Surface Water Supply of Hawaii 1946-47

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

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PREFACE

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SURFACE WATER SUPPLY OF HAWAII, JULY 1, 1946, TO JUNE 30, 1947

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, 1947. Since the beginning of stream-gaging work in Hawaii, in 1910, records of flow of streams and ditches have been obtained at about 490 stations for periods ranging from a few months to 36 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, 1947, 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 rating 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.

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 standard time, but at 2 a.m. on June 8, 1947, when standard time in Hawaii was permanently changed to that of the 150th meridian, clock time was moved ahead half an hour, or to 2:30 a.m.

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. Selected peak discharges with the times of their occurrence are given below the table of monthly discharge for stations having drainage areas of more than 10 square miles.

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 observations 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 1903-47 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 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, 1903-47

Year	Number	Year	Number	Year	Number
1903	*77	1922-23	575	1934-35	795
1909-11†	318	1923-24	595	1935-36	815
1912†	336	1924-25	615	1936-37	835
1913†	373	1925-26	635	1937-38	865
1913-15	430	1926-27	655	1938-39	885
1915-16	445	1927-28	675	1939-40	905
1916-17	465	1928-29	695	1940-41	935
1917-18	485	1929-30	710	1941-42	965
1918-19	515	1930-31	725	1942-43	985
1919-20	516	1931-32	740	1943-44	1015
1920-21	535	1932-33	755	1944-45	1045
1921-22	555	1933-34	770	1945-46	1065
				1946-47	1095

* 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 1946 to June 1947 by agencies other than the Geological Survey. The records for these stations are not con-

tained in the publications of the Geological Survey and, except as indicated, have not been published elsewhere.

Records of discharge collected by agencies other than the Geological Survey

ISLAND OF KAUI

Stream	Location	Period	Operated by
East Lawai ditch	Near Government Road, near Kalaheo	1924-47	McBryde Sugar Co.
Eleele ditch	....do	1924-47	Do.
Hanalei ditch	Above Kalihiwai Reservoir, near Kilauea.	1923-47	Kilauea Sugar Plantation Co.
Hanamaulu ditch	Below intake, near Hanamaulu	1925-47	Lihue Plantation Co.
Koula (Hanapepe) ditch	At Olokele Plantation boundary, near Makaweli.	1926-47	Olokele Sugar Co.
Hanapepe Field ditch	Below Hanapepe River intake, near Eleele.	1924-47	McBryde Sugar Co.
Hanapepe Stream	At tidewater near Eleele	1924-47	McBryde Sugar Co.
Kamooloa ditch	Near Koloa boundary, near Koloa.	1924-47	Do.
Kapaia River diversion to field 8 reservoir.	Near Hanamaulu	1928-47	Lihue Plantation Co.
Kapaia River diversion to field 29.	Near Lihue	1927-47	Do.
East Lawai Stream	½ mile above cannery near Kalaheo	1924-47	McBryde Sugar Co.
Lihue lower ditch	Below intake, near Lihue	1925-47	Lihue Plantation Co.
Lihue upper ditch	....do	1925-47	Do.
Olokele ditch	At powerhouse near Makaweli	1926-47	Olokele Sugar Co.
Wahiawa Stream	Above Alexander Reservoir, near Kalaheo.	1924-47	McBryde Sugar Co.
Wahiawa Stream, East Branch.	....do	1929-47	Do.
West Lawai ditch	Near camp 12, near Kalaheo	1924-47	Do.

ISLAND OF OAHU

Alewa Heights Spring	Below reservoir 3	1932-47*	Board of Water Supply City and County of Honolulu.
Booth Springs	In Pauoa Valley, at altitude 685 feet.	1929-47*	Do.
Helemano ditch	About 3 miles below Upper Helemano Reservoir.	1933-47	Waialua Agricultural Co.
Hering Springs	In Makiki Valley, at altitude 970 feet.	1925-47*	Board of Water Supply City and County of Honolulu.
Kahuawai Springs	In Pauoa Valley, at altitude 618 feet.	1925-47*	Do.
Kalihi tunnels	At diversion, at altitude 650 feet	1926-47*	Do.
Kamenanui ditch	In Kawailoa Gulch about 500 yards above third siphon from Government Road.	1934-47	Waialua Agricultural Co.
Kipapa Stream	At altitude 375 feet	1917-47	Waiahole Water Co.
Makiki Springs	In Makiki Valley, at altitude 350 feet.	1926-47*	Board of Water Supply City and County of Honolulu.
Manoa tunnels	Upper Manoa Valley	1925-47*	Do.
Nuuanu tunnels	At Lower Luakaha	1926-47*	Do.
Nuuanu tunnel 3	At overflow, in upper Nuuanu Valley	1931-47*	Do.
Palolo tunnel	Upper Palolo Valley	1926-47*	Do.
Wahiawa Reservoir Outlet	About 1,200 feet below dam	1912-47*	Wahiawa Water Co.
Waiahole Stream	At altitude 250 feet	1919-47	Waiahole Water Co.
Waiahole tunnel	At adit 8	1916-47	Do.
Waiawa Stream	At altitude 750 feet	1917-47	Do.
Waikakalaua Stream	....do	1917-47	Do.

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

ISLAND OF MAUI (WEST MAUI)

Stream	Location	Period	Operated by
Everett ditch	Below intake, near Wailuku	1935-47	Wailuku Sugar Co.
Iao-Waikapu ditch	At lower end of tunnels, near Wailuku.	1925-47	Do.
Kama ditch	Below intake, near Wailuku	1933-47	Do.
Maniania ditch	....do	1923-47	Do.
North Waiehu	Near end of Waiehu Camp road, near Wailuku.	1922-47	Do.
South Waikapu ditch	Above first lateral, near Waikapu.	1935-47	Do.
Do	Below tunnel sections, near Waikapu	1923-47	Do.
Spreckels ditch	Below intake, near Waihee	1931-47	Do.
Waihee ditch	Below intake, near Waihee	1931-47	Do.
Honokohau tunnel	At outlet of tunnel, at Mahinahina Camp.	1917-47	Pioneer Mill Co.
Kahoma tunnel	2,000 feet upstream from outlet above Lahaina.	1920-47	Do.
Kanaha ditch	At intake, above Lahainaluna School	1921-47	Do.
Kauaula tunnel	At outlet, above Lahaina	1920-47	Do.
Launiupoko ditch	....do	1921-47	Do.
Ukumehame ditch	At outlet, near Olowalu	1931-47	Do.

ISLAND OF MAUI (East Maui)

Makapipi ditch.....	At west edge of Makapipi Gulch near Nahiku, at altitude 1,300 feet.	1933-47	East Maui Irrigation Co.

ISLAND OF HAWAII

Kohala ditch.....	At Awini weir in Honokane, near Niulii.	1917-47†	Kohala Ditch Co.
Do.....	At Niulii weir, near Niulii.....	1917-47†	Do.
Pololu Inlet 1.....	At Pololu, near Niulii.....	1929-47	Do.
Pololu Inlet 2.....	In Waiakalae Gulch at Pololu, near Niulii.	1929-47	Do.
Pololu Inlet 3.....	In Opaepilau Gulch, above Kohala ditch, near Niulii.	1937-47	Do.
Waiapuka Stream.....	Above Kohala ditch, near Niulii.....	1929-47	Do.
Pololu Inlet 5.....	In Niulii Gulch, above Kohala ditch, near Niulii.	1937-47	Do.
Pololu Inlet 6.....	In Waikane Gulch, above Kohala ditch, near Niulii.	1937-47	Do.
Waipuhi Stream.....	Above Kohala ditch, near Halawa.....	1933-47	Do.
Makapala ditch.....	....do.....	1929-47	Do.
Waipunalau Stream.....	....do.....	1929-47	Do.
Puwaiole Stream.....	....do.....	1937-47	Do.
Moaula Gulch.....	Below all development tunnels.....	1929-47	Hawaiian Agricultural Co.
Hionamoa Gulch.....	....do.....	1926-47	Do.
Keaiwa Gulch.....	....do.....	1926-47	Do.
Noguchi tunnel 19.....	5.3 miles from Pahala, at altitude 3,500 feet.	1928-47	Do.
Makakupu tunnel 13.....	In Waiakaloa Gulch, at altitude 3,750 feet, 6.1 miles from Pahala.	1926-47	Do.
Upper Hamakua ditch and reservoir 3 weir.	At base of Puu Lala, near Honokaa...	1907-12, 1921-47‡	Hawaiian Irrigation Co.
Lower Hamakua ditch.....	At main weir, near Kukuihaele.....	1921-47†	Do.
Honokaape; ditch.....	At Kukuihaele Village.....	1923-47	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, 1947, 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 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.

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 1947.

Average discharge.- 22 years (1925-27), 39.4 million gallons a day (61.0 second-feet).

Extremes.- Maximum discharge during year, 8,290 million gallons a day (12,800 second-feet) Dec. 22 (gage height, 16.90 feet), from rating curve extended above 500 million gallons a day by test on model of station site; no flow at times owing to regulation.
1921-47: 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 station site; no flow occasionally owing to regulation.

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

Discharge, in million gallons, fiscal year July 1946 to June 1947

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	a110	6.2	5.4	14.0	96	0.2
2	1.2	4.9	.2	.1	.2	.2	a130	.8	.6	4.8	350	.2
3	3.2	6.8	.1	.1	.2	.2	a180	14.6	10.8	14.2	538	.2
4	.3	.3	.2	.1	259	6.2	a300	8.6	144	7.0	160	.2
5	8.5	.2	.2	.1	73	.2	a200	1.0	19.6	1.0	26.5	.1
6	4.8	.2	.1	.2	7.1	74	a140	4.3	3.2	.8	5.1	.1
7	14.4	.3	.1	.1	.5	859	a100	11.8	.8	83	4.3	.1
8	98	.2	.2	.1	.6	338	a120	2.3	13.1	57	1.9	.1
9	126	.2	.1	0	1.2	654	a80	34	5.2	33	1.1	.1
10	2.8	.2	.1	.2	.2	f179	f60	39	1.0	9.9	.6	.1
11	.2	1.0	0	.2	.2	a20	54	29	.6	106	.4	.1
12	4.3	.2	0	.2	13.5	f175	41	30	.4	46	.3	.1
13	9.7	.2	0	.1	218	f103	21	27	.4	34.5	3.1	.2
14	2.5	1.2	0	.2	285	f147	27	26	.3	7.9	7.8	31
15	.3	.6	0	.2	186	a40	3.9	26	.2	1.6	2.8	26
16	51	.2	0	.1	3.7	f402	63	25.5	.3	1.0	1.6	2.4
17	8.3	2.3	0	.1	.2	f200	24	8.1	.5	.7	28	1.0
18	2.4	.2	.1	.1	.2	f256	18.6	.6	.5	.5	49	.4
19	.4	.2	0	0	1.0	a24	13.6	.4	.3	.5	4.8	.3
20	.2	.2	0	0	.2	820	4.7	.4	.2	.4	213	25.5
21	10.3	.2	0	0	.2	2,550	1.3	.3	.2	.4	24	39
22	88	.1	0	.5	.2	2,520	.9	.4	.2	.4	2.7	9.8
23	13.5	.1	0	.3	.2	f490	.7	.4	.2	.3	1.8	2.1
24	.3	0	0	.4	.1	f560	.6	.4	9.4	.4	.8	4.6
25	.2	0	0	.3	.1	a311	.6	.6	20.5	.4	.6	26
26	1.6	0	0	.2	.1	a128	.6	.6	.7	.4	.6	129
27	.7	0	0	.1	.1	a60	.6	25	326	.4	.4	22.5
28	140	.1	0	4.8	.1	a33	2.4	3.5	350	.3	.3	52
29	20.5	.1	0	1.5	.1	a25	33.5	-	93	.3	.3	72
30	1.6	.1	0	11.8	1.6	a70	35	-	11.3	.3	.3	248
31	.3	.1	-	7.5	-	a170	20.5	-	20	-	.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	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	362	560	11,220	34,420
Calendar year 1946	2,550	0	61.3	94.8	22,370	68,640
January	300	.6	57.0	88.2	1,770	5,420
February	39	.3	11.7	18.1	327	1,000
March	350	.2	33.5	51.8	1,040	3,190
April	106	.3	14.2	22.0	427	1,310
May	538	.3	49.2	76.1	1,530	4,680
June	248	.1	23.1	35.7	693	2,130
Fiscal year 1946-47	2,550	0	51.3	79.4	18,740	57,440

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.

Waimea River near Waimea

Location.- Lat. 21°58'10", long. 159°39'50", 1.8 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 1947.

Extremes.- Maximum discharge during year, 9,280 million gallons a day (14,400 second-feet) Dec. 22 (gage height, 13.10 feet); minimum not determined.
1943-47: Maximum discharge, that of Dec. 22, 1946; minimum, 0.2 million gallons a day (0.3 second-foot) Sept. 20, 21, Oct. 20, 1944.

Remarks.- Records good above 50 million gallons a day, poor below.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.4	0.8	1.0	0.7	16.6	5.1	92	15.7	7.4	11.9	24	0.6
2	3.6	1.0	1.1	1.0	4.8	.4	113	13.0	4.2	11.3	206	.5
3	4.6	14.2	1.2	.8	1.0	.1	136	24	5.9	3.2	439	.5
4	4.5	2.7	1.4	2.0	216	9.2	264	21.5	96	19.7	115	.6
5	1.2	1.4	1.4	2.3	92	.7	182	13.0	27	3.3	25.5	.6
6	14.9	.8	1.5	2.0	15	38	120	10.8	8.2	1.4	4.2	.8
7	17.6	.8	1.6	1.6	6.5	989	92	23	3.2	28	.8	.9
8	69	1.4	2.1	1.6	5.6	300	106	17.0	7.5	53	.2	1.4
9	128	1.4	1.7	1.4	5.2	550	80	29.5	16.4	23	.2	1.1
10	11.4	1.0	1.1	4.9	5.0	150	54	41	3.8	15.4	.3	1.4
11	1.0	1.6	.7	4.1	4.5	35	41	29.5	2.7	41	.4	1.0
12	.3	1.9	.7	2.1	2.3	160	35	26	2.4	51	.3	.9
13	16.3	1.1	.9	2.0	180	100	23	21.5	2.7	31.5	.3	1.5
14	10.3	1.1	.8	2.2	230	130	28	20	2.4	14.1	2.2	3.4
15	1.4	4.2	1.3	2.4	150	50	13.0	20	2.2	2.4	2.4	29
16	34.5	2.1	1.6	2.4	10	293	45	20.5	2.2	.8	1.1	2.5
17	23	6.2	2.0	2.3	4.0	270	28	13.6	2.6	.8	1.3	.6
18	5.1	2.6	2.1	2.2	2.0	233	20	3.8	2.3	1.1	51	.8
19	2.4	2.0	2.1	2.0	1.6	85	17.0	3.0	2.2	1.4	9.5	1.4
20	.4	1.8	2.2	1.8	1.3	589	9.5	2.6	1.8	1.6	130	4.2
21	1.5	1.6	2.3	1.7	1.2	1,900	5.3	2.4	1.8	.7	29.5	30
22	78	1.4	2.4	1.8	1.1	5,130	4.3	2.6	1.6	.6	2.6	15.4
23	34.5	1.4	2.3	11.1	1.0	445	3.6	2.6	1.6	.3	.6	.3
24	4.0	1.2	2.1	5.0	.4	470	3.2	2.6	1.5	.2	.6	.3
25	1.8	1.2	.8	9.6	.2	305	3.0	4.3	24	1.0	.8	5.3
26	1.8	1.3	1.0	2.2	.2	162	2.8	4.1	5.0	.9	.6	70
27	5.0	1.4	.7	1.4	.2	106	2.8	14.2	155	.6	.5	20.5
28	90	1.4	.8	8.4	.2	71	2.7	10.8	264	.5	.5	34
29	37	1.4	.8	4.5	.2	65	24.5	-	85	.4	.6	31
30	9.0	1.1	.7	24	.2	92	40	-	19	.5	1.0	166
31	1.4	1.0	-	20.5	-	145	22	-	15.5	-	.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	128	0.3	19.8	30.6	615	1,890
August	14.2	.8	2.08	3.22	64.5	198
September	2.4	.7	1.41	2.18	42.3	130
October	24	.7	4.26	6.59	132	405
November	230	.2	31.9	49.4	958	2,940
December	3,130	.1	351	543	10,880	33,380
Calendar year 1946	3,130	.1	64.8	100	23,660	72,610
January	264	2.7	52.0	80.5	1,610	4,950
February	41	2.4	14.7	22.7	413	1,270
March	264	1.5	25.1	38.8	777	2,380
April	53	.2	10.7	16.6	322	987
May	439	.2	33.9	52.5	1,050	3,230
June	166	.3	14.2	22.0	426	1,310
Fiscal year 1946-47	3,130	.1	47.4	73.3	17,290	53,070

Peak discharge.- Dec. 7 (12:30 p.m.) 4,730 m.g.d. (7,320 sec.-ft.); Dec. 22 (4:30 a.m.) 9,270 m.g.d. (14,300 sec.-ft.).
Note.- No gage-height record Nov. 4-10, 13-22, Dec. 8-15; discharge computed on basis of records for station below Kekaha ditch intake.

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 1947. July 1917 to July 1919 (unpublished).

Average discharge.- 28 years (1919-47), 20.7 million gallons a day (32.0 second-feet).

Extremes.- Maximum discharge during year, 4,060 million gallons a day (6,280 second-feet) Dec. 22 (gage height, 10.65 feet), from rating curve extended above 180 million gallons a day; minimum, 1.3 million gallons a day (2.0 second-feet) Oct. 21.

1909-47: 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 except those for May 9-14, which are fair. No diversions above station.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.8	1.2	2.3	6.8	3.0	30.5	4.5	241
1.9	1.8	2.4	8.9	3.2	42	5.0	355
2.0	2.7	2.5	11.4	3.4	59	6.0	670
2.1	3.8	2.6	14.4	3.7	93	7.0	1,100
2.2	5.1	2.8	21.5	4.0	141		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	22	5.6	2.7	2.7	5.8	9.1	24.5	4.6	11.5	26	92	5.4
2	11.3	7.5	3.6	2.1	3.2	4.8	45	4.6	5.6	15.8	160	4.8
3	13.3	7.2	6.0	1.8	2.2	28.5	53	8.1	20	10.9	240	4.7
4	5.3	4.8	4.4	1.7	170	16.3	87	6.4	21.5	8.9	55	4.4
5	12.7	4.2	2.9	1.8	36	6.3	63	4.7	6.8	8.5	20.5	4.2
6	9.6	4.3	2.9	2.0	10.0	5.8	28	4.7	5.0	23.5	14.7	4.1
7	7.8	5.6	2.2	2.0	4.6	133	32	5.6	4.6	68	12.0	3.8
8	83	4.8	2.0	1.8	13.4	18.8	31	4.8	12.6	23	10.4	3.7
9	43	3.9	2.0	1.7	7.2	81	21	20	6.5	15.7	a9.0	3.6
10	11.4	6.8	1.9	6.2	4.7	275	22.5	13.9	4.7	11.4	a8.0	3.5
11	6.5	6.4	1.7	5.8	3.7	11.7	19.2	6.3	4.1	91	a7.2	3.5
12	43	3.5	1.6	2.7	79	21	14.7	4.8	3.6	30	a8.0	3.6
13	25	3.0	1.5	2.0	126	29	12.3	4.3	4.4	18.1	a10	3.6
14	12.2	2.9	1.6	1.8	99	154	10.9	4.1	3.9	11.7	a22	4.2
15	7.4	3.0	3.0	1.7	37	27	10.2	3.8	3.8	10.2	13.4	4.4
16	12.8	3.4	2.4	1.6	10.2	304	12.0	3.8	22.5	8.7	7.4	3.7
17	9.0	6.3	3.3	1.5	6.8	67	10.4	3.6	12.3	7.6	19.1	7.1
18	7.2	4.2	4.3	1.5	5.8	130	8.5	3.6	6.3	6.8	20.5	6.5
19	6.8	3.0	3.6	1.4	4.7	63	7.4	3.5	4.7	6.8	11.1	4.7
20	6.5	2.6	2.7	1.4	4.4	270	7.0	3.4	3.8	6.5	112	26.5
21	5.6	2.4	2.2	1.4	4.1	1,090	6.5	3.2	3.5	6.0	14.0	15.7
22	31	2.2	2.1	2.0	6.0	533	6.3	3.1	3.8	5.6	8.9	7.7
23	11.1	2.1	2.1	2.7	5.1	69	5.8	3.1	9.3	5.4	10.2	23
24	5.6	2.0	2.0	1.9	4.1	168	5.6	3.2	47	5.4	14.3	17.5
25	4.7	2.0	1.8	1.6	3.6	64	5.4	3.7	15.6	36.5	17.9	16.9
26	32	1.9	1.7	1.6	3.4	31	5.1	5.4	23	15.3	9.9	44
27	14.6	2.5	1.6	1.5	3.1	23	5.0	34.5	226	16.6	10.2	13.4
28	112	2.2	1.8	1.4	9.3	19.2	4.8	15.0	160	7.6	19.6	26.5
29	17.7	2.4	3.7	1.4	15.3	37.5	6.3	-	47	6.0	12.2	51
30	10.6	2.6	3.4	8.8	28.5	43	6.1	-	33	5.1	7.2	70
31	6.8	2.1	-	7.2	-	45	4.8	-	30	-	6.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	112	4.7	19.6	30.3	608	1,860
August	7.5	1.9	3.79	5.86	117	360
September	6.0	1.5	2.62	4.05	78.7	242
October	8.8	1.4	2.47	3.82	76.7	235
November	170	2.2	23.9	37.0	716	2,200
December	1,090	4.8	114	176	3,530	10,830
Calendar year 1946	1,090	1.4	26.1	40.4	9,540	29,280
January	87	4.8	18.8	29.1	581	1,780
February	34.5	3.1	6.78	10.5	190	582
March	226	3.5	24.7	38.2	766	2,350
April	91	5.1	17.3	26.8	519	1,590
May	240	6.0	31.7	49.0	983	3,020
June	70	3.5	13.2	20.4	396	1,210
Fiscal year 1946-47	1,090	1.4	23.5	36.4	8,560	26,270

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

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 1947. April 1909 to December 1912 at site 2 miles downstream (fragmentary).

Average discharge.- 16 years (1920-26, 1937-47), 4.80 million gallons a day (7.43 second-feet).

Extremes.- Maximum discharge during year, 584 million gallons a day (904 second-feet) Dec. 22 (gage height, 5.51 feet), from rating curve extended above 21 million gallons a day; minimum not determined.

1920-26, 1936-47: 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 poor. No diversions above station.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.90	1.18	0.65	0.61	1.23	2.7	7.0	1.50	2.1	2.95	10.6	1.08
2	2.3	.98	.65	.50	.80	1.44	12.5	1.44	1.7	2.25	24	.93
3	1.88	1.39	.65	.44	.58	1.32	16.2	f2.45	3.0	1.88	39.5	.88
4	1.28	1.13	.58	.41	30.5	4.9	25	2.15	4.0	1.69	14.1	.88
5	1.66	.88	.58	.38	11.5	1.76	16.3	1.57	2.1	1.50	5.1	.84
6	2.4	.77	.54	.38	3.2	2.25	9.0	1.50	1.5	1.62	3.15	.77
7	1.90	1.04	.54	.41	1.69	29	9.0	2.0	1.2	5.5	2.4	.73
8	9.7	1.23	.50	.38	2.35	8.9	10.2	1.69	2.7	5.0	1.94	.73
9	12.6	.93	.50	.35	2.2	34	6.4	3.45	1.6	2.75	1.75	.69
10	2.7	.77	.44	f.76	1.38	13.5	6.2	4.9	1.3	2.1	1.57	.65
11	1.44	.69	.44	.58	1.08	4.5	5.4	2.35	1.2	11.0	1.44	.65
12	1.30	.54	.44	.44	2.7	12.0	4.3	1.63	1.1	9.0	1.38	.65
13	3.9	.47	.44	.44	21	10.3	3.5	1.44	1.4	6.6	1.57	.77
14	2.4	.44	.44	.44	21.5	15.4	3.15	1.33	1.3	3.05	2.9	.77
15	1.38	.44	.44	.44	14.4	8.3	2.85	1.23	1.2	2.15	2.25	1.13
16	3.8	.50	.47	.44	2.85	44	3.9	1.18	4.0	1.88	1.57	.84
17	3.15	.73	.44	.44	1.69	19.5	3.3	1.13	2.5	1.63	1.86	.73
18	2.1	.89	.50	.44	1.33	24.5	2.7	1.08	1.50	1.44	4.6	.84
19	1.57	.50	.47	.41	1.33	16.8	2.4	1.03	1.23	1.38	2.1	.84
20	1.33	.47	.44	.38	1.13	116	2.25	1.03	1.08	1.28	16.0	2.7
21	3.0	.47	.44	.35	.98	219	2.1	1.03	1.03	1.23	4.2	4.4
22	7.7	.44	.41	.37	1.08	119	1.94	.98	.98	1.18	2.25	2.3
23	4.1	.44	.41	.50	1.08	26.5	1.81	.93	.98	1.13	1.94	1.63
24	1.81	.44	.41	.47	.93	28	1.75	.93	3.7	1.08	2.1	2.95
25	1.33	.44	.38	.47	.80	16.6	1.63	1.28	3.85	2.6	3.4	2.75
26	1.28	.41	.35	.35	.73	9.6	1.57	1.3	2.5	2.0	1.94	10.1
27	1.44	.44	.32	.35	.65	6.7	1.50	5.0	23.5	1.81	1.63	3.5
28	11.8	.58	.29	.38	.73	5.3	1.44	2.5	28.5	1.57	1.78	4.8
29	4.3	.58	.54	.38	3.45	4.6	2.05	-	11.6	1.28	2.25	5.9
30	2.4	.61	.65	f.62	3.4	5.7	2.15	-	4.3	1.18	1.57	15.5
31	1.57	.61	-	1.23	-	14.9	1.63	-	4.8	-	1.18	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.6	0.90	3.24	5.01	100	308
August	1.39	.41	.685	1.06	21.2	65
September	.65	.29	.478	.740	14.4	44
October	1.23	.35	.469	.725	14.5	45
November	30.5	.58	4.61	7.13	136	424
December	219	1.32	26.7	41.3	827	2,540
Calendar year 1946	219	.29	5.84	9.04	2,130	6,540
January	25	1.44	5.52	8.54	171	525
February	5.0	.93	1.79	2.77	50.0	154
March	28.5	.98	3.98	6.16	123	379
April	11.0	1.08	2.72	4.21	81.7	251
May	39.5	1.18	5.29	8.18	164	503
June	15.5	.65	2.40	3.71	71.9	221
Fiscal year 1946-47	219	.29	4.87	7.54	1,780	5,460

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

Note.- Stage-discharge relation indefinite Aug. 19 to Sept. 4, Sept. 10-15, 19-29, Oct. 2-9, 12-22, 26-29; discharge computed on basis of estimated gage heights; no gage-height record Feb. 26 to Mar. 17; discharge computed on basis of records for Kawaikoi Stream.

Kokee ditch near Waimea

Location.- Suppressed weir control, lat. 22°06'45", long. 159°40'45", 1,000 feet west of road and 10½ miles north of Waimea. Altitude of gage, 3,310 feet (by barometer).

Records available.- September 1926 to June 1947.

Average discharge.- 20 years (1927-47), 16.6 million gallons a day (25.7 second-feet).

Extremes.- Maximum discharge during year, 78 million gallons a day (121 second-feet) Dec. 7 (gage height, 2.74 feet); no flow Dec. 22, 25, 27, June 14.
1926-47: Maximum discharge, that of Dec. 7, 1946; no flow occasionally when water was shut out of ditch.

Remarks.- Records excellent. Kokee ditch diverts water at altitude 3,400 feet from all streams tributary to Waimea River west of Mohihi Stream from irrigation near Kekaha. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.3	9.1	3.65	3.5	7.3	12.0	15.8	12.3	17.0	30.5	31	9.1
2	15.4	9.1	5.1	3.0	4.4	6.4	17.0	12.5	11.9	25	54	8.5
3	16.3	11.4	6.3	2.65	3.15	14.1	18.2	16.8	14.2	18.2	58	8.0
4	8.3	8.0	6.8	2.4	29.5	22	19.5	15.2	32	15.8	51	7.6
5	12.8	6.8	4.7	2.3	42	8.4	19.5	12.1	15.2	14.6	31	7.3
6	13.2	6.3	4.6	2.3	15.6	7.1	33.5	12.1	11.2	25	23	7.1
7	9.8	8.1	3.8	2.65	7.3	25.5	33	13.7	10.0	44	19.5	6.9
8	28.5	7.8	3.4	2.55	13.7	28	27.5	12.1	13.5	32	17.0	6.6
9	40	6.4	3.4	2.3	10.3	54	29	27	12.5	22	14.6	6.6
10	17.3	7.3	3.4	6.1	6.4	40	32	25	9.8	18.2	13.9	6.3
11	10.4	10.6	3.0	9.0	5.0	21	29	15.8	8.5	43	13.4	6.1
12	17.2	6.0	2.8	4.2	33	23	27.5	12.3	8.0	39	14.6	6.1
13	31.5	5.2	2.65	3.15	52	33.5	19.3	11.2	10.1	22	26.5	6.1
14	18.0	4.8	2.55	2.9	38	32	15.7	10.4	8.9	21	34	6.6
15	11.2	4.7	3.95	2.65	18.2	13.1	24.5	10.0	8.1	17.0	21	7.8
16	13.5	5.4	3.65	2.4	14.4	22	29	9.6	19.2	15.8	13.7	6.8
17	14.0	9.5	3.6	2.3	9.8	18.7	24.5	9.2	19.6	14.1	18.7	10.0
18	10.0	8.1	5.2	2.2	8.0	18.9	22	8.9	12.3	12.8	29	9.4
19	9.6	5.3	4.2	2.1	6.8	17.7	21	8.7	9.8	12.3	17.5	7.6
20	8.6	4.6	3.4	2.0	5.8	18.1	19.5	8.5	8.5	11.9	45	27
21	8.9	4.2	3.0	1.90	5.2	13.3	18.2	8.3	8.0	11.2	24.5	18.0
22	19.9	3.95	2.9	1.95	6.8	10.1	17.0	8.1	7.8	10.6	15.8	12.3
23	19.9	3.65	2.8	3.15	6.9	16.8	17.0	8.0	12.7	10.2	15.8	21.5
24	9.6	3.5	2.65	2.55	5.2	19.8	15.8	8.1	33.5	9.8	17.7	22
25	7.6	3.4	2.4	2.2	4.4	23	14.6	9.4	24.5	31.5	24	18.0
26	18.2	3.4	2.3	2.1	3.95	18.2	14.6	10.0	19.2	19.2	14.6	36
27	19.1	3.65	2.3	2.0	3.65	19.8	13.9	20.5	55	22	15.4	18.5
28	46	3.95	2.3	1.80	6.0	23	13.4	15.8	56	13.4	21.5	29
29	25.5	3.65	3.8	1.80	17.4	18.2	15.5	-	48	10.6	18.4	27.5
30	17.0	3.95	4.1	6.5	25	17.0	15.8	-	33	9.6	11.9	52
31	11.2	3.5	-	8.2	-	15.8	13.2	-	38	-	10.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	46	7.6	17.0	26.3	526	1,610
August	11.4	3.4	5.98	9.25	185	569
September	6.8	2.3	3.62	5.60	109	334
October	9.0	1.80	3.12	4.83	96.8	297
November	52	3.15	13.8	21.4	415	1,270
December	54	6.4	20.3	31.4	630	1,930
Calendar year 1946	62	1.80	14.9	23.1	5,440	16,700
January	33.5	13.2	20.8	32.2	646	1,980
February	27	8.0	12.6	19.5	352	1,080
March	56	7.8	19.2	29.7	596	1,830
April	44	9.6	20.1	31.1	602	1,850
May	58	10.0	23.7	36.7	736	2,260
June	52	6.1	14.1	21.8	422	1,300
Fiscal year 1946-47	58	1.80	14.6	22.6	5,320	16,310

Waiahulu Stream near Waimea

Location.- Lat. 22°04'45", long. 159°39'15", in Waimea Canyon, half a mile upstream from confluence with Koaie 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 1947. July 1918 to November 1920 at same site (fragmentary and unreliable; unpublished).

Average discharge.- 22 years (1925-47), 27.7 million gallons a day (42.9 second-feet).

Extremes.- Maximum discharge recorded during year, at least 5,450 million gallons a day (8,430 second-feet) probably Dec. 22, from rating curve extended above 400 million gallons a day; minimum, 7.6 million gallons a day (11.8 second-feet) Sept. 14, 23-28.
1916, 1917-18, 1925-47: Maximum discharge (revised), 5,950 million gallons a day (9,210 second-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, 1927.

Remarks.- Records fair except those for periods of no gage-height record, which are poor. Kokee ditch diverts water above station for irrigation near Kekaha.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.4	10.1	8.2	8.4	9.6	12.4	35	11.9	16.2	19.6	57	10
2	13.6	9.8	8.2	8.2	9.4	12	55	12.2	11.9	13.6	137	9.5
3	12.0	10.1	8.2	8.0	8.6	11	70	13.2	12.8	10.4	290	9.2
4	11.4	10.3	8.4	8.0	200	15	100	12.2	48	9.7	62	8.8
5	10.1	9.8	8.6	8.2	53	13	70	11.7	19.0	9.5	17.9	8.4
6	13.3	9.6	8.2	8.2	13.5	12	35	14.2	13.5	9.9	12.2	8.2
7	11.7	9.6	8.8	8.0	9.4	150	40	14.1	11.7	40	10.4	8.1
8	73	10.6	8.6	8.0	8.4	25	35	12.7	11.2	19.3	9.7	8.1
9	74	10.1	8.2	8.0	10.4	100	28	25	12.5	12.2	9.5	8.1
10	14.4	10.3	8.2	9.7	8.8	35	31.5	24.5	11.4	10.7	9.2	8.1
11	11.1	10.3	8.0	9.6	8.2	20	27	16.6	10.4	74	9.0	7.9
12	30.5	9.6	7.8	8.6	36	30	24	13.8	10.2	27.5	8.7	7.9
13	21.5	9.1	7.8	8.4	177	60	22	12.5	10.2	16.9	7.7	7.9
14	14.0	9.1	7.6	8.4	98	180	19	11.7	9.7	12.2	16.4	8.1
15	10.8	9.1	7.8	8.4	130	40	16.8	11.2	9.5	10.4	12.0	8.5
16	10.8	10.0	7.8	8.2	16.2	400	25	10.9	11.5	9.9	9.9	8.3
17	15.3	10.8	7.8	8.0	10.6	90	22	10.7	12.6	9.5	10.9	8.1
18	12.0	10.8	7.8	8.0	10.1	150	20	10.4	10.4	9.2	20	8.1
19	11.1	9.6	7.8	8.0	9.8	80	18	10.4	9.7	9.0	13	8.1
20	10.6	9.1	7.8	8.0	8.6	400	17	10.2	9.0	8.7	25	8.9
21	11.0	8.9	7.8	8.0	8.4	1,600	16	10.2	9.0	8.7	17	15.0
22	43	8.6	7.8	8.0	8.4	800	15	10.2	8.7	8.5	14	10.9
23	21.5	8.6	7.6	8.2	8.6	90	14	9.9	8.7	8.5	12	9.2
24	12.0	8.4	7.6	8.4	8.6	200	13	10.2	29.5	8.5	14	13.7
25	10.6	8.4	7.6	8.4	8.6	80	12.2	11.9	16.7	14.9	18	10.4
26	21.5	8.4	7.6	8.4	8.6	45	12.2	10.9	11.2	10.9	11	27
27	15.2	8.4	7.6	8.2	8.2	30	11.9	28	214	9.7	12	13.8
28	117	8.4	7.6	8.0	8.6	25	11.9	15.4	183	9.5	15	14.9
29	19.8	8.4	7.8	8.0	11.5	45	14.1	-	54	8.7	13	24.5
30	13.1	8.2	8.2	8.0	13.8	60	13.8	-	17.0	8.5	12	71
31	11.1	8.2	-	9.4	-	70	12.5	-	25.5	-	11	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	117	10.1	22.2	34.3	687	2,110
August	10.8	8.2	9.38	14.5	291	892
September	8.8	7.6	7.96	12.3	239	733
October	9.7	8.0	8.30	12.8	257	790
November	200	8.2	31.0	48.0	929	2,850
December	1,600	11	157	243	4,880	14,980
Calendar year 1946	1,600	7.6	33.1	51.2	12,080	37,060
January	100	11.9	27.6	42.7	857	2,630
February	28	9.9	13.5	20.9	377	1,160
March	214	8.7	27.4	42.4	849	2,600
April	74	8.5	14.6	22.6	439	1,350
May	290	7.7	28.9	44.7	896	2,750
June	71	7.9	12.6	19.5	379	1,160
Fiscal year 1946-47	1,600	7.6	30.4	47.0	11,080	34,000

Note.- No gage-height record Dec. 2 to Jan. 9, Jan. 11-14, 17-24, May 18 to June 6; discharge computed on basis of records for Mohihi and Kawaikoi Streams.

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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 1947.

Average discharge.- 28 years (1918-24, 1925-47), 36.0 million gallons a day (55.7 second-feet).

Extremes.- Maximum discharge during year, 66 million gallons a day (102 second-feet) Mar. 3 (gage height, 3.89 feet); no flow Jan. 7-10.
1907-47: 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 July 1-9, Jan. 10 to Feb. 17, 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	30	31	36	25	25	36	27	31	48	51	36	27.5
2	43	31	28	22	25	28	28	34	38.5	46	48	26
3	41	43	28	21	26	28	29	34	40	45	47	26
4	34	38	36	21	26	39	27	31.5	47	46	48	26
5	36	34	27	22	24	30	26	31.5	51	43	48	25
6	46	29	29	21	25	43	8.8	34	43	37.5	46	25
7	46	43	29	21	25	33	0	34	38.5	48	38.5	24
8	46	37	28	21	26	34	0	34	46	48	34	24
9	46	30	26	21	26	31	0	34	46	48	31.5	24
10	43	30	24	27	25	31	26.5	31.5	38.5	46	30.5	24
11	34	39	23	26	24	32	38.5	24	34	46	29.5	24
12	33	31	23	23	25	30	36	18.4	31.5	51	29.5	26
13	46	27	22	22	25	31	38.5	18.4	34	48	36.5	34
14	43	33	22	22	22	32	41	17.5	30.5	46	48	39.5
15	36	38	22	23	34	32	43	17.5	29.5	38.5	40	48
16	39	30	23	21	41	30	46	18.4	34	36	34	46
17	46	43	23	21	33	31	43	27.5	34	34	43	29.5
18	46	34	25	21	34	30	38.5	30.5	31.5	31.5	48	31.5
19	43	36	24	20	37	34	38.5	30.5	29.5	31.5	46	31.5
20	36	28	23	20	29	30	38.5	29.5	28.5	30.5	48	36.5
21	36	26	22	22	26	28	38.5	29.5	28.5	29.5	51	46
22	46	25	22	28	26	29	36	29.5	28.5	28.5	41	41
23	46	24	21	29	26	33	36	29.5	28.5	28.5	36	32
24	39	23	21	30	24	32	34	31	38.5	28.5	34	41
25	33	23	21	27	24	32	34	41	48	27.5	41	47
26	33	23	21	25	23	36	34	36	38.5	34	36	48
27	36	27	20	26	22	34	34	48	48	30.5	31.5	46
28	41	29	21	27	23	34	36	48	53	29.5	31.5	46
29	46	31	24	27	30	36	34	-	51	28	34	43
30	43	29	27	25	36	30	26	-	48	27.5	30.5	48
31	34	28	-	25	-	28	26	-	51	-	28.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	46	30	40.2	62.2	1,250	3,820
August	43	23	31.4	48.6	973	2,990
September	36	20	24.7	38.2	741	2,270
October	30	20	23.6	36.5	732	2,250
November	41	22	27.2	42.1	817	2,510
December	43	28	32.2	49.8	997	3,060
Calendar year 1946	54	20	36.1	55.9	13,180	40,450
January	46	0	30.4	47.0	942	2,890
February	48	17.5	30.5	47.2	855	2,620
March	53	28.5	39.2	60.7	1,220	3,730
April	51	27.5	38.1	58.9	1,140	3,510
May	51	28.5	38.9	60.2	1,200	3,700
June	48	24	34.5	53.4	1,040	3,180
Fiscal year 1946-47	53	0	32.6	50.4	11,910	36,530

Makaweli River near Waimea

Location.- Lat. 21°58'15", long. 159°38'55", 0.7 mile upstream from confluence with Waimea River and 3.8 miles northwest of Makaweli. 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 1947.

Extremes.- Maximum discharge during year, 3,020 million gallons a day (4,670 second-feet) Dec. 22 (gage height, 7.84 feet), from rating curve extended above 150 millions gallons a day; minimum, 4.8 million gallons a day (7.4 second-feet) June 4.
1943-47: 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	19.1	12.0	13.8	7.3	15.5	14.3	34.5	12.0	10.4	12.4	36	5.8
2	15.7	69	10.0	6.3	9.3	9.0	37.5	18.0	24	10.0	88	5.8
3	24.5	30.5	26	6.3	8.0	23.5	50	31	11.1	74	130	5.8
4	10.8	55	12.8	6.9	75	22.5	57	17.2	95	21	39	5.8
5	52	13.6	9.3	7.6	41	9.3	40	14.0	33	13.2	15.2	5.6
6	48	22	10.0	8.3	14.0	214	26	15.6	16.2	11.8	10.8	5.6
7	46	29	8.3	7.6	9.0	482	21	30	15.4	50	8.6	5.6
8	105	14.4	12.0	7.3	12.4	223	21.5	16.7	32	48	7.6	5.6
9	87	12.0	9.7	7.6	12	432	19.7	20.5	23.5	44	10.0	5.3
10	20.5	19.1	8.0	23.5	23	143	17.6	21.5	13.6	18.0	7.3	5.3
11	13.2	33.5	7.3	10.8	27	68	17.2	15.8	12.0	12.8	6.6	5.3
12	27	11.2	7.3	8.3	23	102	16.2	13.6	10.4	13.6	6.3	10.0
13	34.5	14.7	7.3	8.3	80	100	15.8	12.8	10.4	12.8	24.5	10.6
14	18.7	48	6.6	9.0	150	54	15.4	11.6	10.4	11.2	11.2	34
15	12.8	17.6	6.9	14.1	70	40	15.8	11.2	9.3	10.0	7.6	39
16	81	15.5	9.1	9.0	28	104	41	11.2	9.0	9.7	50	9.8
17	32.5	19.9	11.4	8.3	27	119	20.5	10.8	9.7	9.3	99	8.8
18	26	42	9.0	9.0	30	172	17.2	10.4	9.3	9.0	55	8.0
19	18	18.8	6.9	7.6	18	52	15.8	10.4	9.2	8.6	21.5	6.9
20	14	10.8	6.6	7.6	12	185	14.9	10.0	8.6	8.6	71	41
21	40	10.4	6.9	8.6	11	420	14.9	9.7	10.8	8.3	17.2	37
22	78	9.3	6.6	27.5	9.7	916	14.4	9.7	9.0	8.3	10.8	16.2
23	14	8.3	7.8	15.4	9.3	186	14.0	10.0	8.6	8.3	9.0	9.0
24	12	8.3	6.6	49	9.0	133	13.2	10.0	11.0	9.0	8.3	27
25	11	10.4	6.6	11.8	9.0	86	12.8	14.8	15.2	24	8.0	39
26	11	11.9	6.1	54	9.0	63	13.2	14.0	9.3	10.0	7.6	81
27	12.0	26	6.1	18.4	8.3	48	12.4	10.8	14.2	7.3	7.6	35
28	112	16.4	6.6	21.5	8.3	42	48	10.4	50	6.9	7.3	77
29	54	14.1	11.9	32	9.0	37.5	50	-	20	6.9	7.3	80
30	20.5	12.2	8.3	44	41	36	22	-	17.2	6.9	6.3	114
31	13.2	53	-	32	-	39	13.2	-	16.2	-	6.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	112	10.8	35.0	54.2	1,080	3,330
August	69	8.3	22.2	34.3	689	2,110
September	26	6.1	9.06	14.0	272	834
October	54	6.3	16.0	24.8	495	1,520
November	150	8.0	26.9	41.6	808	2,480
December	916	9.0	148	229	4,580	14,040
Calendar year 1946	916	6.1	40.5	62.7	14,760	45,350
January	57	12.4	24.0	37.1	743	2,280
February	31	9.7	14.4	22.3	404	1,240
March	95	8.6	17.9	27.7	554	1,700
April	74	6.9	16.8	26.0	504	1,550
May	130	6.1	25.8	39.9	801	2,460
June	114	5.3	24.8	38.4	745	2,290
Fiscal year 1946-47	916	5.3	32.0	49.5	11,680	35,830

Peak discharge.- Dec. 7 (6:30 a.m.) 2,300 m.g.d. (3,560 sec.-ft.); Dec. 22 (2:30 a.m.) 3,020 m.g.d. (4,670 sec.-ft.).

Note.- No gage-height record July 18-26, Nov. 9-24; discharge computed on basis of records for nearby streams.

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 1947. August 1910 to December 1916 at site half a mile upstream; records not equivalent.

Average discharge.- 23 years (1917-20, 1927-47), 53.6 million gallons a day (82.9 second-feet).

Extremes.- Maximum discharge during year, 3,360 million gallons a day (5,200 second-feet) Dec. 7 (gage height, 6.53 feet), from rating curve extended above 2,400 million gallons a day by test on model of station site; minimum, 14.5 million gallons a day (22.4 second-feet) Sept. 25.

1910-21, 1926-47: Maximum discharge, 5,550 million gallons a day (8,590 second-feet) Mar. 19, 1937 (gage height, 8.59 feet), from rating curve extended above 2,400 million gallons a day by test on model of station site; 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 table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.6	14.5	1.4	88	2.8	515
.8	25	1.6	124	3.2	700
1.0	41	2.0	220	3.7	980
1.2	62	2.4	345		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	77	28	33.5	16.3	36	28.5	28	20	18	72	48	19.0
2	37.5	100	27	15.8	25	21	25.5	25	30	22	65	19.0
3	35.5	52	54	16.6	21	51	27	38	22	113	89	19.6
4	22	112	27	20	60	32.5	25	27	250	40	31.5	18.6
5	76	40	27	18.5	40	24	23	23	70	24.5	21	18.6
6	63	44	22	20.5	31	261	22	24	35	28	17.6	18.1
7	64	47	20	17.6	25	734	21	35	32	61	16.8	18.1
8	188	30.5	21.5	17.2	30	460	20	22	45	51	27.5	19.0
9	121	29.5	19.6	16.6	30	583	19.0	23	38	83	120	19.0
10	40	28.5	19.0	36	40	138	19.0	24	27	33.5	18.6	19.6
11	28.5	33.5	18.1	17.6	45	58	19.0	21	21	24	16.8	20
12	47	24.5	17.6	15.8	38	181	19.0	19	20	19.0	16.8	32.5
13	42	33.5	16.8	15.6	164	97	19.0	19	20	18.1	37.5	30
14	31.5	55	19.0	16.8	381	50	19.0	20	19	17.2	19.0	72
15	24	27.5	19.6	17.2	131	35	21.5	18	19	17.6	16.8	36
16	163	59	22.5	17.6	39	70	37.5	18	18	18.6	74	26
17	80	37	27	17.6	28.5	80	20	18	18	16.8	298	37
18	58	86	18.6	20	43	100	18.6	18	17	16.3	159	27
19	38	36	16.8	17.2	30	45	18	18	18	18.1	53	22.5
20	29	25	17.6	16.8	23	150	18	18	18	21	49	93
21	74	25.5	18.1	16.8	21	350	18	18	20	17.2	24	71
22	148	20	17.6	23.5	19.0	500	18	17	18	17.6	20	39
23	30.5	18.6	17.6	23	19.0	170	18	17	16.8	16.8	19.6	28.5
24	24	18.1	17.2	60	19.0	110	18	18	19.8	17.6	20	64
25	22.5	32	15.8	30	19.0	80	17	18	18.6	34	19.0	85
26	21.5	32.5	15.4	80	18.1	60	17	18	17.6	17.6	18.6	152
27	25	35.5	16.8	40	17.6	45	17	17	18.1	16.8	18.6	125
28	277	31	21	42	17.6	40	52	17	27.5	16.8	20	145
29	65	33.5	25.5	54	17.6	35.5	56	-	22	16.3	19.0	142
30	46	25	18.1	62	68	34	35	-	65	16.3	18.6	276
31	33	85	-	52	-	30.5	21	-	29.5	-	19.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	277	21.5	66.2	102	2,050	6,300
August	112	18.1	41.5	64.2	1,290	3,940
September	54	15.4	21.6	33.4	647	1,990
October	80	15.8	27.5	42.5	851	2,610
November	381	17.6	49.9	77.2	1,500	4,590
December	734	21	150	232	4,650	14,280
Calendar year 1946	788	10.5	64.8	100	23,660	72,580
January	56	17	23.4	36.2	726	2,230
February	38	17	21.0	32.5	588	1,800
March	250	16.8	33.2	51.4	1,030	3,150
April	113	16.3	30.1	46.6	902	2,770
May	298	16.8	45.5	70.4	1,410	4,330
June	276	18.1	57.1	88.3	1,710	5,250
Fiscal year 1946-47	734	15.4	47.5	73.5	17,350	53,240

Peak discharge.- Nov. 14 (1 a.m.) 2,000 m.g.d. (3,090 sec.-ft.); Dec. 7 (5 a.m.) 3,360 m.g.d. (5,200 sec.-ft.); Dec. 9 (7:30 a.m.) 2,750 m.g.d. (4,250 sec.-ft.).

Note.- No gage-height record Oct. 24 to Nov. 11, Dec. 15-27, Jan. 19 to Mar. 22; discharge computed on basis of records for stations on nearby streams.

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 1947.

Average discharge.- 30 years (1910-20, 1927-47), 24.9 million gallons a day (38.5 second-feet).

Extremes.- Maximum discharge during year, 29 million gallons a day (45 second-feet) Dec. 9 (gage height, 2.88 feet); minimum, 6.5 million gallons a day (10.1 second-feet) Mar. 3, May 2.
1910-21, 1927-47: 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 July 1 to Oct. 17, 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	21.5	25	23	17.6	18.8	16.5	17.6	17.6	16.5	15.8	9.4	11.8
2	23	25	21.5	17.6	17.6	16.5	17.6	18.8	14.7	14.4	13.7	10.8
3	21.5	25	21.5	17.6	16.5	16.5	18.8	17.6	8.9	11.8	15.4	11.3
4	20	25	21.5	17.6	17.8	17.6	18.8	17.6	15.4	12.8	14.7	11.3
5	21.5	23	21.5	17.6	17.6	17.6	17.6	17.6	15.3	13.6	13.3	11.3
6	23	25	20	16.5	17.6	19.5	17.6	17.6	16.5	14.3	13.3	10.8
7	23	25	20	15.4	16.5	26	18.8	17.6	16.5	14.8	12.8	10.4
8	22	23	17.6	15.4	17.6	25	18.8	17.6	16.5	15.4	13.1	10.0
9	23	23	17.6	15.4	16.5	24	18.8	17.6	13.8	15.4	17.6	10.0
10	22.5	23	18.8	18.4	16.5	13.5	18.8	16.5	13.3	16.5	16.5	10.0
11	23	21.5	17.6	17.6	17.6	21	18.8	16.5	13.3	16.5	15.4	11.2
12	23	20	17.6	16.5	17.6	21	17.6	15.4	13.3	15.4	15.4	13.6
13	23	21.5	18.8	15.4	17.6	21	17.6	16.5	13.3	15.4	16.2	14.7
14	23	23	18.8	15.4	23	21.5	17.6	16.5	13.3	14.3	15.4	16.2
15	21.5	23	18.8	15.4	23	20	17.6	15.4	12.8	13.3	14.3	16.2
16	23	23.5	18.8	15.4	23	20	20	15.4	12.3	13.3	17.3	13.8
17	25	27	18.8	15.4	21.5	21.5	18.8	15.4	11.8	13.3	18.2	15.6
18	23	25	18.8	14.3	19.7	21.5	18.8	15.4	12.8	13.3	17.6	15.4
19	23	25	17.6	14.3	17.7	21.5	17.6	15.4	12.2	13.3	18.4	13.3
20	23	25	17.6	14.3	17.6	21.5	17.6	15.4	14.4	13.3	20	15.6
21	22	23	17.6	13.3	17.6	20.5	17.6	14.7	15.4	11.8	18.8	16.5
22	26	21.5	17.6	15.8	17.0	25	17.6	14.8	13.7	12.3	17.6	15.4
23	27	21.5	17.6	15.4	16.5	23	17.6	15.4	13.3	12.3	16.5	14.3
24	25	20	16.5	17.3	15.4	23	17.6	15.4	13.3	12.8	16.5	15.4
25	23	20	17.8	16.5	15.4	23	17.6	15.4	12.8	14.8	14.3	16.5
26	23	20	17.6	18.8	15.4	21.5	16.5	15.4	13.3	13.3	14.3	19.2
27	23	21.5	17.6	17.6	15.4	21.5	16.5	14.3	13.3	12.8	14.3	18.8
28	25	21.5	17.6	18.8	15.4	20	17.6	15.4	14.3	12.3	15.4	20
29	25	21.5	18.8	20	15.4	20	19.8	-	14.3	11.8	14.3	18.8
30	25	21.5	17.6	20	17.3	18.8	18.8	-	15.4	11.3	12.8	20
31	25	21.5	-	20	-	18.8	18.8	-	14.3	-	11.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27	20	23.2	35.9	720	2,210
August	27	20	22.9	35.4	710	2,180
September	23	16.5	18.8	29.1	562	1,730
October	20	13.3	16.7	25.8	517	1,590
November	23	15.4	17.7	27.4	532	1,630
December	26	16.5	20.6	31.9	638	1,960
Calendar year 1946	31.5	5.2	20.9	32.3	7,640	23,460
January	20	16.5	18.1	28.0	561	1,720
February	18.8	14.3	16.2	25.1	454	1,390
March	16.5	8.9	13.9	21.5	430	1,320
April	16.5	11.3	13.7	21.2	412	1,260
May	20	9.4	15.3	23.7	475	1,460
June	20	10.0	14.3	22.1	428	1,310
Fiscal year 1946-47	27	8.9	17.6	27.2	6,440	19,760

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 1947. December 1911 to November 1918 at site a third of a mile upstream.

Average discharge.- 25 years (1921-24, 1925-47), 64.8 million gallons a day (100 second-feet).

Extremes.- Maximum discharge during year, 5,310 million gallons a day (8,220 second-feet) Nov. 14 (gage height, 8.09 feet), from rating curve extended above 1,550 million gallons a day by test on model of station site; minimum, 1.15 million gallons a day (1.78 second-feet) June 9-11.

1911-47: 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, that of 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 vicinity of Lihue.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.7	1.15	1.4	13.0	3.0	220
.8	1.85	1.6	20.5	3.5	390
.9	2.8	1.8	31.5	4.0	640
1.0	4.0	2.0	47	4.5	950
1.1	5.6	2.3	80	5.0	1,340
1.2	7.6	2.6	128		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	23.5	11.6	30.5	38	54	52	66	3.05	1.50	62	7.5	4.0
2	8.3	65	32	36.5	45	25.5	61	3.3	1.64	30.5	10.1	4.6
3	3.15	48	51	38.5	44	57	67	2.8	1.94	76	9.6	1.64
4	2.4	106	39.5	44	78	61	61	2.6	11.2	43	15.8	1.43
5	10.3	32	45	50	71	10.7	56	2.4	2.3	24	16.7	1.36
6	6.3	10.9	39.5	60	45	165	41	2.25	1.78	12.1	3.5	1.36
7	25	9.8	44	44	40	1,040	11.1	2.3	1.85	9.2	2.15	1.29
8	45	9.8	64	39.5	45	298	8.8	2.3	2.05	10.1	2.05	1.29
9	52	8.6	52	44	44	1,160	27	2.15	1.85	4.8	95	1.22
10	4.9	8.1	58	64	93	274	45	1.85	1.64	4.2	3.3	1.22
11	2.9	20.5	55	46	99	130	30.5	2.05	1.50	4.2	2.15	1.36
12	2.7	14.2	52	41	88	352	27.5	2.15	1.36	3.3	1.94	1.85
13	3.15	7.6	51	37	574	170	9.2	2.05	1.29	2.8	1.94	1.78
14	3.05	10.4	52	38	1,250	200	5.1	1.85	1.29	2.5	2.05	2.25
15	6.0	8.4	52	36.5	447	124	5.0	1.85	1.29	2.5	2.5	2.7
16	61	99	62	35	149	255	25	1.85	1.36	2.75	68	2.25
17	12.4	13.8	66	35	110	240	6.0	1.78	1.64	2.7	36.5	2.8
18	12.6	15.1	60	41	117	328	4.6	1.78	14.0	2.5	85	2.5
19	4.0	11.9	52	36.5	83	161	4.0	1.71	2.5	2.4	10.8	2.05
20	3.3	5.6	51	34.5	70	220	3.75	1.71	1.85	4.9	3.15	4.2
21	214	4.5	50	33.5	61	484	3.5	1.71	1.71	2.6	2.95	7.7
22	268	3.9	44	45	53	759	3.4	1.71	1.71	2.25	2.05	5.6
23	24.5	3.65	44	41	50	244	3.3	1.64	1.57	2.3	1.94	2.7
24	6.1	4.0	41	90	47	182	3.3	1.57	2.05	2.7	2.25	3.4
25	4.5	4.6	42	47	42	170	3.15	1.57	1.78	10.1	2.15	7.0
26	4.7	5.3	41	175	12.3	132	3.15	1.64	1.94	3.5	1.85	23.5
27	3.9	8.4	41	85	6.2	114	2.9	1.64	2.6	2.5	2.05	10.6
28	317	5.1	44	73	6.2	105	13.3	1.50	8.3	2.15	1.94	66
29	99	4.8	62	66	7.6	97	28.5	-	6.9	1.85	1.85	74
30	38.5	4.2	46	81	106	90	8.6	-	220	1.78	1.71	130
31	19.4	59	-	75	-	78	3.5	-	67	-	1.71	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	317	2.4	41.7	64.5	1,290	3,960
August	106	3.65	20.1	31.1	624	1,910
September	66	30.5	48.8	75.5	1,460	4,490
October	175	33.5	53.2	82.3	1,650	5,070
November	1,250	6.2	131	203	3,940	12,080
December	1,160	10.7	251	388	7,780	23,870
Calendar year 1946	1,250	2.4	83.7	130	30,540	93,720
January	67	2.9	20.6	31.9	639	1,960
February	3.3	1.50	2.03	3.14	56.8	174
March	220	1.29	12.0	18.6	371	1,140
April	76	1.78	11.3	17.5	338	1,040
May	95	1.71	13.0	20.1	402	1,230
June	130	1.22	12.4	19.2	373	1,150
Fiscal year 1946-47	1,250	1.22	51.9	80.3	18,920	58,070

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 ditch and 7½ 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 1947. December 1910 to September 1914 at site 300 feet downstream from confluence of main and east branches; records not equivalent.

Average discharge.- 26 years (1921-47), 50.0 million gallons a day (77.4 second-feet).

Extremes.- Maximum discharge during year, 1,960 million gallons a day (3,030 second-feet) Nov. 14 (gage height, 8.92 feet), from rating curve extended above 600 million gallons a day by test on model of station site; minimum, 0.5 million gallons a day (0.8 second-foot) Mar. 11-16.

1910-47: Maximum discharge, 4,020 million gallons a day (6,220 second-feet) June 2, 1943 (gage height, 9.96 feet, datum then in use), from rating curve extended above 600 million 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. 14 to June 30, 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.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	51	45	45	23	33.5	33.5	14.4	0.8	2.7	66	50	2.8
2	41	105	41	23	28.5	23	17.3	.8	7.1	43	88	2.3
3	46	82	62	23	31.5	51	23	.7	24	93	77	3.4
4	30	95	39.5	30	81	33	26.5	2.0	6.4	54	55	1.9
5	55	49	40	28.5	57	28.5	17.6	.8	1.1	38	35.5	1.4
6	56	53	34	25	39	211	13.8	.7	.6	40	31	1.2
7	45	57	37	23	34	244	15.4	.6	3.1	48	11.7	1.0
8	80	44	49	29.5	35.5	97	13.8	.6	5.2	51	23	.8
9	58	42	38	25	38.5	180	11.3	.6	1.0	74	38	.7
10	38.5	44	33.5	32.5	45	54	10.3	.6	.6	46	27	.6
11	33.5	39	29.5	23	44	35.5	9.6	.6	.5	65	27	.8
12	28	35.5	29	22	86	95	9.2	.6	.5	46	27	8.0
13	24.5	43	27.5	21.5	333	50	9.0	.6	.5	38	25	8.6
14	20.5	48	28.5	23	296	87	8.7	.6	.5	35.5	5.5	22
15	13.0	33	29	21.5	73	38	9.0	.6	.5	19.4	3.3	7.6
16	59	70	37	21	46	89	16.4	.6	2.0	8.2	94	5.0
17	61	47	37.5	22	40	68	9.0	.6	14.7	2.3	101	5.3
18	51	71	32	27.5	52	117	8.3	.6	7.4	1.4	94	2.5
19	41	43	27	22	35.5	65	7.8	.6	.7	7.2	46	1.2
20	35.5	35.5	28.5	23	31.5	104	4.1	.6	3.5	7.7	88	32
21	132	47	26.5	21.5	28	132	.8	.6	3.3	1.1	34.5	59
22	114	31	25	34.5	28	247	.8	.6	.6	9.3	17.2	40
23	49	14.6	25	34.5	25	94	.7	.6	.6	4.0	22.5	15.7
24	42	7.4	24	53	24	54	.7	.6	6.2	3.6	14.1	37.5
25	39.5	25	23.5	28	22.5	40	.7	.6	1.1	20.5	11.1	36
26	37.5	27	23	107	21	31	.7	.6	3.7	3.6	12.9	39
27	42	29.5	19.5	56	21	25	.7	7.5	45	1.5	10.6	43
28	133	29.5	28.5	40	25	21.5	36.5	2.8	46	.9	18.8	71
29	80	28	35.5	49	23	18.6	7.9	-	30	.8	8.4	84
30	63	15.5	25	45	71	16.8	1.2	-	82	.8	4.4	84
31	53	85	-	42	-	15.9	.8	-	52	-	3.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	133	13.0	53.3	82.5	1,650	5,070
August	105	7.4	45.8	70.9	1,420	4,360
September	62	19.5	32.7	50.6	980	3,010
October	107	21	32.2	49.8	1,000	3,070
November	333	21	58.3	90.2	1,750	5,370
December	247	15.9	77.4	120	2,400	7,360
Calendar year 1946	333	.5	46.3	71.6	16,910	51,900
January	36.5	.7	9.87	15.3	306	939
February	7.5	.6	1.00	1.55	28.1	86
March	82	.5	11.4	17.6	353	1,080
April	93	.8	27.7	42.9	830	2,550
May	101	3.3	35.6	55.1	1,100	3,390
June	84	.6	20.6	31.9	618	1,900
Fiscal year 1946-47	333	.5	34.1	52.8	12,440	38,180

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 1947.

Average discharge.- 15 years, 24.7 million gallons a day (38.2 second-feet).

Extremes.- Maximum discharge during year, 70 million gallons a day (108 second-feet) Nov. 14 (gage height, 1.70 feet); no flow Sept. 27 when water was shut out of ditch.
1932-47: 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	29.5	25	25.5	16.4	20.5	16.0	f0.36	0.17	16.8	37	41	17.2
2	25	34	25	16.0	19.5	13.8	f.60	.17	23.5	28.5	51	16.8
3	25	32.5	28.5	16.0	21.5	17.6	.73	.17	29	45	50	18.0
4	19.5	32.5	23.5	19.9	32.5	16.4	.73	.17	25	34.5	38	16.4
5	28	27	25	18.4	30	16.4	.47	7.1	19.1	25.5	26.5	16.0
6	28.5	28	22	16.8	24	22	.36	13.1	17.2	29.5	23	16.0
7	26.5	28.5	21.5	15.6	22.5	6.1	.36	11.3	23	36	20.5	15.6
8	33	24.5	24	19.5	22	2.55	.36	12.0	26	33.5	27	15.6
9	29.5	24.5	20.5	17.2	25	4.3	.36	12.3	18.0	40	23.5	15.6
10	23.5	25	19.5	18.7	25.5	1.51	.36	12.3	16.8	30	19.6	15.6
11	20.5	23.5	18.7	15.6	25.5	1.18	.36	11.2	16.4	46	19.6	15.8
12	24	21.5	18.4	14.9	31	2.2	.36	10.5	15.6	34	20.5	22
13	25.5	25	18.0	15.3	44	1.87	.26	11.7	15.6	26.5	29	23.5
14	24.5	27	19.1	15.3	28.5	3.3	.26	11.3	15.6	23	26	33.5
15	21	22	19.9	14.9	19.1	1.34	.36	10.2	15.3	22	21	22
16	31.5	23	23.5	14.9	16.8	2.25	.36	13.4	21.5	21.5	36	18.7
17	32	22.5	23.5	15.6	16.4	1.69	.26	5.0	31.5	19.5	40	19.5
18	29	29.5	20.5	17.8	18.4	2.7	.26	10.3	24	19.5	37.5	18.7
19	27	23	18.4	15.6	16.0	1.87	.17	14.5	17.6	22.5	27.5	16.8
20	23.5	20.5	18.7	16.4	14.9	2.65	.17	14.9	22	21	44	33
21	33	24.5	18.0	15.6	14.2	3.85	.17	14.9	22	18.4	27	32
22	34	19.9	17.2	22.5	14.9	6.5	.17	14.2	18.4	26.5	24.5	25.5
23	26.5	18.7	16.8	24	13.1	2.45	.17	14.5	18.0	20.5	25.5	23.5
24	24.5	18.7	16.4	28	13.1	1.87	.17	14.9	29.5	22.5	22	39.5
25	25	24.5	16.0	19.5	12.3	1.51	.17	16.4	19.5	31	20.5	38
26	25	23.5	16.0	32.5	12.0	f1.18	.17	18.7	28	20.5	21.5	36
27	27	26	12.4	29	12.3	f1.02	.17	24.5	52	19.1	19.6	36
28	37	27	19.1	25	15.6	f.73	.26	18.0	50	18.7	26	36.5
29	33	26.5	22	27.5	14.2	f.60	.17	-	46	17.6	19.9	40
30	29.5	21.5	17.6	27	21.5	f.60	.17	-	50	17.6	18.4	40
31	31	30.5	-	24.5	-	f.47	.17	-	39	-	17.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	37	19.5	27.5	42.5	852	2,610
August	34	18.7	25.2	39.0	780	2,390
September	28.5	12.4	20.2	31.3	605	1,860
October	32.5	14.9	19.5	30.2	606	1,860
November	44	12.0	20.6	31.9	617	1,890
December	22	.57	5.11	7.91	158	486
Calendar year 1946	44	.47	21.7	33.6	7,920	24,320
January	.73	.17	.305	.472	9.47	29
February	24.5	.17	11.4	17.6	318	976
March	52	15.3	25.2	39.0	782	2,400
April	46	17.6	26.9	41.6	807	2,480
May	51	17.6	27.9	43.2	864	2,650
June	40	15.6	24.4	37.8	733	2,250
Fiscal year 1946-47	52	.17	19.5	30.2	7,130	21,880

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

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 1947. Records from 1926 to June 1932 collected by Lihue Plantation Co.

Average discharge.- 15 years, 12.4 million gallons a day (19.2 second-feet).

Extremes.- Maximum discharge during year, 31 million gallons a day (48 second-feet) Mar. 17 (gage height, 1.18 feet); no flow July 24, Dec. 7, when water was shut out of ditch.
1932-47: Maximum discharge, 59 million gallons a day (91 second-feet) Feb. 25, 1935 (gage height, 1.57 feet, control then in use); no flow occasionally when water was shut out of ditch.

Remarks.- Records excellent. Flow regulated by gates. Water used for power and irrigation in vicinity of Lihue.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.8	11.3	10.4	11.7	11.6	9.2	11.3	10.5	9.6	7.9	18.8	11.2
2	14.3	6.3	12.4	11.4	12.8	11.9	13.0	11.0	11.9	9.7	21	10.8
3	13.3	4.6	7.6	11.9	13.4	7.9	12.5	10.5	14.3	9.2	17.0	11.9
4	13.8	4.4	11.3	13.7	12.6	9.8	11.9	9.9	12.5	4.9	13.3	10.7
5	11.8	11.1	11.8	13.2	11.4	12.2	11.3	9.9	10.5	10.1	13.5	10.5
6	11.3	13.0	13.4	12.8	11.5	3.5	11.0	12.5	10.2	12.6	13.1	10.3
7	11.9	13.1	14.5	11.9	12.2	2.65	11.9	11.0	14.0	13.1	12.4	10.2
8	11.7	12.5	9.5	12.8	12.2	4.0	11.6	10.5	15.3	9.0	15.6	10.1
9	11.8	12.7	11.5	12.4	12.3	.74	11.3	11.3	11.0	2.05	15.4	9.9
10	13.1	13.5	13.3	13.5	10.6	.29	11.6	10.6	10.2	5.5	13.8	9.8
11	13.5	13.1	13.2	12.0	11.9	5.4	11.3	10.2	9.9	11.0	13.6	10.7
12	13.8	13.0	13.5	11.5	8.1	7.8	11.0	10.2	9.6	10.8	12.8	14.0
13	13.1	13.6	12.6	11.3	2.25	7.9	11.0	10.2	9.6	10.6	14.4	13.4
14	13.1	14.3	12.8	11.8	2.8	11.9	10.7	9.9	9.3	10.5	13.4	14.9
15	12.6	14.6	12.7	11.2	8.8	10.5	11.0	9.9	9.3	11.4	13.1	14.0
16	13.2	8.8	14.3	11.3	11.4	6.5	11.3	9.9	9.9	13.1	8.8	13.2
17	10.0	7.1	13.5	12.5	11.6	3.2	10.5	9.3	17.3	12.0	11.0	14.5
18	10.7	4.5	13.1	12.9	10.4	.80	10.5	9.3	15.8	12.0	9.6	13.2
19	13.1	7.8	12.8	12.0	11.0	2.9	9.9	9.3	11.0	14.0	8.6	12.3
20	14.2	12.1	13.5	12.5	11.0	.44	9.9	9.3	15.3	13.5	12.7	17.4
21	11.0	11.1	13.1	11.7	11.3	.51	9.9	9.3	14.7	12.2	11.4	8.8
22	9.6	13.8	12.2	13.7	11.3	.71	9.9	9.1	11.2	13.7	13.4	9.1
23	11.9	13.2	12.0	13.8	11.3	.22	9.9	9.1	10.6	13.1	13.4	13.2
24	11.6	12.8	11.8	10.7	11.4	6.1	9.9	9.3	16.6	13.4	13.1	16.0
25	14.4	10.4	11.4	12.8	11.5	9.6	10.5	9.9	11.2	14.7	12.9	15.7
26	14.4	8.4	11.3	3.1	11.3	10.7	11.0	9.1	14.5	12.9	13.5	15.9
27	14.9	8.2	11.2	3.0	11.3	11.6	11.0	9.3	23.5	12.2	13.4	14.0
28	8.3	9.6	12.7	8.2	11.9	11.9	8.5	9.3	24	12.0	14.3	10.2
29	9.2	9.8	13.8	10.3	11.6	11.9	11.3	-	22	11.3	13.1	2.7
30	9.6	12.6	12.8	10.2	4.1	11.9	11.6	-	25	11.1	12.1	1.80
31	11.2	5.7	-	10.1	-	11.6	11.0	-	17.8	-	11.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.9	8.3	12.3	19.0	381	1,170
August	14.6	4.4	10.5	16.2	327	1,000
September	14.5	7.6	12.3	19.0	370	1,140
October	13.8	3.0	11.4	17.6	352	1,080
November	13.4	2.25	10.6	16.4	317	972
December	12.2	.22	6.65	10.3	206	633
Calendar year 1946	18.9	.32	10.6	16.4	3,680	11,910
January	13.0	8.5	10.9	16.9	339	1,040
February	12.5	9.1	9.98	15.4	280	858
March	25	9.3	13.8	21.4	428	1,310
April	14.7	2.05	11.0	17.0	330	1,010
May	21	8.6	13.4	20.7	414	1,270
June	17.4	1.80	11.7	18.1	350	1,080
Fiscal year 1946-47	25	.22	11.2	17.3	4,090	12,560

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 1947. Records for April 1931 to December 1936 collected by Lihue Plantation Co. from staff gage at site 1 mile downstream.

Average discharge.- 10 years (1937-47), 6.65 million gallons a day (10.3 second-feet).

Extremes.- Maximum discharge during year, 60 million gallons a day (93 second-feet) May 16 (gage height, 2.04 feet); no flow for several periods during year.
1936-47: Maximum discharge, 73 million gallons a day (113 second-feet) June 2, 1943 (gage height, 2.22 feet); 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.8	0.07	0.07	0.12	0	0	0	7.2	18.4	0.18	17.4	23.5
2	.12	.12	.03	.12	0	.36	0	7.0	25	.07	.07	22
3	.12	.12	.01	.12	.07	.12	0	6.4	27	.07	.02	23.5
4	.07	.07	.07	.12	.07	.07	0	6.4	26	.07	.02	22
5	.07	.07	.12	.12	.07	.07	0	10.4	23	.02	.02	22
6	.07	.07	.12	.12	.07	.32	0	19.6	21	.02	.02	22
7	.07	.07	.12	.07	.07	.37	0	17.3	24	.01	17.5	20.5
8	.07	.07	.12	.07	.07	.11	0	17.0	26	.02	29	20.5
9	.07	.07	.12	.07	.07	.27	0	17.0	22	.02	8.6	20.5
10	.04	.07	.12	.12	.07	.07	0	17.0	20	.02	.02	20
11	0	.02	.12	.12	.07	.02	0	15.6	19	.02	.02	20.5
12	17.1	.02	.12	.12	.12	.08	0	15.0	19	.02	.02	25
13	23.5	.02	.12	.12	.69	.02	0	16.2	19	.02	14.4	25
14	23.5	.02	.12	.12	.83	.07	0	15.9	19	.02	29	29
15	22	.02	.12	.12	.07	.07	0	14.4	19	16.5	29	27
16	11.5	.04	.12	.12	.02	.07	0	17.3	23	25.5	9.5	23.5
17	.12	0	.12	.12	.02	.07	0	10.9	29	27	7.9	25
18	.12	0	.12	.12	.02	.07	0	13.0	26	27	.07	23.5
19	.12	0	.12	.12	.02	.02	0	18.8	22	29	0	22
20	.12	0	.12	.12	0	.02	4.4	17.2	24	29	0	19.4
21	.28	0	.12	.12	0	.02	6.6	19.3	24	25	7.3	.12
22	.07	0	.12	.12	0	.24	6.4	19.3	22	29	22	.07
23	.07	16.5	.12	.12	0	.02	6.4	19.0	21	27	22	18.2
24	.02	22	.12	.12	0	.02	6.4	19.3	27	29	22	32
25	.02	22	.12	.12	0	.02	6.6	20.5	23	30.5	20.5	30.5
26	.02	23.5	.12	.18	0	.02	9.6	23.5	29	27	20.5	30.5
27	.07	23.5	.12	.12	0	0	8.4	23	37.5	25	20.5	16.0
28	.07	23.5	.12	.12	0	0	25	19.5	37.5	25	22	.12
29	.07	23.5	.12	.12	0	0	22	-	37	23.5	22	.12
30	.07	22	.12	.12	0	0	10.4	-	13	22	23.5	.12
31	.07	6.9	-	.08	-	0	7.9	-	.32	-	23.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	23.5	0	3.66	5.66	113	348
August	23.5	0	5.95	9.21	184	566
September	.12	.01	.110	.170	3.30	10
October	.18	.07	.116	.179	3.59	11
November	.69	0	.074	.114	2.22	6.8
December	.37	0	.084	.130	2.61	8.0
Calendar year 1946	36	0	6.13	9.48	2,240	6,870
January	25	0	3.87	5.99	120	369
February	23.5	6.4	15.8	24.4	443	1,360
March	37.5	.32	23.3	36.1	723	2,220
April	30.5	.01	13.9	21.5	418	1,280
May	29	0	12.5	19.3	388	1,190
June	32	.07	19.5	30.2	584	1,790
Fiscal year 1946-47	37.5	0	8.18	12.7	2,980	9,160

Note.- No gage-height record Jan. 19-21, Feb. 3-5, Mar. 3-25, Mar. 29 to Apr. 1, Apr. 13-15; discharge computed on basis of ditchman's notes and records for North Fork Wailua River.

Kanaha ditch near Lihue

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

Records available - August 1910 to June 1947.

Average discharge.- 27 years (1916-22, 1926-47), 5.68 million gallons a day (8.79 second-feet).

Extremes.- Maximum discharge during year, 2.6 million gallons a day (4.0 second-feet) Mar. 3 (gage height, 0.18 foot); no flow at times when intake gate was closed.
1910-47: Maximum discharge recorded, 45 million gallons a day (70 second-feet) Dec. 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 use only. Flow regulated by head gate.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.21	0.43	0	0.31	0.16	0.55	0.43	0.05	0.67	0.55	0.31	0
2	.21	.21	0	.26	.16	.43	.37	.05	.94	.55	.37	.12
3	.21	.21	0	.31	.16	.55	.37	.12	.90	.67	.37	.31
4	.21	.16	.26	.31	.21	.55	.37	.31	1.09	.67	.37	.16
5	.31	.16	.43	.31	.21	.55	.31	.21	.67	.67	.37	.06
6	.31	.21	.43	.26	.21	.80	.21	.21	.43	.67	.37	0
7	.31	.26	.43	.26	.21	.67	.16	.43	.67	.67	.26	0
8	.43	.31	.43	.26	.21	.37	.12	.31	.94	.67	.26	0
9	.31	.31	.37	.31	.21	.67	.05	.21	.55	.55	.37	.44
10	.31	.31	.37	.31	.21	.15	.05	.21	.31	.43	.43	.67
11	.31	.37	.26	.31	.21	.09	0	.21	.16	.55	.43	.67
12	.31	.43	.21	.31	.31	.37	0	.21	.16	.55	.43	.80
13	.43	.43	.21	.31	.31	.21	0	.26	.16	.55	.37	.80
14	.43	.31	.26	.31	.31	.31	0	.21	.06	.55	.21	.80
15	.43	.12	.26	.31	.12	.21	0	.18	0	.55	.16	.80
16	.43	.12	.26	.26	.12	.31	0	.16	.53	.37	.06	.73
17	.37	.05	.26	.26	.12	.31	0	.16	.80	.31	0	.73
18	.31	.05	.26	.31	.12	.43	0	.16	.94	.37	0	.67
19	.31	0	.26	.31	.21	.31	0	.06	.61	.49	0	.55
20	.31	0	.26	.31	.31	.31	0	0	.67	.49	.29	.94
21	.31	.17	.26	.31	.31	.43	0	0	.73	.43	.67	1.24
22	.16	.21	.26	.37	.43	.43	0	0	.55	.43	.55	1.09
23	.16	.16	.26	.31	.43	.21	0	0	.49	.26	.55	.80
24	.31	.16	.26	.31	.43	.31	0	.02	.67	.31	.55	.94
25	.55	.31	.26	.31	.31	.37	0	.05	.55	.43	.49	1.02
26	.43	.21	.21	.31	.31	.37	.12	.05	.55	.31	.49	1.09
27	.55	.21	.21	.26	.37	.43	.16	.80	.80	.26	.49	1.09
28	.67	.16	.26	.26	.43	.43	.96	.55	.73	.21	.31	1.24
29	.67	.12	.31	.26	.43	.43	.33	-	.67	.21	.16	1.24
30	.55	0	.31	.21	.67	.43	.12	-	.80	.21	.06	1.24
31	.55	0	-	.16	-	.43	.05	-	.55	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.67	0.16	0.367	0.568	11.4	35
August	.43	0	.199	.308	6.16	19
September	.43	0	.261	.404	7.82	24
October	.37	.16	.289	.447	8.97	28
November	.67	.12	.274	.424	8.21	25
December	.80	.09	.401	.620	12.4	38
Calendar year 1946	.80	0	.253	.391	92.4	284
January	.96	0	.135	.209	4.18	13
February	.80	0	.185	.286	5.17	16
March	1.09	0	.592	.916	18.4	56
April	.67	.21	.465	.719	13.9	43
May	.67	0	.315	.487	9.75	30
June	1.24	0	.675	1.04	20.2	62
Fiscal year 1946-47	1.24	0	.347	.537	127	389

Wailua ditch near Kapaa

Location.- Lat. 22°04'25", long. 159°24'05", 2,000 feet downstream from Wailua Reservoir, 5¼ 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 1947. Records collected by East Kauai Water Co. July 1922 to April 1932 at site 2 miles upstream, below intake, and April 1932 to November 1936 at present site.

Average discharge.- 10 years (1937-47), 13.6 million gallons a day (21.0 second-feet).

Extremes.- Maximum discharge during year, 36 million gallons a day (56 second-feet) Jan. 27 (gage height, 3.29 feet); minimum, 0.5 million gallons a day (0.8 second-foot) Jan. 25. 1936-47: 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, which are poor. Ditch diverts water from North Fork Wailua River 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.0	8.9	2.8	2.4	2.4	2.3	3.3	7.6	11.7	3.1	9.6	15.1
2	5.1	22.5	2.7	2.4	2.5	6.8	3.2	7.6	10.1	3.4	2.5	15.1
3	5.1	13.8	2.6	2.4	2.6	13.4	3.2	7.6	13.9	3.7	2.5	15.1
4	5.0	4.0	2.6	2.4	2.6	7.7	3.3	8.1	19.9	3.8	2.4	23
5	4.9	3.9	2.6	2.4	2.7	3.8	3.1	13.6	16.3	3.8	2.4	30.5
6	4.7	9.4	2.6	2.4	2.7	3.9	3.1	19.9	13.4	4.9	2.7	27.5
7	4.6	11.7	2.6	2.4	2.7	3.5	3.0	11.9	10.6	8.6	10.7	25
8	4.6	18.7	2.6	2.4	2.7	3.3	3.0	5.4	6.6	12.8	16.3	22.5
9	10.5	16.1	2.6	2.5	2.7	3.5	2.9	3.3	7.1	12.8	16.3	19.9
10	15.1	5.1	2.5	2.4	2.7	3.1	2.9	3.4	7.1	12.8	15.1	17.5
11	15.1	3.1	2.5	2.4	2.7	2.8	3.0	6.5	7.1	7.0	15.1	16.3
12	13.0	5.2	2.5	2.4	2.7	2.7	3.0	18.7	6.6	2.4	17.5	15.1
13	3.8	8.6	2.5	2.4	2.8	2.8	3.0	22.5	6.6	2.4	18.7	16.3
14	3.8	13.8	2.5	2.4	2.8	3.1	3.2	17.5	6.6	2.4	18.7	18.7
15	5.2	18.7	2.5	2.4	2.4	a3.1	3.5	10.6	6.6	8.8	17.5	21
16	8.1	16.3	2.5	2.4	2.3	a3.1	3.5	7.6	9.1	24	8.4	21
17	8.1	8.3	2.6	2.4	2.3	a3.1	3.4	9.6	13.9	24	7.1	19.9
18	8.1	3.2	2.6	2.3	2.3	a3.1	3.3	13.4	9.6	22.5	7.1	19.9
19	8.6	13.4	2.5	2.3	2.4	a3.1	3.2	12.8	12.4	18.7	9.6	17.5
20	5.4	19.9	2.5	2.2	2.4	a3.2	3.1	12.8	19.9	15.1	12.2	19.9
21	2.9	18.7	2.5	2.2	2.5	a3.2	3.1	12.2	24	15.1	12.2	27.5
22	3.2	14.0	2.4	2.2	2.4	a3.2	4.3	10.1	15.1	15.1	12.8	33.5
23	4.3	6.6	2.4	2.2	2.4	a3.2	10.0	7.1	8.6	15.1	12.8	33.5
24	16.3	7.9	2.4	2.2	2.4	a3.2	16.3	10.3	9.1	17.5	12.8	33.5
25	22.5	13.9	2.4	2.2	2.5	a3.2	9.2	16.3	9.1	22.5	12.2	26.5
26	22.5	13.9	2.4	2.2	2.4	a3.3	4.2	15.1	9.6	19.9	12.2	22.5
27	12.0	14.5	2.4	2.4	2.4	a3.3	15.7	14.5	7.5	14.5	12.2	21
28	4.0	11.2	2.4	2.4	2.5	a3.3	14.5	14.5	2.7	12.2	12.8	12.2
29	3.8	7.6	2.4	2.4	2.5	a3.3	9.1	-	2.7	9.1	12.8	7.1
30	3.9	6.6	2.4	2.4	2.4	a3.3	7.1	-	2.8	11.2	12.8	7.1
31	3.9	4.3	-	2.4	-	3.3	7.6	-	3.0	-	13.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	22.5	2.9	7.84	12.1	243	746
August	22.5	3.1	11.1	17.2	344	1,060
September	2.8	2.4	2.52	3.90	75.5	232
October	2.5	2.2	2.35	3.64	72.9	224
November	2.8	2.3	2.53	3.91	75.8	233
December	13.4	2.3	3.78	5.85	117	360
Calendar year 1946	29	1.4	6.02	9.31	2,200	6,750
January	16.3	2.9	5.30	8.20	164	504
February	22.5	3.3	11.4	17.6	320	984
March	24	2.7	9.98	15.4	309	949
April	24	2.4	11.6	17.9	349	1,070
May	18.7	2.4	11.4	17.6	352	1,080
June	33.5	7.1	20.7	32.0	621	1,910
Fiscal year 1946-47	33.5	2.2	8.34	12.9	3,040	9,350

a No gage-height record; discharge computed on basis of range in stage and ditchman's notes.

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 1947

Average discharge.- 27 years (1920-47), 29.8 million gallons a day (46.1 second-feet).

Extremes.- Maximum discharge during year, 1,320 million gallons a day (2,040 second-feet) Nov. 14 (gage height, 7.50 feet), from rating curve extended above 270 million gallons a day by test on model of station site; minimum, 8.7 million gallons a day (13.5 second-feet) Oct 21

1912-47: 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 May 15-29, which are fair. No diversion above station.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.0	7.4	2.0	55
1.2	12.8	2.5	112
1.4	19.8	3.0	167
1.6	28	3.5	216
1.8	39	4.0	280

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	33.5	22	18.0	11.1	11.4	19.2	23	13.3	10.2	f47	47	12.2
2	22	38	16.1	10.6	10.6	14.8	24	13.6	11.0	24	74	12.0
3	22.5	32	21.5	10.3	10.3	32	26.5	13.3	15.0	25	57	12.0
4	16.1	31.5	15.8	10.0	50	21	35	13.0	42	21	33	11.7
5	22	24	16.8	10.0	33	15.9	28	12.7	16.4	17.6	22	11.4
6	21	25	15.8	10.6	16.5	77	21.5	12.7	11.5	18.0	19.1	11.1
7	20.5	28	23	10.6	13.5	160	22	12.4	11.5	19.8	16.8	10.8
8	39.5	24.5	20	9.5	13.5	55	21	12.4	11.2	22.5	15.4	10.6
9	32	21	15.8	9.5	14.6	140	18.8	12.1	10.2	24.5	27	10.6
10	20	19.8	14.5	12.8	12.8	48	18.0	11.8	9.9	18.3	17.6	10.6
11	17.2	19.8	13.8	10.0	13.8	36	17.3	11.8	9.6	41	15.4	10.8
12	17.3	17.2	13.1	9.5	29	101	16.6	11.8	9.3	25.5	14.8	13.1
13	20	21	13.1	9.2	194	74	15.9	11.5	9.1	18.7	20	13.5
14	18.5	22.5	12.8	9.2	227	107	15.9	11.5	9.1	16.1	20.5	14.1
15	15.8	18.0	13.8	9.5	73	48	15.6	11.5	9.1	15.4	a16	12.2
16	22	18.3	18.8	9.2	39	91	26.5	11.5	12.2	14.8	a19	12.2
17	27.5	19.1	18.6	9.5	30	73	15.9	11.5	16.6	13.8	a17	14.1
18	23	19.4	14.8	10.6	30.5	111	15.2	11.5	16.9	12.8	a17	12.5
19	18.7	16.5	12.5	9.2	24	69	14.5	11.2	11.0	13.1	a14	11.4
20	16.8	14.8	12.5	9.0	21	113	14.2	11.0	11.2	12.8	a40	23
21	48	17.5	12.2	8.7	18.8	123	13.9	11.0	13.6	11.7	a18	21.5
22	71	14.5	11.4	11.1	18.0	188	13.6	11.0	11.0	13.8	a17	16.8
23	27	13.5	12.0	9.7	17.0	78	13.3	10.7	10.4	12.5	a19	14.1
24	23	12.8	11.1	13.6	16.2	69	13.0	10.7	20	12.8	a17	20.5
25	21	15.8	10.8	10.0	15.6	52	13.0	10.4	13.6	21	a15	23
26	19.1	17.0	10.6	23.5	14.8	40	13.3	10.4	14.1	13.1	a16	28.5
27	21	21	10.3	16.1	14.2	34.5	13.9	11.5	42	12.0	a14	25
28	58	17.2	12.2	13.8	15.6	31	17.4	10.4	52	11.4	20	25.5
29	35	17.6	18.5	13.5	15.2	28.5	34.5	-	32.5	10.8	15	29.5
30	29	15.1	12.2	13.8	27.5	26.5	16.6	-	103	10.6	13.5	35
31	24.5	33	-	13.5	-	25.5	14.2	-	f28	-	12.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	58	15.8	26.5	41.0	822	2,520
August	38	12.8	20.9	32.3	647	1,990
September	23	10.3	14.7	22.7	442	1,360
October	23.5	8.7	11.2	17.3	347	1,070
November	227	10.3	34.7	53.7	1,040	3,190
December	188	14.8	67.8	105	2,100	6,450
Calendar year 1946	227	8.7	28.8	44.6	10,500	32,240
January	35	13.0	18.8	29.1	582	1,790
February	13.6	10.4	11.7	18.1	328	1,010
March	103	9.1	19.5	30.2	603	1,850
April	47	10.6	18.3	28.3	549	1,690
May	74	12.8	22.6	35.0	700	2,150
June	35	10.6	16.3	25.2	489	1,500
Fiscal year 1946-47	227	8.7	23.7	36.7	8,650	26,570

a No gage-height record; discharge computed on basis of records for North Fork Wailua and Kapaa Rivers.

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

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 1947. 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 (1936-47), 13.4 million gallons a day (20.7 second-feet).

Extremes.- Maximum discharge during year, 1,610 million gallons a day (2,490 second-feet) Mar. 30 (gage height, 3.32 feet), from rating curve extended above 330 million gallons a day; no flow at times when low flow is diverted into Kapahi ditch.
1936-47: 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 is diverted into Kapahi ditch.

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

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

-0.05	0	0.3	5.3	0.7	40	1.1	115
0	.1	.4	11.5	.8	55	1.3	168
.1	.4	.5	19.0	.9	72	1.5	234
.2	1.9	.6	28.5	1.0	92	1.7	318

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	43	0.3	7.8	7.2	8.4	14.5	12.2	1.0	0	54	47	0
2	10.5	28.5	7.0	7.2	7.6	1.1	14.5	1.4	0	15.6	55	0
3	10.6	19.5	10.4	5.9	7.8	19.4	17.0	1.4	5.8	16.7	41	0
4	10.3	5.6	7.8	7.8	42	10.0	20	.1	7.8	15.2	19.7	0
5	18.2	5.8	10.9	5.3	18.6	4.4	18.6	0	0	7.5	.1	0
6	13.2	1.3	10.3	8.2	9.6	51	13.0	0	0	4.6	0	0
7	16.6	10.0	11.5	7.2	8.4	182	10.3	0	0	.4	0	0
8	35	.4	11.5	6.5	10.3	26.5	11.5	0	0	.1	0	0
9	12.1	0	9.0	4.1	12.4	81	9.0	0	0	0	0	0
10	2.9	.2	9.6	6.7	9.6	21	10.3	0	0	0	0	0
11	.7	0	8.4	4.3	11.9	15.2	8.4	0	0	37	0	0
12	4.9	0	8.4	1.6	70	50	8.4	0	0	19.5	0	0
13	3.2	3.4	8.4	0	254	70	7.8	0	0	12.2	0	0
14	7.2	0	9.0	3.5	213	116	8.4	0	0	8.1	.1	0
15	.2	0	11.8	7.2	25	25	9.0	0	0	.5	1.9	0
16	7.3	0	13.8	6.5	15.2	60	13.5	0	0	0	4.0	0
17	23.5	0	14.6	6.5	12.2	47	9.6	0	19.2	0	5.4	0
18	13.8	0	12.0	8.4	19.2	59	9.6	0	1.8	0	11.5	0
19	6.4	0	9.0	6.5	11.5	39	9.0	0	0	0	.5	0
20	6.2	0	5.9	7.2	9.6	44	6.8	0	0	0	18.0	0
21	56	0	7.2	3.7	7.8	60	5.3	0	0	0	0	0
22	48	0	7.8	13.8	10.3	128	2.6	0	0	0	0	0
23	7.7	0	11.3	7.2	8.4	29	0	0	0	0	0	0
24	2.4	0	7.8	8.4	8.4	41	0	0	16.8	0	0	0
25	0	0	6.5	7.2	4.8	26.5	0	0	2.4	.4	0	0
26	0	2.2	7.2	28	.2	18.2	0	0	12.8	0	0	.5
27	3.9	3.4	6.5	13.8	4.7	15.2	.3	0	47	0	0	4.3
28	44	.9	11.2	10.9	13.9	13.0	.7	0	43	0	0	4.5
29	20	.4	15.9	13.0	11.2	13.0	19.6	-	27.5	0	0	12.8
30	6.1	0	8.4	13.0	35	12.2	10.3	-	168	0	0	8.6
31	2.5	18.7	-	13.0	-	13.8	5.5	-	27.5	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	56	0	14.1	21.8	436	1,340
August	28	0	3.25	5.03	101	309
September	15.9	5.9	9.56	14.8	287	880
October	28	0	8.06	12.5	250	767
November	254	.2	29.4	45.5	881	2,700
December	182	1.1	42.1	65.1	1,310	4,010
Calendar year 1946	254	0	17.5	27.2	6,380	19,550
January	20	0	8.75	13.5	271	832
February	1.4	0	.14	.22	3.9	12
March	168	0	12.2	18.9	380	1,160
April	54	0	6.39	9.89	192	589
May	55	0	6.59	10.2	204	627
June	12.8	0	1.02	1.58	30.7	94
Fiscal year 1946-47	254	0	11.9	18.4	4,350	13,320

Kapahi ditch near Kealia

Location.- Parshall flume, lat. 22°06'00", long. 159°22'30", 500 feet downstream from intake and 4½ miles west of Kealia. Altitude of gage, 360 feet (by barometer).

Records available.- April 1909 to May 1914, May 1915 to June 1947.

Average discharge.- 29 years (1917-20, 1921-47), 5.72 million gallons a day (8.85 second-feet).

Extremes.- Maximum discharge during year, 48 million gallons a day (74 second-feet) Apr. 25 (gage height, 2.65 feet); no flow many times.
1909-14, 1915-47: Maximum discharge, 233 million gallons a day (361 second-feet) Mar. 31, 1923 (gage height, 3.15 feet, control then in use); no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent. Ditch diverts water from Kapaa River for irrigation in vicinity of Kapaa. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.0	6.1	0.23	0.62	0.76	0.23	0.10	1.82	2.1	0.46	13.4	7.0
2	8.3	1.51	.65	.27	1.00	7.7	.10	1.64	2.1	3.05	9.4	6.7
3	7.7	.31	.23	1.24	.23	4.9	.10	1.46	3.6	2.1	.27	7.6
4	.31	8.2	.23	.23	.19	3.0	.10	2.65	5.2	.50	3.45	5.5
5	3.4	2.3	.49	1.96	.16	4.9	.07	2.55	3.45	1.52	12.8	2.25
6	5.7	6.4	.23	.94	.69	1.56	.04	2.65	2.25	.16	8.3	2.15
7	.31	3.9	.23	.98	.27	5.6	2.35	2.55	2.35	5.0	3.7	1.99
8	7.0	9.5	.67	.27	.27	.16	1.46	2.55	2.15	8.3	3.9	1.99
9	6.5	6.4	.23	2.45	.78	.12	1.25	2.55	2.1	9.3	6.9	1.73
10	4.5	6.0	.23	3.8	.27	0	1.55	2.35	1.99	7.3	5.8	1.82
11	4.9	6.5	.36	2.75	.27	0	1.55	2.25	2.1	8.0	9.3	1.90
12	3.3	4.7	.13	5.2	.39	0	1.22	2.25	1.82	1.67	9.3	2.55
13	7.3	10.4	.71	6.6	.64	0	1.14	2.25	1.82	1.30	12.4	2.85
14	.23	8.2	.31	3.95	.61	0	.86	2.25	1.73	2.65	16.9	5.7
15	6.4	6.4	.27	.19	.02	0	.44	2.35	1.73	10.4	7.9	2.55
16	9.1	8.2	.55	.16	0	0	0	2.45	4.4	9.5	12.4	3.65
17	6.0	6.8	.27	.34	0	0	.09	2.35	7.5	5.8	5.8	3.85
18	4.5	8.1	.27	.64	0	0	.10	2.25	7.2	3.05	.31	3.05
19	5.9	4.9	.27	.23	0	0	.10	2.25	2.65	3.65	8.5	2.75
20	5.5	3.9	2.35	.19	0	0	.96	2.15	3.55	3.7	16.6	15.6
21	.21	9.4	1.35	3.2	.32	0	.16	2.15	4.2	2.95	4.7	10.6
22	5.7	4.2	.23	.19	.04	0	1.07	2.15	8.4	5.5	3.65	5.8
23	7.8	3.35	.76	.16	.69	0	3.15	2.15	7.8	6.1	5.4	4.2
24	6.5	3.05	.27	4.8	.04	0	3.25	2.1	6.4	5.4	8.3	9.2
25	6.0	7.1	.63	.23	3.4	0	3.15	2.1	8.7	14.3	9.6	9.3
26	5.0	10.9	.31	.19	7.2	0	3.6	2.1	7.0	4.3	10.4	8.3
27	6.0	9.1	.31	.16	2.65	.53	4.4	2.4	8.0	3.6	9.0	12.2
28	.27	8.0	.62	.13	.19	1.27	6.0	2.1	.19	3.05	11.4	7.7
29	3.1	10.4	.31	.62	.23	.40	3.1	-	.16	2.75	3.8	.40
30	9.8	6.4	.31	.23	.23	.45	.04	-	.10	2.65	2.65	9.0
31	6.9	5.9	-	.19	-	1.03	.89	-	0	-	5.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.8	0.21	5.23	8.09	162	498
Auguet	10.9	.31	6.34	9.81	197	603
September	2.35	.13	.467	.723	14.0	43
October	6.6	.13	1.39	2.15	43.1	132
November	7.2	0	.718	1.11	21.5	66
December	7.7	0	1.03	1.59	31.8	98
Calendar year 1946	17.4	0	2.70	4.18	985	3,020
January	6.0	0	1.37	2.12	42.4	130
February	2.65	1.46	2.24	3.47	62.8	193
March	8.7	0	3.64	5.63	113	346
April	14.3	.16	4.60	7.12	138	424
May	16.9	.27	7.80	12.1	242	742
June	15.6	.40	5.33	8.25	160	491
Fiscal year 1946-47	16.9	0	3.36	5.20	1,230	3,770

Makaleha ditch near Kealia

Location.- Parshall flume, lat. 22°06'55", long. 159°02'00", at end of last tunnel from which water spills down slope into Mimino Reservoir, 3.9 miles northwest of Kealia, and 4.1 miles northwest of Kapaa.

Records available.- November 1936 to June 1947. Equivalent records for July 1925 to November 1936 at site 150 feet downstream, collected by East Kauai Water Co.

Average discharge.- 10 years (1937-47), 4.08 million gallons a day (6.31 second-feet).

Extremes.- Maximum discharge during year, 16.4 million gallons a day (25.4 second-feet) Mar. 17 (gage height, 2.10 feet); minimum 0.04 million gallons a day (0.06 second-foot) Sept 5, 6, Nov. 11, 12.

1936-47: Maximum discharge, 26.5 million gallons a day (41.0 second-feet) July 2, 1942 (gage height, 2.82 feet); minimum, 0.02 million gallons a day (0.03 second-foot) Nov. 28, 29, 1942, Aug. 24, 1943, Sept. 24-27, 1944, Nov. 13, 1945.

Remarks.- Records excellent. Ditch diverts water from Makaleha Stream for irrigation of sugarcane. Flow regulated by gates at intake and wasteway 1 mile upstream.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.11	5.4	5.0	0.07	0.06	0.10	0.07	5.0	4.7	0.05	13.5	0.21
2	.07	5.9	5.0	.07	.05	.11	.07	5.4	5.6	.05	13.0	.21
3	.06	5.9	5.0	.07	.05	.11	.07	4.9	7.2	.05	1.01	.19
4	.06	5.9	1.64	.07	.06	.11	.07	4.7	9.9	.05	.58	1.64
5	.07	5.4	.04	.08	.06	.11	.08	4.7	6.7	2.75	.37	4.6
6	.06	5.4	.04	.08	.06	.10	.08	4.7	5.4	6.8	2.45	4.6
7	.06	5.9	.05	.08	.08	.17	.08	4.7	7.4	8.0	5.9	4.4
8	3.15	5.4	.05	.08	.05	.08	.08	4.6	6.4	10.1	6.6	4.4
9	5.0	5.4	.05	.10	.05	.11	.08	4.6	5.4	10.6	9.6	4.4
10	4.7	5.0	.05	.10	.05	.07	.08	4.5	4.8	6.4	4.8	4.4
11	4.5	5.4	.05	.10	.04	.07	.07	4.5	4.4	2.8	.21	4.8
12	4.5	5.0	.06	.08	.05	.07	.07	4.5	4.6	.48	.21	8.7
13	4.7	5.9	.05	.08	.12	.08	.07	4.5	4.8	.28	.19	8.0
14	4.4	5.4	.05	.10	.44	.17	.07	4.5	4.7	.23	.19	9.1
15	4.4	5.4	.05	.10	.07	.11	.07	4.5	4.5	.21	.19	7.2
16	4.6	5.4	.05	.10	.06	.10	.07	4.5	8.7	.19	.17	7.7
17	3.15	5.4	.05	.08	.05	.10	.07	4.6	11.5	3.1	.16	9.2
18	.62	5.4	.05	.06	.06	.10	.07	4.5	11.5	5.4	.14	7.2
19	.51	5.0	.05	.05	.06	.10	.07	4.5	6.4	7.3	.14	5.9
20	.40	5.4	.07	.05	.06	.10	.07	4.4	8.7	7.1	7.5	11.7
21	.26	5.4	.06	.05	.06	.10	2.4	4.4	9.3	5.4	7.2	11.8
22	.25	5.4	.05	.06	.06	.14	4.1	4.4	.26	8.6	6.4	11.2
23	.17	5.0	.06	.06	.06	.11	4.1	4.4	.26	8.1	7.9	8.8
24	3.8	5.0	.05	.07	.06	.10	4.3	4.4	.28	8.5	2.2	12.4
26	5.0	5.4	.05	.07	.06	.10	4.3	4.8	.25	10.9	.16	12.4
26	5.0	5.4	.06	.07	.06	.10	4.7	5.0	.26	7.7	.16	11.5
27	5.4	5.4	.06	.08	.07	.10	4.8	6.8	.44	6.8	.16	5.6
28	6.4	5.4	.06	.07	.08	.08	6.8	4.8	.38	6.4	7.5	2.75
29	5.9	5.4	.06	.07	.08	.08	3.85	-	.07	5.4	7.7	2.75
30	5.9	4.9	.06	.08	.10	.08	.30	-	.07	5.4	5.9	2.65
31	5.4	5.4	-	.08	-	.07	2.15	-	.06	-	1.87	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.4	0.06	2.86	4.43	88.6	272
August	5.9	4.9	5.40	8.36	167	514
September	5.0	.04	.601	.930	18.0	55
October	.10	.05	.076	.118	2.36	7.2
November	.44	.04	.075	.116	2.25	6.9
December	.17	.07	.101	.156	3.13	9.6
Calendar year 1946	9.2	.04	2.04	3.16	744	2,290
January	6.8	.07	1.40	2.17	43.3	133
February	6.8	4.4	4.71	7.29	132	404
March	11.5	.06	4.68	7.24	145	445
April	10.9	.05	4.84	7.49	145	445
May	13.5	.14	3.68	5.69	114	350
June	12.4	.19	6.35	9.82	190	584
Fiscal year 1946-47	13.5	.04	2.88	4.46	1,050	3,230

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 sea level (Highway Department bench mark).

Drainage area.- 5.5 square miles.

Records available.- August to November 1910, December 1912 to June 1947.

Average discharge.- 28 years (1919-47), 13.3 million gallons a day (20.6 second-feet).

Extremes.- Maximum discharge during year, 1,390 million gallons a day (2,150 second-feet) Nov. 14 (gage height, 5.51 feet), from rating curve extended above 230 million gallons a day; minimum, 2.05 million gallons a day (3.17 second-feet) Oct. 22.
1910, 1912-47: Maximum discharge, 5,780 million gallons a day (8,940 second-feet) Aug. 12, 1940 (gage height, 9.53 feet), from rating curve extended above 230 million gallons a day; minimum, slightly less than 1.4 million gallons a day (about 2.2 second-feet) Sept. 12, 13, 1923.

Remarks.- Records good. Anahola ditch diverts water 3 miles above station for irrigation in vicinity of Kealia.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.7	1.65	1.4	7.1	2.6	95
.8	2.25	1.6	11.7	3.0	162
.9	2.85	1.8	22	3.5	282
1.0	3.55	2.0	34.5		
1.2	5.1	2.3	59		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	34	5.5	4.7	2.55	2.65	9.1	10.7	4.8	3.05	38.5	70	5.3
2	8.7	24	3.9	2.45	2.35	5.5	10.4	4.6	3.05	23	62	5.0
3	6.0	10.7	4.5	2.35	2.35	5.8	10.8	4.4	9.2	18.2	34	5.1
4	4.5	11.1	3.85	2.45	9.4	6.0	13.1	4.2	53	15.1	18.2	4.9
5	6.2	6.2	3.5	2.45	4.1	4.7	14.9	4.2	10.7	13.1	13.1	4.7
6	6.8	6.4	3.8	5.9	2.8	23.5	10.1	4.1	5.3	11.4	11.1	4.6
7	6.7	6.6	3.6	3.6	2.5	201	8.5	4.0	4.6	10.7	9.8	4.4
8	24.5	6.4	3.5	2.6	2.85	24	7.9	3.9	4.5	12.7	9.1	4.3
9	17.1	5.5	3.2	2.5	3.45	41	7.3	3.85	4.4	11.7	9.8	4.2
10	7.1	5.0	3.2	3.5	2.8	19.2	7.8	3.8	4.0	10.4	8.8	4.2
11	5.6	5.3	3.05	3.15	6.7	14.6	7.1	3.7	3.8	112	7.9	4.3
12	6.0	4.6	2.9	2.5	72	49	6.6	3.7	3.55	23	7.7	4.3
13	6.8	6.1	2.85	2.35	286	69	6.3	3.7	13.7	15.5	8.3	4.2
14	5.5	4.7	3.6	2.5	207	67	6.0	f3.7	5.5	13.6	14.8	5.0
15	4.8	4.5	4.0	2.45	27	22.5	5.8	a3.7	4.3	13.1	13.6	4.2
16	12.9	4.5	4.2	2.45	16.0	52	6.8	a3.6	12.8	11.1	7.9	3.9
17	12.8	6.1	4.0	2.45	11.7	28.5	5.6	a3.55	49	9.8	6.9	3.9
18	6.0	4.3	3.25	2.3	12.7	36.5	5.6	a3.5	31	8.8	6.3	4.2
19	5.1	4.1	2.85	2.25	8.8	21.5	5.1	a3.4	11.7	9.1	5.9	3.85
20	5.2	3.85	2.75	2.2	7.3	22.5	4.9	a3.35	8.5	8.1	38	6.4
21	58	4.0	2.8	2.15	6.6	45	4.8	a3.25	7.7	7.4	10.4	5.9
22	46	3.7	2.65	2.55	6.1	163	4.7	f3.15	6.7	8.3	8.3	4.6
23	6.3	3.5	3.15	2.35	5.6	43	4.6	3.15	5.9	7.4	14.6	4.5
24	5.1	3.4	2.8	2.6	5.3	42	4.5	3.05	12.4	7.7	7.9	9.4
25	4.9	3.7	2.55	2.45	4.9	30	4.5	4.9	7.1	16.9	7.6	5.4
26	4.6	3.7	2.55	4.5	4.7	21.5	4.4	4.2	7.0	7.4	7.3	5.6
27	4.9	6.8	2.5	3.4	4.5	17.6	4.3	4.2	20	7.0	6.8	4.9
28	36	4.2	2.85	2.85	4.7	16.0	23.5	3.35	20.5	6.3	9.5	4.9
29	21	4.2	4.1	2.55	4.9	14.1	22.5	-	16.8	5.9	7.0	4.5
30	9.1	3.6	2.85	2.75	27.5	13.1	6.1	-	157	6.1	5.8	6.6
31	6.4	10.4	-	3.85	-	13.6	5.0	-	37	-	5.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	58	4.5	12.7	19.6	395	1,210
August	24	3.4	6.02	9.31	187	573
September	4.7	2.5	3.33	5.15	100	307
October	5.9	2.15	2.80	4.33	87.0	267
November	286	2.35	25.5	39.5	765	2,350
December	201	4.7	36.8	56.9	1,140	3,500
Calendar year 1946	286	2.15	16.3	25.2	5,960	18,300
January	23.5	4.3	8.07	12.5	250	768
February	4.9	3.05	3.82	5.91	107	328
March	157	3.05	17.5	27.1	544	1,670
April	112	5.9	15.6	24.1	469	1,440
May	70	5.6	14.6	22.6	454	1,390
June	9.4	3.85	4.91	7.60	147	452
Fiscal year 1946-47	286	2.15	12.7	19.6	4,640	14,280

a No gage-height record; discharge computed on basis of probable decrease in flow.
f Computed on basis of partly estimated gage-height record.

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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 1947.

Average discharge.- 24 years (1921-25, 1927-47), 3.29 million gallons a day (5.09 second-feet).

Extremes.- Maximum discharge during year, 81 million gallons a day (125 second-feet) Dec. 7 (gage height, 3.68 feet); minimum, 0.02 million gallons a day (0.03 second-foot) many times.

1915-47: 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.6	0.04	3.4	1.56	0.06	6.1	0.04	2.0	1.09	0.08	28.5	2.55
2	6.0	6.0	3.2	1.32	.06	2.95	.04	1.83	2.05	.04	7.8	2.35
3	5.6	7.6	5.8	1.32	.06	9.1	.04	1.65	6.2	.04	.37	2.55
4	3.1	7.6	3.0	1.24	.09	4.6	.02	1.56	13.4	.04	.10	2.2
5	5.8	5.0	3.0	1.16	.06	2.9	.04	1.48	4.4	.04	.08	2.1
6	5.7	5.5	2.55	6.9	.04	8.4	.02	1.32	2.0	.04	.08	2.0
7	5.1	5.5	2.35	2.25	.04	14.6	.02	1.32	2.1	4.9	3.55	1.83
8	7.4	5.1	2.9	1.40	.02	.16	.02	1.32	2.65	7.5	4.1	1.74
9	7.9	4.5	2.1	1.24	.04	.21	.02	1.24	1.74	8.3	4.1	1.65
10	4.4	3.8	2.1	3.3	.04	.06	.02	1.16	1.48	5.2	3.65	1.56
11	3.3	5.1	1.83	1.81	.10	.06	.02	1.16	1.24	7.1	3.2	1.65
12	4.7	3.2	1.83	1.24	.27	.20	.02	1.16	1.16	.04	3.75	1.83
13	5.5	5.0	1.65	1.16	.48	.24	.04	1.16	5.4	.02	7.3	2.1
14	4.1	3.9	2.55	1.16	.68	.28	.04	1.09	2.1	.02	13.8	6.3
15	3.2	3.2	2.9	1.16	.04	.08	1.93	1.09	1.40	.02	5.6	2.45
16	7.8	4.1	4.7	3.7	.04	.16	4.7	1.02	15.1	3.05	5.8	1.92
17	8.8	3.9	5.0	1.92	.04	.13	2.4	1.24	16.5	3.3	3.9	2.9
18	6.2	3.5	2.75	1.32	.06	.13	2.1	1.09	10.3	3.0	3.5	2.45
19	4.6	2.9	2.0	1.16	.04	.10	2.0	1.02	3.75	3.4	2.9	1.83
20	4.0	2.55	1.83	1.16	.04	.06	1.83	.96	3.1	3.65	17.8	7.2
21	7.9	3.65	1.74	1.16	.04	.20	1.74	.96	3.95	2.55	4.9	6.6
22	9.4	2.55	1.56	4.2	.04	.28	1.74	.96	2.45	4.2	5.5	3.4
23	6.9	2.2	2.5	1.65	.04	.08	1.65	.96	2.1	3.95	8.8	4.9
24	4.9	2.0	1.65	7.7	.04	.10	1.56	.96	12.3	4.6	6.4	13.7
25	4.2	3.0	1.48	1.95	1.12	.08	1.48	2.8	4.1	14.8	4.6	6.5
26	4.2	3.6	1.32	12.8	2.0	.06	1.74	3.5	7.2	4.2	5.8	7.2
27	5.6	6.0	1.32	3.75	2.0	.04	1.74	4.8	23	4.4	4.1	6.1
28	7.9	3.2	2.2	3.0	2.65	.04	10.0	1.24	20	3.2	8.2	5.6
29	7.4	4.1	4.5	1.10	3.4	.04	14.3	-	6.1	2.75	4.2	5.2
30	6.6	2.7	1.83	.08	18.5	.04	3.2	-	.22	2.65	3.2	8.3
31	1.62	10.7	-	.08	-	.04	2.3	-	6	-	2.75	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.6	1.62	5.82	9.00	180	554
August	10.7	.04	4.25	6.58	132	404
September	5.8	1.32	2.58	3.99	77.5	238
October	12.8	.08	2.42	3.74	75.0	230
November	18.5	.02	1.07	1.66	32.1	99
December	14.6	.04	1.66	2.57	51.5	158
Calendar year 1946	18.5	.02	2.71	4.19	989	3,040
January	14.3	.02	1.83	2.83	56.8	174
February	4.8	.96	1.50	2.32	42.0	129
March	23	.06	5.76	8.91	179	548
April	14.8	.02	3.24	5.01	97.1	298
May	28.5	.08	5.75	8.90	178	547
June	13.7	1.56	3.96	6.13	119	364
Fiscal year 1946-47	28.5	.02	3.34	5.17	1,220	3,740

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 west of Anahola, and 4.9 miles northwest of Kealia.

Records available.- December 1936 to June 1947.

Average discharge.- 11 years (1936-47), 3.34 million gallons a day (5.17 second-feet).

Extremes.- Maximum discharge during year, 76 million gallons a day (118 second-feet) Nov. 14 (gage height, 2.37 feet); no flow at times, when water was turned out of ditch. 1936-47: Maximum discharge, 110 million gallons a day (170 second-feet) Aug. 12, 1940 (gage height, 2.95 feet); 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	4.2		0	2.15	0.13	4.2	0	0	15.4	0.32	0.19
2	0	10.8		0	1.85	0	5.3	0	0	8.5	27	.19
3	0	.19		0	1.73	.13	4.9	0	0	8.5	26	.19
4	0	.13		0	10.9	.13	9.9	0	.09	6.4	14.0	.19
5	0	.13		0	5.6	.06	10.1	0	0	4.9	7.5	.26
6	0	.06		0	2.6	.19	4.7	0	0	4.7	5.7	.26
7	0	.06		0	2.0	18.0	4.9	0	0	.79	1.33	.26
8	0	.06		0	3.05	9.4	4.2	0	0	.19	.26	.26
9	0	.06		0	6.7	17.9	3.4	0	0	.19	.26	.26
10	0	.06		0	2.8	7.1	3.8	0	0	.19	.26	.26
11	0	.06		0	4.8	4.9	3.6	0	0	17.6	.26	.26
12	0	0		0	23	14.8	3.0	0	0	13.0	.19	.26
13	0	.06		0	37.5	17.3	2.8	0	0	7.1	.26	.26
14	0	0		0	29	28.5	2.8	0	0	5.5	.32	.19
15	0	0		0	10.9	9.9	.79	0	0	5.7	.19	0
16	.06	0		0	6.6	27.5	.32	0	.16	1.37	.19	0
17	.13	0		.13	5.1	19.6	.32	0	.19	.26	.19	.06
18	0	0		.13	9.5	21	.26	0	.16	.26	.13	.06
19	0	0		.13	4.5	12.5	.26	0	0	.26	.13	.06
20	0	0		.06	3.6	14.3	.19	0	0	.26	.26	.13
21	0	0		.06	3.25	21	.19	0	0	.26	.13	.13
22	.06	0		.06	3.1	31.5	.19	0	0	.26	.06	0
23	0	0		0	2.95	17.4	.19	0	0	.26	.13	.06
24	0	0		0	2.8	20.5	.26	0	.13	.26	.13	.26
25	0	0		0	1.28	14.6	.26	0	0	.28	.06	.13
26	0	0		.13	.26	8.7	.26	0	.03	.13	.06	.13
27	0	.06		0	.26	6.8	.19	.06	.19	.13	.06	.06
28	.06	0		0	.26	6.0	.26	0	.26	.13	.13	.06
29	.06	0		1.97	.26	5.3	.32	-	13.5	.06	.06	0
30	.06	0		3.05	.32	4.9	.06	-	34	.06	.13	.13
31	3.5	0		4.1	-	6.0	0	-	18.6	-	.19	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.5	0	0.127	0.196	3.93	12
August	10.8	0	.514	.795	15.9	49
September	0	0	0	0	0	0
October	4.1	0	.317	.490	9.82	30
November	37.5	.26	6.29	9.73	189	579
December	31.5	0	11.8	18.3	366	1,120
Calendar year 1946	37.5	0	3.72	5.76	1,360	4,170
January	10.1	0	2.32	3.59	71.9	221
February	.06	0	.002	.003	.06	.2
March	34	0	2.17	3.36	67.3	207
April	17.6	.06	3.43	5.31	103	316
May	27	.06	2.77	4.29	85.9	264
June	.26	0	.152	.235	4.56	14
Fiscal year 1946-47	37.5	0	2.51	3.88	917	2,810

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 1947. 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.- 10 years (1937-47), 2.66 million gallons a day (4.12 second-feet).

Extremes.- Maximum discharge during year, 12.6 million gallons a day (19.5 second-feet) Dec. 7 (gage height, 1.74 feet); no flow many times when water was turned out of ditch. 1936-47: 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.49	7.0	3.75	2.15	4.4	4.1	0	0	3.5	0	8.0	5.8
2	2.7	6.7	3.35	2.4	3.8	3.8	0	0	3.45	0	8.5	5.5
3	4.9	1.78	3.35	1.37	3.75	3.75	0	1.52	3.9	0	2.3	5.5
4	4.3	0	3.3	3.35	5.4	3.9	0	2.35	7.0	0	.02	5.2
5	4.6	0	3.1	3.35	6.1	3.65	0	5.1	6.6	2.85	3.5	4.9
6	5.6	0	3.15	3.9	5.0	3.75	0	5.0	5.5	4.8	6.6	4.9
7	5.3	2.55	3.15	4.1	4.2	2.4	0	5.0	5.1	6.6	7.5	4.8
8	6.1	3.75	3.0	3.65	4.5	0	0	4.8	4.9	7.0	7.5	4.6
9	6.7	3.75	2.85	3.35	5.1	0	0	4.8	5.5	3.4	7.5	4.5
10	7.0	3.75	3.65	4.1	4.8	0	0	4.6	4.4	0	7.0	4.5
11	6.1	3.75	4.0	4.0	5.6	0	0	4.4	4.1	0	7.0	4.5
12	5.6	4.0	3.9	3.45	6.1	0	0	4.3	3.9	0	7.0	4.6
13	5.4	3.5	3.75	3.3	6.1	0	0	4.2	6.6	0	7.0	4.5
14	4.9	3.45	4.2	3.45	2.7	0	0	4.2	5.9	0	3.35	4.8
15	4.6	3.8	4.6	3.45	0	0	4.1	4.8	4.8	0	0	4.5
16	5.0	3.7	4.6	3.35	0	0	6.6	4.1	5.5	0	0	4.1
17	5.4	3.45	4.6	3.35	0	0	6.4	4.0	7.0	5.1	0	4.3
18	5.7	3.15	4.3	3.3	0	0	7.0	4.1	8.0	7.8	0	4.3
19	5.3	3.15	4.0	3.1	0	0	6.6	3.8	7.5	7.0	3.4	3.9
20	4.7	3.35	3.9	3.0	0	0	7.0	3.75	7.0	7.0	7.5	5.1
21	3.2	3.45	4.0	2.95	0	0	6.1	3.6	7.0	7.0	7.0	5.3
22	0	3.3	3.75	3.15	0	0	6.6	3.6	6.6	7.0	7.0	4.7
23	2.8	3.15	3.3	3.2	0	0	5.8	3.6	6.1	7.0	7.0	4.3
24	5.0	3.1	1.40	3.15	0	0	5.7	3.45	4.1	7.0	7.0	5.9
25	4.8	3.3	1.35	3.2	3.4	0	5.6	4.7	4.6	7.5	3.05	5.4
26	4.2	3.3	1.35	4.1	4.2	0	5.7	4.6	6.6	4.3	0	5.1
27	4.2	4.4	1.40	4.4	4.1	0	5.9	4.4	3.1	0	4.2	4.9
28	2.15	3.6	3.1	4.4	3.9	0	5.8	4.0	0	4.6	6.6	4.9
29	2.9	3.45	2.4	4.1	3.8	0	5.4	-	0	6.0	6.6	4.6
30	4.8	3.3	1.55	4.7	4.4	0	3.65	-	0	6.0	6.1	6.6
31	4.9	3.45	-	5.5	-	0	1.05	-	0	-	7.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.0	0	4.53	7.01	140	431
August	7.0	0	3.30	5.11	102	314
September	4.6	1.35	3.27	5.06	98.1	301
October	5.5	1.37	3.49	5.40	108	332
November	6.1	0	3.04	4.70	91.4	280
December	4.1	0	.818	1.27	25.4	78
Calendar year 1946	7.0	0	2.38	3.68	866	2,660
January	7.0	0	3.06	4.73	95	292
February	5.1	0	3.81	5.89	107	328
March	8.0	0	4.78	7.40	148	455
April	7.8	0	3.60	5.57	108	331
May	8.5	0	5.01	7.75	155	476
June	6.6	3.9	4.88	7.55	146	450
Fiscal year 1946-47	8.5	0	3.63	5.62	1,320	4,070

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 1947.

Average discharge.- 14 years (1933-47), 3.73 million gallons a day (5.77 second-feet).

Extremes.- Maximum discharge during year, 54 million gallons a day (84 second-feet) Nov. 13 (gage height, 2.83 feet); minimum, 0.68 million gallons a day (1.05 second-feet) Nov. 7.
1932-47: Maximum discharge, 108 million gallons a day (167 second-feet) Jan. 2, 1933 (gage height, 4.41 feet); minimum, 0.19 million gallons a day (0.29 second-foot) May 24, 1933.

Remarks.- Records good. Dtich 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 used for irrigation in vicinity of Kilauea.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.9	2.35	1.80	1.16	1.02	2.9	3.55	1.63	0.95	12.1	12.4	1.89
2	2.75	7.3	1.39	1.09	.95	1.54	3.45	1.54	1.02	5.8	10.9	1.80
3	2.15	4.1	2.8	1.02	.81	1.85	3.35	1.54	3.25	4.9	7.2	1.98
4	1.54	3.35	1.63	1.02	2.65	1.63	4.5	1.47	9.6	4.0	4.3	1.71
5	2.45	2.55	1.39	1.02	1.30	1.23	5.1	1.39	3.4	3.25	3.35	1.71
6	2.8	3.15	1.39	2.5	.81	3.1	3.35	1.39	1.71	2.95	3.15	1.63
7	2.7	3.15	1.63	1.23	.75	23	3.05	1.39	1.54	3.2	3.05	1.63
8	8.3	2.75	1.54	1.09	.95	4.2	2.75	1.31	1.47	3.95	2.95	1.54
9	f5.2	2.55	1.39	1.02	1.10	9.2	2.55	1.31	1.31	3.8	3.05	1.54
10	f2.15	2.55	1.31	1.63	.88	4.3	2.75	1.28	1.16	3.05	3.05	1.54
11	1.71	2.45	1.16	1.23	2.2	3.45	2.55	1.28	1.16	14.8	2.65	1.54
12	2.4	2.15	1.16	1.02	10.3	11.4	2.45	1.28	1.09	5.4	2.65	1.63
13	2.4	2.65	1.09	.95	31.5	11.9	2.25	1.09	7.6	3.8	3.8	1.54
14	1.89	2.35	1.63	.95	22	14.4	2.25	1.09	2.25	3.25	5.4	2.0
15	1.63	2.35	1.80	.88	6.0	5.6	2.15	1.09	1.63	3.45	5.2	1.54
16	3.8	2.05	2.05	1.02	3.45	13.0	2.6	1.09	3.05	2.95	3.15	1.47
17	3.6	3.5	1.89	.88	2.75	10.1	2.15	1.23	13.4	2.75	2.95	1.80
18	2.35	2.35	1.31	.88	3.55	9.7	2.05	1.09	9.0	2.55	2.55	1.54
19	2.15	1.98	1.16	.88	2.55	2.35	1.98	1.02	3.35	2.65	2.25	1.39
20	1.98	1.89	1.16	.81	2.05	2.45	1.89	1.02	2.75	2.45	10.6	3.05
21	7.3	1.89	1.16	.81	1.89	2.25	1.80	.95	2.65	2.15	3.25	2.55
22	7.2	1.71	1.16	1.22	1.71	13.9	1.80	.95	2.25	3.75	2.95	1.89
23	2.95	1.63	2.0	.88	1.54	3.85	1.71	.95	1.98	2.95	3.65	1.98
24	2.45	1.54	1.39	1.09	1.47	3.8	1.63	.88	2.75	2.95	2.75	3.9
25	2.15	1.80	1.16	.95	1.39	4.2	1.63	2.55	2.05	5.6	2.55	2.55
26	2.05	1.71	1.16	2.25	1.31	4.8	1.63	1.54	2.1	2.95	2.5	3.0
27	2.8	2.45	1.16	1.28	1.31	5.4	1.54	1.54	4.5	2.65	2.25	2.35
28	9.9	1.89	1.54	1.09	1.39	5.0	3.0	1.02	4.6	2.45	2.95	2.15
29	5.6	1.98	2.05	.95	1.31	4.5	6.8	-	5.3	2.25	2.35	1.98
30	3.35	1.54	1.31	f1.41	5.9	4.3	2.35	-	23.5	2.25	2.05	3.25
31	2.75	3.9	-	f1.77	-	4.3	1.80	-	10.2	-	1.98	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.9	1.54	3.56	5.51	110	339
August	7.3	1.54	2.57	3.98	79.6	244
September	2.8	1.09	1.49	2.31	44.8	137
October	2.5	.81	1.16	1.79	36.0	110
November	31.5	.75	3.89	6.02	117	358
December	23	1.23	6.25	9.67	194	594
Calendar year 1946	32	.75	3.62	5.60	1,320	4,050
January	6.8	1.54	2.66	4.12	82.4	253
February	2.55	.88	1.28	1.98	35.9	110
March	23.5	.95	4.28	6.62	133	407
April	14.8	2.15	4.03	6.24	121	371
May	12.4	1.98	3.99	6.17	124	380
June	3.9	1.39	2.00	3.09	60.1	184
Fiscal year 1946-47	31.5	.75	3.11	4.81	1,140	3,490

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

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 1947.

Average discharge.- 14 years (1933-47), 3.28 million gallons a day (5.07 second-feet).

Extremes.- Maximum discharge during year, 31 million gallons a day (48 second-feet) Mar. 4 (gage height, 2.01 feet); minimum, 0.04 million gallons a day (0.06 second-foot) Dec. 28 29.

1932-47: 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. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.5	3.35	2.55	1.47	1.54	0.16	0.09	1.98	1.47	5.0	9.3	2.35
2	2.55	7.6	2.35	1.31	1.47	.09	.06	1.89	1.47	5.3	10.1	2.25
3	2.15	4.6	5.6	1.28	1.47	.41	.06	1.89	2.2	2.7	6.8	2.35
4	1.80	4.0	3.05	1.31	3.1	.96	2.95	1.71	6.5	2.25	4.5	2.15
5	2.35	3.7	2.75	1.23	1.98	1.31	3.95	1.80	3.75	2.95	3.8	2.05
6	2.65	4.0	2.55	3.25	1.54	.97	3.35	1.80	2.15	2.75	3.45	2.05
7	2.65	3.9	3.05	2.1	1.54	2.25	3.24	1.80	1.89	3.8	3.15	1.98
8	6.7	3.45	2.55	1.54	1.80	.12	3.05	1.71	1.98	4.7	2.95	1.98
9	5.0	3.35	2.35	1.47	1.89	.12	2.85	1.71	1.80	5.0	3.15	1.89
10	2.95	3.25	2.15	1.63	1.71	.12	3.05	1.06	1.80	4.3	2.95	1.89
11	2.45	3.35	2.05	1.54	2.5	.09	2.75	.52	1.71	3.2	2.75	1.89
12	2.85	2.85	2.05	1.31	4.1	.77	2.85	1.54	1.71	.12	2.55	1.89
13	2.65	3.25	1.98	1.23	2.75	.30	2.55	1.54	7.7	3.4	3.15	1.80
14	2.35	3.05	2.55	1.16	1.56	.16	2.55	1.63	2.95	4.5	6.0	1.98
15	2.05	3.05	2.65	1.16	.12	.09	2.55	1.63	2.25	4.4	5.6	1.71
16	4.1	2.75	2.55	1.23	.09	.16	2.05	1.54	2.4	3.9	4.0	1.71
17	3.55	3.25	2.45	1.23	.12	.12	2.45	1.80	8.2	3.7	5.8	1.89
18	2.95	2.85	1.98	1.16	.12	.19	2.35	1.63	10.0	3.45	4.1	1.71
19	2.75	2.65	1.80	1.16	.23	.06	2.25	1.54	4.1	3.45	3.45	1.63
20	2.55	2.45	1.80	1.23	.36	.06	2.15	1.47	3.55	3.15	10.4	2.65
21	5.2	2.45	1.63	1.16	1.49	.14	2.15	1.47	3.45	3.05	4.6	2.25
22	2.5	2.25	1.47	1.54	2.05	1.03	2.15	1.47	2.95	3.7	4.3	2.05
23	3.85	2.15	2.75	1.23	1.63	.21	2.15	1.47	2.65	3.05	4.3	2.05
24	3.9	2.05	1.71	1.47	1.47	.16	2.05	1.39	2.85	2.85	3.55	3.25
25	3.45	2.35	1.54	1.31	1.39	.27	2.05	2.35	2.55	4.6	3.15	3.05
26	3.15	2.35	1.39	2.15	1.39	.09	1.98	1.80	2.75	3.05	2.95	3.25
27	3.25	2.95	1.47	1.89	1.31	.06	1.98	1.98	4.7	2.85	2.95	2.85
28	9.5	2.45	1.31	1.63	1.31	.06	2.75	1.54	5.2	2.65	3.25	2.85
29	5.9	2.45	2.45	1.47	1.31	.06	6.0	-	8.1	2.55	2.05	2.85
30	4.6	2.15	1.71	1.71	1.58	.09	2.65	-	8.6	2.35	2.65	3.7
31	3.9	3.5	-	1.98	-	.16	2.15	-	7.7	-	2.45	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.5	1.80	3.60	5.57	112	343
August	7.6	2.05	3.15	4.87	97.8	300
September	5.6	1.31	2.27	3.51	68.2	209
October	3.25	1.16	1.50	2.32	46.5	143
November	4.1	.09	1.50	2.32	44.9	138
December	2.25	.06	.350	.542	10.8	33
Calendar year 1946	9.5	.06	2.22	3.43	809	2,480
January	6.0	.06	2.42	3.74	75.0	230
February	2.35	.52	1.63	2.52	45.7	140
March	10.0	1.47	3.97	6.14	123	378
April	5.3	.12	3.42	5.29	103	315
May	10.4	2.05	4.33	6.70	134	412
June	3.7	1.63	2.26	3.50	68.0	209
Fiscal year 1946-47	10.4	.06	2.54	3.93	929	2,850

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 1947.

Average discharge.- 12 years (1934-42, 1943-47), 2.72 million gallons a day (4.21 second-feet).

Extremes.- Maximum discharge during year, 56 million gallons a day (87 second-feet) Jan. 28 (gage height, 2.90 feet); no flow Jan. 10.
1934-47: 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. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.3	4.4	2.85	1.89	2.15	3.7	0.27	2.95	1.54	0.95	15.4	2.25
2	2.95	8.3	2.55	1.80	2.15	2.85	.27	2.75	2.25	.81	11.7	2.15
3	3.35	6.2	6.4	1.71	1.98	5.8	.27	2.65	3.1	.81	3.55	2.15
4	2.55	6.3	3.15	1.71	5.7	4.4	.23	2.55	5.0	.68	.75	2.05
5	3.1	4.7	2.75	1.71	3.55	3.25	.23	2.45	2.6	.57	1.53	2.35
6	3.35	5.1	2.65	1.98	2.55	13.5	.19	2.35	1.89	.57	2.05	2.65
7	3.25	4.9	2.65	1.80	2.35	20.5	.19	2.35	2.35	.52	1.98	2.55
8	6.2	4.4	2.55	1.63	2.65	.88	.36	2.25	2.65	.46	1.71	2.45
9	5.6	4.0	2.35	1.63	2.65	.75	.32	2.15	1.98	.46	1.71	2.35
10	3.55	3.9	2.15	2.05	2.25	.63	2.35	1.98	1.80	.46	1.63	2.45
11	2.95	3.7	1.98	1.71	2.55	.52	3.45	1.89	1.63	.69	1.54	2.35
12	3.6	3.25	1.98	1.54	16.7	.75	3.25	1.89	1.63	.46	2.3	2.65
13	3.7	3.9	1.98	1.54	12.3	.81	3.05	1.80	8.1	.46	5.4	2.35
14	3.35	4.3	2.55	1.54	.91	.68	2.95	1.71	2.75	.36	12.2	3.55
15	2.85	3.7	2.65	1.47	3.6	.57	2.80	1.71	2.15	.32	5.4	2.35
16	6.5	3.25	2.65	3.55	4.3	.68	2.85	1.63	3.35	1.81	8.9	2.25
17	5.0	3.25	3.15	1.89	4.6	.81	2.65	1.80	9.9	2.95	3.55	2.35
18	3.9	3.15	2.45	1.63	4.1	.75	2.55	1.54	7.2	2.75	3.15	2.25
19	3.8	2.95	2.15	1.63	3.05	.68	2.45	1.54	3.15	3.35	2.75	1.98
20	3.45	2.75	2.05	1.63	2.85	.57	2.35	1.47	2.65	3.7	7.9	3.65
21	7.9	2.75	1.98	1.47	2.75	.63	2.25	1.47	2.65	3.45	2.45	3.8
22	13.4	2.45	1.98	2.1	2.65	.75	2.25	1.47	2.35	4.0	2.35	2.75
23	2.9	2.45	2.15	1.63	2.45	.57	2.15	1.47	2.25	3.45	2.35	1.98
24	6.3	2.35	1.98	2.9	2.45	.57	2.25	1.54	3.2	3.25	2.15	4.8
25	1.14	2.45	1.89	1.89	2.55	.57	2.25	2.05	2.65	7.5	2.05	4.0
26	2.3	2.45	1.80	3.5	2.65	.57	2.25	2.05	3.6	4.1	2.35	5.7
27	5.1	3.05	1.80	2.55	2.55	.46	2.45	2.6	10.0	4.0	2.55	4.5
28	8.0	2.55	2.7	2.35	2.55	.41	15.0	1.71	8.0	3.45	3.15	5.6
29	1.62	2.65	3.35	2.15	2.75	.36	6.6	-	11.3	3.15	2.75	6.0
30	.63	2.25	2.15	2.65	8.0	.32	4.0	-	14.2	3.05	2.45	8.6
31	3.15	4.0	-	2.65	-	.27	3.25	-	1.16	-	2.35	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.4	0.63	4.22	6.53	131	401
August	8.3	2.25	3.74	5.79	116	355
September	6.4	1.80	2.51	3.88	75.4	231
October	3.55	1.47	2.00	3.09	61.9	190
November	16.7	.91	3.81	5.89	114	351
December	20.5	.27	2.21	3.42	68.6	210
Calendar year 1946	20.5	.27	2.63	4.07	959	2,940
January	15.0	.19	2.51	3.88	77.7	239
February	2.95	1.47	1.99	3.08	55.8	171
March	14.2	1.16	4.16	6.44	129	396
April	7.5	.32	2.08	3.22	62.5	192
May	15.4	.75	3.94	6.10	122	375
June	8.6	1.98	3.23	5.00	96.9	297
Fiscal year 1946-47	20.5	.19	3.04	4.70	1,110	3,410

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 6¼ miles southeast of Hanalei. Altitude of gage, 625 feet (from topographic map).

Drainage area.- 7.4 square miles.

Records available.- January 1914 to June 1947.

Average discharge.- 29 years (1918-47), 45.4 million gallons a day (70.2 second-feet).

Extremes.- Maximum discharge during year, 6,990 million gallons a day (10,800 second-feet) Nov. 14 (gage height, 8.89 feet), from rating curve extended above 200 million gallons a day; minimum recorded, 6.9 million gallons a day (10.7 second-feet) Mar. 15, 16.
1914-47: Maximum discharge, 13,500 million gallons a day (20,900 second-feet) Apr. 27, 1939 (gage height, 11.12 feet), from rating curve extended above 200 million gallons a day; 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 Kaapoko Stream and Hanalei River at points about 2 miles above station, for irrigation in vicinity of Lihue.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.3	6.7	0.8	21	2.5	212
.4	9.0	1.1	36	3.0	318
.5	11.5	1.4	59	3.5	452
.6	14.2	2.0	129		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	30	21	17.8	12.6	14.2	24.5	34	26.5	7.8	38	63	11.2
2	17.8	79	16.1	12.0	13.4	18.1	52	26	11.3	19.2	121	10.8
3	22.5	44	28.5	11.8	15.0	72	56	25	37	46	106	10.5
4	14.2	54	16.1	13.1	102	29.5	69	24	22.5	19.9	37	10.0
5	31.5	22.5	19.4	13.9	47	23.5	53	19.2	10.5	16.8	20.5	9.8
6	25	28	16.4	13.6	20.5	415	36.5	13.9	8.5	20.5	17.1	9.8
7	19.0	34.5	34	11.8	17.4	451	41	14.3	8.8	31	15.5	9.2
8	62	23	19.9	20	17.4	114	38.5	13.4	9.5	27	15.3	9.0
9	35	19.6	15.5	12.6	20.5	186	32.5	13.4	8.3	27	16.4	9.0
10	18.8	21	14.5	15.3	22.5	71	32	13.1	7.8	22.5	14.2	8.8
11	16.4	19.9	13.7	12.0	18.8	48	30.5	13.4	7.4	93	13.7	9.0
12	20.5	16.1	13.4	11.8	142	129	29	13.6	7.4	31	13.4	10.2
13	21	19.5	13.1	11.2	432	106	28	12.8	7.4	22	23	10.2
14	18.1	31	13.7	11.2	440	197	27.5	12.6	7.6	18.5	19.5	15.9
15	15.2	17.4	14.2	11.2	71	69	31	13.6	7.2	16.8	14.2	10.5
16	46	19.2	24.5	11.0	38.5	190	30.5	10.9	18	16.4	85	9.0
17	37.5	20.5	21.5	11.2	32	135	26.5	16.5	16.1	14.2	57	10.2
18	24	34.5	16.1	12.6	44	198	26	14.0	12.2	13.7	37.5	10.0
19	21	16.4	13.7	11.0	26	112	25.5	9.0	8.5	13.9	16.4	9.0
20	16.8	14.8	13.7	10.8	22.5	194	25.5	9.9	9.0	13.4	92	20.5
21	78	18.5	13.4	10.5	19.9	313	25	78	9.8	12.0	19.6	19.4
22	187	13.7	12.8	16.9	20.5	404	24.5	7.6	8.5	12.6	19.2	13.4
23	26	13.1	12.8	16.4	18.1	139	24	7.4	8.3	12.0	20.5	12.2
24	19.6	12.8	12.0	43	17.4	120	24.5	7.4	17.6	12.3	16.1	25.5
25	19.9	18.5	11.5	12.3	17.1	79	26	7.8	11.0	23.5	14.8	28.5
26	18.8	18.9	11.5	77	16.4	57	29	8.5	15.3	12.6	15.8	33.5
27	26	20	14.7	28	16.8	47	28	12.4	125	11.2	14.5	22
28	121	18.0	18.0	17.4	25	41	206	8.1	87	10.8	21.5	30
29	57	18.2	21.5	24	20	38.5	58	-	51	10.2	14.5	53
30	33	14.5	13.7	23.5	81	36.5	31	-	70	10.2	12.8	49
31	26	65	-	18.6	-	39.5	27.5	-	30	-	12.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	187	14.2	36.3	5.62	1,120	3,450
August	79	12.8	25.4	39.3	787	2,420
September	34	11.5	16.6	25.7	498	1,530
October	77	10.5	17.4	26.9	538	1,650
November	440	13.4	60.3	93.3	1,810	5,550
December	451	18.1	132	204	4,100	12,570
Calendar year 1946	451	9.5	47.0	72.7	17,150	52,600
January	206	24	39.6	61.3	1,230	3,770
February	26.5	7.4	13.6	21.0	382	1,170
March	125	7.2	21.5	33.3	666	2,040
April	93	10.2	21.6	33.4	648	1,990
May	121	12.0	31.6	48.9	979	3,000
June	53	8.8	16.6	25.7	499	1,530
Fiscal year 1946-47	451	7.2	36.3	56.2	13,260	40,670

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 1947.

Average discharge.- 15 years (1932-47), 10.7 million gallons a day (16.6 second-feet).

Extremes.- Maximum discharge during year, 1,130 million gallons a day (1,840 second-feet) Dec. 21 (gage height, 6.02 feet), from rating curve extended above 60 million gallons a day; minimum, 2.35 million gallons a day (3.64 second-feet) Oct. 18-22, 25-29.
1931-47: 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 no gage-height record or faulty operating of recording gage, which are poor.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.6	4.4	3.25	2.6	3.45	6.1	10.3	3.3	7.0	13	50	5.3
2	6.7	9.5	3.24	2.5	2.8	4.0	18.2	3.3	4.8	10	100	5.0
3	8.2	5.6	5.4	2.5	2.6	18.1	17.8	5.2	8.0	8.0	130	5.0
4	4.4	4.1	3.25	2.5	43	7.9	29	4.0	10	6.8	30	4.8
5	7.3	3.65	3.1	3.1	44	4.6	27	3.5	5.0	6.2	12	4.6
6	5.7	4.0	2.8	2.9	13.6	4.0	11.2	4.9	4.5	10	10	4.6
7	6.0	4.3	3.8	2.65	5.2	44	14.4	4.5	4.0	40	8.6	4.6
8	28.5	3.8	3.0	2.6	8.2	6.7	12.2	3.8	9.0	15	7.4	4.5
9	18.1	3.45	2.8	2.5	7.8	20.5	a8.8	14	5.0	9.0	6.8	4.4
10	6.6	8.8	2.65	5.2	4.8	10.6	a10	7.0	4.4	7.0	6.4	4.4
11	4.9	4.3	2.6	4.7	3.9	5.2	a9.2	4.7	4.0	70	6.0	4.4
12	21	3.55	2.5	2.8	3.8	5.9	a8.0	4.2	3.7	20	6.8	4.4
13	12.2	3.55	2.5	2.6	86	21.5	a7.2	3.8	8.4	9.7	8.0	4.4
14	6.7	3.45	2.6	2.5	41	83	a6.4	3.6	5.3	7.4	16	5.3
15	5.2	3.45	3.25	2.5	25	13.7	a6.0	3.5	5.0	6.8	10	5.0
16	8.5	5.1	2.6	2.4	7.6	98	a6.6	3.4	20	6.2	6.6	4.5
17	6.4	4.3	3.45	2.4	5.3	28.5	a5.6	3.3	8.0	5.8	17	8.4
18	5.4	3.65	3.0	2.35	4.4	52	a5.0	3.2	6.0	5.5	10	5.3
19	5.0	3.25	2.65	2.35	3.65	29	a4.8	3.1	4.5	5.4	7.0	5.6
20	4.8	2.9	2.5	2.4	3.45	51	a4.5	3.1	4.0	5.2	60	22
21	4.2	2.9	2.5	2.4	3.25	171	a4.3	3.0	3.7	4.9	13	13
22	8.6	2.8	2.5	2.9	3.35	198	a4.1	3.0	3.7	4.7	9.0	7.6
23	5.2	2.75	2.5	3.0	3.1	19.9	a4.0	3.0	5.0	4.6	8.4	10
24	3.9	2.75	2.5	2.5	2.9	92	a3.9	3.0	25	4.5	14	9.4
25	3.9	2.75	2.5	2.35	2.8	47	a3.8	3.5	10	32	12	12
26	10.4	2.9	2.5	2.35	2.75	14.2	a3.7	4.5	12	7.6	11.3	25
27	23.5	3.24	2.4	2.35	2.75	a8.6	a3.6	6.0	100	10	10.4	9.4
28	68	2.8	3.3	2.35	5.5	a8.4	3.45	20	70	6.4	15.0	14
29	12.0	3.1	3.55	2.4	5.9	23	4.6	-	35	5.2	10.1	20
30	6.7	3.0	2.8	4.2	26.5	28.5	3.55	-	23	4.8	6.9	32
31	5.3	2.9	-	4.2	-	16.6	3.4	-	19	-	6.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	68	3.9	11.0	17.0	341	1,050
August	9.5	2.75	3.90	6.03	121	371
September	5.4	2.4	2.93	4.53	88.0	270
October	5.2	2.35	2.81	4.35	87.0	267
November	86	2.6	12.6	19.5	378	1,160
December	198	4.0	36.8	56.9	1,140	3,500
Calendar year 1946	198	2.1	11.5	17.8	4,180	12,840
January	29	3.4	8.54	13.2	265	812
February	20	3.0	4.84	7.49	135	416
March	100	3.7	14.1	21.8	437	1,340
April	70	4.5	11.7	18.1	352	1,080
May	130	6.0	20.2	31.3	625	1,920
June	32	4.4	8.96	13.9	269	825
Fiscal year 1946-47	198	2.35	11.6	17.9	4,240	13,010

a No gage-height record; discharge computed on basis of records for Hanakoa Stream.
Note.- Recording-gage friction roll not operating properly July 17-22, Jan. 31 to Feb. 6, Feb. 9 to Apr. 12, Apr. 14-25, Apr. 27 to May 25, June 14-30; 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 7½ miles west of Hanalei. Altitude of gage, 470 feet (by barometer).

Drainage area.- 1.1 square miles.

Records available.- December 1931 to June 1947.

Average discharge.- 15 years (1932-47), 3.51 million gallons a day (5.43 second-feet).

Extremes.- Maximum discharge during year, 687 million gallons a day (1,060 second-feet) Dec. 21 (gage height, 5.98 feet), from rating curve extended above 30 million gallons a day; minimum, 0.28 million gallons a day (0.43 second-foot) Sept. 26.
1931-47: Maximum discharge, that of Dec. 21, 1946; minimum, 0.17 million gallons a day (0.26 second-foot) Mar. 21, 22, 1934.

Remarks.- Records fair except those for July 5-18, which are poor. No diversions.

Rating tables, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Dec. 21

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	2.7	71
1.1	1.20	1.7	14.2	3.0	101
1.2	2.35	1.9	22	3.6	184

Dec. 22 to June 30

0.9	0.10	1.3	4.5
1.0	.55	1.4	6.6
1.05	1.01	1.5	9.0
1.1	1.47	1.7	15.0
1.2	2.75	1.9	22

Note.- Same as preceding table above 1.9 feet.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.6	1.02	0.47	0.36	0.65	1.50	4.3	0.64	1.38	3.1	24.5	1.01
2	1.20	1.66	.47	.32	.47	.94	7.9	.83	.92	2.25	43	1.01
3	1.40	1.11	.88	.32	.40	5.8	8.0	1.46	1.75	1.85	55	.92
4	.72	.79	.53	.32	38.5	2.15	14.0	.83	2.65	1.60	12.8	.92
5	a1.3	.72	.47	.32	7.8	1.30	14.0	.55	.92	1.38	4.9	.83
6	a1.0	.87	.43	.40	2.2	1.30	5.0	.73	.73	2.55	3.1	.83
7	a1.1	.79	.71	.40	1.30	30.5	5.2	.92	.83	19.0	2.25	.73
8	a7.0	.65	.53	.40	3.4	3.1	4.7	.55	2.55	4.9	1.85	.73
9	a4.5	.59	.43	.36	1.50	12.0	3.3	5.0	1.01	2.75	1.60	.64
10	a1.2	2.1	.40	2.45	1.02	4.0	3.8	1.19	.83	3.25	1.73	.64
11	a.88	.87	.43	.88	.79	1.96	2.75	.83	.64	39	1.38	.64
12	a5.0	.85	.40	.47	14.2	2.2	2.25	.55	.50	9.8	2.05	.73
13	a3.3	.59	.36	.40	35	5.1	1.98	.55	2.35	4.4	4.6	.64
14	a1.3	.59	.40	.36	16.2	29	1.73	.50	1.29	2.6	6.7	.92
15	a.95	.53	.65	.32	6.7	4.2	1.80	.46	.83	2.25	2.4	.64
16	a1.4	.86	.43	.32	2.5	57	1.85	.55	13.2	1.73	1.60	.55
17	a1.1	1.02	.65	.32	1.71	12.7	1.38	.46	3.5	1.47	7.2	1.07
18	a1.0	.85	.59	.32	1.30	25	1.29	.46	1.73	1.38	3.15	.83
19	.94	.53	.43	.32	1.11	21	1.19	.42	1.10	1.38	1.85	.73
20	.87	.47	.40	.32	.94	34	1.10	.42	.92	1.19	23.5	5.1
21	.87	.47	.36	.32	.87	182	1.01	.42	.73	1.01	3.4	1.74
22	1.33	.47	.36	.63	.94	72	1.01	.42	.73	.92	2.25	1.01
23	.87	.47	.36	.47	.79	12.2	.92	.37	1.19	.83	2.1	1.65
24	.72	.43	.32	.40	.65	63	.92	.42	8.2	.99	2.8	1.74
25	.65	.43	.32	.36	.65	23.5	.83	2.0	3.6	6.7	2.4	2.35
26	1.80	.47	.32	.36	.59	6.8	.83	2.75	3.9	1.60	1.98	7.7
27	3.9	.59	.32	.36	.65	4.5	.73	3.75	47	1.98	1.60	2.25
28	25	.47	.43	.36	1.60	3.45	.73	2.1	34.5	1.29	2.8	3.45
29	3.05	.47	.59	.36	1.78	10.5	1.37	-	13.2	1.01	1.73	8.0
30	1.71	.47	.43	.90	6.8	14.7	.73	-	5.3	.92	1.38	11.0
31	1.30	.47	-	.72	-	7.7	.64	-	4.4	-	1.10	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25	0.65	2.58	3.99	80.0	245
August	2.1	.43	.718	1.11	22.3	68
September	.88	.32	.462	.715	13.9	43
October	2.45	.32	.481	.744	14.9	46
November	38.5	.40	5.10	7.89	153	470
December	182	.94	21.1	32.6	655	2,010
Calendar year 1946	182	.32	4.65	7.19	1,700	5,200
January	14	.64	3.13	4.84	97.0	298
February	5.0	.37	1.08	1.67	30.1	92
March	47	.50	5.24	8.11	162	498
April	39	.83	4.17	6.45	125	384
May	55	1.10	7.38	11.4	229	702
June	11.0	.55	2.03	3.14	61.0	187
Fiscal year 1946-47	182	.32	4.50	6.96	1,640	5,040

a Faulty gage-height record; discharge computed on basis of records for Hanakapiai Stream.

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 1947.

Average discharge.- 15 years (1932-47), 4.27 million gallons a day (6.61 second-feet).

Extremes.- Maximum discharge during year, 562 million gallons a day (870 second-feet) Dec. 22 (gage height, 4.36 feet), from rating curve extended above 18 million gallons a day; minimum, 2.25 million gallons a day (3.48 second-feet) Nov. 28.
1931-47: Maximum discharge, that of Dec. 22, 1946; minimum, 1.73 million gallons a day (2.68 second-feet) June 2, 1945.

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

Rating tables, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Dec. 21						Dec. 22 to June 30					
1.0	1.95	1.5	10.4	2.6	87	1.0	2.65	1.4	10.8	2.3	61
1.1	2.75	1.6	13.6	3.0	145	1.1	4.0	1.6	17.3	2.6	93
1.2	4.0	1.8	21.5	3.2	183	1.2	5.8	1.8	25.5	2.8	121
1.3	5.8	2.0	32.5			1.3	8.1	2.0	37		
1.4	7.9	2.3	55								

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.1	2.75	2.65	2.75	2.9	2.35	5.3	3.75	4.2	5.4	9.0	4.7
2	3.0	2.75	2.65	2.75	2.75	2.35	5.7	3.75	4.0	5.1	15	4.7
3	3.0	2.75	2.65	2.75	2.75	2.45	6.4	3.85	4.2	4.9	22	4.7
4	3.0	2.75	2.65	2.75	5.4	2.35	8.0	3.75	4.9	4.9	9.0	4.7
5	3.0	2.75	2.6	2.75	3.0	2.35	6.6	3.6	4.4	4.9	7.5	4.7
6	3.0	2.75	2.6	2.75	2.75	2.35	5.2	3.75	4.0	5.1	6.5	4.7
7	3.0	2.75	2.6	2.75	2.75	27.5	4.8	3.75	4.0	7.6	6.0	4.7
8	3.75	2.75	2.6	2.75	2.75	6.2	4.4	3.6	4.0	6.3	5.6	4.7
9	3.75	2.75	2.65	2.75	2.75	8.5	4.2	4.7	4.0	5.6	5.5	4.7
10	3.0	2.75	2.65	3.2	2.75	9.6	4.1	4.2	4.0	6.1	5.4	4.7
11	2.9	2.75	2.65	2.9	2.75	5.8	4.0	4.0	4.0	23	5.4	4.7
12	3.3	2.75	2.65	2.75	2.9	5.6	4.0	3.85	4.0	11.9	5.4	4.7
13	3.25	2.75	2.65	2.75	5.8	5.6	3.9	3.75	5.6	8.1	5.4	4.7
14	3.0	2.75	2.65	2.75	9.5	9.5	3.9	3.75	4.7	6.7	5.8	4.7
15	2.9	2.75	2.65	2.75	7.0	7.9	3.9	3.75	4.4	6.0	5.4	4.7
16	2.9	2.75	2.65	2.75	3.5	17.2	3.8	3.75	7.0	5.6	5.4	4.7
17	2.9	2.75	2.75	2.75	3.0	11.5	3.8	3.75	5.8	5.4	5.8	4.9
18	2.75	2.75	2.65	2.75	2.75	9.7	3.8	3.75	5.1	5.1	5.4	4.9
19	2.75	2.65	2.65	2.75	2.65	9.2	3.8	3.75	4.7	4.9	5.4	4.9
20	2.75	2.65	2.65	2.9	2.6	27	3.8	3.75	4.5	4.9	6.4	4.9
21	2.85	2.65	2.65	2.9	2.5	166	3.8	3.75	4.4	4.9	5.8	4.9
22	2.9	2.65	2.65	3.0	2.5	164	3.8	3.75	4.4	4.9	5.6	4.9
23	2.75	2.65	2.65	3.1	2.45	14.5	3.8	3.75	4.2	4.7	5.3	4.9
24	2.75	2.65	2.65	3.1	2.45	111	3.8	3.75	5.8	4.9	5.3	4.9
25	2.75	2.65	2.75	3.0	2.45	76	3.8	4.5	5.1	4.9	5.1	4.9
26	2.9	2.65	2.75	3.0	2.45	10	3.75	4.2	4.9	4.7	4.9	5.1
27	2.75	2.65	2.75	3.0	2.35	6.0	3.75	4.9	13.8	4.7	4.9	4.9
28	4.2	2.65	2.75	3.0	2.35	5.0	3.75	4.4	17.6	4.7	4.9	4.9
29	3.4	2.65	2.75	2.9	2.35	6.5	4.0	-	10.9	4.7	4.9	5.3
30	2.9	2.65	2.75	2.9	2.35	8.0	3.75	-	7.6	4.7	4.9	5.8
31	2.9	2.65	-	2.9	-	6.0	3.75	-	6.5	-	4.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.2	2.75	3.03	4.69	94.0	289
August	2.75	2.65	2.71	4.19	84.0	258
September	2.75	2.6	2.67	4.13	80.0	246
October	3.2	2.75	2.86	4.43	88.6	272
November	9.5	2.35	3.24	5.01	97.2	298
December	166	2.35	24.1	37.3	748	2,300
Calendar year 1946	166	2.0	4.92	7.61	1,800	5,520
January	8.0	3.75	4.36	6.75	135	415
February	4.9	3.6	3.91	6.05	110	336
March	17.6	4.0	5.70	8.82	177	542
April	23	4.7	6.18	9.56	185	569
May	22	4.7	6.57	10.2	204	625
June	5.8	4.7	4.84	7.49	145	446
Fiscal year 1946-47	166	2.35	5.88	9.10	2,150	6,600

Note.- No gage-height record Dec. 26 to Jan. 25, Apr. 28 to May 21; discharge computed on basis of records for stations on nearby streams.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Kauai during fiscal year July 1946 to June 1947

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
Sept.15	Koaie.....	Waiahulu Stream...	At altitude 3,300 feet, near Waimea.	3.20	2.07
17	....do.....	....do.....	Above tunnel at camp 2, near Waimea.	14.7	9.50
July 3	Opaikaa.....	Wailua River.....	Below confluence of First Right and Left Branches Opaikaa Stream, near Lihue.	2.38	1.54
Sept.12	....do.....	....do.....	....do.....	1.05	.679
Nov. 20	....do.....	....do.....	....do.....	3.06	1.98
Jan. 20	....do.....	....do.....	....do.....	3.05	1.97
May 29	....do.....	....do.....	....do.....	1.74	1.12
Sept.24	Second Right Branch Kalalau.	Kalalau Stream....	At altitude 850 feet, near Hanalei	2.09	1.35
Jan. 25	....do.....	....do.....	....do.....	1.60	1.03
Apr. 3	....do.....	....do.....	....do.....	3.02	1.95
May 22	....do.....	....do.....	....do.....	2.69	1.74
Sept.24	Second Left Branch Kalalau.	....do.....	100 feet downstream from ford on main trail, near Hanalei.	1.14	.737
Jan. 26	....do.....	....do.....	....do.....	1.81	1.17
Apr. 3	....do.....	....do.....	....do.....	1.88	1.21
May 24	....do.....	....do.....	....do.....	1.60	1.03
July 12	Keahapana ditch.	Cane field.....	At intake, near Kealia.....	.491	.317
12	....do.....	....do.....	....do.....	5.19	3.35
Sept.21	....do.....	....do.....	....do.....	5.54	3.58
May 26	....do.....	....do.....	....do.....	5.54	3.58
July 15	Nualolo.....	Pacific Ocean.....	1 mile above mouth, near Hanalei..	.690	.446
15	Awaawapuhi.....	....do.....	500 feet above mouth, near Hanalei	.603	.390
May 7	Mililli.....	....do.....	At altitude 200 feet, near Hanalei	.663	.429
17	....do.....	....do.....	At altitude 100 feet, near Hanalei	1.39	.898
18	....do.....	....do.....	At mouth, near Hanalei.....	1.30	.840

Right Branch of North Fork Kaukonahua Stream near Wahiawa

Location.- Concrete weir control, lat. 21°31'15", long. 157°56'55", 200 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.- 1.2 square miles.

Records available.- May 1913 to January 1933, February 1934 to June 1947.

Average discharge.- 28 years (1915-24, 1926-32, 1934-47), 7.28 million gallons a day (11.3 second-feet).

Extremes.- Maximum discharge during year, 832 million gallons a day (1,290 second-feet) Mar. 30 (gage height, 7.46 feet), from rating curve extended above 40 million gallons a day by test on model of station site; minimum, 0.26 million gallons a day (0.40 second-foot) Feb. 28.

1913-47: Maximum discharge, 1,500 million gallons a day (2,320 second-feet) Aug. 12, 1940 (gage height, 9.34 feet), from rating curve extended above 40 million gallons a day by test on model of station site; minimum, 0.09 million gallons a day (0.15 second-foot) Mar 22, 1926.

Remarks.- Records good except those below 3 million gallons a day, which are fair. No diversions above station.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Mar. 30						Mar. 31 to June 30					
2.6	0.30	3.0	4.5	3.6	24.5	2.5	0.10	2.9	2.45	3.3	11.4
2.7	.80	3.1	6.6	3.9	42	2.6	.30	3.0	3.9	3.4	15.1
2.8	1.63	3.2	9.2	4.2	64	2.7	.75	3.1	5.8	3.6	24
2.9	2.85	3.4	16.0	4.5	88	2.8	1.35	3.2	8.3	4.0	49

Discharge, in million gallons, fiscal year July1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.7	3.35	3.25	0.70	1.05	4.6	2.75	0.88	53	5.9	1.97	2.25
2	2.6	3.55	8.5	.65	.97	6.6	7.2	.80	24	3.5	22.5	1.79
3	2.35	5.2	7.4	.65	.88	3.85	3.0	1.47	2.95	6.3	11.4	5.5
4	1.87	4.6	2.85	3.85	11.3	2.75	4.0	1.05	1.46	4.2	3.7	2.1
5	2.0	2.75	2.85	1.54	8.1	2.5	2.75	.75	.97	2.45	1.90	1.68
6	2.05	2.85	2.75	.88	1.87	52	2.25	.70	.88	4.7	1.29	1.46
7	8.3	3.8	2.25	.65	1.46	23	2.1	.65	.90	2.85	1.17	1.29
8	3.6	2.6	2.0	2.65	1.68	6.6	2.0	.65	.7	3.7	24	1.23
9	4.0	3.2	1.87	6.7	2.35	5.2	1.63	.65	.9	3.7	13.6	1.23
10	2.25	8.0	2.7	2.85	14.0	11.2	1.63	.60	.97	3.15	2.75	1.23
11	1.75	3.0	1.87	1.05	36	4.0	1.63	.55	.75	3.0	2.0	1.31
12	1.87	2.5	2.00	.75	4.0	3.35	1.46	.55	.65	3.4	5.4	12.1
13	6.0	4.7	1.46	.65	6.6	3.0	1.79	.55	.60	1.79	15.6	2.45
14	2.0	7.1	1.38	.60	7.3	3.2	2.25	.50	.55	1.57	3.25	4.4
15	1.95	2.6	1.87	.55	16.2	8.1	1.38	.45	.55	1.35	45	2.0
16	19.5	7.6	1.62	1.14	3.2	10.1	7.4	.45	.68	1.29	12.9	1.46
17	21	14.7	1.38	.70	2.6	23	2.85	.45	.5	1.17	13.4	1.29
18	7.4	28.5	1.46	1.49	2.25	13.6	1.38	.40	.4	1.11	4.7	1.29
19	4.5	6.4	1.13	.70	2.0	4.9	1.22	.35	.30	1.05	3.9	1.11
20	3.75	7.4	1.05	.60	1.87	8.1	1.13	.35	1.05	.93	6.2	6.4
21	22.5	5.0	.97	.55	1.63	86	1.05	.30	.75	.87	5.9	2.75
22	16.5	3.35	1.27	1.62	1.87	53	.97	.30	1.13	.81	6.2	1.79
23	4.2	3.35	1.58	4.8	1.63	10.8	.88	.30	.80	.75	3.05	3.5
24	3.35	2.75	.88	6.1	1.38	7.4	1.44	.30	.70	.75	2.6	6.1
25	3.0	6.6	.80	1.54	1.22	6.0	1.05	.30	.65	.70	2.95	4.4
26	3.15	6.4	.70	19.1	1.13	4.9	.97	.28	.55	.70	3.95	7.6
27	21.5	2.95	.70	3.8	1.22	4.3	3.35	.28	.60	.66	2.25	10.0
28	21	2.6	2.45	2.25	8.6	3.85	8.2	.26	.60	.62	10.5	7.0
29	5.8	3.2	1.63	1.87	12.5	3.35	2.85	-	63	.62	2.9	7.8
30	4.7	2.5	1.05	1.55	32.5	4.1	1.46	-	69	.62	2.25	5.8
31	4.0	5.4	-	1.46	-	3.2	1.05	-	5.4	-	2.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	22.5	1.75	6.88	10.6	213	654
August	28.5	2.5	5.44	8.42	168	517
September	8.5	.70	2.12	3.28	63.7	195
October	19.1	.55	2.39	3.70	74.0	227
November	36	.88	6.31	9.76	189	581
December	86	2.5	12.5	19.3	387	1,190
Calendar year 1946	86	.30	5.00	7.74	1,820	5,600
January	8.2	.88	2.42	3.74	75.1	230
February	1.47	.26	.540	.836	15.1	46
March	69	.55	8.58	13.3	266	816
April	6.3	.62	2.14	3.31	64.2	197
May	45	1.17	7.79	12.1	241	741
June	12.1	1.11	3.68	5.69	110	339
Fiscal year 1946-47	86	.26	5.12	7.92	1,870	5,730

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 1947.

Average discharge.- 30 years (1915-24, 1926-47), 10.8 million gallons a day (16.7 second-feet).

Extremes.- Maximum discharge during year, 1,280 million gallons a day (1,980 second-feet) Mar. 30 (gage height, 7.31 feet), from rating curve extended above 43 million gallons a day by test on model of station site; minimum, 0.18 million gallons a day (0.28 second-foot) Feb. 27, 28.

1913-47: 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.4	0.16	2.0	3.1	2.8	27.5
1.5	.31	2.1	4.3	3.0	42
1.6	.56	2.2	5.9	3.3	74
1.7	.93	2.3	7.9	3.6	115
1.8	1.45	2.4	10.4	4.0	185
1.9	2.15	2.6	17.4		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.1	5.3	4.5	1.66	2.0	7.4	3.45	.98	80	11.0	5.4	4.1
2	3.95	6.5	16	1.52	1.80	9.8	8.0	.93	35.5	5.7	41	2.8
3	3.2	6.8	15	1.50	1.87	10.2	3.7	1.21	3.3	5.6	20	18.5
4	2.6	6.8	4.4	5.0	23	4.8	4.1	1.03	1.59	7.3	9.2	4.2
5	4.2	4.2	4.4	2.8	12.7	3.8	3.35	.78	1.09	3.8	4.4	3.0
6	4.6	4.5	4.2	1.66	3.4	58	2.8	.71	1.26	11.0	2.9	2.7
7	19.1	7.4	3.7	1.35	2.8	21.5	2.55	.67	2.0	5.8	2.35	2.45
8	11.5	6.6	3.5	5.0	4.5	7.0	2.35	.56	2.15	8.9	38.5	2.35
9	9.6	8.1	3.4	12.0	4.7	5.7	2.15	.56	2.1	6.3	59	2.25
10	4.1	13.3	4.2	5.6	17.1	17.6	2.1	.54	.93	4.4	6.9	2.1
11	3.35	5.4	3.3	2.0	46	4.8	1.94	.51	.67	5.3	4.5	2.6
12	4.9	4.1	3.3	1.59	5.6	4.1	1.80	.46	.54	5.4	10.1	35
13	13.1	18.4	2.6	1.40	6.7	3.7	2.8	.44	.48	2.9	29	6.5
14	4.6	17.7	2.5	1.29	15.3	4.6	3.75	.41	.44	2.55	5.6	5.1
15	4.1	5.5	3.3	1.19	22.5	14.7	1.73	.38	.41	2.25	53	3.6
16	33	7.3	3.3	2.75	4.2	18.8	12.4	.36	.65	2.15	14.4	3.2
17	23.5	14.1	3.25	1.45	3.45	49	3.65	.34	47	1.87	11.0	2.75
18	10.7	21.5	3.1	3.35	3.1	19.5	1.80	.30	3.7	1.73	5.9	2.6
19	7.2	7.6	2.25	1.40	2.8	6.9	1.52	.26	2.05	1.59	6.3	2.15
20	5.8	6.8	2.1	1.29	2.55	11.7	1.40	.25	1.35	1.45	8.2	13.0
21	92	5.2	1.94	1.11	2.35	166	1.35	.25	1.09	1.35	8.5	6.3
22	22.5	4.1	2.8	2.3	2.45	60	1.24	.24	1.86	1.29	9.6	3.6
23	6.1	5.5	5.0	2.45	2.6	12.8	1.19	.24	1.11	1.24	4.6	7.8
24	5.4	4.0	2.2	8.6	1.94	9.2	2.35	.22	.86	1.40	4.1	8.6
25	4.6	7.4	1.80	2.3	1.80	7.3	1.35	.22	.74	1.35	4.2	8.1
26	5.7	7.0	1.52	38	1.73	6.3	1.24	.22	.56	1.19	5.3	26.5
27	34	4.5	1.45	6.9	2.45	5.4	1.52	.20	.67	1.03	3.45	42
28	44	4.0	9.6	3.5	12.4	4.8	2.2	.19	.71	.98	15.6	32
29	11.3	4.6	4.7	3.4	39.5	4.2	5.6	-	139	.89	4.7	22
30	8.6	3.9	2.15	3.7	67	5.4	1.80	-	87	.89	3.45	14.6
31	6.3	5.8	-	3.45	-	3.95	1.14	-	10.4	-	3.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	92	2.6	13.6	21.0	423	1,300
August	21.5	3.9	7.55	11.7	234	718
September	16	1.45	4.18	6.47	125	385
October	38	1.11	4.24	6.56	132	404
November	67	1.73	10.7	16.6	320	983
December	166	3.7	18.4	28.5	569	1,750
Calendar year 1946	166	.26	8.05	12.5	2,940	9,030
January	12.4	1.14	2.85	4.41	88.3	271
February	1.21	.19	.481	.744	13.5	41
March	139	.41	13.9	21.5	431	1,320
April	11.0	.89	3.62	5.60	109	333
May	59	2.35	13.0	20.1	405	1,240
June	42	2.1	9.75	15.1	292	897
Fiscal year 1946-47	166	.19	8.61	13.3	3,140	9,640

Note.- No gage-height record Aug. 24 to Sept. 16; discharge computed on basis of records for stations on Right Branch and South Fork.

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.

Drainage area.- 1.9 square miles.

Records available.- May 1944 to June 1947.

Extremes.- Maximum discharge during year, 597 million gallons a day (924 second-feet) Dec. 21 (gage height, 5.17 feet), from rating curve extended above 80 million gallons a day by test on model of station site; minimum, 0.08 million gallons a day (0.12 second-foot) Feb. 28, Mar. 15, 16.
1944-47: Maximum discharge, that of Dec. 21, 1946; minimum, 0.01 million gallons a day (0.02 second-foot) Feb. 12, 1945.

Remarks.- Records good except those for Nov. 1-30, Jan. 3-10, which are poor.

Rating tables, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.06	0.8	1.02	1.5	25
.3	.11	.9	1.38	1.7	38
.4	.20	1.0	2.55	2.0	63
.5	.32	1.1	6.2	2.5	122
.6	.50	1.2	10.2	3.0	191
.7	.74	1.3	14.5		

Discharge, in million gallons, fiscal year July1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.9	4.0	3.8	0.96	0.70	6.4	4.0	0.60	11.1	7.0	4.5	1.88
2	5.0	4.0	12.2	.86	.55	8.4	8.0	.57	27.5	3.65	45	1.53
3	2.15	5.2	15.5	.67	.50	23	4.3	.76	2.25	2.25	.23	5.8
4	1.38	5.6	3.3	1.25	6.0	7.0	3.3	.61	.75	3.65	8.8	1.77
5	1.53	2.9	2.0	1.10	4.0	4.3	2.9	.50	.44	1.77	4.7	1.31
6	1.54	5.9	8.0	.77	1.1	47	2.5	.45	.98	12.2	2.55	1.20
7	7.2	5.8	2.9	.60	.80	32.5	2.5	.43	.60	8.0	1.88	1.06
8	7.0	6.4	1.88	3.0	1.0	7.4	2.0	.39	.52	8.2	2.25	.96
9	9.4	4.3	1.53	11.0	1.5	6.6	1.88	.37	.25	3.3	47	.88
10	3.65	6.9	2.2	6.5	14	20.5	1.88	.36	.18	2.0	7.9	.82
11	2.0	2.9	1.47	1.33	28	5.4	1.68	.31	.15	3.3	4.0	1.26
12	10.7	2.0	1.31	.82	3.5	4.3	1.38	.30	.12	4.2	7.1	17.0
13	15.8	12.7	1.09	.64	5.5	3.65	4.1	.28	.10	1.53	30.5	3.3
14	5.0	17.0	1.09	.55	7.0	3.65	4.7	.26	.10	1.24	5.8	1.88
15	5.6	4.3	1.20	.50	13	15.2	1.53	.25	.09	1.06	12.3	1.34
16	21	3.3	1.50	.50	3.0	20.5	12.1	.22	.08	.99	10.4	1.24
17	9.4	4.2	1.41	.51	2.7	56	5.8	.21	35.5	.82	4.7	1.24
18	7.0	9.2	1.60	1.14	2.4	35.5	1.60	.20	2.3	.72	3.65	.99
19	5.0	3.3	1.10	.64	2.2	9.4	1.27	.19	.62	.64	4.0	.82
20	4.3	2.55	.96	.52	2.1	12.3	1.09	.17	.24	.60	9.0	13.1
21	10.8	2.55	.94	.45	2.0	142	.96	.16	.12	.57	9.0	4.7
22	12.3	1.77	1.09	.62	2.1	61	.88	.16	1.57	.52	10.9	4.0
23	3.65	1.94	3.55	.52	2.0	15.5	.82	.15	.63	.50	4.3	8.7
24	3.65	1.53	1.26	1.55	1.7	11.5	.88	.13	.22	1.13	3.3	6.5
25	3.3	4.4	1.12	.72	1.6	8.9	.77	.13	.16	2.2	2.9	4.6
26	2.9	4.9	.72	9.1	1.4	7.4	.72	.12	.10	.67	7.1	24.5
27	41	2.55	.67	2.0	2.0	6.6	.94	.10	.09	.48	2.9	42
28	27.5	1.53	10.5	1.12	10	5.8	.92	.08	.10	.52	15.2	34.5
29	9.5	3.95	2.9	.84	30	3.6	8.3	-	79	.43	5.2	25.5
30	7.0	1.69	1.50	1.16	50	5.8	1.60	-	51	.43	2.55	23.5
31	5.0	1.47	-	1.21	-	5.0	.76	-	31.5	-	1.88	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	41	1.38	8.42	13.0	261	801
August	17.0	1.47	4.54	7.02	141	432
September	15.5	.67	3.01	4.66	90.3	277
October	11.0	.45	1.71	2.65	53.2	163
November	50	.50	6.74	10.4	202	621
December	142	3.65	19.4	30.0	602	1,850
Calendar year 1946	142	.13	5.94	9.19	2,170	6,660
January	12.1	.72	2.78	4.30	86.1	264
February	.76	.08	.302	.467	8.46	26
March	79	.08	8.01	12.4	248	762
April	12.2	.43	2.49	3.85	74.6	229
May	47	1.88	9.81	15.2	304	934
June	42	.82	7.93	12.3	238	730
Fiscal year 1946-47	142	.08	6.33	9.79	2,310	7,090

Note.- No gage-height record Nov. 1-30; discharge computed on basis of records for stations on North Fork.

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.

Drainage area.- 3.3 square miles.

Records available.- October 1946 to June 1947.

Extremes.- Maximum discharge during period, 1,960 million gallons a day (3,050 second-feet) Dec. 21 (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.

Remarks.- Records good except those for Oct. 21-28, which are fair.

Rating table, Oct. 16, 1946, to June 30, 1947 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.36	0.8	4.7	2.0	68
.4	.76	.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

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1				-	1.45	9.1	7.4	1.94	5.3	17.8	1.06	f2.95
2				-	1.35	8.3	12.4	1.86	30.5	5.7	72	2.65
3				-	1.06	25.5	8.9	2.7	6.6	4.2	57	7.1
4				-	11.1	10.5	6.2	2.3	3.35	4.4	29.5	3.75
5				-	39	5.5	6.2	1.78	2.4	17.8	10.6	2.3
6				-	5.9	43	4.9	1.69	2.3	21.5	5.8	1.78
7				-	2.85	62	4.1	1.60	2.55	21	4.3	1.52
8				-	3.7	11.0	4.3	1.52	3.95	19.3	3.45	1.35
9				-	5.3	7.8	3.45	1.60	1.54	9.0	59	1.23
10				-	9.5	24.5	3.6	1.60	1.11	4.8	14.3	1.17
11				-	55	8.3	3.45	1.23	.94	4.0	7.2	2.05
12				-	10.2	6.2	3.3	1.29	.88	6.2	6.2	26
13				-	20.5	5.3	3.95	1.29	.76	3.15	66	9.0
14				-	5.2	4.6	6.3	1.23	.94	2.05	11.7	6.6
15				-	73	13.0	3.65	1.23	.82	1.52	20.5	3.2
16				a0.76	7.9	29.5	48	1.23	.68	1.35	42	2.15
17				a.76	4.9	66	23.5	1.17	32.5	1.29	10.0	2.1
18				a1.44	4.0	104	6.3	1.23	5.8	1.17	7.4	1.94
19				a1.23	3.1	16.4	4.3	1.11	1.33	1.06	6.4	1.78
20				a.94	2.1	17.4	3.45	1.06	.88	1.00	11.2	15.0
21				a.80	1.78	408	3.1	1.11	.87	.94	8.8	8.6
22				a1.3	1.78	232	2.75	1.11	1.26	.94	15.6	9.3
23				a1.5	1.78	38.5	2.65	1.11	1.17	.94	6.4	4.5
24				a4.5	1.60	24.5	3.6	1.06	.88	.82	4.4	14.3
25				a2.0	1.29	18.1	2.75	1.11	.76	4.1	4.3	f10.3
26				a6.0	1.11	13.8	2.4	1.17	.76	f1.78	8.8	f51
27				a3.0	1.00	11.7	2.55	1.14	.68	1.23	4.1	74
28				a1.0	5.3	10.6	2.85	1.11	.68	1.29	13.3	62
29				f.56	18.4	9.1	6.9	-	50	1.00	8.5	66
30				.68	56	9.6	5.4	-	140	1.00	f3.6	67
31				2.05	-	9.7	2.3	-	24.5	-	2.95	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October 16-31	6.0	0.56	1.78	2.75	28.5	88
November	73	1.00	11.9	18.4	357	1,100
December	408	4.6	40.8	63.1	1,260	3,880
Calendar year	-	-	-	-	-	-
January	48	2.3	6.61	10.2	205	629
February	2.7	1.06	1.41	2.18	39.6	121
March	140	.68	10.5	16.2	327	1,000
April	21.5	.82	5.41	8.37	162	498
May	72	1.06	17.0	26.3	526	1,620
June	74	1.17	15.3	23.7	459	1,410
The period	-	-	-	-	-	10,350

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

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.

Records available.- March 1931 to June 1934, July 1937 to June 1947.

Average discharge.- 13 years (1931-34, 1937-47), 11.6 million gallons a day (17.9 second-feet), unadjusted for pumpage.

Extremes.- Maximum daily discharge during year, 12.8 million gallons a day (19.8 second-feet) Nov. 4, 9, 14, 15, 18; minimum daily, 6.0 million gallons a day (9.3 second-feet) June 19, 20.

1931-34, 1937-47: 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) June 18-20, 1941, June 19, 20, 1947.

Remarks.- Records good. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.8	8.0	9.6	11.3	12.4	11.3	a10	11.3	10.6	10.6	9.0	10.3
2	6.8	8.0	9.6	11.3	12.4	11.3	a10	11.3	10.6	10.6	9.3	9.0
3	7.7	8.0	9.6	11.3	12.4	11.3	a11	11.3	10.6	10.6	9.6	9.0
4	9.6	9.6	10.0	11.3	12.8	11.3	11.3	11.3	10.6	11.0	10.6	8.0
5	8.3	8.0	10.3	11.7	12.4	11.3	11.3	11.3	10.6	11.0	10.6	8.0
6	8.0	8.0	10.3	12.0	12.4	11.3	11.3	11.3	10.6	11.0	10.3	8.0
7	9.6	8.0	10.6	11.7	12.4	11.3	11.3	11.3	10.6	11.0	10.3	9.0
8	7.1	8.0	10.6	12.0	12.4	11.0	11.3	11.3	10.6	10.6	10.6	10.3
9	6.6	8.0	10.6	11.7	12.8	11.0	11.3	11.3	10.6	11.0	10.6	9.0
10	6.6	8.3	10.6	12.4	12.4	10.6	11.3	11.3	10.3	11.0	10.3	9.0
11	6.6	9.6	10.6	12.0	12.0	10.3	11.3	11.0	10.3	10.6	10.3	8.7
12	6.6	7.1	10.6	12.0	12.0	10.0	11.3	11.0	10.3	10.6	9.6	7.4
13	7.7	7.1	11.0	11.7	12.4	10.0	11.3	11.0	10.3	10.6	9.6	7.1
14	9.3	6.6	11.0	11.3	12.8	10.0	11.0	10.6	10.3	7.7	9.6	9.0
15	7.4	6.8	11.0	11.3	12.8	10.0	11.0	10.6	10.6	7.7	9.6	9.6
16	7.4	6.8	11.0	11.7	12.4	9.6	11.0	10.6	10.6	7.7	9.6	7.4
17	7.1	6.8	11.3	11.7	12.4	9.6	11.0	10.6	10.6	7.7	9.6	7.4
18	7.1	9.3	11.0	12.0	12.8	9.6	11.0	10.6	10.6	7.7	11.0	7.4
19	7.1	8.3	11.0	12.0	12.4	9.6	11.3	10.6	10.6	8.7	9.6	6.0
20	7.1	8.3	11.3	12.0	12.4	9.6	11.3	11.0	10.3	10.3	9.3	6.0
21	9.3	8.0	11.3	12.0	12.4	a9.6	11.3	11.0	10.3	7.7	9.6	7.4
22	7.1	6.8	11.3	12.0	12.0	a9.6	11.3	10.6	10.3	7.7	9.6	10.0
23	7.4	6.8	11.3	12.0	12.0	a9.6	11.3	11.3	10.6	8.7	9.6	7.1
24	7.4	7.7	11.3	12.0	12.0	a10	11.3	11.0	10.6	8.7	9.3	8.7
25	7.7	9.6	11.3	12.0	12.0	a10	11.3	11.0	10.3	8.7	10.6	10.3
26	7.7	7.1	11.3	12.0	12.0	a10	11.3	10.6	10.0	9.0	9.3	10.3
27	7.7	6.6	11.3	12.0	11.7	a10	11.3	10.6	9.0	10.3	9.0	10.0
28	9.6	6.6	11.3	12.0	12.0	a10	11.3	10.6	9.0	8.7	9.0	10.0
29	8.3	6.8	11.3	12.0	11.7	a10	11.3	-	9.0	8.7	9.0	10.0
30	8.0	6.6	11.3	12.4	11.3	a10	11.3	-	10.3	8.7	10.3	10.0
31	8.0	7.7	-	12.4	-	a10	11.3	-	10.6	-	9.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.6	6.6	7.70	11.9	239	733
August	9.6	6.6	7.71	11.9	239	733
September	11.3	9.6	10.8	16.7	325	996
October	12.4	11.3	11.8	18.3	367	1,130
November	12.8	11.3	12.3	19.0	368	1,130
December	11.3	9.6	10.3	15.9	319	978
Calendar year 1946	12.8	6.6	9.94	15.4	3,630	11,140
January	11.3	10.0	11.2	17.3	346	1,060
February	11.3	10.6	11.0	17.0	307	943
March	10.6	9.0	10.3	15.9	320	983
April	11.0	7.7	9.49	14.7	285	873
May	11.0	9.0	9.78	15.1	303	931
June	10.3	6.0	8.65	13.4	259	796
Fiscal year 1946-47	12.8	6.0	10.1	15.6	3,680	11,290

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

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Pearl Harbor Springs at Puukapu, near Pearl City

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

Records available.- July 1931 to June 1947.

Average discharge.- 15 years (1931-35, 1936-47), 3.73 million gallons a day (5.77 second-feet).

Extremes.- Maximum daily discharge during year, 3.45 million gallons a day (5.34 second-feet) Nov. 7-14; minimum daily, 2.5 million gallons a day (3.9 second-feet) Aug. 31.
1931-47: Maximum daily discharge, 6.0 million gallons a day (9.3 second-feet) June 4, 1932, Mar. 4, 1933; minimum daily, 1.55 million gallons a day (2.40 second-feet) July 22, 1931.

Remarks.- Records good. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.6	2.75	2.6	3.0	3.3	3.3	3.3	3.35	3.1	2.95	2.95	2.95
2	2.6	2.7	2.7	3.0	3.35	3.3	3.3	3.35	3.1	2.95	3.0	2.95
3	2.6	2.7	2.75	3.0	3.35	3.2	3.3	3.35	3.2	2.95	3.1	2.95
4	2.6	2.7	2.75	3.0	3.35	3.2	3.3	3.35	3.2	2.95	3.0	2.95
5	2.6	2.7	2.85	3.0	3.35	3.2	3.3	3.35	3.1	2.95	3.0	2.95
6	2.6	2.7	2.85	3.0	3.35	3.2	3.35	3.3	3.1	2.95	3.0	2.85
7	2.6	2.7	2.85	3.0	3.45	3.2	3.35	3.3	3.1	3.0	3.0	2.85
8	2.6	2.7	2.85	3.1	3.45	3.2	3.35	3.3	3.1	3.0	3.0	2.85
9	2.6	2.7	2.95	3.1	3.45	3.2	3.3	3.35	3.2	3.0	3.0	2.85
10	2.6	2.7	2.95	3.1	3.45	3.2	3.3	3.3	3.2	3.0	2.95	2.85
11	2.6	2.7	2.95	3.1	3.45	3.1	3.3	3.3	3.1	3.0	2.95	2.85
12	2.6	2.7	2.95	3.1	3.45	3.1	3.35	3.3	3.1	3.0	2.95	2.75
13	2.6	2.7	2.95	3.1	3.45	3.1	3.35	3.3	3.1	3.0	2.95	2.75
14	2.6	2.6	2.95	3.1	3.45	3.1	3.35	3.3	3.0	3.0	3.0	2.75
15	2.6	2.6	2.95	3.1	3.45	3.1	3.35	3.3	3.0	3.0	3.0	2.85
16	2.6	2.6	2.95	3.1	3.45	3.1	3.35	3.3	3.0	3.0	3.1	2.85
17	2.6	2.6	2.95	3.1	3.45	3.1	3.35	3.3	3.0	3.0	3.0	2.85
18	2.6	2.6	2.95	3.1	3.45	3.1	3.35	3.3	3.0	2.95	3.0	2.85
19	2.6	2.6	2.95	3.1	3.45	3.1	3.35	3.2	3.0	2.95	3.0	2.85
20	2.6	2.6	2.95	3.1	3.35	3.1	3.35	3.2	3.0	3.0	3.0	2.85
21	2.7	2.6	2.95	3.1	3.35	3.1	3.35	3.3	2.95	3.1	2.95	2.85
22	2.7	2.6	3.0	3.1	3.3	3.1	3.35	3.3	2.95	3.1	2.95	2.75
23	2.7	2.6	3.0	3.2	3.3	3.1	3.35	3.3	3.0	3.0	2.95	2.75
24	2.7	2.6	3.0	3.2	3.3	3.2	3.35	3.2	3.0	3.0	2.95	2.75
25	2.7	2.6	3.0	3.2	3.3	3.2	3.35	3.2	2.95	3.0	2.95	2.75
26	2.7	2.6	2.95	3.2	3.3	3.2	3.35	3.1	2.95	3.0	2.95	2.75
27	2.75	2.6	3.0	3.2	3.3	3.2	3.35	3.1	2.95	3.0	2.95	2.75
28	2.75	2.6	3.0	3.2	3.3	3.2	3.35	3.1	2.95	2.95	2.85	2.75
29	2.75	2.6	3.0	3.3	3.3	3.2	3.35	-	2.95	2.95	2.85	2.85
30	2.75	2.6	3.0	3.3	3.3	3.3	3.35	-	2.95	2.95	2.95	2.85
31	2.75	2.5	-	3.3	-	3.3	3.35	-	2.95	-	2.95	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.75	2.6	2.64	4.08	82.0	251
August	2.75	2.5	2.64	4.08	81.8	251
September	3.0	2.6	2.92	4.52	87.5	269
October	3.3	3.0	3.12	4.83	96.6	296
November	3.45	3.3	3.38	5.23	101	311
December	3.3	3.1	3.17	4.90	98.3	302
Calendar year 1946	3.45	2.5	2.85	4.41	1,040	3,200
January	3.35	3.3	3.34	5.17	103	317
February	3.35	3.1	3.28	5.07	91.7	281
March	3.2	2.95	3.04	4.70	94.2	289
April	3.1	2.95	2.99	4.63	89.6	275
May	3.1	2.85	2.97	4.60	92.2	283
June	2.95	2.75	2.83	4.38	85.0	261
Fiscal year 1946-47	3.45	2.5	3.02	4.67	1,100	3,390

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 1947.

Extremes.- Not determined because of 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	-	24.5	19.9	35.5	22	27	31	29.5	22	35.5	22	26
2	-	24.5	24.5	26	22	24.5	31	27	27	35.5	23	20.5
3	-	24.5	24.5	23	20.5	22	31	26	19.3	35.5	26	20.5
4	32.5	28	24.5	23	22	18.1	31	26	20.5	35.5	28	20.5
5	28	24.5	-	23	22	16.0	29.5	27	27	32.5	28	20.5
6	27	23	-	23	22	18.8	31	27	27	34	27	20.5
7	32.5	24.5	-	23	22	29.5	31	27	27	31	24.5	23
8	23	24.5	-	23	22	29.5	31	28	27	31	22	23
9	20.5	24.5	-	23	20.5	29.5	31	31	26	31	26	20.5
10	17.1	23	-	23	20.5	29.5	31	28	27	23	28	23
11	17.0	28	-	23	24.5	29.5	31	28	26	24.5	24.5	15.7
12	24.5	24.5	-	23	26	31	29.5	28	15.7	27	24.5	16.9
13	24.5	23	-	23	27	29.5	27	27	13.4	32.5	24.5	20.5
14	32.5	23	-	24.5	27	31	27	29.5	13.4	29.5	23	24.5
15	27	19.3	-	24.5	27	29.5	19.3	28	13.4	28	27	24.5
16	23	20.5	-	24.5	27	29.5	19.3	27	22	28	28	16.9
17	26	13.2	-	24.5	27	29.5	31	27	22	29.5	28	16.9
18	26	23.5	-	24.5	27	31	29.5	23	-	29.5	26	16.9
19	27	14.2	-	23	27	29.5	31	22	-	27	29.5	18.1
20	28	11.8	-	23	27	29.5	31	23	-	29.5	24.5	20.5
21	31	12.1	-	28	27	31	31	23	-	29.5	26	24.5
22	26	11.0	-	28	29.5	32.5	31	23	-	27	24.5	22
23	26	11.8	-	28	29.5	a31	31	27	-	27	28	19.3
24	26	16.5	-	28	29.5	a31	31	27	-	27	28	15.7
25	24.5	23.5	-	28	22	a31	31	26	-	28	26	15.7
26	26	16.0	-	26	19.3	31	29.5	26	-	28	23	15.7
27	24.5	10.0	38.5	22	19.2	29.5	29.5	24.5	-	32.5	23	15.7
28	31	9.6	29.5	22	29.5	31	31	19.3	32.5	29.5	22	22
29	28	9.1	32.5	22	17.6	31	28	-	31	26	23	22
30	27	8.3	35.5	22	20.5	31	31	-	34	22	27	18.1
31	26	6.5	-	22	-	31	27	-	35.5	-	22	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 4-31	32.5	17.0	26.1	40.4	732	2,250
August	28	6.5	18.7	28.9	581	1,780
September	-	-	-	-	-	-
October	35.5	22	24.5	37.9	759	2,330
November	29.5	17.6	24.2	37.4	726	2,230
December	32.5	16.0	28.5	44.1	885	2,720
Calendar year	-	-	-	-	-	-
January	31	19.3	29.5	45.6	915	2,810
February	31	19.3	26.2	40.5	735	2,260
March	-	-	-	-	-	-
April	35.5	22	29.5	45.6	886	2,720
May	29.5	22	25.4	39.3	786	2,410
June	26	15.7	20.0	30.9	600	1,840
The period	-	-	-	-	-	-

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

Pearl Harbor Springs at Waiau, near Pearl City

Location.- Lat. 21°23'25", long. 157°57'40", on left bank of stream, a fifth of a mile below Kamehameha Highway, 0.8 mile east of Pearl City, and 8.5 miles northwest of Honolulu.

Records available.- May 1931 to February 1939, December 1942 to January 1947 (discontinued).

Extremes.- Maximum and minimum daily discharge during period not determined because of faulty operation of control.
1931-39, 1942-45: Maximum daily discharge, 10.1 million gallons a day (15.6 second-feet) May 24, Dec. 18, 19, 1937; minimum daily, 2.7 million gallons a day (4.2 second-feet) Mar. 2, 6, 25, 30, 1945.

Remarks.- Records poor. Water is used for cooling condensers of Hawaiian Electric Co. power plant and afterwards for irrigation of sugarcane.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.5	4.9	-	5.7	4.9	4.1	4.1					
2	4.5	4.9	-	4.9	4.5	5.3	5.3					
3	4.5	4.5	-	4.9	3.3	5.3	5.3					
4	4.1	4.5	-	5.7	5.3	4.5	4.9					
5	4.9	4.9	-	4.9	5.3	4.9	3.3					
6	4.5	4.9	-	3.3	5.3	4.5	4.9					
7	4.5	4.9	4.9	5.3	4.9	4.5	5.3					
8	4.5	4.9	4.9	5.3	4.9	4.1	5.3					
9	3.3	4.9	4.9	5.3	4.9	5.3	5.3					
10	3.3	4.9	5.3	5.3	3.3	4.9	5.3					
11	3.3	4.5	4.5	5.7	4.1	4.9	5.3					
12	4.9	4.9	4.1	4.5	5.3	5.3	3.7					
13	4.5	4.9	4.5	3.3	5.3	5.3	5.3					
14	4.1	4.9	4.1	4.9	5.3	4.9	5.3					
15	4.5	4.5	4.1	5.3	5.3	4.9	5.3					
16	4.5	4.9	5.7	5.3	4.9	4.9	5.3					
17	4.5	-	5.7	5.3	4.1	5.3	4.9					
18	4.5	-	5.3	5.3	4.9	5.3	4.1					
19	4.5	-	5.7	5.3	4.9	5.3	4.9					
20	4.5	-	5.3	3.3	4.9	5.3	5.3					
21	4.1	-	5.3	4.9	5.3	4.9	-					
22	4.9	-	4.9	4.9	5.3	4.9	-					
23	4.9	-	5.7	4.5	5.3	5.3	-					
24	4.9	-	4.9	5.3	3.7	4.9	-					
25	4.9	-	5.3	4.9	5.7	3.7	-					
26	4.5	-	5.3	4.1	5.3	5.3	-					
27	4.5	-	5.3	3.3	5.3	5.3	-					
28	4.5	-	4.5	4.9	4.9	4.9	-					
29	5.3	-	5.3	4.9	5.3	4.5	-					
30	4.9	-	5.7	4.9	4.9	4.9	-					
31	4.9	-	-	4.9	-	5.3	-					

Month	Million gallons a day			Seocnd-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.3	3.3	4.47	6.92	139	426
August	-	-	-	-	-	-
September	-	-	-	-	-	-
Octcber	5.7	3.3	4.85	7.50	150	461
Novcmber	5.7	3.3	4.89	7.57	147	450
December	5.3	3.7	4.93	7.63	153	469
Calendar year	-	-	-	-	-	-
January						
February						
March						
April						
May						
June						
Fiscal year						

Note.- Data insufficient to compute discharge for 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 Honolulu Plantation pump 6, 1.1 miles west of Aiea, and 7.6 miles northwest of Honolulu. Datum of gage is 1.10 feet below mean sea level.

Records available.- March 1931 to June 1947.

Average discharge.- 16 years, 15.6 million gallons a day (24.1 second-feet), unadjusted for pumpage.

Extremes.- Maximum daily discharge during year, 15.6 million gallons a day (24.1 second-feet) Nov. 14, 15; minimum daily, 8.4 million gallons a day (13.0 second-feet) Aug. 31. 1931-47: Maximum daily discharge, 25 million gallons a day (39 second-feet) Feb. 17-26, 1938; minimum daily, that of Aug. 31, 1946.

Remarks.- Records good. When water is needed for irrigation of sugarcane, Oahu Sugar Co. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.0	9.7	12.3	13.4	14.9	14.9	14.9	13.8	10.7	14.5	10.0	14.5
2	10.0	9.4	12.7	13.4	14.9	11.3	14.9	15.3	14.9	14.5	13.8	11.3
3	12.3	10.0	12.7	13.4	14.9	11.3	15.3	11.7	11.3	14.5	14.2	11.3
4	12.3	12.3	12.7	12.7	15.3	11.0	15.3	11.0	12.3	14.5	14.2	11.3
5	9.7	10.0	13.1	13.4	14.9	9.7	15.3	11.0	14.9	14.5	14.2	11.3
6	10.0	10.0	13.1	13.8	14.9	11.3	15.3	11.3	14.9	14.5	14.2	11.3
7	12.7	9.7	13.1	13.4	15.3	14.2	15.3	11.7	14.9	11.3	14.2	12.7
8	9.7	9.7	13.1	13.8	15.3	14.2	15.3	11.3	14.9	11.0	14.2	14.2
9	10.0	9.7	13.1	13.8	15.3	14.2	15.3	15.3	14.9	10.7	14.2	10.7
10	9.7	11.3	13.1	13.8	15.3	14.5	15.3	11.3	13.4	10.3	14.2	10.3
11	10.0	12.3	13.1	14.2	15.3	14.5	15.3	11.0	11.3	10.7	14.2	10.0
12	10.0	9.7	13.1	13.8	15.3	14.5	15.3	11.0	10.7	10.7	14.2	10.3
13	10.0	9.7	13.4	13.8	15.3	14.5	12.7	11.3	10.3	14.2	14.2	10.0
14	12.3	10.0	13.4	13.8	15.6	14.5	13.8	12.3	10.3	10.7	14.2	11.3
15	10.0	10.0	13.4	13.8	15.6	14.5	11.7	13.4	10.3	10.7	14.2	13.8
16	11.7	10.3	13.4	13.8	15.3	14.5	11.0	14.9	14.5	10.7	14.2	10.3
17	9.7	10.3	13.4	13.8	15.3	14.5	15.3	14.9	12.3	10.7	14.2	10.0
18	10.7	13.1	13.4	13.8	15.3	14.5	15.3	14.5	12.3	10.7	14.2	9.7
19	10.0	9.0	13.4	13.8	15.3	14.5	15.3	11.0	10.7	13.1	11.7	10.0
20	10.3	9.4	13.4	13.8	15.3	14.2	15.3	11.7	10.7	13.8	11.7	9.7
21	12.7	9.4	13.4	14.2	12.7	14.9	15.3	12.0	11.3	9.7	11.3	11.3
22	10.7	9.4	13.4	13.8	14.9	14.5	15.3	14.9	12.3	10.3	11.3	13.4
23	9.7	9.4	13.4	14.2	14.9	14.9	15.3	14.9	14.5	10.7	11.3	9.7
24	9.7	9.0	13.4	14.2	12.7	14.5	15.3	12.3	11.3	10.3	14.5	9.7
25	10.0	12.3	13.8	14.2	12.3	14.9	15.3	11.7	11.7	10.3	14.5	9.7
26	10.0	9.4	13.8	14.2	12.7	14.9	15.3	11.3	13.1	13.4	9.7	10.0
27	10.3	9.0	13.8	14.2	10.7	14.5	15.3	11.0	10.3	13.8	11.0	9.7
28	12.3	9.0	13.8	14.2	14.9	14.5	15.3	11.0	10.7	9.0	10.7	10.0
29	12.7	8.7	13.4	14.9	10.7	14.5	13.1	-	12.3	10.3	13.1	13.4
30	10.0	8.7	13.4	14.9	10.7	14.9	13.8	-	14.5	10.0	14.5	10.3
31	10.0	8.4	-	14.9	-	14.9	13.1	-	14.5	-	12.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.7	9.7	10.6	16.4	329	1,010
August	13.1	8.4	9.95	15.4	308	946
September	13.8	12.3	13.3	20.6	398	1,220
October	14.9	12.7	13.9	21.5	431	1,320
November	15.6	10.7	14.4	22.3	432	1,330
December	14.9	9.7	14.0	21.7	433	1,330
Calendar year 1946	16.0	8.4	12.6	19.5	4,590	14,080
January	15.3	11.0	14.7	22.7	456	1,400
February	15.3	11.0	12.5	19.3	349	1,070
March	14.9	10.3	12.5	19.3	387	1,190
April	14.5	9.0	11.8	18.3	354	1,090
May	14.5	9.7	13.2	20.4	408	1,250
June	14.5	9.7	11.0	17.0	331	1,020
Fiscal year 1946-47	15.6	8.4	12.6	19.5	4,620	14,180

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 1947.

Average discharge.- 21 years, 2.19 million gallons a day (3.39 second-feet).

Extremes.- Maximum discharge during year, 420 million gallons a day (650 second-feet) Mar. 29 (gage height, 4.93 feet); no flow for several periods during year. 1926-47: 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. Continuous records of rainfall are obtained at station.

Rating table, fiscal year 1946-47 (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		

Disoharge, in million gallons, fiscal year July 1946to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	.01			0	3.35	0.15		0	2.35	0	0.01
2	0	.01			0	8.5	10.9		5.4	1.02	.73	.01
3	0	0			0	1.58	.81		.12	.62	2.25	.01
4	0	0			0	.50	.24		0	.23	1.47	.01
5	0	0			0	.09	.07		0	.10	.40	0
6	0	0			0	9.5	.02		0	.03	.14	0
7	0	0			0	17.1	.01		0	.04	.04	0
8	0	0			0	3.7	.01		0	.12	.05	0
9	0	0			0	2.0	0		0	.07	2.95	0
10	0	0			0	6.1	0		0	.02	.81	0
11	0	0			.78	2.5	0		0	1.22	.29	0
12	0	0			0	1.17	0		0	1.02	.15	0
13	0	0			0	.52	0		0	.18	.64	0
14	0	0			0	.21	.13		0	.03	.44	0
15	0	0			3.3	.11	0		0	.01	.74	0
16	.77	0			0	.19	0		2.7	0	1.77	0
17	1.82	0			0	6.5	0		53	0	.65	0
18	1.72	.38			0	12.8	0		5.8	0	.24	0
19	.18	.06			0	3.55	0		1.34	0	.08	0
20	.01	0			0	4.2	0		.24	0	.04	0
21	0	0			0	40	0		.02	0	1.09	0
22	1.85	0			0	32.5	0		0	0	5.3	0
23	.08	0			0	8.1	0		0	0	1.23	0
24	.01	0			0	5.9	0		0	0	.36	0
25	0	0			0	3.6	0		0	0	.11	0
26	0	0			0	2.1	0		0	0	.03	0
27	1.99	0			0	1.26	0		0	0	.02	1.30
28	4.9	0			0	.85	0		0	0	1.47	3.05
29	1.11	0			.04	.59	0		21	0	.84	1.02
30	.24	0			5.7	.44	0		32	0	.11	.91
31	.06	0			-	.31	0		8.1	-	.02	-

Month	Million gallons a day			Seoond-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.9	0	0.475	0.735	14.7	45
August	.38	0	.015	.023	.46	1.4
September	0	0	0	0	0	0
October	0	0	0	0	0	0
November	5.7	0	.327	.506	9.82	30
December	40	.09	5.80	8.97	180	552
Calendar year 1946	40	0	.792	1.23	289	887
January	10.9	0	.398	.616	12.3	38
February	0	0	0	0	0	0
March	53	0	4.18	6.47	130	398
April	2.35	0	.235	.364	7.06	22
May	5.3	0	.789	1.22	24.5	75
June	3.05	0	.211	.326	6.32	19
Fiscal year 1946-47	53	0	1.05	1.62	385	1,180

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 1947.

Average discharge.- 30 years (1916-20, 1921-47), 4.74 million gallons a day (7.33 second-feet).

Extremes.- Maximum discharge during year, 221 million gallons a day (342 second-feet) Mar. 29 (gage height, 5.71 feet); minimum, 0.41 million gallons a day (0.63 second-foot) Nov. 2-4.

1913-47: 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 doubtful gage-height records, which are poor. Water for domestic use diverted from stream above station.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.7	0.10	1.2	5.1	2.6	40
.8	.60	1.4	8.7	2.9	50
.9	1.28	1.7	14.8	3.5	74
1.0	2.2	2.0	22		
1.1	3.5	2.3	30.5		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.46	2.0	1.28	0.72	0.47	6.8	2.7	1.55	0.78	5.4	1.9	2.6
2	1.13	2.0	1.51	.72	.47	15.2	4.2	1.46	21	4.8	9.0	2.35
3	1.05	2.25	1.82	.66	.41	4.7	3.5	1.46	3.7	3.5	10	2.45
4	.90	2.0	1.28	.72	.84	3.0	2.85	1.46	1.82	3.1	6.8	2.1
5	.90	1.73	1.28	.72	1.02	2.1	2.7	1.37	1.37	2.7	3.3	2.0
6	.84	2.1	1.28	.66	.53	7.6	2.45	1.37	1.28	2.7	2.3	2.0
7	.97	1.64	1.13	.60	.47	15.8	2.35	1.37	1.21	2.7	1.7	1.9
8	.97	1.55	1.05	.78	.47	5.1	2.2	1.13	1.28	2.6	4.3	1.9
9	.90	1.47	1.05	.72	.53	4.0	2.1	1.21	1.21	2.35	7.2	1.8
10	.97	4.0	1.36	1.10	1.01	5.9	2.0	1.13	.97	2.4	3.9	1.8
11	1.05	1.91	1.05	.72	2.2	4.1	2.0	.97	.90	3.4	2.2	1.7
12	1.05	1.55	.97	.66	.97	3.25	1.91	1.05	.84	4.5	2.5	2.2
13	2.35	1.64	.97	.60	.78	2.6	2.0	.90	.84	3.0	4.1	1.9
14	1.46	1.73	1.05	.60	.72	2.7	7.0	.90	.84	2.6	2.2	1.8
15	1.21	1.46	.84	.53	3.5	3.95	2.6	.90	.84	2.3	3.3	1.7
16	7.0	1.45	.84	.53	1.13	5.0	4.4	.84	5.2	2.2	2.85	1.7
17	6.4	2.4	.84	.53	.78	18.2	4.5	.84	59	2.1	3.2	1.7
18	4.8	7.0	.84	.53	.66	17.8	2.6	.84	10.6	2.0	2.75	1.6
19	2.85	2.85	.78	.53	.60	6.3	2.1	.84	5.1	1.9	3.25	1.6
20	2.0	2.4	.78	.53	.60	6.0	1.91	.84	3.35	1.8	6.8	1.8
21	3.1	2.1	.78	.47	.53	47	1.82	.84	2.7	1.7	10.4	1.8
22	3.15	1.73	.90	.53	.72	28.5	1.73	.78	2.6	1.6	10.2	1.9
23	2.2	1.73	.78	.47	.66	12.6	1.73	.72	2.45	3.1	4.9	1.9
24	1.82	1.55	.72	.66	.53	8.7	1.73	.72	2.0	4.1	3.35	1.8
25	1.64	1.55	.72	.47	.47	6.6	1.64	.84	1.82	2.8	2.85	1.7
26	1.55	1.55	.72	1.52	.47	5.4	1.55	.84	1.73	2.1	2.45	6.1
27	5.2	1.46	.72	.72	.47	4.6	1.91	.72	1.64	1.8	2.2	7.6
28	10.3	1.28	.90	.53	.89	4.0	1.73	.66	1.55	1.6	6.2	8.5
29	4.1	1.37	.78	.47	4.7	3.5	3.05	-	31	1.4	4.3	7.6
30	3.0	1.46	.72	.60	7.4	3.25	2.0	-	31	1.5	3.0	4.8
31	2.45	1.28	-	.53	-	3.0	1.73	-	8.5	-	2.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.3	0.84	2.54	3.93	78.8	242
August	7.0	1.28	2.01	3.11	62.2	191
September	1.82	.72	.991	1.53	29.7	91
October	1.52	.47	.649	1.00	20.1	62
November	7.4	.41	1.17	1.81	35.0	107
December	47	2.1	8.62	13.3	267	820
Calendar year 1946	47	.41	2.33	3.61	850	2,610
January	7.0	1.55	2.54	3.93	78.7	241
February	1.55	.66	1.02	1.58	28.6	88
March	59	.78	6.75	10.4	209	642
April	5.4	1.4	2.66	4.12	79.8	245
May	10.4	1.7	4.39	6.79	136	418
June	8.5	1.6	2.74	4.24	82.3	253
Fiscal year 1946-47	59	.41	3.03	4.69	1,110	3,400

Note.- Doubtful gage-height record Mar. 11-16, 22-24, Apr. 11 to May 12, June 5-30; discharge computed on basis of records for Nuuanu Stream.

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 1947.

Average discharge.- 28 years (1917-20, 1922-47), 5.06 million gallons a day (7.83 second-feet).

Extremes.- Maximum discharge during year, 147 million gallons a day (227 second-feet) Mar. 29 (gage height, 3.50 feet); minimum, 0.39 million gallons a day (0.60 second-foot) July 12.

1913-47: 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 period 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.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.07	0.6	1.65	1.1	4.6
.2	.30	.7	2.1	1.2	6.5
.3	.60	.8	2.6	1.3	8.8
.4	.90	.9	3.1	1.5	14.9
.5	1.25	1.0	3.65	1.7	23

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.54	0.97	1.08	0.81	0.54	3.4	2.45	1.57	1.31	2.8	2.1	3.7
2	.54	.97	1.36	.78	.54	5.7	3.45	1.53	2.0	2.65	4.6	3.1
3	.51	.94	1.48	.78	.54	2.4	3.0	1.49	1.18	2.6	3.95	3.1
4	.45	.90	1.14	.87	.90	1.53	2.85	1.45	1.14	2.6	3.15	2.9
5	.48	.87	1.18	.84	1.55	1.36	2.6	1.45	1.08	2.4	2.4	2.8
6	.48	.97	1.14	.87	.75	8.1	2.45	1.45	1.14	2.9	2.2	2.7
7	.60	.94	1.04	.81	.66	7.1	2.35	1.45	1.08	2.75	2.1	2.55
8	.51	.90	1.00	.98	.63	2.8	2.2	1.41	1.08	2.75	8.2	2.5
9	.45	1.11	1.00	.98	.66	2.5	2.1	1.53	1.06	2.5	14.1	2.4
10	.51	8.0	1.10	1.14	.78	4.0	2.1	1.37	1.04	2.45	5.1	2.35
11	.51	1.37	1.00	.90	2.3	2.4	2.05	1.37	.97	2.75	3.75	2.55
12	.51	1.18	.97	.81	.97	2.1	1.96	1.33	.94	3.35	4.1	3.0
13	.81	1.42	.97	.78	.81	1.92	2.0	1.29	1.00	2.5	5.0	2.5
14	.69	2.0	.97	.78	.81	2.3	2.75	1.25	.97	2.4	a3.4	2.5
15	.66	1.22	.97	.78	1.65	2.75	1.96	1.25	.94	2.35	a6.3	2.25
16	2.3	1.30	.97	.78	.87	3.3	2.75	1.25	1.38	2.35	a3.7	2.15
17	4.1	1.66	.97	.75	.78	7.6	3.4	1.22	21.5	2.3	a4.3	2.1
18	1.86	4.2	.97	.75	.75	12.4	2.05	1.18	3.65	2.25	a3.9	2.1
19	1.14	1.78	.94	.75	.75	3.6	1.92	1.18	2.15	2.2	a3.6	2.0
20	.97	1.65	.94	.75	.72	3.35	1.88	1.18	1.92	2.2	a5.6	2.45
21	.97	1.45	.94	.73	.69	18.3	1.83	1.14	1.83	2.15	a14	2.45
22	1.00	1.33	1.00	.81	.85	13.7	1.78	1.11	1.88	2.15	7.5	2.55
23	.87	1.33	.87	.72	.72	5.4	1.74	1.11	1.74	2.35	4.8	2.55
24	.84	1.22	.94	.72	.69	4.3	1.74	1.08	1.78	2.55	4.4	2.35
25	.84	1.39	.87	.69	.69	3.85	1.74	1.14	1.70	2.35	4.0	2.25
26	.84	1.29	.84	1.54	.69	3.5	1.70	1.08	1.57	2.1	3.65	3.45
27	1.78	1.18	.84	.87	.69	3.15	1.96	1.04	1.49	2.1	3.45	5.2
28	5.1	1.18	.97	.69	1.03	2.95	1.83	1.00	1.41	2.05	4.5	5.4
29	1.49	1.14	.94	.60	2.9	2.8	1.98	-	16.8	2.0	3.7	6.4
30	1.14	1.14	.87	.66	5.4	2.7	1.70	-	13.6	2.05	3.2	5.8
31	1.04	1.14	-	.57	-	2.55	1.61	-	3.65	-	3.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.1	0.45	1.11	1.72	34.5	106
August	8.0.	.87	1.55	2.40	48.1	148
September	1.48	.84	1.01	1.56	30.3	93
October	1.54	.57	.816	1.26	25.3	78
November	5.4	.54	1.08	1.67	32.3	99
December	18.3	1.36	4.64	7.18	144	441
Calendar year 1946	18.3	.39	1.51	2.34	553	1,700
January	3.45	1.61	2.19	3.39	67.9	208
February	1.57	1.00	1.28	1.98	35.9	110
March	21.5	.94	3.06	4.73	95.0	291
April	3.35	2.0	2.43	3.76	72.9	224
May	14.1	2.1	4.78	7.40	148	455
June	6.4	2.0	3.00	4.64	90.1	277
Fiscal year 1946-47	21.5	.45	2.26	3.50	324	2,530

a No gage-height record; discharge computed on basis of records on 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 1947. May 1913 to January 1921 at site 200 feet upstream.

Average discharge.- 28 years (1913-20, 1926-47), 2.64 million gallons a day (4.08 second-feet).

Extremes.- Maximum discharge during year, 137 million gallons a day (212 second-feet) Aug. 9 (gage height, 2.67 feet), from rating curve extended above 33 million gallons a day by test on model of station site; minimum, 0.08 million gallons a day (0.12 second-foot) Mar. 8-13.

1913-21, 1925-47: 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. Small quantity of water is diverted occasionally for irrigation.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.91	1.18	0.67	0.77	0.44	3.15	0.96	0.36	0.42	1.11	0.41	3.0
2	.77	1.11	2.45	.82	.40	3.65	1.58	.32	.30	.82	5.5	1.24
3	.67	1.18	2.1	.55	.36	2.2	1.04	.32	.18	.67	6.3	1.63
4	.55	1.01	1.31	.55	3.1	1.58	1.08	.32	.15	.80	4.0	1.38
5	.55	.91	1.18	.58	3.1	1.29	.86	.32	.12	.62	1.95	1.06
6	.55	1.58	1.01	.88	1.26	6.0	.77	.32	.12	1.86	1.24	.96
7	.91	.98	.86	.55	.91	3.8	.72	.32	.10	1.91	.96	.86
8	.91	.96	.77	1.15	.72	2.85	.62	.32	.10	2.05	4.3	.77
9	.82	7.3	.87	.55	.68	2.0	.58	.51	.08	1.24	7.2	.72
10	1.11	10.8	.92	.95	1.08	4.2	.58	.32	.08	1.01	4.2	.72
11	.91	2.35	.67	.55	2.4	2.1	.55	.25	.10	1.81	2.65	1.73
12	1.64	1.58	.82	.47	1.06	1.58	.55	.25	.08	1.92	3.85	1.57
13	3.75	5.2	.55	.36	.77	1.35	.62	.25	.08	.86	5.7	1.58
14	1.94	3.9	.58	.36	1.02	1.52	.67	.22	.10	.72	3.0	1.06
15	1.31	1.94	.51	.32	1.49	2.25	.51	.22	.12	.67	8.0	.91
16	6.7	1.66	.51	.29	.82	2.85	.54	.22	1.07	.58	4.4	.82
17	8.1	2.25	.62	.25	.62	9.4	1.11	.22	23	.55	3.35	.77
18	3.7	3.9	.51	.32	.58	7.5	.47	.22	2.5	.51	2.4	.77
19	2.25	1.94	.47	.32	.55	2.9	.44	.22	.91	.47	2.25	.67
20	1.51	1.71	.44	.32	.51	2.4	.36	.22	.51	.44	2.9	2.65
21	1.81	1.31	.44	.38	.47	19.8	.36	.22	.40	.40	6.1	2.15
22	1.64	1.24	.55	.53	.55	11.6	.32	.22	.52	.36	4.5	1.58
23	1.18	1.63	.62	.25	.51	5.3	.32	.22	.32	1.29	2.4	1.74
24	1.11	1.06	.44	.32	.44	3.3	.36	.22	.29	1.56	1.87	2.4
25	1.01	1.12	.44	.25	.40	2.5	.36	.22	.25	.72	1.65	1.78
26	1.07	.98	.40	2.7	.40	2.1	.32	.22	.22	.47	1.44	4.5
27	5.4	.67	.40	.67	.56	1.85	.61	.20	.25	.40	1.24	6.8
28	7.4	.77	.82	.47	1.62	1.64	.47	.20	.25	.40	2.6	7.4
29	3.25	.86	1.37	.51	5.3	1.40	1.55	-	16.0	.36	1.38	8.3
30	1.78	.72	1.46	.67	8.3	1.17	.51	-	9.5	.36	1.11	5.3
31	1.44	.82	-	.51	-	1.06	.40	-	1.82	-	1.18	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.1	0.55	2.15	3.33	66.6	205
August	10.8	.67	2.08	3.22	64.6	198
September	2.45	.40	.812	1.26	24.4	75
October	2.7	.25	.580	.897	18.0	55
November	8.3	.36	1.35	2.09	40.4	124
December	19.8	1.06	3.75	5.80	116	357
Calendar year 1946	19.8	.12	1.47	2.27	538	1,640
January	1.58	.32	.651	1.01	20.2	62
February	.51	.20	.266	.412	7.44	23
March	23	.08	1.93	2.99	59.9	184
April	2.05	.36	.898	1.39	26.9	83
May	8.0	.41	3.23	5.00	100	307
June	8.3	.67	2.23	3.45	66.8	205
Fiscal year 1946-47	23	.08	1.68	2.60	611	1,880

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, 400 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 1947.
Average discharge.- 28 years (1913-20, 1926-47), 3.09 million gallons a day (4.78 second-feet).
Extremes.- Maximum discharge during year, 188 million gallons a day (291 second-feet Aug. 9 (gage height, 3.17 feet), from rating curve extended above 5.7 million gallons a day by test on model of station site; minimum, 0.61 million gallons a day (0.94 second-foot) Mar. 5, 10, 11.
1913-21, 1925-47: 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. Board of Water Supply at times diverts a small amount of ground water from tunnels in drainage area.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.61	0.6	3.55	1.1	11.4
.3	1.15	.7	4.5	1.3	16.8
.4	1.85	.8	5.7	1.6	27.5
.5	2.65	.9	7.3	2.0	49

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.0	1.71	1.50	1.43	1.2	4.2	1.9	1.15	0.97	2.15	1.22	3.8
2	1.64	1.71	2.9	1.29	1.1	5.9	2.8	1.15	.88	1.85	9.5	2.25
3	1.29	1.76	2.65	1.22	1.0	2.8	2.4	1.15	.83	1.71	7.0	2.7
4	1.15	1.57	1.64	1.29	4.0	2.25	2.2	1.15	.83	2.05	4.0	2.4
5	1.15	1.57	1.85	1.36	3.8	1.85	1.78	1.15	.77	1.71	2.35	2.1
6	1.22	1.89	1.71	1.84	1.36	4.7	1.64	1.15	.83	2.5	1.85	1.93
7	1.36	1.61	1.50	1.36	1.22	3.3	1.57	1.15	.83	3.0	1.71	1.78
8	1.43	1.50	1.36	2.4	1.29	2.55	1.50	1.15	.77	2.75	3.45	1.78
9	1.37	5.1	1.36	1.57	1.27	2.15	1.43	1.41	.77	1.85	4.2	1.78
10	1.78	11.1	1.69	1.52	1.96	3.95	1.43	1.15	.72	1.86	3.6	1.78
11	1.50	2.0	1.36	1.29	3.3	2.15	1.36	1.15	.72	2.8	2.5	2.75
12	1.85	1.71	1.29	1.22	1.64	1.85	1.36	1.15	.72	2.7	4.3	3.8
13	4.1	3.5	1.29	1.15	1.29	1.71	1.77	1.15	.72	1.71	5.5	2.15
14	1.94	3.1	1.29	1.15	1.98	1.83	1.65	1.10	.66	1.57	2.75	2.0
15	1.71	1.85	1.22	1.15	2.75	3.65	1.36	1.10	.66	1.50	7.9	1.93
16	8.2	1.75	1.22	1.04	1.29	4.0	1.67	1.04	3.25	1.43	3.0	1.85
17	8.3	2.25	1.42	.99	1.22	9.3	2.15	1.04	35.5	1.36	3.4	1.78
18	3.25	5.4	1.29	.99	1.10	8.2	1.36	1.04	2.4	1.36	2.85	1.96
19	2.3	2.35	1.15	.99	1.10	3.2	1.29	1.04	1.29	1.36	2.5	1.78
20	1.78	2.15	1.15	.93	1.04	2.75	1.22	1.04	1.10	1.29	4.7	3.95
21	3.2	1.85	1.15	.94	1.04	20.5	1.22	1.04	1.04	1.29	11.4	2.75
22	2.9	1.64	1.29	1.66	1.22	11.3	1.22	1.04	1.15	1.29	6.3	2.4
23	1.78	2.05	1.43	.90	1.04	5.4	1.15	1.04	1.04	2.4	3.3	2.65
24	1.71	1.57	1.22	1.0	1.04	3.65	1.15	1.04	.99	2.55	2.9	3.15
25	1.57	1.57	1.15	.90	1.04	3.0	1.15	1.04	.99	1.89	2.85	2.4
26	1.57	1.79	1.15	3.5	1.04	2.6	1.15	.99	.99	1.43	2.85	3.65
27	6.4	1.57	1.15	1.5	1.59	2.4	1.36	.99	1.10	1.29	2.35	5.2
28	8.6	1.61	1.71	1.2	4.3	2.3	1.22	.93	1.04	1.29	6.4	5.4
29	2.85	1.64	2.55	1.3	10.8	2.2	2.95	-	26.5	1.22	3.2	6.3
30	2.25	1.57	2.25	1.6	11.8	2.1	1.36	-	7.1	1.15	2.4	4.1
31	2.0	1.57	-	1.3	-	2.0	1.22	-	2.65	-	2.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.6	1.15	2.71	4.19	84.2	258
August	11.1	1.50	2.39	3.70	74.0	227
September	2.9	1.15	1.53	2.37	45.9	141
October	3.5	.90	1.35	2.09	42.0	129
November	11.8	1.0	2.33	3.61	69.8	214
December	20.5	1.71	4.16	6.44	130	398
Calendar year 1946	20.5	.53	1.90	2.94	695	2,130
January	2.95	1.15	1.58	2.44	49.0	150
February	1.41	.88	1.10	1.70	30.7	94
March	35.5	.66	3.22	4.98	99.8	306
April	3.0	1.15	1.81	2.80	54.3	167
May	11.4	1.22	4.02	6.22	125	382
June	6.8	1.93	3.05	4.72	84.2	259
Fiscal year 1946-47	35.5	.66	2.43	3.78	889	2,720

Note.- No gage-height record Oct. 23 to Nov. 5, Dec. 26 to Jan. 3; 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 from bridge on Palolo Belt Rpad, five-eighths of a mile upstream from confluence with Waiomao Stream, and 4¾ miles east of Honolulu post office. Datum of gage is 344.78 feet above mean sea level (Board of Water Supply bench mark).

Drainage area.- 1.2 square miles.

Records available.- June 1926 to June 1947. April 1912 to September 1913 above present site and just below Mahoe Springs.

Average discharge.- 21 years, 1.29 million gallons a day (2.00 second-feet).

Extremes.- Maximum discharge during year, 153 million gallons a day (237 second-feet) Mar. 29 (gage height, 3.88 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.17 million gallons a day (0.26 second-foot) Nov. 4.

1912-13, 1926-47: Maximum discharge, 1,680 million gallons a day (2,600 second-feet) 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. 15-22, 1945.

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

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.36	0.72	0.50	0.24	0.22	2.6	1.04	0.36	0.28	0.78	0.56	1.46
2	.39	.72	.50	.24	.22	2.8	.99	.36	.28	.78	2.2	1.20
3	.39	.72	.46	.24	.22	1.15	.94	.36	.28	.83	2.9	1.15
4	.36	.67	.42	.24	.22	1.04	.88	.36	.28	.83	2.1	1.09
5	.36	.56	.42	.24	.24	.99	.88	.36	.28	.83	1.15	1.09
6	.36	.56	.42	.24	.24	1.04	.83	.32	.28	.83	.99	1.09
7	.36	.53	.39	.24	.24	1.36	.78	.32	.28	.88	.94	1.04
8	.32	.50	.36	.24	.24	1.15	.78	.32	.28	.94	1.23	.99
9	.32	.50	.32	.24	.24	1.09	.72	.32	.28	.94	1.56	.94
10	.32	4.1	.32	.24	.26	1.36	.67	.32	.28	.88	1.70	.88
11	.32	.64	.32	.24	.37	1.15	.67	.32	.26	1.07	1.15	.78
12	.30	.60	.30	.22	.32	1.04	.64	.32	.26	1.67	1.59	.67
13	.30	.60	.30	.22	.32	.99	.64	.30	.26	.94	4.3	.67
14	.28	.78	.30	.22	.60	.94	.60	.30	.26	.88	1.67	.64
15	.28	.67	.30	.22	1.22	.97	.56	.30	.26	.88	2.35	.60
16	.60	.67	.30	.22	.46	1.60	.65	.30	.26	.83	1.51	.60
17	2.05	.67	.30	.22	.42	6.1	.66	.30	17.9	.83	1.63	.60
18	.86	1.68	.30	.22	.46	7.5	.60	.30	1.20	.78	1.51	.56
19	.60	.83	.30	.22	.46	2.3	.56	.30	.46	.72	1.43	.56
20	.60	.83	.30	.22	.46	1.59	.56	.30	.42	.67	4.4	.56
21	.56	.83	.28	.22	.46	17.3	.53	.30	.46	.64	10.7	.56
22	.64	.78	.28	.22	.46	8.0	.53	.30	.50	.56	5.3	.53
23	.64	.78	.28	.22	.42	3.6	.50	.28	.50	.53	2.4	.50
24	.64	.78	.28	.22	.42	2.35	.50	.28	.46	.60	1.67	.50
25	.64	.72	.28	.22	.42	1.82	.50	.28	.46	.72	1.59	.50
26	.64	.67	.26	.22	.42	1.67	.46	.28	.46	.60	1.51	.50
27	.73	.64	.26	.22	.42	1.51	.46	.28	.42	.56	1.51	.79
28	2.4	.60	.26	.22	.85	1.43	.46	.28	.42	.56	3.4	.92
29	.83	.56	.26	.22	2.55	1.28	.46	-	17.7	.56	1.80	2.75
30	.78	.53	.26	.22	4.9	1.20	.42	-	5.7	.56	1.36	1.21
31	.72	.50	-	.22	-	1.09	.39	-	1.10	-	1.28	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.4	0.28	0.611	0.945	19.0	58
August	4.1	.50	.805	1.25	24.9	77
September	.50	.26	.328	.507	9.83	30
October	.24	.22	.227	.351	7.04	22
November	4.9	.22	.625	.967	18.8	58
December	17.3	.94	2.58	3.99	80.0	246
Calendar year 1946	17.3	.12	.725	1.12	265	814
January	1.04	.39	.641	.992	19.9	61
February	.36	.28	.311	.481	8.72	27
March	17.9	.26	1.69	2.61	52.5	161
April	1.67	.53	.789	1.22	23.7	73
May	10.7	.56	2.24	3.47	69.4	213
June	2.75	.50	.864	1.34	25.9	80
Fiscal year 1946-47	17.9	.22	.985	1.52	360	1,110

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 1947. April 1911 to December 1912 at highway bridge below present site.
Average discharge.- 21 years, 1.17 million gallons a day (1.81 second-feet).
Extremes.- Maximum discharge during year, 256 million gallons a day (396 second-feet) Mar. 29 (gage height, 4.61 feet); no flow for several periods during year.
1911-12, 1926-47: 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 except those for Aug. 3-7 and June 17-30, which are fair. Board of Water Supply diverts ground water from tunnels in drainage area.

Rating table, fiscal year 1946-47 (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	15.6
1.1	.10	1.7	3.85	2.3	19.5
1.2	.30	1.8	5.3	2.6	33.5
1.3	.63	1.9	7.2	3.0	55
1.4	1.15	2.0	9.4		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.94	0.40	0.22	0.12	0.06	5.1	0.24	0.09	0.02	1.29	0.20	1.59
2	.53	.37	.26	.05	.04	3.85	.95	.06	.01	.84	3.45	.68
3	.33	a.37	.76	.01	.03	1.69	.52	.06	.01	.50	4.5	.79
4	.20	a.29	.30	.01	1.09	1.10	.43	.06	.01	.67	2.85	.84
5	.18	a.29	.20	0	1.56	.73	.43	.04	.07	.50	1.15	.50
6	.14	a.40	.16	.01	.37	1.18	.33	.03	.04	.78	.60	.37
7	.26	a.31	.12	.02	.18	1.50	.26	.02	.04	1.11	.46	.30
8	.37	.28	.09	.11	.10	1.34	.20	.02	.01	1.19	1.82	.26
9	.24	.23	.06	.16	.12	1.14	.16	.09	.01	.53	2.45	.24
10	.51	5.5	.08	.16	.39	1.80	.14	.10	.01	.37	2.15	.20
11	.46	.79	.06	.09	1.30	1.00	.12	.06	.01	2.85	1.10	.24
12	.31	.53	.04	.06	1.09	.56	.10	.04	.01	2.8	1.33	.62
13	1.67	1.17	.02	.03	.71	.43	.27	.01	.01	.79	4.3	.37
14	.68	1.31	.01	.03	2.3	.41	.79	.01	.12	.46	1.33	.26
15	.58	.53	.01	.02	2.65	1.09	.26	.01	.10	.33	1.99	.22
16	3.15	.40	.01	.01	.78	2.35	.22	.01	.92	.26	.99	.20
17	4.4	.77	0	0	.43	5.8	1.41	.01	36	.22	.97	d.18
18	2.05	3.15	.01	0	.28	9.7	.33	0	3.9	.18	.73	d.16
19	1.27	1.42	.01	0	.22	1.96	.22	0	1.33	.14	.66	d.14
20	.73	1.05	.01	0	.18	1.63	.18	0	.73	.12	5.4	d.66
21	4.2	.94	0	0	.12	19.6	.12	0	.50	.09	12.2	d.43
22	1.96	.53	0	0	.28	8.1	.10	0	.46	.09	5.5	d.33
23	.84	.53	.09	0	.24	3.4	.09	0	.37	.98	1.99	d.30
24	.73	.37	.05	0	.14	2.0	.09	0	.26	1.88	1.22	d.37
25	.40	.33	.01	0	.09	1.15	.07	0	.20	2.0	1.05	d.26
26	.30	.33	0	.31	.08	.84	.06	0	.16	.56	.79	d.57
27	1.40	.33	0	.24	.79	.60	.06	.06	.14	.37	.53	d1.63
28	4.5	.26	0	.12	2.9	.46	.06	.05	.12	.26	3.85	d1.29
29	1.35	.28	.18	.06	5.6	.43	.26	-	27.5	.20	1.55	d2.45
30	.89	.26	.28	.06	7.3	.37	.26	-	7.7	.20	.79	d.99
31	.60	.26	-	.09	-	.30	.14	-	2.2	-	.73	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.5	0.14	1.17	1.81	36.2	111
August	5.5	.23	.774	1.20	24.0	74
September	.76	0	.101	.156	3.04	9.3
October	.31	0	.057	.088	1.77	5.4
November	7.3	.03	1.05	1.62	31.4	96
December	19.6	.30	2.63	4.07	81.6	250
Calendar year 1946	19.6	0	.752	1.16	275	842
January	1.41	.06	.286	.443	8.87	27
February	.10	0	.030	.046	.83	2.5
March	36	.01	2.68	4.15	83.0	255
April	2.85	.09	.752	1.16	22.6	69
May	12.2	.20	2.21	3.42	68.6	211
June	2.45	.14	.581	.899	17.4	54
Fiscal year 1946-47	36	0	1.04	1.61	379	1,160

a No gage-height record; discharge computed on basis of records for Pukele Stream.
d Doubtful gage-height record; discharge computed on basis of records for Pukele Scream and engineer's notes.

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 1947.

Extremes.- Maximum discharge during year, 448 million gallons a day (693 second-feet) Mar. 29 (gage height, 4.04 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.

1914-19, 1939-47: 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, that of Oct. 25, 1946.

Remarks.- Records fair. Suburban Water System diverts ground water from tunnel in drainage area.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.11	1.3	2.1	1.8	15.3
.9	.21	1.4	3.05	1.9	23
1.0	.53	1.5	4.2	2.0	30.5
1.1	.92	1.6	5.9	2.1	38
1.2	1.45	1.7	9.2		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.28	0.76	0.31	0.23	0.39	1.46	1.1	0.84	0.72	1.90	1.08	0.88
2	.25	.76	.39	.21	.28	2.25	1.3	.84	.90	1.58	1.13	.88
3	.23	.76	.43	.21	.28	1.18	.97	.84	2.0	1.45	1.29	.88
4	.23	.76	.39	.23	.31	.97	.92	.84	1.1	1.28	1.18	.88
5	.23	.65	.39	.23	.39	.88	.92	.80	1.0	1.18	1.03	.88
6	.23	.34	.39	.23	.28	1.32	.92	.80	.94	1.18	.97	.88
7	.25	.31	.35	.23	.31	2.6	.92	.80	.90	1.24	.97	.88
8	.25	.28	.35	.40	.31	1.18	.92	.80	.86	1.18	.97	.84
9	.25	.28	.35	.25	.31	1.04	.92	.80	.82	1.18	.97	.84
10	.23	.44	.39	.28	.43	1.48	.92	.80	.80	2.5	.97	.84
11	.25	.35	.35	.28	4.9	1.13	.92	.76	.80	4.2	.97	.84
12	.35	.37	.39	.28	.92	1.08	.92	.76	.80	2.15	.97	.84
13	.43	.35	.35	.25	.84	1.03	.96	.76	.80	1.45	.97	.84
14	.35	.35	.35	.25	.91	.97	1.45	.76	.80	1.24	.92	.84
15	.28	.35	.35	.28	5.6	1.03	.97	.72	.80	1.18	.94	.84
16	1.14	.35	.35	.28	1.08	1.03	.92	.72	12	1.13	.92	.84
17	.76	.31	.27	.23	.88	1.27	.88	.74	25	1.13	.92	.84
18	.65	.39	.19	.23	.84	1.52	.88	.80	2.9	1.13	.88	.84
19	.53	.58	.19	.21	.84	1.2	.88	.72	1.8	1.13	.88	.84
20	.43	1.24	.19	.21	.80	1.1	.88	.72	1.4	1.08	.92	.88
21	1.03	.94	.20	.21	.76	4.5	.88	.72	1.24	1.08	2.2	.84
22	1.75	.39	.21	.23	.76	3.5	.88	.72	1.13	1.08	2.25	.84
23	.76	.39	.21	.23	.76	1.8	.88	.72	1.03	1.99	1.13	.84
24	.61	.39	.28	.23	.76	1.4	.88	.72	1.08	1.93	.97	.88
25	.50	.43	.25	.20	.76	1.3	.88	.80	1.08	1.29	.92	.80
26	.46	.43	.25	.31	.72	1.2	.88	.72	1.08	1.13	.88	.84
27	.86	.39	.25	.28	.72	1.1	.88	.72	1.08	1.08	.88	.88
28	1.08	.43	.28	.25	.76	1.1	.88	.72	1.08	1.08	.92	.88
29	.72	.46	.28	.25	1.63	1.1	1.19	-	16.8	1.03	.88	.88
30	.72	.39	.25	.31	1.85	1.1	.88	-	34.5	1.03	.88	.88
31	.80	.28	-	.35	-	1.1	.84	-	3.2	-	.88	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.75	0.23	0.545	0.843	16.9	52
August	1.24	.28	.481	.744	14.9	46
September	.43	.19	.306	.473	9.18	28
October	.40	.20	.253	.391	7.85	24
November	5.6	.28	1.01	1.56	30.4	93
December	4.5	.88	1.45	2.24	44.9	138
Calendar year 1946	5.6	.19	.576	.891	210	645
January	1.45	.84	.949	1.47	29.4	90
February	.84	.72	.766	1.19	21.5	66
March	34.5	.72	3.89	6.02	120	370
April	4.2	1.03	1.44	2.23	43.2	133
May	2.25	.88	1.05	1.62	32.6	100
June	.88	.80	.856	1.32	25.7	79
Fiscal year 1946-47	34.5	.19	1.09	1.69	397	1,220

Note.- No gage-height record Dec. 19 to Jan. 2, Feb. 17 to Mar. 20; discharge computed on basis of records for stations on 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 1947.

Extremes.- Maximum discharge during year, 6.2 million gallons a day (9.6 second-feet) Mar. 2 (gage height, 1.31 feet); minimum daily, 0.10 million gallons a day (0.16 second-foot) Oct. 31 to Nov. 9, Nov. 24, 27.

1940-47: 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 from Columbus type control and test on model of station site; minimum daily, that of Oct. 31 to Nov. 9, Nov. 24, 27, 1946.

Remarks.- Records fair except those for Nov. 15 to Dec. 12, Mar. 16 to Apr. 4, which are poor.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.06	0.7	.52
.4	.11	.8	.88
.5	.20	.9	1.45
.6	.32		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.16	0.14	0.14	0.12	0.10	0.17	0.14	0.14	0.11	0.20	0.17	0.16
2	.15	.14	.15	.12	.10	.19	.19	.14	.90	.18	.21	.16
3	.14	a.15	.15	.12	.10	.14	.17	.14	.28	.17	.21	.16
4	.14	a.16	.14	.13	.10	.11	.16	.14	.22	.16	.18	.17
5	.14	a.16	.15	.13	.10	.11	.15	.14	.17	.22	.17	.17
6	.14	.16	.14	.13	.10	.11	.14	.13	.16	.21	.17	.17
7	.15	.16	.14	.12	.10	.20	.14	.13	.15	.20	.17	.17
8	.15	.16	.14	.15	.10	.26	.14	.13	.14	.19	.17	.17
9	.15	.16	.14	.13	.10	.27	.13	.15	.14	.18	.17	.17
10	.15	.16	.15	.15	.13	.25	.13	.13	.14	.20	.16	.17
11	.15	.15	.14	.13	.60	.18	.13	.13	.14	.62	.16	.17
12	.14	.15	.13	.12	.17	.18	.13	.13	.13	.33	.16	.17
13	.17	.14	.13	.12	.15	.17	.13	.13	.16	.24	.18	.17
14	.13	.14	.13	.12	.19	.16	.23	.13	.14	.20	.16	.17
15	.12	.14	.13	.12	.23	.18	.16	.12	.14	.19	.18	.16
16	.29	.14	.13	.13	.11	.18	.15	.12	.79	.18	.17	.17
17	.17	.14	.13	.12	.11	.19	.14	.13	.52	.18	.17	.16
18	.16	.15	.13	.12	.11	.21	.14	.14	.30	.17	.16	.17
19	.14	.15	.13	.12	.11	.16	.14	.13	.26	.17	.16	.16
20	.13	.15	.13	.12	.11	.20	.14	.13	.24	.17	.17	.18
21	.27	.15	.13	.12	.11	.50	.14	.12	.22	.17	.55	.18
22	.25	.15	.13	.12	.11	.52	.14	.12	.20	.17	.50	.17
23	.18	.15	.13	.12	.11	.34	.14	.11	.19	.42	.24	.17
24	.15	.15	.13	.11	.10	.27	.13	.11	.18	.28	.20	.17
25	.14	.15	.13	.11	.11	.21	.13	.14	.18	.21	.18	.17
26	.14	.15	.13	.17	.11	.18	.13	.12	.17	.19	.17	.18
27	.21	.15	.13	.13	.10	.16	.13	.11	.17	.18	.17	.18
28	.20	.14	.13	.11	.11	.16	.13	.11	.16	.17	.19	.17
29	.17	.14	.13	.11	.19	.15	.18	-	.50	.17	.17	.17
30	.16	.14	.13	.11	.18	.16	.15	-	.54	.17	.16	.16
31	.15	.14	-	.10	-	.15	.14	-	.24	-	.16	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.29	0.12	0.164	0.254	5.09	16
August	.16	.14	.149	.231	4.61	14
September	.15	.13	.135	.209	4.05	12
October	.17	.10	.124	.192	3.83	12
November	.60	.10	.138	.214	4.15	13
December	.52	.11	.207	.320	6.42	20
Calendar year 1946	.60	.10	.157	.243	57.2	176
January	.23	.13	.146	.226	4.52	14
February	.15	.11	.129	.200	3.60	11
March	.90	.11	.257	.398	7.98	24
April	.62	.16	.216	.334	6.49	20
May	.55	.16	.198	.306	6.14	19
June	.18	.16	.169	.261	5.07	16
Fiscal year 1946-47	.90	.10	.170	.263	62.0	191

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

Note.- Doubtful gage-height record Nov. 15 to Dec. 12, Mar. 16 to Apr. 4; discharge computed on basis of records for 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 1947.

Average discharge.- 11 years (1936-47), 3.06 million gallons a day (4.73 second-feet).

Extremes.- Maximum discharge during year, 26 million gallons a day (40 second-feet) Mar. 29 (gage height, 1.88 feet), from rating curve extended above 8.4 million gallons a day by test on model of station site; minimum daily, 0.07 million gallons a day (0.11 second-foot) Mar. 19.

1935-47: 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, that of Mar. 19, 1947.

Remarks.- Records good. Suburban Water System diverts ground water from tunnel in drainage area. Continuous records of rainfall are obtained at the station.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.3	0.84	0.6	2.85
.1	.15	.4	1.40	.7	3.75
.2	.42	.5	2.05	.8	4.8

Disoharge, in million gallons, fiscal year July1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Deo.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.79	1.85	3.1	4.1	2.85	2.6	1.72	2.55	2.75	1.18	0.30	0.50
2	1.72	1.85	3.1	4.1	2.85	2.75	2.05	2.55	3.1	.96	.36	.50
3	1.72	1.92	3.1	4.1	2.85	2.2	2.15	2.55	2.2	.99	.36	.50
4	1.72	1.92	3.1	3.95	2.85	2.2	2.05	2.35	1.98	.99	.33	.50
5	1.72	1.85	3.1	3.85	2.75	2.05	2.05	2.35	1.98	.99	.33	.46
6	1.72	1.85	3.1	3.75	2.75	2.2	1.98	2.55	1.92	.99	.33	.42
7	1.72	1.85	3.1	3.65	2.75	2.4	1.98	2.7	1.85	.99	1.19	.42
8	1.72	1.92	3.1	3.75	2.75	1.92	1.92	2.6	1.72	1.46	1.13	.42
9	1.72	1.92	3.1	3.65	2.75	2.05	2.05	2.6	1.72	1.28	.54	.42
10	1.72	1.92	3.1	3.75	2.7	2.3	2.05	2.6	1.85	1.12	.58	.42
11	1.72	1.92	3.1	3.55	3.7	1.98	1.98	2.6	1.85	1.94	.58	.42
12	1.72	1.92	3.1	3.55	2.6	1.85	1.98	2.6	1.79	1.33	.58	.42
13	1.85	1.98	3.3	3.55	2.55	1.92	1.98	2.6	1.72	1.22	.58	.42
14	1.72	2.05	3.5	3.5	2.55	1.85	2.25	2.4	1.26	1.22	.56	.42
15	1.72	2.05	3.5	3.5	3.1	1.92	2.3	2.35	1.24	1.22	.54	.42
16	2.3	2.3	3.65	3.55	2.55	1.92	2.35	2.55	3.25	.82	.42	.42
17	1.98	2.55	3.75	3.5	2.55	1.93	2.55	2.85	4.3	.27	.42	.42
18	1.85	2.6	3.95	3.55	2.45	1.92	2.55	2.95	e.93	.42	.42	.42
19	1.72	2.6	4.3	3.5	2.45	1.79	2.45	2.7	e.07	.42	.42	.42
20	1.72	2.6	4.4	3.5	2.45	1.79	2.45	2.6	.89	.42	.50	.65
21	1.82	2.7	4.4	3.4	2.45	3.25	2.45	2.6	1.10	.42	1.35	.58
22	2.05	2.75	4.3	3.4	2.45	2.65	2.35	2.55	1.10	.39	1.38	.54
23	1.79	2.85	4.3	3.3	2.3	1.98	2.3	2.6	1.10	.36	.58	.54
24	1.72	2.85	4.3	3.1	2.3	1.85	2.05	2.45	1.10	.30	.50	.54
25	1.72	2.85	4.3	3.2	2.35	1.79	2.35	2.6	1.10	.27	.50	.54
26	1.79	2.85	4.3	3.4	2.45	1.79	2.35	2.6	1.10	.27	.46	.62
27	1.95	2.85	4.3	3.05	2.35	1.72	2.3	2.55	1.10	.27	.50	.73
28	2.05	3.05	4.3	2.95	2.3	1.72	2.35	2.55	.89	.27	.92	.70
29	1.85	3.1	4.2	2.95	2.55	1.72	2.55	-	2.8	.27	.58	.58
30	1.85	3.1	4.2	2.85	2.6	1.72	2.45	-	3.15	.27	.50	.58
31	1.79	3.1	-	2.85	-	1.72	2.6	-	1.88	-	.50	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.3	1.72	1.80	2.79	56.0	172
August	3.1	1.85	2.37	3.67	73.5	225
September	4.4	3.1	3.68	5.69	110	339
October	4.1	2.85	3.50	5.42	108	333
November	3.7	2.3	2.63	4.07	78.9	242
December	3.25	1.72	2.05	3.17	63.4	195
Calendar year 1946	4.4	1.57	2.21	3.42	806	2,480
January	2.6	1.72	2.22	3.43	68.9	212
February	2.95	2.35	2.58	3.99	72.1	221
March	4.3	.07	1.77	2.74	54.8	168
April	1.94	.27	.777	1.20	23.3	72
May	1.38	.30	.588	.910	18.2	56
June	.73	.42	.498	.771	14.9	46
Fiscal year 1946-47	4.4	.07	2.04	3.16	742	2,280

e Gage-height record may be faulty.

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 1947.

Average discharge.- 11 years (1936-47), 6.44 million gallons a day (9.96 second-feet).

Extremes.- Maximum discharge during year, 384 million gallons a day (594 second-feet) Mar. 29 (gage height, 5.48 feet), from rating curve extended above 50 million gallons a day by test on model of station site; minimum, 3.2 million gallons a day (5.0 second-feet) Oct. 1.

1935-47: 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, that of Oct. 1, 1946.

Remarks.- Records fair. A 2-inch pipe line diverts water above station for domestic use.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.6	2.5	1.0	7.5	1.6	20
.7	3.5	1.1	9.0	1.8	25.5
.8	4.6	1.2	11.0	2.2	39
.9	6.0	1.4	15.1		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.6	3.4	3.4	3.3	3.3	4.8	3.9	4.0	3.7	6.9	4.2	4.0
2	3.5	3.4	3.4	3.3	3.3	6.7	6.0	4.0	6.1	5.6	4.4	4.0
3	3.5	3.5	3.4	3.3	3.3	4.3	4.0	4.0	4.2	5.2	4.3	4.0
4	3.5	3.5	3.4	3.3	3.4	3.95	4.0	4.0	3.95	4.7	4.2	4.0
5	3.4	3.5	3.4	3.4	3.4	3.8	4.0	3.9	3.85	4.5	4.0	4.0
6	3.4	3.7	3.4	3.3	3.3	5.6	4.0	3.9	3.7	4.4	4.0	4.0
7	3.4	3.5	3.3	3.3	3.3	5.8	4.0	3.9	3.7	4.3	4.2	3.95
8	3.4	3.5	3.4	3.95	3.3	4.2	4.0	3.9	3.7	4.2	4.2	3.95
9	3.3	3.5	3.4	3.5	3.4	5.2	3.9	3.9	3.85	4.0	4.2	3.95
10	3.3	3.5	3.5	3.85	3.65	5.6	3.9	3.9	3.7	5.5	4.2	3.95
11	3.3	3.5	3.4	3.5	7.8	4.4	3.9	3.9	3.85	6.3	4.2	3.95
12	3.3	3.5	3.4	3.4	3.6	4.2	3.9	3.9	4.0	4.9	4.3	4.2
13	3.7	3.5	3.4	3.4	3.5	4.0	3.9	3.9	4.0	4.4	4.3	3.95
14	3.3	3.5	3.4	3.3	4.5	3.95	7.0	3.9	4.0	4.2	4.0	3.95
15	3.3	3.4	3.4	3.4	6.6	4.3	4.5	3.85	4.0	4.2	4.0	3.95
16	4.9	3.4	3.4	3.3	4.0	4.5	4.0	3.85	14.7	4.2	4.0	3.95
17	4.0	3.4	3.4	3.4	3.7	5.4	4.0	3.85	38.5	4.0	4.0	3.95
18	3.7	3.6	3.4	3.3	3.7	4.8	4.0	3.7	9.2	4.0	4.0	3.95
19	3.5	3.4	3.4	3.3	3.6	4.2	4.0	3.7	5.9	4.0	4.0	3.85
20	3.4	3.4	3.4	3.3	3.5	4.0	4.0	3.7	5.0	4.0	4.0	4.0
21	4.1	3.5	3.3	3.4	3.5	13.9	4.0	3.85	4.7	3.95	6.2	3.95
22	4.0	3.5	3.3	3.3	3.5	10.0	4.0	3.85	4.6	3.95	6.2	3.95
23	3.5	3.4	3.3	3.3	3.5	6.0	4.0	3.85	4.5	4.3	4.4	4.0
24	3.4	3.4	3.3	3.3	3.4	4.9	3.9	3.85	4.4	4.2	4.0	4.0
25	3.4	3.4	3.3	3.3	3.4	4.5	3.9	3.85	4.3	4.0	4.0	4.0
26	3.3	3.4	3.3	4.0	3.4	4.3	3.9	3.85	4.3	4.0	4.0	4.0
27	3.7	3.4	3.3	3.5	3.5	4.1	3.9	3.7	4.2	4.0	4.0	4.2
28	4.4	3.4	3.5	3.4	3.5	4.0	3.9	3.7	4.3	4.0	5.3	4.0
29	3.6	3.4	3.3	3.3	3.9	3.9	5.5	-	24.5	4.0	4.2	4.0
30	3.5	3.4	3.3	3.3	4.7	4.0	4.0	-	26.5	4.0	4.0	4.0
31	3.5	3.4	-	3.3	-	3.9	4.0	-	10.6	-	4.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.9	3.3	3.58	5.54	111	341
August	3.7	3.4	3.46	5.35	107	329
September	3.5	3.3	3.37	5.21	101	311
October	4.0	3.3	3.40	5.26	106	324
November	7.8	3.3	3.82	5.91	114	351
December	13.9	3.9	5.07	7.84	157	482
Calendar year 1946	13.9	3.3	3.78	5.85	1,380	4,230
January	7.0	3.9	4.19	6.48	130	399
February	4.0	3.7	3.86	5.97	108	332
March	38.5	3.7	7.44	11.5	230	707
April	6.9	3.95	4.46	6.90	134	411
May	6.2	4.0	4.29	6.64	133	408
June	4.2	3.85	3.99	6.17	120	367
Fiscal year 1946-47	38.5	3.3	4.25	6.58	1,550	4,760

Note.- No gage-height record Dec. 26 to Jan. 2, Jan. 5 to Feb. 14; discharge computed on basis of records for stations on nearby streams.

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 1946 to June 1947 /—

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
Feb. 10	Honua.....	Pacific Ocean....	At weir 2, above flume intake, near Waianae.	0.104	0.067
10	Coffee House Springs.	Kakahi Stream....	At weir 4, near Waianae.....	.025	.016
10	Tunnel 19.....	Kanewai Stream...	At weir 28, near Waianae.....	1.25	.808
10	Tunnel 6.....	....do.....	At weir 7, near Waianae.....	.179	.116
10	Tunnel 7.....	....do.....	At weir 21, near Waianae.....	.084	.054
10	Tunnel 8.....	....do.....	At weir 22, near Waianae.....	.162	.105
10	Tunnel 9.....	....do.....	At weir 23, near Waianae.....	.051	.033
Mar. 13	Puea mauka ditch.	Cane field.....	At 2-foot Parshall flume, below power plant, near Waianae.	1.56	1.01
13	Makaha tunnel..	....do.....	At mouth, in Makaha Valley, near Waianae.	2.20	1.42
13	Makaha mauka ditch.	....do.....	At 4-foot Parshall flume, about 2,000 feet below tunnel, in Makaha Valley, near Waianae.	2.26	1.46
17	Tunnel 2.....	Kanewai Stream...	At weir 8, near Waianae.....	.421	.272
17	Tunnel 14.....	Kalalula Stream (formerly published as Kalalua Stream).	At weir 24, near Waianae.....	.098	.063
17	West Branch Kalalula.	Kalalula Stream..	At weir 25, above tunnel 14, near Waianae.	.076	.049
17	....do.....	....do.....	At weir 10, above trail crossing, near Waianae.	.167	.108
17	Tunnel 11.....	West Branch Kalalula Stream.	At weir 9, above trail crossing, near Waianae.	.003	.002
17	Tunnel 15.....	....do.....	At weir 13, near Waianae.....	.311	.201
17	West Branch Kalalula.	Kalalula Stream..	At weir 14 below tunnel 15, above pipe-line diversion dam, near Waianae.	.456	.295
June 26	Kumaipo.....	Honua Stream.....	At weir 12, above diversion flume to Hāi Stream, near Waianae.	.066	.043
Aug. 12	Pearl Harbor Springs.	Pacific Ocean....	All springs west of Puukapu gaging station, near Pearl City.	.923	.597
Oct. 28	....do.....	....do.....	....do.....	2.07	1.34
Dec. 12	....do.....	....do.....	....do.....	2.23	1.44
Feb. 19	....do.....	....do.....	....do.....	1.83	1.18
Apr. 8	....do.....	....do.....	....do.....	2.18	1.41
27	Helemano.....	....do.....	At altitude 1,100 feet, near Wahiawa.	1.58	1.02
Mar. 4	Left Branch of Middle Fork Waiahole.	....do.....	Above pump house at altitude 600 ± feet, near Waiahole.	.036	.023
4	Right Branch of Middle Fork Waiahole.	....do.....	....do.....	.043	.028
4	Left Fork Waiahole.	....do.....	Above pump house at altitude 530 ± feet, near Waiahole.	.054	.035
4	Middle Fork Waiahole.	....do.....	100 feet above pump house, near Waiahole.	.908	.587
4	Right Fork Waiahole.	....do.....	Above pump house at altitude 500 ± feet, near Waiahole.	.518	.335

Halawa Stream near Halawa

Location.- Lat. 21°09'30", long. 156°46'00", about 500 feet downstream from confluence of two main branches, 1¾ miles west of Halawa, and 6 miles northeast of Pukoo.

Drainage area.- 4.5 square miles.

Records available.- August 1917 to July 1932, November 1937 to June 1947.

Average discharge.- 23 years (1918-32, 1938-47), 19.2 million gallons a day (29.7 second-feet).

Extremes.- Maximum discharge during year, 1,510 million gallons a day (2,340 second-feet) Dec. 7 (gage height, 8.01 feet), from rating curve extended above 100 million gallons a day by logarithmic plotting; minimum, 1.47 million gallons a day (2.27 second-feet) Feb. 25.

1917-32, 1937-47: Maximum discharge, 3,320 million gallons a day (5,140 second-feet) Mar. 18, 1943 (gage height, 11.31 feet), from rating curve extended above 100 million gallons a day by logarithmic plotting; minimum, 0.8 million gallons a day (1.2 second-feet) Oct. 13-15, 19, 1917.

Remarks.- Records fair. A 1-inch pipe line diverts water about a quarter of a mile above station for domestic use of Halawa village.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.05	1.0	8.3	2.5	69
.5	1.75	1.1	10.3	3.0	112
.6	2.65	1.3	15.0	3.5	172
.7	3.8	1.5	20.5	4.0	252
.8	5.1	1.7	27	4.5	356
.9	6.6	2.0	39		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a17	11.0	10.6	10.2	5.7	113	8.6	7.4	4.6	35	20	25.5
2	a15	11.2	24.5	5.8	4.6	149	129	5.7	14.1	16.6	182	12.5
3	a7.0	26	24	4.6	6.2	48	14.9	5.2	10.1	14.6	125	12.8
4	a5.8	13.3	8.1	6.5	9.6	31.5	11.4	4.8	4.7	11.8	117	27
5	a5.0	8.1	7.8	11.7	41	16.1	18.8	3.95	3.45	13.6	24	15.6
6	a6.5	7.1	8.5	4.7	9.4	45	12.0	3.45	3.1	25	12.9	8.7
7	a20	7.4	6.0	7.6	6.8	282	7.8	3.45	8.0	49	10.3	7.3
8	a8.5	7.8	6.3	25.5	6.0	126	11.2	3.35	4.1	15.3	9.1	6.2
9	a13	9.4	6.1	24	6.9	21.5	7.6	3.2	5.6	13.6	12.8	5.7
10	a37	21	17.9	18.5	16.8	15.0	6.2	3.35	3.8	28	32	5.0
11	11.5	9.0	6.0	14.4	70	11.6	8.6	2.65	2.65	214	19.2	5.4
12	22.5	6.0	5.2	8.5	19.6	9.5	13.4	2.45	2.3	170	29	13.8
13	41	36.5	4.4	6.0	20.5	8.7	190	2.4	39	24.5	26	7.6
14	17.8	17.2	3.95	5.0	29.5	7.3	41	2.4	64	15.2	8.7	5.6
15	11.4	7.8	11.1	4.4	56	24	12.5	2.2	10.3	11.6	6.6	4.7
16	126	6.9	7.6	3.95	9.7	42	9.3	2.0	19.3	9.5	5.6	4.1
17	56	8.3	11.7	3.45	8.5	85	7.6	1.93	75	8.0	5.1	3.8
18	24	8.8	9.3	3.55	21.5	77	6.6	1.93	8.2	6.8	4.6	6.6
19	13.5	12.3	6.0	3.45	7.3	21.5	5.8	1.84	5.6	6.0	4.6	4.7
20	47	11.3	5.2	2.9	5.6	41	5.2	1.75	4.6	5.4	7.0	19.7
21	81	6.9	5.7	2.65	5.0	247	4.8	1.68	3.95	5.0	70	12.3
22	26.5	5.4	5.7	3.0	7.4	95	4.4	1.61	3.55	4.6	82	7.1
23	12.8	11.2	5.4	18.5	14.9	60	4.4	1.54	4.2	4.8	11.4	5.8
24	11.8	6.8	6.4	9.5	6.3	37.5	4.2	1.54	4.7	18.3	7.6	15.6
25	8.5	8.9	4.6	5.8	4.6	23	4.3	15.3	3.35	10.2	7.4	14.4
26	8.0	6.2	3.7	99	4.3	14.2	4.6	41	6.5	5.6	19.5	22
27	205	8.4	4.6	11.6	4.2	11.4	6.4	95	16.9	21.5	49	39.5
28	90	10.6	19.7	7.1	52	9.5	40	8.2	105	6.0	129	48
29	24	9.8	21.5	7.4	92	8.3	64	-	170	4.4	22.5	21
30	19.7	30	7.9	10.4	138	7.4	50	-	278	7.8	11.6	27
31	14.0	10.9	-	8.5	-	8.7	17.4	-	34	-	10.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	205	5.0	32.5	50.3	1,010	3,090
August	36.5	5.4	11.7	18.1	362	1,110
September	24.5	3.7	9.18	14.2	275	845
October	99	2.65	11.6	17.9	358	1,100
November	138	4.2	23.0	35.6	690	2,120
December	282	7.3	54.7	84.6	1,700	5,210
Calendar year 1946	292	2.2	20.0	30.9	7,290	22,370
January	190	4.2	23.6	36.5	732	2,250
February	95	1.54	8.26	12.8	231	710
March	278	2.3	29.8	46.1	923	2,830
April	214	4.4	26.1	40.4	782	2,400
May	182	4.6	34.9	54.0	1,080	3,320
June	48	3.8	13.8	21.4	415	1,270
Fiscal year 1946-47	282	1.54	23.4	36.2	8,560	26,260

a No gage-height record; discharge computed on basis of records for Waiakeakua and Pulena Streams.

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 1947.

Average discharge.- 18 years (1920-29, 1938-47), 7.55 million gallons a day (11.7 second-feet).

Extremes.- Maximum discharge during year, 692 million gallons a day (1,070 second-feet) Dec. 7 (gage height, 7.06 feet), from rating curve extended above 140 million gallons a day by logarithmic plotting; minimum, 2.2 million gallons a day (3.4 second-feet) Nov. 26, 27.
1919-29, 1937-47: Maximum discharge, 1,340 million gallons a day (2,070 second-feet) Mar. 18, 1943 (gage height, 9.82 feet), from rating curve extended above 140 million gallons a day by logarithmic plotting; minimum, 1.3 million gallons a day (2.0 second-feet) Mar. 7, 1920.

Remarks.- Records fair except those for May 4 to June 6, which are poor. No diversions.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.7	4.7	3.9	4.1	3.5	24	6.2	4.1	3.0	4.9	9.8	4.4
2	4.2	4.5	5.8	3.6	3.5	30	39.5	3.9	7.0	4.3	57	4.3
3	3.8	5.9	4.6	3.4	3.7	23	9.5	3.9	3.7	4.1	31	4.1
4	3.5	5.9	3.9	4.2	7.5	13.2	10.3	3.6	3.2	3.6	27	4.0
5	3.6	4.2	4.1	3.8	9.9	6.4	7.3	3.5	3.0	4.0	10	3.8
6	3.5	4.1	4.4	3.4	4.5	17.6	6.5	3.4	3.2	9.1	7.0	3.6
7	4.3	4.0	3.7	3.6	4.3	127	6.6	3.4	3.4	14.3	5.5	3.5
8	3.8	4.2	3.7	5.2	4.0	36	7.2	3.4	3.0	6.1	5.0	3.3
9	4.8	4.8	3.6	6.3	3.8	16.1	5.9	6.6	3.0	5.3	5.6	3.2
10	6.6	4.3	4.3	6.3	5.8	11.7	5.6	3.5	2.9	5.0	7.0	3.1
11	4.6	3.9	3.5	4.6	6.5	9.0	5.7	3.3	2.7	6.9	8.0	3.4
12	7.4	3.7	3.4	3.9	4.0	7.3	5.3	3.3	2.7	10.4	13	4.4
13	14.6	8.1	3.3	3.7	3.8	6.6	17.1	3.2	9.6	5.2	12	3.4
14	5.6	4.4	3.3	3.4	7.4	6.3	8.8	3.1	6.0	4.3	6.0	3.1
15	5.1	4.2	3.8	3.4	14.5	10.4	5.6	3.0	3.4	4.0	5.2	2.9
16	31	4.1	3.4	3.3	3.0	18.2	5.0	3.0	14.4	3.7	4.7	2.8
17	11	4.1	3.9	3.1	2.7	42	4.7	3.0	15.2	3.5	4.4	2.8
18	7.6	4.0	3.5	3.3	3.95	38.5	4.6	3.0	4.6	3.3	4.2	3.3
19	5.6	3.9	3.4	3.0	2.6	15.7	4.4	3.0	3.8	3.1	4.0	2.8
20	7.2	4.0	3.3	2.9	2.5	21	4.3	2.9	3.5	3.0	4.5	5.0
21	9.1	3.6	3.3	2.8	2.4	80	4.1	2.9	3.4	3.0	9.0	3.6
22	6.0	3.7	3.3	2.7	2.55	33	4.0	2.8	3.2	2.9	10	3.5
23	4.9	4.3	3.2	5.0	2.95	22	3.9	2.8	3.4	3.15	5.0	4.0
24	4.7	3.8	3.4	3.2	2.3	20.5	3.9	2.7	3.2	7.9	4.5	5.0
25	4.4	3.9	3.1	2.9	2.3	13.5	3.9	3.0	3.0	4.9	4.2	4.1
26	4.3	3.6	3.0	15.4	2.2	10.9	3.8	3.6	3.0	3.2	4.7	6.6
27	32.5	3.7	3.7	4.0	2.2	9.2	3.9	6.0	3.55	5.1	5.4	15.2
28	15.8	4.0	5.0	3.4	23	8.2	7.7	3.0	13.1	3.1	8.0	13.1
29	7.0	3.75	5.2	3.55	34.5	7.3	11.8	-	38.5	3.0	5.2	9.7
30	5.9	5.6	4.2	4.0	30	6.6	8.9	-	15.6	3.4	4.8	12.7
31	5.2	3.9	-	4.1	-	6.3	5.3	-	5.7	-	4.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	32.5	3.5	7.82	12.1	242	744
August	8.1	3.6	4.35	6.73	135	414
September	5.8	3.0	3.81	5.89	114	350
October	15.4	2.7	4.18	6.47	130	398
November	34.5	2.2	6.86	10.6	206	632
December	127	6.3	22.5	34.8	698	2,140
Calendar year 1946	127	2.2	7.54	11.7	2,750	8,450
January	39.5	3.8	7.46	11.5	231	710
February	6.6	2.7	3.46	5.35	96.9	297
March	38.5	2.7	6.35	9.82	197	604
April	14.3	2.9	4.92	7.61	148	453
May	57	4.0	9.55	14.8	296	908
June	15.2	2.8	4.96	7.67	149	456
Fiscal year 1946-47	127	2.2	7.24	11.2	2,640	8,110

Note.- No gage-height record May 4 to June 6; discharge computed on basis of records for Pulena Stream.

Pulena Stream near Wailau

Location.- Lat. 21°07'40", long. 156°49'50", half a mile upstream from confluence with Waiakeakua 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 1947.

Average discharge.- 17 years (1920-28, 1938-47), 21.6 million gallons a day (33.4 second-feet).

Extremes.- Maximum discharge during year, 12,400 million gallons a day (19,200 second-feet) Dec. 7 (gage height, 11.76 feet), from rating curve extended above 220 million gallons a day by logarithmic plotting; minimum, 4.4 million gallons a day (6.8 second-feet) Feb. 24.
1919-28, 1937-47: Maximum discharge, that of Dec. 7, 1946; 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. No diversions.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.9	4.5	1.6	31	3.2	275
1.0	6.6	1.8	45	3.6	430
1.1	9.0	2.0	63	4.0	620
1.2	12.2	2.4	110	4.5	950
1.4	20	2.8	180		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.8	15.8	11.7	13.5	9.3	66	17	8.5	7.4	15.1	20.5	11.9
2	13.6	14.7	18.1	8.5	10.3	104	f190	7.6	44	13.6	145	9.6
3	8.3	17.1	17.3	7.6	11.2	76	40	7.2	17.8	12.2	148	10.0
4	6.6	12.9	9.0	16.1	34	58	28	6.9	10.0	11.2	115	9.6
5	7.6	10.9	10.5	8.3	87	36	23	6.6	7.8	16.0	46	8.9
6	7.3	11.6	10.0	6.8	41	77	20	6.2	8.5	53	28	8.3
7	17.9	11.6	7.8	13.5	23	893	21	6.6	10.1	53	21.5	8.0
8	9.8	10.9	7.8	16.9	17.9	f140	30	6.2	7.6	26	18.3	7.3
9	14.2	11.4	6.8	35	14.7	50	20	48	6.4	19.6	22.5	6.8
10	35	9.3	7.1	70	23.5	28	18	12.6	6.0	15.8	28.5	6.8
11	21.5	8.3	6.2	33.5	17.5	23	16	8.5	5.3	26.5	25	9.0
12	33	7.8	6.0	17.9	13.6	19	15	7.6	5.3	48	52	13.9
13	44	34.5	5.6	13.3	11.9	17	50	7.1	24.5	20	51	10.0
14	23	22	6.4	10.9	18.9	16	20	6.6	24.5	15.8	23.5	7.1
15	23.5	11.6	8.6	10.0	64	20	14	6.2	10.0	13.3	18.3	6.4
16	118	10.3	6.2	8.8	17.9	25	12	6.0	35.5	11.9	15.8	6.0
17	65	9.6	10.2	8.3	14.4	f140	11	5.8	54	10.9	14.0	6.0
18	44	9.6	8.0	10.6	12.6	f130	10	5.6	15.8	9.6	12.6	9.0
19	25	10.5	8.0	7.8	11.2	50	9.5	5.3	11.2	9.0	11.6	6.0
20	22.5	9.3	7.1	6.8	10.3	120	9.0	5.1	9.6	8.5	13.3	14.9
21	27.5	7.8	6.8	6.8	9.7	f330	8.5	4.9	8.5	8.0	30.5	8.3
22	21	7.3	7.3	7.1	12.1	80	8.2	4.9	8.0	7.8	33.5	9.3
23	15.4	13.2	6.2	20.5	9.6	55	8.1	4.7	8.5	9.4	15.1	8.8
24	14.4	8.0	6.4	10.1	8.3	50	8.0	4.5	8.5	10.8	13.3	10.0
25	11.9	10.3	5.3	7.7	7.8	40	8.0	6.5	8.5	12.9	11.6	11.7
26	11.6	8.0	5.3	48	7.6	30	7.9	13.3	10.2	8.3	12.9	21
27	88	8.3	7.8	16.1	7.1	25	9.0	19.3	10.0	11.7	15.2	52
28	72	10.4	12.7	10.6	96	22	20	6.6	25	7.3	25.5	44
29	34	8.7	18.4	10.6	108	20	35	-	78	6.6	14.0	32.5
30	25	12.7	14.8	15.8	78	19	25	-	37	8.0	11.2	50
31	19.2	9.2	-	15.2	-	18	10	-	20	-	10.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	118	6.6	28.9	44.7	895	2,750
August	34.5	7.3	11.7	18.1	364	1,120
September	18.4	5.3	8.98	13.9	269	827
October	70	6.8	15.9	24.6	493	1,510
November	108	7.1	26.9	41.6	808	2,480
December	893	16	89.6	139	2,780	8,520
Calendar year 1946	893	4.2	28.1	43.5	10,240	31,460
January	190	7.9	23.3	36.1	721	2,210
February	48	4.5	8.75	13.5	245	752
March	78	5.3	17.5	27.1	544	1,670
April	53	6.6	16.7	25.8	500	1,530
May	148	10.6	33.0	51.1	1,020	3,140
June	52	6.0	14.1	21.8	423	1,300
Fiscal year 1946-47	893	4.5	24.8	38.4	9,060	27,810

f Fragmentary gage-height record; discharge computed from partly estimated gage heights.
Note.- No gage-height record Dec. 9-16, 19, 20, Dec. 22 to Jan. 1, Jan. 3 to Feb. 4; discharge computed on basis of records for Waiakeakua Stream.

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 1947.

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

Extremes.- Maximum discharge during year unknown, owing to unstable stage-discharge relation; minimum, 3.5 million gallons a day (5.4 second-feet) Sept. 25, 26.
1919-29, 1937-47: Maximum discharge, 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.

Remarks.- Records good except those for July 1-12, which are fair, and that for Dec. 7, which is poor. No diversions.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a6.0	6.6	5.1	5.2	4.5	31.5	11.0	4.5	4.5	8.2	11.8	6.6
2	a5.2	6.1	6.1	4.1	4.5	47	54	4.4	20	7.1	51	5.9
3	a4.6	6.8	5.5	4.0	5.2	26.5	23.5	5.4	10.0	6.6	52	5.9
4	a4.0	5.6	4.1	6.4	12.2	18.0	18.9	4.4	6.8	6.3	54	5.4
5	a4.0	5.0	4.1	4.1	44	12.8	16.4	4.2	5.9	8.2	24	5.0
6	a4.0	5.2	4.0	3.8	21	30	12.8	4.1	6.4	23	15.4	4.7
7	a5.2	5.4	3.8	3.8	11.4	e300	13.7	4.5	7.4	24	11.8	4.5
8	a4.5	4.5	3.8	5.9	8.8	48	17.5	4.2	6.1	14.5	10.0	4.2
9	a5.0	4.5	3.8	16.7	7.4	22	13.6	26.5	5.0	11.0	9.0	4.1
10	a7.8	4.4	3.7	44	8.9	18.5	10.7	7.9	4.5	8.8	9.6	4.1
11	a5.8	4.1	3.7	15.2	12.2	13.6	10.3	5.6	4.4	18.6	10.3	4.7
12	a8.0	4.0	3.6	8.2	9.0	11.8	9.0	5.0	4.2	24.5	17.8	7.4
13	12.1	9.1	3.6	6.1	7.4	10.3	11.6	4.7	13.0	12.5	15.1	6.0
14	9.0	10.0	3.7	5.2	8.6	9.3	10.7	4.5	11.5	9.6	9.6	4.2
15	10.1	5.4	4.1	4.5	22.5	12.0	8.5	4.4	6.8	8.5	8.2	4.1
16	32.5	4.7	3.7	4.2	10.0	15.3	7.9	4.2	19.1	7.4	7.1	4.0
17	24	4.5	4.4	4.0	7.9	42	7.1	4.1	25	6.8	6.8	4.0
18	17.0	4.4	4.2	4.5	6.8	47	6.8	4.0	11.0	6.1	6.3	4.7
19	10.3	4.7	4.2	4.0	6.1	26	6.3	4.0	8.2	5.9	5.9	4.0
20	8.5	4.4	3.8	3.7	5.6	76	6.1	3.8	7.1	5.6	6.8	6.0
21	9.1	4.1	3.8	3.7	5.4	106	5.9	3.8	6.3	5.2	17.4	4.2
22	7.6	4.0	4.0	3.8	6.1	47	5.6	3.8	5.9	5.0	15.2	5.0
23	6.1	4.7	3.7	8.4	5.2	34	5.4	3.8	6.3	5.2	8.8	4.4
24	5.9	4.0	3.7	5.0	4.7	68	5.6	3.8	6.1	5.0	8.2	4.2
25	5.2	4.5	3.5	4.0	4.5	28	5.6	5.2	6.1	5.0	7.1	5.7
26	5.0	4.4	3.5	13.5	4.4	18.5	5.4	9.6	6.3	4.7	6.8	8.5
27	25	4.2	3.6	7.1	4.5	14.5	6.8	10.7	5.9	5.6	8.2	15.9
28	23	4.7	4.2	5.0	57	12.1	6.6	5.0	12.2	4.4	14.8	13.2
29	12.5	4.4	5.6	5.0	56	10.3	5.2	-	25	4.2	9.0	10.0
30	9.3	4.7	5.2	7.4	29.5	11.0	4.7	-	16.2	5.2	8.8	20
31	7.6	4.1	-	5.9	-	10.0	4.5	-	10.3	-	6.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	32.5	4.0	9.80	15.2	304	933
August	10.0	4.0	5.07	7.84	157	482
September	6.1	3.5	4.13	6.39	124	380
October	44	3.7	7.30	11.3	226	695
November	57	4.4	13.4	20.7	401	1,230
December	300	9.3	38.0	58.8	1,180	3,610
Calendar year 1946	300	2.2	12.2	18.9	4,460	13,680
January	54	4.5	10.9	16.9	338	1,040
February	26.5	3.8	5.72	8.85	160	491
March	25	4.2	9.47	14.7	294	901
April	24.5	4.2	9.08	14.1	273	837
May	54	5.9	14.6	22.6	453	1,390
June	20	4.0	6.35	9.82	191	585
Fiscal year 1946-47	300	3.5	11.2	17.3	4,100	12,570

a No gage-height record; discharge computed on basis of records for Pulena and Lanipuni Streams.
e Stage-discharge relation unstable; discharge computed as explained in footnote a.

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 miles.

Records available.- December 1910 to September 1929, September 1937 to June 1947.

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

Extremes.- Maximum discharge during year, 3,330 million gallons a day (5,150 second-feet) Dec. 7 (gage height, 8.86 feet), from rating curve extended above 18 million gallons a day by logarithmic plotting; minimum, 2.1 million gallons a day (3.2 second-feet) Feb. 24.

1919-29, 1937-47: Maximum discharge, 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.2	4.8	3.8	4.6	3.5	18.0	7.5	2.7	3.5	5.2	15	5.2
2	3.8	4.6	7.1	3.8	3.6	37.5	f80	2.6	19.9	4.6	60	4.8
3	3.5	4.8	4.9	3.6	4.4	26	15	2.8	5.8	4.0	62	4.6
4	3.4	4.2	3.7	4.4	14.5	12.8	12	2.6	3.5	7.1	64	4.4
5	3.3	4.0	3.8	3.6	62	8.1	10	2.6	3.0	10	30	4.2
6	3.3	4.3	3.6	3.3	15	23.5	7.0	2.5	3.8	27	12	4.0
7	4.0	4.2	3.4	3.3	5.0	165	7.6	2.6	4.0	30	8.0	3.7
8	3.5	3.8	3.4	3.7	4.5	f21	9.0	2.5	3.5	12	7.0	3.6
9	4.5	3.7	3.3	5.3	4.2	16	7.0	3.5	2.9	8.0	6.0	3.4
10	6.0	3.6	3.3	10.2	6.0	13	6.6	2.5	2.6	6.0	7.0	3.4
11	4.5	3.4	3.2	5.6	8.0	11	6.2	2.4	2.5	23	8.0	4.0
12	6.5	3.4	3.0	4.2	5.0	9.5	6.0	2.4	2.4	30	20	5.4
13	11.4	11.5	3.0	3.7	4.3	8.5	8.0	2.4	29.5	10	17	5.5
14	7.3	10.4	3.2	3.5	6.0	8.0	7.4	2.4	18.8	7.0	10	3.6
15	12.0	4.6	3.9	3.3	17	f12	5.0	2.3	6.0	5.5	7.0	3.3
16	43	4.2	3.2	3.2	6.0	f19	4.5	2.3	25	4.5	6.0	3.2
17	22.5	3.8	4.3	3.2	5.4	f100	4.3	2.3	28	4.0	5.3	3.2
18	11.7	3.6	3.7	3.7	5.0	f70	4.1	2.2	7.0	3.7	4.8	3.9
19	6.6	4.2	4.2	3.2	4.5	f24	3.9	2.2	4.9	3.6	4.5	3.4
20	6.8	3.7	3.6	2.9	4.2	f80	3.7	2.2	4.3	3.5	5.0	7.4
21	6.4	3.4	3.7	2.9	4.0	164	3.5	2.2	3.7	3.4	18	4.2
22	5.2	3.5	3.7	3.0	4.5	f37	3.4	2.2	3.6	3.3	15	3.7
23	4.4	3.7	3.4	6.1	4.0	25	3.3	2.2	4.6	3.2	7.0	3.6
24	4.4	3.6	3.3	4.2	3.6	f35	3.3	2.2	8.9	3.1	5.5	3.6
25	4.0	3.7	3.0	3.2	3.5	18	3.2	3.0	4.9	3.0	5.0	4.3
26	4.2	3.6	3.0	9.7	3.5	13	3.2	6.0	7.3	3.0	4.5	8.9
27	63	3.4	3.6	4.6	3.5	11	3.7	13.3	7.2	3.5	5.5	23
28	24.5	4.6	5.1	3.7	39	9.0	3.8	2.9	25.5	3.2	15	17.8
29	8.6	3.7	6.0	3.7	37.5	8.0	3.2	-	39	3.0	7.0	12.8
30	6.4	4.0	3.9	5.6	25.5	7.2	2.9	-	15.7	3.5	6.0	19.8
31	5.4	3.6	-	4.2	-	6.8	2.8	-	7.2	-	5.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	63	3.3	9.95	15.4	308	946
August	11.5	3.4	4.37	6.76	136	416
September	7.1	3.0	3.81	5.89	114	351
October	10.2	2.9	4.30	6.65	133	409
November	62	3.5	10.6	16.4	317	972
December	165	6.8	36.0	55.7	1,120	3,430
Calendar year 1946	165	2.2	9.57	14.8	3,500	10,720
January	80	2.8	8.10	12.5	251	771
February	13.3	2.2	3.00	4.64	84.0	258
March	39	2.4	9.95	15.4	308	947
April	30	3.0	8.03	12.4	241	739
May	64	4.5	14.6	22.6	453	1,390
June	23	3.2	6.20	9.59	186	571
Fiscal year 1946-47	165	2.2	9.99	15.5	3,650	11,200

f Fragmentary gage-height record; discharge computed from partly estimated gage heights.
Note.- No gage-height record July 1-12, Nov. 6-23, Dec. 9-14, 21, 23, Dec. 25 to Jan. 1, Jan. 3-26, Apr. 5 to June 4; discharge computed on basis of records for Waiakeakua, Pulena, and Pelekunu Streams.

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 1947. June 1919 to November 1930 at site 500 feet upstream.

Extremes.- Maximum discharge during year, 574 million gallons a day (888 second-feet) Dec. 20 (gage height, 4.36 feet), from rating curve extended above 42 million gallons a day by logarithmic plotting; minimum, 3.6 million gallons a day (5.6 second-feet) Sept. 10, 13, 17, 18.

1919-32, 1937-47: 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.1	2.75	1.5	11.9	2.2	58
1.2	4.2	1.6	16.0	2.6	106
1.3	6.1	1.8	26.5	3.0	172
1.4	8.6	2.0	40		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.7	5.2	4.8	7.6	4.2	19.3	11.6	6.4	6.6	7.6	16.4	9.3
2	5.2	5.0	6.0	5.0	3.9	44	90	6.1	15.2	7.4	107	9.3
3	5.0	5.2	6.6	4.6	3.9	16.2	14.5	6.6	10.2	6.8	126	9.3
4	4.6	5.5	5.0	5.8	12.3	12.7	12.4	6.6	7.4	6.8	78	9.3
5	4.4	5.0	4.6	5.0	61	7.0	12.9	6.1	6.1	10.9	19.2	9.3
6	5.4	4.8	4.6	4.6	10.0	17.9	10.6	a5.9	6.1	36.5	14.4	8.6
7	12.4	4.8	4.6	4.2	5.2	24	10.3	6.1	8.4	31	10.9	9.3
8	7.6	4.6	4.4	4.2	4.8	10.6	24	6.4	10.2	11.7	10.2	8.9
9	10.8	4.6	4.4	27	4.8	6.1	13.2	26.5	6.1	8.4	9.9	8.6
10	19.8	4.4	4.4	53	5.1	10.0	12.7	9.8	5.5	7.4	9.9	8.6
11	9.9	4.4	4.4	14.2	5.2	6.8	10.3	6.6	5.2	58	10.9	8.6
12	6.7	4.2	4.4	5.5	4.4	5.5	8.6	6.4	5.0	61	19.7	9.6
13	9.9	4.6	4.2	4.8	4.2	5.5	17.9	6.1	52	12.0	15.6	10.2
14	5.9	8.7	4.2	4.4	4.4	5.5	13.2	6.1	32.5	8.9	9.9	9.3
15	8.5	5.0	4.4	4.2	23.5	35	8.4	6.1	8.1	8.1	9.3	8.6
16	29	4.8	4.4	3.9	5.4	16.3	7.8	6.1	16.5	8.1	8.9	8.6
17	14.0	4.6	4.1	3.9	4.4	59	7.4	6.1	61	7.8	8.9	8.9
18	9.8	4.6	4.1	3.9	4.2	60	7.1	6.1	8.6	7.6	8.9	8.6
19	5.7	4.6	4.2	3.75	3.9	20.5	6.8	5.9	7.1	7.6	8.6	8.4
20	5.2	4.4	4.2	3.75	3.9	93	6.8	5.7	6.4	7.6	9.3	11.7
21	5.2	4.4	4.2	3.85	3.9	146	6.8	5.7	6.1	7.6	59	9.9
22	5.9	4.4	4.2	3.9	4.6	22	6.6	5.7	6.1	7.6	36.5	8.9
23	5.0	4.4	4.2	5.3	4.4	19.9	6.6	5.7	6.4	7.8	13.0	8.6
24	4.8	4.4	4.2	6.3	4.1	41	6.6	5.5	15.3	8.4	11.2	8.6
25	4.6	4.4	4.2	4.2	4.1	12.0	6.4	6.8	12.4	7.8	10.9	9.3
26	4.6	4.4	4.4	7.2	3.9	8.6	6.4	14.2	9.4	7.6	10.6	11.9
27	71	4.4	4.4	5.7	3.9	7.8	7.4	29	10.7	8.9	12.2	18.7
28	20	4.4	4.4	4.8	44	7.6	8.1	8.2	35.5	7.8	23	15.5
29	7.6	4.8	5.8	4.2	51	7.4	7.4	-	50	7.6	12.2	10.9
30	6.8	4.8	5.4	7.0	19.2	7.8	6.6	-	15.8	8.4	10.2	22
31	5.5	4.8	-	5.6	-	10.2	6.4	-	8.6	-	9.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	71	4.4	10.5	16.2	326	1,000
August	8.7	4.2	4.79	7.41	149	456
September	6.6	4.1	4.58	7.09	137	422
October	53	3.75	7.46	11.5	231	710
November	61	3.9	10.7	16.6	322	988
December	146	5.5	24.7	38.2	765	2,350
Calendar year 1946	189	3.5	10.3	15.9	3,770	11,570
January	90	6.4	12.3	19.0	382	1,170
February	29	5.5	8.16	12.6	228	701
March	61	5.0	14.9	23.1	460	1,410
April	58	6.8	13.4	20.7	401	1,230
May	126	8.6	23.2	35.9	720	2,210
June	22	8.4	10.2	15.8	307	943
Fiscal year 1946-47	146	3.75	12.1	18.7	4,430	13,590

a No gage-height record; discharge computed on basis of records for Pulena and Waiakeakua Streams.

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 1947.

Extremes.- Maximum daily discharge during year, 0.024 million gallons a day (0.037 second-foot) May 4; minimum daily, 0.002 million gallons a day (0.003 second-foot) Jan. 2, 11-13.

1940-47: Maximum daily discharge, 0.275 million gallons a day (0.425 second-foot) Mar. 11, 1942; minimum daily, that of 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.007	0.008	0.007	0.007	0.005	0.006	0.004	0.004	0.005	0.013	0.012	0.020
2	.007	.008	.007	.007	.005	.006	.002	.004	.005	.012	f.016	.020
3	.007	.008	.007	.007	.005	.006	.003	.004	.004	.012	f.018	.020
4	.007	.008	.007	.007	.005	.006	.003	.003	.004	.012	f.024	.020
5	.007	.008	.007	.007	.005	.006	.003	.003	.004	.012	.022	.020
6	.007	.008	.007	.007	.006	.006	.003	.003	.004	.012	.021	.019
7	.007	.008	.007	.007	.005	.006	.003	.003	.004	.012	.021	.019
8	.007	.008	.007	.007	.005	.006	.003	.003	.004	.012	.020	.019
9	.006	.008	.007	f.008	.005	.006	.003	.003	.004	.012	.020	.019
10	.006	.008	.007	.008	.005	.006	.003	.003	.004	.012	.020	.019
11	.006	.008	.007	.008	.005	.006	.002	.003	.003	.012	.019	.019
12	.006	.008	.007	.008	a.005	.006	.002	.003	.005	.012	.019	.020
13	.006	.008	.007	.008	a.005	.006	.002	.006	.009	.012	.019	.021
14	.006	.008	.007	.007	a.005	.006	.005	.007	.009	.012	.019	.021
15	.006	.008	.007	.007	a.005	.006	.005	.009	.009	.012	.019	.021
16	.007	.008	.007	.007	a.005	.006	.005	.008	.009	.012	.019	.021
17	.007	.008	.007	.007	a.005	.006	.004	.008	f.015	.012	.018	.021
18	.007	.008	.007	.006	a.005	f.007	.003	.008	.012	.012	.018	.021
19	.007	.008	.007	.006	a.005	f.011	.003	.008	.011	.012	.018	.021
20	.007	.008	.007	.006	a.005	.008	.003	.007	.011	.012	.018	.021
21	.007	.008	.007	.006	a.005	f.008	.004	.007	.010	.012	.019	.021
22	.007	.008	.007	.006	a.005	f.014	.004	.007	.010	.012	.020	.021
23	.007	.008	.007	.005	a.005	f.010	.004	.007	.010	.013	.020	.021
24	.007	.008	.007	.005	a.005	.007	.004	.007	.010	.013	.020	.021
25	.007	.008	.007	.005	a.005	.005	.004	.007	.010	.013	.020	.021
26	.007	.008	.007	.005	a.005	.005	.004	.007	.010	.013	.020	.021
27	.008	.008	.007	.005	.005	.005	.004	.006	.010	.013	.020	.021
28	.008	.008	.007	.005	.005	.005	.004	.005	f.011	.012	.020	.021
29	.008	.007	.007	.005	.005	.005	.004	-	f.020	.012	.020	.021
30	.008	.007	.007	.005	.005	.005	.004	-	.016	.012	.020	.021
31	.008	.007	-	.005	-	.005	.004	-	.014	-	.020	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.008	0.006	0.007	0.011	0.215	0.7
August	.008	.007	.008	.012	.245	.8
September	.007	.007	.007	.011	.210	.6
October	.008	.005	.006	.009	.199	.6
November	.006	.005	.005	.008	.151	.5
December	.014	.005	.007	.011	.202	.6
Calendar year 1946	.015	.003	.007	.011	2.48	7.6
January	.005	.002	.003	.005	.098	.3
February	.009	.003	.005	.008	.153	.5
March	.020	.003	.009	.014	.266	.8
April	.013	.012	.012	.019	.366	1.1
May	.024	.012	.019	.029	.599	1.8
June	.021	.019	.020	.031	.612	1.9
Fiscal year 1946-47	.024	.002	.009	.014	3.32	10

a No gage-height record; discharge computed on basis of weather records and engineer's note.
f Computed on basis of partly estimated gage-height record.

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 1947.

Extremes.- Maximum discharge during year, 0.26 million gallons a day (0.40 second-foot) Dec. 21 (gage height, 0.47 foot); no flow many times.
1940-47: 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0	0
.1	.01
.2	.05
.3	.10
.4	.18

Discharge, in million gallons, fiscal year July 1946 to June 1947

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

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.05	0.01	0.027	0.042	0.85	2.6
August	.04	.01	.016	.025	.50	1.5
September	.07	0	.009	.014	.26	.8
October	.02	0	.009	.014	.28	.9
November	.02	0	.010	.016	.31	1.0
December	.17	.01	.039	.060	1.22	3.7
Calendar year 1946	.17	0	.025	.039	9.29	29
January	.03	.01	.027	.042	.83	2.5
February	.01	.01	.010	.016	.28	.8
March	.02	.01	.011	.017	.34	1.0
April	.03	.01	.017	.026	.51	1.6
May	.16	.01	.044	.068	1.37	4.2
June	.02	.01	.011	.017	.32	1.0
Fiscal year 1946-47	.17	0	.019	.029	7.07	21

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Molokai during fiscal year July 1946 to June 1947

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
July 18	Kahawaiiki.....	Waialua Stream....	100 feet above confluence with Waialua Stream at altitude 420 feet, near Waialua.	3.96	2.56
18	Waialua.....	Pacific Ocean.....	At altitude 400 feet, 100 feet above confluence with Kahawaiiki Stream, near Waialua.	8.54	5.52

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 1947.

Extremes.- Maximum discharge during year, 163 million gallons a day (252 second-feet) Dec. 22 (gage height, 3.67 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.45 million gallons a day (0.70 second-foot) Oct. 28.

1939-47: Maximum discharge recorded, 275 million gallons a day (425 second-feet) Mar. 18, 1943 (gage height, 4.87 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.43 million gallons a day (0.66 second-foot) Jan. 10, 11, 1946.

Remarks.- Records good except those for Jan. 20 to Feb. 6, which are poor. Marshall Ranch diversion ditch diverts water from gage pool for watering stock.

Rating table, fiscal year 1946-47 (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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.76	0.94	0.56	0.98	0.50	7.1	1.71	1.3	1.37	5.6	1.66	1.62
2	.63	.86	.55	.75	.77	7.8	6.8	1.2	1.22	2.25	8.9	1.45
3	.57	.80	.57	.64	.62	10.1	2.6	1.1	1.68	1.80	6.8	1.37
4	.54	.80	.54	.62	1.22	6.7	2.35	1.0	1.03	1.62	6.4	1.53
5	.53	.72	.54	.59	11.7	2.65	2.25	.95	.94	1.62	2.8	1.29
6	.53	.71	.64	.57	1.64	2.1	2.0	.90	.90	3.05	1.90	1.22
7	.54	.67	.54	.56	.94	4.9	2.1	.86	.98	2.5	1.53	1.45
8	.53	.65	.59	.55	.80	2.7	3.65	.82	.94	1.71	1.29	1.15
9	.68	.67	.71	.54	.71	1.71	2.1	1.12	.86	1.45	1.29	1.03
10	2.15	.69	1.47	.55	.64	1.53	3.5	1.15	.77	1.45	1.62	.98
11	1.13	.63	.58	.59	2.05	1.37	6.4	.82	.72	8.2	1.37	.98
12	.69	.59	.54	.54	4.3	1.15	13.8	.77	.71	10.9	3.45	.98
13	1.07	.68	.54	.52	1.79	1.39	8.9	.75	3.0	3.2	2.35	.94
14	.77	.64	.66	.51	.94	1.29	4.3	.72	6.8	2.35	1.45	.90
15	.72	.58	1.93	.50	3.9	2.25	2.9	.71	1.71	2.0	1.22	.86
16	4.1	.78	.69	.49	1.15	4.9	2.45	.69	1.13	1.80	1.09	.86
17	3.15	.68	.81	.49	1.99	9.1	2.25	.69	2.25	1.62	.98	.82
18	1.53	.59	.84	.48	.94	9.6	2.0	.68	1.03	1.45	.94	.82
19	1.22	1.20	.63	.48	.82	3.3	1.90	.67	.86	1.37	.94	.80
20	2.2	.66	.60	.47	.75	4.5	1.7	.67	.80	1.29	.94	1.09
21	3.9	.62	.56	.49	.71	26	1.6	.64	.75	1.22	2.15	.86
22	1.62	.56	.56	.48	.69	17.9	1.5	.63	.72	1.22	10.4	.82
23	1.29	.55	1.11	.53	1.31	5.4	1.4	.62	.72	1.15	2.1	.86
24	1.37	.55	1.06	.52	.90	8.9	1.4	.61	.69	1.22	1.62	.75
25	.98	.56	.61	.47	.71	3.75	1.7	3.5	.71	.98	1.45	.72
26	1.57	.54	.56	.50	.67	2.9	2.5	8.4	1.72	.94	4.2	.80
27	19.0	.62	1.33	.48	1.04	2.55	5.0	4.2	4.0	.82	3.45	.90
28	4.4	.81	1.56	.47	3.6	2.25	10	1.71	6.9	.80	8.2	1.48
29	2.25	.61	.82	.48	4.6	2.0	4.0	-	15.6	.77	2.7	1.13
30	1.62	.99	.95	.72	21	1.90	2.0	-	3.05	.94	2.1	.90
31	1.09	.62	-	.58	-	2.3	1.5	-	2.1	-	2.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	19.0	0.53	2.04	3.16	63.1	194
August	1.20	.54	.696	1.08	21.6	66
September	1.93	.54	.788	1.22	23.6	73
October	.98	.47	.553	.856	17.1	53
November	21	.50	2.45	3.79	73.4	225
December	26	1.15	5.23	8.09	162	497
Calendar year 1946	26	.43	1.70	2.63	621	1,910
January	13.8	1.4	3.49	5.40	108	332
February	8.4	.61	1.35	2.09	37.9	116
March	15.6	.69	2.15	3.33	66.7	205
April	10.9	.77	2.24	3.47	67.3	207
May	10.4	.94	2.88	4.46	89.3	274
June	1.62	.72	1.05	1.62	31.4	96
Fiscal year 1946-47	26	.47	2.09	3.23	761	2,340

Note.- No gage-height record Jan. 20 to Feb. 6; discharge computed on basis of records for Honokohau Stream.

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 feet (by barometer).

Drainage area.- 4.2 square miles.

Records available.- March 1913 to September 1920, May 1922 to June 1947.

Average discharge.- 29 years (1916-20, 1922-47), 25.4 million gallons a day (39.3 second-feet).

Extremes.- Maximum discharge during year, 764 million gallons a day (1,180 second-feet) Dec. 21 (gage height, 5.51 feet), from rating curve extended above 120 million gallons a day; minimum, 7.1 million gallons a day (11.0 second-feet) Oct. 17, Nov. 26-28.
1913-20, 1922-47: 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. No diversions above station.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.8	4.5	2.3	18.9	3.3	114
1.9	6.4	2.5	29	3.6	165
2.0	8.7	2.7	42	4.0	250
2.1	11.5	3.0	73	4.4	366

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.4	9.5	10.8	17.6	8.5	55	13.9	11.8	132	12.5	29	11.5
2	20.5	9.3	21	10.1	22	54	65	11.5	49	12.8	80	12.2
3	10.1	21.5	13.0	8.2	14.0	148	18.5	11.5	15.9	13.2	159	11.2
4	7.8	16.6	9.3	10.1	46	39	15.3	11.5	11.5	12.2	154	12.9
5	7.6	9.0	8.7	9.3	213	12.3	14.9	11.5	10.9	18.4	27	10.9
6	12.4	8.7	9.5	8.0	23	35	14.2	11.2	18.3	58	20.5	14.0
7	23	8.7	8.7	7.6	10.4	27.5	18.5	11.2	19.2	25.5	13.2	17.5
8	9.5	8.5	8.5	7.6	9.0	11.8	53	10.9	42	14.9	12.9	10.7
9	14.0	11.9	8.5	7.6	16.5	9.8	17.3	30.5	12.9	11.5	16.2	10.4
10	60	10.6	8.2	10.4	26.5	11.5	15.3	14.5	12.5	10.9	18.1	10.1
11	15.4	8.7	8.2	10.9	10.1	10.4	19.4	11.2	10.7	14.7	31.5	16.1
12	24	8.2	8.2	8.0	10.4	9.3	21.5	10.9	10.4	36	99	19.5
13	57	42	8.5	7.6	9.0	9.0	22	10.9	28.5	14.6	19.5	13.8
14	15.4	15.6	10.1	7.6	7.8	9.0	14.9	10.9	56	11.2	12.2	10.7
15	40	16.1	28	7.6	24.5	66	13.2	10.7	13.2	10.7	11.2	10.4
16	106	46	9.3	7.3	8.7	97	12.9	10.7	14.3	10.4	10.9	10.1
17	98	14.0	14.0	7.1	7.8	166	12.5	10.7	19.6	10.1	10.7	11.5
18	24.5	12.4	18.5	9.4	7.6	153	12.5	10.7	11.8	10.1	10.7	11.8
19	11.5	15.4	10.4	10.1	7.3	72	12.2	10.4	10.7	9.8	11.5	10.4
20	26	13.9	8.5	7.8	7.3	146	12.2	10.4	10.1	9.8	12.2	21
21	39	9.8	8.0	7.6	7.3	348	12.2	10.4	10.7	9.8	35.5	11.8
22	11.2	9.8	8.5	9.0	8.5	73	11.8	10.1	10.9	9.5	89	10.7
23	9.3	12.4	9.5	19.7	9.8	24	11.8	10.1	12.5	9.5	15.3	11.5
24	11.5	10.1	9.8	11.6	8.0	72	12.2	10.1	27	12.6	15.6	10.7
25	8.5	12.5	8.2	7.6	7.3	18.9	13.9	11.9	21.5	11.8	22.5	13.4
26	24	15.9	8.0	32.5	7.1	15.7	14.4	28	18.1	10.1	49	18.4
27	208	12.2	13.7	8.7	7.1	14.2	15.3	21.5	26	10.4	16.9	47
28	66	22.5	18.6	7.8	62	13.2	16.1	15.3	117	10.7	35	33.5
29	15.3	11.8	21	8.2	119	13.2	12.9	-	164	16.4	14.6	20.5
30	14.2	21	12.7	17.6	105	13.9	14.6	-	17.7	16.1	12.5	28.5
31	10.1	10.1	-	12.8	-	18.1	12.9	-	12.9	-	13.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	208	7.6	32.6	50.4	1,010	3,100
August	46	8.2	14.7	22.7	455	1,400
September	28	8.0	11.6	17.9	348	1,070
October	32.5	7.1	10.4	16.1	323	991
November	213	7.1	27.7	42.9	830	2,550
December	348	9.0	57.0	88.2	1,770	5,420
Calendar year 1946	348	5.6	21.8	33.7	7,980	24,480
January	65	11.8	17.7	27.4	547	1,680
February	30.5	10.1	12.9	20.0	361	1,110
March	164	10.1	30.6	47.3	948	2,910
April	58	9.5	14.8	22.9	444	1,360
May	159	10.7	34.8	53.8	1,080	3,310
June	47	10.1	15.4	23.8	463	1,420
Fiscal year 1946-47	348	7.1	23.5	36.4	8,580	26,320

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 powerhouse, and 7½ miles northeast of Lahaina. Altitude of gage, 1,900 feet (from topographic map).

Records available.- July 1912 to June 1947.

Average discharge.- 28 years (1919-47), 5.74 million gallons a day (8.88 second-feet).

Extremes.- Maximum daily discharge during year, 22 million gallons a day (34 second-feet) July 27; minimum daily, 4.5 million gallons a day (7.0 second-feet) July 5.
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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.1	4.9	5.1	7.3	5.2	9.7	5.6	4.9	16.5	5.1	7.4	5.4
2	9.4	4.8	7.2	5.4	8.9	10.3	6.3	4.9	7.2	5.0	13.0	5.3
3	5.3	5.5	6.2	5.2	6.0	11.6	5.6	4.9	6.1	5.2	14.6	5.2
4	4.6	6.6	5.1	5.0	7.5	9.4	5.2	4.9	4.9	5.0	14.7	5.2
5	4.5	4.8	4.9	5.3	15.7	5.5	5.7	4.8	4.9	6.2	8.5	5.2
6	5.7	4.7	4.9	5.0	9.0	9.6	5.5	4.7	6.7	13.0	7.4	5.2
7	10.0	4.7	4.9	5.0	5.4	5.7	5.6	4.7	8.2	9.2	5.5	7.2
8	5.1	4.7	5.0	5.0	5.1	5.2	8.0	4.7	8.8	6.2	6.0	5.5
9	6.1	4.7	5.0	4.9	7.2	4.9	5.9	7.8	5.7	5.4	5.6	5.2
10	14.1	4.7	5.0	5.3	8.0	6.0	5.2	5.6	5.5	5.1	7.0	5.2
11	6.6	4.7	5.0	6.5	5.8	5.5	5.0	4.7	5.0	5.1	11.0	5.6
12	7.8	4.6	5.0	5.0	5.0	4.9	5.0	4.7	4.8	7.8	12.8	8.2
13	10.7	13.2	5.0	4.9	4.8	4.7	5.3	4.7	5.0	5.8	7.6	6.7
14	7.0	6.7	5.0	4.9	4.8	4.7	5.0	4.7	10.3	5.4	5.7	5.2
15	8.2	6.2	8.3	4.9	7.2	8.3	4.9	4.7	5.4	5.2	5.4	5.2
16	17.0	7.7	5.5	4.9	5.2	8.6	4.9	4.8	5.2	5.2	5.3	5.2
17	16.1	5.5	5.7	4.9	4.9	12.6	4.9	4.8	5.5	5.2	5.2	5.2
18	10.4	5.4	7.6	4.9	4.9	11.4	4.9	4.7	5.0	5.2	5.2	5.2
19	5.6	5.3	5.8	4.8	4.9	7.9	4.9	4.7	4.9	5.2	5.2	5.2
20	6.3	5.7	5.3	4.9	4.9	10.4	4.9	4.7	4.9	5.2	5.2	8.2
21	5.8	4.9	5.0	4.8	4.8	10.1	4.9	4.8	4.9	5.2	7.9	5.8
22	5.1	4.9	5.0	4.8	4.9	9.0	4.9	4.8	4.9	5.2	15.3	5.3
23	4.8	4.9	5.0	9.7	4.9	7.4	4.9	4.8	4.9	5.2	6.0	5.1
24	4.8	4.9	5.0	6.6	4.9	8.6	4.9	4.8	6.3	5.2	6.0	5.0
25	4.8	5.1	5.0	5.1	4.9	6.6	4.9	4.8	6.9	5.2	8.5	6.2
26	5.1	6.2	5.0	9.9	4.9	6.0	5.2	5.2	5.1	5.2	9.7	8.4
27	22	5.4	5.1	5.5	4.9	5.2	6.2	6.4	6.4	5.3	5.7	15.3
28	13.3	7.6	7.4	5.0	6.4	5.2	5.0	5.7	13.9	5.2	7.5	11.9
29	6.7	5.6	7.9	5.0	11.8	5.2	5.0	-	17.7	6.3	5.8	8.1
30	6.2	6.1	5.6	7.9	11.9	5.5	4.9	-	6.7	6.5	5.3	9.8
31	4.9	4.9	-	6.4	-	6.1	4.9	-	5.2	-	5.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	22	4.5	8.04	12.4	249	764
August	13.2	4.6	5.66	8.76	176	539
September	8.3	4.9	5.58	8.63	168	514
October	9.9	4.8	5.64	8.73	175	536
November	15.7	4.8	6.49	10.0	195	598
December	12.6	4.7	7.48	11.6	232	711
Calendar year 1946	22	4.5	6.27	9.70	2,290	7,020
January	8.0	4.9	5.29	8.18	164	503
February	7.8	4.7	5.01	7.75	140	431
March	17.7	4.8	6.88	10.6	213	655
April	13.0	5.0	5.84	9.04	175	538
May	15.3	5.2	7.78	12.0	241	741
June	15.3	5.0	6.51	10.1	195	600
Fiscal year 1946-47	22	4.5	6.36	9.84	2,320	7,130

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 1947.

Average discharge.- 29 years (1917-20, 1921-47), 4.91 million gallons a day (7.60 second-feet).

Extremes.- Maximum daily discharge during year, 10.7 million gallons a day (16.6 second-feet) July 28; minimum daily, 0.92 million gallons a day (1.42 second-feet) Nov. 3. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.25	5.3	2.85	3.2	1.71	8.0	3.55	3.95	3.7	4.6	3.4	4.3
2	3.35	4.8	3.05	2.45	1.32	8.1	3.5	3.95	3.6	4.3	7.2	4.0
3	3.15	4.6	3.05	2.3	.92	8.2	3.5	5.2	3.45	3.9	8.6	3.8
4	2.65	4.6	2.7	2.3	2.85	7.3	4.3	4.0	3.2	3.5	10.1	3.95
5	2.45	4.0	2.6	2.25	8.0	7.2	5.3	3.85	3.05	3.8	9.4	3.5
6	2.4	3.8	2.55	2.15	6.0	7.2	7.1	3.75	3.3	7.3	8.9	3.5
7	2.9	3.55	2.45	2.45	4.6	6.4	7.2	3.9	3.4	6.4	7.1	3.75
8	2.1	3.45	2.4	2.35	4.0	5.9	8.0	3.75	4.3	4.7	5.7	3.2
9	2.15	3.35	2.4	3.95	3.75	5.2	7.9	6.5	3.85	4.0	6.4	3.15
10	6.4	3.25	2.4	7.4	3.6	5.5	7.2	7.2	3.85	3.7	6.1	3.05
11	5.5	3.1	2.4	5.6	3.8	5.1	6.8	4.8	3.25	3.45	6.6	3.15
12	4.4	3.05	2.3	3.95	4.2	4.7	6.5	4.2	3.05	3.25	8.5	3.25
13	8.6	4.0	2.3	3.3	4.2	4.5	6.7	3.9	3.0	3.15	8.6	2.85
14	6.5	3.75	2.35	3.1	4.0	4.3	6.2	3.7	3.15	3.0	6.5	2.8
15	5.9	3.35	2.8	3.1	6.8	5.0	5.9	3.55	2.9	2.95	5.3	2.7
16	9.5	3.3	2.3	2.7	5.8	5.9	5.6	3.5	2.9	2.8	4.6	2.65
17	9.4	3.1	2.4	2.55	4.7	7.8	5.4	3.5	3.1	2.75	4.2	2.8
18	9.2	2.9	2.95	2.6	4.0	6.0	5.2	3.4	2.9	2.7	3.9	2.7
19	8.3	2.9	2.55	2.5	3.65	5.2	5.0	3.4	2.75	2.65	3.85	2.55
20	6.9	2.85	2.3	2.3	3.35	5.0	4.9	3.3	2.65	2.6	3.75	3.45
21	5.7	2.75	2.2	2.2	3.1	5.0	4.8	3.25	2.6	2.6	4.5	2.8
22	5.0	2.7	2.2	2.25	3.4	4.8	4.6	3.2	2.6	2.55	9.4	2.6
23	4.4	2.75	2.25	2.45	3.15	3.5	4.5	3.15	2.65	2.5	6.8	2.6
24	4.1	2.7	2.3	2.35	2.95	3.7	4.5	3.15	3.0	2.9	5.5	2.55
25	3.7	2.6	2.15	2.15	2.8	3.4	4.4	3.15	3.15	2.6	5.4	2.55
26	4.3	2.8	2.1	2.55	2.75	3.3	4.4	3.2	2.8	2.45	8.2	2.6
27	10.1	2.7	2.3	2.3	2.75	3.3	4.4	3.0	3.35	2.5	6.2	4.5
28	10.7	3.35	2.7	2.1	3.2	3.95	4.2	3.2	6.3	2.4	8.3	3.6
29	10.0	3.25	3.2	2.05	7.8	4.2	4.2	-	9.9	2.5	6.6	3.55
30	7.8	3.8	2.55	2.4	8.0	4.2	4.0	-	7.8	2.7	5.4	5.8
31	6.2	3.0	-	1.98	-	3.8	4.0	-	5.5	-	4.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.7	2.1	5.71	8.83	177	543
August	5.3	2.6	3.40	5.26	105	323
September	3.2	2.1	2.50	3.87	75.0	230
October	7.4	1.98	2.82	4.36	87.3	268
November	8.0	.92	4.04	6.25	121	372
December	8.2	3.3	5.34	8.26	166	508
Calendar year 1946	10.9	.92	4.29	6.64	1,570	4,810
January	8.0	3.5	5.28	8.17	164	503
February	7.2	3.0	3.88	6.00	109	333
March	9.9	2.6	3.71	5.74	115	353
April	7.3	2.4	3.37	5.21	101	311
May	10.1	3.4	6.45	9.98	200	613
June	5.8	2.55	3.28	5.07	98.2	302
Fiscal year 1946-47	10.7	.92	4.16	6.44	1,520	4,660

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 1947.

Average discharge.- 10 years (1932-35, 1940-47), 44.8 million gallons a day (69.3 second-feet).

Extremes.- Maximum discharge during year, 5,190 million gallons a day (8,030 second-feet) Dec. 8 (gage height, 12.93 feet), from rating curve extended above 750 million gallons a day by test on model of station site; minimum, 0.01 million gallons a day (0.02 second-foot) Feb. 17-19.

1927-29, 1931-47: 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 1946-47 (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	9.0	1,820

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.03	2.8	7.3	6.8	5.3	19.3	0.37	0.95	16.1	63	0.20	0.03
2	7.9	9.1	11.6	24.5	56	7.1	.30	.54	269	122	.66	.07
3	3.2	107	1.82	1.19	4.0	178	.27	.39	264	151	101	.08
4	.26	28.5	.46	55	8.6	71	.24	.29	11.4	120	81	.04
5	.18	2.5	1.35	8.3	283	28	.22	.22	96	12.7	7.0	.03
6	44	1.15	6.7	5.0	50	798	.21	.16	18.1	86	6.2	.03
7	95	2.7	2.15	116	5.1	710	.20	.14	57	146	1.08	.04
8	23	7.2	.33	190	2.2	1,100	.25	.13	43	78	3.9	.04
9	50	2.15	.22	13.6	16.5	100	.18	.32	53	29.5	12.8	.04
10	76	1.35	.18	62	2.3	20	.13	.22	5.8	62	35	.04
11	42	.80	.08	10.2	42	8.0	.12	.11	1.21	7.2	90	.02
12	14.9	.45	.08	5.8	12.2	50	1.17	.07	.57	1.83	107	4.8
13	37.5	44	.04	1.29	6.4	10	126	.05	.36	.94	33.5	33.5
14	7.7	34	.22	.81	1.60	5.0	178	.04	.33	.68	2.5	13.6
15	4.9	6.1	50	5.0	76	10	3.75	.03	.25	.54	1.00	.20
16	207	3.3	2.5	1.55	3.9	500	2.5	.02	.18	.48	.86	.03
17	329	7.2	1.98	8.1	1.65	900	.78	.02	.12	.51	2.55	.03
18	80	25.5	3.7	23	7.2	450	.48	.02	.09	.36	.83	.06
19	18.8	12.4	9.2	6.4	1.08	250	.31	.02	.34	.25	3.7	.04
20	63	29.5	1.24	7.0	.72	700	.24	.02	.24	.18	.68	.03
21	128	1.71	.42	1.69	.57	2,000	.16	.02	.47	.12	1.54	.03
22	31	.64	1.14	5.2	.48	600	.14	.02	.18	.10	22.5	.03
23	9.6	.94	.55	118	.39	100	.12	.02	.13	3.55	1.58	.03
24	6.6	.64	.25	37.5	2.8	25	.20	.02	.09	67	.60	.05
25	1.40	.58	.13	10.9	7.8	50	.27	.02	.08	16.9	.48	3.3
26	.90	6.1	.06	120	.54	20	.25	.02	.06	.92	.36	8.9
27	12.2	2.3	.33	26	.39	3.5	9.1	.02	.04	.63	.25	73
28	59	3.9	.73	16.1	.31	1.1	51	.03	20.5	.48	.24	70
29	24	2.2	13.1	98	9.4	.75	199	-	276	.29	.12	36
30	22.5	24.5	1.26	51	34	.53	33.5	-	12.6	.25	.05	83
31	12.4	9.8	-	7.8	-	.43	6.3	-	1.55	-	.04	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	329	0.18	45.6	70.6	1,410	4,340
August	107	.45	12.3	19.0	381	1,170
September	50	.04	3.97	6.14	119	366
October	190	.81	33.7	52.1	1,040	3,200
November	283	.31	21.4	33.1	642	1,970
December	2,000	.43	281	435	8,720	26,750
Calendar year 1946	2,000	.04	56.1	86.8	20,480	62,860
January	199	.12	19.9	30.8	616	1,890
February	.95	.02	.140	.217	3.93	12
March	276	.04	37.1	57.4	1,150	3,530
April	151	.19	32.4	50.1	973	2,990
May	107	.04	16.7	25.8	519	1,590
June	83	.02	10.9	16.9	327	1,000
Fiscal year 1946-47	2,000	.02	43.6	67.5	15,900	48,800

Note.- No gage-height record Dec. 7 to Jan. 8; discharge computed on basis of records for stations on nearby streams.

Right Branch Kahalawe Stream near Kipahulu

Location.- Columbus control, lat. 20°41'05", 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 1947.

Average discharge.- 17 years (1927-34, 1935-36, 1938-47), 3.49 million gallons a day (5.40 second-feet).

Extremes.- Maximum discharge during year, 452 million gallons a day (699 second-feet) Nov. 15 (gage height, 3.73 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.25 million gallons a day (0.39 second-foot) Feb. 27.

1927-47: 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. No diversions.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.7	0.19	1.2	2.3	1.7	12.4
.8	.35	1.3	3.3	1.8	17.4
.9	.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		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.73	2.45	3.55	2.15	1.73	4.6	1.47	0.97	0.29	17.1	1.10	1.15
2	2.8	2.5	3.1	3.15	3.6	8.5	1.35	.83	2.1	4.4	2.65	1.46
3	1.73	10.4	2.1	1.87	1.80	10.1	1.35	.75	4.0	4.2	10.4	1.54
4	1.25	3.85	1.66	4.2	2.5	7.6	1.30	.68	1.55	2.1	7.7	1.25
5	1.10	2.4	2.2	2.4	13.5	2.55	1.20	.62	.97	1.56	2.45	1.10
6	2.1	1.95	2.1	4.7	3.95	20	1.15	.58	1.00	3.35	2.35	1.10
7	3.4	2.15	1.87	10.2	2.1	5.6	1.10	.62	1.08	4.2	1.66	1.01
8	2.2	4.2	1.60	11.0	1.80	27	1.32	.58	2.2	2.5	1.41	.92
9	4.2	2.2	1.49	6.2	2.3	6.9	1.05	.68	4.7	2.1	1.60	.87
10	5.3	2.3	1.52	22	1.73	3.2	.97	.62	1.72	10.3	1.66	.83
11	3.45	1.73	1.25	3.7	4.4	2.3	.92	.53	.86	1.80	4.7	1.19
12	2.9	1.60	1.20	2.65	8.2	9.5	5.5	.50	.68	1.47	5.0	1.54
13	4.5	7.6	1.20	2.2	7.0	2.8	17.2	.53	.57	1.25	2.75	1.95
14	2.9	3.0	1.80	1.95	2.5	1.95	12.2	.50	.75	1.15	1.54	1.30
15	1.94	2.35	6.5	2.05	34	3.2	1.80	.47	1.30	1.05	1.30	1.10
16	9.4	1.90	2.2	1.80	2.75	14.9	5.7	.45	.68	1.05	1.15	.92
17	19.1	1.95	2.7	2.0	2.2	24.5	1.41	.45	.58	1.10	2.2	.79
18	6.2	1.95	2.15	3.15	3.05	13.3	1.25	.42	.62	1.01	1.35	1.53
19	3.75	1.95	2.2	1.95	1.87	5.0	1.10	.42	.95	.92	2.8	.92
20	9.1	2.7	1.80	1.80	1.60	11.5	1.01	.42	.83	.87	1.41	.87
21	9.8	1.66	1.54	1.60	1.47	35.5	.92	.40	.97	.83	2.75	.79
22	4.4	1.47	1.66	1.47	1.35	11.8	.87	.37	.62	.79	4.7	.75
23	3.7	2.1	1.86	5.0	1.30	8.0	.83	.35	.58	1.47	1.73	1.06
24	3.4	2.15	1.80	3.0	7.0	3.6	.83	.33	.62	8.1	1.63	1.56
25	2.95	1.97	1.54	2.75	21	4.6	1.01	.33	.91	2.1	1.60	1.53
26	2.2	2.35	1.30	7.2	1.95	2.95	1.05	.33	.62	1.25	2.4	2.05
27	5.6	2.05	2.05	2.95	1.66	2.4	.87	.31	.53	1.10	1.82	9.5
28	8.3	4.1	3.7	2.05	1.47	2.05	2.5	.29	6.8	.97	2.0	5.8
29	5.0	2.7	5.5	3.75	2.7	1.87	5.3	-	6.4	.92	1.54	3.25
30	4.4	6.4	2.05	2.65	10.0	1.66	3.1	-	3.4	.92	1.30	5.9
31	3.2	2.45	-	2.05	-	1.54	1.28	-	1.50	-	1.20	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	19.1	1.10	4.58	7.09	142	436
August	10.4	1.47	2.92	4.52	90.5	278
September	6.5	1.20	2.24	3.47	67.2	206
October	22	1.47	4.05	6.27	126	385
November	34	1.30	5.08	7.86	152	468
December	35	1.54	8.42	13.0	261	801
Calendar year 1946	35	.55	3.80	5.88	1,390	4,260
January	17.2	.83	2.55	3.95	78.9	242
February	.97	.29	.512	.792	14.3	44
March	6.8	.29	1.63	2.52	50.4	155
April	17.1	.79	2.73	4.22	81.9	251
May	10.4	1.10	2.58	3.99	79.8	245
June	9.5	.75	1.85	2.86	55.5	170
Fiscal year 1946-47	35	.29	3.29	5.09	1,200	3,680

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 mile.

Records available.- January 1914 to January 1916, November 1921 to June 1947.

Average discharge.- 25 years (1922-47), 13.0 million gallons a day (20.1 second-feet).

Extremes.- Maximum discharge during year, 1,440 million gallons a day (2,230 second-feet) Dec. 17 (gage height, 7.45 feet), from rating curve extended above 260 million gallons a day by test on model of station site; minimum, 1.6 million gallons a day (2.5 second-feet) Oct. 16-18, Feb. 23, 24, 25.

1914-16, 1921-47: Maximum discharge, about 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-feet 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.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.2	1.3	1.3	13.6	3.5	119
.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

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.9	3.95	3.5	6.8	3.25	13.9	8.2	2.9	58	4.7	3.25	5.0
2	3.0	3.65	5.2	8.7	20.5	10.9	83	2.85	39.5	6.1	6.4	4.7
3	2.55	4.1	3.0	3.6	4.7	133	26.5	2.75	27.5	8.2	85	4.3
4	2.25	3.65	2.6	3.85	15.8	36	9.2	2.6	5.5	5.2	113	4.0
5	2.2	3.25	2.6	3.0	182	15.2	8.0	2.6	3.95	7.4	21.5	3.75
6	5.5	3.1	2.55	2.55	19.7	173	7.7	2.55	10.1	43	14.3	3.65
7	10.2	3.0	2.45	2.7	6.0	49	6.8	2.45	9.9	43	6.5	3.6
8	6.6	2.9	2.25	3.65	6.8	24.5	21.5	2.4	9.1	15.4	6.2	3.3
9	14.7	2.85	2.2	2.3	8.1	6.9	9.7	2.3	4.1	6.9	4.5	3.15
10	49	2.7	2.0	2.2	3.95	5.9	6.5	2.25	3.3	5.1	10.6	3.0
11	28	2.6	1.9	2.1	4.3	4.6	10.8	2.2	2.9	9.2	49	3.2
12	8.3	2.6	1.8	2.1	6.8	3.95	98	2.1	2.6	25	57	3.5
13	11.1	5.5	1.9	2.0	3.65	3.5	14.4	2.1	9.0	9.6	14.1	4.0
14	5.6	8.0	2.95	1.8	3.25	19.9	7.7	2.1	90	5.4	5.6	4.9
15	33	3.25	10.2	1.8	2.9	49	6.2	2.0	7.9	4.5	4.5	3.15
16	26.5	2.9	2.8	1.7	2.7	110	5.5	1.9	4.5	4.1	4.0	2.9
17	48	2.7	2.6	1.7	2.6	325	4.8	1.8	3.65	3.85	3.75	2.85
18	13.3	2.75	6.8	1.7	2.6	143	4.4	1.8	3.1	3.65	3.4	2.85
19	8.4	3.2	6.5	2.0	2.55	146	4.1	1.8	2.75	3.5	3.25	2.75
20	16.4	3.15	3.1	2.55	2.45	637	3.85	1.7	2.55	3.3	3.6	2.75
21	8.7	2.6	2.75	2.0	2.45	438	3.75	1.7	2.3	3.25	5.4	2.6
22	5.0	2.55	2.45	3.3	2.7	99	3.5	1.7	2.25	3.15	28.5	2.55
23	3.95	2.7	2.55	6.4	2.6	28.5	3.4	1.6	2.25	3.1	7.0	2.7
24	3.6	2.6	2.25	3.55	2.45	13.6	3.4	1.6	10.9	3.1	17.2	2.75
25	3.1	2.4	2.0	2.3	2.3	31	3.4	4.9	13.9	3.0	10.3	2.85
26	6.6	3.1	1.9	5.0	2.25	11.9	3.35	9.5	4.1	3.0	37	4.4
27	107	2.85	2.9	3.6	2.25	9.6	3.7	11.8	7.5	2.9	13.7	14.4
28	18.9	3.5	3.55	3.7	25	9.9	3.75	7.6	128	2.9	15.4	15.1
29	7.2	3.1	4.6	8.8	76	9.8	4.5	-	131	2.75	8.4	8.6
30	5.9	3.5	4.4	9.4	51	9.2	3.55	-	10.4	2.7	6.4	20.5
31	4.5	2.75	-	4.1	-	8.5	3.1	-	6.1	-	5.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	107	2.2	15.2	23.5	472	1,450
August	8.0	2.4	3.27	5.06	101	311
September	10.2	1.8	3.28	5.07	98.2	302
October	9.4	1.7	3.58	5.54	111	340
November	182	2.25	15.8	24.4	474	1,450
December	637	3.5	83.2	129	2,580	7,920
Calendar year 1946	637	1.7	21.1	32.6	7,690	23,600
January	98	3.1	12.5	19.3	386	1,190
February	11.8	1.6	3.06	4.73	85.6	263
March	131	2.25	20.0	30.9	619	1,900
April	43	2.7	8.23	12.7	247	758
May	113	3.25	18.5	28.6	574	1,760
June	20.5	2.55	4.92	7.61	148	453
Fiscal year 1946-47	637	1.6	16.1	24.9	5,900	18,100

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Hanawi Stream below Government Road, near Nahiku

Location.- Concrete control, lat. 20°49'15", long. 156°06'25", three-quarters of a mile southwest of Nahiku and 4 miles southeast of Keanae post office. Altitude of gage, 500 feet (by barometer).

Drainage area.- 1.6 square miles.

Records available.- July 1932 to July 1947 (discontinued). Records at same site collected by East Maui Irrigation Co. January 1927 to June 1932.

Average discharge.- 15 years, 26.2 million gallons a day (40.5 second-feet).

Extremes.- Maximum discharge during year, 1,790 million gallons a day (2,770 second-feet) Dec. 17 (gage height, 7.03 feet), from rating curve extended above 15 million gallons a day; minimum, 11.2 million gallons a day (17.3 second-feet) Jan. 31, Feb. 25.
1932-47: Maximum discharge, 7,180 million gallons a day (11,100 second-feet) Mar. 21, 1937 (gage height, 9.54 feet), from rating curve extended above 28 million gallons a day; minimum, 8.2 million gallons a day (12.7 second-feet) Feb. 25, 26, 1936.
Flood that destroyed shelter Apr. 6 or 7, 1938, probably reached a higher stage than 9.54 feet, the maximum given.

Remarks.- Records good except those above 50 million gallons a day, which are fair. Entire flow of stream above station up to 25 million gallons a day is diverted by the East Maui Irrigation Co.'s ditch at altitude 1,300 feet for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.2	9.0	1.8	37.5	3.2	211
1.3	12.2	2.0	52	3.5	272
1.4	16.0	2.3	81	4.0	395
1.5	20.5	2.6	117	4.5	545
1.6	25.5	2.9	160		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.0	13.7	13.0	13.0	12.2	16.4	11.9	11.6	49	12.6	11.9	13.0
2	13.0	13.3	13.0	13.0	14.4	13.0	a86	11.9	42	13.0	11.9	13.0
3	12.8	13.3	12.6	13.0	12.2	120	a25	11.6	28	13.0	66	12.6
4	12.6	13.3	13.0	13.0	12.2	26	12.2	11.6	14.9	12.6	120	12.6
5	13.0	13.3	13.0	13.0	175	15.8	13.0	11.6	13.0	12.6	14.1	13.0
6	13.0	13.3	13.0	12.6	23	183	12.2	11.6	12.6	27	17.4	12.6
7	13.3	13.0	13.0	13.0	13.3	58	12.6	11.9	12.2	30	12.6	12.6
8	13.0	13.0	13.0	13.3	13.0	28.5	12.2	11.6	12.6	14.9	12.2	12.6
9	14.2	13.0	13.0	13.0	17.9	14.9	12.2	11.9	12.2	13.3	12.2	13.0
10	33.5	13.0	12.6	12.6	13.0	13.3	11.9	11.9	12.2	13.3	12.6	13.0
11	21	13.0	12.6	12.2	12.6	13.0	12.2	11.9	12.2	16.6	28.5	13.0
12	14.1	13.0	12.6	12.2	12.2	12.2	116	11.9	12.2	24.5	37	12.6
13	14.5	13.0	12.6	12.2	12.2	12.2	20.5	11.6	19.7	15.6	16.0	12.6
14	14.1	13.0	13.0	12.2	12.2	18.6	14.5	11.6	107	13.7	13.0	12.6
15	25.5	12.6	13.0	12.2	12.2	37	13.3	11.9	16.0	13.3	12.6	12.6
16	33	12.6	12.6	12.2	12.2	98	12.6	11.9	13.7	12.6	12.6	12.6
17	52	12.6	13.0	12.2	12.2	226	12.2	11.6	13.0	12.6	12.2	12.6
18	16.9	13.0	13.0	12.2	11.9	224	12.2	11.6	12.6	12.2	12.2	12.6
19	15.2	13.0	12.6	11.9	11.9	118	11.9	11.6	12.2	12.2	12.2	12.6
20	21.5	13.0	12.6	11.9	11.9	490	11.9	11.6	12.2	12.2	12.2	12.6
21	16.4	12.6	13.0	11.9	11.9	473	11.9	11.6	12.2	12.2	12.2	12.6
22	15.2	13.0	12.6	11.9	11.9	43	11.6	11.6	12.2	12.2	18.6	12.6
23	14.5	12.6	13.0	12.2	11.9	16.9	11.6	11.9	12.2	11.9	13.0	12.6
24	14.1	12.6	12.2	11.9	11.6	15.6	11.6	11.6	13.0	11.9	13.7	12.6
25	13.7	12.2	12.2	11.9	11.6	31	11.6	12.6	14.8	11.9	12.6	12.6
26	13.7	12.6	12.6	12.2	11.6	14.1	11.6	13.3	11.9	11.9	28	12.6
27	108	12.2	13.0	12.2	11.6	13.0	11.6	12.6	11.9	11.9	14.5	13.3
28	31	12.6	13.0	12.2	23.5	12.2	11.6	12.2	146	11.9	14.5	13.3
29	16.0	12.6	13.0	12.2	66	11.9	11.6	-	144	11.9	13.7	13.3
30	14.5	13.0	13.0	12.2	37.5	11.9	11.6	-	16.4	11.9	13.3	14.8
31	14.1	12.6	-	12.2	-	11.9	11.2	-	13.3	-	13.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	108	12.6	21.0	32.5	650	2,000
August	13.7	12.2	12.9	20.0	400	1,230
September	13.0	12.2	12.8	19.8	384	1,180
October	13.3	11.9	12.4	19.2	384	1,180
November	175	11.6	21.2	32.8	637	1,950
December	490	11.9	77.2	119	2,390	7,340
Calendar year 1946	490	10.6	25.6	39.6	9,330	28,660
January	116	11.2	18.5	28.6	574	1,760
February	13.3	11.6	11.8	18.3	332	1,020
March	146	11.9	27.3	42.2	847	2,600
April	30	11.9	14.2	22.0	427	1,310
May	120	11.9	20.2	31.3	626	1,920
June	14.8	12.6	12.8	19.8	385	1,180
Fiscal year 1946-47	490	11.2	22.0	34.0	8,040	24,670

a No gage-height record; discharge computed on basis of records for station above Government Road.

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, 1¾ miles southwest of Nahiku, and 4 miles southeast of Keanae.

Records available.- November 1921 to June 1947.

Average discharge.- 25 years (1922-47), 10.6 million gallons a day (16.4 second-feet).

Extremes.- Maximum discharge during year, 1,100 million gallons a day (1,700 second-feet) Dec. 20 (gage height, 6.54 feet), from rating curve extended above 140 million gallons a day; minimum, 0.77 million gallons a day (1.19 second-feet) Feb. 24, 25.
1921-47: 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. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.44	1.0	8.6	2.0	41
.5	1.10	1.2	13.3	2.4	68
.6	2.1	1.4	18.6	2.8	106
.7	3.3	1.6	25	3.2	160
.8	4.8	1.8	32	3.7	252

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.1	2.35	2.2	7.6	3.6	12.5	2.95	2.0	52	3.05	1.10	2.45
2	2.0	2.1	3.7	10.5	23.5	10.1	55	1.80	35.5	6.0	3.65	2.45
3	1.90	2.9	1.90	3.2	6.9	98	22	1.70	12.4	7.7	60	2.35
4	1.50	2.5	1.50	3.05	6.8	20	6.4	1.60	3.4	3.6	85	2.1
5	1.30	1.90	1.40	2.1	132	12.2	5.3	1.50	2.35	8.1	18.5	1.90
6	3.9	1.60	1.30	1.60	23	91	5.3	1.40	11.0	42	13.8	1.90
7	11.5	1.50	1.10	1.65	5.9	21	4.6	1.30	11.3	34	3.75	1.90
8	6.7	1.40	1.10	3.75	5.9	12.5	22.5	1.30	9.4	13.8	3.8	1.80
9	18.7	1.30	1.06	1.80	8.9	4.3	10.1	1.20	3.45	4.8	2.45	1.50
10	48	1.30	1.03	1.40	3.9	3.45	5.0	1.10	2.45	3.45	9.3	1.60
11	28.5	1.10	.97	1.40	4.2	2.95	12.0	1.10	2.0	9.1	39	1.70
12	10.2	1.10	.97	1.60	5.6	2.35	78	1.10	1.80	29	44	1.90
13	13.6	3.85	1.03	1.50	3.9	2.1	13.8	1.10	7.5	10.4	11.7	2.35
14	5.8	7.5	2.15	1.20	2.95	17.5	5.5	1.10	80	3.9	3.45	2.8
15	22.5	2.2	9.7	1.03	2.35	40	3.9	1.03	6.6	2.95	2.45	2.45
16	29.5	1.50	2.5	.97	2.0	61	3.3	1.03	3.05	2.2	2.1	1.90
17	36.5	1.30	2.0	.97	2.5	140	2.95	1.03	2.35	2.0	1.90	1.60
18	14.0	1.42	5.8	1.03	2.15	117	2.6	.97	1.90	1.90	1.70	1.60
19	9.2	2.15	6.3	1.30	1.70	79	2.45	.97	1.70	1.70	1.60	1.60
20	16.1	2.05	2.45	2.3	1.40	241	2.35	.90	1.50	1.60	1.50	1.60
21	9.8	1.30	2.0	1.60	1.30	234	2.2	.90	1.40	1.40	3.15	1.60
22	4.1	1.10	1.70	3.7	1.40	54	2.1	.90	1.30	1.30	26.5	1.50
23	2.6	1.30	1.73	7.2	1.50	24.5	2.1	.84	1.30	1.20	6.6	1.70
24	2.2	1.40	1.40	3.55	1.30	11.7	2.1	.77	8.8	1.20	15.6	1.50
25	2.0	1.30	1.30	1.90	1.10	18.4	2.1	5.2	14.8	1.10	8.9	1.80
26	5.5	1.80	1.10	5.0	1.10	7.8	2.1	12.4	3.8	1.10	33.5	2.55
27	100	1.80	2.5	3.3	1.03	4.8	2.6	16.2	9.2	1.03	13.5	16.0
28	13.8	2.4	3.0	3.9	27	4.3	3.0	16.4	113	.97	15.6	18.6
29	5.8	2.1	4.0	8.7	67	4.2	3.25	-	89	.97	5.8	9.5
30	4.2	2.45	4.6	14.6	44	3.3	2.8	-	7.7	.97	3.75	27.5
31	2.95	1.80	-	5.8	-	3.05	2.2	-	3.9	-	2.95	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	100	1.30	14.1	21.8	436	1,340
August	7.5	1.10	1.99	3.08	61.8	190
September	9.7	.97	2.45	3.79	73.5	226
October	14.6	.97	3.52	5.45	109	335
November	132	1.03	13.2	20.4	396	1,210
December	241	2.1	43.8	67.8	1,360	4,170
Calendar year 1946	241	.77	13.7	21.2	5,020	15,390
January	78	2.1	9.44	14.6	293	898
February	16.4	.77	2.82	4.36	78.8	242
March	113	1.30	16.3	25.2	506	1,550
April	42	.97	6.75	10.4	202	621
May	85	1.10	14.4	22.3	447	1,370
June	27.5	1.50	4.05	6.27	122	373
Fiscal year 1946-47	241	.77	11.2	17.3	4,090	12,520

Kapaula Stream below Government Road, near Nahiku

Location.- Concrete control, lat. 20°49'25", long. 156°06'55", 3,000 feet downstream from highway, 1.3 miles southwest of Nahiku, and 3.8 miles southeast of Keanae post office. Altitude of gage, 620 feet (by barometer).

Drainage area.- 0.5 square mile.

Records available.- July 1932 to June 1947 (discontinued). Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Average discharge.- 15 years, 8.01 million gallons a day (12.4 second-feet).

Extremes.- Maximum discharge during year, 597 million gallons a day (924 second-feet) Dec. 20 (gage height, 4.02 feet), from rating curve extended above 10 million gallons a day by logarithmic plotting; minimum, 1.2 million gallons a day (1.9 second-feet) at times in September, October, November, February.

1932-47: Maximum discharge, 960 million gallons a day (1,490 second-feet) Apr. 7, 1938 (gage height, 5.00 feet), from rating curve extended above 10 million gallons a day by logarithmic plotting; minimum, 1.1 million gallons a day (1.7 second-feet) several days in August 1934, January 1935, Feb. 24, 1941, and Oct. 12, 14, 1945.

Remarks.- Records good except those above 30 million gallons a day and those for Dec. 24-30, which are fair. Koolau ditch diverts water 4,000 feet above station, at 1,300 feet altitude, for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.7	0.7	11.4	1.6	74
.3	1.6	.8	15.6	1.8	97
.4	3.2	1.0	26	2.2	153
.5	5.3	1.2	39	2.5	204
.6	8.0	1.4	55		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.5	2.2	1.4	1.9	1.5	8.1	1.8	1.5	38.5	2.4	1.4	1.8
2	1.5	2.1	1.4	2.8	8.2	6.5	46	1.4	41	4.8	1.5	1.6
3	1.4	2.4	1.3	1.8	2.2	72	24.5	1.4	19.8	4.9	42	1.6
4	1.4	2.4	1.3	1.6	2.8	18.2	2.8	1.4	2.6	2.4	64	1.6
5	1.4	1.8	1.2	1.5	92	8.8	2.5	1.4	2.2	4.1	11.9	1.5
6	1.4	1.5	1.2	1.4	15.6	73	2.2	1.3	7.2	39	10.9	1.5
7	3.0	1.5	1.2	1.6	2.7	27	2.2	1.3	4.0	35.5	1.9	1.4
8	1.8	1.4	1.2	1.6	3.1	13.1	17.4	1.3	4.8	10.8	1.6	1.4
9	6.2	1.4	1.2	1.5	5.5	2.8	3.4	1.2	2.4	2.4	1.6	1.4
10	29.5	1.3	1.2	1.4	1.8	2.4	2.1	1.2	1.8	2.4	5.3	1.4
11	20.5	1.3	1.2	1.4	1.6	2.1	8.3	1.3	1.8	9.5	29.5	1.4
12	3.1	1.3	1.2	1.4	2.1	1.9	64	1.3	1.5	26.5	36	1.5
13	6.2	1.4	1.2	1.4	1.6	1.9	15.1	1.3	11.7	4.9	8.6	1.5
14	2.4	1.9	1.5	1.3	1.5	13.3	2.9	1.3	62	2.4	2.1	1.5
15	16.7	1.4	2.7	1.3	1.4	34	2.2	1.3	4.2	2.1	1.8	1.4
16	23.5	1.3	1.5	1.3	1.4	47	2.1	1.3	2.4	1.9	1.6	1.3
17	35.5	1.3	1.4	1.3	1.4	116	1.9	1.2	2.1	1.8	1.6	1.3
18	10.9	1.4	1.4	1.3	1.3	84	1.8	1.2	1.9	1.6	1.6	1.3
19	6.3	1.5	1.8	1.3	1.3	74	1.8	1.2	1.9	1.5	1.5	1.3
20	16.7	1.5	1.4	1.3	1.3	206	1.6	1.2	1.8	1.5	1.5	1.3
21	7.1	1.4	1.4	1.2	1.3	182	1.6	1.2	1.6	1.5	1.6	1.3
22	2.9	1.3	1.3	1.2	1.4	52	1.6	1.2	1.6	1.5	20.5	1.3
23	2.2	1.3	1.4	1.9	1.3	32	1.6	1.2	1.6	1.5	2.6	1.4
24	2.1	1.3	1.4	1.4	1.3	a8.0	1.5	1.2	5.8	1.4	9.4	1.4
25	1.9	1.3	1.3	1.4	1.3	a14	1.5	5.9	9.2	1.4	2.9	1.4
26	5.6	1.3	1.3	1.6	1.3	a4.0	1.5	6.8	1.8	1.4	31.5	1.4
27	83	1.3	1.4	1.5	1.2	a2.8	1.5	8.7	2.4	1.4	9.8	6.7
28	16.1	1.4	1.5	1.4	19.3	a2.5	1.7	8.2	94	1.4	12.7	10.8
29	3.2	1.3	1.6	2.2	33.5	a2.4	1.8	-	72	1.4	2.9	3.6
30	2.7	1.4	1.6	4.0	39	a1.9	1.6	-	9.3	1.4	2.2	15.1
31	2.4	1.3	-	2.2	-	1.8	1.5	-	2.9	-	1.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	83	1.4	10.3	15.9	320	982
August	2.4	1.3	1.51	2.34	46.9	144
September	2.7	1.2	1.40	2.17	42.1	129
October	4.0	1.2	1.63	2.52	50.4	155
November	92	1.2	8.37	13.0	251	771
December	206	1.8	36.0	55.7	1,120	3,420
Calendar year 1946	206	1.2	11.1	17.2	4,040	12,380
January	64	1.5	7.23	11.2	224	687
February	8.7	1.2	2.16	3.34	60.4	185
March	94	1.5	13.5	20.9	418	1,280
April	39	1.4	5.89	9.11	177	542
May	64	1.4	10.5	16.2	326	1,000
June	15.1	1.3	2.45	3.79	73.4	225
Fiscal year 1946-47	206	1.2	8.50	13.2	3,110	9,530

a No gage-height record; discharge computed on basis of records for station above Government Road.

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 1947.

Average discharge.- 28 years, 21.6 million gallons a day (33.4 second-feet).

Extremes.- Maximum discharge during year, 59 million gallons a day (91 second-feet) July 27 (gage height, 1.68 feet); no flow Apr. 7 when water was shut out of ditch.
1919-47: 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. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.7	20.5	12.3	21.5	14.6	42	28.5	10.4	45	26.5	10.1	20.5
2	12.0	18.4	16.0	28	39.5	34.5	40	9.5	48	28	16.2	19.2
3	10.8	20.5	11.4	15.3	19.2	54	48	9.2	45	33.5	37.5	17.4
4	9.2	18.8	10.1	15.3	18.5	50	38	8.6	29.5	25	52	16.4
5	8.9	16.0	10.1	13.0	49	37.5	33.5	8.1	21.5	27	48	15.0
6	14.8	15.0	9.8	11.4	37	55	31	7.9	29.5	48	41	14.6
7	30	14.0	9.2	12.7	26.5	52	28	7.9	33.5	48	27.5	14.3
8	20	13.0	8.9	15.6	26	50	42	7.6	33.5	45	25	13.0
9	34.5	12.3	8.4	11.4	19.7	38	35.5	7.1	21	31	19.9	12.3
10	50	11.4	7.9	10.1	20.5	29.5	26.5	6.8	17.0	26	30.5	11.7
11	50	10.8	7.6	9.8	19.7	23.5	33	5.5	15.0	31	48	12.3
12	35.5	10.4	7.3	9.8	26	20.5	45	4.9	13.3	52	52	13.0
13	41	17.8	7.3	9.2	19.9	18.1	45	6.2	18.3	38	42	14.0
14	28	23.5	10.1	8.4	16.7	33.5	35.5	6.8	42	26.5	26.5	15.0
15	35	13.0	25	8.1	15.0	52	29	6.6	35.5	22	22	12.3
16	52	11.1	11.1	7.6	13.6	44	25	6.1	24.5	18.6	19.2	11.4
17	48	10.4	10.1	7.6	13.2	50	22	6.1	19.9	17.0	17.4	10.8
18	48	10.7	18.3	7.6	12.0	42	19.9	6.1	16.7	16.0	16.0	10.4
19	40	12.6	17.8	7.9	11.4	48	18.4	6.1	14.6	14.6	15.0	10.1
20	48	12.8	11.4	9.5	10.8	42	17.0	6.1	13.3	13.6	14.3	10.1
21	42	10.1	10.1	8.1	10.1	38	16.0	6.1	12.7	13.0	18.1	9.5
22	30	9.8	9.5	11.6	10.8	33.5	14.6	5.8	11.7	12.3	46	9.5
23	23.5	10.1	9.8	20.5	10.1	33	14.0	5.8	11.1	11.7	27	9.8
24	20.5	9.8	8.9	13.7	9.5	48	13.6	5.8	20	11.4	35.5	9.8
25	17.8	9.5	8.1	9.8	8.8	48	13.0	15.7	27.5	11.1	31	10.1
26	23.5	11.1	7.9	18.1	8.4	45	12.5	33	17.1	10.4	51	13.0
27	52	10.4	10.8	14.3	8.1	38	13.6	33	25.5	10.1	48	33
28	48	12.8	13.3	14.2	19.1	35.5	14.3	23.5	50	9.8	50	39
29	38	11.7	15.5	23	48	33.5	16.3	-	45	9.5	38	28
30	31	13.3	16.4	29	52	31	15.3	-	45	9.2	28.5	42
31	24.5	11.1	-	18.1	-	29.5	11.7	-	35.5	-	23.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	52	8.9	31.6	48.9	979	3,010
August	23.5	9.5	13.3	20.6	413	1,270
September	25	7.3	11.3	17.5	340	1,040
October	29	7.6	13.6	21.0	420	1,290
November	52	8.1	20.4	31.6	614	1,880
December	55	18.1	39.6	61.3	1,230	3,770
Calendar year 1946	55	5.6	23.0	35.6	8,410	25,830
January	48	11.7	25.7	39.8	796	2,240
February	33	4.9	9.72	15.0	272	836
March	50	11.1	27.0	41.8	838	2,570
April	52	9.2	23.2	35.9	696	2,140
May	52	10.1	31.5	48.7	977	3,000
June	42	9.5	15.9	24.6	478	1,470
Fiscal year 1946-47	55	4.9	22.1	34.2	8,050	24,720

Waiaaka Stream near Nahiku

Location.- Concrete control, lat. 20°49'25", long. 156°07'00", 3,000 feet downstream from Government Road, 1½ miles west of Nahiku, and 3½ miles southeast of Keanae post office. Altitude of gage, 650 feet (by barometer).

Records available.- July 1932 to June 1947 (discontinued). Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Average discharge.- 15 years, 0.807 million gallons a day (1.25 second-feet).

Extremes.- Maximum discharge during year, 36.5 million gallons a day (56.5 second-feet) Dec. 17 (gage height, 2.20 feet), from rating curve extended above 14 million gallons a day by test on model of station site; minimum, 0.34 million gallons a day (0.53 second-foot) Feb. 24, 25.

1932-47: Maximum discharge, 73 million gallons a day (113 second-feet) Mar. 6, 1933 (gage height, 1.87 feet, site and datum then in use), from rating curve extended above 1 million gallons a day by formula for V-notch weirs; minimum, 0.29 million gallons a day (0.45 second-foot) June 15-17, 1945.

Remarks.- Records good except those for Dec. 23-29, which are fair. No diversions.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.23	0.6	1.72	1.0	7.1
.4	.53	.7	2.7	1.2	10.8
.5	1.01	.8	4.0	1.4	14.8

Disoharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.53	0.80	0.40	0.46	0.46	0.61	0.61	0.46	0.57	0.85	0.43	0.57
2	.49	.75	.40	.49	.46	.76	1.36	.43	1.29	.90	.43	.53
3	.46	.75	.40	.46	.46	.88	1.01	.43	1.46	.95	.64	.53
4	.46	.65	.40	.46	.46	.80	.85	.43	.95	.80	.80	.53
5	.46	.61	.40	.46	5.4	.70	.85	.40	.85	.75	.61	.49
6	.46	.57	.40	.46	7.1	3.15	.80	.40	.80	1.01	.57	.49
7	.53	.53	.40	.50	2.4	2.0	.80	.40	.80	1.59	.53	.46
8	.46	.53	.40	.53	.65	1.55	.85	.40	.85	.80	.53	.46
9	.49	.53	.40	.46	.61	1.07	.85	.40	.80	.75	.49	.46
10	.61	.49	.37	.46	.57	.95	.85	.37	.65	.75	.53	.46
11	3.3	.49	.37	.43	.57	.90	.85	1.04	.61	1.35	.53	.46
12	.70	.46	.37	.43	.53	.80	.85	1.55	.61	1.73	.75	.46
13	.80	.53	.40	.43	.53	.70	1.01	1.02	1.14	1.01	.70	.43
14	.70	.53	.52	.40	.53	.80	1.01	.40	5.8	.90	.57	.43
15	.70	.46	.49	.40	.49	.75	.90	.40	3.15	.80	.53	.43
16	1.07	.46	.40	.40	.49	1.49	.80	.37	.90	.70	.53	.40
17	4.1	.46	.43	.40	.46	7.7	.75	.37	.80	.61	.53	.37
18	1.07	.46	.43	.40	.46	8.0	.70	.37	.75	1.07	.49	.37
19	1.01	.46	.43	.40	.46	3.05	.65	.37	.70	.53	.46	.37
20	1.65	.43	.40	.40	.46	7.7	.61	.37	.61	.53	.46	.40
21	1.19	.40	.40	.40	.46	12.5	.61	.37	.61	.49	.46	.37
22	1.01	.40	.40	.40	.46	8.8	.57	.37	.57	.49	.61	.37
23	.95	.40	.43	.49	.46	3.5	.53	.37	.53	.46	.49	.40
24	.90	.40	.43	.46	.43	2.1	.53	.34	.49	.46	.46	.37
25	.75	.40	.40	.43	.37	1.8	.49	.52	.46	.46	.49	.40
26	.75	.40	.40	.49	.37	1.3	.49	.95	.49	.43	.85	.40
27	1.80	.40	.43	.46	.37	1.0	.49	.70	.49	.43	.80	.49
28	1.26	.40	.46	.43	.40	.9	.53	.57	2.3	.40	.80	.53
29	1.01	.40	.46	.46	.49	.8	.49	-	4.7	.40	.70	.49
30	.90	.40	.46	.53	.85	.70	.49	-	1.01	.40	.65	.57
31	.85	.40	-	.49	-	.61	.46	-	.90	-	.61	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.1	0.46	1.01	1.56	31.4	96
August	.80	.40	.495	.766	15.4	47
September	.52	.37	.416	.644	12.5	38
October	.53	.40	.447	.692	13.9	43
November	7.1	.37	.940	1.45	28.2	87
December	12.5	.61	2.53	3.91	78.4	241
Calendar year 1946	12.5	.31	.992	1.53	362	1,110
January	1.36	.46	.730	1.13	22.6	69
February	1.55	.34	.520	.805	14.6	45
March	5.8	.46	1.18	1.83	36.6	112
April	1.73	.40	.760	1.18	22.8	70
May	.85	.43	.582	.900	18.0	55
June	.57	.37	.450	.696	13.5	41
Fiscal year 1946-47	12.5	.34	.843	1.30	308	944

Paakea Stream near Nahiku

Location.- Concrete control, lat. 20°49'25", long. 156°07'05", 3,000 feet downstream from highway, 1½ miles west of Nahiku, and 3¾ miles southeast of Keanae post office. Altitude of gage, 650 feet (by barometer).
Drainage area.- 0.5 square mile.
Records available.- July 1932 to June 1947 (discontinued). Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.
Average discharge.- 15 years, 4.20 million gallons a day (6.50 second-feet).
Extremes.- Maximum discharge during year, 199 million gallons a day (308 second-feet) Dec. 17 (gage height, 4.90 feet), from rating curve extended above 20 million gallons a day by logarithmic plotting; minimum, 1.88 million gallons a day (2.91 second-feet) Feb. 10-13.
1932-47: Maximum discharge, 236 million gallons a day (365 second-feet) Mar. 9, 1943 (gage height, 5.52 feet), from rating curve extended above 20 million gallons a day by logarithmic plotting; minimum, 1.29 million gallons a day (2.00 second-feet) Oct. 5, 1942.
Remarks.- Records good except those for periods of no gage-height record, which are fair. Koolau ditch diverts all low flow at altitude of about 1,200 feet for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.50	0.8	9.2	1.4	30
.5	2.9	.9	12.3	1.6	37
.6	4.6	1.0	15.8	1.8	44
.7	6.7	1.2	23	2.1	56

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.55	3.05	2.4	2.7	2.55	4.8	2.4	2.4	13.7	3.25	a2.4	2.55
2	2.4	2.9	2.4	3.45	2.9	5.4	15.1	2.25	21	5.1	a3.0	2.4
3	2.4	3.4	2.4	2.55	2.55	16.9	5.0	2.25	8.0	3.85	a13	2.4
4	2.25	3.05	2.25	2.55	2.95	5.4	3.05	2.25	3.4	3.05	a15	2.4
5	2.25	2.7	2.4	2.4	26.5	6.4	3.1	2.25	3.05	3.35	a6.0	2.4
6	2,25	2.7	2.4	2.4	7.3	31.5	3.05	2.1	3.8	9.6	4.1	2.4
7	4.8	2.55	2.4	2.7	4.1	11.4	2.9	2.1	3.8	6.7	2.4	2.4
8	2.4	2.55	2.25	2.7	4.8	5.5	5.6	2.1	5.3	3.85	2.4	2.25
9	3.2	2.4	2.25	2.4	3.95	3.9	3.25	2.1	2.9	2.9	2.25	2.1
10	8.2	2.4	2.25	2.4	2.9	3.6	2.7	2.0	2.4	2.9	2.95	2.1
11	6.7	2.4	2.25	2.4	2.9	3.05	5.7	1.88	2.4	8.7	4.5	2.25
12	3.25	2.4	2.25	2.4	3.8	2.9	25.5	1.88	2.4	12.4	10.8	2.4
13	5.7	2.9	2.4	2.4	3.25	2.9	5.1	1.88	9.4	3.75	3.65	2.4
14	3.05	3.2	2.85	2.25	2.55	12.2	3.4	2.0	25.5	3.25	2.55	2.4
15	9.1	2.4	5.2	2.1	2.55	13.5	3.25	2.0	3.4	3.05	2.4	2.25
16	12.2	2.4	2.4	2.1	2.55	15.6	2.9	2.0	3.05	2.7	2.4	2.0
17	14.6	2.4	2.4	2.1	2.55	34	2.9	2.0	2.7	2.7	2.4	2.0
18	5.7	2.4	2.55	2.25	2.4	19.7	2.55	2.0	2.55	2.55	2.25	2.1
19	3.9	2.5	2.55	2.25	2.4	17.8	2.55	2.0	2.4	2.4	2.1	2.1
20	10.3	2.55	2.4	2.4	2.4	32	2.4	2.0	2.4	2.4	2.25	2.1
21	5.5	2.25	2.4	2.25	2.4	55	2.4	2.0	2.25	2.4	2.25	2.1
22	3.6	2.25	2.4	2.25	2.55	19.3	2.4	2.0	2.25	2.4	8.4	2.1
23	3.25	2.25	2.55	4.2	2.4	8.1	2.4	2.0	2.1	2.4	2.4	2.25
24	3.05	2.25	2.4	2.55	2.4	a4.0	2.4	2.0	4.5	2.4	3.1	2.25
25	2.9	2.25	2.4	2.4	2.4	a9.0	2.4	6.4	4.5	a2.4	2.85	2.4
26	6.8	2.25	2.4	3.3	2.4	a3.5	2.4	9.7	2.4	a2.4	16.3	2.4
27	36	2.25	2.55	2.7	2.25	a3.2	2.25	6.2	3.6	a2.4	5.4	4.6
28	7.2	2.4	2.7	2.55	7.4	a3.0	2.55	2.9	40	a2.4	6.2	4.5
29	4.1	2.4	2.7	3.05	9.3	a2.9	2.95	-	20.5	a2.4	3.05	2.55
30	3.75	2.55	2.7	3.05	20	a2.9	2.4	-	3.75	a2.4	2.7	5.2
31	3.4	2.4	-	2.7	-	2.55	2.4	-	3.25	-	2.55	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	36	2.25	6.02	9.31	187	573
August	3.4	2.25	2.54	3.93	78.8	242
September	5.2	2.25	2.53	3.91	75.8	233
October	4.2	2.1	2.58	3.99	79.9	245
November	26.5	2.25	4.71	7.29	141	434
December	55	2.55	11.7	18.1	362	1,110
Calendar year 1946	55	1.88	4.70	7.27	1,710	5,260
January	25.5	2.25	4.17	6.45	129	397
February	9.7	1.88	2.67	4.13	74.6	229
March	40	2.1	6.86	10.6	213	653
April	12.4	2.4	3.75	5.80	112	345
May	16.3	2.1	4.65	7.19	144	442
June	5.2	2.0	2.52	3.90	75.8	232
Fiscal year 1946-47	55	1.88	4.58	7.09	1,670	5,140

a No gage-height record; discharge computed on basis of records for stations on nearby 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 1947.

Average discharge.- 25 years (1922-47), 7.87 million gallons a day (12.2 second-feet).

Extremes.- Maximum discharge during year, 444 million gallons a day (687 second-feet) Dec. 17 (gage height, 4.87 feet), from rating curve extended above 50 million gallons a day; minimum, 1.63 million gallons a day (2.52 second-feet) Feb. 24, 25.
1921-47: 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.5	1.45	1.0	6.6	1.8	33.5
.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	3.5	203

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.7	3.7	3.15	4.6	3.25	7.5	4.2	2.55	23.5	3.6	2.7	3.4
2	2.85	3.5	3.3	6.1	10.8	6.9	30	2.45	22.5	6.7	3.45	3.3
3	2.6	4.3	2.6	3.4	3.6	43	11.2	2.35	7.4	5.6	29.5	3.15
4	2.3	3.85	2.45	3.4	4.9	11.0	5.4	2.3	3.3	3.8	36	3.15
5	2.2	3.3	2.45	2.95	57	6.4	4.7	2.3	2.75	5.1	10.5	2.95
6	3.05	3.25	2.35	2.7	11.2	49	4.4	2.2	5.9	20.5	7.2	2.95
7	6.3	3.15	2.3	3.3	4.4	10.8	4.4	2.2	6.0	15.9	3.6	2.95
8	3.5	3.05	2.2	3.3	5.0	12.6	11.9	2.2	6.0	8.2	3.3	2.75
9	8.2	2.85	2.2	2.85	6.2	4.2	6.1	2.15	3.25	4.6	2.95	2.6
10	20.5	2.75	2.15	2.7	4.1	3.95	4.3	2.05	2.75	3.95	6.0	2.55
11	12.8	2.7	2.05	2.7	4.2	3.6	8.6	2.05	2.55	7.9	17.0	2.8
12	5.3	2.6	2.05	2.6	5.8	3.3	44	2.05	2.35	16.3	20.5	2.9
13	8.0	4.5	2.2	2.6	4.1	3.25	8.4	2.05	9.9	6.2	6.4	3.15
14	4.1	4.5	3.1	2.45	3.6	12.2	5.1	1.99	42	4.1	3.5	2.85
15	11.5	3.05	4.6	2.45	3.3	21	4.2	1.93	4.8	3.6	3.15	2.55
16	15.1	2.75	2.6	2.35	3.25	28	3.8	1.87	3.3	3.3	2.95	2.45
17	21.5	2.6	2.7	2.45	3.4	54	3.5	1.87	3.05	3.25	2.85	2.35
18	7.8	2.75	3.7	2.45	3.15	70	3.3	1.87	2.7	3.15	2.7	2.45
19	5.6	3.6	3.25	2.45	2.85	33.5	3.25	1.81	2.55	2.95	2.7	2.3
20	11.7	3.35	2.75	2.6	2.85	105	3.05	1.81	2.45	2.85	2.6	2.45
21	6.2	2.6	2.45	2.45	2.7	140	2.95	1.75	2.35	2.75	3.1	2.3
22	4.2	2.45	2.35	2.6	2.85	28.5	2.85	1.75	2.3	2.6	12.5	2.2
23	3.7	2.6	2.75	5.2	2.75	16.3	2.75	1.75	2.45	2.6	4.4	2.45
24	3.6	2.6	2.35	3.3	2.6	11.9	2.85	1.63	6.9	2.6	7.9	2.35
25	3.4	2.45	2.3	2.7	2.55	13.3	2.85	6.9	7.2	2.45	5.7	2.55
26	8.0	2.95	2.2	4.3	2.45	7.5	2.95	9.1	3.3	2.45	21	2.95
27	53	2.7	3.55	3.3	2.45	6.3	3.15	8.2	5.6	2.45	8.8	7.8
28	10.3	3.45	3.4	3.05	15.8	6.2	3.4	7.4	62	2.35	10.3	8.8
29	5.4	2.85	3.5	4.4	25	5.6	3.35	-	41	2.35	5.0	4.8
30	4.7	3.2	3.55	6.8	24	4.8	2.95	-	5.6	2.35	4.1	10.7
31	4.1	2.6	-	3.7	-	4.4	2.7	-	4.1	-	3.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	53	2.2	8.52	13.2	264	811
August	4.5	2.45	3.11	4.81	96.6	296
September	4.6	2.05	2.75	4.25	82.6	253
October	6.8	2.35	3.30	5.11	102	314
November	57	2.45	7.67	11.9	230	706
December	140	3.25	23.7	36.7	734	2,250
Calendar year 1946	140	1.69	8.18	12.7	2,980	9,160
January	44	2.7	6.66	10.3	207	634
February	9.1	1.63	2.88	4.46	80.5	247
March	62	2.3	9.74	15.1	302	926
April	20.5	2.35	5.22	8.08	156	480
May	36	2.6	8.26	12.8	256	785
June	10.7	2.2	3.43	5.31	103	316
Fiscal year 1946-47	140	1.63	7.16	11.1	2,610	8,020

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 1947.
Average discharge.- 23 years (1922-34, 1936-47), 18.3 million gallons a day (28.3 second-feet).
Extremes.- Maximum discharge during year, 1,760 million gallons a day (2,720 second-feet) Dec. 21 (gage height, 6.26 feet), from rating curve extended above 19 million gallons a day; minimum, 1.19 million gallons a day (1.84 second-feet) Feb. 25.
1914-17, 1921-47: Maximum discharge, 4,020 million gallons a day (6,220 second-feet) Apr. 6, 1938 (gage height, 9.12 feet), from rating curve extended above 75 million gallons a day; 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.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.00	0.9	14.3	3.0	265
.4	1.95	1.1	22.5	3.5	400
.5	3.2	1.4	40	4.0	555
.6	5.5	1.8	73	4.5	750
.7	8.3	2.2	120	5.0	1,000
.8	11.0	2.6	185		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.2	3.55	2.85	10	8.5	17.9	4.9	2.6	66	5.5	3.1	4.0
2	2.45	3.2	3.9	11	39.5	14.2	80	2.45	27.5	8.1	6.3	3.9
3	1.95	3.55	2.3	4.1	8.2	204	34	2.3	11.6	9.0	84	3.3
4	1.66	3.2	1.95	4.2	8.6	38	12.6	2.2	3.9	4.3	145	3.1
5	1.86	2.8	2.1	3.0	230	18.0	9.1	2.2	2.95	8.9	23.5	3.0
6	4.5	2.8	1.95	2.7	40	95	8.0	2.1	13.2	46	19.5	3.1
7	10.3	2.8	2.0	4.4	11.0	22.5	7.3	1.95	14.6	40	8.3	2.8
8	5.9	2.7	1.76	5.0	10.2	16.5	26.5	1.95	10.2	18.5	6.6	2.7
9	21	2.6	1.57	2.7	11.5	7.6	13.2	1.95	3.7	8.5	3.9	2.6
10	64	2.45	1.48	2.5	5.8	6.1	8.3	1.86	2.95	6.1	11.9	2.5
11	34.5	2.3	1.48	2.8	6.2	4.6	15.7	1.76	2.6	9.7	48	2.6
12	12.8	2.2	1.38	3.2	7.9	3.7	83	1.76	2.3	31.5	58	2.9
13	15.3	5.6	1.57	3.0	5.3	3.2	18.5	1.86	11.2	16.4	20.5	3.3
14	6.8	7.9	3.45	2.6	4.3	18.6	9.8	1.76	101	7.8	7.8	2.8
15	30	2.7	11.2	2.0	3.7	46	6.9	1.66	10.4	5.5	5.2	2.4
16	29.5	2.45	2.45	1.90	3.2	129	5.5	1.48	4.7	4.3	3.7	2.3
17	50	2.3	2.5	2.0	5.2	288	4.3	1.48	3.35	3.7	3.2	2.1
18	15.7	2.4	8.0	2.2	3.75	246	3.7	1.48	2.8	3.2	2.95	2.2
19	10.7	3.65	7.0	2.8	2.95	178	3.35	1.48	2.6	3.1	2.8	2.1
20	16.9	2.8	2.9	3.2	2.7	698	3.2	1.38	2.45	2.95	3.2	2.3
21	8.4	2.1	2.7	2.3	2.6	811	3.1	1.38	2.2	2.8	7.8	2.1
22	4.6	1.95	2.5	7.2	2.8	86	2.95	1.28	2.3	2.7	30	2.0
23	3.55	2.3	2.6	7.6	2.8	36.5	2.95	1.28	2.6	2.6	9.9	2.4
24	3.2	2.2	2.3	3.6	2.6	21.5	3.1	1.28	15.7	2.6	18.9	2.2
25	2.95	1.86	2.1	2.7	2.3	30.5	2.95	5.5	16.3	2.6	13.4	2.4
26	9.0	2.8	2.0	5.4	2.3	16.4	3.1	12.8	6.4	2.6	35	4.0
27	150	2.3	5.7	3.6	2.2	10.3	3.2	19.9	12.4	2.7	16	11
28	27	2.95	5.4	3.8	57	8.9	3.1	24	170	2.6	17	12
29	9.3	2.45	5.4	11.4	115	8.0	3.35	-	136	2.3	10	7.0
30	6.3	2.8	6.0	20.5	50	6.3	3.1	-	16.1	2.3	6.2	23
31	4.1	2.1	-	9.3	-	5.5	2.8	-	8.5	-	4.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	150	1.66	18.3	28.3	566	1,740
August	7.9	1.86	2.90	4.49	89.8	275
September	11.2	1.38	3.35	5.18	100	308
October	20.5	1.90	4.93	7.63	153	469
November	230	2.2	21.9	33.9	658	2,020
December	811	3.2	99.9	155	3,100	9,500
Calendar year 1946	811	1.38	25.2	39.0	9,190	28,180
January	83	2.8	12.6	19.5	392	1,200
February	24	1.28	3.75	5.80	105	322
March	170	2.2	22.2	34.3	688	2,110
April	46	2.3	8.96	13.9	269	825
May	145	2.8	20.5	31.7	635	1,950
June	23	2.0	4.14	6.41	124	381
Fiscal year 1946-47	811	1.28	18.8	29.1	6,880	21,100

Note.- No gage-height record Sept. 17 to Oct. 28, Nov. 3-6, May 27 to June 30; discharge computed on basis of records for nearby streams.

East Wailuaiki Stream near Keanae

Location.- Lat. 20°49'05", long. 156°08'26", 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 1947.

Average discharge.- 25 years (1922-47), 19.4 million gallons a day (30.0 second-feet).

Extremes.- Maximum discharge during year, 1,840 million gallons a day (2,850 second-feet) Dec. 20 (gage height, 7.90 feet), from rating curve extended above 300 million gallons a day; minimum, 1.80 million gallons a day (2.79 second-feet) Feb. 25.
1913-17, 1922-47: 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 July 1-31, Aug. 4 to Sept. 4, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.50	1.2	8.5	3.2	105
.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

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.0	5.0	4.8	13.0	6.4	29	6.0	3.35	96	6.6	4.3	5.2
2	3.0	4.7	6.8	13.9	47	19.4	94	3.2	41	11.2	7.7	5.0
3	2.7	5.0	3.4	4.7	8.5	217	44	3.0	11.9	10.2	95	4.4
4	2.4	4.5	2.9	4.9	9.5	46	13.6	3.0	4.8	5.7	179	4.1
5	2.8	4.1	3.0	3.65	272	25	9.1	2.9	3.8	11.8	30.5	3.8
6	7.2	3.8	2.9	3.15	51	107	7.8	2.85	18.3	68	27.5	3.9
7	13	3.6	2.95	5.6	11.0	19.1	7.5	2.7	15.8	53	8.2	3.6
8	6.6	3.4	2.65	6.9	11.1	12.5	34.5	2.7	13.8	21	6.9	3.35
9	24	3.2	2.5	3.2	12.6	7.6	14.7	2.6	4.8	9.0	4.7	3.2
10	80	3.1	2.4	2.95	6.2	6.5	8.4	2.5	3.8	6.7	12.1	3.15
11	45	3.0	2.3	3.6	7.3	5.7	21	2.45	3.3	13.8	60	3.4
12	15	2.9	2.2	4.2	11.7	5.0	129	2.4	3.0	43	77	4.0
13	17	9.0	2.5	3.9	5.8	4.6	24	2.55	24	16.8	25.5	4.6
14	8.0	13	5.6	2.9	5.2	29	10.7	2.5	138	8.1	8.0	4.3
15	35	3.7	18.6	2.6	4.6	81	7.8	2.3	11.8	6.2	5.7	3.0
16	45	3.3	3.3	2.4	4.1	119	6.6	2.2	5.7	5.3	4.7	2.95
17	68	3.1	3.5	2.45	7.6	308	5.8	2.2	4.7	4.8	4.3	2.85
18	18	3.0	12.5	2.85	4.4	224	5.4	2.15	3.9	4.4	3.9	3.1
19	12	5.2	9.9	4.0	3.5	218	5.0	2.1	3.35	4.0	3.7	2.75
20	22	3.6	4.1	5.0	3.2	541	4.7	2.05	3.2	3.8	5.1	3.0
21	9.0	2.9	3.6	3.0	3.15	461	4.5	2.05	3.0	3.6	9.2	2.65
22	5.8	2.7	3.15	8.7	3.5	98	4.3	1.98	3.0	3.35	46	2.6
23	4.7	3.5	3.25	10.1	3.35	53	4.0	1.92	3.5	3.2	11.9	3.15
24	4.2	3.1	2.85	4.6	2.95	29	4.6	1.92	25	3.2	26	2.9
25	3.8	2.8	2.6	3.2	2.7	39	4.3	7.2	25.5	3.1	14.8	3.2
26	17	5.0	2.5	7.6	2.65	20	4.4	24	6.6	3.15	61	5.1
27	260	3.6	6.8	4.6	2.6	12.0	4.9	30.5	14.2	3.5	24	22.5
28	40	4.4	6.4	5.3	63	10.4	4.3	28.5	221	3.15	27	23.5
29	11	3.8	6.4	10.9	92	9.2	4.6	-	181	2.75	10.6	10.9
30	8.0	4.0	7.5	19.5	93	7.5	5.5	-	20.5	2.75	6.8	35
31	6.0	3.1	-	7.5	-	6.7	4.0	-	9.8	-	5.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	260	2.4	25.7	39.8	797	2,450
August	13	2.7	4.16	6.44	129	396
September	18.6	2.2	4.80	7.43	144	441
October	19.5	2.4	5.83	9.02	181	555
November	272	2.6	25.4	38.3	762	2,340
December	541	4.6	89.4	138	2,770	8,500
Calendar year 1946	541	2.15	25.5	39.5	9,290	28,520
January	129	4.0	16.4	25.7	509	1,560
February	30.5	1.92	5.35	8.28	150	460
March	221	3.0	29.9	46.3	928	2,850
April	68	2.75	11.5	17.8	345	1,060
May	179	3.7	26.3	40.7	817	2,510
June	35	2.6	6.17	9.55	185	568
Fiscal year 1946-47	541	1.92	21.1	32.6	7,720	23,690

Note.- No gage-height record July 1-31, Aug. 4 to Sept. 4; discharge computed on basis of records for nearby streams.

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 1947.

Average discharge.- 25 years (1922-47), 24.6 million gallons a day (38.1 second-feet).

Extremes.- Maximum discharge during year, 2,360 million gallons a day (3,650 second-feet) Dec. 20 (gage height, 9.96 feet), from rating curve extended above 420 million gallons a day; minimum, 1.65 million gallons a day (2.55 second-feet) Feb. 23-25.
1914-17, 1921-47: 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 Dec. 23 to Jan. 21, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used July 28 to Nov. 4)

0.4	1.65	1.1	8.6	3.0	121
.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

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.95	6.6	5.0	14.8	10.1	55	9.5	3.7	100	9.5	5.1	6.7
2	2.95	6.0	7.1	15.4	57	23.5	100	3.6	36	13.2	8.2	6.3
3	2.5	5.9	3.8	6.9	12.8	251	60	3.1	13.1	11.4	123	5.5
4	2.15	5.1	3.25	6.3	12.3	72	25	2.9	6.6	7.6	214	5.0
5	2.6	4.4	3.4	4.8	321	22.5	14	2.7	4.9	11.3	38.5	4.6
6	6.7	4.2	3.2	4.0	65	97	12	2.6	18.8	80	28.5	4.4
7	14.3	4.0	3.2	7.2	14.5	19.2	11	2.5	18.3	64	11.4	4.2
8	7.7	3.7	2.8	12.2	13.6	14.6	38	2.45	13.7	27.5	9.1	3.7
9	25	3.4	2.55	4.9	14.1	9.9	18	2.3	6.3	11.9	6.6	3.4
10	89	3.2	2.55	4.4	8.6	8.3	12	2.25	5.1	9.1	13.6	3.25
11	58	3.0	2.3	5.0	9.2	7.2	25	2.2	4.3	14.3	71	3.6
12	16.8	2.95	2.15	6.7	12.9	6.2	140	2.2	3.8	52	93	4.1
13	19.0	8.6	2.6	6.8	7.6	5.5	33	2.3	10.9	23	31.5	4.5
14	9.5	12.7	5.9	4.6	6.6	21	15	2.4	145	11.0	11.4	4.0
15	42	4.2	17.4	3.7	5.9	81	10	2.1	16.0	8.4	8.3	3.0
16	54	3.5	4.1	3.3	5.2	153	8.0	2.0	8.3	7.2	6.7	3.0
17	79	3.2	3.9	3.0	11.1	420	6.6	2.0	6.4	6.3	5.9	2.8
18	22	3.1	12.5	3.5	6.2	328	5.8	1.92	5.1	5.6	5.2	3.2
19	14.0	5.3	10.8	5.2	4.5	212	5.4	1.88	4.4	5.1	4.9	2.65
20	23	3.7	5.4	6.0	4.0	937	5.0	1.83	4.0	4.6	8.5	2.95
21	11.2	2.9	4.4	3.7	3.7	707	4.8	1.78	3.8	3.8	12.0	2.55
22	7.8	2.7	3.7	9.9	4.3	136	4.6	1.78	3.9	3.9	53	2.5
23	6.4	3.4	3.5	10.0	4.0	80	4.4	1.70	4.5	3.7	15.5	3.25
24	5.6	3.25	3.25	5.8	3.5	42	4.8	1.65	28.5	3.7	26	2.9
25	4.8	2.9	3.0	4.1	3.2	50	4.3	6.7	28.5	3.5	19.6	2.95
26	18.0	4.9	2.7	8.1	2.95	30	4.2	23.5	9.8	3.4	63	5.1
27	320	3.8	7.2	5.5	2.8	17	4.4	38	17.5	3.9	32	19.6
28	60	4.9	7.6	6.3	43	14	4.1	40	267	3.4	34.5	23.5
29	15.3	4.0	7.4	10.6	148	13	4.4	-	176	3.0	14.4	12.1
30	10.4	4.4	8.3	23	93	11	8.2	-	25	3.0	9.5	40
31	8.3	3.3	-	11.1	-	10	5.1	-	13.4	-	7.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	320	2.15	31.0	48.0	961	2,950
August	12.7	2.7	4.43	6.85	137	421
September	17.4	2.15	5.16	7.98	155	476
October	23	3.0	7.32	11.3	227	696
November	321	2.8	30.4	47.0	911	2,790
December	937	5.5	124	192	3,850	11,830
Calendar year 1946	937	1.65	32.8	50.7	11,990	36,790
January	140	4.1	19.6	30.3	607	1,860
February	40	1.65	5.86	9.07	164	503
March	267	3.8	32.5	50.3	1,010	3,100
April	80	3.0	13.9	21.5	418	1,280
May	214	4.9	32.0	49.5	992	3,040
June	40	2.5	6.51	10.1	195	599
Fiscal year 1946-47	937	1.65	26.4	40.8	9,630	29,540

Note.- Intake action faulty Dec. 23 to Jan 21; discharge computed on basis of records for nearby streams.

Wailuanui Stream near Keanae

Location.- Concrete weir control, lat. 20°50'20", long. 156°08'30", 500 feet downstream from highway, 1 6 miles southeast of Keanae post office, and 3 miles northwest of Nahiku. Altitude of gage, 620 feet (by barometer).
Drainage area.- 1.8 square miles.
Records available.- July 1932 to March 1936, November 1938 to July 1947 (discontinued). Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.
Average discharge.- 11 years (1932-35, 1939-47), 9.14 million gallons a day (14.1 second-feet).
Extremes.- Maximum discharge during year, 875 million gallons a day (1,350 second-feet) Dec. 17 (gage height, 7.21 feet), from rating curve extended above 90 million gallons a day by logarithmic plotting; minimum, 0.15 million gallons a day (0.23 second-foot) Feb. 24, 25.
1932-36, 1938-47: Maximum discharge, 1,190 million gallons a day (1,840 second-feet) Dec. 14, 1942 (gage height, 8.09 feet), from rating curve extended above 90 million gallons a day by logarithmic plotting; minimum, 0.11 million gallons a day (0.17 second-foot) June 13, 14, 1946.
Remarks.- Records good except those for Aug. 2 to Sept. 11, which are fair. Koolau ditch diverts all low flow, at altitude of about 1,200 feet, for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.11	0.9	7.1	3.0	98
.4	.30	1.1	12.1	3.5	145
.5	.75	1.3	18.0	4.0	203
.6	1.55	1.6	27	4.5	271
.7	2.8	2.0	42	5.0	355
.8	4.8	2.5	67		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.52	1.49	0.65	2.95	0.58	23.5	1.19	0.58	56	2.1	0.81	1.37
2	.48	1.4	.80	5.9	14.7	6.3	61	.48	48	12.2	1.10	1.28
3	.37	1.5	.45	.58	.58	101	44	.48	13.1	7.0	50	1.10
4	.30	1.3	.42	.69	3.8	37.5	6.9	.48	2.35	1.97	112	1.10
5	.28	1.1	.44	.48	149	10.0	1.87	.40	1.76	3.85	24.5	.95
6	.40	1.0	.41	.40	33	85	1.55	.37	10.7	46	16.1	.95
7	7.8	.95	.38	.60	1.55	13.3	1.37	.37	7.2	38.5	1.28	.88
8	.52	.90	.36	.71	2.2	5.9	28	.37	10.7	19.4	1.10	.75
9	10.2	.82	.33	.40	1.79	2.2	8.5	.30	1.55	2.35	.88	.75
10	33.5	.75	.30	.40	1.02	1.87	1.19	.28	1.28	2.2	5.3	.69
11	29	.72	.27	.40	1.10	1.55	17.7	.30	1.10	14.7	25	.75
12	4.2	.70	.25	.40	4.2	1.37	124	.30	.95	51	53	.88
13	10.2	1.5	.30	.37	1.10	1.19	33	.40	32	13.7	18.2	.88
14	1.46	1.6	.82	.33	.95	17.8	5.2	.40	115	2.8	1.37	.75
15	18.5	.70	11.7	.33	.95	65	2.35	.25	8.3	2.2	1.19	.63
16	34	.60	.44	.30	.88	63	1.87	.23	2.8	1.87	1.02	.52
17	46	.56	.44	.30	.88	221	1.65	.23	2.35	1.65	.95	.58
18	11.9	.56	1.23	.33	.81	149	1.46	.23	2.1	1.48	.88	.58
19	4.2	.80	1.66	.30	.69	87	1.28	.21	1.87	1.28	.81	.48
20	23.5	.64	.37	.48	.48	292	1.10	.21	1.55	1.10	.81	.58
21	4.6	.50	.30	.30	.48	338	1.02	.19	1.10	.95	.88	.44
22	2.1	.47	.33	.30	.63	61	.95	.19	.95	.88	31.5	.44
23	1.76	.56	.37	3.3	.63	38	.88	.17	1.02	.81	3.85	.58
24	1.55	.52	.37	.55	.48	41	.95	.17	20	.88	12.1	.52
25	1.28	.46	.30	.40	.44	38	.88	13.7	15.8	.69	5.7	.63
26	17.3	.64	.28	.88	.40	24	.75	27	.88	.63	57	.69
27	161	.52	.64	.69	.37	4.1	.75	18.1	5.1	.58	22	13.6
28	38	.70	1.75	.52	19.8	2.45	.95	12.8	168	.52	27.5	13.2
29	3.3	.56	.63	1.99	55	2.05	.81	-	120	.48	2.4	1.19
30	2.2	.60	.58	8.9	67	1.55	1.02	-	17.2	.52	1.76	19.1
31	1.65	.50	-	.69	-	1.37	.63	-	2.65	-	1.55	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	161	0.28	15.2	23.5	472	1,450
August	1.6	.46	.826	1.28	25.6	79
September	11.7	.25	.919	1.42	27.6	85
October	8.9	.30	1.13	1.75	35.2	108
November	149	.37	12.2	18.9	365	1,120
December	338	1.19	56.0	86.6	1,740	5,330
Calendar year 1946	338	.11	13.5	20.9	4,940	15,140
January	124	.63	11.4	17.6	355	1,090
February	27	.17	2.83	4.38	79.2	243
March	168	.88	21.7	33.6	673	2,070
April	51	.48	7.80	12.1	234	718
May	112	.81	15.6	24.1	483	1,480
June	19.1	.44	2.23	3.45	66.8	205
Fiscal year 1946-47	338	.17	12.5	19.3	4,560	13,980

Note.- No gage-height record Aug. 2 to Sept. 11; discharge computed on basis of records for East and West Wailuanui 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 miles.

Records available.- November 1921 to June 1947. January 1914 to October 1917 at site 500 feet upstream.

Average discharge.- 25 years (1922-47), 5.66 million gallons a day (8.76 second-feet).

Extremes.- Maximum discharge during year, 756 million gallons a day (1,170 second-feet) Dec. 17 (gage height, 6.28 feet), from rating curve extended above 50 million gallons a day; minimum, 0.42 million gallons a day (0.65 second-foot) Feb. 24, 25.
1914-17, 1921-47: Maximum discharge, 1,050 million gallons a day (1,620 second-feet) 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. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.30	0.7	6.3	1.3	33
.4	.89	.8	9.2	1.5	46
.5	2.3	.9	12.5	1.8	66
.6	4.2	1.1	22	2.2	102

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.61	2.3	2.55	4.8	2.45	12.7	1.77	1.09	23	2.65	1.45	1.93
2	1.61	2.05	3.1	5.6	4.2	6.0	21	.99	20.5	7.6	3.0	1.77
3	1.32	2.3	1.61	2.45	2.45	24.5	6.4	.89	5.6	4.7	22	1.45
4	1.09	1.93	1.45	2.45	4.1	8.0	2.8	.89	2.65	2.65	35.5	1.45
5	1.20	1.61	1.45	1.93	41	8.5	2.45	.80	1.77	3.65	7.7	1.32
6	3.25	1.45	1.32	1.45	8.5	40	2.05	.72	5.0	17.4	6.3	1.32
7	7.8	1.45	1.20	2.45	3.6	5.6	2.3	.72	5.0	11.4	2.8	1.20
8	3.4	1.32	1.09	2.4	4.7	3.6	8.5	.72	7.7	6.5	2.45	1.09
9	5.3	1.20	1.09	1.45	4.8	2.8	3.9	.72	2.45	3.8	1.77	.99
10	14.7	1.09	.99	1.45	2.8	2.45	2.45	.65	1.93	2.8	3.65	.89
11	11.0	.99	.89	1.45	2.95	2.05	8.1	.65	1.52	3.4	7.0	1.09
12	4.6	.99	.80	1.77	4.0	1.77	48	.65	1.32	17.6	18.2	1.32
13	7.7	3.9	1.02	1.32	2.45	1.61	7.1	.76	11.0	4.2	5.3	1.61
14	3.6	4.4	2.95	1.20	2.05	11.8	3.6	.72	44	2.8	2.65	1.20
15	11.8	1.32	6.8	1.09	1.93	3.25	2.65	.59	4.8	2.3	1.93	.89
16	16.9	1.20	1.32	.99	1.77	25.5	2.3	.53	2.65	2.05	1.77	.89
17	23.5	1.09	1.77	.99	1.77	60	1.93	.53	2.05	1.77	1.45	.80
18	6.8	1.04	5.2	1.20	1.45	46	1.77	.53	1.77	1.61	1.32	.89
19	4.4	2.6	2.95	1.77	1.32	27.5	1.45	.53	1.45	1.45	1.20	.72
20	13.0	1.59	1.77	1.77	1.32	60	1.45	.53	1.45	1.20	1.59	.89
21	4.7	1.09	1.61	1.09	1.20	100	1.32	.47	1.32	1.20	3.25	.72
22	3.0	.99	1.45	3.2	1.45	22	1.32	.47	1.20	1.09	15.1	.72
23	2.65	1.32	1.45	4.9	1.45	9.0	1.20	.42	1.45	1.09	4.2	.99
24	2.3	1.20	1.20	2.35	1.20	9.2	1.45	.42	13.2	1.09	5.7	.80
25	1.93	1.09	1.09	1.61	1.09	8.4	1.32	7.0	9.0	.99	5.9	.99
26	10.8	2.05	1.09	3.95	.99	4.6	1.37	12.4	3.3	.89	28	2.05
27	65	1.45	4.7	2.45	.99	3.4	1.68	8.5	6.3	.89	7.4	7.5
28	11.3	2.4	3.6	2.3	8.3	3.15	1.45	4.3	58	.89	9.3	6.1
29	4.2	1.77	3.1	3.75	16.8	2.65	1.71	-	48	.80	4.0	3.75
30	3.4	1.93	3.35	5.0	32	2.3	1.91	-	4.8	.89	2.65	8.0
31	2.65	1.45	-	2.8	-	1.93	1.20	-	3.2	-	2.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	65	1.09	8.27	12.8	257	787
August	4.4	.99	1.70	2.63	52.6	161
September	6.8	.80	2.13	3.30	64.0	196
October	5.6	.99	2.37	3.67	73.4	225
November	41	.99	5.50	8.51	156	506
December	100	1.61	17.7	27.4	550	1,690
Calendar year 1946	100	.42	6.07	9.39	2,220	6,800
January	48	1.20	4.77	7.38	148	454
February	12.4	.42	1.72	2.66	48.2	148
March	58	1.20	9.59	14.8	297	913
April	17.6	.80	3.71	5.74	111	342
May	35.5	1.20	6.99	10.8	217	665
June	8.0	.72	1.84	2.85	55.3	170
Fiscal year 1946-47	100	.42	5.58	8.63	2,040	6,260

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 2¼ miles south of Keanae post office.

Drainage area.- 0.7 square miles.

Records available.- December 1913 to October 1917, July 1922 to June 1947.

Average discharge.- 25 years (1922-47), 9.09 million gallons a day (14.1 second-feet).

Extremes.- Maximum discharge during year, 1,240 million gallons a day (1,920 second-feet) Dec. 20 (gage height, 6.37 feet), from rating curve extended above 130 million gallons a day; minimum, 0.53 million gallons a day (0.82 second-foot) Feb. 25.
1913-17, 1922-47: Maximum discharge, 1,500 million gallons a day (2,320 second-feet) Aug. 12, 1940 (gage height, 6.89 feet), from rating curve extended above 58 million gallons a day; 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.7	0.42	1.2	4.2	1.7	17.5	3.0	152
.8	.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		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.54	2.95	2.3	4.7	2.55	16.0	3.95	1.17	32.5	3.95	1.90	2.65
2	1.60	2.75	3.0	5.9	10.6	9.6	39.5	1.11	18.0	7.6	3.4	2.5
3	1.36	3.05	1.48	2.4	3.7	92	23	1.00	5.9	5.5	32	2.1
4	1.11	2.5	1.36	2.65	5.4	31	10.6	.95	2.65	3.1	84	1.82
5	1.43	2.1	1.48	1.90	126	12.5	7.3	.90	1.90	4.4	13.8	1.67
6	3.4	1.90	1.36	1.60	27.5	41	5.5	.85	5.9	21	11.1	1.67
7	7.3	1.72	1.30	2.7	7.8	7.6	5.0	.80	5.6	18.4	4.7	1.54
8	3.5	1.60	1.17	3 75	7.0	5.3	15.2	.80	7.3	10.6	3.8	1.42
9	6.3	1.48	1.05	1.67	6.2	3.95	9.2	.75	2.55	5.3	2.65	1.30
10	19.4	1.36	1.05	1.89	3.7	3.45	5.5	.63	2.0	4.1	5.3	1.23
11	15.8	1.30	.95	1.67	4.1	2.95	d20.5	.63	1.67	6.7	16.1	1.46
12	6.2	1.23	.90	1.93	5.3	2.55	64	.63	1.48	18.7	28	1.73
13	8.2	4.6	1.16	1.48	3.2	2.3	d9.0	.82	14.0	7.5	14.7	1.97
14	4.2	4.8	3.35	1.36	2.75	11.2	d3.7	.81	54	4.4	5.2	1.56
15	13.6	1.54	7.1	1.30	2.5	33.5	d2.8	.66	6.2	3.45	3.6	1.11
16	16.8	1.36	1.52	1.17	2.2	60	d2.6	.66	3.2	2.85	2.85	1.05
17	30.5	1.23	1.79	1.11	2.5	175	d2.4	.63	2.55	2.5	2.4	1.00
18	8.8	1.39	5.4	1.30	2.1	138	d2.2	.63	2.1	2.1	1.90	1.11
19	5.9	2.8	3.4	1.86	1.74	71	d2.0	.63	1.74	1.90	1.74	.95
20	13.4	1.86	1.90	2.1	1.60	368	d1.8	.63	1.67	1.74	2.1	1.11
21	6.6	1.17	1.67	1.23	1.48	290	1.74	.63	1.54	1.60	4.2	.90
22	3.8	1.11	1.48	3.6	1.82	56	1.60	.59	1.48	1.48	16.3	.85
23	3.2	1.42	1.48	5.0	1.74	34	1.48	.56	1.68	1.42	5.6	1.17
24	2.85	1.36	1.36	2.4	1.48	25	1.74	.56	11.8	1.42	7.5	1.00
25	2.4	1.11	1.23	1.60	1.30	22	1.54	6.6	8.9	1.30	7.5	1.18
26	12.6	2.1	1.11	3.9	1.23	16.2	1.50	12.0	3.6	1.30	26	2.4
27	117	1.48	4.7	2.5	1.17	11.1	1.86	8.8	6.8	1.30	10.7	7.2
28	22	2.45	4.0	2.3	15.2	9.4	1.72	9.3	100	1.17	12.7	6.4
29	7.1	1.66	3.35	4.0	45	7.6	1.79	-	80	1.11	5.8	4.1
30	4.7	2.05	3.15	5.6	34.5	6.0	2.4	-	10.9	1.09	3.95	9.2
31	3.6	1.36	-	2.85	-	4.8	1.42	-	5.8	-	3.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	117	1.11	11.5	17.8	356	1,090
August	4.8	1.11	1.96	3.03	60.8	187
September	7.1	.90	2.22	3.43	66.6	204
October	5.9	1.11	2.56	3.96	79.4	244
November	126	1.17	11.1	17.2	333	1,020
December	368	2.3	50.6	78.3	1,570	4,820
Calendar year 1946	368	.50	12.4	19.2	4,510	13,830
January	64	1.42	8.21	12.7	255	781
February	12.0	.56	1.95	3.02	54.7	168
March	100	1.48	13.1	20.3	405	1,240
April	21	1.09	4.97	7.69	149	457
May	84	1.74	11.1	17.2	345	1,060
June	9.2	.85	2.18	3.37	65.4	201
Fiscal year 1946-47	368	.56	10.2	15.8	3,740	11,470

d Intake action faulty; discharge computed on basis of probable increase or decrease in flow.

Taro patch feeder ditch at Keanae

Location.- Concrete Parshall flume, lat. 20°51'40", long. 156°09'00", 500 feet northwest of highway bridge over Piinaau Stream at Keanae, 4¼ miles northwest of Nahiku, and 4¾ miles southeast of Kailua.

Records available.- September 1934 to June 1947.

Average discharge.- 12 years (1935-47), 2.37 million gallons a day (3.67 second-feet).

Extremes.- Maximum discharge during year, 18.1 million gallons a day (28.0 second-feet) Dec. 17 (gage height, 2.79 feet); minimum, 0.83 million gallons a day (1.28 second-feet) Dec. 25.

1934-47: Maximum discharge, 19.4 million gallons a day (30.0 second-feet) Feb. 25, 1935, Oct. 8, 1941 (gage heights, 2.86 feet and 2.92 feet, respectively), from rating curves extended above 4.5 million gallons a day by Parshall flume formula and logarithmic plotting, respectively; minimum, 0.05 million gallons a day (0.08 second-foot) Feb. 28, 1935, Apr. 7, 8, 1938, Mar. 5, 6, 1939.

Remarks.- Records excellent.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.05	1.69	1.60	1.47	1.35	2.4	1.19	1.64	2.75	2.15	1.82	1.74
2	2.05	1.69	1.60	1.69	1.78	1.87	2.0	1.64	2.35	2.25	1.96	1.69
3	2.05	1.64	1.60	1.47	1.39	3.5	1.47	1.64	2.1	2.3	2.75	1.69
4	2.05	1.69	1.60	1.47	1.42	2.15	1.74	1.64	1.82	2.2	3.8	1.69
5	2.05	1.60	1.60	1.47	4.3	1.64	2.0	1.60	1.64	2.25	2.3	1.64
6	2.05	1.56	1.60	1.47	2.25	3.05	2.0	1.64	1.87	2.85	2.2	1.60
7	2.3	1.56	1.60	1.47	1.56	1.74	1.96	1.60	2.05	2.75	2.0	1.60
8	2.05	1.56	1.60	1.47	1.56	1.56	2.3	1.60	2.0	2.45	1.96	1.56
9	2.7	1.56	1.60	1.47	1.60	1.52	2.05	1.60	1.78	2.3	1.92	1.56
10	3.3	1.56	1.60	1.43	1.47	1.47	1.96	1.60	1.64	2.25	2.05	1.56
11	3.25	1.56	1.60	1.43	1.65	1.64	2.15	1.64	1.60	2.4	2.45	1.52
12	2.35	1.60	1.60	1.43	1.69	1.96	3.8	1.64	1.60	2.85	2.7	1.56
13	2.75	1.60	1.60	1.43	1.39	1.96	2.3	1.60	1.74	2.35	2.2	1.56
14	2.2	1.96	1.60	1.43	1.31	2.3	2.05	1.60	3.5	2.25	1.96	1.52
15	2.9	1.60	2.0	1.39	1.31	3.55	2.05	1.60	2.1	2.2	1.92	1.52
16	3.45	1.60	1.52	1.39	1.31	3.55	2.0	1.60	1.87	2.1	1.82	1.52
17	3.3	1.60	1.47	1.39	1.39	5.1	1.96	1.60	1.78	2.05	1.82	1.52
18	2.65	1.60	1.72	1.39	1.31	3.5	1.92	1.60	1.74	2.05	1.74	1.52
19	2.3	1.60	1.64	1.39	1.31	2.5	1.87	1.60	1.69	2.05	1.69	1.52
20	2.75	1.60	1.52	1.39	1.31	5.6	1.82	1.56	1.69	2.0	1.64	1.56
21	2.45	1.60	1.52	1.39	1.31	6.0	1.82	1.56	1.64	1.96	1.92	1.52
22	2.25	1.56	1.52	1.39	1.31	1.80	1.82	1.56	1.64	1.92	2.35	1.52
23	2.05	1.56	1.52	1.39	1.31	1.12	1.82	1.56	1.64	1.87	1.96	1.52
24	2.05	1.56	1.52	1.39	1.31	1.04	1.82	1.52	2.1	1.87	2.0	1.52
25	2.05	1.52	1.47	1.39	1.31	1.04	1.78	1.06	2.5	1.82	2.0	1.52
26	2.35	1.52	1.47	1.39	1.31	1.15	1.74	2.3	1.96	1.82	2.55	1.56
27	5.6	1.52	1.47	1.39	1.31	1.31	1.74	2.2	2.1	1.82	2.1	1.96
28	2.85	1.52	1.66	1.35	1.54	1.31	1.74	1.83	4.3	1.82	2.1	1.96
29	1.96	1.56	1.47	1.35	2.85	1.27	1.74	-	3.55	1.82	1.87	1.56
30	1.82	1.60	1.47	1.35	3.15	1.23	1.74	-	1.23	1.82	1.82	2.05
31	1.74	1.60	-	1.35	-	1.19	1.69	-	1.62	-	1.78	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.6	1.74	2.51	3.88	77.7	239
August	1.96	1.52	1.60	2.48	49.6	152
September	2.0	1.47	1.58	2.44	47.4	145
October	1.69	1.35	1.42	2.20	44.1	135
November	4.3	1.31	1.65	2.55	49.4	152
December	6.0	1.04	2.29	3.54	71.0	218
Calendar year 1946	6.0	1.04	2.10	3.25	767	2,350
January	3.8	1.19	1.94	3.00	60.0	184
February	2.3	1.52	1.66	2.57	46.4	142
March	4.3	1.23	2.05	3.17	63.6	195
April	2.85	1.82	2.15	3.33	64.6	198
May	3.8	1.64	2.10	3.25	65.2	200
June	2.05	1.52	1.61	2.49	48.3	148
Fiscal year 1946-47	6.0	1.04	1.88	2.91	687	2,110

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 1947.

Average discharge.- 29 years (1918-47), 66.6 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; minimum discharge, 8.9 million gallons a day (13.8 second-feet) Nov. 12.
1910-12, 1917-47: 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 Nov. 29 to Dec. 30, which are good. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	35	57	40	91	59	130	64	31	135	76	37	55
2	35	29.5	57	106	133	120	103	31	136	84	64	51
3	29.5	59	33	49	76	140	137	28	120	100	113	46
4	26	52	29.5	52	66	130	111	28	69	68	136	41
5	27	41	29.5	39	134	120	92	26	48	83	141	39
6	57	39	28	33	136	130	83	26	86	141	130	37
7	92	37	27.5	44	102	120	75	24.5	118	141	87	37
8	68	35	26	66	98	110	133	24.5	106	137	76	33
9	120	33	24.5	35	108	90	118	23	57	97	53	31
10	138	31	23	33.5	68	76	83	23	44	76	92	29.5
11	141	29.5	21.5	35	69	65	103	20.5	37	83	131	33
12	115	28	21.5	41	67	54	134	20	33	140	138	37
13	120	71	23.5	37	62	50	136	21.5	45	129	131	41
14	86	89	51	29.5	53	90	113	21.5	138	83	83	39
15	98	37	94	28	48	140	83	20	114	64	62	31
16	140	31	36	24.5	44	130	68	18.7	68	55	53	29.5
17	140	29.5	33.5	24.5	51	140	62	18.7	53	48	46	28
18	140	29	83	28	46	140	55	18.7	44	44	41	28
19	117	50	75	36	37	130	48	18.7	37	41	39	26
20	129	39	39	42	35	110	46	17.4	35	37	42	28
21	115	28	35	28	33	130	41	17.4	33	35	72	24.5
22	79	26	29.5	62	37	100	39	17.4	31	33	134	24.5
23	62	29.5	32	82	35	100	37	17.4	35	31	94	29.5
24	55	29.5	28	49	31	120	39	16.2	82	31	103	28
25	26	26	26	31	29.5	120	37	35	106	29.5	122	28
26	63	40	24.5	71	28	110	37	132	66	29.5	140	44
27	134	33	51	47	26	100	42	126	100	31	140	104
28	140	44	63	50	44	90	43	89	138	29.5	141	117
29	122	34.5	60	81	130	86	46	-	141	26	111	94
30	90	42	62	121	140	78	50	-	137	26	76	129
31	68	29.5	-	68	-	72	37	-	104	-	62	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	141	26	90.6	140	2,810	8,620
August	89	26	39.0	60.3	1,210	3,710
September	94	21.5	40.2	62.2	1,210	3,700
October	121	24.5	50.5	78.1	1,560	4,800
November	140	26	67.5	104	2,030	6,220
December	140	50	107	166	3,320	10,190
Calendar year 1946	141	17.4	69.9	108	25,520	78,290
January	137	37	74.0	114	2,300	7,040
February	132	16.2	32.5	50.3	911	2,800
March	141	31	80.5	125	2,500	7,660
April	141	26	67.6	105	2,030	6,230
May	141	37	93.3	144	2,890	8,880
June	129	24.5	44.8	69.3	1,340	4,120
Fiscal year 1946-47	141	16.2	66.0	102	24,110	73,970

Note.- No gage-height record Nov. 29 to Dec. 30; discharge computed on basis of records for stations at Nahiku and 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 1947.

Average discharge.- 31 years (1916-47), 15.5 million gallons a day (24.0 second-feet).

Extremes.- Maximum discharge during year, 1,520 million gallons a day (2,350 second-feet) Dec. 17 (gage height, 7.66 feet), from rating curve extended above 300 million gallons a day; minimum, 0.38 million gallons a day (0.59 second-foot) Feb. 25.
1913-47: Maximum discharge, 1,770 million millons a day (2,740 second-feet) Aug. 12, 1940 (gage height, 8.37 feet), from rating curve extended above 300 million gallons a day; minimum, 0.08 million gallons a day (0.12 second-foot) Mar. 24, 1928.

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

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.6	0.32	1.2	3.95	2.3	70
.7	.53	1.4	7.9	2.6	104
.8	.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

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.99	2.9	2.75	8.3	6.6	28.5	3.6	1.30	60	3.85	5.4	2.7
2	1.61	2.55	3.75	12.3	35	15.0	72	1.20	21	6.9	7.1	2.55
3	1.25	2.65	1.87	3.4	5.3	181	35	1.10	5.5	4.5	97	2.25
4	1.06	3.15	1.61	3.2	15.2	43	8.0	1.06	2.55	2.9	143	2.1
5	1.74	2.25	1.48	2.65	243	10.1	4.9	.96	1.87	9.3	26.5	1.87
6	4.4	2.0	1.35	2.1	44	43	4.2	.86	14.5	67	24.5	1.80
7	11.4	1.80	2.9	3.45	5.9	6.8	3.9	.83	11.2	45	5.8	1.68
8	5.7	1.68	2.3	5.4	7.5	5.1	41	.83	7.1	16.5	4.7	1.54
9	23	3.45	1.67	2.1	8.2	3.4	12.9	.79	2.7	5.0	7.1	1.42
10	80	3.2	1.35	1.74	3.7	2.8	5.6	1.10	2.25	4.8	13.7	1.35
11	46	2.3	1.15	1.54	13.8	2.55	19.5	.83	1.80	9.8	69	1.56
12	11.7	1.80	1.06	1.48	9.2	2.3	73	.73	1.54	51	79	1.82
13	12.3	14.1	1.16	1.30	4.2	2.25	25.5	.91	7.5	18.7	22	2.45
14	5.3	17.1	3.2	1.20	3.5	14.9	9.4	.88	103	5.3	4.5	1.94
15	49	2.85	14.4	1.50	5.0	67	4.1	.66	10.1	3.6	3.25	1.42
16	56	2.5	2.4	1.48	2.9	113	3.4	.60	3.8	3.05	2.7	1.35
17	76	2.5	2.35	1.15	4.2	270	2.8	.53	2.65	2.65	2.4	1.25
18	18.7	2.2	12.0	1.54	3.05	216	2.55	.53	2.15	2.4	2.25	1.30
19	8.9	3.4	9.6	2.65	2.3	124	2.4	.51	1.87	2.25	2.1	1.10
20	30	2.0	2.8	2.85	2.1	506	2.25	.49	1.74	2.0	5.7	1.32
21	11.0	1.54	2.25	1.68	1.94	489	2.1	.47	1.68	1.94	14.2	1.10
22	4.8	1.42	1.87	6.5	2.7	128	2.0	.45	1.74	1.80	63	1.18
23	3.15	1.86	3.0	5.2	2.6	49	1.87	.45	2.6	1.74	9.2	2.7
24	2.7	2.0	3.55	2.95	2.4	19.2	1.87	.42	36.5	2.3	27	1.74
25	2.5	1.74	2.7	1.80	1.87	30	1.80	2.3	26.5	1.80	17.0	1.35
26	19.7	5.1	1.68	4.8	1.68	14.3	1.80	18.2	7.1	1.61	57	2.65
27	257	2.5	9.1	2.55	1.54	6.1	1.74	32.5	10.8	1.90	23	24.5
28	45	4.0	7.5	2.55	42	4.3	1.80	31.5	160	1.68	30	23.5
29	7.8	2.9	6.9	4.5	76	3.6	2.15	-	199	1.42	8.2	6.8
30	4.6	3.1	4.8	14.1	89	5.2	1.61	-	24.5	1.50	4.1	37
31	3.5	2.4	-	5.1	-	13.5	1.42	-	7.2	-	3.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	257	1.06	26.1	40.4	808	2,480
August	17.1	1.42	3.39	5.25	105	322
September	14.4	1.06	3.82	5.91	114	351
October	14.1	1.15	3.65	5.65	113	347
November	243	1.54	21.5	33.3	646	1,980
December	506	2.25	78.0	121	2,420	7,420
Calendar year 1946	506	.42	20.9	32.3	7,610	23,360
January	73	1.42	11.5	17.8	356	1,090
February	32.5	.42	3.68	5.69	103	316
March	199	1.54	23.9	37.0	742	2,280
April	67	1.42	9.47	14.7	284	872
May	143	2.1	25.3	39.1	785	2,410
June	37	1.10	4.58	7.09	137	421
Fiscal year 1946-47	506	.42	18.1	28.0	6,610	20,290

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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 1947.

Average discharge.- 31 years (1916-47), 10.2 million gallons a day (15.8 second-feet).

Extremes.- Maximum discharge during year, 2,100 million gallons a day (3,250 second-feet) Dec. 17 (gage height, 5.70 feet, from floodmarks), from rating curve extended above 150 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Feb. 11, 12, 16-25.

1913-47: 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.0	2.6	1.7	6.8	5.2	22	4.0	1.2	35	2.9	2.0	2.0
2	1.6	2.2	2.8	11.0	28.5	11.3	41	.4	16.8	7.1	3.9	1.8
3	1.2	2.2	1.2	3.3	4.8	174	19.6	.3	5.6	4.6	49	1.4
4	.9	2.3	1.0	3.1	7.1	30	7.7	.3	1.9	2.4	80	1.4
5	1.3	1.6	1.1	2.2	261	8.6	5.6	.3	1.3	5.0	12.6	1.1
6	3.8	1.4	.9	1.6	35.5	52	5.4	.3	7.9	30	13.5	1.0
7	12.2	1.3	1.5	2.7	6.0	6.6	4.4	.3	8.2	21.5	3.9	.9
8	4.6	1.2	1.1	4.4	5.8	4.5	21	.3	8.3	11.2	3.1	.8
9	17.5	1.3	.9	1.5	6.9	2.8	10.1	.3	2.8	4.1	3.0	.6
10	72	1.6	.7	1.2	3.1	2.3	6.1	.3	1.8	4.7	7.6	.5
11	40	1.2	.6	1.1	6.3	1.8	13.3	.2	1.2	7.3	25.5	.7
12	10.2	1.0	.6	1.1	5.7	1.5	58	.2	.9	25.5	34	1.0
13	12.3	6.9	.7	.9	3.2	1.2	18.7	.3	4.4	9.2	10.8	1.2
14	5.6	11.7	1.5	.8	2.2	10.0	9.8	.6	59	3.6	3.4	.8
15	49	2.0	10.9	.8	3.0	66	5.6	.3	7.4	2.5	2.4	.5
16	60	1.4	1.6	.9	1.8	a120	4.5	.2	2.8	2.0	1.8	.4
17	72	1.4	1.6	.7	1.7	a280	3.8	.2	1.8	1.6	1.5	.4
18	15.2	1.4	8.2	1.0	1.8	a200	3.4	.2	1.4	1.4	1.4	.5
19	8.4	4.6	7.0	1.6	1.2	a130	3.0	.2	1.0	1.3	1.3	.4
20	23.5	2.0	2.4	2.2	1.0	a540	2.8	.2	.9	1.1	1.4	.5
21	11.2	1.2	1.6	1.1	.8	a520	2.6	.2	.8	1.0	7.0	.4
22	5.7	1.1	1.3	4.6	1.5	a100	2.4	.2	.8	.8	32	.3
23	3.4	1.4	1.7	5.7	1.6	a40	2.2	.2	.8	.8	4.7	.7
24	2.8	1.4	1.8	2.9	1.4	13.4	2.4	.2	17.6	.8	11.1	.7
25	2.1	1.1	1.4	1.2	.8	16.4	2.2	1.4	14.1	.7	9.2	.5
26	21	3.1	1.0	4.2	.7	11.0	2.0	13.0	3.5	.6	30.5	1.4
27	285	1.8	5.5	2.4	.7	6.6	2.3	17.8	5.8	.8	12.2	11.2
28	33	3.0	6.6	2.1	32	5.2	2.3	11.1	101	.7	15.6	14.2
29	7.6	1.9	5.6	4.0	77	4.5	2.5	-	103	.4	5.9	4.7
30	4.6	2.1	3.6	13.6	84	4.7	1.8	-	11.9	.6	3.1	18.0
31	3.4	1.4	-	5.3	-	10.4	1.6	-	5.3	-	2.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	285	0.9	25.6	39.6	793	2,430
August	11.7	1.0	2.28	3.53	70.8	217
September	10.9	.6	2.60	4.02	78.1	240
October	13.6	.7	3.10	4.80	96.0	295
November	261	.7	19.7	30.5	592	1,820
December	540	1.2	77.3	120	2,400	7,360
Calendar year 1946	540	.2	19.8	30.6	7,230	22,170
January	58	1.6	8.78	13.6	272	835
February	17.8	.2	1.81	2.80	50.7	156
March	103	.8	14.0	21.7	435	1,330
April	30	.4	5.21	8.06	156	479
May	80	1.3	12.8	19.8	396	1,210
June	18.0	.3	2.33	3.61	70.0	215
Fiscal year 1946-47	540	.2	14.8	22.9	5,410	16,590

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

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 1947.

Extremes.- Maximum discharge during year, 21.5 million gallons a day (33.3 second-feet) Mar. 28 (gage height, 2.23 feet); minimum, 0.19 million gallons a day (0.29 second-foot) Jan. 30 to Feb. 1.

1938-47: 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 Oct. 24 to Nov. 13, Nov. 19 to Dec. 2, 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.02	1.02	1.07	1.58	1.4	3.0	0.28	0.54	5.3	1.70	1.64	1.52
2	.96	.90	1.19	1.98	3.0	2.5	1.36	1.07	3.35	2.1	1.90	1.47
3	.90	.85	.96	1.25	1.4	6.1	.90	1.02	2.2	1.90	5.6	1.42
4	.85	.96	.90	1.19	1.4	3.0	.49	1.02	1.70	1.58	6.1	1.42
5	.96	.85	.85	1.07	7.0	1.98	.32	1.02	1.58	1.98	3.1	1.36
6	1.25	.80	.85	1.02	3.8	3.6	.32	.96	2.45	5.2	3.15	1.31
7	1.76	.75	1.02	1.13	1.5	1.83	.28	.90	2.6	4.3	1.98	1.31
8	1.42	.75	.96	1.36	1.6	1.64	1.05	.90	2.45	2.8	1.76	1.25
9	2.3	.75	.90	1.02	1.7	1.42	.54	.90	1.90	1.98	1.76	1.19
10	3.75	.85	.85	.90	1.4	1.36	.32	1.13	1.70	1.98	2.4	1.19
11	3.2	.75	.85	.90	1.6	1.31	.72	.85	1.58	2.25	4.9	1.25
12	1.90	.70	.80	.90	1.6	1.25	1.92	.80	1.52	4.6	5.7	1.31
13	1.98	1.52	.85	.85	1.4	1.19	.90	.90	1.75	2.65	3.0	1.36
14	1.52	1.88	1.07	.85	1.36	1.83	.59	1.07	7.3	1.90	1.90	1.31
15	2.75	.96	1.92	.80	1.42	4.1	.32	.80	2.5	1.70	1.64	1.13
16	3.3	.85	1.07	.85	1.25	4.1	.25	.70	1.90	1.58	1.58	1.13
17	3.7	.80	1.02	.75	1.25	6.5	.25	.70	1.70	1.52	1.47	1.07
18	2.2	.86	1.70	.80	1.25	2.6	.23	.64	1.58	1.47	1.42	1.13
19	1.76	1.13	1.64	.90	1.2	1.99	.23	.64	1.52	1.42	1.42	1.02
20	2.5	.85	1.13	1.02	1.1	3.9	.23	.59	1.52	1.42	1.47	1.13
21	1.98	.75	1.07	.85	1.0	5.2	.23	.59	1.47	1.36	2.4	1.02
22	1.52	.75	.96	1.42	1.2	1.73	.23	.59	1.52	1.31	4.9	1.02
23	1.31	.80	1.02	1.47	1.3	1.13	.21	.54	1.58	1.31	1.90	1.31
24	1.19	.85	1.07	1.3	1.2	.70	.21	.54	3.65	1.31	2.6	1.13
25	1.13	.75	1.02	1.1	1.1	.85	.21	.88	3.6	1.25	2.4	1.13
26	1.92	1.13	.90	1.3	1.0	.59	.21	3.05	2.1	1.25	4.5	1.36
27	7.2	.90	1.36	1.3	1.0	.43	.21	3.6	2.4	1.31	2.7	2.8
28	2.95	1.02	1.58	1.3	2.5	.36	.23	3.25	8.9	1.25	2.95	3.2
29	1.58	1.02	1.47	1.4	4.5	.32	.23	-	8.6	1.13	2.15	1.98
30	1.31	1.07	1.31	2.4	5.4	.36	.19	-	3.05	1.19	1.76	3.6
31	1.07	1.02	-	1.4	-	.59	.19	-	2.1	-	1.64	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.2	0.85	2.04	3.16	63.1	194
August	1.88	.70	.930	1.44	28.8	89
September	1.92	.80	1.11	1.72	33.4	102
October	2.4	.75	1.17	1.81	36.4	112
November	7.0	1.0	1.93	2.99	57.8	177
December	6.5	.32	2.18	3.37	67.5	207
Calendar year 1946	7.8	.32	1.64	2.54	598	1,840
January	1.92	.19	.447	.692	13.8	43
February	3.6	.54	1.08	1.67	30.2	93
March	8.9	1.47	2.81	4.35	87.1	267
April	5.2	1.13	1.96	3.03	58.7	180
May	8.1	1.42	2.77	4.29	85.8	263
June	3.6	1.02	1.46	2.26	43.8	135
Fiscal year 1946-47	8.9	.19	1.66	2.57	606	1,860

Note.- No gage-height record Oct. 24 to Nov. 13, Nov. 19 to Dec. 2; discharge computed on basis of records for Haipuaena Stream.

Spreckels ditch at Haipuaena wier, 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 1947. February 1930 to October 1935 at site 100 feet upstream.

Average discharge.- 24 years (1922-29, 1930-47), 13.9 million gallons a day (21.5 second-feet).

Extremes.- Maximum discharge during year, 94 million gallons a day (145 second-feet) July 27 (gage height, 2.25 feet); minimum, 0.06 million gallons a day (0.09 second-foot) Dec. 26-28.

1922-47: 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 Nuaailua 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.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.3	6.9	6.0	15.1	11.1	25.5	6.5	1.04	32.5	5.4	7.2	6.5
2	4.4	5.8	8.9	19.1	26.5	17.7	32	.23	17.6	10.7	11.8	6.2
3	2.85	6.0	3.1	9.0	11.0	60	19.7	.16	9.3	7.5	32.5	4.8
4	1.25	6.7	2.0	9.0	11.9	24.5	9.5	.16	6.0	4.5	45	4.3
5	3.45	3.6	2.2	5.8	77	11.4	10.0	.16	3.6	6.6	20	2.85
6	9.6	2.8	1.47	3.6	30.5	37.5	9.0	.16	14.5	35	21	2.25
7	14.9	2.35	3.35	5.3	12.1	8.8	7.5	.16	16.1	27	10.5	2.0
8	10.2	1.79	2.5	10.4	13.0	6.9	28	.16	17.2	14.5	9.5	1.11
9	20	3.9	1.47	3.35	14.8	5.2	14.5	.16	7.4	7.4	8.3	.76
10	44	4.7	.90	2.15	9.5	4.5	10.8	.15	5.4	8.1	14.4	.47
11	31	2.6	.69	1.58	13.0	3.9	21	.14	3.45	11.1	33	.94
12	12.7	1.25	.62	1.25	13.9	3.45	49	.14	2.15	33.5	40	2.45
13	14.5	15.4	.68	1.04	10.2	3.1	18.7	.81	7.5	12.2	19.7	3.95
14	9.0	19.4	6.7	.83	7.6	10.2	12.4	1.02	44	6.8	10.4	2.5
15	26	5.3	19.4	.93	9.8	38.5	9.8	.15	7.8	4.8	7.3	.72
16	36	3.55	4.4	1.09	6.2	29.5	8.5	.14	3.3	3.9	5.4	.43
17	31	3.0	5.2	.69	6.1	52	6.2	.14	3.95	3.45	4.5	.35
18	21	2.9	16.3	1.04	5.5	.23	5.2	.14	3.9	2.8	3.9	.43
19	18.4	9.3	14.8	3.75	3.1	.34	4.3	.14	2.8	2.25	3.6	.23
20	30	5.4	6.4	5.4	2.15	.48	3.75	.14	1.91	1.80	3.95	.64
21	21	1.80	3.75	1.50	1.47	1.56	3.3	.14	1.25	1.25	15.0	.27
22	13.1	1.36	2.5	9.7	4.8	.20	2.25	.14	1.52	.97	38.5	.16
23	9.2	3.9	4.5	12.5	6.0	.10	1.91	.12	2.05	.76	11.5	2.05
24	7.8	3.65	6.0	7.2	3.8	.16	2.9	.12	23.5	1.28	18.4	.88
25	5.8	1.92	4.1	2.15	1.58	.15	1.91	2.9	22	.70	16.6	.69
26	20.5	8.8	1.18	9.5	1.04	.06	1.90	16.7	8.2	.43	39.5	4.9
27	75	5.2	10.8	6.6	.90	.06	2.9	21	9.9	1.05	17.8	18.4
28	24.5	9.6	14.6	5.8	11.1	2.4	2.3	15.0	48	.62	22.5	22.5
29	7.6	6.0	13.2	9.7	39	4.3	2.85	-	44	.31	11.4	12.1
30	4.8	7.1	10.8	18.8	55	5.7	1.69	-	11.7	.47	8.5	27
31	6.3	3.75	-	11.1	-	14.8	1.36	-	6.5	-	7.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	75	1.25	17.5	27.1	541	1,660
August	19.4	1.25	5.35	8.28	166	509
September	19.4	.62	5.95	9.21	179	548
October	19.1	.83	6.29	9.73	195	598
November	77	.90	14.0	21.7	420	1,290
December	60	.06	12.0	18.6	373	1,150
Calendar year 1946	77	.06	11.6	17.9	4,230	13,000
January	49	1.36	10.0	15.5	311	954
February	21	.12	2.20	3.40	61.6	189
March	48	1.25	12.5	19.3	389	1,190
April	35	.31	7.24	11.2	217	666
May	45	3.6	16.7	25.8	519	1,590
June	27	.16	4.43	6.85	133	408
Fiscal year 1946-47	77	.06	9.60	14.9	3,500	10,250

Koolau ditch at Haipuaena, near Huelo

Location.- Parshall flume, lat. 20°51'15", long. 156°11'15", 1,000 feet upstream from intake at Puohokamoa Stream, 3½ miles southeast of Kailua, and 4.7 miles southeast of Huelo.

Records available.- April 1932 to June 1947.

Average discharge.- 15 years, 79.1 million gallons a day (122 second-feet).

Extremes.- Maximum daily discharge during year, 190 million gallons a day (294 second-feet) July 27, Nov. 5, 30, Dec. 3, 15, 17, 18, Jan. 12; minimum discharge, 2.8 million gallons a day (4.3 second-feet) Nov. 12.
1932-47: 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 ot ditch.

Remarks.- Records excellent except those for periods of doubtful or nc gage-height record, which are fair. 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 1946to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	39	63	45	97	63	169	72	35.5	170	90	46	59
2	39	55	61	121	156	147	138	35.5	160	100	72	55
3	34	61	37	52	83	190	176	34	140	120	142	50
4	29.5	59	34	55	73	176	125	32.5	90	90	183	46
5	32.5	48	34	44	190	145	99	f31	60	100	169	42
6	65	44	34	39	169	180	89	29.5	100	170	149	42
7	121	42	32.5	49	113	162	85	28	130	170	94	41
8	77	39	31	74	107	143	162	28	120	160	80	37
9	144	39	29.5	41	116	103	131	26.5	70	120	59	35.5
10	183	35.5	26.5	39	72	85	89	26.5	50	90	110	34
11	183	34	25	39	86	72	132	25	45	100	168	35.5
12	133	32.5	25	44	81	59	190	22	41	160	183	42
13	153	83	26.5	41	52	55	169	25	50	150	147	46
14	99	107	54	32.5	59	102	119	25	150	100	85	44
15	120	42	d120	31	52	190	89	22	140	74	67	34
16	183	35.5	39	29.5	48	162	76	22	88	60	55	32.5
17	176	34	37	28	58	190	67	22	58	54	52	31
18	162	35.5	96	32.5	48	190	59	20.5	45	50	46	32.5
19	128	58	85	41	41	183	55	20.5	42	45	44	29.5
20	156	43	44	46	39	140	52	20.5	40	43	46	32.5
21	130	32.5	39	35	37	183	48	19.4	39	40	90	28
22	85	31	35.5	64	41	125	46	19.4	37	38	168	26.5
23	67	34	37	96	41	124	44	18.1	41	36	104	34
24	59	34	32.5	65	35.5	143	46	16.8	113	35	126	31
25	52	31	31	37	32.5	143	f44	45	130	33	142	32.5
26	80	46	29.5	76	31	137	42	170	100	33	172	49
27	190	37	68	54	31	119	f48	150	120	36	155	128
28	176	50	73	56	63	103	50	130	170	34	176	141
29	143	41	67	100	183	99	52		160	32	126	99
30	103	46	63	137	190	85	67	-	150	31	85	158
31	76	35.5	-	76	-	85	45	-	120	-	67	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	190	29.5	110	170	3,420	10,490
August	107	31	45.4	70.2	1,410	4,320
September	120	25	46.4	71.8	1,390	4,270
October	137	28	57.1	88.3	1,770	5,440
November	190	31	79.7	123	2,390	7,340
December	190	55	135	209	4,190	12,860
Calendar year 1946	193	2.9	81.9	127	29,880	91,690
January	190	42	87.3	135	2,710	8,300
February	170	16.8	39.3	60.8	1,100	3,380
March	170	37	95.8	148	2,970	9,110
April	170	31	79.8	123	2,390	7,350
May	183	44	110	170	3,410	10,460
June	158	26.5	50.9	78.8	1,530	4,690
Fiscal year 1946-47	190	16.8	78.6	122	28,680	88,010

d Doubtful gage-height record; discharge computed on basis of records for nearby ditches.
f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Oct. 21-29, Jan. 29 to Feb. 4, Feb. 25 to Mar. 20, Mar. 25 to Apr. 29; discharge computed on basis of records for nearby ditches.

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 1947.
Average discharge.- 30 years (1917-47), 21.3 million gallons a day (33.0 second-feet).
Extremes.- Maximum discharge during year, 1,390 million gallons a day (2,150 second-feet) Dec. 17 (gage height, 7.30 feet), from rating curve extended above 400 million gallons a day; minimum, 1.0 million gallons a day (1.6 second-feet) Feb. 24, 25.
1910-47: 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.6	0.6	1.2	15.8	2.4	147
.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

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.6	7.2	4.3	14.8	10.7	41	10	2.5	80	10.7	6.1	6.7
2	3.5	6.4	6.8	22	37.5	21.5	110	2.4	42	20.5	12.3	6.1
3	2.8	6.5	3.5	8.0	10.7	173	40	2.2	13.7	14.0	108	5.0
4	2.1	6.4	2.8	7.6	17.4	45	16	2.1	6.4	8.2	176	4.8
5	2.8	4.8	3.0	5.8	258	18.9	12	2.1	4.6	12.8	31	4.1
6	7.8	4.6	2.7	4.8	49	78	12	2.0	19.6	69	36	3.9
7	20.5	4.1	3.4	6.3	14.5	17.2	10	1.8	19.6	56	13.6	3.7
8	8.7	3.9	3.3	10.1	15.1	12.7	35	2.0	21.5	27.5	11.4	3.2
9	26	3.7	2.4	4.6	16.6	9.2	20	1.8	7.5	13.2	8.3	2.8
10	69	3.9	2.2	3.9	9.2	7.8	12	2.4	7.0	14.4	19.7	2.7
11	53	3.5	2.0	3.7	15.0	6.7	25	1.8	4.6	20.5	64	3.0
12	17.8	2.8	1.8	3.5	12.3	5.8	90	1.5	3.9	69	89	4.1
13	22.5	15.0	1.8	2.8	8.6	5.3	35	1.7	13.1	21.5	29.5	4.6
14	11.9	24.5	3.5	2.7	6.4	22	16	2.2	146	11.8	12.3	3.5
15	61	5.8	21	2.7	8.2	98	13	1.4	19.5	8.9	9.2	2.5
16	80	4.6	4.6	2.7	5.8	125	10	1.3	10.0	7.2	7.2	2.4
17	84	4.3	4.2	2.4	5.6	270	8.0	1.3	7.0	6.1	6.1	2.4
18	27.5	3.9	18.1	3.0	5.3	196	7.0	1.2	5.6	5.3	5.6	2.5
19	18.0	11.7	16.8	4.3	4.3	129	6.0	1.2	4.8	4.8	5.0	2.1
20	30	5.3	6.6	5.3	3.9	353	6.2	1.2	4.3	4.3	4.6	2.5
21	21	3.2	4.8	3.2	3.7	522	5.0	1.2	4.1	3.9	18.2	2.1
22	12.6	2.8	3.9	10.3	5.0	118	4.5	1.2	4.1	3.0	87	1.8
23	8.5	3.5	4.0	12.3	5.3	46	4.4	1.1	4.1	2.8	14.0	2.9
24	7.2	3.7	4.3	7.5	4.6	30	4.3	1.1	41	2.8	29	2.8
25	5.8	2.8	3.5	3.9	3.2	41	4.0	3.7	39.5	2.7	24.5	2.4
26	31.5	7.7	2.7	8.8	3.0	27	4.0	30	10.8	2.5	79	4.8
27	300	5.0	10.2	5.8	2.8	16	4.0	39.5	14.5	2.8	29.5	26
28	56	7.6	13.8	5.3	26.5	11	4.5	23.5	201	2.5	36	33.5
29	17.4	5.6	12.8	8.2	90	9.5	4.3	-	282	2.2	16.4	13.3
30	11.8	5.3	8.2	19.8	105	12	3.3	-	28.5	2.7	10.3	39.5
31	9.2	3.9	-	10.4	-	21	2.8	-	15.6	-	7.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	300	2.1	33.4	51.7	1,030	3,170
August	24.5	2.8	5.94	9.19	184	565
September	21	1.8	6.10	9.44	183	562
October	22	2.4	6.98	10.8	216	664
November	258	2.8	25.4	39.3	763	2,340
December	522	5.3	80.3	124	2,490	7,640
Calendar year 1946	522	1.1	25.1	38.8	9,160	28,140
January	110	2.8	17.4	26.9	538	1,650
February	39.5	1.1	4.91	7.60	137	422
March	282	3.9	35.0	54.2	1,090	3,330
April	69	2.2	14.5	22.4	434	1,330
May	176	4.6	32.5	50.3	1,010	3,090
June	39.5	1.8	6.72	10.4	202	619
Fiscal year 1946-47	522	1.1	22.7	35.1	8,280	25,380

Note.- No gage-height record Dec. 24 to Jan. 31; discharge computed on basis of records for Kailua Stream.

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 Streams, 3 miles southeast of Kailua, and 4.4 miles southeast of Huelo.

Records available.- December 1917 to June 1947.

Average discharge.- 28 years (1918-24, 1935-47), 5.81 million gallons a day (8.99 second-feet).

Extremes.- Maximum discharge during year, 69 million gallons a day (107 second-feet) Mar. 28 (gage height, 3.12 feet); minimum, 0.20 million gallons a day (0.31 second-foot) Feb. 25. 1917-47: 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 except those for July 28 to Aug. 6, Sept. 5-13, which are poor. 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.94	2.2	0.84	3.25	2.05	9.9	0.74	0.51	24	2.35	2.5	1.46
2	.79	1.8	1.55	4.2	6.7	3.4	23	.45	16.4	13.5	3.55	1.38
3	.68	1.7	.68	1.70	2.1	44	11.7	.45	5.8	9.0	29.5	1.08
4	.56	2.0	.56	2.1	4.0	13.9	3.2	.39	3.1	2.25	52	1.08
5	.51	1.3	.60	1.38	65	3.75	3.6	.39	1.80	11.2	6.1	.85
6	.79	1.2	.64	1.00	16.5	33.5	3.2	.39	5.7	52	10.0	.79
7	3.15	1.00	.40	1.57	3.1	4.7	2.3	.34	5.4	50	1.38	.74
8	1.00	.85	.30	2.5	3.15	3.1	9.8	.28	7.7	27	1.15	.62
9	1.81	.93	.29	1.00	3.55	2.25	4.2	.28	2.9	5.9	.85	.56
10	25	.85	.29	.79	1.99	1.89	3.1	.28	2.1	8.4	3.65	.51
11	17.4	.74	.25	.74	5.6	1.53	14.3	.28	1.38	19.7	23	.61
12	1.98	.68	.23	.62	6.8	1.38	52	.28	1.08	55	33	1.20
13	3.05	1.90	.22	.51	11.4	1.23	16.4	.44	7.0	22	9.3	1.15
14	1.75	3.4	.99	.39	1.53	9.9	5.8	1.19	47	4.4	2.55	.56
15	14.4	.79	4.7	.39	1.89	35	4.2	.28	4.9	2.65	1.61	.39
16	23	.68	.74	.45	1.31	21	2.9	.25	2.55	1.89	1.23	.39
17	24.5	.68	.74	.28	1.38	58	1.89	.22	2.25	1.53	1.00	.39
18	6.8	.68	1.87	.45	1.15	68	1.46	.22	1.80	1.31	.85	.39
19	4.7	2.5	1.96	.79	.85	50	1.23	.22	1.31	1.15	.93	.28
20	12.7	1.22	1.52	1.27	.74	68	1.08	.22	1.23	1.00	.85	.39
21	7.1	.68	.93	.56	.56	68	.85	.22	1.15	.85	4.1	.28
22	3.9	.56	.85	1.81	1.03	51	.79	.22	1.08	.74	35.5	.25
23	2.55	.68	1.02	4.1	1.24	36.5	.74	.22	1.14	.62	2.1	.60
24	1.99	.79	1.33	2.1	.79	29	.85	.22	12.4	.62	9.5	.39
25	1.61	.56	.97	.79	.56	32.5	.85	4.4	12.0	.51	4.3	.45
26	11.2	1.10	.51	2.85	.45	20	.74	11.9	2.9	.45	28.5	1.85
27	60	.79	3.15	1.76	.34	8.5	1.20	11.6	3.65	.45	7.5	6.4
28	35	1.37	3.3	1.42	4.6	5.3	1.08	6.4	47	.39	16.4	8.0
29	10	.93	3.1	2.35	26	1.80	1.15	-	47	.34	3.2	4.3
30	4.4	1.38	1.80	4.4	41	1.31	1.08	-	20	.34	2.15	12.2
31	2.8	.74	-	2.25	-	.85	.79	-	8.9	-	1.80	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	60	0.51	9.23	14.3	286	878
August	3.4	.56	1.18	1.83	36.7	113
September	4.7	.22	1.21	1.87	36.3	111
October	4.4	.28	1.61	2.49	49.8	153
November	65	.34	7.25	11.2	217	667
December	68	.85	22.2	34.3	689	2,120
Calendar year 1946	68	.17	6.49	10.0	2,370	7,280
January	52	.74	5.68	8.79	176	541
February	11.9	.22	1.52	2.35	42.5	131
March	47	1.08	9.76	15.1	303	929
April	55	.34	9.92	15.3	298	913
May	52	.85	9.68	15.0	300	921
June	12.2	.25	1.65	2.55	49.5	152
Fiscal year 1946-47	68	.22	6.81	10.5	2,480	7,630

Note.- No gage-height record July 28 to Aug. 6, Sept. 5-13; discharge computed on basis of records for nearby ditches.

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 1947.

Average discharge.- 25 years, 16.2 million gallons a day (25.1 second-feet).

Extremes.- Maximum discharge during year, 3,520 million gallons a day (5,450 second-feet) Dec. 17 (gage height, 8.63 feet), from rating curve extended above 370 million gallons a day by logarithmic plotting; minimum, 0.31 million gallons a day (0.48 second-foot) Feb. 23.

1922-47: Maximum discharge, 4,660 million gallons a day (7,210 second-feet) Oct. 16, 1924 (gage height, 10.45 feet), from rating curve extended above 370 million gallons a day; 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.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.6	0.24	1.3	2.9	3.0	102
.7	.42	1.5	6.1	3.5	177
.8	.62	1.7	11.2	4.0	277
.9	.88	2.0	23	4.5	410
1.0	1.18	2.3	39	5.0	590
1.1	1.52	2.6	61	5.9	1,000

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.3	4.3	2.65	8.6	7.6	26	5.9	1.18	61	6.1	3.6	4.5
2	2.35	3.9	3.6	12.4	30	14.5	73	1.03	19.3	9.8	7.0	4.3
3	1.80	3.95	1.96	4.5	6.4	180	34	.91	9.8	7.5	80	3.6
4	1.57	4.2	1.49	4.2	7.0	40	9.8	.83	3.95	4.5	158	3.6
5	1.76	2.9	1.42	3.45	248	11.4	6.1	.78	2.8	7.0	23	2.9
6	4.0	2.55	1.25	2.65	47	39	6.8	.70	13.1	55	28	2.9
7	12.5	2.3	.98	3.0	8.9	10.3	4.8	.62	14.9	46	7.2	2.65
8	5.4	2.05	1.58	5.8	8.7	8.7	35	.67	10.2	21	6.1	2.3
9	19.3	2.55	1.12	2.65	9.9	5.7	13.6	.60	4.7	7.8	6.5	2.05
10	65	2.8	.91	2.05	5.6	4.8	7.9	1.41	5.2	7.4	17.6	1.28
11	42	2.55	.72	1.94	7.7	4.2	13.6	.86	3.2	10.1	69	1.37
12	12.4	1.99	.62	1.89	6.3	3.45	70	.58	2.55	56	75	2.0
13	14.2	9.1	.60	1.63	4.8	3.05	28	.53	7.7	19.2	26.5	2.4
14	7.0	17.0	1.12	1.52	3.9	8.5	13.8	.70	101	8.2	7.2	2.85
15	47	3.6	10.5	1.45	5.2	54	9.6	.48	11.8	5.0	5.0	1.82
16	68	2.6	3.1	1.63	3.8	139	5.0	.40	5.2	4.0	4.0	1.06
17	75	3.0	2.05	1.32	3.2	331	3.9	.39	3.6	3.45	3.45	1.00
18	21.5	2.2	7.8	1.33	3.05	193	3.3	.53	2.9	2.9	2.9	1.06
19	12.3	4.8	9.6	2.05	2.5	121	2.9	.38	2.55	2.55	2.9	.86
20	27.5	3.1	3.4	2.85	2.3	670	2.55	.52	2.3	2.3	3.3	.93
21	30	1.95	1.88	2.0	2.15	983	2.0	.35	2.2	2.2	10.9	.83
22	11.8	1.64	1.63	3.95	3.0	153	2.35	.43	2.4	2.3	63	.67
23	5.7	1.84	1.42	6.2	3.2	48	2.2	.33	2.5	2.25	9.4	.94
24	4.7	2.1	1.94	3.85	2.9	19.1	2.35	.65	24	2.4	19.3	1.50
25	3.9	1.80	1.89	1.66	1.96	25.5	2.3	1.57	31	2.2	17.4	1.03
26	11.9	4.3	1.36	3.65	1.62	17.0	2.2	17.5	5.9	1.80	42	1.84
27	238	3.3	3.55	2.85	1.04	7.7	2.25	36	8.2	2.2	18.2	19.5
28	52	3.45	6.8	2.05	14.9	6.1	2.15	21	138	2.0	25.5	24.5
29	10.4	3.0	7.7	3.25	91	5.0	2.7	-	190	1.15	11.1	8.4
30	6.8	3.2	5.0	13.7	69	6.5	2.25	-	23.5	1.28	6.3	35.5
31	5.2	2.55	-	6.9	-	19.5	1.44	-	11.0	-	5.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	238	1.57	26.6	41.2	824	2,530
August	17.0	1.64	3.57	5.52	111	339
September	10.5	.60	2.99	4.63	89.6	275
October	13.7	1.32	3.77	5.83	117	359
November	248	1.04	20.4	31.6	613	1,880
December	983	3.05	102	158	3,160	9,690
Calendar year 1946	983	.24	23.0	35.6	8,400	25,760
January	73	1.44	12.1	18.7	374	1,150
February	36	.33	3.28	5.07	91.9	282
March	190	2.2	23.4	36.2	726	2,230
April	56	1.15	10.2	15.8	306	938
May	158	2.9	24.7	38.2	765	2,350
June	35.5	.67	4.67	7.23	140	430
Fiscal year 1946-47	983	.33	20.0	30.9	7,320	22,450

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 mile.

Records available.- December 1910 to June 1947.

Average discharge.- 36 years (1911-47), 4.91 million gallons a day (7.60 second-feet).

Extremes.- Maximum discharge during year, 466 million gallons a day (721 second-feet) Mar. 28 (gage height, 4.07 feet), from rating curve extended above 50 million gallons a day; minimum, 0.32 million gallons a day (0.50 second-foot) Feb. 25.
1910-47: 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, 1932.

Remarks.- Records good except those for Jan. 4-23, which are fair. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.17	1.0	3.3	1.6	24
.5	.39	1.1	4.6	1.9	46
.6	.70	1.2	6.6	2.2	76
.7	1.07	1.3	9.7	2.5	115
.8	1.58	1.4	13.5	2.8	160
.9	2.3	1.5	18.5		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.65	1.87	1.64	4.1	1.72	6.9	1.27	0.74	20	2.15	1.34	1.65
2	1.65	1.72	2.3	4.7	2.45	4.8	21	.70	15.4	12.1	4.3	1.65
3	1.53	2.3	1.03	2.15	1.48	19.6	5.5	.67	3.95	5.0	20.5	1.27
4	1.03	1.93	.96	2.75	4.1	7.1	2.5	.64	1.94	2.15	28.5	1.36
5	1.03	1.22	1.07	1.58	43	5.0	2.3	.61	1.43	2.15	5.8	1.03
6	2.85	1.12	1.03	1.27	5.3	31	2.1	.58	6.1	12.2	5.7	1.03
7	7.3	1.07	.85	2.4	2.6	3.8	2.0	.54	5.0	9.5	2.5	1.00
8	2.55	.96	.77	2.1	2.85	2.6	6.6	.54	9.0	5.4	2.1	.88
9	5.0	.92	.74	1.12	2.95	2.0	3.0	.54	2.4	3.0	1.48	.81
10	11.2	.85	.70	1.03	1.65	1.80	2.2	.51	2.0	5.5	6.8	.74
11	9.1	.77	.67	1.03	4.1	1.43	7.8	.48	1.38	10.2	5.8	.97
12	4.3	.74	.64	.96	2.55	1.27	43	.48	1.17	21.5	15.7	1.28
13	6.4	3.1	.66	.85	1.65	1.12	8.6	.53	18.8	3.7	4.6	1.47
14	3.6	2.95	1.28	.81	1.32	6.4	3.7	.67	38.5	2.6	2.4	.92
15	5.1	.96	5.5	.77	1.82	23	2.3	.48	4.3	2.0	1.87	.74
16	14.5	.85	.96	.70	1.17	27	1.8	.45	2.4	1.65	1.48	.70
17	25	.81	1.24	.70	1.07	54	1.6	.42	1.87	1.43	1.27	.74
18	10.2	2.0	2.85	.88	1.00	26.5	1.3	.42	1.48	1.22	1.17	.77
19	5.4	2.8	1.96	1.49	.88	26	1.2	.39	1.27	1.07	1.20	.67
20	12.8	2.4	2.0	1.67	.85	39	1.1	.39	1.17	1.00	1.00	.78
21	8.0	.96	1.00	.81	.81	114	1.0	.37	1.03	.92	2.65	.64
22	3.55	.85	1.16	1.44	1.25	21.5	.90	.37	1.03	.88	17.8	.61
23	2.6	1.24	1.47	5.8	1.70	7.4	.85	.35	1.03	.81	2.65	.70
24	2.25	1.12	1.11	2.1	.96	5.2	1.00	.35	10.6	.81	3.5	.67
25	1.72	.91	.85	1.02	.77	7.4	1.07	4.7	6.7	.70	4.5	.92
26	13.8	1.77	.81	3.45	.74	3.3	1.02	13.4	2.15	.67	26	1.97
27	61	1.34	5.5	1.97	.70	2.5	1.30	6.6	2.6	.74	6.0	5.5
28	9.9	2.5	3.85	1.56	2.85	2.1	1.48	2.6	64	.67	9.4	7.1
29	4.4	1.41	3.15	2.35	10.5	1.72	1.04	-	34	.61	3.4	2.95
30	3.1	2.05	2.1	4.7	22.5	2.1	1.85	-	4.2	.70	2.4	4.7
31	2.3	1.07	-	1.86	-	1.98	.96	-	2.75	-	2.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	61	1.03	7.90	12.2	245	751
August	3.1	.74	1.50	2.32	46.6	143
September	5.5	.64	1.66	2.57	49.8	153
October	5.8	.70	1.94	3.00	60.1	185
November	43	.70	4.24	6.56	127	391
December	114	1.12	14.8	22.9	460	1,410
Calendar year 1946	114	.32	4.97	7.69	1,820	5,570
January	43	.85	4.30	6.65	133	409
February	13.4	.35	1.41	2.18	39.5	121
March	64	1.03	8.70	13.5	270	828
April	21.5	.61	3.77	5.83	113	347
May	28.5	1.00	6.30	9.75	195	599
June	7.1	.61	1.54	2.38	46.2	142
Fiscal year 1946-47	114	.35	4.89	7.57	1,790	5,480

Note.- No gage-height record Jan. 4-23; discharge computed on basis of records for Kaaiea Stream.

Kaaiea 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 3¼ miles southeast of Huelo.

Drainage area.- 0.5 square mile.

Records available.- December 1921 to June 1947.

Average discharge.- 25 years (1922-47), 4.67 million gallons a day (7.23 second-feet).

Extremes.- Maximum discharge during year, 371 million gallons a day (574 second-feet) Dec. 21 (gage height, 3.81 feet); minimum, 0.33 million gallons a day (0.51 second-foot) Feb. 24, 25.

1921-47: 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 periods of no gage-height record, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.78	1.8	1.36	4.4	1.99	8.1	1.20	0.70	18.6	2.2	1.30	1.58
2	1.57	1.6	2.45	5.3	3.25	5.8	20.5	.60	14.0	13	4.4	1.47
3	1.30	2.1	1.12	2.15	1.80	20.5	5.8	.60	3.85	5.2	24.5	1.30
4	1.05	1.8	.95	2.7	3.5	7.2	2.4	.60	1.80	2.0	30.5	1.30
5	1.14	1.2	.95	1.68	41	4.2	2.25	.56	1.30	2.0	6.5	1.04
6	3.25	1.0	.95	1.30	6.3	27.5	2.05	.52	5.4	13	7.2	.95
7	7.6	.95	.81	2.5	2.7	3.7	1.74	.52	4.7	9.2	2.55	.95
8	2.75	.90	.75	2.5	2.55	2.4	6.4	.52	9.2	5.4	2.3	.81
9	4.0	.82	.70	1.30	2.95	1.80	2.8	.52	2.3	3.1	1.58	.70
10	10.1	.75	.65	1.12	1.68	1.58	1.91	.56	2.1	5.8	6.2	.66
11	10.5	.70	.60	1.04	3.9	1.30	6.6	.52	1.30	11	8.7	.69
12	4.2	.65	.56	.95	2.15	1.12	40	.52	1.04	22	16.4	1.26
13	6.4	3.1	.60	.88	1.68	1.04	7.5	.52	12.5	4.0	5.4	1.31
14	3.45	3.75	1.04	.81	1.30	5.0	3.3	.60	35	2.6	2.4	.88
15	5.0	1.04	6.0	.75	1.77	21.5	2.15	.48	4.1	1.9	1.80	.65
16	14.5	.81	1.04	.70	1.20	24.5	1.68	.44	2.0	1.6	1.58	.60
17	18.1	.75	1.00	.70	1.04	52	1.47	.44	1.58	1.4	1.30	.60
18	7.8	.70	3.65	.81	.95	26	1.20	.44	1.20	1.1	1.20	.60
19	5.0	4.6	2.55	1.66	.88	23	1.12	.40	1.04	1.0	1.20	.56
20	9.7	2.2	1.70	1.62	.81	39	1.04	.40	.95	.96	1.04	.60
21	5.8	.95	1.12	.88	.75	109	.88	.40	.88	.88	2.85	.56
22	3.1	.81	1.12	1.95	1.21	20	.81	.37	.82	.84	18.2	.52
23	2.25	1.00	1.28	5.8	1.85	7.4	.75	.37	.80	.76	2.3	.60
24	1.90	1.12	1.20	2.4	1.12	4.0	.88	.33	11	.72	4.4	.56
25	1.57	.81	.95	1.20	.81	6.0	.95	3.55	7.0	.65	4.7	.65
26	11.5	1.88	.81	3.4	.75	3.0	.81	11.6	2.0	.65	25.5	1.69
27	59	1.30	4.8	2.15	.70	2.15	1.32	7.1	2.5	.70	6.5	5.3
28	9.4	2.3	3.8	1.80	1.89	1.80	1.30	3.5	65	.65	9.3	7.0
29	4.4	1.44	3.4	2.6	11.4	1.58	1.04	-	32	.60	3.5	2.9
30	3.0	1.87	2.15	5.4	21.5	1.54	1.24	-	4.4	.70	2.3	6.2
31	2.1	1.12	-	2.2	-	2.0	.81	-	2.9	-	1.91	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	59	1.05	7.20	11.1	223	685
August	4.6	.65	1.48	2.29	45.8	141
September	6.0	.56	1.67	2.58	50.1	154
October	5.8	.70	2.09	3.23	64.6	198
November	41	.70	4.18	6.47	125	385
December	109	1.04	14.1	21.8	436	1,340
Calendar year 1946	109	.40	4.79	7.41	1,750	5,370
January	40	.75	4.00	6.19	124	380
February	11.6	.33	1.35	2.09	37.7	116
March	65	.80	8.17	12.6	253	777
April	22	.60	3.85	5.96	116	355
May	30.5	1.04	6.76	10.5	210	643
June	7.0	.52	1.48	2.29	44.5	137
Fiscal year 1946-47	109	.33	4.74	7.33	1,730	5,310

Note.- No gage-height record July 28 to Aug. 9, Mar. 22 to Apr. 24; discharge computed on basis of records for Alo Stream.

Oopuola Stream near Huelo

Location.- Concrete weir control, lat. 20°52'15", long. 156°12'30", between Kaaiea and Naillilihaele Streams, 100 feet upstream from Wailoa ditch intake, 300 feet upstream from ditch trail, and 4 miles southeast of Huelo.

Drainage area.- 0.2 square mile.

Records available.- August 1930 to June 1947. December 1910 to June 1915 at site half a mile downstream; records not equivalent.

Average discharge.- 16 years (1931-47), 1.75 million gallons a day (2.71 second-feet).

Extremes.- Maximum discharge during year, 320 million gallons a day (495 second-feet) Mar. 28 (gage height, 5.05 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.14 million gallons a day (0.22 second-foot) Feb. 25.

1930-47: Maximum discharge, 340 million gallons a day (526 second-feet) Jan. 22, 1946 (gage height, 5.54 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.04 million gallons a day (0.06 second-foot) Oct. 29, 30, 1943, June 1, 1945.

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

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.6	0.05	2.1	3.75	2.6	18.8
1.7	.23	2.2	5.7	2.8	30
1.8	.65	2.3	8.2	3.0	45
1.9	1.32	2.4	11.2	3.2	63
2.0	2.35	2.5	14.7		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.70	0.65	0.50	1.50	0.95	3.1	0.45	0.32	7.2	1.00	0.32	0.55
2	.60	.60	.92	1.76	1.54	1.47	9.2	.28	6.3	5.1	1.72	.50
3	.50	.90	.40	.65	.98	5.0	2.5	.28	2.05	2.1	7.6	.45
4	.40	.99	.32	1.11	1.70	3.7	1.18	.28	.94	.87	8.7	.55
5	.36	.55	.40	.60	17.0	1.35	1.10	.25	.65	.75	2.0	.36
6	1.04	.45	.50	.45	2.25	12.8	.87	.23	2.7	3.65	2.15	.36
7	2.9	.40	.32	.78	1.02	1.60	.80	.23	2.2	4.1	.81	.36
8	.81	.36	.28	.98	1.12	1.02	2.55	.23	2.85	2.25	.70	.28
9	1.64	.37	.25	.45	1.13	.75	1.10	.23	1.02	1.18	.55	.25
10	3.5	.32	.23	.36	.65	.70	.75	.23	.87	2.7	2.95	.23
11	3.1	.32	.23	.36	1.23	.60	4.3	.23	.60	5.5	2.1	.28
12	1.35	.28	.23	.32	.95	.50	23	.21	.46	11.0	5.0	.55
13	2.3	.99	.23	.32	.65	.45	3.65	.23	5.3	1.51	1.98	.60
14	1.18	.99	.36	.28	.50	1.94	1.41	.25	13.7	1.02	.87	.40
15	1.42	.36	2.1	.28	.68	6.6	.94	.21	1.71	.75	.65	.25
16	5.7	.32	.40	.25	.45	12.0	.75	.19	.87	.60	.55	.23
17	8.1	.28	.40	.25	.40	22.5	.65	.19	.70	.55	.45	.23
18	3.65	.37	.98	.32	.36	11.5	.55	.19	.55	.45	.36	.23
19	2.15	1.18	.66	.50	.32	9.3	.45	.18	.45	.40	.45	.21
20	3.85	1.05	.62	.88	.28	15.6	.40	.18	.40	.36	.36	.28
21	3.15	.36	.36	.32	.28	61	.36	.18	.40	.32	.81	.21
22	1.25	.28	.45	.62	.55	8.9	.32	.16	.36	.32	7.2	.23
23	.94	.40	.45	3.05	.75	3.15	.28	.16	.32	.28	.81	.28
24	.75	.55	.45	1.20	.45	1.78	.36	.16	2.15	.28	1.00	.23
25	.60	.35	.32	.45	.32	2.5	.45	2.9	2.6	.25	.94	.28
26	3.9	.65	.28	1.75	.28	1.25	.36	6.6	.65	.23	9.1	.86
27	23.5	.55	1.58	.93	.25	.94	.55	3.15	1.04	.25	2.35	2.45
28	4.1	.82	1.37	.70	.61	.75	.78	1.02	30	.23	3.7	2.95
29	1.61	.55	1.52	1.13	3.5	.65	.51	-	12.4	.21	1.32	.79
30	1.10	.97	.70	2.65	7.0	.65	1.24	-	1.66	.23	.81	2.15
31	.81	.40	-	.90	-	.66	.50	-	1.02	-	.70	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	23.5	0.36	2.81	4.35	87.0	267
August	1.18	.28	.568	.879	17.6	54
September	2.1	.23	.594	.919	17.8	55
October	3.05	.25	.842	1.30	26.1	80
November	17.0	.25	1.60	2.48	48.1	148
December	61	.45	6.28	9.72	195	598
Calendar year 1946	61	.10	1.92	2.97	703	2,160
January	23	.28	2.01	3.11	62.3	191
February	6.6	.16	.677	1.05	19.0	58
March	30	.32	3.36	5.20	104	320
April	11.0	.21	1.61	2.49	48.4	149
May	9.1	.36	2.23	3.45	69.0	212
June	2.95	.21	.586	.907	17.6	54
Fiscal year 1946-47	61	.16	1.95	3.02	712	2,190

Nailiilihaele Stream near Huelo

Location.- Masonry dam control, lat. 20°52'30", long. 156°13'05", 200 feet upstream from Wailoa ditch intake, 700 feet upstream from New Hamakua ditch trail, 1½ miles south of Kailua, and 2½ miles southeast of Huelo.

Drainage area.- 2.8 square miles.

Records available.- December 1910 to June 1918, August 1919 to June 1947.

Average discharge.- 26 years (1920-24, 1925-47), 24.1 million gallons a day (37.3 second-feet).

Extremes.- Maximum discharge during year, 3,470 million gallons a day (5,370 second-feet) Dec. 21 (gage height, 7.85 feet), from rating curve extended above 130 million gallons a day; minimum, 1.72 million gallons a day (2.66 second-feet) probably Sept. 13.
1910-18, 1919-47: Maximum discharge, 4,750 million gallons a day (7,350 second-feet) Aug. 12, 1940 (gage height, 8.64 feet), from rating curve extended above 130 million gallons a day; minimum, 0.45 million gallons a day (0.70 second-foot) July 14, 1920.

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 table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.8	1.30	2.3	14.0	2.8	50	4.2	355
1.9	2.7	2.4	18.6	3.0	73	4.5	470
2.0	4.6	2.5	24	3.3	120	5.0	710
2.1	7.1	2.6	31	3.6	181	5.5	1,010
2.2	10.2	2.7	39.5	3.9	260		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.7	10.6	6.0	17.5	11.4	36.5	9.9	4.6	134	14.1	6.9	9.3
2	6.6	9.9	8.8	21.5	22.5	27	184	4.2	72	52	15.9	9.0
3	6.4	12.4	5.4	10.2	11.0	141	30	4.0	18.3	22.5	167	7.4
4	4.8	9.3	4.5	11.8	22.5	41	14.9	3.85	10.2	12.1	235	7.4
5	5.4	7.4	5.0	8.3	350	20.5	14.0	3.65	8.0	12.9	31.5	6.4
6	13.8	6.8	4.5	7.1	38.5	169	13.5	3.65	28	75	35.5	6.1
7	33.5	6.6	5.8	10.2	16.3	21.5	11.7	3.25	23.5	64	14.0	5.8
8	12.9	5.8	5.6	13.3	17.4	16.3	36.5	3.25	49	31.5	12.5	5.1
9	23.5	5.8	4.3	7.1	17.2	12.9	16.8	3.1	12.1	16.3	9.3	4.6
10	77	5.6	3.8	6.4	11.7	11.7	12.1	3.25	11.7	26.5	22	4.6
11	54	5.1	3.5	5.8	17.1	10.2	27.5	2.9	8.6	35.5	58	5.0
12	20.5	4.6	3.0	5.6	11.3	9.0	248	2.7	7.1	125	101	6.8
13	29.5	11.0	2.9	5.4	9.9	8.3	41	2.7	84	21.5	27	6.8
14	16.3	25	6.0	4.8	8.6	35	18.7	3.25	287	14.9	13.2	5.1
15	72	9.2	50	4.6	10.7	150	12.5	2.7	21.5	12.1	11.0	4.0
16	96	6.1	13	4.2	8.0	194	8.6	2.55	12.5	10.2	10.6	3.65
17	129	5.4	12	4.0	7.1	479	8.0	2.55	10.2	9.3	8.3	3.65
18	38.5	5.0	25	4.6	6.6	201	7.6	2.55	8.6	8.3	7.4	3.85
19	24.5	12	22	7.4	6.1	195	7.4	2.4	7.4	7.4	7.1	3.45
20	51	6.6	8.2	8.2	5.8	435	7.4	2.4	6.8	6.8	6.6	3.85
21	28.5	5.0	6.4	4.8	5.6	992	6.8	2.4	6.4	6.4	19.3	3.25
22	17.2	4.5	6.4	11.1	7.4	180	6.4	2.4	6.4	5.8	123	3.1
23	13.2	5.2	6.4	19.6	9.3	48	6.2	2.3	6.1	5.4	12.9	3.45
24	11.7	5.8	6.1	11.3	6.6	27.5	6.0	2.3	68	5.4	25	3.1
25	9.9	4.5	4.8	6.6	5.4	58	5.6	10.2	47	4.8	24	3.65
26	98	9.5	4.4	11.9	4.8	21	5.6	49	11.0	4.6	118	6.9
27	486	8.7	12.7	8.6	4.6	16.3	5.6	36	13.2	4.8	28	21.5
28	57	10	14.4	8.0	13.3	13.6	5.8	18.5	372	4.6	39.5	31.5
29	21.5	7.6	13.0	10.3	86	11.7	6.1	-	385	4.0	17.2	13.0
30	15.8	7.2	9.9	19.3	123	12.8	6.3	-	25.5	4.6	12.9	31
31	12.5	5.6	-	10.6	-	15.5	5.4	-	16.3	-	11.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	486	4.8	48.2	74.6	1,490	4,590
August	25	4.5	7.86	12.2	244	748
September	50	2.9	9.46	14.6	284	871
October	21.5	4.0	9.36	14.5	290	890
November	350	4.6	29.2	45.2	876	2,690
December	992	8.3	116	179	3,610	11,080
Calendar year 1946	992	1.86	33.8	52.3	12,320	37,820
January	248	5.4	25.7	39.8	796	2,440
February	49	2.3	6.66	10.3	187	573
March	385	6.1	57.3	88.7	1,780	5,450
April	125	4.0	20.9	32.3	628	1,930
May	235	6.6	39.7	61.4	1,230	3,780
June	31.5	3.1	7.74	12.0	232	713
Fiscal year 1946-47	992	2.3	31.9	49.4	11,650	35,760

Note.- No gage-height record Aug. 18 to Sept. 20, Jan. 17-28; discharge computed on basis of records for Kailua and Puohokamoa Streams.

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 1947.

Average discharge.- 28 years (1919-47), 18.7 million gallons a day (28.9 second-feet).

Extremes.- Maximum discharge during year, 4,920 million gallons a day (7,610 second-feet) Dec. 17 (gage height, 9.27 feet), from rating curve extended above 150 million gallons a day; minimum, 0.94 million gallons a day (1.45 second-feet) Feb. 25.
1910-18, 1919-47: Maximum discharge, that of Dec. 17, 1946; 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.7	1.00	2.2	10.1	2.8	34	4.6	274
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	6.5	1,120

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.6	6.7	3.15	10.0	8.8	37.5	8.8	2.55	69	10.4	3.8	5.8
2	2.7	5.8	3.95	15.6	33.5	21	105	2.4	35	18.8	7.2	5.4
3	2.4	5.4	2.85	6.1	8.8	140	42	2.25	12.8	11.2	98	4.7
4	1.88	5.0	2.55	5.2	8.8	50	15.0	2.1	5.8	7.2	192	4.5
5	1.99	4.3	2.4	4.1	299	17.0	11.3	2.1	4.1	8.1	30	3.8
6	5.6	3.8	2.25	3.3	61	62	11.6	1.99	15.6	63	36	3.6
7	18.0	3.6	1.99	3.8	14.4	16.1	8.8	1.88	17.6	59	11.3	3.45
8	7.2	3.3	1.88	8.2	12.0	13.7	32	1.88	21	27.5	8.8	3.15
9	19.5	3.15	1.88	3.8	13.2	9.1	15.8	1.88	7.2	11.3	6.7	2.85
10	72	3.0	1.77	3.15	8.1	7.6	10.4	1.99	7.6	10.8	13.4	2.85
11	52	2.85	1.66	3.0	8.0	6.5	17.8	1.77	4.7	13.6	68	2.85
12	15.2	2.7	1.55	2.7	7.6	5.6	87	1.66	3.8	78	90	3.15
13	19.5	6.3	1.55	2.55	6.5	4.9	34	1.66	14.9	20	34	3.15
14	9.8	17.4	1.88	2.4	5.2	18.0	16.4	1.77	152	10.4	11.3	2.85
15	62	5.0	10.6	2.25	7.0	89	10.1	1.44	16.5	7.8	8.1	2.25
16	94	3.45	3.65	2.1	5.6	153	8.4	1.33	7.8	6.7	6.5	2.1
17	101	3.45	2.55	2.1	4.5	500	7.2	1.33	5.8	5.4	5.4	2.1
18	28.5	3.1	9.9	2.1	4.1	221	6.3	1.22	4.7	4.9	4.7	2.1
19	17.0	9.9	13.0	3.15	3.8	130	5.6	1.22	4.1	4.3	4.5	1.88
20	36.5	4.3	4.4	3.6	3.6	617	5.8	1.11	3.6	3.8	4.1	2.1
21	43	3.0	3.3	2.7	3.3	882	4.5	1.11	3.45	3.45	11.7	1.77
22	16.9	2.85	3.0	7.1	3.8	206	4.1	1.00	3.3	3.3	75	1.77
23	9.4	2.85	2.7	10.0	4.1	58	3.95	1.00	3.3	3.0	12.4	1.77
24	7.4	2.55	2.55	7.0	3.6	28.5	3.95	1.00	26	3.0	21	1.77
25	6.1	2.4	2.25	3.8	3.0	38.5	3.6	f2.8	40	3.0	21	1.77
26	22.5	3.35	1.99	5.2	2.85	22	3.6	a40	8.4	2.7	56	2.7
27	302	3.45	3.6	4.3	2.55	13.0	3.6	a33	9.1	2.7	20.5	13.3
28	64	3.8	5.9	3.95	4.1	10.1	3.95	f20.5	165	2.55	25	25.5
29	16.8	3.6	6.3	4.8	110	8.6	3.8	-	318	2.25	12.5	8.8
30	10.7	3.6	5.0	13.0	72	9.2	3.15	-	37	2.55	8.4	38.5
31	8.4	3.0	-	8.4	-	22.5	2.85	-	17.8	-	6.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	302	1.88	34.8	53.8	1,080	3,310
August	17.4	2.4	4.42	6.84	137	420
September	13.0	1.55	3.73	5.77	112	344
October	15.6	2.1	5.14	7.95	159	489
November	299	2.55	24.4	37.8	733	2,250
December	882	4.9	110	170	3,420	10,490
Calendar year 1946	882	1.00	27.1	41.9	9,910	30,360
January	105	2.85	16.1	24.9	500	1,540
February	40	1.00	4.86	7.52	136	417
March	318	3.3	33.7	52.1	1,040	3,210
April	78	2.25	13.7	21.2	411	1,260
May	192	3.8	29.5	45.6	914	2,810
June	38.5	1.77	5.41	8.37	162	498
Fiscal year 1946-47	882	1.00	24.1	37.3	8,800	27,040

a No gage-height record; discharge computed on basis of records for station on Nailiilihaele Stream.
f Computed on basis of partly estimated gage-height record.

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 1947.

Average discharge.- 35 years (1911-15, 1916-47), 4.88 million gallons a day (7.55 second-feet).

Extremes.- Maximum discharge during year, 312 million gallons a day (483 second-feet) Mar. 28 (gage height, 4.55 feet); minimum, 1.01 million gallons a day (1.56 second-feet) Feb. 24, 25.

1911-47: 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. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.74	4.0	1.86	2.2	2.4	4.9	3.15	1.86	8.6	4.8	1.98	3.3
2	1.74	3.75	1.86	2.55	3.15	4.1	12.8	1.74	8.8	8.4	2.45	3.15
3	1.50	3.65	1.74	2.1	2.6	7.8	6.1	1.62	4.7	5.4	9.9	2.85
4	1.50	3.3	1.62	2.2	2.75	6.1	4.2	1.62	3.45	4.2	17.6	2.7
5	1.50	2.85	1.62	1.86	26.5	4.4	3.9	1.50	3.0	3.9	5.8	2.45
6	1.86	2.7	1.62	1.74	7.2	19.7	3.6	1.50	4.2	6.7	6.1	2.45
7	3.45	2.6	1.50	2.6	4.8	6.2	3.3	1.50	4.2	7.7	4.2	2.35
8	2.2	2.35	1.50	2.6	4.2	5.0	4.6	1.50	7.4	5.8	3.6	2.2
9	2.6	2.2	1.40	1.98	3.9	4.2	3.6	1.40	3.75	4.6	3.3	2.1
10	4.2	2.1	1.40	1.86	3.45	3.9	3.3	1.31	3.45	4.8	4.5	2.1
11	4.8	2.1	1.31	1.98	3.3	3.45	5.1	1.31	3.0	12.4	5.0	2.1
12	3.3	1.98	1.31	1.74	3.0	3.15	27.5	1.31	2.85	23.5	8.2	2.2
13	4.0	2.35	1.40	1.74	2.7	3.0	11.0	1.31	6.0	7.4	5.5	2.1
14	3.3	2.7	1.40	1.62	2.6	4.4	6.6	1.31	21	5.4	4.0	1.86
15	3.4	1.98	2.15	1.50	3.2	11.2	5.2	1.31	5.8	4.6	3.6	1.74
16	9.6	1.86	1.40	1.50	2.45	16.0	4.4	1.23	4.8	4.0	3.3	1.74
17	11.5	1.86	1.50	1.50	2.35	41	3.9	1.23	4.4	3.6	3.0	1.74
18	7.0	1.88	1.86	1.62	2.2	24.5	3.45	1.23	3.6	3.3	2.85	1.74
19	5.6	3.25	1.74	1.62	2.1	18.5	3.3	1.23	3.3	3.15	2.7	1.50
20	5.9	2.3	1.62	1.74	2.1	38	3.0	1.15	3.0	2.85	2.6	1.62
21	5.2	1.98	1.50	1.50	1.98	113	2.7	1.15	2.85	2.6	2.95	1.50
22	4.2	1.86	1.62	1.98	2.1	29.5	2.6	1.08	2.7	2.45	8.4	1.62
23	3.75	1.86	1.50	3.1	2.1	13.3	2.45	1.08	2.6	2.35	3.3	1.50
24	3.45	1.86	1.50	2.45	1.86	9.0	2.45	1.08	4.0	2.2	3.45	1.50
25	3.15	1.83	1.50	1.98	1.86	8.2	2.35	2.85	4.9	2.1	3.55	1.50
26	6.7	1.86	1.40	2.35	1.74	6.2	2.2	6.8	3.0	1.98	12.4	1.74
27	30	1.86	1.62	2.1	1.74	5.2	2.35	4.4	2.85	1.98	5.8	2.4
28	13.0	1.98	1.98	1.98	1.90	4.4	2.35	2.6	34.5	1.86	6.2	3.6
29	7.4	1.86	1.86	2.1	3.65	3.9	2.1	-	33.5	1.86	4.8	2.35
30	5.6	1.98	1.86	3.0	8.8	3.75	1.98	-	8.0	1.86	4.0	3.25
31	4.8	1.74	-	2.45	-	3.45	1.86	-	5.6	-	3.75	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	30	1.50	5.42	8.39	168	515
August	4.0	1.74	2.34	3.62	72.4	222
September	2.15	1.31	1.60	2.48	48.2	148
October	3.1	1.50	2.04	3.16	63.2	194
November	26.5	1.74	3.82	5.91	115	352
December	113	3.0	13.9	21.5	429	1,320
Calendar year 1946	113	1.01	4.56	7.06	1,660	5,110
January	27.5	1.86	4.75	7.35	147	452
February	6.8	1.08	1.76	2.72	49.2	151
March	34.5	2.6	6.90	10.7	214	656
April	23.5	1.86	4.92	7.61	148	453
May	17.6	1.98	5.12	7.92	159	487
June	3.6	1.50	2.16	3.34	65.0	199
Fiscal year 1946-47	113	1.08	4.60	7.12	1,680	5,150

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 1947.

Average discharge.- 35 years (1911-15, 1916-47), 7.92 million gallons a day (12.3 second-feet).

Extremes.- Maximum discharge during year, 1,460 million gallons a day (2,260 second-feet) Dec. 21 (gage height, 4.48 feet), from rating curve extended above 100 million gallons a day; minimum, 0.90 million gallons a day (1.39 second-feet) Feb. 25.
1910-47: Maximum discharge, 2,980 million gallons a day (4,610 second-feet) Feb. 7, 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 except those for periods of no gage-height record, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.48	0.9	12.1	1.8	95
.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	3.4	645

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.28	5.6	1.58	2.55	2.6	8.1	5.4	2.25	14.9	8.0	2.5	4.8
2	1.22	5.0	1.68	3.65	4.1	8.1	35.5	2.15	13.4	11	5.0	4.4
3	1.13	4.8	1.38	2.15	2.55	22	12.1	2.0	5.0	8.4	30	4.0
4	1.05	4.4	1.28	2.25	3.1	12.5	8.2	1.90	3.6	6.5	60	3.8
5	1.13	3.8	1.28	1.68	70	9.1	7.3	1.79	3.1	6.4	15	3.45
6	1.68	3.6	1.28	1.58	13.7	29.5	6.5	1.68	5.5	18	16	3.25
7	4.2	3.45	1.22	2.9	9.0	9.6	5.6	1.58	5.6	20	8.0	2.95
8	2.15	3.1	1.13	3.05	8.0	7.3	8.6	1.58	10.8	11	6.0	2.8
9	3.25	2.8	1.13	1.79	7.2	5.9	6.8	1.58	4.8	8.0	5.0	2.65
10	10.3	2.8	1.13	1.58	5.6	5.4	5.6	1.48	4.6	8.0	8.0	2.55
11	9.4	2.55	1.13	1.68	5.2	4.8	7.9	1.38	3.6	13	15	2.55
12	4.4	2.4	1.05	1.58	4.9	4.4	37	1.38	3.45	30	f21	2.55
13	5.4	3.25	1.05	1.48	4.0	3.8	14.6	1.38	8.0	17	11.8	2.55
14	4.0	4.0	1.13	1.38	3.3	7.9	10.0	1.38	57	8.8	7.6	2.15
15	11.3	2.55	2.45	1.38	4.2	34.5	7.9	1.22	10	7.0	5.9	1.90
16	20.5	2.25	1.22	1.28	3.2	51	6.8	1.13	6.2	5.9	5.2	1.90
17	26	2.0	1.13	1.28	2.8	167	5.6	1.13	5.0	5.2	4.6	1.79
18	10.3	2.45	2.3	1.38	2.6	70	5.2	1.13	4.1	4.5	4.2	1.79
19	7.9	4.4	2.5	1.48	2.4	53	4.6	1.13	3.7	4.0	3.8	1.58
20	8.4	2.5	1.58	1.68	2.3	159	4.4	1.05	3.4	3.5	3.6	1.68
21	7.0	2.0	1.28	1.22	2.1	468	4.0	1.05	3.2	3.1	4.6	1.48
22	5.6	1.79	1.38	1.88	2.4	110	3.6	.97	3.1	3.0	17.6	1.58
23	5.0	1.79	1.28	3.6	2.6	31	3.6	.97	3.0	2.8	5.0	1.48
24	4.6	1.68	1.22	2.35	2.3	18.2	3.6	.97	9.0	2.7	6.3	1.38
25	4.0	1.68	1.13	1.68	1.9	17.8	3.25	2.85	12	2.6	6.5	1.38
26	12.7	1.79	1.05	2.25	1.8	12.1	3.1	7.8	6.2	2.4	19.4	1.68
27	76	1.68	1.58	1.79	1.7	9.9	3.1	6.5	6.0	2.3	8.9	2.85
28	24	1.79	1.88	1.68	2.3	8.5	3.45	3.05	90	2.2	9.9	4.8
29	11.7	1.68	1.68	1.96	f6.7	7.0	2.8	-	180	2.2	7.0	2.4
30	8.5	1.79	1.58	3.55	16.0	6.8	2.65	-	20	2.3	5.6	[illegible]
31	6.8	1.48	-	2.4	-	6.2	2.4	-	10	-	5.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	76	1.05	9.71	15.0	301	923
August	5.6	1.48	2.80	4.33	86.8	267
September	2.5	1.05	1.42	2.20	42.7	131
October	3.65	1.22	2.00	3.09	62.1	191
November	70	1.7	6.68	10.3	201	615
December	468	3.8	44.1	68.2	1,370	4,200
Calendar year 1946	468	.83	9.87	15.3	3,600	11,050
January	37	2.4	7.78	12.0	241	740
February	7.8	.97	1.94	3.00	54.5	167
March	180	3.0	16.7	25.8	518	1,590
April	30	2.2	7.66	11.9	230	705
May	60	2.5	10.8	16.7	334	1,030
June	5.2	1.38	2.64	4.08	79.3	243
Fiscal year 1946-47	468	.97	9.64	14.9	3,520	10,800

f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Nov. 8-28, Mar. 15 to Apr. 14, Apr. 18 to May 11; discharge computed on basis of records for Hoolawa11i11i Stream.

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 1947.

Average discharge.- 34 years (1911-14, 1916-47), 3.11 million gallons a day (4.81 second-feet).

Extremes.- Maximum discharge during year, 261 million gallons a day (404 second-feet) Dec. 17 (gage height, 3.88 feet), from rating curve extended above 70 million gallons a day; minimum, 0.40 million gallons a day (0.62 second-foot) Feb. 24, 25.
1910-47: 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. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.09	0.9	5.3	1.8	28.5
.5	.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

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.63	3.3	0.70	1.06	0.99	2.95	2.9	0.98	6.0	5.1	1.15	2.3
2	.56	2.9	.84	1.49	1.57	2.45	13.5	.91	5.7	7.4	1.59	2.2
3	.50	2.8	.63	.77	1.06	5.4	6.6	.91	2.45	4.7	8.1	1.97
4	.45	2.4	.63	.98	1.52	4.1	4.0	.91	1.76	3.9	15.0	1.97
5	.45	2.1	.63	.77	22.5	3.0	3.55	.84	1.65	3.45	4.8	1.76
6	.77	1.86	.63	.63	5.2	14.5	3.2	.77	3.1	6.6	4.4	1.65
7	2.1	1.65	.56	1.33	3.3	4.5	2.9	.77	2.9	6.6	3.2	1.54
8	.84	1.54	.56	1.57	2.3	3.55	4.1	.77	6.4	5.0	2.8	1.33
9	1.21	1.44	.56	.70	2.55	3.05	2.8	.70	2.8	3.9	2.55	1.33
10	2.6	1.33	.56	.63	2.2	2.9	2.4	.70	2.4	3.9	3.4	1.24
11	2.6	1.24	.50	.70	1.97	2.4	4.2	.70	2.1	14.4	3.6	1.24
12	1.65	1.15	.50	.63	1.76	2.2	19.3	.63	1.97	17.9	6.1	1.24
13	2.3	1.44	.50	.56	1.65	1.97	7.5	.63	2.95	6.6	3.95	1.15
14	1.65	1.77	.56	.56	1.44	3.55	5.0	.63	18.8	5.3	3.05	1.06
15	2.15	1.06	1.12	.56	2.4	8.3	4.2	.56	4.8	4.5	2.8	.91
16	6.8	1.06	.56	.56	1.33	12.5	3.55	.50	4.0	3.9	2.55	.91
17	8.4	.98	.50	.50	1.24	33.5	3.2	.50	3.8	3.3	2.3	.91
18	4.9	1.08	.84	.63	1.15	26	2.8	.45	2.9	2.9	2.1	.84
19	3.7	2.6	.91	.70	1.06	18.3	2.4	.45	2.55	2.55	1.97	.77
20	3.9	1.65	.63	.84	.98	38	2.3	.45	2.3	2.3	1.86	.84
21	3.45	.91	.56	.56	.91	100	1.97	.45	2.1	2.1	2.1	.77
22	2.65	.84	.63	.97	1.06	38	1.86	.45	1.97	1.86	6.4	.77
23	2.4	.84	.56	2.1	1.06	17.9	1.76	.45	1.86	1.76	2.1	.70
24	2.2	.77	.56	1.14	.91	12.2	1.76	.45	3.6	1.65	2.2	.63
25	1.97	.77	.50	.70	.84	10.5	1.65	1.91	3.9	1.54	2.2	.70
26	5.2	.84	.50	1.12	.77	7.3	1.44	5.6	2.2	1.44	9.3	.84
27	24	.77	.63	.84	.77	5.8	1.54	3.15	1.97	1.33	3.55	1.46
28	11.1	.84	1.02	.84	.95	5.0	1.83	1.24	30	1.24	4.3	2.45
29	6.2	.77	.91	.91	2.85	4.2	1.33	-	32	1.15	3.2	.91
30	4.8	.84	.70	1.78	5.9	3.9	1.15	-	9.2	1.15	2.8	1.82
31	4.0	.70	-	.98	-	3.3	1.06	-	6.4	-	2.55	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	24	0.45	3.75	5.80	116	356
August	3.3	.70	1.43	2.21	44.2	136
September	1.12	.50	.650	1.01	19.5	60
October	2.1	.50	.907	1.40	28.1	86
November	22.5	.77	2.47	3.82	74.2	228
December	100	1.97	12.9	20.0	401	1,230
Calendar year 1946	100	.35	3.42	5.29	1,250	3,830
January	19.3	1.06	3.80	5.88	118	361
February	5.6	.45	.981	1.52	27.5	84
March	32	1.65	5.69	8.80	177	542
April	17.9	1.15	4.31	6.67	129	397
May	15	1.15	3.81	5.89	118	362
June	2.45	.63	1.27	1.96	38.2	117
Fiscal year 1946-47	100	.45	3.54	5.48	1,290	3,960

Honopou Stream at Lowrie ditch siphon, near Huelo

Location.- Concrete weir control, lat. 20°54'50", long. 156°15'10", half a mile upstream from Government Road and 1.7 miles west of Huelo. Datum of gage is 556.95 feet above mean sea level.

Drainage area.- 2.0 square miles.

Records available.- July 1932 to June 1947 (discontinued). Records at same site collected by East Maui Irrigation Co. April 1930 to June 1932.

Average discharge.- 15 years, 1.35 million gallons a day (2.09 second-feet).

Extremes.- Maximum discharge during year, 478 million gallons a day (740 second-feet) Dec. 21 (gage height, 3.86 feet); minimum, 0.09 million gallons a day (0.14 second-foot) Nov. 8-10, 12-14, 23.

1932-47: Maximum discharge, 766 million gallons a day (1,190 second-feet) Feb. 7, 1939 (gage height, 4.69 feet), from rating curve extended above 80 million gallons a day by logarithmic plotting; minimum, 0.03 million gallons a day (0.05 second-foot) Dec. 7, 1940.

Remarks.- Records good except those for Dec. 19, 20, 26, which are fair. Wailoa, New Hamakua, and Old Hamakua ditches divert most of flow above this station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.03	0.7	5.8	1.5	43
.2	.19	.8	8.6	1.7	58
.3	.57	.9	11.6	2.0	88
.4	1.25	1.0	15.2	2.5	158
.5	2.3	1.1	19.5	2.9	232
.6	3.8	1.3	30		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.10	0.17	0.12	0.12	0.10	0.19	5.8	0.19	0.45	0.14	0.19	0.17
2	.10	.17	.12	.12	.10	.17	9.0	.19	.64	1.52	.22	.19
3	.10	.17	.12	.12	.10	.17	8.6	.19	.21	.22	2.3	.19
4	.10	.17	.12	.12	.10	.91	7.2	.19	.17	.14	10.2	.19
5	.10	.17	.12	.12	2.7	.46	6.4	.19	.17	.14	.19	.19
6	.10	.17	.12	.12	.10	14.0	5.8	.19	.17	.32	.19	.19
7	.10	.17	.12	.12	.10	.17	2.65	.19	.17	1.56	.19	.19
8	.10	.17	.12	.12	.09	.14	1.38	.19	.19	.52	.19	.19
9	.10	.17	.12	.12	.09	.14	.22	.19	.19	.19	.17	.19
10	.10	.17	.12	.12	.09	.14	.19	.19	.19	.19	.19	.19
11	.10	.17	.12	.12	.10	.14	.68	.22	.19	12.5	.19	.19
12	.10	.17	.12	.12	.09	.14	12.5	.19	.19	23.5	.95	.19
13	.10	.17	.12	.12	.09	.14	2.9	.22	.19	.86	.33	.17
14	.10	.17	.12	.12	.09	.14	.98	.19	11.8	.31	.22	.14
15	.10	.17	.12	.12	.10	2.0	.39	.19	.12	.25	.22	.14
16	.29	.17	.12	.12	.10	12.4	.28	.19	.12	.19	.19	.14
17	1.78	.17	.12	.12	.10	41	.25	.19	.17	.19	.14	.14
18	.14	.17	.12	.12	.10	33	.25	.17	.14	.19	.14	.14
19	.12	.17	.12	.10	.10	a17	.25	.17	.14	.19	.17	.17
20	.14	.17	.12	.10	.10	a54	.25	.17	.14	.19	.17	.17
21	.14	.17	.12	.10	.10	219	.25	.17	.14	.19	.17	.17
22	.14	.17	.12	.10	.10	65	.25	.17	.14	.22	1.15	.17
23	.14	.17	.12	.10	.09	20	.25	.17	.14	.22	.19	.19
24	.14	.14	.12	.10	.10	14.3	.22	.17	.14	.22	.19	.19
25	.14	.14	.12	.10	.10	13.0	.22	.19	.14	.19	.19	.17
26	.17	.14	.12	.12	.10	a10	.22	.58	.14	.19	3.4	.17
27	11.8	.14	.12	.10	.10	8.9	.22	.40	.14	.19	.19	.17
28	1.40	.14	.12	.10	.10	8.3	.22	.17	34	.19	.19	.17
29	.17	.14	.12	.10	.10	7.8	.22	-	49	.19	.17	.14
30	.17	.14	.12	.10	1.94	7.2	.22	-	8.6	.19	.17	.14
31	.17	.14	-	.10	-	7.5	.22	-	2.45	-	.17	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.8	0.10	0.598	0.925	18.6	57
August	.17	.14	.162	.251	5.03	15
September	.12	.12	.120	.186	3.60	11
October	.12	.10	.112	.173	3.48	11
November	2.7	.09	.246	.381	7.37	23
December	219	.14	18.0	27.9	557	1,710
Calendar year 1946	219	.08	2.78	4.30	1,010	3,110
January	12.5	.19	2.21	3.42	68.5	210
February	.58	.17	.208	.322	5.82	18
March	49	.12	3.57	5.52	111	340
April	23.5	.14	1.51	2.34	45.3	139
May	10.2	.14	.740	1.14	22.9	70
June	.19	.14	.172	.266	5.15	16
Fiscal year 1946-47	219	.09	2.34	3.62	854	2,620

a No gage-height record; discharge computed on basis of records for station above Haiku ditch.

Honopou Stream above Haiku ditch, near Huelo

Location.- Concrete weir control, lat. 20°55'05", long. 156°14'55", 110 feet upstream from new Government Road, 1½ miles west of Huelo, and 5.0 miles east of Haiku. Datum of gage is 440.76 feet above mean sea level. Prior to Mar. 3, 1941, at site 120 feet downstream at different datum.

Drainage area.- 2.2 square miles.

Records available.- July 1932 to June 1947 (discontinued). Records at former site collected by East Maui Irrigation Co. November 1926 to June 1932.

Average discharge.- 15 years, 1.56 million gallons a day (2.41 second-feet).

Extremes.- Maximum discharge during year, 170 million gallons a day (263 second-feet) Dec. 21 (gage height, 3.13 feet), from rating curve extended above 15 million gallons a day by logarithmic plotting; minimum, 0.14 million gallons a day (0.22 second-foot) Nov. 21.

1932-47: Maximum discharge, 1,300 million gallons a day (2,010 second-feet) Jan. 22, 1946 (gage height, 7.40 feet), from rating curve extended above 15 million gallons a day by logarithmic plotting; minimum, 0.08 million gallons a day (0.12 second-foot) Dec. 1, 2, 1938.

Remarks.- Records good except those for Jan. 3-10, which are poor. Wailoa, New Hamakua, Old Hamakua, and Lowrie ditches divert most of flow above this station. Water used for irrigation in central Maui.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.08	0.7	2.3	1.6	31
.3	.18	.8	3.6	1.8	44
.4	.40	1.0	7.5	2.0	59
.5	.75	1.2	13.7	2.5	101
.6	1.36	1.4	21.5		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.37	0.66	0.30	0.24	0.18	0.86	6.0	0.48	0.84	0.55	0.40	0.51
2	.30	.58	.28	.28	.30	.70	8.5	.48	1.23	2.0	2.9	.45
3	.28	.58	.28	.22	.22	.86	8.6	.45	.91	.73	1.94	.45
4	.26	.48	.26	.24	.20	1.26	7.5	.45	.75	.51	8.7	.45
5	.24	.45	.26	.28	3.2	1.07	6.6	.45	.62	.51	.86	.45
6	.32	.42	.28	.24	.55	10.5	6.0	.40	.66	.92	.75	.42
7	.40	.40	.28	.29	.45	1.09	d2.9	.40	.75	2.2	.62	.40
8	.30	.40	.28	.30	.37	.80	d1.90	.40	.70	1.11	.51	.40
9	.34	.40	.26	.22	.45	.75	d.58	.40	.58	.70	.48	.37
10	.48	.40	.26	.22	.34	.71	d.51	.40	.55	.75	.51	.37
11	.55	.37	.24	.22	.32	.66	.97	.40	.55	8.1	.55	.37
12	.62	.34	.24	.24	.32	.58	12.7	.40	.48	19.3	1.29	.40
13	.62	.42	.24	.22	.34	.51	5.6	.37	.45	1.56	.90	.42
14	.48	.45	.28	.22	.26	.48	1.92	.34	9.9	.86	.58	.40
15	.40	.37	.32	.20	.30	2.85	1.03	.32	.70	.70	.55	.34
16	1.13	.37	.24	.17	.28	9.1	.86	.30	.51	.66	.51	.34
17	3.45	.37	.22	.16	.32	22	.75	.30	.48	.62	.48	.34
18	1.09	.37	.22	.17	.16	31	.70	.30	.42	.58	.45	.34
19	.86	.42	.26	.18	.16	17.3	.70	.28	.45	.55	.42	.34
20	1.00	.37	.24	.18	.16	37.5	.66	.28	.42	.51	.40	.37
21	.92	.34	.24	.18	.14	94	.62	.30	.40	.48	.40	.34
22	.75	.34	.26	.20	.22	44	.58	.30	.40	.48	1.92	.37
23	.62	.37	.24	.36	.22	24	.55	.26	.37	.48	.75	.37
24	.58	.37	.24	.26	.20	19.8	.55	.26	.41	.45	.62	.40
25	.55	.34	.22	.22	.18	17.5	.55	.50	.75	.42	.66	.37
26	.48	.34	.18	.32	.20	14.5	.51	3.25	.48	.40	3.35	.34
27	10.4	.34	.22	.22	.18	11.0	.48	1.12	.45	.40	.80	.45
28	3.65	.34	.28	.18	.20	8.8	.51	.62	11.1	.37	.92	.64
29	1.36	.32	.24	.20	.42	8.0	.48	-	38	.37	.86	.45
30	.98	.34	.22	.32	2.7	7.3	.55	-	9.7	.37	.66	.62
31	.70	.32	-	.24	-	7.1	.48	-	3.45	-	.58	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.4	0.24	1.11	1.72	34.5	106
August	.66	.32	.399	.617	12.4	38
September	.32	.18	.253	.391	7.58	23
October	.36	.16	.232	.359	7.19	22
November	3.2	.14	.451	.698	13.5	42
December	94	.48	12.8	19.8	397	1,220
Calendar year 1946	94	.14	2.61	4.04	950	2,920
January	12.7	.48	2.61	4.04	80.8	248
February	3.25	.26	.508	.786	14.2	44
March	38	.37	2.82	4.36	87.5	268
April	19.3	.37	1.59	2.46	47.6	146
May	8.7	.40	1.14	1.76	35.3	108
June	.64	.34	.409	.633	12.3	38
Fiscal year 1946-47	94	.14	2.05	3.17	750	2,300

d Discharge computed on basis of doubtful gage-height record.

Honopou Stream below Haiku ditch, near Huelo

Location.- Concrete weir control, lat. 20°55'05", long. 156°14'50", an eighth of a mile downstream from Government Road and 1½ miles west of Huelo. Datum of gage is 383.41 feet above mean sea level.

Drainage area.- 2.3 square miles.

Records available.- July 1932 to June 1947 (discontinued). Records at same site collected by East Maui Irrigation Co. November 1926 to June 1932.

Average discharge.- 15 years, 5.13 million gallons a day (7.94 second-feet).

Extremes.- Maximum discharge during year, 945 million gallons a day (1,460 second-feet) Dec. 29 (gage height, 4.89 feet), from rating curve extended above 44 million gallons a day by logarithmic plotting; minimum, 0.04 million gallons a day (0.06 second-foot) Mar. 4.

1932-47: Maximum discharge recorded, 2,200 million gallons a day (3,400 second-feet) Feb. 7, 1939 (gage height, 6.50 feet), from rating curve extended above 44 million gallons a day by logarithmic plotting; minimum discharge, 0.02 million gallons a day (0.03 second-foot) Nov. 27, 1933, Dec. 6, 1943, June 24, Aug. 10, 1945.

Remarks.- Records good except those for Mar. 9-14, which are poor. Wailoa, New Hamakua, Old Hamakua, and Haiku ditches divert most of flow above this station.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.7	6.1	1.7	54
.2	.22	.8	8.6	2.0	80
.3	.67	.9	11.6	2.5	138
.4	1.41	1.0	15.1	3.0	217
.5	2.55	1.2	23.5	3.5	349
.6	4.1	1.4	34		

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.80	0.46	0.46	0.61	0.51	17.0	6.6	1.24	13.0	0.68	0.99	0.99
2	.73	.46	.46	.73	1.23	.99	9.4	1.24	9.3	9.8	1.07	.99
3	.67	.51	.46	.73	.80	15.3	8.9	1.41	4.2	3.2	19.0	.99
4	.61	.51	.46	.67	.61	18.7	7.6	1.50	.70	.73	67	.99
5	.67	.46	.46	.67	26	.90	6.8	1.50	1.07	.67	2.55	.92
6	.80	.46	.46	.67	3.95	44	20	1.50	1.57	27.5	13.4	.99
7	1.06	.46	.41	.67	.29	11.7	8.1	1.80	1.93	15.3	1.07	.99
8	.73	.46	.41	.80	.56	7.6	22	.92	3.65	11.2	.99	.99
9	.86	.46	.51	.73	.73	.56	6.5	.92	a.80	.80	.99	.99
10	2.2	.46	.61	.61	.67	.56	.29	.92	a.70	1.24	.92	.99
11	5.0	.46	.61	.67	.67	.80	7.3	.86	a.64	23.5	14.9	.99
12	1.22	.46	.61	.67	.67	.92	44	.86	a.62	73	28.5	.99
13	1.07	.46	.61	.67	.67	.92	24	.86	a.70	.88	16.4	.96
14	.86	.67	.67	.67	.67	2.05	10.9	.86	a50	.43	.99	.86
15	1.10	.46	1.15	.61	.67	28	.19	.80	1.50	1.15	.92	.80
16	17.2	.51	.86	.56	.67	22.5	.16	.80	.61	1.24	.80	.80
17	15.9	.51	.80	.56	.67	46	.12	.80	1.24	1.24	.73	.80
18	2.1	.51	.80	.51	.61	46	.12	.80	1.07	1.15	.73	.86
19	.37	.51	.80	.51	.61	20.5	.10	.80	.99	1.07	.73	.86
20	1.31	.51	.67	.51	.61	57	.10	.80	.99	1.15	.80	.86
21	1.35	.46	.67	.51	.61	339	.10	.80	.92	1.15	.80	.86
22	.29	.46	.67	.51	.61	59	.76	.80	.92	1.07	28	.86
23	.67	.46	.67	.67	.61	20	1.41	.80	.86	1.15	1.07	.86
24	.92	.46	.61	.67	.56	15.5	1.41	.80	1.26	1.07	1.32	.92
25	.92	.46	.61	.51	.51	13.7	1.32	.88	7.4	.99	1.77	.92
26	2.25	.46	.61	.67	.51	11.3	1.32	21.5	.99	.99	45	.86
27	57	.51	.61	.67	.46	9.8	1.32	9.0	.92	.99	7.6	1.58
28	27.5	.51	.61	.56	.46	9.2	1.32	.41	45	.99	10.6	4.9
29	.86	.46	.61	.51	6.6	8.6	1.32	-	82	.99	1.58	.99
30	.56	.46	.61	.61	37	7.8	1.32	-	11.3	.99	.99	5.3
31	.51	.46	-	.67	-	8.1	1.32	-	5.6	-	.99	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	57	0.29	4.78	7.40	148	454
August	.67	.46	.481	.744	14.9	46
September	1.15	.41	.619	.958	18.6	57
October	.80	.51	.625	.967	19.4	60
November	37	.29	2.99	4.63	89.8	276
December	339	.56	27.2	42.1	844	2,590
Calendar year 1946	339	.12	6.56	10.1	2,390	7,340
January	44	.10	6.33	9.79	196	602
February	21.5	.41	2.00	3.09	56.0	172
March	82	.61	8.14	12.6	252	775
April	73	.43	6.21	9.61	186	572
May	67	.73	8.81	13.6	273	838
June	5.3	.80	1.22	1.89	36.7	113
Fiscal year 1946-47	339	.10	5.85	9.05	2,130	6,560

a No gage-height record; discharge computed on basis of records for stations at Lowrie ditch siphon and above Haiku ditch.

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 1947.

Average discharge.- 24 years (1923-47), 114 million gallons a day (176 second-feet).

Extremes.- Maximum discharge during year, 189 million gallons a day (292 second-feet) Mar. 28 (gage height, 6.18 feet); minimum, 14.8 million gallons a day (22.9 second-feet) Nov. 13.

1922-47: Maximum discharge, that of Mar. 28, 1947; minimum, 6.1 million gallons a day (9.4 second-feet) Jan. 30, 1946.

Remarks.- Records excellent. Wailoa ditch receives the 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	81	128	81	156	128	176	82	59	176	156	86	115
2	72	116	111	163	172	172	100	56	176	149	142	110
3	66	121	86	108	140	176	72	53	172	154	168	95
4	53	116	59	114	116	180	82	53	126	128	180	93
5	59	93	63	86	180	176	86	50	96	128	176	85
6	121	86	59	72	176	180	104	47	128	166	176	79
7	164	79	57	83	172	180	116	47	172	175	160	80
8	136	76	56	128	164	176	116	47	170	180	164	70
9	168	76	50	76	168	164	162	44	128	172	116	67
10	176	72	47	69	140	148	143	47	112	168	168	63
11	176	66	44	69	142	128	128	41	86	156	176	65
12	168	63	44	72	132	108	132	38	79	180	180	82
13	172	142	44	66	108	97	116	39.5	86	180	176	85
14	160	158	83	59	104	128	165	46	180	168	156	77
15	156	86	147	56	112	180	164	38	176	144	135	60
16	176	69	75	53	82	176	144	36.5	148	124	115	55
17	176	66	69	50	84	185	128	35	120	110	105	54
18	176	68	137	56	79	180	116	35	97	97	95	55
19	172	112	141	72	72	174	104	33.5	86	90	90	50
20	176	91	88	90	69	185	97	33.5	79	82	90	55
21	172	63	69	59	66	117	90	32	76	76	130	48
22	164	59	66	121	80	76	82	32	72	72	162	45
23	144	70	66	143	86	82	79	30.5	74	69	155	55
24	128	66	68	112	72	76	82	30.5	142	69	150	53
25	108	59	59	69	63	76	79	53	170	63	162	53
26	128	96	53	127	56	72	74	176	137	59	165	85
27	180	76	105	97	53	82	88	176	164	63	165	130
28	180	102	130	93	81	90	87	152	176	59	165	162
29	176	80	134	128	176	86	84	-	176	53	162	155
30	168	93	116	168	176	86	75	-	180	56	150	162
31	152	66	-	136	-	88	72	-	172	-	135	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	180	53	145	224	4,500	13,820
August	158	59	87.5	135	2,710	8,330
September	147	44	79.6	123	2,390	7,330
October	168	50	95.2	147	2,950	9,060
November	180	53	115	178	3,450	10,580
December	185	72	135	209	4,200	12,880
Calendar year 1946	185	14.8	105	162	38,430	117,900
January	165	72	105	162	3,250	9,970
February	176	30.5	55.8	86.3	1,560	4,790
March	180	72	133	206	4,130	12,680
April	180	53	118	183	3,550	10,880
May	180	86	147	227	4,560	13,980
June	162	45	81.4	126	2,440	7,500
Fiscal year 1946-47	185	30.5	109	169	39,690	121,800

Note.- No gage-height record May 14 to June 30; discharge computed on basis of notes by East Maui Irrigation Co.

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 1947.

Average discharge.- 29 years, 28.1 million gallons a day (43.5 second-feet).

Extremes.- Maximum discharge recorded during year, 125 million gallons a day (193 second-feet) Dec. 17 (gage height, 6.18 feet); minimum daily, 0.2 million gallons a day (0.31 second-foot) Jan. 1-8.
1918-47: 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.93	2.55	0.58	30.5	2.0	93	0.2	4.0	101	19.8	1.02	3.15
2	.87	2.1	2.0	53	63	76	.2	4.0	101	29.5	15.9	2.85
3	.45	2.0	.66	2.4	19.1	97	.2	3.0	70	76	63	2.55
4	.36	4.7	.51	2.1	4.4	97	.2	.76	8.1	24.5	104	2.0
5	.28	1.58	.55	1.52	99	70	.2	.71	3.1	26	101	1.52
6	1.09	1.38	.58	1.13	83	102	.2	.66	33.5	101	94	1.45
7	54	1.25	.36	2.1	48	93	.2	.62	77	102	23	1.31
8	8.0	1.13	.28	24	22.5	69	.2	.58	72	101	13.8	1.18
9	67	1.08	.28	.66	46	22	65	.55	3.8	47	2.85	1.13
10	91	.97	.28	.58	3.35	3.15	35	.51	2.15	36.5	62	1.08
11	97	.82	.26	.62	22	2.4	40	.43	1.78	40	88	1.02
12	65	.71	.26	.62	16.1	f2.0	40	.39	1.65	104	101	1.13
13	89	11.0	.24	.55	5.8	1.1	80	.43	13.4	99	97	1.13
14	15.2	51	.32	.51	1.51	25	87	.43	104	34	25.5	.97
15	27	1.30	38	.47	5.8	92	40	.43	83	8.0	6.1	.76
16	99	.71	1.52	.43	11.5	90	20	.39	8.4	5.2	3.45	.71
17	101	.66	.58	.43	12.0	102	14	.39	4.9	3.55	2.4	.66
18	99	.66	23.5	.47	11.2	85	12	.39	3.05	3.15	1.52	.71
19	83	24	37.5	.51	1.70	51	10	.36	2.65	2.65	1.52	.66
20	85	2.6	1.25	.72	.71	18.6	9.0	.32	2.4	2.4	1.25	.66
21	97	1.25	.76	.55	.66	41	8.0	.32	2.35	2.1	18.1	.62
22	42	.76	.98	4.1	.92	12.9	7.0	.28	1.65	1.85	97	.47
23	4.5	.62	.58	33.5	1.13	8.5	7.0	.28	1.52	1.72	28	.43
24	2.35	.62	.36	11.6	.97	.65	7.0	.28	27.5	1.55	34.5	.36
25	1.93	.55	.32	1.08	.71	.26	6.0	8.8	70	1.45	57	.36
26	16.6	.66	.28	13.0	.66	.24	6.0	101	2.55	1.25	102	.55
27	104	.71	80	2.1	.62	.24	5.0	97	26.5	1.18	78	.35
28	102	.98	25.5	1.18	4.9	.21	6.0	29.5	96	1.13	91	.69
29	91	.82	11.4	8.5	93	.21	5.0	-	102	1.02	46	.21
30	35	1.22	1.18	53	99	.21	6.0	-	99	1.02	13.8	.66
31	4.7	.71	-	14.8	-	f.21	5.0	-	58	-	6.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	104	0.28	47.9	74.1	1,490	4,560
August	51	.55	3.91	6.05	121	372
September	80	.24	7.70	11.9	231	709
October	53	.43	8.60	13.3	267	819
November	99	.62	22.7	35.1	681	2,090
December	102	.21	40.5	62.7	1,260	3,850
Calendar year 1946	104	.15	27.7	42.9	10,100	30,990
January	87	.2	16.8	26.0	522	1,600
February	101	.28	9.17	14.2	257	788
March	104	1.52	38.2	59.1	1,180	3,630
April	104	1.02	29.3	45.3	880	2,700
May	104	1.02	44.5	68.9	1,380	4,240
June	3.15	.21	1.04	1.61	31.3	96
Fiscal year 1946-47	104	.2	22.7	35.1	8,300	25,450

f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Dec. 13-15, Jan. 1 to Feb. 3; discharge computed on basis of notes furnished by East Maui Irrigation Co.

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 1947.

Average discharge.- 14 years (1918-22, 1937-47), 2.75 million gallons a day (4.25 second-feet).

Extremes.- Maximum discharge during year, 44 million gallons a day (68 second-feet) July 27 (gage height, 3.00 feet); no flow many times.
1918-22, 1936-47: 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.04	0.05	0.02	0	0	9.1	0.04	0.03	15.5	1.54	0.01	0.03
2	.03	.04	.02	.05	9.7	5.6	.05	.03	12.9	5.9	.01	.03
3	.02	.05	.02	0	0	18.6	.04	.02	2.85	3.3	9.0	.03
4	.02	.04	.02	0	.02	7.3	.04	.02	.09	.06	19.2	.03
5	.02	.04	.01	0	31.5	3.75	.04	.02	.05	.54	6.4	.03
6	.02	.03	.02	0	23	.77	.04	.02	1.64	26	9.3	.03
7	1.16	.03	.01	0	2.4	.50	.04	.02	2.2	4.7	6.5	.03
8	.05	.03	.01	.38	2.8	.25	.04	.02	8.0	.81	6.5	.03
9	.22	.03	.01	0	2.05	.09	.03	.02	.07	.12	6.5	.02
10	5.7	.02	.01	0	.05	.09	.03	.02	.05	.09	6.5	.02
11	7.0	.02	0	0	.42	.07	.04	.01	.04	3.85	9.3	.02
12	.51	.02	0	0	.05	.05	.06	.01	.03	22.5	12.8	.02
13	1.39	.03	.01	0	.04	.04	.03	.01	2.25	9.6	6.2	.03
14	.09	.06	.02	0	.03	3.5	.03	.01	28.5	.14	.02	.03
15	3.5	.04	.03	0	.05	21	.03	.01	4.5	.07	0	.03
16	16.3	.03	.03	0	.05	11.9	.02	.01	.10	.05	0	.02
17	15.0	.03	.02	0	1.32	13.4	.02	.01	.10	.04	0	.02
18	8.2	.03	.02	0	1.48	.06	.02	.01	.05	.04	0	.02
19	2.8	.04	.08	0	1.40	.07	.02	.01	.04	.03	0	.02
20	3.85	.03	.02	0	.03	.09	.02	.01	.04	.02	0	.02
21	3.8	.03	.01	0	.02	.14	.02	.01	.04	.02	0	.02
22	.39	.03	.01	0	.02	.05	.02	.01	.03	.02	11.4	.02
23	.05	.03	0	2.25	.03	.02	.04	.01	.03	.02	0	.02
24	.04	.02	0	0	.02	.02	.04	.02	3.9	.02	.30	.02
25	.03	.02	0	0	.02	.02	.04	.74	7.1	.02	.31	.02
26	4.0	.02	0	0	.02	.01	.03	11.8	.05	.02	15.7	.02
27	36	.02	0	0	.02	.01	.03	7.0	.03	.01	1.60	.03
28	23.5	.02	0	0	.02	.01	.04	3.3	12.4	.01	2.25	1.54
29	6.7	.02	0	0	11.0	.01	.03	-	4.9	.01	.55	.05
30	.16	.03	0	5.6	18.0	.01	.03	-	4.4	.01	.10	.71
31	.07	.02	-	0	-	.01	.03	-	4.2	-	.03	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	36	0.02	4.54	7.02	141	432
August	.06	.02	.031	.048	.95	2.9
September	.08	0	.013	.020	.40	1.2
October	5.6	0	.267	.413	8.28	25
November	31.5	0	3.52	5.45	106	324
December	21	.01	3.11	4.81	96.5	296
Calendar year 1946	36	0	3.35	5.18	1,220	3,750
January	.06	.02	.033	.051	1.03	3.2
February	11.8	.01	.829	1.28	23.2	71
March	28.5	.03	3.74	5.79	116	356
April	26	.01	2.85	4.10	79.4	244
May	19.2	0	4.21	6.51	130	400
June	1.54	.02	.099	.153	2.96	9.1
Fiscal year 1946-47	36	0	1.93	2.99	706	2,160

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 1947. January 1910 to March 1927 at site 1½ miles downstream.

Average discharge.- 33 years (1910-26, 1930-47), 30.8 million gallons a day (47.7 second-feet).

Extremes.- Maximum discharge recorded during year, 58 million gallons a day (90 second-feet) Mar. 29 (gage height, 4.81 feet); minimum, 0.98 million gallons a day (1.52 second-feet) Jan. 6, 7.
1930-47: 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 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	26.5	31.5	5.0	13.0	6.4	49	1.23	3.75	47	28	7.3	26.5
2	7.0	28	6.1	22	33	41	1.50	3.3	47	33.5	11.6	18.2
3	4.2	23	4.6	7.0	11.9	49	1.23	3.05	45	45	27	19.5
4	3.45	17.0	4.2	6.8	6.7	45	1.06	2.9	43	21	52	13.3
5	2.8	12.8	4.3	11.1	49	31.5	1.06	3.2	22	26.5	49	11.6
6	3.3	11.4	4.9	9.3	49	49	.98	2.9	30	49	45	10.7
7	23.5	10.5	4.0	5.0	30	45	5.3	3.1	47	52	23	9.0
8	23.5	9.4	3.75	17.4	21	14.8	11.3	10.3	38.5	47	22	8.0
9	36	9.2	3.6	5.5	36	22	8.8	6.2	16.5	28	25.5	7.4
10	45	8.4	3.6	4.5	16.2	24.5	5.6	5.2	29	33.5	31.5	7.1
11	49	7.8	3.05	4.8	20.5	31.5	10.0	5.0	19.5	33.5	41	6.9
12	38.5	7.3	3.2	4.5	23	26.5	44	4.8	11.4	54	52	7.8
13	43	10.9	3.05	3.9	24.5	16.0	15.8	4.6	13.5	52	47	9.0
14	15.8	36	4.5	3.6	8.0	19.0	23	5.7	52	41	30	7.6
15	31.5	8.4	26	3.45	8.8	52	13.1	4.5	43	36	30	6.5
16	52	6.9	15.0	3.45	12.3	49	9.8	4.2	21	33.5	18.2	6.0
17	52	6.5	4.5	3.2	7.7	30	8.6	4.0	23	29	11.6	5.7
18	52	6.5	8.7	3.3	6.2	4.6	7.6	4.0	23	21	10.5	6.0
19	45	24	15.6	3.6	5.3	2.75	6.9	3.9	33.5	14.5	11.4	5.5
20	45	8.2	5.3	4.4	8.5	3.25	6.4	3.6	21	13.1	9.6	6.0
21	52	6.2	7.4	3.6	5.2	17.4	5.7	3.6	11.9	11.9	14.2	5.5
22	36	5.5	5.8	4.4	5.7	4.2	5.3	3.6	11.0	10.7	50	5.7
23	25.5	5.3	4.3	14.3	6.7	3.2	4.8	3.3	10.0	10.0	41	6.0
24	30	6.0	5.0	9.5	5.5	2.7	4.8	3.3	17.4	9.8	33.5	5.7
25	30	5.2	4.3	5.6	4.8	2.4	4.3	7.6	47	8.8	38.5	5.3
26	18	5.7	3.6	14.6	4.5	2.05	3.9	47	31.5	8.4	52	7.6
27	54	5.7	5.9	8.4	4.2	1.92	3.9	49	23	8.0	52	26.5
28	54	5.8	20.5	6.0	4.5	1.70	4.0	31.5	42	7.4	52	47
29	49	5.7	9.8	6.4	45	1.50	4.2	-	54	7.1	43	24.5
30	33.5	7.6	6.5	23	52	1.41	7.1	-	54	6.9	25.5	41
31	30	5.3	-	12.3	-	1.32	4.3	-	41	-	31.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	54	2.8	32.6	50.4	1,010	3,100
August	36	5.2	11.2	17.3	348	1,070
September	26	3.05	6.87	10.6	206	632
October	23	3.2	8.00	12.4	248	761
November	52	4.2	17.4	26.9	522	1,600
December	52	1.32	20.8	32.2	645	1,980
Calendar year 1946	58	1.32	18.9	29.2	6,910	21,190
January	44	.98	7.60	11.8	236	723
February	49	2.9	8.47	13.1	237	728
March	54	10.0	31.2	48.3	969	2,970
April	54	6.9	26.0	40.2	780	2,390
May	52	7.3	31.9	49.4	988	3,030
June	47	5.3	12.4	19.2	373	1,150
Fiscal year 1946-47	54	.98	18.0	27.9	6,560	20,130

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 1947. 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.- 35 years (1910-28, 1930-47), 23.5 million gallons a day (36.4 second-feet).

Extremes.- Maximum discharge during year, 77 million gallons a day (119 second-feet) Mar. 28 (gage height, 3.24 feet); minimum, 0.20 million gallons a day (0.31 second-foot) Oct. 21, 22.

1910-28, 1930-47: 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 Kailua Stream and the Maliko Gulch. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.02	3.15	0.71	0.24	0.22	49	0.44	4.8	62	2.6	1.25	1.95
2	.48	2.95	.65	1.34	12.3	12.3	.44	4.3	44	13.2	2.55	1.74
3	.30	3.0	.62	.26	.58	29	.44	5.9	32	30.5	21	1.67
4	.28	2.65	.58	.24	.24	15.2	.44	8.4	4.7	3.3	59	1.53
5	.38	2.1	.58	.24	66	6.7	.44	8.1	2.95	2.6	23.5	1.39
6	1.47	1.81	.62	.24	58	47	10.7	8.3	10.1	49	31.5	1.39
7	11.3	1.67	.54	.34	3.55	13.9	26	8.9	26	65	2.25	1.32
8	.65	a1.6	.51	.60	1.13	14.4	48	1.53	21.5	30.5	1.95	1.19
9	3.35	a1.5	.30	.24	1.47	5.3	24	1.13	2.85	3.7	1.67	1.13
10	30.5	a1.4	.26	.22	.77	4.2	11.2	1.01	2.35	3.8	2.25	1.07
11	62	a1.3	.24	.24	1.24	3.05	25	.95	2.05	15.7	32.5	1.13
12	11.2	a1.2	.24	.24	.89	2.45	27.5	.95	1.53	59	56	1.19
13	6.3	a5.0	.26	.22	1.43	2.1	3.6	.95	3.7	26.5	30.5	1.39
14	1.32	a25	.34	.22	.54	9.5	44	.95	71	6.6	2.5	1.01
15	9.4	1.53	10.4	.22	.61	65	29.5	.83	24.5	5.2	2.1	.89
16	68	1.25	.61	.22	.40	40	20	.77	2.35	5.1	1.95	.83
17	58	1.13	.28	.22	.40	5.0	16.8	.77	3.3	3.7	1.67	.77
18	56	1.13	.28	.22	.28	1.13	14.4	.71	1.81	3.3	1.46	.83
19	22.5	2.15	.34	.22	.26	1.01	12.6	.71	1.67	2.95	1.60	.77
20	38	1.32	.26	.22	.28	1.05	10.8	.65	1.53	2.5	1.53	.89
21	50	1.07	.26	.20	.24	2.6	9.7	.65	1.25	2.2	1.39	.77
22	8.2	.95	.30	.20	.24	.65	8.1	.62	1.13	2.05	54	.77
23	2.6	1.01	.26	.49	.26	.67	7.1	.62	1.07	1.88	6.3	.77
24	2.1	.89	.24	.26	.24	.71	7.1	.58	9.4	1.88	7.8	.83
25	1.74	.83	.24	.22	.22	.58	6.5	2.65	39	1.60	15.3	.77
26	5.7	.83	.24	.42	.24	.54	5.7	62	1.74	1.53	57	.83
27	74	.83	.24	.24	.22	.48	5.6	54	1.32	1.46	36.5	14.9
28	68	1.10	.42	.22	.24	.48	5.7	7.1	42	1.25	53	34
29	18.6	.83	.26	.24	46	.48	6.2	-	68	1.19	12.6	1.95
30	4.3	.95	.24	.48	71	.48	6.0	-	65	1.19	2.5	26.5
31	3.4	.77	-	.28	-	.48	5.9	-	23.5	-	2.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	74	0.28	20.0	30.9	621	1,910
August	25	.77	2.35	3.64	72.9	224
September	10.4	.24	.711	1.10	21.3	65
October	1.34	.20	.305	.472	9.45	29
November	71	.22	8.98	13.9	269	827
December	65	.48	10.8	16.7	335	1,030
Calendar year 1946	74	.20	10.9	16.9	3,980	12,230
January	48	.44	12.9	20.0	400	1,230
February	62	.58	6.74	10.4	189	579
March	71	1.07	18.6	28.8	575	1,770
April	65	1.19	11.7	18.1	351	1,080
May	59	1.25	17.0	26.3	527	1,620
June	34	.77	3.54	5.48	106	326
Fiscal year 1946-47	74	.20	9.53	14.7	3,480	10,690

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

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 1947.

Average discharge.- 16 years (1931-47), 6.94 million gallons a day (10.7 second-feet).

Extremes.- Maximum discharge during year, 99 million gallons a day (153 second-feet) Dec. 12, Feb. 5 (gage height, 3.88 feet); minimum, 0.14 million gallons a day (0.22 second-foot) Feb. 20 to Mar. 1.

1930-47: 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.0	0	0.5	1.70	1.6	9.9
.1	.18	.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	3.5	65

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.42	6.0	4.0	4.5	8.6	4.2	6.3	1.4	3.6	13	3.8	5.4
2	.60	5.6	4.2	4.0	9.4	6.8	5.9	1.1	15.3	15	3.5	4.8
3	.56	7.4	3.9	3.5	9.0	8.8	5.5	.90	14.0	11.5	3.35	4.2
4	.67	6.0	4.1	3.2	9.0	10.4	5.2	.80	9.4	12.1	4.2	3.8
5	.49	5.6	3.8	3.0	11.8	10.4	5.0	.67	8.6	11.5	3.9	3.65
6	.60	5.6	3.6	3.5	12.9	27	4.7	.60	8.6	11	5.6	3.45
7	1.08	5.0	3.4	4.0	11.5	25	4.5	.53	8.6	10	5.0	3.25
8	1.04	4.7	3.2	4.6	11.5	26	4.2	.46	9.0	11	4.8	3.05
9	1.12	4.6	3.1	3.4	10.9	23.5	4.0	.42	9.9	10	4.7	2.8
10	1.79	4.3	2.9	2.95	10.4	23.5	3.8	.37	10.2	9.5	4.5	2.65
11	2.55	4.0	2.65	2.65	9.9	21.5	3.6	.32	9.4	10	10	2.5
12	2.15	3.85	2.5	3.35	9.9	19.5	3.4	.30	9.0	9.5	8.0	2.3
13	1.98	3.65	2.3	3.35	11.9	16	4.0	.30	9.0	9.0	7.0	2.6
14	1.81	3.65	2.25	4.4	10.4	14	7.0	.28	10.8	8.5	6.2	2.7
15	1.70	3.6	2.1	3.6	10.4	12	4.5	.28	13	8.0	5.5	2.15
16	5.0	6.5	1.92	3.5	10.4	21	3.5	.25	11	7.7	5.1	1.98
17	4.8	5.6	1.81	3.65	9.9	40	3.0	.23	10	7.5	4.8	1.92
18	9.9	5.2	1.92	3.5	9.0	25	2.6	.18	9.5	7.2	4.6	1.86
19	10.3	4.4	1.81	4.1	8.6	50	2.2	.18	9.0	6.8	4.4	1.70
20	12.8	4.4	1.65	3.85	7.6	35	2.0	.16	8.6	6.0	4.3	1.60
21	11.5	3.9	1.55	3.85	7.2	25	1.8	.14	8.3	5.6	4.2	1.46
22	11.5	4.0	1.46	4.4	6.8	17	1.7	.14	8.2	5.1	4.0	1.36
23	10.9	4.4	1.36	4.8	6.4	14	1.6	.14	8.8	4.7	5.8	1.26
24	10.4	4.1	1.41	4.9	6.0	12	1.5	.14	9.4	5.3	5.5	1.21
25	9.9	3.9	1.41	4.9	5.5	11	1.4	.14	11	5.1	5.2	1.21
26	9.4	4.2	1.21	5.6	5.0	10	1.3	.14	9.4	4.7	5.5	1.31
27	8.6	3.9	1.26	6.0	4.7	9.0	1.2	.14	8.5	4.7	6.4	1.16
28	8.1	3.8	1.3	6.0	4.4	8.0	1.1	.14	8.0	4.4	5.8	2.3
29	7.6	3.8	4.0	6.4	4.1	7.5	2.0	-	9.0	4.1	5.4	2.05
30	6.8	3.7	3.0	7.4	4.0	7.0	3.0	-	13	3.95	5.2	2.25
31	6.4	3.6	-	8.1	-	6.5	2.1	-	11	-	5.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.8	0.42	5.24	8.11	162	499
August	7.4	3.6	4.61	7.13	143	439
September	4.2	1.21	2.50	3.87	75.1	230
October	8.1	2.65	4.35	6.73	135	414
November	12.9	4.0	8.57	13.3	257	789
December	50	4.2	17.6	27.2	547	1,680
Calendar year 1946	50	.40	7.45	11.5	2,720	8,350
January	7.0	1.1	3.34	5.17	104	318
February	1.4	.14	.388	.600	10.8	33
March	15.3	3.6	9.71	15.0	301	924
April	15	3.95	8.08	12.5	242	744
May	10	3.35	5.20	8.05	161	495
June	5.4	1.16	2.46	3.81	73.9	227
Fiscal year 1946-47	50	.14	6.06	9.38	2,210	6,790

Note.- No gage-height record Sept. 28 to Oct. 7, Dec. 13 to Feb. 4, Mar. 15 to Apr. 2, Apr. 6-17, May 8 to June 3; discharge computed on basis of records for Wailuku River.

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 1947.
Average discharge.- 17 years (1929-40, 1941-47), 172 million gallons a day (266 second-feet).
Extremes.- Maximum discharge during year, 8,910 million gallons a day (13,800 second-feet) Dec. 20 (gage height, 17.38 feet), from rating curve extended above 3,400 million gallons a day by logarithmic plotting; minimum, 0.4 million gallons a day (0.6 second-foot) Feb. 27.
1928-47: 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 good except those for periods of no gage-height record, which are 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.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

1.2	0.6	1.8	7.7	3.0	55	8.0	870
1.3	1.0	1.9	10.2	3.5	87	9.0	1,170
1.4	1.8	2.1	16.7	4.0	127	10.0	1,520
1.5	2.8	2.3	24	5.0	245	11.0	2,020
1.6	4.1	2.5	31.5	6.0	400	12.0	2,690
1.7	5.8	2.7	40	7.0	610	13.1	3,600

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.0	31.5	30	120	169	95	50	13.3	88	410	26	23.5
2	10	31.5	32	80	241	48	48	9.7	1,310	690	24	21.5
3	8.0	125	31	62	127	132	36	8.2	2,050	684	23.5	18.6
4	11	91	29	54	87	421	31.5	6.9	355	529	65	16.7
5	7.0	45	27	50	253	168	27.5	6.6	234	245	48	14.7
6	14	40	26	60	305	3,210	26	6.0	231	260	94	13.0
7	25	38	25	75	137	1,040	23.5	5.0	180	368	50	11.1
8	22	31.5	24	100	94	500	23.5	4.6	197	651	56	10.0
9	30	26	23	84	104	298	23	4.6	365	260	42	8.7
10	50	24	21	64	67	607	20.5	3.7	245	169	102	8.7
11	80	24	20	48	101	476	19.0	3.1	158	127	748	8.4
12	66	23	19	48	68	246	17.5	2.8	94	94	622	8.2
13	56	23	18	42	152	180	23.5	2.6	67	70	406	10.8
14	50	22	17	64	97	127	60	2.9	75	55	188	58
15	45	21	16	68	67	94	29.5	2.9	187	48	110	19.7
16	100	70	15	66	50	87	22	2.8	94	40	87	13.0
17	200	60	14	56	50	678	17.1	3.6	64	40	61	10.5
18	300	54	13	64	48	2,790	15.3	2.8	52	34	52	14.0
19	400	47	12	137	38	1,040	13.6	2.4	50	27.5	50	13.3
20	520	41	12	87	31.5	3,590	11.8	2.0	42	26	40	8.7
21	374	37	11	89	27.5	1,870	10.0	1.7	40	23.5	34	6.8
22	287	34	11	74	26	1,030	9.4	1.6	40	21.5	29.5	5.6
23	142	32	10	102	24	710	8.7	1.0	50	27.5	38	4.4
24	94	31	9.5	97	26	412	9.2	.9	64	89	36	5.1
25	64	30	9.0	64	26	275	7.7	.9	80	148	29.5	5.8
26	50	29	8.5	85	22	192	7.7	.9	48	55	32	8.2
27	42	28	9.0	94	20.5	147	7.3	.7	40	55	55	8.4
28	46	28	11	160	21	110	5.5	.7	48	45	40	59
29	52	27	90	214	18.6	87	23	-	222	34	34	34
30	40	27	50	213	16.4	70	47	-	277	29.5	26	45
31	38	26	-	320	-	61	26	-	141	-	24	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	520	5.0	104	161	3,230	9,910
August	125	21	38.6	59.7	1,200	3,670
September	90	8.5	21.4	33.1	643	1,970
October	320	42	94.9	147	2,940	9,030
November	305	16.4	83.8	130	2,510	7,720
December	3,590	48	671	1,040	20,790	63,810
Calendar year 1946	3,590	4.0	187	289	68,160	209,200
January	60	5.5	22.6	35.0	700	2,150
February	13.3	.7	3.75	5.80	105	322
March	2,050	40	232	359	7,190	22,080
April	690	21.5	179	277	5,360	16,440
May	748	23.5	106	164	3,270	10,040
June	59	4.4	16.4	25.4	493	1,510
Fiscal year 1946-47	3,590	.7	133	206	48,430	148,600

Peak discharge.- Dec. 6 (1 p.m.) 7,370 m.g.d. (11,400 sec.-ft.); Dec. 18 (3 a.m.) 7,610 m.g.d. (11,800 sec.-ft.); Dec. 20 (3 p.m.) 8,910 m.g.d. (13,800 sec.-ft.); Mar. 3 (2 a.m.) 6,870 m.g.d. (10,600 sec.-ft.).
Note.- No gage-height record July 1-19, July 23 to Oct. 8; discharge computed on basis of records for Waiakea Stream and rainfall records.

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 Piihonua, and 6 miles west of Hilo.

Records available.- March 1938 to June 1947. July 1941 to June 1942 (unpublished).

Extremes.- Maximum discharge during year, 8.5 million gallons a day (13.2 second-feet) Dec. 6 (gage height, 2.09 feet); minimum, 0.20 million gallons a day (0.31 second-foot) Mar. 11.

1938-47: 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 excellent. Water used to supplement the municipal supply of Hilo during dry periods.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.68	1.96	1.96	2.0	1.96	2.2	1.76	1.60	1.69	1.9	1.96	1.96
2	1.68	2.05	1.88	1.9	2.05	1.96	1.76	1.56	2.4	2.0	1.96	1.96
3	1.84	2.25	1.92	1.8	1.92	2.15	1.80	1.56	.46	1.98	1.92	1.92
4	1.88	2.1	1.92	1.8	1.88	2.2	1.76	1.53	.26	2.1	2.05	1.88
5	1.68	2.05	1.96	1.8	2.05	2.1	1.80	1.49	.24	2.0	1.96	1.88
6	1.84	2.05	1.92	1.8	1.92	4.1	1.84	1.49	.26	2.1	2.1	1.84
7	1.96	2.1	1.88	1.9	1.84	2.0	1.84	1.49	.24	2.2	1.96	1.84
8	1.92	2.05	1.92	2.0	1.88	1.88	1.76	1.46	.29	2.3	1.96	1.84
9	2.0	2.05	1.92	1.84	1.96	1.76	1.76	1.46	.28	2.15	1.96	1.80
10	2.05	2.1	1.88	1.84	1.96	1.96	1.72	1.46	.28	2.1	2.1	1.80
11	2.05	2.1	1.25	1.88	2.2	1.88	1.72	1.46	.27	2.1	2.3	1.76
12	2.0	2.1	2.15	1.96	2.05	1.84	1.72	1.46	.27	2.05	2.45	1.76
13	2.0	2.1	2.1	1.92	2.3	1.92	1.72	1.46	.27	2.05	2.1	1.84
14	1.96	2.15	2.0	1.96	1.96	1.96	1.76	1.46	1.60	2.0	2.05	1.88
15	2.05	2.1	1.9	1.98	2.0	1.96	1.72	1.49	1.68	2.0	2.05	1.84
16	2.3	2.15	1.9	1.88	1.96	2.05	1.76	1.49	1.56	2.0	2.05	1.76
17	2.2	2.1	1.9	1.92	1.96	2.15	1.76	1.49	1.49	1.96	2.0	1.76
18	2.5	2.1	1.9	1.96	1.96	1.72	1.72	1.49	1.46	2.0	2.0	1.84
19	2.25	2.15	1.9	1.96	1.96	.96	1.68	1.46	1.46	2.0	2.0	1.84
20	2.3	1.68	1.9	1.92	1.96	3.65	1.68	1.39	1.42	1.96	1.96	1.76
21	2.2	1.80	1.9	1.88	1.96	2.45	1.68	1.39	1.42	1.96	1.96	1.76
22	2.1	2.05	1.9	1.92	1.96	1.32	1.68	1.32	1.39	1.96	1.96	1.68
23	2.05	2.05	1.9	1.96	1.96	1.22	1.68	1.32	1.46	2.0	1.96	1.68
24	2.05	2.05	1.8	1.88	2.0	1.08	1.68	1.29	1.46	2.1	1.96	1.68
25	2.05	2.05	1.8	1.88	2.0	1.02	1.68	1.25	1.4	2.05	1.96	1.76
26	2.0	2.0	1.8	1.88	1.96	.99	1.68	1.22	1.4	2.05	2.0	1.80
27	1.96	1.96	1.8	1.92	1.96	.96	1.64	1.22	1.4	2.0	2.05	1.80
28	2.0	1.96	1.8	1.96	1.96	.93	1.72	1.19	1.4	1.96	1.96	1.92
29	2.0	2.0	2.0	2.05	1.92	.93	1.71	-	1.5	1.96	1.96	1.88
30	1.96	1.92	1.9	1.96	1.92	1.33	1.73	-	1.6	1.96	1.96	1.92
31	2.0	1.88	-	2.05	-	1.76	1.64	-	1.8	-	1.96	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.5	1.68	2.02	3.13	62.5	192
August	2.25	1.68	2.04	3.16	63.2	194
September	2.15	1.8	1.89	2.92	56.7	174
October	2.05	1.8	1.91	2.96	59.4	182
November	2.3	1.84	1.98	3.06	59.3	182
December	4.1	.93	1.82	2.82	56.4	173
Calendar year 1946	4.1	.93	2.09	3.23	763	2,340
January	1.84	1.64	1.73	2.68	53.6	164
February	1.60	1.19	1.43	2.21	40.0	123
March	2.4	.24	1.10	1.70	34.1	105
April	2.3	1.9	2.03	3.14	61.0	187
May	2.45	1.92	2.02	3.13	62.6	192
June	1.96	1.68	1.82	2.82	54.6	168
Fiscal year 1946-47	4.1	.24	1.82	2.82	663	2,040

Note.- No gage-height record Sept. 14 to Oct. 8, Mar. 11-13, Mar. 25 to Apr. 2; discharge computed on basis of recorded range in stage and records for Wailuku River.

Waiilikahi Stream near Waimanu
(Formerly published as Waimanuliilii Stream near Waimanu)

Location.- Lat. 20°07'40", long. 155°39'55", 30 feet upstream from Waimanu trail bridge, 1.7 miles upstream from confluence with Waimanu Stream, 1.9 miles southeast of the 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 1947.

Extremes.- Maximum discharge during year, 544 million gallons a day (842 second-feet) Dec. 20 (gage height, 5.17 feet), from rating curve extended above 10 million gallons a day by test on model of station site; minimum daily, 0.50 million gallons a day (0.77 second-foot) Feb. 24, 25.
1939-47: Maximum discharge, that of Dec. 20, 1946; minimum, 0.15 million gallons a day (0.23 second-foot) Mar. 17, 18, 1944.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

July 1-26				July 27 to June 30					
0.6	1.28	1.2	8.9	0.4	0.47	0.9	4.4	1.8	26.5
.7	2.0	1.4	13.3	.5	.95	1.0	5.7	2.0	35.5
.8	3.0	1.7	22.5	.6	1.60	1.2	9.0	2.5	69
1.0	5.5			.7	2.4	1.4	13.4	3.0	116
Note.- Same as following table above 1.7 feet.				.8	3.35	1.6	19.2	3.5	178

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.6	2.65	17.4	14.7	9.5	4.2	2.4	0.79	8.5	2.7	1.3	2.9
2	8.7	1.84	10.8	8.4	8.9	2.1	22	.75	6.1	4.0	1.8	2.2
3	4.1	1.68	2.6	2.15	7.2	14.7	12.3	.70	1.68	3.5	3.5	1.66
4	4.1	1.76	7.2	1.87	2.7	14.1	3.4	.67	1.08	2.5	51	1.60
5	2.0	3.1	2.15	2.15	29.5	3.45	2.7	.65	1.28	1.8	16.0	1.28
6	2.2	3.55	1.60	1.47	12.4	2.45	3.3	.63	7.7	7.0	23	1.08
7	5.6	2.1	1.40	1.08	4.8	1.84	4.1	.62	2.15	8.7	6.0	1.02
8	2.55	1.40	1.21	.90	2.45	2.55	22.5	.61	1.47	21.5	5.4	1.22
9	4.1	1.21	1.28	.81	3.85	1.87	6.9	.70	1.28	2.4	2.45	1.76
10	11.0	1.52	1.40	.76	1.84	4.0	3.9	1.3	1.81	2.6	14.0	1.54
11	16.0	1.68	4.5	.71	1.28	2.65	2.7	.73	1.04	6.7	26.5	4.0
12	2.9	3.7	2.6	.61	2.2	1.37	1.7	.65	1.02	41	20	3.1
13	17.5	3.8	1.84	.61	1.46	1.47	1.4	.58	1.28	9.3	9.3	4.8
14	5.8	3.05	1.47	.57	.85	9.4	1.2	.56	45	4.0	3.5	6.1
15	15.0	1.60	1.47	.57	.76	13.3	1.1	.55	13.4	2.9	2.0	3.1
16	9.8	5.8	1.08	.57	1.73	5.3	1.0	.54	2.8	2.5	1.5	1.60
17	9.9	4.2	1.08	.57	2.6	26	.95	.54	1.76	5.0	1.3	1.34
18	14.6	2.3	14.8	.98	1.28	58	.90	.54	1.40	6.0	1.2	1.08
19	13.7	3.1	8.6	2.2	.85	42	.85	.54	1.47	2.6	1.1	.95
20	9.5	2.9	2.0	1.28	.76	140	.82	.54	2.2	1.5	1.0	7.1
21	3.9	1.47	1.40	1.08	.76	24	.79	.53	2.65	1.4	.90	2.5
22	2.9	4.9	1.14	2.2	4.0	7.0	.76	.52	4.9	1.3	1.0	3.15
23	2.5	9.9	1.81	1.66	3.55	3.5	.74	.51	8.7	1.3	1.6	5.5
24	2.2	3.15	2.3	1.34	4.5	2.4	.72	.50	29	1.2	3.0	1.68
25	1.93	12.8	2.0	.81	1.40	1.9	.96	.50	14.2	2.2	7.6	1.85
26	19.0	16.8	1.76	5.5	1.08	1.6	7.7	9.6	3.4	2.5	15.2	2.4
27	33.5	5.3	1.95	2.15	1.32	1.5	3.45	12.5	6.0	2.0	12.7	9.0
28	14.1	5.7	3.7	1.08	1.16	1.4	5.0	5.6	32.5	1.8	11.2	8.6
29	7.1	11.2	8.4	1.20	1.08	1.3	1.3	-	7.2	1.1	9.2	3.9
30	4.2	17.4	4.4	3.35	3.2	5.2	1.0	-	4.0	1.2	5.7	5.6
31	8.5	3.9	-	6.4	-	10.6	.85	-	3.0	-	8.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	33.5	1.93	8.50	13.2	263	809
August	17.4	1.21	4.69	7.25	145	446
September	17.4	1.08	3.84	5.94	115	354
October	14.7	.57	2.25	3.48	69.7	214
November	29.5	.76	3.97	6.14	119	365
December	140	1.3	13.3	20.6	411	1,260
Calendar year 1946	140	.44	6.57	10.2	2,400	7,360
January	22.5	.72	3.85	5.96	119	366
February	12.5	.50	1.55	2.40	43.4	133
March	45	1.02	7.10	11.0	220	675
April	41	1.1	5.14	7.95	154	473
May	51	.90	8.66	13.4	269	824
June	9.0	.95	3.12	4.83	93.6	287
Fiscal year 1946-47	140	.50	5.54	8.57	2,020	6,210

Kaimu Stream near Waimanu

Location.- Lat. 20°08'30", long. 155°39'40", 300 feet upstream from Waimanu trail, 1.3 miles southeast from head of Awini ditch, 1.4 miles upstream from mouth, and 1.5 miles west of Waimanu. Altitude of gage, 1,980 feet (by barometer).

Drainage area.- 0.5 square mile.

Records available.- March 1939 to June 1947.

Extremes.- Maximum discharge recorded during year, 690 million gallons a day (1,070 second-feet) probably Dec. 20 (gage height, 4.00 feet), from rating curve extended above 7 million gallons a day by test on model of station site; minimum daily, 0.35 million gallons a day (0.54 second-foot) Oct. 14-18.

1939-47: Maximum discharge, 3,050 million gallons a day (4,720 second-feet) June 30, 1941 (gage height, 9.6 feet, from floodmarks), from rating curve extended above 7 million gallons a day by test on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) Feb. 16, 17, 1942, Feb. 1, 1943.

Remarks.- Records poor. No diversions.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.5	2.65	13	11	8.0	3.8	2.0	0.66	12.1	2.0	1.1	2.5
2	5.8	1.63	9.0	8.0	7.0	7.0	20	.62	9.6	3.0	1.6	2.0
3	2.9	1.41	2.5	1.9	6.6	13	10	.59	3.5	2.5	2.5	1.5
4	2.85	1.41	6.0	1.7	2.5	12	3.0	.57	1.80	1.7	35	1.4
5	1.29	2.45	2.0	2.0	20	3.0	2.0	.55	1.41	1.3	15	1.1
6	1.29	3.05	1.4	1.3	10	2.5	2.5	.54	11.1	6.0	20	.90
7	3.55	1.75	1.2	.90	5.0	1.70	3.0	.54	4.3	8.0	5.0	.83
8	1.61	.98	1.0	.75	2.0	3.3	16	.53	2.3	17	4.5	1.0
9	2.9	.83	1.1	.65	3.0	1.93	6.0	.60	1.63	2.3	2.2	1.2
10	8.6	.93	1.2	.55	1.5	6.4	3.0	.80	1.60	2.5	10	1.1
11	11.2	1.23	5.0	.48	1.1	2.9	2.0	.60	1.70	6.0	20	4.0
12	1.95	2.05	2.0	.43	3.0	1.41	1.3	.48	1.23	35	15	2.5
13	11.3	3.6	1.5	.38	1.5	1.35	1.2	.48	1.10	8.0	6.0	4.0
14	4.5	2.35	1.2	.35	.80	8.9	1.1	.48	40	3.0	2.5	5.0
15	9.0	1.23	1.2	.35	.70	11.4	.96	.48	10	2.5	1.5	2.5
16	7.9	5.0	.90	.35	2.0	3.2	.90	.48	2.0	2.0	1.2	1.3
17	7.6	4.0	.90	.35	2.5	20	.84	.48	1.6	3.5	1.1	1.0
18	10.8	2.0	11	.45	1.5	45	.79	.48	1.3	4.5	1.0	.92
19	9.8	2.9	7.0	2.0	.70	35	.75	.48	1.3	2.0	.90	.83
20	7.8	2.5	1.7	1.0	.60	90	.71	.48	1.5	1.2	.84	4.5
21	3.55	1.3	1.2	.90	.60	20	.69	.48	2.0	1.1	.78	2.0
22	1.99	4.0	1.0	1.5	3.7	6.0	.67	.45	4.0	1.1	.88	2.5
23	1.80	8.0	1.5	1.2	3.0	3.0	.64	.45	8.0	1.1	1.2	4.5
24	1.41	3.0	2.0	1.0	4.3	2.2	.64	.41	25	1.0	2.0	1.4
25	1.16	10	1.7	.70	1.2	1.8	1.0	.41	13	1.5	7.0	1.6
26	6.4	13	1.6	3.5	1.0	1.5	7.0	15.2	3.5	2.2	11	2.0
27	25	5.0	1.8	1.7	1.1	1.3	3.0	17.0	5.8	1.9	10	6.0
28	10.7	5.0	3.0	1.0	1.0	1.2	4.5	9.0	25	1.5	10	7.0
29	6.8	8.0	6.5	1.1	.90	1.1	1.1	-	7.0	.90	7.0	3.5
30	4.2	13	3.5	2.5	3.5	4.5	.80	-	3.0	1.0	5.0	4.5
31	7.3	3.5	-	5.0	-	7.0	.70	-	2.5	-	7.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25	1.16	6.01	9.30	186	572
August	13	.83	3.80	5.88	118	361
September	13	.90	3.15	4.87	94.6	290
October	11	.35	1.77	2.74	55.0	169
November	20	.60	3.34	5.17	100	308
December	90	1.1	10.4	16.1	323	992
Calendar year 1946	114	.35	5.27	8.15	1,920	5,900
January	20	.64	3.19	4.94	98.8	303
February	17	.41	1.94	3.00	54.3	167
March	40	1.10	6.77	10.5	210	644
April	35	.90	4.24	6.56	127	391
May	35	.78	6.74	10.4	209	641
June	7.0	.83	2.50	3.87	75.1	230
Fiscal year 1946-47	90	.35	4.52	6.99	1,650	5,070

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 1947.

Extremes.- Maximum discharge during year, 339 million gallons a day (525 second-feet) Dec. 20 (gage height, 5.32 feet), from rating curve extended above 4 million gallons a day by test on model of station site; minimum, 0.12 million gallons a day (0.19 second-foot) Feb. 24, 25.

1939-47: 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 above 0.5 million gallons a day, fair below. No diversions.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.11	0.7	2.85	1.7	20.5
.3	.29	.8	4.0	2.0	28
.4	.68	1.0	6.6	2.4	42
.5	1.22	1.2	9.9	3.0	68
.6	1.93	1.4	13.7	3.5	113

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.6	1.85	11.4	9.7	5.6	3.25	1.29	0.39	9.2	1.28	0.73	1.77
2	4.2	1.22	7.5	6.6	6.2	6.6	18.2	.33	6.6	1.90	.88	1.85
3	2.25	1.04	2.1	1.55	6.3	16.3	9.1	.29	2.35	1.80	1.31	1.41
4	2.0	1.10	5.1	1.16	2.15	14.3	2.3	.27	1.16	1.22	31.5	1.16
5	.99	1.70	1.62	1.35	14.4	2.95	1.55	.24	.93	.93	9.9	.99
6	.83	2.05	1.16	.83	8.6	1.85	1.93	.22	8.3	4.9	14.0	.78
7	1.30	1.22	.93	.63	4.2	1.22	2.55	.17	2.4	6.0	4.2	.63
8	1.24	.78	.83	.54	1.77	2.25	14.0	.17	1.41	15.0	3.65	.59
9	2.05	.59	.83	.46	2.7	1.29	5.2	.20	.93	2.7	1.55	.68
10	6.2	.68	.73	.42	1.28	6.7	2.4	.97	.96	1.63	6.4	.59
11	9.2	.78	2.2	.36	.83	2.3	1.55	.36	.99	7.8	15.7	3.85
12	1.62	1.59	1.65	.29	3.75	1.25	1.22	.24	.59	32	13.4	1.70
13	8.3	2.15	.93	.27	1.41	1.10	1.10	.22	.46	6.9	3.65	3.45
14	3.2	1.68	.88	.24	.68	7.6	1.10	.19	34.5	2.5	1.77	3.20
15	6.9	.88	.99	.27	.54	9.5	.83	.17	11.3	1.62	1.22	1.96
16	6.0	3.2	.63	.29	1.18	2.6	.68	.16	2.65	1.35	.99	.93
17	5.4	2.85	.59	.24	2.9	12.2	.54	.14	1.48	2.5	.83	.68
18	7.7	1.59	9.5	.27	.88	32.5	.50	.14	1.04	3.05	.73	.59
19	6.8	2.85	5.8	1.95	.54	29.5	.46	.17	.83	1.35	.73	.46
20	5.0	2.25	1.41	.63	.42	81	.42	.22	.89	.99	.59	2.9
21	2.3	.93	.88	.46	.39	15.7	.39	.14	1.45	.83	.50	1.24
22	1.41	2.75	.68	1.14	3.55	5.0	.36	.13	3.8	.83	.59	1.71
23	1.22	7.5	.73	.93	2.35	2.85	.33	.13	6.8	.83	1.01	4.0
24	.93	2.1	1.27	.59	4.2	1.93	.39	.12	21	.68	2.25	.93
25	.78	8.1	.99	.36	.93	1.48	1.04	.12	10.4	1.22	5.3	.83
26	8.5	11.4	.88	2.9	.73	1.22	7.3	15.7	3.2	1.36	8.5	1.22
27	18.1	4.0	.82	1.45	.59	1.04	3.15	15.9	5.4	1.10	8.1	3.7
28	7.1	3.95	2.5	.50	.88	.88	3.95	7.1	21	1.04	8.0	5.6
29	4.8	6.8	5.8	.36	.54	.78	1.00	-	5.8	.63	6.2	2.65
30	2.85	11.2	2.7	1.96	4.4	3.35	.59	-	2.0	.68	4.1	3.4
31	5.4	2.95	-	3.5	-	6.1	.46	-	1.41	-	6.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	18.1	0.78	4.42	6.84	137	421
August	11.4	.59	3.02	4.67	93.7	288
September	11.4	.59	2.47	3.82	74.0	227
October	9.7	.24	1.36	2.10	42.2	130
November	14.4	.39	2.83	4.38	84.9	261
December	81	.78	8.92	13.8	277	849
Calendar year 1946	81	.21	3.95	6.11	1,440	4,420
January	18.2	.33	2.77	4.29	85.9	264
February	15.9	.12	1.59	2.46	44.6	137
March	34.5	.46	5.52	8.54	171	525
April	32	.63	3.55	5.49	107	327
May	31.5	.50	5.31	8.22	165	505
June	5.6	.46	1.85	2.86	55.4	170
Fiscal year 1946-47	81	.12	3.66	5.66	1,340	4,100

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 1947.

Extremes.- Maximum discharge during year, 22 million gallons a day (34 second-feet) Dec. 20 (gage height, 1.73 feet), 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) Oct. 29.

1939-47: 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 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.14	0.7	3.5
.3	.40	.8	4.8
.4	.89	.9	6.4
.5	1.53	1.0	8.2
.6	2.4	1.2	13.4

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.24	0.35	0.69	0.73	0.21	0.30	0.60	0.30	1.05	0.55	0.35	0.55
2	.23	.30	.65	.40	.22	1.35	4.1	.30	.84	.55	.30	.50
3	.21	.27	.35	.23	.70	2.5	1.69	.30	.60	.50	.35	.45
4	.19	.27	.40	.21	.21	1.64	.95	.30	.45	.40	4.1	.45
5	.19	.27	.30	.21	1.63	.69	.78	.27	.40	.40	.89	.40
6	.17	.24	.27	.19	.50	.55	.74	.27	.75	.50	1.41	.40
7	.17	a.24	.27	.19	.30	.45	.69	.27	.40	.55	.69	.40
8	.17	a.24	.27	.19	.23	.40	1.56	.24	.30	1.14	.60	.35
9	.17	a.24	.27	.19	.23	.40	.78	.24	.30	.45	.55	.30
10	.27	a.23	.27	.19	.21	3.3	.74	.23	.30	.45	.55	.30
11	.97	a.23	.24	.17	.23	1.47	.64	.23	.27	2.05	1.24	.35
12	.21	a.23	.24	.17	2.1	.81	.69	.23	.27	8.3	1.37	.30
13	.59	.23	.24	.17	.58	.64	.60	.21	.30	1.21	.69	.30
14	.24	.21	.23	.17	.35	1.84	.60	.21	7.2	.84	.60	.30
15	.35	.21	.23	.17	.30	1.58	.55	.21	2.1	.69	.55	.30
16	.24	.23	.23	.17	.82	.93	.55	.19	.89	.64	.50	.30
17	.30	.24	.23	.17	.65	1.99	.50	.19	.69	.69	.45	.30
18	.35	.21	.30	.19	.35	4.6	.50	.19	.60	.69	.40	.30
19	.35	.21	.35	.19	.30	4.7	.45	.19	.50	.55	.40	.27
20	.27	.19	.23	.17	.27	10.4	.45	.19	.45	.50	.40	.27
21	.24	.19	.21	.17	.27	3.6	.40	.19	.40	.50	.40	.27
22	.21	.21	.21	.17	.27	1.70	.40	.17	.45	.45	.40	.28
23	.21	.57	.21	.17	.47	1.27	.40	.17	.62	.45	.35	.28
24	.19	.23	.21	.17	.47	1.02	.40	.17	2.35	.40	.40	.24
25	.21	.85	.21	.17	.30	.89	.45	.19	1.27	.40	.50	.23
26	1.42	.77	.19	.17	.27	.78	.72	5.2	.74	.40	1.66	.23
27	2.75	.40	.19	.17	.30	.74	.50	2.75	.89	.40	1.09	.23
28	1.04	.27	.23	.15	.27	.69	.70	.95	2.3	.35	1.16	.30
29	.60	.39	.35	.15	.24	.64	.35	-	1.24	.35	.74	.23
30	.45	.87	.21	.15	.35	.74	.35	-	.74	.30	.69	.23
31	.45	.35	-	.15	-	.84	.30	-	.64	-	.74	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.75	0.17	0.440	0.681	13.6	42
August	.87	.19	.321	.497	9.94	31
September	.69	.19	.283	.438	8.48	26
October	.73	.15	.202	.313	6.26	19
November	2.1	.21	.453	.701	13.6	42
December	10.4	.30	1.72	2.66	53.4	164
Calendar year 1946	10.4	.15	.572	.885	209	641
January	4.1	.30	.746	1.15	23.1	71
February	5.2	.17	.520	.805	14.6	45
March	7.2	.27	.977	1.51	30.3	93
April	8.3	.30	.855	1.32	25.6	79
May	4.1	.30	.791	1.22	24.5	75
June	.55	.23	.320	.495	9.61	29
Fiscal year 1946-47	10.4	.17	.639	.989	233	716

a Faulty gage-height record; discharge computed on basis of probable decrease in flow.

Paopao Stream near Waimanu

Location.- Lat. 20°09'05", long. 155°40'05", 150 feet upstream from Waimanu trail, 0.6 mile 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 1947.

Extremes.- Maximum discharge during year, 462 million gallons a day (715 second-feet) Dec. 20 (gage height, 5.55 feet), from rating curve extended above 8 million gallons a day by test on model of station site; minimum, 0.14 million gallons a day (0.22 second-foot) Feb. 25.
1939-47: Maximum discharge, that of Dec. 20, 1946; minimum, 0.08 million gallons a day (0.12 second-foot) July 27, 28, 1945.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.15	0.10	0.4	1.03	0.8	5.3	1.6	25
.2	.19	.5	1.78	1.0	8.7	2.0	41
.25	.33	.6	2.8	1.2	13.1	2.5	68
.3	.52	.7	4.0	1.4	18.4	3.0	98

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.70	0.74	5.4	3.4	2.55	1.22	0.70	0.33	3.5	0.74	0.27	0.80
2	1.24	.60	3.35	1.19	1.47	3.8	12.9	.30	4.2	.96	.30	.65
3	.56	.52	.90	.56	3.5	9.1	5.6	.27	1.56	.80	.50	.52
4	.48	.48	1.79	.36	.66	7.2	1.46	.27	.70	.56	21	.52
5	.24	.70	.70	.40	8.1	1.23	.96	.24	.56	.48	3.8	.44
6	.19	.74	.56	.33	3.05	.85	1.79	.24	4.0	1.36	6.6	.40
7	.24	.48	.52	.30	2.6	.60	1.29	.24	1.05	2.2	1.82	.36
8	.24	.36	.48	.33	.74	.48	7.1	.24	.56	7.6	1.40	.33
9	.48	.36	.48	.27	1.06	.44	2.4	.27	.48	.92	.70	.33
10	2.3	.36	.44	.24	.44	7.1	1.16	.33	.40	1.36	1.60	.33
11	4.1	.40	.67	.27	.40	1.54	.85	.24	.36	11.0	7.2	.71
12	.40	.48	.70	.27	4.6	1.01	.74	.19	.33	31	6.6	.74
13	4.1	.84	.44	.24	1.46	.85	.70	.19	.30	3.65	1.46	.82
14	.85	.52	.40	.22	.60	5.0	.70	.19	26.5	1.30	.80	1.03
15	2.05	.36	.36	.22	.48	5.8	.56	.19	9.7	.85	.60	.60
16	1.78	1.12	.33	.22	1.51	1.45	.52	.17	2.05	.74	.52	.33
17	1.94	1.25	.33	.22	2.7	5.9	.44	.17	.96	1.49	.48	.27
18	2.6	.67	1.38	.24	.78	20	.40	.17	.70	1.56	.44	.24
19	2.2	1.41	1.56	.44	.48	19.3	.36	.17	.56	.70	.44	.24
20	1.67	.89	.48	.27	.40	71	.33	.19	.52	.56	.36	.70
21	.85	.36	.40	.22	.36	a15	.33	.17	.52	.48	.36	.33
22	.60	1.03	.33	.22	.80	a4.3	.33	.15	1.38	.48	.40	.52
23	.56	3.9	.33	.24	1.84	a2.4	.33	.15	3.0	.48	.36	1.29
24	.48	.85	.33	.22	2.2	a1.3	.36	.15	11.3	.40	1.00	.30
25	.40	5.0	.33	.19	.56	a.80	.73	.15	7.0	.40	2.0	.24
26	5.4	5.4	.36	.72	.60	a.74	4.6	14.4	1.67	.52	7.2	.24
27	12.6	1.56	.33	.52	.48	a.74	1.65	11.8	3.05	.40	4.3	.70
28	3.6	1.47	.33	.33	.48	.65	2.1	3.15	10.8	.33	4.3	1.83
29	1.76	2.95	1.44	.33	.40	.60	.52	-	3.4	.30	2.45	.56
30	.96	5.4	.72	.61	2.2	1.29	.36	-	1.16	.27	2.15	1.06
31	1.89	1.16	-	.68	-	3.2	.33	-	.80	-	2.75	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.6	0.19	1.85	2.86	57.5	176
August	5.4	.36	1.37	2.12	42.4	130
September	5.4	.33	.872	1.35	26.2	80
October	3.4	.19	.460	.712	14.3	44
November	8.1	.36	1.58	2.44	47.5	146
December	71	.44	6.29	9.73	195	598
Calendar year 1946	71	.12	1.96	3.03	716	2,200
January	12.9	.33	1.70	2.63	52.6	161
February	14.4	.15	1.24	1.92	34.7	107
March	26.5	.30	3.32	5.14	103	316
April	31	.27	2.46	3.81	73.9	227
May	21	.27	2.71	4.19	84.0	258
June	1.83	.24	.581	.899	17.4	53
Fiscal year 1946-47	71	.15	2.05	3.17	748	2,300

a Faulty gage-height record; discharge computed on basis of probable decrease in flow.

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 1947.

Extremes.- Maximum discharge during year, 80 million gallons a day (124 second-feet) Dec. 20 (gage height, 3.60 feet), from rating curve extended above 1.8 million gallons a day by test on model of station site; minimum, 0.22 million gallons a day (0.34 second-foot) Feb. 22-24.

1939-47: 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 fair. No diversions.

Rating table, fiscal year 1946-47 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.24	0.6	2.05	1.4	10.5
.3	.54	.8	3.6	1.7	15.2
.4	.94	1.0	5.5	2.1	23
.5	1.45	1.2	7.8	2.5	32

Discharge, in million gallons, fiscal year July1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.66	0.74	2.5	2.25	1.00	0.85	0.66	0.36	2.1	0.74	0.42	0.74
2	.66	.70	1.94	1.31	.70	2.85	7.4	.33	1.95	.74	.42	.62
3	.54	.62	.86	.58	1.62	5.0	3.4	.30	1.08	.66	.48	.54
4	.45	.58	1.01	.48	.48	4.0	1.09	.30	.70	.54	11.2	.54
5	.39	.62	.70	.48	4.4	1.09	.86	.30	.58	.54	2.2	.51
6	.33	.62	.66	.45	1.35	.86	1.16	.30	2.15	.87	3.8	.48
7	.33	.54	.58	.42	.93	.70	.89	.27	.78	1.05	1.20	.48
8	.33	.51	.54	.39	.58	.62	3.8	.24	.58	3.55	.99	.48
9	.39	.48	.54	.39	.66	.54	1.36	.30	.54	.78	.74	.48
10	1.01	.48	.51	.39	.45	5.7	.86	.33	.51	.87	.87	.48
11	2.55	.45	.54	.39	.51	1.25	.74	.30	.45	6.1	3.55	.58
12	.54	.48	.58	.39	3.8	.95	.70	.30	.42	15.5	3.6	.62
13	1.74	.54	.51	.36	1.22	.78	.66	.27	.44	2.25	1.20	.62
14	.62	.48	.48	.39	.66	3.05	.62	.30	16.4	1.25	.82	.82
15	1.21	.42	.45	.39	.54	3.05	.54	.27	4.3	.94	.70	.54
16	.92	.56	.42	.36	1.18	1.20	.54	.27	1.30	.82	.62	.42
17	.94	.82	.42	.36	1.67	4.1	.48	.27	.86	1.00	.58	.39
18	1.34	.48	1.34	.39	.74	10.0	.48	.33	.74	1.17	.54	.36
19	1.25	.62	1.19	.39	.54	10.7	.48	.33	.66	.74	.54	.36
20	.94	.58	.48	.33	.51	25.5	.45	.30	.58	.66	.51	.48
21	.74	.39	.42	.33	.48	6.1	.42	.27	.54	.62	.48	.36
22	.58	.58	.42	.33	.58	2.4	.42	.24	.77	.58	.54	.36
23	.54	1.95	.42	.33	1.02	1.63	.39	.24	1.51	.54	.45	.66
24	.51	.62	.45	.30	1.17	1.20	.42	.24	6.7	.54	.66	.36
25	.48	2.35	.42	.30	.58	.99	.52	.27	3.1	.51	1.01	.33
26	3.6	2.6	.42	.42	.66	.86	2.0	9.8	1.14	.54	3.6	.33
27	6.7	1.03	.42	.39	.54	.78	.93	6.8	1.70	.51	2.95	.42
28	2.2	.90	.64	.27	.54	.70	1.24	1.85	5.4	.48	2.35	.88
29	1.14	1.39	1.31	.33	.48	.66	.48	-	2.05	.45	1.51	.45
30	.86	2.75	.62	.39	1.08	.85	.39	-	1.04	.42	1.20	.58
31	1.13	.90	-	.39		1.65	.39	-	.82	-	1.70	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.7	0.33	1.15	1.78	35.6	109
August	2.75	.39	.864	1.34	26.8	82
September	2.5	.42	.726	1.12	21.8	67
October	2.25	.27	.473	.732	14.7	45
November	4.4	.45	~~.102~~	~~.158~~	30.7	94
December	25.5	.54	3.25	5.03	101	309
Calendar year 1946	25.5	.24	1.23	1.90	449	1,380
January	7.4	.39	1.12	1.73	34.6	106
February	9.8	.24	.917	1.42	25.7	79
March	16.4	.42	2.00	3.09	61.9	190
April	15.5	.42	1.53	2.37	46.0	141
May	11.2	.42	1.66	2.57	51.4	158
June	.88	.33	.502	.777	15.1	46
Fiscal year 1946-47	25.5	.24	1.27	1.96	465	1,430

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Awini ditch at East Honokaneiki Gulch, near Niulii

Location.- Lat. 20°09'55", long. 155°43'10", at flume across East Honokaneiki Gulch, 4½ miles southeast of Niulii.

Records available.- October 1927 to June 1947.

Average discharge.- 18 years (1928-38, 1939-47), 11.7 million gallons a day (18.1 second-feet).

Extremes.- Maximum discharge during year, 30.5 million gallons a day (47.2 second-feet) Dec. 20 (gage height, 3.58 feet); minimum, 1.35 million gallons a day (2.09 second-feet) Oct. 8.

1927-47: Maximum discharge, 34 million gallons a day (53 second-feet) Jan. 9, 1935 (gage height, 3.76 feet); no flow occasionally when water was turned out of ditch.

Remarks.- Records good except those for period of no gage-height record, which are poor. Awini ditch diverts water at altitude 2,000 feet from all streams between the Waikaloa and the Honokane. Flow regulated by head gates and spillways. Water used for irrigation in vicinity of Kohala.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	18.2	15.8	24.5	27	19.8	16.8	12.9	5.6	24	5.3	5.3	14.0
2	18.3	12.2	25	25	24	14.3	16.6	5.1	23	10.5	5.7	15.5
3	18.3	10.3	15.0	13.4	22	27	19.0	4.7	16.3	14.8	9.9	12.2
4	13.6	11.0	20.5	8.0	16.2	27	15.0	4.4	9.7	11.0	27	9.7
5	8.6	11.0	12.2	8.0	15.6	21	13.6	4.2	8.6	8.6	25	8.0
6	8.0	13.6	9.1	6.0	27	16.6	14.5	3.85	25.5	17.8	25	6.4
7	13.5	10.6	7.4	4.7	23	12.2	14.4	3.55	20	25	19.0	5.8
8	11.4	7.4	6.4	3.45	13.6	11.7	17.4	3.5	13.6	27	19.0	5.3
9	14.3	6.0	5.8	3.7	18.3	12.0	17.4	3.35	9.7	21.5	12.9	5.4
10	25.5	5.7	5.5	3.35	12.9	17.2	17.4	8.8	8.6	14.7	19.2	5.1
11	27	5.5	6.0	3.15	8.6	19.9	15.8	5.6	8.6	17.0	27	6.0
12	14.8	7.1	8.6	2.9	8.4	12.2	13.6	4.3	6.4	29	27	12.4
13	21.5	11.6	6.4	2.65	17.2	11.0	12.2	3.55	5.3	24	23	a12
14	21	11.6	6.0	2.5	8.6	19.4	11.0	3.2	26	18.2	15.0	a10
15	22	7.4	6.4	2.35	6.4	27	9.7	2.95	24	14.3	11.0	a11
16	25.5	9.7	5.3	2.35	12.3	22	8.6	2.8	15.0	12.2	9.1	a7.5
17	25	19.2	4.5	2.3	13.0	29	7.4	2.6	11.0	14.3	8.0	a6.5
18	27	12.8	16.6	2.3	7.4	29	6.9	2.5	8.6	16.6	6.9	a5.8
19	27	14.6	21.5	7.6	5.6	29	6.4	2.55	7.4	11.0	6.9	a5.2
20	25	14.2	10.4	5.2	4.7	19.0	6.0	2.7	7.4	9.1	6.0	a9.0
21	17.5	7.4	6.4	4.2	4.6	10.1	5.8	2.35	10.3	8.0	5.6	a8.4
22	12.2	10.7	5.2	8.0	13.0	12.2	5.4	2.2	15.0	7.4	6.2	a6.6
23	11.0	24	5.0	7.4	11.9	11.6	5.1	2.05	24	6.9	6.9	a12
24	8.6	13.6	6.0	5.8	17.6	12.9	5.4	2.05	29	6.9	10.8	a7.5
25	7.4	16.2	5.5	4.1	8.0	12.9	6.9	1.93	27	8.0	21.5	a6.6
26	14.8	27	5.2	8.4	6.9	11.6	16.8	15.6	17.4	10.1	25	a7.4
27	27	22	4.6	11.3	6.4	10.3	21.5	23	21	9.1	25	a19
28	24	22	7.8	6.0	7.4	9.7	23	24	27	8.0	22.5	23.5
29	22	20.5	18.9	4.1	5.6	8.6	12.0	-	9.9	6.4	25	20
30	20	27	15.0	9.0	9.8	10.5	8.0	-	5.4	5.7	22	14.1
31	25	18.2	-	13.1	-	18.2	6.4	-	5.2	-	25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27	7.4	18.5	28.6	575	1,760
August	27	5.5	13.7	21.2	426	1,310
September	25	4.5	10.1	15.6	303	929
October	27	2.3	7.01	10.8	217	667
November	27	4.6	12.5	19.3	376	1,150
December	29	8.6	16.8	26.0	522	1,600
Calendar year 1946	29	1.0	13.1	20.3	4,800	14,730
January	23	5.1	12.0	18.6	372	1,140
February	24	1.93	5.46	8.45	153	469
March	29	5.2	15.2	23.5	470	1,440
April	29	5.3	13.3	20.6	398	1,220
May	27	5.3	16.2	25.1	503	1,540
June	23.5	5.1	9.93	15.4	298	914
Fiscal year 1946-47	29	1.93	12.6	19.5	4,610	14,140

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

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 1947.

Average discharge.- 16 years (1928-36, 1937-38, 1939-40, 1941-47), 1.16 million gallons a day (1.79 second-feet).

Extremes.- Maximum discharge during year, 8.0 million gallons a day (12.4 second-feet) May 4, Nov. 5 (gage height, 1.42 feet); no flow for several periods during year.
1927-38, 1939-47: 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 June 13-27, which are poor. Intake diverts water from East Honokaneiki Gulch to Awini ditch for irrigation in vicinity of Kohala. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.11	1.00	3.65	5.1	2.45	1.03	0.64	0.12	0.33	0	0.12	0.64
2	2.05	.64	3.85	4.4	2.7	2.3	.58	.08	.26	0	.10	.87
3	1.20	.48	.86	.90	2.05	4.9	.10	.06	.17	0	.73	.52
4	.54	.48	1.42	.41	.93	3.6	.06	.06	.17	0	4.0	.41
5	.26	.41	.64	.35	2.35	1.50	.06	.04	.33	0	2.05	.29
6	.23	.44	.41	.26	2.1	.99	.06	.04	4.9	0	2.05	.20
7	1.16	.41	.32	.17	1.60	.56	1.79	.03	1.73	.02	1.25	.17
8	.50	.29	.29	.09	.92	.34	5.0	.02	.83	.17	1.11	.14
9	.67	.20	.23	0	1.31	.26	2.95	.02	.48	0	.75	.12
10	4.1	.17	.20	0	.85	1.72	1.21	.22	.70	.35	2.0	.12
11	4.3	.17	.17	.01	.44	1.25	.71	.12	.52	1.58	5.9	.51
12	.70	.20	.23	.01	.29	1.58	.60	.04	.32	1.82	5.6	1.35
13	2.75	.26	.17	.01	.80	.72	.52	.03	.26	.41	1.85	a1.2
14	1.34	.38	.17	.02	.29	2.1	.41	.02	1.21	.29	.87	a.70
15	2.45	.29	.14	.02	.20	2.9	.32	.01	.05	.87	.60	a1.0
16	2.95	.50	.12	.03	.89	2.05	.29	.01	.01	.83	.44	a.30
17	1.93	2.4	.12	.02	.56	3.5	.23	.01	0	.79	.38	a.23
18	4.9	1.14	1.75	.02	.29	2.8	.20	.01	.39	.75	.32	a.18
19	3.7	1.04	3.25	.09	.20	2.4	.17	.01	.44	.52	.29	a.15
20	1.42	.60	.52	.14	.14	.86	.17	.01	.41	.41	.26	a.60
21	.49	.38	.41	.08	.12	.03	.14	.01	.41	.35	.23	a.54
22	.23	1.05	.17	.40	.75	.02	.12	0	1.07	.32	.26	a.38
23	.10	3.9	.17	.35	.62	.02	.10	0	3.05	.29	.32	a1.2
24	0	.72	.17	.17	.91	.02	.12	0	6.0	.26	.41	a.40
25	.06	1.69	.12	.10	.32	.02	.24	0	2.8	.23	2.3	a.35
26	1.66	5.7	.12	.54	.29	.02	1.79	1.30	1.40	.29	4.0	a.40
27	3.8	2.15	.10	.71	.20	.02	1.95	.90	1.55	.26	2.95	a1.0
28	2.45	1.60	.12	.26	.26	.35	2.4	.32	2.2	.20	2.4	1.21
29	2.1	1.68	1.51	.12	.14	.41	.48	-	0	.14	2.9	1.16
30	1.67	4.1	1.06	.33	1.29	1.26	.26	-	0	.12	1.56	1.21
31	3.40	1.08	-	.83	-	.83	.14	-	0	-	2.05	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.9	0	1.75	2.71	54.2	166
August	5.7	.17	1.15	1.78	35.6	109
September	3.85	.10	.749	1.16	22.5	69
October	5.1	0	.514	.795	15.9	49
November	2.7	.12	.875	1.35	26.3	81
December	4.9	.02	1.30	2.01	40.4	124
Calendar year 1946	8.0	0	1.13	1.75	412	1,260
January	5.0	.06	.768	1.19	23.8	73
February	1.30	0	.125	.193	3.49	11
March	6.0	0	1.03	1.59	32.0	98
April	1.82	0	.376	.582	11.3	35
May	5.9	.10	1.61	2.49	50.0	154
June	1.35	.12	.585	.905	17.6	54
Fiscal year 1946-47	6.0	0	.912	1.41	333	1,020

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

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, 2¾ miles upstream from mouth of Pololu Stream, and 4 miles south of Niulii.

Records available.- August 1927 to June 1947.

Average discharge.- 18 years (1928-38, 1939-47), 25.6 million gallons a day (39.6 second-feet).

Extremes.- Maximum discharge during year, 78 million gallons a day (121 second-feet) Mar. 14 (gage height, 4.06 feet); minimum daily, 3.6 million gallons a day (5.6 second-feet) Dec. 22 to Jan. 1, Jan. 3-5.
1927-47: Maximum discharge, that of Mar. 14, 1947; no flow occasionally when water was shut out of ditch.

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

Disoharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	33.5	33.5	38	45	31.5	31.5	3.6	18.4	43	19.2	18.4	31.5
2	33.5	29.5	40	41	33.5	26.5	6.5	17.6	43	24	18.4	33.5
3	36	27.5	31.5	25	31.5	48	3.6	16.7	33.5	29.5	22	29.5
4	29.5	25.5	33.5	24	25.5	48	3.6	16.7	24	25.5	34.5	25.5
5	25.5	25.5	27.5	21	29	38	3.6	16.7	22	22	33	24
6	27.5	27.5	24	19	25.5	31.5	16.4	16.7	39.5	29.5	43	22
7	36	27.5	21	18	20	27.5	29.5	16.0	40	38	38	20
8	31.5	23	20	17	23.5	25.5	38	16.7	31.5	43	38	20
9	33.5	21	19.2	18	33.5	25.5	38	16.7	25.5	38	29.5	20
10	48	20	19.2	17	25.5	30.5	38	30	24	29.5	31.5	19.2
11	50	20	19.2	16.7	22	38	31.5	19.2	24	33.5	48	25.5
12	33.5	21	22	16.7	22.5	29.5	27.5	17.6	20	48	48	36
13	40	25.5	20	16.7	26	29.5	27.5	16.0	18.4	38	40	36
14	38	27.5	19.2	16.7	19.2	29.5	25.5	16.0	52	36	31.5	29.5
15	44	24	19.2	16.7	18.4	40	24	16.0	40	31.5	27.5	33.5
16	48	22	18.4	16.7	18.8	36	23	16.0	31.5	27.5	25.5	24
17	43	33.5	17.6	16.7	27.5	33.5	22	15.2	25.5	27.5	24	22
18	50	31.5	26	16.7	21	29.5	21	14.5	23	31.5	22	20
19	45	29.5	31.5	20	17.6	27.5	20	15.2	21	25.5	22	19.2
20	38	29.5	25.5	17.6	17.6	28.5	20	16.0	20	23	21	27.5
21	33.5	24	22	16.7	17.6	4.1	19.2	15.2	23	22	20	25.5
22	29.5	24	19	18.4	25.5	3.6	19.2	15.2	25.5	21	21	22
23	27.5	43	19	18.4	23	3.6	18.4	15.2	38	20	22	36
24	24	29.5	20	17.6	31.5	3.6	18.4	15.2	48	20	25.5	24
25	23	29.5	19	16.7	23	3.6	20	15.2	45	21	33.5	23
26	25	50	18	18.7	21	3.6	29.5	42	36	23	40	24
27	48	43	18	24	19.2	3.6	38	48	36	22	43	38.5
28	43	38	22	18.4	21	3.6	40	40	44	21	40	48
29	40	36	30	16.0	18.4	3.6	27.5	-	20.5	19.2	43	38
30	40	45	25	20	20	3.6	22	-	23	18.4	38	33.5
31	45	33.5	-	29.5	-	3.6	20	-	20	-	43	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	50	23	36.9	57.1	1,140	3,510
August	50	20	29.7	46.0	920	2,820
September	40	17.6	23.5	36.4	704	2,160
October	45	16.0	20.3	31.4	631	1,940
November	33.5	17.6	23.7	36.7	710	2,180
December	48	3.6	22.4	34.7	694	2,130
Calendar year 1946	62	0	26.7	41.3	9,760	29,950
January	40	3.6	22.4	34.7	695	2,130
February	48	14.5	19.6	30.3	550	1,690
March	52	18.4	31.0	48.0	960	2,950
April	48	18.4	27.6	42.7	828	2,540
May	48	18.4	31.8	49.2	985	3,020
June	48	19.2	27.7	42.9	831	2,550
Fiscal year 1946-47	52	3.6	26.4	40.8	9,650	29,620

Note.- No gage-height record Sept. 21 to Oct. 10; discharge computed on basis of records for stations on nearby streams.

Kehena ditch near Kohala

Location.- Three sharp-crested weirs, lat. 20°07'25", long. 155°45'05", at old Honokane weir 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 1947.

Average discharge.- 19 years (1928-47), 7.41 million gallons a day (11.5 second-feet).

Extremes.- Maximum discharge during year, 57 million gallons a day (88 second-feet) Mar. 28 (gage height, 1.39 feet); minimum, 0.10 million gallons a day (0.16 second-foot) Feb. 9. 1917-19, 1928-47: 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.

Discharge, in million gallons, fiscal year July 1946 to June 1947

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.2	7.8	13.5	31	19.1	5.0	10.4	0.84	24	2.45	1.90	7.2
2	14.0	4.4	19.3	26	21	2.4	25.5	.61	18.2	2.7	3.9	12.9
3	8.2	4.1	4.1	6.6	14.2	22	32.5	.50	5.7	5.4	10.2	7.1
4	8.1	2.65	4.4	3.45	9.2	27	10.0	.40	3.05	3.25	36.5	4.6
5	3.9	2.25	2.65	2.65	21.5	7.4	5.6	.40	2.25	2.25	28	2.85
6	15.2	3.85	1.73	1.90	31	7.7	4.1	.30	20.5	9.3	31.5	1.90
7	22	4.3	1.26	1.41	13.9	5.2	5.2	.30	16.1	22	13.9	1.41
8	8.3	2.25	.98	1.12	7.1	3.9	31	.20	10.6	35	13.6	1.12
9	14.3	1.73	.84	.98	15.5	2.5	16.3	1.25	4.9	12.1	6.2	.98
10	32	1.41	.72	.84	4.9	6.3	8.9	15.4	4.6	5.6	10.2	.72
11	28	1.12	.72	1.41	2.45	8.2	4.9	2.9	4.8	3.25	31	2.5
12	6.8	1.44	.72	1.12	1.73	2.7	3.25	1.41	2.85	38.5	27	6.6
13	20.5	4.5	.98	.84	1.26	3.7	2.65	.98	1.90	17.2	13.4	9.0
14	14.8	6.6	1.26	.72	.98	7.0	2.1	.72	30	6.2	4.8	5.3
15	21	3.05	1.26	.50	.84	20	1.73	.50	21	3.45	3.05	5.6
16	21	1.90	.98	.40	.72	11.8	1.41	.40	6.2	2.25	2.25	2.85
17	16.1	4.1	.84	.40	.72	34.5	1.26	.30	3.25	1.73	1.73	2.25
18	33.5	5.0	10.9	.50	.61	33.5	.98	.30	2.1	1.73	1.41	1.57
19	28.5	2.45	16.7	3.05	.50	20.5	.98	.40	1.73	1.26	1.26	1.26
20	18.1	1.90	3.9	3.05	.40	16.2	.84	.40	1.73	.98	1.12	10.7
21	7.1	1.41	1.90	2.85	.30	11.3	.72	.40	3.05	.72	.98	5.3
22	3.9	1.54	1.26	10.2	2.9	11.2	.72	.40	9.5	.72	.84	3.05
23	2.85	13.4	1.12	10.0	1.41	6.5	.61	.40	18.4	.72	1.12	8.0
24	2.65	3.9	1.73	8.8	2.1	10.7	.61	.40	35.5	.72	2.1	3.7
25	2.45	3.3	1.41	3.05	1.26	10.9	.72	.40	28.5	1.12	8.3	3.45
26	2.85	24	1.12	6.1	.84	5.4	1.08	9.7	7.4	1.57	17.2	8.5
27	23	12.2	1.12	7.2	.61	3.45	4.5	34.5	6.8	2.85	26	22.5
28	16.5	10.0	2.65	3.3	.40	2.65	7.0	21.5	27	4.6	13.7	19.2
29	15.1	8.2	12.0	2.1	.40	1.90	3.0	-	18.5	2.65	14.6	10.3
30	15.9	15.5	9.4	10.0	.85	8.8	1.57	-	6.0	1.90	10.2	15.0
31	20	4.9	-	24.5	-	25.5	.98	-	3.45	-	14.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	33.5	2.45	14.7	22.7	456	1,400
August	24	1.12	5.33	8.25	165	507
September	19.3	.72	4.05	6.27	121	373
October	31	.40	5.68	8.79	176	540
November	31	.30	5.96	9.22	179	548
December	34.5	1.90	11.2	17.3	346	1,060
Calendar year 1946	45	0	8.34	12.9	3,040	9,340
January	32.5	.61	6.16	9.53	191	586
February	34.5	.20	3.44	5.32	96.2	295
March	35.5	1.73	11.3	17.5	350	1,070
April	38.5	.72	6.47	10.0	194	596
May	36.5	.84	11.4	17.6	352	1,080
June	22.5	.72	6.25	9.67	187	575
Fiscal year 1946-47	38.5	.20	7.71	11.9	2,810	8,630

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Hawaii during fiscal year July 1946 to June 1947

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
July 14	Lahomene	Waimanu Stream	At altitude 3,250 feet, near Waimanu	14.6	9.44
Oct. 12	....do	....do	....do	.574	.371
Dec. 6	....do	....do	....do	2.53	1.63
Feb. 10	....do	....do	....do	1.58	1.02
Apr. 10	....do	....do	....do	1.46	.944
June 8	....do	....do	....do	.396	.256
July 14	Kakaauki	....do	At altitude 2,930 feet, near Waimanu	5.22	3.37
Oct. 12	....do	....do	....do	.451	.291
Dec. 6	....do	....do	....do	1.12	.724
Feb. 10	....do	....do	....do	1.64	1.06
Apr. 10	....do	....do	....do	1.48	.957
June 8	....do	....do	....do	.194	.125
Dec. 11	Waikoloa	Domestic supply, irrigation, and Pacific Ocean.	At Parker Ranch boundary, near Kamuela.	3.58	2.31
11	....do	....do	Below low-pressure dam, near Kamuela	4.66	3.01
11	....do	....do	100 feet above Marine Dam, near Kamuela.	5.05	3.26
Apr. 30	....do	....do	At Marine Dam, near Kamuela	1.91	1.23

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