75	.81	2.2	6.4	3.7	1.04	1.58	4.4	15.7	1.68	.95
15	4.6	1.91	.75	1.72	12.7	2.0	.88	1.30	10.6	40	1.12	1.04
16	2.4	8.8	.75	.95	2.55	6.4	.81	1.12	22.5	7.0	1.03	1.20
17	2.0	15.8	.65	.75	1.91	19.8	.75	.95	15.6	3.5	6.3	1.47
18	1.58	4.6	.60	.70	1.47	35	.75	.88	10.8	2.8	3.65	1.58
19	1.47	2.4	.60	.65	1.20	14.0	.70	.81	10.6	4.1	2.3	.81
20	1.58	1.80	.56	.60	1.04	11.5	.68	.75	33.5	3.65	5.6	1.12
21	1.30	1.68	.52	1.38	.95	5.8	.65	1.86	6.3	9.2	2.3	.88
22	1.65	3.4	2.6	1.80	.81	2.7	.60	6.7	12.8	2.8	2.0	.75
23	2.3	2.3	1.62	.81	.75	2.15	3.3	1.20	18.9	2.15	2.25	1.04
24	1.30	9.3	.70	.65	.81	1.80	24	.88	16.2	1.80	3.2	.75
25	5.6	24.0	.60	27	.70	1.58	75	.81	18.2	1.68	4.7	.75
26	3.0	8.0	.52	37	.65	3.15	87	1.48	6.1	2.25	13.4	.94
27	6.2	3.15	.52	5.7	.60	4.4	7.2	3.25	6.4	4.6	22	1.30
28	2.7	4.2	.65	3.2	.98	1.91	2.7	1.04	19.1	5.0	12.6	a1.5
29	1.91	2.0	10.5	1.68	1.70	1.58	1.80	.88	38	20	13.2	a.81
30	1.58	3.1	7.7	1.39	.70	1.47	1.53	-	24	6.1	4.5	a3.7
31	1.39	2.8	-	3.4	-	1.49	3.95	-	12.3	-	10.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.9	1.30	3.72	5.76	115	353
August	24	.95	4.52	6.99	140	430
September	34.5	.52	3.77	5.83	113	347
October	37	.60	4.25	6.58	132	404
November	24	.60	3.61	5.59	108	332
December	35	1.28	6.14	9.50	190	584
Calendar year 1947	65	.33	4.34	6.71	1,580	4,860
January	87	.60	8.12	12.6	252	773
February	14.2	.75	2.27	3.51	65.8	202
March	38	.81	11.2	17.3	348	1,070
April	40	1.47	10.2	15.8	305	937
May	22	.95	4.39	6.79	136	418
June	10.0	.75	1.63	2.52	48.9	150
Fiscal year 1947-48	87	.52	5.34	8.26	1,950	6,000

Peak discharge (base, 250 m.g.d.).- Oct. 25 (6 p.m.) 312 m.g.d. (483 sec.-ft.); Jan. 25 (10 p.m.) 95 m.g.d. (463 sec.-ft.).

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

Kailua Stream near Huelo

Location.- Lat. 20°52'35", long. 156°13'25", just upstream from Wailoa ditch intake, 1¼ miles southwest of Kailua, and 2½ miles south of Huelo. Datum of gage is 1,252.99 feet above mean sea level.

Drainage area.- 3.0 square miles.

Records available.- December 1910 to June 1918, July 1919 to June 1948.

Average discharge.- 29 years (1919-48), 19.2 million gallons a day (29.7 second-feet)

Extremes.- Maximum discharge during year, 3,980 million gallons a day (6,160 second-feet) Jan. 25 (gage height, 8.81 feet), from rating curve extended above 150 million gallons a day; minimum, 2.1 million gallons a day (3.2 second-feet) June 22, 24-26, 28.
1910-18, 1919-48: Maximum discharge, 4,920 million gallons a day (7,610 second-feet Dec. 17, 1946 (gage height, 9.27 feet), from rating curve extended above 150 million gallons a day; minimum, 0.07 million gallons a day (0.11 second-foot) June 27, 1921.

Remarks.- Records good below 100 million gallons a day, fair above. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.8	2.1	2.3	13.0	3.0	48	5.0	370
1.9	3.6	2.4	16.4	3.4	85	5.5	525
2.0	5.4	2.5	20	3.8	134	6.0	750
2.1	7.6	2.6	24.5	4.2	196	6.6	1,200
2.2	10.1	2.8	34	4.6	274		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.3	3.45	8.9	7.4	6.1	5.0	6.5	8.8	3.95	156	10.4	35
2	37.5	3.15	12.8	4.9	4.5	7.0	6.4	7.4	8.2	153	8.4	13.8
3	33	2.85	151	3.95	5.7	3.6	79	8.0	41	132	6.9	9.6
4	9.9	3.0	76	3.95	4.7	14.8	21.5	8.4	17.5	134	6.1	7.6
5	20.5	60	27.5	83	3.8	5.8	10.1	6.9	6.7	53	5.4	6.5
6	43	6.5	14.1	9.5	3.45	11.7	9.6	5.6	4.9	21	4.9	5.8
7	14.0	4.3	11.0	6.7	3.3	50	14.0	9.2	11.8	14.7	4.5	5.4
8	8.6	3.8	8.1	4.9	3.3	14.4	18.8	31.5	22	11.6	4.1	4.7
9	6.5	3.45	6.7	3.95	3.75	7.8	8.1	9.6	27	10.0	6.0	4.1
10	7.8	3.95	5.8	3.6	6.8	10.1	6.7	6.7	34	8.4	9.3	3.6
11	12.8	3.6	5.0	3.3	45	6.5	6.3	10.4	43	10.7	4.7	3.45
12	8.8	40	5.0	3.15	59	36.5	6.4	31	69	53	4.1	3.3
13	5.8	28	4.3	3.0	126	47	22	8.1	83	25.5	12.8	3.3
14	8.3	9.1	3.95	10.9	23	26	6.7	6.3	31	36	6.8	3.45
15	9.0	5.6	3.6	8.2	42	11.9	5.2	5.4	22	113	4.3	3.6
16	5.4	30.5	3.3	4.3	11.7	58	4.5	4.7	168	38.5	3.95	3.6
17	4.7	61	3.15	3.4	7.8	67	4.5	4.3	155	15.4	8.6	3.8
18	3.95	13.2	2.85	3.0	6.5	326	4.1	3.95	172	10.8	8.9	3.45
19	3.8	7.6	2.7	2.85	5.6	141	3.6	3.8	83	25	5.6	2.85
20	3.95	5.8	2.55	2.55	4.9	74	3.45	3.6	147	14.4	13.2	2.85
21	3.8	5.0	2.4	3.85	4.3	33.5	3.15	11.1	28.5	21.5	11.3	2.55
22	4.2	5.3	6.1	4.5	3.95	13.3	3.0	29	34.5	9.8	7.6	2.25
23	3.95	4.9	11.0	3.0	3.6	10.1	27	7.8	89	8.1	6.1	2.4
24	3.3	16.8	4.9	2.55	3.6	15.3	97	6.7	38	7.2	6.1	2.25
25	11.0	124	3.15	255	3.3	9.8	1,150	4.7	47	6.5	7.5	2.1
26	7.9	21.5	2.7	1,010	3.0	9.6	1,130	7.5	41	6.7	34	2.4
27	13.0	10.1	2.4	46	2.85	15.5	72	18.2	41	14.0	75	2.85
28	7.3	10.2	2.55	13.0	3.15	8.8	22	6.3	68	21	103	2.5
29	5.4	6.9	26.5	7.8	3.8	7.2	12.7	4.5	270	126	29.5	4.1
30	4.5	10.0	39	6.3	2.85	6.7	9.8	-	138	26.5	18.1	4.7
31	3.95	9.6	-	7.6	-	6.1	19.8	-	40	-	40	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	43	3.3	10.5	16.2	325	997
August	124	2.85	16.9	26.1	523	1,610
September	151	2.4	15.3	23.7	459	1,410
October	1,010	2.55	49.6	76.7	1,540	4,710
November	126	2.85	13.7	21.2	411	1,260
December	326	3.6	34.2	52.9	1,060	3,250
Calendar year 1947	1,010	1.00	20.5	31.7	7,480	22,970
January	1,150	3.0	90.1	139	2,790	8,570
February	31.5	3.6	9.64	14.9	279	858
March	270	3.95	64.0	99.0	1,990	6,090
April	156	6.5	42.8	66.2	1,280	3,940
May	103	3.95	15.4	23.8	477	1,460
June	35	2.1	5.26	8.14	158	484
Fiscal year 1947-48	1,150	2.1	30.9	47.8	11,290	34,640

Peak discharge (base, 1,300 m.g.d.).- Oct. 26 (6 a.m.) 3,440 m.g.d. (5,320 sec.-ft.); Jan. 25 (6 p.m.) 3,980 m.g.d. (6,160 sec.-ft.).

Hoolawaliilii Stream near Huelo

Location.- Concrete weir control, lat. 20°53'15", long. 156°14'35", just upstream from Wailoa ditch intake, 2 miles west of Kailua, and 2 miles southwest of Huelo.

Records available.- April 1911 to June 1948.

Average discharge.- 36 years (1911-15, 1916-48), 4.88 million gallons a day (7.55 second-feet).

Extremes.- Maximum discharge during year, 465 million gallons a day (719 second-feet) Jan. 25 (gage height, 5.06 feet); minimum, 1.31 million gallons a day (2.03 second-feet) June 29.

1911-48: Maximum discharge, 787 million gallons a day (1,220 second-feet) Feb. 7, 1939 (gage height, 5.42 feet), from rating curve extended above 220 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) June 8, 1926.

Remarks.- Records good except those for Oct. 17 to Nov. 23, which are poor. No diversions above station. Water used for irrigation in central Maui.

Revisions (fiscal years).- W 755: 1931-32.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.3	0.75	1.7	6.2	2.2	24
1.4	1.50	1.8	8.7	2.5	40
1.5	2.7	1.9	11.7	2.9	70
1.6	4.2	2.0	15.2	3.4	121

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.35	2.1	3.15	3.0	3.5	2.1	2.7	4.6	1.98	25.5	3.9	8.4
2	3.2	1.98	4.0	2.6	3.1	1.86	2.7	4.2	4.1	30.5	3.75	5.4
3	3.6	1.98	23	2.35	3.3	1.86	4.2	4.0	2.85	25.5	3.3	4.6
4	2.7	2.1	8.8	2.35	2.8	2.6	3.0	3.6	2.45	20.5	3.15	3.9
5	3.2	3.75	5.6	10.3	2.4	2.1	2.6	3.45	2.1	10.8	3.0	3.6
6	6.8	2.2	4.6	3.3	2.2	2.35	2.6	3.15	2.1	7.2	2.7	3.45
7	3.9	2.1	3.9	3.15	2.1	7.0	2.95	3.9	2.95	5.6	2.6	3.15
8	3.3	1.98	3.6	2.7	2.1	3.75	4.3	5.1	2.85	4.8	2.45	2.7
9	3.0	1.98	3.3	2.6	2.3	3.15	2.7	3.15	3.6	4.2	3.0	2.6
10	3.0	2.1	3.0	2.45	3.0	3.0	2.45	3.0	5.0	3.9	3.15	2.45
11	8.3	1.86	2.85	2.35	7.2	2.7	2.35	3.8	4.8	3.9	2.45	2.35
12	5.1	2.9	2.6	2.2	7.0	5.6	2.45	11.2	5.4	5.4	2.35	2.35
13	3.45	3.15	2.45	2.2	14	7.7	2.35	3.75	7.2	6.7	3.0	2.2
14	4.0	2.85	2.35	2.2	6.0	4.5	2.1	3.45	5.1	7.0	2.35	2.2
15	4.3	2.35	2.35	1.98	7.0	3.45	1.98	3.15	7.6	30.5	2.1	2.1
16	3.15	3.55	2.2	1.98	4.8	4.2	1.98	2.7	16.6	9.1	2.2	2.2
17	3.0	4.8	1.98	1.8	4.0	10.2	1.98	2.6	9.9	5.8	3.5	2.2
18	2.7	3.15	1.86	1.7	3.6	23	1.86	2.45	8.2	4.8	3.15	2.2
19	2.7	2.6	1.86	1.6	3.3	14.5	1.86	2.35	7.8	4.8	2.85	1.86
20	2.6	2.45	1.86	1.6	3.0	10.1	1.86	2.1	23.5	4.2	3.75	1.86
21	2.45	2.35	1.74	1.7	2.7	7.6	1.74	2.35	7.7	6.0	3.0	1.74
22	2.45	2.45	2.75	1.8	2.4	5.4	1.62	4.0	11.0	3.9	2.6	1.74
23	2.45	2.35	2.45	1.6	2.3	4.6	7.3	2.35	13.8	3.45	2.7	1.62
24	2.35	3.8	1.98	1.5	2.45	3.9	16.1	2.1	13.2	3.15	3.0	1.50
25	3.15	12.7	1.86	18	2.35	3.6	58	2.1	14.8	3.15	2.7	1.50
26	2.45	6.8	1.74	28	2.1	3.9	87	2.35	6.2	3.2	6.9	1.50
27	2.7	4.6	1.74	9.0	1.96	4.2	14.8	3.4	7.0	4.8	19.2	1.50
28	2.45	4.2	1.86	5.0	2.1	3.3	7.4	2.35	12.4	4.6	10.3	1.50
29	2.35	3.45	4.4	4.3	2.1	3.0	5.6	2.1	24.5	9.0	11.1	1.40
30	2.2	3.45	6.6	3.9	1.86	2.85	5.9	-	15.9	5.6	5.8	1.86
31	2.1	3.3	-	4.2	-	2.7	8.2	-	10.9	-	7.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.3	2.1	3.27	5.06	101	311
August	12.7	1.86	3.27	5.06	101	311
September	23	1.74	3.75	5.80	112	345
October	28	1.5	4.30	6.65	133	409
November	14	1.86	3.70	5.72	111	341
December	23	1.86	5.19	8.03	161	493
Calendar year 1947	34.5	1.08	4.12	6.37	1,500	4,610
January	87	1.62	8.54	13.2	265	812
February	11.2	2.1	3.41	5.28	98.8	303
March	24.5	1.98	8.56	13.2	265	815
April	30.5	3.15	8.92	13.8	268	821
May	19.2	2.1	4.32	6.68	134	411
June	8.4	1.40	2.59	4.01	77.6	238
Fiscal year 1947-48	87	1.40	5.00	7.74	1,830	5,610

Peak discharge (base, 150 m.g.d.).- Sept. 3 (7 p.m.) 158 m.g.d. (244 sec.-ft.); Jan. 25 (10 p.m.) 465 m.g.d. (719 sec.-ft.).

Note.- No gage-height record Oct. 17 to Nov. 23; discharge computed on basis of records for Honopou and Hoolawanui Streams.

Hoolawanui Stream near Huelo

Location.- Concrete weir control, lat. 20°53'15", long. 156°14'55", just upstream from intake of Wailoa ditch, 2 miles west of Kailua, and 2 miles southwest of Huelo. Datum of gage is 1,219.42 feet above mean sea level (East Maui Irrigation Co. bench mark).

Records available.- December 1910 to June 1948.

Average discharge.- 36 years (1911-15, 1916-48), 7.99 million gallons a day (12.4 second-feet).

Extremes.- Maximum discharge during year, 2,780 million gallons a day (4,300 second-feet) Jan. 25 (gage height, 5.55 feet), from rating curve extended above 100 million gallons a day; minimum, 1.48 million gallons a day (2.29 second-feet) Oct. 25.
1910-48: Maximum discharge, 2,980 million gallons a day (4,610 second-feet) Feb. 1939 (gage height, 5.72 feet), from rating curve extended above 100 million gallons a day; minimum, 0.15 million gallons a day (0.23 second-foot) Oct. 25, 1917.

Remarks.- Records good. No diversions above station. Water used for irrigation in central Maui.

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 25

0.4	1.13	1.0	16.6	2.0	131
.5	2.15	1.1	22	2.3	200
.6	3.6	1.2	28.5	2.6	290
.7	5.6	1.4	45	3.0	440
.8	8.5	1.6	67		
.9	12.1	1.8	95		

Jan. 26 to June 30

0.4	1.35	0.8	9.0
.5	2.35	.9	12.8
.6	3.85	1.0	17.2
.7	6.0	1.2	28.5

Note.- Same as preceding table above 1.2 feet.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.65	1.90	4.2	3.25	4.2	2.65	4.6	8.1	2.8	67	7.5	13.
2	6.2	1.79	4.9	2.95	3.6	2.4	4.6	7.5	5.6	73	6.0	8.
3	7.4	1.68	69	2.55	4.0	2.25	14.3	6.9	6.2	78	5.6	6.
4	3.25	1.79	17.4	2.55	3.25	4.0	5.9	6.0	4.7	45	4.9	5.
5	6.1	7.2	9.2	28	2.95	2.65	4.8	5.4	3.25	23.5	4.5	4.
6	11.1	2.25	7.3	4.6	2.8	3.1	5.0	4.9	3.1	51.0	4.1	4.
7	5.0	1.90	6.2	3.8	2.65	12.0	5.6	6.8	4.8	11.3	3.85	4.
8	4.2	1.79	5.0	3.45	2.55	4.6	7.8	11.9	4.5	9.8	3.7	3.
9	3.6	1.68	4.6	2.95	2.9	3.45	4.6	5.4	6.9	7.8	4.7	3.
10	3.8	2.0	4.2	2.8	3.8	3.6	4.2	4.9	8.1	6.6	4.7	3.
11	6.8	1.79	3.8	2.65	15.9	3.25	3.8	6.0	9.5	7.4	3.4	3.
12	4.4	4.3	3.6	2.55	14.9	9.7	4.0	16.7	13.5	15.7	3.4	3.
13	3.45	5.4	3.25	2.55	31	10.8	4.4	5.4	20	12.1	4.9	2.
14	4.6	3.45	3.1	3.1	10.7	6.2	3.45	4.9	11.0	17.0	3.55	3.
15	4.9	2.4	2.8	2.8	10.7	4.8	2.95	4.5	15.0	49	2.95	2.
16	3.6	9.9	2.8	2.4	6.8	9.3	2.8	4.1	40	17.2	2.95	2.
17	3.1	9.8	2.55	2.15	5.6	17.0	2.8	3.85	37.5	10.9	4.8	2.
18	2.8	4.4	2.4	2.0	5.0	66	2.65	3.55	38.5	9.0	4.2	2.
19	2.8	3.25	2.25	1.90	4.6	39	2.4	3.4	29	10.1	3.55	2.
20	2.8	2.95	2.15	1.79	4.2	27.5	2.4	3.25	68	8.4	5.8	2.
21	2.55	2.8	2.0	2.15	3.8	14.8	2.25	3.75	18.3	11.9	4.3	2.
22	2.65	2.95	3.7	2.15	3.45	9.9	2.15	9.1	19.3	6.9	3.55	1.
23	2.65	2.65	3.45	1.68	2.55	8.2	13.4	3.55	31.5	6.0	3.55	2.
24	2.25	5.6	2.25	1.58	3.25	7.3	36	3.25	22.5	5.8	3.55	1.
25	3.8	23.5	1.90	66	2.8	6.2	270	3.4	22	5.1	3.45	1.
26	2.8	7.6	1.79	73	2.8	6.8	439	4.0	15.4	5.3	9.5	1.
27	3.55	5.0	1.68	16.4	2.55	7.0	50	5.9	15.4	7.5	25	1.
28	2.8	5.4	1.90	8.5	2.8	5.4	17.8	3.4	29	8.9	22	1.
29	2.4	4.4	6.9	5.6	2.8	4.8	11.8	3.1	80	36.5	15.4	1.
30	2.15	4.8	9.5	4.8	2.25	4.6	10.5	-	52	11.6	9.0	1.
31	2.0	4.4	-	5.2	-	4.6	16.5	-	22	-	13.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-fee
July	11.1	2.0	3.94	6.10	122	375
August	23.5	1.68	4.54	7.02	141	432
September	69	1.68	6.53	10.1	196	601
October	73	1.58	8.64	13.4	268	822
November	31	2.25	5.70	8.82	171	525
December	66	2.25	10.1	15.6	314	963
Calendar year 1947	180	.97	7.31	11.3	2,670	8,190
January	439	2.15	31.0	48.0	962	2,950
February	16.7	3.1	5.62	8.70	163	500
March	80	2.8	21.3	33.0	661	2,030
April	78	5.1	20.0	30.9	599	1,840
May	25	2.95	6.51	10.1	202	620
June	13.8	1.55	3.52	5.45	106	324
Fiscal year 1947-48	439	1.55	10.7	16.6	3,900	11,980

Peak discharge (base, 300 m.g.d.).- Sept. 3 (7 p.m.) 1,050 m.g.d. (1,620 sec.-ft.); Oct. 25 (7 p.m.) 530 m.g.d. (820 sec.-ft.); Jan. 25 (10:30 p.m.) 2,780 m.g.d. (4,300 sec.-ft.); Mar. 20 (6:30 a.m.) 380 m.g.d. (588 sec.-ft.); Apr. 3 (1 p.m.) 480 m.g.d. (743 sec.-ft.).

Honopou Stream near Huelo

Location.- Concrete masonry and weir dam, lat. 20°53'20", long. 156°15'05", just upstream from Wailoa ditch intake, 2¼ miles southwest of Huelo, and 2½ miles west of Kailua. Altitude of gage, about 1,250 feet.
Drainage area.- 1.0 square mile.
Records available.- December 1910 to June 1948.
Average discharge.- 35 years (1911-14, 1916-48), 3.13 million gallons a day (4.84 second-feet).
Extremes.- Maximum discharge during year, 345 million gallons a day (534 second-feet) Jan. 25 (gage height, 4.26 feet), from rating curve extended above 70 million gallons a day; minimum, 0.63 million gallons a day (0.98 second-foot) June 29, 30.
1910-48: Maximum discharge, 1,220 million gallons a day (1,890 second-feet) Nov. 18, 1930 (gage height, 7.28 feet), from rating curve extended above 70 million gallons a day; minimum, 0.01 million gallons a day (0.02 second-foot) several days in 1933 and 1934.
Remarks.- Records good except those for period of no gage-height record, which are poor. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.56	1.0	7.1	2.0	37
.6	1.33	1.2	11.5	2.3	54
.7	2.4	1.4	16.5	2.6	80
.8	3.7	1.6	22	3.0	122
.9	5.3	1.8	26.5		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.91	0.77	1.8	1.24	2.3	1.24	1.86	5.4	1.06	24	3.3	6.3
2	1.39	.77	2.8	1.15	2.1	1.06	1.86	4.8	3.9	34	3.05	3.9
3	1.79	.77	20	.98	1.97	.91	3.7	4.5	2.4	25.5	2.65	3.3
4	1.06	.77	8.0	.98	1.65	1.72	1.76	3.7	1.33	18.6	2.4	2.9
5	1.48	2.2	3.2	8.6	1.54	1.06	1.54	3.35	1.15	10.8	2.2	2.65
6	4.5	.84	2.5	1.97	1.44	1.15	1.65	2.9	1.06	8.2	1.97	2.4
7	1.86	.77	2.2	1.65	1.33	4.9	1.92	3.45	1.86	6.4	1.86	2.2
8	1.44	.70	1.8	1.54	1.24	1.90	3.35	3.7	1.76	5.4	1.76	1.97
9	1.33	.70	1.6	1.33	1.56	1.44	1.76	2.4	2.95	4.5	2.2	1.86
10	1.33	.77	1.5	1.24	1.82	1.44	1.65	2.2	3.95	3.7	2.2	1.76
11	5.0	.70	1.4	1.15	6.7	1.35	1.54	3.8	2.95	3.65	1.44	1.65
12	2.0	1.45	1.3	1.15	5.8	3.55	1.59	9.0	3.45	4.0	1.33	1.54
13	1.33	1.65	1.2	1.06	10.9	5.6	1.61	2.8	5.0	5.8	1.91	1.44
14	2.2	1.55	1.1	1.15	6.2	2.15	1.33	2.4	3.4	6.0	1.33	1.44
15	2.15	.84	1.1	1.06	4.8	1.65	1.24	2.3	5.8	23	1.15	1.33
16	1.33	2.05	1.0	.98	3.2	2.4	1.15	2.1	14.0	8.0	1.06	1.33
17	1.25	2.55	.94	.91	2.8	6.0	1.15	1.97	8.1	5.5	2.4	1.15
18	1.15	1.44	.88	.84	2.55	19.9	1.06	1.86	7.1	4.7	1.79	1.24
19	1.15	1.15	.88	.84	2.3	12.4	.98	1.76	6.7	4.3	1.33	1.06
20	1.15	1.06	.86	.77	2.1	8.4	.91	1.54	20.5	3.7	2.35	1.06
21	1.06	1.06	.82	.84	1.86	6.2	.91	1.72	7.7	5.3	1.54	.98
22	1.06	1.06	1.4	.91	1.76	4.5	.91	3.7	9.7	3.2	1.24	.91
23	1.15	1.06	1.3	.70	1.65	4.0	8.6	1.54	12.5	2.8	1.25	.91
24	.98	2.15	.94	.70	1.54	3.45	16.3	1.33	12.4	3.5	1.60	.8·
25	1.75	9.5	.88	13.3	1.33	3.05	54	1.54	12.3	2.6	1.32	.77
26	1.15	3.7	.82	27	1.24	3.25	91	1.88	7.1	2.5	4.5	.77
27	1.24	2.2	.77	7.9	1.15	3.3	22	3.1	6.5	4.5	14.9	.77
28	1.06	2.2	.82	4.5	1.15	2.4	11.0	1.24	11.4	4.1	7.5	.70
29	.91	1.9	3.2	3.2	1.24	2.2	8.6	1.15	24	8.3	8.1	.63
30	.91	1.9	4.6	2.8	1.06	1.97	9.5	-	16.3	4.4	4.2	.88
31	.84	1.9	-	3.0	-	1.86	10.6	-	11.0	-	5.8	-

Month	Million gallons a day: Maximum	Minimum	Mean	Second-feet (mean)	Total runoff: Million gallons	Acre-feet
July	5.0	0.84	1.55	2.40	47.9	147
August	9.5	.70	1.68	2.60	52.1	160
September	20	.77	2.39	3.70	71.6	220
October	27	.70	3.08	4.77	95.4	293
November	10.9	1.06	2.61	4.04	78.3	240
December	19.9	.91	3.75	5.80	116	357
Calendar year 1947	32	.45	2.93	4.53	1,070	3,280
January	91	.91	8.61	13.3	267	819
February	9.0	1.15	2.86	4.43	83.0	255
March	24	1.06	7.40	11.4	229	704
April	34	2.5	8.36	12.9	251	770
May	14.9	1.06	2.96	4.58	91.6	281
June	6.3	.63	1.69	2.61	50.6	155
Fiscal year 1947-48	91	.63	3.92	6.07	1,430	4,400

Peak discharge (base, 100 m.g.d.).- Sept. (date and time unknown) 142 m.g.d. (220 sec.-ft.); Oct. 26 (6:30 p.m.) 105 m.g.d. (162 sec.-ft.); Jan. 25 (10 p.m.) 345 m.g.d. (534 sec.-ft.); Mar. 20 (7 a.m.) 105 m.g.d. (162 sec.-ft.); Apr. 3 (1 p.m.) 185 m.g.d. (286 sec.-ft.).
Note.- No gage-height record Aug. 30 to Sept. 29; discharge computed on basis of records for Hoolawanui and Kailua Streams.

Wailoa ditch at Honopou, near Huelo

Location.- Lat. 20°53'20", long. 156°15'05", 100 feet downstream from intake at Honopou Stream, half a mile west of Lupi, and 2.2 miles southwest of Huelo.

Records available.- November 1922 to June 1948.

Average discharge.- 25 years (1923-48), 114 million gallons a day (176 second-feet).

Extremes.- Maximum daily discharge during year, 180 million gallons a day (279 second-feet) Mar. 29, 30, Apr. 2, 15; minimum discharge, 4.8 million gallons a day (7.4 second-feet) Feb. 6.
1922-48: Maximum discharge, 189 million gallons a day (292 second-feet) Mar. 28, 1947; minimum, that of Feb. 6, 1948.

Remarks.- Records excellent except those for periods of faulty gage-height record, which are fair. Wailoa ditch receives water from Koolau ditch at Alo Stream and from all streams from the Alo west to the Halehaku at altitude of about 1,200 feet. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a140	82	148	107	115	105	107	69	90	176	120	e172
2	a172	76	164	84	88	107	115	69	116	180	120	156
3	172	69	176	77	115	97	131	77	116	e176	124	152
4	148	69	176	77	91	163	107	73	116	e176	112	140
5	148	164	176	163	77	119	135	63	120	e176	104	124
6	176	112	176	139	69	159	131	38.5	90	e176	97	120
7	172	86	168	123	69	163	143	36.5	124	168	93	108
8	152	90	144	95	69	167	143	59	128	160	86	93
9	148	86	124	80	76	163	123	72	148	136	116	86
10	148	101	112	73	123	163	111	69	e128	124	136	79
11	140	93	104	69	147	151	103	90	e113	124	97	76
12	164	172	101	66	167	151	103	93	e141	168	86	72
13	124	172	86	63	172	167	143	90	e134	172	152	76
14	128	160	82	128	172	167	107	86	e112	172	128	79
15	160	116	76	111	177	151	91	86	e120	180	86	79
16	132	152	72	77	167	155	84	86	e176	176	79	93
17	108	176	69	66	143	155	80	79	e176	172	148	93
18	93	168	66	59	123	135	77	76	e176	164	144	97
19	90	152	63	56	111	95	73	72	e176	172	124	66
20	101	124	59	53	95	99	66	72	e172	168	164	76
21	93	112	56	86	88	88	63	98	e128	172	148	66
22	97	144	94	103	80	91	63	172	168	152	128	59
23	101	128	115	63	73	103	92	124	176	128	120	69
24	79	148	73	53	73	115	124	82	176	124	148	59
25	140	176	59	81	66	99	95	90	176	116	168	59
26	156	176	53	172	63	119	77	108	176	124	176	72
27	164	164	53	167	59	115	59	120	176	132	176	86
28	160	164	59	159	66	95	63	90	176	128	176	124
29	128	136	149	127	84	107	69	79	180	e172	156	93
30	108	160	163	103	63	99	73	-	180	e132	e136	108
31	93	144	-	139	-	99	73	-	176	-	e168	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	176	79	133	206	4,140	12,690
August	176	89	131	203	4,070	12,500
September	176	53	107	166	3,220	9,870
October	172	53	97.4	151	3,020	9,260
November	177	59	103	159	3,080	9,460
December	167	88	128	198	3,960	12,160
Calendar year 1947	180	30.5	112	173	40,980	125,700
January	143	59	97.5	151	3,020	9,280
February	172	36.5	83.4	129	2,420	7,420
March	180	90	147	227	4,560	13,990
April	180	116	157	243	4,700	14,410
May	176	79	130	201	4,020	12,320
June	172	59	94.4	146	2,830	8,690
Fiscal year 1947-48	180	36.5	118	183	43,040	132,000

a No gage-height record; discharge computed on basis of records for nearby ditches.
e Gage-height record not representative of true yield; discharge computed on basis of estimated gage heights.

New Hamakua ditch at Honopou, near Huelo

Location.- Concrete control, lat. 20°53'30", long. 156°15'10", 15 feet upstream from tunnel portal, 600 feet downstream from Honopou Stream crossing, and 2.1 miles southwest of Huelo.

Records available.- January 1918 to June 1948.

Average discharge.- 30 years, 28.1 million gallons a day (43.5 second-feet).

Extremes.- Maximum discharge during year, 107 million gallons a day (166 second-feet) Sept. 3 (gage height, 5.30 feet); minimum, 0.17 million gallons a day (0.26 second-foot) Feb. 11.
1918-48: Maximum discharge, 143 million gallons a day (221 second-feet) Feb. 27, 1932 (gage height, 5.90 feet); no flow at times, when water was shut out of ditch.

Remarks.- Records good. Ditch diverts water from streams between the Waiakamoi and the Halehaku above Center and Lowrie ditches. Flow regulated by gates and spillways. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.2	0.55	16.5	7.2	5.1	5.2	9.3	0.28	1.13	94	63	96
2	52	.51	35	2.65	2.1	13.3	7.4	.32	25.5	94	78	86
3	70	.47	99	2.55	9.1	1.45	33	.32	31.5	94	24.5	35
4	15.1	.47	97	2.5	1.88	60	32	.28	63	94	12.4	4.0
5	21	59	76	84	1.31	8.7	18.0	.32	23.5	94	8.1	2.4
6	92	3.1	50	12.7	1.18	56	7.0	.26	1.38	90	5.0	2.35
7	51	.58	33.5	1.18	1.02	86	31	.28	61	66	1.72	1.85
8	14.2	.51	12.5	.97	.97	81	36	.26	64	39	1.58	1.78
9	3.55	.51	4.8	.84	5.1	41	16.9	.21	58	39	9.8	1.65
10	13.2	1.03	3.1	.71	18.3	72	5.8	.21	59	31	41	1.52
11	27.5	.58	1.45	.71	62	27.5	6.2	.21	94	32	2.25	1.45
12	46	54	1.25	.71	94	35	5.3	.24	94	94	1.85	1.38
13	3.6	68	1.18	.71	96	96	26	.21	94	94	58	1.31
14	9.4	31.5	1.13	26	89	74	1.78	.21	94	88	6.0	1.31
15	39	2.75	1.18	4.1	95	28.5	1.52	.21	94	98	1.78	1.31
16	3.25	37.5	.97	.87	58	12.0	1.31	.21	94	96	1.52	1.25
17	2.25	84	1.18	.71	16.1	68	1.18	1.11	94	90	38	1.25
18	1.13	47	1.02	.58	4.6	30	1.13	1.79	94	59	34.5	1.56
19	1.23	15.0	.92	.55	2.65	.39	1.18	1.85	92	90	2.75	1.18
20	1.13	1.52	.82	.51	2.35	.36	1.08	1.52	94	80	27	1.13
21	.92	.71	.71	1.47	1.93	.32	1.13	7.3	92	84	23	1.13
22	.92	9.5	13.0	1.76	1.78	3.7	1.02	54	94	45	8.9	1.02
23	.97	1.40	10.3	.97	1.58	19.7	30.5	5.5	94	34	2.55	1.02
24	.82	12.3	1.70	.55	1.58	43	44	2.1	90	17.4	20.5	.97
25	33	98	1.02	23.5	1.38	30	3.55	1.58	94	12.3	40	.97
26	16.9	84	.82	100	1.18	29	2.3	1.56	92	24.5	94	.97
27	40	30.5	.62	98	1.13	33	.36	39	92	76	97	.97
28	17.8	30	.76	54	1.02	29	.28	5.5	94	83	96	5.2
29	2.75	6.7	68	5.6	1.38	21.5	.32	1.38	94	94	92	6.2
30	1.05	24.5	90	3.05	1.08	27	.43	-	94	92	82	17.5
31	.62	33	-	22.5	-	12.5	.39	-	94	-	92	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	92	0.62	19.2	29.7	595	1,830
August	98	.47	23.6	36.8	739	2,270
September	99	.62	20.8	32.2	625	1,920
October	100	.51	14.9	23.1	462	1,420
November	96	.97	19.3	29.9	580	1,780
December	96	.32	33.8	52.3	1,050	3,210
Calendar year 1947	104	.2	22.7	35.1	8,300	25,480
January	44	.28	10.6	16.4	327	1,000
February	54	.21	4.42	6.84	128	393
March	94	1.13	75.8	117	2,350	7,210
April	98	12.3	70.6	109	2,120	6,500
May	97	1.52	34.4	53.2	1,070	3,270
June	96	.97	9.39	14.5	282	864
Fiscal year 1947-48	100	.21	28.2	43.6	10,330	31,670

Old Hamakua ditch at Honopou, near Huelo

Location.- Parshall flume, lat. 20°53'30", long. 156°15'05", in Honopou Gulch, 400 feet downstream from Honopou Stream and Wailoa ditch trail crossing, 2.0 miles southwest of Huelo, and 5.0 miles east of Haiku.

Records available.- January 1918 to June 1922, November 1936 to June 1948.

Average discharge.- 15 years (1918-22, 1937-48), 2.78 million gallons a day (4.30 second-feet).

Extremes.- Maximum discharge during year, 37 million gallons a day (57 second-feet) Sept. 3 (gage height, 2.69 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Aug. 3, 4, Oct. 17-21, May 23.
1918-22, 1936-48: Maximum discharge, 58 million gallons a day (90 second-feet) Jan. 16, 1921, and Feb. 7, 1939 (gage heights, 3.25 and 3.55 feet, respectively, different sites); no flow for short periods.

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, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.06	0.02	0.05	0.12	0.05	0.04	0.94	0.50	0.03	21	1.05	15.2
2	1.32	.02	.10	.05	.04	.03	.28	.50	2.1	22	3.35	7.3
3	2.0	.01	16.9	.03	.04	.04	.81	.46	5.8	21	.05	.10
4	.05	.01	14.7	.03	.03	.25	.97	.41	8.0	21	.04	.05
5	1.01	2.4	3.0	12.1	.03	.06	.36	.41	1.13	20	.03	.04
6	6.4	.05	.12	.10	.03	.14	.05	.43	.04	13.8	.03	.04
7	.14	.02	.06	.04	.03	8.4	.59	.41	9.2	5.7	.02	.03
8	.05	.02	.05	.03	.03	1.05	.90	.43	8.5	4.2	.02	.03
9	.04	.02	.04	.02	.10	.14	.18	.38	6.0	2.95	.04	.03
10	.03	.02	.04	.02	.12	.30	.04	.38	5.6	2.1	.22	.03
11	5.1	.02	.04	.02	6.0	.10	.03	.41	20	3.1	.04	.02
12	.47	.33	.04	.02	11.0	4.2	.08	.41	21	13.8	.03	.02
13	.06	.83	.03	.02	14.8	10.9	.71	.38	21	11.4	2.7	.02
14	.16	.10	.03	.02	8.6	2.45	.05	.38	20	4.4	.05	.02
15	.60	.04	.03	.03	10.3	.12	.03	.36	20	21	.03	.02
16	.05	3.9	.03	.02	1.57	.52	.03	.28	21	16.7	.02	.02
17	.03	3.95	.03	.01	.20	1.46	.02	.18	20	8.3	.12	.02
18	.02	.10	.03	.01	.07	1.46	.02	.08	20	3.85	.18	.02
19	.02	.05	.03	.01	.05	1.46	.02	.05	20	8.7	.05	.02
20	.02	.04	.03	.01	.05	1.46	.02	.04	20.5	5.1	.47	.02
21	.02	.03	.03	.01	.04	1.39	.02	1.12	19.2	9.5	.16	.02
22	.02	.03	.06	.02	.04	1.25	.02	12.1	17.4	1.78	.02	.02
23	.02	.03	.07	.02	.04	1.18	.53	.08	19.2	.05	.02	.02
24	.02	.54	.05	.02	.03	1.11	1.32	.04	16.7	.05	.03	.02
25	.05	18.1	.04	3.65	.03	1.11	1.28	.04	19.2	.04	.04	.02
26	.05	2.05	.04	20.5	.03	1.11	.86	.09	17.5	.04	9.5	.02
27	.04	.13	.04	18.8	.03	1.04	.64	7.2	17.5	7.2	17.4	.02
28	.05	.09	.04	3.95	.02	.97	.59	.06	19.2	12.0	14.2	.02
29	.03	.05	2.8	.09	.02	.58	.59	.04	21	18.1	17.5	.02
30	.02	.05	8.6	.04	.02	.87	.59	-	20	16.1	14.3	.02
31	.02	.09	-	.04	-	.07	.55	-	19.2	-	18.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.4	0.02	0.580	0.897	18.0	55
August	18.1	.01	1.07	1.66	33.1	102
September	16.9	.03	1.57	2.43	47.2	145
October	20.5	.01	1.93	2.99	59.8	185
November	14.8	.02	1.78	2.75	53.4	164
December	10.9	.03	1.46	2.26	45.3	139
Calendar year 1947	28.5	0	1.67	2.58	609	1,870
January	1.32	.02	.423	.654	13.1	40
February	12.1	.04	.953	1.47	27.6	85
March	21	.03	14.7	22.7	456	1,400
April	22	.04	9.83	15.2	295	905
May	18.4	.02	3.23	5.00	100	307
June	15.2	.02	.775	1.20	23.2	71
Fiscal year 1947-48	22	.01	3.20	4.95	1,170	3,600

Lowrie ditch at Honopou Gulch, near Huelo

Location.- Concrete control, lat. 20°54'55", long. 156°15'05", a quarter of a mile downstream from siphon across Honopou Stream and 1.6 miles west of Huelo. Datum of gage is 598.0 feet above mean sea level.

Records available.- February 1930 to June 1948. January 1910 to March 1927 at site 1½ miles downstream.

Average discharge.- 34 years (1910-26, 1930-48), 30.5 million gallons a day (47.2 second-feet).

Extremes.- Maximum discharge recorded during year, 60 million gallons a day (93 second-feet) Nov. 14 (gage height, 5.08 feet); minimum, 1.50 million gallons a day (2.32 second-feet) Feb. 17, 18.
1930-48: Maximum discharge, 88 million gallons a day (136 second-feet) Mar. 21, 1937 (gage height, 5.44 feet); no flow at times.

Remarks.- Records excellent. Lowrie ditch diverts water from all streams between the Kailua and the Halehaku. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	25.5	6.2	17.2	21	19.9	11.1	28	2.4	9.6	53	16.3	48
2	39.5	5.5	39.5	23.5	15.4	13.8	25.5	2.25	20	55	17.6	38.5
3	45	5.2	54	10.8	21	13.3	40	2.4	23	55	13.8	25.5
4	13.0	5.0	53	7.4	13.0	36.5	43	2.15	34	53	13.1	25.5
5	25	34	51	44	9.2	19.4	18.8	2.65	15.6	53	18.8	23.5
6	47	14	51	26	8.4	28	15.8	2.25	10.7	53	24.5	23.5
7	38.5	4.8	38	21	7.8	35.5	19.9	2.25	17.6	41	18.8	26
8	18.8	4.5	32.5	14.9	7.8	52	41	2.25	32	32.5	9.8	18.8
9	24.5	4.2	31	9.3	11.6	38.5	27	2.05	31	27	12.2	13.9
10	16.5	5.8	20.5	6.0	33	51	29	1.92	38.5	23.5	14.9	12.2
11	18.9	5.7	13.1	5.5	43	45	14.2	1.92	47	21	10.7	11.1
12	43	28.5	12.2	5.0	55	36.5	11.6	2.05	51	51	9.4	10.0
13	32.5	51	10.7	4.8	55	52	36.5	1.92	51	47	16.5	10.0
14	16.2	32.5	9.8	13.8	55	49	11.6	1.81	51	35.5	11.3	10.9
15	32	9.0	8.8	9.2	55	34.5	9.8	1.70	47	55	9.0	10.5
16	15.8	24	8.4	6.7	53	25.5	8.8	1.60	51	53	8.4	10.2
17	10.9	49	7.6	6.1	41	8.1	8.4	1.60	53	47	20	11.1
18	7.4	49	7.1	4.6	32.5	8.0	8.0	16.5	53	31	21	11.3
19	7.3	30	6.7	4.6	29	6.5	7.6	18.8	53	44	14.9	8.0
20	7.4	14.7	6.4	4.0	24.5	5.8	6.9	17.6	53	35	19.3	8.8
21	6.9	11.2	6.0	4.4	34.5	5.3	6.7	22	51	39	21.5	8.2
22	6.9	17.6	12.9	7.6	19.9	5.0	6.4	43	53	23.5	13.1	6.9
23	7.3	13.3	19.6	5.1	13.8	22.5	14.5	18.8	53	17.6	11.8	8.4
24	6.7	14.9	7.4	3.75	13.5	29	26	18.8	53	16.0	14.9	7.1
25	9.0	53	6.0	11.2	11.3	25.5	7.8	21	53	14.7	17.0	6.4
26	16.1	51	5.5	55	10.2	24.5	16.7	16.0	53	14.2	43	7.1
27	41	41	5.2	55	9.4	41	4.7	25.5	53	25	51	8.6
28	24.5	41	5.5	36.5	9.2	24.5	3.3	12.4	53	38	49	9.2
29	8.8	25.5	35	19.9	12.4	19.9	2.9	10.2	53	47	49	9.8
30	8.2	37	49	19.9	8.8	18.8	2.75	-	53	43	34.5	10.7
31	7.1	24	-	23.5	-	23.5	3.45	-	53	-	47	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	47	6.7	20.2	31.3	627	1,920
August	53	4.2	23.0	35.6	712	2,190
September	54	5.2	21.0	32.5	631	1,940
October	55	3.75	15.8	24.4	490	1,500
November	55	7.8	24.4	37.8	733	2,250
December	52	5.0	26.1	40.4	810	2,480
Calendar year 1947	55	.98	20.8	32.2	7,590	23,270
January	43	2.75	16.3	25.2	507	1,550
February	43	1.60	9.51	14.7	276	846
March	53	9.6	42.7	66.1	1,320	4,060
April	55	14.2	38.1	58.9	1,140	3,510
May	51	8.4	21.0	32.5	652	2,000
June	48	6.4	14.7	22.7	440	1,350
Fiscal year 1947-48	55	1.60	22.8	35.3	8,340	25,600

Haiku ditch at Honopou Gulch, near Kailua

Location.- Concrete restriction in ditch, lat. 20°55'05", long. 156°14'55", on right side of Haiku ditch and west side of Honopou Gulch, 160 feet below new Government Road, 2.5 miles northwest of Kailua, and 5 miles east of Haiku. Datum of gage is 421.54 feet above mean sea level.

Records available.- February 1940 to June 1948. January 1910 to October 1914, at site at Peahi weir on old Haiku ditch. October 1914 to December 1928, at site in Manawai Gulch, 2.9 miles downstream. February 1930 to February 1940, at site in Kapalalaea Gulch, 0.9 mile downstream.

Average discharge.- 36 years (1910-28, 1930-48), 23.2 million gallons a day (35.9 second-feet).

Extremes.- Maximum discharge during year, 78 million gallons a day (121 second-feet) Apr. 15 (gage height, 3.26 feet); minimum, 0.06 million gallons a day (0.09 second-foot) Feb. 17.

1910-28, 1930-48: Maximum discharge, 195 million gallons a day (302 second-feet) Mar. 23, 1937 (gage height, 5.80 feet, site and datum then in use); no flow occasionally.

Remarks.- Records excellent. Haiku ditch diverts water from all streams between the Kailu Stream and the Maliko Gulch. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.6	0.54	2.35	1.77	1.19	2.05	20	0.13	1.53	65	3.0	63
2	22.5	.54	16.3	1.32	1.01	1.93	3.85	.10	2.45	66	2.6	12.9
3	30.5	.48	69	1.01	1.07	2.75	43	.14	18.9	65	1.88	4.1
4	1.67	.48	68	.89	.83	4.0	32	.10	31	65	1.67	3.5
5	3.55	30.5	52	48	.65	2.25	11.0	.10	1.81	64	1.67	3.2
6	48	1.48	21	2.05	.62	2.25	2.85	.09	1.39	29	1.60	3.1
7	13.4	.62	9.1	1.19	.58	32.5	18.8	.11	6.1	1.88	1.60	2.6
8	1.88	.58	2.65	.95	.58	24.5	46	.10	11.0	3.75	1.25	2.2
9	1.67	.54	2.5	.77	1.80	3.8	3.65	.08	18.7	6.9	1.60	1.9
10	1.39	.77	1.81	.65	6.2	8.4	2.65	.08	13.2	5.9	1.53	1.7
11	11.7	.58	1.32	.65	32	4.4	2.45	.07	54	5.2	1.13	1.5
12	15.3	18.9	1.19	.58	64	15.4	4.2	.07	69	59	1.13	1.4
13	2.5	28	1.07	.54	70	50	40	.08	68	34	1.98	1.3
14	2.1	2.55	1.01	.76	52	14.7	2.45	.08	61	19.0	1.25	1.5
15	12.5	1.07	.89	.62	68	6.4	2.05	.08	50	74	1.07	1.3
16	1.88	19.9	.89	.54	22	5.5	1.88	.07	70	60	1.01	1.1
17	2.8	41	.83	.45	7.4	2.1	1.74	.07	70	21	2.3	1.2
18	3.5	15.6	.77	.34	5.7	1.84	1.67	7.3	70	6.2	2.55	1.1
19	2.75	2.3	.65	.34	4.8	1.32	1.67	2.05	68	22	1.80	1.0
20	3.9	1.13	.62	.30	3.95	1.19	1.60	1.74	70	6.2	1.81	1.0
21	2.6	.89	.58	.30	3.4	1.13	1.53	1.77	63	26.5	1.72	.9
22	3.05	1.01	2.25	.30	3.05	1.07	1.46	27.5	53	4.7	1.25	.8
23	4.4	1.01	2.4	.28	2.6	20.5	17.6	2.3	70	3.5	1.13	.8
24	1.39	3.2	.83	.26	2.95	14.7	7.0	1.74	55	2.95	1.39	.7
25	23	61	.65	10.4	2.5	5.0	1.44	1.96	70	2.5	1.13	.6
26	9.0	57	.62	53	2.2	16.9	1.44	2.25	51	2.2	54	.6
27	11.2	5.5	.58	49	2.05	9.4	.22	9.8	60	9.0	71	.6
28	3.05	4.3	.58	9.3	1.95	7.3	.18	2.5	68	33	59	.7
29	.83	1.88	24	2.2	1.95	7.0	.18	1.81	70	63	64	.6
30	.65	3.5	38.5	1.53	1.74	12.0	.23	-	67	41	32	.6
31	.65	2.4	-	1.39	-	3.4	.21	-	64	-	68	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	48	0.65	7.96	12.3	247	758
August	61	.48	9.98	15.4	309	949
September	69	.58	10.8	16.7	325	997
October	53	.26	6.18	9.56	192	588
November	70	.58	12.3	19.0	369	1,130
December	50	1.07	9.22	14.3	286	877
Calendar year 1947	71	.26	10.6	16.4	3,880	11,900
January	46	.18	8.87	13.7	275	844
February	27.5	.07	2.22	3.43	64.3	197
March	70	1.39	46.7	72.3	1,450	4,440
April	74	1.88	28.9	44.7	867	2,660
May	71	1.01	12.6	19.5	389	1,190
June	63	.62	3.96	6.13	119	365
Fiscal year 1947-48	74	.07	13.4	20.7	4,890	15,000

MISCELLANEOUS DISCHARGE MEASUREMENTS

Measurements on the island of Maui at other than regular gaging stations are listed below:

Miscellaneous discharge measurements on Maui during fiscal year July 1947 to June 1948

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
Nov. 18	Puohokamoa flume..	Haipuaena flume...	3,500 feet east of Waiakamoi Reservoir above Haipuaena flume, near Olinda.	0.363	0.235
18	Haipuaena flume...	Waiakamoi Reservoir.	100 feet east of Waiakamoi Reservoir, near Olinda.	1.41	.911
Mar. 5	....do.....	....do.....	....do.....	1.85	1.20
May 19	....do.....	....do.....	....do.....	1.04	.672
June 25	....do.....	....do.....	....do.....	.475	.307
Apr. 28	Kula pipe line....	Olinda Reservoir..	Above Olinda Reservoir, near Olinda.	2.46	1.59

Waiakea Stream at middle flume house, near Mountain View

Location.- Parshall flume and concrete dam control, lat. 19°38'25", long. 155°10'35", at middle flume house, 800 feet upstream from Olaa Sugar Co.'s main flume and 7½ miles northwest of Mountain View.

Records available.- September 1930 to June 1948.

Average discharge.- 17 years (1931-48), 6.98 million gallons a day (10.8 second-feet).

Extremes.- Maximum discharge during year, 46 million gallons a day (71 second-feet) Mar. 3 (gage height, 3.17 feet); minimum, 0.25 million gallons a day (0.39 second-foot) Feb. 19, 20.

1930-48: Maximum discharge, 166 million gallons a day (257 second-feet) Mar. 14, 1942 (gage height, 4.43 feet), from rating curve extended above 38 million gallons a day on basis of weir formulas; no flow at times, when tunnels and stream cease flowing during very dry periods.

Remarks.- Records good except those for periods of no gage-height record, which are poor. No diversions above station. Large part of flow comes from three tunnels. Water is used for fluming sugarcane.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.18	0.6	2.25	2.0	14.6
.2	.42	.7	2.85	2.5	23.5
.3	.78	.9	4.1	3.0	39
.4	1.21	1.2	6.4		
.5	1.70	1.6	9.9		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.3	4.3	15.3	3.35	3.65	4.6	7.6	1.55	0.43	f24	14.6	10.4
2	2.55	4.2	15.3	3.25	3.4	4.5	7.2	1.36	2.75	a22	16.6	10.4
3	2.55	3.95	22	3.1	3.35	9.2	6.4	1.21	6.6	a22	14.6	10.4
4	2.95	3.85	21.5	2.85	3.2	8.9	6.0	1.08	6.0	a20	14.0	10.4
5	3.0	4.6	20.5	6.1	3.1	8.8	5.6	1.00	5.0	a19	13.3	10.4
6	5.4	3.85	20.5	4.8	2.95	8.6	5.2	.91	4.4	16.8	12.7	10.9
7	5.2	3.6	19.5	4.7	2.85	7.6	4.7	.87	6.0	15.3	12.1	10.4
8	6.5	3.45	17.6	4.3	2.8	7.2	4.4	.87	5.9	13.3	11.5	9.9
9	8.4	3.25	16.0	3.95	2.65	6.8	4.1	.71	7.6	12.1	10.9	9.4
10	8.0	3.45	14.6	3.7	3.65	6.4	3.85	.60	7.6	11.5	10.4	8.6
11	5.3	3.45	12.7	3.5	5.9	6.0	3.65	.53	11.6	10.4	9.9	8.1
12	4.9	3.15	10.9	3.35	7.7	5.6	3.35	.49	13.2	9.9	9.0	7.2
13	4.8	3.05	10.4	3.1	10.5	5.4	3.2	.42	14.5	9.0	8.6	6.8
14	4.4	2.8	9.4	3.7	8.6	5.2	2.9	.37	14.6	8.1	8.1	6.4
15	4.4	3.85	8.6	3.25	16.5	4.9	2.75	.32	16.0	8.1	7.2	6.0
16	4.6	3.25	7.6	3.15	12.1	9.3	2.55	.30	20.5	7.6	6.8	5.6
17	4.4	3.05	6.8	3.05	13.6	10.2	2.35	.30	23.5	6.8	6.4	5.6
18	4.1	3.6	6.4	2.9	12.7	11.9	2.2	.28	29	8.4	6.0	5.0
19	3.95	3.1	6.0	2.85	12.1	19.1	2.15	.25	30.5	10.2	5.6	4.7
20	3.85	3.55	5.4	2.75	10.9	25.5	1.98	.42	32	9.4	6.8	4.6
21	3.65	4.4	5.0	2.75	10.4	25	2.15	.70	30.5	9.9	6.0	4.3
22	3.45	4.3	4.5	2.65	9.4	25	1.81	1.89	26	9.4	5.6	4.1
23	3.4	8.1	4.1	2.45	8.6	23.5	1.70	.78	25.5	9.4	5.2	4.2
24	3.15	17.2	3.85	2.3	8.6	20.5	2.2	1.06	23.5	9.0	4.8	4.1
25	4.2	14.0	3.7	2.2	7.6	17.6	2.6	.71	22.5	8.6	5.4	3.85
26	4.5	14.6	3.35	2.15	6.8	15.3	2.1	.64	20.5	8.1	5.6	3.8
27	5.6	17.6	3.15	4.4	6.4	13.3	1.98	.56	19.5	9.2	6.0	4.1
28	6.0	16.0	3.45	6.5	6.0	11.5	1.92	.46	18.6	9.0	11.5	3.9
29	5.6	16.0	4.4	5.0	5.4	10.4	1.76	.42	21	11.2	9.9	3.6
30	5.0	14.6	3.65	4.3	5.0	9.4	2.3	-	25.5	11.3	9.9	3.9
31	4.6	15.3	-	3.95	-	8.6	1.86	-	25	-	11.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.5	2.3	4.41	6.82	137	420
August	17.6	2.8	6.89	10.7	213	655
September	22	3.15	10.2	15.8	306	940
October	6.5	2.15	3.56	5.51	110	339
November	16.5	2.65	7.21	11.2	216	664
December	25.5	4.5	11.5	17.8	356	1,090
Calendar year 1947	25.5	.14	6.12	9.47	2,230	6,850
January	7.6	1.70	3.37	5.21	105	321
February	1.68	.25	.719	1.11	20.8	64
March	32	.43	16.7	25.8	517	1,590
April	24	6.8	12.0	18.6	359	1,100
May	16.6	4.8	9.23	14.3	286	878
June	10.9	3.6	6.70	10.4	201	617
Fiscal year 1947-48	32	.25	7.72	11.9	2,830	8,680

Peak discharge (base, 40 m.g.d.).- Nov. 15 (5:30 a.m.) 43 m.g.d. (66 sec.-ft.); Mar. 3 (4:30 p.m.) 46 m.g.d. (71 sec.-ft.); Mar. 29 (9:30 p.m.) 43 m.g.d. (66 sec.-ft.).

a No gage-height record; discharge computed on basis of records for Wailuku River.

f Computed on basis of partly estimated gage-height record.

Wailuku River above Hilo Boarding School ditch intake, near Hilo

Location.- Lat. 19°42'55", long. 155°09'10", 1,000 feet upstream from intake of Hilo Boarding School ditch, three-quarters of a mile west of reservoir 1, and 4 miles west of Hilo. Altitude of gage, 1,060 feet (by barometer).
Drainage area.- 124.5 square miles.
Records available.- July 1928 to June 1948.
Average discharge.- 17 years (1929-40, 1941-47), 172 million gallons a day (266 second-feet).
Extremes.- Probable maximum discharge during year, 11,400 million gallons a day (17,600 second-feet) between Dec. 1 and Apr. 17 (gage height, 18.81 feet from recorded range in stage), from rating curve extended above 3,400 million gallons a day by logarithmic plotting; minimum recorded, 10.0 million gallons a day (15.5 second-feet) Feb. 3, 1928-48: Maximum discharge, 41,000 million gallons a day (63,400 second-feet) Aug. 11, 1940 (gage height, 28.6 feet, from floodmarks), from rating curve extended above 3,400 million gallons a day by logarithmic plotting; minimum, 0.16 million gallons a day (0.25 second-foot) Mar. 9, 1941.
Remarks.- Records poor. Hilo Water Works diverts about 1 million gallons a day above station for domestic supply, and water passing station is used for power by Hilo Electric Light Co.
Revisions (fiscal years).- W 865: 1929-36(M). W 965: 1941.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.9	11.0	2.7	43	5.0	245	9.0	1,170
2.1	17.5	3.0	59	6.0	400	10.0	1,520
2.3	25.5	3.5	92	7.0	610	11.0	2,020
2.5	33.5	4.0	130	8.0	870	12.0	2,690

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	43	29.5	409	-	48	22				-	499	158
2	36	25.5	306	-	36					-	812	114
3	50	21.5	1,420	-	36					-	342	106
4	46	19.1	1,240	-	33.5					-	231	122
5	55	376	710	-	25.5					-	390	122
6	218	78	450	-	22					-	192	169
7	158	50	316	-	25					-	249	126
8	182	38	180	-	19.9					-	138	85
9	200	29.5	130	-	16.8					-	106	65
10	114	33.5	99	-	97					-	88	53
11	78	31.5	82	-	173					-	99	43
12	65	25.5	71	-	579					-	71	38
13	59	25.5	56	-	538					-	74	33.5
14	50	27.5	53	-	238					-	56	29.5
15	41	29.5	43	-	932					-	46	29.5
16	56	51	38	-	257					-	41	29.5
17	43	76	33.5	27.5	244					-	36	41
18	33.5	31.5	27.5	24	180					111	36	36
19	27.5	38	24.5	21	114					175	33.5	33.5
20	25.5	33.5	22	18.7	82					114	98	38
21	22	30	19.9	21.5	65					129	72	36
22	22	77	73	38	56					92	48	27.5
23	29.5	48	99	24.5	48					85	43	22.5
24	23.5	208	41	15.0	68					71	38	25.5
25	35	2,990	29.5	12.5	48					53	59	27.5
26	129	585	27.5	23.5	38					76	92	31.5
27	106	320	29.5	382	31.5					298	85	22.5
28	78	442	55	665	27.5					303	623	159
29	53	260	109	140	27.5					392	385	137
30	46	192	85	85	25					470	182	56
31	36	147	-	59	-					-	218	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	218	22	69.7	108	2,160	6,630
August	2,990	19.1	205	317	6,370	19,550
September	1,420	19.9	209	323	6,280	19,270
October 17-31	665	12.5	104	161	1,560	4,770
November	932	16.8	138	214	4,130	12,680
December	-	-	-	-	-	-
Calendar year	-	-	-	-	-	-
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April 18-30	470	53	182	282	2,370	7,270
May	812	33.5	177	274	5,480	16,830
June	169	42.5	67.2	104	2,020	6,190
Fiscal year	-	-	-	-	-	-

Note.- No gage-height record Oct. 1-16, Dec. 2 to Apr. 17; data insufficient for computation of discharge.

Kapehu ditch near Hilo

Location.- Soil Conservation Service type H (De Fabritis) flume, lat. 19°43'40", long. 155°11'00", 0.9 mile downstream from intake, 3 miles west of Pihonua, and 6 miles west of Hilo.

Records available.- March 1938 to June 1948. July 1941 to June 1942 (unpublished).

Extremes.- Maximum discharge during year, 11.2 million gallons a day (17.3 second-feet) Dec. 17 (gage height, 2.35 feet); minimum, 0.34 million gallons a day (0.53 second-foot) Mar. 30.
1938-48: Maximum discharge, 28 million gallons a day (43 second-feet) Jan. 31, 1939 (gage height, 3.51 feet); no flow at times, when water was shut out of ditch.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Water used to supplement the municipal supply of Hilo during dry periods.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.88	1.88	1.88	2.15	2.35	2.25	1.64	2.2	2.15	2.8	3.1	2.85
2	1.88	1.88	1.85	2.1	2.3	2.25	1.60	2.15	2.05	2.9	2.45	2.85
3	1.88	1.88	2.4	2.1	2.35	2.6	1.80	2.05	2.2	2.6	2.2	2.9
4	1.88	1.88	2.15	2.15	2.35	2.7	2.0	1.96	2.2	2.65	2.2	2.9
5	1.92	2.25	1.88	1.81	2.3	2.65	1.96	1.92	2.1	2.55	2.25	2.9
6	2.2	1.96	1.80	2.05	2.25	2.5	2.2	1.80	2.2	2.5	2.2	2.9
7	2.0	1.96	1.76	2.0	2.35	2.45	2.5	1.84	2.3	2.5	2.2	2.9
8	2.1	1.92	1.76	1.96	2.25	2.45	2.5	1.96	2.4	2.45	2.2	2.8
9	2.05	1.88	1.76	1.96	2.2	2.4	2.5	1.96	2.4	2.45	2.2	2.8
10	1.96	1.88	1.72	2.1	2.3	2.4	2.5	1.68	2.15	2.45	2.35	2.8
11	1.96	1.88	1.72	2.2	2.45	2.35	2.5	1.72	2.75	2.4	2.4	2.8
12	1.92	1.92	1.80	2.2	2.85	2.35	2.45	1.84	2.5	2.4	2.4	2.8
13	1.92	1.92	1.80	2.3	2.65	2.3	2.4	1.96	2.4	2.4	2.35	2.7
14	1.88	1.92	1.80	2.55	2.4	2.3	2.4	2.05	2.2	2.4	2.3	2.7
15	1.88	1.88	1.80	2.45	3.15	2.3	2.4	1.80	2.75	2.4	2.3	2.6
16	1.92	2.1	1.80	2.4	2.4	2.8	2.35	1.64	3.1	2.45	2.35	2.7
17	1.88	1.92	1.80	2.4	2.5	2.85	2.35	1.53	2.95	2.4	2.35	3.0
18	1.84	1.92	1.91	2.35	2.4	1.97	2.3	1.49	3.0	2.55	2.35	2.7
19	1.84	1.96	2.2	2.35	2.35	2.15	2.4	1.46	2.65	2.5	2.4	2.5
20	1.84	1.92	2.2	2.35	2.3	2.25	2.5	1.88	2.9	2.5	2.5	2.4
21	1.84	1.96	2.15	2.4	2.4	1.9	2.5	2.15	2.6	2.5	2.4	2.3
22	1.84	1.96	2.05	2.5	2.4	1.7	2.4	2.2	2.45	2.4	2.4	2.3
23	1.88	1.92	1.92	2.35	2.4	1.6	2.3	2.25	2.6	2.4	2.4	2.3
24	1.88	2.15	1.88	2.3	2.45	1.6	2.35	2.15	2.65	2.4	2.4	2.3
25	1.92	2.8	1.84	2.3	2.4	1.6	2.45	2.05	2.6	2.35	2.45	2.3
26	1.96	1.92	2.0	2.45	2.4	1.6	2.4	2.05	2.4	2.4	2.45	2.2
27	1.96	1.80	2.1	2.75	2.35	1.6	2.5	1.88	2.4	2.5	2.65	2.2
28	1.92	1.92	2.2	2.7	2.3	1.6	2.35	1.76	2.45	2.4	3.15	2.2
29	1.92	1.80	2.2	2.45	2.3	1.6	2.25	2.05	2.9	2.65	2.9	2.2
30	1.92	1.80	2.15	2.4	2.3	1.64	2.35	-	3.05	2.3	2.85	2.2
31	1.92	1.76	-	2.4	-	1.64	2.25	-	3.15	-	2.85	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.2	1.84	1.92	2.97	59.6	183
August	2.8	1.76	1.95	3.02	60.5	186
September	2.4	1.72	1.94	3.00	58.3	179
October	2.75	1.81	2.29	3.54	70.9	218
November	3.15	2.2	2.40	3.71	72.2	221
December	2.85	1.6	2.14	3.31	66.4	204
Calendar year 1947	3.15	.24	1.90	2.94	694	2,130
January	2.5	1.60	2.30	3.56	71.4	219
February	2.25	1.46	1.91	2.96	55.4	170
March	3.15	2.05	2.54	3.93	78.6	241
April	2.9	2.3	2.48	3.84	74.4	228
May	3.15	2.2	2.45	3.79	76.0	233
June	3.0	2.2	2.60	4.02	78.0	239
Fiscal year 1947-48	3.15	1.46	2.24	3.47	822	2,520

Note.- No gage-height record Dec. 21-29, June 12-30; discharge computed on basis of records for Wailuku River or weather records.

Waiilikahi Stream near Waimanu

Location.- Lat. 20°07'40", long. 155°39'55", 30 feet upstream from Waimanu trail bridge, 1.7 miles upstream from confulence with Waimanu Stream, 1.9 miles southeast from head of Awini ditch, and 2.2 miles southwest of Waimanu. Altitude of gage, 2,740 feet (by barometer).

Drainage area.- 0.4 square mile.

Records available.- March 1939 to June 1948.

Extremes.- Maximum discharge during year, 400 million gallons a day (619 second-feet) Mar. 2 (gage height, 4.50 feet), from rating curve extended above 10 million gallons a day by test on model of station site; minimum, 0.61 million gallons a day (0.94 second-feet) Nov. 30.

1939-48: Maximum discharge, 544 million gallons a day (842 second-feet) Dec. 20, 1946 (gage height, 51.7 feet), from rating curve extended above 10 million gallons a day by test on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) Mar. 17, 18, 1944.

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

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.47	0.9	4.4	1.8	26.5
.5	.95	1.0	5.7	2.0	35.5
.6	1.60	1.2	9.0	2.5	69
.7	2.4	1.4	13.4		
.8	3.35	1.6	19.2		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.7	1.14	13.9	3.4	1.5	1.1	2.1	8.0	1.43	32	1.68	3.7
2	14.5	.95	7.8	3.15	1.3	.84	5.0	3.3	52	6.2	1.34	4.6
3	5.1	.90	22.5	1.85	1.2	.70	37	3.3	6.6	4.0	1.21	5.4
4	3.75	14.6	6.8	3.0	13	2.5	11	2.7	2.9	3.05	1.14	9.9
5	13.5	7.7	9.4	14.0	3.6	6.4	4.5	2.3	1.47	2.15	6.6	7.2
6	14.9	2.6	3.9	7.4	1.8	4.3	23	2.0	1.21	1.76	3.1	11.6
7	10.9	1.54	2.1	3.7	1.3	5.5	12	17	1.53	1.54	5.2	4.1
8	25	1.21	1.68	2.0	7.0	2.5	5.0	13	2.7	1.40	2.95	2.0
9	4.7	1.02	1.47	1.47	9.0	1.3	2.6	3.1	1.54	1.34	1.47	1.54
10	2.7	.95	2.75	1.51	4.0	1.5	3.0	2.7	1.28	1.28	2.5	1.34
11	6.4	.95	1.68	2.05	2.5	1.14	2.1	16	7.6	1.21	4.2	1.28
12	3.05	2.25	1.54	1.21	5.4	1.36	1.7	18.2	12.7	5.8	1.60	1.21
13	1.76	1.47	1.28	1.21	4.0	5.3	2.8	2.5	4.7	13.1	1.63	2.35
14	1.47	5.6	1.21	16.5	2.0	1.70	2.2	1.88	4.3	9.1	6.7	1.34
15	9.5	2.55	1.40	2.45	1.5	.95	1.6	1.68	35.5	3.0	10.7	1.21
16	9.1	8.9	1.40	1.92	1.3	10.1	1.4	1.34	29.5	3.35	3.45	1.14
17	3.8	6.5	2.1	1.96	1.2	12.4	3.4	1.14	14.5	2.95	2.25	5.1
18	1.92	2.7	1.60	1.34	1.0	29	2.5	1.08	35.5	9.2	3.2	5.5
19	1.40	3.7	1.14	1.02	.90	26	1.5	1.02	10.1	10.9	3.7	5.5
20	3.25	1.78	.95	.95	.80	72	1.1	9.5	17.8	3.3	11.8	1.84
21	2.25	21.5	.85	5.1	.75	16.7	.92	14.6	3.65	18.3	3.6	1.47
22	5.5	5.1	2.0	6.2	.75	3.05	.86	4.9	3.0	5.5	3.85	1.28
23	4.1	2.1	1.60	1.77	.75	1.84	.93	1.77	13.3	2.9	2.5	1.21
24	1.73	19.3	.95	1.2	.75	3.3	50	1.21	5.4	1.84	2.4	1.21
25	4.9	31	.85	2.5	.70	2.8	105	1.08	14.9	1.47	7.6	1.78
26	6.3	6.4	.76	11	.70	8.0	87	1.02	12.2	1.40	7.7	1.28
27	7.4	3.45	13.4	13	.67	16	22	.95	28	3.0	6.4	1.14
28	4.0	7.1	18.6	24	.64	6.0	7.0	.90	23	6.8	42	1.14
29	2.75	4.1	23	4.5	.64	4.0	3.7	.85	41	10.7	5.8	1.14
30	1.92	4.0	9.1	2.2	.61	2.5	3.0	-	33.5	3.0	8.3	2.05
31	1.54	8.0	-	1.8	-	1.6	37	-	15.1	-	5.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25	1.40	5.90	9.13	183	561
August	31	.90	5.84	9.04	181	556
September	23	.76	5.26	8.14	156	484
October	24	.95	4.69	7.25	145	446
November	13	.61	2.38	3.68	71.3	219
December	72	.70	8.14	12.6	252	775
Calendar year 1947	72	.50	5.18	8.01	1,890	5,800
January	105	.86	14.3	22.1	443	1,360
February	18.2	.85	4.79	7.41	139	426
March	52	1.21	14.1	21.8	438	1,340
April	32	1.21	5.72	8.85	172	526
May	42	1.14	5.54	8.57	172	527
June	11.6	1.14	3.05	4.72	91.6	281
Fiscal year 1947-48	105	.61	6.68	10.3	2,450	7,500

Peak discharge (base, 150 m.g.d.).- Sept. 3 (5:30 p.m.) 210 m.g.d. (325 sec.-ft.); Dec. 20 (6 a.m.) 178 m.g.d. (275 sec.-ft.); Jan. 25 (approximate date) 250 m.g.d. (387 sec.-ft.); Mar. 2 (5:30 p.m.) 400 m.g.d. (619 sec.-ft.).

Note.- No gage-height record Oct. 24 to Dec. 10, Dec. 25 to Feb. 11; discharge computed on basis of records for nearby streams.

Punalulu Stream near Waimanu

Location.- Lat. 20°08'50", long. 155°39'40", 200 feet upstream from Waimanu trail, 1.0 mile southeast from head of Awini ditch, 1.5 miles upstream from mouth, and 1.5 miles west of Waimanu. Altitude of gage, 1,870 feet (by barometer).

Drainage area.- 1.4 square miles.

Records available.- March 1939 to June 1948.

Extremes.- Maximum recorded discharge during year, 300 million gallons a day (464 second-feet) Mar. 2 (gage height, 5.11 feet), from rating curve extended above 4 million gallons a day by test on model of station site (possibly higher Jan. 25); minimum, 0.24 million gallons a day (0.37 second-foot) June 29, 30.

1939-48: Maximum discharge, 980 million gallons a day (1,520 second-feet) June 30, 1941 (gage height, 4.90 feet), from rating curve extended above 4 million gallons a day by test on model of station site; minimum, 0.06 million gallons a day (0.09 second-foot Oct. 14, 25, 26, 1945.

Remarks.- Records good except those below 0.5 million gallons a day and those for period of no gage-height record, which are fair. No diversions.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.29	0.7	2.85	1.4	13.7
.4	.68	.8	4.0	1.7	20.5
.5	1.22	1.0	6.6	2.0	28
.6	1.93	1.2	9.9	2.4	42

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.3	0.68	8.7	2.1	0.99	0.61	1.10	4.0	0.48	23	0.99	2.1
2	8.5	.54	5.2	1.79	.73	.50	2.35	1.8	27	6.5	.73	2.45
3	3.75	.46	11.1	1.04	.68	.39	24	1.8	5.5	3.2	.63	2.75
4	2.15	11.5	5.0	1.26	8.6	.75	4.9	1.5	2.6	2.0	.54	6.7
5	6.8	5.9	4.4	9.4	2.2	4.5	2.2	1.2	1.16	1.41	4.4	4.5
6	10.5	1.67	2.35	5.2	.99	2.9	14.5	1.0	.93	1.16	1.74	7.9
7	7.9	.99	1.28	2.4	.73	3.4	8.3	11	.93	.99	2.6	3.15
8	14.6	.78	1.04	1.28	5.2	1.97	2.7	8.0	1.41	.88	1.78	1.41
9	3.8	.63	.88	.93	6.6	.68	1.41	1.5	1.10	.83	.83	.99
10	1.77	.54	1.68	.93	2.4	.78	1.58	1.3	.83	.83	.63	.78
11	2.75	.56	.93	1.16	1.22	.54	.99	12	4.2	.68	1.75	.63
12	1.92	1.28	.78	.78	4.0	2.1	.73	13	6.5	5.4	.83	.54
13	1.04	.73	.63	.63	2.65	6.0	1.71	1.91	2.85	10.4	.78	.97
14	.83	1.78	.54	9.2	1.10	1.29	1.43	1.22	2.55	6.6	4.4	.59
15	4.7	1.25	.59	1.55	.93	.54	.78	1.10	16.0	2.0	8.4	.46
16	6.2	4.6	.59	1.21	.78	8.2	.59	.88	14.7	2.1	2.4	.42
17	2.6	3.4	.83	1.29	.63	6.7	2.5	.68	8.8	1.70	1.04	2.5
18	1.16	1.47	.68	.78	.54	17.4	1.5	.59	19.3	5.7	1.86	4.5
19	.83	2.05	.46	.54	.50	17.2	.90	.59	7.0	5.6	1.42	3.05
20	1.83	.96	.36	.50	.46	38.5	.70	5.5	10.3	1.98	6.2	.83
21	1.32	9.5	.29	3.2	.46	9.4	.60	8.4	2.75	13.6	2.4	.59
22	2.4	3.4	1.63	3.7	.46	2.5	.52	3.55	1.82	3.7	2.05	.46
23	2.5	1.16	1.12	1.04	.46	1.55	.60	1.16	9.5	1.96	1.41	.39
24	.99	9.3	.46	.63	.46	1.93	25	.78	3.25	1.28	1.22	.36
25	3.35	17.6	.33	1.25	.42	1.77	60	.63	10.4	1.04	5.6	.68
26	4.3	4.5	.29	6.6	.42	4.7	52	.54	9.0	.83	5.8	.42
27	5.2	2.25	6.1	8.2	.39	11.2	10	.54	18.1	1.82	3.65	.29
28	2.75	4.8	10.7	15.2	.39	3.7	3.5	.54	15.7	2.75	21	.29
29	1.70	2.3	13.9	2.6	.39	2.5	2.4	.50	27	7.0	4.4	.27
30	1.16	2.1	6.3	1.35	.36	1.22	2.1	-	22.5	1.63	5.5	.39
31	.88	5.7	-	1.16	-	.88	23	-	12.4	-	3.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.6	0.83	3.63	5.62	112	345
August	17.6	.46	3.37	5.21	104	320
September	13.9	.29	2.97	4.60	89.1	274
October	15.2	.50	2.87	4.44	88.9	273
November	8.6	.36	1.54	2.38	46.1	142
December	38.5	.39	5.04	7.80	156	480
Calendar year 1947	38.5	.12	3.36	5.20	1,230	3,760
January	60	.52	8.21	12.7	255	781
February	13	.50	3.01	4.66	87.2	268
March	27	.48	8.60	13.3	267	818
April	23	.68	3.95	6.11	119	364
May	21	.54	3.24	5.01	100	308
June	7.9	.27	1.71	2.65	51.4	158
Fiscal year 1947-48	60	.27	4.03	6.24	1,480	4,530

Peak discharge (base, 100 m.g.d.).- Sept. 3 (5 p.m.) 108 m.g.d. (167 sec.-ft.); Dec. 20 (5 p.m.) 108 m.g.d. (167 sec.-ft.); Jan. 25 (approximate date) at least 150 m.g.d. (232 sec.-ft.); Mar. 2 (4 p.m.) 300 m.g.d. (464 sec.-ft.).

Note.- No gage-height record Jan. 17 to Feb. 12; discharge computed on basis of records for nearby streams.

Waiaalala Stream near Waimanu

Location.- Lat. 20°09'05", long. 155°39'55", 0.7 mile east from head of Awini ditch, 1.3 miles upstream from mouth, and 1.8 miles west of Waimanu. Altitude of gage, 1,880 feet (by barometer).

Drainage area.- 0.2 square mile.

Records available.- March 1939 to June 1948.

Extremes.- Maximum discharge during year, 22 million gallons a day (34 second-feet) Jan. 25, Mar. 2 (gage heights, 1.69 and 1.68 feet, respectively), from rating curve extended above 2.0 million gallons a day by test on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) Dec. 12.
1939-48: Maximum discharge, 67 million gallons a day (104 second-feet) Feb. 22, 1940 (gage height, 3.83 feet), from rating curve extended above 2.0 million gallons a day by test on model of station site; minimum, 0.10 million gallons a day (0.16 second-foot) Mar. 15, 1944.

Remarks.- Records poor. No diversions.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.14	0.6	2.4
.3	.40	.7	3.5
.4	.89	.8	4.8
.5	1.53	.9	6.4

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.23	0.23	0.60	0.27	0.27	0.19	0.30	0.78	0.30	3.5	0.50	0.50
2	.62	.21	.46	.24	.25	.18	.45	.69	3.15	2.0	.45	.45
3	.30	.21	.50	.23	.25	.17	1.82	.69	1.60	1.3	.45	.40
4	.23	1.35	.50	.24	1.0	.20	.55	.60	.93	1.0	.40	.69
5	.61	.62	.55	.82	.47	.52	.45	.55	.35	.88	.60	.50
6	.60	.27	.35	.50	.34	.36	1.27	.55	.50	.78	.45	.66
7	.61	.24	.30	.30	.28	.38	.74	1.42	.24	.74	.40	.45
8	1.28	.24	.30	.24	.80	.25	.55	1.15	.23	.71	.35	.40
9	.50	.24	.30	.23	.88	.20	.50	.60	.23	.69	.35	.40
10	.35	.24	.35	.23	.45	.17	1.23	.55	.21	.69	.35	.40
11	.30	.24	.27	.23	.36	.17	.64	1.17	.47	.64	.35	.40
12	.30	.24	.27	.21	.54	.79	.50	1.82	.54	.89	.30	.40
13	.27	.23	.24	.19	.40	1.14	.55	.69	.42	1.63	.30	.40
14	.27	.23	.24	.67	.30	.27	.45	.60	.35	1.01	.40	.35
15	.30	.21	.24	.21	.27	.23	.40	.55	1.17	.74	1.24	.35
16	.30	.32	.24	.21	.24	1.44	.40	.50	1.62	.69	.40	.35
17	.24	.23	.24	.19	.22	.68	.55	.45	.97	.64	.35	.30
18	.23	.21	.23	.19	.20	2.3	.40	.40	1.91	.90	.30	.61
19	.23	.21	.23	.18	.20	2.7	.35	.40	.95	.69	.30	.42
20	.24	.19	.23	.18	.19	3.45	.30	.55	1.18	.64	.56	.30
21	.23	.28	.23	.30	.19	1.39	.30	1.11	.69	1.36	.35	.30
22	.23	.27	.24	.33	.19	.74	.30	.60	.64	.64	.30	.27
23	.23	.21	.23	.25	.19	.60	.33	.40	1.4	.64	.30	.27
24	.23	.61	.23	.20	.19	.50	4.2	.40	.70	.64	.30	.24
25	.24	1.47	.23	.23	.18	.40	7.5	.40	1.9	.60	.62	.24
26	.40	.35	.23	.70	.18	.45	6.1	.40	1.8	.60	.73	.24
27	.47	.27	.24	.80	.17	.80	1.74	.40	2.8	.55	.45	.24
28	.24	.35	.44	1.2	.17	.50	1.08	.35	2.6	.55	2.35	.23
29	.23	.27	.88	.43	.17	.45	.84	.35	4.0	.89	.78	.23
30	.23	.27	.59	.35	.17	.35	.78	-	3.5	.50	.87	.23
31	.23	.35	-	.30	-	.35	1.77	-	2.2	-	5.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.28	0.23	0.354	0.548	11.0	34
August	1.47	.19	.350	.542	10.9	33
September	.88	.23	.339	.525	10.2	31
October	1.2	.18	.350	.542	10.8	33
November	1.0	.17	.324	.501	9.71	30
December	3.45	.17	.720	1.11	22.3	68
Calendar year 1947	8.3	.17	.555	.859	203	621
January	7.5	.30	1.20	1.86	37.3	115
February	1.82	.35	.659	1.02	19.1	59
March	4.0	.21	1.28	1.98	39.6	121
April	3.5	.50	.924	1.43	27.7	85
May	2.35	.30	.529	.818	16.4	50
June	.69	.23	.374	.579	11.2	34
Fiscal year 1947-48	7.5	.17	.618	.956	226	693

Peak discharge (base, 20 m.g.d.).- Jan. 25 (7 p.m.) 22 m.g.d. (34 sec.-ft.); Mar. 2 (7:30 p.m.) 22 m.g.d. (34 sec.-ft.).

Note.- No gage-height record Oct. 19 to Dec. 9, Mar. 23 to Apr. 8; discharge computed on basis of records for nearby streams.

Paopao Stream near Waimanu

Location.- Lat. 20°09'05", long. 155°40'05", 150 feet upstream from Waimanu trail, 0.6 mil east of intake to Awini ditch, and 1.9 miles west of Waimanu. Altitude of gage, 1,910 feet (by barometer).

Drainage area.- 0.6 square mile.

Records available.- February 1939 to June 1948.

Extremes.- Maximum discharge during year, 385 million gallons a day (596 second-feet) Jan. 25, Mar. 2 (gage heights, 5.20 and 5.17 feet, respectively), from rating curve extended above 8 million gallons a day by test on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) Dec. 12.
1939-48: Maximum discharge, 462 million gallons a day (715 second-feet) Dec. 20, 19 (gage height, 5.55 feet), from rating curve extended above 8 million gallons a day by te on model of station site; minimum, 0.08 million gallons a day (0.12 second-foot) July 2 28, 1945.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1947-48 (gage-height, in feet, and discharge, in million gallons a day)

0.2	0.19	0.7	4.0	1.6	25
.3	.52	.8	5.3	2.0	41
.4	1.03	1.0	8.7	2.5	68
.5	1.78	1.2	13.1		
.6	2.8	1.4	18.4		

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.64	*0.27	3.65	0.83	0.36	0.22	0.44	*1.45	0.30	26.5	0.52	*0.90
2	.40	.24	2.05	.70	.33	.19	1.28	.90	22	4.8	.44	.90
3	1.10	.22	3.15	.40	.33	.17	11.0	.90	2.65	2.3	.44	.93
4	.44	7.2	1.88	.40	4.5	.22	1.74	.80	1.82	1.54	.40	4.0
5	2.8	2.25	1.79	4.5	1.02	1.62	.90	.60	.74	1.16	2.8	1.90
6	4.2	.60	.86	2.15	.44	.81	7.8	.52	.56	.96	.95	2.8
7	3.35	.40	.56	.80	.33	.88	3.4	5.6	.48	.85	.87	1.20
8	7.8	.33	.52	.47	3.95	.57	1.16	4.0	.52	.74	.68	.70
9	1.23	.30	.48	.36	3.55	.27	.74	.80	.44	.70	.44	.56
10	.65	.30	1.01	.44	1.22	.24	1.14	.65	.36	.60	.40	.52
11	.48	.30	.48	.44	.60	.19	.78	6.0	1.75	.56	.48	.48
12	.40	.65	.40	.36	2.1	1.78	.56	6.6	2.65	5.3	.52	.44
13	.33	.36	.36	.30	1.11	4.5	.97	1.03	1.08	6.8	.56	.44
14	.33	.33	.33	4.0	.48	.67	.85	.74	.83	3.5	2.25	.40
15	1.30	.40	.33	.48	.40	.27	.52	.65	7.0	1.16	5.7	.36
16	2.2	3.0	.33	.44	.36	4.4	.44	.56	7.7	1.17	.97	.36
17	.87	.88	.36	.44	.30	2.4	1.42	.48	3.85	.85	.52	.69
18	.36	.44	.33	.30	.27	9.8	.86	.44	11.3	2.8	.48	3.2
19	.30	.66	.30	.24	.24	11.0	.44	.40	2.6	2.0	.40	1.37
20	.65	.36	.27	.24	.24	21.5	.40	2.1	4.9	.90	2.9	.44
21	.44	1.51	.24	.93	.22	4.8	.36	4.6	1.16	8.0	.90	.36
22	.34	.93	.87	1.03	.22	1.16	.33	1.62	1.00	1.50	.70	.33
23	.60	.36	.50	.33	.22	.74	.36	.60	5.4	.96	.52	.33
24	.30	4.0	.27	.24	.22	.70	14.2	.44	1.21	.74	.47	.30
25	1.09	9.1	.24	.29	.19	.60	46	.40	5.4	.65	2.9	.33
26	1.69	1.46	.22	3.15	.19	1.60	44	.36	5.7	.56	3.35	.30
27	2.6	.75	1.52	2.15	.17	5.1	5.1	.33	9.4	.65	1.50	.27
28	.80	2.05	4.2	9.3	.17	1.43	1.92	.33	8.4	1.03	12.4	.27
29	.48	.80	6.7	.90	.17	1.08	1.10	.30	21.5	4.0	2.05	.27
30	.36	.82	2.65	.52	.17	.60	.85	-	27.5	.70	3.4	.24
31	.30	2.15	-	.44	-	.48	11.7	-	9.5	-	1.47	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.8	0.30	1.25	1.93	38.8	119
August	9.1	.22	1.40	2.17	43.4	133
September	6.7	.22	1.23	1.90	36.8	113
October	9.3	.24	1.21	1.87	37.6	115
November	4.5	.17	.802	1.24	24.1	74
December	21.5	.17	2.58	3.99	80.0	245
Calendar year 1947	31	.15	1.72	2.66	626	1,920
January	46	.33	5.25	8.12	163	499
February	6.6	.30	1.52	2.35	44.2	136
March	27.5	.30	5.49	8.49	170	522
April	26.5	.56	2.80	4.33	84.0	258
May	12.4	.40	1.69	2.61	52.4	161
June	4.0	.24	.853	1.32	25.6	79
Fiscal year 1947-48	46	.17	2.19	3.39	800	2,450

Peak discharge (base, 60 m.g.d.).- Dec. 18 (5:30 p.m.) 80 m.g.d. (124 sec.-ft.); Jan. 25 (7:30 p.m. 385 m.g.d. (596 sec.-ft.); Jan. 31 (12 m.) 128 m.g.d. (198 sec.-ft.); Mar. 2 (4 p.m.) 385 m.g.d(59 sec.-ft.); Mar. 29 (5:30 p.m.) 68 m.g.d. (105 sec.-ft.).

Kukui Stream near Waimanu

Location.- Lat. 20°09'10", long. 155°40'10", 300 feet upstream from Waimanu trail crossing, 0.4 mile east from head of Awini ditch, and 2.1 miles west of Waimanu. Altitude of gage, 1,940 feet (by barometer).

Drainage area.- 0.4 square mile.

Records available.- February 1939 to June 1948.

Extremes.- Maximum discharge during year, at least 70 million gallons a day (108 second-feet) between Dec. 27 and Feb. 12 (gage height, 3.47 feet), from rating curve extended above 1.8 million gallons a day by test on model of station site; minimum, 0.16 million gallons a day (0.25 second-foot) between Nov. 18 and Dec. 12.

1939-48: Maximum discharge, 116 million gallons a day (179 second-feet) Oct. 23, 1941 (gage height, 3.97 feet), from rating curve extended above 1.8 million gallons a day by test on model of station site; minimum, 0.13 million gallons a day (0.20 second-foot) Oct. 25, 1945.

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

Rating tables, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Aug. 25

0.2	0.24	0.5	1.45	1.0	5.5
.3	.54	.6	2.05	1.2	7.8
.4	.94	.8	3.6	1.4	10.5

Note.- Same as following table above 1.4 feet.

Aug. 26 to June 30

0.3	0.46	1.0	5.2
.4	.83	1.2	7.5
.5	1.30	1.4	10.2
.6	1.87	1.7	15.2
.8	3.3	2.1	23

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.48	0.39	1.51	0.53	0.38	0.40	0.47	2.5	0.35	12.0	0.53	0.76
2	1.91	.39	1.08	.50	.35	.38	1.0	1.5	6.5	2.95	.50	.72
3	.72	.36	1.40	.40	.35	.26	5.0	1.0	2.05	1.76	.46	.72
4	.45	3.95	1.03	.40	2.3	.35	1.5	1.0	1.47	1.30	.43	2.05
5	1.52	1.49	1.03	1.99	.72	.85	.70	.70	.76	1.11	1.18	1.11
6	1.97	.62	.68	1.23	.43	.50	3.5	.60	.61	.97	.64	1.46
7	1.82	.51	.57	.61	.38	.56	1.8	3.0	.57	.83	.54	.87
8	4.1	.48	.50	.46	2.3	.40	.90	1.5	.53	.79	.53	.64
9	1.03	.48	.53	.43	2.6	.30	.70	.80	.50	.72	.40	.40
10	.70	.48	.64	.43	1.00	.30	.90	.70	.43	.68	.40	.53
11	.54	.48	.46	.43	.64	.24	.65	1.5	.70	.64	.46	.50
12	.51	.58	.40	.40	1.13	1.52	.60	4.0	1.45	2.4	.46	.50
13	.48	.45	.40	.38	.98	2.95	.65	.92	.72	3.75	.53	.50
14	.45	.45	.40	2.05	.57	.63	.60	.72	.65	1.93	1.03	.46
15	.71	.45	.38	.46	.53	.40	.55	.64	3.15	.88	3.0	.43
16	.94	1.26	.38	.40	.46	3.6	.50	.57	4.5	.83	.71	.40
17	.66	.64	.38	.40	.43	1.45	.65	.50	2.3	.68	.46	.43
18	.45	.45	.35	.38	.40	5.6	.80	.46	5.5	1.51	.43	1.22
19	.45	.51	.32	.35	.37	6.9	.50	.43	1.82	1.05	.40	1.02
20	.58	.42	.29	.35	.35	10.5	.43	1.01	2.7	.72	1.14	.43
21	.48	1.05	.29	.49	.35	3.15	.40	2.65	1.02	3.7	.58	.38
22	.45	.64	.51	.64	.35	1.06	.35	.99	.90	1.02	.50	.38
23	.45	.42	.40	.38	.35	.79	.40	.50	2.35	.76	.43	.38
24	.39	1.83	.29	.32	.35	.72	4.0	.43	.92	.64	.40	.38
25	.63	4.8	.29	.35	.33	.61	25	.40	2.7	.61	1.32	.38
26	3.55	.76	.26	1.63	.32	.71	12	.40	3.25	.57	1.67	.35
27	1.22	.57	.65	1.88	.30	3.0	4.0	.38	4.8	.57	.79	.32
28	.65	1.01	1.64	5.0	.28	.90	1.5	.38	4.7	.72	6.3	.32
29	.48	.57	2.85	.76	.28	.70	1.0	.38	11.9	2.05	1.39	.32
30	.45	.57	1.40	.50	.27	.60	.90	-	10.9	.61	1.75	.32
31	.39	.91	-	.43	-	.50	4.0	-	4.4	-	.97	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.1	0.39	0.955	1.48	29.6	91
August	4.8	.36	.902	1.40	28.0	86
September	2.85	.26	.710	1.10	21.3	65
October	5.0	.32	.805	1.25	25.0	77
November	2.6	.27	.682	1.02	19.8	61
December	10.5	.24	1.64	2.54	50.8	156
Calendar year 1947	16.4	.24	1.12	1.73	409	1,260
January	25	.35	2.45	3.79	76.0	233
February	4.0	.38	1.05	1.62	30.6	94
March	11.9	.35	2.75	4.25	85.1	261
April	12.0	.57	1.62	2.51	48.8	150
May	6.3	.40	.978	1.51	30.3	93
June	2.05	.32	.623	.964	18.7	57
Fiscal year 1947-48	25	.24	1.27	1.96	464	1,420

Peak discharge (base, 30 m.g.d.).- Dec. 18 (6 p.m.) 42 m.g.d. (65 sec.-ft.); Jan. 25 (approximate date) 70 m.g.d. (108 sec.-ft.); Mar. 2 (8 p.m.) 33 m.g.d. (51 sec.-ft.); Mar. 29 (6 p.m.) 33 m.g.d. (51 sec.-ft.).

Note.- No gage-height record Nov. 19 to Dec. 10, Dec. 27 to Feb. 12; discharge computed on basis of records for nearby streams.

Awini ditch at East Honokaneiki Gulch, near Niulii

Location.- Lat. 20°09'55", long. 156°43'10", at flume across East Honokaneiki Gulch, 4½ miles southeast of Niulii.

Records available.- October 1927 to June 1948.

Average discharge.- 19 years (1928-38, 1939-48), 11.8 million gallons a day (18.3 second-feet).

Extremes.- Maximum discharge during year, 31 million gallons a day (48 second-feet) Jan. 25, 31 (gage height, 3.60 feet); minimum, 2.7 million gallons a day (4.2 second-feet) Nov. 30.
1927-48: Maximum discharge, 34 million gallons a day (53 second-feet) Jan. 9, 193. (gage height, 3.76 feet); no flow occasionally, when water was turned out of ditch.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Awini ditch diverts water at altitude 2,000 feet from all streams between the Waikalo and the Honokane. Flow regulated by head gates and spillways. Water used for irriga tion in vicinity of Kohala.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	18.8	5.6	25	14.9	7.4	a4.0	10.3	22	5.0	a20	9.7	20
2	15.4	4.8	21.5	14.4	6.4	a3.7	11.6	13.6	12.5	19.0	8.0	19.
3	22.5	4.3	25	9.7	5.6	3.15	27	11.6	8.4	18.2	6.9	18.
4	13.2	20.5	19.0	8.0	20.5	5.2	24	11.0	16.6	16.6	8.4	27
5	13.4	27	14.9	25	18.3	10.7	16.6	9.1	11.0	14.3	18.0	24
6	27	14.9	12.1	24.5	8.6	19.5	26	8.6	8.6	12.2	11.6	27
7	25	8.6	8.6	18.2	8.4	15.0	27	12.7	8.6	11.0	15.4	19.
8	23.5	8.9	7.4	11.0	7.9	16.8	20	25	14.2	10.3	14.2	11.
9	23	5.9	6.4	7.4	25.5	7.4	15.8	17.9	10.1	9.7	8.0	9.
10	14.3	5.5	8.6	6.9	20.5	5.6	12.2	14.3	7.4	9.1	6.4	7.
11	11.0	5.0	7.4	6.4	11.0	5.3	10.3	17.3	12.9	8.0	10.3	6.
12	13.4	9.0	6.4	5.8	11.4	7.9	8.6	27	25	14.9	7.4	5.
13	8.6	6.9	5.8	5.2	22	23	14.2	19.1	18.8	19.0	8.0	6.
14	6.9	6.9	5.4	23	a12	13.8	13.6	12.2	20.5	19.0	16.5	5.
15	7.1	8.0	5.1	12.9	a9.7	7.4	9.1	11.0	18.3	12.9	21.5	5.
16	24	7.3	4.9	8.6	a8.6	16.2	7.4	9.7	27	11.6	14.5	5.
17	19.1	11.3	5.2	8.6	a7.4	23	12.0	8.0	27	11.0	8.0	10.
18	9.4	9.6	4.9	6.4	a6.4	27	16.7	6.9	27	12.6	11.2	10.
19	6.9	8.8	4.3	5.2	a5.5	24	8.6	6.9	23	18.2	8.2	21
20	8.9	6.7	3.85	4.9	a4.5	25	6.9	19.7	19.0	13.7	22	9.
21	9.7	12.4	3.55	13.4	4.0	16.5	6.4	21.5	16.6	20	15.0	6.
22	7.3	15.0	9.3	20	3.7	16.1	6.0	23.5	14.3	18.2	11.6	5.
23	18.8	8.0	10.3	8.8	3.6	14.3	5.8	12.3	a20	13.6	9.1	5.
24	9.1	16.4	5.5	5.8	3.5	19.0	24.5	8.6	18.2	10.3	6.9	4.
25	11.8	21.5	4.2	5.8	3.3	20	27	7.4	19.0	8.6	19.2	5.
26	17.5	17.6	3.55	24	3.15	18.6	18.6	6.9	19.0	8.0	22.5	5.
27	22	16.7	13.8	18.1	3.05	29	17.4	6.9	20	15.4	21	4.
28	19.2	24	27	27	2.9	25	16.6	5.8	21	22	27	4.
29	11.6	16.6	27	18.0	2.85	23	15.0	5.4	21	25	23	3.
30	9.1	17.1	25	10.3	a2.8	13.6	14.0	-	20	16.3	21	3.
31	6.9	23	-	8.6	-	10.3	24	-	20	-	24.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-fee
July	27	6.9	14.7	22.7	454	1,39C
August	27	4.3	12.0	18.6	372	1,14C
September	27	3.55	11.0	17.0	331	1,02C
October	27	4.9	12.5	19.3	387	1,19C
November	25.5	2.8	8.62	13.3	258	79?
December	29	3.15	15	23.4	469	1,44C
Calendar year 1947	29	1.93	12.2	18.9	4,470	13,70C
January	27	5.8	15.3	23.7	473	1,45C
February	27	5.4	13.2	20.4	382	1,17C
March	27	5.0	17.1	26.5	530	1,63C
April	25	8.0	14.6	22.6	439	1,35C
May	27	6.4	14.0	21.7	433	1,33C
June	27	3.6	10.7	16.6	320	983
Fiscal year 1947-48	29	2.8	13.2	20.4	4,850	14,89C

a No gage-height record; discharge computed on basis of records for adjacent station.

East Honokaneiki intake to Awini ditch at East Honokaneiki Gulch, near Niulii

Location.- Sharp-crested weir, lat. 20°09'55", long. 155°43'15", on intake tunnel delivering water from East Honokaneiki Gulch to Awini ditch, on west side of gulch, and 4½ miles southeast of Niulii.

Records available.- October 1927 to June 1938, July 1939 to June 1948.

Average discharge.- 17 years (1928-36, 1937-38, 1939-40, 1941-48), 1.17 million gallons a day (1.81 second-feet).

Extremes.- Maximum discharge during year, 8.2 million gallons a day (12.7 second-feet) Sept. 3, Feb. 7 (gage height, 1.43 feet); minimum, 0.04 million gallons a day (0.06 second-foot) Nov. 28-30, Dec. 3, 4, June 30.
1927-38, 1939-48: Maximum discharge, 9.1 million gallons a day (14.1 second-feet) Jan. 4, 1943 (gage height, 1.54 feet); no flow occasionally.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Intake diverts water from East Honokaneiki Gulch to Awini ditch for irrigation in vicinity of Kohala. Flow regulated by head gates.

Revisions (fiscal years).- W 725: 1928-30.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.8	0.21	3.65	11.4	0.32	0.10	0.60	1.11	0.23	2.5	0.64	1.75
2	1.2	.15	2.7	.97	.26	.08	.96	.87	.98	1.70	.44	1.52
3	3.3	.12	3.2	.52	.23	.06	5.4	.83	.44	1.45	.35	1.52
4	.98	3.1	2.1	.41	3.15	.14	2.85	.75	.78	1.21	.32	2.7
5	.98	3.8	1.29	3.4	1.56	1.17	1.55	.60	.71	.97	1.19	2.3
6	3.8	1.1	.87	3.15	.48	1.75	4.2	.48	.52	.79	.56	2.8
7	3.6	.35	.60	1.21	.29	1.75	3.3	2.65	.48	.68	1.28	1.28
8	3.5	.28	.44	.60	1.08	1.27	1.85	3.05	.60	.56	.89	.60
9	3.5	.22	.38	.41	2.9	.29	1.06	1.30	.41	.64	.38	.41
10	1.0	.20	.38	.32	1.46	.17	.79	.92	.47	.48	.29	.35
11	.80	.18	.32	.24	.48	.10	.64	1.44	2.3	.38	.32	.29
12	.96	.60	.29	.20	.64	1.43	.52	1.92	3.35	1.42	.29	.26
13	.54	.29	.23	.20	1.52	2.5	1.40	1.08	3.0	1.90	.41	.29
14	.31	.38	.20	3.95	.48	1.16	.83	.79	1.97	1.40	1.02	.23
15	.32	.43	.17	.75	.41	.44	.48	.71	2.95	.83	3.15	.17
16	3.6	.70	.17	.41	.35	1.86	.35	.60	3.0	.64	.94	.17
17	3.0	.83	.17	.35	.29	2.4	2.05	.44	2.7	.44	.38	.50
18	.64	.41	.14	.23	.23	3.45	1.37	.38	3.0	.92	.48	1.35
19	.31	.29	.12	.14	.17	1.70	.56	.35	2.1	1.35	.54	1.57
20	.60	.20	.10	.12	.12	1.60	.38	1.37	2.35	.97	2.2	.38
21	.66	2.25	.10	.68	.08	.92	.32	1.78	1.55	2.35	.77	.23
22	.33	1.13	1.03	2.0	.08	.75	.29	1.25	1.35	1.25	.48	.14
23	2.9	.41	.44	.49	.06	1.01	.26	.75	2.4	.83	.35	.12
24	.60	2.85	.23	.23	.06	1.16	3.35	.52	1.60	.60	.26	.10
25	.87	1.70	.12	.30	.06	1.25	2.2	.41	1.65	.44	1.09	.10
26	2.7	1.01	.10	3.3	.06	1.96	.68	.35	1.96	.48	1.93	.10
27	3.3	1.24	2.65	2.75	.06	5.9	.48	.35	2.9	1.53	1.59	.08
28	2.9	2.2	4.8	4.9	.04	2.9	.38	.29	3.2	3.15	4.5	.06
29	.86	1.11	5.6	1.21	.04	1.93	.32	.26	3.3	4.3	2.15	.06
30	.60	1.87	3.3	.60	.06	.83	.93	-	2.4	1.24	2.4	.04
31	.30	1.90	-	.41	-	.64	2.3	-	1.90	-	2.45	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.8	0.30	1.67	2.58	51.8	159
August	3.8	.12	1.02	1.58	31.5	97
September	5.6	.10	1.20	1.86	35.9	110
October	4.9	.12	1.15	1.78	35.6	109
November	3.15	.04	.567	.877	17.0	52
December	5.9	.06	1.38	2.14	42.7	131
Calendar year 1947	6.0	0	.966	1.49	353	1,080
January	5.4	.26	1.38	2.14	42.6	131
February	3.05	.26	.952	1.47	27.6	85
March	3.35	.23	1.82	2.82	56.5	173
April	4.3	.38	1.25	1.93	37.4	115
May	4.5	.26	1.11	1.70	34.0	104
June	2.8	.04	.716	1.11	21.5	66
Fiscal year 1947-48	5.9	.04	1.19	1.84	434	1,330

Note.- No gage-height record July 1 to Aug. 12, Nov. 14-20, Mar. 23, 28, 29, Apr. 1; discharge computed on basis of records for adjacent station.

Kohala ditch at Pololu, near Niulii

Location.- Lat. 20°10'20", long. 155°44'15", on open section of ditch in Pololu Valley just downstream from boundary between land of Honokane and land of Pololu, 2⅝ miles upstream from mouth of Pololu Stream, and 4 miles south of Niulii.

Records available.- August 1927 to June 1948.

Average discharge.- 19 years (1928-38, 1939-48), 25.7 million gallons a day (39.8 second-feet)

Extremes.- Maximum discharge during year, 68 million gallons a day (105 second-feet) Aug. 25 (gage height, 3.73 feet); minimum daily, 6.8 million gallons a day (10.5 second-feet) Jan. 4.
1927-48: Maximum discharge, 78 million gallons a day (121 second-feet) Mar. 14, 1947 (gage height, 4.06 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good. Flow regulated by head gates. Kohala ditch receives flow of Awini ditch at Honokane Gulch and diverts water at altitude of about 1,200 feet from all streams west of the Honokane. Water is used for irrigation in vicinity of Kohala.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	37	19.2	40	29.5	22	17.6	24	25.5	20	25.5	29.5	38
2	38	18.4	38	31.5	20	16.7	25.5	24	30	25.5	25.5	38
3	43	17.6	38	24	19.2	16.0	37.5	25.5	32.5	25.5	24	36
4	29.5	35.5	26	22	36.5	18.6	25	25.5	33.5	25.5	23	40
5	31	45	32.5	35	33.5	24.5	33.5	24	27.5	25.5	33.5	38
6	50	31.5	33.5	39	23	36	45	23	24	25.5	29.5	38
7	45	23	25.5	33.5	21	29.5	43	26	23	25.5	31.5	36
8	43	21	23	25.5	24	31.5	38	26.5	27.5	25.5	36	29.5
9	41	19.2	21	22	45	22	33.5	27.5	24	29.5	24	25.5
10	31.5	19.2	23	21	36	19.2	29.5	29.5	25.5	25.5	24	22
11	27.5	18.4	22	20	25.5	18.4	27.5	33	27	23	27.5	21
12	27.5	23	20	19.2	26.5	17.8	24	40	33.5	27.5	24	22
13	23	21	19.2	19.2	36	40	31.5	33.5	31.5	29.5	25.5	23
14	21	24	19.2	43	25.5	33.5	29.5	29.5	31.5	25.5	32	21
15	22.5	27	18.4	32	23	23	24	25.5	32	25.5	33.5	21
16	40	22	18.4	24	21	31	22	25.5	38	27.5	31.5	21
17	33.5	29.5	18.4	23	20	43	26.5	24	33.5	25.5	24	25.5
18	24	25.5	18.4	20	19.2	48	29.5	23	36	25.5	27.5	26.5
19	21	23	17.6	18.4	18.4	37.5	23	22	33.5	33.5	25.5	38
20	24	21	16.7	18.4	18.4	36	21	38.5	33.5	33.5	39	25.5
21	24	26	16.7	25	17.6	26	20	38	31.5	38	33.5	23
22	22.5	36	20	38	17.6	25.5	20	36	29.5	31.5	27.5	22
23	36	24	26	25.5	16.7	27.5	19.2	27.5	33.5	31.5	25.5	21
24	24	33	19.2	20	16.7	33.5	38	25.5	31.5	27.5	23	20
25	27	38	17.6	19.2	16.0	36	40	24	29.5	25.5	33.5	21
26	31.5	33.5	16.7	35.5	16.0	34	27.5	23	25.5	25.5	38	20
27	36	33.5	24.5	35.5	16.0	45	27	23	27.5	33.5	38	20
28	35	38	48	48	16.0	36	27.5	21	25.5	40	45	19.2
29	27.5	36	48	33.5	16.0	33.5	25.5	20	27.5	43	40	19.2
30	24	31.5	43	25.5	16.0	27.5	24	-	25.5	38	38	19.2
31	21	38	-	23	-	24	32	-	25.5	-	40	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	50	21	31.0	48.0	962	2,950
August	45	17.6	27.5	42.5	852	2,610
September	48	16.7	25.6	39.6	768	2,360
October	48	18.4	27.4	42.4	849	2,610
November	45	16.0	22.6	35.0	678	2,080
December	48	16.0	29.3	45.3	908	2,790
Calendar year 1947	52	3.6	27.0	41.8	9,870	30,280
January	45	19.2	28.8	44.6	894	2,740
February	40	20	27.2	42.1	790	2,420
March	36	20	29.3	45.3	908	2,790
April	43	23	29.0	44.9	870	2,670
May	45	23	30.7	47.5	952	2,920
June	40	19.2	26.3	40.7	790	2,420
Fiscal year 1947-48	50	16.0	27.9	43.2	10,220	31,360

Kehena ditch near Kohala

Location.- Three sharp-crested weirs, lat. 20°07'25", long. 155°45'05", at old Honokane weir, near head of West Branch of Honokanenui Gulch, and 8½ miles southeast of Kohala.

Records available.- December 1917 to November 1919, April 1928 to June 1948.

Average discharge.- 20 years (1928-48), 7.43 million gallons a day (11.5 second-feet).

Extremes.- Maximum discharge during year, 52 million gallons a day (80 second-feet) Dec. 20 (gage height, 1.30 feet); no flow Nov. 27 to Dec. 1.
1917-19, 1928-48: Maximum discharge, 86 million gallons a day (133 second-feet) Jan. 27, 1918 (gage height, 2.16 feet, datum then in use); no flow during dry periods.

Remarks.- Records good except those below 2 million gallons a day, which are fair. Flow regulated by several gates above station. Intake on Honokanenui Stream 2 miles upstream from station, at altitude of about 4,200 feet. Water used for irrigation in vicinity of Hawi.

Revisions (fiscal year).- W 740: 1930.

Discharge, in million gallons, fiscal year July 1947 to June 1948

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.2	1.41	14.3	6.1	1.90	0.24	4.7	6.1	2.45	15.3	4.9	10.4
2	21.5	.98	10.3	5.9	1.26	.50	4.6	3.05	12.6	11.7	2.85	15.8
3	12.2	.72	20	3.9	.98	.40	29	2.1	17.5	6.2	1.90	14.7
4	5.7	4.0	17.4	2.45	11.1	4.1	33.5	1.73	5.2	3.9	1.26	15.3
5	17.6	12.3	13.8	13.8	4.8	6.7	13.2	1.41	3.05	2.85	3.95	8.0
6	27.5	4.4	11.0	14.6	1.90	10.1	31	1.12	2.25	2.25	2.85	11.4
7	14.3	2.1	3.9	7.4	1.26	5.6	38	23	3.45	1.90	7.7	6.3
8	17.1	1.26	2.65	3.7	3.6	5.4	14.1	25.5	8.1	3.0	9.8	2.65
9	8.6	.98	1.90	1.90	14.8	2.65	6.2	10.1	3.45	17.7	3.25	1.57
10	4.4	.91	1.73	1.26	3.7	1.73	3.7	4.4	11.0	5.2	5.8	.98
11	3.05	2.1	1.73	.98	2.65	1.57	2.45	4.4	9.4	2.65	10.3	.72
12	2.25	3.15	1.57	.72	4.9	.98	1.90	16.3	27.5	6.3	4.2	.72
13	1.73	2.85	1.26	.61	8.8	4.7	2.75	4.8	17.3	11.8	3.9	1.73
14	1.26	8.1	.98	26.5	3.05	3.45	5.1	2.45	16.1	8.6	4.8	1.26
15	5.8	6.9	.98	7.3	1.73	2.1	2.85	1.90	16.4	3.8	3.7	.84
16	10.2	3.05	.84	2.85	1.26	2.9	1.90	1.41	39	2.45	3.25	.72
17	4.4	5.9	.98	1.90	.98	19.3	1.41	1.12	34	2.25	1.90	2.65
18	2.1	4.1	.98	1.26	.84	30	1.26	.84	36.5	2.15	3.8	2.25
19	1.41	2.85	.72	.84	.72	39	1.26	.84	18.8	16.1	2.25	8.3
20	4.2	2.45	.61	.61	.61	38	1.12	20.5	20.5	9.5	9.4	3.55
21	2.65	3.4	.61	3.5	.50	29.5	.98	24.5	9.0	21.5	5.6	3.25
22	6.9	8.1	.61	14.9	.40	9.6	.84	17.8	5.6	12.9	3.25	2.1
23	9.8	3.05	.61	4.0	.40	4.4	2.4	5.1	19.4	3.9	2.65	1.41
24	3.05	13.0	.72	1.57	.30	12.1	22.5	2.65	12.2	2.45	1.73	.98
25	8.6	33	.61	1.12	.30	14.8	49	1.90	18.2	1.73	2.8	.72
26	8.0	11.3	.50	9.7	.14	10.4	32.5	1.57	13.9	1.26	5.3	.61
27	13.0	7.3	6.3	9.8	0	34	21	1.41	29	6.4	9.5	.72
28	7.1	12.3	29	24.5	0	17.7	17.3	1.26	27	18.3	30	.98
29	6.3	8.9	28.5	6.0	0	10.7	10.6	1.90	31	25.5	13.4	.84
30	3.45	7.9	19.8	2.25	0	6.8	4.4	-	19.9	13.6	8.9	1.57
31	2.25	11.4	-	1.73	-	4.1	10.9	-	14.2	-	16.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27.5	1.26	7.92	12.3	246	795
August	33	.72	6.13	9.48	190	584
September	29	.50	6.50	10.1	195	598
October	26.5	.61	5.92	9.16	184	564
November	14.8	0	2.43	3.76	72.9	224
December	39	.24	10.8	16.7	334	1,020
Calendar year 1947	39	0	7.10	11.0	2,590	7,990
January	49	.84	12.0	18.6	372	1,140
February	25.5	.84	6.59	10.2	191	587
March	39	2.25	16.3	25.2	504	1,550
April	25.5	1.26	8.10	12.5	243	746
May	30	1.26	6.17	9.55	191	587
June	15.8	.61	4.10	6.34	123	378
Fiscal year 1947-48	49	0	7.78	12.0	2,850	8,770

Waikoloa Stream near Kamuela

Location.- Modified Columbus type control, lat. 20°03'15", long. 155°39'55", 350 feet downstream from Parker Ranch boundary and 2.1 miles north of Kamuela. Altitude of gage, 3,500 feet (from topographic map).

Drainage area.- 1.0 square mile.

Records available.- May 1947 to June 1948.

Extremes.- Maximum discharge during period ending June 30, 1947, 21 million gallons a day (32.5 second-feet) May 26 (gage height, 2.23 feet), from rating curve extended above 10 million gallons a day; minimum, 1.70 million gallons a day (2.63 second-feet) May 22.

Maximum discharge during year ending June 30, 1948, 570 million gallons a day (882 second-feet) Mar. 2 (gage height, 5.17 feet), from rating curve extended above 10 million gallons a day; minimum, 1.39 million gallons a day (2.15 second-feet) Dec. 15, 16.

Remarks.- Records good except those for Mar. 31 to Apr. 13, which are fair.

Rating table, fiscal year 1947-48 (gage height, in feet, and discharge, in million gallons a day)

1.3	1.52	1.6	4.8	2.1	16.2
1.4	2.4	1.7	6.4	2.3	24
1.5	3.4	1.9	10.4	2.6	40

Discharge, in million gallons a day, 1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1											-	3.7
2											-	4.5
3											-	3.4
4											-	2.7
5											-	2.5
6											-	2.2
7											-	2.15
8											-	2.05
9											-	2.05
10											-	1.87
11											-	2.5
12											-	3.2
13											4.2	2.9
14											2.7	3.25
15											2.3	3.1
16											2.15	2.4
17											2.05	2.15
18											1.87	1.96
19											1.96	1.96
20											1.87	7.3
21											1.78	3.45
22											1.78	2.4
23											1.96	4.1
24											3.3	2.7
25											8.9	2.4
26											13.0	2.8
27											10.8	4.3
28											7.3	6.6
29											9.2	4.3
30											5.6	4.0
31											7.7	-

Discharge, in million gallons a day, of Waikoloa Stream near Kamuela, Hawaii, 1947-48--Continued

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.8	2.3	10.6	3.4	2.05	1.70	2.15	2.7	7.0	18	3.45	4.6
2	10.3	2.15	5.8	3.2	1.96	1.52	4.0	2.3	43	9.0	2.8	4.5
3	5.4	2.05	11.1	2.4	2.05	1.52	34.5	2.2	6.4	7.0	2.6	5.7
4	4.4	4.2	6.6	2.3	5.4	1.68	7.9	2.2	3.55	4.5	2.3	6.2
5	9.8	6.1	8.5	7.5	2.6	3.3	4.5	2.05	6.0	3.0	4.1	6.1
6	11.1	2.8	4.5	4.5	2.05	3.8	25	1.96	5.0	2.7	2.8	5.8
7	8.5	2.2	2.8	2.8	1.87	3.95	12.8	20.5	5.9	2.4	3.45	4.4
8	13.9	2.05	2.6	2.3	4.2	3.1	3.9	13.5	4.1	2.3	3.3	3.05
9	5.1	1.96	2.4	2.15	5.5	2.05	2.7	3.0	2.5	2.4	2.4	2.4
10	3.1	2.05	3.3	2.05	3.05	1.78	2.3	2.8	2.15	2.3	2.4	2.15
11	2.8	2.05	2.6	1.96	2.3	1.70	2.15	5.6	2.6	2.1	2.7	2.05
12	2.6	1.96	2.4	1.87	7.0	1.61	2.05	9.4	7.3	2.4	2.3	2.05
13	2.3	1.96	2.2	1.96	3.7	1.52	5.6	2.7	4.7	4.0	2.15	2.2
14	2.2	6.6	2.2	12.0	2.3	1.46	2.7	2.15	3.85	6.5	4.7	2.05
15	7.3	3.25	2.15	3.3	2.15	1.39	2.2	2.05	16.3	3.1	7.9	1.96
16	7.4	6.1	2.3	2.3	1.96	2.5	2.05	1.96	16.9	3.3	4.2	2.05
17	4.1	6.5	2.6	2.15	2.5	10.9	2.15	1.78	10.6	3.3	2.8	2.3
18	2.7	3.25	2.3	1.96	2.3	12.1	2.15	1.78	14.9	6.5	3.3	3.1
19	2.4	3.35	2.15	1.87	1.96	12.8	1.96	1.78	8.8	12.7	3.15	4.3
20	2.9	2.6	2.05	1.87	1.78	40	1.87	11.5	9.2	4.3	8.2	2.5
21	2.6	3.85	1.96	2.6	1.70	9.5	1.87	14.2	4.1	8.3	3.95	2.2
22	3.45	4.2	1.96	3.6	1.70	3.3	1.78	5.3	3.9	4.6	3.95	2.05
23	3.4	3.1	1.96	2.4	1.61	2.5	1.78	2.6	8.1	2.8	3.0	1.96
24	2.6	9.8	1.96	2.05	1.61	4.7	6.4	2.15	4.9	6.7	2.9	1.96
25	2.8	17.4	1.87	2.05	1.52	4.2	27	2.15	10.1	4.0	6.7	1.96
26	6.6	5.0	1.87	2.6	1.52	7.8	26.5	4.2	8.6	2.5	5.3	1.87
27	8.4	4.0	8.0	6.8	1.52	9.6	5.1	3.55	17.8	2.9	7.4	1.87
28	4.7	5.6	14.2	11.1	1.52	4.2	3.55	2.3	14.4	7.8	22.5	2.2
29	3.3	3.95	14.8	3.3	1.52	2.8	4.5	3.35	21	10.5	5.5	2.2
30	3.9	4.3	5.8	2.3	1.46	2.3	2.8	-	17.7	5.0	7.6	2.4
31	3.4	7.0	-	2.2	-	2.05	2.8	-	15	-	5.7	-

Peak discharge (base, 100 m.g.d.).- Dec. 20 (5 a.m.) 180 m.g.d. (279 sec.-ft.); Feb. 7 (8:30 p.m.) 180 m.g.d. (279 sec.-ft.); Mar. 2 (5:30 p.m.) 570 m.g.d. (882 sec.-ft.).

Note.- No gage-height record Mar. 31 to Apr. 13; discharge computed on basis of record for Waikoloa Stream at Marine Dam.

Monthly discharge, in million gallons a day, 1947-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
May 13-31, 1947	13.0	1.78	4.76	7.36	90.4	277
June	7.3	1.87	3.16	4.89	94.9	291
Fiscal year	-	-	-	-	-	-
July 1947	13.9	2.2	5.07	7.84	157	483
August	17.4	1.96	4.31	6.67	134	410
September	14.8	1.87	4.52	6.99	136	416
October	12.0	1.87	3.38	5.23	105	322
November	7.0	1.46	2.48	3.84	74.4	228
December	40	1.39	5.27	8.15	163	501
The period	-	-	-	-	955	2,930
January 1948	34.5	1.78	6.73	10.4	209	641
February	20.5	1.78	4.61	7.13	134	410
March	43	2.15	9.88	15.3	306	940
April	18	2.1	5.23	8.09	157	482
May	22.5	2.15	4.69	7.25	146	447
June	6.2	1.87	3.00	4.64	90.1	277
Fiscal year 1947-48	43	1.39	4.95	7.66	1,810	5,560

Waikoloa Stream at Marine Dam, near Kamuela

Location.- Modified Columbus type control, lat. 20°02'45", long. 155°39'55", 160 feet upstream from Marine Dam and 1.5 miles north of Kamuela. Altitude of gage, 3,450 feet (from topographic map).
Drainage area.- 1.3 square miles.
Records available.- May 1947 to June 1948.
Extremes.- Maximum discharge during period ending June 30, 1947, 29.5 million gallons a day (45.6 second-feet) May 26 (gage height, 2.48 feet), from rating curve extended above 10 million gallons a day; minimum, 1.16 million gallons a day (1.79 second-feet) May 22.
Maximum discharge during year ending June 30, 1948, 565 million gallons a day (874 second-feet) Mar. 2 (gage height, 5.16 feet), from rating curve extended above 10 million gallons a day; minimum, 0.84 million gallons a day (1.30 second-feet) Dec. 16.
Remarks.- Records good except those for Aug. 12-15, which are fair. Diversions above station for stock and domestic use.

Discharge, in million gallons a day, 1947-48

1947

Day	May	June	Day	May	June	Day	May	June	Day	May	June	Day	May	June
1	-	3.8	7	-	1.62	13	-	2.55	19	-	1.47	25	10.3	2.0
2	-	4.8	8	-	1.55	14	-	2.8	20	-	8.0	26	18.5	2.45
3	-	3.5	9	-	1.55	15	-	3.0	21	-	3.6	27	14.3	3.8
4	-	2.45	10	-	1.47	16	-	2.0	22	1.16	1.89	28	9.0	7.2
5	-	2.1	11	-	2.1	17	-	1.62	23	1.47	4.0	29	13.2	5.0
6	-	1.78	12	-	2.85	18	-	1.55	24	2.7	2.45	30	6.5	3.65
												31	9.6	-

1947-48

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.8	2.0	15.1	3.2	1.62	1.16	1.62	2.35	10.5	23	3.7	4.6
2	13.4	1.70	6.9	2.9	1.47	1.08	1.77	1.78	54	9.3	2.45	4.2
3	6.6	1.55	15.5	2.1	1.47	1.00	50	1.70	8.7	5.5	2.35	6.4
4	4.3	4.2	7.8	1.89	5.5	1.16	12.2	1.62	4.2	3.65	1.89	7.0
5	13.1	7.0	13.2	9.1	2.35	2.65	5.2	1.47	6.8	2.7	3.9	6.8
6	16.4	2.55	5.1	5.4	1.62	4.1	32.5	1.31	5.1	2.35	2.35	6.9
7	12.0	1.78	2.55	2.55	1.47	3.65	22	26	6.6	2.1	3.3	4.8
8	19.9	1.55	2.1	2.0	4.1	3.1	4.5	21.5	4.1	2.0	3.2	3.05
9	6.4	1.39	2.0	1.70	7.0	1.62	2.55	3.2	2.1	2.2	2.0	2.1
10	2.9	1.47	3.2	1.55	3.4	1.39	2.0	2.7	1.70	2.0	1.78	1.70
11	2.7	1.47	2.2	1.47	2.1	1.23	1.70	7.8	1.99	1.78	2.2	1.62
12	2.35	a1.4	1.89	1.39	9.5	1.08	1.62	13.5	8.9	2.0	1.70	1.62
13	2.0	a1.4	1.78	1.39	4.5	1.08	6.1	2.7	5.3	4.9	1.62	1.89
14	1.78	a6.2	1.70	17.4	2.1	.95	2.55	1.78	4.5	7.4	4.5	1.62
15	9.2	a2.8	1.62	3.4	1.78	.90	1.78	1.62	24	2.8	9.2	1.47
16	8.9	7.4	1.70	2.0	1.55	1.23	1.55	1.47	26.5	2.9	4.1	1.47
17	4.4	7.7	2.1	1.70	2.6	14.1	1.55	1.31	15.2	2.9	2.25	1.78
18	2.35	3.3	1.62	1.55	2.1	18.0	1.62	1.23	23.5	6.8	3.15	2.65
19	1.89	3.0	1.47	1.39	1.62	19.5	1.47	1.23	12.3	18.0	2.5	4.1
20	2.55	2.1	1.39	1.39	1.39	64	1.31	15.5	13.5	4.9	9.6	2.1
21	2.35	3.8	1.39	2.0	1.31	16.4	1.31	20.5	4.6	10.2	4.5	1.78
22	3.25	4.3	1.39	3.5	1.23	3.65	1.23	6.8	4.1	5.4	3.8	1.55
23	3.5	2.8	1.31	2.1	1.23	2.1	1.23	2.45	11.0	2.55	2.7	1.47
24	2.2	14.2	1.23	1.55	1.16	5.2	6.8	1.78	5.4	9.5	2.4	1.39
25	2.35	25.5	1.16	1.47	1.16	4.6	40	1.62	13.7	4.8	7.4	1.39
26	7.6	5.7	1.16	2.2	1.16	10.2	47	5.2	11.5	2.1	5.3	1.31
27	10.6	4.1	10.9	7.3	1.08	14.3	6.9	4.0	7.6	2.3	8.6	1.39
28	5.2	6.2	19.9	17.3	1.08	5.1	3.95	2.0	21.5	10.5	34.5	1.62
29	3.2	3.95	23	3.7	1.00	2.7	5.4	3.25	33	14.6	6.6	1.70
30	3.75	4.4	6.8	2.0	1.00	2.0	2.7	-	27.5	6.4	9.3	2.0
31	3.45	8.2	-	1.78	-	1.70	2.35	-	17.4	-	6.2	-

Peak discharge (base, 100 m.g.d.).- Dec. 20 (6:30 a.m.) 256 m.g.d. (396 sec.-ft.), Jan. 3 (1:30 p.m.) 106 m.g.d. (164 sec.-ft.); Jan. 26 (3:30 a.m.) 122 m.g.d. (189 sec.-ft.); Feb. 7 (6:30 p.m.) 209 m.g.d. (323 sec.-ft.); Mar. 2 (5:30 p.m.) 565 m.g.d. (874 sec.-ft.).
a No gage-height record; discharge computed on basis of recorded range in stage and record for Waikolos Stream near Kamuela.

Monthly discharge, in million gallons a day, 1947-48

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
May 22-31, 1947	18.5	1.16	8.67	13.4	86.7	266
June	8.0	1.47	2.95	4.56	88.6	272
July 1947	19.9	1.78	5.95	9.21	184	566
August	25.5	1.39	4.68	7.24	145	445
September	23	1.16	5.31	8.22	159	488
October	17.4	1.39	3.56	5.51	110	339
November	9.5	1.00	2.36	3.65	70.6	217
December	64	.90	6.80	10.5	211	647
The period	-	-	-	-	1,060	3,240
January 1948	50	1.23	8.85	13.7	274	842
February	26	1.23	5.50	8.51	159	489
March	54	1.70	12.8	19.8	397	1,220
April	23	1.78	5.92	9.16	178	545
May	34.5	1.62	5.13	7.94	159	488
June	7.0	1.31	2.78	4.30	83.5	256
Fiscal year 1947-48	64	.90	5.83	9.02	2,130	6,540

MISCELLANEOUS DISCHARGE MEASUREMENTS

Measurements on the island of Hawaii at other than regular gaging stations are listed below:

Miscellaneous discharge measurements on Hawaii during fiscal year July 1947 to June 1948

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
Feb. 17	Wailuku River...	Pacific Ocean....	At altitude 2,560 feet, near Hilo.	1.94	1.25
17	....do.....	....do.....	At altitude 2,540 feet, near Hilo.	1.94	1.25
17	....do.....	....do.....	At altitude 2,500 feet, near Hilo.	1.88	1.22
17	....do.....	....do.....	At altitude 2,490 feet, near Hilo.	1.99	1.29
17	....do.....	....do.....	At altitude 2,450 feet, near Hilo.	1.06	.688
Aug. 10	Lahomene.....	....do.....	At altitude 3,250 feet, near Waimanu.	.750	.485
Oct. 9	....do.....	....do.....	....do.....	.898	.580
Dec. 10	....do.....	....do.....	....do.....	1.29	.834
Feb. 11	....do.....	....do.....	....do.....	1.95	1.26
Apr. 10	....do.....	....do.....	....do.....	1.37	.885
May 29	....do.....	....do.....	....do.....	4.09	2.64
Aug. 10	Kakaauki.....	....do.....	At altitude 2,930 feet, near Waimanu.	.412	.266
Oct. 9	....do.....	....do.....	....do.....	.710	.459
Dec. 10	....do.....	....do.....	....do.....	1.37	.886
Feb. 11	....do.....	....do.....	....do.....	1.41	.911
Apr. 10	....do.....	....do.....	....do.....	.466	.301
May 29	....do.....	....do.....	....do.....	4.30	2.78
Feb. 4	Moaula flume....	Moaula Reservoir.	At altitude 2,570 feet, near Pahala.	.668	.432
Apr. 20	Alili flume.....	Alili Reservoir..	At altitude 2,780 feet, near Pahala.	1.55	1.00
20	....do.....	....do.....	....do.....	1.52	.982
Feb. 4	Keaiwa flume....	Kaeiwa Reservoir.	At altitude 3,110 feet, near Pahala.	1.43	.924
4	Wood Valley flume.	Wood Valley Reservoir.	At altitude 2,520 feet, near Pahala.	.303	.196
Apr. 20	....do.....	....do.....	....do.....	1.52	.985

INDEX

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