Surface Water Supply of Hawaii 1945–46

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

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PREFACE

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

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CONTENTS

SURFACE WATER SUPPLY OF HAWAII, JULY 1, 1945, TO JUNE 30, 1946

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, 1946. 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 35 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, 1946, 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 discharge or graphic integrators.

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.

TIME BASIS

At 2 a.m. on February 9, 1942, as an emergency measure, the Nation shifted from standard time to "war time," and clock time in the several zones of the country as well as in Hawaii was moved ahead 1 hour, or to 3 a.m. At 2 a.m. war time, on September 30, 1945, a change was made back to standard time and clock time was moved back 1 hour, or to 1 a.m. This made September 30 a 25-hour day. Time prior to the change on September 30 refers to war time; time after the change refers to standard time. To convert war time to standard time, subtract 1 hour. Records of daily discharge prior to February 9, 1942, were computed, and those subsequent to September 30, 1945, will be computed on the basis

of standard time; records between those dates were computed on the basis of war time. The discharge given for September 30, 1945, is the mean for 25 hours. The mean discharge and runoff for the month of September have been computed from the total million gallons for the month without adjustment for the fact that September 30 was a 25-hour day. The small error resulting from this procedure has been disregarded.

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 1903-46 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, 1903-46

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

* 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 1945 to June 1946 by agencies other than the Geological Survey. The records for these stations are not contained in the publications of the Geological Survey and, except as indicated, have not been published elsewhere.

Records of discharge collected by agencies other than the Geological Survey

ISLAND OF KAUI

Stream	Location	Period	Operated by
East Lawai ditch	Near Government Road, near Kalaheo	1924-46	McBryde Sugar Co.
Eleele ditch	....do	1924-46	Do.
Hanalei ditch	Above Kalihiwai Reservoir, near Kilauea.	1923-46	Kilauea Sugar Plantation Co.
Hanamaulu ditch	Below intake, near Hanamaulu	1925-46	Lihue Plantation Co.
Koula (Hanapepe) ditch	At Olokele Plantation boundary, near Makaweli.	1926-46	Olokele Sugar Co.
Hanapepe Field ditch	Below Hanapepe River intake, near Eleele.	1924-46	McBryde Sugar Co.
Hanapepe Stream	At tidewater near Eleele	1924-46	McBryde Sugar Co.
Kamooloa ditch	Near Koloa boundary, near Koloa.	1924-46	Do.
Kapaia River diversion to field 8 reservoir.	Near Hanamaulu	1926-46	Lihue Plantation Co.
Kapaie Hiver diversion to field 29.	Near Lihue	1927-46	Do.
East Lawai Stream	½ mile above cannery near Kalaheo	1924-46	McBryde Sugar Co.
Lihue lower ditch	Below intake, near Lihue	1925-46	Lihue Plantation Co.
Lihue upper ditch	....do	1925-46	Do.
Olokele ditch	At powerhouse near Makaweli	1928-46	Olokele Sugar Co.
Wahiawa Stream	Above Alexander Reservoir, near Kalaheo.	1924-46	McBryde Sugar Co.
Wahiawa Stream, East Branch.	....do	1929-46	Do.
West Lawai ditch	Near camp 12, near Kalaheo	1924-46	Do.

ISLAND OF OAHU

Alewa Heights Spring	Below reservoir 3	1932-46*	Board of Water Supply City and County of Honolulu.
Booth Springs	In Pauoa Valley, at altitude 685 feet.	1929-46*	Do.
Helemano ditch	About 3 miles below Upper Helemano Reservoir.	1933-46	Waialua Agricultural Co.
Hering Springs	In Makiki Valley, at altitude 970 feet.	1925-46*	Board of Water Supply City and County of Honolulu.
Kahuawai Springs	In Pauoa Valley, at altitude 618 feet.	1925-46*	Do.
Kalihi tunnels	At diversion, at altitude 650 feet	1926-46*	Do.
Kamenanui ditch	In Kawailoa Gulch about 500 yards above third siphon from Government Road.	1934-46	Waialua Agricultural Co.
Kipapa Stream	At altitude 375 feet	1917-46	Waiahole Water Co.
Makiki Springs	In Makiki Valley, at altitude 350 feet.	1926-46*	Board of Water Supply City and County of Honolulu.
Manoa tunnels	Upper Manoa Valley	1925-46*	Do.
Nuuanu tunnels	At Lower Luakaha	1926-46*	Do.
Nuuanu tunnel 3	At overflow, in upper Nuuanu Valley	1931-46*	Do.
Palolo tunnel	Upper Palolo Valley	1926-46*	Do.
Wahiawa Reservoir Outlet	About 1,200 feet below dam	1912-46*	Wahiawa Water Co.
Waiahole Stream	At altitude 250 feet	1919-46	Waiahola Water Co.
Waiahole tunnel	At adit 8	1916-46	Do.
Waiawa Stream	At altitude 750 feet	1917-46	Do.
Waikakalaua Stream	....do	1917-46	Do.

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

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

ISLAND OF MAUI (WEST MAUI)

Stream	Location	Period	Operated by
Everett ditch	Below intake, near Wailuku	1935-46	Wailuku Sugar Co.
Iao-Waikapu ditch	At lower end of tunnels, near Wailuku.	1923-46	Do.
Kama ditch	Below intake, near Wailuku	1933-46	Do.
Maniania ditch	....do	1923-46	Do.
North Waiehu	Near end of Waiehu Camp road, near Wailuku.	1922-46	Do.
South Waikapu ditch	Above first lateral, near Waikapu.	1935-46	Do.
Do	Below tunnel sections, near Waikapu	1923-46	Do.
Spreckels ditch	Below intake, near Waihee	1931-46	Do.
Waihee ditch	Below intake, near Waihee	1931-46	Do.
Honokohau tunnel	At outlet of tunnel, at Mahinahina Camp.	1917-46	Pioneer Mill Co.
Kahoma tunnel	2,000 feet upstream from outlet above Lahaina.	1920-46	Do.
Kanaha ditch	At intake, above Lahainaluna School	1921-46	Do.
Kauaula tunnel	At outlet, above Lahaina	1920-46	Do.
Launiupoko ditch	....do	1921-46	Do.
Ukumehame ditch	At outlet, near Olowalu	1931-46	Do.

ISLAND OF MAUI (East Maui)

Banana Spring	Near east wall of Keane Valley, at altitude 700 feet.	1933-46	East Maui Irrigation Co.
Hanawi Spring upper high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 675 feet.	1932-46	Do.
Hanawi Spring lower high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 575 feet.	1932-46	Do.
Makapipi ditch	At west edge of Makapipi Gulch near Nahiku, at altitude 1,300 feet.	1933-46	Do.

ISLAND OF HAWAII

Kohala ditch	At Awini weir in Honokane, near Niulii.	1917-46†	Kohala Ditch Co.
Do	At Niulii weir, near Niulii	1917-46†	Do.
Pololu Inlet 1	At Pololu, near Niulii	1929-46	Do.
Pololu Inlet 2	In Waiakalae Gulch at Pololu, near Niulii.	1929-46	Do.
Pololu Inlet 3	In Opaepilau Gulch, above Kohala ditch, near Niulii.	1937-46	Do.
Waiapuka Stream	Above Kohala ditch, near Niulii	1929-46	Do.
Pololu Inlet 5	In Niulii Gulch, above Kohala ditch, near Niulii.	1937-46	Do.
Pololu Inlet 6	In Waikane Gulch, above Kohala ditch, near Niulii.	1937-46	Do.
Waipuhi Stream	Above Kohala ditch, near Halawa	1933-46	Do.
Makapala ditch	....do	1929-46	Do.
Waipunalau Stream	....do	1929-46	Do.
Puwaiole Stream	....do	1937-46	Do.
Moaula Gulch	Below all development tunnels	1929-46	Hawaiian Agricultural Co.
Hionamoa Gulch	....do	1926-46	Do.
Keaiwa Gulch	....do	1926-46	Do.
Noguchi tunnel 19	5.3 miles from Pahala, at altitude 3,500 feet.	1928-46	Do.
Makakupu tunnel 13	In Waiakaloa Gulch, at altitude 3,750 feet, 6.1 miles from Pahala.	1926-46	Do.
Upper Hamakua ditch and Reservoir 3 weir.	At base of Puu Lala, near Honokaa	1907-12, 1921-46‡	Hawaiian Irrigation Co.
Lower Hamakua ditch	At main weir, near Kukuihaele	1921-46†	Do.
Honokaape ditch	At Kukuihaele Village	1923-46	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, 1946, 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 branch, division of surface water, of the Geological Survey, Glenn L. Parker, chief hydraulic engineer (until Feb. 12, 1946) succeeded by Carl G. Paulsen. The data were collected and prepared for publication under the direction of M. H. Carson, district engineer, Honolulu. The manuscript was typed in final form in the Washington office.

ISLAND OF KAUAI

Waimea River below Kekaha ditch intake, near Waimea

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

Drainage area.- 45.0 square miles.

Records available.- July 1921 to June 1946.

Average discharge.- 21 years (1925-46) 38.8 million gallons a day (60.0 second-feet).

Extremes.- Maximum discharge during year, 4,990 million gallons a day (7,720 second-feet) Dec. 6 (gage height, 13.9 feet, from floodmarks), from rating curve extended above 500 million gallons a day by test on model of station site; no flow at times, owing to regulation.
1921-46: Maximum discharge, 10,700 million gallons a day (16,600 second-feet) Dec. 24, 1927 (gage height, 20.40 feet), from rating curve extended above 500 million gallons a day by test on model of station site; no flow occasionally, owing to regulation.

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

Discharge, in million gallons, fiscal year July 1945to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	23	0	0	41	21	0	648	0.6	11.1	39.5	0
2	0	30	0	0	8.0	35	0	359	.3	37.5	14.2	0
3	0	2.9	0	0	4.0	55	0	228	.3	293	22	0
4	.4	.1	0	0	0	35	0	239	8.0	49	6.4	25
5	0	65	.4	0	7.0	225	0	180	5.2	55	1.5	121
6	0	169	.1	0	3.0	1,200	50	418	.9	29	.9	2.8
7	.3	10.1	7.1	0	2.0	450	31	528	33	8.0	.7	.7
8	0	.3	0	0	0	200	11	169	9.5	15.4	.7	.5
9	0	3.2	0	0	63	350	6.0	124	2.9	7.5	.7	56
10	0	7.0	0	0	76	230	.2	99	1.4	1.8	3.7	5.1
11	0	2.0	0	0	75	128	76	70	7.5	.3	.6	.6
12	0	0	0	0	13	72	4.0	65	5.9	.3	.4	.5
13	0	0	0	0	1.0	42	4.0	59	61	.3	.3	.2
14	0	0	0	0	0	27	2.0	69	51	4.1	.2	0
15	0	.7	.1	0	0	22	1.0	50	179	.3	.2	25
16	5.8	1.5	.2	0	2.0	16	44	38	15.9	223	.2	1.3
17	2.1	8.5	0	0	3.0	11	5.0	306	86	242	.2	.5
18	0	.4	0	0	2.0	9.0	0	49	139	62	.2	.2
19	0	.1	0	0	0	6.0	2.0	25	90	130	.2	0
20	0	8.4	0.	0	0	4.0	1.0	18	33	194	0	0
21	0	13.6	0	0	0	2.0	0	14	22.5	126	0	27.5
22	.5	.2	0	0	0	1.0	58	12	8.5	22	0	59
23	3.4	0	0	2.8	0	0	59	10	3.6	21.5	0	4.6
24	34	0	2.9	1.0	0	0	10	8.0	2.9	447	0	.8
25	137	16.4	0	326	9.1	0	0	72	5.2	58	0	.5
26	86	.2	0	188	25	0	89	39	30.5	24.5	0	1.0
27	3.5	0	0	3.3	24	0	6.0	12	21.5	15.8	0	.4
28	.2	0	0	5.8	23	0	2.0	3.2	114	17.8	0	.2
29	0	0	0	5.3	22	0	268	-	15.9	8.5	0	0
30	0	0	0	.3	21	0	490	-	53	65	0	0
31	0	0	-	130	-	0	586	-	114	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	137	0	8.81	13.6	273	838
August	169	0	11.7	18.1	363	1,110
September	7.1	0	.36	.56	10.8	33
October	326	0	21.4	33.1	662	2,030
November	76	0	14.1	21.8	424	1,300
December	1,200	0	101	156	3,140	9,640
Calendar year 1945	1,200	0	31.0	48.0	11,310	34,700
January	586	0	58.2	90.0	1,800	5,530
February	648	3.2	140	217	3,910	12,000
March	179	.3	36.2	56.0	1,120	3,440
April	447	.3	72.3	112	2,170	6,660
May	39.5	0	2.99	4.63	92.6	284
June	121	0	11.1	17.2	333	1,020
Fiscal year 1945-46	1,200	0	59.2	80.7	14,300	43,880

Note.- No gage-height record Aug. 10-12, Sept. 15, Nov. 1-10, Nov. 12 to Jan. 9, Jan. 11 to Feb. 27; discharge computed on basis of records for stations on nearby streams and Kekaha ditch.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Waimea River near Waimea

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

Drainage area.- 57.8 square miles.

Records available.- July 1910 to October 1919, November 1943 to June 1946

Extremes.- Maximum discharge for period ending June 30, 1944, 6,980 million gallons a day (10,800 second-feet) Mar. 9 (gage height, 11.65 feet); minimum not determined.
Maximum discharge during year ending June 30, 1945, 6,680 million gallons a day (10,300 second-feet) Apr. 6 (gage height, 11.45 feet); minimum, 0.2 million gallons a day (0.3 second-foot) Sept. 20, 21, Oct. 20.
Maximum discharge during year ending June 30, 1946, 8,780 million gallons a day (13,600 second-feet) Dec. 6 (gage height, 12.80 feet); minimum not determined (occurred during period of faulty gage-height record).

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

Discharge, in million gallons a day, 1943-46

1943-44

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1					-	5.9	1.5	1.5	174	21.5	4.2	4.2
2					-	.5	1.8	1.5	88	145	4.4	4.2
3					-	.4	28	1.5	1,340	62	54	4.2
4					-	.4	4.6	1.5	529	29	75	4.2
5					-	89	2.2	1.6	325	13.4	15.3	4.2
6					-	187	92	1.7	547	8.1	4.4	4.1
7					-	57	22.5	1.8	652	6.6	4.1	3.9
8					-	173	3.2	1.8	1,030	6.1	4.4	4.1
9					-	54	1.1	1.8	2,560	5.8	4.2	4.2
10					-	8.4	.9	2.7	415	6.1	4.1	f23
11					-	1.3	.8	240	203	6.4	4.4	f77
12					-	.5	.8	71	163	6.4	4.0	54
13					-	.5	1.2	19.2	142	6.4	14.3	54
14					-	.5	1.3	5.0	88	6.1	28.5	49
15					-	.5	1.4	1.7	72	6.6	9.6	9.6
16					-	.5	2.0	1.5	65	7.5	3.9	4.6
17					-	.5	2.2	19.0	241	8.4	3.7	4.2
18					-	.4	1.5	21.5	90	7.7	3.9	4.1
19					53	.4	1.5	4.0	89	5.8	22.5	3.9
20					32.5	1.0	1.4	16.0	334	5.1	31	4.1
21					1.6	1.4	1.4	7.2	114	4.8	56	4.1
22					.5	1.2	1.4	10.4	88	18.7	8.0	3.9
23					.3	1.3	1.3	155	82	5.4	4.1	4.1
24					.4	1.0	2.0	49	67	4.1	8.1	4.1
25					.4	1.0	1.8	18.6	121	3.9	4.9	4.2
26					.4	168	1.6	315	114	4.1	2.4	4.6
27					.5	347	2.6	207	38	4.1	2.4	6.1
28					.5	139	2.7	48	24.5	4.1	2.4	7.7
29					.6	26	2.1	1,020	21	4.1	2.4	7.4
30					.6	4.7	1.8	-	18.8	4.2	2.5	41
31					-	2.1	1.7	-	17.8	-	3.9	-

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

Discharge, in million gallons a day, of Waimea River near Waimea, Kauai, 1943-46--Continued

1944-45

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	30.5	0.6	1.6	0.8	7.6	9.8	4.8	0.8	2.5	6.8	a58	4.6
2	4.2	.8	1.4	.8	1.1	9.0	4.4	.8	80	2.9	a62	4.6
3	56	.8	1.2	.9	.8	1.6	4.2	.8	52	1.2	a41	2.4
4	48	.8	1.3	1.0	1.3	.9	4.1	.8	67	15.3	a31	1.5
5	50	.8	1.4	1.2	1.6	248	3.0	.8	59	4.9	a40	1.7
6	29	.6	1.6	1.2	3.4	119	1.0	32	120	1,120	62	2.2
7	16.9	.8	1.6	1.3	1.6	22	1.0	15.5	37	395	162	2.1
8	3.8	1.0	1.6	1.4	8.2	13.3	1.0	1.0	11.4	62	88	2.3
9	2.4	1.3	1.6	1.4	2.7	4.1	1.0	.5	22	1,280	96	2.7
10	2.3	1.6	1.6	1.6	1.3	3.0	1.0	.4	15.3	162	57	3.3
11	2.4	2.3	1.5	1.6	1.2	1.7	1.0	.4	3.4	67	41	3.0
12	2.7	2.0	1.3	1.7	1.3	.5	1.0	.4	1.8	42	29.5	2.3
13	2.8	1.6	1.0	1.8	1.4	.6	1.0	.5	1.4	29	23	2.6
14	2.8	1.8	1.2	2.0	1.4	.7	1.0	.5	1.6	25	19.4	5.7
15	7.6	1.7	1.4	2.0	1.4	.9	1.0	.6	2.0	18.8	18.3	5.3
16	4.4	1.6	1.3	2.0	1.3	1.4	1.0	.9	2.0	16.9	13.5	4.1
17	2.6	1.7	4.4	26	1.4	2.1	1.0	1.3	18.0	92	10.3	4.1
18	2.2	1.7	6.2	39	1.4	1.6	1.0	1.4	20.5	42	8.7	3.7
19	2.2	1.7	1.8	2.4	6.8	1.6	1.0	1.4	2.6	22.5	7.1	3.7
20	2.3	1.6	.6	.5	6.0	1.6	1.0	1.4	2.0	12.6	7.1	3.7
21	17.9	1.7	.4	.7	3.4	2.1	1.0	1.4	1.7	9.7	6.6	3.9
22	50	1.8	.5	.9	75	2.4	1.0	1.4	1.4	8.1	6.6	4.1
23	20.5	1.8	.6	1.2	27.5	2.3	.9	5.1	1.2	1,180	6.4	4.1
24	35.5	2.4	.6	1.4	5.5	2.2	.9	1.6	1.0	178	6.4	3.2
25	68	2.7	.6	1.7	1.6	2.2	.9	.6	1.1	94	5.8	2.3
26	14.9	3.4	.6	2.2	.7	30.5	.9	10.0	1.4	100	5.8	2.9
27	4.1	1.7	.6	2.6	1.5	289	.9	66	16.9	564	5.8	13.8
28	3.3	1.5	.6	2.8	1.1	96	.9	16.9	39.5	227	5.8	7.7
29	2.4	2.0	.5	3.0	1.3	33	.8	-	41	a101	5.1	.8
30	1.2	1.4	.6	3.2	1.4	15.6	.8	-	29	a78	5.1	.7
31	.4	1.6	-	33	-	6.6	.8	-	30	-	4.6	-

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

1945-46

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.8	30.5	1.4	1.0	50	20.5	6.6	683	15.8	32	56	4.1
2	.8	39	1.3	1.4	13.2	35	6.1	369	10.0	54	29.5	4.4
3	1.0	18.1	1.2	1.2	6.4	53	6.1	250	9.0	280	28.5	4.6
4	3.3	3.3	1.2	1.8	6.4	35.5	6.6	258	10.8	64	22.5	13.5
5	2.3	49	1.0	1.2	8.1	223	15.9	175	27	75	8.8	116
6	2.2	157	2.5	1.4	9.5	2,280	48	430	9.7	52	5.1	14.7
7	1.6	28.5	11.1	1.6	4.6	662	29.5	518	44	25	4.4	3.3
8	1.2	3.9	2.8	1.2	2.2	206	15.5	178	22.5	31	4.2	3.3
9	1.0	3.0	.7	1.1	76	350	7.1	136	19.4	23	4.1	49
10	.8	11.0	.7	1.2	71	226	6.1	108	9.0	14.6	6.9	18.3
11	.7	2.6	.7	1.1	102	134	74	88	21.5	6.1	4.0	3.0
12	.7	2.1	.9	1.1	25.5	77	18.3	82	10.1	4.8	3.3	3.3
13	.7	2.3	1.2	1.1	6.2	58	5.8	77	68	4.8	3.2	3.3
14	.7	2.5	1.0	1.0	5.1	43	5.1	88	69	11.5	3.2	3.7
15	1.0	2.0	1.0	.9	7.8	36	4.6	77	200	7.7	3.0	24.5
16	6.8	4.6	2.9	.8	8.4	31	44	64	45	210	3.0	9.9
17	5.8	13.8	.7	.8	10.8	24.5	28	305	101	253	3.0	2.1
18	1.0	4.0	.9	.9	8.1	20.5	7.6	78	153	88	3.2	2.4
19	.8	2.3	.9	1.3	6.8	18.3	4.8	36	96	134	3.2	3.9
20	.7	10.4	.8	1.4	6.8	15.6	4.4	24.5	65	215	3.2	3.3
21	.7	29	.8	1.0	5.8	15.0	4.2	18.6	40	146	3.5	11.3
22	1.0	4.6	.8	1.0	5.1	12.6	61	14.1	28	48	2.8	74
23	3.5	.9	.8	2.8	3.1	11.2	65	11.7	16.2	33	2.2	18.4
24	79	1.4	6.3	6.4	2.2	11.2	19.4	10.8	14.1	423	2.2	4.0
25	133	21.5	1.3	393	2.1	10.3	5.4	88	10.4	74	2.3	1.4
26	107	5.0	1.2	109	21	10.0	110	64	47	29.5	2.6	2.6
27	25	1.7	1.5	25.5	22	8.4	18.4	30	18.1	24.5	2.8	3.7
28	7.2	1.4	1.1	30.5	21	7.1	6.4	25	130	22.5	3.3	3.5
29	4.8	1.3	1.2	29	20.5	6.8	268	-	35	19.6	3.3	3.5
30	4.2	1.3	1.1	23	20	7.1	509	-	48	53	3.3	3.7
31	4.1	1.4	-	135	-	6.8	625	-	141	-	3.5	-

Note.- Faulty gage-height record July 1-23; discharge computed on basis of records for nearby rivers and ditches.

Monthly discharge, in million gallons, of Waimea River near Waimea, Kauai, 1943-46

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November 19-30, 1943	53	0.3	7.61	11.8	91.3	280
December	347	.4	41.1	63.6	1,270	3,910
Calendar year	-	-	-	-	-	-
January 1944	92	.8	6.20	9.59	192	590
February	1,020	1.5	77.5	120	2,260	6,890
March	2,560	17.8	318	492	9,860	30,240
April	145	3.9	14.2	22.0	428	1,310
May	75	2.4	12.8	19.8	397	1,220
June	77	3.9	14.7	22.7	442	1,360
The period	-	-	-	-	-	45,800
July 1944	68	0.4	15.9	24.6	493	1,510
August	3.4	.6	1.57	2.43	48.8	150
September	6.2	.4	1.37	2.12	41.2	126
October	39	.5	4.62	7.15	143	440
November	75	.7	5.74	8.88	172	528
December	289	.5	29.8	46.1	925	2,840
Calendar year 1944	2,560	.4	42.0	65.0	15,380	47,200
January 1945	4.8	.8	1.46	2.26	45.3	139
February	66	.4	5.90	9.13	165	507
March	120	1.0	22.1	34.2	686	2,100
April	1,280	1.2	199	308	5,960	18,280
May	162	4.6	30.3	46.9	939	2,880
June	13.8	.7	3.64	5.63	109	335
Fiscal year 1944-45	1,280	.4	26.6	41.2	9,730	29,840
July 1945	133	.7	13.0	20.1	403	1,240
August	157	.9	14.8	22.9	459	1,410
September	11.1	.7	1.70	2.63	51.0	157
October	393	.8	25.2	39.0	780	2,390
November	102	2.1	18.6	28.8	558	1,710
December	2,280	6.8	150	232	4,860	14,290
Calendar year 1945	2,280	.4	40.6	62.8	14,820	45,440
January 1946	625	4.2	65.7	102	2,040	6,260
February	683	10.8	153	237	4,290	13,160
March	200	9.0	49.5	76.6	1,530	4,710
April	423	4.8	82.0	127	2,460	7,550
May	56	2.2	7.55	11.7	234	718
June	116	1.4	13.9	21.5	417	1,280
Fiscal year 1945-46	2,280	.7	49.0	75.8	17,880	54,860

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Kawaikoi Stream near Waimea

Location.- Concrete control, lat. 22°08'00", long. 159°37'15", at old trail crossing, 12⅔ miles northeast of Waimea. Altitude of gage, 3,420 feet (by barometer).

Drainage area.- 4.1 square miles.

Records available.- April 1909 to June 1946. July 1917 to July 1919 (unpublished).

Average discharge.- 27 years (1919-46), 20.6 million gallons a day (31.9 second-feet).

Extremes.- Maximum discharge during year, 1,140 million gallons a day (1,760 second-feet) Apr. 24 (gage height, 7.09 feet), from rating curve extended above 180 million gallons a day; minimum, 1.5 million gallons a day (2.3 second-feet) Oct. 15.
1906-46: 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 period of no gage-height record, which are fair. No diversions above station.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day

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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.7	17	2.7	2.7	10.0	2.4	3.1	58	6.2	22	31.5	3.0
2	2.6	29	2.6	7.6	5.4	47	3.0	29	5.8	34	19.6	8.2
3	2.5	8.5	2.9	11.5	4.3	17.6	2.9	50	5.3	114	20.5	26
4	2.6	5.5	6.1	3.8	3.7	6.5	3.1	35	5.4	27	12.9	89
5	2.7	22	9.2	2.7	3.4	45	19.6	21	5.4	29.5	14.1	57
6	2.6	55	21.5	2.2	3.1	306	65	42	8.2	16.4	12.3	7.6
7	2.5	11	18.7	2.0	3.0	98	11.7	37.5	17.5	12.3	9.4	5.3
8	2.4	9.0	8.3	1.9	4.6	24	5.4	16.7	27.5	15.2	7.8	7.8
9	2.3	6.0	4.7	1.8	45	152	4.3	13.5	14.8	21.5	7.2	56
10	2.3	4.1	4.2	1.8	81	42	24	12.0	27	11.7	6.6	9.9
11	2.2	5.0	4.2	1.7	25	23	84	10.2	14.6	9.2	6.3	6.0
12	2.2	11.2	5.5	1.6	7.6	21	8.3	10.2	25	8.3	6.0	4.8
13	2.2	6.0	9.7	1.6	5.6	13.5	5.4	21	49	7.6	5.8	4.4
14	2.2	4.1	7.0	1.6	5.3	10.6	4.6	18.3	34.5	7.6	5.4	4.1
15	2.2	4.4	4.7	1.5	4.6	12.3	4.3	10.4	68	6.8	5.1	4.8
16	2.2	16.1	3.5	1.6	4.4	8.3	79	72	20.5	200	4.8	4.6
17	2.2	14.6	3.0	1.6	3.9	6.8	16.8	107	39	125	4.7	3.8
18	2.2	6.3	2.9	6.9	3.6	6.3	11.2	15.1	66	27	4.6	3.5
19	2.2	11.6	2.5	6.2	3.7	5.8	6.3	11.2	33	146	4.4	3.5
20	2.2	28.5	2.3	3.1	3.5	5.4	5.4	9.4	27	107	4.3	4.8
21	2.5	15.8	2.2	2.7	3.2	5.0	4.8	8.1	29	54	4.4	33.5
22	8.4	7.2	2.1	3.0	3.1	4.8	100	7.4	21	21.5	4.1	23.5
23	16	6.6	2.1	10.6	5.9	9.3	62	7.0	15.4	24.5	3.9	6.5
24	6.5	5.1	2.2	7.4	4.3	6.0	12.3	6.5	12.6	143	3.8	4.7
25	10	5.8	3.0	47	3.5	4.8	24.5	18.5	33.5	21.5	3.6	6.9
26	14	4.1	2.3	15.0	2.9	4.4	136	10.9	28.5	26	3.7	5.0
27	5.5	3.4	2.2	17.3	2.8	4.1	17.2	7.6	70	19.6	4.3	4.1
28	3.8	3.0	2.9	21	2.6	3.8	11.4	7.4	52	21	4.1	3.9
29	3.0	2.9	2.7	12.3	2.4	3.6	50	-	15.7	13.5	3.5	3.6
30	3.7	3.2	2.7	28	2.4	3.5	69	-	14.8	46	3.2	3.5
31	11	2.9	-	27.5	-	3.4	75	-	34	-	3.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16	2.2	4.25	6.58	132	404
August	55	2.9	10.8	16.7	335	1,030
September	21.5	2.1	5.02	7.77	151	462
October	47	1.5	8.30	12.8	257	789
November	81	2.4	8.73	13.5	262	803
December	306	2.4	29.2	45.2	906	2,780
Calendar year 1945	306	1.2	11.2	17.3	4,070	12,500
January	136	2.9	30.0	46.4	930	2,850
February	107	6.5	24.0	37.1	673	2,070
March	70	5.3	26.7	41.3	826	2,540
April	200	6.8	44.6	69.0	1,340	4,110
May	31.5	3.0	7.58	11.7	235	721
June	89	3.0	13.6	21.0	409	1,260
Fiscal year 1945-46	306	1.5	17.7	27.4	6,460	19,820

Note.- No gage-height record July 1 to Aug. 9; discharge computed on basis of records for Mohihi Stream and Kokee ditch.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. April 1909 to December 1912 at site 2 miles downstream (fragmentary).

Average discharge.- 15 years (1920-26, 1937-46), 4.80 million gallons a day (7.43 second-feet).

Extremes.- Maximum discharge during year, 370 million gallons a day (572 second-feet) Dec. 6 (gage height, 4.88 feet), from rating curve extended above 21 million gallons a day; minimum daily, 0.44 million gallons a day (0.68 second-foot) July 21, Sept. 22, 23, Oct. 15.

1920-26, 1936-43: 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 fair except those for period of no gage-height record and those below 1 million gallons a day, which are poor. No diversions above station.

Discharge, in million gallons, fiscal year July1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.77	2.1	0.65	0.69	3.8	0.58	0.98	26	2.45	4.4	8.4	0.69
2	.73	5.5	.61	.73	1.81	2.1	.93	15.0	2.0	7.7	5.0	.80
3	.73	1.93	.61	2.7	1.28	3.8	.93	26	1.81	17.9	5.2	1.13
4	.73	1.13	.58	1.28	1.08	1.57	.97	17.0	1.81	8.3	3.6	5.8
5	.84	6.8	.60	.88	.93	13.2	1.81	9.3	2.1	5.9	3.05	12.4
6	.69	14.6	.84	.69	.88	101	8.4	13.6	1.88	4.6	2.7	2.5
7	.69	2.7	4.7	.65	.84	43	3.65	16.3	5.1	3.4	2.35	1.44
8	.69	1.44	1.72	.61	.98	a15	1.97	6.6	5.8	4.0	2.1	1.18
9	.65	1.08	1.08	.61	11.3	a25	1.13	6.1	4.8	4.3	1.94	8.4
10	.65	.84	.80	.58	19.6	a16	1.27	4.4	4.8	2.95	1.75	3.0
11	.65	.73	.73	.58	10.4	a9.0	13.4	3.4	4.9	2.35	1.63	1.69
12	.65	.73	.65	.54	2.75	a7.0	3.05	3.05	3.6	2.0	1.44	1.23
13	.61	.80	.77	.50	1.88	a4.0	1.81	3.7	8.1	1.94	1.44	1.08
14	.61	.58	.84	.47	1.57	a2.9	1.33	4.8	7.6	1.94	1.38	.93
15	.61	.50	.98	.44	1.33	3.15	1.23	3.7	16.7	1.81	1.28	1.62
16	.58	.61	.98	.54	1.28	2.6	11.8	6.2	5.6	31.5	1.23	1.44
17	.58	2.9	.69	.54	1.28	2.25	5.0	22.5	12.9	28	1.18	1.03
18	.54	1.33	.54	.88	1.18	2.0	2.7	4.8	9.2	8.3	1.13	.84
19	.50	1.43	.50	1.45	1.03	1.88	1.81	3.05	7.4	22.5	1.13	.77
20	.47	3.0	.47	.98	1.03	1.75	1.38	2.5	6.2	24	1.03	.93
21	.44	3.7	.47	.73	.93	1.63	1.23	2.15	7.2	18.2	1.03	5.2
22	.60	1.50	.44	.77	.80	1.57	10.6	1.94	4.3	6.7	.98	3.4
23	1.94	1.50	.44	2.0	.80	1.88	12.2	1.75	3.25	6.4	.93	2.15
24	1.73	1.08	1.25	2.55	.84	1.81	3.9	1.63	2.7	35	.93	1.38
25	8.1	1.42	1.03	24	.77	1.63	2.95	8.6	5.8	8.8	.88	1.28
26	5.2	.93	1.13	6.0	.73	1.44	6.1	4.6	8.1	5.8	.88	1.18
27	1.40	.80	.77	4.0	.69	1.33	3.2	3.0	8.4	5.0	.88	.93
28	.80	.77	.77	6.2	.69	1.23	2.0	3.65	17.4	5.8	.88	.77
29	.61	.73	.73	3.6	.65	1.18	18.6	-	4.8	3.9	.84	.65
30	.54	.69	.69	6.5	.61	1.13	25.5	-	3.8	7.5	.77	.58
31	1.28	.65	-	13.4	-	1.08	33	-	7.5	-	.73	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.1	0.44	1.15	1.78	35.6	109
August	14.6	.50	2.08	3.22	64.5	198
September	4.7	.44	.902	1.40	27.1	83
October	24	.44	2.78	4.30	86.1	264
November	19.6	.61	2.46	3.81	73.7	226
December	101	.58	8.83	13.7	274	840
Calendar year 1945	101	.16	3.03	4.69	1,110	3,400
January	33	.93	5.96	9.22	185	567
February	26	1.63	8.05	12.5	225	691
March	17.4	1.81	6.06	9.38	188	577
April	35	1.81	9.70	15.0	291	893
May	8.4	.73	1.89	2.92	58.7	180
June	12.4	.58	2.21	3.42	66.4	204
Fiscal year 1945-46	101	.44	4.31	6.67	1,580	4,830

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

Note.- Stage-discharge relation indefinite July 1-4, 6-22, Aug. 27 to Sept. 4, Sept. 19-23, Sept. 27 to Oct. 2, Oct. 6-18, Oct. 26 to Nov. 9, Nov. 11 to Dec. 5; discharge computed on basis of records for Kawaikoi and Waiahulu Streams.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Kokee ditch near Waimea

Location.- Suppressed weir control, lat. 22°06'25", long. 159°40'45", 1,000 feet west of road and 10½ miles north of Waimea. Altitude of gage, 3,310 feet (by barometer).

Records available.- September 1926 to June 1946.

Average discharge.- 19 years (1927-46), 16.7 million gallons a day (25.8 second-feet).

Extremes.- Maximum discharge during year, 78 million gallons a day (121 second-feet) Dec. 6 (gage height, 2.73 feet); no flow Dec. 15.
1926-46: Maximum discharge, that of Dec. 6, 1945; no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent except those for periods of no gage-height record, which are poor. Kokee ditch diverts water at altitude 3,400 feet from all streams tributary to Waimea River west of Mohihi Stream for irrigation near Kekaha. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.0	18.2	2.9	2.3	13.4	2.3	6.4	12.8	14.6	24.5	29.5	6.3
2	2.9	27	2.8	4.9	7.1	26	6.2	12.8	13.4	24	24.5	7.6
3	2.8	9.2	2.65	10.8	5.5	20.5	6.0	15.6	12.5	43	29	21
4	2.9	6.0	5.8	4.6	4.6	8.6	7.0	17.5	12.3	26	22	39
5	3.0	25	8.9	3.0	3.8	19.0	14.0	12.1	11.9	29.5	22	46
6	2.9	44	16.2	2.55	3.4	62	30	15.2	11.7	21	21	16.4
7	2.8	13.7	23	2.2	3.15	54	15	17.8	25.5	18.2	17.0	10.2
8	2.65	12.0	10.4	2.0	3.2	44	10	18.7	31	19.8	15.8	9.1
9	2.3	7.6	6.0	1.90	32	36	8.5	17.3	22	26	13.9	41
10	2.3	5.4	4.7	1.70	45	49	20	15.8	29.5	17.0	13.0	19.4
11	2.1	5.0	4.7	1.60	32	20.5	42	21	25	14.6	12.3	10.8
12	2.1	12.2	4.2	1.50	11.7	14.0	15	24.5	28	13.0	11.7	8.9
13	2.0	7.6	10.7	1.40	8.1	18.1	10	22	44	12.8	11.2	7.8
14	2.0	5.2	7.4	1.22	7.8	19.6	8.5	19.0	39	12.3	10.8	7.3
15	2.0	4.7	5.5	1.22	6.8	9.4	8.5	20.5	46	11.5	10.4	7.6
16	2.0	10.6	3.95	1.30	6.3	1.40	40	20	22.5	38.5	10.0	8.3
17	1.90	18.6	3.4	1.22	5.5	1.26	19	15.8	18.1	52	9.6	6.9
18	1.80	8.5	3.0	4.7	4.7	.76	14	24	25.5	33	9.4	6.3
19	1.80	12.0	2.7	6.8	4.6	6.8	10	23	26	44	9.1	6.0
20	1.90	24	2.4	3.65	4.4	10.8	9.0	21	29	26	8.9	8.0
21	2.0	22.5	2.3	2.8	3.95	10.0	8.1	19.5	34.5	23.5	8.7	24
22	8.8	9.2	2.1	2.65	3.65	9.6	35	17.0	24.5	26.5	8.3	20
23	19.2	8.3	2.0	9.6	5.8	13.8	44	15.8	18.2	32	8.0	11
24	9.0	6.6	2.0	10.1	5.0	10.6	20.5	15.8	17.0	23.5	8.0	8.5
25	12.9	6.8	2.65	32	3.8	9.2	23.5	27	27	26.5	7.6	9.4
26	16.9	5.2	2.3	21.5	3.4	8.3	62	22.5	37	29.5	7.3	8.0
27	6.2	3.95	2.1	17.7	3.0	7.8	24	17.0	28.5	26	7.8	6.3
28	4.1	3.4	2.4	24.5	2.8	7.3	21	17.0	41	28	7.8	5.6
29	3.25	3.15	2.4	15.3	2.65	7.1	30	-	21	21	7.3	5.2
30	4.1	3.4	2.4	24.5	2.55	6.8	23.5	-	19.5	34	6.8	4.8
31	12.0	3.25	-	30	-	6.6	11.8	-	37	-	6.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	19.2	1.80	4.70	7.27	146	447
August	44	3.15	11.4	17.6	352	1,080
September	23	2.0	5.13	7.94	154	472
October	32	1.22	8.10	12.5	251	771
November	45	2.55	8.32	12.9	250	766
December	62	.76	16.8	26.0	521	1,600
Calendar year 1945	62	.76	8.98	13.9	3,280	10,060
January	62	6.0	19.4	30.0	602	1,850
February	27	12.1	18.5	28.6	518	1,590
March	46	11.7	25.6	39.6	793	2,430
April	52	11.5	25.9	40.1	777	2,390
May	29.5	6.6	12.8	19.8	395	1,210
June	46	4.8	13.2	20.4	397	1,220
Fiscal year 1945-46	62	.76	14.1	21.8	5,160	15,830

Note.- No gage-height record Dec. 31 to Jan. 20, June 20-24; discharge computed on basis of records for Kawaikoi and Mohihi Streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. July 1918 to November 1920 at same site (fragmentary and unreliable; unpublished).

Average discharge.- 21 years (1925-46), 27.6 million gallons a day (42.7 second-feet).

Extremes.- Maximum discharge recorded during year, 780 million gallons a day (1,210 second-feet) Apr. 24 (gage height, 5.10 feet), from rating curve extended above 400 million gallons a day; minimum, 6.6 million gallons a day (10.2 second-feet) Sept. 2-5, 11-13.

1916, 1917-18, 1925-46: Maximum discharge, 2,550 million gallons a day (3,950 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 July1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.6	18	6.8	7.2	14	6.8	8.9	36	14.4	16.2	32	9.1
2	7.6	30	6.6	7.2	10	30	8.8	21	13.4	23.5	19.7	9.1
3	7.6	13	6.6	8.8	9.0	15	8.8	32	12.5	114	16.0	10.1
4	8.4	9.4	6.6	8.9	8.0	10	10	25	12.2	39	14.4	62
5	8.0	35	6.8	7.8	7.8	30	20	17	12.5	25	13.1	80
6	8.0	80	7.6	7.4	7.6	350	60	30	12.0	19.8	12.5	13.1
7	8.0	17	14.8	7.2	7.4	50	16	28	16.6	13.1	12.2	10.3
8	7.6	11	9.4	7.0	7.6	26	11	21	19.4	13.1	12.0	9.6
9	7.4	9.2	7.8	7.0	50	150	10	20	16.3	14.7	11.4	49
10	7.2	8.6	7.0	7.0	85	35	20	19	16.2	12.8	11.1	14.6
11	7.2	8.0	6.8	6.8	48	17	110	18	19.8	11.7	11.1	10.6
12	7.2	8.0	6.8	6.8	13	14	15.0	17	14.1	11.1	10.8	9.8
13	7.2	7.8	7.0	6.8	12	13	10.8	20	31.5	11.2	10.6	9.4
14	7.2	7.6	7.6	6.8	11	12	9.8	19	28.5	11.1	10.6	9.1
15	7.2	7.4	7.6	6.8	10	12	9.6	17	78	10.6	10.3	9.4
16	7.2	7.2	7.6	6.8	10	11	82	50	20	202	10.3	10.3
17	7.2	11.9	7.4	7.0	9.8	11	18.9	110	39	196	10.1	9.6
18	7.2	9.4	7.2	7.2	9.6	10	12.5	25	70	26.5	10.1	9.1
19	7.2	8.4	7.0	8.4	9.2	10	10.6	19	34	128	9.8	8.9
20	7.2	10.8	7.0	8.0	9.0	10	9.8	17	26.5	167	9.8	9.1
21	7.8	18.6	6.8	7.6	8.6	10	9.6	16	24	96	9.8	16.1
22	10	9.6	6.8	7.4	8.2	10	70	16	19.4	29.5	9.8	28
23	13	8.6	6.8	11.8	8.0	11	45	15	16.7	17.8	9.8	12.2
24	9.0	8.9	7.2	22	8.4	10	15	15	15.2	174	9.8	10.3
25	10	8.2	7.8	85	7.6	9.5	23	20	19.6	37	9.6	9.8
26	12	8.4	7.9	24.5	7.5	9.4	100	18	33.5	18.6	9.6	9.8
27	9.0	7.6	7.6	13.1	7.4	9.2	25	17	31	16.2	9.6	9.6
28	8.6	7.4	7.4	16.8	7.2	9.1	13	16.7	111	16.4	9.6	9.6
29	8.2	7.0	7.4	13.7	7.2	9.0	30	-	24	14.0	9.4	9.4
30	9.0	6.8	7.2	18.9	7.0	9.0	42	-	13.7	43	9.4	9.1
31	12	7.0	-	30	-	9.0	48	-	23	-	9.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13	7.2	8.32	12.9	258	792
August	80	6.8	13.4	20.7	416	1,280
September	14.8	6.6	7.50	11.6	225	690
October	85	6.8	12.8	19.8	398	1,220
November	85	7.0	14.2	22.0	425	1,300
December	350	6.8	29.9	46.3	928	2,850
Calendar year 1945	435	6.4	17.2	26.6	6,290	19,320
January	110	8.8	28.5	44.1	883	2,710
February	110	15	24.8	38.4	695	2,130
March	111	12.0	27.0	41.8	838	2,570
April	202	10.6	50.9	78.8	1,530	4,690
May	32	9.1	11.7	18.1	363	1,120
June	80	8.9	16.2	25.1	486	1,490
Fiscal year 1945-46	350	6.6	20.4	31.6	7,440	22,840

Note.- No gage-height record July 12 to Aug. 12, Oct. 16-18, Nov. 1-9, Nov. 11 to Jan. 10, Jan. 21 to Feb. 27; discharge computed on basis of records for Kawaikoi and Mohihi Streams.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 27 years (1918-24, 1925-46), 36.2 million gallons a day (56.0 second-feet).

Extremes.- Maximum discharge during year, 64 million gallons a day (99 second-feet) Mar. 6 (gage height, 4.05 feet); minimum daily, 0.2 million gallons a day (0.3 second-foot) Nov. 29 to Dec. 5.
1907-46: 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. 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 July1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	23	38	24	22	39	0.2	27	52	46	53	51	27
2	23	39	23	22	37	.2	26	51	43	53	51	27
3	33	37	23	34	32	.2	26	52	41	53	51	29
4	39	30	22	28	36	.2	28	51	43	53	48	43
5	32	30	30	24	30	.2	32	50	51	53	46	46
6	27	41	34	22	37	.4	40	52	44	51	43	41
7	26	41	41	21	30	.4	34	52	51	53	39	31
8	23	37	34	21	29	.4	31	51	51	53	38	29
9	22	41	33	20	37	.4	29	51	51	53	37	44
10	22	36	27	20	34	.4	30	51	51	51	32	42
11	21	33	27	20	34	22	44	50	51	46	34	33
12	23	33	25	19.0	30	18	41	50	51	43	33	30
13	23	30	24	19.0	31	22	33	51	53	41	32	27
14	22	26	24	19.0	32	25	30	51	53	50	31	27
15	22	37	32	19.0	33	26	29	50	53	43	31	42
16	29	38	32	19.0	33	27	46	52	53	46	30	27
17	34	41	26	19.0	32	29	43	54	51	51	30	29
18	23	34	24	22	29	29	38	51	53	53	30	27
19	23	33	23	36	32	30	32	49	53	53	29	26
20	22	41	22	26	30	30	29	48	51	51	29	26
21	21	41	21	23	27	30	28	47	53	51	30	43
22	27	33	20	26	26	30	44	46	51	51	29	46
23	37	31	25	34	30	35	51	45	51	51	29	46
24	37	28	38	34	33	31	46	45	51	51	28	36
25	38	40	29	33	18.9	30	48	48	51	51	28	35
26	39	32	32	37	.4	29	51	46	53	51	28	39
27	38	26	25	35	.3	28	41	44	51	50	28	30
28	30	24	24	38	.3	28	36	43	51	51	28	27
29	25	23	23	38	.2	28	32	-	53	51	27	25
30	24	29	22	38	.2	27	50	-	53	51	27	25
31	31	29	-	39	-	27	54	-	53	-	27	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	39	21	27.7	42.9	859	2,640
August	41	23	33.9	52.5	1,050	3,230
September	41	20	27.0	41.8	809	2,480
October	39	19.0	26.8	41.5	831	2,550
November	39	.2	26.4	40.8	793	2,430
December	35	.2	18.8	29.1	584	1,790
Calendar year 1945	51	.2	28.7	44.4	10,480	32,170
January	54	26	37.1	57.4	1,150	3,530
February	54	43	49.4	76.4	1,380	4,240
March	53	41	50.5	78.1	1,560	4,800
April	53	41	50.4	78.0	1,510	4,640
May	51	27	34.0	52.6	1,050	3,230
June	46	25	33.8	52.3	1,020	3,110
Fiscal year 1945-46	54	.2	34.5	53.4	12,600	38,670

Note.- No gage-height record Aug. 11, 12, Dec. 11 to Jan. 9, Jan. 30 to Feb. 27; discharge computed on basis of records for stations on nearby streams and ditches.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge for period ending June 30, 1944, 5,450 million gallons a day (8,430 second-feet) Aug. 11 (gage height, 9.50 feet, from floodmarks), from rating curve extended above 150 million gallons a day; minimum, 6.1 million gallons a day (9.4 second-feet) June 1.

Maximum discharge during year ending June 30, 1945, 3,260 million gallons a day (5,040 second-feet) Apr. 9 (gage height, 8.04 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.

Maximum discharge during year ending June 30, 1946, 4,150 million gallons a day (6,420 second-feet) probably Dec. 6 (gage height, 8.70 feet); minimum, 4.0 million gallons a day (6.2 second-feet) Oct. 15.

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

Discharge, in million gallons a day, 1943-46

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
				1943-44								
1	-	7.3	34	27.5	13.2	14.6	18.0	6.9	152	19.1	8.3	6.3
2	-	45	100	20	9.7	10.0	64	6.6	84	23.5	9.0	6.6
3	-	26.5	28	9.7	8.3	9.0	33.5	6.6	713	28	31	7.3
4	-	42	13.2	10.0	8.3	26	18.3	21.5	250	15.4	42	7.6
5	-	21	11.2	9.3	9.0	22.5	12.4	16.4	143	13.2	11.2	7.6
6	-	16.6	10.0	9.9	9.0	98	64	6.6	165	12.0	16.1	7.3
7	-	36.5	9.0	14.9	8.3	33.5	16.2	6.6	240	11.6	22	6.9
8	-	22.5	11.9	12.8	8.3	89	12.0	6.6	370	11.2	14.3	6.9
9	-	9.0	9.3	25	12.7	53	10.8	8.2	571	10.4	8.6	16.2
10	-	42	10.0	15.4	8.6	39	10.0	13.4	200	10.0	36.5	77
11	-	f644	11.5	12.4	12.4	31	10.0	d13.7	104	10.0	10.7	97
12	-	73	12.4	9.3	26	17.6	9.3	d31	78	10.0	8.0	45
13	-	26.5	9.7	8.5	12.8	12.0	9.0	d15.8	90	11.2	107	38.5
14	-	18.5	9.0	7.6	9.3	10.8	9.0	d13.2	58	15.7	33.5	28.5
15	-	14.0	8.0	7.6	8.3	10.0	10.4	d11.6	45	a14.8	12.4	17.2
16	-	13.9	7.6	23	8.6	9.7	16.4	d13.8	39.5	a10.0	15.1	23
17	-	12.0	7.6	68	9.3	9.3	10.8	d34.5	64	a9.3	9.7	12.8
18	-	10.8	13.1	43	9.0	9.0	9.3	d19.4	48	a9.0	8.6	18.3
19	-	9.0	44	16.6	52	8.6	8.6	d12.4	42	a10.8	137	13.2
20	-	8.3	18.5	10.0	24	12.9	8.0	d10.4	82	a8.6	46	14.1
21	-	8.0	12.0	8.3	12.8	17.2	7.6	d9.3	52	a8.3	125	11.8
22	-	f211	9.7	19.4	11.2	13.2	7.3	d8.7	40	11.4	19	8.6
23	-	69	8.6	100	10.0	11.6	6.9	d48	36.5	10.0	10.8	17.2
24	-	24	8.3	20.5	10.3	10.8	7.3	d18.0	29.5	8.3	15.0	8.6
25	-	15.3	8.3	12.0	11.2	9.7	7.3	12.4	26.5	8.3	18.7	10.0
26	-	13.2	8.3	9.3	10.4	74	8.9	218	24.5	8.6	11.2	13.6
27	7.6	19.1	8.0	9.0	10.0	179	15.8	109	23.5	8.3	10.7	27.5
28	12.7	20.5	9.0	9.7	9.7	66	12.5	31	22.5	8.6	8.3	27
29	7.6	14.4	24.5	9.3	9.7	17.2	9.0	594	21.5	9.0	15.1	12.5
30	7.3	125	10.0	14.8	35	13.6	8.0	-	20.5	8.6	9.0	86
31	6.9	21.5	-	25	-	17.2	7.6	-	19.7	-	6.9	-

a No gage-height record; discharge computed on basis of records for Hanapepe River.
d Intake action faulty; discharge computed on basis of doubtful gage-height record.
f Computed on basis of partly estimated gage-height record.

Discharge, in million gallons a day, of Makaweli River near Waimea, Kauai, 1943-46--Continued

1944-45

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	31	9.0	6.9	4.6	9.0	52	12.8	4.6	12.0	29.5	52	9.0
2	23.5	8.3	8.4	4.8	6.1	15.0	12	4.6	193	20.5	48	8.6
3	79	8.0	7.3	5.0	5.6	14.2	10	4.2	122	34.5	34.5	9.0
4	106	8.0	8.9	4.4	12.1	17.1	8.4	4.2	93	25	29.5	22
5	85	7.3	6.1	4.4	44	85	7.2	4.5	87	37	49	16.5
6	78	7.3	6.0	4.2	15.2	54	6.6	15	225	657	80	9.3
7	39	6.9	6.3	4.2	50	18.5	6.2	8.0	87	93	96	9.1
8	15.8	13.5	6.3	4.3	39.5	12.8	6.4	6.8	33.5	50	63	8.3
9	12.8	9.7	6.6	4.5	18.2	9.3	5.8	6.4	45	648	51	18.2
10	12.0	8.3	6.3	4.4	9.6	8.3	5.4	6.0	16.2	115	36.5	13.9
11	12.0	7.6	6.3	4.2	6.6	7.3	5.0	8.0	12.8	59	29.5	9.7
12	9.7	7.6	6.3	4.2	6.1	5.8	4.8	6.4	12.0	44	25	8.3
13	20.5	8.9	6.3	4.3	14.7	5.3	4.7	5.6	12.0	34.5	21.5	7.3
14	13.6	9.7	5.3	4.3	7.6	5.0	4.7	4.8	13.6	28	19.1	13.3
15	37	9.3	4.5	4.5	7.3	14.2	5.0	28	11.6	25	17.6	9.4
16	11.2	8.3	15	4.8	6.3	10.8	4.8	6.6	9.3	49	16.7	8.0
17	8.6	6.6	25	54	6.3	6.3	9.0	5.0	83	72	25	7.6
18	8.0	7.8	18	21	6.3	5.8	10	4.5	38.5	41	14.0	7.8
19	7.3	18.4	8.0	6.9	34.5	5.8	6.4	4.5	18.9	25	12.8	7.8
20	7.3	7.7	6.4	5.0	12.1	6.1	5.0	7.4	15.8	18.0	12.0	8.8
21	48	6.9	5.6	4.0	62	6.1	4.7	6.6	14.3	15.4	12.0	8.0
22	96	7.3	5.0	3.6	84	5.8	4.4	54	10.0	77	11.6	9.2
23	43	12.3	5.0	3.6	77	6.6	4.2	18.5	7.3	366	11.7	8.4
24	104	7.6	5.0	3.6	20	12.5	5.0	6.3	6.1	96	11.2	8.4
25	205	11.2	4.7	3.6	12.4	51	4.5	13.1	6.3	95	10.0	13
26	34	13.0	4.5	3.6	9.3	75	4.7	56	47	99	10.0	25
27	23	10.5	4.7	3.6	7.3	f392	4.5	131	103	144	10.0	22
28	15.8	9.3	4.7	32	6.9	f102	4.7	26	151	117	10.0	13
29	10.8	8.6	4.5	f30	14.5	44	4.7	-	75	99	9.3	8.6
30	9.7	13.1	4.5	8.5	23.5	23.5	4.5	-	92	72	9.3	7.4
31	11.4	8.6	-	39	-	15.8	4.3	-	37	-	9.0	-

Peak discharge.- Apr. 6 (4:30 p.m.) 3,170 m.g.d. (4,900 sec.-ft.); Apr. 9 (7 a.m.) 3,270 m.g.d. (5,060 sec.-ft.).

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

Note.- No gage-height record Sept. 16 to Oct. 12, Oct. 25-28, Jan. 2 to Feb. 12, June 18-30; discharge computed on basis of records for Hanapepe River.

1945-46

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.0	28	8.0	6.3	51	10.0	9.4	190	18.0	44	43	9.0
2	6.5	32	7.6	7.3	21.5	13.7	9.2	110	16.7	72	27	9.0
3	19.7	11	8.0	15.0	37	12.0	9.6	60	15.4	230	49	10.4
4	14.5	9.0	7.6	7.6	39	11.5	10	100	59	72	21.5	37
5	16.1	50	23.5	6.6	34.5	241	33	60	23.5	97	17.6	75
6	10.0	130	17.0	8.0	24.5	1,000	13	150	20.5	56	16.2	14.0
7	9.3	27	18.9	6.9	15.8	350	35	65	48	48	14.9	10.0
8	8.0	40	12.0	6.3	30	100	14	70	25.5	70	14.4	9.0
9	7.3	94	10.9	6.3	91	220	10	35	16.7	35.5	13.6	54
10	6.9	20.5	8.6	6.3	46	110	11.6	54	17.2	22.5	13.2	17.2
11	7.6	14.0	8.6	5.8	33.5	70	15.5	23	17.2	19.1	13.2	12.0
12	8.6	14.4	8.0	5.8	17.2	38	12.8	19	21	17.6	12.8	9.3
13	6.9	11.9	8.6	5.6	14.4	25	10.4	17	85	53	12.0	12.4
14	6.3	38.5	7.3	5.6	22	19	10	20	58	41	11.6	9.9
15	6.6	23	43	5.3	46	16	11	17	182	17.2	11.2	89
16	41	19.5	15.6	5.0	23.5	14	12	15	39	52	11.2	15.0
17	13.2	24.5	7.8	5.6	18.5	13	11	35	111	65	11.2	10.4
18	7.6	19.3	6.1	12.3	16.2	12	10	15	129	116	10.8	9.0
19	8.3	16.1	5.6	13.0	16.7	11	10	14	122	90	10.4	8.6
20	6.9	19.6	5.3	6.1	15.8	11	10	14	54	66	10.4	16.7
21	9.0	20.5	5.0	4.5	13.6	10	9.4	13	38	72	10.8	68
22	17.4	14.5	5.0	9.6	12.4	10	9.4	13	27	24.5	10.0	51
23	29.5	11.6	5.1	11.9	30	10	20	13	29	51	10.0	26.5
24	81	24	17.3	16.1	32	11	35	13	26.5	275	10.0	14.9
25	110	61	9.7	476	11.6	10	25	80	28	60	9.7	25
26	40	12.4	16.2	107	21.5	10	10	31	28	37.5	10.0	15.4
27	12	10.0	9.3	33.5	22	10	8.6	25	35	29	10.0	10.8
28	8.0	9.0	7.6	25	22.5	10	8.0	21.5	60	28.5	9.7	9.3
29	7.5	14.5	7.3	20.5	21.5	11	80	-	37.5	24	9.3	9.0
30	10	16.4	6.6	81	17.0	10	144	-	165	65	9.3	10.9
31	9.0	10.0	-	225	-	10	180	-	149	-	9.3	-

Note.- No gage-height record July 25 to Aug. 8, Dec. 6 to Jan. 9, Jan. 14-26, Jan. 31 to Feb. 26; discharge computed on basis of records for Waimea and Hanapepe Rivers.

Monthly discharge, in million gallons, of Makaweli River near Waimea, Kauai, 1943-46

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 27-31, 1943	12.7	6.9	8.42	13.0	42.1	129
August	644	7.3	52.9	81.8	1,640	5,030
September	100	7.6	16.2	25.1	485	1,490
October	100	7.6	19.3	29.9	598	1,830
November	52	8.3	13.2	20.4	397	1,220
Decomber	179	8.6	30.8	47.7	955	2,930
Calendar year	-	-	-	-	-	-
January 1944	64	7.3	14.8	22.9	458	1,410
February	594	6.6	45.6	70.6	1,320	4,060
March	713	19.7	124	192	3,860	11,830
April	28	8.3	11.8	18.3	353	1,080
May	137	6.9	27.0	41.8	837	2,570
June	97	6.3	22.7	35.1	680	2,090
The period	713	6.3	34.2	52.9	11,620	35,670
July 1944	205	7.3	39.3	60.8	1,220	3,740
August	18.4	6.6	9.25	14.3	287	880
September	25	4.5	7.21	11.2	216	664
October	54	3.6	9.45	14.6	293	899
November	84	5.6	21.1	32.6	634	1,950
December	392	5.0	35.3	54.6	1,090	3,350
Calendar year 1944	713	3.6	30.7	47.5	11,250	34,520
January 1945	12.8	4.2	6.14	9.50	190	584
February	131	4.2	16.2	25.1	455	1,400
March	225	6.1	54.5	84.3	1,690	5,190
April	657	15.4	110	170	3,290	10,080
May	96	9.0	27.3	42.2	847	2,600
June	25	7.3	11.2	17.3	335	1,030
Fiscal year 1944-45	657	3.6	28.9	44.7	10,550	32,370
July 1945	110	6.3	18.0	27.9	552	1,690
August	130	9.0	27.3	42.2	846	2,600
September	43	5.0	10.9	16.9	327	1,000
October	476	4.5	37.3	57.7	1,160	3,550
November	91	11.6	27.3	42.2	818	2,510
December	1,000	10.0	35.4	54.8	2,410	7,390
Calendar year 1945	1,000	4.2	32.5	50.3	12,920	39,620
January 1946	180	8.0	25.7	39.8	797	2,450
February	190	13	46.2	71.5	1,290	3,970
March	165	15.4	54.2	83.9	1,680	5,160
April	275	17.2	65.0	101	1,950	5,990
May	49	9.3	14.6	22.6	453	1,390
June	89	8.6	22.6	35.0	678	2,080
Fiscal year 1945-46	1,000	4.5	35.5	54.9	12,960	39,780

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. August 1910 to December 1916 at site half a mile upstream; records not equivalent.
Average discharge.- 22 years (1917-20, 1927-46), 53.9 million gallons a day (83.4 second-feet).
Extremes.- Maximum discharge during year, 3,940 million gallons a day (6,100 second-feet) Feb. 4 (gage height, 7.11 feet), from rating curve extended above 2,400 million gallons a day by test on model of station site; minimum, 9.3 million gallons a day (14.4 second-feet) July 19.
1910-21, 1926-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.4	7.5	1.2	62	2.8	515
.5	10.5	1.4	88	3.2	700
.6	14.5	1.6	124	3.7	980
.8	25	2.0	220		
1.0	41	2.4	345		

Discharge, in million gallons, fiscal year July1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.3	30.5	12.5	14.5	64	17.8	13.3	345	19.0	89	74	14.1
2	11.5	35.5	13.7	15.1	30.5	17.2	12.5	305	19.0	132	53	17.2
3	17.5	14.5	12.5	28.5	119	13.7	12.9	146	19.0	450	89	18.6
4	11.7	12.1	13.3	13.3	71	26.5	14.1	527	54	120	42	64
5	11.3	116	16.0	18.4	53	399	30.5	147	23	192	34	100
6	10.9	266	19.1	16.9	35	611	15.0	544	42	80	30	19.6
7	10.9	37	17.8	12.1	24	310	32	108	38	88	27	15.0
8	10.5	49	18.4	11.3	52	125	15.4	120	28.5	121	25	36.5
9	11.3	124	13.3	10.9	126	133	13.0	62	22.5	68	23	111
10	10.5	32.5	18.5	10.5	39	121	11.7	100	33.5	44	22	34
11	13.9	20	13.3	10.5	28	67	12.5	44	22	34.5	21.5	22.5
12	11.3	21.5	11.7	10.5	21	42	10.5	32	32.5	30.5	21	18.1
13	10.2	15.4	12.9	10.5	50	26.5	10.5	29	149	109	21	24.5
14	11.3	66	12.1	10.5	112	22.5	10.9	51	87	60	21	26
15	11.7	43	45	10.9	112	20	18.6	28	383	36.5	19.6	100
16	28	31	16.0	14.6	57	18.1	27	26	71	53	19.0	22.5
17	11.2	26	17.0	11.7	45	17.2	20.5	39.5	248	55	19.0	18.6
18	12.4	35.5	14.5	30	24	16.8	11.7	20	218	179	19.0	16.8
19	10.5	42	11.3	15.2	26.5	16.8	11.7	19.0	316	172	18.1	17.2
20	10.9	55	10.5	11.7	19.6	16.8	12.5	20	97	78	18.6	41
21	10.5	34.5	10.9	14.1	17.2	15.8	12.5	19.0	54	105	18.1	106
22	19.3	25	10.9	22.5	18.1	15.8	12.1	19.0	38.5	50	17.6	65
23	108	18.6	19.7	32.5	25.5	15.8	21.5	19.0	38.5	70	17.6	41
24	76	33.5	50	89	15.8	16.8	35.5	19.0	33.5	788	16.3	32
25	184	49	98	835	16.8	14.5	29.5	111	34	100	15.4	40
26	60	17.6	48	107	15.8	14.5	12.5	31	26	60	16.3	27
27	16.6	15.4	24	33	15.4	14.5	11.7	24.5	70	44	16.3	21
28	11.3	13.3	15.5	22	14.5	14.8	12.1	21.5	73	38.5	15.4	17.4
29	10.9	21	13.7	17.2	14.5	16.4	200	-	63	42	14.5	16.3
30	15.8	21	13.3	103	14.1	13.7	148	-	325	146	13.7	23.5
31	14.1	13.3	-	337	-	13.7	342	-	304	-	13.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	184	10.2	25.0	38.7	775	2,380
August	266	12.1	43.1	66.7	1,330	4,100
September	98	10.5	20.8	32.2	623	1,910
October	835	10.5	61.3	94.8	1,900	5,830
November	126	14.1	42.5	65.8	1,280	3,920
December	611	13.7	71.1	110	2,200	6,760
Calendar year 1945	1,040	9.0	46.5	71.9	16,980	52,120
January	342	10.5	37.2	57.6	1,150	3,540
February	544	19.0	106	164	2,980	9,130
March	383	19.0	96.2	149	2,980	9,150
April	788	30.5	121	187	3,640	11,160
May	89	13.7	25.5	39.5	792	2,430
June	111	14.1	37.5	58.0	1,130	3,460
Fiscal year 1945-46	835	10.2	56.9	88.0	20,780	63,770

Peak discharge.- Oct. 25 (4:30 p.m.) 3,340 m.g.d. (5,170 sec.-ft.); Dec. 5 (4 p.m.) 2,990 m.g.d. (4,630 sec.-ft.); Feb. 4 (11 a.m.) 3,940 m.g.d. (6,100 sec.-ft.); Apr. 24 (7:30 a.m.) 3,650 m.g.d. (5,650 sec.-ft.).
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 29 years (1910-20, 1927-46), 25.1 million gallons a day (38.8 second-feet).

Extremes.- Maximum discharge during year, 32 million gallons a day (50 second-feet) Oct. 25 (gage height, 3.02 feet); minimum, 5.1 million gallons a day (7.9 second-feet) Jan. 17.
1910-21, 1927-46: 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 fair except those for periods of faulty or no gage-height record, which are poor. 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	20	23	20	19.7	26.5	17.6	16.5	31.5	20	27	27	18.8
2	20	23	20	20	25	18.8	16.5	27.5	19.4	23	27	18.8
3	23	20	20	21.5	24	17.6	15.4	27	18.8	29	27	18.8
4	20	a18	20	20	20	18.2	16.5	16.5	22	29	25	21.5
5	18.8	a20	20	20	23.5	25	18.8	14.8	21.5	29	25	15.9
6	18.8	24	20	20	23	14.3	17.6	29	21.5	27	23	19.3
7	18.8	23	21.5	18.8	25	13.8	18.8	31.5	23	27	23	20
8	17.6	25	21.5	17.6	27	25	17.1	19.9	23	27	23	20
9	18.8	27	21.5	17.6	27	23	16.2	22.5	18.3	27	23	23
10	17.6	25	20	16.5	a27	20	17.6	25	21.5	27	21.5	21.5
11	20	23	20	16.5	a25	22.5	18.8	25	21.5	25	21.5	20
12	18.8	23	20	16.5	a22	18.6	17.6	25	20.5	25	21.5	20
13	17.6	20	20	16.5	a25	23	16.5	25	11.9	27	21.5	20
14	18.8	22	20	15.4	a27	23	16.5	25	23	27	21.5	20
15	18.8	25	22	15.4	a27	21.5	9.8	23	25	25	20	23
16	22	23	23	17.6	a16	21.5	5.2	23	25	23.5	20	20
17	21.5	23	21.5	17.6	a16	20	7.2	25	16.6	25	20	18.8
18	21.5	23	23	18.8	a22	20	16.9	23	15.2	27	20	19.4
19	20	23	21.5	20	a23	18.8	15.4	23	27	27	20	20
20	20	23	20	18.8	a21	18.8	15.4	20	27	27	20	21.5
21	21	23	18.8	18.8	a19	17.6	15.4	20	27	27	20	23
22	22	23	17.6	18.8	a18	17.6	15.4	20	27	25	20	23
23	23.5	23	19.1	20	a19	17.6	18.4	18.8	25	27	20	21.5
24	26	23	21	23	a18	18.8	19.2	18.8	23	28.5	20	21.5
25	26	25	23.5	28	17.6	17.6	20	22.5	25	29	20	21.5
26	27	23	27	31.5	17.6	17.6	17.6	23	25	29	20	21.5
27	27	21.5	25	27	17.6	16.5	16.5	21.5	25	29	20	21.5
28	23	21.5	23	27	17.6	15.2	16.8	20	27	24.5	20	22
29	20	21.5	21.5	25	17.6	14.3	22.5	-	22.5	24.5	20	21.5
30	21.5	23	20	27	17.6	16.5	25	-	27	27	20	20
31	21.5	21.5	-	26.5	-	16.5	29	-	29	-	20	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27	17.6	21.0	32.5	651	2,000
August	27	18	22.7	35.1	705	2,160
September	27	17.6	21.1	32.6	632	1,940
October	31.5	15.4	20.6	31.9	637	1,960
November	27	16	21.7	33.6	652	2,000
December	25	13.8	18.9	29.2	587	1,800
Calendar year 1945	34	9.2	21.7	33.6	7,920	24,320
January	29	5.2	17.0	26.3	526	1,610
February	31.5	14.8	23.1	35.7	647	1,980
March	29	11.9	22.7	35.1	704	2,160
April	29	23	26.7	41.3	801	2,460
May	27	20	21.6	33.4	670	2,060
June	23	15.9	20.6	31.9	617	1,890
Fiscal year 1945-46	31.5	5.2	21.5	33.3	7,830	24,020

a Faulty or no gage-height record; discharge computed on basis of records for Hanapepe River.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. December 1911 to November 1918, at site a third of a mile upstream.
Average discharge.- 24 years (1921-24, 1925-46), 65.3 million gallons a day (101 second-feet).
Extremes.- Maximum discharge during year, 3,460 million gallons a day (5,350 second-feet) Dec. 5 (gage height, 6.92 feet), from rating curve extended above 1,550 million gallons a day by test on model of station site; minimum, 1.58 million gallons a day (2.44 second-feet) Oct. 15.
1911-46: Maximum discharge, 29,000 million gallons a day (44,900 second-feet) Jan. 16, 1920 (gage height, 11.25 feet), from rating curve extended above 9,000 million gallons a day; minimum, 1.2 million gallons a day (1.9 second-feet) May 3, 1926.
Remarks.- Records good. Lihue and Hanamaulu ditches divert water above station at altitudes of 600 and 500 feet, respectively, for irrigation in the vicinity of Lihue.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.6	1.22	1.1	7.4	2.0	47	4.0	640
.7	1.95	1.2	9.5	2.3	80	4.5	950
.8	2.9	1.4	14.9	2.6	128	5.0	1,340
.9	4.1	1.6	22	3.0	220		
1.0	5.6	1.8	31.5	3.5	390		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.2	2.85	4.3	2.15	36	3.6	7.0	693	9.1	43	109	3.4
2	52	7.0	6.2	2.4	8.0	4.2	7.9	491	8.4	56	75	3.4
3	182	4.5	4.3	6.6	57	4.4	5.8	412	8.0	280	120	4.1
4	16.5	2.7	3.65	3.15	91	3.75	6.0	484	9.1	74	78	4.7
5	7.3	19.1	2.7	2.4	23.5	409	6.9	236	9.3	164	53	28.5
6	4.8	75	3.4	2.35	8.2	757	7.8	824	7.6	76	46	5.1
7	4.1	6.5	3.75	2.25	4.6	280	51	556	8.0	97	38.5	3.75
8	3.85	3.15	3.5	1.88	4.4	183	10.5	235	7.6	112	24	4.2
9	3.75	32	3.25	2.05	52	264	6.9	166	7.0	37	12.0	49
10	3.5	6.0	3.4	2.05	42	221	5.8	248	6.9	21	9.8	7.4
11	3.75	3.4	3.15	1.80	78	149	6.1	109	6.7	11.5	9.3	5.3
12	3.6	3.0	2.9	1.80	35	106	5.3	65	6.5	8.0	8.7	4.1
13	3.15	2.9	3.0	1.73	17.8	76	4.2	70	30	50	8.2	3.6
14	2.9	58	2.7	1.66	39	56	4.1	130	17.2	46	8.2	3.6
15	2.8	12.7	25	1.58	84	78	4.0	86	221	21.5	8.0	41
16	4.4	12.2	4.9	1.73	66	66	4.2	79	40	102	7.2	5.6
17	6.2	9.0	3.4	1.88	69	36	4.1	104	179	178	6.1	3.6
18	3.0	9.1	2.9	2.35	54	14.9	4.1	48	88	311	5.6	3.15
19	2.8	15.2	2.5	2.35	55	14.0	3.75	62	136	506	5.3	3.0
20	2.6	22.5	2.35	2.15	47	12.6	3.5	57	47	419	5.0	3.25
21	2.5	8.8	2.25	1.88	41	9.5	3.5	34.5	19.1	269	5.0	33.5
22	3.95	4.2	2.05	2.5	51	11.1	4.1	21.5	9.8	145	5.0	17.2
23	32	3.5	1.95	2.15	62	31.5	22	28.5	8.0	157	4.7	41
24	22	13.9	1.95	2.35	43	30.5	11.6	28.5	43	721	4.6	16.2
25	42	106	56	1,000	42	29.5	11.3	35	22.5	175	4.2	4.2
26	30	8.7	17.7	110	26	13.1	7.7	15.2	7.0	130	4.6	3.6
27	4.8	12.1	4.0	8.3	35	8.2	6.3	11.5	6.5	114	4.1	3.75
28	2.9	5.0	2.7	41	30.5	7.0	4.2	9.5	32	97	3.85	3.4
29	2.8	3.85	2.25	36	11.6	6.9	299	-	8.6	78	3.6	3.15
30	2.9	3.5	2.05	62	4.2	8.8	308	-	225	144	3.5	3.2
31	2.9	3.25	-	228	-	7.6	525	-	213	-	3.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	182	2.5	15.0	23.2	465	1,430
August	106	2.7	15.5	24.0	480	1,470
September	56	1.95	6.14	9.24	184	565
October	1,000	1.58	49.7	76.9	1,540	4,730
November	91	4.2	40.6	62.8	1,220	3,740
December	757	5.6	93.6	145	2,900	8,910
Calendar year 1945	1,000	1.58	43.7	67.6	15,950	48,960
January	525	3.5	43.9	67.9	1,360	4,180
February	824	9.5	191	296	5,340	16,390
March	225	6.5	46.7	72.3	1,450	4,440
April	721	8.0	155	240	4,640	14,250
May	120	3.4	22.0	34.0	683	2,100
June	49	3.0	10.6	16.4	319	979
Fiscal year 1945-46	1,000	1.58	56.4	87.3	20,580	63,180

Peak discharge.- Oct. 25 (4:30 p.m.) 3,120 m.g.d. (4,830 sec.-ft.); Dec. 5 (6 p.m.) 3,460 m.g.d. (5,350 sec.-ft.); Feb. 6 (9:30 p.m.) 2,100 m.g.d. (3,250 sec.-ft.); Apr. 24 (8 a.m.) 2,590 m.g.d. (4,010 sec.-ft.).
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 7¾ 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 1946. December 1910 to September 1914, at site 300 feet downstream from confluence of main and east branches; records not equivalent.

Average discharge.- 25 years (1921-46), 50.6 million gallons a day (78.3 second-feet).

Extremes.- Maximum discharge during year, 1,570 million gallons a day (2,430 second-feet) Dec. 5 (gage height, 8.10 feet), 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) Oct. 13-15.

1910-46: 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 Oct. 25 to Jan. 29, which are fair. Since 1925 Hanalei tunnel has discharged its water into river, and North Wailua and Stable storm ditches have diverted water above station for irrigation in vicinity of Lihue.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.3	1.3	4.4	2.0	24	4.0	208
1.0	.8	1.4	6.2	2.5	48	4.5	302
1.1	1.7	1.6	10.8	3.0	86	5.0	436
1.2	2.9	1.8	16.5	3.5	139		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.6	6.4	27	2.2	65	24.5	24.5	238	11.5	56	51	0.5
2	56	15.1	25.5	8.8	51	61	11.0	195	4.8	63	46	2.9
3	121	1.4	25	10.3	70	35.5	1.7	133	7.0	100	61	4.6
4	43	.9	25	1.2	52	42	3.2	210	35	53	41	16.2
5	30.5	37.5	14.3	.6	52	230	10.7	108	9.0	81	36	26.5
6	9.6	64	11.9	.6	43	374	31.5	251	11.2	52	33	.8
7	6.9	35.5	6.5	.5	38	152	54	137	11.1	66	31	.6
8	5.1	35.5	11.4	.4	45	77	6.9	80	15.4	75	29.5	4.4
9	5.1	82	4.6	.4	82	139	2.1	61	20	50	29	18.8
10	4.0	29	4.8	.4	76	108	6.3	92	31	40	28	5.7
11	7.9	13.5	2.4	.4	51	69	29.5	52	28.5	36.5	28	1.2
12	2.3	18.4	5.0	.4	40	58	3.8	46	18.3	34	27	.6
13	.7	9.6	2.3	.4	48	48	1.9	52	43	77	11.6	9.2
14	.7	53	2.8	.3	52	43	1.7	56	48	46	3.5	4.1
15	.6	50	81	.4	49	40	1.5	41	89	38	2.8	29.5
16	15.8	52	40	.4	38	38	18.6	64	45	98	2.7	1.0
17	.9	45	14.0	.4	33	35.5	4.1	78	80	104	2.1	.6
18	2.0	56	9.0	7.4	31	35.5	2.0	42	60	141	1.2	.6
19	.6	48	3.4	.7	42	32	1.5	37.5	82	223	.7	.6
20	.6	46	.6	.7	31	31	1.4	34	52	147	.7	8.7
21	.6	38	.4	1.0	30.5	31	1.3	32	46	97	.7	36
22	18.2	36.5	.4	3.1	41	31.5	9.8	30.5	38	58	.6	44
23	53	31	4.8	1.3	51	31	39.5	29.5	46	71	.6	44
24	98	110	16.5	35	31	32.5	59	28.5	42	216	.6	37.5
25	96	79	11.0	308	29	28.5	67	41	46	66	.6	36.5
26	77	43	1.8	83	27	27	33.5	28.5	40	55	.6	14.8
27	25.5	35.5	2.8	51	27	27	15.3	27	53	48	.6	9.2
28	2.9	32	.9	48	26	26.5	11.0	26	47	43	.6	6.2
29	1.3	36.5	9.6	40	25	26.5	177	-	51	41	.5	4.8
30	4.7	33	2.8	89	24.5	26	113	-	112	64	.5	15.7
31	1.4	27.5	-	166	-	25	204	-	89	-	.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	121	0.6	22.3	34.5	692	2,130
August	110	.9	38.7	59.9	1,200	3,690
September	81	.4	12.2	18.9	368	1,130
October	308	.3	27.8	43.0	862	2,650
November	82	24.5	43.4	67.1	1,300	3,990
December	374	24.5	64.0	99.0	1,990	6,090
Calendar year 1945	374	.3	32.4	50.1	11,820	36,260
January	204	1.3	30.6	47.3	948	2,910
February	251	26	80.4	124	2,250	6,910
March	112	4.8	42.3	65.4	1,310	4,030
April	223	34	78.0	121	2,340	7,180
May	61	.5	15.2	23.5	472	1,450
June	44	.5	12.9	20.0	386	1,180
Fiscal year 1945-46	374	.3	38.7	59.9	14,120	43,340

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 9⅝ miles northwest of Lihue. Altitude of gage, 1,210 feet (Lihue Plantation Co. levels).

Records available.- July 1932 to June 1946.

Average discharge.- 14 years, 25.1 million gallons a day (38.8 second-feet).

Extremes.- Maximum discharge during year, 71 million gallons a day (110 second-feet) Feb. 4 (gage height, 1.71 feet); minimum, 13.8 million gallons a day (21.4 second-feet) Oct. 12-15.
1932-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.9	25	17.6	18.0	28.5	14.2	14.2	42	16.8	27.5	27	16.0
2	25.5	29.5	17.2	25	24.5	31	14.2	36.5	16.8	28.5	26.5	18.7
3	34.5	19.1	16.4	22	26.5	21	14.2	34.5	18.0	30.5	30.5	22.5
4	21	18.0	16.8	17.6	24	24.5	17.7	35.5	26	27	24	28.5
5	19.5	31	18.4	16.0	24	41	22	31	19.5	28.5	22.5	26
6	17.6	32	23	15.6	20.5	48	34.5	36.5	21	27	21	19.1
7	16.4	21.5	18.0	15.3	19.1	36.5	30.5	31	20.5	28	20.5	18.0
8	15.8	30	21.5	14.9	25.5	30	21	27	22.5	27.5	19.9	21
9	16.4	36.5	17.2	15.3	30	37.5	17.6	26.5	19.5	26.5	19.5	27.5
10	15.8	25.5	17.6	14.5	33	36	21.5	29.5	23	24	19.1	24
11	18.7	21.5	15.6	14.2	27	30	30	25.5	20.5	22	19.1	19.9
12	15.6	23.5	17.1	14.2	21.5	27	19.9	24.5	24.5	20.5	18.4	18.4
13	14.9	18.4	15.8	13.8	22	22.5	17.6	27	28	27	18.4	23.5
14	14.9	29	17.6	13.8	22.5	20.5	16.8	27	27	25.5	18.4	21.5
15	16.0	27.5	38.5	14.2	22	19.5	18.0	23.5	30	24.5	17.8	30.5
16	28	28	32	14.9	19.5	18.0	29.5	25	26.5	32	17.8	19.9
17	17.2	25	21.5	15.6	17.8	17.6	21	29.5	29	32.5	17.2	18.4
18	19.5	26.5	19.5	23	16.8	17.2	18.0	24	28	31	17.2	18.0
19	16.0	26	17.2	16.0	20.5	16.8	17.2	22	30.5	35.5	16.8	19.5
20	16.8	26	16.4	18.7	17.2	16.4	16.4	20.5	27	32	17.2	24.5
21	15.8	20.5	16.0	18.0	17.6	16.4	16.4	19.5	26	27.5	16.8	29
22	23.5	22	15.6	19.1	22.5	17.2	26	19.1	24	25.5	16.8	28.5
23	28.5	19.1	19.6	16.4	23	16.8	32.5	18.7	26	27	16.8	28.5
24	30.5	30	22.5	23.5	17.6	18.4	32	18.4	24.5	32	16.8	25
25	36	33	20.5	41	16.8	15.6	30.5	22	24.5	24	16.8	29.5
26	35.5	23	16.4	31	16.0	15.3	27	18.0	24.5	24	16.8	23.5
27	23	19.5	18.4	26.5	15.6	14.9	21.5	17.6	26.5	23.5	16.4	19.9
28	19.5	19.5	16.8	24.5	14.9	14.9	19.5	16.8	26.5	22.5	16.4	18.7
29	18.4	23.5	22.5	22	14.5	15.3	35.5	-	27.5	22.5	16.0	17.8
30	23	21	18.0	31	14.5	14.5	34.5	-	32	27	16.0	23
31	19.9	17.6	-	37	-	14.2	42	-	29.5	-	16.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	36	14.9	20.9	32.3	649	1,990
August	36.5	17.6	24.8	38.4	768	2,360
September	38.5	15.6	19.4	30.0	581	1,780
October	41	13.8	20.1	31.1	623	1,910
November	33	14.5	21.2	32.8	635	1,950
December	48	14.2	22.6	35.0	699	2,140
Calendar year 1945	48	0	20.8	32.2	7,580	23,280
January	42	14.2	23.5	36.4	729	2,240
February	42	16.8	26.0	40.2	729	2,240
March	32	16.8	24.7	38.2	766	2,350
April	35.5	20.5	27.1	41.9	813	2,500
May	30.5	16.0	19.0	29.4	590	1,810
June	30.5	16.0	22.6	35.0	679	2,080
Fiscal year 1945-46	48	13.8	22.6	35.0	8,260	25,350

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. Records from 1926 to June 1932 collected by Lihue Plantation Co.

Average discharge.- 14 years, 12.5 million gallons a day (19.3 second-feet).

Extremes.- Maximum discharge during year, 52 million gallons a day (80 second-feet) July 25 (gage height, 1.67 feet); no flow Sept. 15, Feb. 8, Apr. 25, when water was shut out of ditch.

1932-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.3	15.9	12.5	14.8	4.4	10.6	9.9	0.94	11.9	8.7	6.3	9.9
2	10.3	18.2	12.3	17.4	9.9	9.8	9.9	.62	11.6	11.6	8.6	11.2
3	1.65	13.2	11.6	15.9	12.9	12.4	9.6	2.9	12.2	5.5	7.0	12.5
4	8.5	12.3	11.9	12.8	12.2	14.7	13.7	1.84	15.3	9.0	9.4	13.2
5	11.6	15.3	13.8	12.5	12.5	11.4	13.6	5.0	12.8	6.9	12.5	11.3
6	12.5	3.2	14.5	11.4	12.2	.72	14.0	.89	13.4	9.6	12.8	12.2
7	12.4	10.6	12.2	10.8	12.8	5.6	11.6	.53	13.4	11.9	12.6	11.3
8	11.9	17.5	15.2	10.7	13.6	9.2	13.4	4.3	13.4	9.5	12.5	12.8
9	12.6	8.7	12.2	10.7	7.4	9.5	11.6	11.6	12.2	9.7	12.2	14.5
10	11.6	10.1	12.3	10.7	8.5	8.6	13.8	7.1	13.6	12.5	12.2	13.8
11	15.3	14.9	11.0	10.6	10.5	10.2	18.0	10.7	12.5	12.9	12.5	13.0
12	11.8	14.7	12.1	10.6	13.1	11.6	12.4	12.2	14.0	12.8	11.7	12.3
13	11.2	13.2	11.1	10.2	11.8	11.6	11.4	13.6	11.7	5.9	11.7	14.2
14	11.3	8.1	11.6	10.2	9.7	11.3	11.0	12.8	9.3	10.8	11.8	14.8
15	12.5	6.6	6.9	11.3	10.2	11.0	10.9	12.3	3.3	15.6	11.3	15.9
16	19.0	8.7	8.6	12.1	12.2	10.7	17.4	11.4	9.2	18.9	11.6	13.1
17	12.6	8.4	13.6	11.9	12.6	10.6	13.1	7.2	5.8	10.9	11.0	12.0
18	14.1	6.2	13.8	17.7	11.9	9.9	11.1	12.2	10.3	2.1	10.8	11.8
19	11.6	6.1	11.9	12.1	11.8	11.3	10.5	12.6	9.6	2.1	10.8	12.8
20	12.5	9.2	11.3	14.0	11.9	11.1	10.2	12.8	6.9	1.02	11.2	14.3
21	11.0	10.2	10.8	15.4	11.8	11.3	10.2	12.2	9.6	4.3	10.8	14.7
22	13.6	13.9	10.6	17.7	13.2	11.4	12.7	11.9	11.8	9.4	10.7	9.7
23	10.8	13.4	13.2	15.1	13.3	11.1	18.4	11.6	13.4	7.5	11.3	11.3
24	12.3	9.8	13.9	15.0	12.2	13.4	12.4	11.4	13.0	1.54	10.5	12.9
25	21.5	2.85	14.0	1.26	12.0	10.6	11.6	12.5	10.4	2.5	10.3	13.4
26	3.4	9.9	12.5	7.2	11.4	10.3	12.8	11.4	11.4	6.7	10.7	14.7
27	14.5	12.6	12.4	15.7	11.4	10.2	12.2	11.6	11.8	9.8	10.3	13.6
28	14.6	13.8	11.5	12.2	10.8	10.2	11.7	11.1	12.0	11.6	10.2	12.5
29	13.7	15.0	14.3	12.5	10.7	10.7	6.6	-	12.5	11.9	10.0	11.9
30	16.3	14.3	12.6	5.5	10.6	10.2	4.7	-	6.1	6.9	9.9	14.3
31	15.1	12.6	-	1.22	-	9.9	3.55	-	1.65	-	9.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	21.5	1.65	12.4	19.2	383	1,180
August	18.2	2.85	11.3	17.5	349	1,070
September	15.2	6.9	12.2	18.9	366	1,120
October	17.7	1.26	11.8	18.3	367	1,130
November	13.6	4.4	11.3	17.5	340	1,040
December	14.7	.72	10.4	16.1	321	985
Calendar year 1945	30.5	.72	12.0	18.6	4,380	13,450
January	18.4	3.55	11.7	18.1	364	1,120
February	13.6	.53	8.83	13.7	247	759
March	15.3	1.65	10.8	16.7	336	1,030
April	18.9	1.02	8.68	13.4	260	799
May	12.8	6.3	10.8	16.7	335	1,030
June	15.9	9.7	12.9	20.0	386	1,180
Fiscal year 1945-46	21.5	.53	11.1	17.2	4,050	12,440

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. Records for April 1931 to December 1936 collected by Lihue Plantation Co. from staff gage at site 1 mile downstream.

Extremes.- Maximum discharge during year, 66 million gallons a day (102 second-feet) Oct. 24 (gage height, 2.13 feet); no flow for several periods during year.
1936-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	20.5	31	0	24.5	0.07	0	0	0.29	16.0	0.12	0.02	19.9
2	19.0	34.5	0	27	.12	0	12.2	.12	21	.12	.07	23
3	.18	28.5	0	27	.12	.04	19.3	a.12	21.5	.12	.07	25.5
4	.07	26.5	0	24.5	.12	12.3	22	a.12	24	.12	.02	31
5	5.8	21.5	15.4	22.5	.12	17.1	25.5	.12	22	.12	.02	23
6	21	.07	21.5	21.5	.07	.46	31	.18	22.5	.12	.07	24
7	20.5	.08	21	21	.02	.19	32.5	.12	22.5	.12	.02	22.5
8	20.5	15.7	21.5	21	.02	.12	27.5	.12	22.5	.12	.02	25.5
9	20.5	25	21	21	.02	.07	24	.07	7.4	.12	0	34.5
10	20.5	22.5	21	19.6	.02	.12	25.5	.07	.12	.12	0	30.5
11	21	22	20.5	19.3	.02	.07	30.5	.02	.07	.07	0	27
12	21.5	22	21	19.2	.02	.02	25.5	.02	17.2	.07	0	23
13	22	21.5	20.5	19.0	.02	.02	24	.02	14.9	.12	16.7	29
14	21.5	12.2	20.5	18.8	.02	.02	22.5	0	.12	.07	23	25.5
15	22.5	.12	15.1	19.3	.07	0	23	0	.12	.12	23.5	36
16	28.5	.12	22.5	20	.02	0	29	0	.02	.18	22.5	25.5
17	23.5	.12	21	20.5	.02	0	26	0	.02	.18	22.5	23
18	25	.12	21	26.5	.02	0	23.5	0	.02	.18	22.5	23
19	22.5	.12	22	22	.02	0	22	0	.02	.28	22.5	24.5
20	23	.12	22.5	24	.02	0	21	0	.07	.12	23	28.5
21	21.5	.12	22	24.5	.02	0	21	0	.12	.12	22.5	19.5
22	27.5	.12	21	26	.02	0	27	0	.12	.07	22	.18
23	18.0	.12	23	23.5	0	0	31.5	.01	.18	.02	22.5	.18
24	.29	.29	24.5	26.5	0	0	18.8	.02	.18	.85	21.5	.12
25	.09	.12	26	12.0	0	0	.10	.02	.12	.02	21	16.3
26	0	.12	24	0	0	0	16.0	.02	.12	.02	21.5	21.5
27	18.3	.07	24	0	0	0	21.5	.02	.12	0	21	21.5
28	30.5	.07	23.5	0	0	0	21	.02	.12	0	20.5	21
29	29	0	24	0	0	0	7.9	-	.12	0	20.5	21
30	31	0	25	.04	0	0	.12	-	.12	0	20	21.5
31	29	0	-	.12	-	0	.12	-	.12	-	19.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	31	0	18.9	29.2	585	1,790
August	34.5	0	9.19	14.2	285	874
September	26	0	18.8	29.1	565	1,730
October	28.5	0	17.8	27.5	553	1,700
November	.12	0	.033	.051	.99	3.0
December	17.1	0	.985	1.52	30.5	94
Calendar year 1945	34.5	0	10.8	16.7	3,930	12,060
January	32.5	0	20.4	31.6	632	1,940
February	.29	0	.054	.084	1.50	4.6
March	24	.02	6.89	10.7	214	655
April	.65	0	.123	.190	3.69	11
May	23.5	0	13.2	20.4	409	1,260
June	36	.12	22.2	34.3	667	2,050
Fiscal year 1945-46	36	0	9.42	14.6	3,950	12,110

a No gage-height record; discharge computed on basis of ditchman's notes.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 26 years (1916-22, 1926-46), 5.88 million gallons a day (9.10 second-feet).

Extremes.- Maximum discharge during year, 3.05 million gallons a day (4.72 second-feet) Jan. 29 (gage height, 0.20 foot); no flow at times, when intake gate was closed.
1910-46: 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 fair. Ditch diverts water from North Fork Wailua River for domestic use only. Flow regulated by head gate.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.12	0.67	0.67	0.67	0.43	0.67	0.43	0.67	0.05	0.12	0.12	0.22
2	.44	.80	.67	.74	.31	.73	.18	.80	0	.12	.12	.55
3	1.09	.31	.67	.80	.31	.67	0	.67	0	.16	.12	.55
4	.87	.21	.67	.74	.26	.73	0	.67	.09	.16	.12	.67
5	.80	.67	.33	.67	.31	1.09	.06	.43	0	.16	.12	.67
6	.73	.80	.07	.55	.37	.80	.43	.55	0	.12	.12	.43
7	.67	.73	0	.39	.31	.88	.37	.43	.01	.12	.12	.43
8	.55	.73	0	.43	.21	1.01	0	.43	.02	.12	.21	.43
9	.55	.80	0	.43	.31	1.24	0	.43	.05	.12	.21	.67
10	.55	.67	0	.43	.31	.31	.03	.43	.12	.12	.21	.55
11	.67	.55	0	.43	.21	0	.20	.43	.12	.12	.31	.31
12	.43	.55	.16	.43	.21	0	0	.67	.03	.12	.31	.21
13	.21	.55	.11	.43	.21	0	0	.73	.05	.16	.12	.31
14	.21	.67	.12	.43	.67	0	0	.73	.05	.16	0	.31
15	.21	.67	1.24	.43	.80	.17	0	.67	0	.16	0	.31
16	.67	.67	1.09	.43	.73	.43	.18	.73	0	.21	0	.21
17	.31	.55	.67	.43	.73	.43	0	.80	0	.31	0	.21
18	.31	.55	.43	.55	.73	.43	0	.67	0	.21	0	.21
19	.16	.55	.14	.43	.80	.31	0	.67	0	.16	0	.21
20	.21	.43	0	.43	.73	.31	0	.31	.08	.12	0	.21
21	.16	.43	.29	.55	.73	.31	0	.16	.12	.12	0	.21
22	.55	.43	.73	.55	.73	.43	.07	.21	.05	.05	0	.21
23	.80	.43	.80	.55	.73	.43	.32	.21	.05	.05	0	.21
24	1.40	.43	.94	.73	.67	.43	.36	.21	.05	.22	0	.21
25	1.40	.12	.94	.67	.67	.43	.55	.21	0	.12	0	.21
26	1.40	.05	.80	.31	.67	.43	.55	.21	0	.12	0	.21
27	1.09	.05	.80	.31	.67	.43	.17	.16	.13	.12	0	.16
28	.67	.05	.74	.31	.67	.43	0	.16	.21	.12	0	.16
29	.55	.49	.80	.31	.67	.55	.80	-	.21	.12	0	.21
30	.67	.67	.80	.31	.67	.55	.67	-	.21	.16	0	.21
31	.43	.67	-	.43	-	.43	.67	-	.12	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.40	0.12	0.609	0.942	18.9	58
August	.80	.05	.515	.797	16.0	49
September	1.24	0	.489	.757	14.7	45
October	.80	.31	.494	.764	15.3	47
November	.80	.21	.528	.817	15.8	49
December	1.24	0	.486	.752	15.1	46
Calendar year 1945	1.40	0	.439	.679	160	493
January	.80	0	.195	.302	6.04	19
February	.80	.16	.480	.743	13.4	41
March	.21	0	.059	.091	1.82	5.6
April	.31	.05	.142	.220	4.25	13
May	.31	0	.071	.110	2.21	6.8
June	.67	.16	.322	.498	9.67	30
Fiscal year 1945-46	1.40	0	.365	.565	133	409

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Wailua ditch near Kapaa

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

Records available.- November 1936 to June 1946. 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.

Extremes.- Maximum discharge during year, 34.5 million gallons a day (53.4 second-feet) May 13 (gage height, 3.21 feet); minimum, 0.3 million gallons a day (0.5 second-foot) Nov. 4, 5.

1936-46: 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 for May 29 to June 3, which are fair. 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.1	19.9	3.0	22.5	7.1	6.2	7.2	3.1	7.1	5.7	1.5	a18
2	12.6	19.9	3.1	21	4.3	6.2	13.2	3.0	4.9	6.2	1.5	a12
3	14.5	18.7	2.7	24	1.6	6.2	18.2	3.1	2.8	6.2	1.6	a12
4	4.9	13.8	20.5	24	.3	6.2	22.5	3.1	6.2	6.2	1.6	11.7
5	10.3	8.6	33.5	21	.3	11.1	18.7	2.7	6.2	6.2	2.8	11.2
6	4.4	14.1	33.5	19.9	1.6	3.6	16.3	2.8	6.2	6.2	5.7	9.6
7	4.5	22.5	32	17.5	3.1	3.1	16.3	3.0	6.2	6.2	5.7	7.6
8	10.5	26.5	22	16.3	9.3	3.1	12.8	2.7	8.6	3.9	5.7	7.1
9	24	27.5	16.5	14.5	10.1	2.9	7.1	2.8	10.1	1.9	6.2	6.2
10	29	27.5	26.5	13.4	4.1	2.2	4.2	2.5	12.2	1.9	6.6	6.2
11	32	24	30.5	12.2	1.7	2.2	3.1	2.4	17.5	3.3	6.6	8.1
12	27.5	27.5	29	11.7	3.7	2.2	1.9	2.4	13.9	5.5	9.8	15.3
13	22.5	24	26.5	11.2	6.6	2.2	1.9	2.4	14.5	5.6	29	22.5
14	12.8	11.6	25	10.6	6.6	2.6	1.9	2.3	14.5	5.5	27	21
15	7.1	4.9	26.5	10.1	5.7	2.8	1.9	2.2	10.7	5.4	17.5	13.3
16	16.5	10.2	32	10.6	3.7	2.9	1.9	2.2	3.6	5.5	22.5	8.1
17	24	16.3	32	10.6	3.4	3.0	1.9	2.2	3.5	3.4	29	8.6
18	25	8.6	32	11.2	3.3	3.0	1.9	2.2	3.5	1.8	21.5	8.6
19	27.5	3.1	30.5	13.9	3.2	3.0	1.8	2.2	3.5	1.7	7.6	8.6
20	24	5.4	29	13.4	3.2	2.9	1.8	2.2	3.5	1.7	8.1	8.6
21	12.5	14.2	26.5	13.4	3.2	2.8	1.7	2.3	4.5	1.5	9.1	8.6
22	8.4	24	24	13.4	3.3	2.8	1.7	2.5	6.6	1.5	9.6	7.6
23	21	27.5	21	15.1	3.2	2.8	1.7	2.6	5.4	1.4	7.6	7.6
24	22.5	27.5	21	15.1	4.6	2.8	10.8	3.3	3.8	1.5	8.1	7.6
25	21	18.7	24	22.5	4.6	2.8	19.9	4.6	6.6	1.6	8.1	8.6
26	22.5	13.4	24	18.7	7.5	10.7	9.6	3.6	6.6	1.6	8.1	9.1
27	22.5	21	21	12.5	13.9	18.7	3.4	7.1	6.6	1.6	8.6	9.1
28	13.1	25	21	4.9	15.1	18.7	3.3	7.1	6.6	1.7	11.2	9.1
29	9.4	29	19.9	11.0	11.9	9.2	3.5	-	6.2	1.6	a14	7.6
30	22	29	24.0	10.8	6.2	4.2	3.4	-	6.2	1.5	a11	4.8
31	19.9	20.5	-	4.6	-	3.8	3.2	-	5.4	-	a20	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	32	4.4	17.3	26.8	536	1,640
August	29	3.1	18.9	29.2	584	1,790
September	33.5	2.7	23.8	36.8	713	2,190
October	24	4.6	14.6	22.6	452	1,390
November	15.1	.3	5.21	8.06	156	480
December	18.7	2.2	5.06	7.83	157	482
Calendar year 1945	37.5	.3	13.4	20.7	4,880	14,970
January	22.5	1.7	7.05	10.9	219	671
February	7.1	2.2	3.02	4.67	84.6	260
March	17.5	2.8	7.22	11.2	224	687
April	6.2	1.4	3.52	5.45	106	324
May	29	1.5	10.7	16.6	333	1,020
June	22.5	4.8	10.1	15.6	304	933
Fiscal year 1945-46	33.5	.3	10.6	16.4	3,870	11,870

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

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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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 1946.

Average discharge.- 26 years (1920-46), 30.1 million gallons a day (46.6 second-feet).

Extremes.- Maximum discharge during year, 1,440 million gallons a day (2,230 second-feet) Feb. 4 (gage height, 7.73 feet), from rating curve extended above 270 million gallons a day by test on model of station site; minimum, 9.0 million gallons a day (13.9 second-feet) July 1.

1912-46: 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. No diversions above station.

Rating table, fiscal year 1945-46 (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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.2	13.8	15.4	12.5	31	14.1	11.4	150	14	22	25	a10
2	65	19.4	14.5	13.1	26.5	26.5	11.1	120	13	25.5	25	a14
3	62	12.8	13.5	17.8	55	17.5	11.1	86	14	43	33	14.0
4	19.8	12.0	13.1	12.5	32.5	16.9	11.7	130	21	26	23	22.5
5	23.5	28	13.1	11.7	25	174	17.3	70	15.8	31	22.5	24.5
6	19.6	27	13.8	11.4	21.5	201	32	160	14.5	24.5	21	12.5
7	14.5	15.8	13.5	10.6	19.1	102	54	75	15.8	25.5	19.8	11.1
8	13.1	24.5	16.2	10.3	19.1	50	17.6	45	18.2	31	18.7	12.2
9	12.2	26.5	12.8	10.3	40	97	14.1	37	14.5	21.5	18.0	29
10	12.0	19.4	12.8	10.3	37	79	13.1	52	14.5	19.1	17.6	14.8
11	13.1	16.1	12.0	10.0	28.5	50	31.5	30	14.5	18.0	16.8	13.1
12	11.7	19.7	12.0	10.0	21.5	42	14.1	25	15.8	16.5	15.8	11.7
13	10.8	15.4	11.7	9.7	22	35	12.8	27	26.5	21	15.4	11.1
14	10.6	25	11.4	9.5	25	30.5	12.2	28	20	17.2	15.1	10.8
15	10.6	27.5	44	9.5	37.5	27	11.4	21	61	16.1	14.5	17.2
16	13.4	25	24	9.7	31	24.5	25.5	36	21	68	14.1	11.7
17	11.1	22	16.1	9.5	24.5	22	14.5	38	42	84	13.5	10.8
18	10.6	25.5	14.8	11.7	20.5	19.8	12.8	21	26.5	77	13.1	10.3
19	10.6	23	13.1	12.2	27.5	18.7	12.2	19	31	110	12.8	10.8
20	10.6	21.5	12.2	11.4	19.4	17.6	11.7	17	23.5	85	12.5	11.4
21	9.7	18.7	11.7	12.8	19.1	16.5	11.4	16	21.5	68	12.5	22
22	12.6	19.6	11.1	12.8	21	16.1	21	15	18.7	36	12.2	19.6
23	11.1	17.6	11.4	13.8	31	15.8	55	15	19.1	38.5	12.0	16.1
24	54	25	14.8	22	19.1	16.5	23.5	14	22	139	a12	15.4
25	42	33.5	12.8	200	18.3	14.5	32	17	20.5	39	a12	21.5
26	22.5	21.5	11.7	46	17.2	13.8	37.5	14	18.0	35	a11	16.5
27	15.8	18.7	12.8	26.5	16.1	12.8	22	13	28	28.5	a11	16.8
28	13.8	17.2	12.2	22.5	15.4	12.5	18.0	13	27	26.5	a11	13.5
29	12.8	19.5	23.5	19.4	14.8	12.5	143	-	22.5	23.5	a11	12.2
30	13.5	18.3	16.6	43	14.5	12.2	74	-	28.5	29.5	a10	13.1
31	12.8	15.8	-	81	-	11.7	130	-	30.5	-	a10	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximus	Minimum	Mean		Million gallons	Acre-feet
July	65	9.2	18.9	29.2	585	1,790
August	33.5	12.0	20.8	32.2	645	1,980
September	44	11.1	15.0	23.2	449	1,380
October	200	9.5	23.3	36.1	724	2,220
November	55	14.5	25.0	38.7	751	2,300
December	201	11.7	39.4	61.0	1,220	3,740
Calendar year 1945	304	7.0	25.0	38.7	9,140	28,020
January	143	11.1	29.7	46.0	920	2,820
February	160	13	46.6	72.1	1,300	4,000
March	61	13	22.4	34.7	693	2,130
April	139	16.1	41.5	64.2	1,250	3,820
May	33	10	15.9	24.6	492	1,510
June	29	10	15.0	23.2	450	1,380
Fiscal year 1945-46	201	9.2	26.0	40.2	9,480	29,070

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

Note.- Intake action faulty Jan. 30 to Mar. 3; discharge computed as in footnote a.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. 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.

Extremes.- Maximum discharge during year, 2,240 million gallons a day (3,470 second-feet) Dec. 5 (gage height, 3.79 feet), from rating curve extended above 330 million gallons a day; no flow at times, when low flow is diverted into Kapahi ditch.
1936-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

-0.05	0	0.4	11.5	0.9	72
0	.1	.5	19.0	1.0	92
.1	.4	.6	28.5	1.1	115
.2	1.9	.7	40	1.3	168
.3	5.3	.8	55	1.5	234

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0	0	0	2.0	0	4.6	107	9.6	10.2	8.0	0
2	0	0	0	0	2.0	21.5	1.4	73	9.6	17.8	10.9	0
3	0	0	0	0	36	1.3	0	48	9.6	35.5	22	1.3
4	0	0	0	0	7.0	1.2	0	55	15.2	15.6	13.0	0
5	0	.4	0	0	.5	196	19.7	32	.6	23.5	12.2	.1
6	0	.1	0	0	0	126	43	160	2.6	3.2	5.6	.2
7	0	0	0	0	0	42	65	173	1.2	10.5	0	0
8	0	0	0	0	0	19.0	16.8	39	2.9	14.1	0	1.9
9	0	0	0	0	3.6	131	10.3	23	0	7.9	0	1.2
10	0	0	0	0	9.5	51	14.0	28.5	.1	5.1	0	1.4
11	0	0	0	0	14.5	22	35.5	17.5	.2	1.4	0	.4
12	0	0	0	0	2.6	18.5	10.9	17.5	.3	0	0	0
13	0	0	0	0	0	13.8	9.6	23	19.3	3.5	0	0
14	0	0	0	0	4.5	11.5	9.0	21	13.0	3.9	0	0
15	0	.9	0	0	49	10.3	8.4	13.8	48	1.0	0	0
16	0	2.7	0	0	27	2.0	27.5	33	16.6	68	0	0
17	0	2.3	0	0	13.8	3.1	12.2	32.5	28	119	0	0
18	0	10.2	0	0	9.6	6.5	9.6	15.2	15.0	49	0	0
19	0	5.9	0	0	15.3	6.5	8.4	13.0	11.5	137	0	0
20	0	1.7	0	0	9.6	4.6	7.8	11.5	1.5	74	0	0
21	0	0	0	0	9.0	1.6	2.2	10.9	4.3	47	0	4.4
22	0	.2	0	0	17.5	3.3	15.6	9.6	.7	22	0	6.4
23	0	0	0	0	19.3	3.3	62	10.3	7.0	26.5	0	10.2
24	9.5	0	0	1.3	9.6	5.6	7.5	9.6	12.7	118	0	3.0
25	.8	0	0	9.7	11.8	7.2	13.7	10.2	.2	22	0	3.1
26	0	0	0	0	5.9	.5	26	.4	0	21	0	.3
27	0	0	0	0	1.2	0	11.3	18.5	13.5	16.8	0	0
28	0	0	0	0	0	0	2.8	10.3	13.1	16.8	0	0
29	0	0	.6	0	0	3.3	130	-	9.4	13.8	0	0
30	0	0	0	12.8	0	5.9	54	-	18.1	22.5	0	1.9
31	0	0	-	19.4	-	5.0	121	-	17.7	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.5	0	0.33	0.51	10.3	32
August	10.2	0	.79	1.22	24.4	75
September	.6	0	.02	.03	.6	1.8
October	19.4	0	1.39	2.15	43.2	133
November	49	0	9.36	14.5	281	862
December	196	0	23.3	36.1	724	2,220
Calendar year 1945	323	0	e.35	12.9	3,050	9,360
January	130	0	24.5	37.9	760	2,330
February	173	.4	36.3	56.2	1,020	3,120
March	48	0	9.73	15.1	302	925
April	137	0	30.9	47.8	927	2,840
May	22	0	2.31	3.57	71.7	220
June	10.2	0	1.19	1.84	35.8	110
Fiscal year 1945-46	196	0	11.5	17.8	4,200	12,870

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 28 years (1917-20, 1921-46), 5.81 million gallons a day (8.99 second-feet).

Extremes.- Maximum discharge during year, 69 million gallons a day (107 second-feet) July 2 (gage height, 3.33 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Feb. 14-25, Apr. 28-30.
1909-14, 1915-46: 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 except those for July 5-8, which are fair. Ditch diverts water from Kapaa River for irrigation in vicinity of Kapaa. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.82	2.15	2.15	3.7	4.7	2.55	0.40	0.02	0.04	5.4	6.6	2.45
2	3.0	8.0	1.99	4.5	3.8	4.3	2.15	.02	.07	3.45	3.25	3.8
3	9.2	2.25	1.82	5.1	1.52	5.3	2.55	.02	.07	1.23	.19	12.7
4	3.45	2.1	1.73	3.7	.13	4.3	2.75	.02	.10	.31	.23	17.4
5	a15.8	6.0	1.73	4.2	f 3	9.7	1.62	.02	8.7	.27	.31	13.0
6	a8.6	7.0	1.82	3.9	4.2	.23	.16	.02	4.5	9.5	5.0	2.7
7	a3.25	2.55	1.82	3.7	3.6	.16	.12	.02	3.95	6.1	7.6	2.55
8	a2.45	5.1	5.1	3.6	3.45	.13	.07	.02	6.6	2.8	5.3	2.95
9	f1.99	4.4	1.99	3.35	10.0	.23	.04	.02	4.6	4.7	4.2	5.3
10	1.90	2.95	3.4	3.45	5.7	.16	.07	.02	5.3	4.2	4.2	2.8
11	2.65	2.35	5.0	3.35	7.4	.13	.13	.02	4.7	7.8	4.0	2.9
12	2.1	3.2	5.0	3.35	6.8	.10	.10	.02	6.2	5.6	3.6	2.75
13	1.82	3.8	5.0	3.15	8.8	.10	.10	.02	4.7	2.4	3.6	2.55
14	1.82	8.1	5.0	3.25	6.2	.07	.10	.01	3.8	.16	3.45	2.55
15	1.82	4.7	6.5	3.35	1.24	.07	.07	.01	2.25	4.1	3.35	5.7
16	2.6	5.1	5.9	3.35	.02	7.0	.07	.01	1.21	4.2	3.25	2.55
17	1.99	5.3	4.6	3.35	.07	5.4	.07	.01	.31	.32	3.15	2.35
18	1.73	5.7	4.3	4.3	.23	1.35	.07	.01	1.97	.16	3.15	2.15
19	1.90	5.6	3.9	4.2	.23	1.06	.04	.01	5.4	.51	3.05	2.35
20	2.1	4.4	3.9	3.8	.19	.19	.07	.01	11.5	.33	3.05	3.8
21	1.73	2.85	3.8	4.3	.27	1.33	1.45	.01	7.7	.27	3.15	11.4
22	7.3	3.9	3.7	4.0	.40	.25	.56	.01	9.2	.27	2.95	4.3
23	2.55	2.75	3.6	4.8	.35	.19	.17	.01	6.4	.27	2.95	.19
24	15.7	8.0	3.7	10.8	.35	1.38	6.2	.01	1.28	.16	2.95	3.3
25	10.7	5.1	3.7	43	.31	.19	13.5	1.71	11.6	.02	2.75	5.3
26	6.8	3.15	3.7	12.0	3.15	6.2	.68	8.8	11.3	.02	2.75	3.6
27	2.75	2.65	3.8	5.7	4.4	6.6	3.0	3.8	7.5	.02	2.75	5.2
28	2.15	2.35	4.2	4.9	3.0	5.2	7.9	.04	2.75	.01	2.65	2.95
29	1.99	2.7	13.6	4.3	2.75	1.84	.57	-	5.4	.01	2.65	4.3
30	2.25	2.65	4.7	7.9	2.55	.56	.27	-	2.3	.01	2.55	12.0
31	2.15	2.15	-	8.4	-	.45	.47	-	.23	-	2.55	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.8	1.73	4.13	6.39	128	393
August	8.1	2.1	4.16	6.44	129	396
September	13.6	1.73	4.04	6.25	121	372
October	43	3.15	5.96	9.22	185	567
November	10.0	.02	3.00	4.64	90.1	277
December	9.7	.07	2.15	3.33	66.7	205
Calendar year 1945	43	0	3.14	4.86	1,150	3,520
January	13.5	.04	1.47	2.27	45.5	140
February	8.8	.01	.526	.814	14.7	45
March	11.6	.04	4.57	7.07	142	435
April	9.5	.01	2.15	3.33	64.6	198
May	7.6	.19	3.26	5.04	101	311
June	17.4	.19	4.93	7.63	148	454
Fiscal year 1945-46	43	.01	3.38	5.23	1,240	3,790

a No gage-height record; discharge computed on basis of records for Kapaa River.
f Computed on basis of partly estimated gage-height record.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter.
To convert war time to standard time, subtract 1 hour.

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 1946. Equivalent records for July 1925 to November 1936, at site 150 feet downstream, collected by East Kauai Water Co.

Extremes.- Maximum discharge during year, 16.4 million gallons a day (25.4 second-feet) Aug. 14 (gage height, 2.10 feet); minimum, 0.02 million gallons a day (0.03 second-foot) Nov. 13.

1936-46: 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 except those for Feb. 3, 4, which are good. 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 July1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.6	8.0	5.4	2.9	7.0	3.8	0.12	2.7	0.06	0.10	0.06	4.4
2	6.1	11.0	4.8	5.4	7.1	5.0	2.5	1.20	.06	.10	.07	5.9
3	11.2	6.3	4.6	5.4	10.0	4.9	3.65	f1.25	.07	.10	.06	7.2
4	8.7	5.4	4.5	3.0	9.3	4.8	4.8	f1.25	.07	.10	.06	8.2
5	8.2	11.2	4.8	3.3	6.4	6.1	7.4	.52	.07	.10	.06	7.7
6	7.7	10.4	5.4	2.95	5.4	2.7	9.2	.25	2.55	.10	.06	6.4
7	5.9	6.4	5.2	2.8	4.4	.38	6.8	.37	4.8	.10	1.97	5.4
8	5.0	10.5	7.9	2.55	4.8	.11	.26	.21	5.0	.11	4.0	6.8
9	4.9	10.3	5.0	2.55	9.4	.11	.19	.11	4.7	.11	4.8	8.2
10	4.7	7.9	3.95	2.6	7.9	.12	.17	.11	4.8	.11	4.8	7.2
11	7.8	6.5	1.60	2.2	.08	.08	.26	.07	4.8	.11	4.9	6.8
12	5.9	8.6	1.81	2.1	.08	.08	.23	.06	4.9	3.2	4.8	5.9
13	4.8	8.5	1.71	2.1	.07	.07	.19	.06	5.4	5.4	4.8	5.4
14	4.8	11.1	1.60	1.98	.12	.07	.16	.06	5.4	5.4	4.8	5.4
15	5.0	10.7	7.1	2.1	.18	.06	.14	.06	2.35	5.4	4.8	7.7
16	8.3	11.9	11.5	2.4	.08	.05	.14	.06	.06	4.3	4.7	6.4
17	5.9	6.2	4.7	2.45	.08	.05	.12	.06	.06	.16	4.6	5.4
18	5.4	.19	4.6	6.2	.08	.04	.12	.06	.06	.11	4.6	5.4
19	6.8	.17	3.0	5.2	.08	.04	.12	.06	.06	.22	4.6	6.4
20	6.8	4.1	2.5	4.4	.07	2.1	.11	.06	.06	.16	4.8	6.8
21	5.4	6.4	2.3	4.8	.08	3.9	2.95	.06	.11	.10	4.8	8.1
22	9.2	8.4	2.1	4.9	.08	4.3	5.9	.05	.14	.08	4.6	8.2
23	5.9	6.8	2.3	5.6	.08	5.4	7.2	.05	.14	.08	4.9	7.7
24	7.8	9.8	3.25	6.5	.08	3.5	6.4	.06	.14	.11	4.8	7.7
25	8.2	10.2	2.65	13.4	.08	.26	4.4	.06	.14	.08	4.6	7.7
26	8.2	7.2	2.3	9.6	.10	.25	1.41	.06	.12	.07	4.8	7.2
27	6.3	6.4	3.25	6.4	3.1	.25	.58	.06	.10	.06	4.7	7.2
28	5.4	5.4	4.1	6.4	4.6	1.57	.28	.06	.10	.06	4.5	6.6
29	5.0	7.2	6.6	5.0	4.4	2.2	1.12	-	.10	.06	4.5	4.1
30	7.5	7.2	4.5	10.4	4.1	.16	2.5	-	.10	.06	4.5	.12
31	6.8	5.0	-	13.4	-	.12	3.6	-	.10	-	4.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.2	4.6	6.59	10.2	204	627
August	11.9	.17	7.59	11.7	235	722
September	11.5	1.60	4.17	6.45	125	384
October	13.4	1.98	4.87	7.54	151	463
November	10.0	.07	2.98	4.61	89.3	274
December	6.1	.04	1.70	2.63	52.6	161
Calendar year 1945	15.1	.04	4.34	6.71	1,580	4,860
January	9.2	.11	2.36	3.65	73.0	224
February	2.7	.05	.323	.500	9.04	28
March	5.4	.06	1.50	2.32	46.6	143
April	5.4	.06	.875	1.35	26.2	81
May	4.9	.06	3.69	5.71	114	351
June	8.2	.12	6.45	9.98	194	594
Fiscal year 1945-46	13.4	.04	3.62	5.60	1,320	4,050

f Computed on basis of ditchman's notes.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Anahola River near Kealia

Location.- Concrete dam and orifice control, lat. 22°08'55", long. 159°21'20", just upstream from intake of Lower Anahola ditch, 4½ miles northwest of Kealia. Datum of gage, 295.11 feet above mean sea level (Highway Department bench mark).

Drainage area.- 5.5 square miles.

Records available.- August to November 1910, December 1912 to June 1946.

Average discharge.- 27 years (1919-46), 13.3 million gallons a day (20.6 second-feet).

Extremes.- Maximum discharge during year, 2,230 million gallons a day (3,450 second-feet) Apr. 19 (gage height, 6.43 feet), from rating curve extended above 230 million gallons a day; minimum, 1.40 million gallons a day (2.17 second-feet) Oct. 14.
1910, 1912-46: 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.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.65	3.05	1.96	2.0	4.2	2.6	3.5	160	7.0	5.6	11.1	3.6
2	31.5	8.6	1.96	2.8	2.8	14.5	3.4	66	6.4	8.4	9.5	4.8
3	15.5	3.35	1.86	3.1	29.5	4.0	3.35	44	6.1	14.7	13.8	6.0
4	3.95	2.85	1.86	1.86	5.4	2.85	3.4	77	7.2	7.1	8.3	17.5
5	14.6	4.1	1.80	1.70	2.85	126	21.5	38	6.0	16.9	7.9	12.1
6	6.9	4.8	1.86	1.75	2.5	133	32.5	151	6.0	7.1	7.4	4.5
7	3.4	3.05	2.0	1.86	2.25	57	56	74	6.1	6.4	7.0	3.9
8	3.05	4.6	1.91	1.75	2.2	27	8.0	45	6.7	8.8	6.8	4.3
9	2.8	4.0	1.91	1.70	10.1	114	5.1	32.5	5.4	6.9	6.3	13.8
10	2.75	3.4	1.80	1.70	4.4	46	4.6	27	5.2	5.6	6.2	4.7
11	3.05	3.0	1.80	1.55	4.0	24.5	27	23	5.2	5.1	5.8	4.0
12	2.85	3.35	1.91	1.50	2.55	17.0	6.6	22	5.6	5.1	5.7	3.6
13	2.6	3.05	2.0	1.45	2.25	13.5	5.7	19.2	13.6	5.7	5.6	3.5
14	2.6	5.0	1.96	1.40	2.7	10.9	5.3	17.0	8.3	5.0	5.4	3.4
15	2.55	3.7	2.15	1.50	15.4	9.7	5.1	15.5	44	4.9	5.1	3.7
16	2.55	4.5	2.3	1.55	28	8.0	7.1	15.2	7.9	38	5.0	3.4
17	2.5	5.3	2.2	1.60	12.0	7.0	5.3	17.0	8.5	78	4.5	3.25
18	2.45	3.35	1.86	1.91	5.1	6.2	4.5	12.7	7.7	36.5	4.7	3.2
19	2.55	3.5	1.70	2.25	12.2	5.8	4.3	11.4	6.4	216	4.6	3.55
20	2.5	3.15	1.65	1.75	4.8	5.3	4.2	10.1	6.2	62	4.6	3.6
21	2.45	2.85	1.55	1.55	5.4	5.0	4.2	8.8	5.6	49	4.5	6.6
22	8.3	3.05	1.55	3.05	4.9	5.1	31	8.1	5.2	24	4.4	5.7
23	3.6	3.05	1.50	3.2	15.3	6.2	57	7.8	5.4	19.8	4.5	5.1
24	24.5	3.65	1.65	2.4	4.5	7.4	14.8	7.4	5.6	35.5	4.3	3.85
25	4.3	5.3	1.60	37.5	4.1	4.8	61	7.9	6.7	15.1	4.2	6.8
26	4.6	2.8	1.55	6.1	3.65	4.3	184	7.1	6.6	14.6	4.2	4.5
27	3.2	2.4	1.65	2.85	3.35	4.0	32.5	19.5	8.4	11.7	4.0	4.1
28	2.8	2.3	2.15	2.4	3.05	3.9	21	8.5	13.0	10.7	3.85	3.55
29	2.65	2.2	4.1	2.25	2.85	4.2	134	-	6.6	9.5	3.8	3.2
30	3.15	2.1	3.1	8.1	2.75	4.3	87	-	6.6	14.1	3.7	3.9
31	3.55	1.96	-	17.6	-	3.7	158	-	6.7	-	3.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	31.5	2.45	5.69	8.80	176	541
August	8.6	1.96	3.59	5.55	111	342
September	4.1	1.50	1.96	3.03	58.8	181
October	37.5	1.40	3.99	6.17	124	380
November	29.5	2.2	6.84	10.6	205	629
December	133	2.6	22.2	34.3	688	2,110
Calendar year 1945	331	1.40	9.51	14.7	3,470	10,660
January	184	3.35	32.3	50.0	1,000	3,070
February	160	7.1	34.0	52.6	953	2,920
March	44	5.2	8.13	12.6	252	773
April	216	4.9	24.9	38.5	748	2,290
May	13.8	3.6	5.82	9.00	180	553
June	17.5	3.2	5.26	8.14	158	484
Fiscal year 1945-46	216	1.40	12.8	19.8	4,650	14,270

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 23 years (1921-25, 1927-46), 3.28 million gallons a day (5.07 second-feet).

Extremes.- Maximum discharge during year, 83 million gallons a day (128 second-feet) Dec. 5 (gage height, 3.73 feet); minimum, 0.01 million gallons a day (0.02 second-foot) May 7.

1915-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.96	5.6	1.83	1.85	5.4	1.65	1.48	0.37	0.02	5.9	0.02	1.09
2	4.8	9.6	1.74	8.7	4.4	12.4	1.48	.12	.04	5.2	.02	2.05
3	9.7	2.55	1.48	3.6	11.8	3.7	1.48	.09	.04	.06	.02	6.5
4	2.65	2.3	1.74	1.65	6.0	2.3	1.60	.17	.04	.04	.02	14.7
5	6.5	7.4	1.65	1.32	3.75	20	10.1	.13	1.82	.09	.02	8.4
6	3.95	6.2	2.1	1.24	3.3	9.1	10.2	.49	3.5	.04	.02	2.3
7	2.1	2.45	2.2	1.56	2.65	.22	.17	.22	3.45	.04	1.84	1.74
8	1.74	6.0	2.0	1.24	2.9	.04	.04	.05	5.9	.04	2.65	2.95
9	1.56	4.9	1.65	1.16	10.7	.20	.04	.04	2.65	.04	2.55	10.1
10	1.40	4.3	1.40	1.16	8.1	.08	.07	.04	2.75	1.69	2.55	3.9
11	2.3	2.55	1.48	1.02	5.0	.04	.18	.04	2.55	3.3	2.35	2.45
12	1.65	4.1	1.56	.96	3.0	.04	.04	.04	3.5	3.1	2.1	2.0
13	1.32	3.35	1.56	.89	2.45	.02	.04	.04	12.3	4.6	2.1	1.83
14	1.29	8.7	1.57	.89	2.65	.02	1.17	.04	7.2	3.1	2.0	1.65
15	1.16	4.0	4.4	.96	10.8	.04	2.55	.04	14.4	2.75	1.92	4.3
16	1.40	8.0	3.9	1.16	9.5	.04	8.3	.04	5.8	15.3	1.83	1.92
17	1.32	5.0	2.2	1.02	3.5	1.28	3.3	.06	7.9	9.2	1.74	1.56
18	1.32	3.65	1.83	2.35	.06	2.75	2.45	.04	7.2	.08	1.65	1.56
19	1.74	5.6	1.40	2.35	.06	1.16	2.1	.04	6.5	.50	1.65	2.45
20	1.56	3.5	1.24	1.40	.04	.06	2.0	.04	4.4	.10	1.65	2.6
21	1.24	2.9	1.16	1.61	.02	.06	1.92	.04	4.1	.06	1.74	7.7
22	8.3	3.7	1.09	4.7	.02	.06	8.4	.04	3.2	.04	1.56	7.6
23	1.92	2.9	1.16	3.45	.02	.06	.20	.04	4.0	.04	1.56	6.2
24	11.9	6.5	1.24	4.7	.02	.06	.04	.02	5.8	.09	1.48	4.3
25	6.3	6.0	1.09	21.5	1.97	.04	.25	.02	7.3	.04	1.40	7.3
26	6.4	3.2	1.02	6.9	2.55	.04	.28	1.06	5.3	.04	1.48	3.5
27	2.55	2.55	1.24	3.5	2.35	.04	.04	3.85	9.1	.04	1.40	3.7
28	2.1	2.65	3.7	3.3	2.1	.03	.06	.02	3.3	.04	1.32	2.4
29	1.74	2.3	4.0	2.45	1.83	.02	.35	-	.06	.04	1.32	2.1
30	3.45	2.3	2.55	11.1	1.74	1.38	.08	-	6.6	.02	1.24	4.4
31	3.2	1.83	-	16.8	-	1.65	.39	-	7.7	-	1.24	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.9	0.96	3.21	4.97	99.5	305
August	9.6	1.83	4.41	6.82	137	419
September	4.4	1.02	1.91	2.96	57.2	175
October	21.5	.89	3.76	5.82	116	357
November	11.8	.02	3.62	5.60	109	334
December	20	.02	1.89	2.92	58.6	180
Calendar year 1945	21.5	0	2.71	4.19	990	3,040
January	10.2	.04	1.97	3.05	61.0	187
February	3.85	.02	.258	.399	7.23	22
March	14.4	.02	4.79	7.41	148	455
April	15.3	.02	1.85	2.86	55.6	171
May	2.65	.02	1.43	2.21	44.4	136
June	14.7	1.09	4.18	6.47	125	384
Fiscal year 1945-46	21.5	.02	2.79	4.32	1,020	3,120

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 10 years (1936-46), 3.42 million gallons a day (5.29 second-feet).

Extremes.- Maximum discharge during year, 82 million gallons a day (127 second-feet) Apr. 19 (gage height, 2.50 feet); no flow at times, when water was turned out of ditch.
1936-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0.02	0	0	0.02	0.13	0.13	25.5	3.1	0.13	7.4	0.06
2	0	.09	0	.05	0	.26	.13	20	2.95	6.4	4.7	.06
3	.05	0	0	.02	.08	.13	.13	13.9	2.8	13.4	8.6	0
4	0	0	0	0	.05	.13	.13	16.4	8.4	6.0	4.2	.13
5	.04	.06	0	0	0	.61	.19	11.0	1.30	11.5	3.8	0
6	0	.06	0	0	0	19.0	12.3	27	.32	5.5	3.4	0
7	0	0	0	0	0	19.0	17.4	19.9	.26	5.7	1.26	0
8	0	.03	0	0	0	8.9	7.1	11.5	.26	9.7	.26	0
9	0	.01	0	0	.06	19.9	4.5	8.7	.26	5.7	.26	0
10	0	0	0	0	.09	18.0	4.9	10.4	.26	2.2	.26	0
11	0	0	0	0	.04	9.9	12.2	6.9	.28	.13	.19	0
12	0	.01	0	0	0	8.3	4.2	8.6	.26	.13	.19	0
13	0	0	0	0	0	5.7	3.25	7.7	.38	.13	.19	0
14	.05	.06	0	0	0	4.5	1.75	6.6	.28	.06	.19	0
15	.08	0	0	0	.13	4.2	.13	4.9	.26	.06	.19	0
16	.06	.03	0	0	.15	3.6	.13	8.3	.06	.19	.19	0
17	.08	.01	0	0	2.1	1.87	.13	8.5	.13	9.6	.19	0
18	.06	0	0	0	3.4	.19	.13	4.5	.13	17.2	.19	0
19	.06	.05	0	0	8.8	1.55	.13	3.95	.06	24	.19	0
20	.06	0	0	0	4.2	2.6	.13	3.6	.06	16.8	.19	0
21	.06	0	0	0	5.1	2.45	.13	3.4	.06	15.6	.13	0
22	.10	0	0	.01	7.7	2.8	2.3	3.1	0	10.4	.13	0
23	0	0	0	0	10.1	4.8	17.0	3.0	0	9.9	.13	0
24	.10	.09	0	.01	4.2	6.1	8.2	2.95	.06	13.8	.13	0
25	.05	.06	0	.19	1:44	2.95	18.2	3.25	.06	7.3	.13	0
26	.08	0	0	.05	.26	2.3	26.5	1.72	0	9.0	.06	0
27	0	0	0	0	.26	2.2	10.9	5.3	0	6.0	.06	0
28	0	0	0	0	.26	2.15	7.0	3.8	4.2	5.5	0	0
29	0	0	.03	0	.26	3.6	24	-	5.7	4.5	0	0
30	0	0	0	.08	.19	1.09	17.9	-	1.18	7.7	0	0
31	0	0	-	.11	-	.19	25	-	.13	-	.06	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.10	0	0.029	0.045	0.89	2.7
August	.09	0	.019	.029	.58	1.8
September	.03	0	.001	.002	.03	.1
October	.19	0	.017	.026	.52	1.6
November	10.1	0	1.63	2.52	48.9	150
December	19.9	.13	5.13	7.94	159	488
Calendar year 1945	30.5	0	1.89	2.92	690	2,120
January	26.5	.13	7.30	11.3	226	694
February	27	1.72	9.08	14.0	254	781
March	8.4	0	1.07	1.66	33.2	102
April	24	.06	7.47	11.6	224	688
May	8.6	0	1.19	1.84	36.9	113
June	.13	0	.008	.012	.25	.8
Fiscal year 1945-46	27	0	2.70	4.18	984	3,020

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. 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.

Extremes.- Maximum discharge during year, 9.0 million gallons a day (13.9 second-feet) June 5 (gage height, 1.40 feet); no flow many times, when water was turned out of ditch.

1936-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.2	2.6	2.15	2.1	3.45	0				0	0	4.0
2	2.3	4.1	2.15	2.4	2.8	.01				0	0	4.7
3	4.7	3.1	2.1	2.7	3.0	2.4				0	0	4.8
4	3.35	2.55	2.1	2.0	3.9	3.35				0	0	5.8
5	3.75	2.8	1.84	1.78	3.0	1.41				0	0	1.98
6	4.5	3.65	1.96	2.1	1.61	.01				0	3.0	2.7
7	3.35	2.7	2.45	1.90	.01	0				0	6.1	5.2
8	2.8	3.1	2.1	1.84	1.42	0				0	6.1	4.7
9	2.6	3.3	1.96	1.72	3.05	0				0	8.6	5.7
10	2.45	2.8	1.78	1.84	3.15	0				1.27	6.1	5.3
11	2.7	2.55	1.78	1.66	3.1	0				3.4	6.1	4.9
12	2.7	2.7	1.78	1.55	2.55	0				5.3	6.1	4.1
13	2.3	2.7	2.0	1.50	2.3	0				5.6	6.1	4.1
14	2.25	2.95	1.90	1.45	1.25	0				5.3	6.1	3.75
15	2.15	3.0	1.96	1.45	.01	0				5.2	6.0	4.1
16	2.15	2.85	2.15	1.45	.01	0				3.4	5.9	5.2
17	2.1	3.6	2.1	1.45	0	0				0	5.8	4.1
18	2.0	2.95	1.90	1.66	0	0				0	5.7	3.45
19	2.1	2.85	1.72	1.96	0	0				0	5.6	3.8
20	2.1	2.75	1.55	1.78	0	0				0	6.2	4.0
21	2.0	2.5	1.50	1.50	0	0				0	5.9	4.5
22	4.4	2.6	1.45	1.90	0	0				0	5.4	4.9
23	3.4	2.6	1.40	2.45	0	0				0	5.2	4.7
24	5.0	2.55	1.50	1.96	0	0				0	5.0	4.1
25	4.1	3.65	1.55	3.35	0	0				0	4.8	4.9
26	4.0	2.95	1.50	3.35	0	0				0	4.9	4.6
27	3.1	3.1	1.50	2.7	0	0				0	5.8	4.4
28	2.7	2.45	1.66	2.4	2.1	0				0	4.5	4.1
29	2.45	2.3	2.4	2.3	.78	0				0	4.4	3.5
30	2.7	1.64	2.8	3.0	0	0				0	4.1	3.75
31	3.1	1.24	-	3.75	-	0				-	4.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.0	2.0	2.95	4.56	91.5	281
August	4.1	1.24	2.81	4.35	87.2	268
September	2.8	1.40	1.89	2.92	56.7	174
October	3.75	1.45	2.10	3.25	65.0	199
November	3.9	0	1.25	1.93	37.5	115
December	3.35	0	.232	.359	7.18	22
Calendar year 1945	6.6	0	2.05	3.17	747	2,290
January	0	0	0	0	0	0
February	0	0	0	0	0	0
March	0	0	0	0	0	0
April	5.6	0	.982	1.52	29.5	90
May	6.6	0	4.57	7.07	142	435
June	5.8	1.98	4.33	6.70	130	398
Fiscal year 1945-46	6.6	0	1.77	2.74	647	1,980

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 13 years (1933-46), 3.78 million gallons a day (5.85 second-feet).

Extremes.- Maximum discharge during year, 89 million gallons a day (138 second-feet) Jan. 26 (gage height, 3.90 feet); minimum, 0.57 million gallons a day (0.88 second-foot) Oct. 13-15.

1932-46: 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. Ditch diverts water from Moloaa and Puu Ka Ele Streams, half a mile southeast and 1½ miles southwest of station, respectively. Flow regulated by wasteway gates. Water used for irrigation in vicinity of Kilauea.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.88	1.00	0.75	0.81	2.15	1.16	1.54	31.5	2.55	2.7	4.7	1.31
2	.88	2.8	.75	1.32	1.47	2.7	1.54	10.8	2.45	4.2	3.8	1.54
3	4.1	.95	.68	1.48	4.1	1.44	1.54	5.3	2.35	6.4	5.0	1.83
4	1.23	.75	.81	.81	2.25	1.16	1.54	10.2	3.15	3.05	3.35	3.85
5	2.75	2.05	.81	.68	1.39	12.4	2.85	6.3	2.35	6.1	3.25	3.75
6	2.3	1.76	.88	.68	1.16	23	6.9	12.4	2.35	2.85	2.95	1.83
7	1.09	.88	.88	.68	1.02	11.2	11.4	6.6	2.35	2.75	2.85	1.31
8	.95	2.5	.88	.68	1.16	5.2	3.15	2.55	2.65	4.2	2.75	1.42
9	.88	1.80	.81	.68	3.65	18.7	2.25	1.80	2.15	2.75	2.65	4.3
10	.88	1.23	.81	.68	2.45	10.7	1.98	1.47	2.15	2.45	2.45	1.71
11	1.16	.95	.81	.63	1.97	6.3	5.0	1.31	2.15	2.25	2.45	1.39
12	.88	1.02	.81	.63	1.31	5.0	1.98	2.25	2.35	2.25	2.35	1.16
13	.88	1.02	.75	.57	1.16	4.1	1.80	2.9	5.0	2.6	2.25	1.16
14	.81	1.23	.88	.57	1.39	3.55	1.71	3.0	4.1	2.15	2.15	1.16
15	.88	1.54	1.25	.57	4.1	3.35	1.63	2.95	11.9	2.05	2.05	1.47
16	.88	1.70	.95	.68	4.5	2.95	2.1	3.4	3.6	12.2	2.05	1.16
17	.88	1.81	.81	.63	2.85	2.75	1.54	2.9	3.85	13.7	1.98	1.16
18	.88	1.09	.81	.68	1.63	2.55	1.47	1.80	3.85	14.4	1.98	1.16
19	.81	1.09	.68	.81	3.05	2.45	1.39	2.4	2.85	20.5	1.89	1.31
20	.81	.95	.68	.68	1.71	2.35	1.39	2.95	2.65	8.6	1.80	1.44
21	.81	.88	.68	.68	1.63	2.25	1.39	2.85	2.45	10.0	1.80	2.45
22	2.35	.81	.68	1.75	2.3	2.25	6.0	2.75	2.25	6.3	1.71	2.05
23	1.16	.95	.68	2.1	5.0	2.75	7.2	2.65	2.55	6.6	1.71	1.47
24	2.6	1.62	.68	1.40	1.80	3.25	4.2	2.75	2.35	9.4	1.63	1.63
25	1.31	3.0	.68	9.3	1.54	2.15	11.2	2.75	2.85	5.2	1.54	2.25
26	1.23	1.31	.68	2.85	1.39	1.98	32	2.65	2.45	4.9	1.63	1.54
27	.88	.95	.75	1.39	1.31	1.89	6.8	6.4	5.5	4.3	1.54	1.39
28	.81	.88	1.74	1.02	1.23	1.71	4.9	3.05	4.2	4.1	1.47	1.16
29	.75	.81	1.87	.95	1.23	2.15	25.5	-	2.85	3.8	1.39	1.16
30	1.04	.88	1.35	2.7	1.16	1.89	17.7	-	2.75	5.2	1.39	2.05
31	1.16	.75	-	5.2	-	1.63	26	-	2.95	-	1.31	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.1	0.75	1.26	1.95	38.9	119
August	3.0	.75	1.31	2.03	40.8	125
September	1.87	.68	.876	1.36	26.3	81
October	9.3	.57	1.43	2.21	44.3	136
November	5.0	1.02	2.10	3.25	63.1	194
December	23	1.16	4.74	7.33	147	451
Calendar year 1945	29	.52	2.51	3.88	916	2,810
January	32	1.39	6.37	9.86	198	608
February	31.5	1.31	5.02	7.77	140	431
March	11.9	2.15	3.22	4.98	100	307
April	20.5	2.05	5.93	9.18	178	546
May	5.0	1.31	2.32	3.59	71.8	220
June	4.3	1.16	1.75	2.71	52.4	161
Fiscal year 1945-46	32	.57	3.01	4.66	1,100	3,380

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 13 years (1933-46), 3.33 million gallons a day (5.15 second-feet).

Extremes.- Maximum discharge during year, 32 million gallons a day (50 second-feet) Dec. 5 (gage height, 2.03 feet); no flow Dec. 13-16.
1932-46: 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 miles 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.39	1.31	1.63	1.16	2.75	1.63	1.98	2.8	0.20	3.35	1.48	1.63
2	1.39	2.2	1.54	1.47	1.98	2.45	1.98	1.39	.96	4.4	3.55	1.89
3	4.8	1.31	1.47	1.63	6.0	1.89	1.89	.38	2.35	7.7	4.0	1.78
4	1.54	1.16	1.63	1.16	3.6	1.63	1.98	1.29	2.95	4.4	3.15	2.35
5	1.61	1.94	1.54	1.09	2.25	10.2	2.65	.17	2.45	6.9	3.15	3.1
6	1.80	1.98	1.54	1.09	1.89	12.6	4.7	2.65	2.45	4.3	2.95	1.71
7	1.47	1.31	1.47	1.02	1.71	1.47	8.3	1.14	2.55	3.9	2.75	1.54
8	1.31	2.9	1.54	1.02	1.71	1.15	3.8	.19	2.65	4.3	2.65	1.54
9	1.31	2.45	1.54	1.09	2.6	3.0	2.95	.12	2.25	3.7	2.55	3.1
10	1.31	1.71	1.39	1.09	2.05	1.91	2.7	.30	2.25	3.15	2.45	2.05
11	1.71	1.47	1.31	1.02	2.15	.86	4.4	.18	2.25	2.85	2.35	1.80
12	1.39	1.47	1.54	1.02	1.80	.72	2.75	.12	2.45	2.75	2.25	1.54
13	1.23	1.54	1.31	1.02	1.63	0	2.45	.09	4.2	2.95	2.25	1.47
14	1.23	1.79	1.31	.95	1.71	0	2.35	.09	3.7	2.65	2.15	1.47
15	1.31	1.98	1.63	.95	3.6	0	2.25	.17	9.0	2.55	1.98	1.98
16	1.54	2.4	1.39	1.09	3.15	.27	2.65	.12	4.1	4.8	1.98	1.54
17	1.47	2.45	1.23	1.02	2.85	.90	2.25	.43	4.0	2.35	1.98	1.47
18	1.23	1.71	1.23	1.16	2.15	1.71	2.15	.33	4.5	2.0	1.89	1.47
19	1.23	1.54	1.16	1.09	3.15	1.71	2.05	.09	3.55	2.4	1.89	1.54
20	1.23	1.54	1.16	1.02	2.25	1.71	1.98	.09	3.25	1.01	1.98	1.71
21	1.16	1.47	1.09	1.02	1.98	2.3	1.98	.28	3.05	3.35	1.98	2.3
22	2.35	1.47	1.02	1.98	2.6	2.6	4.8	.12	2.75	1.39	1.89	2.55
23	1.31	1.54	1.02	2.3	5.2	3.05	4.3	.09	2.85	1.94	1.89	1.98
24	1.84	2.45	1.09	1.69	2.15	3.25	4.0	1.02	2.75	.97	1.71	1.98
25	1.23	4.7	1.02	9.9	2.25	2.65	1.74	.16	3.25	2.2	1.63	2.45
26	1.16	2.45	1.02	2.75	2.15	2.35	4.3	.12	2.95	4.9	1.80	1.71
27	1.09	2.05	1.09	1.71	1.98	2.25	.35	.15	4.7	4.4	1.71	1.54
28	1.09	1.89	1.53	1.47	1.89	2.15	.80	.12	5.0	4.1	1.71	1.47
29	1.02	1.80	2.1	1.31	1.80	2.55	5.1	-	3.8	3.8	1.63	1.31
30	1.39	1.71	1.64	2.5	1.71	2.25	1.40	-	3.55	1.92	1.63	2.2
31	1.39	1.63	-	5.2	-	2.15	2.1	-	3.7	-	1.63	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.8	1.02	1.50	2.32	46.5	143
August	4.7	1.16	1.91	2.96	59.3	182
September	2.1	1.02	1.37	2.12	41.2	126
October	9.9	.95	1.74	2.69	54.0	166
November	6.0	1.63	2.49	3.85	74.7	229
December	12.6	0	2.37	3.67	73.4	225
Calendar year 1945	14.5	0	1.90	2.94	694	2,130
January	8.3	.35	2.87	4.44	89.1	273
February	2.8	.09	.507	.784	14.2	44
March	9.0	.20	3.24	5.01	100	308
April	7.7	.97	3.38	5.23	101	311
May	4.0	1.48	2.21	3.42	68.6	210
June	3.1	1.31	1.87	2.89	56.2	172
Fiscal year 1945-46	12.6	0	2.13	3.30	778	2,390

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 11 years (1934-42, 1943-46), 2.69 million gallons a day (4.16 second-feet).

Extremes.- Maximum discharge during year, 54 million gallons a day (84 second-feet) Jan. 7 (gage height, 2.85 feet); no flow Nov. 6, 7.
1934-46: 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.

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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.39	2.25	1.98	1.63	4.7	1.98	2.05	0.95	2.65	2.35	3.2	1.54
2	2.9	3.75	1.89	2.9	3.45	4.1	1.98	.75	2.55	2.3	2.55	1.80
3	3.3	1.89	1.80	2.45	7.2	2.55	1.98	.68	2.45	3.45	2.65	1.92
4	2.25	1.54	1.98	1.71	2.3	2.3	2.0	.65	2.5	2.45	2.45	3.25
5	1.89	3.5	1.98	1.54	.27	3.85	3.65	.52	1.63	2.7	2.45	3.65
6	1.63	4.3	1.98	1.54	.09	1.15	10.6	.52	1.71	2.25	2.35	1.89
7	1.47	2.55	1.98	1.54	.72	.68	11.0	.52	1.71	2.15	2.25	1.63
8	1.39	9.3	2.05	1.47	.75	.46	.63	.41	1.71	2.5	2.6	1.63
9	1.39	6.7	1.98	1.54	1.31	.54	.52	.36	1.63	2.15	2.65	2.65
10	1.39	3.7	1.98	1.39	2.6	.36	1.82	.36	1.80	2.05	2.45	1.89
11	1.63	2.75	1.89	1.31	2.95	.27	3.9	.32	1.91	2.2	2.45	1.71
12	1.31	2.75	2.25	1.31	2.55	.27	2.65	.27	2.15	2.45	2.35	1.54
13	1.23	2.45	1.80	1.23	2.35	.23	2.45	.59	3.2	2.55	2.35	1.54
14	1.31	2.45	1.89	1.23	2.35	.19	2.25	1.77	3.15	2.45	2.25	1.54
15	1.47	2.95	3.95	1.39	2.45	1.48	2.25	3.25	3.95	2.35	2.05	1.98
16	1.80	4.3	2.95	1.54	2.5	3.05	2.65	3.6	2.25	1.55	2.05	1.54
17	1.39	3.35	2.25	1.39	2.35	3.35	2.25	2.75	2.45	1.16	1.98	1.54
18	1.31	2.95	2.15	1.47	2.25	3.35	2.15	2.45	2.35	1.02	1.98	1.47
19	1.31	2.65	1.89	1.39	3.5	3.25	2.05	2.45	2.35	.95	1.98	1.54
20	1.39	2.65	1.80	1.47	2.45	3.05	1.98	2.35	2.05	.75	1.89	1.71
21	1.39	2.35	1.71	1.58	2.45	2.85	1.98	2.95	1.89	.63	1.89	2.3
22	2.3	2.25	1.63	3.8	3.0	3.05	3.55	3.15	1.71	.57	1.80	3.2
23	1.63	2.25	1.71	3.15	4.5	3.15	4.1	3.05	1.89	.52	1.80	2.15
24	1.89	6.9	1.71	2.5	2.75	3.45	4.2	2.95	1.80	.52	1.80	2.25
25	1.80	6.8	1.63	23	2.65	2.75	2.6	2.95	1.89	.46	1.80	2.85
26	1.89	2.25	1.54	6.0	2.45	2.45	1.79	2.85	2.2	.41	1.71	2.05
27	1.54	2.65	1.98	3.7	a2.4	2.45	1.20	3.0	3.8	.41	1.71	1.98
28	1.39	2.45	1.71	3.05	a2.3	2.25	3.3	2.75	3.9	2.2	1.63	1.71
29	1.31	2.55	2.0	2.55	a2.2	2.8	3.1	-	3.0	3.35	1.63	1.63
30	1.54	2.25	1.80	5.6	2.15	2.45	1.03	-	2.55	3.6	1.63	2.3
31	1.80	1.98	-	10.9	-	2.15	.92	-	2.65	-	1.54	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.3	1.23	1.67	2.58	51.6	158
August	9.3	1.54	3.34	5.17	103	317
September	3.95	1.54	1.99	3.08	59.8	184
October	23	1.23	3.14	4.86	97.3	299
November	7.2	.09	2.53	3.91	75.9	233
December	4.1	.19	2.14	3.31	66.3	203
Calendar year 1945	23	.09	2.43	3.76	887	2,720
January	11.0	.52	2.86	4.43	88.6	272
February	3.6	.27	1.76	2.72	49.2	151
March	3.95	1.63	2.37	3.67	73.4	225
April	3.6	.41	1.82	2.82	54.4	167
May	3.2	1.54	2.12	3.28	65.9	202
June	3.65	1.47	2.01	3.11	60.4	185
Fiscal year 1945-46	23	.09	2.32	3.59	846	2,600

a No gage-height record; discharge computed on basis of records for nearby ditches.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 28 years (1918-46), 45.7 million gallons a day (70.7 second-feet).

Extremes.- Maximum discharge during year, 7,890 million gallons a day (12,200 second-feet) Feb. 4 (gage height, 9.33 feet), from rating curve extended above 200 million gallons a day; minimum recorded, 9.5 million gallons a day (14.7 second-feet) June 1.

1914-46: 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 except those for period of no gage-height record, which are poor. Since 1925 Hanalei tunnel has been diverting an average of about 25 million gallons of water a day from Hanalei River and its tributary Kaapoko Stream at points about 2 miles above station, for irrigation in vicinity of Lihue.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.3	18.6	17.1	16.3	35	11.2	10.7	328	13.2	42	26	9.5
2	45	39	15.6	26	30	54	10.4	178	12.8	59	20.5	10.8
3	44	16.3	14.9	22.5	90	15.4	10.1	167	12.5	116	38	13.1
4	17.1	14.9	14.9	16.3	29	38	12.8	347	53	42	18.5	29
5	14.6	54	15.6	15.2	24	371	15.5	116	12.8	64	17.4	35
6	13.5	60	20.5	14.6	22	431	60	253	16.2	36	16.8	11.0
7	11.9	22.5	16.3	14.2	20	108	103	86	17.0	48	16.1	10.5
8	11.3	50	19.2	13.5	30	40	18.8	46	24	55	15.5	12.4
9	11.3	65	14.6	13.8	60	152	14.6	34.5	12.8	34	15.2	42
10	11.0	27.5	14.9	13.2	90	86	33	62	17.0	23.5	14.5	13.9
11	12.2	22.5	13.2	12.8	39	39	76	28	18.6	21.5	13.9	12.0
12	11.0	26.5	13.5	12.5	29	30.5	17.1	26	20.5	19.7	13.4	11.0
13	10.7	19.7	12.8	12.2	21	25.5	14.6	35.5	52	75	13.4	14.7
14	10.7	38.5	13.5	12.2	23	22	13.5	39.5	33.5	30	12.8	11.2
15	11.3	41	166	12.8	30	20	14.8	22	89	21.5	12.6	58
16	24	33	29.5	12.8	23	18.4	45	68	26.5	172	12.3	12.3
17	11.6	24.5	18.4	12.8	18	17.1	17.1	78	83	167	12.0	11.2
18	11.3	29	17.1	17.4	14.8	16.0	14.2	24	55	160	12.0	10.8
19	11.0	27	15.2	14.9	31.5	15.6	12.8	21.5	93	290	11.8	11.5
20	11.6	25.5	14.2	17.0	15.2	14.9	12.2	19.7	37.5	199	12.0	13.4
21	11.3	21.5	13.5	17.6	15.8	14.6	12.5	18.4	29	113	11.5	37
22	17.1	21.5	13.2	22	10.6	14.6	54	17.1	21.5	49	11.2	22
23	79	19.7	15.5	17.6	33	15.2	90	16.3	28	80	11.0	23.5
24	78	60	39.5	205	14.8	14.6	46	15.2	29	304	11.0	16.8
25	55	38.5	17.5	350	14.2	12.8	43	17.6	36	52	10.8	30
26	33.5	21.5	14.6	53	13.4	12.2	30	14.6	27.5	48	10.8	16.8
27	17.6	19.2	19.7	32	12.8	11.9	19.7	14.2	56	34	10.5	15.2
28	15.2	18.4	16.1	28	12.3	11.9	17.6	13.2	47	32	10.0	13.4
29	13.8	23	46	25	11.8	12.2	270	-	41	29	10.0	12.3
30	16.7	19.2	20	70	11.5	11.9	95	-	113	46	9.8	13.1
31	14.9	16.7	-	120	-	11.0	303	-	92	-	9.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	79	10.7	21.6	33.4	668	2,050
August	65	14.9	30.1	46.6	934	2,870
September	166	12.8	23.1	35.7	693	2,130
October	350	12.2	40.1	62.0	1,240	3,820
November	90	10.6	27.5	42.5	825	2,530
December	431	11.0	53.8	83.2	1,670	5,120
Calendar year 1945	431	8.6	34.8	53.8	12,690	38,960
January	303	10.1	48.6	75.2	1,510	4,620
February	347	13.2	75.2	116	2,110	6,460
March	113	12.5	39.4	61.0	1,220	3,740
April	304	19.7	82.1	127	2,460	7,560
May	38	9.8	14.2	22.0	441	1,350
June	58	9.5	18.4	28.5	553	1,700
Fiscal year 1945-46	431	9.5	39.2	60.7	14,320	43,950

Note.- No gage-height record Oct. 25 to Nov. 17; discharge computed on basis of records for nearby streams.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 14 years (1932-46), 10.7 million gallons a day (16.6 second-feet).

Extremes.- Maximum discharge during year, 482 million gallons a day (746 second-feet) Jan. 22 (gage height, 4.32 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.
1931-46: 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, that of Oct. 14, 15, 1945.

Remarks.- Records fair except those for May 25 to June 30, which are poor. No diversions.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.2	1.50	0.7	6.7	1.6	32
.3	2.1	.9	10.3	1.9	48
.4	2.9	1.1	14.9	2.1	62
.5	4.0	1.3	20.5	2.5	96

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.80	8.8	2.1	1.80	4.8	1.68	2.1	21.5	2.5	10.1	13.0	2.65
2	2.0	9.8	2.1	7.5	2.9	30	2.1	8.4	2.5	13.4	10.2	4.7
3	1.92	2.85	2.05	4.0	2.5	8.4	2.1	6.6	2.35	49	10.6	14.7
4	1.80	2.5	2.1	2.25	2.25	3.65	2.1	8.1	2.8	11.4	6.1	48
5	1.80	43	3.2	2.1	2.1	13.0	48	5.6	2.4	14.8	7.1	26.5
6	1.86	30	3.65	1.98	2.05	70	47	12.7	3.5	7.5	5.6	6.3
7	1.80	5.4	7.8	1.86	1.92	25.5	8.1	8.7	4.4	5.6	4.6	4.4
8	1.74	5.4	3.25	1.80	2.6	7.8	4.6	4.9	7.3	17.4	4.1	6.4
9	1.74	3.35	2.6	1.80	16.3	88	3.45	3.8	4.3	10.4	3.9	17.9
10	1.68	3.0	3.4	1.74	40	25	26	3.35	11.2	5.9	3.65	6.0
11	1.74	3.0	2.75	1.68	13.1	9.9	37.5	3.25	5.4	4.8	3.45	5.0
12	1.74	5.5	2.65	1.62	4.4	9.3	5.8	4.3	9.5	4.3	3.35	3.9
13	1.68	3.6	3.6	1.56	3.1	5.4	4.0	9.7	19.2	4.5	3.35	3.55
14	1.68	2.8	3.0	1.50	2.9	4.1	3.25	6.4	21	3.8	3.25	3.35
15	1.68	3.4	2.5	1.50	2.6	4.8	12.6	3.65	27	3.65	3.1	3.8
16	1.68	6.9	2.1	1.68	2.5	3.35	27	24	10.0	66	3.1	3.65
17	1.68	9.0	2.05	1.74	2.4	2.9	8.4	23.5	16.2	52	2.9	3.1
18	1.68	3.9	1.98	3.4	2.25	2.8	5.2	5.4	30	22.5	2.9	2.9
19	1.68	6.7	1.92	2.55	2.25	2.8	3.45	4.1	18.4	69	2.9	2.9
20	1.68	8.2	1.86	1.98	2.2	2.8	2.9	3.45	11.2	31.5	2.9	3.6
21	1.68	8.5	1.80	1.92	2.1	2.75	3.7	3.1	9.3	19.1	2.8	20.5
22	3.4	4.4	1.80	2.4	2.2	2.8	58	2.9	6.7	9.9	2.75	13.9
23	3.25	3.65	1.80	2.5	3.8	7.7	30	2.8	5.7	12.7	2.75	5.3
24	2.35	3.2	1.80	2.45	2.35	3.55	6.8	2.75	4.6	36.5	2.75	4.1
25	3.85	5.1	1.80	15.6	2.1	2.8	64	4.1	11.8	9.0	2.8	6.3
26	3.1	2.8	1.68	5.3	1.98	2.6	61	3.0	9.4	12.1	2.9	5.3
27	2.05	2.1	2.2	6.5	1.92	2.4	8.8	2.65	27	7.6	4.1	4.6
28	1.92	2.35	2.2	6.4	1.80	2.4	5.6	2.6	17.7	7.0	3.65	3.8
29	1.86	2.35	2.05	4.1	1.80	2.65	21.5	-	6.7	5.4	3.0	3.1
30	2.8	2.75	1.80	12.8	1.74	2.5	19.6	-	12.0	29	2.8	3.1
31	3.9	2.25	-	14.2	-	2.25	24	-	19.5	-	2.75	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.9	1.68	2.10	3.25	65.2	200
August	43	2.1	6.66	10.3	207	634
September	7.8	1.68	2.52	3.90	75.6	232
October	15.6	1.50	3.88	6.00	120	369
November	40	1.74	4.56	7.06	137	420
December	88	1.68	11.5	17.8	356	1,090
Calendar year 1945	89	1.50	5.60	8.66	2,050	6,270
January	64	2.1	18.0	27.9	559	1,710
February	24	2.6	6.98	10.8	195	599
March	30	2.35	11.0	17.0	342	1,050
April	69	3.65	18.5	28.8	556	1,710
May	13.0	2.75	4.29	6.64	133	408
June	48	2.65	8.11	12.5	243	747
Fiscal year 1945-46	88	1.50	8.19	12.7	2,990	9,170

Note.- Faulty gage-height record May 25 to June 30; discharge computed on basis of records for Kawaiko'i and nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 14 years (1932-46), 3.43 million gallons a day (5.31 second-feet).

Extremes.- Maximum discharge during year, 295 million gallons a day (456 second-feet) Dec. 6 (gage height, 4.23 feet), from rating curve extended above 30 million gallons a day; minimum, 0.21 million gallons a day (0.32 second-foot) probably Oct. 15.
1931-46: Maximum discharge, 569 million gallons a day (880 second-feet) June 10, 1938 (gage height, 5.51 feet), from rating curve extended above 30 million gallons a day; minimum, 0.17 million gallons a day (0.26 second-foot) Mar. 21, 22, 1934.

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

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.10	1.3	3.9	2.1	31.5
1.0	.47	1.4	5.8	2.4	49
1.05	.79	1.5	8.2	2.7	71
1.1	1.20	1.7	14.2		
1.2	2.35	1.9	22		

Discharge, in million gallons, fiscal year July1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.32	2.1	0.28	0.30	0.90	0.40	0.53	12.0	0.59	2.8	4.8	0.43
2	.28	1.92	.28	2.0	.75	8.3	.47	3.6	.53	3.1	3.1	.92
3	.28	.53	.28	1.0	.62	2.5	.47	2.35	.53	17.8	3.3	2.65
4	.28	.40	.40	.50	.55	1.11	.47	2.8	.59	3.9	1.96	16.8
5	.28	22.5	.72	.45	.52	8.5	33	1.96	.47	4.8	2.3	9.8
6	.28	8.0	1.83	.40	.51	59	18.4	4.8	.76	2.5	1.71	1.60
7	.28	1.40	1.29	.35	.50	13.9	2.65	3.3	.94	1.71	1.40	1.02
8	.28	1.11	.72	.32	.70	4.3	1.71	1.71	1.71	3.6	1.20	1.20
9	.28	.65	.43	.31	5.0	61	1.40	1.30	.94	2.75	1.11	5.1
10	.28	.65	.95	.30	20	11.9	3.45	1.20	2.9	1.71	1.02	1.40
11	.28	.59	.53	.28	8.0	4.4	14.9	1.02	1.30	1.50	.94	1.02
12	.32	1.11	.47	.26	3.5	4.7	2.2	1.20	2.2	1.40	.79	.94
13	.32	.65	.72	.25	2.0	2.5	1.40	2.35	5.4	1.40	.79	.79
14	.32	.47	.65	.24	1.30	1.83	1.1	1.50	5.3	1.02	.79	.72
15	.32	.68	.47	.24	1.02	2.55	5.0	.94	8.4	.94	.72	.72
16	.32	2.3	.36	.26	.87	1.30	12	18.0	2.95	21.5	.65	.59
17	.36	1.51	.32	.27	.72	1.20	4.0	16.7	17.8	24.5	.65	.53
18	.36	.72	.28	.60	.65	1.02	2.3	2.95	10.2	5.3	.65	.53
19	.36	1.74	.28	.40	.72	1.02	1.2	1.96	5.3	22.5	.65	.53
20	.32	3.1	.28	.30	.65	1.02	.90	1.50	3.6	13.2	.59	.72
21	.28	1.75	.28	.29	.59	.87	1.3	1.20	2.65	6.5	.59	4.1
22	.28	1.11	.28	.38	.53	.79	27	1.02	2.2	3.45	.59	2.15
23	.32	.79	.28	.42	.87	4.1	10.9	.87	1.71	3.75	.59	1.11
24	.47	.79	.28	.40	.65	1.40	2.8	.79	1.50	17.5	.59	.79
25	.87	.72	.28	3.5	.47	1.02	35.5	1.11	4.2	3.75	.53	1.02
26	.70	.47	.28	1.1	.47	.79	36	.87	2.95	3.6	.59	.65
27	.36	.40	.28	1.4	.43	.72	4.2	.72	11.9	2.5	.79	.59
28	.32	.36	.40	1.3	.40	.65	2.65	.65	6.9	2.2	.72	.53
29	.28	.40	.32	.90	.40	.87	8.4	-	2.35	1.71	.53	.47
30	.28	.47	.29	2.5	.40	.72	10.7	-	2.75	14.6	.47	.59
31	.79	.36	-	3.0	-	.59	9.8	-	5.5	-	.47	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.87	0.28	0.357	0.552	11.1	34
August	22.5	.36	1.93	2.99	59.8	183
September	1.83	.28	.484	.749	14.5	45
October	3.5	.24	.781	1.21	24.2	74
November	20	.40	1.82	2.82	54.7	168
December	61	.40	6.61	10.2	205	629
Calendar year 1945	61	.24	2.16	3.34	790	2,420
January	36	.47	8.28	12.8	257	788
February	18.0	.65	3.23	5.00	90.4	277
March	17.8	.47	3.77	5.83	117	359
April	24.5	.94	6.58	10.2	197	606
May	4.8	.47	1.15	1.78	35.6	109
June	16.8	.43	2.00	3.09	60.0	184
Fiscal year 1945-46	61	.24	3.09	4.78	1,130	3,460

Note.- No gage-height record Sept. 29 to Nov. 13, Jan. 14-21; discharge computed on basis of records for Kawaikoi and Hanakapiai Streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 14 years (1932-46), 4.15 million gallons a day (6.42 second-feet).

Extremes.- Maximum discharge during year, 126 million gallons a day (195 second-feet) Dec. 6 (gage height, 2.88 feet), from rating curve extended above 18 million gallons a day; minimum, 1.86 million gallons a day (2.88 second-feet) Dec. 3, 4.
1931-46: Maximum discharge, 338 million gallons a day (523 second-feet) Nov. 27, 1939 (gage height, 3.76 feet), from rating curve extended above 18 million gallons a day; minimum, 1.73 million gallons a day (2.68 second-feet) June 2, 1945.

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

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.9	1.48	1.2	4.0	1.5	10.4
1.0	1.95	1.3	5.8	1.7	17.2
1.1	2.75	1.4	7.9	1.9	27

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.95	1.95	1.95	1.95	1.95	2.05	2.0	4.5	2.2	3.4	3.9	2.6
2	1.95	1.95	1.95	1.95	1.95	2.1	2.0	3.5	2.2	3.4	3.5	2.6
3	1.95	1.95	1.95	1.95	1.95	2.0	2.0	3.1	2.1	4.4	3.4	2.7
4	1.95	1.95	1.95	1.95	1.95	2.0	2.0	2.9	2.1	3.6	3.25	2.6
5	2.05	2.55	1.95	1.95	1.95	2.65	9.0	2.9	2.1	3.75	3.25	2.6
6	2.05	2.35	1.95	1.95	1.95	25	10	2.8	2.1	3.4	3.25	2.6
7	2.05	1.95	1.95	1.90	1.95	8.0	5.0	2.8	2.1	3.25	3.0	2.6
8	2.05	1.95	1.95	1.90	1.95	4.0	3.6	2.8	2.1	3.25	2.75	2.6
9	2.05	1.95	1.95	1.90	2.2	15.0	2.8	2.6	2.1	3.1	2.75	2.6
10	2.05	1.95	1.95	1.90	2.95	7.0	4.5	2.6	2.1	3.0	2.75	2.6
11	2.05	1.95	1.95	1.90	2.5	5.5	5.0	2.6	2.1	3.0	2.75	2.6
12	2.05	1.95	1.95	1.90	2.1	4.0	4.0	2.6	2.1	2.9	2.75	2.6
13	2.05	1.95	2.0	1.90	2.05	3.2	3.2	2.6	3.5	2.9	2.65	2.6
14	2.1	1.95	1.95	1.90	2.05	2.9	2.9	2.6	5.0	2.75	2.65	2.6
15	2.1	1.95	1.95	1.95	1.95	2.8	3.7	2.6	6.4	2.75	2.6	2.7
16	2.1	1.95	1.95	1.95	1.95	2.6	4.6	3.5	2.8	6.1	2.6	2.6
17	2.1	1.95	1.95	1.95	1.95	2.5	3.5	5.0	3.7	9.4	2.6	2.6
18	2.1	1.95	1.95	1.95	1.95	2.3	3.1	3.6	4.6	4.9	2.6	2.6
19	2.1	1.95	1.95	1.95	1.95	2.3	2.9	3.0	3.75	5.7	2.6	2.6
20	2.1	1.95	1.95	1.95	1.95	2.3	2.75	2.8	3.4	6.0	2.6	2.6
21	2.1	2.05	1.95	1.95	1.95	2.3	2.6	2.7	3.4	4.7	2.6	2.7
22	2.1	1.95	1.95	1.90	1.95	2.3	8.0	2.5	3.1	3.9	2.6	2.6
23	2.1	1.95	1.95	1.90	1.95	2.5	5.4	2.5	3.0	3.5	2.6	2.6
24	2.1	1.95	1.95	1.90	1.95	2.3	3.7	2.5	2.75	6.1	2.6	2.6
25	2.1	1.95	2.05	2.1	1.95	2.3	7.0	2.3	3.25	4.4	2.6	2.6
26	2.1	1.95	2.05	2.05	1.95	2.3	9.0	2.3	3.25	3.9	2.65	2.6
27	2.05	1.95	1.95	1.95	1.95	2.1	5.0	2.3	4.1	3.5	2.7	2.6
28	2.05	1.95	1.95	1.95	1.95	2.1	3.5	2.2	5.5	3.25	2.6	2.6
29	2.05	1.95	1.95	1.95	1.95	2.1	5.0	-	4.0	3.1	2.6	2.6
30	2.05	1.95	1.95	2.05	1.95	2.1	5.5	-	3.75	4.3	2.6	2.6
31	1.95	1.95	-	2.05	-	2.0	6.0	-	3.5	-	2.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.1	1.95	2.05	3.17	63.7	195
August	2.55	1.95	1.99	3.08	61.6	189
September	2.05	1.95	1.96	3.03	58.8	180
October	2.1	1.90	1.95	3.02	60.4	185
November	2.95	1.95	2.02	3.13	60.6	186
December	25	2.0	4.02	6.22	125	382
Calendar year 1945	50	1.78	2.79	4.32	1,020	3,120
January	10	2.0	4.49	6.95	139	427
February	5.0	2.2	2.88	4.46	80.7	248
March	6.4	2.1	3.17	4.90	98.2	301
April	9.4	2.75	4.05	6.27	122	373
May	3.9	2.6	2.80	4.33	87.0	267
June	2.7	2.6	2.61	4.04	78.3	240
Fiscal year 1945-46	25	1.90	2.83	4.38	1,040	3,170

Note.- No gage-height record Sept. 12-24, Jan. 21 to Mar. 17; intake action faulty Dec. 3 to Jan. 14, May 27 to June 30; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1945 to June 1946

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
Apr. 29	Opaekaa.....	Wailua River.....	½ mile below confluence of first Right and first Left Branches near Kapaa.	8.14	5.26
29	Kapahi.....	Kapaa River.....	At Kapahi ditch gaging station near Kealia.	3.36	2.17
July 30	Second Right Branch Kalalau.	Kalalau Stream....	At altitude 850 feet, near Hanalei	1.28	.827
Sept. 28	....do.....	....do.....	....do.....	1.23	.795
Nov. 14	....do.....	....do.....	....do.....	1.25	.808
Mar. 17	....do.....	....do.....	....do.....	1.48	.957
May 2	....do.....	....do.....	....do.....	2.14	1.38
Mar. 18	Second Left Branch Kalalau.	....do.....	100 feet below ford on Kalalau trail, near Hanalei.	1.79	1.16
May 2	....do.....	....do.....	....do.....	1.31	.847
2	....do.....	....do.....	At altitude 1,300 feet, near Hanalei.	.675	.436
Mar. 14	Miloli1.....	Pacific Ocean.....	At altitude 150 feet, near Kekaha.	1.34	.866
May 7	....do.....	....do.....	....do.....	1.47	.950

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 1946.
Average discharge.- 27 years (1915-24, 1926-32, 1934-46), 7.36 million gallons a day (11.4 second-feet).
Extremes.- Maximum discharge during year, 416 million gallons a day (644 second-feet) Jan. 25 (gage height, 6.22 feet), from rating curve extended above 40 million gallons a day by test on model of station site; minimum, 0.30 million gallons a day (0.46 second-foot) July 22, 23, 28-30, Jan. 14, 15.
1913-46: 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, and those for periods of no gage-height record, which are poor. No diversions above station.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

2.6	0.30	3.0	4.5	3.6	24.5
2.7	.80	3.1	6.6	3.9	42
2.8	1.63	3.2	9.2	4.2	64
2.9	2.85	3.4	16.0		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	Jnly	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	45	3.05	1.63	1.05	3.8	0.55	0.50	7.4	0.70	3.0	2.25	0.40
2	3.15	5.1	1.30	.97	6.2	9.4	.47	4.2	10.4	2.6	1.87	.43
3	1.55	.88	1.13	1.70	9.1	5.3	.45	10.7	2.25	11.1	1.63	9.0
4	1.13	.65	1.20	.80	3.95	7.0	.43	6.6	3.9	2.85	1.63	13
5	.88	17.7	2.95	.70	7.1	10.6	.42	3.2	1.15	3.2	1.55	3.5
6	.75	13.8	1.75	.65	3.35	19.9	.48	2.85	4.6	2.6	1.38	1.5
7	.65	2.3	4.1	.60	2.75	11.5	.56	2.6	2.9	7.9	1.38	.95
8	.55	3.75	3.6	.55	2.0	3.0	.60	2.0	1.62	3.2	1.22	2.3
9	.55	4.8	1.46	.55	3.45	5.9	.54	12.3	1.63	2.25	1.22	9.0
10	.60	1.63	2.35	.55	4.8	4.4	.40	6.2	1.05	2.0	1.05	14
11	1.45	1.30	1.63	.50	2.5	2.35	.38	2.75	2.1	1.87	1.05	8.5
12	.75	1.22	1.13	.50	1.63	8.8	.35	2.6	4.1	1.63	1.05	8.0
13	.50	1.05	.88	.45	3.65	2.25	.32	4.1	2.25	4.9	.97	2.3
14	.45	7.8	3.4	.45	1.75	1.87	.30	2.1	11.1	2.0	.80	2.0
15	.40	3.75	7.0	2.9	1.30	1.55	.30	1.63	20.5	1.63	.80	7.9
16	4.8	3.7	5.3	.88	1.22	1.46	5.0	1.63	4.5	1.55	.80	2.0
17	.85	3.05	2.5	.55	1.13	1.38	3.5	4.6	3.75	11.5	.75	4.6
18	.55	4.8	2.25	.55	.97	1.22	2.0	1.55	7.4	28	.70	2.5
19	.45	2.75	1.38	.50	.88	1.22	.60	1.30	25.5	4.9	.70	2.85
20	.40	4.4	1.22	.50	.80	1.05	.35	1.22	4.2	21.5	.74	2.0
21	.35	2.25	1.05	.60	.75	.97	.31	1.13	3.0	5.6	1.1	6.3
22	.30	1.55	1.05	.80	.88	.88	4.5	1.05	2.5	4.0	.90	13.1
23	2.25	1.38	.97	.50	5.9	.80	1.7	.97	2.55	3.7	.70	4.9
24	.73	36.5	2.4	.45	1.22	.80	30	.88	2.7	9.7	.66	3.0
25	3.05	5.3	1.95	12.5	1.22	.75	33	.80	2.25	3.2	.60	2.35
26	.99	2.85	1.30	1.30	.80	.72	8.6	.80	2.25	2.75	.56	2.0
27	.50	2.25	.80	2.8	.65	.68	3.0	.75	2.0	2.5	.62	9.2
28	.35	2.0	2.35	1.19	.60	.64	2.1	.70	3.7	2.25	.58	2.35
29	.30	2.7	3.85	.65	.60	.60	2.15	-	4.5	2.25	.50	1.87
30	.77	3.3	1.65	12.6	.55	.56	4.4	-	19.4	6.0	.45	11.7
31	2.65	1.63	-	36	-	.53	20	-	5.6	-	.42	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	45	0.30	2.50	3.87	77.6	238
August	36.5	.65	4.81	7.44	149	458
September	7.0	.80	2.18	3.37	65.5	201
October	36	.45	2.75	4.25	85.3	262
November	9.1	.55	2.52	3.90	75.5	232
December	19.9	.53	3.50	5.42	109	333
Calendar year 1945	45	.26	3.04	4.70	1,110	3,410
January	33	.30	4.12	6.37	128	392
February	12.3	.70	3.16	4.89	88.6	272
March	25.5	.70	5.36	8.29	166	510
April	28	1.55	5.40	8.36	162	498
May	2.25	.42	.988	1.53	30.6	94
June	14	.40	5.12	7.92	154	471
Fiscal year 1945-46	45	.30	3.54	5.48	1,290	3,960

Note.- No gage-height record Dec. 25 to Jan. 25, May 20 to June 14; discharge computed on basis of records for stations on Left Branch and South Fork.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 29 years (1915-24, 1926-46), 10.9 million gallons a day (16.9 second-feet).

Extremes.- Maximum discharge during year, 808 million gallons a day (1,250 second-feet) July 1 (gage height, 6.11 feet), from rating curve extended above 43 million gallons a day by test on model of station site; minimum, 0.26 million gallons a day (0.40 second-foot) Jan. 14, 15.

1913-46: 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 good. No diversions above station.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	70	5.8	3.0	1.59	4.3	0.93	0.56	10.6	0.63	5.0	3.35	0.48
2	7.3	9.7	2.6	2.4	5.0	14.1	.51	4.9	19.4	4.4	2.9	.51
3	2.9	1.64	2.35	3.5	6.7	7.6	.48	13.1	6.3	28	2.7	12.1
4	2.15	1.19	2.9	1.59	3.2	4.6	.46	6.2	6.1	5.4	2.45	19.6
5	1.80	51	11.7	1.29	11.6	12.2	.44	3.35	1.70	6.1	2.45	4.8
6	1.52	21	3.6	1.40	5.2	26	.51	2.9	15.0	4.8	2.25	1.80
7	1.35	5.2	11.0	1.24	5.4	15.4	.63	2.6	6.8	9.8	2.0	1.09
8	1.19	8.9	7.0	1.09	3.1	3.75	.67	2.1	3.8	5.0	1.94	3.05
9	1.09	8.4	3.45	1.09	4.1	8.5	.60	21.5	3.15	3.8	1.73	14.4
10	1.41	3.1	4.6	1.03	8.7	6.1	.41	6.5	1.87	3.2	1.66	22
11	4.9	2.55	2.9	.89	3.5	2.9	.36	3.0	6.1	2.9	1.59	5.4
12	1.34	2.45	2.55	.86	2.6	8.9	.31	2.7	13.4	2.7	1.59	5.3
13	.82	3.25	2.25	.82	3.6	2.8	.28	4.9	7.0	4.3	1.52	2.45
14	.67	15.3	6.0	.78	2.35	2.25	.26	2.45	21.5	2.55	1.35	2.5
15	.67	8.9	6.0	4.5	1.94	2.0	.26	1.94	51	2.45	1.29	5.8
16	9.7	5.4	10.3	1.80	1.73	1.73	7.2	1.80	10.8	2.4	1.19	2.25
17	1.32	5.7	6.3	1.04	1.59	1.59	4.6	7.0	8.5	12.6	1.14	5.0
18	.86	7.2	9.2	.86	1.45	1.45	2.55	1.87	17.0	64	1.09	3.6
19	.67	7.6	3.35	.82	1.35	1.40	.69	1.52	35	17.7	1.03	5.2
20	.83	8.2	2.8	.83	1.29	1.29	.38	1.40	7.0	36	1.09	3.35
21	.54	3.8	2.45	1.52	1.19	1.24	.28	1.29	5.4	9.9	1.45	12.2
22	.48	3.0	2.15	1.77	2.05	1.19	5.5	1.19	4.3	7.1	1.19	14.2
23	3.75	3.05	2.0	1.22	13.2	1.14	1.72	1.14	6.3	5.9	.86	6.4
24	1.26	51	2.55	.74	3.5	1.03	37	1.09	5.3	26	.82	4.2
25	2.95	8.0	3.65	9.5	1.87	.93	38.5	.98	3.7	6.3	.74	3.0
26	1.76	4.3	2.25	2.7	1.45	.86	10.6	.89	3.45	5.1	.71	2.6
27	.74	3.8	1.68	3.3	1.24	.82	3.25	.86	4.5	4.3	.78	7.0
28	.63	3.1	1.76	2.05	1.19	.78	2.15	.78	8.7	4.1	.74	2.45
29	.48	10.6	6.5	1.03	1.09	.71	2.05	-	5.5	3.7	.63	2.15
30	3.85	7.4	2.35	31	.98	.67	4.8	-	31.5	7.6	.56	19.6
31	5.1	3.35	-	53	-	.63	27	-	8.6	-	.51	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	70	0.46	4.32	6.68	134	411
August	51	1.19	9.16	14.2	284	871
September	11.7	1.66	4.37	6.76	131	403
October	53	.74	4.43	6.85	137	421
November	13.2	.98	3.55	5.49	106	327
December	26	.63	4.37	6.76	135	416
Calendar year 1945	70	.20	4.71	7.29	1,720	5,280
January	38.5	.26	5.00	7.74	155	476
February	21.5	.78	3.95	6.11	111	339
March	51	.63	10.6	16.4	329	1,010
April	64	2.4	10.1	15.6	303	929
May	3.35	.51	1.46	2.26	45.3	139
June	22	.48	6.48	10.0	194	597
Fiscal year 1945-46	70	.26	5.66	8.76	2,060	6,340

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter
To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 169 million gallons a day (261 second-feet) Apr. 19 (gage height, 2.85 feet), from rating curve extended above 13 million gallons a day by broad-crested weir formula; minimum, 0.11 million gallons a day (0.17 second-foot) Jan. 22.

Remarks.- Records good except those for Mar. 16, 17, which are fair.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.7	0.74	1.4	19.5
.2	.06	.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		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.5	2.75	4.0	1.08	2.25	0.64	0.32	11.8	0.38	4.0	2.55	0.29
2	4.0	8.1	2.55	1.60	3.8	6.2	.31	5.0	2.7	3.3	2.0	.32
3	1.22	1.52	2.0	1.63	8.9	7.7	.29	13.7	5.5	21	1.88	24
4	.74	.88	3.3	1.09	2.9	1.42	.28	5.0	1.13	5.4	1.68	24.5
5	.55	36	13.6	.91	5.8	9.2	.26	2.55	.68	4.3	1.53	5.3
6	.45	16.2	5.8	.85	2.85	23	.35	1.88	12.3	3.3	1.42	1.28
7	.39	6.4	18.0	.80	3.85	14.5	.43	2.0	7.6	3.65	1.31	.74
8	.34	8.0	7.6	.74	4.0	2.9	.29	1.38	4.3	3.65	1.27	3.4
9	.29	6.8	4.0	.69	4.9	6.5	.24	9.9	3.6	2.25	1.13	16.5
10	.42	3.3	7.3	.67	10.1	4.6	.21	5.6	1.47	2.0	1.02	8.2
11	1.42	3.3	7.0	.64	4.1	1.88	.22	2.0	11.1	1.88	.94	2.9
12	.50	2.9	4.7	.60	2.0	9.0	.18	1.88	13.0	1.68	.94	1.62
13	.26	8.7	3.3	.57	1.88	1.88	.15	5.4	6.9	2.9	.96	1.13
14	.24	8.0	4.2	.55	1.53	1.42	.14	1.58	14.5	1.88	.82	.91
15	.26	10.6	3.65	.83	1.34	1.20	.13	1.13	f30.5	1.60	.77	.99
16	.84	7.4	4.4	.98	1.20	.99	5.6	1.00	a8.1	1.53	.72	.82
17	.32	7.6	4.3	.74	1.09	.91	3.75	10.3	a6.0	5.6	.69	.82
18	.25	8.4	9.3	.55	.99	.82	2.25	1.42	11.5	22	.67	.77
19	.21	9.9	3.3	.48	.94	.77	.41	.94	11.9	19	.62	1.08
20	.21	10.1	2.0	.46	.85	.72	.17	.80	5.4	29	.64	1.13
21	.16	5.4	1.88	.67	.82	.67	.13	.69	4.0	8.8	.67	20.5
22	.14	4.3	1.68	.90	2.25	.62	6.5	.64	3.65	5.4	.62	10.4
23	3.8	4.3	1.60	.82	19.5	.62	2.5	.57	4.1	5.2	.55	4.9
24	.87	35.5	1.53	.46	4.1	.57	17.5	.55	4.9	16.5	.48	3.5
25	5.0	7.0	3.6	6.4	1.38	.52	26	.52	4.2	5.4	.46	1.68
26	1.38	4.3	1.74	2.5	1.06	.48	9.2	.48	5.0	5.2	.45	1.34
27	.45	3.65	1.31	1.59	.85	.46	1.89	.45	7.8	3.65	.46	5.1
28	.32	2.9	1.20	1.48	.77	.45	1.26	.43	14.2	3.3	.41	1.56
29	.28	9.8	2.95	.92	.69	.41	1.25	-	5.0	2.9	.37	1.09
30	9.7	5.2	1.44	20	.67	.39	4.6	-	8.1	4.9	.36	13.1
31	7.3	3.7	-	21	-	.36	27.5	-	6.2	-	.31	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.5	0.14	1.90	2.94	58.8	180
August	36	.88	8.16	12.6	253	776
September	18.0	1.20	4.44	6.87	133	409
October	21	.46	2.36	3.65	73.2	225
November	19.5	.67	3.25	5.03	97.4	299
December	23	.36	3.28	5.07	102	312
Calendar year 1945	47	.01	3.56	5.51	1,300	3,990
January	27.5	.13	3.69	5.71	114	351
February	13.7	.43	3.20	4.95	89.6	275
March	30.5	.38	7.28	11.3	226	693
April	29	1.53	6.71	10.4	201	617
May	2.55	.31	.926	14.3	28.7	88
June	24.5	.29	5.33	8.25	160	491
Fiscal year 1945-46	36	.13	4.21	6.51	1,540	4,720

a No gage-height record; discharge computed on basis of records for stations on North Fork.
f Computed on basis of partly estimated gage-height record.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter.
To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 12 years (1931-34, 1937-46), 11.7 million gallons a day (18.1 second-feet), unadjusted for pumpage.

Extremes.- Maximum daily discharge during year, 12.0 million gallons a day (18.6 second-feet) Jan. 31, Feb. 1, 10, 24; minimum daily, 7.1 million gallons a day (11.0 second-feet) Aug. 29, Sept. 21, 22, 25, 26, June 1.
1931-34, 1937-46: 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.

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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.3	8.7	9.3	9.3	8.3	8.7	11.3	12.0	11.0	10.3	9.6	7.1
2	9.0	8.3	9.3	9.3	8.3	10.3	11.3	11.7	11.0	10.3	9.6	8.7
3	8.3	8.0	9.3	9.3	8.7	8.7	11.3	11.3	11.0	10.3	9.3	7.4
4	10.3	9.3	9.6	9.6	10.0	9.0	11.3	11.7	11.0	10.0	9.0	7.4
5	9.0	9.6	9.6	9.6	8.7	8.7	11.3	11.7	11.0	10.0	9.3	7.7
6	8.7	8.0	9.3	9.6	8.7	9.0	11.3	11.7	10.6	9.6	7.7	7.4
7	8.7	8.0	9.6	10.0	9.0	9.6	11.3	11.7	10.6	10.0	8.0	7.4
8	10.0	7.7	9.3	9.6	8.7	10.3	11.3	11.7	10.6	10.0	8.0	7.7
9	8.7	8.0	9.3	9.0	8.7	10.6	11.3	11.7	10.6	10.0	7.7	9.0
10	8.7	7.7	8.7	8.7	9.0	10.3	11.0	12.0	10.6	10.3	7.7	7.7
11	8.3	8.0	9.0	8.7	9.6	10.3	10.6	11.7	10.6	10.0	7.7	7.7
12	10.0	9.3	8.3	8.7	9.0	10.3	11.0	11.7	10.6	9.6	9.0	7.7
13	9.6	8.0	8.3	8.3	9.0	10.6	11.0	11.7	10.6	10.0	8.0	7.4
14	9.3	7.7	7.4	10.0	8.7	10.6	11.0	11.7	10.6	10.0	7.7	7.4
15	9.6	9.6	7.4	8.3	8.7	10.9	11.0	11.7	10.6	10.0	7.4	7.7
16	7.7	8.0	7.4	8.7	9.0	10.6	11.0	11.7	10.6	9.6	7.4	9.0
17	7.7	8.3	7.4	8.7	8.7	11.0	11.0	11.7	10.6	9.6	7.4	8.0
18	7.7	9.3	7.4	8.0	10.3	11.0	11.0	11.7	10.6	9.6	7.4	8.0
19	7.4	10.0	7.4	8.3	10.3	11.3	11.0	11.7	10.3	9.6	9.0	8.0
20	7.4	10.0	7.4	8.3	10.3	11.3	11.0	11.7	10.3	9.6	7.7	8.0
21	7.7	10.0	7.1	10.0	10.6	11.3	11.0	11.7	10.3	10.0	8.0	8.3
22	9.0	9.6	7.1	8.3	10.3	11.3	11.0	11.7	10.3	9.6	7.4	8.3
23	7.4	8.7	7.4	8.3	10.3	11.3	10.6	11.7	10.0	8.3	7.7	9.6
24	7.4	8.0	7.4	8.3	10.3	11.3	10.6	12.0	10.0	8.7	7.4	8.3
25	7.7	7.7	7.1	8.0	10.3	11.3	11.0	11.7	10.0	8.0	7.4	8.3
26	7.7	9.3	7.1	8.3	10.3	11.3	11.3	11.7	10.0	8.0	9.0	8.3
27	8.0	7.7	8.7	9.6	10.3	11.3	11.0	11.7	10.0	8.3	7.7	8.3
28	7.7	7.4	9.0	9.6	9.0	11.3	11.3	11.0	9.6	9.6	7.7	8.0
29	9.3	7.1	9.0	8.7	8.7	11.3	11.3	-	9.6	8.3	7.7	8.0
30	8.0	7.7	9.3	8.7	8.7	11.3	11.3	-	10.0	9.6	7.7	9.6
31	8.0	8.3	-	8.7	-	11.3	12.0	-	10.0	-	7.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.3	7.4	8.53	13.2	264	811
August	10.0	7.1	8.48	13.1	263	807
September	9.6	7.1	8.33	12.9	250	767
October	10.0	8.0	8.92	13.8	276	849
November	10.6	8.3	9.35	14.5	280	861
December	11.3	8.7	10.6	16.4	327	1,000
Calendar year 1945	12.4	6.3	9.49	14.7	3,460	10,620
January	12.0	10.6	11.1	17.2	345	1,060
February	12.0	11.0	11.7	18.1	327	1,000
March	11.0	9.6	10.4	16.1	323	992
April	10.3	8.0	9.56	14.8	287	880
May	9.6	7.4	8.05	12.5	250	766
June	9.6	7.1	8.05	12.5	241	741
Fiscal year 1945-46	12.0	7.1	9.41	14.6	3,430	10,530

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 14 years (1931-35, 1936-46), 3.78 million gallons a day (5.85 second-feet).

Extremes.- Maximum daily discharge during year, 3.0 million gallons a day (4.6 second-feet) Feb. 11-13, 22-27; minimum daily, 2.4 million gallons a day (3.7 second-feet) July 13. 1931-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.6	2.5	2.6	2.5	2.6	2.6	2.85	2.95	2.95	2.7	2.75	2.5
2	2.5	2.5	2.6	2.5	2.6	2.7	2.85	2.95	2.95	2.7	2.75	2.5
3	2.5	2.5	2.7	2.6	2.6	2.6	2.85	2.95	2.95	2.7	2.7	2.5
4	2.5	2.5	2.7	2.7	2.7	2.6	2.75	2.95	2.95	2.6	2.7	2.5
5	2.5	2.5	2.7	2.6	2.7	2.6	2.75	2.95	2.95	2.6	2.75	2.5
6	2.5	2.5	2.7	2.6	2.7	2.7	2.75	2.95	2.95	2.6	2.75	2.5
7	2.5	2.5	2.7	2.6	2.7	2.7	2.75	2.95	2.95	2.7	2.7	2.5
8	2.5	2.5	2.7	2.6	2.7	2.7	2.75	2.95	2.95	2.7	2.6	2.5
9	2.5	2.5	2.7	2.7	2.7	2.75	2.75	2.95	2.95	2.7	2.6	2.5
10	2.5	2.5	2.7	2.7	2.7	2.75	2.7	2.95	2.95	2.7	2.6	2.6
11	2.5	2.5	2.7	2.7	2.7	2.75	2.7	3.0	2.95	2.7	2.6	2.5
12	2.5	2.5	2.6	2.7	2.7	2.75	2.7	3.0	2.95	2.75	2.6	2.5
13	2.4	2.5	2.5	2.6	2.7	2.75	2.7	3.0	2.85	2.75	2.6	2.5
14	2.45	2.5	2.6	2.7	2.7	2.75	2.7	2.95	2.85	2.75	2.6	2.5
15	2.5	2.5	2.6	2.6	2.7	2.75	2.7	2.95	2.75	2.85	2.6	2.5
16	2.5	2.5	2.5	2.6	2.7	2.75	2.7	2.95	2.75	2.85	2.6	2.5
17	2.5	2.5	2.5	2.6	2.7	2.75	2.7	2.95	2.75	2.85	2.6	2.5
18	2.5	2.6	2.5	2.6	2.7	2.75	2.7	2.95	2.75	2.85	2.6	2.5
19	2.5	2.6	2.5	2.6	2.7	2.75	2.7	2.95	2.75	2.85	2.6	2.5
20	2.5	2.6	2.5	2.6	2.7	2.75	2.7	2.95	2.75	2.85	2.6	2.5
21	2.5	2.6	2.5	2.6	2.7	2.75	2.7	2.95	2.75	2.85	2.6	2.6
22	2.5	2.6	2.5	2.6	2.7	2.75	2.7	3.0	2.7	2.85	2.5	2.5
23	2.5	2.6	2.5	2.6	2.7	2.75	2.7	3.0	2.7	2.85	2.5	2.6
24	2.5	2.5	2.5	2.6	2.7	2.75	2.7	3.0	2.7	2.85	2.5	2.5
25	2.5	2.5	2.5	2.6	2.7	2.75	2.75	3.0	2.7	2.75	2.5	2.5
26	2.5	2.5	2.5	2.6	2.7	2.75	2.75	3.0	2.7	2.75	2.5	2.6
27	2.5	2.5	2.5	2.7	2.7	2.75	2.85	3.0	2.7	2.75	2.5	2.6
28	2.5	2.5	2.5	2.7	2.7	2.75	2.85	2.95	2.7	2.75	2.5	2.6
29	2.5	2.5	2.5	2.7	2.6	2.75	2.85	-	2.7	2.75	2.5	2.6
30	2.5	2.5	2.6	2.6	2.6	2.85	2.85	-	2.6	2.75	2.5	2.6
31	2.5	2.5	-	2.6	-	2.85	2.95	-	2.6	-	2.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.6	2.4	2.50	3.87	77.4	238
August	2.6	2.5	2.52	3.90	78.1	240
September	2.7	2.5	2.58	3.99	77.4	238
October	2.7	2.5	2.62	4.05	81.3	250
November	2.7	2.6	2.68	4.15	80.5	247
December	2.85	2.6	2.73	4.22	84.6	260
Calendar year 1945	3.0	2.4	2.70	4.18	985	3,020
January	2.95	2.7	2.75	4.25	85.4	262
February	3.0	2.95	2.97	4.60	83.0	255
March	2.95	2.6	2.81	4.35	87.2	267
April	2.85	2.6	2.76	4.27	82.6	254
May	2.75	2.5	2.60	4.02	80.5	247
June	2.6	2.5	2.53	3.91	75.8	233
Fiscal year 1945-46	3.0	2.4	2.67	4.13	974	2,990

Note.- No gage-height record July 16 to Sept. 10; discharge computed on basis of records for stations on Pearl Harbor Springs at Kalauao and Waiawa.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

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

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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	31	-	32.5	20	17.2	24.5	29.5	34	31	27	29.5	27
2	26	-	34	14.6	23	31	27	34	22	35.5	31	32.5
3	22	-	34	16.8	20.5	23	22	34	28	27	32.5	26
4	31	-	16.2	15.6	27	14.7	24.5	35.5	22.5	35.5	28	24.5
5	26	-	16.8	15.6	21.5	17.2	20.5	35.5	22	32.5	34	24.5
6	23	-	13.8	15.7	16.1	31	22	35.5	20.5	29.5	26	26
7	24.5	-	15.6	31	16.7	32.5	13.5	35.5	18.4	34	27	23
8	35.5	17.7	15.8	16.2	15.1	32.5	14.2	35.5	17.3	31	26	22
9	21	17.5	32.5	26	22	31	14.2	35.5	14.0	31	24.5	14.5
10	17.7	20.5	17.0	19.8	27	32.5	10.7	34	28	29.5	24.5	22
11	17.5	26	16.8	16.5	31	29.5	10.8	35.5	24.5	27	26	23.5
12	18.2	24.5	15.0	15.6	29.5	32.5	13.5	35.5	29.5	28	32.5	23
13	16.2	16.5	15.0	20	32.5	29.5	22	35.5	26	29.5	26	22
14	16.0	16.3	15.5	29.5	32.5	32.5	12.0	31	35.5	32.5	26	23
15	31.5	27	14.6	17.2	32.5	31	10.4	34	35.5	29.5	26	22
16	16.4	24.5	31.5	15.2	31	29.5	14.2	34	34	28	27	29.5
17	15.3	15.5	19.3	19.5	31	32.5	10.6	34	19.3	27	27	26
18	13.5	16.0	13.7	15.1	31	32.5	10.4	35.5	29.5	28	28	23
19	-	32.5	13.2	14.9	29.5	32.5	13.1	37	37	34	34	20.5
20	-	16.6	14.2	14.8	29.5	32.5	17.9	35.5	37	28	28	-
21	-	15.6	15.0	31.5	31	29.5	20.5	37	35.5	32.5	28	-
22	-	13.8	14.2	14.7	31	32.5	20.5	34	35.5	28	26	-
23	-	13.8	32.5	13.8	29.5	31	19.3	34	32.5	28	24.5	-
24	-	13.8	14.1	13.8	31	31	19.3	34	19.3	29.5	24.5	-
25	-	14.3	13.3	13.3	31	31	17.8	31	32.5	29.5	24.5	-
26	-	30.5	22	13.8	27	32.5	23.1	29.5	27	28	32.5	-
27	-	24.5	28	17.9	28	34	32.5	29.5	35.5	28	24.5	-
28	-	14.4	32.5	32.5	28	29.5	34	27	35.5	32.5	23	-
29	-	14.3	32.5	17.3	24.5	34	34	-	29.5	28	24.5	-
30	-	12.8	31	13.0	19.3	31	34	-	32.5	29.5	24.5	-
31	-	17.6	-	14.8	-	32.5	34	-	22	-	27	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Meau		Million gallons	Acre-feet
July 1-18	35.5	13.5	13.0	20.1	402	1,230
August 8-31	32.5	12.8	19.0	29.4	456	1,400
September	34	13.2	21.1	32.6	632	1,940
October	32.5	13.0	18.3	28.3	566	1,740
November	32.5	15.1	26.5	41.0	796	2,440
December	34	14.7	30.1	46.6	933	2,860
Calendar year	-	-	-	-	-	-
January	34	10.4	20.1	31.1	622	1,910
February	37	27	34.0	52.6	952	2,920
March	37	14.0	28.0	43.3	869	2,670
April	35.5	27	29.9	46.3	898	2,750
May	34	23	27.3	42.2	847	2,600
June 1-19	32.5	14.5	23.9	37.0	454	1,390
Fiscal year	-	-	-	-	-	-

Note.- Data insufficient to compute discharge for days for which no figures are given.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Hawaiian Electric Co. tunnel at Waiau, near Pearl City

Location.- 160°V-notched brass weir, lat. 21°23'35", long. 157°58'00", on left bank of ditch at Hawaiian Electric Co.'s power plant, 0.6 mile east of Pearl City and 8.8 miles northwest of Honolulu. Datum of gage is 0.64 foot above mean sea level.

Records available.- October 1939 to December 1945 (discontinued).

Extremes.- Maximum daily discharge during period, 11.1 million gallons a day (17.2 second-feet) July 17 (gage height, 1.99 feet); minimum daily, 7.6 million gallons a day (11.8 second-feet) Sept. 30.

1939-46: Maximum discharge, 37.5 million gallons a day (58.0 second-feet) Jan. 13, 1943 (gage height, 2.32 feet); minimum, 2.05 million gallons a day (3.17 second-feet) June 27, 1940.

Remarks.- Records good. Flow regulated by valves. Water is used for cooling condensers of power plant and afterwards for irrigation of sugarcane.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.6	9.3	8.6	8.5	9.3	8.9						
2	9.3	9.2	8.4	8.4	9.5	9.1						
3	9.4	9.4	8.4	8.6	9.9	10.1						
4	9.4	9.2	a8.4	9.2	8.6	9.8						
5	9.6	9.5	a8.4	8.9	10.4	9.9						
6	9.3	9.2	9.4	8.9	9.5	8.3						
7	9.5	8.9	9.2	8.6	9.3	-						
8	9.1	9.1	9.7	9.3	9.6	-						
9	9.2	8.7	10.2	9.1	9.6	-						
10	9.5	8.8	10.1	8.8	9.3	-						
11	9.2	8.7	9.4	9.0	9.2	-						
12	9.0	8.5	9.1	8.2	8.1	-						
13	8.9	8.2	9.2	8.8	9.8	-						
14	9.0	7.8	9.4	8.1	9.7	-						
15	9.2	7.8	8.6	8.5	8.8	-						
16	9.2	9.6	8.6	9.2	8.9	-						
17	11.1	8.9	8.5	8.6	9.7	-						
18	9.9	8.6	8.8	8.7	8.7	-						
19	9.3	8.8	8.4	8.2	9.4	-						
20	9.0	8.6	8.8	8.3	9.4	-						
21	8.4	8.4	8.3	8.3	9.9	-						
22	a8.9	8.2	8.2	9.4	8.6	-						
23	9.1	8.2	8.3	9.3	9.0	-						
24	9.3	8.2	8.2	8.9	8.8	-						
25	9.7	8.5	8.2	8.8	8.8	-						
26	9.1	8.5	9.2	8.8	9.6	-						
27	9.4	8.8	8.2	8.6	9.4	-						
28	9.8	8.5	8.3	8.4	9.2	-						
29	9.6	8.8	8.3	9.1	9.4	-						
30	9.6	8.2	7.6	8.7	10.0	-						
31	9.8	8.3	-	9.4	-	-						

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.1	8.4	9.37	14.5	290	891
August	9.6	7.8	8.69	13.4	269	827
September	10.2	7.6	8.75	13.5	262	805
October	9.4	8.1	8.76	13.6	272	834
November	10.4	8.1	9.31	14.4	279	857
December 1-6	10.1	8.3	9.35	14.5	56.1	172
The period	-	-	-	-	3,240	9,940
January						
February						
March						
April						
May						
June						
Fiscal year						

a No gage-height record; discharge computed on basis of records for stations on nearby Springs.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 June 1946.

Extremes.- Maximum and minimum daily discharge during year, not determined due to faulty operation of control.
1931-39, 1942-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.3	-	4.9	4.9	4.9	4.9	-	6.5	6.5	6.9	6.5	5.3
2	3.3	-	5.3	4.9	4.5	4.9	-	6.1	6.5	6.9	6.5	5.3
3	3.3	-	5.3	4.9	4.9	4.9	-	6.5	6.5	6.9	6.9	5.3
4	3.3	-	5.3	4.9	4.5	4.9	-	6.5	6.5	6.9	6.9	5.3
5	3.3	-	5.3	4.9	4.9	4.9	-	6.5	6.5	6.9	6.9	5.3
6	3.3	-	5.3	4.9	4.9	5.3	-	6.5	6.5	6.9	6.9	4.9
7	3.3	-	5.3	4.9	4.9	5.7	-	6.5	6.5	6.9	6.9	4.9
8	3.7	-	5.3	4.9	4.5	5.3	-	6.5	6.9	6.9	6.9	4.9
9	3.3	4.5	4.9	4.9	4.9	5.3	-	6.5	6.9	6.9	6.9	4.9
10	3.3	4.5	5.3	4.9	4.9	5.7	-	6.5	6.9	6.9	6.9	4.9
11	3.3	4.5	4.9	4.9	4.9	5.7	-	6.5	6.9	7.4	6.9	4.5
12	3.0	4.9	4.9	4.9	4.9	5.7	-	6.5	6.9	7.4	6.5	4.5
13	3.3	4.9	4.9	4.9	4.9	5.7	-	6.5	6.9	7.4	6.5	4.5
14	3.3	4.9	4.9	4.9	4.9	5.7	-	6.5	6.9	7.4	6.5	4.1
15	3.3	4.9	4.9	4.9	4.9	5.7	-	6.5	6.9	7.4	6.5	4.1
16	3.3	5.3	4.9	4.9	4.9	5.7	-	6.5	6.5	7.4	6.5	4.1
17	-	5.3	4.9	4.9	4.9	6.1	-	6.5	6.5	7.4	6.5	4.5
18	-	5.3	4.9	4.9	4.9	5.7	-	6.5	6.9	7.4	6.5	4.5
19	-	5.3	4.5	4.9	5.3	5.7	-	6.5	6.9	7.4	6.5	4.5
20	-	5.3	4.9	4.9	5.3	5.7	-	6.5	7.4	7.4	6.5	4.5
21	-	5.3	4.9	4.9	5.3	5.7	-	6.5	7.4	7.4	6.5	4.1
22	-	5.3	4.9	4.9	4.9	5.7	-	6.5	7.4	7.4	6.5	4.1
23	-	5.3	4.9	4.9	5.3	5.7	-	6.5	6.9	6.9	6.5	4.5
24	-	5.3	4.9	4.9	4.9	6.1	-	6.5	6.5	6.9	6.1	4.5
25	-	5.3	4.9	4.9	4.9	6.1	5.3	6.5	6.9	6.9	6.1	4.1
26	-	5.3	4.9	4.5	4.9	-	5.7	6.5	6.9	6.9	6.1	4.1
27	-	5.3	4.9	4.5	4.9	-	5.7	6.5	6.9	6.9	6.1	4.1
28	-	5.3	4.9	4.9	4.9	-	5.7	6.5	6.9	6.9	6.1	4.1
29	-	5.3	4.5	4.9	4.9	-	5.7	-	6.9	6.9	5.7	4.5
30	-	5.3	4.9	4.5	4.5	-	6.1	-	6.9	6.9	5.7	4.5
31	-	5.3	-	4.5	-	-	6.5	-	6.5	-	5.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 1-16	3.7	3.0	3.30	5.11	52.9	162
August 9-31	5.3	4.5	5.13	7.94	118	362
September	5.3	4.5	4.98	7.71	149	458
October	4.9	4.5	4.85	7.50	150	461
November	5.3	4.5	4.90	7.58	147	451
December 1-25	6.1	4.9	5.54	8.57	138	425
Calendar year	-	-	-	-	-	-
January 25-31	6.5	5.3	5.81	8.99	40.7	125
February	6.5	6.1	6.49	10.0	182	557
March	7.4	6.5	6.81	10.5	211	648
April	7.4	6.9	7.10	11.0	213	654
May	6.9	5.3	6.46	10.0	200	615
June	5.3	4.1	4.58	7.09	137	422
Fiscal year	-	-	-	-	-	-

Note.- Data insufficient to compute discharge for days for which no figures are given.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter.
To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 15 years, 15.8 million gallons a day (24.4 second-feet), unadjusted for pumpage.

Extremes.- Maximum daily discharge during year, 16.0 million gallons a day (24.8 second-feet) Feb. 14-16, 18, 22; minimum daily, 8.7 million gallons a day (13.5 second-feet) July 10-12.

1931-46: Maximum daily discharge, 25 million gallons a day (39 second-feet) Feb. 17-26, 1938; minimum daily, 8.7 million gallons a day (13.5 second-feet) Aug. 23, 1934, June 19, 20, July 10-12, 1945.

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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.3	9.7	12.3	10.0	12.7	10.7	14.5	14.9	12.7	12.7	10.7	10.0
2	9.0	9.7	12.7	10.3	12.7	13.1	11.7	14.9	13.1	10.3	12.7	12.7
3	9.0	9.4	12.7	10.3	12.7	13.1	14.5	14.9	14.9	11.0	10.0	10.0
4	12.3	9.4	9.7	10.7	13.1	13.1	12.7	15.3	15.3	11.3	10.7	10.0
5	9.0	12.7	9.7	12.7	13.1	13.1	12.0	15.3	12.7	10.7	13.1	10.7
6	9.0	10.0	9.7	10.7	10.3	13.1	14.5	15.3	13.1	12.3	13.1	12.3
7	9.0	9.0	9.4	13.1	12.7	13.1	14.5	15.3	14.9	12.7	11.0	9.7
8	12.3	9.4	10.0	10.7	12.7	13.1	12.3	15.3	14.5	10.3	10.7	10.0
9	9.0	9.4	12.7	10.3	12.7	13.4	14.2	15.3	12.0	10.3	13.1	12.7
10	8.7	9.0	10.0	13.1	13.1	13.4	11.3	15.6	14.5	11.7	10.3	9.0
11	8.7	9.7	9.7	10.7	13.1	13.4	11.3	15.6	12.3	10.7	10.7	10.0
12	8.7	12.7	9.0	11.3	13.1	13.4	13.8	15.6	14.5	11.0	13.1	10.3
13	9.0	10.0	9.7	12.7	13.1	13.8	13.8	15.6	14.2	10.3	10.3	10.0
14	9.4	9.7	10.0	12.7	13.4	13.8	11.7	16.0	14.2	12.3	10.0	10.0
15	12.3	12.7	9.7	10.3	13.1	13.8	14.2	16.0	14.2	11.7	9.7	10.3
16	9.4	9.7	12.7	12.7	13.1	14.2	11.3	16.0	14.2	10.0	10.0	12.7
17	9.0	9.4	9.4	10.0	13.1	14.2	13.8	15.6	14.2	10.7	11.3	10.7
18	9.4	9.4	9.7	10.0	13.1	14.5	11.3	16.0	14.2	10.0	12.7	10.0
19	12.3	12.7	9.4	10.0	13.1	14.5	13.8	15.6	14.2	12.3	12.7	10.3
20	12.3	9.0	9.0	10.3	13.1	13.8	14.2	15.6	14.2	12.3	10.7	10.0
21	12.0	9.7	9.7	12.7	10.3	13.8	11.7	15.6	13.8	12.3	11.0	9.7
22	10.3	9.4	9.7	12.7	13.1	14.2	13.8	16.0	11.3	10.7	12.7	10.0
23	9.4	9.4	12.3	9.7	13.1	14.2	11.7	15.4	11.7	10.3	10.3	12.7
24	9.4	10.7	9.7	10.0	13.1	12.0	13.8	15.6	13.8	12.7	10.0	10.0
25	9.4	9.7	9.4	10.0	13.1	14.5	13.8	15.4	11.3	12.3	10.3	9.7
26	9.4	12.3	10.3	12.3	11.3	12.7	13.8	15.6	11.3	12.7	12.7	9.7
27	9.4	9.4	10.7	12.3	12.7	14.5	14.2	15.4	10.3	12.3	10.3	11.3
28	10.7	9.7	10.7	12.3	13.1	14.5	14.2	15.3	14.9	12.7	10.0	10.3
29	12.7	9.7	10.3	10.0	13.1	12.3	14.5	-	14.9	11.0	10.0	10.3
30	10.7	9.7	12.7	12.7	12.7	14.2	14.5	-	10.7	10.7	10.0	12.7
31	9.0	9.7	-	12.7	-	14.2	14.5	-	13.1	-	10.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.7	8.7	10.1	15.6	312	959
August	12.7	9.0	10.1	15.6	312	958
September	12.7	9.0	10.4	16.1	313	960
October	13.1	9.7	11.3	17.5	350	1,070
November	13.4	10.3	12.8	19.8	383	1,170
December	14.5	10.7	13.5	20.9	420	1,290
Calendar year 1945	14.5	8.7	11.3	17.5	4,140	12,680
January	14.5	11.3	13.3	20.6	412	1,260
February	16.0	13.4	15.3	23.7	428	1,310
March	15.3	10.3	13.4	20.7	415	1,270
April	12.7	10.0	11.4	17.6	342	1,050
May	13.1	9.7	11.1	17.2	344	1,060
June	12 7	9.0	10.6	16.4	318	975
Fiscal year 1945-46	16.0	8.7	11.9	18.4	4,350	13,330

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 20 years, 2.25 million gallons a day (3.48 second-feet).

Extremes.- Maximum discharge during year, 147 million gallons a day (227 second-feet) Jan. 25 (gage height, 3.02 feet); no flow for several periods during year.
1926-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.5	0.99	1.0	6.8
.1	.04	.6	1.66	1.1	8.8
.2	.13	.7	2.55	1.2	11.1
.3	.29	.8	3.75	1.4	17.0
.4	.56	.9	5.1		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1		0	0			0	0	7.8	0	0.33	0.02	
2		0	0			6.4	0	2.9	0	.15	.01	
3		0	0			2.35	0	3.7	0	.23	.01	
4		0	0			.09	0	5.8	0	.20	.01	
5		0	0			0	0	2.2	0	.13	.01	
6		0	0			.40	0	1.12	0	.07	.01	
7		0	0			1.21	0	.50	0	.05	0	
8		0	0			.11	0	.20	0	.04	0	
9		0	0			1.43	0	.07	0	.03	0	
10		0	0			1.66	0	.02	0	.02	0	
11		0	0			.14	0	.01	0	.01	0	
12		0	0			2.45	0	0	0	.01	0	
13		0	0			.97	0	0	0	.01	0	
14		0	0			.16	0	0	0	.01	0	
15		0	0			.02	0	0	.41	0	0	
16		0	0			.01	0	0	.32	0	0	
17		0	0			0	0	0	.14	0	0	
18		0	0			0	0	0	.09	0	0	
19		0	0			0	0	0	.21	0	0	
20		0	0			0	0	0	.21	5.8	0	
21		0	0			0	0	0	.12	2.05	0	
22		0	0			0	0	0	.06	.72	0	
23		0	0			0	0	0	.03	.29	0	
24		0	0			0	0	0	.02	3.1	0	
25		0	.34			0	15.4	0	.01	1.53	0	
26		6.6	0			0	6.0	0	.01	.66	0	
27		13.8	0			0	1.41	0	.02	.25	0	
28		.03	0			0	3.2	0	.42	.12	0	
29		0	0			0	1.26	-	.29	.06	0	
30		0	0			0	.60	-	.58	.04	0	
31		0	-			0	12.4	-	.79	-	0	

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0	0	0	0	0	0
August	13.8	0	.659	1.02	20.4	63
September	.34	0	.011	.017	.34	1.0
October	0	0	0	0	0	0
November	0	0	0	0	0	0
December	6.4	0	.561	.868	17.4	53
Calendar year 1945	13.8	0	.105	.162	38.1	117
January	15.4	0	1.30	2.01	40.3	124
February	7.8	0	.861	1.33	24.1	74
March	.79	0	.121	.187	3.74	11
April	5.8	0	.530	.820	15.9	49
May	.02	0	.002	.003	.07	.2
June	0	0	0	0	0	0
Fiscal year 1945-46	15.4	0	.335	.518	122	375

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 29 years (1916-20, 1921-46), 4.80 million gallons a day (7.43 second-feet).

Extremes.- Maximum discharge during year, 117 million gallons a day (181 second-feet) Jan. 25 (gage height, 4.33 feet); minimum, 0.17 million gallons a day (0.26 second-foot) July 19.
1913-46: 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. Water for domestic use diverted from stream above station.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.13	0.72	0.66	0.53	0.47	0.31	0.72	10.9	0.90	1.55	1.73	0.60
2	.66	.90	.66	.72	.58	8.8	.72	5.4	.90	1.46	1.64	.66
3	.53	.60	.61	.72	.66	6.2	.66	5.8	.90	2.45	1.55	1.01
4	.47	.53	.60	.66	.41	2.1	.66	9.8	1.28	1.82	1.46	1.82
5	.47	2.4	.72	.66	.41	1.64	.66	5.1	.90	1.64	1.37	1.05
6	.47	2.65	.69	.60	.36	3.35	.78	3.8	1.05	1.37	1.28	.78
7	.47	1.21	.72	.47	.41	3.8	.78	3.1	1.28	1.46	1.45	.66
8	.41	.97	.78	.47	.36	2.1	.72	2.7	1.05	1.28	1.46	.78
9	.41	.84	.66	.47	.53	4.5	.66	2.7	.97	1.21	1.28	1.43
10	.47	.78	.66	.47	1.07	5.4	.66	3.0	.90	1.13	1.21	1.13
11	.60	.66	.66	.49	.78	2.6	.90	2.45	1.54	1.05	1.05	.84
12	.47	.72	.60	.36	.47	7.2	.66	2.2	1.37	1.05	1.13	.72
13	.47	.72	.60	.36	.41	4.5	.60	2.2	1.28	1.32	1.05	.66
14	.41	.72	.72	.41	.41	2.6	.60	1.91	2.65	1.05	1.05	.78
15	.41	.84	.78	.47	.47	2.0	.60	1.82	6.0	.97	.97	2.45
16	.89	1.48	.72	.47	.47	1.64	.98	1.82	3.1	1.05	.97	1.13
17	.53	.85	.66	.41	.41	1.46	1.51	1.91	1.91	1.28	.90	.90
18	.61	.72	.97	.47	.31	1.37	1.16	1.55	1.55	2.55	.90	.78
19	.31	.72	.66	.36	.36	1.28	.72	1.46	1.73	1.64	.90	.72
20	.47	.72	.53	.36	.31	1.28	.66	1.37	1.46	26	.97	.79
21	.60	.72	.47	.36	.31	1.21	.60	1.28	1.46	7.0	1.21	1.35
22	.86	.60	.47	.36	.36	1.13	1.80	1.21	1.28	3.8	1.05	1.64
23	.53	.53	.47	.36	.98	1.21	1.05	1.21	1.13	2.85	.97	1.28
24	.47	7.4	.47	.36	.53	1.05	1.72	1.21	1.21	5.0	.97	.97
25	.83	2.8	1.93	.36	.41	1.05	15.1	1.13	1.05	3.25	.84	.84
26	.78	1.55	.88	.41	.36	.97	10.6	1.05	2.05	2.55	.78	.78
27	.60	1.13	.60	.60	.36	.90	3.6	1.05	2.45	2.2	.78	1.70
28	.72	.97	.69	.60	.31	.84	2.85	.97	2.85	2.0	.72	.97
29	.72	1.13	.60	.53	.31	.84	2.45	-	2.1	1.91	.72	.84
30	.76	.84	.53	.92	.31	.84	2.2	-	2.0	2.0	.72	1.72
31	.95	.78	-	1.09	-	.78	16.1	-	1.82	-	.66	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.13	0.31	0.596	0.922	18.5	57
August	7.4	.53	1.23	1.90	38.2	117
September	1.93	.47	.692	1.07	20.8	64
October	1.09	.36	.512	.792	15.9	49
November	1.07	.31	.463	.716	13.9	43
December	8.8	.31	2.42	3.74	75.0	230
Calendar year 1945	40	.31	1.36	2.10	498	1,530
January	16.1	.60	2.37	3.67	73.5	226
February	10.9	.97	2.86	4.43	80.1	246
March	6.0	.90	1.68	2.60	52.1	160
April	26	.97	2.86	4.43	85.9	264
May	1.73	.66	1.09	1.69	33.7	104
June	2.45	.60	1.06	1.64	31.8	98
Fiscal year 1945-46	26	.31	1.48	2.29	539	1,660

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 27 years (1917-20, 1922-46), 5.16 million gallons a day (7.98 second-feet).

Extremes.- Maximum discharge during year, 46 million gallons a day (71 second-feet) Apr. 20 (gage height, 2.15 feet); minimum, 0.12 million gallons a day (0.19 second-foot) Oct. 26.

1913-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.07	0.5	1.25	0.9	3.1	1.3	8.8
.2	.30	.6	1.65	1.0	3.65	1.5	14.9
.3	.60	.7	2.1	1.1	4.6	1.7	23
.4	.90	.8	2.6	1.2	6.5		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.69	0.51	0.25	0.25	0.45	0.25	0.69	5.5	0.97	1.04	1.18	0.42
2	.60	.57	.25	.28	.36	3.05	.66	2.95	.97	1.04	1.14	.42
3	.54	.48	.23	.28	.25	2.7	.69	3.25	1.00	1.49	1.14	.57
4	.51	.48	.23	.25	.23	1.00	.69	4.4	1.18	1.18	1.11	.76
5	.51	1.18	.28	.25	.23	1.00	.69	2.6	.94	1.25	1.04	.51
6	.54	1.49	.25	.25	.21	2.0	.78	2.45	1.08	1.22	1.00	.42
7	.51	.81	.28	.25	.18	2.2	.69	2.2	1.04	1.70	1.11	.39
8	.51	.77	.25	.25	.16	1.16	.72	1.96	.90	1.45	1.00	.50
9	.51	.69	.23	.25	.16	2.8	a.69	2.2	.90	1.29	.78	.71
10	.51	.57	.23	.25	.23	2.2	a.69	2.35	.90	1.37	.42	.57
11	.54	.54	.23	.23	.21	1.22	a.78	1.96	1.17	1.37	.45	.45
12	.45	.51	.23	.23	.18	2.55	a.66	1.83	1.04	1.49	.57	.63
13	.45	.54	.23	.23	.16	1.37	a.63	1.83	.97	1.78	.57	.51
14	.45	.57	.32	.23	.16	1.11	a.60	1.65	1.36	1.39	.57	.61
15	.45	.66	.40	.23	.18	.97	a.63	1.53	3.2	.75	.54	.90
16	.48	.68	.45	.16	.21	.90	a1.0	1.52	1.45	.74	.57	.58
17	.42	.69	.33	.14	.23	.84	a1.3	1.45	1.22	.87	.57	.54
18	.45	.60	.33	.14	.23	.84	a.81	1.33	1.11	2.9	.57	.54
19	.42	.60	.25	.18	.25	.84	a.57	1.29	1.70	1.16	.57	.51
20	.42	.69	.25	.23	.23	.84	a.54	1.22	1.14	16.7	.57	.48
21	.42	.63	.25	.23	.21	.81	a.54	1.18	1.08	3.9	.63	1.43
22	.45	.54	.25	.31	.21	.81	2.3	1.14	1.00	2.15	.51	1.08
23	.79	.48	.23	.25	.50	.81	.99	1.11	1.20	1.74	.48	.75
24	.60	1.68	.25	.23	.45	.75	1.58	1.14	1.29	2.6	.48	.63
25	.69	.93	.42	.23	.25	.75	3.6	1.11	1.22	1.70	.48	.60
26	1.05	.63	.33	.24	.23	.72	3.9	1.08	1.45	1.53	.45	.57
27	.54	.54	.25	.21	.25	.69	1.70	1.04	1.72	1.25	.48	.89
28	.51	.51	.32	.25	.25	.69	1.53	1.00	1.83	1.25	.45	.57
29	.48	.54	.28	.21	.25	.69	1.33	-	1.65	1.18	.45	.51
30	.51	.48	.25	.64	.25	.69	1.25	-	2.1	1.29	.45	.69
31	.57	.28	-	.75	-	.69	10.2	-	1.53	-	.45	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.05	0.42	0.535	0.828	16.6	51
August	1.68	.28	.673	1.04	20.9	64
September	.45	.23	.278	.430	8.33	26
October	.75	.14	.262	.405	8.11	25
November	.50	.16	.245	.379	7.35	23
December	3.05	.25	1.22	1.89	37.9	116
Calendar year 1945	13.4	.14	.800	1.24	292	897
January	10.2	.54	1.40	2.17	43.4	133
February	5.5	1.00	1.94	3.00	54.3	167
March	3.2	.90	1.30	2.01	40.3	124
April	16.7	.74	2.03	3.14	60.8	186
May	1.18	.42	.670	1.04	20.8	64
June	1.43	.39	.625	.967	18.7	58
Fiscal year 1945-46	16.7	.14	.925	1.43	337	1,040

a No gage-height record; discharge computed on basis of records for Kalihi and Manoa Streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. May 1913 to January 1921 at site 200 feet upstream.
Average discharge.- 27 years (1913-20, 1926-46), 2.68 million gallons a day (4.15 second-feet).
Extremes.- Maximum discharge during year, 103 million gallons a day (159 second-feet) Apr. 20 (gage height, 2.36 feet), from rating curve extended above 33 million gallons a day by test on model of station site; minimum, 0.10 million gallons a day (0.16 second-foot) Nov. 20, Dec. 1.
1913-21, 1925-46: 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 good except those for July 5, Sept. 6-11, Oct. 7-14, which are poor. Small quantity of water is diverted occasionally for irrigation.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.5	2.6	1.0	11.8
.1	.25	.6	3.5	1.1	15.0
.2	.62	.7	4.8	1.2	18.7
.3	1.11	.8	6.7		
.4	1.78	.9	9.0		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.94	0.58	0.91	0.22	0.36	0.15	0.20	5.6	0.36	0.72	0.86	0.15
2	.51	2.5	.86	.29	.25	5.1	.25	2.45	.44	.67	.82	.18
3	.32	.82	.77	.36	.22	2.5	.18	2.1	.47	2.15	.77	.74
4	.25	.58	.72	.22	.20	.86	.18	2.95	.58	1.11	.67	1.29
5	e.32	5.8	.72	.20	.25	.97	.18	1.65	.40	1.06	.62	.47
6	.29	4.7	c3.1	.18	.25	2.55	.25	1.38	.36	.72	.62	.29
7	.20	2.05	c1.11	a.18	.29	1.44	.22	1.31	.42	1.16	.62	.22
8	.18	1.60	c1.11	a.18	.22	.91	.22	1.06	.36	.86	.58	.83
9	.15	1.01	c1.06	a.18	.25	3.4	.22	1.80	.36	.72	.51	1.77
10	.18	.82	e.95	a.18	.59	1.60	.22	1.65	.36	.58	.47	1.00
11	.36	.67	e.62	a.18	.51	.91	.32	1.18	1.62	.55	.44	.58
12	.51	.62	.58	a.18	.36	2.75	.29	1.06	.96	.55	.44	.47
13	.58	.58	.47	a.18	.36	.96	.22	1.18	.82	1.57	.44	.40
14	.29	.66	1.21	a.18	.32	.72	.22	.91	3.1	1.24	.44	.54
15	.25	1.11	1.08	.18	.29	.58	.29	.77	5.5	1.06	.40	2.25
16	.79	1.06	1.06	.22	.25	.51	.81	.67	2.65	1.01	.36	.55
17	.22	.82	.96	.22	.22	.44	1.05	.67	1.38	1.31	.36	.51
18	.18	.77	.82	.22	.20	.44	.48	.62	.96	4.8	.36	.51
19	.18	.72	.55	.15	.20	.40	.22	.62	1.11	2.45	.36	.40
20	.15	1.08	.47	.18	.20	.40	.18	.58	.82	17.4	.36	.36
21	.15	1.06	.44	.18	.20	.36	.18	.51	.91	5.0	.47	.4
22	.42	.77	.36	.20	.22	.36	2.75	.47	.72	2.45	.40	2.4
23	.94	.82	.32	.18	2.55	.36	.82	.47	.74	1.78	.36	1.38
24	.63	6.7	.32	.15	.44	.32	1.83	.47	.82	3.9	.36	.96
25	1.52	2.25	1.16	.18	.44	.29	2.85	.47	.72	2.1	.32	.67
26	2.1	1.44	.47	.18	.25	.32	2.6	.44	1.68	1.71	.32	1.16
27	.58	1.06	.32	.20	.20	.25	1.62	.44	1.87	1.24	.32	1.84
28	.44	.96	.44	.32	.18	.25	1.01	.40	1.44	1.11	.29	.58
29	.36	1.08	.32	.25	.18	.25	.72	-	.96	1.01	.29	.53
30	.89	1.35	.29	.78	.15	.22	.72	-	1.36	1.16	.22	1.63
31	.92	1.03	-	1.46	-	.20	9.0	-	.91	-	.15	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.1	0.15	0.510	0.789	15.8	48
August	6.7	.58	1.52	2.35	47.1	144
September	3.1	.29	.786	1.22	23.6	72
October	1.46	.15	.263	.407	8.16	25
November	2.55	.15	.353	.546	10.6	33
December	5.1	.15	.993	1.54	30.8	94
Calendar year 1945	9.7	.12	.759	1.17	277	848
January	9.0	.18	.977	1.51	30.3	93
February	5.6	.40	1.21	1.87	33.9	104
March	5.5	.36	1.13	1.75	35.2	108
April	17.4	.55	2.10	3.25	63.2	194
May	.86	.15	.452	.699	14.0	43
June	4.4	.15	.969	1.50	29.1	89
Fiscal year 1945-46	17.4	.15	.936	1.45	342	1,050

a No gage-height record; discharge computed on basis of records for station on East Branch.
c Backwater from dam built on control.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 27 years (1913-20, 1926-46), 3.12 million gallons a day (4.83 second-feet).

Extremes.- Maximum discharge during year, 112 million gallons a day (173 second-feet) Apr. 20 (gage height, 2.68 feet), from rating curve extended above 5.7 million gallons a day by test on model of station site; minimum, 0.53 million gallons a day (0.82 second-foot) Jan. 20-22.

1913-21, 1925-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.20	0.5	2.65	0.9	7.3
.2	.61	.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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.74	0.93	0.99	0.83	0.83	0.66	0.72	4.5	0.72	1.04	1.04	0.83
2	1.15	2.3	.93	.88	.77	11.1	.72	2.15	.72	.99	.93	.83
3	.93	1.04	.88	.88	.72	5.7	.72	2.65	.72	1.74	.83	2.1
4	.83	.93	.88	.83	.66	1.57	.66	3.3	.72	1.15	.83	2.25
5	.83	5.9	.99	.83	.72	1.43	.72	1.64	.66	1.15	.83	.93
6	.83	3.2	1.21	.83	.72	3.8	.88	1.36	.66	1.04	.77	.72
7	.77	1.57	1.59	.77	.66	1.86	.77	1.41	.61	1.55	.77	.61
8	.77	1.36	1.15	.77	.72	1.22	.77	1.15	.72	1.15	.77	1.01
9	.72	1.22	.99	.77	.77	4.9	.72	1.20	.66	1.04	.72	2.1
10	.83	1.10	1.15	.77	1.25	2.2	.72	1.84	.66	.99	.72	1.15
11	.83	1.10	1.15	.72	.93	1.29	.77	1.22	1.51	.93	.72	.83
12	.77	1.04	1.10	.72	.77	6.2	.66	1.10	.93	.93	.66	.72
13	.77	1.04	.99	.72	.72	1.64	.61	1.29	.83	1.49	.72	.66
14	.77	1.10	1.51	.72	.72	1.27	.61	.99	2.2	.99	.72	.83
15	.77	1.45	1.43	.72	.72	1.10	.66	.88	3.1	.93	.72	3.65
16	1.00	1.29	1.22	.66	.77	1.04	1.33	.88	1.43	.88	.72	1.04
17	.77	1.10	1.22	.66	.77	.99	1.74	.93	1.10	.93	.72	.88
18	.77	1.10	1.10	.77	.66	.93	.94	.83	.93	2.55	.72	.83
19	.77	1.10	.99	.66	.66	.93	.66	.77	.99	1.15	.72	.83
20	.77	1.37	.93	.66	.61	.88	.57	.77	.88	18.4	.78	.83
21	.77	1.36	.93	.66	.61	.88	.53	.77	.99	3.15	.95	5.2
22	1.00	1.10	.93	.61	.88	.88	3.1	.72	.88	1.85	.93	2.25
23	1.27	1.15	.93	.61	.45	.88	1.22	.72	.97	1.57	.88	1.43
24	1.47	8.0	.93	.61	.99	.88	3.35	.72	.93	2.95	.88	1.15
25	1.60	2.0	3.3	.61	.88	.88	4.4	.72	.93	1.57	.88	1.04
26	1.88	1.36	1.20	.61	.77	.88	3.05	.72	2.0	1.36	.88	1.04
27	.88	1.10	.93	.66	.72	.83	1.69	.72	1.73	1.15	.88	3.2
28	.77	.99	.99	.77	.66	.83	1.29	.72	1.57	1.10	.83	1.15
29	.77	1.16	.93	.61	.66	.77	1.04	-	1.57	1.04	.83	1.04
30	1.10	1.27	.83	1.09	.66	.77	1.15	-	1.43	1.18	.88	2.4
31	.99	1.23	-	1.58	-	.77	14.6	-	1.15	-	.88	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.88	0.72	0.964	1.49	29.9	92
August	8.0	.93	1.68	2.60	52.0	159
September	3.3	.83	1.14	1.76	34.3	105
October	1.58	.61	.761	1.18	23.6	72
November	2.45	.61	.814	1.26	24.4	75
December	11.1	.66	1.93	2.99	60.0	184
Calendar year 1945	11.1	.61	1.38	2.14	504	1,540
January	14.6	.53	1.66	2.57	51.4	158
February	4.5	.72	1.31	2.03	36.7	113
March	3.1	.61	1.13	1.75	34.9	107
April	18.4	.88	1.93	2.99	57.9	178
May	1.04	.66	.810	1.25	25.1	77
June	5.2	.61	1.45	2.24	43.5	134
Fiscal year 1945-46	18.4	.53	1.30	2.01	474	1,450

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Pukele Stream near Honolulu

Location.- Concrete weir control, lat. 21°19'15", long. 157°47'10", 200 feet upstream from bridge on Palolo Belt Road, 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 1946. April 1912 to September 1913, above present site and just below Mahoe Springs.

Average discharge.- 20 years, 1.31 million gallons a day (2.03 second-feet)

Extremes.- Maximum discharge during year, 88 million gallons a day (136 second-feet) Apr. 20 (gage height, 3.37 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.07 million gallons a day (0.11 second-foot) Nov. 15-25.

1912-13, 1926-46: 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, that of Nov. 15-25, 1945.

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

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.02	1.4	1.76	1.9	9.7
1.0	.08	1.5	2.7	2.0	12.5
1.1	.28	1.6	3.9	2.2	19.0
1.2	.60	1.7	5.5		
1.3	1.10	1.8	7.4		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.10	0.08	0.14	0.16	0.08	0.08	0.22	5.0	0.31	0.34	0.57	0.24
2	.10	.08	.14	.16	.08	3.5	.20	1.56	.28	.34	.54	.24
3	.10	.08	.14	.14	.08	2.5	.18	2.0	.26	.34	.50	.26
4	.10	.08	.14	.14	.08	.41	.18	1.75	.26	.38	.50	.26
5	.10	.08	.14	.14	.08	.31	.18	1.30	.24	.38	.47	.24
6	.10	.12	.14	.14	.08	.53	.16	1.17	.24	.38	.44	.26
7	.10	.12	.14	.14	.08	.50	.14	1.10	.24	.38	.44	.24
8	.10	.12	.14	.12	.08	.38	.14	1.05	.24	.38	.41	.24
9	.08	.12	.12	.12	.08	2.05	.14	1.00	.24	.38	.38	.24
10	.08	.12	.14	.12	.10	1.11	.14	.90	.22	.38	.38	.24
11	.08	.12	.14	.12	.08	.65	.14	.80	.24	.38	.38	.24
12	.08	.12	.14	.12	.08	1.83	.14	.70	.24	.38	.38	.24
13	.08	.12	.12	.12	.08	.85	.14	.65	.22	.38	.38	.24
14	.08	.12	.12	.12	.08	.75	.14	.57	.22	.38	.38	.24
15	.08	.12	.12	.10	.07	.70	.14	.54	.22	.38	.34	.24
16	.08	.12	.12	.08	.07	.70	.14	.50	.24	.34	.34	.24
17	.08	.12	.12	.08	.07	.65	.14	.50	.28	.31	.31	.24
18	.08	.10	.12	.08	.07	.57	.14	.47	.28	.34	.31	.24
19	.08	.10	.10	.08	.07	.54	.14	.47	.31	.31	.31	.24
20	.08	.10	.10	.08	.07	.50	.12	.44	.34	13.9	.28	.24
21	.08	.10	.10	.08	.07	.44	.12	.41	.34	2.05	.28	.26
22	.08	.08	.10	.08	.07	.44	.14	.41	.38	.80	.26	.26
23	.10	.08	.08	.08	.07	.38	.14	.41	.31	.70	.26	.28
24	.12	.08	.08	.08	.07	.34	.18	.38	.34	.70	.26	.28
25	.12	.08	.87	.08	.07	.34	1.01	.34	.34	.70	.26	.28
26	.08	.10	.22	.08	.08	.28	1.89	.34	.34	.70	.26	.28
27	.08	.10	.18	.08	.08	.28	.60	.34	.34	.70	.26	.28
28	.08	.12	.14	.08	.08	.24	.70	.31	.34	.70	.26	.31
29	.08	.12	.16	.08	.08	.24	.70	-	.34	.70	.26	.31
30	.08	.14	.16	.08	.08	.24	.75	-	.34	.65	.26	.31
31	.08	.14	-	.08	-	.22	13.7	-	.34	-	.24	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.12	0.08	0.088	0.136	2.74	8.4
August	.14	.08	.106	.164	3.28	10
September	.87	.08	.156	.241	4.67	14
October	.16	.08	.105	.162	3.24	9.9
November	.10	.07	.077	.199	2.31	7.1
December	3.5	.08	.727	1.12	22.6	69
Calendar year 1945	4.1	.07	.266	.412	97.3	296
January	13.7	.12	.742	1.15	23.0	71
February	5.0	.31	.908	1.40	25.4	78
March	.38	.22	.286	.443	8.87	27
April	13.9	.31	.973	1.51	29.2	90
May	.57	.24	.352	.545	10.9	33
June	.31	.24	.257	.398	7.71	24
Fiscal year 1945-46	13.9	.07	.394	.610	144	441

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. April 1911 to December 1912 at highway bridge below present site.

Average discharge.- 20 years, 1.18 million gallons a day (1.83 second-feet).

Extremes.- Maximum discharge during year, 69 million gallons a day (107 second-feet) Jan. 31 (gage height, 3.22 feet); no flow for several periods during year.
1911-12, 1926-46: 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 period of no gage-height record, which are fair. Board of Water Supply diverts ground water from tunnels in drainage area.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.08	0.06	0.08	0.06	0.06	0.01	0.01	6.0	0	0.16	0.12	0
2	.10	.19	.05	.06	.04	8.5	0	2.2	0	.14	.09	0
3	.10	.10	.04	.06	.03	4.5	0	5.1	0	.39	.08	0
4	.04	.06	.02	.04	.05	1.10	0	3.0	0	.24	.08	.10
5	.01	.92	.01	.01	.04	.89	0	1.3	0	.22	.06	.22
6	.01	1.32	.03	.01	.03	2.5	0	.80	0	.16	.06	.09
7	.01	.37	.04	.04	.01	1.48	0	.60	0	.27	.04	.06
8	0	.24	.07	.01	.01	.68	0	.50	0	.24	.04	.04
9	0	.22	.04	.01	0	5.5	0	.40	0	.14	.03	.19
10	0	.14	.01	.01	.13	2.6	0	.30	0	.10	.01	.41
11	0	.08	.01	0	.20	.99	0	.25	0	.08	.01	.20
12	0	.06	.04	0	.07	4.0	0	.18	0	.07	.01	.09
13	0	.05	.02	0	.04	1.24	0	.15	0	.10	.01	.06
14	0	.21	.03	0	.02	.63	0	.12	0	.10	.01	.04
15	0	.18	.01	0	.01	.43	0	.10	.01	.06	0	1.50
16	0	.22	.04	0	.01	.30	0	.08	.56	.02	0	.38
17	0	.10	.02	0	.01	.24	0	.08	.37	.01	0	.22
18	0	.07	.01	0	0	.18	.21	.06	.24	.14	0	.16
19	0	.07	.01	0	0	.16	.08	.06	.20	.14	0	.10
20	0	.16	.01	0	0	.14	.05	.05	.16	16.4	0	.07
21	0	.24	0	0	0	.10	.03	.04	.14	3.0	0	1.81
22	.03	.10	0	0	0	.10	1.01	.04	.12	1.15	0	.77
23	.08	.06	0	0	1.07	.09	.64	.04	.07	.73	0	.37
24	.14	1.44	0	0	.26	.08	1.70	.01	.10	1.12	0	.30
25	.14	.50	1.53	0	.16	.06	2.55	0	.22	.56	0	.18
26	.08	.24	.66	0	.08	.06	3.2	0	.26	.37	0	.14
27	.06	.14	.18	0	.05	.04	2.15	0	.40	.24	0	.94
28	.03	.10	.08	0	.03	.03	1.88	0	.46	.20	0	.30
29	.01	.09	.11	0	.02	.01	.99	-	.26	.16	0	.18
30	.01	.14	.10	0	.01	.01	.99	-	.30	.14	0	.98
31	.06	.10	-	.03	-	.01	18.1	-	.24	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.14	0	0.032	0.050	0.99	3.0
August	1.44	.05	.257	.398	7.97	24
September	1.53	0	.108	.167	3.25	10
October	.06	0	.011	.017	.34	1.0
November	1.07	0	.081	.125	2.44	7.5
December	8.5	.01	1.18	1.83	36.7	113
Calendar year 1945	10.8	0	.281	.435	103	316
January	18.1	0	1.08	1.67	33.6	103
February	6.0	0	.766	1.19	21.5	66
March	.56	0	.133	.206	4.11	13
April	16.4	.01	.895	1.38	26.8	82
May	.12	0	.021	.032	.65	2.0
June	1.81	0	.330	.511	9.90	30
Fiscal year 1945-46	18.1	0	.406	.628	148	454

Note.- No gage-height record Feb. 4 to Mar. 15; discharge computed on basis of records for Pukele Stream.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 52 million gallons a day (80 second-feet) Jan. 25 (gage height, 2.26 feet), from rating curve extended above 13 million gallons a day by test on model of station site; minimum, 0.18 million gallons a day (0.28 second-foot) Oct. 24.

1914-19, 1939-46: 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. 24, 1945.

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

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.11	1.1	0.92	1.4	3.05
.9	.21	1.2	1.45	1.5	4.2
1.0	.53	1.3	2.1	1.6	5.9

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.23	0.28	0.25	0.23	0.21	0.20	0.28	2.7	a0.35	0.46	0.23	0.20
2	.23	.28	.23	.28	.21	1.30	.28	1.58	a.35	.46	.23	.20
3	.23	.25	.23	.23	.21	1.01	.28	1.80	.35	.46	.25	.21
4	.25	.23	.23	.23	.21	.43	.23	1.34	.35	.43	.25	.28
5	.40	.55	.23	.23	.21	.35	.21	1.13	.35	.43	.25	.23
6	.27	.67	.23	.21	.21	.64	.25	1.03	.35	.39	.25	.21
7	.23	.35	.22	.21	.21	.88	.25	.97	.35	.39	.25	.21
8	.21	.28	.21	.21	.21	.57	.25	.76	.31	.31	.25	.21
9	.21	.28	.21	.21	.21	1.38	.25	.69	.28	.25	.37	.25
10	.21	.25	.21	.21	.25	1.21	.25	.61	.31	.21	.28	.28
11	.22	.23	.21	.21	.23	.65	.25	.61	.35	.26	.23	.25
12	.20	.27	.23	.21	.23	1.20	.28	.72	.43	.45	.25	.25
13	.19	.28	.21	.21	.21	1.04	.25	.84	.43	.25	.31	.21
14	.20	.25	.21	.21	.21	.84	.23	.80	.39	.21	.46	.21
15	.20	.25	.23	.21	.21	.76	.23	.80	.43	.21	.21	.23
16	.23	.25	.21	.21	.20	.72	.28	.80	.43	.23	.20	.21
17	.21	.28	.21	.19	.20	.65	.35	.76	.43	.21	.31	.20
18	.21	.28	.23	.20	.20	.31	.31	.76	.39	.21	.57	.21
19	.21	.28	.23	.19	.23	.31	.25	.76	.39	.21	.57	.21
20	.21	.25	.21	.19	.21	.35	.25	.76	.35	1.12	.41	.21
21	.21	.25	.21	.19	.21	.35	.25	.76	.35	.43	.33	.28
22	.30	.23	.21	.21	.21	.35	.31	.80	.35	.25	.46	.31
23	.25	.23	.21	.19	.28	.39	.28	.80	.31	.21	.48	.28
24	.25	3.4	.21	.19	.23	.35	.39	a.76	.35	.25	.30	.28
25	.93	1.22	.52	.19	.21	.35	4.8	a.69	.35	.28	.20	.25
26	.35	.43	.25	.19	.21	.31	2.25	a.61	.43	.26	.50	.28
27	.28	.28	.21	.20	.21	.31	1.03	a.53	.46	.21	.57	.35
28	.25	.25	.25	.21	.20	.28	.92	a.39	.50	.21	.36	.28
29	.25	.25	.25	.20	.20	.28	.88	-	.50	.21	.35	.31
30	.28	.25	.25	.21	.20	.28	.84	-	.53	.25	.57	.35
31	.28	.25	-	.21	-	.28	3.4	-	.46	-	.46	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.93	0.20	0.263	0.407	8.16	25
August	3.4	.23	.422	.653	13.1	40
September	.52	.21	.233	.361	7.00	21
October	.28	.19	.209	.323	6.47	20
November	.28	.20	.214	.331	6.43	20
December	1.38	.20	.591	.914	18.3	56
Calendar year 1945	21.5	.19	.588	.910	215	658
January	4.8	.21	.663	1.03	20.6	63
February	2.7	.39	.913	1.41	25.6	78
March	.53	.28	.386	.597	12.0	37
April	1.12	.21	.324	.501	9.71	30
May	.57	.20	.345	.534	10.7	33
June	.35	.20	.248	.384	7.44	23
Fiscal year 1945-46	4.8	.19	.398	.616	146	446

a No gage-height record; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 2.85 million gallons a day (4.41 second-feet) Jan. 25 (gage height, 1.08 feet); minimum, 0.11 million gallons a day (0.17 second-foot) Oct. 29, 30, Nov. 6-9.

1940-46: Maximum discharge, 69 million gallons a day (107 second-feet) Oct. 22, 1941 (gage height, 2.40 feet), from rating curve extended above 1.0 million gallons a day by rating for Columbus type control and test on model of station site; minimum, that of Oct. 9, 30, Nov. 6-9, 1945.

Remarks.- Records fair. No diversions above station.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.11
.5	.20
.6	.32
.7	.52
.8	.88

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.18	0.17	0.17	0.16	0.12	0.12	0.13	0.53	0.14	0.15	0.13	0.15
2	.17	.17	.17	.16	.12	.37	.13	.38	.14	.15	.12	.15
3	.17	.16	.17	.16	.12	.26	.13	.38	.14	.17	.12	.15
4	.17	.16	.17	.15	.12	.17	.13	.31	.14	.15	.12	.16
5	.25	.32	.17	.15	.13	.17	.13	.26	.13	.15	.12	.15
6	.22	.27	.17	.15	.11	.28	.13	.22	.15	.14	.13	.15
7	.17	.19	.17	.15	.11	.26	.13	.21	.14	.15	.13	.15
8	.17	.18	.16	.15	.11	.19	.13	.20	.15	.15	.13	.15
9	.17	.17	.16	.14	.11	.35	.12	.19	.15	.14	.13	.16
10	.17	.17	.16	.14	.35	.32	.12	.18	.15	.14	.14	.16
11	.16	.17	.16	.14	.13	.25	.12	.18	.15	.14	.14	.16
12	.16	.17	.16	.14	.13	.34	.11	.17	.15	.14	.14	.16
13	.16	.17	.15	.14	.13	.25	.11	.17	.15	.15	.14	.16
14	.15	.17	.16	.14	.13	.21	.11	.16	.14	.14	.14	.16
15	.15	.17	.16	.15	.14	.18	.11	.16	.15	.14	.14	.16
16	.16	.17	.15	.15	.13	.16	.12	.17	.14	.14	.14	.16
17	.15	.17	.15	.15	.12	.16	.15	.16	.14	.14	.14	.16
18	.14	.21	.15	.15	.12	.15	.13	.16	.14	.15	.14	.16
19	.14	.18	.15	.15	.12	.15	.13	.16	.14	.15	.14	.16
20	.14	.18	.15	.14	.12	.14	.13	.16	.14	.40	.16	.15
21	.14	.18	.16	.14	.12	.14	.13	.16	.14	.17	.14	.16
22	.17	.17	.16	.15	.12	.14	.14	.16	.14	.16	.14	.15
23	.15	.17	.16	.14	.14	.14	.14	.16	.14	.16	.15	.14
24	.16	.53	.16	.14	.12	.14	.15	.16	.14	.17	.15	.14
25	.33	.34	.25	.13	.12	.14	.43	.16	.14	.16	.15	.14
26	.21	.24	.18	.13	.12	.13	.38	.14	.16	.15	.15	.15
27	.17	.19	.17	.12	.12	.13	.28	.14	.16	.14	.14	.16
28	.17	.18	.17	.12	.12	.13	.22	.14	.15	.14	.14	.14
29	.17	.17	.17	.11	.12	.13	.20	-	.15	.14	.14	.14
30	.17	.17	.17	.13	.12	.13	.20	-	.16	.14	.14	.16
31	.17	.17	-	.13	-	.13	.49	-	.15	-	.14	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.33	0.14	0.173	0.268	5.36	16
August	.53	.16	.201	.311	6.23	19
September	.25	.15	.165	.255	4.96	15
October	.16	.11	.142	.220	4.40	14
November	.15	.11	.123	.190	3.69	11
December	.37	.12	.192	.297	5.96	18
Calendar year 1945	1.05	.11	.169	.261	61.7	190
January	.49	.11	.170	.263	5.26	16
February	.53	.14	.205	.317	5.73	18
March	.16	.13	.145	.224	4.50	14
April	.40	.14	.157	.243	4.71	14
May	.16	.12	.138	.214	4.27	13
June	.16	.14	.153	.237	4.60	14
Fiscal year 1945-46	.53	.11	.163	.252	59.7	182

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.
Average discharge.- 10 years (1936-46), 3.16 million gallons a day (4.89 second-feet).
Extremes.- Maximum discharge during year, 32 million gallons a day (50 second-feet) Jan. 31 (gage height, 2.10 feet), from rating curve extended above 8.4 million gallons a day by test on model of station site; minimum, 1.50 million gallons a day (2.32 second-feet) June 18.
1935-46: 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, that of June 18, 1946.
Remarks.- Records good except those for periods of no gage-height record, which are fair. No diversions above station. Continuous records of rainfall are obtained at the station.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.23
.5	1.91
.6	2.7
.7	3.75
.8	4.8

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.9	1.64	1.64	1.64	1.64	1.6	1.71	2.65	1.77	1.64	1.64	1.71
2	1.8	1.64	1.64	1.64	1.64	3.0	1.71	1.91	1.77	1.71	1.64	1.71
3	1.8	1.64	1.64	1.64	1.64	2.2	1.71	3.7	1.71	1.71	1.64	1.71
4	1.8	1.64	1.64	1.64	1.64	2.1	1.71	1.99	1.71	1.71	1.64	1.71
5	1.8	1.64	1.64	1.64	1.71	2.1	1.71	1.77	1.64	1.71	1.64	1.71
6	1.8	1.64	1.64	1.64	1.71	2.5	1.71	1.77	1.64	1.71	1.64	1.71
7	1.8	1.64	1.64	1.64	1.71	2.2	1.71	1.77	1.64	1.71	1.64	1.71
8	1.8	1.64	1.64	1.64	1.71	2.0	1.71	1.71	1.64	1.71	1.71	1.71
9	1.8	1.64	1.64	1.64	1.71	2.1	1.71	1.71	1.64	1.71	1.71	1.71
10	1.7	1.64	1.64	1.64	1.71	2.1	1.71	1.71	1.64	1.71	1.71	1.71
11	1.7	1.64	1.64	1.71	1.71	2.0	1.71	1.71	1.64	1.71	1.71	1.71
12	1.7	1.64	1.64	1.71	1.71	2.05	1.71	1.71	1.64	1.71	1.71	1.64
13	1.71	1.64	1.64	1.71	1.71	1.84	1.71	1.71	1.64	1.71	1.71	1.64
14	1.71	1.64	1.57	1.71	1.84	1.77	1.71	1.71	1.64	1.71	1.71	1.64
15	1.71	1.64	1.57	1.77	1.64	1.77	1.71	1.64	1.71	1.71	1.71	1.64
16	1.64	1.64	1.57	1.77	1.64	1.77	1.77	1.64	1.71	1.71	1.71	1.64
17	1.57	1.64	1.57	1.77	1.64	1.71	1.77	1.64	1.71	1.71	1.71	1.64
18	1.57	1.64	1.57	1.77	1.64	1.71	1.71	1.64	1.71	1.71	1.71	1.57
19	1.57	1.64	1.57	1.77	1.6	1.71	1.71	1.64	1.71	1.71	1.71	1.57
20	1.57	1.64	1.57	1.77	1.6	1.71	1.71	1.64	1.71	2.9	1.71	1.57
21	1.57	1.64	1.57	1.77	1.6	1.71	1.71	1.64	1.71	1.77	1.71	1.64
22	1.57	1.64	1.57	1.64	1.6	1.71	1.71	1.71	1.71	1.71	1.71	1.71
23	1.57	1.71	1.57	1.64	1.6	1.77	1.64	1.71	1.71	1.71	1.71	1.64
24	1.57	4.5	1.57	1.64	1.6	1.77	1.71	1.71	1.71	1.71	1.71	1.64
25	1.57	1.84	1.73	1.64	1.6	1.77	2.8	1.71	1.71	1.64	1.71	1.84
26	1.57	1.71	1.64	1.57	1.6	1.77	2.15	1.77	1.71	1.57	1.71	1.71
27	1.57	1.71	1.64	1.57	1.6	1.71	1.71	1.77	1.71	1.57	1.71	1.77
28	1.64	1.71	1.64	1.57	1.6	1.71	3.15	1.77	1.71	1.57	1.71	1.71
29	1.64	1.71	1.64	1.57	1.6	1.71	1.77	-	1.71	1.57	1.71	1.57
30	1.64	1.64	1.64	1.64	1.6	1.71	1.71	-	1.71	1.64	1.71	1.64
31	1.64	1.64	-	1.64	-	1.71	4.2	-	1.64	-	1.71	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.9	1.57	1.68	2.60	52.0	160
August	4.3	1.64	1.74	2.69	54.0	166
September	1.73	1.57	1.62	2.51	48.5	149
October	1.77	1.57	1.67	2.58	51.8	159
November	1.71	1.6	1.64	2.54	49.4	151
December	3.0	1.6	1.90	2.94	59.0	181
Calendar year 1945	6.3	1.57	1.77	2.74	646	1,980
January	4.2	1.71	1.89	2.92	58.6	180
February	3.7	1.64	1.83	2.83	51.2	157
March	1.77	1.64	1.69	2.61	52.4	161
April	2.9	1.57	1.73	2.68	51.8	159
May	1.71	1.64	1.69	2.61	52.5	161
June	1.77	1.57	1.67	2.58	50.0	154
Fiscal year 1945-46	4.3	1.57	1.73	2.68	631	1,940

Note.- No gage-height record July 1-12, Nov. 19 to Dec. 11; discharge computed on basis of records for nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 10 years (1936-46), 6.66 million gallons a day (10.3 second-feet).

Extremes.- Maximum discharge during year, 84 million gallons a day (130 second-feet) Jan. 31 (gage height, 3.15 feet), from rating curve extended above 50 million gallons a day by test on model of station site; minimum, 3.3 million gallons a day (5.1 second-feet) May 1-4, May 22 to June 2.

1935-46: 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 May 1-4, May 22 to June 2, 1946.

Remarks.- Records good except those for period of no gage-height record, which are fair. A 2-inch pipeline diverts water above station for domestic use.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.6	2.5	1.0	7.5
.7	3.5	1.1	9.0
.8	4.6	1.2	11.0
.9	6.0	1.4	15.1

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.8	3.95	3.85	3.85	3.7	3.7	3.6	8.0	3.6	3.5	3.3	3.3
2	4.3	3.95	3.85	3.85	3.7	7.3	3.6	6.5	3.6	3.6	3.3	3.3
3	4.2	3.85	3.85	3.85	3.7	4.8	3.6	13.3	3.6	3.6	3.3	3.4
4	4.2	3.85	3.85	3.85	3.7	4.0	3.6	6.5	3.6	3.6	3.3	3.5
5	4.2	4.5	3.85	3.85	3.7	4.0	3.6	4.5	3.6	3.6	3.4	3.4
6	4.2	4.5	3.85	3.85	3.7	5.7	3.6	3.6	3.5	3.6	3.4	3.4
7	4.2	4.0	3.85	3.85	3.7	4.7	3.6	3.6	3.5	3.6	3.4	3.4
8	4.2	4.0	3.85	3.85	3.7	4.0	3.6	3.6	3.5	3.6	3.4	3.5
9	4.2	3.95	3.85	3.85	3.7	4.4	3.6	3.6	3.5	3.6	3.4	3.6
10	4.2	3.95	3.85	3.85	3.85	4.4	3.6	3.6	3.5	3.6	3.5	3.6
11	4.2	3.95	3.85	3.7	3.85	4.0	3.6	3.6	3.5	3.6	3.5	3.5
12	4.0	3.95	3.85	3.7	3.7	4.3	3.6	3.6	3.5	3.6	3.5	3.5
13	4.0	3.95	3.85	3.7	4.0	3.95	3.6	3.6	3.5	3.6	3.4	3.5
14	4.0	3.85	3.85	3.7	3.7	3.85	3.6	3.6	3.5	3.6	3.4	3.5
15	4.0	3.85	3.85	3.85	3.7	3.7	3.5	3.5	3.6	3.6	3.4	3.7
16	4.0	3.95	3.85	3.7	3.7	3.7	3.6	3.5	3.6	3.6	3.4	3.6
17	4.0	3.95	3.85	3.7	3.7	3.7	3.85	3.5	3.6	3.6	3.4	3.5
18	4.0	3.95	3.85	3.7	3.7	3.7	3.6	3.5	3.6	3.6	3.4	3.5
19	4.0	3.85	3.7	3.7	3.7	3.7	3.6	3.5	3.6	3.6	3.4	3.5
20	4.0	3.85	3.7	3.7	3.7	3.6	3.6	3.5	3.6	7.0	3.4	3.5
21	4.0	3.85	3.7	3.7	3.7	3.6	3.6	3.5	3.6	4.0	3.4	3.7
22	4.2	3.85	3.7	3.7	3.7	3.6	3.5	3.6	3.6	3.6	3.3	3.9
23	3.95	3.85	3.85	3.7	3.7	3.6	3.5	3.6	3.6	3.6	3.3	3.6
24	3.95	11.9	3.85	3.7	3.7	3.6	3.85	3.6	3.6	3.6	3.3	3.5
25	6.4	5.0	3.95	3.7	3.7	3.6	6.7	3.6	3.6	3.5	3.3	3.5
26	4.2	4.3	3.95	3.7	3.7	3.6	4.9	3.6	3.6	3.5	3.3	3.5
27	4.0	4.0	3.85	3.7	3.7	3.6	3.95	3.6	3.6	3.5	3.3	3.5
28	3.95	4.0	3.85	3.7	3.7	3.6	8.0	3.6	3.6	3.5	3.3	3.5
29	3.95	3.95	3.85	3.7	3.7	3.6	4.4	-	3.6	3.4	3.3	3.5
30	3.95	3.95	3.85	3.85	3.7	3.6	4.0	-	3.6	3.4	3.3	3.85
31	3.95	3.85	-	3.85	-	3.6	12.1	-	3.5	-	3.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.4	3.95	4.17	6.45	129	397
August	11.9	3.85	4.26	6.59	132	405
September	3.95	3.7	3.84	5.94	115	353
October	3.85	3.7	3.76	5.82	117	358
November	4.0	3.7	3.72	5.76	112	342
December	7.3	3.6	4.03	6.24	125	383
Calendar year 1945	22	3.6	4.22	6.53	1,540	4,730
January	12.1	3.5	4.21	6.51	131	401
February	13.3	3.5	4.32	6.68	121	371
March	3.6	3.5	3.57	5.52	111	339
April	7.0	3.4	3.70	5.72	111	340
May	3.5	3.3	3.36	5.20	104	320
June	3.9	3.3	3.52	5.45	106	325
Fiscal year 1945-46	13.3	3.3	3.87	5.99	1,410	4,330

Note.- No gage-height record Feb. 4 to Apr. 25; discharge computed on basis of records for Kahaluu Stream.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1945 to June 1946

Date	Stream	Tributary to or diverting from--	Locality	Discharge	
				Second-feet	Million gallons a day
July 13	Pearl Harbor Springs.	Pacific Ocean....	1,000 feet west of Puukapu gaging station.	1.14	0.737
Sept.11	....do.....	....do.....	....do.....	1.03	.666
Oct. 26	....do.....	....do.....	....do.....	1.14	.735
Dec. 17	....do.....	....do.....	....do.....	1.73	1.12
Jan. 24	....do.....	....do.....	....do.....	1.42	.918
Mar. 12	....do.....	....do.....	....do.....	1.83	1.18
May 3	....do.....	....do.....	....do.....	1.32	.850
June 20	....do.....	....do.....	....do.....	.613	.396
Mar. 13	Waiahole tunnel	Canefield.....	At North Portal, near Waiahole...	26.8	17.3
13	....do.....	....do.....	....do.....	27.1	17.5
21	....do.....	....do.....	....do.....	28.0	18.1
21	....do.....	....do.....	....do.....	28.8	18.6
Apr. 3	....do.....	....do.....	....do.....	31.1	20.1
3	....do.....	....do.....	....do.....	30.5	19.7
18	....do.....	....do.....	....do.....	31.0	20.0
18	Spillage at Waiahole pump (pump operating)	Waiahole Stream..	Near Waiahole.....	.051	.033
Mar. 25	Waianu Intake..	Waiahole ditch...	....do.....	25.1	16.2
25	....do.....	....do.....	....do.....	26.5	17.1
Apr. 18	....do.....	....do.....	....do.....	36.1	23.3
May 2	Halona.....	Waiahole Stream..	500 feet below Waiahole Water Company pump, near Waiahole.	.709	.458
Dec. 4	Oia.....	Pacific Ocean....	At altitude 1,400 feet, just above Army road, 1 mile above Haley's tunnel, near Kahuku.	.36	.23
Nov. 19	Kamananui.....	....do.....	At first trail crossing to Waihee Falls from end of automobile road, near Waialua.	.217	.140
26	South Fork Kamananui.	Kamananui Stream.	At confluence of North and South Forks at altitude 550 feet, near Waialua.	.333	.215
26	....do.....	....do.....	At Army road crossing, near Kahuku.	.404	.261
26	North Fork Kamananui.	....do.....	....do.....	.070	.045
26	Paumalu.....	Pacific Ocean....	At Haley's tunnel, altitude 1,050 feet, near Kahuku.	.009	.006
Dec. 4	....do.....	....do.....	....do.....	.012	.008
4	Tributary to Paumalu.	Paumalu Stream...	At altitude 1,080 feet, 400 feet below Haley's tunnel, near Kahuku.	.008	.005

Halawa Stream near Halawa

Location.- Lat. 21°09'30", long. 156°46'00", about 500 feet downstream from confluence of two main branches, 1½ miles west of Halawa, and 6 miles northeast of Pukoo.
Drainage area.- 4.5 square miles.
Records available.- August 1917 to July 1932, November 1937 to June 1946.
Average discharge.- 22 years (1918-32, 1938-46), 19.0 million gallons a day (29.4 second-feet).
Extremes.- Maximum discharge during year, 2,220 million gallons a day (3,430 second-feet) Jan. 22 (gage height, 9.43 feet), from rating curve extended above 100 million gallons a day by logarithmic plotting; minimum, 1.5 million gallons a day (2.3 second-feet) July 25.
1917-32, 1937-46: 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 tables, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 22								Jan. 23 to June 30					
0.5	1.2	0.9	5.3	1.5	17.5	3.0	104	0.6	2.65	1.1	10.3	2.5	69
.6	1.95	1.0	6.8	1.7	23.5	3.5	167	.7	3.8	1.3	15.0	3.0	112
.7	2.85	1.1	8.5	2.0	35	4.0	252	.8	5.1	1.5	20.5	3.5	172
.8	3.95	1.3	12.5	2.5	62	4.5	356	.9	6.6	1.7	27		
								1.0	8.3	2.0	39		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	53	7.2	10.5	2.25	7.0	2.55	2.2	18.8	3.2	8.1	7.4	3.0
2	19.5	8.4	6.6	4.8	91	88	2.2	13.1	6.2	9.7	6.2	3.0
3	5.4	3.6	6.5	5.2	17.8	156	2.2	21.5	4.1	24	5.4	3.0
4	3.8	2.55	6.5	2.7	7.5	23.5	2.2	10.1	13.1	8.4	5.2	5.0
5	7.4	80	7.2	4.9	10.7	194	2.2	8.1	4.2	20.5	5.3	3.2
6	23.5	25.5	9.5	2.55	6.1	24.5	5.0	21.5	10.4	8.5	5.0	3.0
7	4.4	7.1	11.0	2.1	8.4	39	3.45	77	6.8	24	4.6	3.0
8	3.45	9.7	5.7	1.9	5.1	13.2	3.45	61	9.0	11.1	4.1	3.0
9	2.9	20	4.4	2.0	8.2	90	2.9	37	10.5	7.4	5.1	6.1
10	4.5	6.8	4.8	2.2	31	18.1	2.45	18.6	4.4	10.9	4.2	13.3
11	8.7	8.1	6.9	1.8	8.5	22	11.7	16.8	26	6.6	3.7	4.1
12	3.9	6.8	4.5	1.8	21	69	4.1	31	13.7	6.0	4.3	3.1
13	2.7	5.4	4.6	1.8	8.0	14.3	2.35	12.5	12.4	29	4.3	3.0
14	2.35	7.0	13.1	1.8	9.3	9.4	2.2	13.4	37.5	26.5	3.7	5.5
15	2.25	11.6	16.7	4.0	71	7.6	2.2	8.7	31.5	10.0	3.45	22
16	11.1	8.6	22.5	10.7	15.6	6.3	89	7.6	12.1	6.8	3.45	4.7
17	3.4	4.2	6.3	3.4	7.0	5.5	105	29	17.0	10.1	3.45	3.35
18	2.25	10.1	6.0	7.4	5.2	4.8	16.5	8.3	8.0	10.2	3.35	3.35
19	2.1	12.4	4.4	3.75	4.7	4.5	6.2	6.3	14.4	7.3	3.35	3.2
20	2.45	6.4	3.65	2.65	4.0	5.7	4.2	6.0	8.0	67	24	a3.5
21	2.0	5.7	3.25	6.3	3.45	4.7	5.7	5.2	10.5	28	8.4	a5.0
22	1.6	3.8	2.7	11.3	3.55	3.9	292	4.7	6.9	16.2	5.3	a25
23	1.8	7.1	2.55	13.0	40	3.45	78	4.6	21.5	10.1	10.6	a5.2
24	1.6	133	24.5	7.2	11.8	3.35	70	4.2	21	93	4.6	a4.2
25	12.5	25	6.9	2.7	9.6	3.0	35	3.95	13.3	13.8	3.45	a3.8
26	3.7	10.9	3.25	2.9	6.0	2.8	176	3.55	13.1	11.6	3.2	a5.8
27	2.0	9.6	2.7	17.7	4.1	2.65	32	3.45	9.3	8.3	3.2	a35
28	14.2	6.0	2.65	12.2	3.45	2.45	42	3.2	15.6	7.8	3.2	a6.4
29	4.9	8.8	5.1	9.6	3.1	2.35	34.5	-	13.1	6.9	3.2	a5.8
30	14.3	20.5	3.35	17.0	2.8	2.35	33	-	32.5	17.7	3.1	a30
31	8.8	6.8	-	31.5	-	2.25	30.5	-	14.0	-	3.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	53	1.6	7.63	11.8	236	726
August	133	2.55	15.8	24.4	489	1,500
September	24.5	2.55	7.28	11.3	218	670
October	31.5	1.8	6.49	10.0	201	617
November	91	2.8	14.5	22.4	435	1,330
December	194	2.25	26.8	41.5	831	2,550
Calendar year 1945	221	1.6	13.2	20.4	4,820	14,790
January	292	2.2	35.5	54.9	1,100	3,380
February	77	3.2	16.4	25.4	459	1,410
March	37.5	3.2	13.7	21.2	423	1,300
April	93	6.0	17.5	27.1	526	1,610
May	24	3.1	5.19	8.03	161	494
June	55	3.0	7.59	11.7	228	698
Fiscal year 1945-46	292	1.6	14.5	22.4	5,310	16,280

a No gage-height record; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 17 years (1920-29, 1938-46), 7.56 million gallons a day (11.7 second-feet).

Extremes.- Maximum discharge during year ending June 30, 1945, 475 million gallons a day (735 second-feet) Nov. 8 (gage height, 5.96 feet), from rating curve extended above 140 million gallons a day by logarithmic plotting; minimum daily, 2.35 million gallons a day (3.64 second-feet) Sept. 15, Feb. 10.

Maximum discharge during year ending June 30, 1946, 393 million gallons a day (608 second-feet) Nov. 2 (gage height, 5.48 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) Oct. 14.

1919-29, 1937-46: 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. No diversions.

Discharge, in million gallons a day, 1944-46

1944-45

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.4	4.3	2.8	2.95	9.5	13.4	4.2	2.55	3.05	3.05	4.7	a2.6
2	5.9	3.75	3.05	2.95	6.3	8.8	4.1	2.55	3.15	3.05	5.2	a3.4
3	7.9	3.5	2.8	3.4	5.3	10.8	3.85	2.55	4.2	5.9	4.1	a3.4
4	5.9	3.5	2.8	2.95	6.0	10.8	3.75	2.6	8.3	3.4	3.95	3.2
5	4.8	3.3	2.7	2.95	13.1	8.0	3.6	2.6	6.2	3.3	3.75	9.6
6	4.5	3.3	2.95	2.95	7.1	23	3.6	2.9	3.85	100	3.85	3.4
7	4.3	3.3	3.3	2.8	22	36	3.5	2.55	4.5	73	3.85	2.95
8	4.3	3.4	2.6	2.8	54	21.5	3.3	2.45	34	135	3.6	3.15
9	3.85	3.5	2.55	2.8	14.3	9.0	3.3	2.45	11.0	25	3.4	3.3
10	4.2	3.5	2.45	2.8	11.1	7.1	3.15	2.35	5.8	12.3	3.4	3.15
11	3.6	3.15	2.45	2.95	7.7	6.6	3.15	8.8	6.7	9.0	3.3	3.15
12	3.85	3.05	2.8	2.8	6.1	5.6	3.5	3.6	4.9	7.9	3.15	2.8
13	3.5	3.05	2.45	2.7	6.9	5.2	3.15	2.7	7.0	12.7	3.15	2.8
14	5.4	2.95	2.45	2.7	6.4	4.8	3.15	5.4	4.5	28	3.05	2.55
15	3.6	2.9	2.35	2.7	7.5	10.5	3.05	3.3	3.95	37	3.2	2.45
16	4.8	2.8	3.4	3.75	5.2	5.7	6.8	2.9	4.3	28.5	3.4	3.05
17	5.9	2.9	12.5	17.2	7.6	4.6	3.85	3.7	7.6	14.6	2.95	2.9
18	6.2	2.8	5.1	5.1	7.3	4.8	3.4	2.95	7.6	11.0	2.95	2.8
19	5.3	2.8	3.15	3.4	5.6	4.3	3.05	2.8	8.3	8.6	2.95	2.6
20	4.9	2.7	3.85	3.15	5.9	4.5	3.3	2.7	6.6	7.7	d2.9	4.0
21	4.9	2.7	5.5	3.3	8.5	4.2	3.5	2.8	4.9	7.1	d2.8	4.0
22	4.2	3.05	3.4	5.1	5.8	9.1	5.0	4.5	4.2	6.6	d2.8	3.05
23	3.6	2.8	2.95	3.4	5.3	13.2	2.95	2.95	3.85	7.0	d2.8	6.9
24	22.5	2.7	2.8	3.45	10.6	10.9	2.9	2.9	5.4	7.6	d2.7	3.3
25	9.6	2.8	2.7	22	6.7	7.1	2.8	3.7	3.95	5.9	a2.7	3.05
26	5.3	3.05	2.6	12.2	5.0	26	2.7	3.75	3.5	5.3	a2.7	3.05
27	22.5	3.05	2.7	11.2	4.8	7.1	2.7	4.1	3.3	5.0	a2.7	2.7
28	7.0	3.05	11.2	6.3	5.3	5.8	2.6	3.5	5.9	4.9	a2.6	2.6
29	5.3	4.5	3.3	8.9	7.9	5.2	2.6	-	5.7	4.8	a2.6	2.7
30	4.6	2.95	3.05	19.0	6.4	4.8	2.6	-	3.6	4.5	a2.6	2.7
31	4.2	2.95	-	9.0	-	4.5	2.55	-	3.3	-	a2.6	-

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

d Doubtful gage-height record; discharge computed on basis of records for Pulena, Waikolu and Halawa Streams.

Discharge, in million gallons a day, of Waiakeakua Stream near Wailau, Molokai, 1944-46--Continued

	1945-46											
Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.6	3.1	3.8	2.6	3.8	2.9	2.4	6.2	3.7	5.9	4.0	2.6
2	5.7	3.2	3.8	3.2	70	6.1	2.4	5.6	4.2	6.3	3.8	2.8
3	3.3	2.7	3.7	3.1	10.3	13.2	2.4	5.3	3.9	8.0	3.7	2.7
4	3.0	2.7	3.8	2.8	5.8	9.8	2.4	4.9	6.0	5.4	3.6	2.7
5	4.2	20.5	3.9	2.8	5.6	44	2.3	4.7	3.7	7.6	3.4	2.6
6	4.0	9.4	4.1	2.6	4.5	9.9	5.4	5.2	8.4	5.0	3.4	2.5
7	2.9	5.1	4.7	2.4	4.2	6.8	3.1	7.0	4.4	10.2	3.4	2.5
8	2.7	4.2	3.7	2.4	4.0	5.3	2.8	16.4	6.0	5.4	3.3	2.6
9	2.6	4.8	3.4	2.5	9.6	22	2.8	7.3	4.6	5.6	3.2	2.7
10	3.2	3.8	3.5	2.4	11.6	6.6	2.5	6.0	5.2	6.0	3.1	3.0
11	3.6	4.2	4.5	2.3	5.4	6.2	12.8	5.2	10.6	4.9	3.0	2.6
12	2.7	3.4	3.4	2.3	4.8	17.9	4.3	6.2	6.0	4.7	3.1	2.6
13	2.6	3.2	3.4	2.3	5.4	6.6	3.9	5.6	6.3	6.2	3.1	2.5
14	2.5	3.4	6.4	2.3	4.3	5.4	3.7	5.2	13.3	6.3	3.0	2.7
15	2.6	6.4	6.0	2.6	17.4	4.6	4.2	4.4	10.9	4.5	3.0	2.9
16	5.0	4.0	6.6	3.0	5.4	4.2	65	8.6	6.6	4.2	3.0	2.6
17	2.7	3.4	4.3	2.3	4.3	3.8	55	31	5.9	5.3	2.9	2.6
18	2.6	5.0	3.9	3.4	3.9	3.6	15.5	7.1	5.3	4.5	2.8	2.7
19	2.6	3.8	3.4	2.5	3.6	3.4	8.6	5.9	6.6	4.2	2.9	2.7
20	2.5	4.4	3.3	2.5	3.4	3.6	6.8	5.4	5.2	23	4.5	2.9
21	2.4	3.7	3.2	2.4	3.3	3.2	6.0	4.9	7.3	8.3	3.0	3.2
22	2.3	3.3	3.0	2.5	3.4	3.0	72	4.6	5.2	6.3	3.0	3.6
23	2.4	5.0	2.9	2.6	11.3	3.0	20	4.4	11.3	5.4	3.4	3.2
24	2.3	28.5	3.0	2.5	4.8	2.9	17.9	4.2	8.6	23	2.9	2.9
25	3.5	8.4	2.9	2.5	3.9	2.8	10.9	4.1	6.8	6.2	2.7	2.7
26	2.4	5.7	2.7	2.6	3.5	2.7	52	4.0	6.3	5.8	2.7	3.2
27	2.4	4.6	2.7	6.6	3.3	2.7	12.8	3.8	8.6	4.7	2.7	7.0
28	3.6	4.1	2.6	3.9	3.2	2.6	8.8	3.7	7.6	4.4	2.6	3.2
29	2.5	4.6	3.1	6.5	3.0	2.6	7.3	-	6.3	4.2	2.6	3.2
30	4.5	7.1	2.7	7.5	3.0	2.5	8.4	-	11.3	6.1	2.6	6.0
31	3.2	4.2	-	6.4	-	2.5	8.0	-	7.1	-	2.5	-

Monthly discharge, in million gallons, 1944-46

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 1944	22.5	3.5	6.54	10.1	203	622
August	4.5	2.7	3.16	4.89	98.0	301
September	12.5	2.35	3.62	5.60	109	334
October	22	2.7	5.80	8.97	180	551
November	54	4.8	9.37	14.5	281	863
December	36	4.2	9.77	15.1	303	930
Calendar year 1944	113	2.35	6.47	10.0	2,370	7,270
January 1945	6.8	2.55	3.41	5.28	106	324
February	8.8	2.35	3.31	5.12	92.6	284
March	34	3.05	6.23	9.64	193	593
April	135	3.05	19.6	30.3	588	1,800
May	5.2	2.6	3.24	5.01	100	308
June	9.6	2.45	3.38	5.23	101	311
Fiscal year 1944-45	135	2.35	6.45	9.98	2,350	7,220
July 1945	13.6	2.3	3.42	5.29	106	326
August	28.5	2.7	5.80	8.97	180	552
September	6.6	2.6	3.75	5.80	112	345
October	7.5	2.3	3.17	4.90	98.3	302
November	70	3.0	7.67	11.9	230	706
December	44	2.5	6.98	10.8	216	664
Calendar year 1945	135	2.3	5.82	9.00	2,120	6,520
January 1946	72	2.3	13.9	21.5	432	1,330
February	31	3.7	6.68	10.3	187	574
March	13.3	3.7	6.88	10.6	213	654
April	23	4.2	6.92	10.7	208	637
May	4.5	2.5	3.13	4.84	96.9	297
June	7.0	2.5	3.06	4.73	91.7	281
Fiscal year 1945-46	72	2.3	5.95	9.21	2,170	6,670

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.
Average discharge.- 18 years (1920-28, 1938-46), 21.4 million gallons a day (33.1 second-feet).
Extremes.- Maximum discharge during year, 3,340 million gallons a day (5,170 second-feet) Nov. 2 (gage height, 7.15 feet), from rating curve extended above 220 million gallons a day by logarithmic plotting; minimum, 3.4 million gallons a day (5.3 second-feet) July 26.
1919-28, 1937-46: Maximum discharge, 11,400 million gallons a day (17,600 second-feet) Mar. 18, 1943 (gage height, 11.68 feet), from rating curve extended above 220 million gallons a day by logarithmic plotting; 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.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used July 1 to Nov. 2)

0.8	3.0	1.4	20	2.8	180
.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		
1.2	12.2	2.4	110		

Discharge, in million gallons, fiscal year July1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	24.5	7.8	13.6	5.8	13.9	6.4	5.3	27	9.0	24.5	15.1	4.9
2	9.5	10.1	15.3	9.1	325	23.5	5.1	21	11.6	22.5	13.3	4.5
3	6.2	5.3	12.6	7.8	52	37	4.9	19.2	9.9	40	12.2	5.2
4	5.3	5.1	15.9	7.2	24.5	22	4.9	17.1	23	22	11.2	6.2
5	6.2	44	17.1	8.5	24	41	4.7	15.4	9.0	27	10.9	4.7
6	6.6	35	14.4	5.8	18.4	22.5	18.7	14.7	21.5	17.9	10.3	4.5
7	4.9	15.1	16.6	5.3	21.5	17.9	9.3	14.8	14.8	25	11.3	4.5
8	4.5	10.9	11.2	5.1	20	13.6	10.3	26.5	24.5	17.9	10.0	4.8
9	4.4	11.0	9.6	5.8	42	29	7.3	30.5	19.8	19.8	10.0	7.8
10	7.0	8.8	10.6	4.9	63	16.2	5.8	20.5	13.6	23.5	8.8	12.6
11	10.0	12.5	11.8	4.5	31	15.7	46	16.1	44	15.1	8.3	5.1
12	5.1	8.3	9.3	4.5	20.5	37.5	12.0	24.5	24	14.4	8.8	4.4
13	4.4	7.1	10.0	4.4	17.1	17.9	8.3	18.3	24.5	17.5	8.0	4.2
14	4.4	8.3	27	4.4	14.4	14.4	7.3	18.2	63	19.9	7.8	6.6
15	4.4	35	18.3	5.6	38.5	12.2	8.4	13.6	53	16.4	7.3	7.2
16	9.8	18.7	19.8	7.5	19.6	10.9	186	37	31	12.6	7.6	4.5
17	4.5	10.6	13.6	4.9	14.7	10.3	290	174	24.5	16.3	6.6	4.5
18	4.2	13.5	11.6	8.0	12.6	9.3	72	39.5	22	18.6	6.4	4.7
19	4.2	15.6	9.3	5.1	11.2	9.0	35	25.5	27.5	13.6	6.8	5.1
20	4.4	22.5	8.8	7.1	10.3	12.0	24	20.5	19.2	93	17.9	6.2
21	3.9	16.2	8.0	6.0	9.3	9.0	19.6	17.1	33	42	8.5	13.0
22	3.8	10.6	7.6	5.8	9.6	8.0	324	15.1	19.2	30	7.3	12.5
23	3.9	22	6.8	8.0	26.5	7.8	91	14.0	33	23.5	8.2	6.4
24	3.9	76	6.6	5.6	12.7	7.3	70	12.9	27.5	70	6.2	5.6
25	7.2	34	6.4	5.1	10.0	7.1	47	11.9	24	32.5	5.6	4.7
26	3.9	20.5	6.2	8.2	8.8	6.6	290	10.9	25.5	28	5.3	6.3
27	4.0	15.4	5.8	19.4	8.0	6.4	76	10.3	32	19.6	5.6	24
28	8.6	12.6	5.8	14.9	7.6	6.2	43	9.6	42	17.9	5.1	6.4
29	4.5	15.5	13.0	22	7.1	6.0	31	-	27.5	16.2	5.1	5.7
30	14.8	24	7.7	40	6.6	5.8	38	-	48	27	4.9	23.5
31	8.4	15.6	-	29	-	5.6	42	-	36	-	4.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	24.5	3.8	6.50	10.1	201	618
August	76	5.1	18.3	28.3	568	1,740
September	27	5.8	11.7	18.1	350	1,080
October	40	4.4	9.20	14.2	285	876
November	325	6.6	30.0	46.4	900	2,760
December	41	5.6	14.6	22.6	454	1,390
Calendar year 1945	698	3.8	20.0	30.9	7,310	22,450
January	324	4.7	59.3	91.8	1,840	5,640
February	174	9.6	24.8	38.4	696	2,140
March	63	9.0	27.0	41.8	837	2,570
April	93	12.6	26.1	40.4	784	2,410
May	17.9	4.7	8.55	13.2	265	814
June	24	4.2	7.34	11.4	220	676
Fiscal year 1945-46	325	3.8	20.3	31.4	7,400	22,710

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 16 years (1920-28, 1938-46), 10.3 million gallons a day (15.9 second-feet).

Extremes.- Extremes during fiscal year 1944-45 not determined owing to indefinite stage-discharge relation.

Maximum discharge during year ending June 30, 1946, 298 million gallons a day (461 second-feet) Jan. 22 (gage height, 3.02 feet), from rating curve extended above 15 million gallons a day by logarithmic plotting; minimum, 2.0 million gallons a day (3.1 second-feet) July 21, 26, 27.

1919-29, 1937-46: 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 July 1 to May 25, 1946, poor remainder of period. No diversions.

Discharge, in million gallons a day, 1944-46

1944-45

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	21	4.0	3.2	3.0	7.5	17.5	4.6	3.3	6.5	5.3	6.6	2.6
2	9.1	3.6	4.6	3.0	6.2	14.2	4.4	3.2	11.4	5.0	5.5	2.8
3	11.2	3.6	3.3	4.0	5.3	10.7	4.4	3.2	12.5	6.9	4.4	2.7
4	8.4	3.7	3.2	3.0	6.0	9.9	4.4	4.2	29	5.2	4.1	2.7
5	7.3	3.5	3.1	2.9	12.5	8.9	4.4	4.2	23	5.5	3.8	5.0
6	6.9	3.5	3.2	2.9	7.1	25	4.4	9.1	17.7	74	5.1	2.9
7	5.8	3.6	3.3	2.9	11.8	33.5	4.2	4.0	11.9	180	6.6	2.6
8	5.3	5.8	3.0	3.0	58	29	4.0	3.6	15.2	207	4.1	2.9
9	5.0	4.7	2.9	3.0	29	16.0	4.0	3.5	14.3	46	3.7	3.1
10	4.9	4.7	2.9	3.0	15.4	11.2	4.0	3.4	10.7	18.0	3.6	2.6
11	4.5	3.7	2.8	3.7	11.6	10.4	4.0	3.4	13.1	11.5	3.5	3.1
12	4.7	3.5	3.2	3.2	8.8	8.4	4.4	3.3	9.9	9.6	3.4	2.8
13	4.6	3.5	3.0	3.2	7.9	7.3	4.0	3.3	22.5	23.5	3.3	2.6
14	6.2	3.4	2.9	3.6	9.0	6.7	4.4	4.6	13.1	24.5	3.2	2.5
15	4.9	3.3	2.8	3.4	9.5	9.2	4.2	4.0	9.9	43	3.2	2.4
16	4.1	3.2	3.3	3.7	7.5	7.8	5.7	3.7	13.6	27.5	3.3	2.4
17	4.1	3.3	5.5	24	7.9	6.2	4.9	5.0	15.5	15.5	3.1	2.4
18	4.0	3.2	4.7	7.5	9.9	6.2	4.5	3.8	15.1	10.7	3.1	2.4
19	3.7	3.2	3.4	4.1	8.0	6.2	4.0	3.5	13.1	8.4	3.0	2.4
20	5.3	3.1	4.7	3.7	8.5	7.1	3.8	3.4	11.5	7.1	2.9	2.6
21	5.2	3.1	3.6	3.7	14.1	6.0	6.4	3.7	8.8	6.7	2.9	3.1
22	4.9	3.4	3.2	4.4	13.8	7.1	8.4	8.2	7.8	6.2	2.8	2.6
23	4.0	3.2	3.2	4.1	14.3	7.4	4.1	4.4	6.9	8.4	2.8	3.5
24	10.4	3.2	3.1	3.5	9.6	10.2	3.8	6.8	7.8	7.2	2.8	2.6
25	6.9	4.7	3.0	20.5	7.8	7.1	3.7	11.6	6.7	5.8	2.8	2.5
26	5.0	4.5	3.0	8.8	6.7	26	3.6	8.0	5.8	5.2	2.8	3.2
27	6.2	4.2	3.0	7.5	6.5	10.4	3.6	14.2	5.7	4.9	2.7	2.8
28	4.9	3.5	3.0	5.5	6.6	8.0	3.6	7.8	9.6	4.7	2.6	2.4
29	4.2	3.8	2.9	5.8	10.2	6.9	3.5	-	8.5	4.6	2.6	2.5
30	4.0	3.3	2.9	6.9	9.6	6.4	3.4	-	6.2	4.5	2.6	2.4
31	3.8	3.2	-	6.7	-	5.2	3.4	-	5.7	-	2.6	-

Discharge, in million gallons a day, of Pelekunu Stream near Pelekunu, Molokai, 1944-46--Continued

1945-46

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.2	3.1	4.1	3.2	7.4	2.7	2.3	14.1	5.6	12.8	6.8	3.8
2	3.1	3.3	4.4	3.5	27	13.6	2.2	11.4	5.9	11.4	6.1	3.6
3	2.7	2.4	4.1	3.2	15.1	28	2.2	9.6	5.6	18.1	5.9	3.9
4	2.6	2.3	5.0	3.0	8.5	10.3	2.2	8.8	8.7	11.8	5.4	4.3
5	2.5	9.1	5.5	3.3	7.6	8.5	2.6	7.9	5.4	11.9	5.4	3.7
6	2.6	9.3	4.4	2.8	7.4	6.6	24	7.4	7.4	9.6	5.2	3.6
7	2.4	4.0	4.4	2.7	9.3	6.8	4.5	7.4	6.8	10.7	5.9	3.6
8	2.4	3.2	3.5	2.6	7.3	5.2	4.4	7.8	11.3	9.0	5.2	3.8
9	2.3	3.0	3.2	2.7	13.6	9.3	3.3	9.9	10.8	9.3	5.4	4.5
10	2.5	2.9	3.2	2.5	32.5	6.3	3.0	8.2	7.1	9.6	4.5	5.4
11	2.9	3.5	3.2	2.4	13.6	5.6	24.5	6.8	12.0	7.9	4.5	4.0
12	2.4	2.9	3.0	2.3	9.0	13.3	6.6	8.1	10.0	7.4	4.5	3.7
13	2.2	2.6	3.1	2.3	7.6	6.8	4.4	6.8	10.9	8.2	4.4	3.5
14	2.2	2.7	7.4	2.2	6.3	5.6	3.8	6.8	30.5	8.8	4.2	4.4
15	2.2	7.3	5.0	2.5	5.6	5.0	5.7	6.1	27	7.9	4.2	4.6
16	3.2	6.0	5.2	3.2	4.5	4.2	84	24.5	15.8	6.6	4.2	3.6
17	2.3	3.5	4.2	2.6	4.1	3.8	143	73	13.8	6.6	4.1	3.6
18	2.2	3.5	3.7	3.1	3.8	3.7	45	20	12.8	6.8	4.0	3.8
19	2.1	5.4	3.2	2.7	3.6	3.6	18.5	12.8	15.0	6.1	4.0	4.0
20	2.2	6.6	3.0	3.1	3.3	4.4	12.1	10.7	10.3	26.5	6.2	4.4
21	2.0	5.3	2.9	3.0	3.2	3.6	9.6	9.0	13.4	13.2	4.4	5.8
22	2.1	3.7	2.8	2.6	3.2	3.2	86	8.2	10.0	10.7	4.1	5.7
23	2.4	4.6	2.7	3.3	6.0	3.0	36	7.6	13.5	9.0	4.1	4.5
24	2.3	18.1	2.7	2.7	3.6	2.9	22.5	7.1	10.7	23	3.8	4.2
25	2.6	9.0	2.7	2.5	3.2	2.8	22	6.8	10.7	12.1	3.8	3.8
26	2.1	6.1	2.6	3.4	3.1	2.7	83	6.3	11.4	11.8	3.7	4.5
27	2.0	4.5	2.5	10.8	2.9	2.6	33.5	6.1	14.6	8.5	3.8	8.0
28	2.8	3.8	2.5	7.8	2.8	2.5	18.5	5.9	18.4	7.9	3.7	4.5
29	2.3	4.2	10.2	9.3	2.7	2.5	13.6	-	13.2	7.4	3.7	4.2
30	4.0	7.3	4.6	12.6	2.7	2.4	16.5	-	22.5	9.6	3.7	7.6
31	3.1	4.4	-	14.9	-	2.4	22.5	-	17.5	-	3.6	-

Monthly discharge, in million gallons, 1944-46

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 1944	21	3.7	6.15	9.52	190	585
August	5.8	3.1	3.68	5.69	114	350
September	5.5	2.8	3.33	5.15	99.9	307
October	24	2.9	5.43	8.40	168	516
November	58	5.3	11.6	17.9	347	1,060
December	33.5	5.2	11.4	17.6	352	1,080
Calendar year 1944	102	2.15	8.43	13.0	3,080	9,460
January 1945	8.4	3.4	4.33	6.70	134	412
February	14.2	3.2	5.16	7.98	144	443
March	29	5.7	11.9	18.4	369	1,130
April	207	4.5	26.4	40.8	792	2,430
May	6.6	2.6	3.53	5.46	110	336
June	5.0	2.4	2.77	4.29	83.1	255
Fiscal year 1944-45	207	2.4	7.96	12.3	2,900	8,900
July 1945	4.2	2.0	2.55	3.95	78.9	242
August	18.1	2.3	5.08	7.86	158	484
September	10.2	2.5	3.97	6.14	119	365
October	14.9	2.2	4.15	6.42	129	395
November	32.5	2.7	7.68	11.9	230	707
December	28	2.4	5.93	9.18	184	564
Calendar year 1945	207	2.0	6.94	10.7	2,530	7,760
January 1946	143	2.2	24.6	38.1	762	2,340
February	73	5.9	11.6	17.9	325	998
March	30.5	5.4	12.5	19.3	389	1,190
April	26.5	6.1	10.7	16.6	320	983
May	6.8	3.6	4.60	7.12	142	437
June	8.0	3.5	4.42	6.84	133	407
Fiscal year 1945-46	143	2.0	8.14	12.6	2,970	9,110

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Lanipuni Stream near Pelekunu

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

Drainage area.- 0.8 square mile.

Records available.- December 1910 to September 1929, September 1937 to June 1946.

Average discharge.- 17 years (1920-29, 1938-46), 9.57 million gallons a day (14.8 second-feet).

Extremes.- Not determined for period 1944-46 owing to indefinite stage-discharge relation. 1919-29, 1937-46: 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 a day, 1944-46

1944-45

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	36	4.2	3.2	3.0	5.6	22.5	4.4	3.1	5.0	5.0	8.5	2.55
2	11.6	3.8	5.7	3.0	3.4	16.1	4.2	3.0	9.0	4.5	6.0	3.35
3	23	3.6	3.2	3.8	2.9	10.7	3.85	3.0	11	6.0	4.2	3.45
4	12.2	3.6	3.1	2.9	4.1	7.8	3.8	3.4	40	5.0	4.0	2.9
5	8.6	3.6	3.1	2.9	13.0	8.7	3.8	3.2	20	7.0	3.85	7.1
6	8.0	3.5	3.5	2.8	3.65	41	3.8	3.8	14	50	4.0	2.9
7	5.7	3.8	3.5	2.8	8.3	60	3.8	3.1	10	f94	3.85	2.65
8	5.0	13.0	3.0	2.8	31	37	3.6	3.0	22	150	3.5	3.4
9	5.0	5.4	2.9	2.8	17.4	13.0	3.6	3.0	13	25.5	3.4	3.15
10	5.0	5.9	3.0	2.6	13.3	7.5	3.6	3.0	8.0	14.2	3.25	2.4
11	4.4	4.2	2.9	2.9	8.1	6.7	3.6	3.0	13	10.2	3.15	3.25
12	4.9	3.8	3.5	3.0	5.0	4.5	4.0	2.9	7.0	9.1	3.15	2.8
13	4.4	4.0	3.0	2.9	4.1	3.5	3.6	3.0	30	21	3.0	2.55
14	10.8	3.6	3.0	3.1	4.7	3.25	4.1	5.4	10	25.5	3.0	2.3
15	4.9	3.5	2.8	2.9	11.4	11.0	4.0	4.4	7.0	45	3.15	2.3
16	4.5	3.4	3.4	5.9	5.0	5.1	6.0	3.5	15	30	3.15	2.3
17	4.9	3.5	14.9	39	6.4	3.4	4.5	5.8	17	17.7	f2.9	2.4
18	4.4	3.2	5.7	11.3	13.5	4.0	3.8	3.9	16	11.3	2.9	2.3
19	3.8	3.2	4.2	4.9	6.6	3.25	3.6	3.7	12	8.6	2.8	2.9
20	7.5	3.1	7.3	4.2	8.6	4.5	3.5	3.6	10	7.0	2.8	3.15
21	8.3	3.2	4.2	4.2	18.0	3.15	35	3.6	8.0	6.6	2.8	5.0
22	6.1	3.5	3.6	4.7	14.4	4.4	80	6.0	7.0	5.9	2.6	3.5
23	5.0	3.5	3.4	5.9	10.5	7.0	15	3.5	6.0	6.8	2.6	8.0
24	19.9	3.2	3.2	4.5	6.6	8.3	7.8	7.0	9.0	6.1	2.6	3.15
25	9.7	5.7	3.1	51	4.7	3.9	5.2	14	6.0	5.0	2.6	3.35
26	5.9	7.3	3.0	22.5	3.85	26	4.0	6.0	5.0	4.7	f2.65	3.5
27	12.7	4.2	3.1	12.8	4.5	10.6	3.5	18	5.0	4.4	2.55	3.4
28	7.0	4.0	3.0	5.4	5.7	7.5	3.5	6.0	10	4.2	2.55	2.8
29	5.0	5.0	2.9	4.7	7.6	6.1	3.4	-	9.0	4.2	2.65	2.8
30	4.5	3.6	2.9	4.9	7.2	5.4	3.2	-	6.0	4.0	2.55	2.65
31	4.2	3.4	-	4.8	-	4.9	3.2	-	5.4	-	2.55	-

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

Note.- No gage-height record Jan. 4-26, Feb. 16 to Apr. 6; discharge computed on basis of records for stations on nearby streams.

Discharge, in million gallons a day, of Lanipuni Stream near Pelekunu, Molokai, 1944-46--Continued

1945-46

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.4	4.3	5.3	3.0	7.2	2.6	2.4	6.0	3.2	7.0	4.2	2.7
2	4.4	4.3	4.9	3.9	16	11	2.4	5.4	3.2	6.7	4.1	2.6
3	3.2	3.2	5.1	3.2	12	23	2.3	5.2	3.0	9.0	4.0	2.6
4	2.9	3.0	6.4	3.1	7.0	8.5	2.3	4.8	3.3	7.2	3.8	2.7
5	2.7	24	7.3	3.0	6.3	6.8	2.2	4.5	3.0	7.0	3.7	2.6
6	2.6	16.5	6.5	2.8	6.0	5.6	19	4.5	5.5	7.0	3.7	2.5
7	2.6	6.4	5.5	2.6	6.5	5.8	4.2	4.5	3.2	7.2	3.7	2.5
8	2.6	4.9	4.4	2.8	5.8	4.5	3.8	4.8	3.2	6.6	3.6	2.6
9	2.5	5.5	4.2	2.8	11	7.0	3.2	5.0	5.5	6.5	3.4	2.8
10	3.3	4.3	4.3	2.6	18	5.2	2.9	4.4	4.9	7.0	3.3	3.1
11	3.8	6.8	4.0	2.5	9.6	4.7	20	4.0	6.9	6.0	3.2	2.7
12	2.5	4.2	3.7	2.5	7.4	14	5.6	4.5	8.3	5.3	3.4	2.5
13	2.4	3.6	4.3	2.5	5.5	6.0	4.0	4.0	4.2	6.0	3.3	2.4
14	2.5	3.8	8.6	2.5	4.6	5.0	3.4	3.8	13.2	6.2	3.3	2.9
15	2.5	14.3	7.1	3.0	4.2	4.5	5.0	3.6	5.6	5.0	3.2	3.0
16	4.2	7.2	5.2	3.7	3.8	4.1	70	4.6	5.6	4.5	3.1	2.7
17	2.5	4.4	5.4	3.1	3.6	3.7	80	46	7.2	4.4	3.1	2.7
18	2.5	5.4	4.2	4.0	3.4	3.5	26	9.4	34	4.2	3.1	2.7
19	2.5	8.3	3.7	3.2	3.2	3.3	13	5.6	23	4.0	3.1	2.8
20	2.6	6.8	3.5	3.7	3.1	3.3	9.8	4.6	10.5	25	8.0	2.8
21	2.3	6.4	3.3	3.2	3.1	3.1	8.0	4.0	8.7	11	3.1	3.0
22	2.4	4.4	3.2	2.9	3.1	3.0	80	3.7	8.4	9.2	3.1	3.8
23	2.3	6.6	3.2	2.6	5.2	2.8	21	3.6	6.8	8.0	3.2	3.2
24	2.2	28.5	3.0	2.6	3.2	2.8	19	3.5	9.8	20	2.9	3.0
25	2.8	9.8	3.0	2.5	3.0	2.8	15	3.3	6.2	6.6	2.8	2.9
26	2.2	6.4	2.9	3.5	2.8	2.8	55	3.3	9.5	6.4	2.8	4.0
27	2.6	5.0	2.8	8.0	2.7	2.7	19	3.2	6.4	5.2	2.8	8.2
28	3.2	4.4	2.8	6.5	2.6	2.7	9.6	3.2	7.1	4.7	2.7	4.0
29	2.5	5.2	5.9	7.5	2.6	2.7	6.5	-	9.2	4.4	2.7	4.0
30	8.0	8.1	3.3	9.0	2.5	2.6	7.4	-	7.2	6.0	2.7	8.2
31	3.9	5.6	-	11	-	2.5	9.2	-	7.8	-	2.6	-

Note.- No gage-height record Oct. 15-20, 27-31, Nov. 2 to Dec. 23, Dec. 30 to Feb. 13, Apr. 1 to May 4, May 13-22, May 25 to June 30; discharge computed on basis of records for stations on nearby streams.

Monthly discharge, in million gallons, 1944-46

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 1944	36	3.8	8.48	13.1	263	807
August	13.0	3.1	4.27	6.61	132	407
September	14.9	2.8	3.91	6.05	117	360
October	51	2.6	7.58	11.7	235	721
November	31	2.9	8.64	13.4	259	795
December	60	3.15	11.6	17.9	361	1,110
Calendar year 1944	96	1.50	7.40	11.4	2,710	8,320
January 1945	80	3.2	7.84	12.1	243	746
February	18	2.9	4.82	7.46	135	414
March	40	5.0	11.8	18.3	365	1,120
April	150	4.0	20.0	30.9	598	1,840
May	8.5	2.55	3.33	5.15	103	317
June	8.0	2.3	3.28	5.07	98.2	302
Fiscal year 1944-45	150	2.3	7.97	12.3	2,910	8,940
July 1945	8.4	2.2	3.15	4.87	97.6	300
August	28.5	3.0	7.47	11.6	232	711
September	8.6	2.8	4.57	7.07	137	420
October	11	2.5	3.86	5.97	120	368
November	18	2.5	5.83	9.02	175	537
December	23	2.5	5.25	8.12	163	499
Calendar year 1945	150	2.2	6.76	10.5	2,470	7,570
January 1946	80	2.2	17.1	26.5	531	1,630
February	46	3.2	5.96	9.22	167	513
March	34	3.0	7.86	12.2	244	748
April	25	4.0	7.44	11.5	223	685
May	8.0	2.6	3.41	5.28	106	324
June	8.2	2.4	3.27	5.06	98.2	301
Fiscal year 1945-46	80	2.2	6.28	9.72	2,290	7,040

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. June 1919 to November 1930 at site 500 feet upstream.

Extremes.- Maximum discharge during year, 1,460 million gallons a day (2,260 second-feet) Jan. 22 (gage height, 5.96 feet), from rating curve extended above 42 million gallons a day by logarithmic plotting; minimum, 2.6 million gallons a day (4.0 second-feet) Nov. 27.

1919-32, 1937-46: 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 except those for periods of fragmentary records, which are fair, and those for periods of no gage-height record, which are poor. Kalaupapa water-supply system diverts water above station.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

1.1	2.0	1.5	11.9	2.2	58
1.2	3.6	1.6	16.0	2.6	106
1.3	5.8	1.8	26.5	3.0	172
1.4	8.5	2.0	40	3.5	285

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.7	5.1	4.0	3.6	4.9	3.3	3.6	8.4	a4.0	a7.4	4.7	4.0
2	4.5	5.4	4.0	3.6	4.9	27.5	3.6	6.3	a4.0	f4.7	4.3	3.8
3	4.3	4.5	4.5	3.5	5.3	40	3.6	5.8	a4.9	13.6	5.8	4.3
4	4.0	4.0	5.1	3.5	3.8	8.5	3.6	5.6	a9.5	5.8	5.1	4.3
5	4.0	9.9	6.1	3.5	3.6	6.3	3.6	5.4	a3.8	6.4	4.7	4.0
6	4.0	13.5	4.5	3.5	3.6	5.1	27.5	5.4	a7.4	4.9	4.7	4.0
7	4.0	5.1	5.6	3.3	4.7	6.8	5.4	5.4	a5.4	6.4	4.7	3.8
8	4.0	4.5	4.0	3.5	4.0	5.4	4.0	5.1	f7.4	6.0	4.0	4.0
9	4.0	4.0	3.6	3.5	8.0	21.5	4.0	8.0	f11.3	6.1	3.8	4.0
10	4.0	4.0	3.6	3.3	36	7.3	3.5	8.0	a4.7	7.2	3.8	5.4
11	4.0	4.9	3.6	3.3	9.5	7.4	17.9	6.3	f9.5	5.4	4.3	4.5
12	4.0	4.5	3.8	3.3	5.1	16.5	5.3	13.7	a11.6	5.1	4.3	4.0
13	4.0	4.0	3.6	3.3	5.3	6.6	3.8	6.3	f10.4	5.4	4.3	4.0
14	4.0	3.8	4.3	3.3	5.1	5.4	3.5	5.6	41	6.1	4.3	4.0
15	4.0	5.4	4.7	3.3	4.5	4.9	3.6	5.4	20	6.6	4.0	5.4
16	4.0	6.9	5.8	3.5	4.3	4.7	119	33	a7.4	4.3	4.3	4.3
17	4.0	4.3	4.3	3.3	4.3	4.5	104	72	f8.4	4.0	4.0	4.0
18	3.8	4.0	4.5	3.5	4.0	4.5	14.8	fe.5	16.0	4.7	4.0	3.8
19	3.8	4.0	3.8	3.5	4.0	4.5	6.6	a6.3	f18.0	4.5	4.3	3.8
20	3.8	6.8	3.6	3.3	4.0	4.7	5.4	a5.6	f7.2	21	5.5	4.0
21	3.8	8.7	3.6	3.6	4.0	4.7	4.9	a5.4	f12.4	7.2	5.5	6.6
22	4.0	4.7	3.5	3.4	4.0	4.7	189	a5.1	a7.4	5.8	4.5	7.2
23	5.1	4.3	3.5	3.3	4.5	4.5	34	a5.1	f8.8	5.8	4.3	5.1
24	4.9	15.1	3.6	3.3	4.7	4.5	15.2	a4.9	a8.0	14.3	4.0	4.5
25	4.3	6.6	3.6	3.3	4.0	4.3	32.5	a4.9	f9.4	5.8	4.0	4.3
26	4.0	4.9	3.5	3.3	4.0	4.3	80	a4.3	10.6	7.0	3.8	4.0
27	4.0	4.0	3.5	8.9	3.6	4.3	13.0	a4.3	f9.2	5.1	3.8	5.6
28	4.3	3.8	3.5	9.3	3.3	4.0	7.7	a4.0	19.3	4.5	3.8	4.3
29	4.3	3.8	3.6	23	3.3	3.6	6.6	-	f10.2	4.5	3.8	4.0
30	5.e	5.1	3.6	12.2	3.3	3.6	14.8	-	a17.5	5.6	3.8	8.0
31	6.4	4.3	-	9.4	-	3.6	19.9	-	a16.0	-	3.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.4	3.8	4.25	6.58	132	404
August	15.1	3.8	5.61	8.68	174	534
September	6.1	3.5	4.08	6.31	122	376
October	23	3.3	4.89	7.57	152	465
November	36	3.3	5.59	8.65	168	514
December	40	3.3	7.79	12.1	242	741
Calendar year 1945	116	3.3	6.77	10.5	2,470	7,590
January	189	3.5	24.6	38.1	764	2,340
February	72	4.0	9.43	14.6	264	810
March	41	3.8	11.0	17.0	341	1,050
April	21	4.0	6.71	10.4	201	617
May	5.8	3.8	4.32	6.68	134	411
June	7.2	3.e	4.50	6.96	135	414
Fiscal year 1945-46	189	3.3	7.75	12.0	2,830	8,680

a No gage-height record; discharge computed on basis of records for stations on nearby streams.
f Fragmentary gage-height record; discharge computed on basis of partly estimated gage heights.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter.
To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum daily discharge during year, 0.015 million gallons a day (0.023 second-foot) Feb. 26, 27; minimum daily, 0.003 million gallons a day (0.005 second-feet) Jan. 29 to Feb. 24.
1940-46: Maximum daily discharge, 0.275 million gallons a day (0.425 second-foot) Mar. 11, 1942; minimum daily, that of Jan. 29 to Feb. 24, 1946.

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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.009	0.006	0.004	0.011	0.007	0.005	0.004	0.003	0.011	0.009	0.009	0.005
2	.009	.006	.004	.011	.007	.005	.004	.003	.010	.009	.009	.005
3	.008	.006	.004	.011	.006	.005	.004	.003	.010	.009	.009	.005
4	.008	.005	.004	.011	.006	.005	.005	.003	.010	.009	.009	.005
5	.008	.005	.004	.012	.006	.005	.005	.003	.010	.009	.009	.005
6	.008	.005	.004	.012	.006	.005	.005	.003	.010	.009	.009	.005
7	.008	.005	.004	.012	.006	.005	.005	.003	.010	.009	.008	.005
8	.008	.005	.004	.012	.006	.005	.005	.003	.010	.009	.008	.005
9	.008	.005	.004	.012	.006	.005	.005	.003	.010	.009	.008	.005
10	.008	.005	.004	.012	.006	.005	.005	.003	.010	.009	.008	.008
11	.007	.005	.004	.012	.006	.005	.005	.003	.010	.009	.008	.007
12	.006	.004	.004	.012	.006	.005	.005	.003	.010	.009	.008	.007
13	.005	.004	.004	.012	.006	.005	.005	.003	.010	.009	.008	.007
14	.005	.004	.004	.012	.006	.005	.005	.003	.010	.009	.008	.008
15	.005	.004	.004	.012	.006	.004	.005	.003	.010	.009	.008	.007
16	.005	.004	.004	.012	.006	.004	.005	.003	.010	.009	.008	.007
17	.005	.004	.004	.011	.006	.004	.005	.003	.010	.009	.008	.007
18	.005	.004	.004	.011	.006	.004	.005	.003	.010	.009	.008	.007
19	.005	.004	.004	.012	.006	.004	.005	.003	.010	.009	.007	.008
20	.005	.004	.004	.010	.006	.004	.005	.003	.010	.009	.007	.008
21	.005	.004	.004	.010	.005	.004	.005	.003	.010	.009	.006	.007
22	.007	.004	.004	.010	.005	.004	.004	.003	.010	.009	.005	.007
23	.007	.004	.004	.009	.005	.004	.004	.003	.010	.009	.005	.007
24	.007	.004	.007	.009	.005	.004	.004	.003	.010	.009	.005	.007
25	.007	.004	.012	.008	.005	.004	.004	.009	.010	.009	.005	.007
26	.007	.004	.011	.008	.005	.004	.004	.015	.010	.009	.005	.007
27	.006	.004	.011	.008	.005	.004	.004	.015	.009	.009	.005	.007
28	.006	.004	.011	.008	.005	.004	.004	.013	.009	.009	.005	.007
29	.006	.004	.011	.008	.005	.004	.003	-	.009	.009	.005	.007
30	.006	.004	.011	.007	.005	.004	.003	-	.009	.009	.005	.007
31	.006	.004	-	.007	-	.004	.003	-	.009	-	.005	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.009	0.005	0.007	0.011	0.205	0.6
August	.006	.004	.004	.006	.138	.4
September	.012	.004	.006	.009	.166	.5
October	.012	.007	.010	.016	.324	1.0
November	.007	.005	.006	.009	.172	.5
December	.005	.004	.004	.006	.138	.4
Calendar year 1945	.057	.004	.010	.016	3.51	11
January	.005	.003	.004	.006	.139	.4
February	.015	.003	.004	.006	.124	.4
March	.011	.009	.010	.016	.306	.9
April	.009	.009	.009	.014	.270	.8
May	.009	.005	.007	.011	.220	.7
June	.008	.005	.007	.011	.196	.6
Fiscal year 1945-46	.015	.003	.007	.011	2.40	7.2

Note.- No gage-height record July 11-15, Nov. 17 to Dec. 14; discharge computed on basis of probable decrease in flow.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 0.16 million gallons a day (0.25 second-foot) Jan. 26, 27 (gage height, 0.38 foot); no flow Dec. 29 to Jan. 12, Jan. 14, 15.
1940-46: 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 1945-46 (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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.01	0.01	0.01		0.01	0.01	0	0.11	0.02	0.04	0.03	0.01
2	.01	.01	.01		.01	.01	0	.10	.02	.04	.03	.01
3	.01	.01	.01	e.003	.02	.01	0	.09	.02	.05	.04	.01
4	.01	.01	.01		.02	.01	0	.08	.02	.05	.04	.01
5	.01	.01	.01		.02	.01	0	.08	.02	.05	.04	.01
6	.01	.01	.01	.01	.01	.01	0	.07	.02	.06	.04	.01
7	.01	.01	.01		.01	.01	0	.06	.02	.06	.05	.02
8	.01	.01	.01		.01	.01	0	.05	.02	.06	.04	.02
9	.01	.01	.01		.01	.01	0	.04	.02	.05	.04	.02
10	.01	.01	.01		.01	.01	0	.03	.02	.04	.03	.02
11	.01	.01	.01		.01	.01	0	.02	.02	.04	.03	.02
12	.01	.01			.01	.01	0	.02	.02	.04	.02	.02
13	.01	.01		e.003	.02	.01	e.002	.02	.03	.04	.02	.01
14	.01	.01	e.004		.03	.01	0	.02	.04	.04	.02	.01
15	.01	.01			.03	.01	0	.03	.05	.03	.02	.01
16	.01	.01			.03	.01	.01	.04	.06	.03	.01	.01
17	.01	.01	.01		.02	.01	.01	.05	.06	.02	.01	.01
18	.01	.01	.01		.02	.01	.02	.05	.06	.02	.01	.01
19	.01	.01	.01		.01	.01	.02	.05	.06	.02	.01	.01
20	.01	.01	.01		.01	.01	.03	.07	.06	.02	.01	.01
21	.01	.01	.01		.01	.01	.03	.07	.06	.01	.01	.01
22	.01	.01	.01		.01	.01	.04	.06	.06	.01	.01	.01
23	.01	.01	.01		.01	.01	.05	.05	.06	.02	.01	.01
24	.01	.01	.01		.01	.01	.05	.04	.06	.03	.02	.01
25	.01	.01	.01	e.002	.01		.05	.03	.06	.03	.02	.02
26	.01	.01	.01		.01	e.003	.11	.03	.05	.03	.02	.02
27	.01	.01	.01		.01		.16	.03	.05	.03	.02	.02
28	.01	.01	.01		.01		.14	.02	.05	.03	.02	.01
29	.01	.01			.01	0	.12	-	.05	.03	.01	.01
30	.01	.01	e.004		.01	0	.11	-	.05	.03	.01	.01
31	.01	.01	-		-	0	.11	-	.05	-	.01	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.01	0.01	0.01	0.016	0.31	0.951
August	.01	.01	.01	.016	.31	.951
September	.01	.004	.009	.014	.258	.792
October	.01	.002	.003	.005	.088	.27
November	.03	.01	.014	.022	.42	1.29
December	.01	0	.008	.012	.252	.773
Calendar year 1945	.42	0	.014	.022	5.17	15.8
January	.16	0	.034	.053	1.06	3.26
February	.11	.02	.05	.077	1.41	4.33
March	.06	.02	.041	.063	1.26	3.87
April	.06	.01	.035	.054	1.05	3.22
May	.05	.01	.023	.036	.70	2.15
June	.02	.01	.013	.02	.39	1.2
Fiscal year 1945-46	.16	0	.021	.032	7.51	23.1

e Daily discharge less than 0.01 m.g.d.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Molokai during fiscal year July 1945 to June 1946

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
Oct. 21	Pelekunu.....	Pacific Ocean....	200 feet upstream from beach.....	12.9	8.34
Dec. 18	Punaula.....	Mapulehu Stream..	At altitude 1,850 feet.....	.074	.048
18	....do.....	....do.....	....do.....	.079	.051
18	....do.....	....do.....	At altitude 700 feet.....	.008	.005

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 northeast 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 1946.

Extremes.- Maximum discharge during year, 272 million gallons a day (421 second-feet) Jan. 22 (gage height, 4.83 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.

1939-46: 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, that of Jan. 10, 11, 1946.

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

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.30	1.5	1.09	2.0	10.0
1.1	.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		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.50	0.54	0.55	0.45	0.69	0.44	0.45	1.71	0.69	0.75	0.71	0.54
2	.56	.64	.54	.45	.86	11.7	.44	1.29	.69	.82	.68	.53
3	.50	.54	.59	.45	.67	17.6	.49	1.22	.69	1.17	.70	.55
4	.49	.52	.55	.86	.53	4.2	.47	1.09	.68	.69	.77	.56
5	.90	1.73	.54	.59	.50	1.71	.44	1.03	.67	.63	.63	.54
6	.64	1.55	.68	.50	.68	1.22	.52	.98	.69	.65	.62	.51
7	.49	.77	1.44	.50	.66	.90	.49	.94	.93	.62	.60	.50
8	.47	.64	.58	.47	.56	.77	.45	.90	1.19	.61	.60	.50
9	.49	1.45	.53	.59	.85	.80	.44	.90	1.38	.61	.58	.58
10	.73	1.36	.53	.51	1.40	.69	.43	1.03	.72	.62	.57	.58
11	.94	1.27	.69	.47	1.19	.81	1.81	.98	1.70	.57	.58	.51
12	.54	.85	.54	.44	.66	2.35	.66	2.65	.94	.88	.56	.50
13	.52	.65	.54	.44	1.38	.90	.52	1.62	.94	1.35	.55	.49
14	.51	.58	.79	.56	.69	.71	.49	.98	1.69	1.09	.54	.53
15	.51	1.00	.62	.78	.99	.65	.49	1.20	1.34	.71	.54	1.79
16	2.2	.75	.58	.53	.62	.63	9.9	1.82	1.03	.71	.55	.58
17	.62	.58	.66	.48	.55	.60	17.4	4.8	.82	1.29	.54	.53
18	.54	1.05	.58	.84	.54	.58	3.8	1.45	.80	1.54	.54	.51
19	.54	1.05	.56	.53	.53	.56	1.62	1.15	.77	.80	.55	.50
20	.55	.63	.55	.48	.51	.60	1.09	.98	.77	2.55	.60	1.18
21	.52	.57	.54	.45	.50	.61	1.33	.90	1.49	1.20	.58	.58
22	.58	.55	.54	.44	.49	.54	23.5	.86	.86	1.34	.55	.52
23	.75	.97	.55	.44	1.44	.54	18.1	.82	.90	.94	.55	.50
24	.53	5.0	.55	.61	.72	.53	6.2	.80	.90	1.22	.54	.50
25	.57	.94	.54	.44	.57	.53	3.8	.75	.98	2.85	.54	.49
26	.66	.71	.50	.71	.52	.50	12.7	.71	1.09	1.29	.53	.88
27	.50	.64	.45	.60	.51	.49	5.0	.69	.80	.98	.53	1.01
28	.59	.58	.50	.63	.48	.51	2.9	.71	1.37	.80	.53	.53
29	.53	.60	.48	.83	.45	.49	2.55	-	.94	.77	.53	.60
30	.62	.58	.47	.75	.45	.48	2.8	-	.90	.90	.53	4.5
31	.64	.55	-	1.11	-	.47	2.1	-	.82	-	.53	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.2	0.47	0.636	0.984	19.7	61
August	5.0	.52	.963	1.49	29.8	92
September	1.44	.45	.592	.916	17.8	55
October	1.11	.44	.578	.894	17.9	55
November	1.44	.45	.706	1.09	21.2	65
December	17.6	.44	1.75	2.71	54.1	166
Calendar year 1945	17.6	.44	1.04	1.61	381	1,170
January	23.5	.43	3.98	6.16	123	379
February	4.8	.69	1.25	1.93	35.0	107
March	1.70	.67	.974	1.51	30.2	93
April	2.85	.57	1.03	1.59	31.0	95
May	.77	.53	.579	.896	18.0	55
June	4.5	.49	.753	1.17	22.6	69
Fiscal year 1945-46	23.5	.43	1.15	1.78	420	1,290

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 28 years (1916-20, 1922-46), 25.5 million gallons a day (39.5 second-feet).

Extremes.- Maximum discharge during year, 917 million gallons a day (1,420 second-feet) Jan. 22 (gage height, 5.86 feet), from rating curve extended above 120 million gallons a day; minimum, 5.4 million gallons a day (8.4 second-feet) Jan. 5.
1913-20, 1922-46: 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 1945-46 (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		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	31	11.3	7.3	6.2	11.3	5.8	5.6	8.2	6.9	16.0	9.0	7.3
2	48	13.7	8.0	6.6	18.9	24.5	5.6	7.8	6.9	11.3	8.2	7.1
3	8.0	7.3	14.4	6.6	8.7	86	5.6	7.6	6.6	35	10.7	7.1
4	7.1	6.9	9.8	6.2	7.6	52	5.6	7.3	10.2	11.6	8.2	7.3
5	6.9	105	12.2	6.2	6.9	10.6	5.6	7.3	7.1	9.3	8.0	9.5
6	6.9	66	9.5	6.2	8.4	7.3	6.9	7.1	18.6	11.8	7.8	8.0
7	6.6	20.5	16.6	6.2	11.4	7.1	7.1	7.1	43	10.3	7.6	7.3
8	6.4	15.4	7.3	6.1	9.8	6.9	6.4	7.1	39	12.7	7.6	7.1
9	6.6	15.7	6.9	8.2	32	6.4	5.8	7.3	18.9	10.7	7.6	17.9
10	13.7	13.2	8.9	7.0	25	6.6	5.8	8.7	9.2	11.1	7.6	16.7
11	19.9	20.5	24	6.4	12.3	15.7	21.5	8.0	47	8.2	7.6	8.2
12	7.3	11.0	7.1	6.2	7.3	28	8.7	12.8	10.7	43	7.8	7.3
13	6.6	8.0	6.6	6.2	7.8	7.8	6.9	10.5	14.7	24	8.0	7.1
14	6.7	8.0	20.5	6.4	7.1	6.6	6.2	7.8	55	22	7.6	28.5
15	14.3	30.5	14.3	8.3	6.6	6.4	6.0	7.3	41	16.7	7.6	33.5
16	45	15.9	11.3	11.0	6.4	6.2	94	18.6	10.9	9.3	8.2	7.8
17	7.8	8.0	10.7	6.9	6.2	6.2	226	136	11.0	57	7.8	7.3
18	6.9	39	8.2	22	6.2	6.0	33	10.8	14.7	41	7.6	8.2
19	6.9	13.4	6.9	8.0	6.0	6.0	9.3	9.3	16.5	12.7	7.6	8.0
20	7.6	20	6.4	7.8	6.0	6.2	7.6	9.0	9.8	50	24	7.6
21	6.9	9.3	6.4	6.4	6.0	6.0	9.8	7.6	28.5	15.1	10.1	13.1
22	7.3	7.8	6.4	6.0	6.0	6.0	86	7.3	8.7	14.7	8.0	10.8
23	8.4	34.5	6.2	6.4	56	6.0	105	7.1	13.8	11.1	7.8	9.0
24	7.3	82	6.0	6.6	16.2	5.8	132	7.1	12.0	43	7.6	7.8
25	7.1	15.8	6.0	6.0	8.0	5.8	21	6.9	11.0	66	7.6	7.3
26	6.9	8.7	6.0	12.8	6.4	5.8	68	6.9	18.0	31	7.3	20
27	6.9	8.2	6.0	22	6.2	5.8	16.7	6.9	36	10.1	7.3	13.0
28	9.2	7.8	6.0	14.5	6.0	5.8	9.5	6.9	34.5	9.0	7.3	7.6
29	8.0	8.7	6.0	43	6.0	5.6	8.7	-	12.2	8.5	7.1	26.5
30	43	9.3	6.0	50	5.8	5.6	10.4	-	32.5	21.5	7.1	57
31	11.0	8.7	-	29.5	-	5.6	8.5	-	15.5	-	7.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	48	6.4	12.7	19.6	392	1,200
August	105	6.9	21.0	32.5	650	2,000
September	24	6.0	9.26	14.3	278	853
October	50	6.0	11.5	17.8	358	1,100
November	56	5.8	11.2	17.3	334	1,030
December	86	5.6	12.0	18.6	372	1,140
Calendar year 1945	110	5.6	13.4	20.7	4,890	15,030
January	226	5.6	30.8	47.7	955	2,930
February	136	6.9	12.9	20.0	362	1,110
March	55	6.6	20.0	30.9	620	1,900
April	68	8.2	21.8	33.7	654	2,010
May	24	7.1	8.40	13.0	260	799
June	57	7.1	13.0	20.1	391	1,200
Fiscal year 1945-46	226	5.6	15.4	23.8	5,630	17,270

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Honokawai ditch near Lahaina

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

Records available.- July 1912 to June 1946.

Average discharge.- 27 years (1919-46), 5.72 million gallons a day (8.85 second-feet).

Extremes.- Maximum daily discharge during year, 21.5 million gallons a day (33.3 second-feet) Jan. 17; minimum daily, 4.4 million gallons a day (6.8 second-feet) Sept. 13, Nov. 5, 6.

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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.4	5.7	4.5	4.5	5.6	4.6	4.5	4.5	4.5	6.9	4.7	4.5
2	8.3	6.5	4.5	4.5	4.9	4.8	4.5	4.5	4.5	5.8	4.7	4.5
3	4.6	4.7	5.6	4.5	4.8	15.8	4.5	4.5	4.5	9.4	4.9	4.5
4	4.5	4.5	5.4	4.5	4.6	14.4	4.5	4.5	5.0	5.3	4.6	4.5
5	4.5	13.8	6.2	4.5	4.4	5.3	4.5	4.5	4.6	4.7	4.5	4.5
6	4.5	14.0	5.3	4.5	4.4	4.6	4.5	4.5	6.8	5.5	4.5	4.5
7	4.5	7.7	6.8	4.5	5.2	4.5	4.5	4.5	10.0	5.2	4.5	4.5
8	4.5	6.3	4.8	4.5	4.8	4.5	4.5	4.5	9.8	5.6	4.5	4.5
9	4.5	5.3	4.5	4.5	11.9	4.6	4.5	4.5	10.0	5.1	4.5	6.0
10	6.3	5.2	4.6	4.5	10.0	4.6	4.5	4.5	4.8	5.4	4.5	6.9
11	9.5	7.4	9.2	4.5	5.8	5.3	6.6	4.5	10.6	4.6	4.5	4.8
12	4.8	4.8	4.7	4.5	4.7	10.0	5.0	4.5	4.7	7.4	4.5	4.5
13	4.5	4.6	4.4	4.5	4.5	5.0	4.6	4.5	5.6	7.4	4.5	4.6
14	4.5	4.5	8.6	4.5	4.5	4.6	4.5	4.5	14.3	9.2	4.5	9.0
15	4.6	9.8	6.2	4.5	4.5	4.5	4.5	4.5	12.4	7.3	4.5	8.9
16	10.0	6.8	6.3	4.6	4.5	4.5	16.8	5.7	5.5	4.7	4.5	4.7
17	4.6	4.7	5.2	4.6	4.5	4.5	21.5	19.8	5.9	8.2	4.5	4.5
18	4.5	9.6	5.0	7.6	4.5	4.5	9.4	5.6	6.4	13.5	4.5	4.5
19	4.5	6.6	4.5	4.8	4.5	4.5	4.9	4.6	8.9	5.4	4.5	4.5
20	4.6	8.0	4.5	4.5	4.5	4.5	4.6	4.6	4.6	8.4	6.9	4.5
21	4.6	4.9	4.5	4.5	4.5	4.5	4.5	4.5	9.4	5.8	5.4	5.1
22	4.5	4.6	4.5	4.5	4.5	4.5	9.8	4.5	4.7	6.3	4.6	5.6
23	4.5	8.7	4.5	4.5	10.4	4.5	14.4	4.5	6.0	5.6	4.5	4.9
24	4.6	15.9	4.5	4.5	6.5	4.5	16.3	4.5	6.2	12.0	4.5	4.7
25	4.6	6.6	4.5	4.5	5.0	4.5	6.5	4.5	5.1	11.2	4.5	4.5
26	4.5	4.8	4.5	4.8	4.5	4.5	10.5	4.5	7.0	10.3	4.5	4.5
27	4.5	4.5	4.5	7.7	4.5	4.5	6.1	4.5	8.4	5.0	4.5	5.0
28	4.5	4.5	4.5	6.6	4.5	4.5	4.9	4.5	11.4	4.8	4.5	4.5
29	4.5	4.5	4.5	11.9	4.5	4.5	4.6	-	5.7	4.5	4.5	5.0
30	10.5	4.8	4.5	10.2	4.5	4.5	5.0	-	9.8	9.2	4.5	10.8
31	5.9	4.5	-	9.0	-	4.5	4.7	-	7.1	-	4.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.5	4.5	5.38	8.32	167	512
August	15.9	4.5	6.74	10.4	209	641
September	9.2	4.4	5.19	8.03	156	478
October	11.9	4.5	5.36	8.29	166	510
November	11.9	4.4	5.35	8.28	160	493
December	15.8	4.5	5.45	8.43	169	519
Calendar year 1945	15.9	3.7	5.34	8.26	1,950	5,980
January	21.5	4.5	6.93	10.7	215	659
February	19.8	4.5	5.14	7.95	144	441
March	14.3	4.5	7.23	11.2	224	688
April	13.5	4.5	6.99	10.8	210	644
May	6.9	4.5	4.64	7.18	144	441
June	10.8	4.5	5.27	8.15	158	485
Fiscal year 1945-46	21.5	4.4	5.81	8.99	2,120	6,510

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 28 years (1917-20, 1921-46), 4.94 million gallons a day (7.64 second-feet).

Extremes.- Maximum daily discharge during year, 10.9 million gallons a day (16.9 second-feet) Feb. 17; minimum daily, 1.93 million gallons a day (2.99 second-feet) Jan. 5, 10.

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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.45	2.75	2.9	2.4	4.0	2.2	1.96	6.4	2.9	4.5	6.9	2.85
2	2.4	2.6	2.9	2.3	3.2	2.4	1.96	5.5	2.85	4.4	6.0	2.65
3	2.3	2.35	3.9	2.35	2.8	5.0	1.95	5.0	2.8	4.5	5.7	2.65
4	2.25	2.25	3.0	2.25	2.5	7.0	1.94	4.6	2.7	5.0	5.2	2.65
5	2.25	6.2	3.05	2.3	2.35	4.5	1.93	4.3	2.6	4.4	5.1	2.65
6	2.3	10.2	2.85	2.25	2.35	3.45	2.0	4.1	2.7	4.2	4.8	2.55
7	2.25	6.8	3.65	2.2	2.3	3.55	1.99	3.95	3.35	4.0	4.6	2.5
8	2.2	5.1	2.8	2.2	2.35	3.05	1.97	3.8	4.7	4.3	4.4	2.55
9	2.2	5.4	2.55	2.25	5.2	2.8	1.95	3.65	4.9	4.3	4.2	2.9
10	2.8	4.3	2.6	2.2	5.5	2.6	1.93	3.6	3.85	4.7	3.95	3.2
11	2.7	6.4	3.15	2.15	4.7	2.7	2.45	3.4	9.7	3.95	3.85	2.8
12	2.25	4.4	2.35	2.1	3.55	5.0	2.1	3.45	5.7	6.3	3.9	2.8
13	2.15	3.4	2.3	2.05	3.1	3.6	1.99	3.45	5.1	7.8	3.75	2.8
14	2.2	3.0	3.65	2.05	3.15	2.95	1.99	3.2	10.8	7.2	3.6	3.95
15	2.2	4.7	2.75	2.1	2.85	2.65	1.99	3.15	9.5	6.9	3.55	5.1
16	4.5	4.4	2.6	2.2	2.65	2.45	5.9	3.55	7.0	5.4	3.55	2.9
17	2.5	3.4	2.9	2.05	2.55	2.3	6.0	10.9	5.6	6.1	3.4	2.7
18	2.25	4.9	2.5	3.0	2.4	2.25	2.85	9.2	5.1	9.4	3.3	2.65
19	2.2	5.2	2.4	2.35	2.35	2.25	2.3	6.5	4.7	7.9	3.3	2.55
20	2.25	5.0	2.3	2.2	2.3	2.3	2.1	5.2	4.3	9.0	4.2	2.55
21	2.2	3.9	2.25	2.15	2.2	2.25	2.05	4.4	6.2	10.1	3.85	2.7
22	2.35	3.5	2.25	2.1	2.2	2.2	3.0	4.0	4.6	9.4	3.35	2.55
23	2.8	4.5	2.2	3.35	5.3	2.2	7.0	3.75	4.3	8.3	3.15	2.45
24	2.55	10.6	2.2	2.55	4.4	2.15	8.0	3.55	4.1	10.4	3.1	2.45
25	2.3	8.7	2.2	2.2	3.1	2.15	9.7	3.4	3.95	10.5	3.0	2.4
26	2.2	5.9	2.15	2.5	2.75	2.15	10.2	3.2	4.4	10.3	2.95	2.45
27	2.25	4.6	2.05	2.9	2.45	2.0	10.3	3.15	4.5	9.8	3.0	2.45
28	2.2	3.85	2.05	3.75	2.3	2.0	10.2	3.0	8.2	8.4	2.95	2.3
29	2.15	3.5	3.05	5.9	2.26	2.0	8.8	-	5.5	7.2	2.9	2.65
30	4.1	3.2	2.4	5.6	2.2	2.0	9.6	-	5.8	8.8	2.85	7.3
31	3.55	3.2	-	5.9	-	2.0	7.4	-	5.5	-	2.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.5	2.15	2.49	3.85	77.2	237
August	10.6	2.25	4.78	7.40	148	455
September	3.9	2.05	2.66	4.12	79.9	245
October	5.9	2.05	2.70	4.18	83.8	257
November	5.5	2.2	3.04	4.70	91.3	280
December	7.0	2.0	2.84	4.39	88.1	270
Calendar year 1945	11.1	2.0	3.34	5.17	1,220	3,470
January	10.3	1.93	4.37	6.76	136	416
February	10.9	3.0	4.48	6.93	125	385
March	10.8	2.6	5.09	7.88	158	485
April	10.5	3.95	6.92	10.7	207	637
May	6.9	2.8	3.91	6.05	121	372
June	7.3	2.3	2.91	4.50	87.2	268
Fiscal year 1945-46	10.9	1.93	3.84	5.94	1,400	4,310

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 2,890 million gallons a day (4,470 second-feet) Feb. 7 (gage height, 9.66 feet), from rating curve extended above 750 million gallons a day by test on model of station site; minimum, 0.03 million gallons a day (0.05 second-foot) Sept. 26.

1927-29, 1931-46: 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 for domestic supply and livestock.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.04	0.5	1.08	1.3	15.3	3.0	136
.2	.14	.6	1.79	1.6	27.5	4.0	254
.3	.33	.8	4.0	2.0	51	5.0	465
.4	.63	1.0	7.5	2.5	91	6.0	760

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	39	8.8	5.6	0.04	56	0.33	0.07	92	0.27	54	3.2	0.04
2	121	3.35	2.2	.04	96	.40	.08	16.4	11.2	47	.81	.04
3	3.35	.40	8.2	.04	35	6.0	.42	17.8	3.95	252	.72	.04
4	.94	.20	20.5	.04	5.8	80	.81	7.5	87	43	.60	.04
5	17.3	196	37	.05	50	762	.09	1.62	1.97	40	5.7	.05
6	27	123	5.2	.10	60	66	.05	181	18.3	40	1.06	.04
7	2.05	39.5	6.2	.07	28.5	30.5	10.3	567	31	51	.45	.04
8	.81	67	13.9	.04	38.5	5.2	95	143	61	24.5	2.8	.04
9	.68	75	1.00	.04	129	57	45	82	43	33	2.2	.13
10	1.46	14.6	.53	.05	11.3	9.5	13.5	44	17.0	17.6	.22	8.4
11	19.0	23.5	2.7	.06	1.48	2.0	7.2	18.3	52	5.2	.14	3.75
12	.75	18.7	.50	.05	49	5.3	2.8	4.5	7.0	4.6	.26	.07
13	.33	8.0	.27	.05	100	1.57	.42	4.2	33.5	68	.31	.06
14	.25	22.5	107	.05	101	.54	.24	5.3	148	33	.20	12.5
15	.24	50	96	.04	162	.39	.14	4.1	127	12.5	.09	15.9
16	22.5	35	33	5.9	108	.29	.22	8.9	32	5.3	.08	.07
17	.68	2.0	8.6	.26	7.1	.24	360	330	82	48	.06	.66
18	.22	60	1.95	8.5	2.25	.18	50	14.4	164	44	.04	.84
19	.13	82	.57	1.12	1.36	.13	2.7	3.7	398	8.1	.04	.40
20	.11	58	.36	2.65	.86	.10	.60	1.31	27	18.4	.13	3.15
21	.10	29	.24	4.6	.63	.08	4.3	.76	58	46	.18	8.9
22	.09	5.0	.14	2.45	1.44	.06	18.1	.54	36.5	14.6	.14	36
23	.13	129	.14	2.35	12.6	.04	30	1.04	169	36	.14	9.4
24	.56	289	.09	64	5.4	.04	401	9.8	68	164	.09	5.9
25	21.5	76	.05	80	5.1	.04	68	1.18	19.7	71	.07	5.6
26	.52	11.2	.04	44	14.1	.04	233	.63	8.8	105	.04	1.21
27	3.35	6.4	.04	3.75	1.31	.04	62	.45	149	11.0	.04	133
28	1.14	2.3	.05	6.7	.72	.05	96	.33	127	3.95	.04	1.94
29	.33	6.9	.10	16.5	.54	.05	236	-	158	4.6	.04	.41
30	19.4	7.9	.05	113	.42	.05	72	-	342	29	.04	14.5
31	8.5	4.7	-	217	-	.06	615	-	86	-	.04	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	121	0.09	10.1	15.6	313	962
August	289	.20	46.9	72.5	1,450	4,470
September	107	.04	11.7	18.1	352	1,080
October	217	.04	18.5	28.6	574	1,760
November	162	.42	36.2	56.0	1,090	3,330
December	762	.04	33.2	51.4	1,030	3,160
Calendar year 1945	762	.03	30.4	47.0	11,100	34,090
January	615	.05	78.2	121	2,430	7,440
February	567	.33	55.8	86.3	1,560	4,790
March	398	.27	82.8	128	2,570	7,880
April	252	3.95	44.5	68.9	1,330	4,090
May	5.7	.04	.644	.996	20.0	61
June	133	.04	8.77	13.6	263	807
Fiscal year 1945-46	762	.04	35.6	55.1	12,980	39,830

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 16 years (1927-34, 1935-36, 1938-46), 3.50 million gallons a day (5.42 second-feet).

Extremes.- Maximum discharge during year, 223 million gallons a day (345 second-feet) Nov. 14 (gage height, 3.06 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.53 million gallons a day (0.82 second-foot) June 7.

1927-46: Maximum discharge, 1,940 million gallons a day (3,000 second-feet) Apr. 29, 1937 (gage height, 15.74 feet, datum then in use), from rating curve extended above 22 million gallons a day; minimum, 0.15 million gallons a day (0.23 second-foot) Dec. 18, 1929.

Remarks.- Records good except those for Oct. 31 to Nov. 7, which are poor. No diversions.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.35	1.2	2.3	1.6	9.3
.9	.62	1.3	3.3	1.7	12.4
1.0	1.01	1.4	4.8	1.9	23
1.1	1.54	1.5	6.8		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.6	1.88	2.05	0.92	a5.6	1.15	0.55	4.1	1.20	4.3	1.87	0.71
2	10.0	1.86	1.87	1.17	a7.3	1.78	.55	2.5	1.46	4.2	1.66	.65
3	1.87	1.60	1.73	1.13	a3.7	4.1	1.90	4.3	1.64	6.1	1.72	.62
4	1.41	1.25	1.87	.92	a2.1	9.3	1.62	2.1	2.75	3.2	1.89	.62
5	4.4	9.3	4.2	.92	a2.3	20.5	.65	1.80	1.30	3.65	4.2	.62
6	3.8	5.7	2.2	1.51	a2.6	2.8	.95	4.3	1.25	3.05	1.73	.58
7	1.73	3.75	2.4	.87	a2.3	2.1	1.61	23.5	1.37	4.4	1.54	.55
8	1.35	8.0	3.1	.83	2.4	1.66	2.45	10.1	3.8	2.85	1.58	.58
9	1.30	9.6	1.87	.75	5.6	6.4	3.9	3.4	2.3	3.6	1.30	1.07
10	2.4	3.3	1.54	.71	2.4	2.05	5.0	5.6	2.05	2.95	1.20	1.84
11	3.35	3.5	2.6	.68	1.90	1.80	1.50	6.1	5.3	2.4	1.15	1.10
12	1.60	5.2	1.73	.62	3.35	2.1	1.05	2.75	1.73	2.1	2.05	.83
13	1.20	2.45	1.47	.58	6.3	1.60	.83	2.75	3.35	4.2	1.60	.68
14	1.05	3.8	5.8	.58	12.8	1.35	.71	2.2	6.5	4.5	1.35	.62
15	1.05	6.2	9.4	.86	11.3	1.20	.65	5.5	5.5	2.75	1.15	1.17
16	2.85	3.4	5.4	1.66	6.3	1.15	1.10	17.4	2.55	2.3	1.10	.71
17	1.35	2.2	2.7	.79	2.05	1.05	12.0	19.9	2.45	3.65	1.01	1.06
18	1.20	9.4	1.95	3.2	1.73	1.01	3.05	3.85	2.75	2.45	.97	1.08
19	1.05	4.8	1.73	1.35	1.54	.97	1.35	2.85	4.4	2.4	.92	1.15
20	.97	5.3	1.47	1.78	1.47	.92	1.01	2.3	2.45	13.8	1.11	1.01
21	.87	4.1	1.35	1.41	1.35	.87	1.66	1.95	3.25	4.6	1.25	1.15
22	.85	2.55	1.25	1.20	1.34	.83	3.95	1.73	2.75	2.75	1.20	4.0
23	1.50	15.5	1.30	1.39	5.7	.79	3.5	1.99	5.5	2.75	1.05	1.81
24	2.9	12.7	1.15	2.9	2.7	.79	14.9	8.9	3.95	5.8	.92	1.47
25	4.8	7.3	1.10	2.25	3.05	.75	2.95	1.95	2.8	5.8	.83	1.52
26	1.47	3.45	1.05	5.0	4.3	.71	12.1	1.60	2.2	4.1	.79	1.20
27	2.05	3.05	1.01	1.68	1.66	.68	4.5	1.41	6.9	2.4	.75	3.75
28	1.54	2.65	2.1	2.15	1.41	.65	2.05	1.30	3.5	1.95	.75	1.20
29	1.41	3.25	1.33	3.45	1.30	.62	7.2	-	4.0	1.80	.75	1.62
30	3.55	2.9	1.01	9.2	1.25	.62	2.5	-	8.6	3.2	.68	4.6
31	1.90	2.4	-	alo	-	.58	4.7	-	5.5	-	.68	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.0	0.85	2.29	3.54	71.0	218
August	15.5	1.25	4.91	7.60	152	468
September	9.4	1.01	2.32	3.59	69.5	213
October	10	.58	2.01	3.11	62.4	192
November	12.8	1.25	3.64	5.63	109	335
December	20.5	.58	2.34	3.62	72.7	223
Calendar year 1945	29	.40	2.67	4.13	973	2,990
January	14.9	.55	3.30	5.11	102	314
February	23.5	1.30	5.29	8.18	148	455
March	8.6	1.20	3.39	5.25	105	322
April	13.8	1.80	3.80	5.88	114	350
May	4.2	.68	1.31	2.03	40.8	125
June	4.6	.55	1.32	2.04	39.6	121
Fiscal year 1945-46	23.5	.55	2.98	4.61	1,090	3,340

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

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 24 years (1922-46), 12.9 million gallons a day (20.0 second-feet).

Extremes.- Maximum discharge during year, 1,340 million gallons a day (2,070 second-feet) Jan. 17 (gage height, 7.20 feet), from rating curve extended above 260 million gallons a day by test on model of station site; minimum, 1.4 million gallons a day (2.2 second-feet) July 29, 30.

1914-16, 1921-46: 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 1945-46 (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	5.5	600

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.6	2.6	6.0	2.55	8.9	2.6	2.0	22.5	3.0	32	8.1	2.1
2	6.0	2.4	5.6	2.55	7.7	33.5	1.9	6.5	3.5	28.5	6.8	2.05
3	2.9	1.8	7.8	2.4	5.6	70	1.9	4.6	3.1	91	11.1	2.0
4	2.45	1.8	7.6	2.3	3.75	36.5	1.8	3.65	3.5	28	7.6	2.0
5	2.4	38	8.1	2.25	8.0	66	1.8	3.25	3.0	21.5	6.4	2.05
6	2.2	33	7.6	2.2	13.1	13.7	1.9	9.7	11.6	15.4	6.1	1.9
7	2.0	20.5	10.4	2.1	21.5	6.4	1.8	49	18.9	12.8	5.6	1.8
8	1.8	12.9	7.3	2.1	11.1	5.2	1.7	8.3	25	11.4	5.4	1.8
9	1.8	12.1	5.9	2.2	48	4.3	1.7	7.1	15.1	14.8	5.2	2.05
10	2.35	8.3	5.4	2.0	8.4	3.85	1.8	4.5	10.1	13.6	4.8	2.2
11	3.35	13.9	7.5	1.9	4.7	3.6	2.4	4.4	18.9	11.4	4.6	1.8
12	1.9	21	5.4	1.9	5.2	4.1	2.3	4.1	5.8	11.6	4.7	1.7
13	1.7	6.3	4.7	1.8	3.65	3.65	2.1	4.7	17.0	11.4	4.5	1.7
14	1.7	4.0	28.5	1.9	3.3	3.15	1.8	4.4	60	17.5	4.1	3.4
15	2.45	13.4	7.2	1.9	3.15	29	1.7	3.85	23.5	16.2	4.0	2.85
16	6.1	17.2	5.3	3.05	46	2.85	9.3	115	15.7	37	3.85	1.8
17	2.3	4.3	5.2	2.4	29	2.75	421	317	42	117	3.6	1.7
18	2.1	16.1	4.6	5.2	3.15	2.7	39	11.3	116	29	3.4	1.7
19	2.05	14.3	4.0	3.95	2.75	2.6	5.7	7.0	93	12.1	3.3	1.7
20	2.05	20.5	3.75	2.4	2.6	2.85	3.85	5.4	25	10.3	3.25	2.2
21	1.8	13.0	3.6	2.2	2.6	2.6	3.3	4.6	36.5	20.5	3.0	3.25
22	1.7	6.7	3.3	2.05	2.6	2.55	29.5	4.2	20.5	14.4	2.9	3.1
23	1.7	58	3.15	2.2	12.8	2.45	102	4.0	40	18.6	2.75	2.6
24	1.6	59	3.1	32.5	8.3	2.4	122	3.65	20.5	56	2.7	3.75
25	1.6	12.1	2.9	6.1	3.65	2.3	15.7	3.4	11.1	49	2.6	2.9
26	1.5	7.2	2.75	9.4	3.3	2.25	80	3.3	10.7	46	2.45	2.7
27	1.5	6.1	2.7	8.8	3.1	2.25	22	3.15	94	14.7	2.4	3.4
28	1.5	5.0	5.0	8.0	2.9	2.2	13.3	3.1	80	10.3	2.4	2.25
29	1.5	4.7	3.3	25	2.75	2.1	91	-	24.5	10.3	2.3	4.2
30	3.6	4.8	2.6	28.5	2.6	2.05	46	-	69	12.3	2.25	5.6
31	2.95	5.4	-	52	-	2.05	227	-	46	-	2.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.6	1.5	2.52	3.90	78.2	240
August	59	1.8	14.5	22.4	448	1,380
September	28.5	2.6	6.01	9.30	180	553
October	52	1.8	7.28	11.3	226	693
November	48	2.6	9.47	14.7	284	872
December	70	2.05	9.63	14.9	298	916
Calendar year 1945	240	1.3	9.31	14.4	3,400	10,430
January	421	1.7	40.6	62.8	1,260	3,860
February	317	3.1	22.3	34.5	626	1,920
March	116	3.0	31.2	48.3	966	2,970
April	117	10.3	26.5	41.0	795	2,440
May	11.1	2.25	4.34	6.71	134	412
June	5.6	1.7	2.48	3.84	74.2	228
Fiscal year 1945-46	421	1.5	14.7	22.7	5,370	16,480

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 June 1946. Records at same site collected by East Maui Irrigation Co. January 1927 to June 1932.
Average discharge.- 14 years, 26.5 million gallons a day (41.0 second-feet).
Extremes.- Maximum discharge during year, 1,400 million gallons a day (2,170 second-feet) Jan. 17 (gage height, 6.38 feet), from rating curve extended above 15 million gallons a day; minimum recorded, 10.3 million gallons a day (15.9 second-feet) July 30.
1932-46: 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, and those for periods of no gage-height record, which are poor. Entire flow of stream above station up to 25 million gallons a day is diverted by the East Maui Irrigation's ditch at altitude 1,300 feet for irrigation in central Maui.

Rating table, fiscal year 1945-46 (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		
1.6	25.5	2.9	160		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.6	10.6	11.2	10.9	12.6	10.9	10.6	35	11	28	13.3	11.9
2	10.9	10.6	10.9	10.9	12.2	23.5	10.6	15	11	19.4	12.6	11.9
3	10.9	10.6	10.9	10.9	11.9	70	10.6	13	11	82	12.6	11.9
4	11.2	10.6	10.9	10.9	11.6	39.5	10.6	12	11	25	12.2	11.9
5	10.9	26	10.9	10.9	11.6	60	10.6	12	11	15.4	12.2	11.9
6	10.9	34.5	10.9	10.6	12.1	22	10.6	18	13	13.7	12.2	11.9
7	10.9	15.7	11.2	10.9	15.8	13.3	10.6	48	16	13.3	12.2	11.6
8	10.9	13.3	10.9	10.9	11.6	12.2	10.6	15	18	13.0	12.2	11.6
9	10.9	14.5	10.9	10.6	27.5	11.9	10.6	14	14	13.0	12.2	11.6
10	10.9	12.6	10.9	10.9	11.9	11.6	10.6	12	13	13.0	12.2	11.6
11	10.9	13.0	10.9	10.9	11.9	11.2	10.6	12	13	13.0	12.2	11.6
12	10.6	20	10.9	11.2	12.2	11.2	10.6	12	13	13.0	12.2	11.9
13	10.6	12.2	11.2	10.9	11.9	11.2	10.6	12	18	13.0	12.2	11.9
14	10.6	11.9	18.1	10.9	11.6	11.2	10.6	11.9	50	14	12.2	12.2
15	10.6	11.9	11.2	10.6	11	11.2	10.6	11.6	27	14	12.2	12.2
16	11.6	14.5	11.2	10.6	26	11.2	10.9	43	20	35	12.2	11.9
17	10.9	11.6	11.2	10.6	18	11.2	362	309	40	110	12.2	11.9
18	10.6	13.8	11.2	10.9	11	10.9	39.5	19.2	60	30	12.2	11.9
19	10.6	13.2	11.2	10.9	11	10.9	13.3	13.0	111	15	12.2	11.9
20	10.6	16.1	10.9	10.9	11	10.6	12.2	12.2	16.9	14	12.2	12.2
21	10.6	12.2	10.9	10.9	11	10.6	11.6	12.2	27.5	14	11.9	12.2
22	10.6	11.9	11.2	10.9	11	10.6	56	12.2	13.6	14	12.2	12.2
23	10.6	60	10.9	10.6	13	10.6	99	12.2	25	15	12.2	12.2
24	10.6	45	10.9	31.5	11	10.6	120	11.9	16.7	49	12.2	12.2
25	10.6	14.1	10.9	13.4	11	10.6	21.5	11.9	13.3	41	12.2	12.2
26	10.6	12.6	10.9	10.6	11	10.6	73	11	13.0	41	12.2	12.2
27	10.6	12.2	10.9	11.6	11	10.6	36	11	76	17.7	12.2	12.6
28	10.6	11.9	11.2	11.2	10.6	10.9	22	11	74	14.9	12.2	12.2
29	10.6	11.6	11.2	16.0	10.9	10.9	74	-	21	13.7	12.2	12.6
30	10.6	11.6	10.9	26	10.9	10.9	39	-	68	13.7	12.2	13.7
31	10.6	11.2	-	42	-	10.6	216	-	36	-	11.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.6	10.6	10.8	16.7	335	1,030
August	60	10.6	16.5	25.5	512	1,570
September	18.1	10.9	11.2	17.3	338	1,040
October	42	10.6	13.3	20.6	412	1,260
November	27.5	10.6	12.9	20.0	386	1,180
December	70	10.6	16.2	25.1	503	1,540
Calendar year 1945	195	10	14.9	23.1	5,460	16,740
January	362	10.6	44.0	68.1	1,360	4,190
February	309	11	26.5	41.0	743	2,280
March	111	11	29.1	45.0	902	2,770
April	110	13.0	24.7	38.2	741	2,270
May	13.3	11.9	12.2	18.9	380	1,160
June	13.7	11.8	12.1	18.7	362	1,110
Fiscal year 1945-46	362	10.6	19.1	29.6	6,970	21,400

Note.- No gage-height record Nov. 15-27, Feb. 1-13, Feb. 26 to Mar. 18, Apr. 14-23; discharge computed on basis of records for station above government road.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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.

Drainage area.- 0.2 square mile.

Records available.- November 1921 to June 1946.

Average discharge.- 24 years (1922-46), 10.6 million gallons a day (16.4 second-feet).

Extremes.- Maximum discharge during year, 796 million gallons a day (1,230 second-feet) Jan. 17 (gage height, 5.64 feet), from rating curve extended above 140 million gallons a day; minimum, 0.77 million gallons a day (1.12 second-feet) Jan. 4, 5, 9, 10. 1921-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.44	0.8	4.8	1.6	25	2.8	106
.5	1.10	1.0	8.6	1.8	32	3.5	212
.6	2.1	1.2	13.3	2.0	41		
.7	3.3	1.4	18.6	2.4	68		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.9	3.05	4.8	1.50	9.9	1.10	0.84	10.8	1.10	27.5	7.6	1.20
2	5.3	2.45	4.5	1.50	10.2	29.5	.84	5.1	1.10	19.2	5.3	1.20
3	2.45	1.80	8.6	1.40	6.3	67	.84	3.05	1.10	66	10.4	1.10
4	1.70	1.40	8.0	1.30	2.95	35	.77	2.2	1.60	24	6.6	1.10
5	1.60	37.5	8.4	1.20	8.3	35.5	.77	2.0	1.30	17.6	4.6	1.30
6	1.40	36.5	5.9	1.10	15.5	9.9	.97	6.9	6.5	14.2	3.9	1.10
7	1.20	23	10.4	1.10	23.5	3.45	.90	62	14.3	10.1	3.6	1.03
8	1.10	16.3	5.2	1.10	13.7	2.6	.84	7.6	28	8.0	3.2	1.03
9	1.10	14.7	3.2	1.20	42	2.0	.77	5.4	19.1	12.2	2.95	1.03
10	1.30	9.3	2.95	1.10	9.6	1.80	.84	2.7	12.8	14.1	2.7	1.40
11	3.1	18.2	6.0	1.03	4.0	1.60	5.2	2.45	20.5	9.0	2.45	1.10
12	1.60	17.4	3.2	.97	4.3	2.65	3.6	2.0	4.8	8.2	2.45	.97
13	1.30	7.2	2.7	.97	2.7	2.1	2.2	2.95	21.5	8.6	2.6	.90
14	1.10	3.9	25	1.03	2.45	1.60	1.10	2.7	46	13.4	2.35	3.75
15	1.41	19.4	6.8	1.03	2.45	1.40	.84	2.0	24.5	14.6	2.2	2.5
16	7.8	19.1	3.75	2.0	31	1.30	12.1	31.5	25	26.5	2.2	1.30
17	2.2	4.4	3.3	1.60	5.7	1.20	204	138	23	83	2.1	1.10
18	1.70	21.5	2.95	5.8	2.7	1.10	29.5	10.7	56	26.5	1.80	.97
19	1.60	20	2.45	4.4	2.1	1.10	4.8	5.3	74	10.8	1.80	.97
20	1.60	18.7	2.35	2.0	1.90	1.20	2.1	2.8	22	10.4	1.70	1.40
21	1.40	15.7	2.1	1.50	1.70	1.10	1.90	2.1	35	23	1.60	2.2
22	1.20	8.4	1.80	1.20	1.70	1.03	28	1.80	22.5	17.2	1.50	2.45
23	1.03	68	1.70	1.30	11.4	.97	78	1.70	32	15.2	1.50	1.90
24	.97	33	1.50	10.7	10.0	.97	85	1.60	21.5	45	1.40	2.7
25	.97	12.0	1.40	5.2	3.2	.97	10.4	1.50	14.9	38.5	1.30	2.45
26	.90	6.2	1.40	10.4	2.35	.97	37	1.30	12.4	37.5	1.30	2.1
27	.97	4.5	1.40	9.3	1.90	.97	15.1	1.20	69	14.5	1.30	3.05
28	.97	3.45	4.5	11.5	1.60	.90	4.3	1.10	60	9.7	1.30	1.80
29	.97	3.2	2.8	25	1.40	.90	53	-	21.5	8.8	1.20	3.6
30	4.1	3.2	1.80	28.5	1.20	.84	18.9	-	47	12.0	1.20	7.1
31	3.3	3.9	-	44	-	.84	95	-	32	-	1.20	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.9	0.90	2.17	3.36	67.2	206
August	68	1.40	14.8	22.9	457	1,400
September	25	1.40	4.70	7.27	141	432
October	44	.97	5.87	9.08	182	558
November	42	1.20	7.92	12.3	238	729
December	67	.84	6.89	10.7	214	655
Calendar year 1945	93	.84	7.10	11.0	2,590	7,940
January	204	.77	22.6	35.0	700	2,150
February	138	1.10	11.4	17.6	320	983
March	74	1.10	24.9	38.5	772	2,370
April	83	8.0	21.5	33.3	645	1,980
May	10.4	1.20	2.82	4.36	87.3	268
June	7.1	.90	1.86	2.88	55.8	171
Fiscal year 1945-46	204	.77	10.6	16.4	3,880	11,900

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.
Average discharge.- 14 years, 7.97 million gallons a day (12.3 second-feet).
Extremes.- Maximum discharge during year, 408 million gallons a day (631 second-feet) Jan. 17 (gage height, 3.41 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) Oct. 12, 14.
1932-46: 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 Aug. 23 to Sept. 4, Nov. 8-13, 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 1945-46 (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		
.6	8.0	1.4	55		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.5	1.3	1.7	1.4	3.0	1.4	1.2	6.2	1.4	33.5	2.1	1.2
2	1.6	1.3	1.8	1.3	3.8	27	1.2	3.2	1.4	27	1.8	1.2
3	1.3	1.3	1.8	1.3	2.1	58	1.2	2.1	1.5	62	4.6	1.2
4	1.2	1.3	1.6	1.3	1.6	34.5	1.2	1.9	1.4	27.5	2.1	1.2
5	1.2	28	1.6	1.2	2.5	30	1.2	1.9	1.4	21.5	1.6	1.2
6	1.2	21.5	1.6	1.2	8.4	8.7	1.3	6.1	3.8	14.7	1.6	1.2
7	1.2	15.1	2.2	1.2	11.9	2.2	1.2	60	9.4	8.0	1.6	1.2
8	1.2	12.5	1.8	1.2	3.0	2.1	1.2	4.1	15.5	4.2	1.6	1.2
9	1.2	9.1	1.4	1.2	20	1.9	1.2	2.4	9.8	9.8	1.5	1.3
10	1.3	3.6	1.4	1.2	2.2	1.8	1.3	1.9	5.4	9.0	1.5	1.3
11	1.3	9.2	1.5	1.2	1.9	1.6	1.8	2.3	11.1	3.9	1.5	1.3
12	1.2	8.7	1.3	1.2	1.8	1.6	1.4	1.8	1.6	3.5	1.6	1.2
13	1.2	3.6	1.3	1.2	1.6	1.6	1.2	1.8	16.4	3.6	1.5	1.2
14	1.2	2.7	15.6	1.2	1.5	1.6	1.2	1.6	33.5	13.6	1.4	1.8
15	1.3	9.6	2.2	1.2	1.9	1.5	1.2	1.6	21	14.0	1.4	1.6
16	2.4	11.6	1.4	1.3	12.1	1.4	8.7	28.5	11.9	28	1.4	1.3
17	1.3	2.9	1.4	1.2	3.0	1.4	144	143	22.5	62	1.2	1.3
18	1.2	15.0	1.4	1.4	1.4	1.4	22	6.3	66	31	1.2	1.3
19	1.2	12.2	1.4	1.3	1.4	1.4	3.8	1.9	61	11.8	1.2	1.3
20	1.2	9.1	1.4	1.2	1.5	1.4	1.8	1.6	24	7.2	1.3	1.4
21	1.2	7.8	1.4	1.2	1.5	1.4	1.6	1.6	31.5	23	1.2	1.3
22	1.2	2.6	1.4	1.2	1.5	1.4	23	1.5	23	13.8	1.2	1.4
23	1.2	50	1.4	1.2	4.9	1.4	64	1.5	41	12.6	1.2	1.4
24	1.2	35	1.4	6.6	3.0	1.4	70	1.4	23.5	40	1.2	1.3
25	1.3	6.0	1.4	1.6	1.6	1.3	11.1	1.4	8.2	40	1.2	1.3
26	1.3	3.5	1.4	4.0	1.6	1.2	29.5	1.4	6.2	36	1.2	1.3
27	1.3	2.5	1.4	4.8	1.5	1.2	10.6	1.4	82	13.4	1.2	1.4
28	1.3	2.0	1.6	2.8	1.4	1.2	11.8	1.4	46	4.5	1.2	1.3
29	1.2	1.7	1.4	15.3	1.4	1.2	30	-	26	2.9	1.2	1.7
30	1.4	1.7	1.4	23.5	1.4	1.2	45	-	54	6.0	1.2	2.6
31	1.3	1.7	-	43	-	1.2	46	-	40	-	1.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.5	1.2	1.40	2.17	43.3	133
August	50	1.3	9.49	14.7	294	903
September	15.6	1.3	2.00	3.09	60.0	184
October	43	1.2	4.20	6.50	130	399
November	20	1.4	3.55	5.49	106	327
December	58	1.2	6.34	9.81	197	603
Calendar year 1945	81	1.2	4.70	7.27	1,720	5,300
January	144	1.2	17.5	27.1	542	1,660
February	143	1.4	10.4	16.1	292	896
March	82	1.4	22.6	35.0	701	2,150
April	62	2.9	19.6	30.3	588	1,800
May	4.6	1.2	1.51	2.34	46.9	144
June	2.6	1.2	1.36	2.10	40.9	126
Fiscal year 1945-46	144	1.2	8.33	12.9	3,040	9,320

Note.- No gage-height record Aug. 23 to Sept. 4, Nov. 8-13, Dec. 18-24; discharge computed on basis of records for station above government road.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 27 years, 21.6 million gallons a day (33.4 second-feet).

Extremes.- Maximum discharge during year, 63 million gallons a day (98 second-feet) Jan. 22 (gage height, 1.76 feet); no flow Jan. 26, 27, Feb. 1, 2, 7, 11, when water was shut out of ditch.
1919-46: Maximum discharge, that of Jan. 22, 1946; 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	28.5	11.1	22	9.5	38	10.1	7.1	9.1	11.7	52	33.5	7.9
2	24.5	10.1	20.5	9.5	33.5	24	6.8	6.2	11.7	50	29	7.6
3	15.3	8.4	26	8.9	26.5	55	6.6	10.4	11.4	52	38	7.3
4	13.1	7.9	25	8.4	19.5	50	6.3	8.4	12.7	50	31	7.1
5	12.0	38.5	27	8.1	28	52	6.3	8.4	11.1	50	26.5	7.6
6	11.1	50	23	7.9	29	48	7.1	12.8	18.2	48	24	7.1
7	10.1	45	32	7.6	45	33.5	6.6	28	26	48	22.5	6.8
8	9.5	40	23.5	7.6	38.5	25.5	6.3	16.5	38	45	21	6.8
9	8.9	43	18.8	7.6	48	21.5	6.1	15.4	35.5	45	19.9	7.1
10	9.2	37	18.8	7.1	31	18.1	6.1	9.4	26	45	18.4	7.6
11	13.4	41	24	6.8	22.5	16.7	10.1	13.6	35.5	42	17.4	7.1
12	8.9	36	18.1	6.3	27	18.1	9.5	15.3	21.5	42	17.0	6.3
13	8.1	30	17.0	6.3	19.9	16.0	7.9	17.8	30	45	16.7	6.1
14	7.6	21.5	41	6.3	17.8	14.0	6.1	17.8	50	48	15.6	12.3
15	8.4	40	26.5	6.3	16.7	13.0	5.6	16.0	48	48	15.0	12.9
16	25	39	20.5	8.6	31.5	12.3	17.4	25	45	50	14.6	7.6
17	11.4	22	19.2	7.6	22	11.7	50	55	45	52	13.6	7.1
18	10.1	38	17.4	14.2	16.7	11.1	45	36	52	50	13.0	6.6
19	9.5	43	16.0	12.5	14.6	10.8	20.5	31	50	48	12.3	6.3
20	9.2	42	15.0	8.1	13.6	11.1	15.3	23.5	48	45	12.3	7.3
21	8.4	40	14.0	7.3	12.7	10.1	13.6	20.5	50	50	11.4	9.8
22	8.1	29	13.3	6.8	12.3	9.5	26.5	18.4	48	48	11.1	10.1
23	7.3	48	12.7	7.1	29	9.2	45	17.0	50	45	10.8	9.2
24	7.1	52	12.0	13.4	30	8.9	50	15.6	48	50	10.1	11.1
25	7.1	48	11.4	20.5	17.4	8.6	40	14.6	45	50	9.8	10.4
26	6.6	35.5	10.8	25.5	14.6	8.4	25.5	13.6	40	50	9.5	10.1
27	6.8	29	10.1	20.5	13.3	8.1	6.1	13.0	50	45	9.2	13.3
28	6.6	24	15.9	26	12.3	7.9	5.9	12.3	52	45	8.9	9.5
29	6.3	21.5	12.0	39	11.4	7.6	27	-	50	40	8.8	13.5
30	11.9	20.5	9.8	40	10.8	7.3	6.4	-	50	42	8.4	24.5
31	11.6	22	-	50	-	7.1	45	-	52	-	8.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	28.5	6.3	11.0	17.0	342	1,050
August	52	7.9	32.7	50.6	1,010	3,110
September	41	9.8	19.1	29.6	573	1,760
October	50	6.3	13.6	21.0	421	1,290
November	48	10.8	23.4	36.2	703	2,160
December	55	7.1	18.2	28.2	565	1,730
Calendar year 1945	55	4.7	18.0	27.9	6,560	20,160
January	50	5.6	17.5	27.1	544	1,670
February	55	6.2	17.9	27.7	501	1,540
March	52	11.1	37.5	58.0	1,160	3,570
April	52	40	47.3	73.2	1,420	4,360
May	38	8.1	16.7	25.8	517	1,590
June	24.5	6.1	9.13	14.1	274	841
Fiscal year 1945-46	55	5.6	22.0	34.0	8,030	24,670

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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).

Drainage area.- 0.1 square mile.

Records available.- July 1932 to June 1946. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Average discharge.- 14 years, 0.804 million gallons a day (1.24 second-feet).

Extremes.- Maximum discharge during year, 47 million gallons a day (73 second-feet) Jan. 28 (gage height, 2.54 feet), from rating curve extended above 14 million gallons a day by test on model of station site; minimum, 0.31 million gallons a day (0.48 second-foot) June 10-14.

1932-46: 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 periods of no gage-height record, which are fair. No diversions.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.24	0.7	3.15
.4	.58	.8	4.4
.5	1.14	1.0	7.5
.6	2.0	1.2	11.0

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.43	0.34	0.57	0.40	0.65	0.49	0.34	1.8	0.40	1.1	0.70	0.37
2	.49	.34	.57	.42	.65	1.04	.34	1.2	.37	.95	.65	.37
3	.40	.34	.57	.37	.61	2.05	.34	.95	.37	1.13	.65	.37
4	.40	.34	.53	.37	.61	5.0	.34	.85	.40	.90	.65	.37
5	.40	1.61	.57	.37	.61	2.85	.34	.75	.40	.85	.57	.37
6	.37	3.35	.57	.34	.65	1.47	.34	1.39	.51	.85	.57	.37
7	.37	1.00	.65	.34	.65	1.19	.34	3.6	.49	.85	.53	.37
8	.37	3.1	.57	.37	.65	1.01	.34	.95	.49	.75	.53	.37
9	.37	.95	.53	.37	2.15	.90	.34	.85	.49	.70	.49	.37
10	.37	.75	.53	.37	.70	.75	.38	1.32	.46	.70	.46	.31
11	.37	.61	.53	.37	.73	.70	.37	.86	.62	.65	.46	.31
12	.37	.75	.53	.34	.75	.70	.37	1.49	.49	.70	.43	.31
13	.37	.80	.53	.34	.65	.61	.37	.70	.57	.65	.43	.31
14	.37	.65	.61	.34	.61	.61	.34	.65	.65	.75	.43	.48
15	.36	.70	.57	.37	.65	.57	.34	.61	.80	.70	.43	.43
16	.55	.75	.49	.37	.75	.53	.60	.80	.75	.70	.43	.37
17	.37	.65	.49	.37	.61	.53	6.6	.82	.75	1.30	.43	.37
18	.37	.75	.46	.37	.57	.53	3.1	.57	.70	.96	.43	.34
19	.37	.80	.46	.37	.57	.49	.65	.57	.95	.85	.43	.34
20	.37	.90	.46	.37	.53	.53	.57	.57	.75	.80	.43	.34
21	.34	.72	.46	.37	.53	.49	.55	.53	.70	.80	.43	.37
22	.34	.65	.43	.37	.53	.46	7.1	.53	.70	.93	.40	.34
23	.34	1.02	.43	.37	.70	.46	10.0	.53	.90	.90	.37	.34
24	.34	1.18	.43	.38	.61	.43	6.1	.49	.75	.94	.37	.34
25	.34	.95	.43	.43	.57	.40	6.9	.46	.70	.85	.37	.34
26	.34	.85	.43	.43	.53	.40	6.7	.46	.65	.92	.37	.34
27	.34	.80	.43	.43	.49	.40	8.3	.43	2.5	1.04	.37	.46
28	.34	.70	.46	.40	.49	.40	1.5	.40	1.6	1.29	.37	.40
29	.34	.65	.43	.49	.49	.37	4.0	-	1.0	.80	.37	.46
30	.34	.65	.40	.80	.49	.37	3.0	-	2.4	.75	.37	.70
31	.34	.61	-	.94	-	.35	10	-	1.3	-	.37	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.55	0.34	0.374	0.579	11.6	36
August	3.35	.34	.912	1.41	28.3	87
September	.65	.40	.504	.780	15.1	46
October	.94	.34	.411	.636	12.7	39
November	2.15	.49	.659	1.02	19.8	61
December	5.0	.35	.874	1.35	27.1	83
Calendar year 1945	5.7	.29	.615	.952	224	689
January	10.0	.34	2.61	4.04	80.9	248
February	3.6	.40	.898	1.39	25.1	77
March	2.5	.37	.794	1.23	24.6	76
April	1.30	.65	.869	1.34	26.1	80
May	.70	.37	.461	.713	14.3	44
June	.70	.31	.378	.585	11.3	35
Fiscal year 1945-46	10.0	.31	.813	1.26	297	912

Note.- No gage-height record Dec. 31 to Jan. 6, Jan. 28 to Feb. 4, Feb. 27 to Mar. 3, Mar. 26 to Apr. 2; discharge computed on basis of records for Paakea Stream.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Average discharge.- 14 years, 4.17 million gallons a day (6.45 second-feet).

Extremes.- Maximum discharge during year, 183 million gallons a day (283 second-feet) Jan. 22 (gage height, 4.64 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) many times.

1932-46: 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 1945-46 (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		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.75	2.1	2.8	2.1	2.55	2.0	1.88	4.1	2.0	5.7	2.55	1.88
2	3.05	2.1	2.7	2.0	2.55	12.5	1.88	3.4	2.0	4.8	2.55	1.88
3	2.4	2.1	2.7	2.0	2.4	21	1.88	2.9	2.0	8.9	3.2	1.88
4	2.25	2.1	2.7	1.88	2.25	13.0	1.88	2.4	2.1	3.9	2.55	1.88
5	2.25	9.0	2.7	1.88	2.4	12.5	1.88	5.3	2.1	3.6	2.4	1.88
6	2.1	8.5	2.7	1.88	3.15	4.6	2.0	8.1	2.4	3.4	2.4	1.88
7	2.1	7.0	3.0	1.88	4.3	3.75	1.88	19.5	3.7	3.25	2.4	1.88
8	2.0	6.9	2.5	1.88	2.7	3.05	1.88	3.6	3.8	3.9	2.25	1.88
9	2.0	5.7	2.3	1.88	5.4	2.55	1.88	3.25	2.7	3.75	2.25	1.88
10	2.0	3.6	2.3	1.88	2.7	2.4	1.88	3.25	2.55	2.9	2.1	2.0
11	2.25	3.6	2.4	1.88	2.55	2.4	2.0	10.9	4.8	2.7	2.1	2.1
12	2.1	4.4	2.2	1.88	2.7	2.4	2.0	10.4	2.55	2.7	2.1	1.88
13	2.0	3.8	2.2	1.88	2.55	2.25	1.88	3.05	3.2	3.05	2.1	1.88
14	1.88	3.25	6.0	1.88	2.4	2.1	1.88	2.9	7.2	3.9	2.1	3.7
15	2.0	4.0	2.5	1.88	2.55	2.1	1.88	2.7	5.5	3.4	2.0	2.45
16	4.4	4.4	2.2	2.1	2.55	2.1	4.2	12.8	3.95	10.6	2.0	2.1
17	2.25	3.05	2.1	2.1	2.4	2.1	42	21	4.7	14.1	2.0	2.1
18	2.1	6.6	2.1	2.25	2.25	2.0	4.1	2.55	5.9	7.8	2.0	2.0
19	2.1	4.8	2.1	2.25	2.25	2.0	2.7	2.4	15.5	3.25	2.0	2.0
20	2.1	5.0	2.1	2.1	2.25	2.0	2.55	2.4	3.6	3.25	2.0	2.25
21	2.0	3.0	2.1	2.1	2.25	2.0	2.4	2.25	4.1	5.2	2.0	2.4
22	2.0	2.8	2.1	2.1	2.25	2.0	22.5	2.25	3.6	4.0	2.0	2.25
23	2.0	8.0	2.1	2.1	3.25	1.88	17.3	2.1	7.8	5.1	2.0	2.25
24	2.0	19	2.1	4.4	2.7	1.88	20	2.1	4.1	8.7	2.0	2.25
25	2.1	6.0	2.1	2.4	2.25	1.88	4.4	2.1	3.4	10.1	2.0	2.25
26	2.0	5.0	2.1	2.55	2.25	1.88	5.6	2.1	3.25	9.1	2.0	2.4
27	2.0	4.0	2.1	3.35	2.1	1.88	3.4	2.0	16.1	3.6	1.88	2.55
28	2.0	3.6	3.35	2.4	2.1	1.88	3.05	2.0	9.8	3.25	1.88	2.25
29	2.0	3.3	2.1	4.3	2.0	1.88	5.2	-	5.2	2.8	1.88	3.65
30	2.25	3.3	2.1	8.9	2.0	1.88	7.4	-	16.2	2.9	1.88	4.0
31	2.25	3.0	-	9.3	-	1.88	19.4	-	7.3	-	1.88	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.4	1.88	2.25	3.48	69.7	214
August	19	2.1	4.93	7.63	153	469
September	6.0	2.1	2.48	3.84	74.6	229
October	9.3	1.88	2.69	4.16	83.4	256
November	5.4	2.0	2.60	4.02	78.0	239
December	21	1.88	3.86	5.97	120	367
Calendar year 1945	21	1.75	2.97	4.60	1,080	3,330
January	42	1.88	6.28	9.72	195	598
February	21	2.0	5.14	7.95	144	441
March	16.2	2.0	5.26	8.14	163	501
April	14.1	2.7	5.12	7.92	154	471
May	3.2	1.88	2.14	3.31	66.4	204
June	4.0	1.88	2.25	3.48	67.6	208
Fiscal year 1945-46	42	1.88	3.75	5.80	1,370	4,200

Note.- No gage-height record Aug. 5-7, Aug. 20 to Sept. 4, Sept. 6-18; discharge computed on basis of records for Waiaaka Stream.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 24 years (1922-46), 7.90 million gallons a day (12.2 second-feet).

Extremes.- Maximum discharge during year, 376 million gallons a day (582 second-feet) Jan. 17 (gage height, 4.53 feet), from rating curve extended above 50 million gallons a day; minimum, 1.63 million gallons a day (2.52 second-feet) Jan. 15, 16.
1921-46: 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 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 1945-46 (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	2.6	93
.8	3.8	1.4	16.3		
.9	5.1	1.6	24		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.6	3.05	4.8	2.75	5.1	2.45	1.93	5.8	2.3	15.4	5.8	2.15
2	4.1	2.55	4.8	2.7	6.3	15.8	1.87	3.8	2.3	12	5.1	2.15
3	2.85	2.3	6.2	2.6	3.95	35	1.87	3.3	2.3	29	7.5	2.05
4	2.6	2.2	5.6	2.55	3.25	21	1.81	3.05	2.7	16	5.3	2.05
5	2.55	20.5	6.0	2.45	4.6	19.1	1.81	2.85	2.3	10.9	4.7	2.2
6	2.45	17.6	4.8	2.45	7.3	7.0	1.93	5.0	4.3	9.3	4.3	2.05
7	2.3	10.3	7.0	2.35	11.0	4.1	1.87	30	6.9	7.5	3.95	1.99
8	2.3	10.3	4.4	2.35	7.3	3.6	1.75	5.1	11.6	6.4	3.7	1.99
9	2.3	8.6	3.8	2.3	18.8	3.3	1.75	4.0	8.7	8.5	3.5	2.05
10	2.3	5.6	3.95	2.3	5.3	3.15	1.75	3.3	5.5	8.0	3.4	2.05
11	3.0	8.7	4.8	2.2	3.7	3.05	3.1	3.3	10.1	6.2	3.3	1.87
12	2.2	7.6	3.8	2.15	4.0	3.4	1.99	3.15	3.45	6.2	3.3	1.81
13	2.1	4.8	3.6	2.05	3.5	3.15	1.87	3.8	7.8	6.4	3.3	1.75
14	2.1	3.6	13.4	2.15	3.5	2.95	1.75	3.25	20.5	9.1	3.15	4.4
15	2.3	10.2	4.7	2.15	3.5	2.85	1.69	2.95	11.3	8.0	3.05	3.0
16	5.0	10.6	3.95	2.85	11.7	2.75	7.1	17.4	7.7	17.8	3.05	1.99
17	2.4	3.95	3.8	2.3	4.7	2.7	94	75	11.7	32	2.85	1.93
18	2.2	11.9	3.5	4.1	3.4	2.6	12.5	5.9	30.5	15.7	2.75	1.87
19	2.2	10.4	3.3	3.05	3.15	2.55	3.2	4.2	29.5	8.1	2.7	1.81
20	2.2	9.3	3.25	2.45	2.95	2.55	2.45	3.3	9.6	7.5	2.7	2.4
21	2.1	8.4	3.15	2.2	2.85	2.45	2.35	3.05	14.5	13.3	2.6	2.8
22	2.0	5.5	3.05	2.15	2.85	2.45	20.5	2.85	11.0	10.6	2.55	2.45
23	2.0	29.5	3.05	2.2	7.5	2.35	36	2.75	17.0	10.4	2.45	2.45
24	1.9	19.7	2.95	4.5	6.6	2.3	38.5	2.7	11.1	21	2.45	2.6
25	1.9	7.9	2.85	3.2	3.4	2.2	6.0	2.6	7.9	20	2.35	2.6
26	1.8	5.4	2.85	5.0	3.05	2.2	15.0	2.45	7.2	20	2.35	2.7
27	1.8	5.2	2.75	4.9	2.85	2.2	7.5	2.45	34	8.8	2.3	3.15
28	1.8	4.7	5.7	4.9	2.75	2.15	5.0	2.35	25.5	7.0	2.3	2.3
29	1.8	4.4	3.25	11.8	2.7	2.05	15.8	-	12.9	6.6	2.3	4.1
30	3.5	4.6	2.85	14.9	2.6	2.05	9.6	-	26.5	7.7	2.3	5.7
31	3.3	4.8	-	19.9	-	1.99	41	-	18.0	-	2.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.6	1.8	2.55	3.95	79.0	242
August	29.5	2.2	8.52	13.2	264	811
September	13.4	2.75	4.40	6.81	132	405
October	19.9	2.05	4.06	6.28	126	386
November	18.8	2.6	5.14	7.95	154	473
December	35	1.99	5.40	8.36	167	514
Calendar year 1945	38.5	1.41	4.72	7.30	1,720	5,280
January	94	1.69	11.1	17.2	345	1,060
February	75	2.35	7.49	11.6	210	643
March	34	2.3	12.2	18.9	377	1,160
April	32	6.2	12.2	18.9	365	1,120
May	7.5	2.3	3.34	5.17	104	318
June	5.7	1.75	2.48	3.84	74.4	228
Fiscal year 1945-46	94	1.69	6.57	10.2	2,400	7,360

Note.- No gage-height record July 9-31, Apr. 2-4, 27, 28; discharge computed on basis of records for Hanawi Stream.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 22 years (1922-34, 1936-46), 18.3 million gallons a day (28.3 second-feet).

Extremes.- Maximum discharge during year, 1,850 million gallons a day (2,860 second-feet) Jan. 17 (gage height, 6.38 feet), from rating curve extended above 10 million gallons a day; minimum, 1.58 million gallons a day (2.44 second-feet) June 18.
1914-17, 1921-46: 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, which are poor. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.20	0.7	9.0	1.4	43	3.0	265
.4	2.15	.8	12.3	1.8	77	3.5	400
.5	3.65	.9	15.8	2.2	122	4.0	555
.6	6.0	1.1	25	2.6	185	4.5	750

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.8	4.0	7.5	2.9	16.2	2.9	1.96	27	3.05	38	12.0	2.15
2	5.3	3.35	8.2	2.9	18.8	32	1.86	12.9	2.9	28.5	9.6	2.05
3	3.5	2.75	14.5	2.75	12.1	99	1.86	8.1	2.9	90	14.7	1.96
4	3.05	2.65	13.5	2.6	6.3	50	1.86	6.9	3.85	43	9.3	1.96
5	3.05	46	13.7	2.6	12.9	39.5	1.77	6.0	3.05	26.5	8.1	2.3
6	2.9	45	10.3	2.45	23	18.6	2.45	5.3	7.6	20	6.9	1.96
7	2.45	31.5	16.4	2.3	39	7.8	2.05	73	15.2	14.8	6.6	1.86
8	2.3	18.8	8.4	2.15	27.5	5.4	1.77	a9.1	35	11.3	5.4	1.86
9	2.3	18.7	6.0	2.3	79	4.3	1.68	a9.1	37.5	17.2	5.2	2.55
10	2.55	14.6	6.0	2.15	21	4.0	1.68	a4.9	19.6	17.7	4.5	2.45
11	5.0	26.5	10.0	2.05	9.3	3.65	7.3	a4.5	28.5	11.7	4.3	1.86
12	2.15	24	5.4	1.96	7.2	6.6	5.8	a3.6	9.6	11.7	4.7	1.77
13	1.96	10.6	4.7	1.86	7.0	4.9	3.8	6.3	20	10.7	4.3	1.68
14	1.96	6.3	32.5	2.05	8.2	3.65	2.05	5.2	72	16.6	3.85	4.5
15	2.05	26.5	9.1	2.05	7.0	3.35	1.86	3.85	29.5	18.7	3.65	3.4
16	9.6	36.5	5.7	4.7	29	3.2	38	48	21	32	3.65	1.77
17	2.75	7.8	5.4	2.6	11.6	3.05	543	588	37	126	3.35	1.77
18	2.75	31	4.5	9.7	5.7	3.05	47	28	113	36	3.35	1.77
19	2.6	29	4.0	7.1	4.5	2.9	9.9	12.0	108	16.7	3.2	1.77
20	2.9	29.5	3.85	3.2	4.0	3.2	6.6	7.5	29	14.0	3.2	2.55
21	2.15	28.5	3.65	2.9	3.65	2.9	5.4	5.4	48	28	2.9	3.4
22	2.15	15.8	3.5	2.75	3.65	2.6	26	4.5	31	21.5	3.05	2.9
23	2.15	109	3.35	2.9	17.5	2.6	155	4.3	40	19.4	2.75	2.45
24	1.96	58	3.35	7.0	13	2.45	114	4.0	30	55	2.75	3.35
25	1.96	20	3.2	5.9	4.7	2.45	16.6	3.5	21.5	46	2.6	2.6
26	1.77	11.7	3.05	13.3	4.3	2.3	87	3.35	21.5	49	2.45	2.6
27	1.96	8.7	2.9	10.9	3.65	2.15	30.5	3.2	110	22.5	2.45	3.2
28	2.3	6.6	10	20	3.35	2.15	13.5	3.2	103	16.2	2.3	2.05
29	2.15	6.3	3.65	36	3.2	2.15	63	-	29	14.7	2.3	4.4
30	6.8	5.7	3.05	37	3.05	2.05	42	-	51	16.2	2.15	6.9
31	4.5	7.2	-	69	-	1.96	141	-	44	-	2.15	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.8	1.77	3.38	5.23	105	322
August	109	2.65	22.3	34.5	693	2,130
September	32.5	2.9	7.64	11.8	229	704
October	69	1.86	8.71	13.5	270	829
November	79	3.05	13.6	21.0	409	1,260
December	99	1.96	10.5	16.2	327	1,000
Calendar year 1945	274	1.39	11.6	17.9	4,230	13,000
January	543	1.68	44.5	68.9	1,380	4,230
February	588	3.2	32.2	49.8	901	2,760
March	113	2.9	36.4	56.3	1,130	3,460
April	126	10.7	29.7	46.0	890	2,730
May	14.7	2.15	4.76	7.36	148	453
June	6.9	1.68	2.59	4.01	77.8	239
Fiscal year 1945-46	588	1.68	18.0	27.9	6,560	20,120

a Faulty gage-height record; discharge computed on basis of probable decrease in flow.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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East Wailuaiki Stream near Keanae

Location.- Lat. 20°49'05", long. 156°08'25", 1,000 feet upstream from Koolau ditch crossing and trail and 3 miles southeast of Keanae post office.

Drainage area.- 3.7 square miles.

Records available.- December 1913 to October 1917, July 1922 to June 1946.

Average discharge.- 24 years (1922-46), 19.3 million gallons a day (29.9 second-feet).

Extremes.- Maximum discharge during year, 1,190 million gallons a day (1,840 second-feet) Jan. 17 (gage height, 6.92 feet); minimum, 1.80 million gallons a day (2.79 second-feet) June 18.
1913-17, 1922-46: 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 fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.50	1.0	6.0	2.4	46	4.5	310
.5	2.1	1.2	8.5	2.8	72	5.0	425
.6	2.7	1.4	11.5	3.2	105		
.7	3.35	1.7	18.5	3.6	151		
.8	4.1	2.0	28	4.0	213		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.8	4.5	6.4	2.75	19	2.75	2.45	25.5	3.2	45	11.5	2.85
2	5.5	3.5	6.6	3.0	21	67	2.4	12.5	3.15	34	9.9	2.65
3	3.6	2.85	10.3	2.7	14	123	2.4	8.0	3.1	95	15.9	2.6
4	3.2	2.65	10.0	2.6	8.5	62	2.35	5.7	4.2	53	10.1	2.6
5	2.9	67	10.0	2.5	15	41	2.3	4.8	3.15	32	8.4	3.0
6	2.7	58	8.0	2.45	25	14.7	3.55	6.4	10.6	22	7.6	2.7
7	2.4	40	13.3	2.35	47	7.6	2.9	62	23.5	15	7.2	2.45
8	2.3	20.5	7.5	2.35	32	6.1	2.35	7.4	40	12	6.8	2.5
9	2.3	19.6	5.8	2.5	95	5.5	2.3	6.6	35	16	6.4	3.7
10	2.5	13.4	6.2	2.3	22	4.9	2.2	5.0	16.5	16.6	5.8	3.3
11	5.5	31.5	10.1	2.2	11	4.7	7.4	5.0	34	10.7	5.5	2.5
12	2.8	25.5	5.2	2.15	8.5	6.3	6.0	4.5	8.6	11.5	5.9	2.3
13	2.3	10.0	4.9	2.1	10	5.7	5.1	6.5	20.5	10.4	5.6	2.2
14	2.1	6.4	40	2.3	30	4.6	2.5	4.8	84	18.2	5.0	5.3
15	2.3	33.5	8.0	2.4	11	4.1	2.15	4.0	34	18.8	4.8	3.8
16	10	24.5	5.6	6.5	9.0	3.8	23	72	21.5	49	4.8	2.2
17	3.1	3.8	5.5	3.1	7.5	3.65	383	413	35	138	4.4	2.2
18	3.3	33	4.6	13.9	5.5	3.5	81	29.5	120	55	4.3	2.2
19	2.8	30	4.2	6.1	4.4	3.4	10.3	11.6	124	19.3	4.2	2.2
20	2.9	33	3.9	3.15	3.8	3.4	5.3	7.5	32	15.2	4.0	3.4
21	2.3	30	3.65	2.6	3.6	3.3	4.4	5.8	53	32	3.8	5.2
22	2.2	14	3.5	2.4	3.6	3.15	34	5.0	34	22.5	3.9	3.85
23	2.4	120	3.35	2.45	19.6	3.0	144	4.8	52	25.5	3.6	3.0
24	2.1	90	3.2	5.8	12.7	2.95	151	4.6	31.5	70	3.5	4.9
25	2.3	16	3.1	4.7	4.6	2.9	25.5	4.0	19.8	69	3.35	3.5
26	1.9	10	3.0	11.8	4.0	2.8	55	3.7	18.5	66	3.2	3.4
27	2.3	8.0	2.95	10.4	3.5	2.7	43	3.5	130	24	3.15	3.8
28	3.0	7.0	12.8	16.8	3.15	2.65	10.1	3.35	120	16.0	3.1	2.8
29	2.8	6.4	3.85	47	2.95	2.6	39.5	-	35	14.8	3.0	4.5
30	8.5	5.8	2.95	47	2.9	2.5	12.9	-	60	17.1	2.95	7.5
31	5.0	7.0	-	80	-	2.45	120	-	58	-	2.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.8	1.9	3.67	5.68	114	349
August	120	2.65	25.1	38.8	777	2,390
September	40	2.95	7.28	11.3	218	670
October	80	2.1	9.69	15.0	300	922
November	95	2.9	15.3	23.7	460	1,410
December	123	2.45	13.2	20.4	409	1,250
Calendar year 1945	230	1.4	13.0	20.1	4,730	14,530
January	383	2.15	38.4	59.4	1,190	3,650
February	413	3.35	26.3	40.7	737	2,260
March	130	3.1	40.9	63.3	1,270	3,890
April	138	10.4	34.8	53.8	1,040	3,200
May	15.9	2.9	5.63	8.71	175	536
June	7.5	2.2	3.30	5.11	99.1	304
Fiscal year 1945-46	413	1.9	18.6	28.8	6,790	20,830

Note.- No gage-height record July 4-31, Aug. 18-28, Oct. 31 to Nov. 20, Mar. 27 to Apr. 9; discharge computed on basis of records for West Wailuaiki and West Kopiliula Streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 24 years (1922-46), 24.5 million gallons a day (37.9 second-feet).

Extremes.- Maximum discharge during year, 2,320 million gallons a day (3,590 second-feet) Jan. 17 (gage height, 9.85 feet), from rating curve extended above 420 million gallons a day; minimum, 1.58 million gallons a day (2.44 second-feet) June 18, 19.
1914-17, 1921-46: 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 Sept. 23 to Nov. 6, Jan. 18 to Feb. 6, which are fair. No diversions above station. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	19.3	5.8	8.6	3.5	22	3.6	2.1	d30	6.3	54	13.4	2.15
2	7.4	4.6	10.0	3.3	25	70	2.05	d13	6.7	37	11.5	2.0
3	5.0	3.5	14.5	3.2	16	153	2.0	d9.5	7.4	124	17.0	1.96
4	4.3	3.15	14.5	3.0	10	82	1.96	d7.6	10.4	61	11.6	2.0
5	3.9	70	13.5	2.9	19	40	1.92	d6.5	7.0	35	9.5	2.3
6	3.6	76	11.5	2.7	30	17.7	3.7	d7.5	11.6	25	8.4	2.05
7	3.2	52	17.4	2.6	56	10.2	2.75	51	25	17.1	7.8	1.83
8	3.0	25.5	11.2	2.5	36	8.1	2.05	9.6	50	13.5	7.3	1.83
9	2.9	26	8.4	2.6	120	6.9	1.92	7.9	44	17.3	6.6	3.25
10	3.15	19.1	8.1	2.4	28	5.9	1.83	7.1	21.5	19.5	5.9	2.85
11	6.7	44	13.0	2.2	13.2	5.5	8.0	7.6	40	12.3	5.4	1.92
12	2.95	32	7.6	2.1	10.0	7.9	8.1	5.7	11.4	12.6	5.6	1.74
13	2.65	14.7	6.7	2.0	12.2	7.9	6.2	7.8	21	11.0	5.2	1.65
14	2.55	9.7	47	2.2	39	5.4	2.6	6.0	99	18.0	4.6	3.55
15	2.6	46	11.8	2.4	14.1	4.4	2.1	5.1	36.5	20	4.3	2.8
16	12.9	54	8.4	7.2	11.4	4.0	29	134	25.5	52	4.1	1.70
17	3.7	12.2	8.0	3.8	10.6	3.6	644	694	40	172	3.6	1.65
18	3.95	47	6.7	16	7.2	3.4	d81	47	f138	63	3.4	1.65
19	3.25	42	5.9	8.0	6.0	3.25	d13	22	107	22.5	3.25	1.65
20	3.4	47	5.3	4.0	5.4	3.25	d8.0	15.0	f40	17.0	3.2	2.5
21	2.8	44	4.8	3.5	4.9	3.2	d7.4	12.1	67	32	3.0	4.8
22	2.65	21.5	4.4	3.2	4.8	2.95	d32	9.5	45	25.5	3.0	3.25
23	3.2	153	4.2	3.3	23.5	2.8	d182	9.0	64	28.5	2.8	2.5
24	2.6	110	4.0	7.6	16.5	2.65	d178	8.3	39	81	2.65	4.5
25	2.6	27.5	3.8	6.6	7.0	2.6	d38.5	6.9	26	79	2.55	3.0
26	2.3	16.5	3.7	16	6.2	2.55	d63	6.6	24.5	80	2.5	2.85
27	2.75	12.5	3.5	14	5.1	2.45	d51	6.3	154	30	2.3	3.55
28	3.5	9.9	14	22	4.6	2.4	d11.9	6.3	151	19.6	2.25	2.3
29	3.1	9.0	4.5	54	4.2	2.3	d53	-	40	17.1	2.25	4.6
30	9.6	8.1	3.5	56	3.9	2.2	d16.0	-	72	19.8	2.25	8.7
31	7.7	9.2	-	100	-	2.15	d160	-	67	-	2.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maxisum	Minimum	Mean		Million gallons	Acre-feet
July	19.3	2.3	4.62	7.15	143	439
August	153	3.15	34.0	52.6	1,060	3,240
September	47	3.5	9.62	14.9	288	885
October	100	2.0	11.8	18.3	365	1,120
November	120	3.9	19.1	29.6	572	1,750
December	153	2.15	15.3	23.7	474	1,460
Calendar year 1945	260	1.31	15.3	23.7	5,600	17,160
January	644	1.83	52.2	80.0	1,620	4,960
February	694	5.1	41.4	64.1	1,160	3,560
March	154	6.3	48.3	74.7	1,500	4,600
April	172	11.0	40.5	62.7	1,220	3,730
May	17.0	2.25	5.47	8.46	169	520
June	8.7	1.65	2.77	4.29	83.1	255
Fiscal year 1945-46	694	1.65	23.7	36.7	8,650	26,520

d Intake action faulty; discharge computed as explained in note below.
f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Sept. 23 to Nov. 6, Mar. 19; discharge computed on basis of records for East Wailuaiki and West Kopiliula Streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 June 1946. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.
Average discharge.- 10 years (1932-35, 1939-46), 8.80 million gallons a day (13.6 second-feet).
Extremes.- Maximum discharge during year, 514 million gallons a day (795 second-feet) Jan. 17 (gage height, 5.83 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.
1932-36, 1938-46: 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, that of June 13, 14, 1946.
Remarks.- Records good except those for Aug. 8 to Sept. 27, Sept. 30 to Oct. 15, 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.11	0.8	4.8	2.0	42
.4	.30	.9	7.1	2.5	67
.5	.75	1.1	12.1	3.0	98
.6	1.55	1.3	18.0	3.5	145
.7	2.8	1.6	27	4.1	215

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.7	0.30	1.1	0.37	3.4	0.40	0.30	4.7	0.48	33	1.28	0.25
2	.52	.25	1.2	.40	11.8	39.5	.30	2.5	.48	21	1.19	.23
3	.30	.23	1.4	.37	1.61	87	.28	1.97	.48	67	7.3	.23
4	.28	.23	1.5	.33	.48	51	.28	1.65	.63	31	1.62	.25
5	.28	42	1.7	.30	1.91	25	.25	1.46	.44	17.4	1.10	.25
6	.28	39.5	1.3	.30	6.4	7.7	.51	1.88	2.15	9.7	.95	.23
7	.23	19.5	2.2	.30	21.5	2.35	.37	34	4.2	2.9	.88	.15
8	.23	14	1.4	.28	6.9	1.87	.30	2.1	15.3	1.87	.88	.15
9	.23	9.0	1.0	.28	55	1.55	.25	1.76	11.3	4.0	.81	.21
10	.28	3.0	1.0	.28	8.9	1.28	.25	2.0	.75	4.4	.75	.23
11	.38	6.0	1.6	.25	.88	1.19	.25	1.76	18.3	1.55	.69	.15
12	.21	7.0	.85	.25	.81	1.28	.28	1.55	.88	1.76	.75	.13
13	.19	2.5	.85	.25	.75	1.19	.23	1.37	4.4	1.87	.69	.11
14	.19	1.3	11	.28	1.51	.88	.23	1.19	47	7.5	.63	2.1
15	.24	20	1.3	.30	.96	.81	.21	1.10	22	7.4	.58	1.67
16	5.5	10	.88	.48	2.3	.75	8.6	29.5	8.0	37	.58	.23
17	.30	1.5	.88	.30	1.25	.69	198	208	13.0	62	.52	.21
18	.25	15	.75	2.4	.58	.63	44	17.2	59	48	.48	.19
19	.25	10	.70	.40	.52	.58	5.6	1.37	70	12.4	.52	.21
20	.25	9.0	.64	.30	.48	58	1.02	2.7	16.9	4.1	.58	.25
21	.21	2.8	.58	.30	.48	.58	1.02	1.02	33	15.4	.48	.30
22	.21	1.9	.58	.25	.48	.52	37	.95	19.6	14.0	.44	.25
23	.19	65	.52	.23	7.3	.48	88	.88	37	17.3	.40	.30
24	.19	58	.48	.23	4.8	.48	101	.75	22	41	.40	.25
25	.25	3.0	.44	.45	.63	.44	21.5	.69	8.5	51	.33	.25
26	.19	1.8	.40	2.45	.58	.40	24	.63	5.7	46	.30	.23
27	.23	1.6	.37	2.75	.48	.37	21.5	.58	66	13.3	.28	.48
28	.25	1.3	1.93	3.95	.48	.37	2.1	.52	80	3.2	.28	.25
29	.23	1.2	.44	19.0	.44	.33	7.4	-	31.5	2.2	.28	1.48
30	.57	1.1	.37	26.5	.40	.33	3.7	-	59	7.1	.25	5.3
31	.52	1.3	-	50	-	.30	52	-	40	-	.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.7	0.19	0.649	1.00	20.1	62
August	65	.23	11.3	17.5	349	1,070
September	11	.37	1.31	2.03	39.4	121
October	50	.23	3.69	5.71	115	351
November	55	.40	4.80	7.43	144	442
December	87	.30	7.45	11.5	231	708
Calendar year 1945	104	.19	5.08	7.86	1,850	5,680
January	198	.21	20.0	30.9	621	1,900
February	208	.52	11.6	17.9	326	1,000
March	80	.44	22.5	34.8	698	2,140
April	67	1.55	19.5	30.2	586	1,800
May	7.3	.25	.854	1.32	26.5	81
June	5.3	.11	.551	.853	16.5	51
Fiscal year 1945-46	208	.11	8.69	13.4	3,170	9,730

Note.- No gage-height record Aug. 8 to Sept. 27, Sept. 30 to Oct. 15; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

East Wailuanui Stream near Keanae

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

Drainage area.- 0.6 square mile.

Records available.- November 1921 to June 1946. January 1914 to October 1917 at site 500 feet upstream.

Average discharge.- 24 years (1922-46), 5.67 million gallons a day (8.77 second-feet).

Extremes.- Maximum discharge during year, 211 million gallons a day (326 second-feet) Jan. 17 (gage height, 3.17 feet), from rating curve extended above 50 million gallons a day; minimum, 0.38 million gallons a day (0.59 second-foot) Oct. 13, 14.
1914-17, 1921-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.30	0.8	9.2
.4	.89	.9	12.5
.5	2.3	1.1	22
.6	4.2	1.3	33
.7	6.3	1.5	46

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.2	2.05	2.45	0.65	4.2	0.89	0.47	4.6	0.89	21	5.7	0.59
2	3.15	1.77	2.8	.72	3.5	18.0	.47	3.2	.89	9.7	1.92	.53
3	1.93	1.20	3.2	.65	2.45	34	.47	2.3	.99	25.5	6.7	.53
4	1.45	1.20	3.4	.59	1.93	22	.47	1.93	1.20	7.4	3.85	.53
5	1.32	23	3.8	.53	2.75	14.7	.47	1.77	.89	6.8	3.0	.72
6	1.20	21	2.8	.53	5.5	5.9	.92	2.9	4.9	6.1	2.65	.59
7	1.09	12.3	4.6	.53	5.8	2.8	.59	16.8	3.5	4.8	2.3	.47
8	.99	10.6	2.8	.47	5.0	2.3	.47	2.8	7.3	4.0	2.3	.47
9	.99	9.5	2.3	.53	13.3	1.93	.47	2.3	4.4	4.8	1.93	1.06
10	1.29	5.3	2.3	.47	3.8	1.77	.47	1.93	2.8	4.6	1.77	.80
11	3.35	6.2	3.3	.42	2.65	1.45	.53	1.77	9.5	3.8	1.61	.47
12	1.09	6.7	1.93	.42	2.3	1.93	.80	1.61	2.8	3.8	1.77	.42
13	.89	4.1	1.93	.42	3.0	1.77	.99	2.35	6.1	3.8	1.61	.42
14	.89	2.8	8.5	.53	3.15	1.32	.53	1.77	15.8	7.0	1.32	2.9
15	.99	9.9	2.8	.53	1.93	1.20	.47	1.77	11.3	6.7	1.20	1.90
16	6.8	7.0	2.05	2.5	1.77	1.09	6.6	17.5	7.2	20	1.20	.59
17	1.45	3.0	2.05	.72	1.45	.99	56	47	7.5	27	1.09	.53
18	1.61	10.8	1.77	3.9	1.32	.99	9.2	4.4	18.4	18.4	1.09	.53
19	1.20	7.8	1.61	1.75	1.20	.89	2.3	2.8	25.5	6.6	.99	.53
20	1.32	6.7	1.32	.80	1.09	.89	1.45	2.3	7.3	5.7	.99	1.17
21	1.09	4.8	1.20	.65	1.09	.80	1.45	1.93	8.4	7.2	.89	2.6
22	.89	3.9	1.20	.59	1.20	.72	17.9	1.77	7.2	7.5	.89	1.37
23	.89	27.5	1.09	.59	6.8	.72	30.5	1.61	14.8	13.6	.80	.99
24	.80	15.6	.99	.84	4.9	.72	40	1.32	7.5	19.4	.72	2.3
25	.80	5.9	.89	1.12	1.77	.65	5.9	1.20	4.6	24.5	.72	1.32
26	.72	3.8	.80	3.25	1.45	.65	7.2	1.20	3.8	19.0	.72	1.34
27	.89	3.4	.72	3.5	1.20	.59	5.4	1.09	28.5	6.3	.65	2.05
28	1.09	2.8	1.96	4.0	1.20	.59	2.8	.99	25.5	4.8	.65	.99
29	.99	2.65	.99	9.4	1.09	.53	3.75	-	10.4	4.5	.65	2.95
30	3.75	2.45	.72	15.0	.99	.53	2.55	-	27	5.6	.65	6.7
31	2.4	2.8	-	7.3	-	.53	23.5	-	15.5	-	.65	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.8	0.72	1.73	2.68	53.5	164
August	27.5	1.20	7.37	11.4	229	701
September	8.5	.72	2.28	3.53	68.3	210
October	15.0	.42	2.06	3.19	63.9	196
November	13.3	.99	2.99	4.63	89.8	276
December	34	.53	3.99	6.17	124	380
Calendar year 1945	34	.30	3.14	4.86	1,150	3,520
January	56	.47	7.26	11.2	225	691
February	47	.99	4.82	7.46	135	414
March	28.5	.89	9.43	14.6	292	897
April	27	3.8	10.3	15.9	310	951
May	6.7	.65	1.71	2.65	53.0	163
June	6.7	.42	1.28	1.98	38.4	118
Fiscal year 1945-46	56	.42	4.61	7.13	1,680	5,160

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 mile.

Records available.- December 1913 to October 1917, July 1922 to June 1946.

Average discharge.- 24 years (1922-46), 9.04 million gallons a day (14.0 second-feet).

Extremes.- Maximum discharge during year, 1,050 million gallons a day (1,620 second-feet) Jan. 17 (gage height, 5.94 feet), from rating curve extended above 130 million gallons a day; minimum, 0.47 million gallons a day (0.73 second-foot) Jan. 10, 11.
1913-17, 1922-46: 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 1945-46 (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		
1.0	2.0	1.5	10.5	2.2	49		
1.1	2.95	1.6	13.7	2.5	82		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.6	2.1	2.95	1.00	7.8	1.23	0.63	13.0	1.48	18.1	5.3	0.85
2	3.35	1.60	3.3	1.05	13.7	27	.63	7.4	1.42	13.3	4.6	.75
3	2.1	1.30	3.95	.95	7.2	56	.56	a4.2	1.42	37.5	9.1	.66
4	1.74	1.23	3.95	.85	3.3	29	.56	a3.2	2.0	19.5	5.2	.70
5	1.60	23	4.8	.80	4.4	17.8	.53	a2.5	1.42	12.4	3.95	.92
6	1.48	21	3.6	.75	8.9	8.1	1.37	3.25	5.3	9.5	3.6	.75
7	1.30	12.5	5.4	.70	17.8	4.2	.86	17.0	5.5	7.3	3.3	.63
8	1.23	10.5	3.45	.66	11.0	3.3	.56	3.6	13.4	5.8	3.2	.63
9	1.17	9.9	2.75	.85	43	2.65	.50	2.95	12.0	7.1	2.75	1.26
10	1.42	6.3	2.8	.70	12.5	2.3	.50	2.65	7.1	7.0	2.55	1.14
11	3.65	8.4	4.2	.59	5.5	2.0	.85	2.85	13.8	5.3	2.4	.63
12	1.17	7.9	2.5	.56	3.95	3.15	1.30	2.3	4.8	5.5	2.65	.50
13	1.11	4.9	2.3	.53	5.1	2.9	1.41	3.1	7.7	5.2	2.4	.50
14	1.05	3.45	10.4	.71	7.6	1.82	.63	2.5	32	8.2	2.0	2.8
15	1.08	11.1	3.65	.81	4.8	1.54	.50	3.65	14.9	8.3	1.87	2.65
16	6.1	15.2	2.65	2.95	3.2	1.42	7.8	31	10.2	21.5	1.74	.66
17	1.48	4.4	2.65	1.09	2.85	1.30	232	244	11.2	40	1.54	.63
18	1.54	13.1	2.2	4.4	2.3	1.23	43	20.5	37.5	24.5	1.48	.56
19	1.36	11.3	1.90	2.15	1.90	1.17	7.5	8.7	47	9.8	1.42	.59
20	1.42	13.7	1.74	1.05	1.67	1.23	4.4	5.5	14.2	8.2	1.42	1.15
21	1.11	11.0	1.60	.85	1.54	1.23	3.95	4.1	21.5	10.5	1.30	2.65
22	1.05	6.8	1.48	.75	1.54	1.11	26.5	3.3	13.7	10.6	1.30	1.59
23	1.00	44	1.42	.75	7.8	1.00	66	3.2	21	13.6	1.17	1.17
24	.90	37.5	1.36	.74	5.6	1.00	69	2.75	14.2	26	1.11	2.25
25	.95	10.2	1.30	1.36	2.3	.95	15.9	2.3	11.1	27	1.05	1.42
26	.85	6.2	1.17	3.35	1.82	.90	30	1.90	10.2	24.5	1.00	1.53
27	1.00	5.0	1.17	3.4	1.60	.85	22.5	1.74	53	11.2	.95	2.05
28	1.30	3.8	2.1	5.7	1.48	.80	6.5	1.60	54	8.0	.90	1.05
29	1.17	3.3	1.27	14.2	1.42	.75	7.6	-	16.3	7.0	.90	3.65
30	4.1	2.95	1.11	18.8	1.30	.70	8.4	-	27.5	8.0	.85	6.1
31	2.45	3.5	-	34	-	.66	31.5	-	20.5	-	.85	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.6	0.85	1.90	2.94	58.8	181
August	44	1.23	10.2	15.8	317	973
September	10.4	1.11	2.84	4.39	85.1	261
October	34	.53	3.45	5.34	107	329
November	43	1.30	6.50	10.1	195	598
December	56	.66	5.78	8.94	179	550
Calendar year 1945	100	.29	5.14	7.95	1,880	5,760
January	232	.50	19.2	29.7	594	1,820
February	244	1.60	14.5	22.4	405	1,240
March	54	1.42	16.4	25.4	507	1,560
April	40	5.2	14.0	21.7	420	1,290
May	9.1	.85	2.38	3.68	73.8	227
June	6.1	.50	1.41	2.18	42.4	130
Fiscal year 1945-46	244	.50	8.18	13.3	2,980	9,160

a Faulty gage-height record; discharge computed on basis of probable decrease in flow.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 11 years (1935-46), 2.42 million gallons a day (3.74 second-feet).

Extremes.- Maximum discharge during year, 7.6 million gallons a day (11.8 second-feet) Apr. 17 (gage height, 1.62 feet); minimum, 1.43 million gallons a day (2.21 second-feet) Aug. 2.

1934-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.2	1.47	2.0	1.92	1.93	1.69	1.74	1.69	2.05	3.0	2.8	2.35
2	1.64	1.47	2.1	1.92	1.74	2.3	1.74	1.60	2.05	2.8	2.8	2.3
3	1.60	1.47	2.05	1.92	1.74	3.0	1.74	1.60	2.05	3.5	2.9	2.35
4	1.56	1.47	2.05	1.92	1.69	2.55	1.74	1.56	2.05	2.95	2.8	2.4
5	1.60	2.5	2.05	1.92	1.74	2.2	1.74	1.56	2.05	2.8	2.7	2.4
6	1.56	3.05	2.1	1.92	1.87	2.0	1.74	1.56	2.1	2.75	2.7	2.4
7	1.56	2.8	2.05	1.87	2.2	1.78	1.69	1.82	2.4	2.7	2.7	2.4
8	1.52	2.4	2.05	1.87	1.82	1.74	1.69	1.60	2.8	2.65	2.65	2.35
9	1.52	2.4	2.05	1.87	2.55	1.74	1.64	1.56	2.5	2.65	2.6	2.35
10	1.56	2.1	2.05	1.82	1.88	1.74	1.64	1.60	2.05	2.65	2.55	2.3
11	1.64	2.4	2.15	1.82	1.78	1.74	1.64	1.60	2.65	2.6	2.55	2.3
12	1.60	2.25	2.05	1.82	1.78	1.74	1.64	1.60	2.2	2.6	2.5	2.3
13	1.56	1.92	2.05	1.82	1.77	1.74	1.64	1.56	2.15	2.6	2.45	2.3
14	1.56	1.74	2.6	1.82	1.95	1.74	1.64	1.56	3.1	2.7	2.45	2.3
15	1.60	2.4	2.05	1.82	1.78	1.74	1.64	1.60	2.75	2.8	2.45	2.3
16	1.92	2.45	2.05	1.78	1.74	1.74	1.74	2.1	2.5	3.1	2.45	2.3
17	1.60	1.82	2.05	1.74	1.74	1.74	4.0	4.3	2.6	3.95	2.45	2.25
18	1.60	2.3	2.05	1.74	1.74	1.74	2.25	1.74	3.3	3.45	2.45	2.25
19	1.60	2.35	2.05	1.74	1.69	1.74	1.69	1.56	3.5	2.9	2.4	2.2
20	1.60	2.45	2.0	1.74	1.69	1.74	1.56	1.78	2.65	2.9	2.4	2.2
21	1.60	2.15	1.96	1.74	1.69	1.74	1.52	2.1	2.85	2.9	2.4	2.2
22	1.56	2.0	1.96	1.69	1.69	1.74	2.25	2.05	2.7	2.9	2.4	2.2
23	1.56	2.95	1.96	1.69	1.93	1.74	2.8	2.05	3.05	3.0	2.4	2.15
24	1.52	2.9	1.96	1.69	1.83	1.74	3.1	2.05	2.7	3.45	2.4	2.15
25	1.52	2.2	1.96	1.69	1.78	1.74	1.93	2.05	2.55	3.6	2.4	2.15
26	1.52	2.0	1.96	1.69	1.74	1.74	1.80	2.05	2.45	3.45	2.4	2.15
27	1.52	1.87	1.96	1.69	1.69	1.74	1.86	2.05	3.5	2.95	2.35	2.15
28	1.52	1.92	1.96	1.83	1.69	1.74	1.60	2.05	3.6	2.9	2.35	2.1
29	1.47	2.15	1.92	2.05	1.69	1.74	1.60	-	2.85	2.85	2.35	2.15
30	1.52	2.0	1.92	2.25	1.69	1.74	1.52	-	3.15	2.95	2.35	2.25
31	1.47	2.0	-	2.7	-	1.74	2.1	-	3.1	-	2.35	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.2	1.47	1.59	2.46	49.4	152
August	3.05	1.47	2.17	3.36	67.4	207
September	2.6	1.92	2.04	3.16	61.2	188
October	2.7	1.69	1.85	2.86	57.5	176
November	2.55	1.69	1.81	2.80	54.2	166
December	3.0	1.69	1.85	2.86	57.3	176
Calendar year 1945	3.8	1.47	1.97	3.05	718	2,200
January	4.0	1.52	1.89	2.92	58.6	180
February	4.3	1.56	1.86	2.88	52.0	160
March	3.6	2.05	2.65	4.10	82.0	252
April	3.95	2.6	2.97	4.60	89.0	273
May	2.9	2.35	2.51	3.88	77.9	239
June	2.4	2.1	2.26	3.50	68.0	209
Fiscal year 1945-46	4.3	1.47	2.12	3.28	774	2,380

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Koolau ditch near Keanae

Location.- Lat. 20°49'55", long. 156°10'30", on west side of Keanae Valley, 2¾ 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 1946.

Average discharge.- 28 years (1918-46), 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, 6.8 million gallons a day (10.5 second-feet) Feb. 10.
1910-12, 1917-46: 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, 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	104	41	68	28	122	29.5	20	76	28	140	108	23
2	72	33	71	28	106	60	18.7	46	29.5	140	90	21.5
3	41	26	96	26	95	134	18.7	29.5	29.5	138	126	21.5
4	36	24.5	92	24.5	57	134	18.7	24.5	39	141	101	21.5
5	33	111	98	23	88	141	17.4	21.5	29.5	141	79	23
6	31	134	78	23	94	124	27	31	67	140	72	21.5
7	28	136	116	21.5	140	79	21.5	108	90	137	64	20
8	26	130	76	21.5	133	62	18.7	50	123	118	62	18.7
9	26	126	57	23	140	53	17.4	54	140	129	55	28
10	27.5	117	56	21.5	120	46	17.4	25.5	118	137	51	26
11	55	130	81	20	79	44	43	27	127	111	48	20
12	26	114	55	20	74	59	44	25.5	76	115	51	18.7
13	23	97	51	18.7	72	51	35	59	111	115	48	17.4
14	23	68	118	20	79	39	20	51	140	137	44	41
15	23	128	84	21.5	70	35	17.4	47	140	140	41	44
16	94	127	58	49	76	33	56	71	140	140	39	20
17	33	76	57	27	74	31	134	122	140	138	35	20
18	31	113	48	74	48	29.5	122	140	134	140	35	18.7
19	28	139	44	54	41	28	78	104	138	141	33	18.7
20	29.5	134	41	29.5	37	29.5	48	72	141	140	33	25.5
21	24.5	136	39	24.5	35	28	47	59	138	140	31	45
22	23	114	35	23	35	26	76	51	141	141	31	34
23	23	130	35	23	102	24.5	137	48	138	141	29.5	29.5
24	21.5	133	33	26	118	24.5	1·1	44	140	140	28	42
25	21.5	141	31	51	51	23	1·7	39	140	138	28	33
26	20	114	29.5	76	44	23	109	35	137	140	26	32
27	23	92	29.5	60	37	23	128	33	140	141	24.5	44
28	24.5	72	60	110	33	21.5	66	29.5	134	137	24.5	26
29	23	66	36	118	31	21.5	89	-	140	125	24.5	48
30	60	62	29.5	137	29.5	20	42	-	140	133	23	94
31	51	71	-	138	-	20	131	-	138	-	24.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	104	20	35.6	55.1	1,100	3,390
August	141	24.5	101	156	3,140	9,620
September	118	29.5	60.1	93.0	1,800	5,530
October	138	18.7	43.9	67.9	1,360	4,170
November	140	29.5	75.4	117	2,260	6,940
December	141	20	48.3	74.7	1,500	4,590
Calendar year 1945	148	13.3	54.6	84.5	19,940	61,190
January	141	17.4	61.0	94.4	1,890	5,800
February	140	21.5	54.4	84.2	1,520	4,670
March	141	28	113	175	3,510	10,760
April	141	111	135	209	4,050	12,440
May	126	23	48.7	75.4	1,510	4,630
June	94	17.4	29.9	46.3	896	2,750
Fiscal year 1945-46	141	17.4	67.2	104	24,540	75,290

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 30 years (1916-46), 15.5 million gallons a day (24.0 second-feet).

Extremes.- Maximum discharge during year, 1,440 million gallons a day (2,230 second-feet) Jan. 17 (gage height, 7.44 feet), from rating curve extended above 300 million gallons a day; minimum, 0.38 million gallons a day (0.59 second-foot) June 18.
1913-46: Maximum discharge, 1,770 million gallons 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 fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	34	3.75	4.9	1.35	11.4	1.61	0.70	7.4	1.30	33	7.0	1.06
2	10.3	2.8	11.8	1.35	6.5	57	.63	4.1	1.25	20	5.5	.86
3	3.4	1.94	10.1	1.30	4.1	110	.66	2.5	1.20	92	21.5	.76
4	2.5	1.72	7.0	1.20	2.65	56	.60	2.15	1.74	38	9.0	.73
5	2.15	66	8.7	1.35	5.3	29	.53	1.94	1.42	19.0	4.6	.93
6	1.87	60	5.7	1.35	26.5	12.3	4.8	1.87	13.7	14.4	3.7	.76
7	1.54	34	13.3	1.68	34.5	3.95	1.98	3.7	28	8.2	3.25	.63
8	1.35	11.5	5.0	1.25	15.3	3.05	.98	1.94	48	6.8	2.9	.60
9	1.30	23	3.25	1.71	83	2.55	.76	1.74	31	15.3	2.8	2.65
10	1.79	13.9	3.4	2.0	15.2	2.3	.70	10.0	14.6	12.7	2.5	1.65
11	4.3	34.5	11.8	1.15	4.9	2.1	11.9	4.0	40	6.3	2.3	.96
12	1.42	13.9	3.25	.91	3.85	6.7	7.3	2.3	5.0	6.7	2.3	.70
13	1.20	5.8	2.7	.76	19.6	3.35	3.5	3.2	13.5	6.6	2.15	.60
14	1.10	3.6	36	1.11	10.2	2.15	1.35	2.3	71	15.5	1.94	1.07
15	1.14	44	5.2	1.98	4.4	1.80	.91	1.87	28	22.5	1.87	.97
16	12.9	45	3.6	7.0	3.15	1.68	25	51	14.9	30	1.87	.51
17	2.45	4.6	3.4	2.45	2.65	1.61	359	320	24.5	97	1.68	.47
18	1.99	42	2.9	21	2.5	1.48	52	21.5	84	60	1.61	.42
19	1.54	31.5	2.4	4.8	2.25	1.35	6.8	6.8	74	21.5	1.54	.45
20	1.74	32	2.15	1.94	2.1	1.35	2.7	3.55	27.5	15.7	1.76	1.01
21	1.35	23	1.94	1.42	1.94	1.35	2.15	2.55	51	26.5	1.68	2.1
22	1.30	11.3	1.80	1.10	1.94	1.20	31	2.25	26.5	19.6	1.54	1.42
23	2.6	111	1.74	1.06	23.5	1.15	127	2.85	49	22	1.42	.83
24	2.35	65	1.68	.91	13.0	1.08	130	2.3	30	72	1.30	1.39
25	1.48	17.4	1.61	.83	3.7	1.08	22.5	1.87	16.3	75	1.25	.96
26	1.10	7.0	1.54	5.5	2.8	.96	26.5	1.61	15.4	63	1.15	4.6
27	1.58	4.9	1.48	12.1	2.3	.89	25	1.48	126	18.5	1.06	5.2
28	2.7	3.7	3.5	20	2.0	.83	5.9	1.35	87	11.1	.96	1.42
29	1.74	3.4	1.87	54	1.80	.79	3.6	-	21.5	10.7	.96	3.55
30	13.7	3.05	1.54	46	1.68	.76	3.0	-	55	13.2	1.07	10.8
31	7.3	5.5	-	74	-	.70	10.4	-	50	-	1.37	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	34	1.10	4.10	6.34	127	390
August	111	1.72	23.6	36.5	731	2,240
September	36	1.48	5.51	8.53	165	507
October	74	.76	8.86	13.7	275	843
November	83	1.68	10.5	16.2	315	966
December	110	.70	10.1	15.6	312	958
Calendar year 1945	143	.29	9.73	15.1	3,550	10,900
January	359	.53	28.1	43.5	870	2,670
February	320	1.35	16.8	26.0	470	1,440
March	126	1.20	33.9	52.5	1,050	3,220
April	97	6.3	29.1	45.0	873	2,680
May	21.5	.96	3.08	4.77	96.0	293
June	10.8	.42	1.67	2.58	50.1	154
Fiscal year 1945-46	359	.42	14.6	22.6	5,330	16,360

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 30 years (1916-46), 10.1 million gallons a day (15.6 second-feet).

Extremes.- Maximum discharge during year, 1,380 million gallons a day (2,140 second-feet) Jan. 17 (gage height, 5.20 feet), from rating curve extended above 150 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Oct. 11-14, 24, 25, Dec. 25 to Jan. 5, Jan. 9, 10, 15, June 8, 13.

1913-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	26.5	2.6	3.4	0.3	10.8	0.5	0.2	5.2	0.6	31	5.6	0.4
2	10.0	1.8	6.8	.3	5.7	40	.2	3.2	.6	17.0	4.2	.3
3	2.8	1.1	6.8	.4	3.6	116	.2	2.0	.6	91	17.6	.3
4	1.8	.8	5.4	.3	2.0	57	.2	1.6	1.0	29	7.8	.3
5	1.4	85	6.6	.3	5.2	32	.2	1.3	.7	15	3.8	.6
6	1.2	66	4.5	.3	19.0	12.3	3.3	1.3	11.1	12	2.9	.4
7	.9	31	9.4	.4	27	4.0	1.0	3.0	19.5	7.8	2.4	.3
8	.8	16.3	3.9	.3	11.5	2.5	.3	1.3	41	6.1	2.1	.2
9	.8	25.5	2.3	.4	65	1.8	.2	1.1	22	10.3	1.9	1.1
10	.8	10.8	2.2	.5	12.0	1.4	.2	4.9	9.4	10.4	1.5	.9
11	6.0	26.5	8.4	.2	4.4	1.2	4.0	3.0	41	6.1	1.3	.4
12	.9	13.4	2.3	.2	3.2	4.7	4.6	1.4	4.5	6.4	1.4	.3
13	.7	6.8	1.8	.2	11.1	2.4	2.1	2.0	11.7	6.6	1.2	.2
14	.6	3.9	28.5	.2	5.0	1.1	.4	1.3	68	12.7	1.1	4.0
15	.6	33.5	4.4	.9	3.3	.8	.2	1.0	30	16.3	1.0	2.7
16	12.3	34.5	3.0	5.1	1.9	.6	19.1	56	13.7	30	1.0	.4
17	1.7	5.0	2.4	1.6	1.4	.5	356	351	19.9	101	.8	.3
18	1.3	41	1.8	12.0	1.2	.5	39.5	12.7	78	65	.7	.3
19	1.0	25.5	1.3	3.8	1.0	.4	4.6	4.0	85	19.5	.7	.3
20	1.2	27.5	1.1	1.0	.8	.4	2.1	2.5	21	14.4	.9	.7
21	.7	16.0	.9	.6	.7	.4	1.7	1.8	41	17.0	.7	1.8
22	.6	9.4	.8	.4	.8	.3	43	1.4	18.7	15.9	.6	1.2
23	1.0	112	.7	.3	22	.3	121	1.5	40	20.5	.5	.8
24	1.4	67	.7	.2	12.2	.3	167	1.3	23.5	67	.5	1.1
25	.7	16.2	.6	.2	2.7	.2	20.5	1.0	11.5	77	.5	.8
26	.4	7.8	.5	2.6	1.8	.2	18.0	.9	10.4	60	.4	2.9
27	.6	5.5	.4	7.5	1.1	.2	20	.8	109	14	.4	4.4
28	1.4	3.5	1.3	15.4	.8	.2	5.1	.7	104	7.9	.3	1.1
29	.9	3.1	.7	46	.7	.2	4.5	-	22	7.4	.3	4.2
30	11.1	2.6	.4	49	.6	.2	3.1	-	58	10.8	.3	13.7
31	6.8	3.6	-	66	-	.2	9.6	-	45	-	.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	26.5	0.4	3.19	4.94	98.9	304
August	112	.8	22.7	35.1	705	2,160
September	28.5	.4	3.78	5.85	113	348
October	66	.2	7.00	10.8	217	666
November	65	.6	7.95	12.3	238	732
December	116	.2	9.12	14.1	283	868
Calendar year 1945	116	.1	7.60	11.8	2,770	8,520
January	356	.2	27.5	42.5	852	2,610
February	351	.7	16.8	26.0	469	1,440
March	109	.6	31.0	48.0	962	2,950
April	101	6.1	26.8	41.5	805	2,470
May	17.6	.3	2.09	3.23	64.8	199
June	13.7	.2	1.55	2.40	46.4	142
Fiscal year 1945-46	356	.2	13.3	20.6	4,850	14,890

Note.- No gage-height record Apr. 3-6, 26-29, May 12-29; discharge computed on basis of records for Honomanu and Puohokamoa Streams.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 19.8 million gallons a day (30.6 second-feet) Jan. 22 (gage height, 2.12 feet); minimum, 0.59 million gallons a day (0.91 second-foot) Jan. 5, 6, June 13, 19.
1938-46: 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. 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.25	1.52	1.70	1.07	2.3	1.19	0.75	1.52	0.96	2.8	1.64	0.80
2	2.3	1.42	2.05	1.02	1.83	2.85	.75	1.36	.90	2.4	1.52	.75
3	1.64	1.31	2.1	1.07	1.70	5.5	.75	1.25	.85	4.3	2.3	.70
4	1.47	1.19	1.98	1.02	1.47	4.1	.75	1.19	.96	2.9	1.90	.70
5	1.42	4.0	2.05	1.02	1.70	3.25	.64	1.13	.96	2.3	1.52	.80
6	1.36	4.5	1.90	1.02	2.4	2.35	1.33	1.07	1.71	2.1	1.42	.75
7	1.31	3.4	2.35	1.07	3.05	1.70	1.31	1.25	2.15	1.76	1.36	.70
8	1.25	2.4	1.76	.96	2.35	1.58	.90	1.07	2.9	1.64	1.25	.70
9	1.19	2.9	1.58	1.02	4.4	1.52	.75	1.07	2.5	2.05	1.25	.96
10	1.31	2.35	1.52	1.07	2.4	1.47	.75	1.49	1.98	1.98	1.19	.96
11	1.76	3.2	2.2	.96	1.83	1.42	1.33	1.36	2.95	1.64	1.13	.80
12	1.25	2.45	1.58	.85	1.64	1.70	1.83	1.10	1.52	1.58	1.13	.70
13	1.19	1.98	1.47	.80	2.25	1.58	1.47	1.19	1.80	1.58	1.13	.61
14	1.13	1.76	3.15	.90	1.76	1.36	1.13	1.13	3.6	2.1	1.07	1.30
15	1.13	3.2	1.90	1.19	1.58	1.31	.96	1.07	2.7	2.35	1.07	.96
16	2.35	3.7	1.64	1.76	1.47	1.25	1.86	1.99	2.2	2.75	1.07	.70
17	1.42	1.90	1.58	1.31	1.42	1.25	7.8	5.8	2.4	4.1	.96	.64
18	1.31	3.3	1.52	2.2	1.36	1.25	2.9	2.1	4.0	3.75	.96	.64
19	1.25	3.1	1.42	1.64	1.36	1.19	1.64	1.52	4.0	2.55	.96	.59
20	1.25	3.3	1.36	1.25	1.31	1.19	1.19	1.36	2.4	2.1	.96	.75
21	1.19	2.7	1.31	1.13	1.25	1.19	1.07	1.19	3.05	2.4	.96	1.07
22	1.13	2.35	a1.25	1.02	1.25	1.13	2.6	1.13	2.4	2.35	.90	.90
23	1.31	5.1	a1.19	.96	2.6	1.13	4.6	1.19	3.05	2.5	.85	.80
24	1.36	4.6	1.13	.96	2.35	1.07	5.6	1.13	2.65	3.75	.85	.90
25	1.19	2.9	1.13	.85	1.58	1.02	2.6	1.07	2.1	4.1	.85	.85
26	1.07	2.3	1.13	1.40	1.47	.96	2.05	1.02	1.98	3.7	.80	1.13
27	1.13	1.98	1.13	1.81	1.36	.90	2.55	.96	4.3	2.35	.80	1.31
28	1.31	1.76	1.31	2.5	1.31	.85	1.64	.96	4.2	1.90	.80	.85
29	1.19	1.64	1.19	3.65	1.25	.85	1.47	-	2.6	1.83	.80	1.10
30	1.99	1.58	1.13	3.65	1.25	.80	1.36	-	3.45	2.05	.80	1.83
31	1.91	1.64	-	4.4	-	.75	1.76	-	3.3	-	.80	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.25	1.07	1.46	2.26	45.3	139
August	5.1	1.19	2.63	4.07	81.4	250
September	3.15	1.13	1.62	2.51	48.7	149
October	4.4	.80	1.47	2.27	45.5	140
November	4.4	1.25	1.84	2.85	55.2	170
December	5.5	.75	1.60	2.48	49.7	152
Calendar year 1945	6.1	.42	1.62	2.51	590	1,810
January	7.8	.64	1.87	2.89	58.1	178
February	5.8	.96	1.42	2.20	39.7	122
March	4.3	.85	2.47	3.82	76.5	235
April	4.3	1.58	2.52	3.90	75.7	232
May	2.3	.80	1.13	1.75	35	107
June	1.83	.59	.875	1.35	26.2	81
Fiscal year 1945-46	7.8	.59	1.75	2.71	637	1,960

a No gage-height record; discharge computed on basis of probable decrease in flow.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Spreckels ditch at Haipuaena weir, near Huelo

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

Records available.- April 1922 to June 1946. February 1930 to October 1935 at site 100 feet upstream.

Average discharge.- 23 years (1922-29, 1930-46), 14.1 million gallons a day (21.8 second-feet).

Extremes.- Maximum discharge during year, 94 million gallons a day (145 second-feet) Jan. 22 (gage height, 2.25 feet); minimum, 0.11 million gallons a day (0.17 second-foot) Oct. 12-14.
1922-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	27.5	6.6	9.2	0.31	17.6	0.76	0.12	10.2	0.90	29	10.8	0.43
2	16.4	4.3	13.3	.31	12.7	20	.12	8.2	.83	21.5	8.4	.27
3	7.8	1.58	16.0	.35	8.9	a56	.12	6.0	.69	55	20	.19
4	4.8	.75	13.4	.19	5.4	a40	.15	4.7	2.6	28	15.3	.23
5	3.6	38.5	15.0	.27	11.6	a25	.14	3.75	1.04	21.5	11.8	.86
6	2.4	41	11.5	.23	18.2	a17	5.1	3.6	12.1	20	8.1	.39
7	1.25	24	18.4	.31	27	f9.0	2.45	9.1	17.9	16.4	8.2	.19
8	.90	17.2	10.2	.19	18.8	6.9	.23	3.75	31	13.7	7.3	.16
9	.76	25	6.5	.35	42	5.2	.15	3.3	22	18.4	6.2	2.0
10	1.54	17.2	6.0	.66	18.2	4.1	.14	8.5	14.4	18.4	4.8	1.82
11	9.8	26.5	14.9	.16	10.2	3.3	5.8	7.9	32.5	13.7	4.5	.39
12	1.18	18.9	6.2	.12	8.5	8.9	9.8	4.3	10.5	14.6	5.0	.23
13	.62	13.9	4.5	.11	14.5	6.2	6.0	6.5	14.4	14.9	4.5	.16
14	.55	10.0	28	.24	12.3	2.8	.61	4.3	44	20	3.3	8.7
15	.55	29.5	10.8	2.4	9.5	1.69	.23	2.35	29	22.5	2.95	4.2
16	17.9	34	7.3	12.4	6.5	1.11	14.8	15.2	17.5	30.5	3.1	.47
17	4.1	11.4	6.5	4.1	4.5	.83	74	73	22	47	1.91	.31
18	2.8	33.5	4.8	13.4	3.6	.62	27.5	14.5	48	45	1.58	.23
19	1.25	28.5	3.3	9.4	2.65	.47	6.9	10.8	50	21	1.36	.23
20	2.35	30.5	2.25	2.5	2.15	.47	4.5	7.1	24	19.1	1.88	1.93
21	.76	23	1.58	1.03	1.73	.51	4.3	5.6	35.5	19.3	1.36	3.95
22	.55	18.0	1.11	.39	1.81	.35	22.5	4.3	23	18.4	1.18	3.1
23	1.58	51	.90	.27	22	.27	51	4.8	33.5	22	.90	1.13
24	2.35	42	.69	.19	18.7	.19	62	4.1	26	47	.62	3.6
25	.76	21	.55	.15	7.1	.16	18.4	2.35	18.2	52	.55	1.31
26	.39	14.8	.51	6.2	5.0	.16	19.6	1.69	16.4	45	.47	5.2
27	.71	12.7	.47	8.5	3.1	.15	21	1.18	50	19.7	.43	10.6
28	2.95	9.2	4.5	20.5	2.15	.15	11.1	.97	48	14.1	.35	2.15
29	1.22	8.0	1.39	33.5	1.36	.14	9.8	-	25.5	12.7	.39	6.6
30	9.1	7.1	.43	34	1.04	.14	7.7	-	44	14.8	.39	18.6
31	12.0	10.3	-	44	-	.12	14.4	-	36.5	-	.51	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27.5	0.39	4.53	7.01	140	431
August	51	.75	20.3	31.4	630	1,930
September	28	.43	7.34	11.4	220	676
October	44	.11	6.35	9.82	197	604
November	42	1.04	10.6	16.4	319	978
December	56	.12	6.86	10.6	213	653
Calendar year 1945	60	.11	8.49	13.1	3,100	9,500
January	74	.12	12.9	20.0	401	1,230
February	73	.97	8.29	12.8	232	712
March	50	.69	24.3	37.6	752	2,310
April	55	12.7	25.2	39.0	755	2,320
May	20	.35	4.46	6.90	138	424
June	18.6	.16	2.65	4.10	79.6	244
Fiscal year 1945-46	74	.11	11.2	17.3	4,080	12,510

a No gage-height record; discharge computed on basis of records for nearby ditches.
f Computed on basis of partly estimated gage-height record.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 14 years, 79.2 million gallons a day (123 second-feet).

Extremes.- Maximum daily discharge during year, 193 million gallons a day (299 second-feet) Jan. 17; minimum discharge, 1.0 million gallons a day (1.6 second-feet) Jan. 29. 1932-46: Maximum discharge, 226 million gallons a day (350 second-feet) Nov. 23, 1941 (gage height, 5.32 feet); no flow at times, when water was shut out of ditch.

Remarks.- Records excellent except those for periods of no 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	143	46	72	31	131	36	23	89	31	182	119	25
2	84	39	80	31	108	74	21	55	34	173	99	23.5
3	48	31	103	29.5	94	160	21	37	32.5	175	150	23.5
4	41	28	99	26.5	59	160	21	29.5	42	169	118	23.5
5	37	155	103	26.5	90	180	20	26.5	34	169	85	25
6	35.5	183	85	25	104	150	32	31.5	83	162	80	23.5
7	32.5	176	123	25	166	92	23	117	108	143	67	22
8	31	160	80	25	143	70	20	53	146	125	63	20.5
9	29.5	149	63	26.5	183	58	19	59	156	149	59	32
10	31	127	63	25	132	52	19	38.5	131	149	55	31
11	67	135	96	22	85	50	50	31	156	119	52	22
12	31	130	59	20.5	76	66	56	29	80	125	52	20.5
13	28	102	55	20.5	88	56	40	64	116	119	52	19.4
14	26.5	72	141	22	92	45	23	52	176	154	46	54
15	26.5	153	90	26.5	77	40	19.4	50	167	165	46	52
16	114	155	67	55	81	37	68	83	160	180	44	23.5
17	37	80	63	31	78	34	193	190	160	183	41	20.5
18	35.5	140	55	88	55	33	163	162	180	181	39	20.5
19	32.5	162	50	59	48	32	89	108	175	165	37	19.4
20	32.5	156	46	32.5	44	35	59	76	170	166	37	28
21	28	152	44	28	42	32	48	63	175	176	34	48
22	26.5	125	41	25	42	30	84	55	170	169	34	39
23	28	168	41	25	138	28	146	55	175	169	32.5	32.5
24	25	183	37	28.5	119	27	140	50	170	176	31	46
25	25	162	35.5	56	55	26	149	44	160	176	31	37
26	22	125	34	78	48	26	84	41	155	176	29.5	39
27	25	99	32.5	68	42	26	31	39	175	155	28	52
28	29.5	80	65	123	39	25	3.0	35.5	174	143	28	31
29	28	72	42	143	37	24	2.9	-	168	137	26.5	56
30	76	67	34	155	36	23	12.7	-	180	155	26.5	119
31	59	76	-	190	-	23	155	-	186	-	26.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	143	22	42.4	65.6	1,320	4,040
August	183	28	119	184	3,690	11,320
September	141	32.5	66.6	103	2,000	6,130
October	190	20.5	50.6	78.3	1,570	4,810
November	183	36	84.4	131	2,530	7,770
December	180	23	56.5	87.4	1,750	5,370
Calendar year 1945	190	12.9	63.2	97.8	23,080	70,790
January	193	2.9	59.2	91.6	1,840	5,630
February	190	26.5	63.0	97.5	1,760	5,410
March	186	31	136	210	4,230	12,970
April	183	119	160	248	4,780	14,680
May	150	26.5	53.8	83.2	1,670	5,120
June	119	19.4	34.3	53.1	1,030	3,160
Fiscal year 1945-46	193	2.9	77.1	119	28,170	86,410

Note.- No gage-height record Nov. 30 to Jan. 14, Mar. 16-25; discharge computed on basis of records for station at Keanae.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 29 years (1917-46), 21.3 million gallons a day (33.0 second-feet).

Extremes.- Maximum discharge during year, 970 million gallons a day (1,500 second-feet) Jan. 17 (gage height, 6.0 feet, from floodmarks), from rating curve extended above 400 million gallons a day; minimum, 1.0 million gallons a day (1.6 second-feet) Jan. 11. 1910-46: 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 periods 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.6	0.6	1.0	7.8	1.5	36	2.4	147
.7	1.4	1.1	11.4	1.7	53	2.7	205
.8	2.8	1.2	15.8	1.9	74	3.0	252
.9	5.0	1.3	21	2.1	100	3.5	340

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	38.5	5.8	8.2	2.1	17.8	2.2	1.2	12	3.0	46	14.9	2.1
2	21.5	4.6	11.9	2.1	12.3	45	1.2	8.8	2.8	33	12.7	1.8
3	7.5	3.2	14.5	2.1	8.4	113	1.2	7.0	2.7	118	28.5	1.7
4	5.8	2.7	11.8	1.8	5.6	64	1.2	6.0	3.9	47	17.0	1.7
5	4.8	86	12.8	2.0	10.6	33	1.2	5.4	3.0	29	10.7	2.5
6	4.3	98	10.7	1.8	21.5	18.9	5.9	5.0	18.5	26	8.9	2.0
7	3.5	45	14.0	2.1	30	8.9	3.3	5.8	27.5	18.4	7.5	1.7
8	2.8	27.5	8.9	1.7	19.6	6.7	1.4	4.8	50	15.4	7.0	1.4
9	2.8	35.5	6.1	2.1	62	5.3	1.2	4.3	29.5	22	6.7	3.7
10	3.0	19.0	6.0	2.0	18.7	4.8	1.1	11.4	17.1	21	5.8	3.8
11	12.0	37.5	15.0	1.5	10.0	4.3	4.7	8.2	53	15.5	5.0	1.8
12	3.2	23	6.1	1.3	7.8	7.7	8.9	4.8	11.0	15.9	5.3	1.4
13	2.7	14.6	5.3	1.2	11.1	6.4	5.3	5.6	20	15.4	5.0	1.4
14	2.4	10.0	36.5	1.4	8.8	4.1	1.8	4.6	80	26.5	4.6	8.4
15	2.45	37	10.4	2.7	6.4	3.2	1.3	3.9	42	29.5	4.1	7.2
16	21.5	43	7.0	9.3	5.3	2.8	22	47	24.5	44	4.3	2.7
17	4.9	11.4	6.4	4.1	3.9	2.7	300	289	30.5	120	3.7	1.7
18	3.9	49	5.6	12.2	3.2	2.5	70	23	91	93	3.5	1.5
19	3.0	33	4.8	7.9	2.8	2.2	14	11.4	104	32.5	3.2	1.4
20	3.7	38	4.3	3.5	2.7	2.2	7.0	8.2	32.5	28.5	3.9	2.3
21	2.7	23.5	3.9	2.5	2.5	2.2	6.0	6.4	50	29.5	3.2	5.7
22	2.4	18.0	3.7	2.0	2.7	2.0	50	5.6	38	30.5	3.0	3.9
23	3.3	117	3.2	1.5	27	1.8	120	5.8	50	33	2.8	2.4
24	4.3	87	3.0	1.4	19.9	1.7	150	5.3	37	81	2.5	3.3
25	2.5	25	2.7	1.3	6.4	1.5	40	4.3	23	103	2.4	2.6
26	2.0	15.4	2.4	4.0	4.8	1.4	30	3.9	20.5	76	2.2	6.2
27	2.2	12.3	2.2	9.1	3.9	1.4	48	3.5	132	28	2.1	10.0
28	3.7	9.2	3.0	19.8	3.2	1.4	19	3.2	113	20	2.1	2.8
29	2.8	8.2	2.5	47	2.8	1.3	12	-	38	18.0	2.1	6.2
30	16.0	7.2	2.1	55	2.7	1.2	8.0	-	78	24.5	2.1	25
31	13.1	8.5	-	67	-	1.2	14	-	58	-	2.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	38.5	2.0	6.75	10.4	209	642
August	117	2.7	30.8	47.7	955	2,930
September	36.5	2.1	7.83	12.1	235	721
October	67	1.2	8.89	13.8	276	845
November	62	2.5	11.5	17.8	344	1,060
December	113	1.2	11.5	17.8	357	1,100
Calendar year 1945	176	.8	12.4	19.2	4,540	13,950
January	300	1.1	30.7	47.5	951	2,920
February	289	3.2	18.4	28.5	514	1,580
March	152	2.7	41.4	64.1	1,280	3,940
April	120	15.4	41.3	63.9	1,240	3,810
May	28.5	2.1	6.10	9.44	189	580
June	25	1.4	4.01	6.20	120	369
Fiscal year 1945-46	300	1.1	18.3	28.3	6,670	20,500

Note.- No gage-height record Jan. 16 to Feb. 7, Mar. 22-25; discharge computed on basis of records for Waiakamoi Stream.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 27 years (1918-24, 1925-46), 5.77 million gallons a day (8.93 second-feet).

Extremes.- Maximum discharge during year, 72 million gallons a day (111 second-feet) Aug. 5, 23 (gage height, 3.20 feet); minimum, 0.14 million gallons a day (0.22 second-foot) Jan. 10, 11.

1917-46: Maximum discharge, 116 million gallons a day (179 second-feet) Jan. 14, 1923 (gage height, 4.93 feet), from rating curve extended above 10 million gallons a day by weir and orifice formulas; no flow Jan. 8, 1937, Oct. 2-5, 1939.

Remarks.- Records excellent except those for Jan. 23 to Feb. 1, 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.7	0.51	1.70	0.28	2.4	0.51	0.20	a3.0	0.56	10.5	2.25	0.25
2	1.83	.39	1.99	.28	1.70	14.1	.20	1.61	.56	6.0	1.80	.22
3	.51	.28	3.2	.28	.95	47	.17	1.15	.45	27	7.7	.22
4	.34	.25	2.3	.28	.56	28.5	.17	.93	.68	5.8	2.6	.22
5	.28	22.5	2.9	.28	2.05	19.0	.17	.79	.56	5.3	1.46	.22
6	.28	25.5	2.2	.28	6.5	7.8	.82	.79	2.8	5.0	1.08	.25
7	.25	9.4	4.0	.28	5.9	3.6	.47	3.0	3.7	4.3	1.08	.20
8	.22	7.2	1.82	.25	2.9	2.25	.22	.79	16.2	3.75	1.00	.17
9	.25	13.3	1.08	.28	22	1.70	.17	.68	6.2	4.2	.85	.22
10	.25	3.9	1.08	.28	3.1	1.38	.17	1.29	1.65	4.2	.74	.28
11	1.29	14.7	2.5	.20	1.53	1.23	.68	3.8	15.6	3.45	.68	.22
12	.28	5.5	1.00	.20	1.15	2.1	1.14	.68	1.70	3.8	.74	.20
13	.22	3.1	.85	.20	1.60	1.31	.60	1.05	4.9	4.5	.74	.17
14	.20	1.92	9.2	.20	1.99	.93	.22	.62	25	5.3	.62	4.8
15	.20	9.0	2.05	.45	1.47	.85	.17	.56	14.4	4.6	.56	3.0
16	3.95	12.5	1.00	2.1	1.00	.74	10.1	10.9	3.65	13.2	.56	.39
17	.51	2.1	.85	.75	.74	.68	64	60	8.5	36	.51	.28
18	.34	19.3	.79	1.20	.62	.62	13.5	4.6	38.5	30	.45	.25
19	.28	9.8	.68	1.11	.56	.56	1.70	2.75	34.5	10.5	.45	.25
20	.28	11.6	.62	.39	.51	.51	1.23	1.61	7.0	10.4	.56	.33
21	.28	4.3	.56	.56	.51	.51	1.15	1.31	15.8	5.4	.51	1.02
22	.25	3.45	.56	.28	.51	.39	22	1.15	4.3	5.7	.39	.68
23	.25	35	.56	.25	8.3	.34	a40	1.08	16.7	7.2	.39	.51
24	.25	25	.51	.22	3.45	.28	a45	1.00	7.1	23.5	.34	.51
25	.28	6.1	.45	.22	1.08	.28	a6.0	.85	4.0	22.5	.28	.56
26	.20	4.2	.39	.71	.79	.25	a6.6	.79	3.55	8.0	.28	.68
27	.20	3.2	.34	2.2	.68	.25	a7.0	.74	34.5	4.5	.25	1.79
28	.28	2.1	1.35	2.4	.62	.25	a3.0	.62	39	4.3	.25	.51
29	.28	1.80	.56	14.5	.56	.22	a2.5	-	7.2	3.65	.25	1.36
30	1.56	1.61	.39	16.0	.56	.22	a2.0	-	31	3.1	.25	5.3
31	1.54	2.4	-	20.5	-	.20	a5.0	-	18.7	-	.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.7	0.20	0.769	1.19	23.8	73
August	35	.25	8.45	13.1	262	804
September	9.2	.34	1.58	2.44	47.5	146
October	20.5	.20	2.17	3.36	67.4	207
November	22	.51	2.54	3.93	76.3	234
December	47	.20	4.47	6.92	139	425
Calendar year 1945	47	.11	3.16	4.89	1,150	3,540
January	64	.17	7.62	11.8	236	725
February	60	.56	3.86	5.97	108	332
March	39	.45	11.9	18.4	369	1,130
April	36	3.1	9.52	14.7	286	877
May	7.7	.25	.964	1.49	29.9	92
June	5.3	.17	.835	1.29	25.1	77
Fiscal year 1945-46	64	.17	4.57	7.07	1,670	5,120

a No gage-height record; discharge computed on basis of records for nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 24 years, 16.0 million gallons a day (24.8 second-feet).

Extremes.- Maximum discharge during year, 1,870 million gallons a day (2,890 second-feet) Jan. 17 (gage height, 7.03 feet), from rating curve extended above 370 million gallons a day by logarithmic plotting; minimum, 0.22 million gallons a day (0.34 second-foot) Oct. 13, 14, June 14.

1922-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.12	1.0	1.18	2.0	23	4.0	277
.6	.24	1.1	1.52	2.3	39	4.5	410
.7	.42	1.3	2.9	2.6	61		
.8	.62	1.5	6.1	3.0	102		
.9	.88	1.7	11.2	3.5	177		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.3	5.0	5.7	1.33	13.2	1.84	0.38	7.7	1.78	34.5	9.0	0.48
2	11.2	3.9	11.6	.80	6.8	26	.85	5.7	1.62	21	7.0	.38
3	3.9	2.65	12.2	.52	4.5	88	.59	3.75	1.57	93	14.4	.51
4	2.75	2.0	9.5	.44	2.9	48	.48	2.9	2.2	39	11.1	.38
5	2.3	64	9.4	.42	5.3	20.5	.31	2.65	1.11	19.2	6.8	.71
6	1.94	64	8.0	.46	19.0	14.3	1.17	2.6	6.6	16.9	5.6	.51
7	1.18	31	11.4	2.0	29	5.4	1.98	3.5	19.6	10.9	4.8	.37
8	1.00	16.4	7.0	1.32	13.8	4.0	.64	2.3	43	9.0	4.7	.31
9	.94	24	4.2	.66	62	3.45	.37	2.15	27.5	13.5	4.7	.55
10	.91	12.8	3.9	1.63	17.4	3.05	.28	5.1	13.2	15.2	3.9	1.35
11	3.55	33.5	11.1	1.28	6.3	2.75	3.6	4.7	44	8.6	3.45	.54
12	1.10	12.7	4.3	.48	4.7	5.1	7.6	2.65	7.0	8.5	3.6	.35
13	.78	7.9	3.45	.26	7.3	4.8	4.5	2.75	9.8	10.2	3.05	.24
14	.70	5.2	33.5	.40	5.9	2.9	1.94	2.5	72	13.9	1.94	3.9
15	1.24	31	8.2	1.65	4.2	2.4	.64	1.94	31.5	16.6	1.78	3.45
16	12.1	48	4.7	4.2	3.45	2.0	12.2	45	16.2	19.8	1.84	.88
17	3.5	6.9	4.2	3.6	3.3	1.78	363	372	19.7	90	2.8	.46
18	2.35	37	3.9	10.3	2.9	1.49	59	21.5	77	60	2.15	.38
19	1.11	28	3.05	5.5	2.65	.94	8.2	7.7	89	17.4	2.05	.35
20	1.18	35	2.65	2.15	2.4	.91	4.0	5.0	22.5	15.8	2.3	.46
21	.88	21	2.4	1.54	2.05	1.89	3.3	4.0	50	22	2.15	1.54
22	.70	12.0	2.2	1.09	2.05	1.63	48	3.45	25	22	1.97	1.19
23	2.55	103	2.05	.53	16.2	1.49	107	3.3	44	16.2	1.34	.75
24	4.0	76	1.86	.35	15.2	1.38	144	3.05	32.5	70	1.46	.86
25	2.2	21	1.15	.29	4.6	1.32	27.5	2.65	19.4	69	.78	.88
26	1.63	10.6	1.03	.98	3.2	1.19	22.5	2.4	17.8	63	.62	2.1
27	1.60	7.9	.91	4.1	2.4	.60	40	2.15	127	19.2	.56	6.1
28	3.2	6.3	1.01	16.2	2.05	.42	11.1	1.94	96	12.5	.46	2.2
29	2.5	5.4	1.77	43	1.89	.38	7.6	-	24.5	11.2	.42	2.65
30	11.8	4.7	1.49	42	1.78	.35	5.2	-	58	14.8	.40	13.1
31	11.0	5.2	-	66	-	.33	8.9	-	47	-	.46	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	17.3	0.70	3.65	5.65	113	347
August	103	2.0	24.0	37.1	744	2,280
September	33.5	.91	5.93	9.18	178	546
October	66	.26	6.95	10.8	215	661
November	62	1.78	8.95	13.8	268	824
December	88	.33	8.08	12.5	251	769
Calendar year 1945	143	.17	9.45	14.6	3,450	10,580
January	363	.28	28.9	44.7	897	2,750
February	372	1.94	18.8	29.1	527	1,620
March	127	1.11	33.8	52.3	1,050	3,220
April	93	8.5	28.4	43.9	853	2,620
May	14.4	.40	3.47	5.37	108	330
June	13.1	.24	1.60	2.48	47.9	147
Fiscal year 1945-46	372	.24	14.4	22.3	5,250	16,110

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 35 years (1911-46), 4.91 million gallons a day (7.60 second-feet).

Extremes.- Maximum discharge during year, 553 million gallons a day (856 second-feet) Jan. 22 (gage height, 4.36 feet), from rating curve extended above 50 million gallons a day; minimum, 0.30 million gallons a day (0.46 second-foot) Oct. 12, 13.
1910-46: 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. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.20	0.9	2.3	1.4	13.5
.5	.35	1.0	3.3	1.5	18.5
.6	.60	1,1	4.6	1.6	24
.7	1.00	1.2	6.6	1.9	46
.8	1.55	1.3	9.7	2.2	76

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.9	0.92	1.82	0.45	2.8	0.68	0.38	3.0	0.58	9.8	2.2	0.40
2	2.7	.72	1.38	.45	2.05	14.9	.35	2.15	.58	7.2	1.95	.38
3	1.28	.64	1.92	.42	1.38	23	.38	1.70	.55	24	7.2	.35
4	1.06	.58	1.78	.40	1.06	14.9	.38	1.38	3.95	6.1	2.85	.35
5	.96	21	3.3	.40	3.55	17.9	.34	1.22	.60	5.3	1.85	.70
6	.88	19.1	2.0	.40	3.3	4.6	1.10	1.30	2.6	5.3	1.55	.42
7	.80	7.0	3.1	.38	4.3	2.6	.54	3.3	2.55	4.1	1.38	.38
8	.76	13.1	1.55	.38	4.4	1.92	.40	1.22	5.0	3.45	1.28	.35
9	.72	10.9	1.28	.40	11.0	1.50	.35	1.11	2.65	4.1	1.11	.62
10	.79	4.2	1.47	.35	4.2	1.28	.34	2.3	2.35	4.0	.96	.70
11	2.55	3.7	2.45	.34	2.2	1.16	.50	2.0	11.2	3.3	.88	.40
12	.72	7.2	1.28	.32	1.70	2.15	.50	1.22	1.92	5.0	1.06	.35
13	.64	3.65	1.06	.30	1.50	1.20	.59	1.87	4.3	4.6	1.00	.32
14	.60	2.6	5.9	.36	1.38	.92	.38	1.28	15.4	5.5	.80	12.8
15	.79	6.3	1.97	.58	1.46	.80	.34	.96	10.9	4.2	.72	5.1
16	7.2	3.9	1.33	2.25	1.22	.76	7.9	6.2	5.0	18.9	.76	.72
17	.96	2.4	1.22	.72	.92	.68	50	25	7.5	23.5	.64	.58
18	.80	12.9	1.06	.95	.84	.64	5.0	2.75	10.0	15.0	.60	.55
19	.76	7.0	.96	.97	.76	.58	1.77	1.92	19.7	6.1	.60	.52
20	.80	6.5	.84	.60	.72	.60	1.11	1.44	5.5	11.9	.64	.83
21	.68	3.65	.80	.72	.68	.55	1.06	1.16	6.0	4.4	.55	2.3
22	.60	2.7	.76	.45	.72	.52	37.5	1.06	4.3	5.1	.52	1.24
23	.58	22	.72	.40	9.2	.50	19.5	.96	9.4	6.0	.52	.96
24	.55	16.0	.64	.35	4.9	.48	32	.84	5.4	12.6	.50	1.37
25	.58	5.4	.60	.35	1.51	.48	5.2	.80	3.7	21	.48	1.09
26	.50	3.3	.58	.59	1.11	.45	7.6	.72	3.1	12.4	.45	1.83
27	.55	2.8	.50	1.72	.92	.42	4.7	.68	23	4.3	.42	2.75
28	.55	2.15	.83	2.15	.84	.42	2.6	.60	16.5	3.7	.42	.88
29	.64	2.1	.55	4.7	.76	.40	4.3	-	9.1	2.95	.42	5.1
30	2.7	1.88	.48	12.6	.72	.38	2.55	-	20.5	3.6	.40	9.0
31	1.72	2.25	-	7.9	-	.38	6.6	-	11.6	-	.40	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.2	0.50	1.27	1.96	39.3	121
August	22	.58	6.40	9.90	199	609
September	5.9	.48	1.47	2.27	44.1	135
October	12.6	.30	1.40	2.17	43.4	133
November	11.0	.68	2.40	3.71	72.1	221
December	23	.38	3.15	4.87	97.8	300
Calendar year 1945	23	.28	2.58	3.99	942	2,890
January	50	.34	6.33	9.79	196	602
February	25	.60	2.50	3.87	70.1	215
March	23	.55	7.27	11.2	225	692
April	24	2.95	8.25	12.8	247	759
May	7.2	.40	1.13	1.75	35.1	108
June	12.8	.32	1.78	2.75	53.3	164
Fiscal year 1945-46	50	.30	3.62	5.60	1,320	4,060

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 3½ miles southeast of Huelo.

Drainage area.- 0.5 square mile.

Records available.- December 1921 to June 1946.

Average discharge.- 24 years (1922-46), 4.67 million gallons a day (7.23 second-feet).

Extremes.- Maximum discharge during year, 450 million gallons a day (696 second-feet) Jan. 22 (gage height, 4.07 feet), from rating curve extended above 130 million gallons a day on basis of weir formula; minimum, 0.30 million gallons a day (0.46 second-foot) Oct. 13, 14.

1921-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.26	0.6	4.0	1.0	15.2
.3	.60	.7	6.1	1.2	24.5
.4	1.30	.8	8.7	1.4	36.5
.5	2.4	.9	11.5	1.6	49

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.4	1.04	1.91	0.48	3.15	0.72	0.44	2.65	0.66	8.8	2.4	0.50
2	3.45	.88	1.47	.48	2.35	13.6	.40	1.90	.62	7.5	2.1	.47
3	1.47	.70	1.91	.48	1.54	20.5	.44	1.49	.62	21.5	7.2	.43
4	1.12	.60	2.0	.48	1.19	13.5	.44	1.22	.91	6.7	3.3	.47
5	1.04	19.0	3.3	.44	3.35	10.6	.40	1.14	.75	5.4	2.0	.86
6	.88	20.5	2.2	.44	3.05	4.1	.82	1.05	3.15	5.6	1.78	.62
7	.75	7.6	3.0	.40	4.7	2.05	.67	2.4	3.35	3.9	1.57	.50
8	.75	10.4	1.80	.40	4.3	1.54	.47	1.14	6.1	3.4	1.49	.43
9	.70	9.6	1.47	.44	11.6	1.27	.44	1.05	3.45	3.9	1.30	.67
10	.75	3.9	1.76	.40	4.2	1.11	.40	2.65	2.1	4.0	1.14	1.08
11	3.5	4.0	2.7	.37	2.1	1.02	.47	1.78	11.4	3.3	1.05	.54
12	.88	6.4	1.39	.33	1.65	1.86	.67	1.22	2.1	3.6	1.22	.47
13	.70	3.55	1.1	.30	1.37	1.19	.78	1.54	3.35	4.7	1.14	.43
14	.65	2.3	6.0	.33	1.27	.88	.51	1.22	16.1	5.2	.98	9.8
15	.60	5.8	1.8	.60	1.27	.77	.44	.98	11.6	5.0	.91	4.6
16	7.1	4.4	1.2	2.5	1.11	.72	5.7	4.3	5.6	13.7	.91	.98
17	1.20	2.15	1.0	.75	.95	.67	44	29	6.5	25.5	.85	.75
18	1.04	11.2	.90	1.1	.82	.67	6.4	2.9	11.0	14.2	.75	.70
19	.88	6.4	.76	1.0	.77	.63	1.87	1.78	21	6.5	.75	.66
20	1.04	6.8	.70	.75	.72	.63	1.19	1.40	5.6	8.1	.92	.80
21	.75	3.5	.65	.70	.72	.63	1.11	1.22	6.4	4.5	.80	2.55
22	.70	2.4	.80	.52	.72	.59	25.5	1.05	4.3	5.1	.70	1.66
23	.65	21.5	.55	.48	8.4	.55	18.8	.98	8.6	6.4	.70	1.14
24	.60	15.7	.51	.44	4.7	.55	32.5	.85	5.8	12.4	.62	1.67
25	.70	5.5	.50	.40	1.54	.55	5.2	.80	3.6	21	.62	1.30
26	.60	3.15	.50	.56	1.19	.51	6.1	.75	2.9	13.7	.58	2.05
27	.60	2.55	.49	1.85	.95	.47	5.6	.70	22	4.9	.58	2.9
28	.65	2.0	.49	2.8	.82	.47	2.5	.70	17.1	3.6	.54	1.14
29	.75	1.80	.49	5.8	.82	.47	4.8	-	9.1	2.9	.54	4.5
30	3.25	1.68	.48	12.5	.77	.47	2.25	-	17.6	4.2	.50	7.9
31	2.05	2.15	-	9.5	-	.47	5.60	-	11.4	-	.50	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.1	0.60	1.43	2.21	44.2	136
August	21.5	.60	6.10	9.44	189	580
September	6.0	.48	1.45	2.24	43.6	134
October	12.5	.30	1.55	2.40	48.0	147
November	11.6	.72	2.40	3.71	72.1	221
December	20.5	.47	2.70	4.18	83.8	257
Calendar year 1945	22	.24	2.50	3.87	913	2,800
January	44	.40	5.71	8.83	177	543
February	29	.70	2.50	3.87	69.9	214
March	22	.62	7.25	11.2	225	690
April	25.5	2.9	7.97	12.3	239	734
May	7.2	.50	1.30	2.01	40.4	124
June	9.8	.43	1.75	2.71	52.6	161
Fiscal year 1945-46	44	.30	3.52	5.45	1,280	3,940

Note.- No gage-height record Sept. 13 to Oct. 3, Oct. 17-19; discharge computed on basis of records for stations on nearby streams.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Oopuola Stream near Huelo

Location.- Concrete weir control, lat. 20°52'15", long. 156°12'30", between Kaaiea and Naililihaele 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 1946. December 1910 to June 1915, at site half a mile downstream; records not equivalent.

Average discharge.- 15 years (1931-46), 1.74 million gallons a day (2.69 second-feet).

Extremes.- Maximum discharge during year, 340 million gallons a day (526 second-feet) Jan. 22 (gage height, 5.54 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.10 million gallons a day (0.16 second-foot) June 12, 13, 14.
1930-46: Maximum discharge, that of Jan. 22, 1946; minimum, 0.04 million gallons a day (0.06 second-foot) Oct. 29, 30, 1943, June 1, 1945.

Remarks.- Records good except those below 0.5 million gallons a day and those for period of no gage-height record, which are poor. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.60	0.45	0.75	0.18	1.08	0.23	0.14	1.25	0.23	3.5	0.75	0.18
2	.84	.32	.50	.18	.70	6.4	.14	.87	.23	2.55	.65	.16
3	.36	.23	.70	.18	.50	8.3	.16	.70	.23	7.2	1.82	.14
4	.28	.21	.75	.18	.21	6.0	.16	.55	.40	2.0	1.09	.14
5	.25	7.5	1.1	.18	.97	6.3	.14	.50	.28	1.61	.60	.23
6	.23	6.3	.80	.18	.69	1.88	.30	.50	.71	2.05	.55	.18
7	.23	3.1	1.2	.18	1.87	.94	.21	1.27	1.08	1.41	.50	.16
8	.21	6.6	.60	.19	1.51	.70	.16	.55	1.86	1.18	.45	.14
9	.21	4.1	.45	.19	4.4	.55	.14	.55	.90	1.25	.40	.16
10	.21	1.72	.55	.18	1.51	.45	.14	1.01	.68	1.25	.40	.23
11	.66	1.32	.90	.16	.75	.40	.18	.87	4.6	.87	.36	.16
12	.28	2.05	.37	.16	.60	.80	.19	.55	.75	1.76	.40	.12
13	.25	1.62	.30	.16	.50	.55	.18	.70	1.59	2.1	.36	.10
14	.21	.94	2.0	.17	.40	.40	.16	.60	5.9	2.45	.28	6.2
15	.19	2.7	.55	.25	.60	.32	.14	.40	4.2	1.70	.28	3.1
16	3.55	1.36	.35	.99	.55	.28	2.9	.95	2.0	7.2	.25	.36
17	.50	.81	.30	.36	.40	.25	18.5	6.0	2.6	8.4	.23	.25
18	.32	3.45	.25	.49	.32	.23	2.1	.87	4.2	5.7	.23	.21
19	.25	2.05	.23	.45	.25	.23	.81	.65	7.3	1.92	.21	.21
20	.23	2.4	.21	.28	.23	.23	.55	.55	1.90	3.2	.25	.30
21	.21	1.18	.20	.36	.23	.21	.50	.45	2.35	1.80	.21	.81
22	.19	.81	.20	.21	.25	.19	19.5	.40	1.41	2.25	.19	.60
23	.18	7.9	.19	.19	3.65	.19	6.7	.36	3.4	1.92	.19	.40
24	.18	5.5	.19	.18	1.85	.18	11.2	.32	1.86	4.8	.19	.45
25	.21	2.0	.19	.16	.60	.18	2.4	.28	1.18	7.6	.19	.45
26	.16	1.2	.18	.18	.45	.18	2.95	.28	1.02	4.7	.19	.61
27	.19	1.0	.18	.35	.36	.18	3.6	.25	8.5	1.51	.18	1.36
28	.19	.80	.18	.98	.32	.16	1.32	.25	5.8	1.10	.18	.36
29	.25	.70	.18	1.52	.28	.16	2.7	-	3.5	.94	.18	1.69
30	1.10	.65	.18	4.1	.25	.14	1.18	-	8.5	1.31	.18	3.95
31	.74	.80	-	3.55	-	.14	2.9	-	4.2	-	.18	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.55	0.16	0.434	0.671	13.5	41
August	7.9	.21	2.31	3.57	71.6	220
September	2.0	.18	.491	.760	14.7	45
October	4.1	.16	.551	.853	17.1	52
November	4.4	.21	.876	1.36	26.3	81
December	8.3	.14	1.20	1.86	37.4	115
Calendar year 1945	8.3	.05	.902	1.40	329	1,010
January	19.5	.14	2.66	4.12	82.4	253
February	6.0	.25	.803	1.24	22.5	69
March	8.5	.23	2.89	4.16	83.4	256
April	8.4	.87	2.91	4.50	87.2	268
May	1.82	.18	.391	.605	12.1	37
June	6.2	.10	.780	1.21	23.4	72
Fiscal year 1945-46	19.5	.10	1.35	2.09	492	1,510

Note.- No gage-height record Aug. 24 to Oct. 3; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 25 years (1920-24, 1925-46), 23.8 million gallons a day (36.8 second-feet).

Extremes.- Maximum discharge during year, 3,070 million gallons a day (4,750 second-feet) Jan. 22 (gage height, 7.56 feet), from rating curve extended above 130 million gallons a day; minimum, 1.72 million gallons a day (2.66 second-feet) Jan. 10, 11.
1910-18, 1919-46: 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. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (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		
2.1	7.1	2.6	31	3.6	181		
2.2	10.2	2.7	39.5	3.9	260		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	24.5	6.8	10.6	3.45	14.6	4.2	2.4	14.0	4.4	54	15.4	a2.9
2	17.8	5.6	9.0	3.45	11.3	68	2.3	11.0	4.2	44	14.0	a2.7
3	8.6	4.4	12.1	3.25	8.3	129	2.3	9.0	4.0	168	34.5	a2.6
4	7.1	4.0	12.1	3.1	6.8	75	2.3	8.0	5.6	46	17.3	a2.6
5	6.4	143	16.3	3.1	12.4	29.5	2.15	7.4	4.6	32.5	a12	a4.0
6	5.8	145	13.3	3.45	16.2	17.4	3.6	7.1	20.5	32	a9.9	2.9
7	5.4	41	14.9	3.45	22	11.3	3.25	9.5	26	23	a9.3	2.55
8	4.8	39.5	9.9	2.9	20	9.3	2.3	6.8	46	19.7	a8.6	2.4
9	4.4	44	8.6	3.1	67	8.0	2.0	6.6	23	22	a8.3	3.45
10	4.5	18.6	8.9	3.1	21	7.1	1.86	13.6	13.9	22	a7.4	4.7
11	15.5	28	14.4	2.4	11.7	6.6	3.05	10.3	80	17.2	a7.1	2.7
12	5.1	31.5	8.3	2.3	9.6	9.4	5.1	7.1	12.1	21	a6.6	2.4
13	4.4	16.9	7.7	2.15	9.3	7.1	4.8	8.0	22.5	21	a6.4	2.15
14	3.85	12.9	34	2.3	8.3	5.6	2.55	7.1	121	30	a6.1	38.5
15	3.85	35.5	11.7	3.25	8.0	4.8	2.15	6.1	75	30	5.8	19.4
16	25.5	29	9.0	10.3	7.1	4.6	25.5	23	29.5	85	5.8	3.85
17	6.4	12.5	8.3	5.1	6.1	4.4	301	361	41	196	5.4	3.1
18	5.1	60	7.4	5.9	5.6	4.2	37	18.4	95	105	4.8	2.7
19	4.6	37.5	6.8	5.8	5.4	4.0	10.4	11.3	178	39	4.8	2.7
20	5.4	33.5	6.4	4.0	4.8	4.0	7.1	9.3	35	34.5	5.6	3.75
21	4.2	19.8	5.8	3.45	4.6	4.0	6.4	8.0	49	26	4.8	8.6
22	4.2	15.8	5.6	2.7	4.6	3.65	186	7.4	32	32.5	4.4	6.4
23	4.2	169	5.1	2.55	38	3.45	154	7.1	54	39.5	4.2	4.2
24	4.2	111	4.8	2.3	20.5	3.25	286	6.	37	91	4.0	5.9
25	4.0	29	4.6	2.3	8.3	3.1	30	5.8	23.5	148	3.85	5.1
26	3.45	18.1	4.4	3.1	6.6	2.9	40	5.4	20	98	3.65	7.6
27	3.45	14.9	4.2	7.8	5.6	2.9	32.5	5.1	212	29.5	3.45	11.3
28	4.2	12.1	4.2	12.7	5.1	2.7	14.9	4.6	146	22	3.25	5.1
29	4.0	11.3	3.85	29.5	4.6	2.55	23.5	-	50	19.6	3.25	12.4
30	15.7	9.9	3.65	72	4.4	2.4	13.2	-	128	27	3.1	33.5
31	11.0	11.8	-	48	-	2.4	23	-	71	-	a3.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25.5	3.45	7.47	11.6	232	711
August	169	4.0	37.8	58.5	1,170	3,600
September	34	3.65	9.20	14.2	276	847
October	72	2.15	8.46	13.1	262	805
November	67	4.4	12.6	19.5	378	1,160
December	129	2.4	14.4	22.3	447	1,370
Calendar year 1945	286	1.30	15.7	24.3	5,720	17,550
January	301	1.86	39.8	61.6	1,230	3,780
February	361	4.6	21.6	33.4	605	1,860
March	212	4.0	53.7	83.1	1,660	5,110
April	196	17.2	52.5	81.2	1,580	4,830
May	34.5	3.1	7.62	11.8	236	725
June	38.5	2.15	7.07	10.9	212	651
Fiscal year 1945-46	361	1.86	22.7	35.1	8,290	25,450

a No gage-height record; discharge computed on basis of records for Kailua Stream.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Kailua Stream near Huelo

Location.- Lat. 20°52'35", long. 156°13'25", just upstream from Wailoa ditch intake, 1¾ 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 1946.

Average discharge.- 27 years (1919-46), 18.5 million gallons a day (28.6 second-feet).

Extremes.- Maximum discharge during year, 1,700 million gallons a day (2,630 second-feet) Jan. 17 (gage height, 7.14 feet), from rating curve extended above 150 million gallons a day; minimum, 0.88 million gallons a day (1.36 second-feet) Jan. 10, 11.
1910-18, 1919-46: Maximum discharge, 4,580 million gallons a day (7,090 second-feet) Apr. 7, 1938 (gage height, 9.10 feet), from rating curve extended above 150 million gallons a day; minimum, 0.07 million gallons a day (0.11 second-foot) June 27, 1921.

Remarks.- Records good below 100 million gallons a day, fair above. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (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		
2.1	7.6	2.6	24.5	4.2	196		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.7	4.9	5.8	1.77	14.9	2.25	1.11	9.4	2.7	46	12.4	1.66
2	10.2	3.6	7.0	1.77	8.1	26	1.11	7.6	2.55	32	10.1	1.55
3	4.5	2.7	10.4	1.66	5.4	98	1.11	5.8	2.25	116	18.2	1.44
4	3.45	2.25	9.6	1.55	4.1	58	1.00	4.9	2.85	51	12.8	1.44
5	2.85	83	10.1	1.55	6.1	16.9	1.00	4.3	2.4	26.5	8.8	1.88
6	2.7	97	9.1	1.55	15.5	11.7	1.44	4.1	11.6	22.5	7.6	1.55
7	2.25	35.5	9.6	1.55	30	7.2	1.44	3.95	19.5	15.7	6.9	1.33
8	2.1	19.2	6.9	1.44	17.2	5.4	1.11	3.6	47	13.3	6.5	1.22
9	1.99	23.5	5.2	1.55	69	4.9	1.00	3.3	34	14.4	6.1	1.66
10	1.99	11.8	4.9	1.44	24	4.5	.94	5.4	14.4	17.2	5.2	1.99
11	7.5	37.5	8.6	1.33	8.8	3.95	1.78	4.5	57	11.8	4.7	1.44
12	2.55	16.0	5.0	1.22	6.3	4.9	4.9	3.3	10.3	11.9	4.5	1.33
13	1.99	10.3	4.5	1.00	9.1	5.0	4.0	3.45	13.1	12.7	4.3	1.11
14	1.77	7.4	34	1.11	8.3	3.8	1.88	3.15	96	18.3	3.8	6.7
15	1.66	31	9.9	1.44	6.5	3.15	1.44	2.85	48	21	3.6	5.7
16	10.4	52	6.3	3.6	4.9	2.85	13.0	36.5	24	21	3.45	1.55
17	3.6	10.0	5.4	2.7	4.1	2.55	328	419	27.5	106	3.15	1.33
18	2.7	42	4.7	3.9	3.6	2.55	53	29	98	80	3.0	1.11
19	2.1	32.5	4.1	4.8	3.45	2.4	10.0	10.7	119	27	3.0	1.11
20	2.25	39.5	3.6	2.55	3.15	2.4	5.2	7.2	32.5	22.5	3.15	1.33
21	1.99	21.5	3.45	1.77	2.85	2.25	4.3	5.6	60	18.6	2.85	2.9
22	1.77	14.0	3.0	1.44	2.7	1.99	91	4.7	32	26.5	2.7	2.55
23	2.55	117	2.85	1.33	17.5	1.88	124	4.7	51	24	2.55	1.66
24	2.55	102	2.7	1.22	14.5	1.77	194	4.1	38	79	2.25	2.1
25	2.1	25.6	2.55	1.11	5.4	1.66	39	3.6	22.5	86	2.1	1.88
26	1.66	13.3	2.25	1.44	3.8	1.66	32	3.3	19.4	81	1.99	2.35
27	1.66	9.8	2.1	2.8	3.15	1.55	39	3.0	147	27	1.88	5.1
28	2.1	7.8	2.1	13.2	2.85	1.44	14.4	2.85	136	17.5	1.77	2.4
29	2.1	6.9	2.1	41	2.55	1.33	12.5	-	37.5	14.2	1.77	2.9
30	10.3	5.8	1.88	52	2.25	1.22	8.6	-	69	21.5	1.77	15.1
31	11.6	6.3	-	67	-	1.22	12.0	-	58	-	1.77	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.7	1.66	3.89	6.02	121	370
August	117	2.25	28.8	44.6	892	2,740
September	34	1.88	6.32	9.78	190	582
October	67	1.00	7.22	11.2	224	687
November	69	2.25	10.3	15.9	310	952
December	98	1.22	9.24	14.3	286	879
Calendar year 1945	217	.70	11.4	17.6	4,170	12,800
January	328	1.00	32.4	50.1	1,000	3,080
February	419	2.85	21.6	33.4	604	1,850
March	147	2.25	43.1	66.7	1,340	4,100
April	116	11.8	36.1	55.9	1,080	3,320
May	18.2	1.77	4.99	7.72	155	475
June	15.1	1.11	2.58	3.99	77.4	237
Fiscal year 1945-46	419	1.00	17.2	26.6	6,280	19,270

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 34 years (1911-15, 1916-46), 4.89 million gallons a day (7.57 second-feet).

Extremes.- Maximum discharge during year, 205 million gallons a day (317 second-feet) Jan. 22 (gage height, 4.02 feet); minimum, 0.94 million gallons a day (1.45 second-feet) Oct. 24-27.

1911-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

1.3	0.75	1.8	8.7
1.4	1.50	1.9	11.7
1.5	2.7	2.0	15.2
1.6	4.2	2.2	24
1.7	6.2		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.1	1.23	3.15	1.40	1.98	1.62	1.23	4.4	1.62	10.8	4.0	1.31
2	1.98	1.28	2.85	1.40	1.74	6.7	1.23	3.9	1.50	9.0	3.6	1.23
3	1.74	1.23	3.15	1.31	1.50	13.5	1.23	3.45	1.50	17.1	4.2	1.23
4	1.74	1.23	3.0	1.31	1.40	9.7	1.23	3.15	1.74	9.3	3.75	1.23
5	1.62	6.0	3.15	1.31	1.82	5.6	1.23	3.0	1.50	7.7	3.3	1.31
6	1.50	9.5	3.2	1.31	1.74	4.6	1.50	2.85	1.96	7.0	3.0	1.15
7	1.50	4.4	3.3	1.31	2.2	4.0	1.23	2.7	1.98	5.8	2.7	1.08
8	1.40	6.8	2.7	1.23	2.3	3.45	1.15	2.45	2.6	5.2	2.7	1.08
9	1.40	5.0	2.45	1.23	5.2	3.15	1.08	2.35	2.35	5.0	2.6	1.15
10	1.40	3.9	2.6	1.23	3.15	2.85	1.08	2.75	2.1	4.6	2.45	1.15
11	1.85	3.9	2.6	1.15	2.35	2.7	1.23	2.45	5.3	4.2	2.35	1.08
12	1.31	3.45	2.35	1.15	2.2	3.0	1.15	2.35	2.35	4.4	2.35	1.01
13	1.31	3.15	2.2	1.08	2.35	2.6	1.08	2.35	2.85	4.6	2.2	1.01
14	1.23	3.0	3.45	1.15	2.2	2.45	1.08	2.1	8.4	4.6	2.1	4.3
15	1.25	4.4	2.6	1.23	2.35	2.2	1.08	1.98	8.3	4.4	1.98	4.1
16	2.2	3.85	2.35	1.50	2.1	2.1	3.1	2.2	5.8	5.7	1.98	1.50
17	1.31	3.0	2.2	1.15	1.98	2.1	21.5	8.8	6.4	13.0	1.86	1.40
18	1.23	4.7	2.1	1.15	1.86	1.98	5.0	3.15	8.5	10.1	1.86	1.31
19	1.23	4.4	1.98	1.15	1.74	1.86	3.0	2.7	18.5	6.4	1.74	1.31
20	1.23	4.7	1.86	1.15	1.74	1.86	2.6	2.45	7.7	6.7	1.98	1.31
21	1.15	3.6	1.86	1.15	1.62	1.74	2.45	2.35	7.2	5.6	1.74	1.31
22	1.15	3.3	1.86	1.08	1.62	1.62	18.0	2.2	6.0	6.0	1.62	1.31
23	1.15	11.1	1.74	1.01	3.05	1.50	13.4	2.1	7.2	5.6	1.50	1.23
24	1.15	13.6	1.74	1.01	3.0	1.50	22.5	1.98	6.4	8.7	1.50	1.23
25	1.15	6.7	1.62	.94	2.2	1.50	9.3	1.86	5.4	15.4	1.50	1.23
26	1.08	5.2	1.50	1.01	1.98	1.40	8.9	1.86	4.8	11.6	1.40	1.54
27	1.15	4.4	1.50	1.08	1.86	1.40	7.1	1.74	13.9	7.0	1.40	1.86
28	1.08	3.9	1.50	1.23	1.86	1.40	5.0	1.74	15.6	5.8	1.40	1.40
29	1.15	3.6	1.50	1.77	1.74	1.31	8.0	-	9.9	5.0	1.31	1.68
30	1.36	3.15	1.40	4.4	1.74	1.31	5.0	-	15.3	4.8	1.31	3.4
31	1.31	3.3	-	3.6	-	1.23	5.2	-	12.8	-	1.31	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.2	1.08	1.40	2.17	43.4	133
August	13.6	1.23	4.55	7.04	141	433
September	3.45	1.40	2.32	3.59	69.5	213
October	4.4	.94	1.39	2.15	43.2	133
November	5.2	1.40	2.15	3.33	64.6	198
December	13.5	1.23	3.03	4.69	93.9	288
Calendar year 1945	15.5	.75	2.40	3.71	875	2,680
January	22.5	1.08	5.09	7.88	158	484
February	8.8	1.74	2.76	4.27	77.4	237
March	18.5	1.50	6.37	9.86	197	606
April	17.1	4.2	7.37	11.4	221	679
May	4.2	1.31	2.22	3.43	68.7	211
June	4.3	1.01	1.55	2.40	46.4	143
Fiscal year 1945-46	22.5	.94	3.35	5.18	1,220	3,760

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 34 years (1911-15, 1916-46), 7.86 million gallons a day (12.2 second-feet).

Extremes.- Maximum discharge during year, 1,050 million gallons a day (1,620 second-feet) Jan. 22 (gage height, 4.00 feet), from rating curve extended above 100 million gallons a day; minimum, 0.70 million gallons a day (1.08 second-feet) Oct. 25, 26.
1910-46: 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. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.48	0.7	5.6	1.1	22
.4	1.13	.8	8.5	1.2	28.5
.5	2.15	.9	12.1	1.4	45
.6	3.6	1.0	16.6	1.6	67

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.5	1.05	4.4	1.28	2.95	1.38	1.13	5.9	2.25	19.3	7.6	1.13
2	2.55	.94	3.8	1.28	2.25	8.9	1.13	5.2	2.15	16.6	6.8	1.05
3	1.79	.90	4.2	1.22	1.68	18.0	1.13	4.6	2.0	42	8.5	1.05
4	1.48	.83	4.2	1.13	1.48	12.7	1.13	4.2	2.4	21	6.8	.97
5	1.38	14.7	4.7	1.13	2.0	6.5	1.05	4.0	2.0	15.2	5.6	1.32
6	1.28	27	4.2	1.13	2.25	5.0	1.48	3.8	3.4	13.0	5.2	1.05
7	1.28	7.0	4.4	1.13	3.6	4.6	1.13	3.6	4.2	10.3	4.8	.97
8	1.22	6.3	3.45	1.05	3.45	3.8	.97	3.45	7.3	9.2	4.6	.97
9	1.22	5.8	3.1	1.05	11.7	3.6	.97	3.25	5.4	8.2	4.2	1.13
10	1.22	4.4	3.1	.97	5.7	3.25	.97	3.6	4.0	8.2	3.8	1.05
11	2.5	6.3	3.6	.97	3.25	2.95	1.32	3.1	13.4	7.0	3.6	.90
12	1.28	4.8	2.8	.90	2.8	3.35	1.13	2.8	4.2	7.3	3.45	.83
13	1.22	4.0	2.8	.90	3.5	2.8	1.05	2.8	5.1	6.8	3.25	.83
14	1.13	3.6	5.9	.90	2.95	2.65	.90	2.65	25	7.3	3.1	5.2
15	1.05	6.2	3.45	.97	2.65	2.4	.90	2.4	16.3	7.9	2.95	2.65
16	2.55	7.4	2.95	1.50	2.25	2.25	3.65	3.05	11.0	8.4	2.8	1.13
17	1.38	4.2	2.8	.97	2.15	2.15	44	59	12.0	38	2.55	.97
18	1.13	8.5	2.55	1.05	2.0	2.15	36.5	10.3	22	19.6	2.4	.97
19	1.05	7.3	2.4	1.05	1.90	2.0	4.0	6.2	52	12.9	2.25	.97
20	1.05	9.1	2.25	.97	1.79	2.15	2.95	4.6	16.2	12.1	2.4	1.05
21	.97	6.2	2.15	.90	1.68	1.90	2.8	4.0	17.1	9.6	2.0	1.22
22	.90	5.2	2.0	.76	1.68	1.79	50	3.45	13.4	9.9	1.79	1.05
23	.90	26	1.90	.76	4.3	1.68	30.5	3.45	15.2	9.9	1.68	.90
24	.97	31	1.79	.76	3.8	1.58	67	2.95	13.4	20.5	1.58	1.13
25	.90	11.4	1.68	.70	2.4	1.58	19.3	2.8	10.7	31	1.48	.97
26	.83	7.9	1.68	.83	2.0	1.48	16.1	2.65	9.2	30	1.48	1.39
27	.83	6.5	1.58	1.07	1.79	1.48	11.7	2.55	43	14.8	1.38	1.46
28	.90	5.4	1.58	1.38	1.68	1.38	8.2	2.4	46	11.4	1.28	.97
29	.90	5.0	1.48	3.5	1.58	1.28	8.4	-	20.5	9.6	1.28	1.33
30	.90	4.6	1.38	8.9	1.48	1.28	6.5	-	29.5	9.6	1.22	3.2
31	1.93	4.6	-	7.2	-	1.22	7.0	-	22	-	1.13	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.55	0.83	1.33	2.06	41.2	126
August	31	.83	7.87	12.2	244	749
September	5.9	1.38	2.94	4.55	88.3	271
October	8.9	.70	1.56	2.41	48.3	148
November	11.7	1.48	2.82	4.36	84.7	260
December	18.0	1.22	3.52	5.45	109	335
Calendar year 1945	56	.45	3.66	5.66	1,340	4,090
January	67	.90	10.8	16.7	335	1,030
February	59	2.4	5.81	8.99	163	499
March	52	2.0	14.6	22.6	452	1,390
April	42	6.8	14.9	23.1	447	1,370
May	8.5	1.13	3.32	5.14	103	316
June	5.2	.83	1.33	2.06	39.8	122
Fiscal year 1945-46	67	.70	5.90	9.13	2,160	6,620

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 33 years (1911-14, 1916-46), 3.10 million gallons a day (4.80 second-feet).

Extremes.- Maximum discharge during year, 227 million gallons a day (351 second-feet) Jan. 22 (gage height, 3.70 feet), from rating curve extended above 70 million gallons a day; minimum, 0.30 million gallons a day (0.46 second-foot) July 26, Aug. 4.
1910-46: 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 excellent above 1 million gallons a day, good below. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.09	0.9	5.3
.5	.56	1.0	7.1
.6	1.33	1.2	11.5
.7	2.4	1.4	16.5
.8	3.7	1.6	22

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.63	0.40	2.1	0.63	0.77	0.56	0.50	3.05	0.91	9.4	3.3	0.56
2	.63	.40	1.76	.63	.70	5.4	.50	2.55	.84	7.9	2.9	.50
3	.47	.35	2.1	.56	.56	7.9	.45	2.2	.84	15.1	3.7	.50
4	.45	.30	1.86	.56	.50	5.0	.45	2.1	.98	8.8	2.65	.50
5	.45	4.6	2.05	.56	.70	2.65	.45	1.86	.84	7.5	2.3	.56
6	.40	5.9	1.93	.56	.84	2.2	.70	1.86	1.18	6.4	2.2	.50
7	.40	2.2	1.98	.50	.98	2.1	.50	1.76	1.15	5.3	1.97	.40
8	.40	3.6	1.33	.50	1.06	1.76	.45	1.65	1.49	4.7	1.86	.45
9	.40	2.2	1.33	.50	2.9	1.76	.40	1.54	1.24	4.2	1.76	.50
10	.45	1.76	1.33	.45	1.36	1.54	.40	1.76	.98	3.9	1.54	.56
11	.80	1.86	1.44	.45	.91	1.33	.45	1.44	4.1	3.3	1.54	.45
12	.40	1.54	1.15	.45	.84	1.54	.50	1.33	1.33	3.7	1.44	.40
13	.40	1.33	1.06	.45	1.14	1.24	.40	1.33	1.91	3.3	1.33	.35
14	.35	1.44	2.2	.45	.84	1.15	.40	1.24	6.7	3.2	1.24	4.1
15	.37	2.65	1.24	.50	.84	1.06	.40	1.06	5.8	2.8	1.15	2.55
16	.93	1.86	1.15	.70	.77	.98	2.95	1.30	4.0	3.95	1.15	.56
17	.40	1.33	1.06	.50	.70	.91	15.6	5.8	4.8	9.7	.98	.45
18	.40	2.6	.98	.50	.70	.91	2.7	1.97	6.1	6.8	.98	.45
19	.35	2.25	.91	.50	.63	.91	1.54	1.65	16.2	4.7	.91	.40
20	.35	2.4	.91	.50	.63	.84	1.24	1.54	6.7	4.5	1.06	.45
21	.35	1.86	.84	.45	.56	.84	1.15	1.44	6.2	4.0	.91	.50
22	.35	1.65	.84	.40	.63	.77	17.1	1.33	4.8	4.6	.84	.45
23	.35	8.3	.77	.40	1.57	.70	10.0	1.33	5.5	4.1	.84	.40
24	.35	8.8	.77	.40	1.24	.70	17.9	1.24	5.0	6.5	.77	.45
25	.35	4.7	.77	.40	.77	.70	9.6	1.15	4.2	11.0	.70	.45
26	.30	3.45	.70	.40	.70	.70	8.5	1.06	3.7	9.6	.70	.78
27	.35	3.05	.70	.50	.70	.63	6.2	1.06	12.4	6.0	.63	.91
28	.35	2.65	.70	.70	.63	.63	4.5	.91	13.6	5.0	.63	.45
29	.35	2.4	.70	1.13	.63	.56	4.6	-	8.8	4.3	.56	.66
30	.53	2.2	.63	3.4	.56	.56	3.7	-	12.8	4.2	.56	.77
31	.56	2.2	-	1.81	-	.50	3.7	-	10.8	-	.56	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.93	0.30	0.439	0.679	13.6	42
August	8.8	.30	2.65	4.10	82.2	252
September	2.2	.63	1.24	1.92	37.3	114
October	3.4	.40	.659	1.02	20.4	63
November	2.9	.50	.879	1.36	26.4	81
December	7.9	.50	1.58	2.44	49.0	150
Calendar year 1945	13.4	.30	1.39	2.15	506	1,550
January	17.9	.40	3.80	5.88	118	362
February	5.8	.91	1.73	2.68	48.5	149
March	16.2	.84	5.03	7.78	156	478
April	15.1	2.8	5.95	9.21	178	548
May	3.7	.56	1.41	2.18	43.7	134
June	4.1	.35	.700	1.08	21.0	64
Fiscal year 1945-46	17.9	.30	2.18	3.37	794	2,440

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. Records at same site collected by East Maui Irrigation Co. April 1930 to June 1932.

Average discharge.- 14 years, 1.28 million gallons a day (1.98 second-feet).

Extremes.- Maximum discharge during year, 718 million gallons a day (1,110 second-feet) Jan. 22 (gage height, 4.57 feet); minimum, 0.05 million gallons a day (0.08 second-foot) July 8, 9.

1932-46: 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 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.6	3.75	1.1	19.5
.2	.16	.7	5.8	1.3	30
.3	.51	.8	8.6	1.5	43
.4	1.15	.9	11.6		
.5	2.2	1.0	15.2		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.08	0.08	0.10	0.10	0.08	0.10	0.12	20	0.12	0.16	0.20	0.14
2	.07	.10	.10	.10	.08	.12	.12	17.8	.12	.16	.20	.14
3	.07	.08	.10	.10	.08	7.1	.12	15.6	.12	3.7	.20	.14
4	.07	.07	.10	.10	.08	.34	.12	14.5	.12	.16	.16	.14
5	.07	.14	.10	.10	.08	.26	.12	13.0	.12	.16	.16	.14
6	.07	3.0	.10	.10	.10	f.23	.12	11.4	.14	.16	.16	.14
7	.07	.14	.10	.10	.10	f.16	.12	10.1	.14	.16	.16	.14
8	.07	.41	.10	.10	.10	.16	.12	4.6	.12	.16	.16	.12
9	.07	.16	.10	.08	.10	.16	.12	4.4	.12	.16	.16	.12
10	.07	.10	.12	.08	.10	.16	.12	4.4	.12	.16	.20	.12
11	.07	.10	.12	.08	.08	.16	.12	4.2	.14	.16	.20	.12
12	.07	.10	.12	.08	.07	.16	.12	2.4	.14	.16	.20	.12
13	.08	.10	.12	.08	.07	.16	.12	.65	.14	.16	.20	.12
14	.08	.10	.12	.08	.07	.16	.14	.29	.31	.16	.20	.12
15	.10	.18	.12	.08	.08	.14	.14	.12	.12	.16	.20	.12
16	.14	.30	.10	.08	.08	.14	.16	.12	.12	.16	.20	.12
17	.10	.10	.10	.08	.08	.14	8.2	.19	.12	2.45	.16	.10
18	.10	.10	.10	.07	.08	.14	.16	.14	.12	.40	.16	.10
19	.10	.10	.10	.08	.08	.14	.12	.14	9.3	.16	.16	.08
20	.10	.10	.10	.10	.08	.12	.12	.14	.16	.16	.16	.08
21	.10	.10	.10	.08	.08	.12	.12	.14	.86	.20	.16	.08
22	.08	.10	.10	.08	.10	.12	44	.14	.12	.20	.16	.08
23	.08	.23	.10	.08	.10	.12	10.4	.14	1.75	.20	.16	.08
24	.08	2.45	.10	.08	.08	.12	12.3	.14	.14	.20	.16	.08
25	.08	.12	.10	.08	.08	.12	f17.5	.14	.21	2.25	.16	.08
26	.08	.10	.10	.08	.08	.12	29	.14	.12	.61	.16	.08
27	.08	.10	.10	.08	.08	.12	27.5	.14	5.1	.23	.16	.08
28	.08	.10	.10	a.08	.08	.12	21.5	.14	3.95	.23	.16	.08
29	.08	.12	.10	a.08	.08	.12	27.5	-	.14	.23	.16	.08
30	.08	.12	.10	f.10	.08	.12	20.5	-	2.5	.20	.16	.08
31	.08	.12	-	.10	-	.12	24	-	.38	-	.14	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.14	0.07	0.082	0.127	2.55	7.8
August	3.0	.07	.297	.460	9.22	28
September	.12	.10	.104	.161	3.12	9.6
October	.30	.07	.087	.135	2.69	8.3
November	.10	.07	.084	.130	2.51	7.7
December	7.1	.10	.373	.577	11.6	36
Calendar year 1945	10.1	.07	.227	.351	83.0	254
January	44	.12	7.90	12.2	255	752
February	20	.12	4.48	6.93	125	385
March	9.3	.12	.877	1.36	27.2	83
April	3.7	.16	.461	.713	13.8	42
May	.20	.14	.172	.266	5.34	16
June	.14	.08	.107	.166	3.22	9.9
Fiscal year 1945-46	44	.07	1.24	1.92	451	1,390

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

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

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. Records at former site collected by East Maui Irrigation Co. November 1926 to June 1932.

Average discharge.- 14 years, 1.53 million gallons a day (2.37 second-feet).

Extremes.- Maximum discharge during year, 1,300 million gallons a day (2,010 second-feet) Jan. 22 (gage height, 7.40 feet), from rating curve extended above 15 million gallons a day by logarithmic plotting; minimum, 0.11 million gallons a day (0.17 second-foot) July 14, 15.

1932-46: Maximum discharge, that of Jan. 22, 1946; minimum, 0.08 million gallons a day (0.12 second-foot) Dec. 1, 2, 1938.

Remarks.- Records good except those for Oct. 27-30, Jan. 22 to Feb. 15, which are poor. 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.08	0.6	1.36	1.2	13.7
.3	.18	.7	2.3	1.4	21.5
.4	.40	.8	3.6	1.6	31
.5	.75	1.0	7.5	1.8	44

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.43	0.24	0.45	0.24	0.58	0.28	0.32	20.5	0.40	0.92	0.70	0.34
2	.50	.31	.42	.26	.48	.41	.30	17.9	.37	.92	.68	.32
3	.32	.26	.42	.24	.37	9.6	.30	16.4	.34	4.5	.62	.30
4	.32	.28	.40	.20	.32	3.8	.30	14.5	.34	1.09	.62	.30
5	.28	1.05	.40	.26	.32	1.72	.30	13.4	.34	.98	.55	.30
6	.26	4.2	.42	.32	.30	1.36	.30	11.2	.37	.98	.51	.32
7	.24	1.03	.42	.30	.75	1.16	.30	12.4	.72	.92	.51	.32
8	.22	1.36	.40	.28	.45	.92	.30	5.4	.48	.75	.51	.32
9	.20	1.36	.40	.28	.82	.75	.30	4.6	.51	.66	.48	.30
10	.20	.92	.40	.28	.86	.70	.30	4.3	.48	.70	.48	.30
11	.24	1.16	.37	.26	.55	.70	.32	3.95	.58	.62	.45	.28
12	.16	1.28	.37	.24	.45	.66	.28	2.65	.45	.66	.45	.28
13	.15	.88	.37	.22	.42	.58	.28	1.16	.51	.70	.42	.28
14	.15	.62	.58	.24	.34	.51	.26	.86	.98	.80	.42	.32
15	.17	1.60	.51	.24	.40	.48	.28	.58	.75	1.03	.42	.87
15	.81	1.62	.45	.26	.34	.45	.56	.55	.75	.92	.40	.30
17	.26	.48	.42	.26	.32	.42	12.1	.77	.75	2.9	.40	.30
18	.24	.55	.40	.28	.30	.42	.89	.51	.75	2.4	.42	.28
19	.20	.70	.37	.26	.28	.40	.66	.48	9.8	.98	.42	.26
20	.22	.86	.34	.22	.28	.40	.55	.45	1.09	.92	.42	.30
21	.20	.70	.34	.22	.28	.40	.55	.51	1.77	.92	.40	.30
22	.18	.66	.34	.20	.30	.40	34	.48	.98	.92	.37	.28
23	.17	1.03	.32	.18	.48	.37	6.2	.45	2.4	.86	.37	.24
24	.22	3.6	.32	.18	.55	.37	12	.42	1.03	.66	.37	.24
25	.24	1.16	.32	.16	.45	.37	19	.40	.98	2.85	.34	.24
25	.18	.92	.32	.15	.40	.34	28	.40	.75	1.38	.34	.24
27	.24	.70	.30	a.16	.37	.32	31	.40	3.85	.98	.34	.28
28	.20	.62	.28	a.20	.32	.32	20	.40	5.3	.86	.32	.22
29	.13	.62	.28	a.46	.30	.34	26	-	.92	.75	.32	.22
30	.22	.51	.26	a.55	.30	.32	21	-	2.8	.75	.32	2.35
31	.47	.48	-	.70	-	.32	24	-	1.26	-	.34	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.81	0.13	0.259	0.401	8.02	25
August	4.2	.24	1.02	1.58	31.8	97
September	.58	.26	.380	.588	11.4	35
October	.70	.15	.268	.415	8.30	25
November	.86	.24	.423	.654	12.7	39
December	9.6	.26	.955	1.48	29.6	91
Calendar year 1945	9.6	.13	.626	.969	229	701
January	34	.26	7.77	12.0	241	739
February	20.5	.40	4.86	7.52	136	417
March	9.8	.34	1.38	2.14	42.8	131
April	4.5	.62	1.18	1.83	35.5	109
May	.70	.32	.442	.684	13.7	42
June	2.35	.22	.373	.577	11.2	34
Fiscal year 1945-46	34	.13	1.59	2.46	582	1,780

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

Note.- Intake section faulty Jan. 22 to Feb. 15; discharge computed as explained in footnote a.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. Records at same site collected by East Maui Irrigation Co. November 1926 to June 1932.

Average discharge.- 14 years, 5.08 million gallons a day (7.86 second-feet).

Extremes.- Maximum discharge during year, 1,670 million gallons a day (2,580 second-feet) Jan. 22 (gage height, 5.90 feet), from rating curve extended above 44 million gallons a day by logarithmic plotting; minimum, 0.02 million gallons a day (0.03 second-foot) probably Aug. 10.

1932-46: 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 periods of no gage-height record, which are poor. Wailoa, New Hamakua, Old Hamakua, and Haiku ditches divert most of flow above this station.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.6	4.1	1.2	23.5
.2	.22	.7	6.1	1.4	34
.3	.67	.8	8.6	1.7	54
.4	1.41	.9	11.6		
.5	2.55	1.0	15.1		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.41	0.33	0.41	0.61	1.80	0.51	0.80	19.0	0.80	30.5	0.41	0.92
2	.46	.37	.46	.61	.56	4.2	.80	16.7	.80	13.5	.41	.86
3	.37	.33	.46	.61	.56	24	.73	13.0	.80	44	.41	.86
4	.33	.29	.46	.56	.51	15.5	.73	10.7	.80	28	1.02	.86
5	.33	6.7	.46	.56	a.56	9.2	.73	11.3	.80	1.15	1.15	.86
6	.33	21	.41	.51	a.61	a12.3	.73	11.0	.80	2.85	1.15	.86
7	.29	5.6	.46	.51	a.73	a1.15	.73	10.4	1.14	.86	1.07	.86
8	.29	8.2	.46	.51	a.92	2.55	.67	4.9	4.4	.61	1.07	.80
9	.29	a2.4	.46	.51	a9.7	1.86	.67	4.7	4.7	.56	.99	.80
10	.29	a.02	.46	.51	1.40	.61	.67	11.4	.86	.61	.86	.80
11	.29	a1.7	.46	.51	.73	.61	.67	23	25	.61	.86	.80
12	.29	.84	.51	.46	.67	.61	.73	.12	.61	.56	.86	.80
13	.29	.51	.51	.46	.67	.61	.73	.77	.56	.41	.86	.80
14	.29	.46	.98	.46	.61	.56	.73	.92	29	.46	.86	.80
15	.29	2.75	.46	.56	.61	.56	.73	.86	18.2	.51	.92	4.9
16	.46	13.0	.41	.56	.56	.56	.92	.86	2.1	1.02	.99	.92
17	.37	.46	.41	.56	.56	.61	35.5	13.9	.56	35.5	.99	.92
18	.33	7.3	.41	.51	.56	.86	22.5	19.3	29	36	.86	.86
19	.33	6.6	.37	.56	.56	.86	.67	25.5	44	4.8	.80	.80
20	.33	12.5	.37	.56	.56	.86	.56	7.3	.75	16.2	.80	.73
21	.29	.80	.37	.56	.56	.86	.56	.92	21.5	11.2	.86	.73
22	.29	.56	.33	.56	.56	.86	.91	.92	1.57	9.0	.92	.73
23	.29	15.5	.33	.56	.68	.86	13.4	.86	22.5	1.81	.92	.67
24	.29	34	.33	.51	.86	.86	12.6	.86	12.6	29	.92	.67
25	.29	12.0	.41	.46	.61	.86	17.3	.60	1.60	41	.92	.67
26	.33	.46	.61	a.46	.56	.86	18.5	.80	1.07	36	.92	.67
27	.33	.37	.61	a.51	.56	.80	27.5	.80	27	5.1	.92	.73
28	.33	.33	.61	a.56	.56	.80	21	.80	44	.56	.92	.73
29	.33	.41	.61	a2.6	.51	.80	26.5	-	27	.41	.92	.73
30	.33	.56	.61	a4.7	.51	.80	19.4	-	23	.56	.92	2.45
31	.37	.46	-	18.3	-	.80	23	-	36	-	.92	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.46	0.29	0.327	0.506	10.1	31
August	34	.02	5.06	7.83	157	481
September	.98	.33	.474	.733	14.2	44
October	18.3	.46	1.31	2.03	40.5	124
November	9.7	.51	.980	1.52	29.4	90
December	24	.51	2.83	4.38	87.7	269
Calendar year 1945	34	.02	1.81	2.80	659	2,020
January	35.5	.56	8.12	12.6	252	772
February	25.5	.12	7.59	11.7	212	652
March	44	.56	12.4	19.2	384	1,180
April	44	.41	11.8	18.3	353	1,080
May	1.15	.41	.884	1.37	27.4	84
June	4.9	.67	.966	1.53	29.6	91
Fiscal year 1945-46	44	.02	4.37	6.76	1,600	4,900

a No gage-height record; discharge computed on basis of records for stations above Haiku ditch.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 23 years (1923-46), 114 million gallons a day (176 second-feet).

Extremes.- Maximum discharge during year, 188 million gallons a day (291 second-feet) Jan. 17 (gage height, 6.17 feet); minimum, 6.1 million gallons a day (9.4 second-feet) Jan. 30.

1922-46: Maximum discharge, 188 million gallons a day (291 second-feet) June 25, 1941, and Jan. 17, 1946 (gage heights, 6.06 and 6.17 feet, respectively); minimum, that of 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	168	82	136	50	164	56	36.5	53	56	176	168	44
2	144	72	137	50	156	86	36.5	53	56	176	152	41
3	91	56	164	47	140	180	35	53	53	176	172	38
4	76	50	160	44	97	180	33.5	53	72	176	154	38
5	69	149	164	41	136	176	32	56	56	176	120	46
6	63	176	152	41	140	172	61	56	100	150	132	41
7	56	176	168	44	172	152	52	46	142	116	128	36.5
8	53	172	140	41	168	124	35	15.0	166	159	120	35
9	50	172	112	44	176	108	32	14.8	172	172	112	50
10	53	168	107	44	172	93	30.5	15.0	168	176	101	58
11	112	172	150	38	148	90	67	30.5	174	168	93	38
12	56	168	104	33.5	130	120	97	59	140	172	93	33.5
13	47	164	93	32	132	106	76	79	160	172	93	32
14	44	140	161	34	136	79	41	90	176	176	79	76
15	44	165	148	48	129	72	33.5	79	176	176	76	99
16	153	172	116	107	116	86	86	100	176	176	76	44
17	74	152	108	64	119	63	185	155	176	180	69	38
18	63	160	93	101	86	59	185	132	176	180	66	35
19	53	176	86	106	76	56	154	116	176	176	66	35
20	56	176	79	56	69	57	104	112	176	154	69	44
21	50	172	72	50	66	56	86	104	176	120	63	90
22	44	168	69	41	66	53	104	90	176	167	59	70
23	50	176	66	38	155	50	108	86	176	176	56	53
24	53	176	63	37	166	47	104	82	176	180	53	70
25	47	176	59	71	106	47	86	72	176	180	50	63
26	41	172	56	93	86	44	67	69	176	176	50	64
27	42	164	53	84	72	44	46	66	176	152	47	124
28	53	148	84	164	66	41	25	59	176	120	47	59
29	50	136	66	158	63	38	30	-	176	160	44	65
30	83	128	53	172	59	38	21.5	-	176	176	44	160
31	122	142	-	176	-	36.5	55	-	176	-	44	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	168	41	69.7	108	2,160	6,630
August	176	50	151	234	4,680	14,350
September	168	53	107	166	3,220	9,880
October	176	32	69.3	107	2,150	6,600
November	176	59	119	184	3,570	10,950
December	180	36.5	83.5	129	2,590	7,950
Calendar year 1945	180	22	90.2	140	32,920	101,000
January	185	21.5	69.2	107	2,140	6,580
February	155	14.8	71.3	110	2,000	6,120
March	176	53	151	234	4,680	14,370
April	180	116	166	257	4,990	15,310
May	172	44	87.0	135	2,700	8,270
June	160	32	57.3	88.7	1,720	5,280
Fiscal year 1945-46	185	14.8	100	155	36,600	112,300

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 28 years, 28.3 million gallons a day (43.8 second-feet).

Extremes.- Maximum discharge during year, 122 million gallons a day (189 second-feet) Jan. 22 (gage height, 6.02 feet); minimum, 0.10 million gallons a day (0.16 second-foot) Aug. 4.
1918-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	60	0.36	2.35	0.58	60	1.02	0.28	0.21	0.62	102	50	0.26
2	37	.36	7.7	.55	17.9	24	.28	.19	.58	102	28	.26
3	.32	.24	25.5	.55	13.4	99	.28	.19	.55	102	78	.26
4	.26	.17	18.4	.51	1.38	99	.28	.17	.66	102	78	.26
5	.21	44	29	.47	18.5	93	.28	.15	.55	101	45	.24
6	.19	78	13.8	.43	9.7	60	.43	.15	12.8	101	14.5	.24
7	.17	71	50	.43	87	9.6	.36	8.2	46	101	2.1	.21
8	.15	74	7.2	.39	64	3.25	.26	17.4	73	78	1.72	.19
9	.15	69	1.72	.43	95	2.85	.21	22	83	80	1.18	.19
10	.15	47	1.65	.47	71	2.65	.21	22	54	91	1.08	.24
11	17.7	70	28.5	.43	7.1	2.4	2.4	22.5	87	57	1.08	.19
12	.24	48	1.58	.39	2.15	4.5	2.7	8.5	18.2	57	.97	.17
13	.17	38	1.45	.39	17.4	2.25	.28	31	29	74	.92	.15
14	.15	2.55	66	.43	9.8	2.0	.21	1.45	101	85	.71	19.3
15	.15	50	26	.66	6.7	1.85	.19	1.31	101	97	.66	29
16	48	72	1.45	1.36	2.1	1.72	13.9	6.8	99	97	.62	.47
17	.43	12.9	1.25	1.12	2.85	1.52	101	62	97	102	.58	.28
18	.26	40	1.13	16.8	1.38	1.31	93	23	101	101	.58	.28
19	.21	74	1.08	10.2	1.31	1.02	17.0	16.0	102	101	.58	.24
20	.21	74	1.02	.92	1.31	.82	2.15	8.8	101	101	.62	.24
21	.21	71	.97	1.02	1.25	.71	1.85	6.2	101	101	.51	.36
22	.21	50	.92	.71	1.25	.62	32	5.1	101	101	.47	.43
23	.19	66	.87	.62	54	.58	29.5	4.7	101	99	.43	.32
24	.17	85	.82	.55	74	.55	15.0	4.5	101	101	.39	.32
25	.21	78	.76	.55	2.1	.47	6.2	2.95	99	102	.36	.36
26	.19	62	.71	1.72	1.45	.43	.28	.71	91	102	.32	.39
27	.21	27	.66	1.40	1.31	.39	.26	.66	95	102	.28	5.8
28	.26	4.1	2.8	52	1.25	.36	.24	.66	102	101	.26	.78
29	.17	2.65	1.14	42	1.18	.32	.21	-	102	78	.26	2.35
30	13.8	2.35	.66	85	1.13	.28	.21	-	102	91	.24	68
31	27	3.95	-	93	-	.28	.24	-	102	-	.24	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	60	0.15	6.73	10.4	209	641
August	85	.17	42.5	65.8	1,320	4,040
September	66	.66	9.90	15.3	297	912
October	93	.39	10.2	15.8	316	970
November	95	1.13	21.0	32.5	629	1,930
December	99	.28	13.5	20.9	419	1,290
Calendar year 1945	102	.08	17.2	26.6	6,290	19,290
January	101	.19	10.4	16.1	322	987
February	62	.15	9.91	15.3	278	852
March	102	.55	71.1	110	2,200	6,770
April	102	57	93.7	145	2,810	8,620
May	78	.24	10.0	15.5	311	953
June	68	.15	4.39	6.79	132	404
Fiscal year 1945-46	102	.15	25.3	39.1	9,240	28,370

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 13 years (1918-22, 1937-46), 2.81 million gallons a day (4.35 second-feet).

Extremes.- Maximum discharge during year, 46 million gallons a day (71 second-feet) Apr. 17 (gage height, 3.09 feet); no flow many times.
1918-22, 1936-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.07	0	0.03	0.04	0.80	0.01	0.02	0.68	0.02	24.5	0.10	0.02
2	.10	0	.03	.02	.05	4.9	.02	.72	.02	20	.05	.02
3	.02	0	.04	.02	.04	19.2	.02	.81	.02	35	1.07	.02
4	.01	0	.05	.02	.02	5.9	.02	.81	.02	24.5	.99	.02
5	.01	9.9	.04	.02	.03	.77	.02	.81	.02	18.4	.07	.02
6	0	20	.06	.02	.04	.54	.02	.81	.05	23.5	.05	.02
7	0	19.2	.09	.02	2.3	.09	.02	.77	.83	28.5	.04	.02
8	0	17.4	.05	.02	.28	.04	.02	.72	2.85	4.7	.04	.02
9	0	13.4	.03	.02	10.3	.03	.02	.68	1.34	.33	.03	.02
10	0	6.4	.03	.02	2.65	.03	.02	.68	.06	1.66	.03	.02
11	.01	18.5	.06	.02	.05	.03	.02	.68	9.6	.10	.03	.01
12	.01	7.7	.04	.01	.03	.03	.01	.41	.59	.10	.03	.01
13	0	2.25	.02	.01	.02	.03	.01	.22	.55	.25	.03	.02
14	0	.04	2.5	.01	.04	.02	.01	.04	18.7	1.38	.03	2.65
15	0	10.8	.18	.01	.04	.02	.01	.04	13.0	2.25	.03	3.15
16	.01	15.9	.04	.02	.03	.02	.69	.03	6.2	2.8	.03	.04
17	0	.09	.02	.02	.02	.02	26.5	31.5	7.0	21.5	.02	.02
18	0	9.6	.02	.02	.02	.02	3.75	3.45	21	21	.02	.02
19	0	19.2	.02	.03	.01	.02	.11	.90	33	8.9	.02	.02
20	0	17.7	.02	.03	.01	.02	.04	.42	14.0	20	.03	.02
21	0	14.2	.02	.02	.01	.02	.04	.04	16.3	30.5	.02	.02
22	0	3.85	.02	.02	.01	.02	8.2	.03	12.7	12.8	.02	.02
23	0	12.5	.02	.02	.50	.02	4.3	.02	11.7	4.8	.02	.02
24	0	21	.02	.02	1.21	.02	2.1	.02	11.2	20	.02	.02
25	0	20	.03	.02	.05	.02	1.60	.02	3.6	28.5	.02	.02
26	0	5.7	.04	.02	.02	.03	1.11	.02	1.77	27.5	.02	.02
27	0	.06	.05	.02	.02	.02	.81	.02	20	23	.02	.02
28	0	.04	.06	.08	.02	.02	.77	.02	35	28.5	.02	.02
29	0	.04	.05	1.17	.02	.02	.81	-	22.5	4.9	.02	.02
30	0	.03	.04	5.8	.01	.02	.81	-	27	3.9	.02	1.43
31	.03	.03	-	7.1	-	.02	.72	-	28.5	-	.02	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.10	0	0.009	0.014	0.27	0.8
August	21	0	8.50	13.2	264	809
September	2.5	.02	.124	.192	3.72	11
October	7.1	.01	.474	.733	14.7	45
November	10.3	.01	.622	.962	18.6	57
December	19.2	.01	1.03	1.59	32.0	98
Calendar year 1945	23.5	0	1.75	2.71	640	1,960
January	26.5	.01	1.70	2.63	52.6	161
February	31.5	.02	1.62	2.51	45.4	139
March	35	.02	10.3	15.9	319	979
April	35	.10	14.8	22.9	444	1,360
May	1.07	.02	.095	.147	2.96	9.1
June	3.15	.01	.259	.401	7.77	24
Fiscal year 1945-46	35	0	3.30	5.11	1,210	3,690

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946. January 1910 to March 1927 at site 1½ miles downstream.

Average discharge.- 32 years (1910-26, 1930-46), 31.2 million gallons a day (48.3 second-feet).

Extremes.- Maximum discharge recorded during year, 62 million gallons a day (96 second-feet) Dec. 3 (gage height, 4.76 feet); minimum, 1.14 million gallons a day (1.76 second-feet) July 26.
1930-46: 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 except those for periods of no gage-height record, which are fair. 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	33	4.4	15.5	4.2	35	4.8	4.2	2.75	6.2	56	33	3.6
2	27.5	3.8	14.0	3.9	20	13.3	4.2	2.6	6.0	56	20	3.45
3	3.75	2.5	16.8	4.0	17	58	4.0	2.5	5.7	58	35.5	3.2
4	2.6	1.92	15.0	3.6	5.0	56	4.5	2.5	6.9	56	38	3.2
5	2.15	26.5	14.8	3.6	11	56	4.0	6.5	5.7	56	28	3.05
6	1.92	53	15.0	3.6	11	56	5.6	8.0	9.4	56	23	3.05
7	1.81	53	25.5	3.3	47	40	5.2	7.0	43	50	15.5	2.9
8	1.70	50	14.3	3.2	50	25	4.0	7.0	46	35.5	11.8	2.9
9	1.70	50	10.0	3.3	58	22	3.6	7.0	40	35.5	10.5	3.05
10	1.70	37	10.3	3.05	43	40	3.45	9.0	28	48	9.4	3.6
11	8.9	48	18.6	2.75	15.5	31	3.6	9.0	50	33	8.9	2.9
12	2.65	30.5	10.0	2.6	24	19.2	4.7	4.0	29	28	8.7	2.6
13	1.81	35.5	8.7	2.5	19.2	15.5	4.0	3.0	32	38	8.9	2.4
14	1.60	25	34.5	2.5	12.2	13.0	3.3	5.0	53	43	7.8	5.9
15	1.52	29.5	40	3.75	12.5	11.5	3.2	20	56	53	7.3	32
16	31	48	f28	4.5	11.6	10.3	f11	22	50	53	7.3	13.8
17	20.5	24	9.8	4.6	8.2	9.6	58	50	50	58	6.4	11.5
18	2.9	38.5	8.4	5.8	6.4	8.9	50	8.6	53	58	6.2	4.0
19	2.25	50	7.5	9.5	5.8	8.4	25	3.75	58	56	6.2	2.9
20	2.05	53	6.9	3.75	5.3	8.2	f13	6.1	56	56	7.2	2.9
21	1.81	46	6.2	4.4	5.2	7.8	11	32.5	56	56	5.8	3.6
22	1.60	40	6.0	3.2	5.0	6.9	35	18.4	56	56	5.3	3.6
23	1.50	44	5.7	2.6	32	6.2	20	9.4	56	56	5.0	3.05
24	1.50	58	5.3	2.4	48	5.8	3.45	8.4	56	56	4.8	2.9
25	1.81	58	5.2	2.15	22	5.5	4.0	8.0	50	58	4.5	2.9
26	1.41	43	4.8	2.5	18.0	5.3	5.0	7.5	43	56	4.3	3.15
27	1.50	33	4.6	3.6	8.8	5.2	3.45	7.1	48	56	4.2	7.2
28	1.81	35.5	5.4	27	6.9	4.8	3.2	6.7	58	48	3.9	3.45
29	1.60	27.5	5.8	35	6.4	4.6	3.6	-	56	38	3.9	3.0
30	2.75	16.8	4.3	52	5.7	4.3	3.2	-	58	48	3.75	44
31	32	17.7	-	58	-	4.3	3.05	-	58	-	3.75	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	33	1.41	6.53	10.1	202	621
August	58	1.92	35.0	54.2	1,080	3,330
September	40	4.3	12.6	19.5	377	1,160
October	58	2.15	8.74	13.5	271	831
November	58	5.0	19.2	29.7	576	1,770
December	58	4.3	18.3	28.3	567	1,740
Calendar year 1945	58	1.41	15.5	24.0	5,660	17,380
January	58	3.05	10.1	15.6	314	962
February	50	2.5	10.2	15.8	284	872
March	58	5.7	41.3	63.9	1,280	3,920
April	58	28	50.4	78.0	1,510	4,640
May	38	3.75	11.3	17.5	349	1,070
June	44	2.4	6.32	9.78	190	582
Fiscal year 1945-46	58	1.41	19.2	29.7	7,000	21,500

f Computed on basis of partly estimated gage-height record.
Note.- No gage-height record Oct. 28 to Nov. 9, Jan. 17-19, 21-23, 25, 26, Feb. 5-15; discharge computed on basis of records for stations on nearby ditches and knowledge of ditch regulation by East Maui Irrigation Co.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Haiku ...ch 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 1946. 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.- 34 years (1910-28, 1930-46), 23.9 million gallons a day (37.0 second-feet).

Extremes.- Maximum discharge during year, 80 million gallons a day (124 second-feet) Jan. 22 (gage height, 3.32 feet); minimum, 0.20 million gallons a day (0.31 second-foot) July 26, 29.
1910-28, 1930-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.8	0.40	1.88	0.28	16.5	0.34	0.48	1.67	0.83	71	4.1	0.44
2	4.7	.55	1.67	.34	1.13	12.1	.44	1.67	.83	60	3.5	.40
3	.60	.28	1.67	.28	.77	68	.44	4.1	.77	74	5.9	.37
4	.51	.28	1.60	.26	.51	65	.48	5.3	.89	70	14.3	.37
5	.54	31.5	1.46	.28	.62	50	.40	2.85	.71	46	2.45	.34
6	.48	68	1.47	.28	.51	26.5	.54	1.39	.95	57	2.2	.34
7	.40	51	1.85	.26	22	5.3	.48	1.32	11.2	26	1.95	.30
8	.34	42	1.39	.26	1.48	1.53	.40	1.07	30.5	5.9	1.88	.30
9	.30	41	1.13	.26	52	2.45	.37	1.01	27	3.8	1.74	.37
10	.37	4.7	1.13	.26	31.5	3.15	.37	4.8	1.25	10.8	1.60	.37
11	.60	26	1.32	.26	1.66	3.05	.37	10.6	30.5	3.2	1.46	.30
12	.30	17.2	1.13	.24	1.13	3.0	.30	7.1	1.70	13.6	1.46	.26
13	.28	3.9	1.01	.24	1.07	2.5	.30	3.3	1.68	4.5	1.39	.26
14	.26	2.35	25.5	.26	.83	2.05	.28	2.35	68	5.8	1.32	.30
15	.28	24.5	3.25	.28	1.25	1.81	.30	1.95	61	10.1	1.13	11.7
16	4.8	52	1.46	.28	1.01	1.60	1.89	1.88	20	24	1.13	.54
17	.65	2.8	1.25	.26	.65	1.39	65	18.0	26	71	.95	.37
18	.44	26	1.07	.26	.54	1.07	44	19.9	71	71	1.01	.34
19	.37	34	.95	.26	.51	1.01	4.3	31.5	74	42	1.07	.26
20	.34	53	.83	.26	.44	.95	2.5	17.3	42	62	1.13	.26
21	.28	17.7	.77	.26	.40	.95	2.5	1.95	67	61	.83	.34
22	.26	4.1	.77	.24	.40	.89	12.1	1.53	32	61	.77	.26
23	.26	37	.71	.24	3.45	.83	1.84	1.39	66	26.5	.65	.24
24	.26	74	.71	.24	10.1	.71	1.74	1.19	54	71	.62	.24
25	.30	62	.51	.24	1.04	.65	2.55	1.13	22	71	.58	.24
26	.24	9.3	.37	.24	.71	.65	12.3	1.07	3.05	71	.54	.24
27	.24	4.1	.34	.30	.54	.62	1.95	1.01	42	56	.54	.40
28	.26	3.4	.30	.71	.44	.58	1.88	.95	74	26.5	.51	.22
29	.24	6.2	.30	19.5	.40	.58	1.88	-	70	6.3	.48	.31
30	.28	2.35	.28	35	.37	.54	1.88	-	53	16.9	.48	35.5
31	1.19	2.35	-	71	-	.51	1.81	-	71	-	.44	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.8	0.24	0.812	1.26	25.2	77
August	74	.28	22.7	35.1	704	2,160
September	25.5	.28	1.94	3.00	58.1	178
October	71	.24	4.30	6.65	133	409
November	52	.37	5.13	7.94	154	472
December	68	.34	8.40	13.0	260	799
Calendar year 1945	76	.12	7.34	11.4	2,680	8,220
January	65	.28	5.36	8.29	166	510
February	31.5	.95	5.33	8.25	149	458
March	74	.71	33.1	51.2	1,020	3,150
April	74	3.2	40.0	61.9	1,200	3,680
May	14.3	.44	1.87	2.89	58.1	178
June	35.5	.22	1.87	2.89	56.2	172
Fiscal year 1945-46	74	.22	10.9	16.9	3,980	12,240

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter.
To convert war time to standard time, subtract 1 hour.

Wailb 1

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 1946.

Average discharge.- 15 years (1931-46), 6.99 million gallons a day (10.8 second-feet).

Extremes.- Maximum discharge during year, 58 million gallons a day (90 second-feet) Apr. 17 (gage height, 3.40 feet); minimum, 0.30 million gallons a day (0.46 second-foot) probably Oct. 14.

1930-46: 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.18	0.6	2.25	2.0	14.6
.2	.42	.7	2.85	2.5	23.5
.3	.78	.9	4.1	3.0	39
.4	1.21	1.2	6.4		
.5	1.70	1.6	9.9		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.6	1.00				3.2	1.76	21.5	4.7	25	12.7	1.26
2	5.3	1.00		al.7		3.05	1.55	20.5	4.6	23.5	11.5	1.00
3	5.0	.87				19.0	1.36	19.5	4.2	25	10.9	1.36
4	4.7	.78				21	1.21	17.6	4.1	22.5	9.9	1.41
5	4.4	1.02			all	23	1.12	16.0	4.7	20.5	9.4	1.31
6	4.1	1.32		al.2		21.5	1.00	14.0	5.6	18.6	8.6	1.17
7	3.85	1.31	a5.5			20.5	.91	12.7	6.6	16.8	8.1	1.08
8	3.7	1.36				17.6	2.35	12.1	7.4	16.0	8.1	.95
9	3.4	2.25				16.0	1.47	10.9	8.1	16.0	7.2	.95
10	3.15	2.45			9.9	14.6	1.17	10.4	7.6	15.3	6.8	1.28
11	2.95	2.6			9.4	12.1	1.46	9.9	8.1	14.0	6.0	1.35
12	2.8	2.85			11.0	10.4	2.25	9.4	7.6	13.3	6.0	.95
13	2.6	2.65			9.9	9.9	2.35	9.0	7.2	13.3	6.0	.82
14	2.35	2.45	6.4		9.4	8.6	2.05	8.1	7.2	12.1	5.4	.74
15	2.2	2.25	6.4		9.0	8.1	1.70	7.6	7.2	12.7	4.9	.67
16	2.1	2.75	6.8		8.1	7.2	1.50	7.3	6.8	6.8	4.5	.56
17	1.86	2.75	6.4		7.6	6.4	1.31	18.4	6.8	15.9	4.2	.56
18	2.45	3.4	6.4		6.8	6.0	1.31	13.3	13.4	16.1	3.85	.67
19	2.2	4.9		a.6	6.4	5.4	1.08	11.5	16.5	16.0	3.45	.67
20	1.81	4.7			6.0	4.9	1.00	10.4	15.3	15.3	3.2	.60
21	1.70	4.4	a5.0		5.5	4.3	.91	9.4	16.0	13.3	3.05	.53
22	1.55	6.1			5.0	3.95	.82	9.0	15.3	12.1	2.85	.46
23	1.41				4.7	3.6	1.52	8.1	14.6	10.9	2.8	.46
24	1.36				6.3	3.35	9.7	7.6	12.7	13.8	2.75	.42
25	1.26	all			5.0	3.1	6.4	6.8	11.5	16.8	2.35	.42
26	1.12		a3.0		4.4	2.85	5.6	6.0	10.4	16.0	2.2	.40
27	1.17				4.1	2.65	6.8	5.6	10.0	16.0	2.05	.79
28	1.08				3.8	2.5	5.5	5.2	16.0	16.0	1.92	.46
29	1.04	a8.5			3.6	2.25	5.5	-	15.3	15.3	1.76	.42
30	1.04			a9.5	3.45	2.1	8.2	-	19.8	14.0	1.60	.49
31	.95		-		-	1.92	15.7	-	22.5	-	1.46	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.6	0.95	2.59	4.01	80.2	246
August	-	-	4.65	7.19	144	442
September	-	-	5.0	7.74	150	460
October	-	-	1.38	2.14	42.7	131
November	-	-	7.94	12.3	238	731
December	23	1.92	8.74	13.5	271	832
Calendar year 1945	30	.13	4.96	7.67	1,810	5,550
January	15.7	.82	3.11	4.81	96.6	296
February	21.5	5.2	11.4	17.6	318	975
March	22.5	4.1	10.3	15.9	318	975
April	25	6.8	16.0	24.8	479	1,470
May	12.7	1.46	5.34	8.26	165	508
June	1.41	.40	.807	1.25	24.2	74
Fiscal year 1945-46	25	.40	6.38	9.87	2,330	7,140

a Faulty or no gage-height record; discharge computed on basis of weather records and records for Wailuku River.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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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 1946.
Average discharge.- 16 years (1929-40, 1941-46), 174 million gallons a day (269 second-feet).
Extremes.- Maximum discharge during year, 6,480 million gallons a day (10,000 second-feet) Nov. 13 (gage height, 15.74 feet), from rating curve extended above 3,400 million gallons a day by logarithmic plotting; minimum discharge, 2.0 million gallons a day (3.1 second-feet) Oct. 14.
1928-46: 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 period 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	55	10.5	40	10.2	345	21	5.1	1,440	21.5	978	147	9.0
2	103	17.1	45	9.7	565	20.5	5.6	620	65	585	127	8.5
3	48	16.5	80	9.7	271	498	4.8	473	45	951	219	11
4	36	8.8	76	9.0	164	1,180	5.0	375	104	685	127	16
5	37	13.1	96	7.8	316	1,110	4.0	245	168	420	102	10
6	52	275	73	15.1	207	562	4.1	158	172	350	76	8.5
7	31.5	60	67	10.2	182	275	4.2	179	342	290	67	7.8
8	26	43	95	7.7	226	169	38	305	616	322	55	7.2
9	23.5	67	52	6.0	158	118	32	228	212	667	45	6.7
10	20.5	55	47	5.1	94	102	18.6	206	137	350	40	8.0
11	30	55	148	4.0	67	70	13.6	147	94	260	31.5	10
12	20.5	40	69	3.1	140	55	36.5	94	67	180	34	7.5
13	14.7	40	52	2.5	787	45	26	87	52	266	34	6.8
14	12.1	44	238	2.4	280	36	15.6	67	70	369	27.5	6.2
15	10.2	29.5	186	2.7	110	31.5	10.2	52	110	374	24	5.5
16	31.5	36.5	176	2.6	84	27.5	8.2	63	73	245	23.5	5.0
17	20	27.5	94	4.5	64	24	6.2	497	122	291	20.5	5.0
18	33.5	56	73	4.0	48	22	7.2	353	1,650	430	18.2	12
19	40	435	58	7.7	38	20.5	13.0	132	1,790	290	16.4	13
20	24	108	45	7.7	31.5	17.5	6.6	87	480	192	18.3	10
21	18.2	70	38	4.2	36	16.4	5.1	64	380	147	45	6.6
22	15.0	122	31.5	6.0	26	13.6	4.6	50	275	127	23	6.0
23	12.1	76	27.5	4.7	26.5	13.0	6.4	45	242	102	20.5	5.5
24	11.4	572	24	2.6	186	10.8	771	38	225	484	17.1	5.0
25	11.1	624	23.5	2.6	69	10.2	167	36	169	1,310	15	13
26	10.0	212	20.5	4.4	64	9.0	80	40	118	802	13	11
27	8.2	128	18.6	9.1	40	7.7	141	27.5	165	440	12	30
28	9.7	80	15.7	17.6	31.5	7.3	67	24	1,010	305	11	25
29	8.7	67	13.6	11.3	27.5	6.4	64	-	990	245	11	10
30	8.2	55	13.0	121	23.5	5.8	194	-	1,550	169	10	10
31	8.7	42	-	906	-	5.1	1,850	-	1,230	-	10	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maxiaum	Minimum	Mean		Million gallons	Acre-feet
July	103	8.2	25.5	39.5	790	2,430
August	624	8.8	112	173	3,490	10,700
September	238	13.0	67.9	105	2,040	6,250
October	906	2.4	39.4	61.0	1,220	3,750
November	787	23.5	157	243	4,710	14,450
December	1,180	5.1	145	224	4,510	13,840
Calendar year 1945	2,600	2.4	104	161	37,810	116,000
January	1,850	4.0	117	181	3,610	11,090
February	1,440	24	219	339	6,130	18,820
March	1,790	21.5	411	636	12,740	39,110
April	1,310	102	421	651	12,630	38,750
May	219	10	46.5	71.9	1,440	4,420
June	30	5.0	9.86	15.3	296	908
Fiscal year 1945-46	1,850	2.4	147	227	53,610	164,500

Peak discharge.- Nov. 13 (3 p.m.) 6,480 m.g.d. (10,000 sec.-ft.); Jan. 31 (11:30 a.m.) 3,970 m.g.d. (6,140 sec.-ft.); Mar. 19 (2:30 a.m.) 4,040 m.g.d. (6,250 sec.-ft.); Mar. 30 (7 p.m.) 3,170 m.g.d. (4,900 sec.-ft.); Apr. 25 (4 a.m.) 2,770 m.g.d. (4,290 sec.-ft.).
Note.- No gage-height record May 25 to June 30; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 Pilhonua, and 6 miles west of Hilo.

Records available.- March 1938 to June 1946. July 1941 to June 1942 (unpublished).

Extremes.- Maximum discharge during year, 6.7 million gallons a day (10.4 second-feet) Apr. 18 (gage height, 1.87 feet); minimum, 0.88 million gallons a day (1.36 second-feet) Oct. 10.
1938-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.2	2.2	2.05	1.76	2.05	2.2	1.76	2.35	2.0	3.25	2.65	2.25
2	2.2	2.25	2.1	1.76	2.2	2.2	1.76	1.92	2.1	2.95	2.7	2.25
3	2.2	2.2	2.1	1.72	2.25	2.65	1.76	2.1	2.05	3.15	2.75	2.2
4	2.2	2.0	2.15	1.68	2.2	2.3	1.76	2.05	2.1	2.9	2.65	2.2
5	2.2	2.2	2.3	1.68	2.3	2.2	1.76	1.96	2.2	2.85	2.65	2.2
6	2.25	2.3	2.25	1.68	2.2	1.84	1.76	1.96	2.2	2.8	2.65	2.2
7	2.2	2.2	2.25	1.64	2.25	1.64	1.76	2.0	2.25	2.75	2.6	2.15
8	2.2	2.2	2.25	1.56	2.35	1.56	1.96	2.05	2.15	2.85	2.6	2.1
9	2.2	2.2	2.2	1.56	2.3	1.56	1.84	2.0	2.0	2.9	2.55	2.05
10	2.2	2.2	2.2	1.68	2.2	1.56	1.84	2.0	2.0	2.9	2.5	2.1
11	2.25	2.2	2.35	1.88	2.2	1.56	1.80	1.96	2.0	2.9	2.5	2.2
12	2.2	2.2	2.2	1.92	2.25	1.56	1.84	1.96	2.3	2.7	2.45	2.2
13	2.2	2.15	2.15	1.84	2.3	1.56	1.84	1.96	2.5	2.85	2.45	2.1
14	2.2	2.15	2.4	1.80	2.2	1.46	1.80	1.96	1.59	2.65	2.4	2.05
15	2.15	2.15	2.3	1.76	2.2	1.39	1.76	1.96	2.2	2.7	2.4	2.05
16	2.2	2.15	2.25	1.84	2.2	1.46	1.72	1.96	2.6	2.65	2.4	1.96
17	2.2	2.1	2.2	1.92	2.2	1.49	1.68	2.2	2.6	2.75	2.4	1.88
18	2.45	2.3	2.2	1.88	2.2	1.46	1.72	2.1	2.95	2.75	2.4	1.84
19	2.4	2.15	2.15	2.0	2.2	1.46	1.72	2.05	2.9	2.45	2.4	1.80
20	2.4	2.05	2.1	1.92	2.2	1.46	1.64	2.0	2.65	2.35	2.4	1.72
21	2.35	2.05	2.05	1.84	2.2	1.46	1.56	2.0	2.55	2.35	2.4	1.68
22	2.25	2.15	2.0	1.92	2.2	1.46	1.53	2.0	2.6	2.4	2.4	1.68
23	2.2	2.05	1.96	1.72	2.2	1.46	1.64	2.0	2.65	2.4	2.4	1.76
24	2.3	2.2	1.96	1.72	2.35	1.46	2.0	2.05	2.55	2.65	2.4	1.72
25	2.25	1.80	1.92	1.76	2.25	1.42	1.76	2.05	2.55	2.75	2.4	1.68
26	2.15	1.68	1.92	2.1	2.25	1.42	1.76	2.0	2.55	2.7	2.35	1.64
27	2.15	1.88	1.88	2.05	2.2	1.42	1.84	2.05	2.7	2.75	2.35	2.1
28	2.2	2.05	1.84	2.05	2.2	1.42	1.76	2.05	2.85	2.75	2.3	1.88
29	2.15	2.0	1.80	2.0	2.2	1.39	1.76	-	2.95	2.7	2.3	1.64
30	2.15	1.96	1.76	2.2	2.2	1.39	1.95	-	3.35	2.65	2.25	1.76
31	2.1	2.0	-	2.15	-	1.60	2.6	-	3.2	-	2.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.45	2.1	2.22	3.43	69.0	212
August	2.3	1.68	2.11	3.26	65.4	201
September	2.4	1.76	2.11	3.26	63.2	194
October	2.2	1.56	1.84	2.85	57.0	175
November	2.35	2.05	2.22	3.43	66.7	205
December	2.65	.20	1.63	2.52	50.5	155
Calendar year 1945	2.65	.20	1.83	2.83	668	2,050
January	2.6	1.53	1.79	2.77	55.6	171
February	2.35	1.92	2.02	3.13	56.7	174
March	3.35	1.59	2.45	3.79	75.8	233
April	3.25	2.35	2.74	4.24	82.2	252
May	2.75	2.25	2.46	3.81	76.3	234
June	2.25	1.64	1.97	3.05	59.0	181
Fiscal year 1945-46	3.35	1.39	2.13	3.30	777	2,390

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Waiilikahi Stream near Waimanu

Location.- Lat. 20°07'40", long. 155°39'55", 30 feet upstream from Waimanu trail bridge, 1.7 miles upstream from 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 1946.

Extremes.- Maximum discharge during year, 342 million gallons a day (529 second-feet) Jan. 22 (gage height, 4.27 feet), from rating curve extended above 10 million gallons a day by test on model of station site; minimum, 0.25 million gallons a day (0.39 second-foot) Oct. 26.

1939-46: Maximum discharge, 410 million gallons a day (634 second-feet) June 30, 1941 (gage height, 4.54 feet), from rating curve extended above 10 million gallons a day by test on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) Mar. 17, 18, 1944.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.10	0.7	2.0	1.4	13.3	2.6	77
.4	.30	.8	3.0	1.7	22.5	3.0	116
.5	.69	1.0	5.5	2.0	35.5		
.6	1.28	1.2	8.9	2.3	55		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.1	4.6	1.15	0.33	3.05	0.52	7.4	4.3	0.85	28	2.0	1.02
2	1.80	1.48	.96	.37	3.65	8.5	3.55	3.35	1.08	6.3	5.0	.91
3	.91	.91	2.2	.33	2.4	76	1.16	1.70	.85	17.7	22	.80
4	.69	.60	2.35	.79	2.25	55	.69	1.35	1.70	12.5	3.1	.69
5	.56	10.6	9.5	.77	2.85	5.4	.52	1.21	2.65	4.3	1.93	.65
6	.52	5.7	3.25	1.26	1.48	2.25	.65	1.15	2.4	5.5	1.62	.78
7	.48	6.1	3.25	1.28	1.70	1.83	.69	1.08	12.5	4.9	1.42	1.90
8	.44	2.05	1.35	.80	1.70	2.8	.56	1.02	14.2	5.3	1.28	1.08
9	.44	1.28	.91	.65	10.6	1.42	.48	.96	9.9	7.9	1.21	3.4
10	.52	1.77	1.96	.48	4.4	1.08	.44	1.28	12.2	5.3	1.08	2.9
11	1.94	5.7	8.2	.37	1.70	1.22	19.7	1.02	8.2	4.2	1.02	2.2
12	1.02	4.9	1.60	.30	1.62	3.85	27.5	.91	2.2	10.8	2.25	1.74
13	.65	1.48	1.08	.28	1.42	3.3	8.6	2.5	1.55	17.0	2.5	1.15
14	.52	1.21	1.18	.36	1.12	1.82	3.05	1.77	7.6	11.7	1.77	3.7
15	1.10	.91	3.75	.37	.85	1.21	2.2	1.77	10.6	11.0	1.85	3.35
16	11.5	1.69	9.8	.28	.74	.91	2.0	4.9	3.9	5.2	2.85	1.35
17	1.80	1.88	5.8	.33	.60	.74	10.4	91	2.9	24.5	1.70	1.35
18	15.5	2.3	4.5	2.7	.56	1.47	23	12.4	42	5.6	1.28	1.55
19	6.5	4.9	1.72	5.2	.52	1.21	3.65	3.0	20.5	3.0	1.15	1.42
20	1.85	2.15	1.15	1.27	.71	.85	1.62	2.1	5.1	7.7	4.9	2.45
21	1.21	6.9	.85	.69	1.85	.74	2.1	1.62	6.7	3.4	3.3	5.7
22	.85	6.8	.74	.48	.85	.65	49	1.67	4.0	4.5	6.0	11.8
23	.69	9.1	.65	.37	11.0	.60	65	2.4	2.5	3.9	9.7	10.8
24	.56	10.8	.56	.30	19.0	.56	30	1.48	2.6	15.6	4.6	2.5
25	.52	15.5	.48	.28	2.9	.52	5.3	1.15	5.5	23.5	1.70	2.65
26	.44	3.55	.44	1.72	1.42	.44	2.6	1.02	3.0	16.6	1.28	13.4
27	.41	2.5	.41	16.3	.96	.41	14.0	.96	5.4	10.2	1.02	5.5
28	.41	2.85	.84	11.9	.80	.37	2.55	.91	61	4.4	.96	2.5
29	.56	3.3	.44	15.0	.65	.33	1.77	-	13.6	2.9	1.08	25
30	2.1	1.62	.33	19.2	.56	.33	1.65	-	20.5	2.8	1.21	16.5
31	1.21	1.55	-	11.7	-	.30	3.7	-	30.5	-	1.02	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.5	0.41	1.93	2.99	59.8	184
August	15.5	.60	4.09	6.33	127	389
September	9.8	.33	2.38	3.68	71.4	219
October	19.2	.28	3.11	4.81	96.5	296
November	19.0	.52	2.80	4.33	83.9	258
December	76	.30	5.70	8.82	177	542
Calendar year 1945	76	.23	3.56	5.51	1,300	3,990
January	65	.44	9.53	14.7	296	907
February	91	.91	5.36	8.29	150	460
March	61	.85	10.3	15.9	318	976
April	28	2.8	9.54	14.8	286	878
May	22	.96	3.03	4.69	93.8	288
June	25	.65	4.36	6.75	131	401
Fiscal year 1945-46	91	.28	5.18	8.01	1,890	5,800

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 634 million gallons a day (981 second-feet) Jan. 22 (gage height, 3.77 feet), from rating curve extended above 7 million gallons a day by test on model of station site; minimum, 0.23 million gallons a day (0.36 second-foot) Oct. 25.

1939-46: 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.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.12	0.7	2.75	1.4	17.8	2.4	100
.3	.30	.8	4.0	1.7	28.5	2.5	150
.4	.62	.9	5.5	2.0	43		
.5	1.10	1.0	7.3	2.2	57		
.6	1.80	1.2	12.0	2.3	69		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.47	3.5	0.88	0.35	2.55	0.45	4.8	4.2	0.55	19.2	1.55	0.58
2	1.40	1.10	.74	.35	3.45	12.4	2.9	2.55	.62	5.9	4.2	.51
3	.70	.62	1.58	.32	2.0	66	.82	1.16	.55	14.8	13.2	.45
4	.58	.45	1.49	1.16	1.44	34.5	.51	.93	.92	9.7	2.3	.38
5	.51	5.3	7.7	.90	1.99	5.8	.41	.83	1.55	4.5	1.41	.38
6	.45	3.85	2.5	1.10	1.10	2.55	.45	.74	1.43	4.6	1.10	.41
7	.41	5.6	2.6	.98	1.29	1.91	.51	.92	6.9	4.2	.98	.98
8	.38	1.49	1.05	.62	1.70	3.7	.45	.74	11.9	4.4	.83	.55
9	.41	.88	.74	.48	7.8	1.35	.41	.62	8.4	6.4	.83	2.15
10	.41	1.11	1.13	.41	3.4	.98	.41	.74	10.2	6.4	.74	1.95
11	1.39	4.8	7.5	.32	1.49	.93	11.7	.62	7.2	3.5	.65	1.52
12	.74	5.3	1.35	.28	1.80	3.25	17.1	.58	1.84	9.2	1.87	.93
13	.55	1.29	.83	.25	1.16	2.6	7.2	1.80	1.16	11.1	2.15	.58
14	.45	.83	.83	.35	.83	1.49	2.65	1.16	6.0	7.9	1.16	2.25
15	.53	.65	2.4	.45	.62	.88	1.80	1.10	7.0	8.7	1.23	1.93
16	8.7	1.22	7.2	.28	.58	.70	1.70	7.8	2.85	4.8	2.3	.65
17	1.53	1.35	4.5	.28	.51	.62	9.6	106	2.5	21	1.10	.62
18	11.0	1.30	3.7	2.55	.45	.98	14.8	7.9	27	4.6	.74	.74
19	5.5	3.65	1.23	3.75	.45	.83	3.25	2.4	13.1	2.55	.70	.70
20	1.63	1.49	.83	.83	.52	.65	1.41	1.63	4.4	5.3	2.35	.92
21	.92	6.1	.62	.51	1.52	.58	2.2	1.16	6.2	2.8	2.1	2.35
22	.62	6.4	.55	.35	.65	.51	114	1.27	3.6	3.15	4.0	7.0
23	.51	6.0	.48	.30	7.7	.48	58	1.80	1.90	2.7	6.6	7.8
24	.45	8.4	.45	.28	13.4	.45	20	1.05	2.25	12.4	3.3	1.41
25	.38	11.8	.41	.23	2.5	.41	4.7	.79	3.85	14.2	1.10	1.41
26	.35	3.05	.38	.86	1.10	.38	2.4	.65	2.35	11.6	.79	8.3
27	.32	2.2	.35	8.8	.74	.35	11.3	.65	6.7	8.6	.62	4.3
28	.32	2.3	1.24	6.7	.62	.35	2.3	.62	39.5	3.65	.58	1.41
29	.41	2.95	.54	10.5	.55	.30	1.49	-	10.1	2.45	.62	12.9
30	1.68	1.41	.38	14.8	.48	.30	1.44	-	16.0	2.3	.65	10.5
31	.74	1.16	-	8.0	-	.30	3.5	-	20	-	.58	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.0	0.32	1.47	2.27	45.4	139
August	11.8	.45	3.15	4.87	97.6	299
September	7.7	.35	1.87	2.89	56.2	172
October	14.8	.23	2.17	3.36	67.3	207
November	13.4	.45	2.15	3.33	64.4	198
December	66	.30	4.74	7.33	147	451
Calendar year 1945	66	.23	2.77	4.29	1,010	3,100
January	114	.41	9.81	15.2	304	934
February	106	.58	5.44	8.42	152	468
March	39.5	.55	7.37	11.4	229	701
April	21	2.3	7.42	11.5	223	683
May	13.2	.58	2.01	3.11	62.3	191
June	12.9	.38	2.55	3.95	76.6	235
Fiscal year 1945-46	114	.23	4.18	6.47	1,520	4,680

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 176 million gallons a day (272 second-feet) Jan. 22 (gage height, 4.39 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.

1939-46: 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, that of Oct. 14, 25, 26, 1945.

Remarks.- Records good above 0.5 million gallons a day, poor below. No diversions.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.03	0.6	1.90	1.4	13.7
.2	.08	.7	2.85	1.7	20.5
.3	.26	.8	4.0	2.0	28
.4	.59	1.0	6.6	2.4	42
.5	1.13	1.2	9.9	3.0	68

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.94	2.35	0.59	0.11	1.88	0.23	4.6	3.1	0.31	17.3	1.20	0.34
2	1.21	.73	.48	.12	2.15	8.5	2.35	1.93	.37	5.1	1.77	.31
3	.54	.34	1.16	.09	1.41	49	.56	.89	.31	11.4	12.1	.26
4	.40	.19	1.07	.33	.67	36	.31	.64	.58	8.7	1.89	.21
5	.34	3.95	5.9	.38	1.27	5.4	.21	.59	1.07	3.2	1.13	.21
6	.31	2.85	1.66	.64	.68	2.25	.26	.52	.91	3.6	.89	.21
7	.28	4.0	1.73	.56	.80	1.64	.28	.80	6.0	2.65	.59	.51
8	.26	1.07	.64	.28	1.49	3.75	.23	.48	9.2	3.1	.59	.31
9	.23	.59	.40	.19	5.8	1.13	.23	.40	6.6	5.0	.59	1.59
10	.28	.75	.45	.13	2.8	.78	.23	.52	8.6	4.8	.52	1.36
11	1.21	3.9	5.5	.09	1.07	.68	10.4	.44	5.6	2.55	.44	1.18
12	.64	4.4	.89	.08	1.27	2.85	16.5	.40	1.42	7.0	1.20	.64
13	.44	.92	.48	.07	.78	2.0	5.1	1.27	.83	8.7	1.55	.34
14	.34	.52	.52	.12	.56	1.13	1.92	.89	5.0	7.4	.83	.66
15	.31	.37	1.57	.17	.40	.64	1.27	.89	5.9	6.8	.83	1.38
16	7.1	.80	5.9	.08	.34	.48	1.07	5.9	2.45	3.8	1.76	.40
17	1.16	.89	3.65	.08	.28	.40	10.6	46	1.66	13.9	.78	.34
18	9.2	.59	3.0	1.18	.23	.64	12.4	6.3	23	4.3	.52	.48
19	4.9	2.55	.83	2.9	.21	.56	2.6	1.82	13.7	2.0	.48	.40
20	1.27	1.05	.52	.46	.24	.44	1.13	1.13	3.7	3.5	.92	.40
21	.64	6.0	.37	.21	1.12	.37	1.66	.78	4.9	1.92	1.40	.99
22	.37	5.0	.28	.12	.40	.31	35	.81	3.0	2.15	2.35	5.1
23	.28	5.1	.23	.09	6.9	.28	37.5	1.25	1.58	1.66	4.8	5.8
24	.21	7.6	.19	.08	11.8	.26	17.9	.68	1.26	7.3	2.3	.94
25	.17	9.9	.17	.07	2.1	.21	4.2	.48	3.0	13.7	.73	.83
26	.13	2.3	.15	.41	.83	.19	2.1	.40	1.58	9.3	.52	6.5
27	.12	1.58	.12	5.8	.52	.17	8.9	.39	3.3	6.6	.40	3.4
28	.11	1.65	.41	7.5	.40	.15	1.80	.34	34	3.0	.37	.94
29	.17	2.25	.19	8.9	.34	.15	1.13	-	9.0	1.90	.37	10.4
30	1.17	1.00	.12	13.2	.28	.13	1.10	-	13.8	1.73	.40	9.1
31	.40	.78	-	7.4	-	.12	2.6	-	18.5	-	.37	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.2	0.11	1.13	1.75	35.1	108
August	9.9	.19	2.45	3.79	76.0	233
September	5.9	.12	1.31	2.03	39.2	120
October	13.2	.07	1.67	2.58	51.8	159
November	11.8	.21	1.63	2.52	49.0	150
December	49	.12	3.90	6.03	121	371
Calendar year 1945	49	.07	2.23	3.45	814	2,500
January	37.5	.21	6.00	9.28	186	571
February	46	.34	2.86	4.43	80.0	246
March	34	.31	6.17	9.55	191	587
April	17.3	1.66	5.80	8.97	174	534
May	12.1	.37	1.44	2.23	44.6	137
June	10.4	.21	1.85	2.86	55.5	170
Fiscal year 1945-46	49	.07	3.02	4.67	1,100	3,390

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 20 million gallons a day (31 second-feet) Dec. 3 (gage height, 1.60 feet), from rating curve extended above 1.0 million gallons a day by test on model of station site; minimum, 0.12 million gallons a day (0.19 second-foot) Aug. 4, 6, Oct. 17, 21-25.

1939-46: Maximum discharge, 67 million gallons a day (104 second-feet) Feb. 22, 1940 (gage height, 3.83 feet), from rating curve extended above 1.0 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 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.03	0.5	1.53	0.9	6.4
.2	.14	.6	2.4	1.0	8.2
.3	.40	.7	3.5	1.2	13.4
.4	.89	.8	4.8	1.4	17.3

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.17	0.21	0.15	0.14	0.30	0.17	0.34	0.60	0.30	2.35	0.45	0.23
2	.15	.14	.15	.14	.27	6.5	.24	.50	.27	.89	.45	.23
3	.17	.13	.19	.14	.23	14.4	.21	.40	.27	1.46	.88	.23
4	.15	.12	.21	.14	.21	5.9	.21	.40	.27	.86	.45	.23
5	.15	.13	.29	.14	.21	1.28	.21	.35	.27	.69	.40	.23
6	.14	.13	.19	.15	.19	.84	.21	.35	.27	.60	.40	.23
7	.14	.17	.17	.14	.25	.75	.19	.66	.34	.60	.40	.23
8	.14	.14	.17	.14	.24	.64	.19	.35	.77	.60	.35	.21
9	.14	.13	.15	.14	.98	.55	.19	.30	.45	.68	.35	.23
10	.15	.14	.17	.13	.40	.50	.19	.30	.91	.71	.35	.21
11	.15	.27	.39	.13	.27	.45	1.06	.30	.58	.50	.30	.21
12	.14	.49	.17	.13	.30	.55	1.41	.30	.27	.71	.40	.19
13	.14	.14	.17	.13	.23	.40	.30	.30	.27	.60	.52	.19
14	.14	.13	.17	.14	.21	.40	.23	.30	.53	.60	.30	.19
15	.14	.13	.17	.13	.21	.35	.19	.30	.66	.74	.30	.19
16	.15	.13	.19	.13	.19	.35	.19	.30	.27	.60	.35	.19
17	.14	.13	.30	.12	.19	.30	1.07	2.85	.27	.91	.27	.19
18	.27	.13	.23	.14	.17	.30	.76	.74	1.41	.60	.27	.19
19	.24	.13	.14	.17	.17	.30	.35	.50	1.74	.55	.27	.19
20	.14	.13	.14	.13	.17	.30	.27	.45	.60	.50	.27	.17
21	.14	.45	.14	.12	.17	.30	.30	.40	.50	.50	.27	.17
22	.14	.30	.14	.12	.15	.27	2.8	.40	.55	.50	.27	.17
23	.13	.37	.14	.12	1.19	.27	6.5	.40	.40	.45	.27	.21
24	.13	.80	.14	.12	.54	.27	2.65	.35	.40	.78	.27	.17
25	.13	.68	.14	.12	.23	.24	1.02	.35	.40	1.00	.24	.17
26	.13	.24	.14	.15	.21	.24	.82	.35	.40	1.09	.24	.29
27	.13	.23	.14	.20	.19	.24	1.34	.35	.50	.90	.24	.40
28	.13	.19	.15	.26	.19	.23	.64	.30	3.85	.60	.24	.17
29	.13	.19	.14	1.09	.19	.23	.55	-	1.06	.55	.23	.98
30	.17	.17	.14	2.1	.19	.23	.55	-	2.15	.50	.23	1.28
31	.14	.17	-	.93	-	.23	.60	-	2.1	-	.23	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.27	0.13	0.150	0.232	4.65	14
August	.80	.12	.227	.351	7.04	22
September	.39	.14	.177	.274	5.32	16
October	2.1	.12	.261	.404	8.08	25
November	1.19	.15	.288	.446	8.64	27
December	14.4	.17	1.23	1.90	38.0	117
Calendar year 1945	14.4	.12	.418	.647	152	469
January	6.5	.19	.832	1.29	25.8	79
February	2.85	.30	.480	.743	13.4	41
March	3.85	.27	.743	1.15	23.0	71
April	2.35	.45	.754	1.17	22.6	69
May	.88	.23	.337	.521	10.5	32
June	1.28	.17	.272	.421	8.17	25
Fiscal year 1945-46	14.4	.12	.480	.743	175	538

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 140 million gallons a day (217 second-feet) Jan. 22 (gage height, 3.53 feet), from rating curve extended above 8 million gallons a day by test on model of station site; minimum, 0.08 million gallons a day (0.12 second-foot) July 27, 28.

1939-46: Maximum discharge, 264 million gallons a day (408 second-feet) Feb. 22, 1940 (gage height, 4.53 feet), from rating curve extended above 8 million gallons a day by test on model of station site; minimum, that of July 27, 28, 1945.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.05	0.4	1.03	1.0	8.7	2.5	68
.15	.10	.5	1.78	1.2	13.1	3.0	98
.2	.19	.6	2.8	1.4	18.4		
.25	.33	.7	4.0	1.6	25		
.3	.52	.8	5.3	2.0	41		

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.19	0.70	0.19	0.14	0.74	0.17	2.45	1.65	0.24	9.9	0.56	0.19
2	.19	.22	.19	.14	.80	10.2	.73	.84	.24	2.0	.80	.17
3	.17	.14	.54	.15	.52	60	.24	.44	.22	6.0	5.0	.17
4	.15	.10	.27	.34	.30	71	.17	.40	.22	3.15	.65	.15
5	.15	.23	2.15	.67	.33	10.5	.15	.33	.24	1.16	.48	.15
6	.15	.33	.44	.81	.27	1.39	.15	.33	.27	.96	.44	.15
7	.14	1.43	.33	.52	.38	1.06	.15	.93	2.0	.74	.40	.15
8	.14	.33	.24	.27	1.05	1.72	.15	.44	4.5	.86	.36	.14
9	.14	.19	.17	.19	3.3	.74	.19	.33	2.75	1.76	.36	.34
10	.15	.24	.19	.15	1.04	.52	.24	.30	4.3	1.95	.30	.42
11	.19	2.25	2.3	.14	.60	.44	6.1	.27	2.25	.85	.30	.43
12	.17	2.4	.33	.14	.82	1.28	7.6	.27	.51	3.75	.69	.19
13	.15	.33	.19	.12	.42	.70	1.47	.60	.36	2.5	.98	.15
14	.14	.19	.24	.15	.33	.44	.60	.33	2.05	2.2	.44	.15
15	.14	.15	.40	.19	.24	.33	.44	.33	2.6	2.9	.40	.24
16	1.77	.15	2.4	.15	.19	.27	.44	1.53	.75	1.32	.84	.17
17	.30	.17	2.1	.14	.19	.27	4.4	20.5	.55	3.7	.40	.15
18	3.7	.17	.99	.54	.17	.33	4.6	1.96	11.9	1.21	.30	.14
19	1.48	.46	.27	1.25	.15	.27	.87	.70	7.3	.70	.27	.14
20	.33	.27	.22	.24	.17	.27	.44	.52	1.23	1.50	.27	.12
21	.19	1.98	.17	.15	.33	.27	1.20	.40	1.78	.74	.24	.14
22	.14	1.64	.15	.14	.24	.24	16.7	.40	1.31	.65	.33	.76
23	.14	2.1	.15	.12	4.1	.22	24	.48	.56	.48	.81	1.66
24	.12	3.5	.14	.12	5.2	.19	10.0	.36	.44	4.3	.60	.24
25	.10	3.8	.14	.10	.69	.19	2.0	.30	.78	5.5	.27	.17
26	.09	.70	.14	.30	.33	.19	1.16	.27	.44	4.2	.24	3.15
27	.09	.48	.12	1.53	.24	.17	4.5	.27	1.28	3.0	.19	.86
28	.09	.44	.27	2.1	.22	.15	.90	.24	19.3	1.06	.19	.24
29	.12	.62	.24	5.6	.19	.15	.65	-	3.6	.85	.19	7.0
30	.39	.30	.15	8.6	.19	.15	.65	-	8.9	.65	.19	4.2
31	.17	.24	-	2.9	-	.15	1.42	-	9.5	-	.17	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.7	0.09	0.374	0.579	11.6	36
August	3.8	.10	.847	1.31	26.2	81
September	2.4	.12	.527	.815	15.8	49
October	8.6	.10	.906	1.40	28.1	86
November	5.2	.15	.791	1.22	23.7	73
December	71	.15	5.29	8.17	164	503
Calendar year 1945	71	.09	1.36	2.10	497	1,530
January	24	.15	3.06	4.73	94.8	291
February	20.5	.24	1.28	1.98	35.7	110
March	19.3	.22	2.98	4.61	92.4	283
April	9.9	.48	2.35	3.64	70.5	216
May	5.0	.17	.570	.882	17.7	54
June	7.0	.12	.744	1.15	22.3	69
Fiscal year 1945-46	71	.09	1.65	2.55	603	1,850

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Extremes.- Maximum discharge during year, 51 million gallons a day (79 second-feet) Dec. 2 (gage height, 3.08 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) probably Oct. 25.

1939-46: 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, that of Oct. 25, 1945.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1945-46 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.06	0.5	1.45	1.2	7.8
.2	.24	.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

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.27	0.56	0.27	0.18	0.60	0.24	1.17	1.14	0.48	5.8	0.74	0.33
2	.24	.24	.27	.17	.64	5.1	.52	.82	.48	1.75	.77	.33
3	.24	.19	.45	.17	.45	22	.30	.62	.45	3.65	2.6	.30
4	.24	.19	.33	.25	.35	15.4	.24	.58	.48	2.1	.78	.30
5	.22	.20	.97	.31	.37	2.15	.24	.54	.48	1.20	.70	.27
6	.22	.24	.42	.40	.30	1.09	.27	.51	.45	1.04	.62	.30
7	.22	.63	.36	.35	.38	.97	.24	.92	1.11	.90	.58	.27
8	.22	.27	.30	.25	.80	1.08	.24	.58	1.98	.98	.54	.24
9	.22	.20	.27	.17	2.3	.74	.27	.51	1.20	1.42	.58	.39
10	.24	.27	.30	.16	.70	.62	.27	.48	2.35	1.41	.54	.39
11	.27	.83	1.11	.15	.45	.54	2.1	.45	1.30	.86	.51	.39
12	.22	1.36	.39	.15	.60	.79	3.65	.45	.58	1.85	.70	.27
13	.20	.33	.30	.15	.48	.62	.75	.54	.51	1.47	.84	.24
14	.20	.24	.30	.16	.43	.48	.48	.45	1.23	1.48	.54	.24
15	.20	.22	.33	.17	.40	.45	.36	.45	1.49	1.75	.54	.30
16	.53	.20	.83	.15	.36	.39	.33	.86	.72	1.09	.70	.27
17	.22	.20	.89	.14	.33	.39	2.65	9.7	.54	2.45	.51	.30
18	1.16	.20	.64	.30	.30	.42	1.97	1.36	5.5	1.14	.45	.30
19	.75	.27	.33	.60	.27	.39	.62	.78	4.4	.90	.45	.27
20	.30	.27	.30	.20	.27	.39	.45	.66	1.09	.95	.45	.27
21	.24	1.24	.33	.14	.30	.36	.73	.54	1.02	.82	.42	.30
22	.22	.88	.30	.14	.24	.33	6.5	.54	1.04	.78	.42	.48
23	.20	.91	.27	.14	1.86	.33	12.4	.54	.70	.70	.51	.76
24	.20	2.1	.24	.14	2.45	.33	6.1	.51	.62	1.84	.51	.33
25	.20	1.92	.22	.14	.54	.30	1.75	.45	.70	3.15	.39	.24
26	.19	.58	.21	.21	.39	.30	1.16	.45	.58	2.75	.36	1.31
27	.19	.48	.19	.30	.33	.27	2.6	.51	.99	2.1	.36	.71
28	.17	.42	.24	.70	.30	.27	.94	.48	10.5	1.09	.33	.33
29	.20	.45	.20	3.0	.24	.27	.82	-	2.35	.90	.33	3.35
30	.39	.36	.18	4.5	.24	.27	.82	-	5.7	.82	.33	2.85
31	.22	.30	-	1.2	-	.24	1.04	-	5.3	-	.33	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.16	0.17	0.284	0.439	8.80	27
August	2.1	.19	.540	.836	16.8	51
September	1.11	.18	.391	.605	11.7	36
October	4.5	.14	.490	.758	15.2	47
November	2.45	.24	.589	.911	17.7	54
December	22	.24	1.86	2.88	57.5	177
Calendar year 1945	22	.14	.765	1.18	279	856
January	12.4	.24	1.68	2.60	52.0	160
February	9.7	.45	.944	1.46	26.4	81
March	10.5	.45	1.82	2.82	56.3	173
April	5.8	.70	1.64	2.54	49.1	151
May	2.6	.33	.595	.921	18.4	57
June	3.35	.24	.554	.857	16.6	51
Fiscal year 1945-46	22	.14	.950	1.47	346	1,060

Note.- No gage-height record Sept. 25 to Nov. 15; discharge computed on basis of records for nearby streams.

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 17 years (1928-38, 1939-46), 11.7 million gallons a day (18.1 second-feet).

Extremes.- Maximum discharge during year, 27 million gallons a day (42 second-feet) Jan. 22 (gage height, 3.59 feet); no flow Oct. 11.
1927-46: 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 doubtful 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.

Disoharge, in million gallons, fiscal year July 1945to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.0	10.6	4.9	0.90	14.1	2.3	1.6	12.2	4.7	27	12.9	3.55
2	4.5	6.4	3.3	.94	13.2	8.0	6.0	11.6	4.9	24	13.3	3.2
3	3.5	3.8	7.5	.87	12.5	21	5.2	8.6	4.3	27	27	2.95
4	2.55	2.5	8.4	.84	6.9	20	3.0	7.4	5.3	25	18.2	2.7
5	2.1	7.5	17.3	1.18	9.4	15	1.8	6.4	8.6	24	12.9	2.55
6	1.83	14.0	11.8	.77	7.4	9.0	1.4	6.0	15.8	23	10.3	2.7
7	1.59	17.2	10.6	.68	9.1	5.5	1.3	7.8	17.5	20	9.1	3.8
8	1.39	7.9	6.0	.48	16.2	5.0	1.1	6.0	24	23	8.0	3.3
9	1.27	4.7	3.5	.33	19.8	4.0	1.0	5.8	25	25	7.4	9.5
10	1.23	4.6	2.9	.04	18.8	3.5	1.0	6.4	27	24	6.9	10.5
11	8.7	11.8	15.7	.04	11.8	3.2	10	5.9	25	21	6.0	7.4
12	4.2	18.0	7.6	.19	9.4	3.5	24	5.4	14.3	22	8.0	5.3
13	2.65	6.8	4.2	.44	6.9	7.5	18	7.4	9.7	27	9.7	3.85
14	1.83	3.5	4.8	.48	4.8	6.0	13	7.4	24.5	27	8.0	6.7
15	1.71	2.4	9.8	.80	3.95	4.0	9.4	8.6	23	27	7.4	12.8
16	15.6	3.5	18.5	.65	3.5	3.2	7.9	8.0	20.5	25	11.0	5.6
17	10.8	5.6	10.4	.65	3.0	2.7	17.1	18.2	15.0	25	8.0	4.3
18	16.3	3.5	13.8	1.00	2.7	3.2	23	15.9	29	24	6.0	4.4
19	19.2	10.2	6.4	8.9	2.7	3.6	16.5	12.7	27	18.2	5.6	3.9
20	9.4	9.4	3.95	4.4	2.3	3.0	9.4	12.9	23	20	6.8	3.5
21	6.0	13.3	2.85	2.45	2.3	2.7	12.5	10.3	24	17.4	9.7	5.6
22	3.6	20	2.25	1.75	1.8	2.3	15.5	9.1	22	17.4	12.8	16.9
23	2.8	13.5	1.91	1.43	5.0	1.9	9.7	11.0	15.0	15.8	18.2	21.5
24	2.2	22	1.75	1.15	20	1.9	11.8	8.6	15.0	27	13.2	11.0
25	1.87	23	1.59	.94	10	1.9	18.0	6.9	19.0	27	7.4	8.0
26	1.63	15.8	1.43	1.64	5.5	1.6	15.8	5.8	16.6	27	5.5	11.5
27	1.47	11.2	1.31	3.85	3.8	1.4	16.6	5.4	25	27	4.6	17.9
28	1.35	8.9	1.35	19.2	3.2	1.3	11.6	5.1	29	23	4.2	8.0
29	1.59	14.4	1.51	17.3	2.9	1.2	9.7	-	27	18.2	4.2	17.5
30	6.7	9.4	1.08	20	2.6	1.1	9.7	-	27	15.8	4.1	25
31	4.0	6.9	-	22	-	1.1	11.6	-	27	-	3.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	19.2	1.23	4.76	7.36	148	453
August	23	2.4	10.1	15.6	312	958
September	18.5	1.08	6.28	9.72	188	578
October	22	.04	3.75	5.80	116	357
November	20	1.8	7.85	12.1	236	723
December	21	1.1	4.89	7.57	152	465
Calendar year 1945	25	.04	7.40	11.4	2,700	8,280
January	24	1.0	10.1	15.6	314	964
February	18.2	5.1	8.67	13.4	243	745
March	29	4.3	19.2	29.7	595	1,830
April	27	15.8	23.1	35.7	694	2,130
May	27	3.8	9.36	14.5	290	891
June	25	2.55	8.18	12.7	245	753
Fiscal year 1945-46	29	.04	9.68	15.0	3,530	10,850

Note.- Recording-gage stylus not operating properly Nov. 16 to Jan. 14; discharge computed on basis of doubtful gage-height record and records for stations on nearby ditches.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 15 years (1928-36, 1937-38, 1939-40, 1941-46), 1.18 million gallons a day (1.83 second-feet).

Extremes.- Maximum discharge during year, 8.8 million gallons a day (13.6 second-feet) Jan. 22 (gage height, 1.50 feet); no flow for several periods during year.
1927-38, 1939-46: 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 period of doubtful gage-height record, which are poor. Intake diverts water from East Honokaneiki Gulch to Awini ditch for irrigation in vicinity of Kahala. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.12	0.65	0.26	0.02	0.56	0.08	0.84	0	0.17	4.0	0.68	0
2	.06	.29	.17	.02	.64	.70	.79	0	.17	2.65	1.19	0
3	.04	.12	.85	.02	.60	2.5	.40	0	.12	3.95	3.8	0
4	.03	.06	.68	.03	.32	7.0	.32	0	.14	2.9	1.06	0
5	.03	1.52	3.05	.06	.64	3.0	.23	0	.26	2.25	.64	0
6	.02	1.56	.96	.06	.41	1.3	.17	0	.32	1.90	.52	0
7	.02	1.92	.64	.04	.75	.60	.14	0	2.7	1.75	.41	0
8	.01	.44	.32	.03	1.66	.50	.10	.14	3.6	1.96	.38	0
9	.01	.23	.17	.02	3.5	.35	.06	.29	3.45	2.1	.32	.20
10	.01	.20	.17	.02	2.1	.24	.03	.35	3.85	2.2	.32	.14
11	1.30	.75	1.98	.01	.75	.20	1.9	.26	3.1	1.25	.26	0
12	.32	1.69	.48	.01	.41	.24	8.0	.20	.83	2.3	.29	0
13	.12	.41	.23	.01	.29	1.0	2.7	.26	.57	5.0	.32	0
14	.06	.20	.55	0	.20	.70	.87	.20	3.25	3.5	.20	.27
15	.04	.10	1.35	0	.17	.30	.48	.29	3.3	3.8	.20	.42
16	3.25	.14	3.1	0	.15	.20	.41	.92	1.49	1.80	.32	0
17	.92	.29	.75	0	.13	.15	3.3	3.1	1.28	3.5	.23	0
18	3.3	.17	.83	0	.12	.20	4.2	.48	5.7	2.0	.14	0
19	2.8	.74	.35	.30	.12	.24	1.28	.29	3.15	1.16	.12	0
20	.56	.81	.20	.20	.08	.17	.56	.52	2.1	1.59	.14	0
21	.26	2.05	.10	.06	.08	.13	1.04	.60	2.25	1.01	.23	.01
22	.10	3.25	.08	.03	.05	.08	.78	.52	1.96	.87	.39	.86
23	.06	1.58	.06	.01	.35	.06	.25	.52	1.16	.79	.83	1.94
24	.03	4.2	.06	0	3.8	.06	.16	.38	1.25	4.8	.17	0
25	.02	5.3	.06	0	1.4	.06	0	.32	1.40	5.4	0	0
26	.02	1.50	.04	0	.60	.03	.01	.26	1.01	4.8	0	1.44
27	.01	.71	.03	.27	.30	.03	.01	.20	3.95	3.9	0	1.39
28	.01	.48	.03	3.75	.22	.03	0	.17	5.7	1.96	0	.32
29	.01	.87	.03	2.6	.17	.03	0	-	4.0	4.2	0	3.0
30	.75	.64	.03	3.15	.13	.03	0	-	4.3	.92	0	3.15
31	.23	.41	-	1.12	-	.03	0	-	4.4	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.3	0.01	0.468	0.724	14.5	45
August	5.3	.06	1.07	1.66	33.3	102
September	3.1	.03	.587	.908	17.6	54
October	3.75	0	.382	.591	11.8	36
November	3.8	.05	.690	1.07	20.7	64
December	7.0	.03	.653	1.01	20.2	62
Calendar year 1945	7.0	0	.677	1.05	247	759
January	8.0	0	.936	1.45	29.0	89
February	3.1	0	.367	.568	10.3	32
March	5.7	.12	2.29	3.54	70.9	218
April	5.4	.79	2.67	4.13	80.2	246
May	3.8	0	.425	.658	13.2	40
June	3.15	0	.438	.678	13.1	40
Fiscal year 1945-46	8.0	0	.918	1.42	335	1,030

Note.- Recording-gage stylus not operating properly Nov. 16 to Jan. 14; discharge computed on basis of doubtful gage-height record and records for stations on nearby ditches.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

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 1946.

Average discharge.- 17 years (1928-38, 1939-46), 25.6 million gallons a day (39.6 second-feet).

Extremes.- Maximum discharge during year, 74 million gallons a day (114 second-feet) Mar. 28 (gage height, 3.92 feet); no flow Jan. 25 to Feb. 8.
1927-46: Maximum discharge, 76 million gallons a day (118 second-feet) Dec. 2, 1932 (gage height, 4.33 feet); 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.

Discharge, in million gallons, fiscal year July 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	21	26	19	16.0	36	19.2	27	0	17.6	45	29.5	17.6
2	21	23	18	16.7	33.5	24.5	36	0	17.6	43	29.5	17.6
3	20.5	20.5	22	16.7	31.5	58	24	0	17.6	43	48	17.6
4	19.5	18.5	25	16.7	25.5	50	21	0	18.4	36	36	17.6
5	18.5	29	40	16.7	27.5	43	19.2	0	23	38	29.5	17.6
6	18.5	37	30	16.0	25.5	38	19.2	0	24	45	25.5	17.6
7	17.8	39	27	16.0	25.5	7.5	19.2	0	35.5	40	24	18.4
8	17.0	27	20	16.0	38	24	18.4	8.7	48	31.5	23	17.6
9	15.5	21	18	15.2	41	31.5	17.6	18.4	48	21	23	20
10	16.2	19.5	17	15.2	45	27.5	18.4	19.2	50	29.5	22	27.5
11	25	28	35	15.2	31.5	26.5	32	18.4	50	36	21	23
12	21	32.5	25	15.2	27.5	30.5	62	17.6	29.5	36	23	21
13	18.5	22	19	15.2	25.5	36	48	19.2	25.5	43	24	18.4
14	17.8	17.8	21	15.2	23	29.5	36	20	46	43	23	22
15	17.8	16.2	25	15.2	21	25.5	27.5	21	48	43	22	33.5
16	36	17.8	41	15.2	20	24	27.5	21.5	43	38	25.5	22
17	31	20.5	29.5	15.2	19.2	23	35	42	29.5	43	24	19.2
18	39.5	17.8	33.5	16.0	19.2	24	59	19.9	61	38	21	19.2
19	41	29	25.5	23	18.4	24	40	20	43	33.5	20	18.4
20	29	25	21	20	18.4	23	29.5	25.5	45	36	21	18.4
21	24	33	20	18.4	21	23	31.5	25.5	48	33.5	27.5	18.4
22	21	41	19.2	17.6	20	21	37.5	24	43	33.5	25.5	29.5
23	19.5	34	18.4	16.7	27	21	14.7	25.5	33.5	31.5	36	41
24	18.5	43	18.4	15.2	53	20	7.8	23	31.5	45	31.5	27.5
25	17.8	53	18.4	15.2	33.5	20	2.9	20	40	50	24	24
26	17.8	34.5	17.6	16.7	25.5	19.2	0	19.2	33.5	43	21	24
27	17.0	28	16.7	21.5	23	19.2	0	18.4	43	38	19.2	37
28	16.2	24	16.0	50	21	19.2	0	18.4	59	33.5	18.4	25.5
29	17.0	31	16.7	43	20	18.4	0	-	43	33.5	18.4	30
30	23	26	16.0	53	19.2	18.4	0	-	48	33.5	18.4	42
31	20.5	23	-	56	-	18.4	0	-	45	-	18.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	41	15.5	21.8	33.7	674	2,070
August	53	16.2	27.7	42.9	858	2,630
September	41	16.0	23.0	35.6	689	2,110
October	56	15.2	21.0	32.5	650	1,990
November	53	18.4	27.2	42.1	816	2,500
December	58	7.5	26.0	40.2	807	2,480
Calendar year 1945	58	7.5	25.2	39.0	9,210	28,250
January	62	0	22.9	35.4	711	2,180
February	42	0	15.9	24.6	445	1,370
March	61	17.6	38.3	59.3	1,190	3,640
April	50	21	37.9	58.6	1,140	3,490
May	48	18.4	24.9	38.5	773	2,370
June	42	17.6	23.4	36.2	703	2,160
Fiscal year 1945-46	62	0	25.9	40.1	9,460	28,990

Note.- No gage-height record Aug. 29 to Sept. 16; discharge computed on basis of records for Awini ditch and East Honokaneiki intake to Awini ditch.
Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

Kehena ditch near Kohala

Location.- Three sharp-crested weirs, lat. 20°07'25", long. 155°45'05", at old Honokane weir, near head of West Branch of Honokanenui Gulch, and 8½ miles southeast of Kohala.

Records available.- December 1917 to November 1919, April 1928 to June 1946.

Average discharge.- 18 years (1928-46), 7.39 million gallons a day (11.4 second-feet).

Extremes.- Maximum discharge during year, 51 million gallons a day (79 second-feet) Feb. 17 (gage height, 1.28 feet); no flow many times.
1917-19, 1928-46: 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 1945 to June 1946

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.57	5.6	2.1	0	9.7	0.30	0.09	14.0	0.40	3.9	3.45	0.61
2	1.26	3.05	1.92	0	7.4	2.5	1.73	9.4	.40	18.1	4.2	.50
3	.84	1.41	6.0	0	4.8	41	1.12	3.25	.40	33.5	26.5	.30
4	.61	.72	5.9	0	2.45	37	.50	2.1	.95	30	6.3	.20
5	.40	10.4	9.7	.10	3.05	15.1	.30	1.57	3.4	17.6	3.05	.20
6	.30	17.4	4.6	.20	2.65	4.4	.10	1.26	4.9	19.6	2.65	.78
7	.20	16.0	4.1	.20	3.05	2.1	.10	.98	16.5	12.4	1.90	2.2
8	0	4.2	2.25	.10	5.4	1.57	.01	.84	22	11.0	1.41	.98
9	0	1.90	1.26	0	11.2	1.12	0	.72	20.5	13.9	1.12	7.6
10	0	2.1	.84	0	13.7	.72	0	.72	22.5	18.8	.98	6.5
11	1.37	12.2	4.1	0	4.4	.61	7.8	.61	25	8.8	.84	3.05
12	1.41	4.9	2.45	0	3.05	.72	35	.50	6.0	8.6	.72	1.90
13	.72	2.45	1.26	0	2.1	2.65	19.3	.84	2.85	21	.72	1.26
14	.50	1.26	2.45	0	1.41	1.90	6.3	.84	23	20.5	.61	8.2
15	.61	.84	6.5	0	.98	.98	3.05	1.12	27	20.5	.61	8.3
16	13.6	3.35	15.0	0	.72	.61	2.25	2.65	14.5	12.5	.84	1.73
17	5.4	5.9	3.7	.05	.50	.40	5.0	45	6.9	11.9	.98	1.73
18	15.9	4.7	2.85	1.31	.40	.61	30	26	36.5	7.1	.84	1.41
19	13.6	16.5	1.73	7.4	.40	.72	8.7	8.2	36	8.8	.72	.98
20	4.4	5.9	.98	2.4	.30	.50	2.65	3.9	20	8.9	3.3	1.26
21	2.65	13.4	.50	1.12	.30	.40	3.9	2.25	21.5	5.4	7.0	3.45
22	1.57	16.4	.40	.61	.20	.30	12.5	1.57	12.4	5.9	6.1	11.0
23	.98	14.5	.40	.40	1.13	.20	18.3	1.57	9.5	6.8	18.1	16.7
24	.61	21	.30	.20	21	.20	26	1.26	10.7	28.5	6.6	6.5
25	.40	29.5	.20	0	5.9	.20	4.8	.84	16.8	30	3.05	3.7
26	.10	8.8	.10	.55	2.1	.10	3.7	.72	12.2	30	1.90	8.7
27	0	5.0	.10	5.2	.98	0	20	.61	22.5	19.4	1.26	7.4
28	0	3.25	0	22.5	.72	0	5.7	.50	45	10.6	.98	2.45
29	9	7.0	0	17.2	.50	0	3.05	-	28.5	5.4	.98	10.9
30	1.06	4.4	0	22.5	.40	0	2.85	-	25.5	5.4	.98	16.7
31	1.57	3.05	-	30	-	0	5.1	-	40	-	.84	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.9	0	2.31	3.57	71.6	220
August	29.5	.72	7.97	12.3	247	758
September	15.0	0	2.72	4.21	81.7	251
October	30	0	3.61	5.59	112	344
November	21	.20	3.70	5.72	111	340
December	41	0	3.77	5.83	117	359
Calendar year 1945	41	0	4.66	7.21	1,700	5,220
January	35	0	7.42	11.5	230	706
February	45	.50	4.78	7.40	134	411
March	45	.40	17.2	26.6	534	1,640
April	33.5	3.9	15.2	23.5	455	1,400
May	26.5	.61	3.53	5.46	110	336
June	16.7	.20	4.57	7.07	137	421
Fiscal year 1945-46	45	0	6.41	9.92	2,340	7,190

Time basis: Hawaiian war time up to 2 a.m., Sept. 30, 1945; Hawaiian standard time thereafter. To convert war time to standard time, subtract 1 hour.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Hawaii during fiscal year July 1945 to June 1946

Date	Stream	Tributary to--	Locality	Discharge	
				Second-feet	Million gallons a day
July 20	Lahomene a/...	Waimanu Stream....	At altitude 3,250 feet, near Waimanu	2.48	1.60
Sept.19	....do.....	....do.....	....do.....	1.72	1.11
Nov. 14	....do.....	....do.....	....do.....	1.01	.653
Mar. 13	....do.....	....do.....	....do.....	1.51	.976
May 12	....do.....	....do.....	....do.....	3.26	2.11
July 20	Kakaauki b/...	....do.....	At altitude 2,930 feet, near Waimanu	1.41	.911
Sept.19	....do.....	....do.....	....do.....	.812	.525
Nov. 14	....do.....	....do.....	....do.....	.829	.536
Mar. 13	....do.....	....do.....	....do.....	.764	.494
May 12	....do.....	....do.....	....do.....	1.31	.848

a/ Formerly published as Third Branch of Waimanu Stream.
b/ Formerly published as Second Branch of Waimanu Stream.

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