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Water-Supply Paper 1045

SURFACE WATER SUPPLY *of* HAWAII

JULY 1, 1944, *to* JUNE 30, 1945

Prepared by
WATER RESOURCES BRANCH
DIVISION OF SURFACE WATER

In cooperation with the
TERRITORY OF HAWAII

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SURFACE WATER SUPPLY OF HAWAII, JULY 1, 1944, TO JUNE 30, 1945

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, 1945. 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 34 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, 1945, and the results of miscellaneous measurements of stream flow made during that year. Most of the results of ground-water studies have been published in bulletins of the Territorial Division of Hydrography. See "Publications," on page 3 for a record of surface water-supply papers pertaining to Hawaii.

DEFINITION OF TERMS

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

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

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

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

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

EXPLANATION OF DATA

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

Rating tables giving the discharge for any stage are prepared from the discharge measurements. The application of the daily gage heights to these rating tables gives the

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

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

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

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 flows, 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. Records of daily discharge prior to February 9, 1942, have been published on the basis of standard time. Records subsequent to that date have been computed on the basis of war time. To convert war time to standard time, subtract 1 hour.

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 1903-45 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, 1903-45

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		

* 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 1944 to June 1945 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 KAUAI

Stream	Location	Period	Operated by
East Lawai ditch.....	Near Government Road, near Kalaheo.	1924-45	McBryde Sugar Co.
Eleele ditch.....	Near Government Road, near Kalaheo.	1924-45	Do.
Hanalei ditch.....	Above Kalihiwai Reservoir, near Kilauea.	1923-45	Kilauea Sugar Plantation Co.
Hanamaulu ditch.....	Below intake, near Hanamaulu..	1925-45	Lihue Plantation Co.
Koula (Hanapepe) ditch..	At Olokele Plantation boundary, near Makaweli.	1926-45	Olokele Sugar Co.
Hanapepe Field ditch....	Below Hanapepe River intake, near Eleele.	1924-45	McBryde Sugar Co.
Hanapepe Stream.....	At tidewater near Eleele.....	1924-45	McBryde Sugar Co.
Kamooloa ditch.....	Near Koloa boundary, near Koloa.	1924-45	Do.
Kapaia River diversion to field 8 reservoir.	Near Hanamaulu.....	1928-45	Lihue Plantation Co.
Kapaia River diversion to field 29.	Near Lihue.....	1927-45	Do.
East Lawai Stream.....	½ mile above cannery near Kalaheo.	1924-45	McBryde Sugar Co.
Lihue lower ditch.....	Below intake, near Lihue.....	1925-45	Lihue Plantation Co.
Lihue upper ditch.....	....do.....	1925-45	Do.
Olokele ditch.....	At powerhouse near Makaweli...	1926-45	Olokele Sugar Co.
Wahiawa Stream.....	Above Alexander Reservoir, near Kalaheo.	1924-45	McBryde Sugar Co.
Wahiawa Stream, East Branch.	....do.....	1929-45	Do.
West Lawai ditch.....	Near camp 12, near Kalaheo....	1924-45	Do.

ISLAND OF OAHU

Alewa Heights Spring....	Below reservoir 3.....	1932-45*	Board of Water Supply City and County of Honolulu.
Booth Springs.....	In Pauoa Valley, at altitude 685 feet.	1929-45*	Do.
Helemano ditch.....	About 3 miles below Upper Helemano Reservoir.	1933-45	Waialua Agricultural Co.
Hering Springs.....	In Makiki Valley, at altitude 970 feet.	1925-45*	Board of Water Supply City and County of Honolulu.
Kahuawai Springs.....	In Pauoa Valley, at altitude 618 feet.	1925-45*	Do.
Kalihi tunnels.....	At diversion, at altitude 650 feet.	1926-45*	Do.
Kamananui ditch.....	In Kawailoa Gulch about 500 yards above third siphon from Government Road.	1934-45	Waialua Agricultural Co.
Kipapa Stream.....	At altitude 375 feet.....	1917-45	Waiahole Water Co.
Makiki Springs.....	In Makiki Valley, at altitude 350 feet.	1926-45*	Board of Water Supply City and County of Honolulu.
Manoa tunnels.....	Upper Manoa Valley.....	1925-45*	Do.
Nuuanu tunnels.....	At Lower Luakaha.....	1926-45*	Do.
Nuuanu tunnel 3.....	At overflow, in upper Nuuanu Valley.	1931-45*	Do.
Palolo tunnel.....	Upper Palolo Valley.....	1926-45*	Do.
Wahiawa Reservoir Outlet	About 1,200 feet below dam....	1912-45*	Wahiawa Water Co.
Waiahole Stream.....	At altitude 250 feet.....	1919-45	Do.
Waiahole tunnel.....	At adit 8.....	1916-45	Do.
Waiawa Stream.....	At altitude 750 feet.....	1917-45	Do.
Waikakalaua Stream.....	....do.....	1917-45	Do.

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

ISLAND OF MAUI (WEST MAUI)

Everett ditch.....	Below intake, near Wailuku....	1935-45	Wailuku Sugar Co.
Iao-Waikapu ditch.....	At lower end of tunnels, near Wailuku.	1923-45	Do.
Kama ditch.....	Below intake, near Wailuku.....	1933-45	Do.
Maniania ditch.....	....do.....	1923-45	Do.
North Waiehu.....	Near end of Waiehu Camp road, near Wailuku.	1922-45	Do.
South Waikapu ditch.....	Above first lateral, near Waikapu.	1935-45	Do.
Do.....	Below tunnel sections, near Waikapu.	1923-45	Do.
Spreckels ditch.....	Below intake, near Waihee.....	1931-45	Do.
Waihee ditch.....	....do.....	1922-45	Do.
Honokohau tunnel.....	At outlet of tunnel, at Mahinahina Camp.	1917-45	Pioneer Mill Co.
Kahoma tunnel.....	2,000 feet upstream from outlet above Lahaina.	1920-45	Do.
Kanaha ditch.....	At intake, above Lahainaluna School.	1921-45	Do.
Kauaula tunnel.....	At outlet, above Lahaina.....	1920-45	Do.
Launiupoko ditch.....	....do.....	1921-45	Do.
Ukumehame ditch.....	At outlet, near Olowalu.....	1931-45	Do.

ISLAND OF MAUI (East Maui)

Banana Spring.....	Near east wall of Keanae Valley, at altitude 700 feet.	1933-45	East Maui Irrigation Co.
Hanawi Spring upper high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 675 feet.	1932-45	Do.
Hanawi Spring lower high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 575 feet.	1932-45	Do.
Makapipi ditch.....	At west edge of Makapipi Gulch near Nahiku, at altitude 1,300 feet.	1933-45	Do.

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

ISLAND OF HAWAII

Stream	Location	Period	Operated by
Kohala ditch.....	At Awini weir in Honokane, near Niulii.	1917-45†	Kohala Ditch Co.
Do.....	At Niulii weir, near Niulii....	1917-45†	Do.
Pololu Inlet 1.....	At Pololu, near Niulii.....	1929-45	Do.
Pololu Inlet 2.....	In Waiakalae Gulch at Pololu, near Niulii.	1929-45	Do.
Pololu Inlet 3.....	In Opaepilau Gulch, above Kohala ditch, near Niulii.	1937-45	Do.
Waiapuka Stream.....	Above Kohala ditch, near Niulii	1929-45	Do.
Pololu Inlet 5.....	In Niulii Gulch, above Kohala ditch, near Niulii.	1937-45	Do.
Pololu Inlet 6.....	In Waikane Gulch, above Kohala ditch, near Niulii.	1937-45	Do.
Waipuhi Stream.....	Above Kohala ditch, near Halawa	1933-45	Do.
Makapala ditch.....	....do.....	1929-45	Do.
Waipunalau Stream.....	....do.....	1929-45	Do.
Puwaiole Stream.	....do.....	1937-45	Do.
Moaula Gulch.....	Below all development tunnels.	1929-45	Hawaiian Agricultural Co.
Hionamoa Gulch.....	....do.....	1926-45	Do.
Keaiwa Gulch.....	....do.....	1926-45	Do.
Noguchi tunnel 19.....	5.6 miles from Pahala, at altitude 3,500 feet.	1926-45	Do.
Makakupu tunnel 13.....	In Waiakaloa Gulch, at altitude 3,750 feet, 6.1 miles from Pahala.	1926-45	Do.
Upper Hamakua ditch and Reservoir 3 weir.	At base of Puu Lala, near Honokaa.	1907-12 1921-45‡	Hawaiian Irrigation Co.
Lower Hamakua ditch.....	At main weir, near Kukuihaele..	1921-45†	Do.
Honokaape ditch.....	At Kukuihaele Village.....	1923-45	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, 1945, 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 of the Geological Survey, Glenn L. Parker, chief hydraulic engineer, Carl G. Paulsen, assistant chief engineer, and Rudolph G. Kasel, chief of the division of surface waters (until June 14, 1945). 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 1945.

Average discharge.- 20 years (1925-45), 38.8 million gallons a day (60.0 second-feet).

Extremes.- Maximum discharge during year, 5,980 million gallons a day (9,250 second-feet) Apr. 6 (gage height, 14.80 feet), from rating curve extended above 500 million gallons a day by test on model of station site; no flow at times owing to regulation.
1921-45: 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 fair except those below 5 million gallons a day and those for period of no gage-height record, which are 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.4	0.2	0.2	0	0.6		0.3	0	0.3	0.4	31	0
2	.7	.2	.2	0	.3	9.0	.3	0	109	.3	39	0
3	56	.2	.1	0	.2		.2	0	64	1.5	15.7	0
4	43	.2	.1	0	.2		.2	0	63	11.5	8.7	0
5	38	.2	.1	0	.6		.2	0	52	4.0	15.5	.5
6	15.7	.2	.1	0	1.0	220	.2	41	150	1,140	56	0
7	7.4	.2	.1	0	.8		.2	4.3	21	245	130	0
8	.4	.1	.1	0	5.7		.2	.4	2.1	26	63	0
9	.3	.1	.1	0	.8		.2	.3	19.0	1,100	65	0
10	.3	.1	.1	0			.2	.2	2.4	96	29.5	.2
11	.3	.1	.1	0			.1	.2	.3	29	15.6	0
12	.2	.1	0	0			.1	.2	.2	9.1	7.9	0
13	.2	.2	0	0			.1	.1	.2	5.7	4.6	0
14	.2	.2	0	0			.1	.1	.2	2.7	2.8	0
15	3.1	.2	0	0	.1		.1	.1	.2	1.4	2.1	0
16	.4	.2	0	.3		.5	.1	.1	.1	27.5	1.6	0
17	.2	.2	4.1	49			.1	.1	32.5	62	1.1	0
18	.2	.2	5.7	25.5			.1	.1	4.2	12.2	.6	0
19	.2	.2	.3	.4			.1	0	.4	2.3	.7	0
20	.2	.1	.2	.3			.1	0	.4	1.0	.7	0
21	15.2	.1	.2	.2	9.3		.1	0	.3	.3	.4	0
22	42	.1	.2	.2			0	2.3	.2	14.1	.1	0
23	9.8	.1	.2	.2			0	1.8	.2	1,200	0	0
24	22.5	.2	.1	.2			0	.2	.1	117	0	0
25	67	1.6	.1	.1			0	.2	.1	64	0	.8
26	5.3	.4	.1	.2		23	0	18.8	2.7	66	0	.8
27	.3	.3	.1	.2	.3	352	0	74	28.5	542	0	9.5
28	.3	.4	.1	.2		83	0	2.9	36.5	234	0	.6
29	.3	.3	0	.2		17.6	0	-	15.2	74	0	0
30	.2	.2	0	.2		3.5	0	-	27	51	0	0
31	.2	.2		31	-	.5	0	-	9.5	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	67	0.2	11.2	17.3	346	1,060
August	1.6	.1	.24	.37	7.3	22
September	5.7	0	.42	.65	12.7	39
October	49	0	3.50	5.42	108.	333
November	9.3	.1	1.68	2.60	50.5	155
December	352	.5	38.2	59.1	1,180	3,640
Calendar year 1944	1,500	0	37.8	58.5	13,820	42,420
January	.3	0	.11	.17	3.3	10
February	74	0	5.26	8.14	147	452
March	150	.1	20.7	32.0	642	1,970
April	1,200	.3	171	265	5,140	15,770
May	130	0	15.9	24.6	492	1,510
June	9.5	0	.39	.60	11.6	36
Fiscal year 1944-45	1,200	0	22.3	34.5	8,140	25,000

Peak discharge.- Apr. 6 (5 p.m.) 5,980 m.g.d. (9,250 sec.-ft.); Apr. 9 (7:30 a.m.) 5,650 m.g.d. (8,740 sec.-ft.); Apr. 23 (4:30 a.m.) 5,540 m.g.d. (8,570 sec.-ft.).
Note.- No gage-height record Nov. 8 to Dec. 25; discharge computed on basis of records for Waiahulu Stream and Kekaha ditch.
Time basis: Hawaiian war time. 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, 12⅞ miles northeast of Waimea. Altitude of gage, 3,420 feet (by barometer).

Drainage area.- 4.1 square miles.

Records available.- April 1909 to June 1945. July 1917 to July 1919 (unpublished).

Average discharge.- 26 years (1919-45), 20.7 million gallons a day (32.0 second-feet).

Extremes.- Maximum discharge during year, 1,510 million gallons a day (2,340 second-feet) Apr. 6 (gage height, 7.77 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, Feb. 19-25.

1909-45: 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, that of 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

1.6	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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.5	2.9	2.2	1.2	5.1	11.0	3.4	1.4	3.0	3.9	15	2.8
2	6.6	2.6	2.1	1.2	3.1	5.3	3.0	1.4	3.8	5.6	14	2.7
3	27	2.3	2.1	1.5	2.5	3.2	2.8	1.3	17.1	4.1	11	2.7
4	37	2.2	1.9	3.0	2.2	26.5	2.6	1.3	42	3.9	9.0	2.7
5	10.4	2.2	1.8	2.1	2.1	252	2.5	1.6	32	4.0	8.0	2.6
6	7.6	2.1	1.7	1.6	2.2	50	2.6	4.6	30.5	223	8.0	2.4
7	6.7	2.0	1.7	1.4	2.2	35.5	2.4	3.3	13.5	68	14	2.3
8	4.2	4.9	1.7	1.3	3.1	11.6	2.3	2.1	10.3	11.2	12	2.2
9	3.4	3.7	1.7	1.2	5.4	6.8	2.2	1.7	37.5	160	18	2.2
10	4.0	4.5	1.6	1.2	3.1	5.1	2.1	1.6	9.2	16.0	10	2.3
11	3.9	6.4	1.6	1.2	2.2	7.5	2.0	1.5	4.8	9.2	8.0	2.3
12	3.1	6.8	1.6	1.3	1.9	5.3	2.0	2.0	5.3	7.0	6.6	2.1
13	2.9	3.9	1.6	3.9	1.8	4.1	2.0	1.8	4.4	21	6.2	2.0
14	6.0	3.6	1.7	10.3	1.7	3.5	1.9	1.6	3.8	9.8	5.8	1.9
15	15.5	4.6	1.6	26	1.6	10.6	1.8	1.5	3.1	9.8	5.4	1.9
16	5.8	4.1	1.6	22.5	1.6	10.6	1.8	1.4	2.6	22	5.0	1.9
17	3.8	2.8	1.5	51	1.6	4.6	1.8	1.4	4.3	20	4.7	1.9
18	3.5	2.4	1.7	15.0	1.6	3.7	1.7	1.3	4.8	10	4.5	1.8
19	2.8	2.2	1.7	5.0	6.0	4.1	1.7	1.3	6.3	7.0	4.4	1.8
20	2.5	2.1	1.5	3.1	4.0	16.9	1.7	1.2	5.9	5.8	4.3	1.8
21	14.0	1.9	1.7	2.3	3.8	7.8	1.9	1.2	3.6	5.0	4.1	1.8
22	11.7	1.9	2.4	2.0	16.0	4.3	3.8	1.2	2.7	5.4	4.0	1.8
23	9.7	2.2	1.8	1.8	6.2	3.5	2.3	1.2	2.2	240	3.8	1.8
24	9.2	8.4	1.6	4.2	3.2	3.0	1.8	1.2	1.8	160	3.7	1.8
25	13.0	13.2	1.4	28.5	2.3	3.5	1.7	1.9	4.3	17	3.6	2.1
26	6.6	6.0	1.3	8.7	2.0	14.2	1.6	6.4	16.5	14	3.4	4.5
27	4.2	4.3	1.3	9.7	1.7	56	1.5	23.5	20	170	3.3	7.0
28	4.3	4.4	1.3	5.2	1.7	15.4	1.5	5.2	15.6	12	3.2	3.5
29	3.7	3.8	1.2	5.5	2.2	7.0	1.4	-	9.4	10	3.1	2.5
30	3.1	3.2	1.2	3.7	17.2	4.8	1.4	-	5.6	16	3.0	2.1
31	3.2	2.7	-	14.8	-	3.8	1.4	-	6.4	-	2.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	37	2.5	8.06	12.5	250	767
August	13.2	1.9	3.88	6.00	120	369
September	2.4	1.2	1.66	2.57	49.8	153
October	51	1.2	7.79	12.1	241	741
November	17.2	1.6	3.74	5.79	112	344
December	252	3.0	19.4	30.0	601	1,850
Calendar year 1944	252	1.2	12.9	20.0	4,720	14,480
January	3.8	1.4	2.08	3.22	64.6	198
February	23.5	1.2	2.75	4.25	77.1	237
March	42	1.8	10.7	16.6	332	1,020
April	240	3.9	42.4	65.6	1,270	3,900
May	18	2.9	6.8	10.6	212	651
June	7.0	1.8	2.44	3.78	73.2	225
Fiscal year 1944-45	252	1.2	9.33	14.4	3,400	10,460

Note.- No gage-height record Apr. 15 to June 30; discharge computed on basis of records for Mohihi and Waiahulu Streams and Kokee ditch.

Time basis: Hawaiian war time. 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 1945. April 1909 to December 1912 at site 2 miles downstream (fragmentary).

Average discharge.- 14 years (1920-26, 1937-45), 4.83 million gallons a day (7.47 second-feet).

Extremes.- Maximum discharge during year, 597 million gallons a day (924 second-feet) Apr. 27 (gage height, 5.55 feet), from rating curve extended above 21 million gallons a day; minimum daily, 0.16 million gallons a day (0.25 second-foot) Feb. 24.
1920-26, 1936-45: 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 above 40 million gallons a day, which are poor. No diversions above station.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.05	1.3	2.0	2.0	12.4
.9	.20	1.4	2.85	2.4	23.5
1.0	.50	1.5	3.8	2.8	41
1.1	.88	1.6	5.0	3.2	68
1.2	1.38	1.8	8.2		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.7	0.80	0.69	0.20	2.4	1.31	1.18	0.28	1.13	1.68	3.3	0.61
2	1.63	.69	.58	.20	1.23	1.18	1.03	.28	4.6	1.23	3.05	.58
3	5.9	.65	.50	.29	.84	.84	.98	.27	6.4	1.23	2.35	.58
4	5.2	.61	.40	.54	.69	4.2	.84	.27	9.2	2.8	2.0	.61
5	3.7	.54	.35	.41	.61	41	.77	.33	6.5	1.57	2.0	.61
6	2.0	.50	.32	.26	.77	10.9	.80	1.0	9.7	53	7.1	.54
7	1.63	.47	.32	.23	.77	6.1	.77	.70	3.15	23	10.8	.47
8	1.23	.58	.32	.22	1.35	2.75	.69	.50	1.91	4.6	6.6	.44
9	.98	.73	.32	.20	2.2	1.69	.61	.40	6.8	50	6.5	.44
10	.88	.61	.26	.20	1.13	1.28	.58	.38	3.05	8.4	3.5	.50
11	.84	.58	.26	.20	.77	1.50	.50	.35	1.50	3.65	2.4	.50
12	.77	.58	.26	.22	.50	1.23	.47	.50	1.08	2.95	1.88	.44
13	.73	.61	.26	.25	.38	.98	.44	.44	.98	2.6	1.63	.41
14	.69	.65	.26	.58	.35	.80	.41	.40	.98	2.15	1.44	.38
15	1.16	.80	.24	1.25	.32	1.51	.41	.37	.84	1.88	1.33	.38
16	1.57	.88	.24	3.4	.30	2.0	.38	.35	.73	8.0	1.23	.35
17	1.03	.73	.23	7.4	.28	1.18	.38	.32	.95	8.2	1.18	.35
18	.84	.61	.44	5.5	.28	.93	.32	.28	1.69	2.7	1.13	.29
19	.73	.58	.41	1.58	.35	.93	.35	.28	1.18	1.81	1.03	.32
20	.65	.50	.23	.88	.61	2.45	.29	.25	1.38	1.44	.98	.38
21	1.53	.47	.24	.61	1.07	1.50	.29	.25	1.13	1.23	.93	.44
22	4.2	.47	.26	.41	9.4	1.03	.77	.25	.88	1.87	.88	.41
23	3.35	.50	.26	.36	2.7	.88	.50	.20	.65	64	.88	.35
24	3.05	.65	.23	.34	1.23	.77	.40	.16	.47	8.8	.84	.35
25	8.1	2.6	.22	1.70	.88	1.26	.36	.17	.41	5.8	.80	.41
26	3.45	1.75	.21	1.88	.65	6.3	.33	1.01	.58	5.0	.77	1.08
27	1.69	1.23	.21	1.26	.47	21	.31	8.0	2.35	41	.73	1.50
28	1.33	1.18	.20	1.13	.38	8.3	.30	2.25	5.2	15.2	.73	1.03
29	1.11	1.18	.20	.84	.32	3.5	.29	-	3.8	6.8	.69	.65
30	.88	.93	.20	.80	.78	2.1	.29	-	4.5	4.2	.65	.47
31	.84	.80	-	11.1	-	1.50	.28	-	3.75	-	.61	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.1	0.65	2.14	3.31	66.4	204
August	2.6	.47	.789	1.22	24.5	75
September	.69	.20	.304	.470	9.12	28
October	11.1	.20	1.43	2.21	44.4	136
November	9.4	.28	1.13	1.75	34.0	104
December	41	.77	4.29	6.64	133	408
Calendar year 1944	120	.20	3.82	5.91	1,390	4,280
January	1.18	.28	.526	.814	16.3	50
February	8.0	.16	.723	1.12	20.2	62
March	9.7	.41	2.83	4.38	87.7	269
April	64	1.23	11.2	17.3	337	1,030
May	10.8	.61	2.26	3.50	69.9	215
June	1.50	.29	.529	.816	15.9	49
Fiscal year 1944-45	64	.16	2.35	3.64	858	2,630

Note.- No gage-height record Jan. 23 to Feb. 15; discharge computed on basis of records for Kawaikoi and Waiahulu Streams.
Time basis: Hawaiian war time. 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 10¼ miles north of Waimea. Altitude of gage, 3,310 feet (by barometer).

Records available.- September 1926 to June 1945.

Average discharge.- 18 years (1927-45), 16.9 million gallons a day (26.1 second-feet).

Extremes.- Maximum discharge during year, 73 million gallons a day (113 second-feet) Apr. 9 (gage height, 2.64 feet); minimum, 0.91 million gallons a day (1.41 second-feet) Feb. 21-25.
1926-45: Maximum discharge, 76 million gallons a day (118 second-feet) Mar. 26, 1938 (gage height, 2.69 feet); no flow occasionally when water was shut out of ditch.

Remarks.- Records excellent except those for periods of no gage-height record, which are fair. 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.7	3.5	2.7	1.2	7.2	10.1	4.8	1.30	3.95	5.3	21	4.7
2	7.9	3.15	2.4	1.3	3.95	6.4	4.2	1.22	3.95	6.1	21	4.6
3	26	2.9	2.4	3.0	2.9	3.8	3.8	1.14	15.3	4.8	17.0	4.6
4	29	2.8	2.3	2.3	2.55	18.3	3.4	1.14	27	4.4	14.4	4.6
5	16.6	2.65	2.3	1.8	2.2	45	3.15	1.22	32.5	13.9	13.4	4.4
6	9.2	2.65	2.1	1.6	2.1	40	3.15	5.6	31	38	13.7	4.2
7	9.5	2.55	2.1	1.60	2.1	35	3.9	4.8	17	39	21.5	3.95
8	6.0	4.7	2.0	1.40	3.4	14.9	2.8	2.8	11.0	21	18.9	3.8
9	4.8	4.7	2.0	1.30	6.6	9.1	2.65	2.1	35	46	29.5	3.8
10	4.9	4.6	1.90	1.30	3.8	6.7	2.4	1.70	14.1	29.5	17.0	3.95
11	5.3	5.7	1.9	1.30	2.65	8.7	2.3	1.60	6.8	18.2	12.8	3.95
12	4.4	8.0	1.9	1.30	2.1	7.1	2.3	1.80	6.0	13.2	10.8	3.5
13	3.95	5.0	1.9	2.9	1.80	5.2	2.2	2.0	5.5	34	9.8	3.4
14	3.95	4.2	1.9	7.7	1.60	4.1	2.1	1.65	4.7	17.9	9.1	3.25
15	16.6	4.8	1.9	22	1.60	8.2	2.0	1.50	3.65	17.5	8.5	3.25
16	7.8	4.8	1.9	23.5	1.50	15.2	2.0	1.30	2.9	35.5	8.1	3.25
17	5.3	3.5	1.8	36	1.40	6.1	1.90	1.22	3.55	31	7.8	3.25
18	4.6	3.0	1.9	21	1.40	4.6	1.80	1.14	5.6	16.0	7.4	3.25
19	3.8	2.8	1.9	7.5	4.7	3.95	1.80	1.07	5.1	11.2	7.1	3.15
20	3.4	2.6	1.8	4.0	3.8	15.7	1.70	.99	7.2	9.2	6.8	3.25
21	11.1	2.4	2.0	2.7	3.25	10.0	1.70	.91	4.1	8.0	6.4	3.25
22	13.0	2.4	2.6	2.3	15.1	5.5	4.8	.91	3.0	8.6	6.3	3.25
23	11.1	3.0	2.1	2.1	7.9	3.95	3.0	.91	2.3	43	6.1	3.25
24	11.0	9.0	1.7	5.0	3.8	3.4	2.2	.91	2.0	40	6.1	3.15
25	15.2	15	1.5	29	2.65	3.4	1.90	.98	3.0	27.5	5.8	3.3
26	10.1	7.0	1.4	11	2.2	15.7	1.70	4.3	10.4	23	5.6	7.7
27	5.8	5.0	1.3	9.8	2.0	23.5	1.60	19.9	21	38.5	5.5	11.5
28	5.0	5.0	1.3	6.4	1.70	27.5	1.50	8.2	15.8	18.2	5.3	6.1
29	4.6	4.2	1.2	5.8	1.60	12.3	1.50	-	14.4	15.6	5.2	4.1
30	3.65	3.7	1.2	4.2	14.7	8.0	1.40	-	7.4	23.5	5.0	3.4
31	3.5	3.2	-	15.3	-	5.8	1.30	-	8.5	-	4.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	29	3.4	9.19	14.2	285	874
August	15	2.4	4.47	6.92	138	425
September	2.7	1.2	1.91	2.96	57.3	176
October	36	1.2	7.66	11.9	238	729
November	15.1	1.40	3.81	5.89	114	351
December	45	3.4	12.5	19.3	387	1,190
Calendar year 1944	56	1.2	10.5	16.2	3,850	11,820
January	4.8	1.30	2.45	3.79	76.0	233
February	19.9	.91	2.65	4.10	74.3	228
March	35	2.0	10.8	16.7	334	1,020
April	46	4.4	21.9	33.9	658	2,020
May	29.5	4.8	10.9	16.9	338	1,040
June	11.5	3.15	4.17	6.45	125	384
Fiscal year 1944-45	46	.91	7.74	12.0	2,820	8,670

Note.- No gage-height record Aug. 18 to Sept. 5, Sept. 11 to Oct. 6, Oct. 20-26; discharge computed on basis of records for Mohihi and Kawaikoi Streams.
Time basis: Hawaiian war time. 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 8½ 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 1945. July 1918 to November 1920 at same site (fragmentary and unreliable; unpublished).
Average discharge.- 20 years (1925-45), 27.9 million gallons a day (43.2 second-feet).
Extremes.- Maximum discharge during year, 1,840 million gallons a day (2,850 second-feet) Apr. 27 (gage height, 8.10 feet), from rating curve extended above 400 million gallons a day; minimum, 6.4 million gallons a day (9.9 second-feet) Feb. 3, 4.
1916, 1917-18, 1925-45: Maximum discharge, 2,550 million gallons a day (3,950 second-feet) Dec. 24, 1927 (gage height, 9.92 fset), 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 period of no gage-height record, which are poor. Kokee ditch diverts water above station for irrigation near Kekaha.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used Apr. 7 to June 30)

0.7	6.4	1.2	21	2.2	103
.8	8.4	1.3	25.5	2.6	160
.9	10.8	1.4	31	3.0	232
1.0	13.7	1.6	44	3.5	333
1.1	17.0	1.9	69	4.0	455

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.6	8.0	7.6	7.8	11.8	8.0	8.0	6.6	8.6	9.8	19	8.0
2	10.1	8.0	7.6	7.6	8.0	8.6	7.4	6.6	10.9	8.4	17	8.0
3	13.8	7.8	7.4	7.8	8.0	8.0	7.4	6.4	13.1	8.2	14	8.0
4	20.5	7.6	7.4	8.0	7.6	11.3	7.4	6.6	35.5	9.7	11	8.0
5	13.8	7.6	7.4	8.2	7.4	273	7.4	7.0	24	12.3	11	8.0
6	10.3	7.6	7.4	8.0	7.4	78	7.4	12.0	25.5	357	25	8.0
7	9.4	7.6	7.6	8.0	7.8	20.5	7.4	10.2	12.4	157	35	8.0
8	8.9	7.6	7.8	7.8	8.3	11.4	7.4	8.4	10.1	22.5	25	7.8
9	8.4	7.6	8.0	7.8	10.1	8.9	7.4	7.4	20	390	24	7.8
10	8.2	7.6	8.0	7.8	8.9	8.0	7.2	7.2	12.9	50	16	7.8
11	8.0	7.6	8.0	7.8	8.0	7.6	7.2	7.2	9.1	21	14	7.8
12	8.0	7.6	8.0	7.8	7.6	7.8	7.0	7.2	8.2	16.3	12	7.8
13	7.8	7.6	8.2	7.8	7.4	7.4	7.0	7.2	7.8	17.5	10	7.8
14	7.6	7.6	8.2	8.2	7.4	7.2	7.0	7.2	7.6	12.5	9.5	7.8
15	8.2	7.8	8.2	9.4	7.4	7.2	7.0	7.2	7.6	10.6	9.0	7.8
16	9.1	7.8	8.2	14.2	7.2	8.5	7.0	7.0	7.4	30	8.8	7.8
17	8.4	7.8	8.2	25.5	7.2	8.2	7.0	7.0	7.4	24	8.5	7.8
18	8.0	7.6	8.2	18.0	7.2	7.4	7.0	6.8	8.2	13.0	8.4	7.6
19	7.8	7.6	8.2	10.1	7.2	7.4	6.8	6.8	8.2	10.3	8.4	7.6
20	7.6	7.4	8.2	8.6	7.4	7.4	6.8	6.8	8.2	9.4	8.4	7.6
21	7.6	7.4	8.2	8.2	7.6	8.0	6.8	6.8	8.2	8.9	8.2	7.6
22	10.9	7.2	8.2	7.8	14.6	8.0	6.8	7.0	7.6	35	8.2	7.8
23	11.4	7.2	8.2	7.6	12.8	7.4	7.2	7.0	7.4	435	8.2	7.8
24	10.3	7.2	8.0	7.6	9.1	7.4	7.0	7.2	7.2	62	8.2	7.6
25	15.6	8.6	8.0	9.5	8.0	8.0	7.0	7.2	7.0	45	8.2	7.6
26	12.6	9.4	8.0	10.8	7.6	13.7	6.8	7.2	7.2	36	8.2	7.8
27	9.6	8.2	7.8	8.9	7.4	114	6.8	17.0	9.3	247	8.2	9.1
28	8.6	7.8	7.8	8.9	7.2	34.5	6.6	11.9	12.9	119	8.1	9.4
29	8.4	7.8	7.8	8.4	7.2	14.2	6.6	-	14.5	34	8.1	8.2
30	8.4	7.8	7.8	8.4	8.5	10.3	6.6	-	12.3	23	8.1	7.8
31	8.2	7.8	-	19.1	-	8.6	6.6	-	13.3	-	8.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	20.5	7.6	10.1	15.6	312	958
August	9.4	7.2	7.74	12.0	240	736
September	8.2	7.4	7.92	12.3	238	729
October	25.5	7.6	9.73	15.1	302	926
November	14.6	7.2	8.34	12.9	250	768
December	273	7.2	24.1	37.3	746	2,290
Calendar year 1944	704	7.2	24.8	38.4	9,080	27,870
January	8.0	6.6	7.06	10.9	219	672
February	17.0	6.4	7.86	12.2	220	675
March	35.5	7.0	11.6	17.9	360	1,100
April	435	8.2	74.1	115	2,220	6,830
May	35	8.1	12.4	19.2	384	1,180
June	9.4	7.6	7.92	12.3	238	729
Fiscal year 1944-45	435	6.4	15.7	24.3	5,730	17,590

Peak discharge.- Dec. 5 (11:30 a.m.) 645 m.g.d. (998 sec.-ft.); Dec. 27 (3:30 p.m.) 492 m.g.d. (761 sec.-ft.); Apr. 6 (4 p.m.) 1,370 m.g.d. (2,120 sec.-ft.); Apr. 9 (7 a.m.) 1,200 m.g.d. (1,860 sec.-ft.); Apr. 23 (4 a.m.) 1,260 m.g.d. (1,950 sec.-ft.); Apr. 27 (5 p.m.) 1,840 m.g.d. (2,850 sec.-ft.).
Note.- No gage-height record Apr. 29 to June 16; discharge computed on basis of records for Mohihi Stream.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 26 years (1918-24, 1925-45), 36.2 million gallons a day (56.0 second-feet).

Extremes.- Maximum discharge during year, 66 million gallons a day (102 second-feet) Mar. 2 (gage height, 4.16 feet); minimum, 0.9 million gallons a day (1.4 second-feet) Apr. 23, 1907-45: 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 excellent. 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 powerhouse and 1 mile downstream from confluence with Waialae River. Flow regulated by head gates. Water used for irrigation in vicinity of Kekaha.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	48	24	24	18.0	39	43	28	17.0	28	39	38	24
2	38	24	22	20	26	39	26	17.0	46	31	39	24
3	51	25	23	20	23	28	24	17.0	51	38	38	24
4	48	25	22	26	22	34	23	17.0	51	48	37	29
5	48	25	22	23	35	46	22	19.0	51	39	37	38
6	48	22	21	21	41	48	24	35.5	51	38	37	32
7	48	22	20.5	10.0	32	51	23	41	48	39	38	27
8	38	23	21	19.0	48	46	22	30	46	39	38	26
9	29	24	21	19.0	32	32	21	24	48	39.5	38	25
10	27	26	20	19.0	29	27	20	22	46	39	37	40
11	26	25	20	18.0	24	26	20	21	33	38	37	30
12	25	25	21	18.0	22	25	19.0	26	28	37	38	26
13	24	25	20	19.0	21	23	19.0	23	28	37.5	37	24
14	28	28	20	21	24	22	19.0	21	30	37	36	24
15	43	28	20	24	23	22	19.0	21.5	29	36	36	25
16	37	29	20	39	22	39.5	19.0	28	27	38	37	25
17	28	25	45	39	21	28	19.0	22	36.5	38	36	23.5
18	25	23	48	48	22	23	19.0	20	43	36	36	23
19	23	23	29	36	38.5	22	23	19.0	38	36	33	23
20	23	24	23	25	39	25	20	18.0	38	33	32	24
21	32.5	23	22	22	36	32	19.0	22.5	36	31	31	27
22	48	23	21	21	48	25	20	27.5	27	32	31	26
23	48	29	21	20	46	22	20	39	23	31.5	30	24
24	48	29	20	20	37	22	19.0	25	22	38	29	24
25	51	47	19.0	26	30	29.5	18.0	23	21	38	28	25
26	47	46	19.0	34	25	48	18.0	39	29	38	28	41
27	36	36	19.0	27	23	41	18.0	51	51	34.5	27	43
28	31	43	19.0	25	21	36	18.0	43	51	39	27	37
29	29	32	18.0	27	21	37	18.0	-	48	39	26	27
30	26	27	18.0	25	34	34	17.0	-	51	38	25	25
31	25	27	-	45	-	31	17.0	-	48	-	25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	51	23	36.3	56.2	1,130	3,460
August	47	22	27.5	42.5	851	2,610
September	48	18.0	22.6	35.0	678	2,080
October	48	18.0	25.3	39.1	783	2,400
November	48	21	30.2	46.7	904	2,780
December	51	22	32.5	50.3	1,010	3,090
Calendar year 1944	53	0	30.8	47.7	11,290	34,630
January	28	17.0	20.4	31.6	631	1,940
February	51	17.0	26.0	40.2	729	2,240
March	51	21	38.8	60.0	1,200	3,690
April	48	31	37.2	57.6	1,120	3,420
May	39	25	33.6	52.0	1,040	3,200
June	43	23	27.8	43.0	836	2,560
Fiscal year 1944-45	51	17.0	29.9	46.3	10,910	33,470

Time basis: Hawaiian war time. 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 1945. August 1910 to December 1916 at site half a mile upstream; records not equivalent.
Average discharge.- 21 years (1917-20, 1927-45), 53.8 million gallons a day (83.2 second-feet).
Extremes.- Maximum discharge during year, 3,720 million gallons a day (5,760 second-feet) Apr. 6 (gage height, 6.89 feet), from rating curve extended above 2,400 million gallons a day by test on model of station site; minimum, 9.0 million gallons a day (13.9 second-feet) Jan. 22, Feb. 16-20.
1910-21, 1926-45: 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 tables, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Apr. 9, Apr. 24 to June 30						Apr. 10 to Apr. 23			
0.4	7.5	1.2	62	2.8	515	0.6	25.5	1.4	114
.5	10.5	1.4	88	3.2	700	.7	32.5	1.6	148
.6	14.5	1.6	124	3.7	980	.8	41	2.0	238
.8	25	2.0	220	4.2	1,300	1.0	60	2.4	360
1.0	41	2.4	345			1.2	84	2.8	515

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	27.5	18.6	15.0	11.3	14.0	92	14.5	10.2	14.1	38	31	10.9
2	28.5	16.8	21.5	12.6	12.1	24.5	14.5	10.2	219	36	29	10.9
3	78	19.9	14.5	13.8	11.7	33.5	13.7	9.9	135	124	22.5	16.2
4	170	16.8	13.3	10.9	16.3	45	12.5	9.9	110	48	19.0	23.5
5	119	14.5	11.7	10.9	83	60	12.1	10.2	117	64	38.5	17.9
6	119	14.5	11.7	10.9	26.5	47	12.1	15.8	215	1,040	39.5	12.1
7	72	14.5	12.5	10.5	95	23	12.1	11.3	65	200	45	12.5
8	33.5	18.7	10.5	10.9	78	15.8	12.5	10.2	35	55	36	11.7
9	21.5	18.0	10.9	11.3	37	13.7	11.7	9.9	50	787	28.5	23.5
10	20	13.7	11.3	10.9	17.9	12.9	11.3	9.9	22	140	21	16.6
11	21.5	13.7	11.7	10.5	21	12.5	10.9	9.9	17.2	89	17.6	12.5
12	15.8	14.1	11.3	10.2	29	11.7	10.9	10.5	16.3	73	16.3	12.9
13	30	20	14.6	10.5	48	11.3	10.9	9.9	14.5	61	15.0	12.4
14	25.5	51	10.9	10.9	17.6	10.9	11.3	9.6	14.5	43	14.5	30
15	75	31	10.5	11.3	14.5	22.5	12.1	26	22	39.5	14.5	13.7
16	19.2	15.6	28	11.3	12.9	13.6	11.3	10.5	12.1	77	15.4	10.9
17	15.4	13.7	42	53	13.7	11.3	20.5	9.0	91	72	23	10.5
18	13.3	13.3	31	20	13.7	11.3	22	9.0	79	46	13.3	11.3
19	12.9	19.0	13.7	10.2	38.5	11.3	11.7	9.0	52	37	14.9	11.3
20	13.3	14.1	11.7	9.9	19.5	12.9	10.5	12.9	39.5	32	13.3	14.3
21	78	15.2	11.3	9.9	172	11.7	9.9	10.2	28.5	29	15.7	11.7
22	144	16.8	11.7	10.5	93	15.1	9.6	72	19.0	74	13.7	15.4
23	61	24.5	11.3	10.5	205	15.4	9.6	22.5	15.4	399	12.5	12.9
24	201	17.5	11.7	11.3	43	69	13.4	15.2	12.5	65	12.1	12.9
25	570	22	11.3	11.3	28.5	107	10.2	24	16.3	53	12.1	25.5
26	98	24.5	10.9	13.8	22.5	124	10.5	100	72	149	12.1	51
27	68	22	11.7	11.3	15.4	157	10.2	281	203	112	12.5	43
28	49	20.5	11.7	93	13.3	56	10.5	37.5	373	76	12.1	17.5
29	26.5	17.5	11.3	52	52	29.5	10.5	-	136	51	11.7	12.5
30	29.5	37.5	11.3	33.5	33	18.6	10.2	-	171	38	11.7	10.9
31	26	18.4	-	60	-	16.3	9.9	-	60	-	11.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	570	12.9	73.6	114	2,280	7,000
August	51	13.3	19.6	30.3	608	1,870
September	42	10.5	14.4	22.3	432	1,330
October	93	9.9	19.0	29.4	589	1,810
November	205	11.7	45.3	67.0	1,300	3,980
December	157	10.9	36.0	55.7	1,120	3,430
Calendar year 1944	969	9.0	41.4	64.1	15,150	46,470
January	22	9.6	12.1	18.7	374	1,150
February	281	9.0	28.1	43.5	786	2,410
March	373	12.1	78.9	122	2,450	7,510
April	1,040	29	138	214	4,150	12,730
May	45	11.3	19.5	30.2	605	1,860
June	51	10.5	17.0	26.3	509	1,560
Fiscal year 1944-45	1,040	9.0	41.6	64.4	15,200	46,640

Peak discharge.- Feb. 27 (5 a.m.) 1,650 m.g.d. (2,550 sec.-ft.); Mar. 2 (2:30 a.m.) 1,230 m.g.d. (1,900 sec.-ft.); Mar. 28 (1 p.m.) 1,030 m.g.d. (1,590 sec.-ft.); Apr. 6 (6 p.m.) 3,720 m.g.d. (5,760 sec.-ft.); Apr. 9 (6:30 a.m.) 3,680 m.g.d. (5,690 sec.-ft.); Apr. 23 (4 a.m.) 1,610 m.g.d. (2,490 sec.-ft.).
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 28 years (1910-20, 1927-45), 25.3 million gallons a day (39.1 second-feet).

Extremes.- Maximum discharge during year, 42 million gallons a day (65 second-feet) Apr. 9 (gage height, 3.36 feet); no flow at times when head gates were closed.
1910-21, 1927-45: Maximum discharge, that of Apr. 9, 1945; ditch dry occasionally owing to closing of head gates.

Remarks.- Records fair except those for periods of 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	25	21.5	21.5	16.5	20	23	18	15	25	29	31.5	18
2	23	21.5	23	16.1	18.8	23	18	15	31	29	31.5	18
3	24	21.5	20	17.6	18.8	23	18	15	26	30	31.5	20
4	25	21.5	20	16.5	20	23	17	15	27	34	31.5	22
5	25	20	20	15.4	21.5	23	17	16	25.5	31.5	34	20
6	25	20	20	15.4	21.5	22	17	16	22.5	24.5	31.5	19
7	25	20	20	15.4	21.5	21	17	16	27	11.4	31.5	19
8	22.5	20	18.8	15.4	12.5	20	17	15	27	31.5	31.5	20
9	23	21.5	17.6	15.4	14.3	19	16	15	27	20	31.5	21
10	21.5	20	17.6	15.4	18.8	18	16	15	27	23	29	20
11	21.5	21.5	17.6	15.4	10.2	18	16	15	25	20.5	29	20
12	20	20	18.8	15.4	0	18	16	15	23	19.8	27	20
13	23	21.5	20	15.4	3.5	17	16	15	25	21	27	21
14	23	20	17.6	14.3	17.0	17	16	16	25	31.5	25	23
15	25	23	17.6	14.3	16.5	18	16	18	16.4	31.5	24	22
16	23	21.5	20	15.4	16.5	17	16	18	25	32.5	25	21.5
17	21.5	21.5	23	19.6	17.6	17	17	17.6	29	34	25	20
18	21.5	20	23	20	17.6	17	17	16.5	29	31.5	22	20
19	20	21.5	21.5	18.8	18.8	17	16	16.5	29	31.5	22	20
20	20	20	20	17.6	18.8	17	15	18.6	27	29	22	20
21	23	20	18.8	16.5	22	17	15	17.6	27	29	22	20
22	25	20	17.6	15.4	22	18	15	22.5	27	29	21	20
23	23	21.5	17.6	15.4	8.7	19	15	22.5	25	34	20	20
24	23.5	21.5	16.5	14.3	23	20	16	22	27	31.5	20	20
25	29	21.5	16.5	14.3	23	21	15	25	27	31.5	20	23.5
26	27	21.5	16.5	15.4	21.5	22	15	25	29	22.5	20	27
27	27	21.5	15.4	15.4	21.5	15	15	29	16.1	34	20	27
28	25	21.5	15.4	17.3	20	10	15	16.7	9.2	31.5	20	25
29	23	21.5	15.4	20	21.5	21	15	-	31.5	29	19	23
30	23	23	15.4	20	23	20	15	-	31.5	29	19	21.5
31	23	23	-	23	-	19	15	-	31.5	-	18	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	29	20	23.5	36.4	729	2,240
August	23	20	21.1	32.6	654	2,010
September	23	15.4	18.8	29.1	563	1,730
October	23	14.3	16.5	25.5	512	1,570
November	23	0	17.7	27.4	530	1,630
December	23	10	19.0	29.4	590	1,810
Calendar year 1944	31	0	20.1	31.1	7,340	22,540
January	18	15	16.1	24.9	498	1,530
February	29	15	17.8	27.5	500	1,530
March	31.5	9.2	25.8	39.9	800	2,460
April	34	11.4	28.3	43.8	848	2,600
May	34	18	25.2	39.0	782	2,400
June	27	18	21.0	32.5	632	1,940
Fiscal year 1944-45	34	0	20.9	32.3	7,640	23,450

Note.- No gage-height record Dec. 3 to Feb. 16, May 15 to June 15; discharge computed on basis of records for Hanapepe River.
Time basis: Hawaiian war time. 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 1945. December 1911 to November 1918 at site a third of a mile upstream.
Average discharge.- 23 years (1921-24, 1925-45), 65.7 million gallons a day (102 second-feet).
Extremes.- Maximum discharge during year, 3,940 million gallons a day (6,100 second-feet) Apr. 6 (gage height, 7.24 feet), from rating curve extended above 1,550 million gallons a day by test on model of station site; minimum daily, 1.22 million gallons a day (1.89 second-feet) Oct. 14.
1911-45: 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 except those for Feb. 8-18, which are fair. 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.3	5.9	3.8	1.66	3.7	3.4	48	2.4	3.25	86	89	5.4
2	4.2	4.8	38	1.58	2.25	3.85	38	2.35	32	57	120	5.3
3	11.8	4.7	44	1.95	2.15	8.8	10.0	2.25	9.1	142	81	5.8
4	82	4.6	12.3	1.80	1.88	27.5	6.9	2.25	10.0	93	70	5.6
5	50	4.0	3.15	1.80	7.1	62	6.7	2.25	10.1	100	85	6.4
6	45	3.5	2.5	1.66	7.0	61	6.3	2.5	52	974	81	5.8
7	46	3.25	2.4	1.51	8.0	31	6.0	2.4	16.6	359	90	5.3
8	37.5	3.35	2.5	1.44	8.0	26.5	6.5	a2.4	4.9	130	65	4.8
9	38	5.2	2.4	1.44	11.3	18.4	5.2	a2.35	21	975	80	5.0
10	20.5	3.8	2.2	1.58	6.6	23	4.4	a2.35	17.4	240	45	5.4
11	11.2	3.8	2.05	1.44	13.0	9.1	4.1	a2.25	22.5	130	43	4.5
12	9.5	3.25	2.35	1.37	4.4	8.7	4.0	a2.25	6.4	97	47	4.7
13	26.5	2.9	3.4	1.29	2.5	6.9	4.1	a2.15	3.15	87	40	4.8
14	8.4	3.15	2.7	1.22	2.9	5.0	3.85	a2.05	2.6	79	30	32.5
15	105	3.9	2.35	1.37	2.25	4.1	4.1	a5.0	2.6	78	12.0	10.3
16	39.5	4.5	2.5	1.37	1.95	3.25	4.1	a2.4	2.4	155	15.6	5.2
17	18.0	2.9	4.6	1.51	1.88	3.0	5.7	a2.15	9.4	107	11.2	4.7
18	5.8	3.9	5.3	4.4	1.88	2.7	5.8	a1.95	59	79	9.3	4.0
19	4.4	3.0	2.7	1.88	3.35	2.7	4.7	1.95	61	68	9.8	3.75
20	3.75	2.65	2.4	1.51	5.6	3.4	3.85	1.95	17.1	42	12.3	4.1
21	27.5	2.7	2.5	1.40	94	3.15	3.6	1.95	14.4	43	13.4	4.0
22	57	2.9	2.4	1.37	13.4	3.0	3.6	20.5	4.0	57	12.6	4.1
23	56	2.9	2.35	1.75	88	3.0	3.0	6.6	2.6	537	10.0	4.1
24	120	3.4	2.8	1.80	9.5	8.8	3.0	2.9	2.35	155	8.0	3.75
25	596	3.4	2.25	2.45	4.8	16.7	2.9	2.5	2.7	429	6.9	3.6
26	124	3.4	1.88	8.5	18.2	240	2.9	9.7	42	210	6.5	7.7
27	99	6.6	1.95	3.6	14.8	298	2.8	74	105	215	6.1	6.8
28	63	3.7	1.88	86	4.6	124	2.7	6.6	225	184	6.0	5.2
29	30	3.5	1.73	67	2.8	75	2.65	-	79	145	5.8	4.0
30	49	17.6	1.73	5.6	5.0	61	2.6	-	318	106	5.8	3.5
31	31	7.1	-	15.4	-	54	2.4	-	122	-	5.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	596	3.75	58.9	91.1	1,830	5,600
August	17.6	2.65	4.35	6.73	135	414
September	44	1.73	5.51	8.53	165	507
October	86	1.22	7.38	11.4	229	702
November	94	1.88	11.8	18.3	353	1,080
December	298	2.7	38.7	59.9	1,200	3,690
Calendar year 1944	1,540	1.22	40.7	63.0	14,900	45,690
January	48	2.4	6.92	10.7	214	658
February	74	1.95	6.16	9.53	172	529
March	318	2.35	41.3	63.9	1,280	3,930
April	975	42	206	319	6,170	18,930
May	120	5.3	36.9	57.1	1,140	3,510
June	32.5	3.5	6.00	9.28	180	553
Fiscal year 1944-45	975	1.22	35.8	55.4	13,070	40,100

Peak discharge.- July 25 (9:30 a.m.) 1,080 m.g.d. (1,670 sec.-ft.); Dec. 26 (7:15 p.m.) 862 m.g.d. (1,330 sec.-ft.); Apr. 6 (7 p.m.) 3,940 m.g.d. (6,100 sec.-ft.); Apr. 9 (7:45 a.m.) 3,480 m.g.d. (5,380 sec.-ft.); Apr. 23 (5:30 a.m.) 1,180 m.g.d. (1,830 sec.-ft.); Apr. 25 (3:15 p.m.) 1,620 m.g.d. (2,510 sec.-ft.).
a No gage-height record; discharge computed on basis of records for stations on North Fork.
Time basis: Hawaiian war time. 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", 1¾ 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 1945. December 1910 to September 1914 at site 300 feet downstream from confluence of main and east branches; records not equivalent.
Average discharge.- 24 years (1921-45), 51.1 million gallons a day (79.1 second-feet).
Extremes.- Maximum discharge during year, 1,120 million gallons a day (1,730 second-feet) Apr. 9 (gage height, 6.98 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) Feb. 17-19, 20.
1910-45: 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, that of Feb. 17-19, 20, 1945.
Remarks.- Records 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	35.5	35.5	27.5	1.0	11.3	63	26.5	0.5	3.9	51	70	0.6
2	40	31	33.5	2.4	3.4	31.5	25.5	.5	64	49	63	.6
3	48	34	25	1.4	3.0	38	25	.5	49	103	54	.8
4	68	29	24	1.0	15.2	59	23.5	.4	45	40	46	7.3
5	68	27	23	.9	45	97	23	.5	52	64	45	1.7
6	100	26.5	9.1	.9	33.5	65	23	2.6	81	255	42	.6
7	79	12.0	2.1	.9	87	46	22.5	.4	51	78	38	.7
8	54	6.2	1.3	.9	53	35.5	22	.4	50	43	48	.6
9	40	13.0	1.2	.9	57	29.5	15.5	.4	64	228	43	5.2
10	37	12.4	1.1	.9	38	27.5	1.0	.4	38	73	35.5	.7
11	57	6.6	1.1	.9	32.5	28	.9	1.5	33	61	32	.6
12	38	3.4	1.6	.9	27	25.5	1.3	.4	33	46	28.5	2.0
13	60	6.4	1.1	.9	34.5	25	1.7	.4	31.5	40	27	1.4
14	57	3.0	1.0	.9	5.8	24	2.7	.4	30	29	26.5	35.5
15	83	20.5	1.0	2.6	4.0	27	9.3	23.5	32.5	47	26	11.1
16	43	12.0	8.7	2.2	2.9	12.7	2.2	.6	13.7	73	52	.7
17	35.5	6.0	14.5	29.5	3.8	11.3	15.9	.3	47	50	36	.6
18	32.5	18.2	11.9	10.7	2.7	10.3	22.5	.3	60	54	26.5	.6
19	29.5	20	1.3	2.4	18.3	11.1	3.2	.3	47	43	26	3.1
20	30.5	9.5	1.1	.8	18.6	17.8	1.6	1.9	43	33	21.5	2.7
21	52	12.6	2.7	.8	70	4.2	2.1	.3	35.5	29	8.1	1.0
22	81	17.3	1.0	.8	74	12.9	1.5	49	29	81	1.0	.9
23	53	15.8	1.5	.8	85	15.4	.7	15.6	26	220	.8	.6
24	110	13.3	1.1	2.9	54	62	.6	3.9	25	82	.8	.6
25	254	12.4	1.1	24.5	48	88	.6	8.1	30	138	.7	4.3
26	93	19.6	1.1	19.4	38	116	.6	24	64	86	.7	9.1
27	89	31.5	1.1	8.8	29.5	149	.6	62	106	96	.6	11.5
28	64	29	1.0	77	26.5	58	.6	16.0	134	82	.6	.9
29	43	27	1.0	79	40	40	.6	-	71	67	.6	.6
30	50	56	1.0	58	38	31.5	.5	-	153	54	.6	.6
31	42	35.5	-	65	-	28	.5	-	65	-	.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	254	29.5	63.4	98.1	1,970	6,030
August	56	3.0	19.4	30.0	602	1,850
September	33.5	1.0	6.79	10.5	204	625
October	79	.8	12.9	20.0	400	1,230
November	87	2.7	33.3	51.5	1,000	3,070
December	149	4.2	41.6	64.4	1,290	3,960
Calendar year 1944	434	.72	33.2	51.4	12,160	37,320
January	26.5	.5	8.96	13.9	278	852
February	62	.3	7.68	11.9	215	660
March	153	3.9	51.8	80.1	1,610	4,930
April	255	29	79.8	123	2,400	7,350
May	70	.6	25.9	40.1	802	2,460
June	35.5	.6	3.57	5.52	107	329
Fiscal year 1944-45	255	.3	29.8	46.1	10,880	33,350

Time basis: Hawaiian war time. 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 9¾ miles northwest of Lihue. Altitude of gage, 1,210 feet (Lihue Plantation Co. levels).

Records available.- July 1932 to June 1945.

Average discharge.- 13 years, 25.3 million gallons a day (39.1 second-feet).

Extremes.- Maximum discharge during year, 74 million gallons a day (114 second-feet) Apr. 25 (gage height, 1.76 feet); no flow July 26-29, Apr. 3-10 when water was shut out of ditch.
1932-45: 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 1944to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	22.5	21	19.5	16.4	25.5	31.5	18.4	14.2	19.5	21	31.5	15.3
2	27	19.7	23.5	18.4	22	20.5	17.6	14.2	35	26	31.5	15.6
3	30.5	22	18.4	19.1	23.5	25	17.2	14.2	31	10.2	26.5	18.4
4	33.5	18.7	18.4	16.0	31	31.5	16.8	14.2	31	0	23.5	25
5	35	18.0	17.2	15.6	37	44	16.8	15.3	32	0	23	21
6	43	18.0	18.0	15.3	25.5	35.5	16.0	18.0	36.5	0	22	16.8
7	37.5	18.0	17.6	14.9	39.5	29.5	16.4	14.5	28.5	0	20.5	18.0
8	29.5	20.5	17.2	15.3	30.5	23.5	15.8	14.2	31	0	25.5	18.7
9	23.5	23.5	16.4	14.9	31	20.5	15.6	14.2	32.5	0	22	35
10	23	19.5	16.4	14.9	23.5	19.7	15.6	14.2	25	8.9	19.5	17.2
11	29.5	19.5	16.8	14.9	23.5	19.9	15.3	16.0	22.5	21.5	18.7	17.6
12	24.5	18.7	18.4	16.0	19.9	18.4	15.3	14.2	22	17.6	18.4	19.5
13	32.5	20.5	17.6	15.6	26	18.0	15.6	14.0	21.5	18.0	18.0	20
14	30.5	18.4	17.6	16.0	19.9	18.0	16.4	14.5	20.5	8.3	17.8	31
15	35.5	23.5	16.0	22	18.7	24.5	19.5	28.5	22	18.1	17.6	18.0
16	23.5	18.7	28	18.4	18.4	18.4	16.0	15.6	18.0	13.5	29	16.0
17	22	19.9	32	36	19.5	17.8	23	14.5	30.5	9.7	23	15.6
18	19.9	26	28	23	18.4	16.8	24.5	14.2	31	22	18.7	15.8
19	19.1	27	18.7	19.9	28.5	18.7	16.0	14.2	27.5	18.0	18.4	18.5
20	20.5	19.5	18.0	17.6	19.1	26	15.6	18.0	27.5	15.3	17.6	19.1
21	33	21.5	19.9	16.8	36.5	18.4	16.8	16.0	22.5	14.2	19.8	19.5
22	36	25.5	17.6	16.0	42	21.5	15.6	33.5	19.5	23	17.6	18.4
23	29.5	23	17.2	15.6	37.5	23.5	15.3	19.1	18.0	48	16.8	16.8
24	44	23.5	16.4	18.5	32.5	37.5	14.9	19.1	17.6	35	16.8	16.4
25	54	26.5	16.0	35	28	38.5	14.9	22	20.5	39	16.4	22
26	39	27	16.0	26.5	22.5	38.5	14.5	29.5	32	36	16.4	24
27	38	24	16.0	22	19.9	43	14.5	33	38.5	39	16.0	26
28	32	21.5	15.6	38.5	19.1	27	14.2	21	40	34.5	15.8	18.0
29	24.5	20.5	15.6	39.5	24.5	23.5	14.2	-	33.5	30.5	15.8	16.4
30	26.5	31.5	16.0	39.5	23.5	20.5	14.2	-	41	26	15.6	15.6
31	23.5	21.5	-	39	-	19.1	14.2	-	26	-	15.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	54	19.1	30.4	47.0	942	2,890
August	31.5	18.0	21.8	33.7	677	2,080
September	32	15.6	18.7	28.9	560	1,720
October	39.5	14.9	21.5	33.5	667	2,050
November	42	18.4	26.2	40.5	787	2,410
December	44	16.8	25.4	39.3	789	2,420
Calendar year 1944	54	14.9	22.8	35.3	8,350	25,640
January	24.5	14.2	16.3	25.2	507	1,560
February	33.5	14.0	18.0	27.9	504	1,550
March	41	17.6	27.6	42.7	854	2,620
April	48	0	18.4	28.5	553	1,700
May	31.5	15.6	20.2	31.3	625	1,920
June	35	15.3	19.5	30.2	586	1,800
Fiscal year 1944-45	54	0	22.1	34.2	8,050	24,720

Time basis: Hawaiian war time. 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 1945. Records from 1926 to June 1932 collected by Lihue Plantation Co.

Average discharge.- 13 years, 12.6 million gallons a day (19.5 second-feet).

Extremes.- Maximum discharge during year, 53 million gallons a day (82 second-feet) Oct. 28 (gage height, 1.70 feet); no flow Nov. 21 when water was shut out of ditch. 1932-45: 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 except those for Sept. 29, 30, Oct. 1, 2, 8, which are good. Flow regulated by gates. Water used for power and irrigation in vicinity of Lihue.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.3	12.5	11.4	a10.5	16.9	8.3	12.6	9.5	14.5	13.8	9.2	10.2
2	11.9	13.2	14.0	a11.0	15.1	13.1	12.2	9.4	30.5	14.1	9.5	10.2
3	12.2	14.9	12.5	f12.2	17.1	14.0	11.8	9.3	25.5	15.4	9.2	13.1
4	6.7	12.8	12.0	10.2	21	7.7	11.4	9.4	23.5	13.7	11.1	16.0
5	5.2	12.2	11.3	9.8	24.5	3.0	11.5	11.0	26	11.3	12.2	15.8
6	3.9	11.9	12.0	9.9	18.0	5.6	11.1	16.2	22.5	5.1	12.2	11.6
7	3.0	11.8	11.5	f9.8	9.6	9.9	10.9	9.7	14.7	2.5	12.2	12.6
8	8.0	15.1	11.2	a9.6	9.0	12.8	10.7	9.4	14.8	9.1	10.4	13.5
9	11.9	16.3	10.7	f9.6	10.3	13.0	10.8	9.3	14.8	2.75	7.8	18.8
10	12.8	13.5	10.5	9.7	12.0	12.6	10.5	9.4	13.7	5.6	8.5	12.8
11	13.4	13.2	10.5	9.5	14.9	12.4	10.3	12.6	13.4	8.1	11.0	12.5
12	15.2	13.0	11.6	9.7	13.5	11.9	10.3	9.6	13.7	11.3	12.4	14.4
13	12.8	14.9	11.4	9.5	16.6	11.6	10.7	9.3	13.5	13.1	11.9	16.7
14	8.7	12.8	11.0	9.5	14.8	11.6	11.6	9.6	13.3	14.8	11.6	25
15	5.7	16.0	10.2	13.6	13.0	13.7	13.5	21.5	13.6	13.2	11.4	14.4
16	8.8	12.8	16.0	10.7	12.2	11.9	10.8	10.8	12.8	6.1	15.7	12.2
17	11.1	15.6	16.0	22.5	13.6	11.6	19.4	9.9	15.4	9.5	14.2	11.6
18	11.7	16.2	15.0	13.5	12.3	11.0	18.0	9.6	15.4	9.0	12.4	11.4
19	12.1	17.6	12.2	13.1	19.0	12.0	11.5	9.4	14.3	9.5	12.4	14.9
20	14.1	12.9	11.6	11.0	12.8	14.5	10.7	11.2	14.4	12.2	11.4	14.1
21	14.2	15.0	12.6	10.7	8.3	11.9	10.5	11.7	13.6	13.4	12.0	14.1
22	7.3	16.5	11.3	10.5	6.8	16.5	10.1	14.1	13.2	15.5	11.3	15.4
23	7.8	15.4	11.3	9.9	2.1	16.6	10.1	11.0	12.6	16.1	11.0	12.8
24	3.4	14.6	10.6	10.6	8.4	13.8	10.0	14.6	11.9	8.4	10.8	12.9
25	.51	16.0	10.3	19.9	9.2	3.1	9.9	18.9	13.1	4.4	10.7	18.1
26	2.85	16.2	10.2	19.2	9.8	8.0	9.9	25	15.4	5.0	11.0	19.7
27	4.1	14.9	10.4	14.2	13.5	4.8	9.7	18.8	16.5	4.1	10.6	21.5
28	7.5	13.4	10.1	18.2	13.6	3.1	9.6	14.7	16.9	3.5	10.6	14.6
29	11.4	14.3	a9.9	17.0	10.5	10.4	9.6	-	15.3	4.0	10.5	12.6
30	11.2	8.7	a9.9	23.5	9.7	13.7	9.4	-	16.5	6.5	10.4	11.7
31	9.9	9.3	-	17.2	-	13.2	9.4	-	14.5	-	10.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.2	0.51	9.05	14.0	281	861
August	17.6	8.7	14.0	21.7	434	1,330
September	16.0	9.9	11.6	17.9	349	1,070
October	23.5	9.5	12.8	19.8	396	1,210
November	24.5	2.1	12.9	20.0	388	1,190
December	16.6	3.0	10.9	16.9	337	1,040
Calendar year 1944	31.5	.36	11.9	18.4	4,360	13,380
January	19.4	9.4	11.2	17.3	348	1,070
February	25	9.3	12.3	19.0	345	1,060
March	30.5	11.9	16.1	24.9	500	1,530
April	16.1	2.5	9.37	14.5	281	863
May	15.7	7.8	11.2	17.3	347	1,060
June	25	10.2	14.5	22.4	435	1,340
Fiscal year 1944-45	30.5	.51	12.2	18.9	4,440	13,620

a No gage-height record; discharge computed on basis of ditchman's notes.
f Computed on basis of partly estimated gage-height record.
Time basis: Hawaiian war time. 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 1945. 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, 39 million gallons a day (60 second-feet) June 14 (gage height, 1.55 feet); no flow at times when water was shut out of ditch.
1936-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.07	0	0.07	19.3	24	0.07	0	16.7	21	0.12	0.12	19.9
2	.07	0	0	20.5	26.5	.07	0	16.4	17.3	.12	.18	19.9
3	.07	0	0	22	27	.07	0	16.4	.07	.23	.18	22
4	.12	0	.04	18.8	28	.07	0	16.4	.07	.12	.12	28
5	.07	0	.03	17.9	20.5	.12	0	17.3	.12	.12	.12	26.5
6	.12	0	15.8	17.6	.12	.12	0	19.9	.12	.80	.12	21.5
7	.12	15.7	21.5	17.3	.18	.12	0	16.7	.12	.18	.12	22.5
8	.07	27	21.5	17.3	.18	.07	0	16.7	.12	.18	.07	23
9	.07	21	20.5	17.3	.18	.07	7.2	16.4	.12	.66	.07	27
10	.04	15.6	19.9	17.9	.12	.07	20.5	16.4	.07	.18	0	22.5
11	.07	21	20.5	17.3	.12	.07	19.9	17.9	.07	.18	0	21.5
12	.04	23	21.5	18.5	.12	.12	19.6	16.7	.07	.12	0	24
13	.04	24	21	17.9	6.9	.07	19.6	16.2	.07	.12	0	23.5
14	.04	23	21	18.5	23.5	0	19.7	16.4	.07	.12	0	23
15	.04	11.2	19.7	22	23	11.4	20	22.5	.07	.12	.12	15.8
16	0	15.8	24	20.5	23	13.4	19.3	18.8	14.6	.12	0	22
17	0	23.5	26	16.6	23	13.1	21	17.0	14.8	.12	0	21
18	0	21	25	15.3	23	13.1	21	16.7	.12	.12	0	21
19	0	18.5	23	20.5	24.5	13.1	19.6	16.4	.12	.12	0	22.5
20	0	17.6	22.5	19.9	6.7	19.3	19.0	19.0	.12	.04	4.7	25
21	0	17.9	22.5	19.3	.18	20.5	19.3	18.2	.12	0	23	24
22	0	18.3	21.5	18.8	.18	20.5	19.0	10.9	.12	.15	23	24
23	0	18.2	21.5	18.2	.18	17.9	18.8	13.8	.12	.34	22.5	22.5
24	0	17.9	20.5	19.0	.12	11.7	18.5	19.9	.12	.12	22	22
25	.12	25	19.6	22.5	.12	.07	18.2	20.5	.12	.30	21.5	26
26	.07	14.2	19.3	22	.12	.12	17.9	21.5	.12	.12	21.5	29
27	.04	.07	19.0	21.5	.12	.27	17.6	6.4	.18	.12	21	30
28	0	.07	18.8	15.8	.12	.12	17.3	14.0	.18	.12	21	25
29	0	.07	18.5	12.7	.07	.07	17.3	-	.12	.12	20.5	22.5
30	0	.07	19.0	19.6	.07	.04	17.0	-	.18	.12	20	21
31	0	.07	-	19.6	-	0	16.7	-	.12	-	20	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.12	0	0.041	0.063	1.28	3.9
August	27	0	12.6	19.5	390	1,200
September	26	0	17.5	27.1	524	1,610
October	22.5	12.7	18.8	29.1	582	1,790
November	28	.07	9.40	14.5	282	865
December	20.5	0	5.03	7.78	156	478
Calendar year 1944	33	0	8.71	13.5	3,190	9,790
January	21	0	13.7	21.2	424	1,300
February	22.5	6.4	16.9	26.1	472	1,450
March	21	.07	2.28	3.53	70.7	217
April	.80	0	.180	.279	5.40	17
May	23	0	7.80	12.1	242	742
June	30	15.8	23.3	36.1	698	2,140
Fiscal year 1944-45	30	0	10.5	16.2	3,850	11,810

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 25 years (1916-22, 1926-45), 6.10 million gallons a day (9.44 second-feet).

Extremes.- Maximum discharge during year, 6.2 million gallons a day (9.6 second-feet) Oct. 17 (gage height, 0.32 foot); no flow at times when intake gate was closed. 1910-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.12	0.43	0.43	0.16	0.21	0.09	0	0.31	0.40	0.31	0.67	0.12
2	.12	.37	.43	.26	.16	.12	.55	.37	.55	.37	.73	.12
3	.12	.31	.40	.31	.12	.16	.94	.31	.49	.43	.73	.16
4	.12	.31	.31	.21	.12	.12	.94	.31	.43	.31	.67	.43
5	.12	.31	.26	.21	.12	.09	.94	.21	.43	.31	.67	.31
6	.12	.26	.21	.21	.12	.05	.94	.31	.43	.55	.67	.16
7	.12	.26	.21	.16	.05	.05	.94	.21	.43	.16	.55	.16
8	.12	.21	.16	.16	.05	.05	.80	.21	.43	.16	.49	.12
9	.12	.21	.16	.16	.09	.05	.55	.21	.43	.54	.43	.31
10	.12	.21	.12	.16	.05	.05	.43	.21	.43	.55	.43	.21
11	.12	.21	.16	.16	.09	.31	.31	.31	.43	.55	.43	.12
12	.12	.16	.21	.21	.09	.40	.43	.18	.31	.55	.43	.16
13	.12	.16	.21	.21	.09	.43	.43	.12	.16	.43	.31	.16
14	.16	.16	.18	.31	.05	.43	.43	.16	.16	.43	.31	.80
15	.16	.21	.16	.55	.05	.40	.49	.61	.16	.43	.31	.67
16	.12	.21	.21	.67	.31	.31	.31	.21	.10	.37	.31	.18
17	.12	.21	.21	3.35	.73	.31	.31	.16	.09	.21	.17	.16
18	.12	.21	.16	3.15	.54	.31	.26	.16	.05	.21	.17	.16
19	.12	.21	.12	1.46	.73	.31	.18	.12	.43	.21	.12	.21
20	.12	.21	.12	.67	.37	.31	.16	.31	.55	.21	.12	.37
21	.12	.21	.12	.67	.16	.26	.16	.16	.43	.21	.31	.21
22	.16	.21	.12	.67	.12	.26	.31	.94	.43	.37	.31	.21
23	.16	.21	.08	.55	.05	.21	.31	.80	.43	.31	.21	.16
24	.16	.55	.05	.55	.16	.31	.31	.67	.43	.60	.21	.12
25	.12	.73	.13	.80	.21	.43	.31	.80	.43	.60	.21	.31
26	.05	.73	.16	.80	.21	.31	.31	.73	.43	.16	.16	.67
27	.05	.73	.16	.80	.16	.12	.31	.67	.43	.16	.16	.67
28	0	.61	.16	.80	.16	.05	.31	.49	.55	.16	.16	.31
29	0	.43	.16	.80	.16	0	.21	-	.43	.16	.16	.16
30	0	.43	.16	.55	.12	0	.31	-	.43	.12	.16	.16
31	.27	.43	-	.31	-	0	.37	-	.31	-	.16	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.27	0	0.116	0.178	3.57	11
August	.73	.16	.326	.504	10.1	31
September	.43	.05	.191	.296	5.73	18
October	3.35	.16	.646	1.00	20.0	62
November	.73	.05	.188	.291	5.65	17
December	.43	0	.203	.314	6.30	19
Calendar year 1944	3.35	0	.255	.395	93.3	288
January	.94	0	.437	.676	13.6	42
February	.94	.12	.366	.566	10.3	31
March	.55	.05	.375	.580	11.6	36
April	.55	.12	.331	.512	9.94	31
May	.73	.12	.353	.546	10.9	34
June	.80	.12	.269	.416	8.07	25
Fiscal year 1944-45	3.35	0	.317	.490	116	357

Time basis: Hawaiian war time. 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, 5¼ miles west of Kapaa, and 7 miles north of Lihue. Altitude of gage, 462 ± 5 feet (by estimating slope of 2,000-foot length of ditch on basis of Lihue Plantation Co. levels).

Records available.- November 1936 to June 1945. 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, 39.5 million gallons a day (61.1 second-feet) Aug. 28 (gage height, 3.54 feet); minimum, 1.7 million gallons a day (2.6 second-feet) Nov. 11.

1936-45: 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 periods of no gage-height record, which are poor. Ditch diverts water from North Fork Wailua River to reservoir 2,000 feet above station and thence to fields for irrigation of sugarcane. Flow regulated by gates at reservoir.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.1	18.7	14.1	10.6	12.0	12.2	2.4	12.8	26.5	3.0	2.1	a18.9
2	8.0	26.5	3.8	10.1	8.6	12.7	2.4	11.7	11.2	3.0	2.2	a18.9
3	10.0	27.5	5.7	10.1	8.6	5.5	2.6	10.6	7.0	3.0	2.1	5.4
4	4.7	29	13.9	9.6	5.7	9.1	3.0	10.1	5.6	3.1	2.1	13.4
5	7.1	29	13.9	9.1	3.2	7.1	3.1	9.6	12.8	3.1	2.2	13.9
6	4.2	24	21.5	8.6	7.1	6.8	2.8	10.1	13.4	3.3	2.2	13.9
7	5.1	19.9	25	8.1	7.6	9.6	3.0	10.6	17.5		2.2	22
8	7.6	19.9	25	8.1	12.9	10.1	7.3	10.1	20.5		2.1	29
9	5.9	18.7	19.3	7.6	22.5	10.6	13.9	9.6	7.9		2.1	24
10	10.8	16.3	13.4	7.6	17.4	10.6	19.9	9.6	2.4		2.0	18.7
11	11.2	16.3	19.2	8.1	5.5	16.9	27.5	9.1	2.4		1.9	21
12	16.6	13.9	22.5	8.1	5.1	25	30.5	9.6	3.4		1.9	25
13	21	13.1	24	8.1	13.9	10.6	26.5	9.1	8.6		1.9	24
14	21	19.9	24	8.1	16.3	17.5	19.9	9.1	12.2		8.4	19.9
15	13.2	17.5	21	8.6	17.5	11.3	24	13.4	22.5		13.9	18.7
16	6.3	16.3	16.3	9.6	13.9	4.1	24	16.3	30.5		13.9	11.7
17	13.9	15.1	13.4	11.7	13.9	6.9	24	14.7	17.4		13.9	5.2
18	14.8	15.1	18.8	17.5	8.2	13.4	21	11.2	3.1	e4.5	13.9	15.1
19	15.1	12.8	26.5	16.3	6.4	15.1	17.5	9.1	3.1		9.0	21
20	15.1	10.1	25	16.3	19.9	17.5	12.8	9.1	14.0		6.0	25
21	15.1	13.4	21	14.5	22.5	18.7	8.1	9.1	30.5		20.5	25.5
22	9.9	16.3	18.7	13.4	16.3	17.5	15.9	14.5	34.5		26.5	26.5
23	6.9	21	13.4	11.7	18.7	8.9	26.5	25	30.5		25	18.6
24	18.7	25	9.1	10.6	19.9	3.0	25	24	12.6		25	13.4
25	19.9	25	9.6	13.9	9.9	5.1	22.5	22.5	6.2		24	13.4
26	16.3	25	9.6	21	3.3	6.1	19.9	24	13.9		11.8	21
27	11.2	25	11.7	22.5	3.3	2.9	14.6	31.5	11.9		4.1	26.5
28	11.2	30.5	12.2	15.6	10.8	2.7	14.7	37.5	7.5		9.6	26.5
29	9.1	39	11.7	8.6	14.5	2.6	17.5	-	7.6	2.0	9.6	24.0
30	7.6	39	11.2	16.8	13.9	2.6	15.1	-	11.7	1.9	a9.6	15.3
31	10.6	29	-	14.5	-	2.5	13.9	-	6.5	-	a9.6	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	21	4.2	11.7	18.1	362	1,110
August	39	10.1	21.5	33.3	668	2,050
September	26.5	3.8	16.5	25.5	494	1,520
October	22.5	7.6	11.8	18.3	365	1,120
November	22.5	3.2	12.0	18.6	359	1,100
December	25	2.5	9.85	15.2	305	937
Calendar year 1944	39	2.3	12.1	18.7	4,440	13,630
January	30.5	2.4	15.5	24.0	482	1,480
February	37.5	9.1	14.4	22.3	404	1,240
March	34.5	2.4	13.4	20.7	415	1,270
April	-	-	4.05	6.27	121	373
May	26.5	1.9	9.07	14.0	281	863
June	29	5.2	19.2	29.7	576	1,770
Fiscal year 1944-45	39	1.9	13.2	20.4	4,830	14,830

a No gage-height record; discharge computed on basis of records for nearby streams.
e No gage-height record; discharge estimated.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

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 1945.

Average discharge.- 25 years (1920-45), 30.2 million gallons a day (46.7 second-feet).

Extremes.- Maximum discharge during year, 1,980 million gallons a day (3,060 second-feet) Apr. 9 (gage height, 8.68 feet), from rating curve extended above 270 million gallons a day by test on model of station site; minimum, 7.0 million gallons a day (10.8 second-feet) Feb. 20.

1912-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.9	5.5	1.6	29.5	3.0	167
1.0	7.4	1.8	42	3.5	216
1.2	12.8	2.0	58	4.0	280
1.4	20.5	2.5	112	4.5	358

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.4	18.4	13.2	7.7	14.6	25	16.4	8.7	9.7	41	59	10.6
2	16.8	17.2	13.5	7.9	13.2	15.3	15.7	8.7	21.5	34	45	10.6
3	25	17.2	12.2	8.7	11.7	17.2	15.3	8.4	23	112	36	10.8
4	24.5	16.0	11.4	8.2	11.4	37.5	14.6	8.4	29.5	76	31.5	11.9
5	23.5	15.0	10.8	7.7	17.2	87	13.9	8.4	25.5	64	31.5	12.8
6	55	14.2	10.8	7.4	12.4	47	13.5	8.2	33.5	203	26.5	10.8
7	33	13.9	11.4	7.7	28.5	28	13.2	7.9	18.4	113	24	10.8
8	23.5	15.0	10.3	7.4	19.3	21	12.2	7.9	17.7	61	26	10.6
9	19.3	15.0	10.0	7.4	26.5	18.0	12.0	7.9	39	304	23.5	11.4
10	18.4	13.5	9.5	8.4	16.8	16.0	11.7	8.2	19.7	97	21.5	10.3
11	29	13.5	9.7	8.2	14.2	15.3	11.4	7.9	16.0	61	19.7	10.0
12	20.5	13.2	9.5	7.7	12.5	14.2	11.1	7.9	14.2	46	18.4	10.8
13	24	13.9	9.5	7.7	13.9	13.2	11.4	7.7	13.2	42	17.6	11.4
14	25	13.2	9.5	7.9	12.2	12.5	10.8	7.7	12.8	34.5	16.4	28.5
15	39.5	18.9	9.2	10.0	11.4	19.2	16.9	8.7	13.2	36.5	16.0	12.5
16	21	13.5	11.1	9.8	10.8	13.5	12.2	8.2	11.7	54	24	10.8
17	19.7	12.8	11.4	22.5	11.4	12.2	53	7.7	17.1	39	18.4	10.0
18	17.2	40	14.6	12.9	10.8	11.7	33	7.4	23	32	15.3	9.7
19	15.7	15.0	10.0	9.2	17.1	11.7	14.2	7.2	25	28	15.0	10.6
20	15.3	12.5	10.0	8.4	11.7	18.1	12.2	7.0	18.0	24	14.2	13.5
21	31.5	12.2	9.5	7.9	27	12.5	12.0	7.2	15.3	22.5	16.0	10.6
22	31	13.2	15.2	7.8	22	12.0	12.2	11.5	13.2	24.5	13.9	12.2
23	21.5	15.0	11.4	7.4	27.5	12.5	10.8	9.0	12.0	120	13.2	10.8
24	28.5	13.5	9.5	7.9	18.9	20.5	10.6	9.0	11.4	51	12.8	10.0
25	57	18.0	8.7	34.5	23	35	10.3	9.5	12.2	110	12.2	12.6
26	29.5	20.5	8.2	24	16.8	94	10.0	18.8	33	101	12.0	17.1
27	34	15.7	8.2	14.6	13.9	99	10.0	39.5	52	93	12.0	14.6
28	28	15.3	8.2	33.5	12.8	36.5	9.7	12.8	83	56	11.4	11.4
29	21.5	14.2	7.9	25.5	17.6	24.5	9.5	-	40	44	11.4	10.3
30	21.5	27	7.9	21.5	18.1	20.5	9.0	-	137	37	11.1	9.7
31	21	15.7	-	28.5	-	18.0	8.7	-	81	-	10.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	57	15.3	26.0	40.2	807	2,480
August	40	12.2	16.2	25.1	502	1,540
September	15.2	7.9	10.4	16.1	312	958
October	34.5	7.4	12.8	19.8	396	1,210
November	28.5	10.8	16.5	25.5	495	1,520
December	99	11.7	27.1	41.9	839	2,570
Calendar year 1944	420	7.4	22.3	34.5	8,140	24,970
January	53	8.7	14.1	21.8	438	1,340
February	39.5	7.0	9.91	15.3	277	851
March	137	9.7	28.8	44.6	892	2,740
April	304	22.5	72.0	111	2,160	6,630
May	59	10.8	20.5	31.7	636	1,950
June	28.5	9.7	11.9	18.4	358	1,100
Fiscal year 1944-45	304	7.0	22.2	34.3	8,110	24,890

Time basis: Hawaiian war time. 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 1945. 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, 1,930 million gallons a day (2,990 second-feet) Apr. 9 (gage height, 3.57 feet), from rating curve extended above 330 million gallons a day; no flow at times when low flow is diverted into Kapahi ditch.
1936-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

-0.05	0	0.3	6.3	0.7	40	1.1	115
0.0	.1	.4	11.7	.8	55	1.3	168
.1	.8	.5	19.0	.9	72	1.5	234
.2	2.7	.6	28.5	1.0	92	1.8	365

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.7	0	2.5	0	0	1.6	3.4		0	23	35	0
2	4.3	0	3.1	0	0	0	3.5		0	16.8	30.5	0
3	12.2	0	1.8	0	0	0	1.8		0	122	21	0
4	18.0	0	0	0	0	14.0	1.3		.3	30	15.4	0
5	11.2	0	0	0	0	44	2.3		0	39	15.4	0
6	27	0	0	0	0	7.2	1.0		0	201	12.4	0
7	13.9	0	0	0	1.2	.2	0		0	51	11.2	0
8	6.9	.7	0	0	0	0	0		1.8	23	12.4	0
9	6.2	1.0	0	0	0	0	0		11.0	323	11.2	0
10	6.4	.8	0	0	0	0	0		.3	37.5	10.6	0
11	7.6	.1	0	0	0	0	0		.3	23	9.0	0
12	.1	.09	0	0	0	0	0		1.8	17.5	3.5	0
13	e1.1	.4	0	0	0	0	0		.6	19.0	0	.5
14	11.2	.3	0	0	0	0	0		0	13.9	0	.4
15	23.5	8.8	0	0	0	3.2	.1		0	23	0	0
16	5.6	.3	0	0	0	.2	1.1		0	24	0	0
17	3.3	0	0	0	0	0	1.8		.7	18.8	0	0
18	0	2.6	0	0	0	0	4.2		.03	15.4	0	0
19	0	0	0	0	.2	0	0		0	15.4	0	0
20	.05	0	0	0	0	.9	0		0	9.5	0	0
21	12.4	0	0	0	8.7	0	0		0	5.9	.02	0
22	11.2	.4	4.8	0	0	0	0		0	13.6	0	0
23	7.9	.9	2.0	0	0	0	0		0	60	.09	0
24	12.9	0	0	0	0	3.3	0		0	22	0	0
25	15.2	1.2	0	19.6	0	5.8	0		0	61	0	0
26	.5	0	0	0	0	79	0		9.4	63	0	0
27	16.8	0	0	0	0	41	0		20.5	56	0	0
28	3.8	0	0	5.8	0	16.8	0		56	24	0	0
29	0	0	0	0	4.7	11.2	0		42	19.0	0	0
30	.5	3.1	0	.9	1.2	9.5	0		128	16.1	0	0
31	.03	3.1	-	.4	-	7.0	0		98	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27	0	7.76	12.0	240	738
August	8.8	0	.767	1.19	23.8	73
September	4.8	0	.47	.73	14.2	44
October	19.6	0	.86	1.33	26.7	82
November	8.7	0	.53	.82	16.0	49
December	79	0	7.90	12.2	245	752
Calendar year 1944	421	0	9.91	15.3	3,630	11,140
January	4.2	0	.66	1.02	20.5	63
February	0	0	0	0	0	0
March	128	0	12.0	18.6	371	1,140
April	323	5.9	46.2	71.5	1,390	4,250
May	35	0	6.06	9.38	188	576
June	.5	0	.03	.05	.9	2.8
Fiscal year 1944-45	323	0	6.94	10.7	2,540	7,770

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 27 years (1917-20, 1921-45), 5.90 million gallons a day (9.13 second-feet).

Extremes.- Maximum discharge during year, 79 million gallons a day (122 second-feet) Oct. 25 (gage height, 3.63 feet); no flow Apr. 2, 10-22.
1909-14, 1915-45: 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 that for Dec. 10, which is 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.6	3.6	0.16	1.55	3.0	6.4	4.0	2.1	1.82	0	0.30	2.55
2	4.7	2.95	.16	1.55	2.65	2.55	2.65	2.15	3.1	0	.27	2.35
3	3.25	3.35	.54	1.64	2.15	3.2	.86	2.3	3.7	.03	2.3	2.55
4	.23	2.85	1.99	1.55	1.99	7.8	1.30	1.73	9.2	.01	2.15	2.65
5	4.9	2.55	2.25	1.38	2.55	3.95	.31	2.15	5.6	.01	1.82	2.95
6	5.5	2.45	2.1	1.38	2.1	5.2	1.26	2.1	7.9	.18	1.64	2.45
7	7.4	2.4	2.15	1.38	4.6	10.3	1.99	2.1	2.55	.01	1.55	2.35
8	10.1	4.5	1.99	1.38	3.3	9.8	1.90	1.64	2.15	.04	1.55	2.25
9	5.4	1.97	1.82	1.38	2.75	5.3	1.82	1.73	3.05	.13	1.38	2.55
10	1.52	2.9	1.82	6.4	2.1	a2.4	1.82	2.15	3.2	0	1.38	2.25
11	7.8	2.85	1.73	1.70	1.82	f2.1	1.73	1.64	2.25	0	1.55	2.15
12	6.7	3.15	1.73	1.72	1.73	1.99	1.73	1.73	.62	0	4.4	2.45
13	8.0	3.15	2.4	1.38	1.90	1.90	1.99	1.90	1.36	0	6.7	3.7
14	5.2	3.3	2.15	1.81	1.90	1.82	1.99	1.85	2.25	0	6.1	12.6
15	2.55	1.92	2.35	6.0	1.64	1.67	2.5	1.90	2.25	0	3.7	2.95
16	1.99	2.8	3.35	7.2	1.55	2.1	2.05	1.90	2.15	0	3.7	2.55
17	5.6	2.55	2.1	19.4	1.73	1.99	8.2	1.82	4.2	0	3.45	2.25
18	4.5	6.2	3.1	5.9	1.64	1.82	11.0	1.22	10.1	0	3.35	2.1
19	3.25	2.45	1.90	2.15	3.1	1.99	2.95	1.73	6.6	0	3.35	2.1
20	3.05	2.15	1.82	1.64	1.73	6.2	2.25	1.73	3.45	0	3.15	3.05
21	2.75	2.35	1.73	1.64	7.7	2.45	2.15	1.84	2.15	0	3.25	2.25
22	1.82	2.55	1.37	1.64	3.9	2.15	2.2	4.6	1.99	.20	3.05	2.55
23	.23	3.2	8.1	1.64	6.0	2.15	1.90	1.73	1.82	.68	3.15	2.25
24	3.9	2.75	7.6	1.77	3.95	3.6	1.78	2.25	1.55	.74	2.95	2.1
25	8.4	5.6	6.6	43	7.3	4.3	2.4	1.73	2.1	.80	2.95	4.3
26	7.6	3.9	6.2	13.4	2.75	4.7	2.5	6.5	8.9	.45	2.95	4.7
27	7.6	2.65	4.1	4.0	2.1	.07	1.64	9.3	5.8	.58	2.85	2.85
28	7.9	2.85	1.64	13.1	1.82	.07	1.64	2.35	.99	.45	2.85	2.15
29	6.0	2.95	1.55	5.5	1.39	.07	2.25	-	.23	.45	2.75	1.90
30	5.7	2.25	1.55	11.7	2.1	.07	1.55	-	.09	.40	2.65	1.82
31	5.5	.16	-	12.6	-	1.16	1.55	-	.01	-	2.55	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.1	0.23	4.96	7.67	154	472
August	6.2	.16	2.94	4.55	91.2	280
September	8.1	.16	2.60	4.02	78.0	240
October	43	1.38	5.76	8.91	178	548
November	7.7	1.39	2.83	4.38	84.9	261
December	10.3	.07	3.26	5.04	101	310
Calendar year 1944	43	0	3.23	5.00	1,180	3,630
January	11.0	.31	2.45	3.79	75.9	233
February	9.3	1.22	2.42	3.74	67.9	208
March	10.1	.01	3.33	5.15	103	316
April	.80	0	.172	.266	5.16	16
May	6.7	.27	2.77	4.29	85.7	263
June	12.6	1.82	2.92	4.52	87.7	269
Fiscal year 1944-45	43	0	3.05	4.72	1,110	3,420

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. 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 1945. Equivalent records for July 1925 to November 1936 at site 150 feet downstream, collected by East Kauai Water Co.

Extremes.- Maximum discharge during year, 17.4 million gallons a day (26.9 second-feet) Mar. 28 (gage height, 2.18 feet); minimum, 0.02 million gallons a day (0.03 second-foot) Sept. 24-27.

1936-45: 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.

Remarks.- Records excellent except those for period of no gage-height record, which are fair. Ditch diverts water from Makaleha Stream for irrigation of sugarcane. Flow regulated by gates at intake and wasteway 1 mile upstream.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.6	5.4	5.4	4.1	7.2	11.8	0.05	3.0	4.8	0.58	0.07	4.0
2	4.8	5.4	6.8	4.1	8.2	6.4	.85	2.95	8.1	.30	.08	4.0
3	2.4	5.4	5.4	5.4	6.4	9.5	4.8	2.9	9.7	.25	.08	4.4
4	.25	5.0	5.4	4.5	6.4	12.3	4.1	3.45	9.4	.23	.07	6.4
5	.23	4.8	4.4	4.4	9.1	15.1	4.1	3.0	9.6	.26	.06	7.4
6	.23	4.7	5.1	4.2	6.4	11.8	.92	3.1	9.9	.90	.06	4.8
7	.21	4.8	6.3	4.1	10.8	5.2	.96	3.0	6.4	.11	.06	5.0
8	.21	5.4	4.8	4.1	8.1	.12	1.01	3.5	6.9	.07	.06	5.3
9	.21	5.0	4.5	4.1	7.7	3.1	4.0	3.55	11.7	1.20	.06	5.9
10	3.35	5.0	4.4	7.2	5.4	5.0	3.85	3.15	7.2	.10	.06	4.7
11	6.8	5.0	4.9	5.0	5.0	5.4	3.85	3.85	a5.6	.07	.07	4.7
12	6.4	5.0	4.5	6.7	4.7	4.8	3.8	3.8	a5.4	.06	.07	6.4
13	6.8	5.0	3.7	5.0	6.4	4.5	4.5	3.1	a5.2	.06	.07	7.2
14	7.0	5.0	4.3	6.8	6.4	4.4	4.2	3.0	a5.0	.06	.93	11.2
15	6.8	5.9	3.7	9.8	5.4	8.1	7.2	4.4	a5.4	.06	4.1	6.0
16	5.9	5.9	6.5	3.7	4.8	5.4	4.7	3.3	a4.7	.05	5.2	5.0
17	6.4	5.9	6.6	.10	5.9	5.0	10.8	3.0	8.7	.05	5.4	4.8
18	5.9	6.1	7.0	3.5	4.8	4.6	9.4	3.5	12.3	.06	4.2	4.8
19	5.9	5.4	5.4	5.0	9.4	5.9	5.0	2.95	12.4	.06	4.2	5.1
20	5.9	4.9	5.9	4.8	5.4	11.3	4.4	3.0	10.2	.05	4.1	7.2
21	6.4	5.4	4.9	4.6	12.3	5.4	5.0	3.0	7.2	.07	4.8	5.9
22	6.4	5.9	4.0	4.5	11.2	7.3	5.2	8.6	5.4	.08	4.3	6.4
23	5.9	5.9	.04	4.5	11.2	7.1	4.1	4.9	4.7	.07	4.3	5.0
24	6.8	5.9	.02	4.4	10.0	11.8	4.0	7.5	4.4	.05	4.1	5.0
25	7.2	7.2	.02	8.6	11.0	10.8	3.05	5.9	7.0	.07	4.1	7.6
26	6.8	8.7	.02	12.4	7.2	5.5	2.8	10.5	13.2	.06	4.1	8.0
27	7.2	7.2	2.1	9.3	5.4	.10	3.7	9.9	15.1	.11	4.0	8.2
28	7.0	6.8	4.1	10.8	5.0	.07	3.7	6.8	6.4	.08	4.1	5.9
29	4.6	7.7	4.1	11.2	8.4	.06	3.15	-	.28	.07	4.0	5.0
30	5.9	9.0	4.1	12.9	9.5	.06	3.65	-	.95	.07	4.0	4.8
31	5.9	6.4	-	12.4	-	.05	3.55	-	1.30	-	3.85	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.2	0.21	4.85	7.50	150	462
August	9.0	4.7	5.84	9.04	181	556
September	7.0	.02	4.28	6.62	128	394
October	12.9	.10	6.20	9.59	192	590
November	12.3	4.7	7.50	11.6	225	691
December	15.1	.05	6.06	9.38	188	577
Calendar year 1944	15.1	.02	3.68	5.69	1,350	4,140
January	10.8	.05	4.01	6.20	124	382
February	10.5	2.9	4.38	6.78	123	376
March	15.1	.28	7.24	11.2	225	689
April	1.20	.05	.177	.274	5.31	16
May	5.4	.06	2.41	3.73	74.6	229
June	11.2	4.0	5.87	9.08	176	540
Fiscal year 1944-45	15.1	.02	4.91	7.60	1,790	5,500

a No gage-height record; discharge computed on basis of records for nearby stations.
Time basis: Hawaiian war time. 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, revised).

Drainage area.- 5.5 square miles.

Records available.- August to November 1910, December 1912 to June 1945.

Average discharge.- 26 years (1919-45), 13.3 million gallons a day (20.6 second-feet).

Extremes.- Maximum discharge during year, 4,330 million gallons a day (6,700 second-feet) Apr. 8 (gage height, 8.37 feet), from rating curve extended above 230 million gallons a day; minimum, 1.82 million gallons a day (2.82 second-feet) Feb. 20, 21.
1910, 1912-45: 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, 1.4 million gallons a day (2.2 second-feet) Sept. 12, 13, 1923.

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

Rating tables, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Sept. 22, Dec. 27 to Apr. 9						Sept. 23 to Dec. 26, Apr. 10 to June 30					
0.7	1.75	1.4	8.0	2.6	95	0.7	1.65	1.2	5.1	2.0	34.5
.8	2.4	1.6	13.5	3.0	162	.8	2.25	1.4	7.1	2.3	59
.9	3.15	1.8	23	3.4	254	.9	2.85	1.6	11.7	2.6	95
1.0	3.95	2.0	34.5	3.8	380	1.0	3.55	1.8	22	3.0	162
1.2	5.8	2.3	59								

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.7	3.55	2.7	2.3	2.75	3.75	4.6	2.4	2.5	16.9	25	3.85
2	5.3	3.4	3.0	2.25	2.55	2.75	4.1	2.35	2.25	8.0	26.5	3.6
3	4.6	3.45	2.8	2.25	2.55	3.5	3.7	2.25	2.8	31	21	3.8
4	10.4	3.3	2.6	2.25	2.45	23	3.55	2.25	3.45	12.5	14.1	3.9
5	7.9	3.1	2.55	2.25	2.75	20	3.4	2.25	4.5	12.4	12.7	3.8
6	25	3.0	2.4	2.35	2.6	8.5	3.3	2.2	6.0	141	10.4	3.5
7	9.4	3.1	2.5	2.25	4.0	4.9	3.25	2.2	2.6	51	9.5	3.5
8	5.4	3.25	2.4	2.25	3.25	3.5	3.15	2.15	2.75	17.8	11.1	3.4
9	4.5	3.25	2.35	2.2	2.5	3.0	3.15	2.15	12.5	331	9.1	3.5
10	4.1	3.0	2.25	2.35	2.35	2.75	3.0	2.2	3.65	33	7.9	3.35
11	8.5	3.1	2.25	2.45	2.25	2.75	2.9	2.2	2.8	18.7	7.7	3.35
12	5.8	3.15	2.5	2.9	2.2	2.55	2.85	2.2	2.8	14.1	7.3	3.25
13	5.7	3.1	2.35	2.65	2.6	2.45	3.1	2.15	2.5	36.5	7.0	3.4
14	7.5	3.7	2.25	2.5	2.35	2.35	2.9	2.1	2.25	15.1	6.7	4.7
15	14.7	3.95	2.25	3.75	2.25	2.8	2.9	2.9	2.25	36.5	6.3	3.8
16	6.1	3.15	2.7	3.05	2.2	2.85	2.8	2.25	2.2	24.5	6.1	3.5
17	6.1	3.15	2.7	4.7	2.25	2.45	10.1	2.15	3.5	22	5.8	3.7
18	5.0	5.3	2.7	3.2	2.2	2.35	4.3	2.1	4.1	15.1	5.4	3.2
19	4.4	3.85	2.35	2.45	2.45	2.45	3.25	2.0	4.4	12.7	5.2	3.2
20	4.1	3.15	2.2	2.25	2.45	5.4	2.8	1.94	3.15	10.4	5.0	3.25
21	5.6	3.4	2.2	2.2	9.5	2.85	10.7	1.94	2.7	9.1	5.1	3.2
22	6.0	3.3	68	2.2	3.5	2.45	6.4	3.4	2.35	9.1	4.8	3.25
23	4.4	3.1	8.1	2.2	4.0	2.45	3.1	2.6	2.2	81	5.2	3.25
24	4.1	3.3	4.0	2.35	2.9	2.85	2.8	2.25	2.1	30	4.5	2.9
25	5.6	3.4	3.05	31	4.6	4.4	2.7	2.4	2.7	83	4.5	3.4
26	5.0	3.15	2.75	6.3	2.75	77	2.6	3.8	9.8	34	4.5	4.0
27	6.6	2.85	2.6	3.8	2.45	52	2.55	3.3	13.9	105	4.3	3.35
28	5.7	2.7	2.5	3.4	2.35	13.5	2.55	3.7	36.5	56	4.2	3.0
29	3.95	3.25	2.4	4.2	3.0	7.8	2.4	-	7.3	25.5	4.0	2.75
30	3.65	6.2	2.35	4.1	3.95	6.0	2.4	-	64	19.8	3.9	2.65
31	3.55	3.15	-	4.2	-	5.1	2.4	-	37	-	3.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25	3.55	6.56	10.1	203	624
August	6.2	2.7	3.41	5.28	106	325
September	68	2.2	4.92	7.61	148	453
October	31	2.2	3.82	5.91	119	364
November	9.5	2.2	3.00	4.64	90	276
December	77	2.35	9.05	14.0	280	861
Calendar year 1944	370	2.2	9.20	14.2	3,370	10,340
January	10.7	2.4	3.67	5.68	114	349
February	3.8	1.94	2.42	3.74	67.8	208
March	64	2.1	8.18	12.7	254	778
April	331	8.0	43.8	67.8	1,310	4,030
May	26.5	3.8	8.34	12.9	259	794
June	4.7	2.65	3.44	5.32	103	317
Fiscal year 1944-45	331	1.94	8.37	13.0	3,050	9,380

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 22 years (1921-25, 1927-45), 3.31 million gallons a day (5.12 second-feet).

Extremes.- Maximum discharge during year, 67 million gallons a day (104 second-feet) Dec. 26 (gage height, 3.27 feet); no flow Apr. 29 to May 1.
1915-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.0	2.35	1.48	0.96	2.9	7.6	1.54	0.96	1.83	0.10	a0.01	1.24
2	4.8	2.1	3.0	.96	2.55	2.65	2.2	.96	3.3	2.95	a.01	1.24
3	3.1	2.3	1.56	1.16	2.8	4.0	1.92	.89	3.75	6.5	a.02	1.32
4	8.8	2.0	1.40	1.09	2.3	14.1	1.74	.89	6.1	.06	.02	1.56
5	10.1	1.83	1.24	.96	4.0	19.4	1.74	.89	9.9	.11	.02	3.0
6	17.5	1.65	1.24	.96	2.65	11.1	1.65	.89	6.1	.82	.02	1.56
7	9.8	1.65	1.65	.89	8.1	8.7	1.65	.82	2.45	.08	.02	1.40
8	5.2	2.55	1.16	.89	3.55	4.1	1.65	.75	8.8	.04	.06	1.32
9	3.4	2.0	1.09	.82	3.95	3.2	1.56	.82	15.6	1.69	.02	1.83
10	3.1	1.83	1.02	.96	2.35	2.75	1.40	.75	4.2	.04	.02	1.40
11	8.5	2.1	1.09	.96	1.83	2.65	1.32	.82	2.9	.04	.02	1.48
12	5.1	2.2	1.09	2.35	1.65	2.2	1.24	.82	2.65	.04	1.76	1.92
13	5.4	1.65	1.09	1.39	3.3	2.0	1.32	.75	2.2	.08	2.45	2.8
14	7.3	3.9	1.02	3.35	1.92	1.92	1.24	.69	1.92	.04	2.35	7.5
15	7.5	4.0	.96	5.3	1.83	3.3	2.2	2.0	2.1	.04	2.2	1.83
16	2.2	1.74	2.95	3.0	1.56	2.3	1.32	.90	1.74	.04	2.3	1.32
17	1.83	1.65	2.5	10.2	1.76	1.92	9.1	.75	5.3	.04	2.1	1.56
18	2.45	5.3	2.9	2.9	1.48	1.74	6.8	.69	8.3	.04	1.92	1.16
19	2.55	2.0	1.40	1.65	3.1	1.80	2.0	.69	6.3	.04	1.92	1.24
20	2.35	1.48	1.09	1.24	1.74	7.20	1.48	.75	4.2	.04	1.83	1.92
21	8.0	2.55	1.02	1.09	11.9	2.20	8.8	.69	2.9	.04	2.1	1.40
22	5.4	2.0	8.5	1.09	4.6	1.74	4.3	3.8	2.1	.10	1.65	2.05
23	3.0	2.45	4.1	1.02	9.3	1.74	1.92	1.83	1.83	.23	1.74	1.40
24	7.2	4.4	2.0	1.52	4.4	6.4	1.56	2.5	1.65	.09	1.56	1.16
25	12.0	3.25	1.48	21	8.6	8.7	1.40	2.3	3.0	.17	1.48	2.45
26	5.6	1.74	1.32	7.4	3.1	19.0	1.24	8.0	11.9	.08	1.40	2.85
27	8.5	1.40	1.24	5.6	2.3	13.4	1.16	5.2	15.1	.44	1.79	1.83
28	5.9	1.56	1.09	6.1	2.1	.04	1.09	5.0	20.5	.02	1.74	1.32
29	3.1	2.9	1.02	4.5	5.2	.04	1.09	-	11.2	0	1.32	1.09
30	2.75	7.0	.96	8.0	4.4	.04	1.02	-	21	a0	1.24	.96
31	2.75	2.0	-	8.6	-	.04	1.02	-	.24	-	1.24	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	17.5	1.83	5.75	8.90	178	547
August	7.0	1.40	2.50	3.87	77.5	238
September	8.5	.96	1.79	2.77	53.7	165
October	21	.82	3.48	5.38	108	331
November	11.9	1.48	3.71	5.74	111	341
December	19.4	.04	5.10	7.89	158	485
Calendar year 1944	21	0	2.92	4.52	1,070	3,280
January	9.1	1.02	2.25	3.48	69.7	214
February	8.0	.89	1.67	2.58	46.8	144
March	21	.24	6.16	9.53	191	586
April	6.5	0	.467	.723	14.0	43
May	2.45	.01	1.17	1.81	36.3	111
June	7.5	.96	1.84	2.85	55.1	169
Fiscal year 1944-45	21	0	3.01	4.66	1,100	3,370

a No gage-height record; discharge computed on basis of records for station on wasteway ditch.
Time basis: Hawaiian war time. 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 1945.

Extremes.- Maximum discharge during year, 99 million gallons a day (153 second-feet) Apr. 9 (gage height, 2.80 feet); no flow at times when water was turned out of ditch. 1936-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0				0	0.92	0	0	11.4	12.7	0.06
2	0	0				0	.06	0	0	6.8	10.2	.13
3	0	0				0	.06	0	0	11.1	7.1	.06
4	0	0				0	.13	0	.04	11.3	5.1	0
5	0	0				0	.13	0	.14	10.8	4.8	0
6	0	0				0	.13	0	0.06	26.5	4.2	0
7	0	0				0	.13	0	0	17.7	3.6	0
8	0	0				0	.13	0	0	9.0	4.9	0
9	0	0				0	.06	0	.19	30.5	3.8	.08
10	0	0				0	0	0	0	15.9	3.0	.06
11	0	0				0	0	0	0	9.2	2.8	.06
12	0	0				0	0	0	0	6.6	.90	.06
13	0	0				0	0	0	0	14.5	.13	.13
14	.06	.06				0	0	0	0	7.1	.13	.13
15	3.9	0				0	0	0	0	14.3	.13	0
16	1.92	0				0	0	0	0	14.6	.13	0
17	3.1	0				0	0	0	0	10.0	.06	0
18	.87	0				0	0	0	.02	7.1	.13	0
19	.19	0				0	0	0	0	6.0	.13	0
20	.19	0				0	0	0	0	4.5	.13	0
21	.19	.07				0	0	0	0	3.95	.13	0
22	.13	.19				0	0	0	0	6.1	.13	0
23	.13	.19				0	0	0	0	23	.19	0
24	.13	.19				0	0	0	0	12.7	.19	0
25	.13	.19				0	0	0	0	23.5	.13	0
26	.13	.07				0	0	.06	.12	14.5	.13	0
27	.13	0				5.1	0	0	.19	23.5	.13	0
28	.06	0				7.3	0	.02	.19	17.0	.13	0
29	.06	0				4.4	0	-	.13	8.7	.13	0
30	.06	0				3.1	0	-	4.3	6.8	.13	0
31	.06	0				2.8	0	-	21.5	-	.13	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.9	0	0.369	0.571	11.4	35
August	.19	0	.031	.048	.96	2.9
September	0	0	0	0	0	0
October	0	0	0	0	0	0
November	0	0	0	0	0	0
December	7.3	0	.73	1.13	22.7	70
Calendar year 1944	35	0	1.53	2.37	560	1,720
January	.92	0	.056	.087	1.75	5.4
February	.06	0	.003	.005	.08	.2
March	21.5	0	.867	1.34	26.9	82
April	30.5	3.95	12.8	19.8	385	1,180
May	12.7	.06	2.12	3.28	65.6	201
June	.13	0	.026	.040	.77	2.4
Fiscal year 1944-45	30.5	0	1.41	2.18	515	1,580

Time basis: Hawaiian war time. 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, revised).

Records available.- December 1936 to June 1945. 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, 7.7 million gallons a day (11.9 second-feet) Mar. 31 (gage height, 1.27 feet); no flow many times when water was turned out of ditch.

1936-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.8	3.9	2.3	1.90	2.55	3.0	0	1.84	2.15	0	0	4.1
2	4.6	3.75	2.45	1.84	2.3	2.6	0	1.84	1.84	4.8	0	4.0
3	2.1	3.75	2.45	1.90	2.3	2.6	2.35	1.84	2.1	3.9	0	3.9
4	0	3.65	2.2	1.90	2.15	4.4	3.2	1.78	2.45	4.6	0	4.1
5	0	3.35	2.15	1.84	2.15	5.1	3.2	1.72	3.0	1.78	0	4.1
6	0	3.2	2.0	1.90	2.6	4.8	3.0	1.66	3.5	0	0	3.75
7	0	4.2	2.0	1.84	2.6	4.6	2.85	1.60	2.25	0	0	3.65
8	0	3.45	1.96	1.72	2.8	1.11	2.85	1.60	1.96	0	0	3.45
9	0	3.35	1.78	1.72	2.3	0	2.8	1.60	4.1	0	0	3.25
10	1.96	3.15	1.72	1.84	2.15	0	2.6	1.66	3.0	0	0	3.3
11	5.1	3.2	1.72	2.15	2.0	1.74	2.55	1.66	2.3	0	0	3.1
12	5.4	3.35	1.78	2.25	1.84	2.3	2.5	1.72	2.2	0	0	3.1
13	5.3	3.15	1.72	2.4	2.3	2.15	2.6	1.60	1.96	0	0	3.1
14	5.1	3.45	1.60	2.15	2.3	2.1	2.45	1.55	1.72	0	0	4.0
15	6.6	4.1	1.60	2.7	2.1	2.3	2.55	2.1	1.60	0	0	3.45
16	6.1	3.5	1.84	2.75	1.96	2.6	2.4	1.78	1.55	0	0	3.1
17	6.6	3.0	2.1	2.5	2.0	2.2	3.5	1.55	2.2	0	2.5	3.1
18	6.6	3.45	1.96	2.8	2.0	2.0	3.35	1.50	2.45	0	6.6	2.85
19	4.9	3.45	1.78	2.15	2.1	2.1	2.95	1.45	3.0	0	6.1	2.8
20	4.6	3.0	1.60	1.96	2.2	3.1	2.5	1.45	2.45	0	6.0	2.8
21	5.2	3.0	1.55	1.78	3.75	2.75	2.8	1.40	2.1	0	5.8	2.75
22	5.4	3.15	3.35	1.72	3.65	2.4	4.6	2.4	1.72	0	5.6	2.75
23	4.9	3.0	5.4	1.66	3.2	2.2	2.75	2.3	1.55	0	5.8	2.75
24	6.0	3.0	4.1	1.72	2.85	2.3	2.4	1.84	1.45	0	5.4	2.45
25	5.5	3.1	3.1	3.8	2.85	2.7	2.3	1.90	1.88	0	5.1	2.75
26	3.8	2.95	2.6	4.1	2.6	3.45	2.2	2.5	3.45	0	4.9	3.15
27	.82	2.75	2.45	3.15	2.25	.21	2.2	2.8	4.4	0	4.9	2.8
28	0	2.45	2.25	2.75	2.0	0	2.15	2.85	5.5	0	4.7	2.6
29	0	2.75	2.15	3.2	2.1	0	2.0	-	5.0	0	4.5	2.4
30	0	3.3	2.1	2.7	2.95	0	1.96	-	6.4	0	4.3	2.25
31	1.77	2.8	-	3.35	-	0	1.90	-	4.2	-	4.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.6	0	3.33	5.15	103	317
August	4.2	2.45	3.28	5.07	102	312
September	5.4	1.55	2.26	3.50	67.8	208
October	4.1	1.66	2.33	3.61	72.1	221
November	3.75	1.84	2.43	3.76	72.9	224
December	5.1	0	2.16	3.34	66.8	205
Calendar year 1944	6.6	0	2.00	3.09	733	2,250
January	4.6	0	2.50	3.87	77.5	238
February	2.85	1.40	1.84	2.85	51.5	158
March	6.4	1.45	2.76	4.27	85.4	262
April	4.8	0	.503	.778	15.1	46
May	6.6	0	2.47	3.82	76.5	235
June	4.1	2.25	3.19	4.94	95.6	294
Fiscal year 1944-45	6.6	0	2.43	3.76	886	2,720

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 12 years (1933-45), 3.84 million gallons a day (5.94 second-feet).

Extremes.- Maximum discharge during year, 74 million gallons a day (114 second-feet) Apr. 9 (gage height, 3.45 feet); minimum, 0.52 million gallons a day (0.80 second-foot) Feb. 18-22.

1932-45: 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 except those for periods of faulty or no gage-height record, which are poor. Ditch diverts water from Moloaa and Puu Ka Ele Streams, half a mile southeast and 1½ miles southwest of station, respectively. Flow regulated by wasteway gates. Water used for irrigation in vicinity of Kilauea.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.96	1.54	1.09	0.75	1.0	1.78	1.54	0.81	0.81	5.9	7.4	1.47
2	2.15	1.39	1.31	.81	.92	1.09	1.39	.81	.75	3.55	9.4	1.39
3	1.54	1.39	1.09	.88	.92	1.83	1.39	.75	.81	4.5	7.4	1.54
4	3.2	1.23	1.09	.88	.92	6.0	1.31	.75	1.09	3.95	5.2	1.63
5	4.3	1.16	.95	.81	1.6	5.2	1.23	.75	1.63	3.8	4.9	1.54
6	5.8	1.16	.88	.81	1.1	2.8	1.23	.68	2.55	18.8	4.5	1.31
7	4.3	1.16	.95	.81	1.5	1.98	1.23	.68	.95	11.7	4.1	1.39
8	2.35	1.39	.81	.81	1.3	1.23	1.23	.68	1.33	4.9	4.7	1.23
9	1.71	1.39	.81	.81	1.1	1.1	1.23	.68	3.15	24	4.0	1.31
10	1.54	1.31	.75	.81	.84	1.0	1.16	.68	1.31	8.3	3.45	1.16
11	4.0	1.31	.81	.90	.84	.91	1.16	.63	1.02	5.8	3.25	1.16
12	2.45	1.39	.88	1.0	.84	.88	1.16	.63	.95	4.7	3.05	1.16
13	2.8	1.31	.88	.90	.90	.85	1.16	.63	.81	10.7	2.95	1.23
14	4.6	2.2	.81	.90	.86	.85	1.09	.63	.75	5.2	2.85	2.45
15	7.0	1.63	.81	1.3	.81	1.3	1.09	1.4	.75	9.2	2.75	1.23
16	2.55	1.23	1.19	1.1	.81	1.0	1.09	.68	.68	8.5	2.65	1.09
17	2.35	1.31	1.09	1.6	.81	.90	1.58	.63	1.47	9.8	2.55	1.02
18	1.98	2.2	1.23	1.16	.81	.84	1.42	.52	1.50	5.5	2.45	1.02
19	1.71	1.72	.88	.88	1.3	.81	1.09	.52	1.98	4.5	2.35	1.09
20	1.54	1.23	.81	.88	1.0	1.2	1.02	.52	1.23	3.9	2.25	1.09
21	2.55	1.35	.75	.88	1.1	1.09	2.4	.52	.95	3.55	2.25	.88
22	2.5	1.31	8.2	.88	f1.23	.95	2.25	1.19	.81	3.7	2.15	1.09
23	1.71	1.39	2.5	.81	1.48	1.02	1.16	.75	.75	18.1	2.05	1.02
24	1.71	1.16	1.31	1.0	1.02	1.80	.95	.75	.68	8.5	1.98	.95
25	2.45	1.47	1.09	3.5	1.50	1.88	.95	.81	1.00	22	1.89	1.35
26	1.98	1.63	.95	1.6	.88	12.5	.88	1.92	5.0	9.8	1.80	1.52
27	3.55	1.16	.88	1.1	.75	11.3	.88	1.54	4.3	29	1.80	1.31
28	2.9	1.16	.81	1.9	.68	4.1	.81	1.47	8.0	15.5	1.71	1.02
29	1.71	1.16	.81	1.8	1.57	2.35	.81	-	3.0	8.6	1.63	.88
30	1.54	1.97	.75	1.2	1.70	1.89	.81	-	14.0	6.8	1.63	.81
31	1.54	1.31	-	1.1	-	1.63	.81	-	8.1	-	1.54	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.0	1.54	2.71	4.19	84.0	258
August	2.2	1.16	1.41	2.18	43.7	134
September	8.2	.75	1.24	1.92	37.2	114
October	3.5	.75	1.12	1.73	34.6	106
November	1.70	.68	1.07	1.66	32.1	98
December	12.5	.81	2.39	3.70	74.1	227
Calendar year 1944	40	.68	2.29	3.54	838	2,670
January	2.4	.81	1.21	1.87	37.5	115
February	1.92	.52	.822	1.27	23.0	71
March	14.0	.68	2.33	3.61	72.1	221
April	29	3.55	9.42	14.6	283	868
May	9.4	1.54	3.31	5.12	103	315
June	2.45	.81	1.24	1.92	37.3	115
Fiscal year 1944-45	29	.52	2.36	3.65	862	2,640

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

Note.- No gage-height record Oct. 9-17, Oct. 24 to Nov. 21, Dec. 9-20; faulty gage-height record Jan. 29 to Feb. 15; discharge computed on basis of records for Puu Ka Ele ditch.

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

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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 1945.

Average discharge.- 12 years (1933-45), 3.43 million gallons a day (5.31 second-feet).

Extremes.- Maximum discharge during year, 29 million gallons a day (45 second-feet) Dec. 26 (gage height, 1.92 feet); no flow at times when water was shut out of ditch.
1932-45: Maximum discharge, 38 million gallons a day (59 second-feet) May 7, 1943 (gage height, 2.28 feet); no flow occasionally when water was shut out of ditch.

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.05	2.05	1.71	1.16	1.39	2.45	2.25	1.31	1.63	9.0	0.01	1.39
2	2.5	1.98	1.80	1.16	1.23	1.80	2.05	1.31	1.63	5.8	0	1.35
3	1.98	2.05	1.54	1.31	1.23	2.55	1.98	1.31	2.05	7.7	0	1.44
4	3.55	1.89	1.47	1.23	1.23	7.4	1.89	1.31	2.15	6.3	.01	1.64
5	6.4	1.80	1.39	1.23	2.3	5.5	1.80	1.23	2.75	3.15	0	1.63
6	8.1	1.80	1.31	1.23	1.54	3.25	1.71	1.23	4.0	2.9	.15	1.47
7	5.4	1.80	1.39	1.23	2.25	2.75	1.71	1.23	2.15	1.52	0	1.54
8	3.35	1.89	1.39	1.23	1.98	2.25	1.71	1.16	2.25	2.35	0	1.54
9	2.75	1.98	1.31	1.23	1.47	1.98	1.80	1.16	3.35	2.95	.02	1.54
10	2.45	1.80	1.23	1.23	1.23	1.80	1.71	1.16	2.55	.09	0	1.39
11	3.35	1.80	1.31	1.31	1.23	1.71	1.54	1.16	2.25	.26	.35	1.39
12	f2.95	1.80	1.47	1.54	1.23	1.54	1.54	1.16	2.15	.12	1.26	1.39
13	a3.5	1.89	1.39	1.31	1.31	1.47	1.54	1.16	2.05	.57	2.75	1.47
14	a5.0	2.75	1.31	1.31	1.23	1.47	1.47	1.16	2.05	.12	2.65	2.65
15	a7.0	2.05	1.31	1.94	1.16	1.84	1.47	2.25	1.98	.30	2.55	1.71
16	4.0	a2.0	1.63	1.54	1.16	1.54	1.39	1.39	1.98	.04	2.45	1.54
17	3.55	a2.0	1.54	1.98	1.23	1.47	1.98	1.31	3.2	.01	2.45	1.54
18	2.85	a2.6	1.98	1.71	1.16	1.39	1.89	1.23	3.15	.02	2.25	1.54
19	2.55	a2.0	1.47	1.47	1.80	1.39	1.47	1.23	3.25	0	2.25	1.80
20	2.45	a1.7	1.47	1.39	1.39	1.54	1.39	1.23	2.75	.21	2.15	1.71
21	2.75	a1.7	1.47	1.39	3.65	1.39	2.45	1.16	2.45	.41	2.25	1.63
22	2.65	a1.7	4.1	1.39	1.89	1.47	2.25	2.1	2.25	.31	1.98	1.80
23	2.45	a1.9	2.55	1.31	2.35	1.77	1.54	1.53	2.15	.37	1.80	1.71
24	2.45	a1.8	1.63	1.64	1.80	2.35	1.39	1.71	2.15	0	1.71	1.71
25	3.25	a2.0	1.31	3.65	1.63	2.3	1.39	1.63	2.55	.86	1.63	1.96
26	2.65	a2.1	1.23	1.98	1.47	10.0	1.39	4.0	7.1	0	1.63	1.98
27	4.0	1.71	1.16	1.54	1.39	10.8	1.39	2.95	5.5	1.16	1.54	1.71
28	3.55	1.63	1.16	2.8	1.31	5.0	1.39	2.05	10.2	.06	1.54	1.54
29	2.45	a1.6	1.16	2.85	2.6	3.25	1.39	-	5.0	0	1.47	1.47
30	2.25	a2.5	1.16	1.63	2.3	2.75	1.39	-	14.5	0	1.74	1.39
31	2.15	a1.9	-	1.54	-	2.35	1.39	-	11.4	-	1.47	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.1	1.98	3.43	5.31	106	326
August	2.75	1.6	1.94	3.00	60.2	185
September	4.1	1.16	1.54	2.38	46.4	142
October	3.65	1.16	1.59	2.46	49.2	151
November	3.65	1.16	1.63	2.52	49.0	150
December	10.8	1.39	2.92	4.52	90.5	278
Calendar year 1944	11.7	0	2.31	3.57	846	2,600
January	2.45	1.39	1.67	2.58	51.6	159
February	4.0	1.16	1.53	2.37	42.8	131
March	14.5	1.63	3.70	5.72	115	352
April	9.0	0	1.55	2.40	46.6	143
May	2.75	0	1.29	2.00	40.1	123
June	2.65	1.36	1.62	2.51	48.6	149
Fiscal year 1944-45	14.5	0	2.04	3.16	746	2,290

a No gage-height record; discharge computed on basis of records for stations on nearby ditches.
f Computed on basis of partly estimated gage-height record.
Note.- Doubtful gage-height record Apr. 16 to May 12; discharge computed on basis of records for stations on nearby ditches.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 10 years (1934-42, 1943-45), 2.73 million gallons a day (4.22 second-feet).

Extremes.- Maximum discharge during year, 57 million gallons a day (88 second-feet) Mar. 30 (gage height, 2.94 feet); minimum, 0.16 million gallons a day (0.25 second-foot) Feb. 10.

1934-45: Maximum discharge recorded, 64 million gallons a day (99 second-feet) Mar. 7, 1938 (gage height, 3.17 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Nov. 28, Dec. 4, 1934.

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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.8	2.45	1.98	1.31	2.35	3.45	2.15	1.39	2.25	1.39	0.24	1.80
2	3.25	2.25	2.25	1.31	2.05	2.55	2.05	1.39	2.3	1.16	.19	1.89
3	2.85	2.15	1.89	1.47	1.98	3.6	1.98	1.31	3.15	1.07	.19	2.05
4	7.7	1.98	1.89	1.39	1.98	8.6	1.89	1.31	3.05	.88	.19	2.15
5	9.7	1.82	1.71	1.31	3.05	7.4	1.80	1.31	6.2	.81	.99	1.98
6	12.9	1.80	1.71	1.31	2.35	5.4	1.71	1.23	8.4	1.10	.81	1.80
7	6.8	1.80	1.71	1.39	3.55	4.6	1.71	1.23	5.4	.68	.81	1.80
8	4.0	1.98	1.54	1.31	2.85	3.25	1.63	1.23	5.8	.63	.67	1.80
9	3.05	1.98	1.54	1.31	2.15	2.85	1.63	1.23	9.1	1.35	1.79	2.05
10	2.7	1.89	1.54	1.31	1.98	2.45	1.54	1.13	4.3	.27	2.85	1.80
11	3.15	1.80	1.54	1.47	1.80	2.45	1.54	1.16	3.25	4.5	3.15	1.71
12	2.75	1.89	1.63	1.80	1.71	2.25	1.47	1.16	3.1	5.4	2.95	1.71
13	3.5	1.89	1.54	1.54	1.80	2.05	1.54	1.16	2.75	2.3	2.85	1.71
14	5.0	2.25	1.54	1.63	1.71	2.05	1.47	1.16	2.65	.88	2.75	1.98
15	7.0	2.35	1.47	1.98	1.54	2.55	1.98	1.66	2.45	1.08	2.65	1.71
16	3.7	1.89	2.1	1.70	1.54	2.15	1.39	1.23	2.25	1.02	2.55	1.54
17	3.35	1.98	1.98	6.3	1.63	1.89	9.8	1.16	5.4	.88	2.45	1.54
18	2.85	5.3	2.35	2.85	1.54	1.80	4.0	1.09	4.9	.75	2.45	1.54
19	2.45	2.95	1.71	1.89	2.4	1.80	2.35	1.09	4.4	.63	2.45	1.89
20	2.45	1.98	1.54	1.63	1.89	1.98	1.89	1.16	3.45	3.4	2.25	1.89
21	3.5	2.15	1.54	1.54	7.7	1.98	3.6	1.09	2.85	4.7	2.45	1.63
22	3.9	1.98	1.47	1.54	3.7	1.80	2.15	2.15	2.45	2.45	2.15	1.71
23	2.85	2.55	1.63	1.47	3.05	1.91	1.98	1.47	2.25	1.12	2.15	1.54
24	3.25	2.45	1.47	1.68	2.65	3.8	1.71	1.63	2.05	.63	2.05	1.54
25	5.0	3.25	1.39	4.7	5.1	5.1	1.71	2.45	2.65	.57	2.05	1.71
26	3.7	2.95	1.31	2.65	2.85	6.6	1.71	5.4	8.5	.52	2.05	1.98
27	4.1	2.35	1.31	2.55	2.25	8.4	1.63	8.5	11.0	.63	2.2	1.98
28	3.9	2.15	1.31	4.3	1.98	4.6	1.54	4.2	18.6	.51	2.05	1.71
29	2.85	2.15	1.31	4.1	3.3	3.05	1.54	-	9.1	.36	1.89	1.54
30	2.65	3.0	1.31	3.15	3.6	2.65	1.47	-	15.8	.32	1.89	1.47
31	2.55	2.15	-	3.35	-	2.35	1.39	-	1.71	-	1.89	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.9	2.45	4.20	6.50	130	400
August	5.3	1.80	2.31	3.57	71.5	219
September	2.35	1.31	1.64	2.54	49.2	151
October	6.3	1.31	2.17	3.36	67.2	206
November	7.7	1.54	2.60	4.02	78.0	239
December	8.6	1.80	3.46	5.35	107	329
Calendar year 1944	13.3	.35	2.68	4.15	980	3,010
January	9.8	1.39	2.12	3.28	65.8	202
February	8.5	1.09	1.85	2.86	51.7	159
March	18.6	1.71	5.21	8.06	162	496
April	5.4	.27	1.40	2.17	42.0	129
May	3.15	.19	1.87	2.89	58.0	178
June	2.15	1.47	1.77	2.74	53.2	163
Fiscal year 1944-45	18.6	.19	2.56	3.96	936	2,870

Time basis: Hawaiian war time. 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 6½ miles southeast of Hanalei. Altitude of gage, 625 feet (from topographic map).
Drainage area.- 7.4 square miles.
Records available.- January 1914 to June 1945.
Average discharge.- 27 years (1918-45), 46.0 million gallons a day (71.2 second-feet).
Extremes.- Maximum discharge during year, 5,770 million gallons a day (8,930 second-feet) Dec. 27 (gage height, 8.32 feet), from rating curve extended above 200 million gallons a day; minimum, 8.3 million gallons a day (12.8 second-feet) Oct. 7-13.
1914-45: 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 20 million gallons of water a day from Kaapoko Stream and Hanalei River, at points about 2 miles above station, for irrigation in vicinity of Lihue.

Rating tables, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Dec. 27						Dec. 28 to June 30					
0.3	6.7	0.8	21	2.0	129	0.3	7.4	1.0	35.5	2.5	212
.4	9.0	1.0	30.5	2.5	212	.4	9.8	1.2	49	3.0	318
.5	11.5	1.2	42	3.0	318	.5	12.8	1.4	64	3.5	452
.6	14.2	1.4	59			.6	16.3	1.7	95		
.7	17.4	1.7	90			.8	24.5	2.0	132		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.8	15.2	13.1	8.8	14.5	27	18.0	9.8	14.6	38	66	12
2	17.9	13.9	13.4	9.0	13.1	15.2	16.7	9.8	86	35.5	50	12
3	33	14.2	11.8	10.0	12.8	16.8	16.0	9.8	54	210	40	12
4	45	13.1	11.8	9.0	17.5	53	15.2	9.8	53	80	35	12
5	38	12.6	11.0	8.5	35	147	14.6	9.6	56	103	32	13
6	99	12.0	11.0	8.5	14.8	56	14.2	9.8	92	313	28	12
7	40	12.0	11.0	8.3	80	29	14.6	9.6	42	130	26	12
8	22.5	13.1	10.2	8.3	23	20.5	13.6	9.3	59	69	27	11
9	17.1	13.9	10.2	8.3	62	17.8	13.5	9.3	82	430	24	12
10	16.1	12.0	10.0	8.5	19.6	16.1	12.6	9.6	29.5	99	22	11
11	28.5	11.5	10.5	8.5	16.8	16.1	12.8	10.7	23.5	49	21	11
12	17.1	11.5	10.8	9.0	14.5	14.5	12.8	10.1	21	41	19	12
13	28	13.1	10.2	8.5	18.4	13.7	12.6	9.3	19.2	41	18	14
14	27.5	12.3	10.8	9.2	13.9	13.1	12.8	9.1	18.4	41	17	30
15	40	17.6	10.2	12.2	12.6	17.9	21	33	18.4	79	17	17
16	17.4	11.8	14.2	11.3	12.0	13.4	12.8	9.8	15.6	133	25	13
17	16.1	10.8	19.7	38	12.6	12.3	28.5	9.1	36.5	84	21	12
18	14.8	46	19.7	16.2	12.6	11.8	27.5	8.8	43	46	17	11
19	13.9	15.3	11.0	10.8	25.5	12.6	12.8	8.6	36.5	36	16	12
20	13.7	12.0	10.8	9.2	16.4	18.6	11.9	10.2	28.5	32	15	14
21	31.5	11.5	10.8	9.0	55	12.6	12.8	9.1	20.5	29.5	17	12
22	42	12.9	16.0	8.8	69	12.3	12.5	38	17.6	184	15	13
23	22	14.2	11.5	8.5	47	12.8	11.3	13.4	15.6	311	14	12
24	71	13.4	10.2	11.9	25.5	52	11.0	11.6	14.9	60	13	11
25	237	18.6	9.2	46	22	60	11.0	15.5	16.7	140	13	14
26	43	21	9.0	22	16.8	97	10.7	40	48	90	12	18
27	38	17.1	9.0	15.5	15.2	250	10.4	82	111	100	12	15
28	26	15.8	9.0	78	13.9	44	10.4	20	145	70	12	13
29	17.8	14.2	8.8	57	18.9	27	10.1	-	63	48	12	12
30	18.1	29.5	8.8	55	16.9	21	10.1	-	203	40	12	11.6
31	16.8	15.5	-	63	-	18.8	9.8	-	59	-	12	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	237	13.7	36.3	56.2	1,130	3,450
August	46	10.8	15.4	23.8	478	1,470
September	19.7	8.8	11.5	17.8	344	1,050
October	78	8.3	19.2	29.7	595	1,830
November	80	12.0	25.0	38.7	750	2,300
December	250	11.8	37.1	57.4	1,150	3,530
Calendar year 1944	811	8.3	28.5	44.1	10,420	31,960
January	28.5	9.8	14.0	21.7	435	1,340
February	82	8.6	15.9	24.6	445	1,360
March	203	14.6	49.8	77.1	1,540	4,740
April	430	29.5	105	162	3,160	9,700
May	65	12	21.9	33.9	679	2,080
June	30	11	13.2	20.4	397	1,220
Fiscal year 1944-45	430	8.3	30.4	47.0	11,100	34,070

Note.- No gage-height record Apr. 25 to June 29; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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.- 2.8 square miles.

Records available.- December 1931 to June 1945.

Average discharge.- 13 years (1932-45), 10.9 million gallons a day (16.9 second-feet).

Extremes.- Maximum discharge during year, 598 million gallons a day (925 second-feet) Apr. 27 (gage height, 4.65 feet), from rating curve extended above 60 million gallons a day; minimum, 1.80 million gallons a day (2.79 second-feet) Feb. 21-25, June 30.
1931-45: 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 Feb. 21-25, June 30, 1945.

Remarks.- Records fair except those for Jan. 22-24, which are poor. No diversions.

Rating table, fiscal year 1944-45 (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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	f4.0	2.65	2.35	1.98	3.0	6.6	2.5	2.05	2.2	4.3	6.3	2.2
2	f3.5	2.5	2.4	1.98	2.65	4.8	2.4	1.98	5.1	4.3	5.4	2.1
3	f11	2.5	2.35	2.1	2.5	3.1	2.35	1.98	7.5	2.75	4.3	2.25
4	f16	2.5	2.25	2.25	2.4	16.9	2.35	1.98	16.1	2.4	3.65	2.25
5	f6.0	2.5	2.25	2.1	2.65	86	2.25	1.98	19.1	2.6	3.45	2.25
6	f5.3	2.4	2.25	1.98	2.5	44	2.25	1.98	21.5	63	3.45	2.1
7	f4.5	2.4	2.25	1.98	2.4	20.5	2.25	2.05	11.5	30	3.45	2.1
8	f3.7	2.95	2.25	1.98	2.35	7.6	2.2	2.1	7.7	6.9	8.8	2.1
9	f3.2	2.8	2.1	1.98	2.35	5.6	2.1	2.05	16.2	43	5.2	2.2
10	4.0	2.8	2.1	1.98	2.25	4.5	2.1	1.98	5.8	7.1	3.65	2.25
11	3.0	3.0	2.1	2.2	2.2	3.8	2.1	1.98	3.55	4.3	3.0	2.1
12	2.8	3.35	2.25	2.25	2.1	4.4	2.1	1.98	4.4	3.45	2.9	2.1
13	2.9	3.0	2.25	2.95	2.2	3.25	2.1	1.98	3.45	49	2.75	2.1
14	5.9	2.8	2.1	6.3	2.05	2.8	2.1	1.98	2.8	8.9	2.65	2.1
15	8.2	3.25	2.1	16.0	2.05	2.75	2.1	1.98	2.6	20	2.6	2.1
16	4.0	2.9	2.1	8.1	1.98	2.65	2.1	1.98	2.4	29.5	4.1	2.05
17	3.35	2.6	2.1	33.5	1.98	2.75	2.05	1.98	6.4	10.4	3.0	2.1
18	2.9	2.5	2.25	7.3	2.05	2.65	2.05	1.98	4.0	5.9	2.65	1.98
19	2.75	2.4	2.1	3.6	3.95	5.3	2.05	1.98	5.3	4.4	2.5	2.05
20	2.65	2.35	2.35	2.75	3.0	9.6	2.05	1.92	4.7	3.55	2.5	2.1
21	8.8	2.4	2.5	2.5	3.3	4.3	15.0	1.86	2.8	3.25	2.5	2.1
22	6.9	2.5	2.35	2.4	6.6	3.1	a5.0	1.80	2.4	10.6	2.5	2.1
23	4.7	2.6	2.25	2.4	4.0	2.75	a3.5	1.80	2.35	57	2.55	2.1
24	4.8	3.45	2.55	3.35	2.26	2.65	a3.0	1.80	2.2	8.7	2.5	2.1
25	4.4	5.0	2.25	24	2.35	3.0	2.65	1.98	2.4	8.3	2.4	2.7
26	3.45	4.0	2.1	6.3	2.1	4.4	2.35	3.75	6.8	43	2.4	3.25
27	3.45	3.6	2.05	6.8	2.1	12.8	2.25	7.3	12.5	89	2.35	3.9
28	3.45	3.95	2.05	4.0	2.05	5.2	2.25	2.5	9.6	18.3	2.35	2.2
29	2.9	3.35	1.98	4.3	1.98	3.25	2.1	-	6.1	8.0	2.25	1.92
30	2.75	3.0	1.98	3.1	16.2	2.75	2.1	-	3.55	6.0	2.25	1.86
31	3.0	2.5	-	5.6	-	2.65	2.1	-	5.6	-	2.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16	2.65	4.78	7.40	148	455
August	5.0	2.35	2.92	4.52	90.5	278
September	2.55	1.98	2.21	3.42	66.3	203
October	33.5	1.98	5.48	8.48	170	522
November	16.2	1.98	3.06	4.73	91.9	282
December	86	2.65	9.24	14.3	286	879
Calendar year 1944	86	1.98	6.25	9.67	2,290	7,020
January	15.0	2.05	2.77	4.29	85.8	263
February	7.3	1.80	2.24	3.47	62.7	192
March	21.5	2.2	6.73	10.4	209	640
April	89	2.4	18.6	28.8	558	1,710
May	8.8	2.2	3.31	5.12	103	315
June	3.9	1.86	2.23	3.45	66.8	205
Fiscal year 1944-45	89	1.80	5.31	8.22	1,940	5,940

a No gage-height record; discharge computed on basis of recorded range in stage and probable decrease of flow.
f Computed on basis of partly estimated gage-height record.
Time basis: Hawaiian war time. 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 7¾ miles west of Hanalei. Altitude of gage, 470 feet (by barometer).

Drainage area.- 1.1 square miles.

Records available.- December 1931 to June 1945.

Average discharge.- 13 years (1932-45), 3.46 million gallons a day (5.35 second-feet).

Extremes.- Maximum discharge during year, 333 million gallons a day (515 second-feet) Apr. 27 (gage height, 4.43 feet), from rating curve extended above 30 million gallons a day; minimum, 0.32 million gallons a day (0.50 second-foot) Nov. 15-18, 29, Feb. 22-25.

1931-45: 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 poor. No diversions.

Rating table, fiscal year 1944-45 (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 July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.11	0.40	0.43	0.43	0.65	2.15	0.72	0.40	0.40	2.9	2.6	0.40
2	.93	.40	.43	.43	.63	.94	.65	.36	.90	1.60	1.83	.40
3	2.95	.36	.43	.43	.47	.72	.59	.36	1.93	.94	1.40	.40
4	5.6	.36	.43	.43	.43	6.2	.53	.36	6.3	.72	1.20	.43
5	1.50	.36	.40	.47	.43	65	.53	.36	7.9	.85	1.20	.40
6	1.31	.36	.40	.47	.43	13.3	.53	.36	7.0	31	1.11	.40
7	.94	.36	.40	.47	.43	9.6	.53	.36	2.8	22.5	1.02	.40
8	.59	.59	.40	.43	.40	3.45	.53	.36	2.6	3.35	2.2	.40
9	.47	.47	.40	.43	.43	1.96	.43	.36	5.2	26	1.30	.40
10	.84	53	.40	.43	.40	1.50	.43	.36	1.83	3.65	1.02	.40
11	.47	.47	.43	.43	.40	1.90	.40	.36	1.20	2.1	.79	.40
12	.43	.72	.43	.47	.40	1.20	.40	.36	1.62	1.60	.72	.36
13	.43	.53	.43	.59	.36	.94	.40	.40	1.11	34	.65	.36
14	.53	.53	.43	1.33	.36	.87	.40	.40	.79	4.2	.65	.36
15	1.22	.59	.43	4.2	.32	1.63	.40	.40	.65	4.3	.59	.36
16	.59	.53	.40	2.75	.32	1.41	.40	.40	.59	8.7	.82	.36
17	.47	.43	.40	9.1	.32	.87	.36	.40	1.34	3.75	.65	.36
18	.43	.40	.40	2.45	.32	.79	.36	.40	.94	2.2	.53	.36
19	.40	.40	.43	1.11	.72	1.23	.36	.40	1.26	1.71	.47	.36
20	.40	.40	.43	.79	.53	3.15	.36	.40	1.11	1.40	.47	.36
21	1.83	.40	.47	.59	.63	1.40	8.8	.40	.65	1.20	.47	.36
22	1.30	.40	.47	.47	1.50	.94	2.4	.36	.53	6.0	.47	.36
23	1.03	.43	.65	.47	.72	.79	.87	.36	.43	40	.47	.36
24	.94	.65	.47	.47	.43	.65	.59	.32	.40	4.5	.47	.36
25	.79	1.11	.47	5.6	.40	.88	.53	.32	.47	3.9	.47	.40
26	.65	1.02	.47	1.75	.36	1.70	.47	.56	1.60	14.2	.43	.65
27	.59	.72	.47	1.83	.36	7.2	.43	2.15	3.8	39.5	.43	.72
28	.53	.87	.47	1.11	.36	2.25	.43	.59	3.35	7.3	.43	.40
29	.43	.65	.43	.94	.99	1.40	.43	-	2.4	3.6	.40	.36
30	.43	.59	.43	.72	3.3	.94	.43	-	1.30	2.5	.40	.36
31	.47	.53	-	.87	-	.72	.40	-	2.3	-	.40	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.6	0.40	0.987	1.53	30.6	94
August	1.11	.36	.534	.826	16.6	51
September	.65	.40	.438	.678	13.1	40
October	9.1	.43	1.37	2.12	42.5	130
November	3.3	.32	.593	.918	17.8	55
December	65	.65	4.44	6.87	138	423
Calendar year 1944	65	.32	2.12	3.28	774	2,380
January	8.8	.36	.809	1.25	25.1	77
February	2.15	.32	.451	.698	12.6	39
March	7.9	.40	2.09	3.23	64.7	199
April	40	.72	9.34	14.5	280	860
May	2.6	.40	.841	1.30	26.1	80
June	.72	.36	.400	.619	12.0	37
Fiscal year 1944-45	65	.32	1.86	2.88	679	2,080

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 13 years (1932-45), 4.25 million gallons a day (6.58 second-feet).

Extremes.- Maximum discharge during year, 188 million gallons a day (291 second-feet) Apr. 23 (gage height, 3.18 feet), from rating curve extended above 18 million gallons a day; minimum, 1.73 million gallons a day (2.68 second-feet) June 2.
1931-45: 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, that of June 2, 1945.

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.8	2.8	2.7	2.3	2.3	2.3	2.2	2.2	2.2	2.3	d4.7	1.78
2	2.8	2.7	2.7	2.3	2.3	2.3	2.2	2.2	2.2	2.2	d8.8	1.78
3	2.9	2.7	2.6	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.4	1.78
4	3.2	2.7	2.6	2.3	2.2	3.0	2.2	2.2	2.3	2.2	2.2	1.78
5	2.9	2.7	2.6	2.3	2.2	7.0	2.2	2.2	2.3	2.3	2.15	1.78
6	2.9	2.7	2.6	2.3	2.2	3.5	2.15	2.2	2.3	17.1	2.1	1.78
7	2.8	2.7	2.5	2.3	2.2	2.5	2.15	2.2	2.3	11.6	1.98	1.78
8	2.8	2.7	2.5	2.3	2.1	2.3	2.2	2.2	2.2	4.0	2.05	1.78
9	2.8	2.7	2.5	2.3	2.1	2.2	2.2	2.2	2.3	27.5	1.98	1.83
10	2.8	2.6	2.5	2.3	2.1	2.2	2.2	2.2	2.2	5.4	1.93	1.83
11	2.8	2.6	2.5	2.3	2.1	2.2	2.2	2.2	2.2	3.2	1.88	1.83
12	2.7	2.7	2.4	2.3	2.1	2.2	2.2	2.2	2.3	2.6	1.88	1.83
13	2.6	2.7	2.4	2.3	2.1	2.2	2.2	2.2	2.2	22.5	1.88	1.33
14	2.6	2.7	2.4	2.3	2.1	2.2	2.2	2.2	2.2	6.3	1.83	1.88
15	2.7	2.7	2.4	2.4	2.0	2.2	2.2	2.2	2.3	3.75	1.83	1.83
16	2.7	2.7	2.4	2.5	2.0	2.1	2.2	2.2	2.4	3.65	1.83	1.83
17	2.7	2.7	2.4	2.4	2.0	2.1	2.2	2.2	2.5	3.2	1.83	1.83
18	2.7	2.7	2.4	2.4	2.0	2.1	2.2	2.2	2.5	2.7	1.83	1.83
19	2.7	2.6	2.4	2.3	2.1	2.1	2.2	2.2	2.6	2.5	1.83	1.83
20	2.7	2.6	2.4	2.3	2.1	2.1	2.2	2.2	2.7	2.3	1.83	1.83
21	2.8	2.6	2.4	2.3	2.2	2.15	2.9	2.2	2.8	2.2	1.83	1.83
22	2.8	2.6	2.55	2.3	2.2	2.15	2.5	2.2	2.8	4.0	1.83	1.83
23	2.8	2.6	2.4	2.3	2.1	2.15	2.3	2.2	2.8	d50	1.83	1.83
24	2.8	2.6	2.4	2.3	2.1	2.15	2.3	2.2	2.9	d7.9	1.83	1.83
25	2.8	2.6	2.3	2.3	2.1	2.15	2.2	2.2	2.8	d5.8	1.83	1.83
26	2.8	2.6	2.3	2.3	2.1	2.15	2.2	2.2	2.9	d5.3	1.83	1.83
27	2.8	2.6	2.3	2.3	2.1	2.75	2.2	2.2	d3.05	d34.5	1.83	1.88
28	2.8	2.7	2.3	2.3	2.1	2.4	2.2	2.2	d2.8	d12.1	1.83	1.88
29	2.8	2.7	2.3	2.3	2.2	2.2	2.2	-	2.3	d7.2	1.83	1.88
30	2.8	2.7	2.3	2.3	2.3	2.2	2.2	-	2.3	d5.6	1.83	1.88
31	2.8	2.7	-	2.3	-	2.2	2.2	-	2.5	-	1.78	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.2	2.6	2.79	4.32	86.4	265
August	2.8	2.6	2.67	4.13	82.7	254
September	2.7	2.3	2.45	3.79	73.4	225
October	2.5	2.3	2.32	3.59	71.8	220
November	2.3	2.0	2.14	3.31	64.1	197
December	7.0	2.1	2.44	3.78	75.8	232
Calendar year 1944	30	2.0	3.19	4.94	1,170	3,590
January	2.9	2.15	2.24	3.47	69.3	213
February	2.2	2.2	2.20	3.40	61.6	189
March	3.05	2.2	2.46	3.81	76.4	234
April	50	2.2	8.81	13.6	264	811
May	4.7	1.78	2.03	3.14	62.8	193
June	1.88	1.78	1.82	2.82	54.8	168
Fiscal year 1944-45	50	1.78	2.86	4.43	1,040	3,200

d Doubtful gage-height record; discharge computed on basis of records for Hanakoa Stream.
Note.- No gage-height record Nov. 3 to Dec. 17; discharge computed on basis of records for Hanakoa Stream.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Kauai during fiscal years 1943-44, 1944-45

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
1943					
May 23	Heki	Papaa Stream	Above confluence with Heki Stream, near Anahola.	0	0
29	....do	....do	....do	0	0
23	....do	....do	At altitude 450 feet, and 800 feet above Forest Reserve Fence, near Anahola.	.211	.136
23	....do	....do	....do	.222	.143
29	....do	....do	....do	.233	.151
29	....do	....do	....do	.207	.134
23	Pahuluhulu	....do	500 feet above Forest Reserve Fence, near Anahola.	0	0
29	....do	....do	....do	0	0
23	Noni	....do	150 feet above intake to pipeline, near Anahola.	.012	.008
23	Kuiliki	....do	Just above intake to pipeline, near Anahola.	.098	.063
1944					
July 6	Heki	....do	At altitude 450 feet, and 800 feet above Forest Reserve Fence, near Anahola.	.359	.167
6	Noni	....do	500 feet above Forest Reserve Fence, near Anahola.	.021	.014
6	Kuiliki	....do	Just above intake to pipeline, near Anahola.	.063	.041
6	....do	....do	....do	.088	.057
Aug. 28	Second Right Branch of Kalalau.	Kalalau Stream	At altitude 1,650 feet, near Hanalei.	1.27	.821
28	....do	....do	....do	1.17	.756
Oct. 16	....do	....do	....do	1.06	.685
16	....do	....do	At altitude 850 feet, near Hanalei	1.98	1.28
Dec. 18	....do	....do	....do	2.12	1.37
1945					
Feb. 22	....do	....do	....do	.989	.639
Apr. 25	....do	....do	....do	2.08	1.34
June 27	....do	....do	....do	.780	.504

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 1945.
Average discharge.- 26 years (1915-24, 1926-32, 1934-45), 7.51 million gallons a day (11.6 second-feet).
Extremes.- Maximum discharge during year, 595 million gallons a day (921 second-feet) Nov. 9 (gage height, 6.75 feet), from rating curve extended above 40 million gallons a day by test on model of station site; minimum, 0.24 million gallons a day (0.37 second-foot) Feb. 21.
1913-45: Maximum discharge, 1,500 million gallons a day (2,320 second-feet) Aug. 12, 1940 (gage height, 9.34 feet), from rating curve extended above 40 million gallons a day by test on model of station site; minimum, 0.09 million gallons a day (0.15 second-foot) Mar. 22, 1926.
Remarks.- Records good except those below 3 million gallons a day, which are fair. No diversions above station.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

2.5	0.10	2.9	2.85	3.4	16.0
2.6	.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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.0	4.3	2.0	2.15	14.2	3.7	1.75	0.50	11.0	2.35	2.55	0.45
2	4.9	3.35	7.2	1.22	6.0	3.5	1.63	.50	10.7	2.0	3.45	.50
3	4.4	2.85	2.0	1.79	3.9	4.2	1.55	.45	5.9	5.7	1.87	1.02
4	23	2.75	1.63	1.05	5.0	4.4	1.46	.45	3.35	2.85	1.63	1.00
5	16.5	2.6	1.55	.97	39	9.1	1.38	1.70	2.25	16.0	1.55	1.05
6	13.2	2.35	2.1	3.05	7.2	8.9	1.30	1.66	3.5	19.0	1.46	.70
7	6.0	2.35	1.55	1.22	44	15.7	1.22	.65	1.55	10.5	1.30	.50
8	5.1	2.5	1.30	.80	24.5	8.5	1.13	.45	7.5	8.1	1.22	.45
9	4.2	2.5	1.22	.75	37.5	4.3	1.05	.40	9.1	4.9	1.13	.72
10	6.6	2.0	1.22	.70	7.9	3.7	.97	.35	2.6	4.3	1.05	.50
11	8.6	2.0	1.22	.70	6.2	3.2	.97	.35	1.87	3.6	.97	1.17
12	5.7	1.75	1.30	.65	5.0	2.85	.97	.30	1.55	3.0	.80	1.38
13	4.3	2.0	1.22	.65	10.5	2.6	1.05	.28	1.46	2.5	.80	1.52
14	11.1	1.63	1.13	.60	5.5	2.5	1.16	.96	1.30	2.25	.75	3.8
15	4.5	1.46	.88	.60	4.0	2.5	4.2	1.70	1.13	12.5	.80	2.05
16	3.5	1.38	3.8	4.4	3.35	2.25	3.6	.60	1.38	34	7.1	.75
17	3.35	6.2	21	20	3.0	2.0	14.3	.45	12.5	6.9	1.22	.60
18	2.85	13.0	10.8	2.4	4.3	2.0	6.6	.28	8.6	8.5	.80	.65
19	2.75	9.1	2.55	1.38	4.2	1.87	1.75	.26	5.4	3.9	.88	.70
20	4.6	2.25	4.2	1.13	12.7	2.5	1.30	.26	6.2	3.0	.80	.75
21	12.8	2.0	3.55	6.2	10.9	1.63	1.05	.30	2.5	2.6	.70	.45
22	19.1	4.2	3.3	1.55	10.5	5.8	1.05	6.9	2.0	2.35	.70	.45
23	6.0	1.87	3.85	1.13	47	10.7	.80	.97	1.63	38	.65	1.16
24	41	2.1	1.94	.97	9.7	21	.75	2.85	1.46	14.2	.60	.94
25	25.5	4.5	1.38	24	9.3	19.5	.70	1.99	1.22	5.6	.60	.65
26	7.4	5.0	1.22	14.4	4.9	10.1	.65	5.3	1.87	3.85	.55	1.46
27	12.4	3.05	2.5	9.4	4.2	3.35	.65	5.3	4.9	3.2	.55	2.6
28	6.3	2.9	2.9	3.7	3.5	3.0	.60	1.63	23	2.75	.50	.80
29	4.7	7.2	1.38	4.2	4.8	2.5	.60	-	7.0	2.6	.55	.65
30	4.2	6.0	1.13	12.6	4.8	2.25	.55	-	3.85	2.35	.91	.55
31	3.85	2.35	-	5.3	-	2.0	.55	-	2.5	-	.60	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	41	2.75	9.53	14.7	295	907
August	13.0	1.38	3.53	5.46	109	336
September	21	.88	3.10	4.80	93.0	285
October	24	.60	4.18	6.47	130	398
November	47	3.0	11.9	18.4	358	1,100
December	21	1.63	5.55	8.59	172	528
Calendar year 1944	47	.26	5.36	8.29	1,960	6,030
January	14.3	.55	1.85	2.86	57.3	176
February	6.9	.26	1.35	2.09	37.8	116
March	23	1.13	4.86	7.52	151	463
April	38	2.0	7.78	12.0	233	716
May	7.1	.50	1.26	1.95	39.0	120
June	3.8	.45	.999	1.55	30.0	92
Fiscal year 1944-45	47	.26	4.67	7.23	1,710	5,240

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 28 years (1915-24, 1926-45), 11.0 million gallons a day (17.0 second-feet)

Extremes.- Maximum discharge during year, 1,140 million gallons a day (1,760 second-feet) Nov. 8 (gage height, 6.96 feet), from rating curve extended above 43 million gallons a day by test on model of station site; minimum, 0.19 million gallons a day (0.29 second-foot) Feb. 20.

1913-45: 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 1944-45 (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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	39.5	6.8	3.1	1.59	12.1	6.3	2.45	0.41	4.9	9.2	2.7	0.36
2	10.4	4.8	13.4	1.45	5.8	8.8	2.25	.38	21.5	5.1	4.1	.41
3	9.4	4.2	3.2	2.6	6.2	7.4	2.1	.36	15.3	18.2	2.48	2.8
4	30	4.3	2.7	1.40	4.9	5.9	1.94	.34	7.7	4.2	2.15	1.62
5	19.4	3.8	2.45	1.24	60	15.3	1.80	2.7	4.2	16.2	2.1	3.05
6	17.4	3.95	3.1	4.0	7.7	13.4	1.66	1.92	5.1	26.5	2.0	1.19
7	8.9	3.85	2.55	1.53	32	24.5	1.52	.56	2.55	16.0	1.73	.67
8	7.5	6.0	2.0	1.09	84	12.9	1.45	.38	11.7	12.4	1.59	.51
9	6.5	6.4	1.80	.93	21.5	6.5	1.35	.30	9.8	6.9	1.52	1.20
10	23.5	3.9	1.80	.97	9.1	5.4	1.29	.26	3.45	5.1	1.45	.62
11	25	3.1	1.94	1.55	6.8	4.8	1.19	.25	2.6	4.1	1.35	2.2
12	14.3	2.7	2.9	.89	5.9	4.2	1.24	.24	2.1	4.3	1.24	1.50
13	8.1	6.5	2.3	.82	13.8	3.8	1.52	.24	2.1	3.6	1.19	1.27
14	29	3.7	1.94	.82	9.6	3.6	1.52	.64	1.94	3.1	1.24	10.4
15	8.6	2.8	1.52	.82	5.8	3.95	4.4	3.1	1.94	22.5	1.40	4.6
16	6.7	2.55	5.2	7.0	4.1	3.35	2.85	.71	3.5	52	6.4	1.68
17	6.3	2.95	35.5	44	3.7	2.9	5.5	.37	22	10.5	1.68	1.37
18	5.9	7.6	15.5	3.95	9.1	2.8	7.7	.25	12.7	10.1	1.14	2.4
19	4.8	7.0	3.45	2.25	6.1	2.7	1.66	.22	13.8	5.4	1.12	2.9
20	14.9	2.45	7.7	1.87	18.6	3.85	1.19	.20	6 5	4.2	1.03	2.15
21	22	2.6	4.5	5.4	12.5	2.45	1.03	.40	3.6	3.7	.98	1.03
22	30	3.55	3.75	2.1	10.9	13.2	.98	8.3	3.0	3.35	.78	2.1
23	9.2	2.2	4.9	1.52	62	15.6	.86	1.29	2.45	59	.67	2.4
24	36.5	2.75	2.8	1.45	11.2	24.5	.78	6.0	2.25	15.1	.60	1.24
25	33	5.3	2.0	44	14.4	16.7	.74	6.7	1.94	6.4	.60	1.89
26	9.6	9.7	1.80	19.0	6.1	15.0	.67	9.6	4.4	4.6	.54	6.0
27	31	5.0	1.98	10.4	4.9	4.5	.60	9.7	5.9	3.8	.48	5.1
28	10.3	7.0	3.6	17.3	4.3	4.1	.56	2.8	15.4	3.45	.46	2.15
29	7.3	23	1.59	7.1	11.4	3.35	.54	-	6.3	3.1	.46	2.5
30	6.3	8.0	1.52	15.8	6.4	2.9	.48	-	7.1	2.8	1.14	1.89
31	5.9	4.2	-	6.1	-	2.6	.46	-	9.6	-	.51	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	39.5	4.8	16.0	24.8	497	1,530
August	23	2.2	5.25	8.12	163	499
September	35.5	1.52	4.75	7.35	142	437
October	44	.82	6.80	10.5	211	647
November	62	3.7	15.7	24.3	471	1,450
December	24.5	2.45	7.98	12.3	247	759
Calendar year 1944	82	.24	8.58	13.3	3,140	9,650
January	7.7	.46	1.75	2.71	54.3	167
February	9.7	.20	2.09	3.23	58.6	180
March	22	1.94	7.01	10.8	217	667
April	59	2.8	11.5	17.8	345	1,060
May	6.4	.46	1.51	2.34	46.8	144
June	10.4	.36	2.31	3.57	69.2	212
Fiscal year 1944-45	62	.20	6.91	10.7	2,520	7,750

Time basis: Hawaiian war time. 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 1945.
Extremes.- Maximum discharge during period, 741 million gallons a day (1,150 second-feet) Nov. 8 (gage height, 5.80 feet), from rating curve extended above 13 million gallons a day by broad-crested weir formula; minimum, 0.01 million gallons a day (0.02 second-foot) Feb. 21.
Remarks.- Records good except those for May 3 to June 1, which are fair.

Discharge, in million gallons a day, 1944-45

1944

Day	May	June	Day	May	June	Day	May	June
1	-	1.53	11	-	1.09	21	-	6.4
2	-	1.42	12	-	1.06	22	-	12.1
3	-	1.47	13	-	26	23	-	4.0
4	-	1.60	14	-	3.55	24	-	2.55
5	-	1.42	15	-	3.0	25	-	4.6
6	-	1.38	16	-	13.4	26	-	3.6
7	-	2.35	17	-	20.5	27	-	9.0
8	-	11.7	18	-	3.65	28	-	14.9
9	-	2.75	19	-	2.0	29	-	12.7
10	-	1.42	20	-	3.9	30	-	24.5
						31	2.0	-

1944-45

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr	May	June
1	34	3.3	2.0	0.50	2.8	5.0	1.02	0.13	0.90	15.3	2.0	0.26
2	8.5	2.9	4.7	.52	3.0	6.6	.96	.11	4.5	6.2	3.45	.36
3	7.7	2.0	1.88	.72	2.35	6.8	.85	.09	10.4	19.4	1.68	.39
4	15.1	1.88	1.42	.52	2.1	4.3	.80	.10	4.3	4.0	1.68	.32
5	8.1	1.77	1.27	.48	18.3	15.4	.74	.96	2.5	17.5	1.68	.50
6	8.5	1.68	1.27	.50	4.0	15.3	.69	1.76	2.35	27.0	1.68	.30
7	5.8	1.96	1.42	.46	10.7	31	.64	.28	1.50	17.3	1.60	.22
8	5.0	5.3	1.20	.43	66	14.0	.64	.12	13.4	12.6	1.42	.16
9	4.7	3.3	.96	.41	28	6.6	.60	.07	18.1	7.3	1.34	.16
10	18.0	3.3	.91	.39	6.2	5.0	.57	.05	4.3	5.8	1.16	.15
11	20	1.77	.94	.37	5.0	4.3	.52	.05	2.55	4.0	1.13	.13
12	7.7	1.47	2.8	.32	3.3	3.65	.52	.04	1.58	4.3	1.02	.15
13	5.0	3.8	2.2	.29	6.1	3.3	.55	.04	1.53	3.3	.91	.09
14	26	2.55	1.45	.28	7.9	2.9	.57	.10	1.46	3.3	.96	1.96
15	6.6	2.55	.97	.28	5.2	4.5	.73	.36	1.02	19.9	.91	2.85
16	4.7	1.31	3.7	4.9	2.55	2.55	.55	.13	2.85	41	1.31	1.72
17	4.3	1.06	12.5	61	2.0	1.77	.69	.05	8.1	10.8	1.16	.85
18	3.65	.96	10.1	5.5	10.0	1.68	1.93	.03	4.3	7.0	.77	1.01
19	3.3	1.18	1.77	1.47	6.5	1.68	.85	.02	17.0	4.7	.64	1.54
20	7.3	.85	4.6	.88	5.2	2.55	.43	.01	4.0	3.3	.60	1.30
21	10.4	.80	2.95	.77	9.6	1.60	.34	.01	2.0	2.9	.55	.41
22	11.6	.82	2.0	1.03	5.8	3.35	.31	1.34	1.53	2.55	.50	.31
23	4.7	.77	1.60	.65	17.5	2.0	.26	.52	1.27	47	.39	.50
24	12.6	3.1	1.20	.48	7.4	7.7	.25	.72	1.20	13.8	.36	.32
25	21.5	7.7	.88	37	8.2	9.5	.25	7.2	1.06	6.2	.36	3.4
26	5.8	8.9	.74	23	4.0	13.0	.24	4.9	1.36	4.3	.32	5.2
27	11.7	6.2	.74	17.7	2.9	2.25	.24	8.3	1.38	3.65	.32	1.92
28	7.7	8.3	1.02	8.0	2.55	2.0	.21	2.0	8.5	2.9	.32	1.04
29	4.3	12.6	.73	5.2	12.7	1.60	.19	-	2.25	2.55	.36	1.40
30	3.65	4.9	.57	5.5	6.6	1.31	.18	-	8.6	2.25	.41	.83
31	4.0	4.4	-	4.2	-	1.16	.15	-	15.8	-	.36	-

Monthly discharge, in million gallons a day, 1944-45

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
June 1944	26	1.06	6.65	10.3	200	612
July 1944	34	3.3	9.74	15.1	302	926
August	12.6	.77	3.33	5.15	103	317
September	12.5	.57	2.35	3.64	70.5	216
October	61	.28	5.93	9.18	184	564
November	66	2.0	9.15	14.2	274	842
December	31	1.16	5.95	9.21	184	566
The period	-	-	-	-	1,320	4,040
January 1945	1.93	.15	.564	.873	17.5	54
February	8.3	.01	1.06	1.62	29.5	91
March	18.1	.90	4.89	7.57	152	465
April	47	2.25	10.7	16.6	322	988
May	3.45	.32	1.01	1.56	31.4	96
June	5.2	.09	.992	1.53	29.8	91
Fiscal year 1944-45	66	.01	4.66	7.21	1,700	5,220

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 11 years (1931-34, 1937-45), 11.9 million gallons a day (18.4 second-feet).

Extremes.- Maximum daily discharge during year, 12.4 million gallons a day (19.2 second-feet) Apr. 30; minimum daily, 5.1 million gallons a day (7.9 second-feet) Oct. 5, 6, 10-12, 18-26.

1931-34, 1937-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.4	9.0	5.4	9.6	5.4	9.6	11.3	10.6	9.6	10.0	12.0	6.3
2	10.0	9.0	5.7	6.6	5.4	9.6	11.3	10.6	9.6	10.0	12.0	6.6
3	8.7	9.0	5.7	5.7	5.4	9.6	11.0	10.6	9.3	10.0	12.0	9.0
4	10.0	9.6	9.3	5.4	6.3	9.6	10.6	10.6	9.3	9.6	12.0	6.8
5	7.7	9.0	7.4	5.1	9.6	9.6	10.6	11.0	9.3	9.6	12.0	6.6
6	6.3	9.0	6.3	5.1	6.6	10.0	10.3	11.0	9.3	10.0	11.7	8.7
7	7.4	9.0	5.7	6.3	5.7	10.0	10.3	11.0	9.6	10.3	11.7	8.0
8	10.0	8.7	5.4	9.3	6.0	10.0	10.3	11.0	9.3	10.3	11.7	8.0
9	10.0	8.3	7.1	6.6	6.0	10.3	10.0	11.0	9.3	10.6	11.7	8.0
10	7.1	9.0	9.6	5.1	5.7	10.0	10.0	11.0	9.6	10.6	11.7	9.3
11	6.3	9.6	6.6	5.1	6.8	10.6	10.0	11.0	9.3	10.6	11.7	8.0
12	6.6	9.0	5.7	5.1	9.6	10.6	10.0	11.0	9.6	11.0	11.7	8.0
13	6.3	10.0	6.6	5.7	6.8	10.6	10.0	11.0	9.6	11.3	11.7	8.0
14	6.3	9.0	9.0	6.6	5.7	10.6	10.0	11.0	9.6	11.0	11.3	8.0
15	7.4	9.0	7.4	9.3	5.4	10.6	9.6	11.0	9.6	11.0	11.0	8.7
16	10.0	8.7	7.4	6.6	8.0	10.6	9.6	10.6	9.6	10.6	10.6	8.0
17	8.7	8.7	7.4	5.4	9.3	10.6	9.6	10.6	9.6	11.0	10.6	9.3
18	8.7	8.7	7.7	5.1	9.3	10.6	9.6	10.3	9.6	11.0	10.6	8.0
19	8.7	8.7	7.4	5.1	9.3	10.6	9.6	10.3	9.6	11.0	10.6	8.3
20	8.7	10.0	7.1	5.1	9.3	10.6	9.6	10.0	9.6	11.0	10.6	10.0
21	8.7	8.7	7.1	5.1	9.3	10.6	9.6	9.6	9.6	11.0	10.6	9.6
22	8.7	8.7	7.1	5.1	9.6	10.6	10.0	9.6	9.6	11.3	10.6	9.6
23	10.6	8.7	7.1	5.1	9.6	10.6	9.6	9.6	9.6	12.0	10.3	9.6
24	9.3	8.3	7.1	5.1	9.6	10.6	9.6	9.6	9.6	11.7	7.7	10.0
25	9.3	8.3	6.3	5.1	9.6	11.0	9.6	9.6	10.0	11.7	6.6	8.3
26	9.3	8.3	5.4	5.1	9.6	11.0	10.0	9.6	9.6	12.0	6.6	8.3
27	9.3	9.6	5.4	5.4	9.6	11.3	10.0	9.6	9.6	12.0	8.0	10.0
28	9.0	8.7	5.4	6.3	9.6	11.3	10.3	9.6	10.0	12.0	7.4	10.0
29	9.0	6.8	5.4	9.3	9.6	11.3	10.3	-	10.0	12.0	6.3	8.7
30	10.3	5.7	6.8	6.6	9.6	11.3	10.3	-	10.3	12.4	6.3	8.3
31	9.0	5.7	-	5.4	-	11.3	10.6	-	10.0	-	6.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.6	6.3	8.54	13.2	265	813
August	10.0	5.7	8.66	13.4	268	824
September	9.6	5.4	6.77	10.5	203	623
October	9.6	5.1	6.05	9.36	188	575
November	9.6	5.4	7.91	12.2	237	728
December	11.3	9.6	10.5	16.2	325	998
Calendar year 1944	13.2	5.1	9.21	14.2	3,370	10,350
January	11.3	9.6	10.1	15.6	313	961
February	11.0	9.6	10.4	16.1	292	896
March	10.3	9.3	9.61	14.9	298	914
April	12.4	9.6	11.0	17.0	329	1,010
May	12.0	6.3	10.2	15.8	316	969
June	10.0	6.3	8.47	13.1	254	779
Fiscal year 1944-45	12.4	5.1	9.01	13.9	3,290	10,090

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 13 years (1931-35, 1936-45), 3.87 million gallons a day (5.99 second-feet).

Extremes.- Maximum daily discharge during year, 3.1 million gallons a day (4.8 second-feet) July 1-11; minimum daily, 2.4 million gallons a day (3.7 second-feet) Sept. 1, 7, 11.

1931-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.1	2.95	2.4	2.6	2.85	2.6	2.95	2.75	2.6	2.7	3.0	2.7
2	3.1	2.95	2.5	2.6	2.85	2.6	2.85	2.75	2.6	2.7	3.0	2.7
3	3.1	2.95	2.5	2.7	2.85	2.6	2.85	2.75	2.7	2.7	3.0	2.7
4	3.1	2.95	2.5	2.6	2.85	2.6	2.85	2.75	2.7	2.7	3.0	2.7
5	3.1	2.95	2.5	2.6	2.95	2.7	2.95	2.95	2.75	2.6	3.0	2.7
6	3.1	2.95	2.5	2.6	2.95	2.7	2.95	2.85	2.75	2.85	3.0	2.7
7	3.1	2.95	2.4	2.6	2.95	2.7	2.95	2.85	2.75	2.7	3.0	2.7
8	3.1	2.95	2.5	2.6	2.85	2.7	2.95	2.85	2.85	2.85	2.95	2.7
9	3.1	2.85	2.5	2.7	2.85	2.7	2.85	2.85	2.85	2.7	2.95	2.7
10	3.1	2.85	2.5	2.7	2.85	2.7	2.85	2.95	2.75	2.7	2.95	2.7
11	3.1	2.85	2.4	2.7	2.85	2.75	2.85	2.95	2.75	2.7	2.95	2.7
12	3.0	2.85	2.5	2.7	2.85	2.75	2.85	2.95	2.75	2.7	2.95	2.7
13	2.95	2.85	2.5	2.7	2.85	2.75	2.85	2.85	2.75	2.75	2.95	2.7
14	2.95	2.85	2.5	2.7	2.75	2.75	2.75	2.95	2.75	2.75	2.95	2.7
15	3.0	2.85	2.5	2.7	2.75	2.85	2.75	2.95	2.75	2.75	2.95	2.7
16	3.0	2.85	2.5	2.7	2.75	2.75	2.75	2.85	2.85	2.85	2.85	2.7
17	3.0	2.85	2.5	2.7	2.75	2.75	2.75	2.85	2.85	2.85	2.85	2.6
18	3.0	2.85	2.6	2.7	2.7	2.75	2.75	2.75	2.95	2.85	2.85	2.6
19	2.95	2.85	2.6	2.6	2.7	2.75	2.75	2.75	2.95	2.85	2.85	2.6
20	2.95	2.85	2.6	2.6	2.7	2.75	2.75	2.75	2.85	2.85	2.85	2.6
21	3.0	2.85	2.6	2.6	2.7	2.7	2.85	2.7	2.85	2.85	2.85	2.6
22	3.0	2.75	2.6	2.6	2.7	2.7	2.75	2.7	2.75	2.95	2.85	2.6
23	3.0	2.75	2.6	2.7	2.7	2.7	2.75	2.7	2.75	3.0	2.75	2.6
24	2.95	2.75	2.6	2.7	2.7	2.7	2.75	2.7	2.75	3.0	2.75	2.7
25	2.95	2.75	2.6	2.75	2.7	2.85	2.75	2.7	2.75	2.95	2.75	2.7
26	2.95	2.7	2.5	2.75	2.7	2.85	2.75	2.7	2.75	3.0	2.75	2.7
27	2.95	2.7	2.5	2.75	2.7	2.85	2.75	2.6	2.75	3.0	2.75	2.7
28	2.95	2.7	2.6	2.75	2.7	2.95	2.75	2.6	2.75	3.0	2.75	2.7
29	2.95	2.75	2.6	2.85	2.7	2.95	2.75	-	2.75	3.0	2.7	2.7
30	2.95	2.75	2.6	2.85	2.6	2.95	2.75	-	2.7	3.0	2.7	2.7
31	2.95	2.75	-	2.75	-	2.95	2.75	-	2.7	-	2.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.1	2.95	3.02	4.67	93.5	287
August	2.95	2.7	2.84	4.39	88.0	270
September	2.6	2.4	2.53	3.91	75.8	233
October	2.85	2.6	2.68	4.15	83.2	255
November	2.95	2.6	2.78	4.30	83.4	256
December	2.95	2.6	2.75	4.25	85.4	262
Calendar year 1944	3.8	2.4	3.08	4.77	1,130	3,460
January	2.95	2.75	2.81	4.35	87.2	267
February	2.95	2.6	2.80	4.33	78.3	240
March	2.95	2.6	2.77	4.29	85.8	263
April	3.0	2.6	2.83	4.38	84.8	260
May	3.0	2.7	2.88	4.46	89.2	274
June	2.7	2.6	2.68	4.15	80.3	246
Fiscal year 1944-45	3.1	2.4	2.78	4.30	1,010	3,110

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Pearl Harbor Springs at Loko Kukona, near Pearl City

Location.- Sharp-crested brass weir, lat. 21°23'30", long. 157°58'00", on left bank of stream, near levee, half a mile east of Pearl City and 8.8 miles northwest of Honolulu. Datum of gage is 0.80 foot below mean sea level.

Records available.- June 1931 to June 1945 (discontinued).

Average discharge.- 13 years (1931-35, 1938-45), 2.41 million gallons a day (3.73 second-feet).

Extremes.- Maximum daily discharge during year, 1.46 million gallons a day (2.26 second-feet) July 23, Apr. 23 to May 6; minimum daily, 1.00 million gallons a day (1.55 second-feet) Oct. 6-8.

1931-45: Maximum daily discharge recorded, 4.0 million gallons a day (6.2 second-feet) Mar. 21, 22, Mar. 31 to Apr. 3, 1938; minimum daily, that of Oct. 6-8, 1944.

Remarks.- Records good. No diversions. Surface runoff from floods not included in figures of discharge given below.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.32	1.26	1.19	1.06	1.12	1.26	1.26	1.32	1.26	1.32	1.46	1.3
2	1.32	1.26	1.19	1.06	1.19	1.26	1.26	1.26	1.26	1.32	1.46	1.3
3	1.32	1.26	1.19	1.06	1.19	1.19	1.26	1.26	1.26	1.32	1.46	1.3
4	1.32	1.26	1.19	1.06	1.19	1.19	1.32	1.32	1.32	1.32	1.46	1.3
5	1.32	1.26	1.19	1.06	1.19	1.26	1.32	1.40	1.40	1.26	1.46	1.3
6	1.32	1.32	1.12	1.00	1.26	1.26	1.32	1.32	1.40	1.32	1.46	1.3
7	1.32	1.32	1.12	1.00	1.26	1.26	1.26	1.32	1.40	1.32	1.40	1.3
8	1.32	1.32	1.12	1.00	1.26	1.19	1.26	1.32	1.40	1.32	1.40	1.3
9	1.32	1.26	1.12	1.26	1.26	1.19	1.26	1.32	1.40	1.32	1.40	1.3
10	1.32	1.26	1.12	1.26	1.26	1.19	1.26	1.32	1.40	1.32	1.40	1.3
11	1.32	1.26	1.12	1.26	1.26	1.19	1.26	1.32	1.40	1.32	1.40	1.3
12	1.32	1.26	1.12	1.26	1.26	1.19	1.26	1.32	1.40	1.40	1.40	1.3
13	1.26	1.26	1.12	1.19	1.26	1.19	1.26	1.32	1.40	1.40	1.40	1.3
14	1.26	1.26	1.12	1.19	1.26	1.19	1.26	1.32	1.40	1.40	1.40	1.3
15	1.26	1.26	1.12	1.19	1.26	1.19	1.26	1.32	1.32	1.40	1.40	1.3
16	1.26	1.26	1.12	1.26	1.26	1.19	1.19	1.26	1.26	1.40	1.4	1.3
17	1.32	1.26	1.12	1.19	1.26	1.19	1.19	1.26	1.32	1.40	1.4	1.3
18	1.26	1.26	1.06	1.19	1.26	1.19	1.19	1.26	1.40	1.40	1.4	1.3
19	1.26	1.26	1.06	1.19	1.26	1.19	1.19	1.26	1.40	1.40	1.4	1.3
20	1.26	1.26	1.06	1.19	1.26	1.19	1.26	1.26	1.40	1.40	1.4	1.3
21	1.32	1.26	1.06	1.19	1.26	1.19	1.40	1.26	1.40	1.40	1.4	1.3
22	1.26	1.19	1.06	1.19	1.26	1.19	1.40	1.26	1.40	1.40	1.4	1.3
23	1.46	1.19	1.06	1.19	1.26	1.19	1.40	1.19	1.40	1.46	1.4	1.3
24	1.32	1.19	1.06	1.19	1.26	1.19	1.40	1.19	1.40	1.46	1.4	1.3
25	1.32	1.19	1.06	1.19	1.26	1.19	1.40	1.19	1.40	1.46	1 4	1.3
26	1.32	1.19	1.06	1.12	1.26	1.26	1.40	1.19	1.40	1.46	1.4	1.3
27	1.26	1.19	1.06	1.12	1.26	1.26	1.40	1.19	1.40	1.46	1.4	1.3
28	1.26	1.19	1.06	1.12	1.26	1.26	1.40	1.26	1.40	1.46	1.4	1.3
29	1.26	1.19	1.06	1.19	1.26	1.26	1.40		1.32	1.46	1.4	1.3
30	1.26	1.19	1.06	1.19	1.26	1.26	1.40	-	1.32	1.46	1.4	1.3
31	1.32	1.19	-	1.12	-	1.26	1.40	-	1.32	-	1.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.46	1.26	1.30	2.01	40.3	124
August	1.32	1.19	1.24	1.92	38.5	118
September	1.19	1.06	1.11	1.72	33.2	102
October	1.26	1.00	1.15	1.78	35.7	110
November	1.26	1.12	1.25	1.93	37.4	115
December	1.26	1.19	1.21	1.87	37.7	116
Calendar year 1944	2.15	1.00	1.43	2.21	523	1,610
January	1.40	1.19	1.31	2.03	40.5	124
February	1.40	1.19	1.28	1.98	35.8	110
March	1.40	1.26	1.37	2.12	42.4	130
April	1.46	1.26	1.38	2.14	41.5	127
May	1.46	1.40	1.41	2.18	43.8	134
June	1.3	1.3	1.30	2.01	39.0	120
Fiscal year 1944-45	1.46	1.00	1.28	1.98	466	1,430

Note.- No gage-height record May 16 to June 30; discharge computed on basis of records for stations on nearby springs.

Time basis: Hawaiian war time. 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 1945.

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

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a27	28	20.5	37	19.0	17.5	38.5	-	35.5	32.5	22.5	21.5
2	a37	28	26.5	28	19.0	18.5		-	24	15.4	26	18.4
3	a38	27	37	26	19.7	34.5		-	15.6	18.4	29.5	30.5
4	a38	27	38.5	16.9	20.5	32.5		-	23.5	18.4	28	26.5
5	a24	27	23	19.3	33	20		-	15 4	18.0	23	18.6
6	a25	34	21	19.0	22.5	24.5		-	13.4	30	29.5	18.7
7	a24	31	21.5	21	21	34		-	11.2	35.5	31.5	16.7
8	a22	26	20.5	35.5	24	35.5		-	17.4	37	24	17.7
9	a37	26	41	21	38.5	35.5		-	10.1	37	22.5	18.4
10	a23	19.3	41	21.5	38.5	35.5		-	16.8	37	21.5	27
11	a25	23.5	41	21.5	38.5	34		-	22	37	19.7	26
12	a21	26	30.5	20.5	41	35.5		-	17.3	-	23.5	15.9
13	a22	41	21.5	19.4	31	35.5		-	9.9	-	28	17.0
14	22	25.5	20	19.4	41	37		-	13.4	-	29	14.6
15	21.5	26	21	37	26	37		-	16.5	-	18.8	14.5
16	38.5	26.5	20	23	22	35.5		-	11.4	-	18.6	14.9
17	24.5	25.5	36	37	24	35.5		-	14.4	38.5	19.0	28
18	20.5	25.5	23	38.5	23	34		-	23	38.5	19.6	24.5
19	23	24.5	20.5	29	38.5	35.5		-	16.2	38.5	19.5	17.6
20	20.5	41	19.7	23	24	34		-	13.8	38.5	29.5	17.8
21	22	26	20	22	25	35 5		-	13.9	27.5	26.5	16.1
22	22.5	27.5	20.5	39.5	25	35.5		-	13.0	37	18.0	17.0
23	38.5	24	19.5	21.5	38.5	29.5		-	13.3	38.5	17.5	23
24	26	28	37	22	26	31		18.6	12.7	38.5	18.5	27
25	26.5	25	23	19.5	24	35.5		35.5	28	38.5	17.2	28
26	25.5	26.5	20.5	21.5	41	37		20.5	16.3	38.5	18.3	22
27	29	38.5	21	18.0	23	38.5		34	19.7	38.5	28.5	22
28	29.5	27	20.5	19.5	19.9	38.5		35.5	15.0	38.5	26	22
29	29.5	25.5	22.5	38.5	22.5	38.5		-	15.1	34	16.6	20.5
30	37	27.5	19.9	22	19.1	38.5		-	23	37	19.5	20.5
31	31	22	-	18.9	-	38.5		-	27	-	19.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		-Million gallons	Acre-feet
July	38.5	20.5	27.4	42.4	850	2,610
August	41	19.3	27.6	42.7	856	2,630
September	41	19.5	25.6	39.6	768	2,360
October	39.5	16.9	25.0	38.7	776	2,380
November	41	19.0	27.6	42.7	829	2,540
December	38.5	17.5	33.5	51.8	1,040	3,190
Calendar year 1944	41	14.5	28.3	43.8	10,370	31,830
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	35.5	9.9	17.3	26.8	538	1,650
April	-	-	-	-	-	-
May	31.5	16.6	22.9	35.4	709	2,180
June	30.5	14.5	20.8	32.2	623	1,910
Fiscal year	-	-	-	-	-	-

a No gage-height record; discharge computed on basis of pumpage by Hawaiian Electric Co.
Note.- Data insufficient to compute discharge for days for which no figures are given.
Time basis: Hawaiian war time. 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 June 1945.

Extremes.- Maximum discharge during year, 16.0 million gallons a day (24.8 second-feet) Aug. 3 (gage height, 2.00 feet); minimum, 5.4 million gallons a day (8.4 second-feet) Sept. 13.
1939-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.1	10.8	9.5	8.6	9.5	8.9	a10	8.9	10.5	10.5	9.2	10.2
2	11.1	10.8	9.5	10.2	9.5	9.8	f10.2	9.2	10.5	10.2	8.6	10.5
3	11.4	10.5	9.2	10.2	8 9	9.2	9.8	9.2	10.5	10.2	9.6	10.2
4	11.4	10.2	9.2	9.5	9.5	9.2	10.2	10.2	10.5	9.8	10.2	9.8
5	11.4	10.2	9.5	9.5	8.6	9.2	10.2	9.8	10.2	10.2	9.8	9.5
6	11.4	10.2	9.5	9.8	9.5	9.5	10.5	10.2	9.8	9.8	10.5	9.8
7	11.1	10.8	9.5	9.8	9.5	9.5	10.2	9.8	9.8	10.5	10.8	9.5
8	11.1	10.8	9.5	9.5	9.8	9.5	9.8	11.1	10.5	9.8	10.8	9.5
9	11.1	11.1	9.5	9.8	9.5	9.5	10.2	10.8	9.5	10.8	10.2	9.2
10	11.1	10.8	9.5	10.2	9.5	9.5	10.2	10.8	10.5	10.8	9.8	9.5
11	11.1	10.8	9.5	10.5	9.8	9.5	9.8	10.8	10.5	10.8	9.8	9.5
12	11.1	11.1	9.5	10.5	9.5	9.8	9.8	10.8	10.5	10.8	10.2	9.5
13	11.1	10.8	8.6	10.8	9.5	9.8	9.8	10.8	9.5	10.5	9.5	9.8
14	11.1	10.8	8.6	9.5	9.8	9.5	10.2	10.5	9.5	11.1	10.2	9.5
15	11.1	10.5	8.6	10.5	9.5	9.5	10.5	10.8	10.5	11.1	9.6	^.8
16	11.1	10.5	9.2	10.5	9.5	9.5	10.2	10.2	9.5	10.5	9.8	9.5
17	10.8	10.5	9.8	10.2	9.5	9.5	10.2	10.5	10.5	10.5	10.5	9.5
18	10.5	10.5	10.5	10.5	9.5	9.5	10.2	10.5	11.1	10.8	10.8	9.8
19	10.5	10.5	9.5	10.2	9.5	9.5	9.8	10.2	10.2	10.2	10.5	9.8
20	10.2	10.8	9.5	10.2	9.5	9.5	8.9	10 8	9.8	9.5	9.8	9.8
21	10.2	10.5	9.5	10.2	9.5	9.5	9.5	10.8	9.8	10.2	10.5	9.5
22	10.8	10.8	8.6	10.2	9.5	9.5	9.2	10.8	9.8	9.5	10.8	9.5
23	10.8	10.5	9.5	10.5	9.2	9.8	8.9	10.8	9.5	9.5	10.5	9.2
24	10.8	10.5	9.5	10.2	9.5	9.5	8.9	11.1	9.5	9.5	10.5	9.5
25	10.8	10.2	9.8	10.2	9.2	9.2	8.9	11.1	10.8	9.2	9.8	9.8
26	10.8	10.2	9.5	9.2	9.5	10.2	8.9	10.8	9.5	8.6	10.2	9.8
27	10.8	9.8	9.5	9.2	9.5	10.2	8.9	11.1	10.2	8.4	8.6	9.8
28	10.8	9.8	9.2	9.2	9.5	10.2	9.2	10.8	9.8	10.2	10.2	9.2
29	10.8	9.8	9.2	9.5	9.5	10.2	9.2	-	9.5	11.1	9.8	9.2
30	10.2	9.5	8.9	9.8	9.5	10.5	9.2	-	8.4	9.5	9.8	9.5
31	10.8	9.5	-	9.5	-	f10.5	8.6	-	10.2	-	9.8	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.4	10.2	10.9	16.9	338	1,040
August	11.1	9.5	10.5	16.2	324	995
September	10.5	8.6	9.36	14.5	281	862
October	10.8	8.6	9.94	15.4	308	946
November	9.8	8.6	9.46	14.6	284	871
December	10.5	8.9	9.64	14.9	299	917
Calendar year 1944	-	-	-	-	-	-
January	10.5	8.6	9.68	15.0	300	921
February	11.1	8.9	10.5	16.2	293	900
March	11.1	8.4	10.0	15.5	311	954
April	11.1	8.4	10.1	15.6	304	933
May	10.8	8.6	10.0	15.5	311	955
June	10.5	9.2	9.64	14.9	289	888
Fiscal year 1944-45	11.4	8.4	9.98	15.4	3,640	11,180

a No gage-height record; discharge computed on basis of recorded range in stage.
f Computed on basis of partly estimated gage-height record.
Time basis: Hawaiian war time. 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 1945.

Extremes.- Maximum daily discharge during year, 4.1 million gallons a day (6.3 second-feet) several days during July, August, September, December, April, and May; minimum daily, 2.7 million gallons a day (4.2 second-feet) Mar. 2, 6, 25, 30.
1931-39, 1942-45: Maximum daily discharge, 10.1 million gallons a day (15.6 second-feet) May 24, Dec. 18, 19, 1937; minimum daily, that of Mar. 2, 6, 25, 30, 1945.

Remarks.- Records fair. 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.1	3.7	3.3	3.0	3.3	3.3	3.7	3.3	3.3	3.0	4.1	3.3
2	3.7	3.7	4.1	3.0	3.3	3.3	3.7	3.3	2.7	3.0	4.1	3.7
3	4.1	3.7	3.3	3.3	3.3	3.0	3.7	3.3	3.0	3.0	4.1	3.3
4	4.1	3.3	3.7	3.3	3.3	3.3	3.7	3.3	3.3	3.0	4.1	3.3
5	4.1	3.3	4.1	3.3	3.3	3.3	3.7	3.7	3.3	3.3	4.1	3.7
6	4.1	3.3	4.1	3.0	3.3	3.3	3.7	3.3	2.7	3.3	4.1	3.7
7	4.1	3.7	4.1	3.0	3.3	3.3	3.7	3.3	3.3	3.3	4.1	3.7
8	4.1	4.1	3.7	3.3	3.3	3.3	3.7	3.7	3.3	3.3	4.1	3.7
9	3.7	4.1	3.7	3.0	3.3	3.0	3.7	3.3	3.3	3.3	4.1	3.7
10	4.1	4.1	3.7	3.0	3.3	3.3	3.7	3.7	3.0	3.3	4.1	3.7
11	4.1	4.1	3.3	3.3	3.3	3.3	3.7	3.3	3.0	3.3	4.1	3.3
12	4.1	3.7	3.3	3.3	3.3	3.3	3.7	3.3	3.3	3.3	4.1	3.3
13	4.1	3.3	3.3	3.3	3.3	3.3	3.7	3.3	3.3	3.7	4.1	3.3
14	3.7	3.7	3.3	3.3	3.3	3.3	3.7	3.3	3.0	3.7	4.1	3.3
15	3.7	3.7	3.3	3.3	3.3	3.3	3.7	3.7	3.0	3.7	4.1	3.3
16	3.7	4.1	3.3	3.3	3.3	3.3	3.7	3.3	3.3	3.7	4.1	3.3
17	3.7	4.1	3.3	3.3	3.3	3.3	3.7	3.3	3.0	3.7	4.1	3.3
18	3.7	4.1	3.7	3.7	3.3	3.7	3.7	3.3	3.0	3.7	4.1	3.3
19	4.1	4.1	3.3	3.3	3.3	3.7	3.7	3.3	3.3	3.7	3.7	3.3
20	3.7	4.1	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.3
21	4.1	4.1	3.7	3.3	3.3	3.3	3.7	3.3	3.3	3.7	3.7	3.7
22	3.7	4.1	3.3	3.3	3.0	3.3	3.7	3.3	3.3	3.7	3.7	3.7
23	4.1	3.7	3.3	3.3	3.3	3.3	3.3	3.3	3.3	4.1	3.7	3.3
24	4.1	4.1	3.3	3.0	3.3	3.3	3.3	3.3	3.3	4.1	3.7	3.3
25	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3	2.7	4.1	3.7	3.3
26	3.7	4.1	3.3	3.3	3.0	4.1	3.3	3.3	3.3	4.1	3.7	3.3
27	3.7	3.7	3.0	3.3	3.3	3.3	3.3	3.3	3.3	4.1	3.7	3.3
28	4.1	3.7	3.0	3.3	3.3	3.7	3.3	3.3	3.0	4.1	3.7	3.3
29	3.7	3.7	3.3	3.3	3.3	3.7	3.3	-	3.0	4.1	3.7	3.3
30	4.1	3.7	3.0	3.3	3.3	3.7	3.3	-	2.7	4.1	3.7	3.3
31	4.1	3.7	-	3.3	-	3.7	3.3	-	3.3	-	3.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.1	3.7	3.93	6.08	122	374
August	4.1	3.3	3.82	5.91	118	363
September	4.1	3.0	3.47	5.37	104	319
October	3.7	3.0	3.26	5.04	101	310
November	3.3	3.0	3.28	5.07	98.4	302
December	4.1	3.0	3.36	5.23	105	322
Calendar year 1944	5.3	3.0	4.03	6.24	1,480	4,520
January	3.7	3.3	3.57	5.52	110	340
February	3.7	3.3	3.36	5.20	94.0	288
March	3.3	2.7	3.14	4.86	97.2	298
April	4.1	3.0	3.61	5.59	108	332
May	4.1	3.7	3.93	6.08	122	374
June	3.7	3.3	3.42	5.29	103	315
Fiscal year 1944-45	4.1	2.7	3.52	5.45	1,280	3,940

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

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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 1945.

Average discharge.- 14 years, 16.1 million gallons a day (24.9 second-feet, unadjusted for pumpage).

Extremes.- Maximum daily discharge during year, 14.5 million gallons a day (22.4 second-feet) July 4, 23; minimum daily, 8.7 million gallons a day (13.5 second-feet) June 19, 20.

1931-45: 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, 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 1944 to June 1945

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

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.5	11.7	12.7	19.6	393	1,200
August	14.2	11.7	12.5	19.3	388	1,190
September	13.8	10.7	12.5	19.3	374	1,150
October	13.1	10.7	12.1	18.7	376	1,150
November	13.1	10.7	12.3	19.0	369	1,130
December	14.2	10.7	12.9	20.0	400	1,230
Calendar year 1944	16.4	10.7	13.0	20.1	4,740	14,540
January	14.2	10.3	12.2	18.9	378	1,160
February	13.1	10.0	11.4	17.6	318	977
March	13.1	9.4	11.2	17.3	348	1,070
April	13.1	9.4	12.2	18.9	365	1,120
May	13.1	9.7	10.8	16.7	336	1,030
June	12.7	8.7	9.99	15.5	300	919
Fiscal year 1944-45	14.5	8.7	11.9	16.4	4,340	13,330

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 19 years, 2.35 million gallons a day (3.64 second-feet).

Extremes.- Maximum discharge during year, 144 million gallons a day (223 second-feet) Nov. 9 (gage height, 3.00 feet); no flow during most of year.
1926-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.0	0	0.6	1.66	1.1	8.8
.2	.07	.7	2.55	1.2	11.1
.3	.22	.8	3.75	1.4	17.0
.4	.51	.9	5.1	1.6	24.5
.5	.99	1.0	6.8		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.05			0	0	0						
2	0			0	0	0						
3	0			0	0	0						
4	1.75			0	0	0						
5	.71			0	0	0						
6	.10			0	0	0						
7	.01			0	0	1.52						
8	0			0	1.56	2.95						
9	0			0	23	.60						
10	0			0	2.1	.10						
11	0			0	.57	.01						
12	0			0	.08	0						
13	0			0	.02	0						
14	0			0	.01	0						
15	0			0	0	0						
16	0			0	0	0						
17	0			0	0	0						
18	0			0	0	0						
19	0			0	0	0						
20	0			0	0	0						
21	0			0	0	0						
22	0			0	0	0						
23	0			0	0	0						
24	0			0	0	0						
25	4.2			0	0	0						
26	.07			1.42	0	2.25						
27	0			.43	0	.39						
28	0			0	0	.05						
29	0			0	0	.01						
30	0			0	0	.01						
31	0			0	-	0						

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.2	0	0.287	0.444	8.89	27
August	0	0	0	0	0	0
September	0	0	0	0	0	0
October	1.42	0	.060	.093	1.85	5.7
November	23	0	.911	1.41	27.3	84
December	2.95	0	.255	.395	7.89	24
Calendar year 1944	29.5	0	.453	.701	166	509
January	0	0	0	0	0	0
February	0	0	0	0	0	0
March	0	0	0	0	0	0
April	0	0	0	0	0	0
May	0	0	0	0	0	0
June	0	0	0	0	0	0
Fiscal year 1944-45	23	0	.126	.195	45.9	141

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 28 years (1916-20, 1921-45), 4.91 million gallons a day (7.60 second-feet).

Extremes.- Maximum discharge during year, 450 million gallons a day (696 second-feet) Nov. 9 (gage height, 7.30 feet), from rating curve extended above 220 million gallons a day by test on model of station site; minimum, 0.21 million gallons a day (0.32 second-foot) June 24.

1913-45: Maximum discharge, 10,900 million gallons a day (16,900 second-feet) Nov. 18, 1930 (gage height, 13.81 feet), from rating curve extended above 220 million gallons a day by test on model of station site; minimum, 0.06 million gallons a day (0.09 second-foot) Oct. 22, 1933.

Remarks.- Records good except those for periods of backwater, which are fair. Water for domestic use diverted from stream above station.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.4	1.91	0.84	0.66	2.2	1.55	1.91	0.72	0.70	0.99	1.91	0.88
2	2.85	1.82	.97	.66	1.82	1.55	1.73	.72	.84	.97	1.82	.78
3	2.6	1.73	.84	.66	1.64	1.64	1.55	.72	.78	1.05	1.73	1.05
4	10.0	1.64	.78	.60	1.46	1.82	1.37	.72	.66	1.02	1.73	.90
5	4.3	1.55	.72	.53	6.0	2.9	1.46	1.26	.97	4.2	1.64	.90
6	2.85	1.46	.78	.53	3.0	2.7	1.28	.90	.72	21.5	1.64	.72
7	2.2	1.46	.78	.53	6.0	9.5	1.28	.78	.60	12.1	1.53	.66
8	1.82	1.46	.72	.53	17.6	8.4	1.21	.72	1.28	7.2	1.46	.60
9	1.64	1.37	.72	.53	36.5	4.3	1.21	.72	1.48	5.6	1.37	.60
10	2.3	1.28	.72	.53	7.0	3.0	1.13	.66	1.05	3.5	1.28	.60
11	1.91	1.46	.66	.53	4.6	2.55	1.05	.66	.84	2.6	1.21	.78
12	1.55	1.28	.84	.53	3.5	2.2	1.13	.60	.72	2.2	1.21	.66
13	1.46	1.28	.78	e.53	3.25	2.0	1.05	.60	.60	2.1	1.13	.66
14	2.6	1.28	.78	e.47	2.85	1.91	1.13	.72	.60	1.82	1.13	.72
15	1.73	1.21	.72	e.47	2.6	2.0	1.05	.78	.60	12.5	1.65	.90
16	1.55	1.13	.78	.60	2.1	1.82	1.13	.72	.60	40	1.55	.72
17	1.46	1.13	1.03	3.4	2.0	1.64	1.13	.60	.90	12.3	e1.64	.72
18	1.28	1.05	1.37	1.13	1.91	1.55	1.05	.60	1.33	6.8	e1.28	.72
19	1.21	.97	.84	.72	1.82	1.55	.97	.60	1.78	4.9	e1.21	.72
20	1.37	.97	1.98	.66	1.82	1.64	.97	.53	1.21	3.9	1.21	.72
21	1.89	.90	1.13	.60	1.82	1.46	1.05	.60	.90	3.25	1.13	.60
22	1.82	.97	1.05	.60	1.91	1.82	1.21	.60	.78	2.9	1.05	.60
23	1.37	.97	.84	.60	3.7	1.64	1.13	.60	.66	3.3	.97	.60
24	8.6	.90	.78	.60	2.6	3.15	1.02	.66	.66	2.7	.97	.60
25	11.0	.97	.66	11.0	1.91	7.2	.90	.66	.60	2.35	.97	.62
26	4.5	1.13	.66	6.7	1.73	8.1	.90	.72	.60	2.35	.90	.72
27	5.4	1.05	.72	3.25	1.64	3.5	.84	.90	.60	2.1	.95	.66
28	3.35	1.13	.72	1.91	1.55	3.6	.78	.78	1.52	1.91	.84	.53
29	2.6	1.21	.66	1.55	1.73	2.7	.78	-	1.30	2.25	.97	.60
30	2.35	1.13	.60	3.7	1.64	2.45	.72	-	1.16	2.0	.90	.53
31	2.0	.90	-	2.85	-	2.1	.78	-	.78	-	.90	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.4	1.21	3.32	5.14	103	316
August	1.91	.90	1.25	1.93	38.7	119
September	1.98	.60	.849	1.31	25.5	78
October	11.0	.47	1.55	2.40	48.2	148
November	36.5	1.46	4.33	6.70	130	399
December	9.5	1.46	3.03	4.69	93.9	288
Calendar year 1944	38	.47	2.36	3.65	866	2,660
January	1.91	.72	1.13	1.75	34.9	107
February	1.26	.53	.709	1.10	19.8	61
March	1.78	.60	.897	1.39	27.8	85
April	40	.97	5.75	8.90	172	529
May	1.91	.84	1.29	2.00	40.0	122
June	1.05	.53	.702	1.09	21.1	65
Fiscal year 1944-45	40	.47	2.07	3.20	755	2,320

e Backwater from debris.

Time basis: Hawaiian war time. 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 1945.
Average discharge.- 26 years (1917-20, 1922-45), 5.33 million gallons a day (8.25 second-feet).
Extremes.- Maximum discharge during year, 156 million gallons a day (241 second-feet) Nov. 9 (gage height, 3.60 feet); minimum, 0.45 million gallons a day (0.70 second-foot) Oct. 24.
1913-45: 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. 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 tables, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Aug. 11				Aug. 12 to June 30					
0.4	0.90	0.9	4.4	0.2	0.30	0.7	2.1	1.2	6.5
.5	1.25	1.0	6.6	.3	.60	.8	2.6	1.3	8.8
.6	1.65	1.1	9.0	.4	.90	.9	3.1	1.5	14.9
.7	2.1	1.2	11.6	.5	1.25	1.0	3.65		
.8	2.7			.6	1.65	1.1	4.6		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.2	1.14	0.81	0.57	0.72	0.97	0.97	0.72	0.70	0.60	1.41	0.81
2	1.08	1.08	.90	.57	.66	1.00	.97	.69	.80	.65	1.29	.81
3	1.71	1.08	.75	.60	.63	1.04	.97	.66	.69	.63	1.25	.78
4	9.8	1.08	.75	.57	.60	1.00	.90	.69	.69	.72	1.22	.78
5	3.95	1.04	.72	.57	3.05	1.58	.97	.86	1.27	1.73	1.18	.78
6	2.15	1.00	.69	.54	.94	1.58	.90	.72	.63	9.0	1.18	.75
7	1.49	1.04	.63	.54	2.45	4.7	.90	.69	.54	4.2	1.14	.75
8	1.25	1.04	.60	.51	3.9	3.7	.87	.66	1.38	3.3	1.14	.75
9	1.18	1.00	.60	.51	15.1	1.60	.87	.63	.84	2.3	1.11	.72
10	1.25	1.00	.60	.54	1.70	1.33	.87	.63	.69	1.37	1.08	.72
11	1.11	1.01	.60	.54	1.25	1.29	.84	.63	.63	1.14	1.04	.75
12	1.08	.97	.63	.54	1.14	1.18	.87	.60	.57	1.04	1.04	.72
13	1.00	.97	.60	.51	1.18	1.11	.84	.60	.54	1.04	1.00	.69
14	1.25	.94	.63	.51	1.11	1.08	.84	.81	.54	.94	1.00	.72
15	1.00	.92	.60	.48	1.13	1.14	.87	.69	.48	2.7	1.18	.72
16	.97	.87	.68	.54	1.04	1.04	.94	.60	.58	13.4	1.14	.69
17	.97	.94	.79	1.20	.97	1.00	.87	.57	.84	4.0	1.04	.72
18	.90	1.04	.88	.72	1.00	1.00	.90	.54	1.32	2.85	1.04	.69
19	.90	.90	.66	.57	.97	1.00	.81	.54	.98	2.05	1.00	.72
20	.96	.84	.99	.54	1.04	1.00	.81	.51	.78	1.78	a.94	.69
21	1.11	.84	.72	.57	1.22	.90	.87	.54	.66	1.70	a.90	.63
22	1.19	.87	.63	.51	1.14	.84	.81	.66	.63	1.65	a.87	.63
23	.97	.84	.60	.48	1.76	.84	.72	.57	.60	1.86	a.84	.66
24	4.4	.87	.57	.45	1.39	1.18	.72	.69	.54	1.61	a.86	.60
25	5.2	1.00	.57	1.88	1.18	2.8	.72	.75	.51	1.53	a.90	.75
26	1.53	.97	.54	1.73	1.08	2.8	.72	.66	.51	1.49	.87	.69
27	2.0	1.06	.54	.92	1.04	1.18	.72	.63	.54	1.41	.84	.66
28	1.41	.90	.57	.63	.97	1.38	.72	.60	2.55	1.41	.84	.60
29	1.26	1.01	.54	.57	1.04	1.14	.72	-	1.00	1.45	.87	.60
30	1.18	.90	.54	.87	1.04	1.08	.78	-	.84	1.41	.84	.57
31	1.14	.84	-	.72	-	1.00	.78	-	.69	-	.84	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.8	0.90	1.95	3.02	60.6	186
August	1.14	.84	.968	1.50	30.0	92
September	.99	.54	.664	1.03	19.9	61
October	1.88	.45	.677	1.05	21.0	64
November	15.1	.60	1.75	2.71	52.4	161
December	4.7	.84	1.43	2.21	44.5	137
Calendar year 1944	21	.30	1.38	2.14	503	1,540
January	.97	.72	.841	1.30	26.1	80
February	.86	.51	.648	1.00	18.1	56
March	2.55	.48	.792	1.23	24.6	75
April	13.4	.60	2.37	3.67	71.0	218
May	1.41	.84	1.03	1.59	31.9	98
June	.81	.57	.705	1.09	21.2	65
Fiscal year 1944-45	15.1	.45	1.15	1.78	421	1,290

a No gage-height record; discharge computed on basis of records for East Branch Manoa Stream.
Time basis: Hawaiian war time. 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 1945. May 1913 to January 1921 at site 200 feet upstream.
Average discharge.- 26 years (1913-20, 1926-45), 2.74 million gallons a day (4.24 second-feet).
Extremes.- Maximum discharge during year, 305 million gallons a day (472 second-feet) Nov. 9 (gage height, 3.60 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) Feb. 12, May 28, 29.
1913-21, 1925-45: 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 Aug. 1, which are fair, and those for Jan. 15, 22, which are poor. Small quantity of water is diverted occasionally for irrigation.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.0	0	0.4	1.78	0.8	6.7
.1	.25	.5	2.6	.9	9.0
.2	.62	.6	3.5	1.0	11.8
.3	1.11	.7	4.8	1.1	15.0

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.4	0.91	0.61	0.22	1.50	0.72	0.72	0.26	0.38	0.62	0.78	0.15
2	2.3	.86	.58	.22	1.06	.88	.72	.20	.55	.67	.67	.25
3	7.0	.77	.44	.36	1.01	.86	.67	.20	.58	.82	.58	.20
4	10.7	.58	.36	.29	.86	1.08	.62	.18	.74	.64	.55	.25
5	4.2	.44	.36	.29	6.7	2.9	.58	.50	2.25	1.15	.58	.36
6	2.9	.44	.44	.22	2.05	2.95	.57	.29	.72	7.9	.51	.32
7	2.05	.44	.40	.22	4.1	8.4	.55	.22	.55	5.3	.47	.20
8	1.51	.44	.36	.20	7.1	6.5	.62	.18	2.45	5.6	.44	.20
9	1.31	.44	.32	.20	13.3	2.5	.62	.18	1.51	3.1	.44	.25
10	2.4	.44	.32	.22	1.94	1.71	.58	.18	.91	1.78	.47	.29
11	1.69	.44	.36	.20	1.44	1.58	.55	.23	.77	1.31	.44	.43
12	1.24	.44	.48	.20	1.18	1.18	.81	.13	.62	1.06	.36	.29
13	1.06	.44	.40	.20	1.01	1.01	.86	.12	.47	1.01	.20	.21
14	3.45	.44	.36	.22	1.11	.91	1.17	.43	.47	.86	.20	.59
15	1.18	.44	.40	.22	1.59	1.26	d1.38	.62	.44	3.9	.51	1.17
16	.96	.44	.69	.69	1.06	.96	.83	.29	.76	9.7	.29	.85
17	1.06	.44	1.17	10.0	.86	.77	.51	.20	1.23	2.5	.23	.61
18	.86	.44	1.39	2.05	.91	.72	.74	.18	2.35	1.65	.22	1.11
19	.72	.44	.58	.91	.96	.67	.40	.20	2.05	1.18	.20	.18
20	.86	.44	2.4	.62	1.37	.67	.36	.20	1.46	1.01	.22	.29
21	1.08	.44	1.19	.55	1.88	.62	.58	.20	.96	.91	.25	.18
22	1.11	.44	.72	.51	1.38	1.12	1.01	.38	.77	.91	.22	.18
23	.82	.36	.55	.44	2.1	1.01	.44	.32	.62	.86	.18	.25
24	5.9	.64	.44	.40	1.34	3.35	.40	.32	.62	.72	.18	.20
25	7.2	1.14	.40	2.25	.96	4.2	.40	.59	.55	.67	.15	.91
26	1.94	1.10	.36	8.1	.82	3.0	.40	.44	.51	1.26	.18	.70
27	3.85	.62	.32	2.8	.72	1.38	.39	.36	.47	.72	.12	.40
28	1.86	.58	.32	1.31	.62	1.44	.32	.38	3.15	.67	.12	.32
29	1.38	1.23	.22	1.06	1.05	1.01	.32	-	1.41	.92	.12	.36
30	1.24	.55	.22	5.0	.86	.91	.29	-	.98	.74	.18	.25
31	1.01	.87	-	1.51	-	.82	.29	-	.72	-	.18	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.4	0.72	2.81	4.35	87.2	268
August	1.23	.36	.585	.905	18.1	56
September	2.4	.22	.569	.880	17.1	52
October	10.0	.20	1.34	2.07	41.7	128
November	13.3	.62	2.09	3.23	62.8	193
December	8.4	.62	1.84	2.85	57.1	175
Calendar year 1944	25.5	.20	1.30	2.01	475	1,460
January	1.38	.29	.603	.933	18.7	57
February	.62	.12	.285	.441	7.98	24
March	3.15	.38	1.03	1.59	32.0	98
April	9.7	.62	2.00	3.09	60.1	185
May	.78	.12	.330	.511	10.2	31
June	1.17	.15	.398	.616	12.0	37
Fiscal year 1944-45	13.3	.12	1.16	1.79	425	1,300

d Doubtful gage-height record; discharge estimated.
Note.- No gage-height record Aug. 1-22; discharge computed on basis of records for East Branch Manoa Stream.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 26 years (1913-20, 1926-45), 3.19 million gallons a day (4.94 second-feet).

Extremes.- Maximum discharge during year, 341 million gallons a day (528 second-feet) probably Nov. 9 (gage height, 3.82 feet), from rating curve extended above 5.7 million gallons a day by test on model of station site; minimum, 0.72 million gallons a day (1.11 second-feet) May 28, 29.

1913-21, 1925-45: Maximum gage height, 10.4 feet Jan. 16, 1921, from floodmarks, site and datum then in use (discharge, 2,000 million gallons a day or 3,090 second-feet, estimated from rating curve extended above 37 million gallons a day); minimum discharge, 0.4 million gallons a day (0.6 second-foot) June 7, 8, 1926.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Board of Water Supply, at times, diverts a small amount of ground water from tunnels in drainage area.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.4	1.57	1.3	1.1	3.0	1.64	1.64	1.1	1.1	1.15	1.46	0.77
2	2.15	1.57	1.5	1.1	2.0	1.64	1.50	1.1	1.4	1.26	1.36	.83
3	5.8	1.50	1.3	1.5	1.8	1.64	1.4	1.1	1.5	1.29	1.29	.77
4	5.9	1.50	1.2	1.15	1.6	1.90	1.4	1.1	2.0	1.25	1.22	.77
5	3.3	1.50	1.2	1.15	11	6.1	1.4	1.2	3.5	1.92	1.22	.83
6	2.5	1.50	1.4	1.10	4.0	4.7	1.3	1.1	1.6	9.5	1.22	.83
7	1.93	1.50	1.3	1.10	7.5	18.1	1.3	1.1	1.4	4.1	1.10	.88
8	1.78	1.57	1.2	1.10	12	10.1	1.3	1.1	4.0	6.3	1.04	.88
9	1.64	1.50	1.1	1.1	25	3.2	1.3	1.1	3.3	2.85	1.04	.88
10	2.55	1.57	1.1	1.1	4.0	2.5	1.3	1.1	1.7	1.85	1.04	.88
11	2.75	1.57	1.2	1.0	2.5	2.5	1.3	1.1	1.4	1.64	1.04	.99
12	1.85	1.43	1.4	1.0	2.2	2.1	1.5	1.1	1.2	1.57	1.04	.99
13	1.50	1.72	1.3	1.0	1.9	1.93	1.6	1.0	1.1	1.57	1.04	.99
14	5.3	1.50	1.2	1.0	2.1	1.85	2.2	1.3	1.1	1.36	1.04	1.10
15	1.85	1.43	1.3	1.1	2.7	2.95	2.4	1.4	1.1	10.9	1.30	1.04
16	1.64	1.36	1.7	3.0	1.7	1.93	1.5	1.2	1.3	10.6	1.10	.93
17	1.92	1.43	2.2	20	1.57	1.78	1.2	1.1	1.9	2.8	1.04	.99
18	1.50	1.36	2.5	5.0	1.70	1.71	1.4	1.1	4.0	2.0	1.04	.99
19	1.43	1.36	1.4	1.5	1.68	1.71	1.2	1.1	3.7	1.71	1.04	.93
20	1.56	1.29	4.0	1.4	2.2	1.64	1.2	1.1	2.5	1.64	1.04	.99
21	1.71	1.22	2.5	1.3	3.5	1.57	1.3	1.1	1.7	1.57	1.04	.88
22	1.76	1.23	1.6	1.2	2.1	2.0	1.8	1.1	1.5	1.57	1.04	.88
23	1.64	1.15	1.4	1.1	2.1	2.0	1.3	1.1	1.3	1.57	1.04	.88
24	6.1	1.50	1.2	1.0	1.85	4.9	1.2	1.1	1.3	1.50	1.04	.83
25	5.5	2.0	1.1	4.0	1.71	4.4	1.2	1.3	1.2	1.43	.99	1.46
26	2.25	1.9	1.1	13	1.57	4.8	1.2	1.2	1.2	1.98	.99	1.76
27	4.6	1.5	1.1	5.0	1.50	2.25	1.2	1.1	1.2	1.36	.99	1.10
28	2.5	1.4	1.1	2.5	1.50	2.55	1.1	1.1	5.0	1.36	.93	1.04
29	1.93	2.2	1.1	2.0	1.88	1.93	1.1	-	2.5	1.36	.77	1.04
30	1.71	1.4	1.1	10	1.71	1.78	1.1	-	1.7	1.29	.88	.93
31	1.64	1.8	-	3.5	-	1.71	1.1	-	1.22	-	.83	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.4	1.43	2.83	4.38	87.6	269
August	2.2	1.15	1.52	2.35	47.0	144
September	4.0	1.1	1.47	2.27	44.1	135
October	20	1.0	2.97	4.60	92.1	283
November	25	1.50	3.72	5.76	112	342
December	18.1	1.57	3.27	5.06	102	312
Calendar year 1944	31.5	1.0	2.31	3.57	848	2,600
January	2.4	1.1	1.39	2.15	42.9	132
February	1.4	1.0	1.13	1.75	31.7	97
March	5.0	1.1	1.96	3.03	60.6	186
April	10.9	1.15	2.74	4.24	82.2	252
May	1.46	.77	1.07	1.66	33.2	102
June	1.76	.77	.969	1.50	29.1	89
Fiscal year 1944-45	25	.77	2.09	3.23	764	2,340

Note.- No gage-height record Aug. 26 to Oct. 3, Oct. 9 to Nov. 16, Jan. 3 to Mar. 30, discharge computed on basis of records for Waiomao and West Branch Manoa Streams.
Time basis: Hawaiian war time. 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 4⅝ 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 1945. April 1912 to September 1913 above present site and just below Mahoe Springs.

Average discharge.- 19 years, 1.36 million gallons a day (2.10 second-feet).

Extremes.- Maximum discharge during year, 86 million gallons a day (133 second-feet) Nov. 9 (gage height, 3.35 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.10 million gallons a day (0.16 second-foot) June 11, 28-30.

1912-13, 1926-45: Maximum discharge, 1,680 million gallons a day (2,600 second-feet) Apr. 11, 1930 (gage height, 7.75 feet, from floodmarks), from rating curve extended above 14 million gallons a day by test on model of station site; minimum, 0.09 million gallons a day(0.14 second-foot) Dec. 7-13, 20, 21, 1933.

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

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.08	1.3	1.10	1.6	3.9
1.1	.28	1.4	1.76	1.7	5.5
1.2	.60	1.5	2.7	1.8	7.4

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.60	0.47	0.18	0.14	0.38	0.38	0.46	0.24	0.16	0.22	0.34	0.18
2	.34	.44	.18	.14	.34	.34	.47	.22	.16	.22	.31	.18
3	.42	.41	.18	.14	.34	.34	.47	.20	.16	.22	.31	.16
4	1.25	.36	.18	.14	.34	.31	.47	.20	.16	.22	.28	.14
5	.85	.38	.18	.14	.44	.28	.47	.20	.16	.22	.28	.14
6	.60	.34	.18	.16	.44	.48	.47	.18	.16	2.25	.26	.14
7	.60	.34	.18	.16	.59	7.1	.44	.18	.16	1.88	.24	.14
8	.65	.31	.18	.16	2.05	3.5	.44	.18	.18	1.92	.24	.14
9	.65	.28	.18	.16	5.3	.90	.41	.18	.18	1.17	.24	.14
10	.70	.28	.18	.16	.75	.75	.41	.18	.18	.50	.24	.14
11	.65	.28	.18	.16	.65	.75	.41	.18	.16	.47	.24	.10
12	.60	.28	.18	.16	.57	.70	.34	.18	.14	.50	.22	.12
13	.60	.26	.18	.16	.60	.70	.34	.16	.14	.50	.22	.12
14	.73	.26	.16	.14	.57	.70	.34	.16	.14	.50	.20	.12
15	.60	.24	.16	.14	.52	.65	.31	.16	.14	3.9	.20	.12
16	.57	.22	.16	.16	.47	.60	.31	.16	.14	4.1	.20	.12
17	.54	.22	.16	.33	.44	.54	.31	.16	.16	1.10	.20	.12
18	.50	.22	.16	.31	.41	.50	.31	.16	.16	.75	.22	.12
19	.50	.22	.16	.24	.38	.47	.31	.18	.18	.70	.20	.12
20	.47	.22	.16	.24	.38	.44	.28	.18	.18	.65	.20	.12
21	.47	.22	.16	.24	1.14	.44	.28	.18	.18	.65	.18	.12
22	.44	.22	.16	.22	.47	.44	.26	.18	.18	.60	.18	.12
23	.44	.20	.16	.22	.44	.41	.26	.18	.18	.57	.18	.12
24	.52	.20	.16	.22	.44	.41	.26	.16	.20	.50	.18	.12
25	.54	.20	.16	.22	.44	.38	.26	.16	.20	.47	.18	.12
26	.44	.20	.16	.93	.44	.68	.26	.16	.20	.47	.18	.12
27	.54	.20	.16	.38	.44	.44	.26	.16	.20	.44	.18	.12
28	.50	.20	.14	.31	.44	.44	.24	.16	.20	.41	.18	.10
29	.50	.18	.14	.28	.41	.44	.24	-	.18	.38	.18	.10
30	.50	.18	.14	.20	.38	.44	.24	-	.20	.38	.18	.10
31	.50	.18	-	.41	-	.44	.24	-	.20	-	.18	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.25	0.34	0.575	0.890	17.8	55
August	.47	.18	.265	.410	8.23	25
September	.18	.14	.167	.258	5.00	15
October	.93	.14	.238	.368	7.37	23
November	5.3	.34	.700	1.08	21.0	64
December	7.1	.28	.819	1.27	25.4	78
Calendar year 1944	21.5	.14	.506	.783	185	568
January	.47	.24	.341	.528	10.6	32
February	.24	.16	.178	.275	4.98	15
March	.20	.14	.172	.266	5.32	16
April	4.1	.22	.895	1.38	26.9	82
May	.34	.18	.220	.340	6.82	21
June	.18	.10	.127	.196	3.82	12
Fiscal year 1944-45	7.1	.10	.392	.607	143	438

Note.- Faulty gage-height record Sept. 9 to Oct. 3, Nov. 11-15, June 18-21; discharge computed on basis of estimated gage heights.

Time basis: Hawaiian war time. 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 1945. April 1911 to December 1912 at highway bridge below present site.

Average discharge.- 19 years, 1.22 million gallons a day (1.89 second-feet).

Extremes.- Maximum discharge during year, 90 million gallons a day (139 second-feet) Nov. 9 (gage height, 3.50 feet); no flow for several periods during year.
1911-12, 1926-45: Maximum discharge, 602 million gallons a day (931 second-feet) Oct. 15, 1938 (gage height, 5.43 feet), from rating curve extended above 45 million gallons a day by test on model of station site; no flow in extremely dry weather.

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

Rating table, fiscal year 1944-45 (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		
1.3	.63	1.8	5.3		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.15	0.18	0.01	0	0.49	0.08	0.18	0	0.01	0.06	0.13	0
2	.60	.14	0	0	.46	.08	.16	0	0	.03	.35	0
3	1.43	.10	0	0	.30	.10	.10	0	0	.03	.26	0
4	1.94	.09	0	0	.24	.29	.09	0	0	.05	.14	0
5	1.15	.08	0	0	1.42	.74	.08	0	.42	.37	.10	0
6	.97	.06	0	0	.66	2.05	.07	0	.14	4.7	.09	0
7	.53	.05	0	0	1.57	6.4	.06	0	.06	3.65	.07	0
8	.33	.05	0	0	3.75	3.8	.05	.01	.35	3.25	.06	0
9	.26	.04	0	0	8.9	1.09	.04	.01	.32	2.3	.03	0
10	1.21	.04	0	0	1.46	.60	.03	0	.24	.84	.01	0
11	.66	.02	0	0	.89	.63	.01	0	.14	.50	.01	0
12	.42	.01	0	0	.50	.37	.01	0	.09	.33	.01	0
13	.28	.02	0	0	.37	.24	.01	0	.06	.58	0	0
14	1.76	.05	0	0	.28	.18	.01	0	.04	.50	0	0
15	.66	.04	0	0	.67	.37	.03	.01	.03	10.8	0	0
16	.40	.01	0	0	.43	.28	.06	.01	.02	7.6	0	0
17	.50	0	0	1.79	.26	.18	.09	.01	.07	2.4	0	0
18	.33	0	0	.60	.24	.14	.08	0	.59	1.10	0	0
19	.24	0	0	.21	.24	.12	.06	0	1.15	.63	0	0
20	.22	0	.07	.10	.32	.12	.04	0	.50	.37	0	0
21	.22	0	.52	.07	1.47	.09	.02	0	.26	.26	0	0
22	.20	0	.34	.06	.50	.14	.29	0	.18	.22	0	0
23	.16	0	.12	.02	.30	.10	.08	.01	.12	.20	0	0
24	1.68	0	.06	.01	.24	.53	.05	.01	.08	.20	0	0
25	1.60	0	.03	.30	.18	.65	.02	.01	.06	.18	0	0
26	.52	.09	.01	1.99	.14	1.97	.01	.01	.05	.23	0	.08
27	1.98	.02	.01	.62	.09	.53	.01	.01	.04	.20	0	.10
28	.83	.01	0	.30	.08	.63	.01	.01	.31	.12	0	.06
29	.40	0	0	.24	.08	.40	0	-	.20	.10	0	.01
30	.28	.05	0	1.56	.14	.26	0	-	.12	.12	0	.01
31	.24	.01	-	.88	-	.20	0	-	.07	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.15	0.16	0.779	1.21	24.2	74
August	.18	0	.037	.057	1.16	3.6
September	.52	0	.039	.060	1.17	3.6
October	1.99	0	.282	.436	8.75	27
November	8.9	.08	.889	1.38	26.7	82
December	6.4	.08	.754	1.17	23.4	72
Calendar year 1944	21.5	0	.492	.761	180	553
January	.29	0	.056	.087	1.75	5.4
February	.01	0	.004	.006	.11	.3
March	1.15	0	.185	.286	5.72	18
April	10.8	.03	1.40	2.17	41.9	129
May	.35	0	.041	.063	1.26	3.9
June	.10	0	.009	.014	.26	.8
Fiscal year 1944-45	10.8	0	.373	.577	136	420

Time basis: Hawaiian war time. 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 1945.

Average discharge.- Not determined owing to diversion by water development tunnel in drainage area.

Extremes.- Maximum discharge during year, 129 million gallons a day (200 second-feet) Apr. 16 (gage height, 2.85 feet), from rating curve extended above 13 million gallons a day by test on model of station site; minimum, 0.22 million gallons a day (0.34 second-foot) June 28-30.
1914-19, 1939-45: 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 June 28-30, 1945.

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

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.23	1.3	2.1	1.7	9.2
1.0	.53	1.4	3.05	1.8	15.3
1.1	.92	1.5	4.2	1.9	23
1.2	1.45	1.6	5.9		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.06	0.80	0.69	0.69	0.72	0.72	0.69	0.61	0.65	0.35	0.92	0.57
2	.84	.76	.72	.69	.72	.72	.65	.61	.61	.38	.92	.57
3	.84	.76	.72	.69	.69	.72	.7	.61	.65	.42	.84	.57
4	.80	.76	.72	.69	.69	.72	.7	.61	.65	.49	.80	.57
5	.80	.76	.72	.69	.80	.72	.7	.74	.65	.61	.80	.61
6	.80	.76	.76	.67	.76	.72	.7	.65	.65	4.8	.80	.65
7	.80	.76	.76	.69	.80	.76	.7	.65	.65	4.0	.76	.46
8	.72	.76	.76	.69	1.13	.80	.7	.61	.65	1.60	.76	.42
9	.72	.72	.76	.69	6.3	.72	.7	.61	.61	1.34	.76	.57
10	.76	.72	.76	.69	1.88	.69	.7	.61	.61	.92	.76	.65
11	.76	.72	.76	.69	.72	.65	.7	.61	.61	.72	.76	.49
12	.72	.72	.80	.72	.69	.65	.7	.61	.61	.72	.80	.32
13	.72	.72	.80	.72	.69	.65	.7	.61	.61	.76	.76	.46
14	.76	.69	.76	.72	.69	.65	.7	.61	.61	.76	.76	.27
15	.72	.69	.76	.72	.69	.65	.7	.63	.61	7.8	.80	.32
16	.72	.69	.76	.72	.69	.65	.7	.61	.61	21.5	.72	.29
17	.72	.69	.76	.76	.69	.65	.7	.61	.65	4.6	.69	.27
18	.72	.69	.76	.72	.69	.65	.6	.57	.61	1.71	.69	.27
19	.72	.69	.72	.72	.69	.65	.6	.57	.61	1.18	.69	.27
20	.72	.69	.72	.72	.72	.65	.6	.57	.61	1.03	.69	.27
21	.72	.61	.80	.72	.72	.65	.6	.61	.61	.97	.69	.27
22	.72	.61	.76	.72	.72	.65	.6	.65	.61	.88	.69	.25
23	.72	.61	.72	.72	.80	.65	.6	.65	.57	1.09	.65	.27
24	.76	.61	.72	.72	.76	.65	.6	.65	.57	.92	.69	.25
25	.92	.61	.72	.80	.76	.75	.6	.65	.57	.84	.65	.27
26	.92	.61	.72	.88	.76	.81	.6	.65	.57	.80	.61	.25
27	.88	.65	.72	.84	.72	.72	.6	.65	.57	.76	.61	.25
28	.84	.65	.72	.80	.72	.72	.6	.65	.57	.76	.61	.23
29	.84	.69	.72	.72	.72	.69	.6	-	.62	.94	.67	.23
30	.80	.69	.72	.72	.72	.69	.61	-	.46	1.03	.79	.23
31	.80	.69	-	.69	-	.69	.61	-	.38	-	.61	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.06	0.72	0.785	1.21	24.3	75
August	.80	.61	.696	1.08	21.6	66
September	.80	.69	.743	1.15	22.3	68
October	.88	.67	.723	1.12	22.4	69
November	6.3	.69	.962	1.49	28.8	89
December	.81	.65	.692	1.07	21.5	66
Calendar year 1944	6.5	.61	.873	1.35	320	982
January	.7	.6	.654	1.01	20.3	62
February	.74	.57	.624	.965	17.5	54
March	.65	.38	.601	.930	18.6	57
April	21.5	.35	2.16	3.34	64.7	198
May	.92	.61	.734	1.14	22.8	70
June	.65	.23	.379	.586	11.4	35
Fiscal year 1944-45	21.5	.23	.811	1.25	296	909

Note.- No gage-height record Jan. 1-29; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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 1945.

Extremes.- Maximum discharge during year, 5.7 million gallons a day (8.8 second-feet) Nov. 8 (gage height, 1.28 feet); minimum, 0.12 million gallons a day (0.19 second-foot) Dec. 21, Feb. 1-4, Mar. 14, 15.

1940-45: 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 Dec. 21, 1944, Feb. 1-4, Mar. 14, 15, 1945.

Remarks.- Records good. No diversions above station.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.09	0.7	0.46
.5	.17	.8	.78
.6	.29	.9	1.45

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.33	0.17	0.17	0.16	0.15	0.15	0.13	0.13	0.14	0.13	0.21	0.15
2	.23	.18	.18	.16	.15	.15	.13	.13	.14	.14	.22	.15
3	.23	.18	.17	.16	.15	.15	.14	.17	.14	.14	.21	.15
4	.24	.18	.17	.16	.15	.15	.15	.13	.14	.14	.19	.15
5	.23	.18	.17	.15	.16	.15	.15	.32	.14	.15	.18	.15
6	.23	.18	.17	.15	.15	.15	.15	.16	.14	.65	.18	.15
7	.23	.18	.17	.15	.17	.18	.15	.14	.14	.60	.17	.15
8	.23	.18	.17	.15	.51	.16	.14	.14	.14	.42	.17	.15
9	.23	.18	.17	.15	.72	.15	.14	.14	.15	.39	.17	.15
10	.24	.17	.17	.15	.23	.15	.14	.14	.14	.28	.16	.15
11	.23	.17	.17	.15	.18	.15	.14	.14	.14	.22	.16	.15
12	.23	.17	.17	.15	.16	.14	.14	.14	.14	.19	.16	.15
13	.23	.17	.17	.14	.15	.14	.14	.14	.14	.18	.15	.15
14	.23	.17	.17	.14	.15	.14	.14	.15	.14	.17	.15	.16
15	.23	.17	.17	.14	.15	.14	.15	.14	.14	.58	.15	.20
16	.22	.17	.17	.15	.15	.13	.15	.15	.14	1.05	.15	.15
17	.22	.17	.17	.16	.15	.13	.15	.15	.16	.43	.15	.15
18	.21	.17	.17	.15	.15	.13	.14	.14	.15	.29	.15	.15
19	.21	.17	.17	.15	.15	.13	.14	.14	.15	.26	.15	.15
20	.21	.17	.18	.15	.16	.13	.14	.14	.15	.23	.15	.15
21	.19	.17	.17	.15	.16	.13	.14	.14	.14	.22	.15	.15
22	.19	.18	.17	.15	.16	.13	.13	.15	.14	.19	.15	.15
23	.18	.18	.17	.15	.18	.13	.13	.14	.14	.23	.15	.15
24	.19	.18	.17	.15	.15	.14	.13	.14	.14	.21	.16	.15
25	.23	.18	.17	.19	.15	.18	.13	.14	.14	.19	.15	.15
26	.17	.18	.17	.30	.15	.26	.13	.14	.15	.19	.15	.15
27	.18	.18	.17	.16	.15	.15	.13	.14	.14	.18	.15	.15
28	.18	.18	.17	.15	.15	.15	.13	.14	.14	.17	.15	.15
29	.17	.17	.17	.15	.15	.15	.13	-	.14	.22	.17	.15
30	.17	.19	.16	.16	.15	.14	.13	-	.14	.23	.17	.15
31	.17	.17	-	.15	-	.14	.14	-	.14	-	.15	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.33	0.17	0.215	0.333	6.67	20
August	.19	.17	.176	.272	5.45	17
September	.18	.16	.170	.263	5.11	16
October	.30	.14	.157	.243	4.88	15
November	.72	.15	.188	.291	5.64	17
December	.26	.13	.148	.229	4.60	14
Calendar year 1944	1.28	.13	.233	.361	85.4	262
January	.15	.13	.139	.215	4.30	13
February	.32	.13	.147	.227	4.12	13
March	.16	.14	.142	.220	4.41	14
April	1.05	.13	.289	.447	8.66	27
May	.22	.15	.164	.254	5.08	16
June	.20	.15	.152	.235	4.56	14
Fiscal year 1944-45	1.05	.13	.174	.269	63.5	196

Time basis: Hawaiian war time. 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 1945.

Extremes.- Maximum discharge during year, 69 million gallons a day (107 second-feet) Nov. 9 (gage height, 3.10 feet), from rating curve extended above 8.4 million gallons a day by test on model of station site; minimum (estimated), 1.6 million gallons a day (2.5 second-feet) May 19-23, June 24-30.

1935-45: 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 May 19-23, June 24-30, 1945.

Remarks.- Records good. No diversions above station. Continuous records of rainfall are obtained at station.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.23	0.8	4.8
.5	1.91	.9	6.0
.6	2.7	1.0	7.5
.7	3.75		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.99	1.99	1.91	1.84	1.77	1.84	1.84	1.77	1.77	1.77	1.77	1.64
2	1.99	1.99	1.91	1.84	1.77	1.84	1.84	1.77	1.77	1.77	1.77	1.64
3	1.99	1.99	1.91	1.84	1.77	1.84	1.84	1.77	1.77	1.77	1.77	1.64
4	1.99	1.99	1.91	1.84	1.77	1.84	1.84	1.84	1.77	1.77	1.77	1.64
5	1.99	1.99	1.91	1.84	1.77	1.64	1.84	2.25	1.77	1.77	1.77	1.64
6	1.99	1.99	1.91	1.84	1.77	1.91	1.84	1.91	1.77	3.9	1.77	1.64
7	1.91	1.91	1.91	1.84	1.84	1.99	1.84	1.84	1.77	2.95	1.71	1.71
8	1.91	1.91	1.91	1.84	4.4	1.91	1.84	1.84	1.77	2.3	1.71	1.71
9	1.91	1.91	1.91	1.84	5.0	1.91	1.64	1.84	1.77	2.05	1.71	1.71
10	1.91	1.91	1.91	1.84	1.84	1.84	1.84	1.84	1.77	1.77	1.64	1.71
11	1.91	1.91	1.91	1.84	1.77	1.84	1.84	1.84	1.77	1.77	1.64	1.71
12	1.99	1.91	1.91	1.84	1.77	1.84	1.84	1.77	1.77	1.77	1.64	1.71
13	1.99	1.91	1.91	1.84	1.77	1.84	1.84	1.77	1.77	1.77	1.64	1.71
14	1.99	1.91	1.91	1.84	1.77	1.84	1.84	1.84	1.77	1.77	1.64	1.71
15	1.99	1.91	1.91	1.84	1.77	1.77	1.84	1.84	1.77	5.3	1.64	1.71
16	1.99	1.91	1.91	1.84	1.77	1.77	1.84	1.84	1.77	6.3	1.64	1.71
17	1.99	1.91	1.91	1.84	1.77	1.77	1.84	1.84	1.84	2.45	1.64	1.71
18	2.05	1.91	1.91	1.77	1.77	1.77	1.84	1.77	1.84	2.0	1.64	1.71
19	2.05	1.91	1.91	1.77	1.77	1.77	1.84	1.77	1.91	1.84	1.6	1.7
20	2.05	1.91	1.91	1.77	1.77	1.77	1.84	1.77	1.84	1.77	1.6	1.7
21	2.05	1.91	1.99	1.77	1.88	1.77	1.84	1.77	1.84	1.77	1.6	1.7
22	1.99	1.91	1.99	1.77	1.91	1.84	1.77	1.77	1.84	1.71	1.6	1.7
23	1.99	1.91	1.91	1.77	1.91	1.84	1.77	1.77	1.77	2.15	1.6	1.7
24	2.05	1.91	1.91	1.84	1.91	1.84	1.77	1.77	1.77	1.77	1.7	1.6
25	2.25	1.91	1.91	2.4	1.84	1.91	1.77	1.77	1.77	1.71	1.7	1.6
26	2.05	1.91	1.84	4.1	1.84	2.25	1.77	1.77	1.77	1.71	1.7	1.6
27	2.15	1.91	1.84	1.99	1.84	1.91	1.77	1.77	1.77	1.71	1.71	1.6
28	2.05	1.91	1.84	1.99	1.84	1.91	1.77	1.77	1.77	1.71	1.71	1.6
29	1.99	1.91	1.84	1.84	1.84	1.91	1.77	-	1.77	2.05	1.71	1.6
30	1.99	1.99	1.84	1.84	1.84	1.91	1.77	-	1.77	1.84	1.71	1.6
31	1.99	1.99	-	1.84	-	1.84	1.77	-	1.77	-	1.71	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.25	1.91	2.00	3.09	62.1	191
August	1.99	1.91	1.93	2.99	59.8	184
September	1.99	1.84	1.90	2.94	57.1	175
October	4.1	1.77	1.93	2.99	59.7	183
November	5.0	1.77	2.00	3.09	60.0	184
December	2.25	1.77	1.86	2.88	57.7	177
Calendar year 1944	5.0	1.77	2.11	3.26	772	2,370
January	1.84	1.77	1.82	2.82	56.3	173
February	2.25	1.77	1.82	2.82	50.9	156
March	1.91	1.77	1.79	2.77	55.4	170
April	6.3	1.71	2.22	3.43	66.7	205
May	1.77	1.6	1.68	2.60	52.2	160
June	1.71	1.6	1.67	2.58	50.1	154
Fiscal year 1944-45	6.3	1.6	1.89	2.92	688	2,110

Note.- No gage-height record May 19-26, June 19-30; discharge computed on basis of records for Waihee Stream.

Time basis: Hawaiian war time. 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 1945.
Extremes.- Maximum discharge during year, 128 million gallons a day (198 second-feet) Nov. 8 (gage height, 3.89 feet), from rating curve extended above 50 million gallons a day by test on model of station site; minimum, 3.85 million gallons a day (5.96 second-feet) Feb. 18.
1935-45: 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 Feb. 18, 1945.
Remarks.- Records excellent. A 2-inch pipeline diverts water above station for domestic use.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.5	4.4	4.4	4.4	4.7	4.3	4.3	4.0	3.95	4.0	5.0	4.2
2	4.5	4.4	4.6	4.4	4.6	4.3	4.3	4.0	3.95	4.0	5.0	4.2
3	4.5	4.4	4.4	4.4	4.6	4.3	4.3	4.0	3.95	4.0	4.7	4.2
4	4.6	4.4	4.4	4.4	4.6	4.3	4.2	4.0	3.95	4.3	4.6	4.0
5	4.6	4.4	4.4	4.4	4.6	4.3	4.2	5.3	3.95	4.3	4.6	4.0
6	4.6	4.4	4.5	4.3	4.6	4.4	4.2	4.4	3.95	12.4	4.5	4.0
7	4.6	4.3	4.5	4.4	4.7	4.5	4.2	4.0	3.95	8.8	4.4	4.2
8	4.6	4.3	4.5	4.4	13.0	4.4	4.0	4.0	4.0	7.1	4.4	4.2
9	4.6	4.4	4.5	4.4	13.5	4.3	4.0	4.0	4.0	5.4	4.4	4.2
10	4.7	4.4	4.5	4.4	6.0	4.2	4.2	4.0	4.0	4.5	4.3	4.2
11	4.6	4.4	4.4	4.4	5.0	4.2	4.2	4.0	4.0	4.3	4.3	4.2
12	4.6	4.4	4.5	4.4	4.6	4.2	4.2	4.0	3.95	4.2	4.3	4.2
13	4.6	4.4	4.4	4.4	4.6	4.2	4.2	4.0	3.95	3.95	4.3	4.2
14	4.9	4.4	4.4	4.4	4.6	4.2	4.2	4.0	3.95	3.95	4.3	4.2
15	4.6	4.4	4.4	4.4	4.6	4.2	4.2	4.0	3.95	14.7	4.4	4.3
16	4.5	4.4	4.5	4.4	4.5	4.2	4.2	3.95	3.95	22	4.4	4.3
17	4.5	4.3	4.6	4.5	4.5	4.2	4.2	3.95	4.0	9.2	4.3	4.2
18	4.5	4.3	4.6	4.4	4.5	4.2	4.0	3.95	4.2	6.2	4.3	4.2
19	4.4	4.3	4.5	4.4	4.5	4.2	4.0	3.95	4.2	5.4	4.3	4.2
20	4.4	4.3	4.5	4.4	4.7	4.2	4.0	3.95	4.0	5.2	4.3	4.2
21	4.4	4.3	4.7	4.4	4.8	4.2	4.0	4.0	3.95	4.7	4.2	4.2
22	4.4	4.3	4.7	4.3	4.5	4.2	4.0	4.0	4.0	4.6	4.2	4.2
23	4.4	4.3	4.5	4.3	4.5	4.2	4.0	4.0	4.0	6.0	4.2	4.2
24	5.2	4.5	4.4	4.4	4.4	4.3	4.0	4.0	4.0	5.3	4.3	4.0
25	6.8	4.5	4.4	7.8	4.4	4.7	4.0	4.0	4.0	4.9	4.2	4.0
26	4.9	4.6	4.3	14.0	4.3	6.1	4.0	4.0	4.0	4.7	4.2	4.0
27	4.7	4.4	4.4	5.7	4.3	4.4	4.0	4.0	4.0	4.6	4.2	4.0
28	4.6	4.4	4.4	5.2	4.3	4.3	4.0	3.95	4.0	4.5	4.2	4.0
29	4.5	4.5	4.4	4.7	4.3	4.3	4.0	-	4.0	5.7	4.2	4.0
30	4.5	4.6	4.4	5.2	4.3	4.3	4.0	-	4.0	5.0	4.3	4.0
31	4.4	4.5	-	4.7	-	4.3	4.0	-	4.1	-	4.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.8	4.4	4.65	7.19	144	443
August	4.6	4.3	4.40	6.81	136	418
September	4.7	4.3	4.47	6.92	134	412
October	14.0	4.3	4.93	7.63	153	469
November	13.5	4.3	5.17	8.00	155	476
December	6.1	4.2	4.34	6.71	135	413
Calendar year 1944	15	4.2	5.05	7.81	1,850	5,680
January	4.3	4.0	4.11	6.36	127	391
February	5.3	3.95	4.05	6.27	113	348
March	4.2	3.95	4.00	6.19	124	380
April	22	3.95	6.26	9.69	188	577
May	5.0	4.2	4.37	6.76	136	416
June	4.3	4.0	4.14	6.41	124	381
Fiscal year 1944-45	22	3.95	4.57	7.07	1,670	5,120

Time basis: Hawaiian war time. To convert war time to standard time, subtract ½ hour.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Oahu during fiscal year July 1944 to June 1945

Date	Stream	Tributary to or diverting from-	Locality	Discharge	
				Second-feet	Million gallons a day
July 24	Pearl Harbor Springs.	Pacific Ocean.	All springs west of Puukapu gaging station, near Pearl City.	1.57	1.01
Oct. 9	....do.....	....do.....	....do.....	1.13	.730
Feb. 15	....do.....	....do.....	....do.....	1.66	1.07
Mar. 30	....do.....	....do.....	....do.....	.827	.535
Aug. 20	Waimano.....	....do.....	Above ditch diversion dam, near Pearl City.	0	0
Dec. 20	Haiku.....	Heeia Stream..	At altitude 500 feet, near Heeia..	.501	.324
June 6	....do.....	....do.....	At road crossing below junction with Iolekaa Stream, near Heeia.	1.51	.976
8	Ainoni Springs.....	Pacific Ocean.	On Maunawili Ranch, near Kailua...	.416	.269

Halawa Stream near Halawa

Location.- Lat. 21°09'30", long. 156°46'00", about 500 feet downstream from confluence of two main branches, 1¾ miles west of Halawa, and 6 miles northeast of Pukoo.
Drainage area.- 4.5 square miles.
Records available.- August 1917 to July 1932, November 1937 to June 1945.
Average discharge.- 21 years (1918-32, 1938-45), 19.2 million gallons a day (29.7 second-feet).
Extremes.- Maximum discharge during year, 1,050 million gallons a day (1,620 second-feet) Nov. 8 (gage height, 6.84 feet), from rating curve extended above 100 million gallons a day by logarithmic plotting; minimum, 1.2 million gallons a day (1.9 second-feet) Sept. 11, 12.
1917-32, 1937-45: 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.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	64	7.4	2.2	3.5	38	38	5.0	1.74	3.6	3.5	18.7	2.15
2	11.4	5.4	2.3	2.5	13.5	17.4	4.5	1.74	3.75	2.95	147	6.5
3	19.2	4.2	1.8	3.5	8.7	16.3	3.95	1.67	9.5	17.0	10.8	3.5
4	16.3	4.1	1.60	2.8	7.8	45	3.75	1.67	14.6	4.4	6.6	4.3
5	9.8	3.85	1.46	2.2	73	9.9	4.5	3.65	21	11.1	5.6	24
6	14.6	3.5	3.55	1.8	23.5	45	5.5	5.1	4.7	d47	5.0	5.9
7	7.8	3.2	4.2	1.7	58	79	3.6	1.95	6.8	d115	4.9	4.8
8	7.0	3.65	2.65	1.6	133	44	2.95	1.74	70	d221	4.4	5.1
9	5.4	6.7	1.53	1.6	38.5	13.2	2.65	1.67	33.5	56	3.95	4.5
10	10.3	7.7	1.32	1.6	24	9.3	2.5	1.67	9.8	22	3.4	2.65
11	6.6	3.95	1.25	1.60	19.8	9.1	2.2	6.9	14.5	13.8	3.05	4.8
12	6.9	3.3	2.7	1.74	10.9	7.3	3.5	12.7	11.0	14.6	2.85	3.5
13	5.6	3.85	2.85	1.74	8.7	5.9	3.05	2.05	16.8	d57	2.85	3.9
14	19.3	3.2	1.74	2.15	11.0	5.2	2.85	25.5	8.5	d133	2.75	4.5
15	7.4	2.85	1.46	2.05	28	12.2	2.85	8.8	6.4	d158	2.75	4.1
16	8.1	2.4	9.4	2.6	10.3	14.3	29.5	4.6	8.0	d109	4.8	16.2
17	38.5	2.3	d52	73	15.6	5.4	10.9	6.3	28.5	46	3.15	5.9
18	28	2.1	d23	15.7	29	5.8	5.9	4.6	25.5	25	2.75	6.2
19	8.5	2.0	d4.8	4.2	11.8	4.6	3.85	5.1	29.5	16.3	2.85	4.5
20	10.1	1.9	d8.0	3.05	9.6	6.4	6.3	2.85	16.9	12.3	2.65	5.1
21	18.2	1.8	d101	4.5	22	5.0	18.4	2.05	9.5	10.3	2.3	9.3
22	15.3	2.0	d20	12.7	14.4	31.5	46	13.3	6.6	9.1	2.3	4.9
23	7.3	1.8	d5.5	5.4	9.7	52	4.5	4.9	6.0	10.5	2.15	19.1
24	74	1.8	4.0	3.4	14.1	59	3.2	4.6	12.7	13.6	2.05	4.9
25	49	1.7	3.4	176	14.6	20.5	2.6	6.8	8.5	9.1	1.95	3.4
26	11.8	1.7	3.0	74	7.1	157	2.2	8.0	5.2	7.1	1.88	5.3
27	67	1.7	2.8	46	5.9	21	2.15	10.0	4.4	5.8	1.88	3.4
28	17.2	1.7	50	13.2	5.8	11.1	1.95	8.0	22.5	5.6	1.81	2.85
29	9.5	15	18	16.2	19.6	8.2	1.88	-	9.5	5.4	1.81	2.85
30	7.1	3.5	5.0	62	20.5	6.8	1.88	-	5.3	4.9	6.7	3.75
31	5.9	2.6	-	16.1	-	5.8	1.81	-	4.4	-	2.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	74	5.4	18.9	29.2	587	1,800
August	15	1.7	3.64	5.63	113	346
September	101	1.25	11.4	17.6	343	1,050
October	176	1.6	18.1	28.0	560	1,720
November	133	5.8	23.5	36.4	706	2,170
December	157	4.6	24.9	38.5	771	2,370
Calendar year 1944	226	1.2	16.6	25.7	6,090	18,710
January	46	1.81	6.33	9.79	196	603
February	25.5	1.67	5.70	8.82	160	490
March	70	3.6	14.1	21.8	438	1,340
April	221	2.95	38.9	60.2	1,170	3,580
May	147	1.8	8.65	13.4	268	823
June	24	2.15	6.06	9.38	182	558
Fiscal year 1944-45	221	1.2	15.0	23.2	5,490	16,850

d Doubtful gage-height record; discharge computed on basis of records for Pulena and Waikolu Streams.
Note.- No gage-height record Aug. 17 to Sept. 3, Sept. 24 to Oct. 10; discharge computed on basis of records for Pulena and Waikolu Streams.
Time basis: Hawaiian war time. 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 (hand levels from Reclamation Service bench mark).
Drainage area.- 4.4 square miles.
Records available.- October 1919 to December 1928, September 1937 to June 1945.
Average discharge.- 15 years (1920-28, 1938-45), 21.5 million gallons a day (33.3 second-feet).
Extremes.- Maximum discharge during year, 4,360 million gallons a day (6,750 second-feet) Apr. 7 (gage height, 7.93 feet), from rating curve extended above 220 million gallons a day by logarithmic plotting; minimum, 3.2 million gallons a day (5.0 second-feet) Oct. 7, 9, 10, 15.
1919-28, 1937-45: 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 good except those above 150 million gallons a day, which are fair.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used June 6-30)

0.8	3.0	1.4	19.9	2.8	171
.9	4.5	1.6	30	3.2	275
1.0	6.6	1.8	44	3.6	430
1.1	9.0	2.0	60	4.0	620
1.2	12.1	2.4	103	4.5	950

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	69	9.6	5.1	3.9	25.5	46	11.5	4.7	11.8	9.3	19.9	6.0
2	27	8.8	11.9	3.8	17.0	33	10.6	4.5	20.5	9.3	15.7	7.6
3	38.5	8.3	5.8	6.6	13.2	24.5	9.9	4.5	25.5	18.7	10.9	7.4
4	26	8.0	4.9	3.9	13.0	27	9.3	5.8	58	11.1	10.2	6.8
5	19.9	7.6	4.7	3.8	31.5	22.5	9.0	6.8	35	13.0	9.6	22
6	21.5	7.3	5.7	3.6	15.7	66	9.0	16.4	23.5	590	11.5	9.6
7	15.3	7.6	6.8	3.4	35	114	8.3	5.8	19.9	492	13.2	5.8
8	15.0	13.7	4.7	3.4	213	89	7.8	4.9	60	698	9.3	7.3
9	12.8	10.2	4.2	3.3	63	40	7.6	4.9	49	117	8.8	7.8
10	12.1	10.4	4.2	3.3	35	28	7.1	4.5	30	58	8.3	5.3
11	10.6	7.3	4.0	4.9	26	24.5	7.1	10.0	36	38	7.8	7.6
12	11.5	6.8	5.5	4.2	18.2	19.1	8.0	6.2	24	33	7.6	6.4
13	10.6	7.1	4.2	3.7	17.6	16.5	6.8	4.6	41	49	7.6	5.6
14	16.5	6.2	4.5	3.9	24.5	14.6	7.7	12.8	24	69	7.3	4.9
15	10.9	6.0	3.9	3.4	26	30	6.8	7.1	19.1	79	7.3	4.7
16	9.0	5.3	6.3	5.8	17.8	18.8	14.5	9.5	32	79	7.7	5.1
17	10.2	6.4	20.5	53	20.5	13.5	9.1	12.3	34	53	7.4	5.3
18	10.2	5.8	11.5	16.2	28.5	13.5	7.6	7.2	40	36	7.0	5.3
19	8.0	5.3	6.8	6.8	19.9	13.0	6.6	6.0	35.5	28	6.8	5.8
20	14.2	4.7	13.4	5.6	20	15.3	6.2	5.3	27.5	23	6.6	9.3
21	15.1	4.7	10.7	6.2	33.5	11.5	24	6.6	19.5	22.5	6.4	8.8
22	12.8	6.1	6.4	11.0	27.5	18.2	23.5	20.5	16.1	23	6.4	6.8
23	9.6	5.3	5.1	7.1	22	19.4	8.3	7.8	13.9	37	6.3	14.6
24	41	5.3	4.7	5.7	18.6	26	7.1	11.7	19.9	32.5	6.2	6.4
25	23.5	9.9	4.4	39.5	16.1	18.2	6.4	23	13.9	21.5	6.2	6.4
26	14.3	12.4	4.2	17.8	12.5	68	6.2	16.4	11.2	17.8	6.1	9.6
27	27.5	10.6	4.4	19.1	13.2	26.5	5.8	31	10.6	15.3	6.1	6.2
28	16.6	7.8	4.9	12.5	16.1	18.6	5.6	15.6	22.5	13.9	6.0	5.3
29	12.5	9.6	4.0	14.9	26	15.7	5.3	-	20.5	13.2	6.0	6.0
30	10.6	6.6	3.8	26.5	24	13.9	5.1	-	11.8	12.1	6.0	5.6
31	9.6	6.2	-	28.5	-	12.5	4.9	-	10.6	-	6.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	69	8.0	18.1	28.0	562	1,720
August	13.7	4.7	7.64	11.8	237	727
September	20.5	3.8	6.37	9.86	191	587
October	53	3.3	10.8	16.7	335	1,030
November	213	12.5	29.7	46.0	890	2,730
December	114	11.5	29.6	45.8	917	2,820
Calendar year 1944	311	3.3	18.7	28.9	6,840	21,000
January	24	4.9	8.80	13.6	273	837
February	31	4.5	9.87	15.3	276	848
March	60	10.6	26.3	40.7	817	2,510
April	698	9.3	90.4	140	2,710	8,320
May	19.9	6.0	8.33	12.9	258	792
June	22	4.7	7.34	11.4	220	676
Fiscal year 1944-45	698	3.3	21.1	32.6	7,690	23,600

Time basis: Hawaiian war time. 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 (hand levels from Reclamation Service bench mark).

Drainage area.- 4.0 square miles.

Records available.- August 1931 to July 1932, September 1937 to June 1945. June 1919 to November 1930 at site 500 feet upstream.

Extremes.- Maximum discharge during year, 1,590 million gallons a day (2,460 second-feet) Nov. 8 (gage height, 6.12 feet), from rating curve extended above 42 million gallons a day by logarithmic plotting; minimum, 3.1 million gallons a day (4.8 second-feet) Jan. 29.

1919-32, 1937-45: 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 period of no gage-height record, which are poor. Kalaupapa water-supply system diverts water above station.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in millions gallons a day)

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	20	4.7	4.5	4.8	5.4	13.8	4.7	3.6	4.0	4.0	10.6	4.3
2	6.3	4.7	4.7	4.8	5.8	9.4	4.7	3.6	7.1	3.8	10.4	4.3
3	8.6	4.7	4.7	7.2	4.7	7.4	4.7	3.6	10.5	4.3	6.1	4.3
4	7.4	4.7	4.5	4.8	4.9	5.6	4.7	3.6	35.5	4.3	5.6	4.3
5	6.1	4.7	4.5	4.8	11.3	5.6	4.7	3.8	19.1	4.0	5.4	7.4
6	5.8	4.7	5.0	4.8	5.8	26	4.7	9.4	13.5	67	5.5	5.1
7	5.6	4.7	6.6	4.5	6.3	52	4.7	4.7	7.4	60	10.4	4.5
8	4.9	6.7	5.0	4.5	100	32.5	4.5	4.0	10.7	116	6.1	4.3
9	4.9	6.9	4.7	4.5	17.2	8.2	4.3	3.6	12.0	15.8	5.4	4.7
10	4.9	7.7	4.5	4.5	6.6	6.1	4.0	3.6	7.6	8.0	5.1	4.5
11	4.9	5.1	4.5	4.7	8.1	6.1	4.0	3.6	11.1	6.6	4.9	4.7
12	4.7	4.7	4.5	4.5	6.1	5.8	4.0	3.6	8.4	6.1	4.9	4.7
13	4.9	4.7	4.5	4.3	5.4	5.1	3.8	3.6	37.5	39.5	4.9	4.5
14	6.8	4.5	4.5	4.9	5.4	4.9	3.8	3.6	10.0	24.5	4.9	4.3
15	8.0	4.5	4.5	4.9	6.6	6.6	3.8	4.0	6.1	89	4.9	4.3
16	5.4	4.3	7.0	5.7	5.6	8.7	3.8	5.0	11.5	29	4.9	4.3
17	5.1	4.0	15	29	5.6	5.4	4.0	8.0	15.5	15.0	4.9	4.3
18	5.1	4.3	9.0	11.4	7.9	5.6	4.0	5.1	11.1	8.2	4.9	4.3
19	5.6	4.5	5.5	5.4	6.1	5.1	3.8	3.8	8.0	7.4	4.7	4.0
20	5.6	4.3	7.0	4.5	5.1	7.1	3.6	3.6	9.2	6.9	4.7	4.0
21	6.3	4.3	40	4.3	9.8	5.8	3.6	3.6	6.3	6.3	4.5	4.5
22	6.3	4.3	14	4.3	14.0	5.6	12.2	5.6	5.4	5.8	4.5	4.5
23	5.1	4.5	6.0	5.4	11.0	5.6	5.1	4.9	5.4	8.0	4.5	6.1
24	9.8	4.5	5.0	5.1	6.3	8.5	4.5	5.0	7.2	7.7	4.5	4.9
25	7.7	4.5	4.7	55	5.1	5.6	4.3	12.5	6.1	6.6	4.5	4.3
26	5.6	4.5	4.5	21	4.5	56	4.3	7.2	4.5	5.8	4.3	4.5
27	5.6	4.7	4.5	11.3	4.5	7.6	4.3	8.9	4.3	5.6	4.3	5.4
28	5.8	4.7	14	6.3	4.9	5.6	4.3	6.1	6.4	5.6	4.3	4.7
29	4.9	4.7	5.8	5.6	6.3	5.1	4.0	-	5.9	5.6	4.3	4.3
30	4.7	4.7	4.8	5.8	8.2	4.9	3.6	-	5.1	5.4	4.3	4.0
31	4.7	4.7	-	5.1	-	4.7	3.6	-	4.3	-	4.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	20	4.7	6.36	9.84	197	605
August	7.7	4.0	4.81	7.44	149	458
September	40	4.5	7.27	11.2	218	669
October	55	4.3	8.31	12.9	258	791
November	100	4.5	10.2	15.8	304	934
December	56	4.7	11.0	17.0	342	1,050
Calendar year 1944	124	4.0	8.79	13.6	3,220	9,880
January	12.2	3.6	4.45	6.89	138	424
February	12.5	3.6	5.04	7.80	141	433
March	37.5	4.0	10.2	15.8	317	972
April	116	3.8	19.4	30.0	582	1,790
May	10.6	4.3	5.40	8.36	168	514
June	7.4	4.0	4.61	7.13	138	424
Fiscal year 1944-45	116	3.6	8.09	12.5	2,950	9,060

Note.- No gage-height record Sept. 4 to Oct. 10; discharge computed on basis of records for stations on nearby streams.

Time basis: Hawaiian war time. 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 1945.

Extremes.- Maximum daily discharge during year, 0.057 million gallons a day (0.088 second-foot) Apr. 15; minimum daily, 0.008 million gallons a day (0.012 second-foot) June 4.6. 1940-45: Maximum daily discharge, 0.275 million gallons a day (0.425 second-foot) Mar. 11, 1942; minimum daily, that of June 4-6, 1945.

Remarks.- Records good except those for period of no gage-height record, which are fair. Maui County Water Works diverts the entire flow for domestic supply from tail bay at station.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.023	0.022	0.019	0.018	0.018	0.015	0.014	0.012	0.012	0.012	0.012	0.010
2	.023	.022	.019	.018	.018	.015	.014	.012	.012	.012	.012	.009
3	.023	.022	.019	.018	.017	.015	.014	.012	.012	.012	.012	.009
4	.023	.022	.019	.018	.017	.015	.014	.012	.012	.012	.012	.008
5	.023	.022	.019	.018	.017	.016	.014	.013	.012	.012	.012	.008
6	.023	.022	.020	.017	.017	.015	.014	.013	.012	.017	.012	.008
7	.023	.022	.020	.017	.017	.017	.014	.013	.012	.017	.012	.011
8	.023	.022	.020	.017	.020	.018	.013	.013	.012	.034	.011	.011
9	.023	.022	.019	.017	.020	.017	.013	.013	.012	.027	.011	.010
10	.023	.021	.019	.018	.019	.017	.013	.013	.012	.020	.011	.010
11	.023	.021	.019	.019	.018	.016	.013	.013	.012	.017	.011	.010
12	.023	.021	.019	.019	.018	.016	.013	.013	.012	.015	.011	.010
13	.023	.021	.019	.019	.018	.016	.013	.013	.016	.020	.011	.010
14	.023	.021	.019	.019	.017	.015	.013	.013	.015	.027	.011	.010
15	.023	.021	.019	.019	.017	.015	.013	.013	.014	.057	.011	.010
16	.023	.021	.019	.019	.017	.015	.013	.013	.014	.043	.011	.009
17	.023	.021	.019	.020	.017	.015	.013	.013	.014	.030	.011	.009
18	.023	.021	.019	.020	.016	.015	.013	.013	.013	.027	.010	.009
19	.023	.020	.019	.019	.016	.015	.013	.013	.013	.024	.010	.011
20	.023	.020	.019	.019	.016	.015	.013	.013	.012	.021	.010	.011
21	.023	.020	.019	.018	.016	.015	.013	.013	.012	.019	.010	.010
22	.023	.020	.019	.018	.016	.015	.013	.013	.012	.017	.010	.010
23	.023	.021	.019	.018	.016	.015	.013	.013	.012	.015	.010	.009
24	.023	.020	.019	.018	.016	.015	.013	.012	.012	.015	.010	.009
25	.023	.020	.018	.021	.016	.015	.013	.012	.012	.014	.010	.009
26	.023	.020	.018	.019	.016	.015	.012	.012	.012	.013	.010	.009
27	.023	.019	.018	.019	.016	.015	.012	.012	.012	.013	.010	.009
28	.023	.019	.018	.019	.016	.016	.012	.012	.012	.012	.010	.009
29	.023	.019	.018	.018	.016	.015	.012	-	.012	.012	.010	.009
30	.022	.019	.018	.018	.015	.015	.012	-	.012	.012	.010	.009
31	.022	.019	-	.018	-	.015	.012	-	.012	-	.010	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.023	0.022	0.023	0.036	0.711	2.2
August	.022	.019	.021	.032	.643	2.0
September	.020	.018	.019	.029	.567	1.7
October	.021	.017	.018	.028	.572	1.8
November	.020	.015	.017	.026	.509	1.6
December	.018	.015	.015	.023	.477	1.5
Calendar year 1944	.064	.012	.020	.031	7.26	22
January	.014	.012	.013	.020	.404	1.2
February	.013	.012	.013	.020	.355	1.1
March	.016	.012	.012	.019	.387	1.2
April	.057	.012	.020	.031	.598	1.8
May	.012	.010	.011	.017	.334	1.0
June	.011	.008	.010	.016	.265	.9
Fiscal year 1944-45	.057	.008	.016	.025	5.84	18

Note.- No gage-height record Apr. 18 to May 19; discharge computed on basis of probable decrease in flow.

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

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Makaeleele Stream near Kalae

Location.- Soil Conservation Service type H (De Fabritis) flume, lat. 21°09'05", long. 156°57'55", about 50 feet downstream from Maui County pipe-line intake, 3.1 miles southeast of Kalae, and 5.6 miles northeast of Kaunakakai post office. Altitude of gage, 2,450 feet (from topographic map).

Records available.- May 1940 to May 1945 (discontinued).

Extremes.- Maximum discharge during period, 41 million gallons a day (63 second-feet) Nov. 8 (gage height, 3.43 feet), from rating curve extended above 4.2 million gallons a day by borad-crested weir formula; no flow many times.
1940-45: Maximum discharge, that of Nov. 8, 1944; no flow at times.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Maui County Water Works diverts about 0.014 million gallons a day for domestic supply from pool about 50 feet upstream.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.0	0	0.5	0.29	1.2	2.05
.1	.01	.6	.43	1.4	2.95
.2	.05	.7	.61	1.6	4.2
.3	.10	.8	.82	1.8	6.1
.4	.18	1.0	1.35	2.0	8.4

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.59	0.02	0.01	0	0.05	1.38	0.04	0.02	0.04	0.06	1.5	
2	.22	.02	.01	0	.05	.38	.04	.02	.03	.06	.50	
3	.18	.02	.01	0	.04	.20	.03	.02	.06	.06	.20	
4	.16	.02	.01	0	.03	.10	.03	.03	2.25	.09	.14	
5	.09	.02	.01	0	.08	.28	.03	.02	.69	.12	.11	
6	.07	.02	.01	0	.04	1.79	.03	.05	.12	3.25	.10	
7	.06	.02	.01	0	.04	4.3	.03	.03	.11	2.65	.13	
8	.05	.69	.01	0	3.2	2.85	.03	.02	.62	6.5	.10	
9	.06	.25	0	0	.53	.40	.03	.02	.89	.93	.08	
10	.10	.28	.01	0	.26	.21	.02	.02	.24	.36	.07	
11	.05	.08	0	.01	.23	.16	.02	.02	.78	.24	.07	
12	.03	.05	.01	0	.09	.12	.03	.02	.30	.18	.06	
13	.03	.04	0	0	.07	.10	.02	.01	2.5	2.3	.06	
14	.74	.03	0	.01	.05	.08	.02	.02	.40	1.49	.06	
15	.11	.03	0	0	.22	1.15	.02	.02	.15	4.0	.05	
16	.18	.02	0	.55	.10	.46	.02	.02	.18	1.36	.05	
17	.27	.02	0	4.6	.13	.12	.02	.06	.43	.69	.05	
18	.08	.02	0	.71	.26	.15	.02	.04	.24	.32	.05	
19	.05	.02	0	.10	.14	.10	.02	.02	.16	.24	-	
20	.81	.02	0	.04	.10	.12	.02	.01	.20	.20	-	
21	.07	.02	0	.03	.28	.10	.34	.03	.15	.17	-	
22	.04	.02	0	.03	.20	.07	1.07	.17	.12	.15	-	
23	.03	.02	0	.26	.07	.08	.06	.14	.10	.22	-	
24	.03	.02	0	.15	.05	.13	.03	.26	.67	.20	-	
25	.04	.02	0	2.85	.04	.07	.03	.20	.20	.18	-	
26	.03	.02	0	1.24	.03	.49	.02	.08	.11	.15	-	
27	.68	.02	0	.36	.03	.14	.02	.12	.08	.13	-	
28	.20	.01	0	.12	.17	.07	.02	.10	.08	.12	-	
29	.06	.01	0	.07	.23	.06	.02	-	.07	.11	-	
30	.03	.01	0	.07	.13	.05	.02	-	.07	.10	-	
31	.02	.01	-	.05	-	.04	.02	-	.06	-	-	

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.59	0.02	0.199	0.308	6.16	19
August	.69	.01	.060	.093	1.87	5.7
September	.01	0	.003	.005	.10	.3
October	4.6	0	.363	.562	11.2	35
November	3.2	.03	.231	.357	6.94	21
December	4.3	.04	.508	.786	15.8	48
Calendar year 1944	4.6	0	.243	.376	89.0	273
January	1.07	.02	.070	.108	2.17	6.7
February	.26	.01	.057	.088	1.59	4.9
March	2.5	.03	.390	.603	12.1	37
April	6.5	.06	.886	1.37	26.6	82
May 1-18	1.5	.05	.188	.291	3.38	10
June	-	-	-	-	-	-
The period	-	-	-	-	87.9	270

Note.- No gage-height record Mar. 12-21, Apr. 20 to May 4: discharge computed on basis of records for Waikolu Stream.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Kaduna 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 1945.

Extremes.- Maximum discharge during year, 6.5 million gallons a day (10.1 second-feet) Apr. 8 (gage height, 1.78 feet); no flow Mar. 25, 26.
1940-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.4	0.18
.1	.01	.5	.29
.2	.05	.6	.43
.3	.10		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.08	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02	0.01
2	.02	.02	.01	.01	.01	.01	.01	.02	.01	.01	.02	.01
3	.02	.02	.01	.01	.01	.01	.01	.02	.01	.01	.02	.01
4	.02	.02	.01	.01	.01	.01	.01	.02	.01	.01	.02	.01
5	.02	.02	.01	.01	.01	.01	.01	.02	.01	.01	.02	.01
6	.02	.02	.01	.01	.01	.01	.01	.02	.01	.01	.02	.01
7	.02	.02	.01	.01	.01	.01	.01	.02	.01	.01	.02	.01
8	.02	.02	.01	.01	.01	.01	.01	.02	.01	.42	.02	.01
9	.02	.01	.01	.01	.01	.01	.01	.02	.01	.17	.02	.01
10	.02	.01	.01	.01	.01	.01	.01	.02	.01	.12	.02	.01
11	.02	.01	.01	.01	.01	.01	.01	.02	.01	.09	.02	.01
12	.02	.01	.01	.01	.01	.01	.01	.02	.01	.06	.02	.01
13	.02	.01	.01	.01	.01	.01	.01	.02	.01	.06	.02	.01
14	.02	.01	.01	.01	.01	.01	.01	.02	.01	.04	.02	.01
15	.01	.01	.01	.01	.01	.01	.01	.02	.01	.06	.02	.01
16	.01	.01	.01	.01	.01	.01	.01	.01	.01	.07	.02	.01
17	.01	.01	.01	.01	.01	.01	.01	.01	.01	.07	.02	.01
18	.01	.01	.01	.01	.01	.01	.01	.01	.01	.07	.01	.01
19	.01	.01	.01	.01	.01	.01	.01	.01	.01	.06	.01	.01
20	.01	.01	.01	.01	.01	.01	.01	.01	.01	.05	.01	.01
21	.02	.01	.01	.01	.01	.01	.01	.01	.01	.05	.01	.01
22	.02	.01	.01	.01	.01	.01	.02	.01	.01	.04	.01	.01
23	.02	.01	.01	.01	.01	.01	.02	.01	.01	.03	.01	.01
24	.02	.01	.01	.01	.01	.01	.02	.01	.01	.03	.01	.01
25	.02	.01	.01	.01	.01	.01	.01	.01	0	.03	.01	.01
26	.02	.01	.01	.01	.01	.01	.01	.01	0	.03	.01	.01
27	.02	.01	.01	.01	.01	.01	.01	.01	.01	.03	.01	.01
28	.02	.01	.01	.01	.01	.01	.01	.01	.01	.02	.01	.01
29	.02	.01	.01	.01	.01	.01	.01	-	.01	.02	.01	.01
30	.02	.01	.01	.01	.01	.01	.01	-	.01	.02	.01	.01
31	.02	.01	-	.01	-	.01	.01	-	.01	-	.01	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.02	0.01	0.018	0.028	0.56	1.7
August	.02	.01	.013	.020	.39	1.2
September	.01	.01	.010	.016	.30	.9
October	.01	.01	.010	.016	.31	1.0
November	.01	.01	.010	.016	.30	.9
December	.01	.01	.010	.016	.31	1.0
Calendar year 1944	.18	.01	.019	.029	6.86	21.1
January	.02	.01	.011	.017	.34	1.0
February	.02	.01	.015	.023	.43	1.3
March	.01	0	.009	.014	.29	.9
April	.42	.01	.056	.087	1.69	5.2
May	.02	.01	.015	.023	.48	1.5
June	.01	.01	.010	.016	.30	.9
Fiscal year 1944-45	.42	0	.016	.025	5.70	17.5

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Left Branch Makamakaole Stream near Waihee

Location.- Combined orifice and concrete control, lat. 20°57'40", long. 156°33'45", at intake to Marshall Branch diversion ditch on left branch, a quarter of a mile upstream from confluence with main stream, 2 miles northeast of Waihee, and 2½ 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 1945.

Extremes.- Maximum discharge during year, 126 million gallons a day (195 second-feet) Apr. 7 (gage height, 3.40 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.50 million gallons a day (0.77 second-foot) Feb. 10, 11.

1939-45: Maximum discharge recorded, 275 million gallons a day (425 second-feet) Mar. 18, 1943 (gage height, 4.87 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.44 million gallons a day (0.68 second-foot) Feb. 4, 5, 1944.

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

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.03	1.82	0.68	0.53	1.99	1.31	0.86	0.54	0.76	0.56	6.2	0.63
2	.68	.77	1.10	.52	1.45	1.30	.80	.55	.67	.55	9.9	.71
3	.80	.64	.67	.95	1.09	.94	.80	.54	.89	.55	3.05	.76
4	.75	.62	.61	.57	.94	.86	.75	.54	1.19	.55	2.25	.58
5	.68	.60	.58	1.98	.86	.80	.99	.53	.86	.57	1.53	.56
6	.68	.60	.59	1.09	.90	.98	.75	.53	.69	.63	1.09	.57
7	.65	.58	1.21	.56	1.21	2.85	.71	.53	.82	10.4	1.03	.56
8	.63	.75	.66	.54	5.7	2.6	.69	.53	4.4	10.9	.94	.69
9	.64	.63	.57	.62	2.25	1.22	.68	.53	2.45	3.45	.86	.57
10	1.55	.65	.56	.54	4.7	.94	.67	.52	1.09	2.0	.82	.54
11	.75	.62	.55	.53	2.35	1.03	.65	.55	.94	1.62	.80	.54
12	.69	.58	.90	.54	1.71	.86	.64	.55	1.28	1.45	.72	.55
13	.71	.57	.58	.53	1.67	.80	.63	.52	2.55	3.95	.75	.54
14	1.12	.58	.56	.73	2.8	.77	.62	.55	1.22	11.9	.71	.57
15	.82	.57	.55	.58	3.6	1.09	.60	.56	.98	6.9	.71	.54
16	.76	.57	.55	.54	1.90	.94	.60	.56	1.76	3.15	.71	.54
17	1.27	.57	.55	.83	2.25	.72	.58	.84	1.92	3.1	.68	.54
18	2.35	.62	.60	.65	2.45	1.08	.57	.64	1.22	2.25	.67	.54
19	.82	.56	.55	.57	1.62	.80	.58	.54	.90	1.90	.63	.62
20	.72	.55	.98	.54	1.80	1.07	.57	.54	.80	1.71	.63	.62
21	.67	.54	.98	.56	1.45	.75	.58	.54	.75	1.80	.61	.75
22	.63	1.16	.75	.54	1.71	1.26	2.3	.58	.69	1.62	.59	.55
23	.61	5.2	.57	.56	1.22	4.2	.69	.56	.66	1.53	.68	2.25
24	1.37	1.12	.55	.54	1.15	2.45	.61	.60	1.10	1.45	.57	.71
25	.80	1.12	.54	12.0	1.03	1.15	.58	.67	.71	1.37	.57	.57
26	.71	.78	.54	10.3	.94	7.9	.58	.68	.64	1.37	.57	.59
27	2.1	.76	.57	4.6	1.04	2.0	.58	1.74	.61	1.29	.56	.55
28	.90	.93	.69	2.55	1.12	1.45	.57	1.38	.59	1.22	.57	.54
29	.77	1.91	.55	2.65	1.15	1.15	.57	-	.65	3.0	.57	.54
30	.67	.86	.54	2.7	.86	1.09	.56	-	.58	2.25	.56	.53
31	.62	.91	-	1.71	-	.94	.55	-	.57	-	.62	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.35	0.61	0.901	1.39	27.9	86
August	5.2	.54	.927	1.43	28.7	88
September	1.21	.54	.663	1.03	19.9	61
October	12.0	.52	1.70	2.63	52.6	162
November	5.7	.86	1.83	2.83	54.9	169
December	7.9	.72	1.53	2.37	47.3	145
Calendar year 1944	15.3	.44	1.28	1.98	469	1,440
January	2.3	.55	.707	1.09	21.9	67
February	1.74	.52	.641	.992	17.9	55
March	4.4	.67	1.13	1.75	34.9	107
April	11.9	.55	2.83	4.38	85.0	261
May	9.9	.56	1.32	2.04	41.0	126
June	2.25	.53	.645	.998	19.4	59
Fiscal year 1944-45	12.0	.52	1.24	1.92	451	1,390

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 27 years (1916-20, 1922-45), 25.9 million gallons a day (40.1 second-feet).

Extremes.- Maximum discharge during year, 1,340 million gallons a day (2,070 second-feet) Apr. 7 (gage height, 6.71 feet), from rating curve extended above 120 million gallons a day; minimum, 5.4 million gallons a day (8.4 second-feet) May 1.
1913-20, 1922-45: 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, that of May 1, 1945.

Remarks.- Records good. No diversions above station.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

1.9	6.4	2.3	18.9	3.0	73
2.0	8.7	2.5	29	3.3	114
2.1	11.5	2.7	42	3.6	165

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	33	10.1	8.7	6.9	30	30.5	8.7	7.6	11.3	7.6	7.5	7.1
2	9.3	8.5	27	6.9	20	22.5	8.7	7.6	27	7.6	12.4	12.0
3	26.5	8.0	8.7	13.8	11.2	13.8	8.5	7.6	26.5	7.6	9.3	9.2
4	37	8.0	8.0	7.6	9.8	10.7	8.5	7.6	47	7.6	8.0	7.6
5	12.6	8.0	7.6	8.3	12.2	10.5	8.5	7.6	25	7.6	7.6	13.8
6	15.7	8.0	8.0	7.9	18.8	27.5	8.2	7.8	27.5	19.2	7.6	8.7
7	9.8	10.8	15.6	7.1	10.6	76	8.2	7.6	33.5	110	7.6	9.7
8	9.5	18.5	8.2	7.1	118	60	8.2	7.6	77	96	7.6	14.3
9	13.3	9.8	7.6	7.1	13.7	11.2	8.2	7.6	36	14.1	7.6	9.8
10	23.5	13.3	7.6	6.9	63	9.8	8.2	7.3	13.7	9.3	7.3	7.6
11	9.3	8.7	7.3	6.9	21.5	10.1	8.2	7.3	18.3	9.3	7.3	10.4
12	16.3	9.0	10.1	6.9	22	10.1	8.2	7.3	17.0	8.7	7.3	10.0
13	11.3	8.0	7.6	6.9	15.6	9.3	8.2	7.3	80	15.9	7.3	13.7
14	26.5	7.8	7.6	7.3	30.5	9.3	8.2	8.2	11.5	38.5	7.1	16.7
15	14.2	7.6	7.3	6.9	63	45	8.2	7.6	11.2	22	7.3	7.8
16	8.7	7.6	7.3	6.9	21.5	16.0	8.0	7.8	73	43	7.6	7.6
17	10.2	10.4	58	39	32.5	9.3	18.5	8.5	65	23.5	7.1	7.5
18	10.7	9.3	18.7	28	31.5	9.5	9.6	7.8	27	11.6	8.5	8.7
19	8.2	9.1	8.5	10.1	11.5	9.5	8.2	7.6	15.2	9.0	13.9	13.4
20	16.4	7.8	18.4	8.5	32.5	17.4	8.0	7.6	15.3	8.7	9.8	32.5
21	34.5	7.6	8.5	11.0	28.5	9.5	8.0	12.6	9.5	9.0	7.6	22
22	15.7	11.4	7.6	10.2	32	29	22	17.1	8.7	8.2	7.1	14.5
23	21.5	59	7.1	8.5	10.7	30	8.7	11.2	8.2	8.2	7.1	35
24	53	10.4	7.1	7.8	9.8	26	8.2	10.8	14.6	11.1	7.1	9.5
25	19.0	14.0	7.1	50	9.5	10.4	8.0	13.5	9.5	9.5	7.1	10.1
26	9.9	10.7	7.1	57	8.7	46	8.0	16.7	8.2	8.2	7.1	15.1
27	60	12.2	7.3	48	14.2	11.5	7.8	35	8.0	8.0	7.1	10.8
28	14.4	18.9	7.3	38.5	24	9.5	7.8	10.9	18.4	7.6	7.3	8.2
29	10.1	27	7.1	56	18.3	9.3	7.8	-	14.8	7.8	6.9	7.6
30	8.7	10.1	7.1	57	10.9	9.0	7.6	-	9.4	8.0	6.9	7.6
31	8.2	9.5	-	50	-	8.7	7.6	-	8.0	-	7.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	60	8.2	18.6	28.8	577	1,770
August	59	7.6	12.2	18.9	379	1,160
September	58	7.1	11.0	17.0	331	1,020
October	57	6.9	19.4	30.0	601	1,840
November	118	8.7	25.2	39.0	756	2,320
December	76	8.7	19.9	30.8	617	1,890
Calendar year 1944	239	6.2	18.3	28.3	6,700	20,560
January	22	7.6	8.99	13.9	279	855
February	35	7.3	10.0	15.5	281	861
March	80	8.0	25.0	38.7	775	2,380
April	110	7.6	18.7	28.9	562	1,730
May	13.9	6.9	7.87	12.2	244	749
June	35	7.1	12.3	19.0	366	1,130
Fiscal year 1944-45	118	6.9	15.8	24.4	5,770	17,700

Time basis: Hawaiian war time. 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 powerhouse, and 7½ miles northeast of Lahaina. Altitude of gage, 1,900 feet (from topographic map).

Records available.- July 1912 to June 1945.

Average discharge.- 26 years (1919-45), 5.71 million gallons a day (8.83 second-feet).

Extremes.- Maximum daily discharge during year, 17.0 million gallons a day (26.3 second-feet) Dec. 7; minimum daily, 2.85 million gallons a day (4.41 second-feet) Aug. 5.
1912-32: Maximum discharge, 76 million gallons a day (118 second-feet) Aug. 11, 1929 (gage height, 2.17 feet); no flow occasionally, when water was shut out of ditch.

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

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.4	3.05	3.3	3.4	8.7	10.7	3.7	3.7	5.7	4.2	4.5	4.5
2	3.85	3.1	6.7	3.4	5.7	7.6	3.7	3.7	10.6	4.2	4.5	4.5
3	8.2	3.1	3.45	4.0	4.2	5.0	3.7	3.7	9.2	4.1	4.6	4.8
4	11.4	3.1	3.3	3.7	4.3	3.95	3.7	3.7	12.6	4.1	4.5	4.7
5	5.4	2.85	3.3	3.55	5.3	3.9	3.7	3.7	7.5	4.2	4.5	6.2
6	5.0	3.0	3.3	3.55	6.2	9.4	3.7	3.7	9.0	5.0	4.5	4.9
7	3.9	3.1	3.6	3.65	4.3	17.0	3.7	3.7	7.4	5.3	4.5	4.6
8	3.45	6.0	3.55	3.65	14.9	12.6	3.7	3.7	14.2	6.0	4.5	5.8
9	3.6	3.8	3.45	3.65	4.8	4.3	3.7	3.7	11.9	5.5	4.5	4.9
10	5.8	4.4	3.4	3.65	8.1	4.1	3.7	3.7	6.3	4.1	4.5	4.5
11	3.45	3.55	3.35	3.65	6.8	3.85	3.7	3.7	7.5	4.3	4.5	4.8
12	3.75	3.35	3.3	3.65	6.5	3.85	3.7	3.7	6.3	4.2	4.5	4.7
13	4.2	3.3	3.3	3.7	4.7	3.75	3.7	3.7	12.0	4.5	4.5	4.9
14	7.8	3.3	3.3	3.65	7.4	3.65	3.7	3.7	5.1	6.6	4.5	5.5
15	4.5	3.3	3.3	3.65	9.0	9.2	3.7	3.7	4.6	5.4	4.5	4.5
16	3.25	3.3	3.35	3.65	6.1	5.7	3.7	3.7	10.6	8.5	4.5	4.5
17	3.15	3.25	8.0	11.8	8.2	3.95	3.9	3.7	13.4	6.2	4.5	4.4
18	3.15	3.3	6.5	9.5	9.0	3.75	4.2	3.7	11.4	4.8	4.5	4.4
19	3.15	3.3	3.7	4.0	4.4	3.7	4.0	3.7	7.5	4.6	4.7	5.8
20	6.0	3.3	4.9	4.0	8.1	4.9	3.85	3.7	6.6	4.6	5.2	9.4
21	7.6	3.3	3.6	3.95	6.5	4.1	3.8	4.3	4.6	4.6	4.5	7.3
22	5.4	3.3	3.4	4.1	7.7	6.9	5.0	7.6	4.1	4.6	4.5	6.0
23	7.0	9.2	3.4	3.9	4.3	5.5	4.0	4.8	4.1	4.6	4.5	8.5
24	11.2	3.65	3.4	4.0	4.0	6.9	3.75	5.4	5.2	4.8	4.5	4.5
25	4.0	4.4	3.4	6.4	3.7	4.0	3.7	5.3	4.7	4.9	4.5	5.1
26	4.6	3.85	3.4	6.3	3.65	7.6	3.7	5.3	4.2	4.7	4.5	6.3
27	7.2	4.4	3.4	8.0	4.2	4.2	3.7	12.1	4.2	4.7	4.5	4.9
28	3.85	6.1	3.4	6.4	7.7	3.85	3.7	4.6	8.7	4.5	4.5	4.6
29	3.4	6.9	3.4	8.2	6.7	3.9	3.7	-	6.7	4.5	4.5	4.6
30	3.1	3.75	3.4	8.1	4.6	3.8	3.7	-	4.7	4.5	4.5	4.5
31	3.0	3.4	-	7.7	-	3.7	3.7	-	4.3	-	4.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.4	3.0	5.28	8.17	164	503
August	9.2	2.85	3.90	6.03	121	371
September	8.0	3.3	3.82	5.91	115	352
October	11.8	3.4	4.98	7.71	154	474
November	14.9	3.65	6.32	9.78	190	582
December	17.0	3.65	5.78	8.94	179	550
Calendar year 1944	17.0	2.85	4.86	7.52	1,780	5,460
January	5.0	3.7	3.79	5.86	118	361
February	12.1	3.7	4.41	6.82	123	379
March	14.2	4.1	7.58	11.7	235	721
April	8.5	4.1	4.89	7.57	147	451
May	5.2	4.5	4.53	7.01	140	431
June	9.4	4.4	5.28	8.17	158	486
Fiscal year 1944-45	17.0	2.85	5.05	7.81	1,840	5,660

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 27 years (1917-20, 1921-45), 4.98 million gallons a day (7.71 second-feet).

Extremes.- Maximum daily discharge during year, 11.1 million gallons a day (17.2 second-feet) Apr. 9; minimum daily, 1.97 million gallons a day (3.05 second-feet) Oct. 7, 8, 16.

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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.9	3.75	2.5	2.05	6.1	5.2	3.45	2.3	2.05	2.5	4.1	2.65
2	4.8	3.2	3.4	2.0	5.7	5.7	3.25	2.25	2.15	2.4	4.0	2.85
3	5.7	3.0	2.6	2.45	4.7	4.8	3.15	2.25	2.45	2.4	3.8	2.6
4	5.9	2.9	2.45	2.05	4.0	3.85	3.0	2.3	4.5	2.35	3.6	2.5
5	5.0	2.75	2.35	2.05	3.7	3.55	2.95	2.4	2.6	2.4	3.55	2.5
6	4.5	2.65	2.4	2.0	3.75	6.5	2.85	2.9	2.85	4.1	4.0	2.45
7	4.2	2.8	2.7	1.97	3.35	9.0	2.8	2.35	2.55	9.8	8.5	2.55
8	3.75	2.9	2.4	1.97	4.1	9.0	2.65	2.25	6.5	9.6	4.9	2.7
9	3.85	2.65	2.35	2.05	3.75	8.9	2.6	2.25	6.4	11.1	4.0	2.55
10	5.0	2.75	2.3	2.1	4.7	7.1	2.35	2.2	5.3	7.3	3.7	2.4
11	3.95	2.6	2.25	2.65	5.8	5.8	2.2	2.2	3.75	7.4	3.6	2.45
12	3.95	2.65	2.45	2.2	5.2	4.8	2.25	2.15	3.55	7.9	3.3	2.45
13	3.7	2.5	2.25	2.05	5.0	4.3	2.25	2.15	8.2	7.8	3.2	2.45
14	4.9	2.45	2.25	2.05	4.3	3.9	2.25	2.3	7.7	8.7	3.1	2.55
15	4.4	2.4	2.2	2.0	7.8	5.5	2.25	2.2	4.7	8.8	3.05	2.4
16	3.7	2.4	2.25	1.97	7.0	5.8	2.2	2.5	6.3	8.1	3.0	2.3
17	3.85	2.4	3.35	3.7	6.5	4.2	2.3	2.25	10.3	8.3	2.9	2.5
18	3.95	2.4	3.35	3.6	8.0	3.85	2.3	2.15	9.8	6.6	2.9	2.4
19	3.45	2.35	2.6	2.55	5.8	3.75	2.25	2.1	7.3	5.8	3.0	2.65
20	3.8	2.3	3.2	2.25	5.6	4.0	2.25	2.1	5.6	5.3	2.95	3.35
21	3.9	2.3	2.6	2.3	5.7	3.5	2.25	2.2	4.6	5.0	2.75	4.4
22	3.7	2.3	2.45	2.25	7.9	4.9	2.55	2.25	4.0	4.6	2.65	3.2
23	3.65	3.8	2.35	2.2	5.6	5.2	2.3	2.1	3.65	5.5	2.6	5.4
24	5.4	2.35	2.3	2.2	4.6	5.6	2.3	2.05	3.7	6.4	2.85	3.55
25	5.0	2.2	2.25	4.1	3.95	4.2	2.3	2.1	3.3	5.4	4.0	3.1
26	3.7	2.05	2.2	4.4	3.55	8.2	2.3	2.0	3.0	4.7	3.95	2.9
27	4.3	1.98	2.15	5.7	4.4	6.6	2.3	2.55	2.95	4.4	3.0	2.7
28	4.9	2.05	2.2	6.1	5.1	5.2	2.3	2.2	2.95	4.1	2.8	2.55
29	4.7	2.4	2.1	8.9	6.0	4.4	2.35	-	2.85	4.0	2.75	2.45
30	3.85	2.15	2.05	8.8	4.1	4.0	2.35	-	2.7	4.2	2.7	2.4
31	3.45	2.35	-	7.3	-	3.65	2.3	-	2.6	-	2.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.9	3.45	4.41	6.82	137	419
August	3.8	1.98	2.57	3.96	79.7	245
September	3.4	2.05	2.48	3.84	74.2	228
October	8.9	1.97	3.22	4.96	100	307
November	8.0	3.35	5.19	8.03	156	478
December	9.0	3.5	5.32	8.23	165	506
Calendar year 1944	10.2	1.97	4.27	6.61	1,560	4,800
January	3.45	2.2	2.49	3.85	77.2	237
February	2.9	2.0	2.25	3.48	63.0	193
March	10.3	2.05	4.54	7.02	141	432
April	11.1	2.35	5.90	9.13	177	543
May	8.5	2.6	3.48	5.38	108	331
June	5.4	2.3	2.80	4.33	83.9	257
Fiscal year 1944-45	11.1	1.97	3.73	5.77	1,360	4,180

Time basis: Hawaiian war time. 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 2¼ miles upstream from mouth.

Drainage area.- 5.8 square miles.

Records available.- February 1927 to September 1929, December 1931 to June 1945.

Extremes.- Maximum discharge during year, 2,120 million gallons a day (3,280 second-feet) Apr. 7 (gage height, 9.15 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) Feb. 1.

1927-29, 1931-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.6	1.79	2.5	91
.1	.04	.8	4.0	3.0	136
.2	.14	1.0	7.5	4.0	254
.3	.33	1.3	15.3	5.0	465
.4	.63	1.6	27.5	6.0	760
.5	1.08	2.0	51		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	81	0.76	0.40	7.1	137	36.5	0.39	0.03	110	1.76	0.34	0.07
2	7.9	.25	39	.36	20.5	114	.31	.04	248	5.3	.23	.23
3	159	.13	1.44	19.7	15.8	62	.24	.04	173	191	.19	2.75
4	83	.12	.25	1.36	58	44	.49	.04	326	6.9	.12	21.5
5	31.5	.12	.12	.14	64	6.0	1.38	.04	221	3.35	.10	147
6	33	.20	17.4	7.1	31.5	28.5	6.1	.04	121	180	.09	15.6
7	7.6	.21	44	.36	35	52	.34	.04	47	644	.09	2.9
8	5.0	25.5	1.86	.18	194	37.5	.18	.04	252	518	.09	26
9	1.08	15.0	.31	.22	18.5	3.95	.12	.04	66	64	.08	35.5
10	5.3	49	.18	.10	120	1.25	.09	.04	18.8	8.7	.08	76
11	1.42	4.2	.12	.84	130	.72	.06	.04	32	7.7	.07	7.0
12	23	.60	.07	.59	22.5	.57	.09	.05	23.5	18.0	.07	20.5
13	22	.31	.06	.18	51	.45	.09	.04	162	95	.07	2.0
14	254	.16	.06	.08	97	.39	.06	.06	16.6	24.5	.06	.12
15	43	.09	.06	.05	93	3.9	.06	.06	5.4	51	.08	.09
16	3.85	.05	21.5	.04	29	3.9	1.79	1.69	271	162	.32	.13
17	1.28	.16	210	32	72	.25	61	.19	330	99	.14	.09
18	.81	.14	116	24.5	51	.18	11.3	.06	229	12.7	.12	.52
19	.54	3.15	10.0	3.05	6.1	.13	.22	.05	31	3.6	.27	15.4
20	51	.18	41	1.86	47	.11	3.45	.05	51	1.44	.28	14.2
21	50	.05	15.3	10.8	99	.09	.43	.05	8.5	2.25	.27	6.2
22	42	31.5	4.0	6.3	243	16.8	.12	34	5.0	9.7	.20	.42
23	8.0	10.7	.78	.45	298	64	.09	.78	1.70	.90	.13	37
24	153	.28	2.85	.20	77	67	5.6	20.5	.99	.63	.11	2.1
25	51	9.9	.84	.14	31	148	5.0	45	.99	.57	.10	12.4
26	6.3	54	.44	104	6.8	271	.24	142	.84	.48	.09	19.9
27	9.4	9.2	.40	40	10.3	14.3	.12	109	2.75	.33	.09	26
28	2.1	13.0	8.0	20	23	4.9	.07	3.7	111	.31	.09	3.9
29	.78	13.3	.79	35.5	29.5	1.25	.05	-	328	.29	.09	.44
30	.42	5.7	.39	250	11.5	.68	.04	-	11.8	.28	.09	15.6
31	.31	5.2	-	93	-	.51	.04	-	5.0	-	.08	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	254	0.31	36.7	56.8	1,140	3,490
August	54	.05	8.17	12.6	253	777
September	210	.06	17.9	27.7	538	1,650
October	250	.04	21.3	33.0	660	2,030
November	298	6.1	70.7	109	2,120	6,510
December	271	.09	31.8	49.2	985	3,020
Calendar year 1944	1,140	.04	34.4	53.2	12,570	38,610
January	61	.04	3.21	4.97	99.6	306
February	142	.03	12.8	19.8	358	1,100
March	330	.84	104	161	3,210	9,850
April	644	.28	70.5	109	2,110	6,490
May	.34	.06	.136	.210	4.23	13
June	147	.07	17.1	26.5	512	1,570
Fiscal year 1944-45	644	.03	32.9	50.9	11,990	36,810

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 15 years (1927-34, 1935-36, 1938-45), 3.54 million gallons a day (5.48 second-feet).

Extremes.- Maximum discharge during year, 271 million gallons a day (419 second-feet) Apr. 7 (gage height, 3.22 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.35 million gallons a day (0.54 second-foot) May 31, June 1, 2.

1927-45: Maximum discharge, 1,940 million gallons a day (3,000 second-feet) Apr. 29, 1937 (gage height, 15.74 feet, datum then in use), from rating curve extended above 22 million gallons a day; minimum, 0.15 million gallons a day (0.23 second-foot) Dec. 18, 1929.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1944-45 (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	2.1	37

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.9	3.8	1.66	1.41	7.9	4.3	1.25	0.62	1.21	1.54	1.05	0.40
2	2.45	1.80	3.25	1.30	3.05	5.9	1.20	.62	4.6	1.47	1.21	.89
3	9.6	1.60	1.60	2.95	2.55	4.7	1.15	.58	3.05	3.85	1.10	.62
4	3.2	1.54	1.35	1.54	2.6	3.8	2.1	.55	5.4	1.73	1.01	1.58
5	3.15	1.60	1.20	1.25	4.2	2.45	2.95	.55	2.4	1.41	.92	3.2
6	5.1	1.87	4.3	3.0	3.8	2.45	7.2	.55	1.79	8.9	.83	1.41
7	2.95	2.15	7.1	1.41	3.1	4.2	1.60	.53	6.5	27.5	.79	1.10
8	3.4	2.05	1.95	1.20	9.0	6.4	1.30	.50	17.2	13.0	.71	2.6
9	2.2	2.45	1.41	1.10	2.8	2.4	1.15	.50	5.5	3.65	.68	2.15
10	3.2	7.8	1.25	1.11	6.3	1.87	1.05	.53	3.0	2.45	.68	1.15
11	2.1	2.1	1.15	1.78	3.35	1.66	1.01	.47	3.1	2.25	.65	1.31
12	4.8	1.73	1.10	1.29	3.1	1.54	.97	.50	2.2	4.9	.62	1.66
13	3.25	1.54	1.05	1.01	8.0	1.41	1.01	.47	3.85	29	.62	1.41
14	11.5	1.35	1.15	.92	5.8	1.41	.97	1.32	1.87	4.8	.58	1.10
15	3.3	1.30	1.01	.87	5.0	4.2	.92	.58	1.66	9.7	.62	1.05
16	2.3	1.20	2.85	.83	3.85	1.96	1.87	4.0	3.95	10.3	1.19	1.85
17	1.95	1.30	14.4	5.7	5.5	1.54	2.2	.85	7.9	6.6	.65	1.20
18	2.65	1.25	5.2	2.45	3.7	1.30	1.57	.65	8.0	3.6	.65	1.32
19	2.05	1.30	2.3	2.35	2.55	1.20	1.25	.58	4.1	2.55	.94	1.75
20	3.15	1.15	3.6	1.98	3.35	1.20	1.74	.76	3.3	2.05	.83	3.35
21	4.7	1.15	7.5	2.95	7.3	1.12	1.25	.62	2.3	1.90	.68	2.25
22	3.55	1.46	3.2	2.2	6.0	3.45	1.01	2.4	2.1	1.97	.58	1.47
23	2.1	2.2	1.87	1.60	5.5	10.7	.87	.92	1.80	1.73	.53	3.8
24	10.7	1.35	3.95	1.20	5.5	3.85	5.1	1.25	1.60	1.47	.50	1.60
25	7.2	1.76	1.87	1.38	3.35	11.4	4.1	1.25	1.73	1.35	.47	4.5
26	2.85	2.6	1.60	25.5	2.55	12.3	1.20	4.1	1.54	1.25	.47	2.85
27	6.4	1.73	1.60	7.1	3.0	3.05	.97	2.3	1.89	1.20	.42	2.3
28	2.95	3.4	2.5	5.8	3.6	2.1	.83	1.41	4.3	1.15	.42	1.80
29	2.45	3.8	1.80	5.5	3.7	1.66	.75	-	4.8	1.20	.42	1.41
30	2.05	2.45	1.47	14.8	2.55	1.47	.71	-	1.95	1.15	.47	8.1
31	1.80	2.1	-	7.1	-	1.30	.65	-	1.60	-	.40	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.5	1.80	4.03	6.24	125	383
August	7.8	1.15	2.09	3.23	64.9	199
September	14.4	1.01	2.87	4.44	86.2	265
October	25.5	.83	3.57	5.52	111	339
November	9.0	2.55	4.42	6.84	133	407
December	12.3	1.12	3.49	5.40	108	332
Calendar year 1944	25.5	.58	3.11	4.81	1,140	3,490
January	7.2	.65	1.67	2.58	51.9	159
February	4.1	.47	1.07	1.66	29.9	92
March	17.2	1.21	3.75	5.80	116	357
April	29	1.15	5.19	8.03	156	478
May	1.21	.40	.70	1.08	21.7	67
June	8.1	.40	2.03	3.14	61.0	187
Fiscal year 1944-45	29	.40	2.91	4.50	1,060	3,260

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Hana flume near Hana

Location.- Soil Conservation Service type H (De Fabritis) flume, lat. 20°45'10", long. 156°01'50", on Hana flume, 13 feet downstream from end of wooden flume, 2.5 miles south of Kaeleku, and 2.7 miles west of Hana.

Records available.- February 1940 to June 1945 (discontinued). Records prior to July 1940 unpublished.

Extremes.- Maximum discharge during period, 1.73 million gallons a day (2.68 second-feet) Dec. 26, Mar. 16 (gage height, 1.11 feet); no flow many times.
1940-45: Maximum discharge, 3.0 million gallons a day (4.6 second-feet) Sept. 19, 1941 (gage height, 1.41 feet); no flow occasionally when water was shut out of flume.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Water used for fluming cane and for domestic supply near Hana.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.13	0.22	0.01	0.03	0.08	0.46	0	0	0.01	0.01	0	0
2	.01	.01	.07	.01	.02	.53	0	0	.34	.02	.26	0
3	.37	0	.01	.05	.02	.46	0	0	.28	.42	.03	.03
4	.09	0	0	.01	.04	.35	0	0	.48	0	0	.05
5	.03	.01	0	.01	.04	.06	0	0	.24	0	0	.15
6	.10	.01	.12	.03	.03	.09	.03	0	.08	.01	0	.02
7	.04	.03	.26	.01	.03	.50	0	0	.15	.06	0	0
8	.07	.02	.01	0	.15	.40	0	0	1.11	.05	0	.01
9	.02	.01	.01	0	.02	.05	0	0	.82	.02	0	.01
10	.17	.18	0	0	.08	.03	0	0	.39	.01	0	0
11	.03	.01	0	0	.05	0	0	0	.47	.01	0	.02
12	.07	0	0	0	.04	0	0	0	.19	.01	0	.03
13	.06	.01	.01	0	.20	0	0	0	.52	.02	0	.01
14	.29	0	.01	0	.21	0	0	.09	.09	.04	0	.02
15	.12	0	.01	0	.31	.26	0	0	0	.02	.01	.03
16	.05	0	.16	0	.21	.05	.04	.04	.55	.03	.02	.08
17	.11	.02	.29	.06	.40	0	.05	.14	.94	.02	0	.03
18	.22	0	.36	.05	.35	0	0	.01	1.00	.01	0	.01
19	.02	.01	.03	.01	.03	.01	0	0	.59	.01	.01	-
20	.11	0	.14	0	.18	0	.01	0	.46	.01	0	-
21	.23	0	.06	.04	.35	.01	.01	.03	.06	.01	0	-
22	.09	.03	.01	.03	.60	.27	.10	.09	.01	0	0	-
23	.01	.04	.01	0	.66	.60	0	0	0	0	0	-
24	.33	0	.01	0	.48	.26	.03	.01	0	0	0	-
25	.21	.05	.04	0	.15	.66	0	.01	.01	0	0	-
26	.03	.04	.01	.07	.09	1.03	0	.08	0	0	0	-
27	.25	.03	.01	.03	.19	.42	0	.24	.04	0	0	-
28	.16	.14	.10	.02	.13	.04	0	.02	.31	0	0	-
29	.11	.16	.01	.03	.08	.01	0	-	.66	0	0	-
30	.01	.03	.01	.20	.07	0	0	-	.16	0	0	-
31	.01	.03	-	.04	-	0	0	-	.01	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.37	0.01	0.114	0.176	3.52	11
August	.22	0	.035	.054	1.09	3.3
September	.36	0	.059	.091	1.77	5.4
October	.20	0	.024	.037	.73	2.2
November	.66	.02	.176	.272	5.29	16
December	1.03	0	.211	.326	6.55	20
Calendar year 1944	-	-	-	-	-	-
January	.10	0	.009	.014	.27	.8
February	.24	0	.027	.042	.76	2.3
March	1.11	0	.322	.498	9.97	31
April	.42	0	.026	.040	.79	2.4
May	.26	0	.011	.017	.33	1.0
June 1-18	.15	0	.028	.043	.50	1.5
The period	-	-	-	-	31.6	97

Note.- No gage-height record Sept. 17 to Nov. 8, Dec. 31 to Jan. 9, Jan. 21-28, June 16-18; discharge computed on basis of records for Oheo Stream and Kaeleku flume.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Kaeleku flume near Kaeleku

Location.- Soil Conservation Service type H (De Fabritis) flume, lat. 20°46'00", long. 156°03'25", on Kaeleku flume, just downstream from its intake from Hana flume, 2.5 miles southwest of Kaeleku and 5.5 miles west of Hana.

Records available.- February 1940 to June 1945 (discontinued).

Extremes.- Maximum discharge during period, 7.1 million gallons a day (11.0 second-feet) Oct. 13, Nov. 8 (gage height, 2.04 feet); no flow many times.
1940-45: Maximum discharge, 8.1 million gallons a day (12.5 second-feet) May 6, 1943 (gage height, 2.16 feet); no flow many times.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Water used for fluming cane and domestic water supply near Kaeleku.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.1	0.38	0.82	0.09	0.75	1.4	0	0	0.01	0	0	0
2	.65	.08	2.6	.04	.15	1.6	0	0	.38	.13	.02	0
3	2.95	.01	.57	.20	.10	1.4	0	0	.23	.20	0	0
4	1.35	.31	.38	.04	.28	1.0	0	0	.53	0	0	0
5	.95	.35	.19	.02	.29	.16	0	0	.13	0	0	.01
6	1.72	.39	.82	.08	.20	.23	.08	0	.04	.20	0	0
7	.56	.74	.92	0	.21	1.0	0	0	.24	.34	0	0
8	.72	1.36	.01	0	1.5	.80	0	0	1.40	.11	0	.01
9	.45	1.02	0	0	.12	.07	0	0	.43	.01	0	0
10	2.1	2.9	0	0	.75	.03	0	0	.04	0	0	0
11	.53	1.01	0	0	.77	0	0	0	.28	0	0	0
12	1.58	.60	0	0	.24	0	0	0	.01	0	0	0
13	1.67	.36	0	0	1.12	0	0	0	.50	.03	0	0
14	2.55	.18	.01	0	1.80	0	0	.02	0	.07	0	.01
15	.52	.06	0	0	1.29	.86	0	0	0	.02	0	.01
16	.67	0	.84	0	1.18	.11	.13	0	.79	.04	0	.02
17	.11	.67	2.7	.01	1.29	0	1.12	.06	.92	.01	0	.02
18	.35	.33	3.3	.01	.55	0	.19	0	.89	0	0	.01
19	.10	.72	.87	0	.10	0	0	0	.21	0	0	-
20	2.35	.14	2.95	0	1.32	.02	.05	0	.27	0	0	-
21	2.25	.14	2.05	.01	1.73	.07	.22	.02	.01	0	0	-
22	1.94	1.84	.60	0	2.4	.71	1.32	.50	.01	.07	0	-
23	1.00	1.85	.04	0	1.99	1.42	0	0	.01	0	0	-
24	4.3	.68	.01	0	1.5	.32	0	.17	.01	0	0	-
25	2.7	1.15	.08	0	.36	1.67	0	.01	.02	0	0	-
26	1.05	2.0	0	.40	.24	1.83	0	.01	.01	0	0	-
27	3.35	1.30	.03	.20	.45	.13	0	.09	.06	0	0	-
28	.94	2.25	.22	.15	.32	0	0	.01	.36	0	0	-
29	.41	2.5	0	.20	.22	0	0	-	.64	0	0	-
30	.16	1.49	0	2.0	.20	0	0	-	.02	0	0	-
31	.17	.87	-	.35	-	0	0	-	0	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.3	0.10	1.36	2.10	42.2	130
August	2.9	0	.893	1.39	27.7	85
September	3.3	0	.667	1.03	20.0	61
October	2.0	0	.123	.190	3.80	12
November	2.4	.10	.791	1.21	23.4	72
December	1.83	0	.478	.740	14.8	46
Calendar year 1944	4.6	0	.849	1.31	311	954
January	1.32	0	.100	.155	3.11	9.5
February	.50	0	.032	.050	.89	2.7
March	1.40	0	.273	.422	8.45	26
April	3.4	0	.041	.063	1.23	3.8
May	.02	0	.001	.002	.02	.1
June 1-18	.02	0	.005	.008	.09	.3
The period	-	-	-	-	146	449

Note.- No gage-height record Oct. 14 to Nov. 8, Nov. 24 to Dec. 12, Apr. 18-24; discharge computed on basis of records for stations on Hana flume and Oheo Stream.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Makapipi Stream near Nahiku

Location.- Concrete control, lat. 20°48'35", long. 156°05'55", 100 feet upstream from highway crossing, 1¼ miles south of Nahiku, and 4⅝ miles southeast of Keanae post office.

Drainage area.- 5.0 square miles.

Records available.- July 1932 to July 1945 (discontinued). Records at same site collected by East Maui Irrigation Co. June 1930 to June 1932.

Average discharge.- 13 years, 6.25 million gallons a day (9.67 second-feet).

Extremes.- Maximum discharge during year, 376 million gallons a day (582 second-feet) Mar. 16 (gage height, 3.12 feet), from rating curve extended above 70 million gallons a day by test on model of station site; no flow many times.
1932-45: Maximum discharge, 1,430 million gallons a day (2,210 second-feet) Dec. 14, 1942 (gage height, 6.42 feet), from rating curve extended above 70 million gallons a day by test on model of station site; no flow occasionally during dry weather.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Koolau ditch diverts water 1 mile above station for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

-0.2	0	0.3	2.9	1.0	45
-.1	.1	.4	5.3	1.2	65
0	.3	.5	8.5	1.4	86
.1	.6	.6	12.5		
.2	1.2	.8	23.5		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.7	0.7	0.2	0	5.9	0	1.1	0.5	0	0	0.8	0.4
2	.7	.6	.2	0	4.6	0	1.0	.5	0	0	.8	.4
3	1.0	.5	.1	0	3.1	0	.9	.4	.3	0	.8	.4
4	1.2	.4	0	0	2.2	0	.9	.4	25	0	.8	.3
5	1.9	.4	0	0	1.5	0	.9	.4	23	0	.8	.3
6	1.9	.3	0	0	1.2	0	.8	.3	10	0	.8	0
7	1.9	.2	0	0	1.5	.4	.8	.3	7.0	1.0	.7	0
8	1.7	.2	0	0	2.4	.7	.8	.2	16	37	.7	0
9	1.4	.2	0	0	1.3	.4	.8	.2	10	2.6	.7	0
10	1.2	.2	0	0	7.9	.3	.8	.1	2.8	1.4	.7	0
11	1.1	.3	0	0	4.3	0	.8	.1	3.2	1.1	.7	0
12	1.1	.3	0	0	1.7	0	.8	0	3.5	.9	.7	0
13	1.0	.2	0	0	1.2	0	.7	0	21	1.7	.7	0
14	1.2	.1	0	0	1.1	0	.7	0	4.1	5.8	.7	0
15	2.4	0	0	0	3.3	0	.7	0	2.7	4.3	.7	0
16	2.0	0	0	0	1.7	0	.7	0	26	2.9	.7	0
17	1.5	0	.1	0	1.5	0	.7	0	29.5	2.6	.6	0
18	1.2	0	.4	0	2.2	0	.7	0	7.9	2.2	.6	0
19	1.1	0	.2	0	1.7	0	.7	0	4.8	1.7	.6	0
20	1.0	0	.3	0	1.4	0	.7	0	3.6	1.4	.6	0
21	.9	0	.1	0	5.2	0	.7	0	2.9	1.2	.6	0
22	.8	0	.1	0	13.8	0	.9	0	2.0	1.1	.6	0
23	.8	0	0	0	5.9	.3	.7	0	1.2	1.0	.6	0
24	.8	0	0	0	2.9	.9	.6	0	.9	1.0	.5	0
25	.9	0	0	0	2.0	.8	.6	0	.6	.9	.5	0
26	.9	.1	0	69	1.4	26.5	.6	0	.3	.9	.5	0
27	.9	.1	0	25.5	1.0	4.3	.6	0	0	.8	.5	0
28	.9	.2	0	11.8	.7	2.7	.6	0	0	.8	.5	0
29	.9	.4	0	12.5	.4	2.0	.6	-	0	.8	.4	0
30	.8	.4	0	10.1	.1	1.5	.5	-	0	.8	.4	0
31	.7	.3	-	7.9	-	1.4	.5	-	0	-	.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.4	0.7	1.18	1.83	36.5	112
August	.7	0	.20	.31	6.1	19
September	.4	0	.06	.09	1.7	5.2
October	69	0	4.41	6.82	137	420
November	13.8	.1	2.84	4.39	85.1	261
December	26.5	0	1.36	2.10	42.2	130
Calendar year 1944	69	0	1.37	2.12	500	1,540
January	1.1	.5	.74	1.14	22.9	70
February	.5	0	.12	.19	3.4	10
March	29.5	0	6.72	10.4	208	639
April	37	0	2.53	3.91	75.9	233
May	.8	.4	.64	.99	19.7	60
June	.4	0	.06	.09	1.8	5.5
Fiscal year 1944-45	69	0	1.75	2.71	640	1,960

Note.- No gage-height record Nov. 7-9, Jan. 20-28, Feb. 6-11, Mar. 1-12; discharge computed on basis of records for stations on Kapaula and Waiohue Streams.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

West Makapipi Spring near Nahiku

Location.- Parshall flume, lat. 20°48'20", long. 156°06'20", half a mile upstream from highway, 1.7 miles south of Nahiku, and 4½ miles southeast of Keanae post office.

Records available.- July 1932 to June 1945 (discontinued). Records at same site collected by East Maui Irrigation Co. June 1931 to June 1932.

Average discharge.- 13 years, 0.586 million gallons a day (0.907 second-foot).

Extremes.- Maximum discharge during year, 0.88 million gallons a day (1.36 second-feet) Jan. 21 (gage height, 0.42 foot); no flow many times.
1932-45: Maximum discharge, 32 million gallons a day (50 second-feet) Feb. 25, 1935 (gage height, 2.93 feet, control then in use), from rating curve extended above 1.5 million gallons a day by weir formulas; no flow in dry weather.

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.35	0.24	0.16	0		0	0.47	0.48	0.17	0	0.58	0.48
2	.35	.22	.16	0		0	.50	.47	.16	.03	.59	.47
3	.38	.22	.16	0		0	.54	.47	.17	.09	.60	.46
4	.40	.22	.14	0		0	.56	.47	.23	.13	.60	.44
5	.44	.21	.14	0		0	.56	.46	.21	.16	.61	.44
6	.44	.21	.13	0		0	.56	.44	.23	.17	.62	a.42
7	.42	.20	.12	0		0	.58	.42	.15	.25	.62	a.40
8	.40	.20	.11	0		0	.58	.40	.19	.38	.62	a.38
9	.40	.20	.11	0		0	.58	.40	.21	.36	.61	a.35
10	.40	.20	.10	0		0	.60	.40	a.16	.35	.60	a.33
11	.40	.19	.09	0		.02	.60	.38	a.13	.35	.59	a.31
12	.39	.19	.08	0		.06	.60	.35	a.11	.35	.58	a.29
13	.38	.19	.07	0		.10	.62	.35	.13	.39	.58	a.28
14	.40	.19	.06	0		.13	.62	.35	.10	.54	.58	a.26
15	.42	.19	.05	0		.16	.62	.35	.06	.54	.57	a.25
16	.40	.19	.05	0		.19	.62	.32	.08	.54	.56	.25
17	.38	.19	.07	0		.20	.62	.32	.13	.54	.56	.23
18	.36	.19	.10	0		.22	.62	.31	.08	.54	.56	.22
19	.36	.19	.06	0		.23	.62	.30	.05	.54	.56	.21
20	.36	.19	.06	0		.23	.60	.27	.02	.54	.56	.20
21	.36	.18	.05	0		.24	.62	.25	0	.54	.56	.19
22	.35	.19	.04	0		.26	.64	.24	0	.54	.56	.17
23	.32	.19	.03	0		.32	.60	.23	0	.56	.56	.16
24	.32	.19	.01	0		.39	.58	.19	0	.56	.56	.16
25	.31	.19	0	0		.39	.56	.17	0	.56	.56	.14
26	.30	.17	0	.05		.56	.54	.17	0	.56	.55	.14
27	.30	.17	0	.02		.48	.54	.19	0	.56	.54	.13
28	.30	.17	0	0		.47	.52	.18	0	.57	.53	.11
29	.28	.18	0	0		.47	.52	-	0	.58	.52	.10
30	.27	.17	0	0		.47	.50	-	0	.58	.51	.09
31	.26	.16	-	0		.47	.50	-	0	-	.50	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.44	0.26	0.361	0.559	11.2	34
August	.24	.16	.193	.299	5.98	18
September	.16	0	.072	.111	2.15	6.6
October	.05	0	.002	.003	.07	.2
November	0	0	0	0	0	0
December	.56	0	.195	.302	6.06	19
Calendar year 1944	.56	0	.105	.162	38.3	117
January	.64	.47	.574	.888	17.8	55
February	.48	.17	.333	.515	9.33	29
March	.23	0	.089	.138	2.77	8.5
April	.58	0	.413	.639	12.4	38
May	.62	.50	.571	.883	17.7	54
June	.48	.09	.269	.416	8.06	25
Fiscal year 1944-45	.64	0	.256	.396	93.5	287

a No gage-height record; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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, 1⅝ 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 1945.

Average discharge.- 23 years (1922-45), 12.8 million gallons a day (19.8 second-feet).

Extremes.- Maximum discharge during year, 1,170 million gallons a day (1,810 second-feet) Apr. 8 (gage height, 6.63 feet), from rating curve extended above 260 million gallons a day by test on model of station site; minimum, 1.2 million gallons a day (1.9 second-feet) Feb. 15.

1914-16, 1921-45: 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.

Revisions.- The figures of maximum discharge for water years 1921 to 1943 have been revised, as shown in the following table. They supersede those published in the water-supply papers indicated.

Water-Supply Paper	Water year	Date	Gage height (feet)	Discharge (m.g.d.)	Discharge (second-feet)
555	1921-22	Dec. 13, 1921	10.78	2,970	4,600
575	1922-23	Nov. 8, 1922	6.51	1,130	1,750
595	1923-24	Dec. 18, 1923	8.27	1,770	2,740
615	1924-25	Oct. 16, 1924	7.48	1,450	2,240
635	1925-26	Sept.13, 1925	6.10	1,020	1,580
655	1926-27	Nov. 14, 1926	5.60	670	1,040
675	1927-28	Dec. 8, 1927	6.20	1,050	1,620
695	1928-29	Dec. 16, 1928	6.00	990	1,530
710	1929-30	Dec. 18, 1929	8.56	1,880	2,910
725	1930-31	Nov. 18, 1930	8.20	1,740	2,690
740	1931-32	Apr. 30, 1932	6.96	1,270	1,960
755	1932-33	Dec. 31, 1932	5.63	694	1,070
770	1933-34	Apr. 25, 1934	6.97	1,270	1,960
795	1934-35	Feb. 25, 1935	10.57	2,840	4,390
815	1935-36	Apr. 6, 1936	5.50	600	928
835	1936-37	Mar. 21, 1937	7.06	1,300	2,010
865	1937-38	Apr. 6, 1938	9.47	2,290	3,540
885	1938-39	Feb. 27, 1939	8.95	2,080	3,220
905	1939-40	Sept. 3, 1939	6.75	1,200	1,860
935	1940-41	Aug. 12, 1940	7.99	1,660	2,570
965	1941-42	Oct. 6, 1941	9.46	2,280	3,530
985	1942-43	Dec. 14, 1942	8.90	2,050	3,170

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

Rating table, fiscal year 1944-45 (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		
1.0	9.2	3.0	81		

Discharge, in million gallons a day, of Hanawi Stream near Nahiku, Maui, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.5	3.15	3.65	2.1	6.0	6.5	3.75	1.7	8.5	4.6	2.2	1.3
2	5.4	2.85	10.2	1.9	5.6	22.5	3.4	1.6	29	4.4	2.65	1.3
3	29	2.7	4.4	3.55	7.1	8.4	3.25	1.5	29.5	4.6	2.9	1.3
4	11.5	2.6	3.4	3.45	7.3	6.4	3.0	1.5	139	4.0	2.4	1.3
5	6.6	2.55	3.1	2.1	7.8	5.6	3.0	1.5	134	3.85	2.25	6.4
6	5.8	2.4	3.4	1.9	8.2	11.7	3.0	1.5	59	32	2.1	3.45
7	4.5	2.95	5.4	1.8	6.1	34.5	2.75	1.5	22	160	2.05	2.6
8	3.85	11.2	3.15	1.7	10.1	28.5	2.6	1.4	77	240	2.05	6.5
9	3.65	6.0	2.75	1.7	5.1	7.2	2.45	1.4	41	12.4	2.0	3.85
10	5.6	17.7	2.6	1.6	15.6	6.0	2.4	1.4	12.1	5.0	1.9	1.7
11	3.6	5.1	2.45	1.6	25	5.4	2.25	1.4	13.6	4.1	1.9	1.6
12	3.4	3.85	2.4	1.6	6.6	4.8	2.2	1.3	12.3	3.85	1.8	1.5
13	3.6	3.25	2.25	1.5	6.2	4.5	2.2	1.3	89	4.6	1.8	1.4
14	13.4	3.0	2.55	1.5	12.0	4.3	2.2	1.4	10.2	26	1.8	1.4
15	6.7	2.85	2.4	1.5	22.5	15.7	1.9	1.4	6.6	12.0	1.8	1.3
16	4.4	2.75	2.85	1.4	16.3	8.0	1.9	1.95	107	10.0	1.7	1.3
17	3.5	2.7	5.6	15.4	20	5.0	2.45	2.75	37.5	8.0	1.7	1.4
18	3.85	2.45	7.4	11.9	17.8	4.5	2.0	2.15	11.6	4.6	1.7	1.4
19	3.25	2.4	3.95	3.4	7.2	4.5	1.8	1.5	8.5	4.0	1.7	2.45
20	7.9	2.1	12.6	2.45	8.9	9.3	1.8	1.5	9.8	3.6	1.7	7.1
21	4.7	2.1	6.1	2.3	33	5.2	2.0	2.4	7.0	3.25	1.6	6.1
22	4.3	2.7	4.2	2.25	35	5.4	6.5	6.3	6.2	3.1	1.6	2.75
23	4.3	13.5	3.4	2.45	11.3	9.4	2.1	2.1	5.9	2.85	1.5	12.8
24	7.2	3.5	3.0	2.45	6.4	8.0	2.0	3.0	6.2	2.7	1.5	3.5
25	5.1	6.5	2.75	11.3	5.4	5.3	1.8	6.9	6.5	2.6	1.5	5.6
26	4.1	12.1	2.55	105	4.6	54	1.8	29.5	5.9	2.45	1.5	8.5
27	5.0	7.2	2.25	35	5.6	7.8	1.8	52	5.6	2.4	1.5	5.3
28	4.5	7.1	2.2	19.5	9.6	6.0	1.7	4.4	5.9	2.3	1.4	3.25
29	3.85	7.3	2.05	13.1	7.3	5.2	1.7	-	9.5	2.3	1.4	2.7
30	3.3	4.5	2.05	8.6	5.3	4.6	1.7	-	5.8	2.25	1.4	9.4
31	3.15	3.65	-	6.4	-	4.0	1.7	-	5.1	-	1.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	29	3.15	6.24	9.65	194	594
August	17.7	2.1	4.99	7.72	155	475
September	12.6	2.05	3.90	6.03	117	359
October	105	1.4	8.79	13.6	272	836
November	35	4.6	11.5	17.8	345	1,060
December	54	4.0	10.3	15.9	318	977
Calendar year 1944	105	1.2	7.50	11.6	2,740	8,420
January	6.5	1.7	2.42	3.74	75.1	230
February	52	1.3	4.94	7.64	138	424
March	139	5.1	29.9	46.3	927	2,840
April	240	2.25	19.3	29.9	578	1,770
May	2.9	1.4	1.82	2.82	56.4	173
June	12.8	1.3	3.68	5.69	110	339
Fiscal year 1944-45	240	1.3	9.00	13.9	3,290	10,080

Time basis: Hawaiian war time. 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 1945. Records at same site collected by East Maui Irrigation Co. January 1927 to June 1932.
Average discharge.- 13 years, 27.1 million gallons a day (41.9 second-feet).
Extremes.- Maximum discharge during year, 1,040 million gallons a day (1,610 second-feet) Apr. 8 (gage height, 5.69 feet), from rating curve extended above 15 million gallons a day; minimum recorded, 9.0 million gallons a day (13.9 second-feet) probably June 15. 1932-45: Maximum discharge, 7,160 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 days of no gage-height record, which are poor. Entire flow of stream above station up to 25 million gallons a day is diverted by East Maui Irrigation Co.'s ditch at altitude 1,300 feet for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

1.2	9.0	1.6	25.5	2.6	117
1.3	12.2	1.8	37.5	2.9	160
1.4	16.0	2.0	52	3.2	211
1.5	20.5	2.3	81		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.3	12.2	12.2	10.9	13.3	12.2	11.6	11.6	14	10.9	10.9	10.9
2	13.3	11.9	12.2	10.9	13.0	13.0	11.2	11.6	28	11.2	10.9	10.9
3	13.0	11.9	12.2	10.9	12.2	12.6	11.2	11.2	28	11.2	10.9	10.9
4	13.7	11.9	12.2	10.9	12.2	11.9	11.2	11.2	105	10.9	10.6	10.9
5	13.7	11.9	12.2	12.2	10.9	11.6	11.2	11.2	100	10.6	10.6	11.2
6	13.3	11.9	11.9	10.6	12.2	11.2	11.2	11.2	45	17.8	10.6	11.2
7	12.6	11.6	11.9	10.9	12.2	30	11.2	10.9	21	119	10.6	11.2
8	12.2	11.9	11.9	10.9	14.1	20	11.2	10.9	80	195	10.6	11.2
9	12.2	11.9	11.9	10.9	13.3	12.2	11.2	10.6	33	17.4	10.6	11.2
10	12.2	14.3	11.6	10.9	20.5	11.9	11.2	10.6	17	11.6	10.6	10.9
11	12.2	12.2	11.6	10.6	19.6	11.6	11.2	10.6	18	11.2	10.9	10.9
12	12.2	12.2	11.6	10.6	13.0	11.6	10.9	10	16	11.2	10.6	11
13	12.2	11.9	11.2	10.6	12.2	11.6	10.9	10	100	11.6	10.6	11
14	13.3	11.9	11.2	10.6	12.6	11.6	10.9	10	14	24.5	10.6	10
15	13.7	11.6	11.2	10.6	30.5	13.8	10.9	10	13	14.5	10.6	10
16	13.3	11.6	11.2	10.6	15.2	11.9	10.9	10	100	13.0	10.6	10
17	13.0	11.6	11.9	11.6	21	11.6	10.9	10	42	12.6	10.6	11
18	12.6	11.6	12.6	10.9	13.7	11.2	10.9	10	15	11.9	10.6	11
19	12.2	11.6	11.9	10.6	12.6	11.2	10.9	10	14	11.9	10.6	10.9
20	12.2	11.6	13.0	10.6	12.2	11.2	10.9	10	13	11.6	10.6	10.6
21	12.2	11.6	11.9	10.6	23.5	11.2	11.2	10	13	11.2	10.9	10.9
22	12.2	12.2	11.9	10.6	41	11.2	11.6	11	12	11.2	10.9	10.6
23	12.6	14.4	11.6	10.3	14.5	12.2	11.6	11	12	11.2	10.9	12.3
24	12.6	11.9	11.6	10.6	13.7	11.9	11.2	11	12	11.2	10.9	10.6
25	12.6	11.9	11.6	12.2	13.0	11.6	11.2	12	12	10.9	11.2	10.6
26	12.6	12.2	11.6	110	13.0	59	11.2	27	12	10.9	11.2	10.9
27	12.6	12.2	11.2	33	12.6	14.1	10.9	52	12	10.9	11.2	10.9
28	12.6	12.2	11.2	18.7	12.6	12.2	11.2	12	12	10.9	11.2	10.9
29	12.6	12.2	11.2	16.4	12.2	11.6	11.2	-	12	10.9	10.9	10.9
30	12.2	12.2	10.9	15.6	12.2	11.6	11.2	-	11.2	10.9	10.9	10.9
31	12.2	12.2	-	14.9	-	11.2	11.2	-	10.9	-	10.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.7	12.2	12.7	19.6	393	1,210
August	14.4	11.6	12.1	18.7	374	1,150
September	13.0	10.9	11.7	18.1	352	1,080
October	110	10.3	15.4	23.8	479	1,470
November	41	11.9	15.5	24.0	466	1,430
December	59	11.2	14.2	22.0	442	1,360
Calendar year 1944	110	10.3	13.8	21.4	5,060	15,530
January	11.6	10.9	11.1	17.2	345	1,060
February	52	10	12.8	19.8	358	1,100
March	105	10.9	30.6	47.3	947	2,910
April	195	10.6	22.0	34.0	660	2,020
May	11.2	10.6	10.8	16.7	334	1,030
June	12.3	10	10.9	16.9	326	1,000
Fiscal year 1944-45	195	10	15.0	23.2	5,480	16,820

Note.- No gage-height record Feb. 12 to Mar. 29, June 12-18; discharge computed on basis of records for nearby streams.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 23 years (1922-45), 10.5 million gallons a day (16.2 second-feet).

Extremes.- Maximum discharge during year, 442 million gallons a day (684 second-feet) Mar. 5 (gage height, 4.48 feet), from rating curve extended above 140 million gallons a day; minimum, 0.60 million gallons a day (0.93 second-foot) Sept. 1.

1921-45: Maximum discharge, 1,780 million gallons a day (2,750 second-feet) Apr. 6, 1938 (gage height, 8.40 feet), from rating curve extended above 140 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Nov. 23-25, 1933, Oct. 2-5, 1938.

Remarks.- Records good except those for July 26 to Oct. 18, Oct. 26 to Dec. 26, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.70	1.0	8.8	2.0	41
.5	1.40	1.2	13.4	2.4	68
.6	2.35	1.4	18.6	2.8	106
.7	3.5	1.6	25		
.8	5.0	1.8	32		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.5	1.68	0.77	1.26	3.25	4.2	2.6	1.12	7.1	2.15	1.33	0.84
2	4.6	1.50	8.4	1.12	3.05	19.0	2.35	1.12	28.5	1.97	2.4	.91
3	33	1.40	3.4	3.8	3.75	8.8	2.15	1.05	29.5	2.15	2.6	.91
4	15.6	1.33	2.45	2.65	4.3	3.85	2.05	1.05	92	1.97	1.59	.98
5	6.3	1.40	2.05	1.40	4.5	3.4	1.97	.98	87	1.78	1.50	7.3
6	4.2	1.33	2.35	1.19	4.9	13.2	1.97	.98	39	1.78	1.40	5.1
7	3.15	1.46	3.6	1.12	3.8	31.5	1.88	1.05	22	42	1.26	2.75
8	2.6	7.0	1.40	1.05	6.8	25.5	1.78	.98	55	93	1.33	7.7
9	2.35	4.3	1.05	.98	2.1	5.4	1.68	.98	34	10.4	1.33	5.3
10	4.8	11.6	.91	.98	7.9	3.25	1.68	.91	13.6	3.55	1.26	1.97
11	2.8	3.9	.84	.91	14.0	2.7	1.59	.91	16.1	2.6	1.19	1.50
12	2.35	2.9	.84	.91	4.6	2.35	1.59	.91	17.5	2.25	1.19	1.50
13	2.7	2.35	.84	.91	3.8	2.15	1.59	.91	93	3.65	1.19	1.40
14	15.5	2.05	1.05	.84	8.0	2.15	1.59	1.05	13.5	29.5	1.19	1.26
15	7.4	1.88	1.05	.77	15.7	12.8	1.50	.91	8.4	17.1	1.12	1.12
16	3.05	1.68	1.40	.77	11.1	8.1	1.50	1.84	33	9.9	1.12	1.12
17	2.35	1.84	5.3	18.4	13.7	3.05	2.15	3.85	39	7.7	1.05	1.19
18	2.6	1.59	6.8	15.9	12.2	2.35	1.68	2.7	12.7	3.5	1.05	1.40
19	2.15	1.68	1.97	3.7	4.0	2.4	1.40	1.26	7.2	2.6	1.05	2.6
20	7.5	d1.4	11.0	2.35	4.9	8.4	1.33	1.19	7.8	2.25	1.19	8.6
21	3.8	d1.3	5.9	2.05	15.6	3.25	1.98	2.5	3.95	2.05	1.19	8.5
22	3.25	d1.9	3.4	1.97	21.5	3.25	7.8	7.4	3.15	1.97	1.05	3.05
23	3.7	8.7	2.45	2.05	6.5	8.8	2.05	2.15	2.6	1.88	1.05	15.4
24	6.6	3.0	1.97	2.15	3.4	6.9	1.59	2.75	2.8	1.68	1.05	3.65
25	4.1	5.0	1.68	9.6	2.35	2.9	1.50	11.2	3.15	1.59	1.05	5.3
26	2.7	9.6	1.50	63	1.88	44	1.40	25.5	2.6	1.59	.98	10.4
27	3.05	5.5	1.40	19.5	3.0	7.4	1.26	44	2.25	1.59	.91	5.0
28	2.15	4.8	1.33	11.9	5.9	4.3	1.26	7.0	2.45	1.50	.98	2.9
29	1.88	4.8	1.19	9.7	7.2	3.4	1.26	-	7.0	1.40	.91	2.25
30	1.59	1.20	1.12	5.5	2.8	3.15	1.26	-	2.9	1.40	.91	5.0
31	1.40	.84	-	3.5	-	2.7	1.19	-	2.35	-	.91	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	33	1.40	5.67	8.77	176	539
August	11.6	.84	3.26	5.04	101	310
September	11.0	.77	2.65	4.10	79.4	244
October	63	.77	6.19	9.58	192	589
November	21.5	1.88	6.88	10.6	206	634
December	44	2.15	8.21	12.7	255	781
Calendar year 1944	72	.60	5.80	8.97	2,120	6,510
January	7.8	1.19	1.89	2.92	58.6	180
February	44	.91	4.58	7.09	128	394
March	93	2.35	22.3	34.5	691	2,120
April	93	1.40	8.62	13.3	258	793
May	2.6	.91	1.24	1.92	38.3	118
June	15.4	.84	3.90	6.03	117	359
Fiscal year 1944-45	93	.77	6.30	9.75	2,300	7,060

d Doubtful record; discharge computed on basis of records for nearby streams.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

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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 1945. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.
Average discharge.- 13 years, 7.95 million gallons a day (12.3 second-feet).
Extremes.- Maximum discharge during year, 333 million gallons a day (515 second-feet) Apr. 8 (gage height, 3.12 feet), from rating curve extended above 10 million gallons a day by logarithmic plotting; minimum, 1.2 million gallons a day (1.9 second-feet) many times.
1932-45: 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, and Feb. 24, 1941.
Remarks.- Records good except those above 30 million gallons a day and those for periods of no gage-height record, 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.7	0.6	8.0	1.2	39
.3	1.6	.7	11.4	1.4	55
.4	3.2	.8	15.6	1.6	74
.5	5.3	1.0	26	1.8	97

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.3	1.6	1.4	1.3	3.4	4.0	1.4	1.2	2.9	1.5	1.3	1.2
2	2.1	1.6	2.4	1.3	3.0	15	1.4	1.2	17.4	1.5	1.5	1.2
3	23.5	1.5	1.9	1.3	2.9	6.0	1.4	1.2	18.4	1.5	1.4	1.2
4	9.0	1.5	1.6	1.3	3.0	2.6	1.3	1.2	72	1.4	1.3	1.3
5	2.7	1.4	1.6	1.2	3.2	2.1	1.3	1.2	64	1.4	1.2	1.8
6	2.4	1.4	1.8	1.2	3.4	4.5	1.3	1.2	28	1.7	1.2	1.6
7	2.1	1.4	1.9	1.2	2.9	23	1.2	1.2	17.7	36	1.2	1.4
8	1.8	4.5	1.5	1.2	8.9	20	1.2	1.2	47	81	1.2	1.8
9	1.8	3.0	1.4	1.2	3.0	2.4	1.2	1.2	30	9.7	1.2	1.6
10	1.9	16.7	1.4	1.2	11.7	1.8	1.2	1.2	6.5	1.9	1.2	1.3
11	1.8	2.2	1.4	1.2	17.6	1.6	1.2	1.2	8.1	1.8	1.2	1.3
12	1.6	1.8	1.3	1.3	3.6	1.5	1.2	1.2	9.0	1.6	1.2	1.3
13	1.8	1.6	1.4	1.3	3.2	1.5	1.2	1.2	48	3.3	1.2	1.2
14	12.0	1.5	1.3	1.2	6.0	1.4	1.2	1.3	8.1	24	1.2	1.2
15	4.3	1.4	1.3	1.2	16.2	8.0	1.2	1.2	2.1	9.5	1.2	1.2
16	2.1	1.5	1.3	1.2	9.4	4.0	1.2	1.5	38	4.6	1.2	1.2
17	1.9	1.5	2.3	7.5	20	1.6	1.4	2.1	30	2.7	1.2	1.2
18	1.8	1.4	2.9	7.0	23	1.4	1.3	1.5	8.6	2.1	1.2	1.2
19	1.6	1.4	1.8	1.6	3.8	1.4	1.2	1.2	2.9	1.9	1.2	1.3
20	2.1	1.4	4.4	1.4	5.1	2.6	1.2	1.2	3.6	1.8	1.2	1.6
21	1.9	1.4	2.1	1.3	15.9	1.5	1.3	1.3	2.1	1.6	1.2	2.2
22	1.6	2.0	1.6	1.3	34	1.4	3.5	1.9	1.9	1.6	1.2	1.3
23	1.8	9.7	1.5	1.3	6.6	3.1	1.3	1.4	1.8	1.6	1.2	7.3
24	2.4	1.9	1.4	1.3	3.8	3.2	1.2	1.5	1.8	1.6	1.2	1.5
25	2.1	1.9	1.4	9.4	2.9	1.5	1.2	1.8	1.6	1.6	1.2	1.2
26	1.8	4.5	1.4	73	2.1	33	1.2	2.5	1.6	1.5	1.2	3.5
27	2.1	2.7	1.4	33	3.4	4.4	1.2	31	1.6	1.5	1.2	1.3
28	1.9	2.2	1.3	19.6	6.0	1.9	1.2	2.3	1.6	1.4	1.2	1.2
29	1.6	2.6	1.3	17.6	6.2	1.6	1.2	-	2.1	1.4	1.2	1.2
30	1.6	1.8	1.3	7.4	3.0	1.5	1.2	-	1.6	1.4	1.2	1.2
31	1.6	1.5	-	3.8	-	1.4	1.2	-	1.6	-	1.2	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	23.5	1.6	3.39	5.25	105	322
August	16.7	1.4	2.66	4.12	82.5	253
September	4.4	1.3	1.70	2.63	51.0	157
October	73	1.2	6.65	10.3	206	633
November	34	2.1	7.91	12.2	237	728
December	33	1.4	5.19	8.03	161	494
Calendar year 1944	73	1.2	4.24	6.56	1,550	4,760
January	3.5	1.2	1.32	2.04	40.9	126
February	31	1.2	2.48	3.84	69.3	213
March	72	1.6	15.5	24.0	482	1,480
April	81	1.4	6.87	10.6	206	632
May	1.5	1.2	1.22	1.89	37.9	116
June	7.3	1.2	1.63	2.52	49.0	150
Fiscal year 1944-45	81	1.2	4.73	7.32	1,730	5,300

Note.- No gage-height record Nov. 23 to Dec. 5, Feb. 24-26, June 6-14; discharge computed on basis of records for station above Government Road.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 26 years, 21.6 million gallons a day (33.4 second-feet).

Extremes.- Maximum discharge during year, 59 million gallons a day (91 second-feet) Dec. 26 (gage height, 1.68 feet); no flow July 14, Aug. 10, Nov. 15, 17, 18, 22, Dec. 7 when water was shut out of ditch.
1919-45: Maximum discharge, 62 million gallons a day (96 second-feet) Oct. 22, 1941, Dec. 14, 1942; 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	40	13.6	16.0	8.9	31	23.5	16.4	6.1	21	17.0	9.5	4.7
2	23	12.0	33.5	8.1	27.5	42	15.0	6.1	48	16.4	11.6	4.9
3	45	11.4	18.4	12.8	27	29.5	14.0	5.8	48	17.0	12.0	4.9
4	45	10.8	15.0	11.4	28	23	13.0	5.8	50	15.0	9.8	5.2
5	33.5	10.4	13.6	8.4	30	21	12.3	5.8	50	14.3	9.2	16.0
6	28	9.8	14.3	7.6	31	31	12.0	5.6	50	16.0	8.6	12.1
7	22	10.1	19.4	7.3	26.5	38	11.4	5.4	50	52	8.4	8.9
8	18.8	28.5	14.0	7.1	42	50	10.8	5.2	52	52	7.9	16.2
9	17.0	19.9	12.0	6.8	25.5	31	10.1	5.2	55	35.5	7.6	12.8
10	23.5	23.5	11.1	6.6	30.5	25.5	9.5	5.2	45	23.5	7.3	6.8
11	17.8	18.1	10.4	6.3	45	22	9.2	4.9	48	19.5	7.1	6.3
12	16.0	14.3	9.8	6.6	31	22	8.9	4.9	45	17.8	6.8	6.3
13	16.4	12.7	9.5	6.3	28.5	18.8	8.6	4.7	50	22	6.6	5.8
14	37	11.7	10.4	6.1	45	17.8	8.4	5.2	42	48	6.3	5.4
15	33.5	10.8	9.5	5.8	34	32	8.1	5.2	33.5	45	6.3	5.2
16	22	10.4	11.1	5.8	45	30	8.1	7.3	42	35.5	6.3	5.2
17	18.1	10.4	21	31	38.5	20.5	9.8	9.8	50	33.5	5.8	5.2
18	17.8	9.5	29.5	28.5	38	18.1	8.4	8.3	48	22.5	5.6	5.4
19	15.0	9.8	17.0	13.0	35.5	17.4	7.9	5.8	42	19.5	5.6	7.9
20	26	8.9	36	9.8	35.5	28	7.6	5.6	42	17.8	5.8	17.5
21	19.9	8.6	24	9.2	36	19.2	8.9	7.7	31	16.0	5.6	17.8
22	18.1	12.0	19.2	8.9	35.5	19.2	23	18.0	26.5	14.6	5.4	9.8
23	19.1	31	15.6	9.2	45	34	9.5	8.1	23.5	13.6	5.2	33.5
24	29	15.6	13.3	8.9	33.5	32	8.4	9.2	22	12.7	4.9	14.6
25	22.5	22.5	12.7	30	27	21	7.9	20.5	22	12.0	4.9	16.8
26	18.8	38	11.1	43	23	46	7.6	28.5	19.9	11.4	4.9	23.5
27	22	26.5	10.4	40	23.5	31	7.3	45	18.8	10.8	4.9	16.9
28	19.9	26	9.5	48	28	25.5	7.1	19.2	19.5	10.4	4.9	13.0
29	17.4	30.5	9.2	50	28	22	6.6	-	31	10.1	4.9	11.1
30	15.0	19.5	8.6	45	21.5	19.9	6.6	-	20.5	9.8	4.9	15.7
31	13.6	16.7	-	38	-	17.8	6.3	-	18.1	-	4.7	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	45	13.6	23.6	36.5	731	2,240
August	38	8.6	16.6	25.7	514	1,580
September	36	8.6	15.5	24.0	465	1,430
October	50	5.8	17.2	26.6	534	1,640
November	45	21.5	32.5	50.3	976	3,000
December	50	17.4	26.7	41.3	829	2,540
Calendar year 1944	52	4.0	19.7	30.5	7,200	22,100
January	23	6.3	9.96	15.4	309	947
February	45	4.7	9.79	15.1	274	841
March	55	18.1	37.6	58.2	1,160	3,570
April	52	9.8	22.0	34.0	661	2,030
May	12.0	4.7	6.75	10.4	209	642
June	33.5	4.7	11.2	17.3	335	1,030
Fiscal year 1944-45	55	4.7	19.2	29.7	7,000	21,490

Time basis: Hawaiian war time. 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, 1⅛ miles west of Nahiku, and 3⅛ 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 1945. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.
Average discharge.- 13 years, 0.804 million gallons a day (1.24 second-feet).
Extremes.- Maximum discharge during year, 27.5 million gallons a day (42.5 second-feet) Dec. 26 (gage height, 1.89 feet), from rating curve extended above 14 million gallons a day by test on model of station site; minimum, 0.29 million gallons a day (0.45 second-foot) June 15-17.
1932-45: 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, that of 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 1944-45 (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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.72	0.64	0.58	0.50	1.22	0.67	0.58	0.35	0.54	0.58	0.42	0.34
2	.62	.60	.60	.50	1.08	.83	.58	.35	.67	.58	.50	.35
3	.96	.58	.58	.50	.98	.77	.50	.35	.70	.58	.46	.35
4	.95	.58	.54	.48	.95	.67	.50	.35	5.7	.54	.42	.35
5	.80	.54	.52	.48	.95	.58	.48	.35	2.7	.54	.38	.36
6	.80	.54	.54	.46	.89	.70	.50	.35	.77	.54	.38	.35
7	.74	.54	.62	.44	1.02	2.2	.46	.35	.91	.65	.38	.35
8	.70	.77	.56	.44	1.20	1.08	.46	.35	1.14	3.0	.38	.35
9	.67	.64	.50	.42	.90	.77	.44	.35	1.02	.65	.38	.35
10	.74	1.5	.50	.40	3.2	.70	.44	.35	.89	.62	.36	.35
11	.67	.58	.48	.40	3.35	.67	.42	.34	.89	.60	.36	.35
12	.64	.54	.46	.40	.95	.62	.42	.34	.83	.60	.35	.35
13	.67	.54	.46	.40	.92	.58	.42	.34	2.05	1.1	.35	.33
14	1.39	.50	.48	.38	1.30	.58	.40	.36	.86	3.5	.35	.31
15	.95	.50	.48	.38	1.74	.67	.38	.35	.77	1.5	.35	.29
16	.80	.50	.52	.40	1.05	.62	.38	.52	2.65	1.1	.35	.29
17	.74	.50	.81	.50	1.44	.54	.46	.38	3.7	1.0	.35	.29
18	.70	.50	.90	.50	1.63	.54	.42	.35	1.14	.80	.35	.30
19	.62	.50	.67	.46	.92	.50	.38	.35	1.00	.80	.35	.35
20	.67	.50	.97	.42	.95	.54	.38	.35	1.00	.70	.35	.32
21	.64	.50	.72	.42	1.02	.54	.42	.42	.89	.60	.36	.34
22	.62	.62	.67	.42	1.74	.54	.58	.48	.83	.56	.35	.32
23	.72	1.2	.67	.46	1.22	1.33	.40	.40	.77	.54	.35	.35
24	.86	.60	.62	.44	.98	.83	.38	.42	.72	.54	.35	.35
25	.77	.68	.58	2.0	.92	.67	.38	.48	.67	.50	.35	.36
26	.70	.77	.56	7.3	.86	5.3	.36	.54	.62	.50	.35	.36
27	.77	.67	.56	7.7	.77	.83	.36	1.95	.62	.46	.35	.35
28	.74	.64	.54	3.15	.77	.72	.35	.58	.62	.46	.35	.35
29	.67	.67	.54	1.58	.77	.67	.35	-	.70	.46	.35	.35
30	.64	.62	.50	1.53	.72	.62	.35	-	.62	.42	.35	.35
31	.62	.58	-	1.37	-	.60	.35	-	.58	-	.35	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.39	0.62	0.752	1.16	23.3	72
August	1.5	.50	.634	.981	19.6	60
September	.97	.46	.591	.914	17.7	54
October	7.7	.38	1.14	1.76	35.2	108
November	3.35	.72	1.22	1.89	36.6	112
December	5.3	.50	.886	1.37	27.5	84
Calendar year 1944	7.7	.35	.770	1.19	282	865
January	.58	.35	.428	.662	13.3	41
February	1.95	.34	.445	.689	12.4	38
March	5.7	.54	1.21	1.87	37.6	115
April	3.5	.42	.834	1.29	25.0	77
May	.50	.35	.369	.571	11.4	35
June	.36	.29	.339	.525	10.2	31
Fiscal year 1944-45	7.7	.29	.739	1.14	270	827

Note.- No gage-height record Aug. 4-29, Mar. 28 to Apr. 23, June 6-14; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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 3¼ 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 1945. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Average discharge.- 13 years, 4.20 million gallons a day (6.50 second-feet).

Extremes.- Maximum discharge during year, 130 million gallons a day (201 second-feet) Mar. 16 (gage height, 3.70 feet), from rating curve extended above 20 million gallons a day by logarithmic plotting; minimum, 1.75 million gallons a day (2.71 second-feet) Feb. 12, 13.

1932-45: 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 Jan. 18-29, 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.50	0.9	12.3
.5	2.9	1.0	15.8
.6	4.6	1.2	23
.7	6.7	1.4	30
.8	9.2	1.6	37

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.4	2.7	2.55	2.25	4.6	2.55	2.4	1.88	2.65	2.4	2.0	1.88
2	2.7	2.55	3.3	2.25	4.1	3.25	2.1	1.88	5.0	2.4	2.4	1.88
3	10.3	2.55	2.55	2.25	3.75	2.9	2.0	1.88	4.7	2.4	2.25	1.88
4	4.5	2.4	2.4	2.25	3.9	2.55	2.0	1.88	15.6	2.4	2.0	2.0
5	3.25	2.4	2.4	2.1	3.9	2.1	2.0	1.88	12.1	2.25	2.0	2.1
6	3.25	2.4	2.4	2.1	4.1	2.4	2.1	1.88	4.2	2.25	1.88	a2.0
7	3.05	2.4	2.7	2.1	5.9	4.6	2.1	1.88	4.8	3.05	1.88	a1.9
8	2.9	3.85	2.4	2.1	6.8	7.1	2.0	1.88	9.1	10.1	1.88	a2.0
9	2.9	2.7	2.25	2.1	3.75	2.55	2.0	1.88	4.5	3.05	1.88	a1.9
10	3.25	6.4	2.25	2.0	10.5	2.55	2.0	1.88	3.25	2.55	1.88	a1.9
11	2.9	2.9	2.25	2.0	6.7	2.4	2.0	1.88	3.05	2.4	1.88	a1.9
12	2.9	2.55	2.25	2.0	3.25	2.25	2.0	1.75	2.9	2.4	1.88	a1.9
13	2.9	2.4	2.1	2.1	3.25	2.25	1.88	1.75	13.6	4.5	1.88	a1.9
14	12.6	2.4	2.25	2.1	4.8	2.1	1.88	1.88	4.5	11.9	1.88	a1.9
15	5.4	2.15	2.25	2.1	6.3	5.3	1.88	1.88	2.9	4.6	1.88	1.88
16	3.05	2.4	2.4	2.1	3.85	2.7	1.88	2.4	14.0	3.75	1.88	2.0
17	2.7	2.4	3.9	4.8	4.7	2.25	2.1	2.7	8.4	3.4	1.88	2.0
18	2.7	2.25	3.4	3.0	4.1	2.25	a2.0	2.1	4.1	2.9	1.88	2.0
19	2.55	2.25	2.7	2.4	3.05	2.25	a2.0	1.88	3.6	2.9	1.88	2.25
20	3.4	2.25	5.0	2.25	2.7	2.4	a2.0	1.88	3.05	2.7	1.88	2.25
21	2.9	2.25	3.05	2.25	6.8	2.25	a2.1	2.1	2.9	2.55	1.88	2.4
22	2.7	2.95	2.7	2.25	7.1	2.4	a5.0	2.7	2.9	2.4	1.88	2.1
23	3.25	8.9	2.55	2.25	3.6	5.3	a2.1	2.1	2.9	2.25	1.88	7.1
24	3.75	2.55	2.4	2.25	3.05	3.5	a2.0	2.1	2.9	2.25	1.88	2.4
25	3.05	3.0	2.4	7.7	2.9	2.7	a2.0	2.4	2.55	2.1	1.88	2.4
26	2.9	3.25	2.25	32	2.7	17.8	a2.0	3.25	2.55	2.1	1.88	2.55
27	3.25	2.7	2.25	8.7	2.55	4.1	a2.0	4.9	2.55	2.1	1.88	2.4
28	2.9	2.7	2.25	8.6	2.9	3.6	a2.0	2.4	2.55	2.1	1.88	2.25
29	2.9	3.45	2.25	6.7	2.9	3.25	2.0	-	3.05	2.1	1.88	2.1
30	2.7	2.7	2.25	5.4	2.55	2.9	2.0	-	2.55	2.1	1.88	2.8
31	2.7	2.55	-	5.0	-	2.55	2.0	-	2.4	-	1.88	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.6	2.55	3.70	5.72	115	352
August	8.9	2.15	2.95	4.56	91.3	280
September	5.0	2.1	2.60	4.02	78.0	240
October	32	2.0	4.18	6.47	129	397
November	10.5	2.55	4.37	6.76	131	402
December	17.8	2.1	3.52	5.45	109	335
Calendar year 1944	32	1.88	3.40	5.26	1,240	3,820
January	5.0	1.88	2.11	3.26	65.5	201
February	4.9	1.75	2.17	3.36	60.8	187
March	15.6	2.4	5.03	7.78	156	478
April	11.9	2.1	3.21	4.97	96.4	296
May	2.4	1.88	1.92	2.97	59.5	183
June	7.1	1.88	2.26	3.50	67.9	208
Fiscal year 1944-45	32	1.75	3.18	4.92	1,160	3,560

a No gage-height record; discharge computed on basis of records for nearby streams.
Time basis: Hawaiian war time. 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 3⅛ miles southeast of Keanae.

Drainage area.- 1.5 square miles.

Records available.- October 1921 to June 1945.

Average discharge.- 23 years (1922-45), 7.95 million gallons a day (12.3 second-feet).

Extremes.- Maximum discharge during year, 218 million gallons a day (337 second-feet) Dec. 26 (gage height, 3.60 feet), from rating curve extended above 50 million gallons a day; minimum, 1.37 million gallons a day (2.12 second-feet) June 2.
1921-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.03	0.9	5.1	1.6	24
.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		
.8	3.8	1.4	16.3		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.2	3.3	2.8	2.55	5.6	4.7	2.9	1.81	4.6	3.15	2.2	1.41
2	3.8	3.0	6.5	2.45	5.1	11.0	2.8	1.81	12.1	3.05	2.75	1.41
3	18.1	2.8	4.3	3.25	4.8	7.6	2.7	1.75	11.3	3.15	2.75	1.41
4	8.4	2.75	3.8	2.75	5.4	6.0	2.7	1.75	37.5	2.85	2.3	1.45
5	4.8	2.75	3.3	2.45	5.3	5.4	2.7	1.69	33.5	2.75	2.2	3.4
6	4.4	2.7	3.7	2.3	6.4	10	2.6	1.69	14.7	2.7	2.05	2.2
7	3.8	3.05	4.5	2.2	7.1	16	2.6	1.63	11.3	15.4	1.99	1.81
8	3.6	6.9	3.0	2.2	9.7	13	2.6	1.63	25	38.5	1.93	2.7
9	3.5	4.1	2.8	2.15	4.4	6.0	2.6	1.57	14.8	5.6	1.87	2.5
10	6.0	9.7	2.6	2.15	11.4	4.5	2.6	1.51	6.0	3.25	1.87	1.75
11	3.95	3.6	2.5	2.05	10.1	4.0	2.55	1.51	8.0	2.85	1.87	1.75
12	3.6	3.15	2.5	2.05	5.2	3.7	2.45	1.51	9.0	2.75	1.81	1.75
13	3.8	2.85	2.5	2.05	5.4	3.6	2.4	1.51	30	4.6	1.75	1.63
14	12.4	2.7	2.5	1.99	8.2	3.6	2.4	1.57	6.7	18.4	1.75	1.63
15	7.0	2.6	2.6	1.93	12.3	9.4	2.3	1.51	4.8	8.5	1.75	1.51
16	4.5	2.55	2.8	1.87	9.4	5.8	2.3	2.8	29.5	6.0	1.75	1.57
17	3.7	2.6	4.5	8.3	12.1	3.8	2.7	3.4	15.2	4.8	1.69	1.73
18	4.0	2.45	5.3	6.6	9.9	3.6	2.3	2.0	8.2	3.4	1.63	1.87
19	3.4	2.55	3.5	3.25	5.0	3.5	2.2	1.69	6.3	3.05	1.63	2.95
20	6.1	2.45	9.0	2.6	6.6	7.0	2.15	1.69	7.2	2.85	1.63	4.4
21	4.3	2.35	5.0	2.6	13.9	3.8	2.45	2.25	5.0	2.75	1.69	4.3
22	4.1	2.9	3.7	2.7	14.1	3.8	5.6	3.85	4.4	2.7	1.57	2.6
23	4.7	10.8	3.3	2.6	6.6	7.2	2.45	1.99	4.1	2.6	1.51	10.9
24	6.2	3.3	3.05	2.55	5.1	6.0	2.3	2.3	e3.95	2.55	1.51	3.05
25	4.7	3.9	2.85	10.5	4.6	3.6	2.15	4.1	3.95	2.45	1.45	3.65
26	3.8	7.0	2.7	43	4.3	19	2.05	11.2	3.6	2.45	1.45	5.0
27	5.3	4.5	2.6	15.9	4.4	6.0	2.05	17.2	3.5	2.45	1.45	3.3
28	4.2	4.0	2.55	12.2	6.3	4.0	1.99	2.95	3.5	2.35	1.45	2.85
29	3.7	4.5	2.45	10.9	5.1	3.3	1.87	-	5.2	2.3	1.45	2.55
30	3.3	3.5	2.45	7.1	4.2	3.1	1.87	-	3.5	2.3	1.45	3.05
31	3.0	3.0	-	5.7	-	3.0	1.87	-	3.3	-	1.41	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	18.1	3.0	5.30	8.20	164	504
August	10.8	2.35	3.82	5.91	118	363
September	9.0	2.45	3.52	5.45	106	324
October	43	1.87	5.58	8.63	173	531
November	14.1	4.2	7.27	11.2	218	669
December	19	3.0	6.29	9.73	195	598
Calendar year 1944	43	1.41	4.82	7.46	1,760	5,410
January	5.6	1.87	2.49	3.85	77.2	237
February	17.2	1.51	2.92	4.52	81.9	251
March	37.5	3.3	11.0	17.0	340	1,040
April	38.5	2.3	5.42	8.39	162	499
May	2.75	1.41	1.79	2.77	55.6	171
June	10.9	1.41	2.74	4.24	82.1	252
Fiscal year 1944-45	43	1.41	4.86	7.52	1,770	5,440

Note.- No gage-height record July 15-19, July 30 to Aug. 3, Aug. 28 to Sept. 22, Dec. 3-11, Dec. 20 to Jan. 8, Jan. 13-17, Mar. 10-12; discharge computed on basis of records for Kapaula Stream.
Time basis: Hawaiian war time. 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 1945.
Average discharge.- 21 years (1922-34, 1936-45), 18.3 million gallons a day (28.3 second-feet).
Extremes.- Maximum discharge during year, 1,360 million gallons a day (2,100 second-feet) Mar. 16 (gage height, 5.69 feet), from rating curve extended above 10 million gallons a day; minimum, 1.30 million gallons a day (2.01 second-feet) Feb. 13.
1914-17, 1921-45: 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. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.20	0.8	12.3	2.2	122
.4	2.15	.9	15.8	2.6	185
.5	3.65	1.1	25	3.0	265
.6	6.0	1.4	43	3.5	400
.7	9.0	1.8	77		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	21.5	3.05	4.3	2.6	6.2	8.1	3.5	1.60	9.8	3.2	2.3	1.58
2	5.4	2.6	14.5	2.45	6.1	28.5	3.35	1.58	32.5	3.2	4.8	1.77
3	41	2.45	4.3	7.5	4.1	12.6	3.35	1.58	37	3.2	4.6	1.86
4	16.1	2.45	3.65	4.4	8.0	7.2	3.2	1.58	170	2.9	2.9	1.86
5	6.6	2.45	3.35	2.6	7.8	7.3	3.2	1.48	173	2.9	3.35	8.2
6	5.4	2.3	3.9	2.6	9.5	23.5	3.05	1.48	65	2.75	2.6	4.7
7	4.3	3.3	6.6	2.45	7.7	48	2.9	1.48	28.5	116	3.4	3.35
8	3.65	16.0	3.35	2.3	11.6	37.5	2.75	1.39	81	274	2.9	10.4
9	3.75	5.8	3.2	2.15	4.7	11.0	2.6	1.39	50	33.5	2.45	6.8
10	6.3	27	3.2	2.15	15.7	7.2	2.6	1.39	21.5	7.0	2.3	2.75
11	3.5	6.1	3.05	2.05	26	5.7	2.45	1.39	22	4.3	2.3	2.75
12	3.35	4.0	2.9	2.05	7.8	5.2	2.45	1.39	25.5	3.65	2.45	2.6
13	3.65	3.5	2.75	1.96	6.5	4.7	2.3	1.39	109	5.7	2.3	2.3
14	17.5	3.35	3.35	1.86	15.0	4.7	2.15	1.58	22.5	40	2.3	2.05
15	5.9	3.05	3.05	1.86	30	18.5	2.15	1.39	11.0	20	2.15	1.96
16	3.5	2.9	3.35	1.77	22.5	11.6	2.05	3.6	136	12.8	2.15	1.86
17	3.35	2.9	7.2	23.5	29.5	5.4	2.6	6.5	49	10.9	2.05	1.96
18	3.5	2.45	7.8	22	27	4.7	2.15	2.65	16.0	5.4	2.05	2.3
19	3.05	2.45	3.85	4.7	10.6	4.5	1.96	1.68	9.9	4.3	2.05	4.0
20	9.4	2.3	16.6	3.35	13.2	13.1	1.86	1.58	10.4	3.5	2.15	10.6
21	4.0	2.15	6.9	3.35	31.5	5.4	2.7	3.45	6.6	3.35	2.15	8.3
22	3.65	3.15	4.9	3.35	41	5.4	8.7	7.7	5.2	3.2	1.86	3.6
23	4.2	18.6	3.65	3.35	12.2	5.8	2.15	2.45	4.7	3.05	1.86	18.9
24	6.5	3.2	3.5	3.2	7.5	9.3	1.96	3.9	5.2	2.9	1.86	4.0
25	3.9	9.6	3.2	18.1	6.0	4.7	1.86	14.6	5.2	2.75	1.77	6.2
26	3.5	21.5	3.05	115	5.2	55	1.77	33	4.3	2.6	1.77	13.1
27	5.0	11.2	2.9	41	7.3	9.9	1.77	64	3.85	2.45	1.68	6.6
28	3.65	8.2	2.6	24	12.4	6.8	1.68	9.7	4.0	2.45	1.68	4.0
29	3.35	8.7	2.6	18.3	10.9	4.9	1.68	-	6.7	2.45	1.68	3.35
30	2.9	4.3	2.45	9.8	6.3	4.5	1.68	-	3.65	2.3	1.68	6.4
31	2.75	3.85	-	6.9	-	3.85	1.68	-	3.35	-	1.68	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	41	2.75	6.91	10.7	214	657
August	27	2.15	6.29	9.73	195	598
September	16.6	2.45	4.67	7.23	140	430
October	115	1.77	11.1	17.2	343	1,050
November	41	4.1	13.7	21.2	410	1,260
December	55	3.85	12.4	19.2	385	1,180
Calendar year 1944	156	1.06	9.09	14.1	3,330	10,210
January	8.7	1.68	2.59	4.01	80.2	246
February	64	1.39	6.32	9.78	177	543
March	173	3.35	36.5	56.5	1,130	3,480
April	274	2.3	19.6	30.3	587	1,800
May	4.8	1.66	2.36	3.65	73.2	225
June	18.9	1.58	5.00	7.74	150	461
Fiscal year 1944-45	274	1.39	10.6	16.4	3,880	11,930

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

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 1945.

Average discharge.- 23 years (1922-45), 19.3 million gallons a day (29.9 second-feet).

Extremes.- Maximum discharge recorded during year, 486 million gallons a day (752 second-feet) Oct. 26 (gage height, 5.22 feet), from rating curve extended above 300 million gallons a day; minimum, 1.2 million gallons a day (1.9 second-feet) June 1.
1913-17, 1922-45: 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 except those for Feb. 17 to Apr. 11, which are poor. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.00	1.0	6.0	2.8	72
.4	1.50	1.2	8.5	3.2	105
.5	2.1	1.4	11.5	3.6	151
.6	2.7	1.7	18.5	4.0	213
.7	3.35	2.0	28	4.5	310
.8	4.1	2.4	46		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	26.5	3.8	4.7	2.9	6.5	7.3	4.0	1.8	11	3.7	2.5	1.4
2	5.8	3.1	17.3	2.7	6.8	30	3.7	1.8	35	3.5	3.9	1.5
3	53	3.0	4.8	7.9	8.9	11.1	3.5	1.8	50	3.5	5.2	1.6
4	17.9	3.1	4.0	5.1	8.7	6.4	3.4	1.8	190	3.2	2.8	1.7
5	6.7	3.0	3.5	2.6	8.4	6.2	3.3	1.7	180	3.0	3.4	10.7
6	5.7	2.9	4.4	2.4	11.2	20	3.2	1.7	80	3.0	2.6	6.2
7	4.5	4.7	7.1	2.4	8.9	58	3.1	1.7	40	65	3.5	3.8
8	4.0	24.5	3.6	2.2	13.7	50	3.0	1.6	90	230	2.8	10.2
9	3.9	6.9	3.2	2.2	5.3	9.3	2.9	1.6	80	35	2.2	6.4
10	7.1	33	3.2	2.1	23.5	6.6	2.8	1.6	27	8.5	2.0	2.4
11	3.9	6.1	3.2	2.1	33	5.8	2.7	1.5	26	4.5	2.0	2.3
12	3.6	4.4	3.0	2.2	8.0	5.2	2.7	1.5	28	3.8	2.0	2.0
13	4.0	3.9	3.2	2.1	7.3	4.9	2.6	1.5	140	5.7	1.9	1.8
14	22	3.5	4.4	2.0	16.8	4.7	2.6	2.0	30	57	1.8	1.6
15	7.5	3.3	3.4	1.9	37	24	2.4	1.6	13	24	1.8	1.6
16	4.3	3.2	3.9	1.8	23	12.0	2.4	4.4	150	12.4	1.9	1.7
17	3.9	3.2	8.7	36.5	34.5	5.2	3.1	8.0	70	10.4	1.7	2.0
18	4.2	2.9	9.7	26.5	33.5	4.7	2.4	3.7	22	5.6	1.7	2.4
19	3.4	2.9	4.7	4.9	9.8	4.7	2.3	2.1	15	4.6	1.7	5.0
20	12.2	2.6	22.5	3.2	12.9	13.3	2.2	1.9	15	4.0	1.9	14.6
21	5.0	2.6	8.2	3.1	35.5	5.3	3.3	4.0	11	3.6	1.8	11.0
22	4.4	3.7	5.1	3.3	52	5.3	14.3	9.0	9.5	3.4	1.6	4.2
23	4.4	31.5	4.0	3.5	10.0	13.6	2.6	3.0	8.0	3.3	1.6	29.5
24	7.8	3.8	3.5	3.1	7.2	9.9	2.3	4.5	7.5	3.1	1.5	4.6
25	4.8	13.5	3.4	25	6.0	4.9	2.1	17	7.0	2.9	1.4	8.1
26	4.1	26	3.0	150	5.2	65	2.1	38	5.2	2.8	1.4	12.3
27	6.1	10.7	2.9	56	7.3	8.8	2.1	100	4.3	2.7	1.4	6.1
28	4.7	8.5	2.8	30.5	14.2	6.2	2.0	11	4.5	2.6	1.4	4.1
29	4.0	9.5	2.6	19.6	9.9	5.3	2.0	-	7.5	2.6	1.4	3.4
30	3.4	4.7	2.6	10.0	5.7	4.9	1.9	-	4.3	2.5	1.4	12.3
31	3.5	4.1	-	7.1	-	4.3	1.9	-	3.8	-	1.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	53	3.4	8.27	12.8	256	787
August	33	2.6	7.83	12.1	243	745
September	22.5	2.6	5.35	8.28	161	493
October	150	1.8	13.8	21.4	427	1,310
November	52	5.2	15.7	24.3	471	1,440
December	65	4.3	13.6	21.0	423	1,300
Calendar year 1944	150	1.2	10.4	16.1	3,810	11,710
January	14.3	1.9	3.06	4.73	94.9	291
February	100	1.5	8.28	12.8	232	711
March	190	3.8	44.0	68.1	1,360	4,190
April	230	2.5	17.3	26.8	520	1,600
May	5.2	1.4	2.12	3.28	65.6	201
June	29.5	1.4	5.88	9.10	176	542
Fiscal year 1944-45	230	1.4	12.1	18.7	4,430	13,610

Note.- No gage-height record Feb. 17 to Apr. 11; discharge computed on basis of records for nearby streams.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 23 years (1922-45), 24.5 million gallons a day (37.9 second-feet).

Extremes.- Maximum discharge during year, 1,300 million gallons a day (2,010 second-feet) Mar. 5 (gage height, 7.30 feet), from rating curve extended above 420 million gallons a day; minimum, 1.31 million gallons a day (2.03 second-feet) Feb. 10-14.
1914-17, 1921-45: 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 July 1 to Apr. 8, fair thereafter. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.31	0.8	4.4	1.8	30
.4	1.65	1.0	7.0	2.0	40
.5	2.1	1.2	10.4	2.5	73
.6	2.65	1.4	15.0	3.0	121
.7	3.4	1.6	22	4.0	270

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	30.5	3.3	4.7	2.45	7.5	8.0	4.4	1.41	11.5	4.1	2.5	1.38
2	8.4	2.65	17.6	2.15	7.5	29.5	3.9	1.41	38.5	3.9	4.9	1.55
3	63	2.55	6.0	7.7	9.6	13.8	3.6	1.38	53	4.1	7.8	1.65
4	22	2.65	4.8	5.3	9.5	7.6	3.3	1.38	211	3.5	3.8	1.83
5	9.3	2.5	3.8	2.6	8.8	7.2	3.2	1.38	197	3.25	6.0	10.5
6	7.2	2.45	4.3	2.25	11.3	26	3.0	1.34	108	3.3	3.4	6.5
7	5.5	3.9	7.3	2.05	8.9	67	2.7	1.34	43	60	4.5	4.2
8	4.6	26	3.8	1.92	13.0	62	2.6	1.34	97	260	3.85	11.6
9	4.2	8.4	3.25	1.83	5.7	13.0	2.5	1.34	82	32	2.65	7.0
10	7.2	41	3.25	1.74	24	9.0	2.45	1.31	31	8.8	2.4	2.9
11	4.2	9.2	3.0	1.74	36.5	7.2	2.3	1.31	30.5	5.7	2.15	2.7
12	3.7	5.6	2.7	1.88	9.9	6.0	2.25	1.31	34	4.6	2.05	2.3
13	3.8	4.4	2.9	1.83	8.4	5.5	2.2	1.31	155	6.6	1.96	2.05
14	19.6	3.6	3.7	1.70	16.4	5.2	2.1	1.70	31	71	1.88	1.92
15	8.5	3.2	3.0	1.62	45	23	2.05	1.41	14.8	32.5	1.88	1.74
16	4.8	2.95	3.3	1.51	27	14.9	2.0	4.1	161	14.8	1.92	1.74
17	4.1	2.95	7.4	34	41	6.3	2.4	8.0	81	12.7	1.78	1.92
18	4.2	2.55	9.1	32.5	42	5.4	2.0	3.55	26.5	8.1	1.70	2.15
19	3.3	2.5	4.5	6.6	13.2	5.4	1.88	1.88	17.7	6.4	1.74	4.8
20	11.0	2.25	22.5	3.9	14.3	15.0	1.78	1.74	18.0	5.7	2.0	14.2
21	5.0	2.2	9.2	3.25	39	6.3	2.75	4.4	12.3	5.1	1.78	11.7
22	4.4	2.85	6.4	3.3	61	5.9	14.9	9.2	10.8	4.6	1.65	4.8
23	4.2	28.5	4.5	3.6	12.5	13.1	2.55	2.65	9.1	4.1	1.58	27
24	7.2	3.6	3.7	3.0	9.0	10.5	2.0	4.5	8.8	3.8	1.51	5.5
25	4.8	12.7	3.2	24	7.2	5.9	1.92	16.0	8.4	3.4	1.51	8.3
26	4.0	30	2.8	170	6.0	66	1.78	37	6.2	3.25	1.48	14.2
27	5.6	13.4	2.55	68	7.9	11.6	1.65	106	5.2	2.95	1.45	7.8
28	4.6	10.0	2.4	35	13.6	8.1	1.62	12.0	5.4	2.6	1.38	5.1
29	3.8	10.6	2.25	24.5	11.3	6.3	1.58	-	8.6	2.5	1.38	4.0
30	3.25	5.9	2.15	12.8	6.6	5.5	1.51	-	5.2	2.5	1.41	12.0
31	3.2	4.8	-	9.1	-	4.9	1.48	-	4.4	-	1.38	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	63	3.2	9.00	13.9	279	857
August	41	2.2	8.38	12.9	259	795
September	22.5	2.15	5.34	8.26	160	491
October	170	1.51	15.3	23.7	474	1,450
November	61	5.7	17.8	27.5	534	1,640
December	67	4.9	15.5	24.0	481	1,480
Calendar year 1944	170	1.22	11.7	18.1	4,280	13,150
January	14.9	1.48	2.79	4.32	86.4	265
February	106	1.31	8.27	12.8	232	711
March	211	4.4	49.2	76.1	1,530	4,680
April	260	2.5	19.5	30.2	586	1,800
May	7.8	1.38	2.50	3.87	77.4	237
June	27	1.38	6.17	9.55	185	568
Fiscal year 1944-45	260	1.31	13.4	20.7	4,880	14,970

Time basis: Hawaiian war time. 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 1945. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge during year, 405 million gallons a day (627 second-feet) Dec. 26 (gage height, 5.28 feet), from rating curve extended above 90 million gallons a day by logarithmic plotting; minimum, 0.15 million gallons a day (0.23 second-foot) June 11, 16, 17.

1932-36, 1938-45: Maximum discharge, 1,190 million gallons a day (1,840 second-feet) Dec. 14, 1942 (gage height, 8.09 feet), from rating curve extended above 90 million gallons a day by logarithmic plotting; minimum, 0.12 million gallons a day (0.19 second-foot) Oct. 10-12, 1933, Nov. 8, 1943.

Remarks.- Records good. Koolau ditch diverts all low flow, at altitude of about 1,200 feet, for irrigation in central Maui.

Rating table, fiscal year 1944-45 (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		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	15.0	a0.95	0.75	0.58	2.95	1.19	1.02	0.25	3.3	0.63	0.48	0.19
2	.95	a.76	7.1	.48	2.1	13.9	1.02	.23	19.2	.63	.87	.21
3	37	a.76	.69	.52	1.76	1.32	.95	.23	18.3	.63	.80	.25
4	10.4	a.70	.63	.48	1.87	.95	.88	.23	95	.52	.48	.28
5	1.55	a.70	.58	.40	1.76	.88	.81	.21	66	.48	.44	.56
6	1.55	a.64	.75	.40	4.9	6.5	.88	.21	41	.48	.40	.33
7	1.19	a1.3	1.19	.37	6.3	32	.75	.21	20.5	23.5	.37	.28
8	1.02	a5.0	.63	.33	14.8	29	.75	.21	47	104	.37	.28
9	.95	1.04	.52	.33	1.87	1.02	.69	.21	44	13.6	.33	.30
10	1.97	12.8	.52	.30	21.5	.88	.63	.19	11.8	.69	.33	.19
11	1.10	.95	.52	.30	17.0	.61	.63	.19	6.9	.63	.30	.23
12	1.02	.81	.52	.30	1.97	.75	.58	.19	11.2	.58	.30	.25
13	.95	.69	.48	.33	1.87	.69	.58	.19	60	3.85	.30	.23
14	15.5	.63	.48	.30	9.4	.63	.52	.35	10.7	46	.28	.28
15	4.1	.58	.46	.30	21	14.0	.52	.23	1.65	15.8	.28	.19
16	1.46	.52	.63	.30	11.5	2.95	.52	1.65	57	2.65	.30	.19
17	1.28	.85	3.45	14.9	22	.69	.69	2.6	42	1.98	.25	.19
18	1.37	.58	2.8	11.7	14.8	.63	.52	.37	9.2	1.37	.25	.25
19	1.02	.58	.95	.44	1.76	.63	.48	.23	2.1	1.19	.28	.47
20	4.1	.48	13.8	.33	2.4	3.65	.44	.23	2.85	1.02	.30	1.36
21	1.28	.48	11.8	.33	27.5	.63	1.24	.52	1.55	.95	.30	1.29
22	1.10	1.49	1.06	.37	10.7	.81	12.4	1.18	1.37	.88	.23	.28
23	2.1	26.5	.81	.40	2.1	11.2	.40	.40	1.19	.81	.21	25.5
24	2.2	.69	.75	.37	1.76	4.3	.33	.40	1.19	.75	.19	.33
25	1.76	.88	.75	24	1.46	1.02	.33	.94	1.02	.75	.19	.40
26	1.37	7.9	.63	101	1.28	57	.30	8.6	.88	.69	.21	3.0
27	1.87	.75	.58	46	1.37	2.6	.30	43	.88	.63	.21	.37
28	a1.3	.95	.58	23.5	5.8	1.76	.30	.86	.88	.52	.19	.30
29	a1.1	3.45	.52	21	1.28	1.37	.28	-	1.10	.52	.19	.25
30	a.95	.88	.52	6.5	1.02	1.19	.25	-	.75	.48	.19	1.16
31	a.90	.81	-	4.0	-	1.10	.25	-	.69	-	.19	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	37	0.90	3.85	5.96	119	366
August	26.5	.48	2.45	3.79	76.1	234
September	13.8	.48	1.85	2.86	55.5	170
October	101	.30	8.41	13.0	261	801
November	27.5	1.02	7.26	11.2	218	668
December	57	.63	6.32	9.78	196	602
Calendar year 1944	101	.16	4.79	7.41	1,750	5,380
January	12.4	.25	.975	1.51	30.2	93
February	43	.19	2.30	3.56	64.3	197
March	95	.69	18.8	29.1	583	1,790
April	104	.48	7.57	11.7	227	697
May	.87	.19	.323	.500	10.0	31
June	25.5	.19	1.31	2.03	39.4	121
Fiscal year 1944-45	104	.19	5.15	7.97	1,880	5,770

a No gage-height record; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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 1945. January 1914 to October 1917 at site 500 feet upstream.

Average discharge.- 23 years (1922-45), 5.71 million gallons a day (8.83 second-feet).

Extremes.- Maximum discharge during year, 262 million gallons a day (405 second-feet) Dec. 26 (gage height, 3.55 feet), from rating curve extended above 50 million gallons a day; minimum, 0.26 million gallons a day (0.40 second-foot) June 1.
1914-17, 1921-45: 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 except those for Aug. 12 to Sept. 12, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.0	1.93	2.2	1.20	4.1	3.0	1.45	0.42	4.0	1.20	0.72	0.30
2	3.2	1.45	7.0	1.09	4.2	7.7	1.32	.42	12.6	1.09	1.28	.34
3	20	1.45	2.0	3.2	4.6	3.75	1.20	.42	10.5	1.09	1.43	.38
4	8.2	1.32	1.7	1.78	4.7	2.45	1.09	.42	28.5	.99	.72	.42
5	3.6	1.32	1.5	.99	4.4	2.3	1.09	.42	22	.89	.72	4.6
6	2.8	1.20	1.9	.89	6.3	4.3	1.09	.38	10.5	.89	.59	2.2
7	2.3	2.15	3.8	.89	9.4	11.6	.89	.38	11.5	4.0	1.05	1.32
8	1.93	8.5	1.6	.89	9.6	17.4	.89	.38	19.8	12.7	.72	3.8
9	1.77	3.2	1.4	.80	3.6	3.4	.89	.38	13.3	2.85	.53	2.0
10	4.3	9.8	1.6	.72	12.9	2.65	.80	.38	5.4	1.61	.53	.72
11	2.05	2.8	1.4	.80	10.5	2.3	.72	.34	5.8	1.32	.47	.72
12	1.77	2.0	1.3	.89	4.0	1.93	.72	.34	5.0	1.09	.47	.65
13	1.77	1.7	1.45	.80	3.8	1.77	.72	.34	23.5	3.1	.47	.59
14	13.1	1.5	1.93	.72	8.3	1.61	.65	.53	5.0	19.3	.42	.59
15	4.7	1.4	1.45	.65	12.6	8.4	.65	.42	3.6	6.1	.42	.53
16	2.45	1.3	1.77	.65	8.2	3.3	.59	3.5	27.5	3.8	.47	.53
17	2.05	1.4	5.2	11.2	12.2	1.93	.80	4.1	10.7	2.8	.38	.65
18	2.05	1.2	6.4	6.6	10.0	1.61	.65	1.28	6.2	1.93	.38	.80
19	1.61	1.1	2.8	2.05	4.6	1.83	.53	.59	4.3	1.61	.38	2.95
20	5.7	.9	9.7	1.45	5.4	3.7	.53	.59	4.7	1.45	.53	6.3
21	2.65	.9	6.4	1.45	9.4	1.93	1.88	2.4	3.2	1.20	.47	5.2
22	2.3	1.5	3.4	1.61	12.4	1.77	7.6	4.6	2.65	1.20	.38	1.93
23	2.45	15	2.45	1.77	4.0	8.0	.80	1.09	2.05	1.09	.34	19.1
24	4.2	1.5	1.93	1.45	3.2	4.3	.65	1.65	2.3	.99	.30	2.65
25	2.65	4.5	1.77	14.2	2.65	2.3	.59	4.7	2.05	.89	.30	3.4
26	2.3	6.0	1.45	44	2.3	28.5	.59	6.6	1.77	.80	.30	4.3
27	3.95	4.0	1.45	17.1	3.0	3.4	.59	16.8	1.45	.72	.30	3.2
28	2.8	3.8	1.32	13.5	4.9	2.45	.53	2.75	1.45	.72	.30	2.05
29	2.3	4.8	1.20	11.0	3.25	2.05	.53	-	2.45	.72	.30	1.61
30	1.93	2.2	1.09	6.5	2.3	1.77	.53	-	1.45	.72	.30	5.1
31	1.77	1.9	-	4.4	-	1.61	.47	-	1.20	-	.30	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	20	1.61	4.05	6.27	126	386
August	15	.9	3.02	4.67	93.7	288
September	9.7	1.09	2.69	4.16	80.6	247
October	44	.65	5.01	7.75	155	476
November	12.9	2.3	6.37	9.86	191	586
December	28.5	1.61	4.68	7.24	145	445
Calendar year 1944	44	.30	3.89	6.02	1,420	4,360
January	7.6	.47	1.03	1.59	32.0	98
February	16.8	.34	2.02	3.13	56.6	174
March	28.5	1.20	8.27	12.8	256	787
April	19.3	.72	2.63	4.07	78.9	242
May	1.43	.30	.525	.812	16.3	50
June	19.1	.30	2.63	4.07	78.9	242
Fiscal year 1944-45	44	.30	3.59	5.55	1,310	4,020

Note.- No gage-height record Aug. 12 to Sept. 12; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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 2¾ miles south of Keanae post office.

Drainage area.- 0.7 square mile.

Records available.- December 1913 to October 1917, July 1922 to June 1945.

Average discharge.- 23 years (1922-45), 9.08 million gallons a day (14.0 second-feet).

Extremes.- Maximum discharge during year, 300 million gallons a day (464 second-feet) Mar. 16 (gage height, 3.75 feet), from rating curve extended above 130 million gallons a day; minimum, 0.25 million gallons a day (0.39 second-foot) May 31, June 1.
1913-17, 1922-45: Maximum discharge, 1,500 million gallons a day (2,320 second-feet) Aug. 12, 1940 (gage height, 6.35 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.6	0.22	1.2	4.2	1.8	22
.7	.42	1.3	5.8	2.0	33.5
.8	.75	1.4	8.0	2.2	49
.9	1.30	1.5	10.5	2.5	82
1.0	2.0	1.6	13.7	3.0	152
1.1	2.95	1.7	17.5		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.6	1.99	2.25	1.30	4.3	3.4	1.82	0.50	4.9	1.54	1.00	0.29
2	3.05	1.42	7.8	1.11	4.1	8.8	1.67	.50	13.2	1.48	1.80	.37
3	20	1.36	2.2	3.55	4.8	4.6	1.54	.47	13.2	1.48	2.55	.44
4	8.6	1.36	1.90	1.98	4.9	2.85	1.48	.47	66	1.36	1.11	.53
5	3.95	1.36	1.60	1.11	4.4	2.7	1.42	.44	44	1.30	1.30	4.6
6	3.2	1.23	2.1	1.00	6.1	5.6	1.42	.42	34.5	1.30	.95	2.65
7	2.5	2.15	4.2	.95	6.2	17.7	1.23	.42	16.4	20.5	1.18	1.44
8	2.2	8.7	1.67	.90	9.2	20.5	1.17	.42	28	100	1.11	3.9
9	2.1	3.4	1.42	.80	3.3	5.2	1.11	.42	29	14.7	.80	2.4
10	5.0	9.7	1.54	.75	12.4	3.7	1.05	.37	13.0	3.9	.70	.85
11	2.2	2.95	1.42	.80	11.1	3.1	1.00	.37	10.0	2.65	.66	.95
12	1.90	2.2	1.30	.90	4.5	2.55	.95	.35	10.8	2.1	.63	.80
13	1.93	1.82	1.36	.80	4.2	2.3	.90	.35	51	4.0	.63	.63
14	12.6	1.60	1.73	.70	8.9	2.1	.85	.69	13.7	27.5	.56	.59
15	4.1	1.48	1.42	.63	13.6	8.6	.80	.51	7.1	13.2	.56	.50
16	2.5	1.42	1.50	.59	9.0	4.5	.80	4.6	51	6.6	.59	.50
17	2.2	1.57	4.9	10.7	13.4	2.5	1.05	3.4	31	5.2	.50	.72
18	2.3	1.23	5.8	7.4	12.3	2.2	.85	1.58	10.3	3.2	.47	.95
19	1.67	1.17	2.25	2.3	5.5	2.5	.66	.66	6.9	2.65	.50	2.7
20	5.8	1.05	9.2	1.48	6.4	5.0	.63	.63	6.7	2.2	.70	6.0
21	2.6	1.05	5.9	1.42	11.2	2.4	1.70	2.7	4.4	1.82	.56	4.8
22	2.2	1.74	3.15	1.60	16.3	2.4	9.4	5.1	3.6	1.67	.44	1.84
23	2.95	16.6	2.3	1.74	5.3	8.3	1.11	1.30	2.95	1.54	.39	15.8
24	4.3	1.74	1.82	1.42	3.95	4.9	.85	1.79	3.1	1.42	.37	2.5
25	2.5	5.1	1.74	13.4	3.3	2.5	.75	5.1	2.95	1.36	.37	3.3
26	2.2	6.5	1.54	49	2.75	29.5	.66	7.0	2.3	1.30	.35	4.5
27	3.8	4.4	1.42	23.5	3.5	4.4	.63	29.5	2.1	1.23	.32	3.05
28	2.75	3.95	1.30	14.4	5.6	3.2	.63	4.8	2.1	1.11	.30	2.1
29	2.1	5.3	1.23	12.4	3.9	2.65	.56	-	3.15	1.11	.30	1.67
30	1.67	2.4	1.17	7.2	2.65	2.3	.53	-	1.82	1.03	.30	4.6
31	1.74	2.0	-	5.0	-	2.0	.50	-	1.67	-	.29	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	20	1.67	4.10	6.34	127	390
August	16.6	1.05	3.22	4.98	99.9	307
September	9.2	1.17	2.64	4.08	79.2	243
October	49	.59	5.51	8.53	171	524
November	16.3	2.65	6.90	10.7	207	635
December	29.5	2.0	5.64	8.73	175	537
Calendar year 1944	63	.27	4.52	6.99	1,650	5,070
January	9.4	.50	1.28	1.98	39.7	122
February	29.5	.35	2.67	4.13	74.9	230
March	66	1.67	15.8	24.4	491	1,510
April	100	1.03	7.68	11.9	230	707
May	2.55	.29	.719	1.11	22.3	68
June	15.8	.29	2.53	3.91	76.0	233
Fiscal year 1944-45	100	.29	4.91	7.60	1,790	5,510

Time basis: Hawaiian war time. 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. Prior to Apr. 10, 1939, wooden Parshall flume at same site and datum.

Records available.- September 1934 to June 1945.

Average discharge.- 10 years (1935-45), 2.44 million gallons a day (3.78 second-feet).

Extremes.- Maximum discharge during year, 9.7 million gallons a day (15.0 second-feet) Mar. 16 (gage height, 1.89 feet); minimum, 1.56 million gallons a day (2.41 second-feet) June 30.

1934-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.45	1.96	1.78	1.78	2.1	2.3	2.1	1.82	1.69	2.1	2.05	1.82
2	2.05	1.92	2.05	1.74	2.05	2.6	2.1	1.82	2.35	2.05	2.05	1.78
3	2.7	1.92	1.82	1.78	2.05	2.4	2.1	1.82	2.75	2.05	2.05	1.82
4	2.3	1.92	1.82	1.78	2.05	2.25	2.1	1.82	3.8	2.05	2.05	1.82
5	2.1	1.92	1.78	1.78	2.05	2.25	2.1	1.82	3.8	2.05	2.05	1.82
6	2.05	1.87	1.78	1.78	2.2	2.35	2.1	1.82	3.1	2.05	2.0	1.78
7	2.0	1.87	1.82	1.78	2.1	2.85	2.1	1.82	2.7	2.2	2.0	1.74
8	2.0	2.2	1.82	1.78	2.55	3.0	2.1	1.82	3.25	2.8	2.0	1.74
9	2.0	1.92	1.82	1.78	2.2	2.3	2.1	1.82	3.15	2.25	2.0	1.74
10	2.05	2.25	1.82	1.78	2.65	2.25	2.1	1.82	2.55	2.1	2.0	1.69
11	2.0	1.92	1.82	1.78	2.95	2.25	2.1	1.82	2.5	2.05	1.96	1.69
12	2.0	1.87	1.82	1.78	2.4	2.25	2.1	1.82	2.5	2.0	1.96	1.64
13	1.96	1.87	1.82	1.74	2.25	2.3	2.05	1.78	3.7	2.05	1.96	1.64
14	2.15	1.87	1.87	1.74	2.55	2.25	2.05	1.78	2.55	2.7	1.96	1.64
15	2.05	1.82	1.82	1.69	2.9	f2.4	2.05	1.69	2.35	2.4	1.96	1.64
16	2.0	1.82	1.87	1.69	2.6	f2.3	2.05	1.69	3.35	2.15	1.96	1.64
17	1.96	1.82	1.96	2.45	2.85	2.3	2.05	1.69	2.95	2.2	1.96	1.64
18	1.96	1.82	2.05	2.4	2.95	2.2	2.0	1.64	2.6	2.1	1.96	1.60
19	1.96	1.82	1.92	1.78	2.4	2.15	2.0	1.64	2.5	2.1	1.96	1.60
20	1.96	1.82	2.35	1.74	2.3	2.25	1.96	1.64	2.5	2.1	1.96	1.94
21	1.96	1.82	1.96	1.69	2.7	2.15	1.96	1.69	2.4	2.1	1.96	1.78
22	1.96	1.82	1.92	1.69	3.05	2.15	2.3	1.69	2.3	2.1	1.92	1.64
23	1.96	2.35	1.87	1.69	2.5	2.3	1.96	1.60	2.25	2.1	1.92	2.35
24	1.96	1.82	1.87	1.64	2.3	2.3	1.92	1.60	2.2	2.1	1.87	1.69
25	1.96	1.87	1.87	2.6	2.25	2.1	1.92	1.64	2.15	2.05	1.87	1.69
26	1.96	2.2	1.87	3.8	2.25	3.2	1.87	2.1	2.1	2.05	1.87	1.97
27	2.0	1.82	1.87	3.05	2.25	2.3	1.87	3.35	2.1	2.05	1.87	1.69
28	2.0	1.82	1.87	2.65	2.4	2.15	1.87	1.92	2.1	2.05	1.82	1.60
29	1.96	1.92	1.82	2.6	2.4	2.1	1.82	-	2.1	2.05	1.82	1.60
30	1.96	1.82	1.82	2.45	2.3	2.05	1.82	-	2.1	2.05	1.82	1.95
31	1.96	1.82	-	2.25	-	2.05	1.82	-	2.1	-	1.82	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.7	1.96	2.04	3.16	63.3	194
August	2.35	1.82	1.91	2.98	59.3	182
September	2.35	1.78	1.88	2.91	56.4	173
October	3.8	1.64	2.02	3.13	62.7	192
November	3.05	2.05	2.42	3.74	72.6	223
December	3.2	2.05	2.32	3.59	72.0	221
Calendar year 1944	3.8	1.56	2.06	3.19	754	2,310
January	2.3	1.82	2.02	3.13	62.5	192
February	3.35	1.60	1.82	2.82	50.9	156
March	3.8	1.69	2.60	4.02	80.5	247
April	2.8	2.0	2.14	3.31	64.2	197
May	2.05	1.82	1.95	3.02	60.4	185
June	2.35	1.60	1.74	2.69	52.3	160
Fiscal year 1944-45	3.8	1.60	2.07	3.20	757	2,320

f Computed on basis of partly estimated gage-height record.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 27 years (1918-45), 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, 12.7 million gallons a day (19.6 second-feet) June 1.
1910-12, 1917-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	134	41	46	28	90	76	41	17.4	68	39	24.5	13.3
2	68	33	116	26	83	135	39	17.4	138	37	40	14.2
3	124	31	53	63	89	101	37	16.2	138	39	48	14.6
4	133	31	44	46	97	68	36	16.2	126	35	28	16.2
5	90	31	39	28	93	61	33	16.2	134	33	31	75
6	72	29.5	44	24.5	104	122	33	16.2	131	33	26	53
7	57	38	74	23	74	140	31	16.0	138	128	29.5	31
8	48	120	39	23	124	137	29.5	16.0	134	141	26	75
9	46	76	35	21.5	72	101	28	16.0	134	126	21.5	54
10	83	125	33	20	89	76	26	14.6	137	68	21.5	23
11	48	68	33	21.5	139	64	26	14.4	141	48	20	21.5
12	41	48	31	21.5	97	55	24.5	14.2	140	44	20	20
13	44	41	31	20	85	51	24.5	14.0	131	48	18.7	18.7
14	135	35	36	20	133	51	23	16.2	141	137	18.7	17.4
15	91	33	33	18.7	134	89	23	16.2	111	137	18.7	16.2
16	55	31	37	17.4	140	95	23	43	117	112	18.7	16.2
17	46	33	76	102	140	55	29.5	53	134	100	17.4	17.8
18	51	29.5	106	115	140	48	24.5	32.5	139	62	17.4	20
19	39	29.5	51	48	112	46	21.5	18.7	118	61	17.4	42
20	91	26	120	33	123	96	20	17.4	119	44	18.7	93
21	57	26	81	31	106	56	25	38	83	39	17.4	84
22	51	38	63	33	127	55	89	82	68	37	16.2	37
23	56	110	46	33	122	102	28	26	62	35	15.0	116
24	68	44	39	31	90	95	23	36	59	33	15.0	48
25	62	92	37	113	72	57	21.5	101	62	31	14.8	55
26	48	135	33	140	62	131	21.5	89	51	29.5	14.6	90
27	72	99	31	134	72	97	20	138	46	28	14.4	63
28	59	91	29.5	140	91	72	18.7	77	48	26	14.0	41
29	46	97	28	140	98	59	18.7	-	79	26	13.7	33
30	39	55	26	129	64	53	18.7	-	48	26	13.5	55
31	37	46	-	101	-	46	17.4	-	44	-	13.3	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	135	37	68.1	105	2,110	6,480
August	135	26	56.9	88.0	1,760	5,410
September	120	26	49.6	76.7	1,490	4,570
October	140	17.4	56.3	87.1	1,750	5,360
November	140	62	102	158	3,060	9,400
December	140	46	80.4	124	2,490	7,640
Calendar year 1944	141	12.3	61.2	94.7	22,390	68,790
January	89	17.4	28.2	43.6	874	2,680
February	138	14.0	36.2	54.5	986	3,030
March	140	44	104	161	3,220	9,880
April	141	26	69.1	91.4	1,770	5,440
May	48	13.3	20.8	32.2	644	1,980
June	116	13.3	42.4	66.8	1,270	3,900
Fiscal year 1944-45	141	13.3	58.7	90.8	21,420	65,770

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 29 years (1918-45), 15.5 million gallons a day (24.0 second-feet).

Extremes.- Maximum discharge during year, 809 million gallons a day (1,250 second-feet) Mar. 16 (gage height, 5.53 feet), from rating curve extended above 300 million gallons a day; minimum not determined owing to faulty gage-height record.
1913-45: 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 good except those for Aug. 9 to Feb. 15, which are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.18	1.0	2.0	2.0	41
.6	.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		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	34.5	1.82	2.45	0.90	4.3	4.0	1.74	0.41	7.6	1.61	2.0	0.29
2	4.2	1.25	15.8	.80	4.4	22	1.62	.41	34.5	1.42	8.0	.42
3	50	1.06	3.2	7.6	5.6	8.2	1.50	.39	49	1.35	5.1	.49
4	11.5	1.10	2.2	3.75	4.9	5.3	1.45	.40	143	1.25	1.78	.63
5	3.8	1.09	1.81	11.1	3.9	4.5	1.35	.38	113	1.15	1.35	10.7
6	2.8	1.86	1.96	2.95	7.4	23	1.30	.37	58	1.15	1.10	5.5
7	2.25	2.3	6.5	1.45	6.2	56	1.21	.37	24	4.0	1.15	2.4
8	1.94	38.5	2.45	1.06	7.2	53	1.11	.37	56	49	1.01	9.3
9	1.74	8.2	1.68	.93	3.6	6.1	1.06	.37	66	11.0	.86	5.1
10	6.7	39.5	1.65	.83	31	3.8	.99	.35	18.5	2.2	.76	1.61
11	3.1	4.8	1.35	.76	32	3.1	.96	.35	19.6	1.74	.70	1.35
12	2.4	3.2	1.21	.80	5.9	2.7	.90	.35	22.5	1.61	.70	1.01
13	2.25	2.35	1.21	.69	4.8	2.45	.83	.33	126	2.0	.66	.83
14	21	1.81	1.43	.62	11.4	2.35	.76	.80	21	41	.63	.86
15	6.3	1.50	1.40	.56	46	19.9	.73	.65	6.6	43	.63	.70
16	2.55	1.35	1.30	.50	18.0	9.6	.67	8.3	114	8.9	2.25	.66
17	2.1	1.30	3.05	35.5	43	2.85	.73	4.8	52	8.9	1.06	1.02
18	2.4	1.06	6.9	29	25.5	2.5	.65	2.75	14.7	2.9	.73	1.01
19	1.94	.99	2.7	4.1	6.4	2.9	.54	1.07	7.4	2.65	.66	4.0
20	7.6	.90	22.5	2.0	7.3	15.3	.51	.79	6.2	2.1	.97	20.5
21	3.0	.83	6.8	1.62	38.5	3.2	.97	2.85	1.21	1.87	.76	10.7
22	2.65	1.06	3.75	1.81	37.5	3.0	10.6	5.4	3.4	1.87	.53	5.1
23	2.0	22	2.3	1.94	5.2	16.2	1.57	1.79	2.8	1.74	.49	20
24	5.3	2.6	1.81	1.81	3.7	12.3	.93	4.2	2.9	1.54	.45	3.75
25	3.25	10.5	1.50	32	3.0	3.0	.69	18.1	2.9	1.61	.42	7.9
26	2.65	31.5	1.30	68	2.6	44	.58	37	2.4	1.42	.42	11.5
27	4.2	9.2	1.11	45	4.2	5.3	.49	83	2.1	1.30	.40	4.3
28	2.9	5.7	1.06	26.5	12.0	3.45	.44	17.9	2.0	1.20	.36	2.7
29	2.65	9.2	1.03	18.5	7.8	2.6	.44	-	3.05	9.5	.34	2.1
30	1.74	3.6	.90	14.4	3.1	2.2	.43	-	2.25	5.3	.32	18.3
31	1.54	2.9	-	7.8	-	1.94	.41	-	1.80	-	.31	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	50	1.54	6.55	10.1	203	623
August	39.5	.83	6.94	10.7	215	660
September	22.5	.90	3.48	5.38	104	320
October	68	.50	10.5	16.2	325	998
November	46	2.6	13.2	20.4	396	1,220
December	56	1.94	11.2	17.3	347	1,060
Calendar year 1944	129	.16	8.21	12.7	3,000	9,220
January	10.6	.41	1.23	1.90	38.2	117
February	83	.33	6.94	10.7	194	596
March	143	1.21	31.9	49.4	988	3,030
April	49	1.15	7.21	11.2	216	664
May	8.0	.31	1.19	1.84	36.9	113
June	20.5	.29	5.16	7.98	155	475
Fiscal year 1944-45	143	.29	8.82	13.6	3,220	9,880

Note.- Faulty gage-height record Aug. 9 to Feb. 15; leakage correction applied to discharges from Aug. 9 to Jan. 29; discharge from Jan. 30 to Feb. 15 is computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 29 years (1916-45), 9.97 million gallons a day (15.4 second-feet).

Extremes.- Maximum discharge during year, 630 million gallons a day (975 second-feet) Mar. 16 (gage height, 4.42 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.

1913-45: 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, that of 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	21.5	1.6	1.8	0.4	5.1	2.8	0.8	0.1	5.3	0.7	0.8	0.1
2	3.5	.9	10.7	.3	4.9	13.8	.7	.1	24	.5	3.4	.1
3	31	.7	2.6	3.3	5.2	6.8	.6	.1	31.5	.5	3.1	.2
4	10.1	.8	1.7	2.2	5.6	3.6	.5	.1	96	.4	.7	.2
5	3.6	.8	1.3	5.8	4.5	2.7	.4	.1	96	.3	.4	7.3
6	2.7	1.2	1.5	1.8	8.0	11.3	.4	.1	41	.3	.3	4.5
7	1.8	1.7	5.2	.4	7.5	33.5	.4	.1	19.6	1.9	.4	1.6
8	1.4	22.5	1.8	.3	10.5	31.5	.2	.1	36	19.6	.2	6.7
9	1.4	6.0	1.0	.2	3.7	5.2	.2	.1	38.5	6.6	.2	4.5
10	6.3	25	1.0	.2	24.5	3.0	.2	.1	13.8	1.1	.2	.8
11	2.1	4.0	.9	.2	19.6	2.4	.2	.1	12.9	.7	.1	.7
12	1.4	2.5	.7	.2	5.6	1.7	.2	.1	15.8	.5	.1	.4
13	1.4	1.6	.6	.2	4.7	1.4	.1	.1	89	1.4	.1	.2
14	18.8	1.3	.8	.2	11.8	1.4	.1	.2	14.3	28	.1	.4
15	5.9	1.0	.8	.2	31.5	11.7	.1	.1	6.3	36	.1	.2
16	2.2	.8	.8	.1	14.0	7.3	.1	7.7	96	8.0	.5	.2
17	1.6	.9	4.2	22.5	21	1.7	.2	2.8	31.5	6.3	.2	.3
18	1.8	.6	7.5	19.6	19.6	1.4	.1	1.6	12.0	2.2	.1	.7
19	1.2	.5	2.1	3.4	6.7	1.3	.1	.2	7.1	1.6	.1	.6
20	6.6	.4	16.1	1.6	7.4	8.5	.1	.2	6.1	1.2	.2	16.0
21	2.6	.4	5.4	1.3	24	1.9	.2	1.8	3.6	.9	.2	10.1
22	2.1	1.4	3.0	1.3	28	1.9	8.4	5.6	2.7	.9	.1	5.0
23	1.7	22.5	1.6	1.3	5.2	12.8	.5	1.0	2.0	.7	.1	28
24	4.7	2.0	1.2	1.1	3.3	9.9	.2	1.4	2.1	.6	.1	4.4
25	2.5	6.4	1.0	22.5	2.4	2.4	.1	11.7	2.0	.5	.1	6.1
26	2.2	17.3	.7	54	1.8	33.5	.1	26	1.4	.4	.1	11.1
27	4.9	7.3	.5	31.5	2.5	4.6	.1	54	1.2	.4	.1	5.0
28	3.5	5.6	.4	19.6	7.4	2.8	.1	7.5	1.1	.3	.1	3.0
29	2.2	8.7	.4	19.6	5.9	1.8	.1	-	2.1	1.7	.1	1.9
30	1.4	3.2	.3	9.9	2.1	1.4	.1	-	1.1	2.1	.1	8.7
31	1.3	2.2	-	7.9	-	1.0	.1	-	.8	-	.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	31	1.2	5.01	7.75	154	477
August	25	.4	4.90	7.58	152	466
September	16.1	.3	2.69	4.01	77.6	238
October	54	.1	7.52	11.6	233	715
November	31.5	1.8	10.1	15.6	304	933
December	33.5	1.0	7.32	11.3	227	697
Calendar year 1944	86	.1	5.61	8.68	2,050	6,300
January	8.4	.1	.51	.79	15.7	48
February	54	.1	4.40	6.81	123	378
March	96	.8	23.0	35.6	713	2,190
April	36	.3	4.21	6.51	126	388
May	3.4	.1	.40	.62	12.5	38
June	28	.1	4.30	6.65	129	396
Fiscal year 1944-45	96	.1	6.21	9.61	2,270	6,960

Time basis: Hawaiian war time. 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 Gluch, 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 1945.

Extremes.- Maximum discharge during year, 10.6 million gallons a day (16.4 second-feet) Apr. 15 (gage height, 1.47 feet); minimum, 0.39 million gallons a day (0.60 second-foot) Feb. 13.

1938-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.5	1.38	1.38	1.01	1.85	1.65	1.38	0.56	1.92	1.25	1.25	0.42
2	1.85	1.25	2.45	.95	1.78	2.7	1.31	.52	3.3	1.19	1.54	.48
3	3.8	1.19	1.58	1.52	1.85	2.1	1.25	.52	3.7	1.13	1.55	.60
4	2.6	1.19	1.38	1.38	1.92	1.85	1.19	.52	6.1	1.13	1.13	.70
5	1.85	1.19	1.31	1.69	1.72	1.72	1.19	.52	5.0	1.07	1.07	1.88
6	1.65	1.31	1.31	1.38	2.1	2.65	1.13	.48	3.95	1.07	1.01	1.78
7	1.51	1.38	1.85	1.07	1.83	3.85	1.07	.45	3.05	1.49	1.01	1.31
8	1.38	3.3	1.38	1.01	2.3	4.0	1.07	.45	3.95	3.2	.95	1.88
9	1.38	2.1	1.25	.95	1.72	2.05	1.01	.45	4.1	2.0	.90	1.72
10	2.0	3.55	1.25	.90	2.8	1.78	1.01	.42	2.7	1.38	.90	1.13
11	1.58	1.85	1.19	.90	3.05	1.65	.95	.42	2.65	1.25	.85	1.01
12	1.45	1.58	1.13	.90	1.98	1.58	.95	.45	2.9	1.19	.80	.95
13	1.38	1.45	1.13	.90	1.85	1.51	.90	.42	5.5	1.31	.80	.90
14	2.9	1.31	1.13	.85	2.5	1.51	.90	.71	2.8	3.55	.80	.90
15	2.05	1.25	1.19	.80	3.7	2.25	.85	.65	2.1	3.85	.80	.85
16	1.58	1.19	1.13	.75	2.65	2.2	.85	1.71	4.4	2.3	1.19	.80
17	1.45	1.19	1.52	3.05	3.2	1.58	.90	1.65	3.65	2.05	.90	.90
18	1.51	1.13	1.92	3.1	3.2	1.51	.85	1.38	2.6	1.65	.75	1.01
19	1.38	1.13	1.45	1.65	2.2	1.51	.75	.95	2.1	1.45	.75	1.54
20	2.05	1.07	2.8	1.31	2.2	2.3	.75	.80	1.98	1.38	.90	2.6
21	1.65	1.01	1.85	1.19	3.1	1.58	.83	1.19	1.72	1.31	.85	2.3
22	1.58	1.13	1.58	1.19	3.5	1.51	2.1	1.85	1.65	1.25	.65	1.71
23	1.38	2.9	1.38	1.19	1.98	2.4	1.13	1.19	1.58	1.25	.56	3.3
24	1.78	1.45	1.25	1.19	1.78	2.3	.95	1.33	1.58	1.19	.56	1.78
25	1.58	1.98	1.19	3.0	1.65	1.65	.85	2.5	1.58	1.19	.52	1.84
26	1.51	2.9	1.13	4.2	1.58	3.4	.80	3.15	1.45	1.13	.52	2.35
27	1.85	2.05	1.07	3.9	1.65	1.98	.75	4.8	1.38	1.07	.48	1.78
28	1.72	1.85	1.07	2.95	2.15	1.72	.70	2.2	1.38	1.07	.45	1.51
29	1.51	2.2	1.01	2.9	2.1	1.58	.65	-	1.58	1.36	.45	1.38
30	1.38	1.58	1.01	2.6	1.65	1.45	.60	-	1.38	1.54	.45	2.05
31	1.31	1.45	-	2.2	-	1.38	.56	-	1.31	-	.45	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.8	1.31	1.81	2.80	56.1	172
August	3.55	1.01	1.66	2.57	51.5	158
September	2.8	1.01	1.41	2.18	42.3	130
October	4.2	.75	1.70	2.63	52.6	161
November	3.7	1.58	2.25	3.48	67.5	207
December	4.0	1.38	2.03	3.14	62.9	193
Calendar year 1944	5.3	.42	1.66	2.57	609	1,870
January	2.1	.56	.974	1.51	30.2	93
February	4.8	.42	1.15	1.78	32.2	99
March	6.1	1.31	2.74	4.24	85.0	261
April	3.85	1.07	1.58	2.44	47.2	145
May	1.55	.45	.832	1.29	25.8	79
June	3.3	.42	1.45	2.24	43.4	133
Fiscal year 1944-45	6.1	.42	1.63	2.52	597	1,830

Time basis: Hawaiian war time. 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, 3¼ 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 1945. February 1930 to October 1935 at site 100 feet upstream.

Average discharge.- 22 years (1922-29, 1930-45), 14.3 million gallons a day (22.1 second-feet).

Extremes.- Maximum discharge during year, 87 million gallons a day (135 second-feet) Mar. 16 (gage height, 2.17 feet); minimum, 0.10 million gallons a day (0.16 second-foot) Feb. 8.

1922-45: 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 hydro-electric plant at Kolea Gulch. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	35	5.5	6.2	0.47	14.4	9.5	2.25	0.11	15.1	1.25	1.96	0.11
2	12.4	2.4	22	.31	13.7	25	1.58	.11	34	.90	9.5	.12
3	41	1.36	7.6	7.1	14.5	15.1	1.11	.11	39	.83	9.2	.14
4	24	1.52	4.8	6.2	16.1	10.2	.90	.11	60	.51	1.18	.16
5	12.4	1.87	3.3	8.1	13.5	8.5	.69	.11	50	.47	.51	12.7
6	9.8	3.55	4.3	5.2	19.0	23	.69	.11	41	.47	.39	11.3
7	6.7	5.2	14.0	.70	16.2	42	.47	.11	29.5	6.5	1.01	4.6
8	5.0	32.5	5.0	.35	24.5	42	.39	.11	39.5	28	.35	14.5
9	4.6	16.8	2.5	.23	11.2	12.7	.31	.11	40	13.2	.27	10.8
10	19.5	37	2.2	.19	27	9.2	.23	.12	20.5	3.2	.23	1.21
11	8.4	11.8	1.62	.23	32.5	7.6	.19	.12	18.8	1.47	.19	.69
12	5.8	8.0	1.04	.23	16.4	5.8	.19	.12	23	.90	.15	.43
13	5.4	5.4	.90	.23	14.4	4.5	.19	.12	55	4.0	.14	.27
14	32.5	3.6	1.70	.16	24.5	4.1	.16	.31	25	37.5	.14	.43
15	17.5	2.5	1.29	.16	41	18.3	.14	.23	16.4	35	.12	.19
16	8.0	1.80	1.66	.14	26.5	15.1	.14	11.9	39.5	16.6	1.37	.15
17	5.8	2.2	10.7	28.5	34	21	.19	10.0	34.5	15.6	.23	1.30
18	7.6	1.04	18.0	30	31.5	18.8	.16	5.2	23.5	6.7	.14	1.08
19	4.5	.76	6.5	9.4	16.7	4.5	.14	.54	18.0	4.8	.12	9.2
20	17.4	.51	26	4.0	19.3	18.3	.14	.23	16.4	2.9	.33	24.5
21	9.2	.47	14.2	2.8	28.5	6.9	1.55	5.9	11.1	2.0	.27	19.0
22	7.8	3.9	10.1	3.9	36.5	7.1	16.6	16.1	8.8	1.80	.14	10.7
23	6.4	34	5.2	3.6	12.6	23	1.26	2.65	6.9	1.11	.12	34
24	15.2	6.3	3.3	2.7	9.8	20	.27	5.2	7.3	.83	.12	10.0
25	8.8	15.7	2.25	33.5	7.8	7.3	.16	22.5	6.9	.76	.12	13.3
26	8.3	28.5	1.18	58	5.8	35	.14	30.5	4.7	.62	.12	18.0
27	16.0	18.2	.69	46	8.0	12.7	.12	52	3.45	1.10	.12	11.5
28	11.1	16.0	.55	32	15.0	8.8	.12	17.0	3.45	.43	.12	7.3
29	8.0	20	.43	32.5	13.9	5.8	.12	-	7.9	4.0	.12	4.5
30	4.7	8.8	.35	26	6.9	4.3	.11	-	3.45	5.6	.12	11.6
31	4.5	6.7	-	19.8	-	3.1	.11	-	2.0	-	.12	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	41	4.5	12.4	19.2	383	1,180
August	37	.47	9.80	15.2	304	933
September	26	.35	5.99	9.27	180	551
October	58	.14	11.7	18.1	363	1,110
November	41	5.8	19.1	29.6	572	1,750
December	42	3.1	14.5	22.4	449	1,380
Calendar year 1944	58	.10	10.4	16.1	3,790	11,640
January	16.6	.11	.994	1.54	30.8	95
February	52	.11	6.49	10.0	182	558
March	60	2.0	22.7	35.1	705	2,160
April	37.5	.43	6.64	10.3	199	611
May	9.5	.12	.936	1.45	29.0	89
June	34	.11	7.79	12.1	234	717
Fiscal year 1944-45	60	.11	9.94	15.4	3,630	11,130

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 13 years, 79.4 million gallons a day (123 second-feet).

Extremes.- Maximum discharge during year, 200 million gallons a day (309 second-feet) Nov. 10 (gage height, 4.95 feet); minimum, 7.0 million gallons a day (10.8 second-feet) Feb. 9.
1932-45: 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 Nov. 16-24, which are fair. Flow regulated by floodgates. No diversion above station. Water used for domestic supply and irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	164	46	52	32.5	92	76	48	18.1	78	44	29.5	12.9
2	72	39	128	29.5	89	153	46	18.1	162	42	52	14.3
3	154	37	59	58	100	109	42	18.1	169	44	53	14.5
4	148	37	48	50	96	72	41	16.8	190	39	32.5	16.8
5	90	35.5	42	40	107	67	39	16.8	176	37	35.5	82
6	76	34	46	29.5	95	135	37	15.6	176	35.5	28	59
7	59	43	77	28	112	184	35.5	15.6	176	129	32.5	35.5
8	52	148	44	25	118	181	34	15.6	183	169	29.5	78
9	50	83	39	23.5	72	103	32.5	15.6	183	138	25	61
10	93	152	37	23.5	136	80	31	15.6	162	67	23.5	26.5
11	52	72	37	23.5	155	67	31	14.5	162	52	22	25
12	48	52	34	23.5	94	63	29.5	14.3	169	48	22	23.5
13	50	46	35.5	22	114	59	28	14.3	176	56	20.5	20.5
14	170	42	42	22	139	55	28	18.1	162	169	19.4	19.4
15	97	41	37	20.5	169	104	26.5	16.8	113	176	19.4	18.1
16	59	35.5	41	19.4	a180	104	25	61	144	121	22	18.1
17	52	39	82	142	a180	59	32.5	58	176	105	19.4	19.3
18	55	34	115	126	a180	55	26.5	38	162	67	18.1	25
19	46	34	55	52	a120	52	23.5	22	125	55	18.1	49
20	104	31	135	37	a135	107	23.5	19.4	125	50	20.5	120
21	63	29.5	88	35.5	a115	59	25.5	43	89	46	20.5	97
22	55	42	68	39	a135	59	108	86	76	42	16.8	43
23	60	139	50	39	a130	121	32.5	31	67	39	15.6	146
24	94	50	44	34	a100	106	28	42	63	37	15.6	55
25	63	97	41	171	80	59	25	110	67	35.5	14.5	64
26	55	155	37	190	67	160	23.5	114	55	34	14.5	106
27	78	102	34	176	77	102	22	178	52	31	14.3	68
28	63	92	32.5	176	104	76	22	97	52	31	13.8	48
29	52	105	31	169	101	63	20.5	-	81	39	13.8	39
30	46	59	31	143	67	59	19.4	-	52	32.5	13.6	71
31	44	52	-	103	-	52	19.4	-	48	-	13.1	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	170	44	76.3	118	2,360	7,250
August	155	29.5	64.6	100	2,000	6,150
September	135	31	54.7	84.6	1,640	5,040
October	190	19.4	68.2	106	2,110	6,480
November	180	67	115	178	3,460	10,620
December	184	52	90.4	140	2,800	8,600
Calendar year 1944	190	12.7	70.1	108	25,620	78,700
January	108	19.4	32.4	50.1	1,010	3,090
February	178	14.3	40.8	63.1	1,140	3,510
March	190	48	125	193	3,870	11,880
April	176	31	67.0	104	2,010	6,170
May	53	13.1	22.9	35.4	708	2,170
June	146	12.9	49.2	76.1	1,480	4,530
Fiscal year 1944-45	190	12.9	67.4	104	24,590	75,490

a No gage-height record; discharge computed on basis of records for Koolau ditch near Keanae and Wailoa ditch at Honopou.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 28 years (1917-45), 21.4 million gallons a day (33.1 second-feet).

Extremes.- Maximum discharge during year, 1,150 million gallons a day (1,780 second-feet) Mar. 5 (gage height, 6.60 feet), from rating curve extended above 400 million gallons a day; minimum, 0.7 million gallons a day (1.1 second-feet) Feb. 10.
1910-45: 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. Kula pipe line diverts small amount of water above station at altitude 4,300 feet, for domestic supply.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	44	5.7	6.1	2.5	13.2	9.2	4.8	1.1	10.0	3.7	4.1	1.0
2	11.4	4.3	24	2.2	12.3	30	4.6	1.1	41	3.5	8.0	1.2
3	61	3.9	8.4	6.0	12.6	17.0	4.1	1.0	53	3.2	8.6	1.2
4	25.5	3.9	5.8	6.3	13.2	10.3	3.9	1.0	133	2.8	3.5	1.7
5	12.2	4.1	5.0	10.9	11.3	8.2	3.7	1.0	176	2.7	2.5	14.2
6	9.6	4.3	5.3	5.6	17.6	22.5	3.7	1.0	71	2.5	2.4	9.8
7	7.2	5.9	12.1	2.4	16.7	58	3.2	1.0	37.5	5.2	2.7	4.6
8	6.4	42	5.8	1.8	22.5	65	3.0	.8	62	28.5	2.2	13.4
9	6.0	15.6	4.3	1.7	10.0	14.0	2.8	.8	60	13.4	2.1	10.2
10	16.9	48	4.1	1.4	50	10.0	2.7	.8	27.5	4.8	2.0	3.0
11	8.2	10.4	3.9	1.5	41	8.2	2.5	.8	25	3.7	1.8	2.7
12	6.4	7.8	3.5	1.5	14.7	7.0	2.2	.8	29.5	3.5	1.7	2.2
13	6.1	6.1	3.5	1.4	12.5	6.1	2.0	.8	141	5.4	1.7	1.8
14	43	5.0	3.9	1.4	25.5	5.6	1.8	1.2	29.5	50	1.5	2.0
15	16.8	4.8	3.7	1.3	62	21	1.8	1.2	15.8	64	1.5	1.4
16	8.2	4.3	3.7	1.2	28.5	17.2	1.7	13.5	134	17.6	2.8	1.3
17	6.7	4.3	10.1	43	39	6.4	2.0	9.9	50	12.6	1.8	1.8
18	7.0	3.7	16.0	35.5	39.5	5.6	1.7	5.4	24	7.5	1.4	2.5
19	5.6	3.5	6.1	8.6	16.6	5.4	1.4	1.8	15.8	5.8	1.4	8.1
20	18.0	3.0	30.5	4.8	17.9	18.5	1.4	1.3	15.6	5.0	2.0	28
21	8.9	2.8	11.4	3.5	44	7.0	2.3	4.1	11.0	4.6	2.1	19.6
22	7.5	5.1	7.2	3.5	59	7.0	17.1	11.8	8.9	4.1	1.3	9.3
23	6.6	44	5.0	3.5	14.5	26	3.0	3.0	7.5	3.9	1.2	50
24	12.5	6.7	4.3	3.0	10.7	21.5	1.8	3.7	7.8	3.7	1.2	9.4
25	8.8	15.6	3.9	43	8.9	7.8	1.7	20	7.2	3.0	1.1	11.6
26	7.0	33	3.2	87	7.2	62	1.4	43	5.6	2.8	1.0	21
27	12.5	17.3	3.0	58	8.3	13.3	1.3	92	4.3	2.5	1.0	10.6
28	10.2	14.3	2.8	37.5	16.6	9.2	1.2	13.4	4.6	2.4	1.0	6.7
29	7.0	18.1	2.5	37	16.2	7.0	1.2	-	6.8	2.9	1.0	5.0
30	5.3	8.9	2.4	26	7.8	5.8	1.2	-	4.8	5.9	1.0	11.8
31	5.3	7.0	-	17.4	-	5.3	1.2	-	4.1	-	1.0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	61	5.3	13.5	20.9	418	1,280
August	48	2.8	11.7	18.1	363	1,120
September	30.5	2.4	7.05	10.9	212	649
October	87	1.2	14.9	23.1	460	1,410
November	62	7.2	22.3	34.5	670	2,060
December	65	5.3	16.7	25.8	517	1,590
Calendar year 1944	151	.9	13.1	20.3	4,800	14,720
January	17.1	1.2	2.85	4.41	88.4	271
February	92	.8	8.48	13.1	237	728
March	176	4.1	39.5	61.1	1,220	3,760
April	64	2.4	9.37	14.5	281	863
May	8.6	1.0	2.21	3.42	68.6	211
June	50	1.0	8.90	13.8	267	820
Fiscal year 1944-45	176	.8	13.2	20.4	4,800	14,760

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 26 years (1919-24, 1925-45), 5.82 million gallons a day (9.00 second-feet).

Extremes.- Maximum discharge during year, 79 million gallons a day (122 second-feet) Mar. 5, 16 (gage height 3.37 feet); minimum, 0.11 million gallons a day (0.17 second-foot) June 1, 2.

1917-45: 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. 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.2	1.29	1.31	0.62	5.5	2.0	1.31	0.20	1.75	0.62	0.68	0.11
2	1.80	.85	3.9	.56	4.3	4.4	1.08	.20	13.1	.56	1.70	.14
3	24.5	.79	1.34	1.02	3.65	3.25	.85	.20	14.3	.56	1.53	.14
4	5.5	.79	.93	.97	3.95	1.71	.79	.20	45	.51	.62	.20
5	3.15	.74	.79	1.04	3.8	1.23	.74	.20	29	.45	.45	1.19
6	2.25	.74	.79	.74	4.6	3.65	.74	.17	18.4	.45	.39	.95
7	1.7	.85	2.5	.39	6.6	20.5	.62	.17	6.9	1.13	.39	.39
8	1.46	7.5	.79	.34	8.9	20	.56	.14	22.5	14.4	.34	1.28
9	1.38	2.35	.62	.28	3.1	2.85	.51	.14	19.5	2.25	.28	1.01
10	4.6	12.6	.56	.28	15.5	1.61	.45	.14	4.6	.68	.25	.25
11	1.71	1.76	.56	.28	10.4	1.38	.45	.14	2.9	.56	.22	.22
12	1.31	1.08	.56	.28	4.8	1.15	.39	.14	3.2	.56	.22	.22
13	1.23	.85	.56	.28	4.2	1.00	.39	.14	38.5	2.15	.20	.20
14	7.2	.74	.74	.25	7.5	.85	.34	.28	4.6	24	.20	.22
15	3.5	.62	.56	.25	21	8.4	.28	.22	3.2	20	.17	.17
16	1.46	.56	.74	.25	7.3	3.85	.28	5.6	26	6.4	.22	.14
17	1.31	.68	4.5	11.6	11.2	1.29	.39	1.48	17.5	4.8	.20	.14
18	1.46	.62	6.2	6.3	9.4	.85	.39	.59	5.9	2.55	.17	.22
19	1.08	.51	1.53	1.12	4.7	.79	.28	.28	4.3	1.89	.17	1.10
20	2.35	.45	9.4	.45	5.0	2.5	.28	.22	4.4	1.53	.25	3.05
21	1.52	.39	3.6	.39	15.7	.93	.28	.82	2.55	1.31	.28	2.45
22	1.23	2.7	2.3	.56	22	1.31	5.6	3.0	1.69	1.15	.20	1.35
23	1.43	14.6	1.38	.45	4.6	11.0	.45	.51	1.53	.93	.17	17.9
24	3.65	1.08	1.15	.45	2.9	5.0	.28	.68	1.61	.85	.17	1.16
25	1.86	2.55	1.08	18.6	2.1	1.53	.28	3.2	1.31	.79	.14	1.59
26	1.37	3.7	.93	49	1.61	23.5	.28	14.8	1.08	.68	.14	2.45
27	3.75	3.2	.85	30.5	1.77	4.6	.25	32.5	.93	.62	.14	1.38
28	2.45	3.1	.79	14.8	2.8	2.65	.22	2.9	.93	.56	.14	.68
29	1.46	4.8	.74	14.5	2.9	2.2	.22	-	1.51	.65	.14	.51
30	1.15	1.68	.62	12.0	1.31	1.80	.22	-	.79	.82	.14	1.28
31	1.08	1.38	-	8.3	-	1.46	.20	-	.68	-	.14	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	24.5	1.08	3.29	5.09	102	313
August	14.6	.39	2.44	3.78	75.6	232
September	9.4	.56	1.74	2.69	52.3	161
October	49	.25	5.77	8.93	179	549
November	22	1.31	6.77	10.5	203	623
December	23.5	.79	4.49	6.95	139	427
Calendar year 1944	49	.14	3.39	5.25	1,240	3,800
January	5.6	.20	.626	.969	19.4	60
February	32.5	.14	2.47	3.82	69.3	213
March	45	.68	9.70	15.0	301	923
April	24	.45	3.15	4.87	94.4	290
May	1.70	.14	.337	.521	10.4	32
June	17.8	.11	1.40	2.17	42.0	129
Fiscal year 1944-45	49	.11	3.53	5.46	1,290	3,950

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 23 years, 16.1 million gallons a day (24.9 second-feet).

Extremes.- Maximum discharge during year, 1,000 million gallons a day (1,550 second-feet) Mar. 16 (gage height, 5.90 feet), from rating curve extended above 370 million gallons a day by logarithmic plotting; minimum, 0.16 million gallons a day (0.25 second-foot) Feb. 11.

1922-45: 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, that of 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.12	1.0	1.18	2.0	23
.6	.24	1.1	1.52	2.3	39
.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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	34	2.65	3.3	0.85	7.5	4.8	2.4	0.24	7.0	2.5	2.45	0.18
2	6.8	2.05	14.2	1.00	6.6	18.3	2.15	.24	32.5	2.15	4.3	.32
3	43	1.78	4.6	4.1	6.3	11.7	1.94	.24	53	1.95	5.4	.38
4	17.4	1.78	3.2	4.8	7.5	6.0	1.78	.23	143	1.80	2.3	.45
5	6.8	1.78	2.5	6.9	6.1	5.2	1.63	.22	124	1.76	1.73	7.4
6	4.8	1.89	2.55	4.5	9.8	17.5	1.63	.20	80	1.06	1,52	6.3
7	3.9	1.92	5.8	2.15	7.5	55	1.42	.19	24	6.7	1.88	2.8
8	3.2	33.5	3.4	1.73	13.1	49	1.28	.20	43	28.5	1.45	7.2
9	3.05	11.2	2.15	1.40	5.9	8.8	1.03	.20	55	19.2	1.25	6.9
10	7.0	40	1.89	1.06	32.5	5.6	.90	.18	23.5	3.1	1.12	2.15
11	4.6	6.8	1.78	.96	27.5	4.8	1.06	.17	16.4	2.0	1.06	1.56
12	3.2	4.7	1.57	1.13	9.0	4.0	1.15	.20	25	1.78	.89	1.18
13	2.9	3.45	1.45	.98	6.6	3.45	1.11	.22	133	2.65	.97	.75
14	22.5	2.75	1.56	.87	13.0	3.2	1.07	.45	23	42	.94	.67
15	10.3	2.3	1.43	.90	46	13.4	.96	.56	9.2	44	.97	.61
16	4.3	2.05	1.38	.71	16.8	13.9	.96	5.3	135	12.0	2.7	.53
17	3.45	2.15	7.1	27.5	25	3.9	1.03	5.8	57	10.2	1.60	.72
18	3.45	1.78	7.7	27.5	28	3.2	.91	3.9	17.7	4.6	1.06	1.42
19	2.65	1.63	3.3	5.8	9.2	2.9	.57	1.30	10.1	3.2	.97	2.3
20	7.3	1.42	17.8	2.9	9.6	11.9	.42	.71	10.4	2.65	1.32	15.7
21	4.8	1.28	5.8	3.05	26	4.3	.60	1.09	6.3	2.2	.80	11.6
22	4.0	2.25	3.75	3.05	55	4.0	9.4	5.2	5.0	2.15	.42	6.0
23	3.5	19.5	2.55	3.05	8.5	15.0	2.65	2.05	4.0	1.89	.31	23
24	7.0	4.0	2.0	2.8	5.7	14.5	1.38	2.45	4.3	1.88	.28	5.5
25	5.2	7.4	1.78	24.5	4.7	4.7	.62	17.9	4.0	1.89	.24	5.7
26	3.9	24.5	1.52	48	3.9	42	.42	28.5	3.2	1.78	.23	14.9
27	5.7	11.2	1.35	39.5	4.2	8.7	.37	84	3.2	1.57	.22	5.6
28	5.8	7.6	1.00	21.5	8.6	5.2	.35	9.7	3.45	1.45	.29	3.6
29	3.75	11.2	.90	21	12.4	3.9	.33	-	4.3	1.62	.23	2.0
30	2.75	5.4	.80	15.6	4.7	3.2	.31	-	3.2	5.3	.20	9.2
31	2.55	4.0	-	11.4	-	2.75	.28	-	2.75	-	.19	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	43	2.55	7.86	12.2	244	747
August	40	1.28	7.29	11.3	226	693
September	17.8	.80	3.67	5.68	110	338
October	48	.71	9.39	14.5	291	893
November	55	3.9	14.2	22.0	427	1,310
December	55	2.75	11.4	17.6	355	1,090
Calendar year 1944	123	.23	8.36	12.9	3,060	9,390
January	9.4	.28	1.36	2.10	42.1	129
February	84	.17	6.06	9.38	170	521
March	143	2.75	34.4	53.2	1,070	3,270
April	44	1.06	7.18	11.1	215	661
May	5.4	.19	1.27	1.96	39.3	121
June	23	.18	4.89	7.57	147	450
Fiscal year 1944-45	143	.17	9.13	14.1	3,340	10,220

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 34 years (1911-45), 4.95 million gallons a day (7.66 second-feet).

Extremes.- Maximum discharge during year, 282 million gallons a day (436 second-feet) Apr. 15 (gage height, 3.29 feet), from rating curve extended above 50 million gallons a day; minimum, 0.26 million gallons a day (0.40 second-foot) June 1.
1910-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.20	0.9	2.3	1.4	13.8
.5	.35	1.0	3.5	1.5	18.5
.6	.60	1.1	5.2	1.6	24
.7	1.00	1.2	7.4	1.9	46
.8	1.55	1.3	10.2		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.5	1.97	1.89	0.76	5.6	2.75	0.96	0.34	2.85	0.84	1.73	0.28
2	2.15	1.16	5.7	.64	5.0	5.8	.88	.34	9.3	.80	3.7	.30
3	16.7	1.00	1.55	.76	4.3	3.0	.80	.32	9.0	.80	2.05	.35
4	7.2	1.06	1.38	.72	4.9	1.55	.72	.34	18.1	.72	.72	.48
5	3.4	1.06	1.16	1.10	5.4	1.50	.72	.32	9.8	.68	.58	2.45
6	2.9	.96	1.33	.79	6.4	2.9	.76	.32	8.3	.64	.55	1.07
7	2.1	1.33	3.9	.58	8.4	10.0	.60	.32	12.4	1.06	.69	.96
8	1.62	6.6	1.16	.52	13.0	8.7	.58	.32	15.1	5.6	.55	2.0
9	2.2	2.55	.92	.50	3.25	2.3	.55	.32	7.3	1.86	.50	1.08
10	6.4	10.6	.92	.48	16.9	1.78	.52	.30	4.6	.84	.48	.50
11	1.78	2.1	.88	.50	7.0	1.85	.50	.30	5.0	.72	.42	.55
12	1.50	1.50	.84	.52	4.8	1.33	.50	.30	5.2	.68	.42	.55
13	1.44	1.33	.76	.45	5.1	1.16	.48	.29	21	4.2	.42	.48
14	13.3	1.11	1.09	.45	10.1	1.11	.45	.60	4.6	16.9	.40	.61
15	6.1	.96	.80	.42	14.6	6.6	.42	.45	3.4	19.0	.40	.40
16	2.0	.88	1.17	.42	9.1	2.55	.42	7.2	19.9	6.5	.42	.38
17	1.70	1.08	8.0	7.2	11.2	1.16	.52	3.15	7.7	3.9	.35	.40
18	2.05	.80	8.6	5.9	8.5	1.11	.45	1.13	6.7	2.15	.35	.66
19	1.28	.80	1.78	1.53	4.2	1.67	.40	.58	4.4	1.55	.38	2.25
20	4.5	.64	7.8	.96	5.3	3.1	.40	.50	5.7	1.28	.82	5.6
21	2.1	.60	4.5	1.25	13.2	1.37	1.64	2.2	3.0	1.11	.42	4.0
22	1.95	4.1	2.2	1.28	11.0	2.05	5.9	4.8	2.2	.96	.35	5.4
23	2.45	25	1.44	1.06	3.5	12.6	.58	.90	1.85	.92	.32	22
24	5.8	1.72	1.22	.92	2.65	4.2	.45	2.05	2.2	.84	.30	2.5
25	2.55	3.05	1.16	23.5	2.1	1.85	.42	4.1	1.85	.76	.30	4.3
26	2.1	3.6	.96	44	1.62	22.5	.40	12.1	1.28	.68	.29	4.3
27	6.3	4.3	.88	15.3	1.62	3.0	.38	6.1	1.16	.64	.29	3.1
28	2.9	4.3	.80	12.3	3.0	2.0	.35	2.9	1.11	.60	.28	1.95
29	2.15	6.6	.76	15.6	2.6	1.55	.35	-	2.25	.60	.28	1.38
30	1.50	2.15	.72	10.2	1.38	1.28	.34	-	1.06	.60	.29	1.28
31	1.68	1.85	-	6.4	-	1.11	.34	-	.92	-	.28	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.7	1.28	3.85	5.96	119	366
August	25	.60	3.12	4.83	96.8	297
September	8.6	.72	2.21	3.42	66.3	203
October	44	.42	5.06	7.83	157	482
November	16.9	1.38	6.52	10.1	196	601
December	22.5	1.11	3.72	5.76	115	354
Calendar year 1944	44	.28	3.44	5.32	1,260	3,860
January	5.9	.34	.735	1.14	22.8	70
February	12.1	.29	1.96	3.03	54.9	168
March	21	.92	6.43	9.95	199	611
April	19.0	.60	2.62	4.05	78.5	241
May	3.7	.28	.614	.950	19.0	58
June	22	.28	2.39	3.70	71.6	220
Fiscal year 1944-45	44	.28	3.28	5.07	1,200	3,670

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Kaalea Stream near Huelo

Location.- Concrete weir control, lat. 20°52'05", long. 156°12'15", 700 feet upstream from Hamakua ditch trail crossing, 2 miles southeast of Kailua, and 3¼ miles southeast of Huelo.

Drainage area.- 0.5 square mile.

Records available.- December 1921 to June 1945.

Average discharge.- 23 years (1922-45), 4.72 million gallons a day (7.30 second-feet).

Extremes.- Maximum discharge during year, 209 million gallons a day (323 second-feet) Apr. 15 (gage height, 3.14 feet); minimum, 0.22 million gallons a day (0.34 second-foot) June 1.

1921-45: 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, that of June 1, 1945.

Remarks.- Records good except those for June 4-23, which are poor. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.08	0.5	2.4	0.9	11.5
.2	.26	.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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.3	7.0	1.76	0.70	4.5	2.6	1.04	0.33	2.9	0.75	0.75	0.26
2	2.15	1.20	5.1	.65	4.2	6.9	.95	.33	9.9	.70	2.8	.33
3	15.6	1.04	1.58	.75	3.65	3.1	.88	.30	9.1	.70	2.45	.44
4	7.4	1.04	1.30	.75	4.3	1.68	.75	.30	18.0	.65	.75	.6
5	3.15	.95	1.12	2.8	4.1	1.58	.75	.30	13.6	.60	.65	2.3
6	2.4	1.04	1.20	1.06	6.3	3.0	.75	.30	10.3	.60	.60	1.2
7	1.80	1.25	3.35	.65	6.0	11.4	.65	.30	10.8	.88	.60	.7
8	1.47	6.6	1.20	.56	12.3	9.9	.60	.28	14.0	4.7	.60	1.4
9	1.62	2.7	.95	.52	2.8	2.4	.56	.28	8.4	2.1	.48	1.0
10	5.6	10.5	.88	.48	14.0	1.80	.56	.26	4.4	.81	.48	.8
11	1.74	2.15	.81	.48	7.6	1.68	.52	.26	4.6	.70	.44	.7
12	1.39	1.58	.75	.56	3.8	1.39	.48	.26	5.0	.65	.40	.6
13	1.30	1.39	.70	.48	4.1	1.20	.48	.26	22	2.3	.40	.6
14	13.4	1.12	.95	.48	9.2	1.12	.48	.57	4.4	15.6	.40	.6
15	4.4	1.04	.81	.48	13.8	5.7	.44	.48	2.8	17.9	.37	.5
16	2.0	.88	1.04	.44	8.4	2.5	.44	7.2	22	5.5	.40	.4
17	1.58	1.04	6.0	7.8	10.3	1.30	.52	2.8	7.9	3.55	.33	.4
18	1.68	.81	7.3	6.9	8.8	1.12	.48	1.31	6.0	1.91	.33	.4
19	1.20	.75	1.68	1.68	3.65	1.22	.44	.70	3.65	1.47	.40	1.7
20	5.0	.70	7.2	1.12	4.4	3.35	.40	.52	4.4	1.20	.52	3.8
21	2.0	.65	2.55	1.12	9.5	1.47	2.2	1.36	2.55	1.04	.44	4.3
22	1.80	3.0	1.91	1.39	12.4	1.80	4.8	5.0	2.0	.95	.37	8.0
23	1.82	22	1.47	1.20	3.15	11.1	.70	1.04	1.58	.88	.30	17
24	4.7	1.80	1.12	1.04	2.15	4.3	.52	1.60	1.68	.75	.30	2.55
25	2.4	2.95	1.04	17.1	1.80	2.0	.48	4.5	1.58	.70	.30	3.6
26	1.86	3.45	.88	34	1.47	18.6	.48	10.9	1.20	.70	.28	4.8
27	5.5	4.0	.81	13.8	1.47	2.8	.44	8.9	1.04	.60	.26	3.15
28	2.85	4.0	.75	9.8	3.25	2.0	.40	2.95	1.04	.60	.26	2.0
29	2.0	5.4	.70	12.6	2.5	1.58	.37	-	1.74	.60	.26	1.47
30	1.58	2.0	.70	8.7	1.47	1.39	.37	-	1.04	.75	.26	1.20
31	1.58	1.68	-	5.5	-	1.20	.33	-	.88	-	.24	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.6	1.20	3.59	5.55	111	341
August	22	.65	3.09	4.78	95.7	294
September	7.3	.70	1.92	2.97	57.6	177
October	34	.44	4.37	6.76	136	416
November	14.0	1.47	5.85	9.05	175	538
December	18.6	1.12	3.65	5.65	113	347
Calendar year 1944	34.5	.26	3.22	4.98	1,180	3,620
January	4.8	.33	.750	1.16	23.3	71
February	10.9	.26	1.91	2.96	53.6	164
March	22	.88	6.47	10.0	200	615
April	17.9	.60	2.36	3.65	70.8	217
May	2.8	.24	.562	.870	17.4	53
June	17	.26	2.23	3.45	66.8	205
Fiscal year 1944-45	34	.24	3.07	4.75	1,120	3,440

Note.- No gage-height record June 4-23; discharge computed on basis of records for stations on nearby streams.

Time basis: Hawaiian war time. 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 Nalilihaele 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 1945. December 1910 to June 1915 at site half a mile downstream; records not equivalent.

Average discharge.- 14 years (1931-45), 1.77 million gallons a day (2.74 second-feet).

Extremes.- Maximum discharge during year, 109 million gallons a day (169 second-feet) Nov. 10 (gage height, 3.58 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.04 million gallons a day (0.06 second-foot) June 1.

1930-45: Maximum discharge, 324 million gallons a day (501 second-feet) Jan. 18, 1932 (gage height, 5.12 feet), from rating curve extended above 20 million gallons a day by test on model of station site; minimum, 0.04 million gallons a day (0.06 second-foot) Oct. 29, 30, 1943, June 1, 1945.

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

Rating table, fiscal year 1944-45 (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		

Discharge, in million gallons, fiscal year July1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.7	0.67	1.12	0.28	2.25	1.18	0.40	0.14	1.00	0.28	0.23	0.05
2	.70	.50	2.25	.28	1.66	1.81	.36	.14	3.45	.25	1.12	.07
3	6.6	.40	.75	.33	1.41	1.41	.32	.14	3.8	.23	.75	.12
4	2.65	.40	.60	.28	1.79	.60	.32	.14	5.3	.23	.25	.14
5	1.25	.36	.55	.35	2.2	.50	.28	.12	3.0	.21	.21	.94
6	1.02	.36	.55	.40	2.3	.75	.28	.12	1.90	.21	.19	.42
7	.70	.37	1.23	.23	2.2	4.0	.25	.12	3.8	.28	.19	.25
8	.60	3.0	.55	.21	5.9	3.8	.23	.12	5.9	1.74	.19	.58
9	.65	.94	.40	.19	1.18	.87	.23	.10	2.65	.70	.18	.40
10	2.75	3.7	.36	.18	6.9	.65	.21	.09	1.32	.25	.16	.18
11	.70	.75	.36	.19	2.55	.65	.19	.09	1.32	.23	.16	.18
12	.55	.55	.36	.21	1.86	.55	.19	.09	1.58	.21	.14	.18
13	.55	.50	.32	.18	1.85	.45	.19	.09	6.7	1.59	.14	.16
14	4.7	.40	.50	.18	3.15	.40	.19	.21	1.52	6.7	.12	.23
15	1.79	.32	.36	.18	4.8	2.25	.19	.20	1.02	5.4	.12	.14
16	.75	.32	.62	.16	3.15	1.12	.19	2.2	5.7	2.5	.14	.10
17	.60	.36	4.4	2.25	3.8	.50	.21	.73	3.3	1.52	.10	.09
18	.70	.32	4.4	2.2	2.7	.40	.19	.32	2.75	.70	.10	.12
19	.50	.28	1.02	.60	1.25	.36	.18	.19	1.32	.55	.10	.70
20	1.20	.25	3.45	.40	1.72	.96	.18	.18	1.85	.50	.18	1.45
21	.75	.23	1.45	.45	3.55	.50	.27	.57	.87	.40	.12	1.70
22	.75	2.5	1.02	.55	5.5	.78	2.35	1.79	.65	.36	.10	2.9
23	.85	8.0	.65	.40	1.25	5.4	.25	.32	.55	.32	.10	6.0
24	2.4	.75	.55	.32	.87	1.91	.19	.67	.66	.28	.09	.70
25	.94	1.34	.50	9.4	.70	.75	.19	1.68	.55	.25	.09	1.34
26	.70	1.44	.45	17.4	.60	8.8	.18	3.65	.45	.23	.09	1.63
27	2.5	1.91	.36	6.1	.60	1.25	.18	3.1	.36	.23	.07	.81
28	1.10	2.0	.32	4.5	.92	.81	.16	1.60	.40	.21	.07	.60
29	.75	2.65	.32	6.4	1.05	.65	.14	-	1.01	.19	.05	.40
30	.60	1.02	.28	4.7	.60	.55	.14	-	.40	.21	.05	.36
31	.55	.81	-	2.6	-	.50	.14	-	.32	-	.05	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.6	0.50	1.40	2.17	43.6	134
August	8.0	.23	1.21	1.87	37.4	115
September	4.4	.28	1.00	1.55	30.0	92
October	17.4	.16	2.00	3.09	62.1	191
November	6.9	.60	2.34	3.62	70.3	216
December	8.8	.36	1.46	2.26	45.1	138
Calendar year 1944	17.4	.05	1.31	2.03	479	1,470
January	2.35	.14	.289	.447	8.97	28
February	3.55	.09	.675	1.04	18.9	58
March	6.7	.32	2.11	3.26	65.4	201
April	6.7	.19	.899	1.39	27.0	83
May	1.12	.05	.182	.282	5.65	17
June	6.0	.05	.765	1.18	22.9	70
Fiscal year 1944-45	17.4	.05	1.20	1.86	437	1,340

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 24 years (1920-24, 1925-45), 23.9 million gallons a day (37.0 second-feet).

Extremes.- Maximum discharge during year, 2,100 million gallons a day (3,250 second-feet) Mar. 16 (gage height, 6.75 feet), from rating curve extended above 130 million gallons a day; minimum, 1.30 million gallons a day (2.01 second-feet) June 1, 2.
1910-18, 1919-45: Maximum discharge, 4,750 million gallons a day (7,350 second-feet) Aug. 12, 1940 (gage height, 8.64 feet), from rating curve extended above 130 million gallons a day; minimum, 0.45 million gallons a day (0.70 second-foot) July 14, 1920.

Remarks.- Records good except those for Mar. 16 and period of no gage-height record, which are poor. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

1.8	1.30	2.2	10.2	2.6	31	3.3	120
1.9	2.7	2.3	14.0	2.7	39.5	3.6	181
2.0	4.6	2.4	18.6	2.8	50	3.9	260
2.1	7.1	2.5	24	3.0	73	4.2	355

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	55	8.6	9.3	4.0	16	13.6	6.8	2.0	15.6	5.8	4.6	1.30
2	13.2	6.8	26	4.0	14	39.5	6.4	2.0	71	5.6	13.9	1.58
3	94	6.1	9.4	4.6	14	19.4	5.8	2.0	66	5.4	10.0	1.72
4	45	5.8	7.7	5.1	16	11.0	5.4	1.86	168	4.8	4.6	2.3
5	17.2	5.8	6.8	14.0	14	10.2	5.1	1.86	191	4.6	4.0	13.4
6	13.2	5.6	6.8	7.5	21	16.8	5.1	1.72	123	4.6	3.85	9.5
7	11.0	6.9	13.3	4.2	16	66	4.6	1.72	54	6.6	4.0	5.8
8	9.6	35	7.1	3.65	30	35	4.2	1.72	84	20.5	3.45	11.9
9	8.9	16.0	5.8	3.45	13	14.9	4.2	1.72	60	10.9	3.25	9.6
10	23	62	5.4	3.1	60	12.1	4.0	1.58	30	5.8	3.1	4.2
11	10.5	12.1	5.1	3.25	40	11.3	3.65	1.58	28.5	4.8	2.7	3.85
12	8.3	9.6	4.8	3.45	20	9.6	3.45	1.58	32.5	4.6	2.7	3.45
13	8.0	8.3	4.6	3.1	14	8.6	3.25	1.58	230	12.9	2.55	3.1
14	61	7.4	5.4	2.9	25	8.0	3.25	2.6	31	80	2.4	3.1
15	23	6.6	5.1	2.9	90	29.5	3.1	2.4	19.7	35.5	2.4	2.4
16	11.3	6.4	5.8	2.7	35	16.5	3.1	31	286	18.6	2.55	2.3
17	9.6	6.4	23.5	50	43	8.6	3.1	14.7	60	14.7	2.4	2.6
18	9.6	5.4	29	38	49	7.7	3.1	7.9	33.5	9.6	2.3	3.45
19	8.0	5.1	9.0	9.9	21.5	8.3	2.7	4.0	21.5	7.7	2.3	9.6
20	24	4.6	35	7.1	24	17.7	2.55	3.1	23.5	6.8	3.1	26
21	12.3	4.4	11.0	6.4	73	9.3	2.5	5.8	15.4	6.4	3.1	17.1
22	10.6	11.4	8.6	6.6	97	9.3	25	18.4	12.9	5.8	2.3	18.3
23	9.9	105	6.8	6.6	17.7	44	4.2	5.6	11.0	5.6	2.0	108
24	19.8	9.1	6.4	5.6	14.9	23.5	3.25	6.3	11.3	5.1	1.86	11.3
25	11.3	15.6	5.6	90	12.1	10.2	2.9	20.5	10.6	4.8	1.72	15.8
26	9.7	21.5	5.1	146	10.2	93	2.55	68	9.0	4.4	1.72	21
27	20.5	19.4	4.6	68	11.0	14.5	2.4	75	8.0	4.2	1.72	13.2
28	13.4	19.9	4.6	45	19.2	11.0	2.4	16.3	7.7	4.0	1.58	9.6
29	9.9	22	4.2	56	17.4	9.6	2.3	-	10.5	4.8	1.58	7.7
30	8.0	10.2	4.0	39.5	9.9	8.6	2.15	-	7.1	5.4	1.58	7.8
31	8.0	9.0	-	24	-	7.7	2.0	-	6.6	-	1.44	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	94	8.0	19.3	29.9	597	1,830
August	105	4.4	15.4	23.8	478	1,470
September	35	4.0	9.53	14.7	286	877
October	146	2.7	21.6	33.4	671	2,060
November	97	9.9	28.6	44.3	858	2,630
December	93	7.7	21.1	32.6	655	2,010
Calendar year 1944	258	1.23	18.1	28.0	6,620	20,300
January	24	2.0	4.34	6.71	134	413
February	75	1.58	10.9	16.9	305	935
March	286	6.6	56.1	86.8	1,740	5,340
April	80	4.0	10.7	16.6	320	983
May	13.9	1.44	3.25	5.03	101	309
June	108	1.30	11.7	18.1	351	1,080
Fiscal year 1944-45	286	1.30	17.8	27.5	6,500	19,940

Note.- No gage-height record Oct. 31 to Nov. 17; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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, 1¼ miles southwest of Kailua, and 2½ miles south of Huelo. Datum of gage is 1,252.99 feet above mean sea level.

Drainage area.- 3.0 square miles.

Records available.- December 1910 to June 1918, July 1919 to June 1945.

Average discharge.- 26 years (1919-45), 18.6 million gallons a day (28.8 second-feet).

Extremes.- Maximum discharge during year, 1,610 million gallons a day (2,490 second-feet) Mar. 16 (gage height, 7.05 feet), from rating curve extended above 150 million gallons a day; minimum, 0.70 million gallons a day (1.08 second-feet) Feb. 10, 11, 13.
1910-18, 1919-45: 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 except those for Dec. 27-29, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

1.6	0.4	2.2	10.1	3.0	48
1.7	1.00	2.3	13.0	3.4	85
1.8	2.1	2.4	16.4	3.8	134
1.9	3.6	2.5	20	4.2	196
2.0	5.4	2.6	24.5	4.6	274
2.1	7.6	2.8	34		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	44	3.45	4.1	1.77	9.8	7.4	3.95	0.88	13.2	3.3	2.85	0.82
2	9.6	3.0	17.5	1.55	8.6	26.5	3.6	.88	46	3.15	4.7	.82
3	51	2.85	6.4	1.88	8.4	15.7	3.3	.88	62	2.85	4.7	.88
4	27.5	2.7	4.3	3.45	9.1	8.1	3.15	.88	171	2.7	2.85	.94
5	10.3	2.55	3.6	3.4	8.1	7.2	2.85	.82	198	2.55	2.1	6.4
6	7.4	2.4	3.45	2.8	12.6	17.1	2.85	.82	107	2.4	2.1	7.8
7	6.1	2.65	5.7	1.77	10.1	66	2.55	.76	35	5.1	3.3	3.6
8	5.0	30	3.95	1.55	21.5	62	2.25	.76	44	17.8	2.25	7.1
9	4.9	13.8	3.0	1.44	7.6	13.0	2.1	.76	55	16.2	1.88	7.4
10	7.4	49	2.7	1.22	40	8.6	2.1	.70	28	4.5	1.77	2.85
11	5.2	8.8	2.55	1.33	28	7.2	1.99	.70	20.5	3.45	1.66	2.1
12	4.3	5.8	2.4	1.33	12.0	6.1	1.88	.82	28	2.85	1.55	1.88
13	3.95	4.5	2.25	1.11	9.1	5.2	1.77	.70	171	3.65	1.55	1.55
14	33.5	3.6	2.4	1.11	16.8	4.7	1.55	1.11	37	52	1.33	1.44
15	14.2	3.3	2.1	1.00	60	12.8	1.55	1.00	14.7	27.5	1.33	1.22
16	5.8	3.0	2.25	1.00	22.5	15.5	1.55	5.1	217	9.8	1.55	1.00
17	4.7	3.0	5.7	31.5	29.5	5.6	1.55	8.7	70	10.8	1.55	1.11
18	4.3	2.55	9.1	37	35.5	4.7	1.44	5.3	25	5.6	1.33	1.33
19	3.6	2.4	3.8	7.1	13.2	4.4	1.33	2.1	14.7	4.5	1.33	3.3
20	10.2	2.1	18.6	3.8	12.0	12.6	1.22	1.55	13.0	3.8	1.44	16.0
21	6.5	2.1	6.4	2.85	37	6.1	1.22	2.15	9.4	3.45	1.44	12.2
22	5.0	3.3	3.8	2.7	63	5.2	11.0	8.0	7.6	3.15	1.22	6.5
23	4.3	28	3.15	2.7	12.5	15.3	2.7	3.0	6.5	3.0	1.00	38.5
24	7.3	4.5	2.7	2.4	8.6	15.9	1.77	2.2	6.3	2.7	.94	6.3
25	5.8	8.9	2.55	30.5	6.9	6.3	1.55	14.9	5.8	2.55	.88	8.5
26	4.5	19.5	2.1	48	5.8	58	1.33	30	4.9	2.4	.88	15.4
27	6.6	13.9	1.99	44	5.8	a10	1.22	92	4.5	2.25	.88	7.2
28	6.5	11.0	1.88	23	10.2	a7.4	1.11	18.8	4.3	1.99	.88	4.9
29	4.5	11.3	1.77	26.5	14.2	a6.0	1.00	-	5.0	2.1	.82	3.6
30	3.6	6.7	1.66	18.2	6.5	5.0	1.00	-	4.1	3.95	.82	3.5
31	3.45	4.9	-	13.8	-	4.5	.94	-	3.6	-	.82	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	51	3.45	10.4	16.1	321	985
August	49	2.1	8.57	13.3	266	815
September	18.6	1.66	4.46	6.90	134	411
October	48	1.00	10.4	16.1	322	987
November	63	5.8	18.2	28.2	545	1,670
December	66	4.4	14.5	22.4	450	1,380
Calendar year 1944	131	.79	10.4	16.1	3,820	11,730
January	11.0	.94	2.24	3.47	69.4	213
February	92	.70	7.37	11.4	206	633
March	217	3.6	46.2	71.5	1,430	4,390
April	52	1.99	7.07	10.9	212	651
May	4.7	.82	1.73	2.68	53.7	165
June	38.5	.82	5.87	9.08	176	541
Fiscal year 1944-45	217	.70	11.5	17.8	4,190	12,840

a No gage-height record; discharge computed on basis of records for Naililihaele Stream.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Hoolawaliiili 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 1945.

Average discharge.- 33 years (1911-15, 1916-45), 4.93 million gallons a day (7.63 second-feet).

Extremes.- Maximum discharge during year, 139 million gallons a day (215 second-feet) Dec. 26 (gage height, 3.55 feet), from rating curve extended above 85 million gallons a day by broad-crested weir formula; minimum, 0.75 million gallons a day (1.16 second-feet) June 1-4.

1911-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.8	2.45	3.15	1.62	5.6	3.3	2.35	1.01	1.74	1.98	1.74	0.75
2	2.85	2.35	3.9	1.50	5.0	4.0	2.1	.94	3.8	1.86	2.6	.81
3	9.3	2.2	3.0	1.62	4.6	3.75	2.1	.94	5.3	1.86	1.86	.87
4	6.4	2.1	2.7	1.50	5.0	3.0	1.98	.94	9.5	1.86	1.74	.87
5	4.2	2.1	2.6	1.73	5.0	2.7	1.86	.94	9.0	1.74	1.50	1.15
6	3.75	1.98	2.6	1.50	5.2	2.85	1.74	.87	7.2	1.74	1.62	1.01
7	3.3	2.1	3.0	1.40	5.3	5.8	1.74	.87	6.5	2.1	1.50	1.01
8	3.15	3.5	2.35	1.31	10.5	7.8	1.62	.87	9.9	3.3	1.40	1.15
9	3.2	2.7	2.2	1.31	5.0	3.6	1.50	.87	6.8	2.45	1.40	1.08
10	3.9	5.9	2.1	1.31	10.3	3.15	1.50	.87	5.0	1.86	1.31	1.01
11	3.0	2.85	2.1	1.40	6.4	3.15	1.40	.87	4.8	1.74	1.31	1.01
12	2.7	2.6	2.1	1.31	5.2	2.7	1.40	.87	4.6	1.74	1.31	1.01
13	2.7	2.45	1.86	1.23	5.2	2.45	1.40	.87	15.5	2.8	1.31	1.01
14	6.6	2.35	2.1	1.23	6.4	2.45	1.31	1.01	6.4	9.2	1.31	1.01
15	4.7	2.2	1.86	1.15	9.9	3.65	1.31	1.08	5.2	5.4	1.31	.94
16	3.45	2.1	1.86	1.08	7.4	3.0	1.31	1.15	13.9	3.95	1.31	.94
17	3.15	2.2	3.65	2.15	8.2	2.35	1.31	1.15	9.8	3.6	1.23	.87
18	3.15	2.1	3.75	2.9	7.8	2.2	1.31	1.08	7.4	3.0	1.23	.94
19	2.7	1.98	2.1	1.86	5.4	2.1	1.23	.94	5.8	2.6	1.15	1.08
20	3.45	1.86	3.75	1.50	5.4	2.2	1.23	.94	5.6	2.45	1.23	1.40
21	3.0	1.74	2.35	1.50	7.7	2.1	1.23	1.01	4.4	2.45	1.08	1.91
22	2.85	2.75	f2.1	1.50	11.2	2.1	1.74	1.40	3.9	2.35	1.08	1.69
23	2.7	11.4	a2.0	1.50	5.2	5.0	1.23	1.08	3.45	2.35	1.01	7.4
24	3.6	3.0	a1.9	1.50	4.6	3.7	1.23	1.08	3.45	2.2	1.01	2.2
25	3.0	3.9	a1.9	10.6	3.9	2.6	1.23	1.74	3.15	2.1	.94	2.35
26	2.85	3.9	a1.8	16.9	3.6	15.4	1.23	2.6	2.7	1.98	.94	2.6
27	3.75	3.9	a1.8	9.2	3.6	3.9	1.23	3.75	2.6	1.86	.94	2.2
28	3.15	4.2	1.74	6.7	3.6	3.3	1.08	1.86	2.45	1.74	.87	1.98
29	2.85	4.4	1.62	9.0	3.45	3.0	1.08	-	2.6	1.74	.87	1.86
30	2.6	3.3	1.62	8.0	3.0	2.7	1.08	-	2.2	1.74	.87	1.74
31	2.45	3.0	-	6.4	-	2.45	1.01	-	2.1	-	.81	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.3	2.45	3.65	5.65	113	348
August	11.4	1.74	3.08	4.77	95.6	293
September	3.9	1.62	2.39	3.70	71.6	220
October	16.9	1.08	3.34	5.17	103	317
November	11.2	3.0	5.96	9.22	179	548
December	15.4	2.1	3.63	5.62	112	345
Calendar year 1944	19	.87	3.31	5.12	1,210	3,710
January	2.35	1.01	1.45	2.24	45.1	138
February	3.75	.87	1.20	1.86	33.6	103
March	15.5	1.74	5.70	8.82	177	542
April	9.2	1.74	2.59	4.01	77.7	239
May	2.6	.81	1.28	1.98	39.8	122
June	7.4	.75	1.53	2.37	45.8	141
Fiscal year 1944-45	16.9	.75	3.00	4.64	1,090	3,360

a No gage-height record; discharge computed on basis of records for Honopou and Hoolawanui Streams.
f Computed on basis of partly estimated gage-height record.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 33 years (1911-15, 1916-45), 7.92 million gallons a day (12.3 second-feet).

Extremes.- Maximum discharge during year, 530 million gallons a day (820 second-feet) Mar. 16 (gage height, 3.20 feet), from rating curve based on weir rating between 100 and 375 million gallons a day and extended above; minimum, 0.43 million gallons a day (0.66 second-foot) probably June 17.

1910-45: Maximum discharge, 2,980 million gallons a day (4,610 second-feet) Feb. 7, 1939 (gage height, 5.72 feet), from rating curve based on weir rating between 100 and 375 million gallons a day and extended above; minimum, 0.15 million gallons a day (0.23 second-foot) Oct. 25, 1917.

Remarks.- Records good except those for June 13-23, which are fair. No diversions above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.16	0.7	5.6	1.2	28.5
.3	.48	.8	8.5	1.4	45
.4	1.13	.9	12.1	1.6	67
.5	2.15	1.0	16.6		
.6	3.6	1.1	22		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.5	2.55	2.8	1.28	6.2	4.8	3.25	0.90	2.35	2.8	1.90	0.53
2	4.0	2.25	4.6	1.22	5.4	7.8	3.1	.90	8.5	2.65	3.0	.58
3	15.2	2.15	2.8	1.38	5.2	6.7	2.8	.90	10.9	2.55	2.15	.64
4	9.8	2.0	2.55	1.22	5.4	4.6	2.8	.83	26	2.4	1.58	.70
5	5.6	1.90	2.25	1.38	5.4	4.2	2.55	.83	55	2.25	1.38	1.24
6	4.8	1.79	2.25	1.13	6.2	5.2	2.55	.76	36.5	2.15	1.48	1.05
7	4.2	1.90	2.65	1.05	5.5	12.8	2.25	.76	14.4	3.05	1.48	.76
8	4.0	4.7	2.15	1.05	11.2	16.8	2.15	.76	14.4	5.0	1.22	.97
9	4.0	3.45	1.90	.97	5.4	7.3	2.15	.76	13.6	3.75	1.13	1.05
10	4.6	10.0	1.79	.97	16.0	5.9	1.90	.70	9.6	2.4	1.13	.70
11	3.45	3.45	1.79	1.13	10.7	5.4	1.79	.70	9.6	2.15	1.05	.64
12	3.25	2.8	1.68	1.13	6.8	4.6	1.79	.76	9.2	1.90	1.05	.56
13	3.1	2.55	1.58	.97	6.2	4.2	1.68	.70	49	3.05	.97	a.56
14	9.9	2.4	1.68	.90	8.5	3.8	1.58	.90	16.2	13.9	.97	a.52
15	6.4	2.15	1.48	.90	17.0	5.8	1.58	1.05	10.3	7.4	.90	a.50
16	4.2	2.0	1.58	.83	10.3	5.0	1.58	1.38	56	4.8	.90	a.49
17	3.6	2.0	3.25	3.45	11.4	3.6	1.48	1.13	21	4.2	.90	a.45
18	3.45	1.79	3.55	5.3	13.0	3.45	1.38	.83	13.9	3.45	.83	a.54
19	3.25	1.68	1.90	1.79	8.5	3.25	1.28	.70	10.3	3.1	.83	a.90
20	4.6	1.58	4.1	1.28	8.2	4.6	1.28	.70	9.6	2.8	.90	a1.4
21	4.0	1.58	2.25	1.28	13.0	3.45	1.28	.83	7.3	2.8	.83	a2.3
22	3.25	2.35	1.90	1.22	20.5	3.25	2.3	1.48	6.2	2.55	.76	a2.2
23	3.1	11.6	1.68	1.28	8.5	6.0	1.28	.83	5.6	2.4	.70	a12
24	4.2	2.55	1.58	1.13	7.0	5.2	1.13	.83	5.4	2.25	.70	2.4
25	3.25	3.75	1.58	9.8	5.9	3.6	1.13	2.15	4.8	2.15	.70	2.55
26	3.1	4.0	1.38	14.9	5.2	24.5	1.13	3.1	4.2	2.0	.64	3.6
27	4.0	4.2	1.38	10.3	5.0	5.4	1.13	11.0	4.0	1.90	.64	2.65
28	3.25	4.3	1.28	7.0	5.6	4.6	1.05	2.6	3.6	1.79	.64	2.0
29	2.95	4.2	1.28	8.5	5.6	4.2	.97	-	4.0	1.79	.58	1.58
30	2.65	3.1	1.28	7.6	4.4	3.6	.97	-	3.25	1.90	.58	1.48
31	2.55	2.8	-	6.2	-	3.6	.97	-	2.95	-	.53	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.2	2.55	4.75	7.35	147	452
August	11.6	1.58	3.21	4.97	99.5	305
September	4.6	1.28	2.13	3.30	63.9	196
October	14.9	.83	3.18	4.92	98.5	302
November	20.5	4.4	8.44	13.1	253	777
December	24.5	3.25	6.04	9.35	187	574
Calendar year 1944	33	.64	4.27	6.61	1,560	4,800
January	3.25	.97	1.75	2.71	54.3	167
February	11.0	.70	1.42	2.20	39.8	122
March	56	2.35	14.4	22.3	448	1,370
April	13.9	1.79	3.24	5.01	97.3	299
May	3.0	.53	1.07	1.66	33.0	101
June	12	.45	1.59	2.46	47.6	146
Fiscal year 1944-45	56	.45	4.30	6.65	1,570	4,810

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

Time basis: Hawaiian war time. 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 2¼ miles west of Kailua. Altitude of gage, about 1,250 feet.

Drainage area.- 1.0 square mile.

Records available.- December 1910 to June 1945.

Average discharge.- 32 years (1911-14, 1916-45), 3.12 million gallons a day (4.83 second-feet).

Extremes.- Maximum discharge during year, 127 million gallons a day (196 second-feet) Dec. 26 (gage height, 3.04 feet), from rating curve extended above 70 million gallons a day; minimum, 0.35 million gallons a day (0.54 second-foot) Feb. 10, 11, 13.
1910-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.09	0.7	2.4	1.0	7.1
.5	.56	.8	3.7	1.2	11.5
.6	1.33	.9	5.3	1.4	16.5

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.0	1.06	1.54	0.63	2.95	2.45	1.54	0.45	0.70	1.33	1.06	0.40
2	1.44	.98	2.2	.56	2.65	2.85	1.44	.40	2.3	1.24	2.5	.40
3	7.2	.98	1.33	.70	2.4	2.45	1.33	.40	3.5	1.15	1.15	.45
4	3.7	.98	1.24	.56	2.85	1.86	1.24	.40	6.9	1.15	.91	.50
5	2.4	.91	1.15	.56	2.9	1.65	1.15	.40	8.0	1.06	.91	.70
6	2.2	.91	1.15	.56	3.0	1.86	1.15	.40	6.4	1.06	1.06	.63
7	2.1	.91	1.44	.50	3.0	4.6	1.06	.40	5.4	1.57	.91	.56
8	1.86	2.7	1.06	.50	6.1	5.7	1.06	.40	6.4	2.95	.84	.56
9	2.05	1.33	.98	.45	2.65	2.65	.98	.40	4.3	1.64	.77	.50
10	2.45	3.95	.98	.45	7.7	2.3	.91	.40	3.45	1.06	.77	.45
11	1.65	1.24	.91	.45	4.0	2.2	.84	.40	3.55	.98	.70	.45
12	1.54	1.15	.91	.56	3.2	1.97	.84	.40	3.3	.91	.70	.45
13	1.44	1.06	.84	.45	3.35	1.86	.77	.40	13.4	1.96	.63	.40
14	4.7	.98	.91	.45	4.3	1.76	.77	.45	5.7	7.5	.63	.40
15	2.55	.98	.84	.45	7.4	3.05	.70	.50	4.3	3.55	.56	.40
16	1.76	.91	.84	.45	5.0	2.05	.70	.45	13.4	2.55	.56	.40
17	1.65	.91	2.4	1.60	5.7	1.54	.70	.50	8.8	2.15	.56	.40
18	1.54	.91	2.2	2.0	5.5	1.54	.70	.40	6.2	1.76	.56	.40
19	1.54	.84	.98	.70	4.2	1.54	.63	.40	4.8	1.65	.56	.50
20	1.97	.77	2.25	.56	4.2	1.65	.63	.40	4.7	1.54	.66	.70
21	1.54	.70	.98	.56	5.8	1.44	.56	.45	3.55	1.44	.56	1.06
22	1.44	1.18	.84	.56	9.1	1.44	.96	.84	3.2	1.33	.50	1.07
23	1.44	11.0	.77	.56	4.2	3.35	.56	.45	2.9	1.33	.45	6.0
24	2.1	1.24	.77	.56	3.55	2.05	.56	.40	2.8	1.24	.45	.91
25	1.33	2.3	.77	7.5	3.2	1.33	.56	.98	2.4	1.15	.45	.94
26	1.33	1.95	.70	9.1	2.8	12.2	.50	1.58	2.1	1.06	.45	1.12
27	1.97	2.0	.70	4.0	2.65	2.2	.50	1.92	1.86	1.06	.45	.84
28	1.44	2.1	.70	3.0	2.95	2.1	.45	.77	1.86	.98	.45	.70
29	1.24	2.2	.63	4.2	2.55	1.86	.45	-	1.86	.98	.45	.56
30	1.15	1.44	.63	3.55	2.1	1.76	.45	-	1.65	.98	.45	.50
31	1.06	1.33	-	2.8	-	1.65	.45	-	1.44	-	.45	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.2	1.06	2.09	3.23	64.8	199
August	11.0	.70	1.67	2.58	51.9	159
September	2.4	.63	1.12	1.73	33.6	103
October	9.1	.45	1.60	2.48	49.5	152
November	9.1	2.1	4.06	6.28	122	374
December	12.2	1.33	2.55	3.95	78.9	242
Calendar year 1944	16.3	.25	1.94	3.00	709	2,170
January	1.54	.45	.811	1.25	25.1	77
February	1.92	.40	.562	.870	15.7	48
March	13.4	.70	4.55	7.04	141	433
April	7.5	.91	1.68	2.60	50.3	154
May	2.5	.45	.710	1.10	22.0	68
June	6.0	.40	.778	1.20	23.4	72
Fiscal year 1944-45	13.4	.40	1.86	2.88	678	2,080

Time basis: Hawaiian war time. 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 1945. Records at same site collected by East Maui Irrigation Co. April 1930 to June 1932.

Average discharge.- 13 years, 1.29 million gallons a day (2.00 second-feet).

Extremes.- Maximum discharge during year, 60 million gallons a day (93 second-feet) Mar. 16 (gage height, 1.72 feet); minimum, 0.05 million gallons a day (0.08 second-foot) Oct. 21-25.

1932-45: 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 except those for periods of no gage-height record, 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.4	1.15	0.7	5.6
.2	.16	.5	2.2	.8	8.6
.3	.51	.6	3.75	.9	11.6

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.12	0.08	0.10	0.10	a0.25	0.14	0.14	0.10	0.10	0.12	0.10	0.10
2	.10	.08	.10	.08	a.20	.16	.14	.10	.10	.10	.12	.10
3	.13	.08	.08	.10	.20	.16	.14	.10	.10	.10	.12	.10
4	.10	.08	.08	.10	.16	.16	.14	.10	.95	.10	.12	.10
5	.10	.08	.08	.10	.16	.16	.12	.10	.73	.10	.12	.08
6	.12	.08	.08	.10	.16	.16	.12	.10	2.4	.10	.12	.08
7	.10	.08	.10	.10	.16	.16	.12	.08	.10	.12	.12	.10
8	.10	.08	.10	.10	1.51	.43	.12	.08	.12	.12	.12	.10
9	.10	.08	.10	.08	.16	.14	.12	.10	.12	.25	.12	.10
10	.10	.08	.10	.08	3.35	.14	.12	.10	.10	.12	.12	.10
11	.10	.12	.10	.08	.25	.14	.12	.10	.10	.12	.12	.10
12	.10	.12	.10	.08	.16	.14	.12	.10	.10	.12	.10	.10
13	.10	.10	.10	.08	.20	.14	.12	.10	10.1	.12	.10	.10
14	.12	.10	.10	.08	.23	.14	.12	.10	.62	3.05	.10	.10
15	.12	.10	.10	.08	1.94	.14	.12	.10	.12	3.7	.10	.10
16	.12	.10	.10	.08	.26	.14	.12	.10	8.0	.16	.10	.08
17	.12	.10	.10	.08	.23	.12	.12	.10	2.7	.16	.10	.08
18	.12	.10	.10	.08	.23	.12	.12	.10	.10	.16	.10	.08
19	.12	.10	.08	.07	.20	.12	.12	.10	.10	.16	.10	.08
20	.12	.10	.08	.07	.16	.12	.12	.10	.10	.16	.10	.08
21	.10	.10	.08	.07	.16	.12	.12	.10	.12	.16	.10	.08
22	.10	.12	.08	.07	4.0	.12	.12	.10	.12	.16	.10	.08
23	.10	2.35	.08	.07	.16	a.30	.12	.10	.12	.16	.10	.21
24	.12	.08	.08	.07	.16	a.60	.12	.10	.10	.16	.10	.10
25	.12	.08	.10	.31	.16	a.15	.12	.10	.10	.16	.10	.10
26	.10	.08	.10	2.85	.14	a10	.10	.10	.12	.16	.10	.08
27	.10	.10	.10	.48	.14	a.60	.10	.10	.12	.14	.10	.08
28	.10	.10	.10	a.20	.14	a.15	.10	.10	.12	.12	.10	.08
29	.08	.10	.10	a.40	.14	.14	.10	-	.12	.10	.10	.08
30	.08	.10	.10	a.40	.14	.14	.10	-	.12	.10	.10	.08
31	.08	.10	-	a.30	-	.14	.10	-	.12	-	.10	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.13	0.08	0.106	0.164	3.29	10
August	2.35	.08	.166	.257	5.15	16
September	.10	.08	.093	.144	2.80	8.6
October	2.85	.07	.224	.347	6.94	21
November	4.0	.14	.517	.800	15.5	48
December	10	.12	.603	.778	15.6	48
Calendar year 1944	10	.06	.222	.343	81.3	250
January	.14	.10	119	.184	3.68	11
February	.10	.08	.099	.153	2.76	8.5
March	10.1	.10	.908	1.40	28.1	86
April	3.7	.10	.352	.545	10.6	32
May	.12	.10	.106	.164	3.30	10
June	.21	.08	.094	.145	2.83	8.7
Fiscal year 1944-45	10.1	.07	.275	.425	101	308

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

Time basis: Hawaiian war time. 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, 1¾ 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 1945. Records at former site collected by East Maui Irrigation Co. November 1926 to June 1932.

Average discharge.- 13 years, 1.52 million gallons a day (2.35 second-feet).

Extremes.- Maximum discharge during year, 126 million gallons a day (195 second-feet) Dec. 26 (gage height, 2.75 feet), from rating curve extended above 15 million gallons a day by logarithmic plotting; minimum, 0.17 million gallons a day (0.26 second-foot) May 25, 26.

1932-45: Maximum discharge, 422 million gallons a day (653 second-feet) Oct. 22, 1941 (gage height, 4.61 feet), from rating curve extended above 15 million gallons a day by logarithmic plotting; minimum, 0.08 million gallons a day (0.12 second-foot) Dec. 1, 2, 1938.

Remarks.- Records good. 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.18	0.6	1.36	1.0	7.5
.4	.40	.7	2.3	1.2	13.7
.5	.75	.8	3.6	1.4	21.5

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.80	0.32	0.34	0.30	1.54	0.58	0.55	0.26	0.42	0.32	0.37	0.30
2	.45	.30	.45	.28	1.16	.66	.51	.28	.91	.32	.50	.28
3	.83	.28	.34	.32	.92	.80	.48	.30	1.98	.32	.42	.28
4	.84	.29	.32	.28	.80	.62	.48	.30	3.6	.28	.37	.26
5	.58	.30	.32	.28	.66	.62	.45	.28	2.2	.26	.37	.28
6	.55	.28	.32	.30	.80	.62	.45	.28	3.7	.26	.40	.26
7	.48	.30	.37	.28	.62	.98	.40	.28	1.12	.36	.37	.24
8	.42	.42	.30	.28	2.9	1.66	.40	.28	2.1	2.6	.34	.24
9	.40	.44	.28	.28	.75	.75	.37	.28	1.81	3.1	.34	.24
10	.42	.97	.26	.28	4.2	.62	.37	.28	1.27	.34	.34	.22
11	.40	.50	.24	.30	1.63	.58	.37	.26	.86	.34	.32	.22
12	.34	.45	.24	.30	.92	.55	.37	.26	1.16	.32	.30	.20
13	.34	.37	.24	.80	.91	.48	.37	.26	9.6	.39	.30	.18
14	.69	.34	.26	.30	1.52	.45	.34	.32	1.88	5.0	.30	.18
15	.37	.32	.24	.28	3.85	.51	.34	.28	.62	6.8	.28	.18
16	.42	.30	.28	.26	1.81	.75	.34	.41	6.9	1.51	.28	.20
17	.45	.30	.45	.34	1.99	.55	.34	.57	4.4	1.11	.28	.22
18	.42	.28	.49	.48	1.81	.48	.34	.28	1.23	.75	.28	.20
19	.40	.28	.37	.34	1.09	.45	.34	.24	.70	.66	.28	.20
20	.40	.26	.48	.34	.92	.48	.32	.24	.62	.62	.28	3.0
21	.40	.26	.45	.30	.86	.45	.32	.26	.55	.55	.26	2.85
22	.34	.40	.40	.28	5.2	.45	1.00	.26	.48	.48	.26	.26
23	.32	2.95	.40	.28	.92	.95	.34	.24	.45	.48	.24	.51
24	.42	.34	.37	.26	.80	1.14	.32	.24	.42	.48	.22	.34
25	.32	.37	.34	1.32	.66	.62	.34	.28	.40	.48	.18	.34
26	.30	.45	a.30	4.4	.62	15.4	.32	.46	.37	.45	.28	.48
27	.34	.45	a.30	2.3	.58	1.71	.32	1.62	.34	.42	.34	.32
28	.34	.45	a.30	2.3	.58	.75	.32	.52	.34	.40	.34	.31
29	.32	.45	a.30	2.55	.66	.66	.30	-	.40	.40	.32	.28
30	.30	.37	.30	2.55	.58	.62	.30	-	.34	.37	.32	.28
31	.28	.37	-	2.1	-	.62	.28	-	.32	-	.32	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.80	0.28	0.474	0.733	14.7	45
August	2.95	.26	.457	.707	14.2	43
September	.49	.24	.335	.518	10.0	31
October	4.4	.26	.815	1.26	25.3	78
November	5.2	.58	1.41	2.18	42.3	130
December	15.4	.45	1.18	1.83	36.6	112
Calendar year 1944	15.4	.17	.662	1.02	242	743
January	1.00	.28	.390	.603	12.1	37
February	1.62	.24	.351	.543	9.82	30
March	9.6	.32	1.66	2.57	51.5	158
April	6.8	.26	1.01	1.56	30.2	93
May	.50	.18	.316	.489	9.80	30
June	3.0	.18	.445	.689	13.4	41
Fiscal year 1944-45	15.4	.18	.739	1.14	270	828

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

Time basis: Hawaiian war time. 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 1945. Records at same site collected by East Maui Irrigation Co. November 1926 to June 1932.
Average discharge.- 13 years, 5.14 million gallons a day (7.95 second-feet).
Extremes.- Maximum discharge during year, 396 million gallons a day (613 second-feet) Dec. 26 (gage height, 3.65 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) June 24.
1932-45: 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, 1945.
Remarks.- Records good. Wailoa, New Hamakua, Old Hamakua, and Haiku ditches divert most of flow above this station.

Rating table, fiscal year 1944-45 (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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.1	0.33	0.33	0.33	0.22	0.41	0.06	0.37	0.33	0.33	0.33	0.33
2	.41	.33	.46	.33	.25	.51	.06	.33	7.2	.33	.41	.33
3	10.7	.33	.37	.33	.51	3.75	.06	.33	10.0	.33	.37	.37
4	11.1	.33	.33	.33	.51	.51	.06	.33	18.8	.33	.37	.51
5	.16	.33	.33	.33	.51	.46	.04	.33	16.0	.33	.37	.56
6	.14	.33	.33	.37	.56	.51	.04	.33	19.6	.33	.41	.56
7	.37	.33	.33	.33	.41	10.4	.04	.37	4.1	.33	.41	.56
8	.37	.96	.33	.33	17.2	15.2	.04	.37	21.5	.49	.41	.56
9	.37	.33	.33	.33	.51	.46	.04	.37	14.7	4.3	.41	.61
10	.37	9.7	.33	.29	13.9	.41	.21	.37	5.0	.41	.37	.61
11	.37	.37	.33	.29	17.1	.37	.37	.37	.04	.41	.33	.61
12	.33	.33	.33	.33	.51	.37	.41	.37	.03	.37	.29	.61
13	.33	.33	.33	.33	.37	.41	.37	.37	26	.33	.29	.61
14	5.2	.33	.29	.33	4.8	.37	.33	.37	12.2	14.8	.29	.61
15	4.9	.33	.25	.33	19.7	.38	.33	.37	.02	6.8	.29	.61
16	.37	.33	.29	.33	3.55	1.43	.33	.36	15.8	.22	.29	.56
17	.33	.33	1.11	3.9	14.2	.33	.33	.46	23	.46	.29	.56
18	.33	.37	.56	9.2	21	.33	.33	.33	4.4	.33	.33	.56
19	.29	.37	.41	.25	.22	.22	.33	.33	.03	.29	.33	.61
20	.33	.37	1.15	.25	.16	.19	.33	.33	.02	.29	.33	.61
21	.37	.37	.41	.29	1.80	.16	.33	.33	.26	.25	.33	.36
22	.37	.46	.41	.33	23.5	.16	.41	.33	.37	.22	.33	.29
23	.37	14.1	.41	.33	.26	3.25	.37	.33	.33	.29	.33	11.5
24	.37	.12	.37	.33	.73	8.8	.33	.33	.33	.41	.33	.10
25	.37	.37	.37	15.6	.73	.12	.33	.33	.33	.41	.33	.33
26	.33	.46	.33	31.5	.67	41	.37	2.45	.33	.37	.33	.46
27	.33	.37	.33	24.5	.67	3.4	.37	27	.33	.37	.33	.33
28	.37	.33	.33	8.8	.67	.10	.37	.39	.33	.37	.33	.33
29	.33	.41	.33	33	.56	.08	.37	-	.33	.37	.33	.33
30	.33	.37	.33	20.5	.46	.06	.37	-	.33	.33	.33	.33
31	.33	.37	-	.86	-	.06	.37	-	.33	-	.33	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.1	0.14	1.60	2.48	49.7	153
August	14.1	.12	1.11	1.72	34.5	106
September	1.15	.25	.405	.627	12.1	37
October	33	.25	5.00	7.74	155	475
November	23.5	.16	4.87	7.54	146	449
December	41	.06	3.04	4.70	94.2	289
Calendar year 1944	41	.06	2.21	3.42	810	2,490
January	.41	.04	.261	.404	8.10	25
February	27	.33	1.38	2.14	38.6	119
March	26	.02	6.53	10.1	202	621
April	14.8	.22	1.17	1.81	35.2	108
May	.41	.29	.340	.526	10.6	32
June	11.5	.10	.844	1.31	25.3	78
Fiscal year 1944-45	41	.02	2.22	3.43	811	2,490

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

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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 1945.

Average discharge.- 22 years (1923-45), 114 million gallons a day (176 second-feet).

Extremes.- Maximum discharge during year, 180 million gallons a day (279 second-feet) Mar. 3-6, 13, 16, June 23 (gage height, 5.99 feet); minimum, 21.5 million gallons a day (33.3 second-feet) June 1.

1922-45: Maximum discharge, 188 million gallons a day (291 second-feet) June 25, 1941 (gage height, 6.06 feet); minimum, 11 million gallons a day (17 second-feet) Feb. 12, 1932.

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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	176	92	101	53	168	148	82	29	137	79	59	22
2	144	72	159	47	164	172	79	29	176	72	104	25
3	168	66	116	91	164	164	72	29	176	72	112	27.5
4	140	66	90	90	168	140	69	27.5	180	66	59	30.5
5	156	66	79	80	164	124	66	27.5	180	63	59	107
6	148	66	86	70	168	172	66	26	176	59	50	112
7	120	77	136	50	156	176	59	25	176	151	56	69
8	104	168	86	44	172	176	56	25	176	156	50	125
9	98	160	72	41	156	164	53	25	176	136	44	112
10	164	176	69	41	152	148	53	23.5	176	108	41	50
11	112	144	66	41	176	132	50	23.5	176	82	41	44
12	93	108	63	41	168	116	50	23.5	176	72	38	41
13	93	90	59	38	164	104	47	22	180	78	38	36.5
14	170	79	69	36.5	176	97	44	32.5	176	136	36.5	35
15	164	72	63	35	176	131	44	30.5	172	136	35	30.5
16	120	69	69	33.5	176	156	44	70	176	136	44	30.5
17	101	72	116	127	176	108	50	105	176	132	36.5	33.5
18	108	63	164	168	176	97	44	78	176	120	33.5	44
19	86	59	101	112	172	92	38	41	172	101	33.5	91
20	148	53	163	72	172	156	38	33.5	172	86	38	151
21	128	53	140	66	172	112	36.5	67	164	79	38	156
22	112	93	120	69	176	112	142	148	148	76	30.5	99
23	107	168	90	69	172	154	59	59	128	69	27.5	172
24	160	101	76	63	164	160	44	66	128	66	26	116
25	132	145	72	163	148	120	41	164	124	63	26	127
26	108	172	63	176	124	162	38	152	104	59	25	156
27	156	164	59	176	132	140	35	176	93	56	25	136
28	136	160	56	176	152	140	33.5	156	93	53	23.5	93
29	108	164	53	176	164	120	33.5	-	136	62	23.5	76
30	90	124	50	176	124	104	32	-	93	72	23.5	96
31	86	101	-	172	-	93	30.5	-	82	-	22	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	176	e6	127	196	3,940	12,080
August	176	53	105	162	3,260	10,010
September	164	50	90.2	140	2,710	8,300
October	176	33.5	90.1	139	2,790	8,570
November	176	124	163	252	4,890	15,010
December	176	92	135	209	4,190	12,860
Calendar year 1944	176	21	106	164	38,680	118,700
January	142	30.5	52.6	81.2	1,630	5,000
February	176	22	61.2	94.7	1,710	5,260
March	180	82	154	238	4,770	14,650
April	156	53	89.9	139	2,700	8,270
May	112	22	41.9	64.8	1,300	3,980
June	172	22	81.5	126	2,440	7,500
Fiscal year 1944-45	180	22	99.5	154	36,330	111,500

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 27 years, 28.4 million gallons a day (43.9 second-feet).

Extremes.- Maximum discharge during year, 97 million gallons a day (150 second-feet) Dec. 26 (gage height, 4.49 feet); minimum, 0.08 million gallons a day (0.12 second-foot) June 16, 17.

1918-45: 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 except those for July 29 to Aug. 18, which are poor. 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	97	0.98	1.45	0.66	44	6.5	1.25	0.28	15.0	1.08	0.82	0.19
2	9.5	.90	61	.62	26.5	76	1.18	.26	91	.97	9.5	.21
3	73	.82	2.3	.71	22.5	55	1.13	.26	99	.92	8.3	.24
4	101	.82	1.18	1.25	41	1.85	1.08	.26	102	.87	.87	.24
5	33	.80	1.02	9.8	32.5	1.52	.97	.26	102	.87	.71	30
6	2.15	.80	.97	2.05	63	60	.92	.24	102	.82	.66	9.8
7	1.72	.74	20.5	.62	10.8	99	.87	.24	102	10.9	.66	.26
8	1.58	45	1.11	.58	93	101	.87	.24	102	69	.62	14.0
9	1.52	56	.82	.51	12.6	46	.76	.26	102	78	.55	9.7
10	41	70	.76	.47	34	3.25	.71	.24	99	2.05	.55	.28
11	2.15	20	.71	.43	101	1.65	.66	.24	95	.87	.39	.19
12	1.25	10	.66	.47	57	1.38	.66	.24	99	.71	.36	.17
13	1.25	1.2	.66	.36	24.5	1.25	.66	.24	95	3.1	.32	.15
14	83	.87	.71	.32	97	1.18	.62	.28	76	102	.28	.17
15	52	.87	.66	.28	95	23.5	.62	.32	66	102	.28	.15
16	2.0	.87	.66	.28	101	49	.58	11.7	71	87	.28	.10
17	1.65	.78	25	49	102	1.13	.58	18.3	102	72	.28	.08
18	1.38	.71	74	85	102	.97	.58	6.7	102	5.7	.24	.10
19	1.18	.66	1.45	2.05	74	.92	.55	.39	91	1.78	.24	2.95
20	38.5	.62	69	.62	78	42	47	.36	76	1.58	.24	41
21	7.0	.62	17.3	.47	63	1.13	.47	.39	19.8	1.38	.21	51
22	1.25	9.8	10.6	.47	102	1.08	43	30	2.95	1.25	.19	1.73
23	3.25	76	1.18	.43	69	56	.66	.71	2.25	1.18	.17	90
24	35	1.72	1.08	.43	17.2	55	.51	.47	2.25	1.08	.17	2.1
25	3.35	28	1.02	83	2.75	1.65	.43	59	1.85	.97	.15	.71
26	1.25	89	.92	102	2.25	79	.39	38.5	1.72	.87	.15	48
27	19.6	49	.82	101	2.15	60	.32	99	1.52	.82	.15	1.69
28	13.7	45	.76	99	19.8	7.3	.32	37.5	1.52	.82	.15	.39
29	1.5	52	.71	101	46	1.85	.28	-	4.5	.76	.15	.32
30	.98	1.86	.66	101	1.85	1.72	.28	-	1.45	.76	.17	5.6
31	.98	1.38	-	83	-	1.52	.28	-	1.18	-	.17	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	101	0.98	20.4	31.6	634	1,940
August	89	.62	18.3	28.3	568	1,740
September	74	.66	9.99	15.5	300	920
October	102	.28	26.7	41.3	828	2,540
November	102	1.85	51.2	79.2	1,540	4,720
December	101	.92	27.1	41.9	839	2,580
Calendar year 1944	102	.13	21.0	32.5	7,680	23,580
January	43	.28	2.02	3.13	62.7	192
February	99	.24	11.0	17.0	307	942
March	102	1.18	59.0	91.3	1,830	5,620
April	102	.71	18.6	28.8	557	1,710
May	9.5	.15	.903	1.40	28.0	86
June	90	.08	10.4	16.1	312	956
Fiscal year 1944-45	102	.08	21.4	33.1	7,810	23,950

Note.- No gage-height record July 29 to Aug. 18; discharge computed on basis of records for nearby ditches.

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 12 years (1918-22, 1937-45), 2.77 million gallons a day (4.29 second-feet).

Extremes.- Maximum discharge during year, 32 million gallons a day (50 second-feet) Dec. 26 (gage height, 2.48 feet); no flow May 17 to June 20.
1918-22, 1936-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.2	0.03	0.03	0.02	0.19	0.06	0.03	0.01	0.04	0.02	0.03	0
2	.07	.03	.48	.02	.13	2.2	.03	.01	3.9	.02	.05	0
3	9.8	.03	.06	.02	.10	1.96	.03	.01	7.4	.02	.04	0
4	18.9	.03	.03	.02	.12	.06	.03	.01	15.6	.02	.04	0
5	.58	.03	.03	.02	.13	.05	.02	.01	15.3	.02	.03	.01
6	.05	.03	.02	.02	1.00	.13	.02	.01	17.9	.02	.03	.01
7	.04	.03	.05	.02	.10	9.1	.02	.01	13.8	.03	.03	0
8	.03	.99	.04	.02	9.3	12.1	.02	.01	16.6	10.5	.03	0
9	.03	.29	.03	.02	.13	.17	.02	.01	12.1	11.4	.03	0
10	.05	6.0	.02	.02	6.1	.05	.02	.01	5.1	.05	.02	0
11	.05	.09	.02	.02	7.6	.05	.02	.01	2.3	.03	.02	0
12	.04	.04	.02	.02	.43	.04	.02	.01	4.8	.03	.02	0
13	.03	.03	.02	.02	.13	.04	.02	.01	17.0	.10	.02	0
14	5.9	.02	.03	.02	3.75	.04	.02	.01	18.8	23.5	.02	0
15	2.1	.02	.02	.02	10.7	1.08	.02	.01	.37	22.5	.02	0
16	.05	.02	.02	.02	6.4	1.15	.02	.01	10.4	9.0	.02	0
17	.04	.02	.95	1.15	9.9	.05	.02	.03	22	9.0	.01	0
18	.04	.02	.60	2.65	11.2	.04	.02	.02	15.5	.06	0	0
19	.03	.02	.06	.05	.82	.03	.02	.02	2.1	.04	0	0
20	.10	.01	1.01	.03	.30	.09	.02	.02	1.57	.04	0	.05
21	.08	.01	.07	.03	3.9	.04	.02	.02	.10	.03	0	.14
22	.04	.04	.05	.02	14.9	.03	.06	.03	.05	.03	0	.04
23	.03	8.1	.04	.02	.32	2.35	.04	.03	.04	.03	0	8.5
24	.07	.06	.03	.02	.12	1.89	.02	.03	.04	.03	0	.05
25	.06	.05	.02	8.5	.07	.05	.02	.09	.04	.03	0	.02
26	.04	.27	.02	16.0	.06	12.0	.02	.70	.03	.03	0	.18
27	.05	.14	.02	9.9	.06	4.1	.02	5.9	.03	.03	0	.03
28	.09	.25	.02	4.7	.06	.07	.02	.13	.03	.03	0	.02
29	.04	.23	.02	8.7	.55	.05	.02	-	.03	.03	0	.01
30	.03	.05	.02	6.6	.06	.04	.02	-	.03	.03	0	.01
31	.03	.04	-	1.30	-	.04	.01	-	.02	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	18.9	0.03	1.41	2.18	43.7	134
August	8.1	.01	.549	.849	17.0	52
September	1.01	.02	.128	.198	3.85	12
October	16.0	.02	1.94	3.00	60.0	184
November	14.9	.06	2.95	4.56	88.6	272
December	12.1	.03	1.59	2.46	49.2	151
Calendar year 1944	22.5	0	1.22	1.89	446	1,370
January	.06	.01	.023	.036	.71	2.2
February	5.9	.01	.256	.396	7.18	22
March	22	.02	6.55	10.1	203	623
April	23.5	.02	2.89	4.47	86.7	266
May	.05	0	.015	.023	.46	1.4
June	8.5	0	.302	.467	9.07	28
Fiscal year 1944-45	23.5	0	1.56	2.41	569	1,750

Time basis: Hawaiian war time. 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 1945. January 1910 to March 1927 at site 1½ miles downstream.

Average discharge.- 31 years (1910-26, 1930-45), 21.6 million gallons a day (48.9 second-feet).

Extremes.- Maximum discharge during year, 70 million gallons a day (108 second-feet) Dec. 26 (gage height, 5.07 feet); minimum, 0.28 million gallons a day (0.43 second-foot) Oct. 13.
1930-45: Maximum discharge, 88 million gallons a day (136 second-feet) Mar. 21, 1937 (gage height, 5.44 feet); no flow at times.

Remarks.- Records excellent. Lowrie ditch diverts water from all streams between the Kailua and the Halehaku. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	50	8.9	9.4	6.4	53	18.0	18.0	3.6	25.5	8.4	8.0	2.25
2	19.2	7.8	36.5	6.0	53	35.5	14.2	3.6	35.5	7.8	14.8	2.4
3	43	7.3	13.1	7.1	40	38	13.2	3.45	53	7.5	11.2	2.4
4	50	7.1	8.2	6.7	33	33	12.2	3.3	53	6.7	7.5	2.5
5	46	7.1	7.5	6.0	30.5	25.5	11.2	3.3	53	6.7	6.7	3.8
6	23	6.9	7.5	8.4	40	29	11.0	3.2	56	6.2	6.2	6.3
7	12.5	6.7	16.8	5.0	32	48	10.0	3.05	53	8.0	5.8	3.2
8	11.2	31	8.8	4.6	53	56	9.4	2.9	56	26.5	5.7	3.2
9	10.0	40	6.9	4.3	40	28	8.7	2.9	56	29	5.0	4.0
10	21	50	6.4	4.2	43	15.5	8.2	2.9	50	12.2	4.8	2.6
11	12.8	33	6.0	4.2	56	33	7.8	2.75	40	13.5	4.6	2.25
12	9.8	23	5.8	4.8	43	23	7.5	2.6	56	8.8	4.5	2.05
13	9.4	7.5	5.7	2.35	48	10.3	7.1	2.5	50	6.6	4.3	1.92
14	40	6.4	7.2	3.45	56	8.3	6.9	4.1	56	56	4.0	1.70
15	38	6.0	5.8	3.6	53	15.2	6.4	3.3	32	56	4.0	1.60
16	20.5	5.7	6.8	3.6	56	46	6.7	7.2	43	46	4.0	1.50
17	28	5.5	17.4	16.3	56	29	6.4	24.5	58	40	3.9	1.41
18	11.8	5.3	50	43	56	7.7	6.2	13.8	56	22	3.6	1.41
19	9.1	5.2	29	28	38	8.9	5.5	3.75	43	18.0	3.6	2.6
20	18.8	4.6	43	17.7	35.5	22.5	5.3	3.2	46	16.8	3.6	11.0
21	16.2	4.6	33	4.1	38	9.6	5.2	3.3	38	14.5	3.6	27
22	9.8	18.8	20.5	4.6	58	10.3	27.5	10.8	27	13.2	3.3	8.3
23	8.2	44	10.8	4.3	35.5	38	12.0	5.3	15.5	18.0	3.2	48
24	20.5	32	9.4	4.3	24	43	11.2	3.9	15.5	28	3.05	24
25	12.8	24	8.9	45	18.6	15.5	4.8	17.5	13.8	18.0	2.9	18.7
26	9.1	43	8.0	56	11.5	54	4.6	16.7	12.0	9.8	2.75	32.5
27	16.8	29	7.5	56	23	43	4.3	53	11.2	9.1	2.75	6.0
28	18.0	24	7.5	53	23	29	4.2	38	11.8	8.4	2.6	4.0
29	10.8	33.5	6.7	56	43	29	4.0	-	15.5	8.0	2.5	2.9
30	9.1	12.2	6.4	56	20.5	28	3.9	-	10.3	8.2	2.25	2.6
31	8.7	10.3	-	56	-	28	3.75	-	8.9	-	2.4	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	50	8.2	20.1	31.1	624	1,920
August	50	4.6	17.8	27.5	550	1,690
September	50	5.7	13.9	21.5	416	1,280
October	56	2.35	18.7	28.9	581	1,780
November	58	11.5	40.3	62.4	1,210	3,710
December	56	7.7	27.7	42.9	858	2,630
Calendar year 1944	58	.78	18.7	28.9	6,830	20,960
January	27.5	3.75	8.62	13.3	267	820
February	53	2.5	8.87	13.7	248	762
March	58	8.9	37.1	57.4	1,150	3,530
April	56	6.2	17.9	27.7	538	1,650
May	14.8	2.25	4.75	7.35	147	451
June	48	1.41	7.80	12.1	234	718
Fiscal year 1944-45	58	1.41	18.7	28.9	6,820	20,940

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Haiku ditch at Honopou Gulch, near Kailua

Location.- Concrete restriction in ditch, lat. 20°55'05", long. 156°14'55", on right side of Haiku ditch and west side of Honopou Gulch, 160 feet below new Government Road, 2.5 miles northwest of Kailua, and 5 miles east of Haiku. Datum of gage is 421.54 feet above mean sea level.

Records available.- February 1940 to June 1945. 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.- 33 years (1910-28, 1930-45), 24.3 million gallons a day (37.6 second-feet).

Extremes.- Maximum discharge during year, 82 million gallons a day (127 second-feet) Mar. 4 (gage height, 3.42 feet); minimum, 0.09 million gallons a day (0.14 second-foot) June 18, 19.

1910-28, 1930-45: 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 except those for July 1-7, 11-17, which are poor. 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a45	1.07	1.07	0.95	12.6	3.4	3.2	0.71	1.25	1.19	1.53	0.54
2	a4.0	.95	12.1	.89	7.0	6.9	2.95	.71	32	1.13	2.7	.56
3	a40	.89	2.0	1.25	4.5	14.4	2.75	.65	59	1.13	1.74	.54
4	a50	.89	1.07	.89	3.95	3.15	2.5	.65	70	1.07	1.46	.37
5	a45	.89	1.01	.89	4.0	2.85	2.45	.62	68	1.01	1.32	.34
6	a3.5	.89	1.01	.83	10.6	5.1	2.25	.58	62	.95	1.39	.26
7	a2.0	.89	1.89	.71	3.4	29	2.2	.58	50	1.32	1.25	.24
8	1.60	23	1.19	.65	48	59	2.05	.58	76	16.7	1.19	.24
9	1.46	4.9	.89	.65	3.95	4.5	1.98	.54	74	23	1.13	.22
10	1.74	45	.77	.58	23	2.75	1.67	.54	38.5	1.53	1.13	.20
11	a1.5	2.45	.71	.64	71	2.85	1.46	.54	5.7	1.25	1.07	.20
12	a1.2	1.67	.71	.65	11.0	3.0	1.39	.51	40	.78	1.07	.18
13	a1.2	1.13	.65	2.05	6.9	5.5	1.39	.51	48	.89	1.01	.16
14	a40	1.01	1.01	1.13	49	4.4	1.32	.81	54	58	.95	.16
15	a35	1.01	.89	.71	54	7.2	1.25	.62	3.5	51	.95	.16
16	a7.0	.95	1.07	.62	54	18.3	1.32	3.7	28	13.2	.95	.14
17	a4.5	.89	7.9	22.5	74	2.6	1.25	4.9	74	11.3	.83	.18
18	3.35	.83	15.3	48	76	4.4	1.19	.71	55	3.5	.77	.12
19	1.39	.77	2.15	1.33	24	2.95	1.13	.62	5.0	3.05	.77	.12
20	2.3	.71	24	1.07	18.6	2.9	1.13	.54	5.1	2.75	.71	9.0
21	1.95	.71	4.0	1.54	27.5	2.1	1.07	.62	2.6	2.6	.65	7.5
22	1.19	2.25	1.67	.77	63	2.1	4.1	.71	2.2	2.45	.65	.65
23	1.07	45	1.19	.77	19.0	13.6	1.13	.58	1.81	2.35	.65	42
24	2.25	2.1	1.13	.65	16.5	19.5	1.07	.54	1.81	2.2	.62	1.72
25	1.39	1.67	1.07	58	13.5	2.75	1.07	.65	1.67	2.1	.62	1.01
26	1.13	9.0	1.01	79	11.4	38	1.01	11.1	1.46	1.81	.58	7.2
27	1.67	3.2	.95	76	13.4	15.8	.95	65	1.39	1.67	.58	.95
28	1.53	2.15	.95	52	11.4	6.2	.95	4.7	1.46	1.60	.58	.65
29	1.13	6.3	.89	79	11.3	4.3	.89	-	1.92	1.53	.58	.51
30	1.01	1.53	.83	74	3.3	3.95	.83	-	1.39	1.53	.65	.48
31	1.01	1.19	-	40	-	3.5	.77	-	1.32	-	.58	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	50	1.01	9.91	15.3	307	942
August	45	.71	5.35	8.28	166	509
September	24	.65	3.04	4.70	91.1	280
October	79	.58	17.7	27.4	549	1,680
November	76	3.3	25.0	38.7	750	2,300
December	59	2.1	9.55	14.8	296	908
Calendar year 1944	79	.34	9.68	14.9	3,540	10,850
January	4.1	.77	1.63	2.52	50.6	155
February	65	.51	3.70	5.72	104	318
March	76	1.25	28.0	43.3	868	2,660
April	58	.78	7.15	11.1	215	659
May	2.7	.58	.989	1.53	30.7	94
June	42	.12	2.55	3.95	76.6	235
Fiscal year 1944-45	79	.12	9.60	14.9	3,500	10,740

a No gage-height record; discharge computed on basis of records for stations on nearby ditches.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Maui during fiscal year July 1944 to June 1945

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
May 10	Haipuaena	Pacific Ocean	At Kula pipe-line intake, near Huelo	0.104	0.067
10	Waiakamoi	....do	....do	.732	.473

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 1945.

Average discharge.- 14 years (1931-45), 7.04 million gallons a day (10.9 second-feet).

Extremes.- Maximum discharge during year, 67 million gallons a day (104 second-feet) Mar. 17 (gage height, 3.52 feet); minimum, 0.13 million gallons a day (0.20 second-foot) Feb. 16, June 2-5.
1930-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.5	1.70	1.6	9.9
.1	.18	.6	2.25	2.0	14.6
.2	.42	.7	2.55	2.5	23.5
.3	.78	.9	4.1	3.0	39
.4	1.21	1.2	6.4		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.2	8.6	3.65	6.0	22	9.9	9.4	0.78	1.41	6.0	2.3	0.14
2	6.2	7.6	3.45	2.8	20	9.9	8.6	.71	6.8	5.6	2.2	.13
3	5.8	7.2	3.2	9.0	18	10.3	7.6	.64	10.6	5.6	2.2	.13
4	6.4	6.4	3.1	7.0	17	12.1	6.8	.56	15.3	5.1	2.2	.13
5	6.6	5.6	2.9	4.5	17	10.9	6.4	.53	20.5	4.7	2.2	.20
6	6.0	5.2	2.8	4.3	17	10.9	5.6	.42	21.5	4.5	2.1	.18
7	5.6	4.7	2.75	3.8	16	10.4	5.0	.37	23.5	4.5	1.9	.44
8	5.2	6.7	2.5	3.5	17	11.6	4.5	.32	22.5	18.8	1.9	1.88
9	5.0	7.0	2.3	3.3	17	10.4	4.1	.28	20.5	11.5	1.7	.51
10	5.4	7.6	2.3	3.2	18	9.9	3.8	.25	18.6	10.4	1.5	.30
11	5.2	7.2	2.3	2.9	21	9.0	3.5	.23	16.8	9.9	1.4	.28
12	5.0	6.8	2.2	2.7	20	8.6	3.25	.20	16.0	8.0	1.3	.35
13	9.0	6.0	2.15	2.6	18	7.6	3.05	.18	15.3	7.4	1.2	.25
14	9.9	5.5	1.98	2.5	18	6.8	2.8	.16	14.0	5.6	1.1	.30
15	9.0	5.1	1.92	2.5	18	6.4	2.55	.14	13.3	5.0	1.0	1.31
16	8.6	4.9	1.81	2.5	18.6	6.4	2.45	.43	15.7	10	1.2	1.12
17	8.1	4.4	2.5	3.5	17.6	5.5	3.7	.31	30	9.0	1.0	1.87
18	9.0	4.2	2.4	10	17.6	5.0	2.95	.18	25	8.0	.91	2.45
19	8.1	3.85	2.15	8.0	16.0	4.5	2.45	.16	22.5	7.0	.82	2.45
20	9.4	3.65	2.1	7.0	15.3	4.2	2.25	.20	20.5	6.5	.74	3.25
21	9.0	3.35	2.4	6.3	14.8	3.95	2.15	.23	18.6	5.5	.67	4.2
22	13.9	3.05	2.35	5.6	16.0	3.95	2.15	.31	16.8	5.0	.56	4.2
23	14.0	7.4	2.6	5.6	24.5	6.4	1.86	.23	15.3	5.0	.46	4.1
24	16.0	6.0	2.75	5.2	20.5	6.1	1.65	.27	12.7	5.0	.40	3.7
25	16.8	5.0	2.95	5.0	19.5	7.2	1.55	1.10	11.5	4.0	.35	3.95
26	15.3	4.6	2.85	7.0	17.6	17.8	1.46	.37	9.9	3.5	.30	4.9
27	15.3	5.1	2.8	17	16.0	15.9	1.31	.30	9.0	3.0	.28	5.6
28	13.3	4.7	2.8	20	14.6	13.3	1.21	.23	8.1	2.8	.23	6.0
29	12.1	4.4	2.8	19	12.1	12.7	1.12	-	7.6	2.6	.23	6.0
30	10.4	4.2	2.8	21	10.9	11.5	1.04	-	6.8	2.5	.20	6.0
31	9.4	3.95	-	30	-	10.4	.91	-	6.8	-	.18	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.8	5.0	9.23	14.3	286	878
August	8.6	3.05	5.48	8.48	170	522
September	3.65	1.81	2.59	4.01	77.6	238
October	30	2.5	7.53	11.7	233	716
November	24.5	10.9	17.5	27.1	526	1,610
December	17.8	3.95	9.02	14.0	280	858
Calendar year 1944	30	.14	7.02	10.9	2,570	7,880
January	9.4	.91	3.46	5.35	107	329
February	1.10	.14	.360	.557	10.1	31
March	30	1.41	15.3	23.7	473	1,450
April	18.8	2.5	6.40	9.90	192	589
May	2.3	.18	1.12	1.73	34.7	107
June	6.0	.13	2.21	3.42	66.3	204
Fiscal year 1944-45	30	.13	6.73	10.4	2,460	7,530

Note.- No gage-height record July 1-13, Sept. 27 to Nov. 15, Apr. 12 to May 17; discharge computed on basis of records for Wailuku River.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

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 1945.
Average discharge.- 15 years (1929-40, 1941-45), 176 million gallons a day (272 second-feet).
Extremes.- Maximum discharge recorded during year, 10,860 million gallons a day (16,800 second-feet) Oct. 31 (gage height, 18.50 feet), from rating curve extended above 3,400 million gallons a day by logarithmic plotting; minimum discharge, 2.8 million gallons a day (4.3 second-feet) June 1-3.
1928-45: Maximum discharge, 41,000 million gallons a day (63,400 second-feet) Aug. 11, 1940 (gage height, 28.6 feet, from floodmarks), from rating curve extended above 3,400 million gallons a day by logarithmic plotting; minimum, 0.16 million gallons a day (0.25 second-foot) Mar. 9, 1941.
Remarks.- Records good except those for periods of no gage-height record, which are poor. Hilo Water Works diverts about 1 million gallons a day above station for domestic supply, and water passing station is used for power by Hilo Electric Light Co.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

1.5	2.8	2.3	24	5.0	245	11.0	2,020
1.6	4.1	2.5	31.5	6.0	400	12.0	2,690
1.7	5.8	2.7	40	7.0	610	14.0	4,460
1.8	7.7	3.0	55	8.0	870	14.7	5,200
1.9	10.2	3.5	87	9.0	1,170		
2.1	16.7	4.0	127	10.0	1,520		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	133	55	29.5	251	660	67	61	7.7	30	40	20.5	2.8
2	79	45	31.5	73	420	193	52	6.6	100	45	20	2.8
3	61	40	31.5	363	290	185	52	5.6	180	186	20.5	3.1
4	143	34	26	154	205	695	38	5.3	600	76	26	5.6
5	151	31.5	29.5	87	320	272	34	4.4	700	52	24	14.8
6	106	40	24	80	320	175	42	4.3	1,000	48	20.5	33
7	78	31.5	27.5	55	158	118	34	4.1	1,700	40	15.7	21.5
8	58	132	24	45	275	187	27.5	3.8	1,000	847	24	58
9	48	248	18.6	36	231	110	24	3.7	700	334	16.7	61
10	69	117	118	34	279	80	20.5	3.7	500	166	12.4	23.5
11	56	90	116	29.5	930	64	19.4	3.7	400	110	10.0	14.7
12	48	61	36	26	635	52	17.8	3.6	350	80	8.2	16.7
13	61	48	27.5	24	305	45	17.1	3.6	290	72	7.5	11.4
14	525	40	24	20.5	350	38	15.0	3.4	230	55	7.3	8.2
15	286	34	29	17.8	305	36	13.6	3.3	190	46	6.6	7.1
16	142	31.5	24	16.8	440	42	13.3	3.6	622	521	8.8	8.8
17	94	29.5	120	30.5	525	34	149	3.7	2,600	297	8.4	32
18	121	27.5	159	395	389	27.5	151	3.3	917	189	6.4	303
19	91	24	58	97	225	26	34	3.2	523	114	5.8	102
20	278	24	40	61	195	24	24	3.2	335	80	13.1	88
21	296	20.5	47	50	237	24	20.5	3.6	225	58	18.1	137
22	590	19.4	101	50	859	32	20.5	5.0	158	45	36	118
23	408	149	95	55	1,700	254	20.5	4.0	110	49	13.0	87
24	358	80	103	38	565	248	16.4	5.0	87	56	7.7	64
25	410	36	58	31.5	424	169	16.7	40	70	36	5.8	48
26	226	57	50	59	253	1,460	14.0	9.0	61	34	5.1	157
27	205	88	40	200	175	468	12.1	8.0	48	27.5	4.1	118
28	137	55	40	610	127	337	10.8	7.0	40	26	3.8	102
29	110	40	45	440	110	164	12.1	-	66	24	3.3	77
30	80	34	37	735	80	110	10.2	-	53	24	3.2	55
31	67	34	-	5,200	-	80	8.7	-	54	-	2.9	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	590	48	179	277	5,540	16,990
August	248	19.4	57.9	89.6	1,800	5,510
September	159	18.6	53.5	82.8	1,600	4,920
October	5,200	16.0	302	467	9,360	28,740
November	1,700	80	400	619	11,990	36,790
December	1,460	24	188	291	5,820	17,860
Calendar year 1944	5,200	3.0	164	254	60,030	184,200
January	151	8.7	32.3	50.0	1,000	3,070
February	40	3.2	5.91	9.14	165	508
March	2,600	30	450	696	13,940	42,780
April	847	24	126	195	3,780	11,590
May	36	2.9	12.4	19.2	385	1,180
June	303	2.8	59.4	91.9	1,780	5,470
Fiscal year 1944-45	5,200	2.8	157	243	57,160	175,400

Peak discharge.- Oct. 31 (5:30 a.m.) 10,860 m.g.d. (16,800 sec.-ft.); Dec. 26 (4 a.m.) 4,160 m.g.d. (6,440 sec.-ft.); Mar. 17 (2:30 a.m.) 7,540 m.g.d. (11,670 sec.-ft.).
Note.- No gage-height record Oct. 28-31, Nov. 15, 16, Feb. 21 to Mar. 15; discharge computed on basis of records for Waiakea Stream.
Time basis: Hawaiian war time. 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 Piihonua, and 6 miles west of Hilo.

Records available.- March 1938 to June 1945. July 1941 to June 1942 (unpublished).

Extremes.- Maximum discharge during year, 16.1 million gallons a day (24.9 second-feet) Oct. 31 (gage height, 2.74 feet); minimum, 0.02 million gallons a day (0.03 second-foot) Dec. 7, 8.
1938-45: 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 except those for Sept. 7-15, which are fair. Water used to supplement the municipal supply of Hilo during dry periods.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.08	0.86	1.72	2.05	1.88	1.53	1.88	1.53	1.32	1.49	2.25	1.39
2	1.05	.86	1.68	1.92	1.72	1.64	1.88	1.53	1.58	1.49	2.2	1.60
3	1.05	.86	1.64	2.45	1.68	1.72	1.88	1.53	1.44	1.60	2.2	1.80
4	1.11	.84	1.64	1.96	1.64	1.33	1.88	1.49	1.53	1.49	2.25	1.84
5	1.05	.82	1.76	1.96	1.76	.04	1.88	1.49	1.94	1.46	2.35	1.88
6	1.02	.82	1.88	1.96	1.68	.04	1.92	1.46	1.80	1.46	2.2	1.92
7	.99	.82	a1.9	1.96	1.64	.02	2.05	1.46	1.05	1.39	2.15	1.92
8	.99	.98	a1.9	1.96	1.88	1.19	2.05	1.42	1.10	2.05	2.3	2.1
9	.99	.84	a1.8	1.96	1.68	1.88	1.96	1.39	1.02	1.39	2.1	2.05
10	.99	.91	a2.0	1.92	1.88	1.88	a1.9	1.39	.93	1.22	2.0	1.96
11	.96	.79	a1.9	1.92	1.88	1.88	a1.9	1.39	.88	.69	1.96	1.88
12	.96	.79	a1.9	1.92	1.80	1.88	a1.9	1.36	.88	.20	1.92	1.92
13	.93	.79	a1.9	1.88	1.80	1.96	a1.8	1.36	1.02	1.15	1.88	1.76
14	1.24	.79	a1.9	1.88	1.88	1.96	a1.8	1.32	.91	2.2	1.96	1.56
15	.93	.79	a1.9	1.88	1.85	1.96	a1.8	1.29	.88	2.2	2.05	1.64
16	.93	.79	1.92	1.84	1.68	1.96	a1.8	1.29	1.42	2.25	2.2	1.96
17	.93	.79	2.1	2.0	1.60	1.96	1.84	1.29	1.65	1.96	2.1	2.1
18	.93	1.39	1.92	1.88	1.53	1.96	1.76	1.25	.84	1.92	1.96	2.1
19	.93	1.76	1.88	1.56	1.46	2.0	1.72	1.22	.70	1.88	1.88	2.05
20	1.02	1.76	1.88	1.56	1.46	2.0	1.72	1.22	.66	1.88	2.05	2.1
21	.88	1.76	1.92	1.56	1.58	2.0	1.72	1.25	.64	1.88	1.92	2.2
22	1.01	1.76	1.92	1.56	2.15	2.0	1.72	1.22	.62	1.88	2.0	2.2
23	.93	2.05	1.88	1.56	2.25	2.35	1.68	1.22	.64	1.88	1.88	2.2
24	.93	1.80	1.88	1.56	1.60	2.3	1.68	1.19	.66	1.96	1.76	2.15
25	.99	1.76	1.92	1.56	1.49	2.4	1.68	1.29	.66	1.88	1.68	2.15
26	.88	1.80	1.88	1.68	1.46	3.0	1.64	1.29	.64	1.76	1.64	2.25
27	.93	1.80	1.88	1.72	1.42	2.25	1.64	1.29	.66	2.25	1.56	2.2
28	.86	1.76	1.88	1.96	1.39	2.0	1.60	1.19	.66	2.5	1.49	2.2
29	.86	1.72	1.88	1.83	1.39	1.88	1.64	-	.66	2.4	1.49	2.2
30	.86	1.72	1.92	2.45	1.53	1.88	1.56	-	.66	2.4	1.49	2.2
31	.86	1.68	-	3.3	-	1.88	1.56	-	.98	-	1.46	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.24	0.86	0.970	1.50	30.1	92
August	2.05	.79	1.25	1.93	38.7	119
September	2.1	1.64	1.87	2.89	56.1	172
October	3.3	1.56	1.91	2.96	59.2	182
November	2.25	1.39	1.69	2.61	50.6	155
December	3.0	.02	1.77	2.74	54.7	168
Calendar year 1944	3.3	.02	1.60	2.48	586	1,800
January	2.05	1.56	1.79	2.77	55.4	170
February	1.53	1.19	1.34	2.07	37.6	115
March	1.94	.62	1.00	1.55	31.0	95
April	2.5	.20	1.74	2.69	52.2	160
May	2.35	1.46	1.95	3.02	60.3	185
June	2.25	1.39	1.98	3.06	59.5	183
Fiscal year 1944-45	3.3	.02	1.60	2.48	585	1,800

a No gage-height record; discharge computed on basis of recorded range in stage and records for Wailuku River.
Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

Waillikahi 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 1945.

Extremes.- Maximum discharge during year, 161 million gallons a day (249 second-feet) Mar. 5 (gage height, 3.38 feet), from rating curve extended above 10 million gallons a day by test on model of station site; minimum, 0.21 million gallons a day (0.32 second-foot) Feb. 10, 11.

1939-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.10	0.8	3.0	2.0	35.5
.4	.30	1.0	5.5	2.3	55
.5	.69	1.2	8.9	2.6	77
.6	1.28	1.4	13.3		
.7	2.0	1.7	22.5		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	22.5	10.9	6.0	0.86	4.7	0.96	0.91	0.37	0.96	1.28	0.56	0.25
2	3.55	3.85	16.9	1.71	2.5	2.8	.85	.33	4.4	1.77	19.0	.61
3	2.05	2.3	2.8	6.1	1.70	1.85	.80	.30	28	1.85	11.9	.48
4	7.6	6.1	1.70	1.84	2.15	8.0	.69	.30	27	1.28	1.68	.37
5	9.6	3.85	1.62	1.02	4.8	6.3	.65	.28	34.5	1.08	1.08	.28
6	34.5	3.4	2.3	1.15	8.5	8.3	.65	.25	33	.91	.91	.28
7	12.5	6.8	2.4	.96	1.77	4.2	.60	.25	24	4.2	.80	1.23
8	7.6	20.5	1.42	.80	4.7	24	.60	.25	15.5	3.55	.69	9.3
9	3.2	15.0	1.08	.65	2.45	3.0	.60	.23	11.3	1.62	.60	2.6
10	17.9	26.5	5.3	.56	4.9	1.93	.56	.23	3.3	1.08	.52	.85
11	4.3	4.5	3.05	.48	14.9	1.42	.56	.25	8.4	1.24	.52	.60
12	9.3	3.6	1.21	.60	9.4	1.21	.56	.25	8.2	1.42	.56	.96
13	15.8	3.2	.96	.74	5.2	1.02	.52	.31	26	1.02	.65	2.55
14	15.2	3.05	.85	.85	2.6	1.42	.48	.56	10.7	45	.56	2.1
15	10.9	2.0	1.74	1.83	20	4.0	.48	.37	13.8	6.3	3.0	1.28
16	4.8	3.1	1.28	.91	27.5	17.4	.48	.65	7.7	8.4	2.2	3.8
17	7.9	2.5	4.9	26	17.8	2.25	1.62	2.1	8.6	4.6	1.21	2.55
18	18.2	2.1	3.1	28.5	7.3	1.62	3.0	2.5	8.1	2.25	1.28	5.8
19	11.7	2.0	1.83	3.95	2.3	1.42	1.15	3.15	6.4	1.55	6.4	2.95
20	15.4	1.62	2.0	2.2	2.95	6.5	1.23	.96	5.8	1.21	3.55	21.5
21	6.4	1.28	1.32	2.2	3.55	11.8	.69	.80	5.6	1.02	1.18	16.2
22	17.4	3.5	.96	6.4	4.0	8.0	24.5	1.48	2.95	.91	1.35	7.2
23	14.0	31.5	.85	4.5	1.85	13.8	3.15	3.7	1.85	.80	.76	4.5
24	24	3.7	.91	1.62	1.62	3.9	1.48	3.45	4.8	.74	.56	2.5
25	9.6	2.65	4.3	3.2	1.48	2.1	.96	4.1	12.5	.74	.48	1.73
26	9.2	3.3	1.66	13.3	1.21	3.0	.69	2.85	4.5	.74	.41	6.8
27	27.5	4.0	1.44	24	1.08	5.2	.60	2.55	2.2	.65	.37	2.4
28	10.5	12.7	1.68	67	1.21	3.0	.52	1.21	2.3	.60	.37	2.85
29	9.0	14.7	1.02	34	1.85	1.48	.44	-	4.5	.60	.30	1.84
30	7.5	2.9	.80	32.5	1.15	1.15	.41	-	1.70	.60	.28	1.15
31	11.0	1.85	-	7.2	-	1.02	.37	-	1.35	-	.25	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	34.5	2.05	12.3	19.0	381	1,170
August	31.5	1.28	6.74	10.4	209	641
September	16.9	.80	2.58	3.99	77.4	237
October	67	.48	8.96	13.9	278	852
November	27.5	1.08	5.57	8.62	167	513
December	24	.96	4.97	7.69	154	473
Calendar year 1944	67	.17	6.42	9.93	2,350	7,210
January	24.5	.37	1.64	2.54	50.8	156
February	4.1	.23	1.22	1.89	34.0	104
March	34.5	.96	10.7	16.6	330	1,010
April	45	.60	3.30	5.11	99.0	304
May	19.0	.25	2.06	3.19	64.0	196
June	21.5	.25	3.58	5.54	108	330
Fiscal year 1944-45	67	.23	5.35	8.28	1,950	5,990

Time basis: Hawaiian war time. 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 1945.

Extremes.- Maximum discharge during year, 448 million gallons a day (693 second-feet) Mar. 5 (gage height, 3.16 feet), from rating curve extended above 7 million gallons a day by test on model of station site; minimum, 0.25 million gallons a day (0.39 second-foot) June 5-7.

1939-45: 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 tables, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Apr. 14						Apr. 15 to June 30					
0.3	0.26	0.8	3.15	1.8	29	0.2	0.10	0.6	2.15	1.2	12.0
.4	.54	1.0	5.5	2.0	41	.3	.31	.7	3.25	1.4	17.8
.5	.95	1.2	8.8	2.3	69	.4	.70	.8	4.5	1.7	28.5
.6	1.50	1.4	13.5			.5	1.28	1.0	7.3	2.0	43
.7	2.2	1.6	20								

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12	7.7	3.95	0.54	4.5	0.83	0.79	0.40	0.83	0.95	0.65	0.31
2	3.0	3.3	10.0	.83	2.5	1.95	.74	.37	3.25	1.04	32	.41
3	1.7	2.05	2.35	3.85	1.78	1.52	.70	.37	16.4	1.22	10.0	.34
4	7.0	4.2	1.44	1.41	1.58	5.4	.66	.34	17.0	.91	2.25	.31
5	8.5	2.95	1.34	.74	3.4	4.4	.62	.34	30	.74	1.35	.28
6	20	2.8	1.58	.70	5.9	6.2	.58	.32	15.8	.70	1.09	.25
7	11	4.3	1.85	.70	1.50	3.15	.54	.32	14.7	3.1	.97	.88
8	7.0	11.7	1.12	.58	3.1	13.7	.64	.32	9.6	2.65	.85	7.1
9	2.7	6.2	.91	.54	1.96	2.35	.64	.32	7.5	1.22	.75	2.6
10	11	13.8	2.8	.48	3.1	1.57	.51	.32	3.05	.83	.70	.75
11	3.7	3.7	2.7	.46	8.1	1.22	.48	.32	5.5	.79	.70	.49
12	7.0	2.85	1.06	.54	7.0	1.00	.51	.37	6.0	1.00	.70	.70
13	10	2.65	.83	.70	4.1	.91	.46	.37	14.2	.79	.70	1.49
14	9.5	2.3	.74	.79	2.25	1.10	.46	.48	5.8	37.5	.65	1.69
15	8.0	1.64	1.22	1.51	10.1	1.89	.46	.37	8.9	7.7	2.3	.91
16	4.0	2.15	1.00	.84	15.7	9.3	.43	.60	6.3	7.1	2.45	3.05
17	6.0	1.92	2.7	6.2	10.4	1.81	.79	2.05	6.2	5.3	1.09	1.50
18	11	1.50	2.3	22	5.9	1.28	1.96	2.5	6.4	2.8	1.09	4.8
19	5.9	1.50	1.42	3.8	2.3	1.17	.83	3.05	5.3	1.96	3.9	2.75
20	9.6	1.22	1.36	1.78	2.4	4.8	.83	.83	f4.5	1.44	3.2	15.9
21	4.6	1.00	.95	1.64	2.55	7.2	.58	.62	f4.0	1.21	1.03	12.8
22	10.2	1.70	.74	3.3	3.2	5.9	14.5	1.04	2.25	1.03	.97	6.8
23	8.4	18.5	.62	4.1	1.64	8.6	2.35	2.35	1.50	.91	.65	4.5
24	12.8	2.95	.70	1.39	1.39	3.15	1.20	2.55	3.05	.80	.49	2.65
25	7.1	2.3	3.15	3.05	1.28	1.78	.74	2.6	6.9	.80	.49	1.41
26	6.5	2.35	1.36	7.2	1.06	2.35	.58	2.7	3.1	.80	.41	5.4
27	14.5	2.95	.89	13.7	.95	3.75	.51	2.75	1.64	.70	.34	2.15
28	7.2	6.8	1.20	59	.95	2.4	.48	1.00	1.53	.70	.37	2.7
29	6.5	8.6	.70	24	1.39	1.22	.43	-	4.1	.70	.34	1.77
30	5.0	2.25	.58	20.5	.95	1.00	.40	-	1.39	.65	.31	1.03
31	8.0	1.57	-	7.0	-	.87	.40	-	1.12	-	.31	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	20	1.7	8.05	12.5	249	765
August	18.5	1.00	4.30	6.65	133	409
September	10.0	.58	1.79	2.77	53.6	164
October	59	.46	6.25	9.67	194	595
November	15.7	.95	3.76	5.82	113	347
December	13.7	.83	3.35	5.18	104	318
Calendar year 1944	59	.21	4.01	6.20	1,460	4,490
January	14.5	.40	1.15	1.78	35.6	109
February	3.05	.32	1.07	1.66	30.0	92
March	30	.83	7.03	10.9	218	668
April	37.5	.65	2.93	4.53	88.0	270
May	32	.31	2.36	3.65	73.1	224
June	15.9	.25	2.92	4.52	87.5	269
Fiscal year 1944-45	59	.25	3.78	5.85	1,380	4,230

f Discharge computed on basis of partly estimated gage-height record.

Note.- No gage-height record July 1-18; discharge computed on basis of records for stations on nearby streams.

Time basis: Hawaiian war time. 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 1945.

Extremes.- Maximum discharge during year, 131 million gallons a day (203 second-feet) Mar. 5 (gage height, 3.68 feet), from rating curve extended above 4 million gallons a day by test on model of station site; minimum, 0.08 million gallons a day (0.12 second-foot) Feb. 9-11, June 6, 7.

1939-45: Maximum discharge, 980 million gallons a day (1,520 second-feet) June 30, 1941 (gage height, 4.90 feet), from rating curve extended above 4 million gallons a day by test on model of station site; minimum, 0.08 million gallons a day (0.12 second-foot) Jan. 3, Feb. 1, 1943, Mar. 14-17, 1944, Feb. 9-11, June 6, 7, 1945.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.08	0.7	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		
.6	1.90	1.4	13.7		

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.0	8.3	4.1	0.31	4.7	0.48	0.48	0.12	0.44	0.73	0.34	0.11
2	2.35	3.15	10.9	.52	2.4	1.52	.40	.12	2.8	.73	19.4	.13
3	1.62	2.0	2.1	3.4	1.58	1.03	.34	.11	16.5	1.00	9.0	.12
4	5.0	3.9	1.20	1.13	1.27	4.7	.31	.12	15.3	.73	1.50	.11
5	5.9	2.75	1.00	.52	2.95	3.65	.28	.12	22	.56	.99	.09
6	20.5	2.5	1.00	.48	6.3	6.2	.26	.11	16.7	.48	.68	.09
7	8.8	4.1	1.50	.44	1.27	2.5	.23	.09	16.6	3.0	.56	.37
8	5.6	11.7	.78	.37	2.65	13.4	.21	.09	9.7	2.55	.48	5.1
9	3.1	9.0	.64	.28	1.78	2.1	.23	.08	8.0	1.00	.40	1.68
10	12.0	14.7	2.6	.26	2.55	1.20	.19	.08	2.9	.64	.37	.44
11	3.3	3.7	2.55	.21	8.3	.83	.19	.08	5.0	.59	.31	.26
12	6.3	2.35	.73	.31	8.0	.64	.19	.11	6.1	.78	.34	.34
13	10.1	2.35	.56	.40	40	.52	.17	.12	13.9	.59	.34	.60
14	10.3	1.90	.48	.55	2.05	.64	.15	.17	6.2	32	.28	1.17
15	7.4	1.34	.86	1.36	9.5	1.90	.15	.12	8.7	6.4	1.05	.52
16	3.85	1.65	.68	.65	17.4	10.2	.15	3.45	6.5	5.8	1.66	1.69
17	6.5	1.62	2.45	5.2	9.4	1.56	.15	1.39	6.6	3.8	.56	.82
18	12.6	1.13	1.97	24	6.1	.89	1.71	2.3	6.0	1.90	.44	3.25
19	6.0	1.27	1.05	3.9	2.1	.73	.48	2.85	5.1	1.20	2.55	1.65
20	10.2	.94	.95	1.42	2.0	3.6	.44	.48	4.3	.89	2.3	15.3
21	4.2	.73	.68	1.27	2.1	7.3	.28	.28	4.3	.73	.64	11.4
22	11.4	2.45	.48	2.8	2.5	5.4	13.9	.83	2.2	.59	.60	5.3
23	8.7	19.3	.40	3.8	1.13	8.6	2.0	1.71	1.34	.52	.34	3.1
24	15.6	2.8	.44	1.07	.94	3.05	.78	2.15	2.95	.48	.23	1.90
25	7.6	1.94	2.55	2.5	.83	1.34	.44	1.89	8.1	.48	.26	.94
26	6.6	1.98	1.10	7.1	.73	1.47	.28	2.45	3.0	.44	.19	3.6
27	16.3	2.65	.59	16.7	.59	3.4	.21	2.4	1.50	.37	.15	1.42
28	8.1	5.9	.96	43	.56	2.1	.19	.68	1.40	.34	.17	1.73
29	7.1	9.5	.48	25	.92	.89	.17	-	4.8	.34	.15	1.20
30	4.8	2.1	.37	22	.59	.64	.15	-	1.27	.31	.13	.68
31	8.5	1.27	-	8.7	-	.56	.13	-	.89	-	.12	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	20.5	1.62	8.17	12.6	253	777
August	19.3	.73	4.22	6.53	131	402
September	10.9	.37	1.54	2.38	46.2	142
October	43	.21	5.80	8.97	180	551
November	40	.56	4.77	7.38	143	439
December	13.4	.52	3.00	4.64	93.0	286
Calendar year 1944	43	.08	3.80	5.88	1,390	4,270
January	13.9	.13	.814	1.26	25.2	77
February	3.45	.08	.875	1.35	24.5	75
March	22	.44	6.81	10.5	211	648
April	32	.31	2.33	3.61	70.0	215
May	19.4	.12	1.50	2.32	46.4	142
June	15.3	.09	2.18	3.37	65.3	200
Fiscal year 1944-45	43	.08	3.53	5.46	1,290	3,950

Time basis: Hawaiian war time. 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, 1,800 feet (by barometer).

Drainage area.- 0.2 square mile.

Records available.- March 1939 to June 1945.

Extremes.- Maximum discharge during year, 17.1 million gallons a day (26.5 second-feet) Apr. 14 (gage height, 1.39 feet), from rating curve extended above 1.0 million gallons a day by test on model of station site; minimum, 0.14 million gallons a day (0.22 second-foot) Feb. 14-16, 21-24, Feb. 28 to Mar. 2.

1939-45: 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 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.14	0.7	3.5
.3	.40	.8	4.8
.4	.89	.9	6.4
.5	1.53	1.0	8.2
.6	2.4	1.2	13.4

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.82	1.41	0.64	0.23	1.21	0.35	0.27	0.19	0.14	0.24	0.40	0.21
2	.40	.89	1.54	.23	.89	.35	.24	.17	.22	.24	2.1	.21
3	.45	.84	.60	.46	.78	.35	.24	.17	1.70	.24	1.5	.21
4	.59	.89	.55	.24	.69	.35	.24	.17	2.1	.24	.90	.21
5	.45	.78	.50	.23	.69	.35	.24	.17	3.95	.24	.70	.21
6	3.05	.74	.50	.23	.92	.63	.23	.17	1.59	.24	.50	.19
7	1.52	.74	.45	.23	.60	.40	.23	.17	2.2	.30	.40	.19
8	.89	.95	.45	.21	.55	2.05	.23	.17	1.47	.27	.35	.23
9	1.29	.84	.40	.21	.50	.50	.23	.15	1.08	.23	.30	.19
10	1.70	1.46	.40	.21	.55	.40	.23	.15	.69	.23	.30	.17
11	.84	.78	.40	.19	.66	.35	.23	.15	.64	.23	.27	.17
12	.97	.74	.35	.23	1.13	.35	.23	.15	.64	.23	.27	.17
13	1.18	.69	.35	.21	.76	.30	.23	.15	1.46	.23	.25	.15
14	1.69	.69	.35	.23	.55	.30	.21	.15	.64	7.7	.23	.15
15	1.01	.64	.35	.23	.77	.35	.21	.14	1.10	1.40	.24	.15
16	.84	.64	.30	.21	1.96	.50	.21	.33	.77	.89	.26	.17
17	1.90	.60	.35	.48	1.29	.30	.21	.19	.84	.74	.24	.15
18	2.85	.55	.30	3.15	.89	.27	.21	.45	.64	.64	.22	.15
19	1.21	.55	.30	.50	.74	.27	.19	.34	.55	.60	.27	.17
20	1.17	.55	.27	.27	.64	.30	.19	.15	.50	.55	.28	1.60
21	.84	.50	.27	.27	.55	.50	.19	.15	.50	.55	.21	1.05
22	1.22	.50	.27	.27	.55	.60	1.54	.14	.40	.50	.21	.30
23	1.39	1.62	.27	.30	.50	1.07	.24	.15	.40	.50	.21	.24
24	1.88	.60	.27	.24	.50	.50	.21	.15	.50	.45	.19	.23
25	1.15	.50	.30	1.09	.45	.35	.21	.17	.55	.45	.17	.21
26	1.17	.50	.27	1.12	.40	.35	.19	.41	.35	.45	.17	.21
27	1.96	.50	.27	2.25	.40	.45	.19	.17	.30	.40	.17	.19
28	1.47	.50	.24	9.0	.40	.35	.19	.15	.30	.40	.19	.19
29	1.28	.97	.24	5.7	.40	.30	.19	-	.35	.40	.19	.17
30	.95	.50	.24	5.7	.35	.27	.19	-	.27	.35	.19	.17
31	1.39	.45	-	2.3	-	.27	.19	-	.27	-	.19	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.05	0.40	1.27	1.96	39.5	121
August	1.62	.45	.745	1.15	23.1	71
September	1.54	.24	.400	.619	12.0	37
October	9.0	.19	1.17	1.81	36.4	112
November	1.96	.35	.709	1.10	21.3	65
December	2.05	.27	.453	.701	14.0	43
Calendar year 1944	9.0	.10	.609	.942	223	684
January	1.54	.19	.259	.401	8.03	25
February	.45	.14	.192	.297	5.37	16
March	3.95	.14	.875	1.35	27.1	83
April	7.7	.23	.671	1.04	20.1	62
May	2.1	.17	.389	.602	12.1	37
June	1.60	.15	.267	.413	8.01	25
Fiscal year 1944-45	9.0	.14	.622	.962	227	697

Note.- No gage-height record Apr. 27 to May 22; discharge computed on basis of records for Punalula Stream.

Time basis: Hawaiian war time. 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 of 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 1945.

Extremes.- Maximum discharge during year, 138 million gallons a day (214 second-feet) May 2 (gage height, 3.51 feet), from rating curve extended above 8 million gallons a day by test on model of station site; minimum, 0.14 million gallons a day (0.22 second-foot) Feb. 14-16, June 4-7, 12-15.

1939-45: 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, 0.09 million gallons a day (0.14 second-foot) sometime in March 1944.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1944-45 (gage height, in feet, and discharge, in million gallons a day)

0.15	0.10	.5	1.48	1.2	13.1
.2	.20	.6	2.4	1.4	18.4
.25	.34	.7	3.65	1.6	25
.3	.49	.8	5.1	2.0	41
.4	.89	1.0	8.7	2.5	68

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.9	4.5	2.2	0.28	2.4	0.37	0.40	0.20	0.23	0.34	0.35	0.18
2	.78	1.48	5.4	.28	1.21	.43	.34	.18	1.44	.34	15	.18
3	.96	1.10	.89	1.52	.89	.43	.34	.18	8.6	.34	6.0	.16
4	2.05	1.72	.72	.49	.80	.96	.34	.18	9.4	.34	.80	.16
5	1.78	1.15	.68	.34	.89	1.64	.31	.18	14.9	.31	.60	.16
6	13.3	1.10	.64	.31	2.8	2.55	.28	.16	6.5	.34	.50	.14
7	5.6	1.94	.68	.28	.72	.85	.28	.16	9.8	.91	.45	.18
8	2.65	4.7	.57	.28	.80	8.8	.28	.16	4.8	.78	.43	1.76
9	2.1	3.05	.53	.26	.68	.76	.28	.16	3.7	.40	.41	.54
10	6.9	6.8	.80	.26	2.1	.57	.26	.16	1.13	.34	.41	.20
11	1.58	1.32	.92	.23	4.4	.49	.26	.16	2.0	.28	.37	.18
12	3.55	1.04	.49	.28	2.8	.43	.26	.16	2.25	.26	.37	.16
13	4.7	.99	.46	.34	1.71	.40	.23	.16	7.4	.28	.34	.16
14	5.2	.89	.43	.58	.85	.40	.23	.16	1.64	30	.31	.16
15	3.1	.76	.43	.80	4.1	.73	.23	.14	5.5	2.0	.34	.14
16	1.76	.80	.43	.40	8.0	3.6	.23	.43	2.7	1.5	.40	.20
17	4.5	.76	.75	3.15	6.1	.58	.23	.82	2.95	.90	.31	.20
18	8.4	.68	.68	15.0	2.2	.43	.26	1.49	2.3	.70	.28	.51
19	2.45	.64	.46	1.17	.94	.40	.26	1.17	1.64	.55	.40	.53
20	4.9	.60	.46	.57	.94	1.14	.26	.28	1.30	.50	.43	8.6
21	1.60	.57	.40	.49	.76	2.7	.23	.20	1.28	.50	.28	6.0
22	5.3	.54	.37	1.06	.80	1.88	5.5	.34	.72	.45	.28	1.35
23	4.7	9.3	.34	1.22	.60	4.6	.68	.49	.53	.40	.23	.78
24	8.1	1.02	.34	.46	.57	1.00	.40	.49	1.18	.35	.20	.57
25	3.2	1.00	1.10	2.0	.49	.60	.28	.53	2.85	.35	.20	.34
26	3.9	.76	.49	5.2	.46	.68	.26	1.63	.80	.35	.20	.53
27	9.4	.89	.37	10.1	.46	1.51	.23	.98	.53	.30	.20	.34
28	4.0	1.63	.40	45	.43	.77	.20	.34	.62	.30	.20	.40
29	3.8	4.5	.34	28	.40	.49	.20	-	1.71	.30	.20	.37
30	2.45	.80	.31	20	.40	.43	.20	-	.49	.28	.18	.26
31	4.9	.68	-	7.1	-	.40	.20	-	.40	-	.18	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.3	0.78	4.27	6.61	133	407
August	9.3	.54	1.86	2.88	57.7	177
September	5.4	.31	.769	1.19	23.1	71
October	45	.23	4.76	7.36	147	453
November	8.0	.40	1.69	2.61	50.7	156
December	8.8	.37	1.32	2.04	41.0	126
Calendar year 1944	45	.09	1.91	2.96	698	2,140
January	5.5	.20	.450	.696	13.9	43
February	1.63	.14	.416	.647	11.7	36
March	14.9	.23	3.27	5.06	101	311
April	30	.28	1.50	2.32	45.0	138
May	15	.18	.995	1.54	30.8	95
June	8.6	.14	.848	1.31	25.4	78
Fiscal year 1944-45	45	.14	1.86	2.88	680	2,090

Note.- No gage-height record Apr. 12 to May 22; discharge computed on basis of records for Kukui Stream.

Time basis: Hawaiian war time. 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 1945.

Extremes.- Maximum discharge during year, 44 million gallons a day (70 second-feet) May 2 (gage height, 2.89 feet), from rating curve extended above 1.8 million gallons a day by test on model of station site; minimum, 0.17 million gallons a day (0.26 second-foot) Feb. 12-16.

1939-45: Maximum discharge, 116 million gallons a day (179 second-feet) Oct. 23, 1941 (gage height, 3.97 feet), from rating curve extended above 1.8 million gallons a day by test on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) Jan. 25, 26, Feb. 6, 7, 1940, Jan. 29 to Feb. 2, 1943, Mar. 17, 1944.

Remarks.- Records fair. No diversions.

Rating table, fiscal year 1944-45 (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	2.0	21

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.6	2.8	1.35	0.27	1.87	0.39	0.39	0.20	0.20	0.48	0.38	0.22
2	.82	1.45	3.3	.27	1.20	.42	.36	.20	.69	.45	9.7	.24
3	.72	1.20	.90	.81	.94	.42	.33	.20	4.3	.45	3.2	.20
4	1.53	1.40	.74	.39	.82	.51	.33	.20	5.2	.42	.86	.20
5	1.00	1.14	.74	.27	.82	.52	.30	.20	8.4	.39	.66	.20
6	7.4	.99	.70	.27	1.75	1.28	.30	.20	3.1	.42	.58	.20
7	3.35	1.25	.66	.24	.74	.62	.30	.20	5.2	.70	.51	.24
8	1.86	2.4	.62	.24	.78	4.8	.30	.20	2.9	.62	.48	.72
9	1.68	1.69	.58	.24	.66	.70	.30	.20	2.35	.45	.45	.41
10	4.4	3.6	.62	.22	.90	.54	.27	.19	.99	.39	.45	.24
11	1.51	1.25	.70	.22	1.87	.48	.24	.19	1.20	.36	.42	.22
12	2.15	1.09	.54	.30	2.2	.42	.24	.20	1.36	.36	.42	.22
13	3.2	.99	.51	.30	1.15	.42	.24	.19	3.85	.36	.39	.24
14	3.1	.94	.51	.39	.82	.42	.24	.19	1.16	14.5	.36	.24
15	2.45	.86	.48	.48	1.46	.45	.24	.19	3.0	1.94	.39	.24
16	1.63	.82	.48	.33	4.6	1.46	.24	.55	1.73	1.39	.45	.30
17	3.0	.78	.54	.84	3.2	.48	.24	.52	1.76	.94	.36	.27
18	5.6	.74	.62	8.1	1.56	.39	.24	.87	1.36	.74	.33	.39
19	2.05	.70	.48	.92	.94	.39	.22	.72	1.09	.62	.46	.45
20	2.9	.66	.48	.54	.90	.66	.22	.24	.90	.54	.49	4.2
21	1.45	.66	.45	.45	.82	1.12	.22	.20	.94	.51	.33	2.9
22	3.2	.85	.39	.53	.74	1.08	3.6	.20	.74	.48	.33	.78
23	2.9	4.9	.36	.78	.62	2.4	.48	.24	.62	.45	.30	.58
24	4.7	.94	.33	.42	.58	.77	.33	.30	.96	.45	.27	.48
25	2.45	.82	.56	1.14	.54	.54	.27	.39	1.53	.42	.24	.36
26	2.45	.82	.42	2.35	.51	.54	.24	.85	.74	.39	.24	.42
27	5.2	.86	.33	5.1	.48	.89	.24	.44	.58	.36	.24	.33
28	2.8	1.02	.33	20	.45	.61	.22	.24	.54	.36	.30	.33
29	2.8	2.35	.30	10.5	.45	.45	.22	-	1.19	.36	.24	.33
30	1.64	.82	.27	10.3	.42	.39	.22	-	.51	.33	.22	.27
31	3.0	.66	-	3.75	-	.42	.22	-	.48	-	.22	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.4	0.72	2.76	4.27	85.5	263
August	4.9	.66	1.34	2.07	41.4	127
September	3.3	.27	.643	.995	19.3	59
October	20	.22	2.29	3.54	71.0	218
November	4.6	.42	1.16	1.79	34.8	107
December	4.8	.39	.806	1.25	25.0	77
Calendar year 1944	20	.19	1.21	1.87	443	1,360
January	3.6	.22	.381	.589	11.8	36
February	.87	.19	.311	.481	8.71	27
March	8.4	.20	1.92	2.97	59.6	183
April	14.5	.33	1.02	1.58	30.6	94
May	9.7	.22	.783	1.21	24.3	74
June	4.2	.20	.547	.846	16.4	50
Fiscal year 1944-45	20	.19	1.17	1.81	428	1,320

Time basis: Hawaiian war time. 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 1945.

Average discharge.- 16 years (1928-38, 1939-45), 11.8 million gallons a day (18.3 second-feet).

Extremes.- Maximum discharge during year, 27.5 million gallons a day (42.5 second-feet) Mar. 5 (gage height, 3.62 feet); minimum, 1.04 million gallons a day (1.61 second-feet) Feb. 16.
1927-45: 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 periods of no gage-height record, which are poor. Awini ditch diverts water at altitude 2,000 feet from all streams between the Waikaloa and the Honokane. Flow regulated by head gates and spillways. Water used for irrigation in vicinity of Kohala.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	25	21	11.4	2.85	17.2	5.6	5.6	2.1	4.5	7.4	3.6	1.75
2	18.8	19.5	23	3.1	13.2	9.9	4.8	1.95	13.6	6.9	10.3	1.87
3	13.3	14.4	16.3	12.3	10.6	9.4	4.3	1.87	23	7.9	18.6	1.83
4	21	16.6	10.6	8.2	10.0	18.9	4.0	1.79	23	6.9	10.0	1.67
5	22	17.2	8.9	4.4	16.5	18.0	3.75	1.71	24	6.0	7.4	a1.6
6	24	13.8	8.4	3.5	17.9	22	3.6	1.63	22	5.6	6.9	a1.6
7	22	15.6	11.2	3.1	11.2	18.0	3.3	1.55	25	19.3	6.0	a2.0
8	21	23	7.9	2.8	16.5	22	3.1	1.51	23	18.0	5.1	a7.2
9	20	23	6.4	2.4	12.9	16.5	3.0	1.39	24	10.6	4.5	a8.7
10	23	24	7.8	2.15	10.7	11.2	2.85	1.31	20	7.4	4.2	a4.0
11	20	20	15.3	1.95	19.5	8.4	2.65	1.27	21	6.0	3.9	a3.2
12	19.5	18.8	7.4	2.55	18.9	7.4	2.7	1.27	23	6.9	3.8	a3.0
13	23	18.8	5.6	3.1	14.4	6.4	2.45	1.23	23	6.0	3.65	2.8
14	23	15.1	4.9	3.65	12.8	6.9	2.35	1.27	21	22	3.35	4.7
15	24	11.8	5.0	7.0	15.4	7.6	2.2	1.19	19.5	19.5	3.35	3.6
16	21	11.2	5.6	4.8	23	22	2.2	3.4	21	20	6.0	4.8
17	20.5	12.5	6.9	9.5	22	13.5	2.15	9.3	21	21	4.5	4.7
18	23	9.4	12.6	23	18.8	8.4	10.1	11.5	20	14.4	3.95	11.2
19	21	9.4	7.8	17.3	13.2	7.4	5.1	13.2	20	10.0	5.4	11.2
20	24	8.4	6.4	10.6	13.8	15.8	a4.8	5.1	19.5	8.9	13.2	22
21	22	6.9	6.0	9.4	13.8	21	a3.3	3.5	19.5	7.9	6.4	24
22	24	6.7	4.3	12.1	15.6	19.5	a18	6.9	15.3	6.9	6.9	20
23	23	24	3.6	17.6	10.6	19.5	15.2	9.4	11.8	6.0	4.4	16.5
24	24	18.0	3.5	8.4	10.0	17.9	8.4	10.0	15.8	5.6	3.25	14.2
25	23	13.8	5.6	15.8	9.4	11.8	5.6	13.2	22	5.1	2.85	7.4
26	21	13.2	6.0	14.7	7.9	11.2	4.1	13.5	19.5	4.9	2.5	17.4
27	24	16.5	4.5	24	6.9	16.9	3.35	12.2	13.2	4.5	2.25	10.6
28	23	15.7	5.6	27	6.4	16.3	2.95	6.5	10.6	4.2	2.15	10.6
29	22	22	3.8	24	8.9	8.9	2.65	-	18.8	4.0	2.3	8.4
30	19.5	15.9	3.1	24	6.9	6.9	2.45	-	11.8	3.9	1.95	5.6
31	22	10.6	-	21	-	6.0	2.25	-	8.9	-	1.87	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25	13.3	21.8	33.7	677	2,080
August	24	6.7	15.7	24.3	487	1,490
September	23	3.1	7.85	12.1	235	722
October	27	1.95	10.6	16.4	329	1,010
November	23	6.4	13.5	20.9	405	1,240
December	22	5.6	13.3	20.6	411	1,260
Calendar year 1944	29	.83	12.6	19.5	4,620	14,170
January	18	2.15	4.62	7.15	143	439
February	13.5	1.19	5.03	7.78	141	432
March	25	4.5	18.7	28.9	578	1,770
April	22	3.9	9.46	14.6	284	871
May	18.6	1.87	5.31	8.22	165	505
June	24	1.6	7.94	12.3	238	731
Fiscal year 1944-45	27	1.19	11.2	17.3	4,090	12,550

a No gage-height record; discharge computed on basis of records for stations on nearby streams.
Time basis: Hawaiian war time. 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 1945.

Average discharge.- 14 years (1928-36, 1937-38, 1939-40, 1941-45), 1.20 million gallons a day (1.86 second-feet).

Extremes.- Maximum discharge during year, 8.8 million gallons a day (13.6 second-feet) Dec. 8 (gage height, 1.50 feet); no flow Feb. 11-16.
1927-38, 1939-45: Maximum discharge, 9.1 million gallons a day (14.1 second-feet) Jan. 4, 1943 (gage height, 1.54 feet); no flow occasionally.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Intake diverts water from East Honokaneiki Gulch to Awini ditch for irrigation in vicinity of Kohala. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.8	2.0	0.90	0.02	2.0	0.23	0.23	0.03	0.17	0.35	0.12	0.02
2	1.66	1.11	4.6	.01	1.30	.42	.17	.03	2.6	.35	1.34	.02
3	1.29	.71	1.26	.97	.79	.52	.14	.02	4.9	.41	.78	.02
4	2.75	1.20	.64	.41	.85	3.0	.12	.02	3.95	.32	.35	a.02
5	3.05	1.05	.52	.12	2.1	1.95	.10	.02	3.65	.26	.30	a.02
6	4.4	.56	.44	.04	2.4	3.8	.10	.01	3.85	.23	.35	a.02
7	3.05	1.76	.48	.02	1.04	1.55	.08	.01	5.4	2.65	.29	a.10
8	1.85	5.2	.38	.01	2.5	4.7	.06	.01	3.65	1.25	.23	a1.3
9	1.32	4.5	.29	.01	1.48	1.34	.06	.01	3.8	.71	.20	a1.4
10	5.0	5.4	1.12	.01	1.31	.64	.04	.01	1.85	.41	.17	.26
11	1.40	2.2	1.63	.01	2.8	.41	.03	0	2.6	.32	.17	.10
12	1.95	1.40	.41	.01	2.4	.35	.04	0	3.1	.29	.14	.08
13	5.0	1.65	.26	.01	1.50	.26	.03	0	3.15	.26	.12	.04
14	5.4	.92	.20	.03	1.14	.29	.02	0	1.16	2.55	.10	.03
15	4.0	.64	.17	.51	2.1	.42	.02	0	1.50	.52	.10	.03
16	1.90	.56	.14	.26	3.6	4.8	.02	.35	1.03	.54	.12	.03
17	1.49	.48	.21	2.5	3.0	.92	.05	.84	.97	.41	.08	.02
18	3.7	.41	.72	4.1	2.3	.41	1.19	1.05	.87	.38	.06	.29
19	1.97	.38	.30	1.60	1.35	.35	.29	1.06	.83	.38	.17	.60
20	4.8	.32	.17	.64	1.30	1.92	a.40	.29	.83	.48	.41	5.2
21	2.5	.29	.14	.41	1.30	3.6	a.15	.14	1.48	.44	.20	5.1
22	4.5	.57	.10	.62	1.53	1.65	a3.5	.38	1.15	.41	.14	2.0
23	3.25	5.3	.06	1.53	.71	2.6	1.28	.71	.71	.35	.10	.79
24	5.4	1.41	.04	.38	.56	1.65	.48	.65	2.1	.29	.06	.71
25	3.7	.83	.04	2.2	.52	.56	.26	1.21	3.8	.26	.04	.32
26	2.3	.75	.04	1.62	.38	.83	.17	1.14	1.98	.23	.03	1.90
27	4.9	1.11	.03	5.7	.32	3.05	.12	.83	.79	.20	.03	.64
28	3.2	1.54	.03	6.4	.32	1.55	.08	.32	.72	.17	.03	.41
29	2.9	3.8	.03	4.4	.38	.52	.06	-	2.65	.17	.03	.29
30	1.45	1.11	.02	3.5	.29	.35	.04	-	.71	.14	.03	.17
31	3.0	.56	-	2.65	-	.26	.03	-	.44	-	.02	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.8	1.29	3.19	4.94	98.9	303
August	5.4	.29	1.60	2.48	49.7	153
September	4.6	.02	.512	.792	15.4	47
October	6.4	.01	1.31	2.03	40.7	125
November	3.6	.29	1.45	2.24	43.6	134
December	4.8	.23	1.45	2.24	45.1	138
Calendar year 1944	8.4	0	1.33	2.06	487	1,490
January	3.5	.02	.302	.467	9.56	29
February	1.21	0	.326	.504	9.14	28
March	5.4	.17	2.14	3.31	66.4	204
April	2.65	.14	.524	.811	15.7	48
May	1.34	.02	.206	.319	6.39	20
June	5.2	.02	.731	1.13	21.9	67
Fiscal year 1944-45	6.4	0	1.16	1.79	422	1,300

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

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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 1945.

Average discharge.- 16 years (1928-38, 1939-45), 25.5 million gallons a day (39.5 second-feet).

Extremes.- Maximum discharge during year, 63 million gallons a day (98 second-feet) May 2 (gage height, 3.82 feet); minimum, 2.6 million gallons a day (4.0 second-feet) July 2-5.
1927-45: 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 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	28	36.5	24	15.5	36.5	21	19.5	16.2	20.5	25	20.5	17.8
2	2.6	34.5	46	16.2	30	26	19.5	16.2	32	25	29	18.5
3	2.6	29	36.5	25	26	25	19.5	15.5	48	27	43	17.8
4	2.6	29	26	23.5	25	39.5	19.5	15.5	48	26	29	17.8
5	15.5	32.5	24	18.5	41	36.5	18.5	15.5	50	24	26	17.8
6	43	28	22	17.0	41	45	18.5	15.5	34.5	23	25	17.0
7	43	29	25	16.2	27	39	17.8	15.5	36.5	44	24	17.8
8	36.5	46	21	15.5	34.5	46	17.8	15.5	39	45	23	32
9	41	46	19.5	15.5	32	36.5	17.8	15.5	43	31	22	37
10	43	46	19.8	15.5	26.5	28	17.0	14.8	39	26	21	23
11	34.5	41	32.5	14.8	46	24	17.0	14.8	39	25	21	20.5
12	34.5	36.5	23	15.5	43	23	17.0	14.8	43	25	20.5	20.5
13	48	36.5	19.5	16.2	32.5	22	16.2	14.8	46	24	20.5	19.5
14	53	32.5	18.5	16.2	30	23	16.2	14.8	41	40	20.5	21
15	48	28	18.5	19.5	37	25	16.2	14.8	39	39	20.5	20.5
16	39	26	19.5	18.5	50	46	16.2	14.1	43	41	23	21
17	34.5	27	20.5	22.5	48	31	17.0	23	43	43	21	21
18	39	24	28	48	44	24	25.5	26	41	36.5	20.5	28
19	36.5	23	22	36.5	31	23	20.5	29	41	30	21.5	30
20	50	21	20.5	29	31	32	20.5	20.5	41	29	30.5	45
21	43	20.5	19.5	25	31	43	17.8	18.5	39	27	24	53
22	36.5	20.5	17.8	27	34.5	36.5	43	21	34.5	25	24	43
23	25.5	41	17.0	37	27	36.5	33.5	25	30	25	21	34.5
24	50	36.5	17.0	25	25	39	25	25	33.5	24	20.5	32.5
25	46	29	17.8	29	24	28	21	30	43	24	19.5	25
26	39	28	19.5	32.5	22	27	19.5	30	41	23	18.5	44
27	39.5	31	17.8	43	22	37.5	18.5	29	34.5	22	18.5	31
28	41	31	18.5	50	22	39	17.8	23	29	22	18.5	30
29	39	43	17.0	48	26	26	17.0	-	39	21	18.5	27
30	34.5	34.5	16.2	48	23	23	17.0	-	31	21	18.5	23
31	39	26	-	43	-	20.5	16.2	-	27	-	18.5	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	53	2.6	35.7	55.2	1,110	3,400
August	46	20.5	32.0	49.5	993	3,050
September	48	16.2	22.1	34.2	664	2,040
October	50	14.8	26.5	41.0	823	2,520
November	50	22	32.3	50.0	968	2,970
December	46	20.5	31.3	48.4	972	2,980
Calendar year 1944	53	2.6	27.6	42.7	10,100	30,990
January	43	16.2	19.8	30.6	614	1,880
February	30	14.1	19.4	30.0	544	1,670
March	50	20.5	38.4	59.4	1,190	3,650
April	44	21	28.7	44.4	860	2,640
May	43	18.5	22.6	35.0	702	2,150
June	53	17.0	26.9	41.6	806	2,480
Fiscal year 1944-45	53	2.6	28.1	43.5	10,250	31,430

Time basis: Hawaiian war time. 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 Honokanenui Gulch, and 8½ miles southeast of Kohala.

Records available.- December 1917 to November 1919, April 1928 to June 1945.

Average discharge.- 17 years (1928-45), 7.45 million gallons a day (11.5 second-feet).

Extremes.- Maximum discharge during year, 43 million gallons a day (66 second-feet) Apr. 14 (gage height, 1.15 feet); no flow many times.
1917-19, 1928-45: 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 1944 to June 1945

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	31	5.9	2.5	1.12	5.4	1.73	1.26	0.20	7.7	1.57	0.40	0
2	7.9	3.9	28.5	1.11	3.7	11.9	1.12	.20	19.0	1.26	.40	0
3	3.7	2.65	7.4	11.6	2.25	5.9	.84	.20	31.5	1.26	.72	0
4	8.3	3.25	2.85	4.0	6.7	18.3	.84	.20	32	1.41	.61	0
5	10.3	4.3	2.1	1.57	21	12.0	.84	.20	31	1.12	.40	0
6	24.5	2.85	2.1	.98	18.4	20	.84	.10	32	.98	.40	.30
7	14.4	8.4	3.45	.72	3.6	14.4	.72	0	29	27	.40	4.6
8	5.4	32.5	2.45	.61	4.9	25.5	.61	0	19.6	19.1	.30	21
9	2.85	32	1.57	.61	3.85	7.5	.50	0	20.5	5.6	.30	12.4
10	15.3	37.5	2.5	.50	5.7	3.7	.40	0	10.2	2.85	.30	3.0
11	5.4	14.0	6.0	.50	23.5	2.25	.40	0	12.4	2.1	.20	1.41
12	4.1	7.4	2.25	.50	19.4	1.90	.40	0	22.5	1.90	.20	1.41
13	22.5	7.7	1.41	.72	6.2	1.73	.30	0	29	1.73	.20	1.12
14	31.5	5.6	1.12	.61	5.7	4.9	.30	0	24	32	.01	.84
15	21	3.7	1.26	.72	22.5	5.8	.40	0	18.4	17.0	0	.61
16	6.2	3.05	1.26	.84	36	28	.30	0	20.5	18.0	.01	1.72
17	3.7	3.45	6.8	9.2	28.5	5.2	.50	0	18.3	13.0	.20	1.73
18	6.6	2.85	7.5	30.5	15.0	2.45	1.90	0	13.2	4.8	.20	9.0
19	5.9	2.1	3.05	10.2	4.4	2.1	1.26	.18	15.4	2.65	.30	5.4
20	31	1.73	2.65	4.9	4.7	6.4	.98	.20	15.5	1.73	2.6	18.9
21	16.5	1.41	2.65	4.1	5.4	18.5	.72	.30	8.6	1.26	1.41	25
22	23	1.26	1.41	8.6	10.1	11.7	24.5	1.73	5.6	.98	.84	13.5
23	11.9	16.1	.98	12.4	3.6	11.7	6.9	3.7	3.7	.84	.50	9.2
24	32	6.4	.72	3.6	2.85	10.0	3.0	4.4	7.6	.72	.30	7.8
25	19.0	3.05	.72	2.1	2.1	3.45	1.57	12.9	20	.61	.20	4.7
26	5.9	2.45	.98	2.65	1.41	4.5	.98	6.6	17.0	.61	0	21.5
27	24.5	4.6	.84	19.2	1.26	18.0	.72	4.6	6.1	.50	0	10.3
28	13.2	6.6	.84	34.5	4.3	12.0	.50	4.0	3.45	.40	0	6.2
29	8.6	21.5	.50	24	8.8	3.7	.40	-	3.7	.40	0	3.7
30	4.1	5.9	.50	24	2.65	2.1	.30	-	3.05	.40	0	2.25
31	7.5	2.65	-	11.5	-	1.57	.30	-	2.1	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total runoff	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	32	2.85	13.8	21.4	428	1,310
August	37.5	1.26	8.28	12.8	257	788
September	28.5	.50	3.30	5.11	98.9	303
October	34.5	.50	7.36	11.4	228	700
November	36	1.26	9.46	14.6	284	871
December	28	1.57	9.00	13.9	279	856
Calendar year 1944	37.5	0	7.96	12.3	2,920	8,940
January	24.5	.30	1.76	2.72	54.6	168
February	12.9	0	1.42	2.20	39.7	122
March	32	2.1	16.2	25.1	503	1,540
April	32	.40	5.47	8.46	164	503
May	2.6	0	.368	.569	11.4	35
June	25	0	6.25	9.67	188	576
Fiscal year 1944-45	37.5	0	6.94	10.7	2,540	7,770

Time basis: Hawaiian war time. To convert war time to standard time, subtract 1 hour.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Hawaii during fiscal year July 1944 to June 1945

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
Nov. 17	Waiakea Springs..	Cane fields.....	Below tunnel 60, at Waiakea Homesteads, near Hilo.	2.23	1.44
a17	....do No. 138...	....do.....	At Waiakea Homesteads, near Hilo.	5.14	3.32
a17	....do No. 139...	....do.....	....do.....	5.52	3.57
July 19	Lahomene.....	Waimamu.....	At altitude 3,250 feet, near Waimamu.	7.50	4.85
Sept.21	....do.....	....do.....	....do.....	1.07	.692
Nov. 20	....do.....	....do.....	....do.....	3.04	1.96
Jan. 20	....do.....	....do.....	....do.....	1.23	.795
Mar. 20	....do.....	....do.....	....do.....	8.17	5.28
May 23	....do.....	....do.....	....do.....	.952	.615
July 19	Kakaauki.....	....do.....	At altitude 2,930 feet, near Waimanu.	2.88	1.86
Sept.21	....do.....	....do.....	....do.....	.805	.520
Nov. 20	....do.....	....do.....	....do.....	1.95	1.26
Jan. 20	....do.....	....do.....	....do.....	1.01	.653
Mar. 20	....do.....	....do.....	....do.....	3.54	2.29
May 23	....do.....	....do.....	....do.....	.463	.299

a Numbering of springs same as that adopted by Stearns and Macdonald for their report on Geology and Ground-water Resources of the Island of Hawaii: T. H. Division of Hydrography Bull. 9, 1946.

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