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Water-Supply Paper 885

SURFACE WATER SUPPLY *of* HAWAII

JULY 1, 1938, *to* JUNE 30, 1939

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TERRITORY OF HAWAII

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CONTENTS

SURFACE WATER SUPPLY OF HAWAII, JULY 1, 1938, to JUNE 30, 1939

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, 1939. Since the beginning of stream-gaging work in Hawaii, in 1910, records of flow of streams and ditches have been obtained at about 483 stations for periods ranging from a few months to 28 years. In addition, hundreds of miscellaneous measurements have been made, and rather extensive studies of ground water have been made in the Kau district, island of Hawaii,[1] and on the islands of Oahu,[2] Maui, Molokai, Lanai, and Kahoolawe.

In this volume are given the records of daily flow obtained at stations that were operated during the year ending June 30, 1939, and the results of miscellaneous measurements of stream flow made during that year. The results of ground-water studies will be 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 a 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

1 Stearns, H. T., and Clark, W. O., Geology and water resources of the Kau district, Hawaii: U. S. Geol. Survey Water-Supply Paper 616, 1930.

2 Stearns, H. T., and Vaksvik, K. N., Geology and ground-water resources of Oahu, Hawaii: T. H. Division of Hydrography Bull. 1, 1935. Stearns, H. T., Geologic map and guide of Oahu, Hawaii: T. H. Division of Hydrography Bull. 2, 1939. Stearns, N. D., Annotated bibliography and index of geology and water supply of the island of Hawaii: T. H. Division of Hydrography Bull. 3, 1935. Stearns, H. T., and Vaksvik, K. N., Records of the drilled wells on the island of Oahu, Hawaii: T. H. Division of Hydrography Bull. 4, 1938.

discharge are usually made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. 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. Occasionally discharge is determined from a weir or a rating flume, using standard formulas, and for several stations the high-water discharge has been determined by the use of models.

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 run-off. Skeleton rating tables are published except for ditch stations. All rates of flow are expressed as 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 per cent of the true mean, the mean has been obtained by averaging discharges for intervals during the day or by use of the discharge integrator.

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 run-off in million gallons" is the sum of the daily flow, and the "total run-off in acre-feet" is computed from the total monthly discharges in million gallons a day.

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 per cent, 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 run-off (million gallons and acre-feet) above 10,000 are carried to four significant figures.

PUBLICATIONS

The following table gives by years the serial numbers of the papers on the surface-water supply of Hawaii published from 1903 to 1939, and, used in conjunction with the

list of stations maintained, given in Water-Supply Paper 795, provides a convenient index for finding the data for any station. 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 has been 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, 1903-39

Year	Number	Year	Number	Year	Number
1903.....	*77	1920-21.....	535	1930-31.....	725
1909-11†.....	318	1921-22.....	555	1931-32.....	740
1912†.....	336	1922-23.....	575	1932-33.....	755
1913†.....	373	1923-24.....	595	1933-34.....	770
1913-15.....	430	1924-25.....	615	1934-35.....	795
1915-16.....	445	1925-26.....	635	1935-36.....	815
1916-17.....	465	1926-27.....	655	1936-37.....	835
1917-18.....	485	1927-28.....	675	1937-38.....	865
1918-19.....	515	1928-29.....	695	1938-39.....	885
1919-20.....	516	1929-30.....	710		

*Water resources of Molokai, by Waldemar Lindgren.
†Calendar years; reports subsequent to Water-Supply Paper 373 cover the year beginning July 1 and ending June 30.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The following table contains a list of gaging stations in the Territory of Hawaii at which records of discharge were collected by agencies other than the Geological Survey during the fiscal year July 1938 to June 1939. The records for these stations are not contained in the publications of the Geological Survey.

Records of discharge collected by agencies other than the Geological Survey

ISLAND OF KAUAI

Stream	Location	Period	Operated by
Anahola ditch, Lower....	Near Government Road near Anahola.	1925-39	East Kauai Water Co.
East Lawai ditch.....	Near Government Road near Kalaheo.	1924-39	McBryde Sugar Co.
Kleele ditch.....	Near Government Road near Kalaheo.	1924-39	Do.
Hanalei ditch.....	Above Kalihiwai Reservoir, near Kilauea.	1923-39	Kilauea Sugar Plantation Co.
Hanamaulu ditch.....	Below intake, near Hanamaulu.	1925-39	Lihue Plantation Co.
Hanapepe ditch.....	At Makaweli Plantation boundary near Makaweli.	1926-39	Hawaiian Sugar Co.
Hanapepe Field ditch....	Below Hanapepe River intake, near Kleele.	1924-39	McBryde Sugar Co.
Hanapepe Stream.....	At tidewater near Kleele.....	1924-39	Do.
Kamooloa ditch.....	Near Koloa boundary, near Koloa.	1924-39	Do.
Kapaia River diversion to field S reservoir.	Near Hanamaulu.....	1928-39	Lihue Plantation Co.
Kapaia River diversion to field 29.	Near Lihue.....	1927-39	Do.
East Lawai Stream.....	½ mile above cannery near Kalaheo.	1924-39	McBryde Sugar Co.
Lihue lower ditch.....	Below intake, near Lihue.....	1925-39	Lihue Plantation Co.
Lihue upper ditch.....	Below intake, near Lihue.....	1925-39	Do.
Old Tunnel ditch.....	Above confluence with main Koloa ditch, near Koloa.	1925-39	Koloa Sugar Co.
Olokele ditch.....	At powerhouse near Makaweli..	1926-39	Hawaiian Sugar Co.
Storm ditch.....	Above Kalaheo-Lihue main highway near Koloa.	1926-39	Koloa Sugar Co.
Wahiawa Stream.....	Above Alexander Reservoir near Kalaheo.	1924-39	McBryde Sugar Co.
Wahiawa Stream, East Branch.	....do.....	1929-39	Do.
Waiahi River.....	Above Lihue ditch intake, near Lihue.	1925-39	Lihue Plantation Co.
Wailua ditch.....	Near flume 4, near Kapaa.....	1922-39	East Kauai Water Co.
Wainiha Stream.....	Near Hanalei, at altitude about 960 feet.	1927-39	McBryde Sugar Co.
West Lawai ditch.....	Near camp 12, near Kalaheo...	1924-39	Do.

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

ISLAND OF OAHU

Stream	Location	Period	Operated by
*Alewa Heights Spring...	Below reservoir 3.....	1932-39	Board of Water Supply City and County of Honolulu.
*Booth Springs.....	In Pauao Valley, at altitude 685 feet.	1929-39	Do.
Helemano ditch.....	About 3 miles below Upper Helemano Reservoir.	1933-39	Waialua Agricultural Co.
*Hering Springs.....	In Makiki Valley, at altitude 970 feet.	1925-39	Board of Water Supply City and County of Honolulu.
*Kahuawai Springs.....	In Pauao Valley, at altitude 618 feet.	1925-39	Do.
*Kalihi tunnels.....	At diversion, at altitude 650 feet.	1926-39	Do.
Kamananui ditch.....	In Kawailoa Gulch about 500 yards above third siphon from Government Road.	1934-39	Waialua Agricultural Co.
Kipapa Stream.....	At altitude 375 feet.....	1917-39	Waiahole Water Co.
*Makiki Springs.....	In Makiki Valley, at altitude 350 feet.	1926-39	Board of Water Supply City and County of Honolulu.
*Manoa tunnels.....	Upper Manoa Valley.....	1925-39	Do.
*Nuuanu tunnels.....	At Lower Luakaha.....	1926-39	Do.
*Nuuanu tunnel 3.....	At overflow, in upper Nuuanu Valley.	1931-39	Do.
*Palolo tunnel.....	Upper Palolo Valley.....	1926-39	Do.
Wahiawa Reservoir outlet.	About 1,200 feet below dam.....	1912-39	Wahiawa Water Co.
Waiahole Stream.....	At altitude 250 feet.....	1919-39	Waiahole Water Co.
Waiahole tunnel.....	At adit 8.....	1916-39	Do.
Waiawa Stream.....	At altitude 750 feet.....	1917-39	Do.
Waikakalau Stream.....	....do.....	1917-39	Do.

ISLAND OF MAUI (East Maui)

Banana Spring.....	Near east wall of Keanae Valley at altitude 700 feet.	1933-39	East Maui Irrigation Co.
Hanawi Spring, upper high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 675 feet.	1932-39	Do.
Hanawi Spring, lower high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 575 feet.	1932-39	Do.
Makapipi ditch.....	At west edge of Makapipi Gulch near Nahiku, at altitude 1,300 feet.	1933-39	Do.

ISLAND OF MAUI (West Maui)

Everett ditch.....	Below intake, near Wailuku.....	1935-39	Wailuku Sugar Co.
Iao-Waikapu ditch.....	At lower end of tunnels near Wailuku.	1923-39	Do.
Kama ditch.....	Below intake, near Wailuku.....	1933-39	Do.
Maniania ditch.....	....do.....	1923-39	Do.
North Waiehu ditch.....	Near end of Waiehu Camp road, near Wailuku.	1922-39	Do.
South Waikau ditch.....	Above first lateral, near Waikapu.	1936-39	Do.
Do.....	Below tunnel sections near Waikapu.	1923-39	Do.
Spreckels ditch.....	Below intake, near Waihee.....	1931-39	Do.
Waihee ditch.....	....do.....	1922-39	Do.
Honokohau tunnel.....	At outlet of tunnel at Mahinahina camp.	1917-39	Pioneer Mill Co.
Kahoma tunnel.....	Upstream 2,000 feet from outlet, above Lahaina.	1920-39	Do.
Kanaha ditch.....	At intake, above Lahainaluna School.	1921-39	Do.
Kauaula tunnel.....	At outlet, above Lahaina.....	1920-39	Do.
Launiupoko ditch.....	....do.....	1921-39	Do.
Ukumehame ditch.....	At outlet, near Olowalu.....	1931-39	Do.

ISLAND OF HAWAII

Kohala ditch.....	At Awini weir in Honokane, near Niulii.	†1917-39	Kohala Ditch Co.
Do.....	At Niulii weir, near Niulii.....	†1917-39	Do.
Pololu Inlet 1.....	At Pololu, near Niulii.....	1929-39	Do.
Pololu Inlet 2.....	....do.....	1929-39	Do.
Pololu Inlet 3.....	In Opaepilau Gulch, above Kohala ditch, near Niulii.	1937-39	Do.
Waiapuka Stream.....	Above Kohala ditch, near Niulii..	1929-39	Do.
Pololu Inlet 5.....	In Niulii Gulch, above Kohala ditch, near Niulii.	1937-39	Do.
Pololu Inlet 6.....	In Waikane Gulch, above Kohala ditch, near Niulii.	1937-39	Do.
Waipuhi Stream.....	Above Kohala ditch, near Halawa..	1933-39	Do.
Makapala ditch.....	....do.....	1929-39	Do.
Waipunalau Stream.....	....do.....	1929-39	Do.
Puwaiole Stream.....	....do.....	1937-39	Do.
Mountain House tunnel...	6.0 miles north of Wiohinu.....	1927-39	Hutchinson Sugar Plantation Co.

*Published in Biennial Reports of Honolulu Sewer & Water Commission and of Board of Water Supply City and County of Honolulu.
†Records for some earlier years published in water-supply papers of Geological Survey.

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

ISLAND OF HAWAII--Continued

Stream	Location	Period	Operated by
Plantation Springs tunnel.	8.7 miles north of Naalehu.....	1927-39	Hutchinson Sugar Plantation Co.
Shirakura tunnel 20.....	In Mosula Gulch, at altitude 4,650 feet, 6¼ miles from Pahala.	1929-39	Hawaiian Agricultural Co.
Domestic supply tunnel 16.	3.8 miles from Pahala, at altitude 2,800 feet.	1926-39	Do.
Tanaka tunnel 15.....	In Hionamoa Gulch, at altitude 3,000 feet, 3.4 miles from Pahala.	1926-39	Do.
Double Arch tunnel 11.....	In Piikea Gulch, at altitude 4,150 feet, 5.35 miles from Pahala.	1926-39	Do.
Mud Flow tunnel 2.....	In Piikea Gulch, at altitude 3,750 feet, 4.8 miles from Pahala.	1926-39	Do.
Noguchi tunnel 19.....	5.3 miles from Pahala, at altitude 3,500 feet.	1928-39	Do.
Makakupu tunnel 13.....	In Waiakaloa Gulch, at altitude 3,750 feet, 6.1 miles from Pahala.	1926-39	Do.
Upper Hamakua ditch and Reservoir 3 weir.	At base of Puu Lala, near Honokaa.	†1907-12 1921-39	Hawaiian Irrigation Co.
Lower Hamakua ditch... ...	At main weir near Kukuihaele...	†1921-39	Do.
Honokaape ditch.....	At Kuhuihaele Village.....	1923-39	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.
Note.- Records not published unless otherwise indicated.

COOPERATION

The work during the year ending June 30, 1939, was done under cooperative agreement with the Territory of Hawaii through the commissioner of public lands and the Board of Water Supply City and County of Honolulu. 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 data were collected and prepared for publication under the direction of M. H. Carson, district engineer, Honolulu, Hawaii.

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, 490 feet, by barometer.
Drainage area.- 45.0 square miles.
Records available.- July 1921 to June 1939.
Average discharge.- 14 years (1925-39), 42.0 million gallons a day (65.0 second-feet).
Extremes.- Maximum discharge during year, 5,750 million gallons a day (8,900 second-feet) May 11 (gage height, 15.20 feet), from rating curve extended above 500 million gallons a day; minimum, 0.08 million gallons a day (0.12 second-foot) July 20-28.
1921-39: 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; no flow occasionally, owing to regulation.
Remarks.- Records fair except those for period when clock was not running, Apr. 28 to June 30 (computed on basis of records for stations on nearby streams and ditches) and for discharges above 700 million gallons a day, which are poor. Kokee and Kekaha ditches divert above the station, taking practically all the water at low and medium stages for irrigation near Waimea and Kekaha.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Apr. 3				Apr. 4 to June 30					
4.6	0.05	6.5	118	4.4	0.12	5.0	3.7	6.5	88
4.8	.30	7.0	207	4.5	.23	5.2	8.1	7.0	180
5.0	1.8	8.0	460	4.6	.43	5.4	13.6	8.0	460
5.5	20	9.0	820	4.7	.76	5.7	24	9.0	820
6.0	58			4.8	1.32	6.0	40	10.0	1,300

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.14	0.12	0.12	0.17	0.12	8.1	9.1	2.5	505	0.17	25	1.0
2	31	.11	.12	.17	.11	3.05	.40	2.6	395	4.7	15	.8
3	.79	.11	.12	.17	.11	1.08	.20	4.0	278	355	13	.8
4	.14	.11	.38	.17	.11	.12	.15	129	781	84	10	4.0
5	.16	.11	1.17	.22	.11	.12	.14	322	224	33	8.0	.8
6	27	.11	.15	36	8.3	.12	15.3	129	376	21	7.0	.8
7	48	.11	.14	.20	3.3	.12	60	383	100	98	6.0	4.0
8	36.5	.11	1.19	.15	.15	.12	35	50	64	39	6.0	1.0
9	.33	119	.16	.15	10.6	.12	13.6	25	56	34.5	6.0	.4
10	.12	243	.12	.15	2.75	39.5	4.4	15.8	28	23	250	.3
11	.12	63	.12	.17	176	12.4	20.5	14.2	58	21	1,000	.3
12	.12	.91	.12	.17	239	.39	2.85	9.8	19.9	37	500	.3
13	3.7	.14	.12	.15	415	.21	27.5	6.4	15.6	17.4	130	.3
14	.19	.17	.12	.15	206	.17	14.8	1.64	13.2	12.8	50	.3
15	66	7.1	.15	.14	280	.17	23.5	.30	13.2	11.4	40	5.0
16	3.05	.20	.15	.15	62	12.2	13.4	.17	10.3	62	30	5.0
17	2.6	.14	.14	.20	13.4	18.3	26	.17	7.3	199	25	3.5
18	.58	17.5	.12	.19	4.5	6.7	32	.17	5.7	154	25	7.0
19	.12	133	.14	.17	.19	.19	36.5	.17	46	110	40	2.5
20	.11	33	.15	.14	.12	63	5.4	.19	70	122	70	1.0
21	.10	1.32	.15	.12	.29	125	3.85	.17	16.8	209	60	.2
22	.10	.19	.15	.11	.14	32	.59	.19	10.1	33.5	100	.2
23	.10	.67	.14	.11	.12	1.30	.20	.17	5.8	16.5	50	100
24	.10	.15	.12	.11	.12	.17	.19	.12	5.5	25	40	60
25	.10	.14	.15	.12	.12	.15	.15	13.8	3.4	36.5	30	.3
26	.10	.12	.17	.12	.11	.14	.12	.29	2.55	46	20	.2
27	.09	.12	.17	31	.11	.12	53	4.9	1.65	45	15	.2
28	.08	.12	.17	52	.11	312	72	.55	1.14	40	11	.2
29	.10	.12	.17	.31	.11	456	9.5	-	.15	45	3.5	.2
30	32.5	.12	.17	.14	.11	81	.53	-	.17	50	3.5	.2
31	4.2	.12	-	.12	-	11.0	.25	-	.27	-	1.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	66	0.08	8.33	12.9	258	793
August	243	.11	20.0	30.9	621	1,910
September	1.19	.12	.219	.339	6.56	20
October	52	.11	3.98	6.16	123	379
November	415	.11	47.4	73.3	1,420	4,370
December	456	.12	38.2	59.1	1,190	3,640
Calendar year 1938	1,730	.08	53.3	82.5	19,440	59,680
January	72	.12	15.5	24.0	481	1,480
February	383	.12	39.9	61.7	1,120	3,450
March	781	.15	100	155	3,110	9,560
April	356	.17	66.2	102	1,990	6,090
May	1,000	1.5	83.6	129	2,590	7,950
June	100	.2	6.69	10.4	201	616
Fiscal year 1938-39	1,000	.08	35.9	55.5	13,110	40,240

Peak discharge.- May 11 (5:30 p.m.) 5,750 m.g.d. (8,900 sec.-ft.)

Kawaikoi Stream near Waimea

Location.- Concrete control, lat. 22°08'00", long. 159°37'15", at old trail crossing, 12½ miles northeast of Waimea. Altitude, 3,420 feet, by barometer.

Drainage area. - 4.1 square miles.

Records available.- April 1909 to June 1939. July 1917 to July 1919 (unpublished).

Average discharge.- 20 years (1919-39), 21.8 million gallons a day (33.7 second-feet).

Extremes.- Maximum discharge during year, 1,100 million gallons a day (1,700 second-feet) May 11 (gage height, 7.01 feet), from rating curve extended above 180 million gallons a day; minimum, 2.1 million gallons a day (3.2 second-feet) Oct. 4.
1909-39: Maximum discharge, 4,670 million gallons a day (7,230 second-feet) Dec. 23, 1937 (gage height, 11.20 feet), from rating curve extended above 180 million gallons a day; minimum, 1.3 million gallons a day (2.0 second-feet) Sept. 15, 1921.
Highest stage known, 15.2 feet, Dec. 18, 1916 (discharge not determined).

Remarks.- Records excellent.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.9	1.8	2.4	8.9	3.5	70
2.0	2.7	2.6	14.4	4.0	141
2.2	5.1	3.0	30.5	4.5	241

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.0	6.0	3.5	2.2	2.8	29	17.8	12.0	65	3.2	13.5	6.6
2	16.9	4.6	3.4	2.2	2.5	5.6	10.6	8.5	47	3.7	10.2	5.6
3	8.3	4.1	3.4	2.2	2.4	3.9	8.5	6.5	26	81	8.9	7.2
4	8.1	6.5	3.5	2.1	2.3	3.4	7.2	9.6	83	12.2	8.5	6.8
5	7.4	10.0	3.8	2.6	2.2	3.0	6.3	66.0	24	13.8	7.4	5.6
6	52	5.0	3.2	8.0	2.5	2.9	72	24.0	46	14.7	6.6	6.1
7	67	4.2	3.1	3.9	4.4	6.2	42	66.0	14.6	100	6.1	6.8
8	26	21.5	3.0	3.1	2.9	5.4	15.7	13.8	9.9	18.2	6.1	5.0
9	9.4	130	3.0	4.6	2.7	4.1	10.9	9.6	8.9	8.9	11.8	4.4
10	7.0	78	3.0	3.2	2.9	70	45	8.3	8.1	14.9	36	4.2
11	9.6	24.5	3.2	2.6	33	11.0	23.5	7.4	7.2	12.9	237	4.1
12	14.2	10.3	3.2	3.3	34.5	7.6	19.5	6.6	6.5	6.6	71	3.8
13	13.8	10.9	2.9	5.2	51	5.0	34.5	6.0	5.4	5.4	23.5	3.8
14	7.6	8.1	2.7	3.7	34	3.9	20	5.6	5.1	5.4	14.7	3.8
15	44	12.4	2.6	6.9	98	3.4	30.5	5.1	5.1	5.4	11.7	4.3
16	10.3	8.3	2.6	7.6	20.5	18.4	13.5	5.0	5.1	119	13.8	6.0
17	13.2	7.4	2.5	3.6	14.2	12.4	33	5.0	4.8	93	12.7	5.8
18	8.1	24	2.4	2.8	10.8	6.6	17.4	4.7	4.4	106	27.0	5.0
19	6.0	66	2.4	9.6	6.1	6.0	15.3	4.4	5.3	52	55.0	4.3
20	5.3	17.0	2.4	4.3	21	18.6	9.2	4.3	16.7	79	25.5	4.2
21	5.0	12.3	2.5	2.9	7.4	17.3	7.8	4.3	10.7	108	38.5	3.8
22	5.0	15.9	2.7	2.4	5.3	8.5	7.0	4.2	9.8	21.5	19.6	8.6
23	5.0	11.8	2.5	2.2	4.6	4.7	6.5	3.9	5.8	33.5	15.1	84
24	4.4	7.0	2.9	2.9	4.1	12.4	6.6	3.8	4.6	38	12.0	26.5
25	4.4	5.8	3.6	2.7	3.8	13.8	7.6	4.3	4.2	15.8	8.7	7.4
26	4.3	5.0	2.7	2.5	4.5	10.7	24	4.1	3.8	28.5	7.8	5.0
27	4.1	4.6	2.4	65	4.6	6.6	80	5.1	3.7	18.2	7.0	4.6
28	3.9	4.3	2.5	54	3.6	151	24.5	5.6	3.6	23.5	6.5	4.2
29	3.8	3.9	3.7	10.2	4.7	189	9.4	-	3.5	22.5	6.3	3.8
30	52	3.8	2.6	4.4	9.4	34	7.4	-	3.4	19.0	7.4	3.6
31	13.1	3.7	-	3.4	-	45	11.2	-	3.2	-	7.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	67	3.8	14.4	22.3	446	1,370
August	130	3.7	17.3	26.8	537	1,650
September	3.7	2.4	2.92	4.52	87.7	269
October	65	2.1	7.62	11.8	236	725
November	98	2.2	13.4	20.7	403	1,240
December	189	2.9	23.1	35.7	717	2,200
Calendar year 1938	269	2.1	23.5	36.4	8,560	26,270
January	72	6.3	19.8	30.6	614	1,890
February	66	3.8	11.2	17.3	314	963
March	83	3.2	14.7	22.7	454	1,390
April	119	3.2	36.1	55.9	1,080	3,330
May	237	6.1	24.0	37.1	744	2,280
June	84	3.6	8.50	13.2	255	782
Fiscal year 1938-39	237	2.1	16.1	24.9	5,890	18,090

Mohihi Stream at altitude 3,500 feet, near Waimea

Location.- Boulder concrete control, lat. 22°07'05", long. 159°36'15", at altitude 3,500 feet, at upper trail crossing, 3.8 miles northeast of confluence of Waiahulu and Poomau Streams and 12 miles northeast of Waimea.

Drainage area.- 1.6 square miles.

Records available.- June 1920 to October 1926 and October 1936 to June 1939. April 1909 to December 1912 at site 2 miles downstream (fragmentary).

Extremes.- Maximum discharge during year, 242 million gallons a day (374 second-feet) May 11 (gage height, 4.38 feet), from rating curve extended above 21 million gallons a day; minimum, 0.4 million gallons a day (0.6 second-foot) Oct. 23.
1920-26, 1936-39: Maximum discharge recorded, 520 million gallons a day (805 second-feet) Jan. 16, 1921 (gage height, 6.91 feet, present datum), from rating curve extended above 25 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) July 16, 1921, Sept. 14, 15, 1921, Aug. 7, 8, 1922, May 16, 1926.

Remarks.- Records good except those above 40 million gallons a day, which are poor. No diversions.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.2	1.6	5.0	3.0	53
1.0	.5	1.8	8.2	3.5	96
1.2	1.4	2.0	12.4		
1.4	2.8	2.5	27		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.1	1.6	0.8	0.5	0.5	2.2	4.5	2.6	33	1.0	2.6	1.4
2	5.6	1.1	.8	.4	.4	1.4	2.6	1.7	23.5	1.0	1.9	1.3
3	2.6	1.0	.7	.4	.4	1.0	1.8	1.4	10.6	16.1	1.7	1.2
4	1.9	1.0	.9	.4	.4	.8	1.5	5.6	36.5	5.6	1.5	1.2
5	1.6	1.7	1.0	.5	.4	.7	1.3	26	14.6	2.4	1.3	1.2
6	6.5	1.2	.9	1.2	.5	.6	3.5	10.8	30	1.7	1.2	1.2
7	12.4	1.0	.8	.8	1.0	1.2	11.6	25	8.6	11.8	1.2	1.4
8	8.2	1.0	.8	.7	.6	1.2	6.7	5.6	4.9	5.2	1.3	1.2
9	2.7	20	.9	.9	.5	.9	3.4	3.3	3.6	2.3	2.1	1.1
10	1.8	20	.8	.6	.5	7.9	3.5	2.5	2.9	1.9	14.6	1.0
11	1.8	6.8	.8	.5	9.5	3.2	5.3	2.1	2.6	1.8	66	1.0
12	2.2	2.6	.8	.5	14.9	1.4	2.5	1.8	2.3	1.6	35	1.0
13	2.6	1.8	.8	.5	30	1.1	9.1	1.6	1.9	1.4	11.4	1.0
14	2.1	1.7	.7	.4	15.2	.9	5.5	1.5	1.9	1.2	5.4	1.0
15	6.4	1.5	.7	.4	20	.7	9.8	1.4	1.8	1.1	3.7	1.0
16	2.8	1.5	.6	.4	7.1	2.0	4.0	1.3	1.8	5.7	3.4	1.4
17	3.0	1.4	.6	.5	2.8	3.8	8.4	1.3	1.6	19.7	2.9	1.2
18	2.2	3.5	.6	.5	2.2	2.4	4.6	1.2	1.4	20	3.3	1.2
19	1.5	15.2	.6	.7	1.5	1.2	5.7	1.2	3.4	15.4	7.8	1.3
20	1.3	4.8	.6	.7	3.6	6.0	2.6	1.1	6.6	17.8	6.4	1.2
21	1.2	2.8	.7	.5	2.0	11.0	1.9	1.1	2.5	21	12.4	1.0
22	1.2	2.0	.7	.4	1.3	2.5	1.6	1.0	1.9	5.8	6.2	1.2
23	1.1	2.2	.7	.4	1.0	1.5	1.5	1.0	1.6	3.8	5.0	14.9
24	1.0	1.5	.7	1.6	.8	1.6	1.4	1.0	1.4	4.8	3.6	8.0
25	1.0	1.2	.7	.7	.8	2.2	1.3	1.0	1.2	3.3	2.4	2.2
26	1.0	1.0	.7	.5	.7	1.6	1.4	1.0	1.2	3.3	1.9	1.4
27	1.0	1.0	.6	6.6	.7	1.7	11.5	1.0	1.0	3.8	1.7	1.2
28	.9	.9	.6	9.4	.7	30.5	8.3	1.2	1.0	4.2	1.5	1.0
29	.9	.9	.5	5.8	.7	36.5	2.7	-	1.0	4.6	1.4	.9
30	7.2	.8	.5	1.0	.7	11.1	1.8	-	1.0	4.0	1.4	.8
31	3.8	.8	-	.7	-	6.2	2.0	-	1.0	-	1.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.4	0.9	2.95	4.56	91.6	281
August	20	.8	3.40	5.26	106	324
September	1.0	.5	.72	1.11	21.6	66
October	9.4	.4	1.30	2.01	39.1	120
November	30	.4	4.05	6.27	121	373
December	36.5	.6	4.75	7.35	147	451
Calendar year 1938	81	.4	5.41	8.37	1,970	6,060
January	11.6	1.3	4.30	6.65	133	409
February	26	1.0	3.83	5.93	107	329
March	36.5	1.0	6.72	10.4	208	640
April	21	1.0	6.44	9.96	193	593
May	66	1.2	6.89	10.7	214	656
June	14.9	.8	1.87	2.89	56.1	172
Fiscal year 1938-39	66	.4	3.94	6.10	1,440	4,410

Kokee ditch near Waimea

Location.- Suppressed weir control, lat. 22°06'25", long. 159°40'45", 1,000 feet west of road and 10⅛ miles north of Waimea. Altitude, 3,310 feet, by barometer.

Records available.- September 1926 to June 1939.

Average discharge.- 12 years (1927-39), 18.6 million gallons a day (28.8 second-feet).

Extremes.- Maximum discharge during year, 74 million gallons a day (114 second-feet) May 11 (gage height, 2.67 feet); no flow occasionally, when water was shut out of ditch. 1926-39: 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 when clock was not running, Oct. 25-29, Jan. 2-6, Feb. 2-9, Mar. 11-20, May 11-18, which were computed on basis of records for stations on nearby streams and are poor. Kokee ditch diverts water at altitude 3,400 feet from all streams tributary to Waimea River west of Mohihi Stream for irrigation near Kekaha. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.1	9.8	5.5	3.4	3.95	29	27.5	15.6	31.5	5.8	19.5	13.2
2	21.5	7.6	5.5	3.25	3.5	8.3	14	12	45	6.6	15.8	11.7
3	13.9	6.8	5.3	3.15	3.4	5.5	11	10	42	47	14.4	12.2
4	12.8	7.1	5.6	3.0	3.25	4.4	9.0	12	27	22.5	13.2	12.8
5	11.7	13.4	5.8	3.25	3.0	3.95	8.0	40	13.6	23	12.1	11.0
6	37.5	6.3	5.3	8.7	3.0	3.65	15	25	17.1	13.7	11.0	10.6
7	51	6.8	5.0	5.6	5.8	6.4	41	45	16.1	56	10.6	11.9
8	37	20	4.8	4.2	3.95	6.9	21	30	19.5	28	10.6	9.8
9	15.8	40	4.8	5.8	3.5	5.2	15.8	20	15.8	15.8	16.4	9.1
10	10.6	50	4.7	4.4	3.4	37.5	24.5	14.6	14.6	17.6	30.5	8.5
11	13.4	32	4.8	3.5	15.7	16.7	35	12.8	13	20	56	8.1
12	18.2	16.0	4.8	3.5	38.5	9.6	20	11.5	11	11.5	30	8.0
13	18.2	14.1	4.7	6.1	47	6.9	43	10.4	10	9.6	15	7.6
14	12.1	11.9	4.4	4.7	30	5.5	25	9.6	9.5	9.1	12	8.1
15	36	14.6	4.2	7.9	54	4.6	38	9.1	10	9.1	10	8.0
16	17.0	11.9	4.1	8.7	29	13.7	19.5	8.7	9.5	27.5	12	9.8
17	17.0	9.8	3.95	4.7	17.1	17.8	33	8.5	9.0	56	11	9.4
18	13.0	21.5	3.95	3.95	13.9	9.2	19.6	7.8	8.5	42	21	8.1
19	9.8	45	3.8	10.3	8.3	6.4	21.5	7.4	9.5	24.5	17.8	7.8
20	8.9	22.5	3.8	5.5	22	18.2	12.5	7.1	22	28	15.3	7.3
21	8.3	15.8	3.8	3.8	10.2	23	10.6	6.9	17.0	28	36.5	6.8
22	8.1	16.6	4.1	3.15	7.1	9.6	9.4	6.8	14.4	27	23	21
23	8.3	16.4	3.8	3.0	6.1	6.8	8.7	6.4	9.8	27.5	20	48
24	7.6	10.0	3.95	3.65	5.2	9.7	8.7	6.3	8.1	28.5	22	25.5
25	7.3	8.3	4.8	3.3	4.7	24.5	10.0	6.4	7.4	23	18.2	11.0
26	7.1	7.4	4.1	3.0	5.2	11.6	13.3	6.3	6.9	32	15.8	8.5
27	6.9	6.9	3.65	35	5.5	8.7	48	6.9	6.6	27	14.6	8.7
28	6.6	6.4	3.8	40	4.4	34.5	33	7.8	6.3	28	13.7	7.6
29	6.3	6.3	4.8	10	4.9	49	13.7	-	6.1	30	13.2	6.8
30	32.5	6.0	3.8	6.4	5.6	44	10.4	-	6.0	26	13.9	6.3
31	20	5.6	-	4.7	-	41	13.2	-	6.0	-	11.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	51	6.3	16.3	25.2	506	1,550
August	50	5.6	15.3	23.7	473	1,450
September	5.8	3.65	4.51	6.98	135	416
October	40	3.0	7.08	11.0	220	674
November	54	3.0	12.4	19.2	371	1,140
December	49	3.65	15.5	24.0	482	1,480
Calendar year 1938	56	3.0	17.9	27.7	6,540	20,060
January	48	8.0	20.4	31.6	633	1,940
February	45	6.3	13.2	20.4	371	1,140
March	45	6.0	14.5	22.4	449	1,380
April	56	5.8	25.0	38.7	750	2,300
May	56	10	18.0	27.9	557	1,710
June	48	6.3	11.4	17.6	343	1,050
Fiscal year 1938-39	56	3.0	14.5	22.4	5,290	16,230

Waiahulu Stream near Waimea

Location.- Crude masonry dam control, lat. 22°04'45", long. 159°39'15", in Waimea Canyon, half a mile upstream from confluence with Koaie Stream and 8¾ miles north of Waimea. Altitude, 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 1939. July 1918 to November 1920 at same site (fragmentary and unreliable; unpublished).

Average discharge.- 14 years (1925-39), 29.1 million gallons a day (45.0 second-feet).

Extremes.- Maximum discharge during year, 1,300 million gallons a day (2,010 second-feet) May 11 (gage height, 6.63 feet), from rating curve extended above 400 million gallons a day; minimum, 9.1 million gallons a day (14.1 second-feet) Dec. 6.
1916, 1917-18, 1925-39: Maximum discharge, 2,550 million gallons a day (3,950 second-feet) Dec. 24, 1927 (gage height, 9.92 feet), from rating curve extended above 400 million gallons a day; minimum, 5.2 million gallons a day (8.0 second-feet) Nov. 4, 1927.

Remarks.- Records good. Discharge for period of missing gage heights, Oct. 21-27, computed on basis of records for stations on nearby streams. Kokee ditch diverts water above station for irrigation near Kekaha.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.8	7.7	1.2	21.5	2.0	85	4.0	455
.9	9.7	1.4	33	2.5	148	5.0	750
1.0	12.7	1.6	48	3.0	232		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.5	12.4	10.3	9.7	9.5	14.9	17.2	11.2	87	9.7	12.7	13.1
2	16.1	11.5	10.3	9.5	9.5	10.6	11.8	10.6	132	12.0	11.8	12.7
3	15.1	10.9	10.3	9.5	9.5	9.7	10.6	10.0	88	132	11.2	12.4
4	13.1	11.5	10.6	9.5	9.5	9.3	10.3	12.8	272	29	10.9	12.4
5	12.4	11.5	10.6	9.5	9.3	9.1	9.7	100	69	16.7	10.6	12.1
6	25	11.5	10.6	9.7	10.0	9.1	49	56	118	13.1	10.3	12.1
7	45	11.2	10.6	10.3	10.0	9.3	62	196	50	82	10.3	12.1
8	36	11.2	10.6	9.7	9.7	9.7	16.3	27	21.5	21.5	10.9	11.8
9	14.3	103	10.6	9.7	9.5	9.5	13.9	15.9	17.2	16.2	11.8	11.5
10	12.4	136	10.6	10.0	9.3	45	24.5	13.1	15.1	13.1	60	11.2
11	11.8	21	10.3	9.7	26	14.8	27	11.8	13.5	12.1	495	10.9
12	12.1	14.3	10.3	9.7	33	10.6	12.1	10.9	13.1	11.5	356	10.9
13	12.1	12.1	10.3	9.7	86	9.7	19.6	10.6	12.1	10.9	110	10.6
14	12.4	11.8	10.3	9.7	32.5	9.5	16.3	10.3	11.8	10.6	42	11.8
15	28	11.2	10.3	11.1	104	9.3	21	10.0	12.4	10.3	28	11.2
16	14.7	11.2	10.0	10.0	25.5	9.3	14.7	9.7	11.8	83	22.5	10.9
17	12.7	11.2	9.7	9.7	13.1	13.4	16.2	9.7	11.5	123	19.1	10.6
18	13.1	11.8	9.7	9.7	11.5	11.8	13.5	9.7	11.2	106	17.7	10.6
19	12.1	63	9.7	9.7	10.6	10.3	16.0	9.5	16.7	54	60	10.6
20	11.5	18.6	9.7	10.0	11.5	12.1	11.8	9.5	24	73	45	10.3
21	11.5	14.3	9.7	10	11.8	25	10.6	9.5	15.5	138	59	10.0
22	11.5	12.4	9.7	9.2	10.3	13.3	10.3	9.3	12.7	21.5	32	10.3
23	11.5	12.4	9.7	9.2	9.7	10.6	10.0	9.3	11.8	14.7	18.1	75
24	11.2	12.1	9.7	11	9.5	9.7	9.7	9.3	11.2	25.5	17.2	30
25	11.2	11.5	9.7	10	9.3	10.6	9.7	9.3	10.9	14.3	15.1	12.4
26	10.9	11.2	9.7	10	9.3	10.3	9.5	9.3	10.6	20	14.3	10.6
27	10.9	10.9	9.7	35	9.3	10.3	33.5	9.3	10.3	18.0	13.9	10.6
28	10.6	10.6	9.7	52	9.3	174	27.5	9.3	10.0	14.7	13.5	10.3
29	10.6	10.6	9.7	14.7	9.3	292	12.4	-	10.0	15.9	13.1	10.0
30	36	10.6	9.7	*10.6	9.3	57	10.6	-	9.7	14.7	13.1	9.7
31	17.0	10.3	-	10.0	-	25	10.3	-	9.7	-	13.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	45	10.6	16.0	24.8	496	1,520
August	136	10.3	20.8	32.2	644	1,980
September	10.6	9.7	10.1	15.6	302	928
October	52	9.2	12.2	18.9	377	1,160
November	104	9.3	18.2	28.2	547	1,680
December	292	9.1	28.5	44.1	885	2,720
Calendar year 1938	463	8.6	33.7	52.1	12,310	37,770
January	62	9.5	17.7	27.4	548	1,680
February	196	9.3	22.5	34.8	629	1,930
March	272	9.7	36.5	56.5	1,130	3,470
April	138	9.7	37.9	58.6	1,140	3,490
May	495	10.3	50.9	78.8	1,580	4,840
June	75	9.7	14.0	21.7	419	1,280
Fiscal year 1938-39	495	9.1	23.8	36.8	8,700	26,680

Peak discharge.- May 11 (4 p.m.) 1,230 m.g.d. (1,900 sec.-ft.); May 11 (5 p.m.) 1,300 m.g.d. (2,010 sec.-ft.; May 12 (3 a.m.) 455 m.g.d. (704 sec.-ft.); May 12 (8:30 a.m.) 422 m.g.d. (653 sec.-ft.); May 12 (9:30 a.m.) 442 m.g.d. (684 sec.-ft.); May 12 (11:15 a.m.) 432 m.g.d. (668 sec.-ft.).
*Partly estimated.

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, 520 feet, by barometer.

Records available.- November 1907 to June 1939.

Average discharge.- 20 years (1918-24, 1925-39), 37.4 million gallons a day (57.9 second-feet).

Extremes.- Maximum discharge during year, 64 million gallons a day (99 second-feet) Oct. 17 (gage height, 4.07 feet); minimum, 2.6 million gallons a day (4.0 second-feet) May 11.

1907-39: Maximum discharge, 71 million gallons a day (110 second-feet) Apr. 25, 1928 (gage height, 4.33 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good. Ditch diverts water from Waiahulu Stream and Koaie River, 3 miles above lower intake, for hydroelectric plant. Lower intake is on Waimea River 300 feet downstream from power house and 1 mile downstream from confluence with Waialae River. Flow regulated by head gates. Water used for irrigation in vicinity of Kekaha.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	43	38	29	26	29	34	38	38	43	32	41	43
2	51	33	28	26	30	36	38	37	39	33	41	39
3	46	31	28	26	28	34	37	36	41	33	39	41
4	41	33	34	26	27	31	34	37	36	33	37	46
5	43	41	41	32	27.5	28	32	36	37	33	34	39
6	53	35	31	51	46	27	38	32	39	33	33	43
7	53	33	30	43	46	30	39.5	33	39	33	32	46
8	51	32	37	31	43	32	38	31	39	33	36	39.5
9	46	43	41	30	48	29	38	31	38	33	43	34
10	38	43	32	29	48	32	39	31	39	33	39	33
11	38	43	30	28	48	37	39	31	38	33	27.5	32
12	48	43	30	28	41	34	38	31	38	33	32	32
13	51	41	29	28	38	36.5	39	31	38	33	32	32
14	43	41	28	31	38	33	38	36	33	32	31	38
15	51	48	28	29	39	30	38	34	31	32	31	43
16	48	41	28	31	38	33	38	34	31	32	31	43
17	48	38	27	46	37	51	38	33	31	32	31	41
18	46	43	27	31	37	48	38	32	31	32	31	46
19	37	41	27	30	37	37	38	32	31	32	31	43
20	33	43	27	29	37	43	38	31	32	32	31	34
21	32	43	28	28	38	51	39	31	32	33	32	31
22	32	41	29	26	36	51	37	32	32	40	33	31
23	36	41	28	26	32	43	33	30	32	41	38	46
24	32	38	28	30	31	37	32	29	32	43	39	46
25	31	34	31	30	30	38.	31	46	32	43	39	39
26	30	32	32	28	30	34	30	39	32	41	41	32
27	30	31	28	41	29	32	39	48	32	41	43	33
28	30	30	27	53	29	46	41	39	32	41	41	34
29	30	30	27	46	28	41	39	-	32	43	39	31
30	43	29	26	33	28	39	38	-	32	43	39	29
31	51	29	-	29	-	39	38	-	33	-	43	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	53	30	41.5	64.2	1,280	3,940
August	48	29	37.5	58.0	1,160	3,570
September	41	26	29.9	46.3	896	2,750
October	53	26	32.3	50.0	1,000	3,070
November	48	27	35.8	55.4	1,070	3,290
December	51	27	37.0	57.2	1,150	3,520
Calendar year 1938	53	.1	38.2	59.1	13,940	42,820
January	41	30	37.1	57.4	1,150	3,530
February	48	29	34.3	53.1	961	2,950
March	43	31	34.7	53.7	1,090	3,310
April	43	32	35.4	54.8	1,060	3,260
May	43	27.5	35.8	55.4	1,110	3,410
June	46	29	38.0	58.8	1,140	3,500
Fiscal year 1938-39	53	26	35.8	55.4	13,060	40,100

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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, 150 feet, by barometer.

Drainage area.- 18.8 square miles.

Records available.- May 1917 to January 1921 and December 1926 to June 1939. August 1910 to December 1916 at site half a mile upstream; records not equivalent.

Average discharge.- 15 years (1917-20, 1927-39), 57.2 million gallons a day (88.5 second-feet).

Extremes.- Maximum discharge during year, 3,070 million gallons a day (4,750 second-feet) Nov. 8 (gage height, 6.24 feet), from rating curve extended above 2,400 million gallons a day; minimum recorded, 8.3 million gallons a day (12.8 second-feet) Jan. 6.
1910-21, 1926-39: 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; minimum, 7.5 million gallons a day (11.6 second-feet) Dec. 15, 16, 1926.

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

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.2	7.0	1.0	60	2.5	395
.3	10.2	1.3	98	3.0	605
.6	25.5	1.6	148	3.5	860
.8	41	2.0	238		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	48	21	11.0	11.9	22.5	21	16.3	21.5	616	143	54	17.9
2	149	13.1	11.8	12.6	10.6	13.5	11.4	130	492	70	38.5	15.8
3	26	11.4	11.0	14.4	10.2	11.8	9.9	45	465	198	29	36.5
4	21	48	89	18.2	9.6	10.6	9.6	310	656	41	25	18.4
5	21	25.5	26.5	48	22	10.2	9.6	379	262	23	20	21
6	74	20.5	27.5	124	31	9.9	8.9	126	444	16.8	19.4	72
7	67	13.1	15.8	16.4	21	9.6	11.4	342	163	43	21	41
8	34.5	15.6	93	14.0	264	9.2	75	78	144	34.5	20	20
9	21	36.5	23	14.0	216	9.2	21	66	106	38.5	23	15.8
10	18.5	399	35.5	9.9	87	15.7	17.3	38	82	45	165	23
11	53	192	22	18.0	280	12.6	15.7	52	132	60	506	19.4
12	53	42	15.3	15.6	571	13.0	13.2	29.5	67	46	487	20
13	50	69	15.7	11.6	437	18.7	15.4	26	49	20.5	141	90
14	50	51	14.3	9.9	547	13.7	10.6	20.5	38.5	20	81	183
15	152	148	13.5	35.5	388	9.9	12.7	25	32	14.8	71	306
16	41	45	14.3	88	145	38.5	23	18.9	26.5	59	50	89
17	49	35.5	12.2	24	76	29.5	84	14.8	30.5	137	40	104
18	27.5	197	11.4	11.8	59	17.4	238	13.5	23.5	117	71	390
19	20.5	170	11.4	11.0	45	29	61	13.1	125	49	102	146
20	17.4	278	12.2	10.6	35	148	46	11.0	68	35.5	95	57
21	14.3	93	13.3	9.6	29	169	39.5	29	30.5	50	230	39.5
22	31.5	52	11.0	9.9	24.5	103	22.5	13.1	22	23	174	31
23	15.3	35.5	11.6	9.2	20.5	34	17.1	10.2	17.4	20	131	166
24	12.2	27.5	11.8	10.8	17.4	20	13.1	20.5	16.3	19.2	58	55
25	13.0	37	28.5	11.8	15.3	15.3	10.4	73	15.8	176	41	29.5
26	16.2	22	12.3	10.6	13.9	14.0	9.6	32	14.8	156	31	22.5
27	28.5	17.9	11.0	32	12.2	12.7	54	71	12.7	307	24.5	48
28	12.7	15.8	10.2	31	11.8	22.5	92	22	13.1	257	21	24
29	11.0	15.6	9.9	11.0	11.8	73	48	-	14.4	288	21	20.5
30	124	14.3	9.6	10.6	11.4	21	20	-	41	94	24.5	16.8
31	28	12.7	-	28	-	23	16.8	-	25.5	-	36.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	152	11.0	41.9	64.8	1,300	3,990
August	399	11.4	70.1	108	2,170	6,670
September	93	9.6	20.5	31.7	616	1,890
October	124	9.2	22.4	34.7	696	2,140
November	571	9.6	115	178	3,440	10,570
December	169	9.2	30.9	47.8	958	2,940
Calendar year 1938	571	9.2	59.8	92.5	21,820	66,990
January	238	8.9	34.0	52.6	1,050	3,230
February	379	10.2	72.5	112	2,030	6,230
March	656	12.7	137	212	4,250	13,030
April	307	14.8	86.7	134	2,600	7,980
May	506	19.4	92.0	142	2,850	8,750
June	390	15.8	71.3	110	2,140	6,560
Fiscal year 1938-39	656	8.9	66.1	102	24,100	73,980

Peak discharge.- Aug. 10 (2 a.m.) 2,090 m.g.d. (3,230 sec.-ft.); Nov. 8 (8 p.m.) 3,070 m.g.d. (4,750 sec.-ft.); Nov. 12 (6:45 p.m.) 1,720 m.g.d. (2,660 sec.-ft.); Feb. 7 (1:30 a.m.) 1,860 m.g.d. (2,880 sec.-ft.); Mar. 1 (6:30 a.m.) 2,310 m.g.d. (3,570 sec.-ft.); Mar. 4 (4 a.m.) 2,070 m.g.d. (3,200 sec.-ft.).

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 north of Eleele. Altitude, 490 feet, by barometer.

Records available.- January 1910 to June 1921, March 1927 to June 1939.

Average discharge.- 22 years (1910-20, 1927-39), 25.8 million gallons a day (39.9 second-feet).

Extremes.- Maximum discharge during year, 35 million gallons a day (54 second-feet) Nov. 9-12 (gage height, 3.13 feet); no flow occasionally, when head gates were closed. 1910-21, 1927-39: Maximum discharge, 38.5 million gallons a day (59.6 second-feet) Mar. 19, 1937 (gage height, 3.18 feet); ditch dry occasionally, owing to closing of head gates.

Remarks.- Records excellent. 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	31.5	31.5	29	*25	31.5	29	27	29	29	29	29	31.5
2	31.5	31.5	31.5	*25	29	29	27	29	26	29	29	31.5
3	29	29	31.5	29	27	27	25	29	6.3	29	29	31.5
4	29	29	31.5	29	27	27	25	22.5	.3	29	29	29
5	31.5	31.5	31.5	31.5	29	27	25	27	2.5	29	29	31.5
6	31.5	31.5	31.5	31.5	34	27	27	29	3.4	29	29	31.5
7	31.5	29	29	31.5	31.5	27	29	25.5	3.7	29	29	31.5
8	31.5	29	31.5	31.5	34	25	27	21	3.3	29	29	31.5
9	31.5	31.5	29	29	34	27	27	27	9.5	29	29	31.5
10	31.5	31.5	26	27	24.5	27	27	29	9.6	29	31.5	31.5
11	31.5	31.5	29	31.5	34	25	29	29	11.2	29	31.5	29
12	31.5	31.5	29	31.5	32	29	29	29	10.2	29	3.5	29
13	31.5	29	29	27	26.5	29	27	29	27	29	0	31.5
14	31.5	29	29	29	14.3	29	27	29	31.5	29	2.6	31.5
15	31.5	31.5	29	29	17.9	25	27	29	29	29	20.5	31.5
16	31.5	31.5	29	29	24.5	29	29	29	29	29	29	31.5
17	31.5	31.5	27	31.5	29	29	29	29	29	29	31.5	31.5
18	31.5	26	27	31.5	29	29	29	29	29	29	31.5	31.5
19	29.5	15.9	27	29	29	29	26	29	29	29	31.5	31.5
20	31.5	31.5	29	27	29	29	29	29	31.5	29	31.5	31.5
21	31.5	31.5	29	27	29	29	29	29	29	29	31.5	29
22	31.5	31.5	27	25	29	29	29	29	31.5	29	31.5	29
23	29	31.5	27	25	29	29	29	29	31.5	29	31.5	31.5
24	29	31.5	27	27	29	29	29	29	31.5	29	29	31.5
25	29	31.5	27	27	29	29	29	19.0	29	29	31.5	31.5
26	29	31.5	27	29	29	29	29	29	29	29	31.5	31.5
27	29	31.5	27	31.5	27	29	29	29	29	29	31.5	31.5
28	29	31.5	25	31.5	27	29	29	29	29	29	31.5	31.5
29	29	30.5	25	29	27	29	27	-	29	29	31.5	28
30	31.5	31.5	25	29	27	27	29	-	31.5	29	31.5	28.5
31	29	31.5	-	31.5	-	17.5	29	-	29	-	-	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	31.5	29	30.6	47.3	950	2,910
August	31.5	15.9	30.3	46.9	939	2,880
September	31.5	25	28.4	43.9	852	2,610
October	31.5	25	29.0	44.9	898	2,760
November	34	14.3	28.3	43.8	849	2,600
December	29	17.5	27.7	42.9	860	2,640
Calendar year 1938	34	0	27.2	42.1	9,930	30,460
January	29	25	27.8	43.0	863	2,650
February	29	19.0	27.9	45.2	780	2,390
March	31.5	.3	21.9	33.9	679	2,080
April	29	29	29.0	44.9	870	2,670
May	31.5	0	27.4	42.4	850	2,610
June	31.5	28	30.9	47.8	926	2,840
Fiscal year 1938-39	34	0	28.3	43.8	10,320	31,640

*Partly estimated.

South Fork of 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, 230 feet, by barometer.
Drainage area.- 22.4 square miles.
Records available.- December 1911 to June 1939. December 1911 to November 1918, at site a third of a mile upstream.
Average discharge.- 17 years (1921-24, 1925-39), 71.5 million gallons a day (111 second-feet).
Extremes.- Maximum discharge during year, 6,160 million gallons a day (9,530 second-feet) Apr. 27 (gage height, 6.85 feet), from rating curve extended above 9,000 million gallons a day; minimum, 2.4 million gallons a day (3.7 second-feet) Oct. 23, Nov. 4, 5.
1911-39: 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 period when clock was not running, Jan. 26 to Feb. 1, which were computed on basis of records for stations on nearby streams and are poor. Lihue and Hanamaula ditches divert water above station, at altitudes of 600 and 500 feet, respectively, for irrigation in the vicinity of Lihue.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.8	2.3	1.8	30	4.0	665
.9	3.2	2.2	61	4.5	1,010
1.0	4.4	2.6	120	5.0	1,580
1.2	7.8	3.0	215		
1.5	16.1	3.5	400		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	15.3	7.0	4.2	12.2	38.5	5.6	51	25	493	7.8	120	21
2	200	6.3	4.2	12.0	5.4	6.1	30.5	15.2	346	26	100	10.5
3	42	5.3	4.0	3.7	3.6	6.1	6.0	16.6	728	228	76	18.2
4	37	52	22.5	3.9	2.6	4.6	14.7	797	1,210	42	56	19.3
5	8.2	22	9.0	5.0	31	4.2	24.5	831	502	26.5	50	19.3
6	58	5.9	4.2	80	56	3.4	17.4	278	327	19.8	49	31
7	95	5.0	4.4	5.2	18.6	3.7	19.9	817	152	259	57	28.5
8	66	5.0	72	3.9	370	3.2	45	229	130	356	23.5	8.4
9	24	12.7	251	3.7	238	3.2	28	178	130	96	11.0	5.9
10	29	446	94	3.4	88	3.8	24	120	102	100	195	6.7
11	47	180	62	4.0	260	3.3	25	143	136	98	617	5.9
12	26.5	52	28	9.8	343	3.2	27	88	88	70	425	5.9
13	51	80	10.7	10.9	407	3.4	9.5	73	70	52	135	94
14	11.0	13.0	8.8	5.3	429	3.2	5.3	68	53	55	79	247
15	121	105	8.3	4.3	344	2.9	7.3	62	51	45	69	364
16	39	48	9.0	89	155	3.2	13.0	27	38.5	108	86	94
17	55	39	8.0	17.3	100	7.7	72	39	88	216	65	108
18	21.5	146	5.9	4.2	73	3.2	199	34.5	59	164	111	294
19	7.4	93	5.9	3.3	55	3.3	70	42	97	71	110	160
20	6.7	335	5.9	3.0	52	16.6	32	22	87	66	92	45
21	6.3	143	6.5	2.8	34	15.5	43	40	53	134	200	19.3
22	13.9	76	5.3	2.8	41	57	30.5	26.5	42	70	180	8.1
23	8.3	55	4.6	2.8	33	21	23.5	16.5	36	60	292	155
24	5.2	43	5.0	2.8	19.1	5.2	25.5	9.7	40	39.5	111	78
25	4.7	49	5.0	2.9	6.1	4.0	16.1	56	43	337	69	39
26	9.0	36	4.7	3.3	5.3	4.6	6.0	49	39	369	53	19.5
27	10.1	30	4.4	16.1	21	5.8	40	94	13.2	949	48	11.4
28	5.6	26	4.3	53	13.6	11.7	45	14.6	9.5	669	49	10.4
29	5.8	7.8	4.0	39	56	223	25	-	9.7	441	45	6.3
30	76	5.3	3.8	30	4.6	75	20	-	36	178	41	5.9
31	9.0	4.4	-	30	-	48	30	-	12.4	-	45	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	200	4.7	36.0	55.7	1,110	3,420
August	446	4.4	68.8	106	2,130	6,560
September	251	3.8	22.3	34.5	670	2,050
October	89	2.8	15.1	23.4	470	1,440
November	429	2.6	112	173	3,350	10,290
December	223	2.9	18.2	28.2	565	1,730
Calendar year 1938	1,230	2.6	70.9	110	25,860	79,380
January	199	5.3	33.1	51.2	1,030	3,150
February	831	9.7	150	232	4,210	12,920
March	1,210	9.5	168	280	5,220	16,020
April	949	7.8	178	275	5,350	16,430
May	517	11.0	118	183	3,660	11,230
June	364	5.9	64.6	100	1,940	5,950
Fiscal year 1938-39	1,210	2.6	81.4	126	29,700	91,180

Peak discharge.- Feb. 4 (6 a.m.) 5,700 m.g.d. (8,820 sec.-ft.); Feb. 7 (6 p.m.) 4,650 m.g.d. (7,190 sec.-ft.); Mar. 4 (4:30 a.m.) 4,650 m.g.d. (7,190 sec.-ft.); Mar. 4 (8:15 a.m.) 5,480 m.g.d. (8,480 sec.-ft.); Apr. 27 (2 p.m.) 6,160 m.g.d. (9,530 sec.-ft.); Apr. 27 (8:15 p.m.) 3,810 m.g.d. (5,890 sec.-ft.).

North Fork of Wailua River at altitude 650 feet, near Lihue

Location.- Lat. 22°03'50", long. 159°26'20", 1⅛ miles upstream from intake of Kanaha ditch and 7⅞ miles northwest of Lihue. Altitude, 650 feet, from topographic map.
Drainage area.- 6.6 square miles.
Records available.- August 1910 to June 1939. December 1910 to September 1914, at site 300 feet downstream from confluence of main and east branches; records not equivalent.
Average discharge.- 18 years (1921-39), 52.9 million gallons a day (81.8 second-feet).
Extremes.- Maximum discharge during year, 2,620 million gallons a day (4,050 second-feet) Mar. 4 (gage height, 7.40 feet), from rating curve extended above 600 million gallons a day and slope measurement of 2,250 million gallons a day; minimum, 0.75 million gallons a day (1.16 second-feet) Sept. 3.
1910-39: Maximum discharge, 3,720 million gallons a day (5,760 second-feet) Mar. 19, 1937 (gage height, 8.67 feet); minimum, that of Sept. 3, 1936.
Remarks:- Records good. Discharge for periods of missing gage heights, Dec. 31 to Jan. 3, Apr. 22, 23, computed on basis of records for stations on nearby streams. 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 1938-39 (gage height, in feet, and discharge, in million gallons a day)

-0.5	3.7	0.3	24	2.0	195
-.4	5.1	.4	38	2.5	300
-.2	8.8	1.0	64	3.0	435
0	13.7	1.5	117		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	39.5	50	14.5	23.5	46	23	45	36.5	235	34	48	31.5
2	133	32	11.9	6.1	29	13.2	40	35	169	30.5	40	31
3	35.5	19.3	12.9	12.7	26	10.2	35	34	240	113	31	52
4	31	76	136	16.3	35.5	9.3	31	200	345	51	25	32
5	35.5	27	29	24.5	54	9.0	28.5	198	232	33	22	35.5
6	69	21	30.5	92	76	9.9	35.5	108	202	47	26.5	69
7	64	12.1	15.5	19.4	38.5	7.6	42	331	100	210	21.5	38
8	40	9.4	105	14.0	258	6.1	92	92	104	168	16.7	31
9	33	70	86	11.4	131	6.0	40	77	83	73	25	37.5
10	33	198	60	10.0	74	24.5	35.5	82	73	65	123	46
11	47	106	46	21.5	221	12.7	40	78	81	49	240	35.5
12	58	56	35.5	24	243	11.9	39.5	52	56	43	80	38
13	56	88	32	14.6	260	15.0	38	53	95	35.5	35.5	99
14	42	72	29.5	20	238	7.4	30.5	43	56	40	25.5	214
15	71	100	18.7	39.5	194	6.6	38	46	46	33	46	201
16	40	52	13.7	95	105	26.5	43	35.5	40	62	46	94
17	38	55	12.9	38	78	15.8	61	32	68	124	43	109
18	31	130	12.4	33	60	8.0	144	30	35.5	152	50	250
19	28.5	105	11.9	29.5	52	12.0	60	32.5	53	78	63	143
20	28	159	12.7	17.4	49	76	77	28.5	38	88	70	68
21	26.5	78	11.9	13.2	40	105	49	39	40	106	118	52
22	44	46	10.4	11.6	35.5	103	40	27	33	60	106	57
23	17.4	22	12.4	13.7	32.5	43	33	26	29.5	52	162	123
24	11.9	20.5	13.7	11.6	30.5	35.5	32	36.5	42	43	68	64
25	23.5	36	19.8	10.9	30	30	28.5	43	30	180	60	46
26	20	17.0	8.7	34	29	33	29.5	49	27.5	140	49	38
27	31	13.7	4.7	108	27	29.5	58	75	27	418	40	63
28	12.7	12.4	4.8	75	26	114	64	36.5	28	206	38	35.5
29	11.9	16.1	4.3	35.5	27.5	176	38	-	31	137	40	31.5
30	83	27.5	4.0	33	23.5	*66	31.5	-	58	64	42	30
31	38	23.5	-	51	-	52	40	-	35	-	45	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	133	11.9	41.1	63.6	1,270	3,910
August	198	9.4	56.5	87.4	1,750	5,370
September	136	4.0	27.4	42.4	821	2,520
October	108	6.1	31.0	48.0	960	2,950
November	260	23.5	85.6	132	2,570	7,890
December	176	6.0	35.4	54.8	1,100	3,370
Calendar year 1938	340	4.0	57.0	88.2	20,820	63,900
January	144	28.5	46.4	71.8	1,440	4,420
February	331	26	69.9	108	1,960	6,000
March	345	27	88.1	136	2,730	8,390
April	418	30.5	97.8	151	2,940	9,010
May	240	16.7	59.5	92.1	1,850	5,660
June	250	30	73.2	113	2,200	6,740
Fiscal year 1938-39	418	4.0	59.1	91.4	21,590	66,230

*Partly estimated.

Hanalei tunnel outlet near Lihue

Location.- Weir control, lat. 22°05'10", long. 159°28'15", at end of Hanalei tunnel, 2¼ miles downstream from intake on Kaapoko Stream and 9¾ miles northwest of Lihue. Altitude, 1,210 feet, by Lihue Plantation levels.

Records available.- July 1932 to June 1939.

Extremes.- Maximum discharge during year, 78 million gallons a day (121 second-feet) Apr. 27 (gage height, 1.83 feet); no flow Aug. 25-29, Sept. 3, when water was shut out of ditch.

1932-39: Maximum discharge, 78 million gallons a day (121 second-feet) Mar. 19, 1937, Apr. 27, 1939 (gage height, 1.83 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good. Tunnel diverts water from Kaapoko Stream and Hanalei River and empties it into north branch of North Fork of 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	31	35	16.1	27	28.5	24	32	27.5	58	26.5	8.1	23
2	37.5	25	20.5	21.5	22.5	22	24	23	52	22.5	7.5	22
3	26.5	23	17.1	26.5	21	19.1	22	23.5	52	42	7.2	31.5
4	24	35.5	50	29	25.5	18.7	21.5	49	50	28.5	6.9	23
5	26.5	29.5	28	33.5	24.5	18.7	20.5	51	44	23	6.7	25
6	39.5	27.5	31.5	41	31	20.5	27.5	39	50	30	6.9	41
7	39	24	23.5	23.5	26.5	19.5	28	50	42	55	6.7	25
8	30.5	30	45	23	43	18.7	48	31.5	42	47	3.4	23
9	26	44	28	21	50	18.7	26.5	32	36.5	36.5	.47	27.5
10	25	50	28	20.5	36.5	38.5	25	34.5	32	34.5	.60	28.5
11	29	39	26.5	27	55	21.5	26.5	36.5	36.5	28	.73	25
12	34.5	30	23.5	24	61	23.5	27	27	27	25.5	.47	27
13	33	36.5	22	21	61	26	26	27	44	23.5	.36	46
14	28.5	36.5	21	27	61	20.5	23.5	24	28	25	.47	56
15	36.5	39	20.5	32	61	19.1	27	27.5	26	22	11.9	55
16	28.5	30	21	40	43	30.5	26.5	23.5	25	37	20.5	44
17	28.5	31.5	20.5	27.5	36.5	28	34.5	21.5	27.5	52	21	48
18	24	42	20.5	24.5	29.5	21.5	40	20.5	22.5	55	10.8	55
19	23	44	20.5	23	28.5	24	31.5	22	27.5	43	24.5	52
20	22.5	47	21.5	21	28.5	47	40	19.9	23.5	47	35.5	34.5
21	21.5	36.5	20.5	21.5	24	55	28.5	26	29	50	46	29
22	28	17.0	19.9	19.9	23	38.5	23.5	21.5	24.5	34.5	47	32.5
23	21.5	.09	22.5	21.5	22	25.5	22.5	19.5	22	30.5	52	52
24	20.5	.09	23.5	19.9	21.5	25.5	22	26.5	28.5	28	34.5	36.5
25	25.5	.08	26	19.9	21.5	22.5	20.5	31	22	49	32	27
26	26.5	.03	20.5	29	21	24.5	22.5	32	20.5	40	28	25
27	27.5	0	19.5	50	20.5	22	34	42	20.5	35	25.5	32
28	22	.07	19.9	44	19.5	51	34.5	28	22	15.6	24.5	24
29	22	5.1	19.4	25.5	21	55	25	-	23.5	13.4	27	23.5
30	42	18.0	18.7	25	20.5	34.5	23	-	31	9.7	28	23
31	28	15.6	-	36.5	-	34.5	28.5	-	26	-	31.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	42	20.5	28.3	43.8	878	2,700
August	50	0	25.5	39.5	792	2,430
September	50	16.1	23.9	37.0	716	2,200
October	50	19.9	27.3	42.2	846	2,600
November	61	19.5	33.0	51.1	988	3,030
December	55	18.7	28.0	43.3	868	2,670
Calendar year 1938	61	0	29.2	45.2	10,660	32,710
January	48	20.5	27.8	43.0	862	2,650
February	51	19.5	29.9	46.3	837	2,570
March	58	20.5	32.8	50.7	1,020	3,120
April	55	9.7	33.6	52.0	1,010	3,100
May	52	.36	18.0	27.9	557	1,710
June	56	22	33.9	52.5	1,020	3,120
Fiscal year 1938-39	61	0	28.5	44.1	10,390	31,900

North Wailua ditch near Lihue

Location.- Weir control, lat. 22°03'40", long. 159°27'55", 300 feet downstream from intake diversion dam on North Fork of Wailua River, 8 miles west of Wailua, and 8½ miles northwest of Lihue. New weir, with crest 0.02 foot higher than old weir of same dimensions, installed Apr. 14, 1939. Zero of gage is 1,105.45 feet above mean sea level, by Lihue Plantation Co. levels.

Records available.- July 1932 to June 1939. Records from 1926 to June 1932 obtained by Lihue Plantation Co.

Extremes.- Maximum discharge during year, 46 million gallons a day (71 second-feet) Aug. 9 (gage height, 1.50 feet); no flow for several periods of a few hours each, when water was diverted around station.
1932-39: Maximum discharge, 59 million gallons a day (91 second-feet) Feb. 25, 1935 (gage height, 1.57 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent. Flow regulated by gates. No diversions. Water used for power and irrigation in vicinity of Lihue.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	22	19.2	12.1	16.2	15.7	15.4	12.7	14.9	22	19.6	6.2	11.8
2	22	15.5	12.1	15.5	14.3	14.9	12.1	15.2	19.1	19.1	8.5	11.8
3	17.8	14.3	13.2	13.4	13.3	12.2	11.8	15.8	14.9	17.6	9.9	12.4
4	16.8	23.5	28	19.5	14.0	11.8	12.1	17.1	10.5	14.3	11.8	11.3
5	18.8	18.4	20	20.5	14.9	11.5	12.7	12.8	8.3	14.9	11.8	12.1
6	23.5	18.4	21	19.4	16.2	12.1	13.0	9.3	9.3	15.5	11.5	11.5
7	20.5	15.2	17.3	15.2	15.5	11.8	13.6	10.6	7.2	16.2	11.8	11.4
8	17.1	18.2	22.5	15.5	14.3	11.5	14.6	11.0	8.7	11.0	11.8	11.5
9	15.8	26.5	13.0	13.6	10.3	11.8	12.7	12.7	6.2	11.3	11.9	12.4
10	16.2	19.8	12.7	12.7	12.1	15.8	13.3	12.7	6.0	12.4	10.4	12.1
11	20	13.0	12.1	15.8	11.3	12.7	13.6	12.7	6.5	12.1	8.5	11.5
12	17.6	11.8	12.1	16.7	9.4	15.2	13.3	12.1	4.9	12.1	7.2	11.8
13	15.2	14.9	12.3	14.6	9.9	16.2	13.0	12.1	7.8	11.8	8.8	12.1
14	15.5	15.2	12.1	16.5	9.9	13.1	13.3	11.8	4.9	12.1	9.0	9.7
15	16.8	16.2	13.1	18.0	9.6	12.1	14.0	13.0	7.3	11.8	9.0	7.2
16	15.5	14.3	14.9	18.6	8.6	18.4	14.3	15.2	8.7	12.7	8.8	8.8
17	15.2	14.8	14.0	13.3	9.0	17.1	14.9	14.5	16.4	13.0	9.3	9.0
18	14.6	16.2	13.6	14.3	10.7	14.3	13.4	14.2	14.9	12.1	9.0	9.9
19	14.3	16.2	13.3	14.3	12.1	16.7	9.0	14.9	16.8	11.5	9.0	9.0
20	14.3	13.8	14.0	13.3	11.8	23.5	10.7	13.6	15.8	12.4	11.5	8.8
21	13.3	11.8	13.6	14.0	11.8	24.0	11.5	16.2	15.2	8.3	12.7	9.0
22	16.8	12.1	12.7	13.0	12.7	20.5	11.8	14.9	14.3	9.1	11.3	9.3
23	14.0	11.8	14.3	14.2	13.3	16.5	12.1	13.3	13.6	12.1	9.3	9.3
24	13.0	12.0	14.9	12.7	13.3	14.9	11.8	16.6	16.5	12.1	8.8	9.0
25	15.9	11.8	15.9	12.7	13.3	13.6	12.0	16.2	14.9	11.7	9.3	10.7
26	17.6	11.4	13.0	16.8	13.0	14.6	12.2	17.6	13.3	10.7	10.1	12.1
27	17.8	11.8	12.4	24.5	12.6	13.3	14.6	18.4	14.0	8.0	11.8	14.3
28	14.3	11.8	12.1	21.5	12.4	18.4	17.1	15.7	14.9	5.9	11.8	13.3
29	14.6	11.8	12.1	15.8	13.6	11.5	15.5	-	14.6	6.2	12.1	13.0
30	26.5	12.1	12.1	15.8	13.4	11.8	14.6	-	18.1	6.2	12.1	13.0
31	17.1	11.9	-	16.8	-	12.7	15.2	-	18.4	-	12.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	26.5	13.0	17.1	26.5	530	1,630
August	26.5	11.4	15.0	23.2	466	1,430
September	28	12.1	14.6	22.6	436	1,340
October	24.5	12.7	16.1	24.9	500	1,530
November	16.2	8.6	12.4	19.2	372	1,140
December	24	11.5	14.8	22.9	460	1,410
Calendar year 1938	33.5	0	14.1	21.8	5,140	15,780
January	17.1	9.0	13.1	20.3	406	1,250
February	18.4	9.3	14.1	21.8	395	1,210
March	22	4.9	12.4	19.2	384	1,180
April	19.6	5.9	12.1	18.7	364	1,120
May	12.7	6.2	10.2	15.8	317	974
June	14.3	7.2	11.0	17.0	329	1,010
Fiscal year 1938-39	28	4.9	13.6	21.0	4,960	15,220

Stable storm ditch near Lihue

Location.- Weir control, 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 1939. Records from April 1931 to December 1936 obtained by Lihue Plantation Co. from staff gage at site 1 mile downstream.

Extremes.- Maximum discharge during year, 49 million gallons a day (76 second-feet) Aug. 9 (gage height, 1.77 feet); no flow at times, when water was shut out of ditch.
1936-39: Maximum discharge, that of Aug. 9, 1938; no flow at times, when water was shut out of ditch.

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

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.5	1.90	8.5	21.5	0	14.9		0			0	1.08
2	4.9	0	15.6	21.5	0	18.2		0			0	0
3	0	10.2	14.7	19.8	0	17.3		0			0	0
4	0	18.2	6.6	19.8	0	16.4		0			0	0
5	0	17.3	11.3	19.8	0	16.4		0			0	0
6	0	17.0	15.6	6.2	0	16.7		0			0	0
7	0	21.5	15.0	10.7	0	19.8		0			0	0
8	0	31	7.8	15.0	0	18.2		0			0	0
9	0	26	0	14.7	0	18.2		0			0	0
10	0	5.0	0	14.7	0	21.5		0			0	0
11	0	0	0	15.9	0	13.6		0			0	0
12	0	0	0	15.9	0	19.8		0			0	0
13	0	0	0	15.3	0	21.5		0			0	0
14	0	0	0	15.9	0	19.8		0			0	0
15	0	0	10.2	14.3	0	16.2		0			0	0
16	0	0	14.7	18.2	0	23		0			0	0
17	0	0	14.7	5.0	0	23		0			0	0
18	0	0	14.7	0	0	19.8		0			0	0
19	0	0	14.7	0	0	21.5		0			0	0
20	0	0	14.7	11.4	0	13.8		0			0	0
21	0	0	14.7	16.2	0	0		0			0	0
22	0	0	14.5	16.2	0	0		3.05			0	0
23	11.9	0	14.5	16.2	0	0		0			0	0
24	15.6	0	14.5	15.9	0	0		0			0	0
25	16.2	0	14.7	15.9	0	0		0			0	0
26	16.2	0	19.8	4.8	0	0		0			0	0
27	16.2	0	21.5	0	0	0		0			0	0
28	15.3	0	21.5	0	0	0		0			0	0
29	15.3	0	19.8	0	0	0		-			0	0
30	6.6	0	19.8	0	3.95	0		-			0	0
31	0	0	-	0	-	0		-			5.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.2	0	4.22	6.53	131	401
August	31	0	4.78	7.40	148	455
September	21.5	0	11.8	18.3	354	1,090
October	21.5	0	11.6	17.9	361	1,110
November	3.95	0	.132	.204	3.95	12
December	23	0	12.0	18.6	372	1,140
Calendar year 1938	36.5	0	5.06	7.83	1,850	5,670
January	0	0	0	0	0	0
February	3.05	0	.109	.169	3.05	9.4
March	0	0	0	0	0	0
April	0	0	0	0	0	0
May	5.1	0	.165	.255	5.1	16
June	1.08	0	.036	.056	1.08	3.3
Fiscal year 1938-39	31	0	3.78	5.85	1,380	4,240

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, 540 feet, by barometer.

Records available.- August 1910 to June 1939.

Average discharge.- 19 years (1916-22, 1926-39), 7.75 million gallons a day (12.0 second-feet).

Extremes.- Maximum discharge during year, 12.6 million gallons a day (19.5 second-feet) July 25 (gage height, 0.52 foot); no flow several days during year, when intake gate was closed.

1910-39: Maximum discharge recorded, 45 million gallons a day (70 second-feet) Dec. 24, 1927 (gage height, 3.22 feet, former site and datum); no flow occasionally, when water was shut out of ditch.

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

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.0	5.4	*5.4	0.21	5.1	5.2	1.68	5.6	5.0	1.24	1.09	0.73
2	1.35	5.1	5.9	.21	5.8	4.8	2.6	3.95	5.3	2.4	1.40	.80
3	1.58	4.8	5.3	.31	6.2	4.0	5.6	1.92	2.4	4.7	1.09	1.58
4	3.0	4.8	5.3	2.4	6.2	3.75	5.8	2.65	.94	3.05	.67	.80
5	5.3	5.1	5.6	5.7	4.6	3.5	5.6	2.25	.80	1.98	.21	.80
6	5.8	5.3	5.6	5.9	4.7	3.75	4.7	4.2	.67	1.78	.58	1.97
7	5.5	4.1	5.3	5.6	6.5	3.3	1.98	2.7	4.2	1.40	.16	1.24
8	5.1	3.15	5.9	5.9	5.7	3.05	2.2	4.0	5.6	2.3	*.29	.80
9	5.3	4.9	1.51	5.6	5.2	3.75	1.98	5.3	5.3	2.05	*.43	.94
10	5.3	.98	4.5	5.9	5.8	5.3	1.78	5.3	5.3	2.3	*1.52	1.40
11	5.3	1.21	5.6	6.2	4.5	5.1	1.58	5.1	5.6	3.8	1.98	.94
12	5.1	1.98	5.6	5.6	.80	5.6	1.58	5.6	4.8	3.5	.94	1.09
13	4.8	1.57	5.8	5.6	.80	5.1	1.58	5.6	5.1	2.8	.94	2.45
14	5.1	2.6	5.9	5.9	.94	4.7	1.78	5.3	3.3	3.05	.43	1.36
15	5.3	2.6	5.7	5.4	1.40	4.5	3.35	5.9	2.8	2.4	1.49	1.78
16	4.8	2.4	5.6	5.1	1.09	4.8	5.6	4.8	2.4	3.5	1.78	3.05
17	5.1	2.2	5.9	6.0	1.40	4.7	4.7	4.3	2.4	4.3	1.58	4.0
18	5.1	2.2	5.9	5.9	1.78	3.75	2.0	4.0	2.4	1.51	1.75	2.35
19	5.3	2.2	5.9	5.9	1.58	3.5	1.40	4.3	3.25	3.55	1.92	3.6
20	5.6	2.2	5.8	5.6	1.58	4.5	1.40	3.75	3.3	4.8	2.6	3.3
21	5.6	1.98	5.6	6.0	1.40	3.75	1.78	4.8	3.5	4.1	3.05	2.6
22	5.3	1.98	5.6	5.8	1.58	4.3	2.2	3.5	2.6	3.75	3.3	2.75
23	4.8	1.78	6.2	5.9	1.78	4.2	1.98	3.5	2.2	3.5	2.05	4.8
24	4.3	1.70	5.6	5.6	4.9	4.0	1.98	4.2	3.3	3.3	1.24	3.3
25	5.1	1.98	5.3	5.6	6.2	3.75	1.98	4.5	1.58	4.2	.80	2.2
26	5.1	2.2	4.7	5.9	6.2	4.5	2.95	4.8	1.58	3.55	1.09	1.78
27	5.1	2.2	3.05	5.6	6.2	5.9	5.9	5.1	1.98	2.7	1.09	2.55
28	4.5	4.2	3.5	5.1	6.2	5.2	3.1	3.5	1.98	2.2	.94	1.36
29	4.5	5.9	3.15	5.2	6.2	1.24	2.05	-	2.45	1.24	1.09	.94
30	5.7	6.2	.97	5.3	5.9	1.78	3.2	-	3.65	.94	1.09	.94
31	5.1	6.2	-	5.3	-	*1.78	6.2	-	2.6	-	1.19	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.7	1.35	4.83	7.47	150	459
August	6.2	.98	3.26	5.04	101	310
September	6.2	.97	5.06	7.83	152	465
October	6.2	.21	5.04	7.80	156	479
November	6.5	.80	3.94	6.10	118	363
December	5.9	1.24	4.10	6.34	127	390
Calendar year 1938	7.8	.21	4.13	6.39	1,510	4,630
January	6.2	1.40	2.97	4.60	92.2	283
February	5.9	1.92	4.30	6.65	120	370
March	5.6	.67	3.17	4.90	98.3	302
April	4.8	.94	2.86	4.43	85.9	264
May	3.3	.16	1.28	1.98	39.8	122
June	4.8	.73	1.94	3.00	58.2	179
Fiscal year 1938-39	6.5	.16	3.56	5.51	1,300	3,990

*Partly estimated.

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, 462±5 feet, by estimating slope of 2,000 feet of length of ditch from Lihue Plantation Co. levels.

Records available.- November 1936 to June 1939. Records obtained 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, 46 million gallons a day (71 second-feet) Oct. 6 (gage height, 3.96 feet); minimum, 1.7 million gallons a day (2.6 second-feet) May 17.

1938-39: Maximum discharge, that of Oct. 6, 1938; minimum, 0.7 million gallons a day (1.1 second-feet) Dec. 16, 17, 1936.

Remarks.- Records excellent. Diverts water from North Fork of Wailua Stream 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	39	37.5	37.5	18.7	7.6	13.4	9.1	9.6	29.5	19.6	4.5	37.5
2	27.5	37.5	36	25	21	13.4	9.1	7.1	29	11.7	4.5	33.5
3	11.7	37.5	34.5	24	26	11.7	9.1	5.2	13.0	12.8	4.4	17.6
4	17.2	37.5	36	26.5	19.9	9.6	9.1	5.1	8.1	7.1	12.2	7.8
5	37.5	37.5	37.5	29	13.4	9.6	9.1	4.9	8.1	6.6	18.7	27.5
6	39	29	37.5	36	7.6	9.6	9.1	5.2	7.1	10.7	14.9	27.5
7	37.5	14.2	37.5	34.5	14.5	9.6	9.1	5.3	7.1	26.5	9.7	27.5
8	37.5	24	37.5	33.5	24	13.4	9.1	5.2	7.1	16.6	19.9	27.5
9	27	24	37.5	30.5	27.5	15.1	9.1	5.2	6.6	8.1	25	27.5
10	16.2	22.5	36	32	19.8	12.2	9.1	5.2	6.6	7.6	26.5	21
11	37.5	20.5	36	32	9.6	8.6	9.1	5.2	6.6	7.6	16.5	17.5
12	37.5	7.6	37.5	39	9.6	12.8	9.1	5.2	6.2	7.1	6.6	36
13	27	6.2	37.5	37.5	9.6	15.1	9.1	5.2	6.6	5.5	6.6	37.5
14	19.9	6.2	37.5	25	9.1	11.0	9.1	5.1	7.6	4.7	6.6	19.3
15	29.5	6.2	37.5	8.6	9.1	8.6	9.1	5.1	8.1	4.8	3.75	17.1
16	23.5	6.2	36	10.1	9.1	8.6	9.6	5.1	8.1	5.0	1.9	19.9
17	16.7	6.2	34.5	10.6	9.6	8.6	10.6	7.6	13.5	10.6	1.9	15.1
18	37.5	6.2	34.5	10.6	8.1	8.1	10.6	9.1	15.1	14.5	4.7	9.1
19	37.5	6.2	34.5	10.1	6.2	9.1	7.6	9.1	10.1	19.5	12.2	17.5
20	39	6.2	34.5	26.5	6.2	13.4	5.7	9.1	18.4	15.3	11.2	25
21	39	6.2	36	24.5	5.7	13.9	5.7	21	22.5	5.2	9.1	26.5
22	39	6.2	36	8.1	5.4	11.2	5.7	29	22.5	3.1	11.7	27.5
23	28	6.2	36	8.1	5.2	9.6	5.7	24	22.5	3.1	12.8	27.5
24	18.1	6.2	34.5	19.4	5.1	8.6	5.7	14.7	22.5	6.3	17.7	18.7
25	37.5	5.7	34.5	27.5	4.6	8.1	5.7	9.1	17.1	14.5	19.9	11.0
26	31.5	5.7	36	26.5	4.6	12.2	5.7	7.1	9.1	14.5	19.9	34.5
27	29	5.7	32	21	4.6	15.1	5.7	15.8	22	14.5	10.9	29
28	30.5	9.7	25	10.6	11.4	11.5	5.7	21	25	14.5	9.9	29
29	37.5	31.5	19.9	7.6	21	9.1	5.7	-	20	10.9	26.5	34.5
30	29	36	19.5	7.6	16.6	9.1	15.0	-	22.5	4.6	26.5	36
31	17.7	37.5	-	7.6	-	9.1	17.0	-	25	-	32.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	39	11.7	30.1	46.6	932	2,860
August	37.5	5.7	17.3	26.8	536	1,640
September	37.5	19.5	34.6	53.5	1,040	3,180
October	39	7.6	21.6	33.4	668	2,050
November	27.5	4.6	11.7	18.1	352	1,080
December	15.1	8.1	10.9	16.9	339	1,040
Calendar year 1938	40	4.6	20.3	31.4	7,420	22,760
January	17.0	5.7	8.51	13.2	264	810
February	29	4.9	9.48	14.7	266	815
March	29.5	6.2	14.6	22.6	453	1,390
April	26.5	3.1	10.4	16.1	313	961
May	32.5	1.9	13.2	20.4	410	1,260
June	37.5	7.8	24.8	38.4	744	2,280
Fiscal year 1938-39	39	1.9	17.3	26.8	6,320	19,370

East Branch of North Fork of 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, 500 feet, by barometer.

Drainage area.- 6.2 square miles.

Records available.- July 1912 to June 1939.

Average discharge.- 19 years (1920-39), 31.7 million gallons a day (49.0 second-feet).

Extremes.- Maximum discharge during year, 1,330 million gallons a day (2,060 second-feet) Mar. 5 (gage height, 7.94 feet), from rating curve extended above 270 million gallons a day; minimum, 10.2 million gallons a day (15.8 second-feet) Oct. 10.
1912-39: Maximum discharge, 3,340 million gallons a day (5,170 second-feet) Dec. 24, 1927 (gage height, 10.57 feet), from rating curve extended above 500 million gallons a day; minimum, 4.4 million gallons a day (6.8 second-feet) July 3, 13, 1926.

Remarks.- Records good except those for periods of missing gage heights, Jan. 5-22, Feb. 2-28, Mar. 17 to Apr. 1, which were computed on basis of records for stations on nearby rivers and are fair. No diversions above station.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.1	10.2	1.8	41	3.0	153
1.2	13.0	2.0	55	3.5	215
1.4	20	2.3	82		
1.6	29	2.6	112		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	21	25	16.4	11.3	16.8	16.1	22	19.6	*54	19.2	44	18.6
2	57	17.1	15.7	11.0	16.9	18.6	18.9	16.4	57	15.4	38	17.5
3	18.9	15.4	15.7	11.6	14.0	16.2	16.8	18	84	31.5	31.5	23
4	17.6	35.5	22.5	11.6	13.0	13.0	15.7	74	123	20.5	28	17.8
5	18.2	21	16.1	14.4	22	12.7	17	70	174	16.8	25.5	16.4
6	35	17.8	16.4	24	17.8	12.4	18	44	76	25.5	24	21
7	38.5	16.1	15.0	12.2	14.0	13.0	20	98	48	116	22.5	19.3
8	27	17.5	19.8	11.6	28.5	12.2	36	41	46	104	21.5	16.4
9	21	55	119	11.3	39	11.6	18	28	37.5	38.5	23	16.4
10	18.6	82	31	10.5	20	21	17	28	32	35	29.5	18.9
11	24	45	22	18.8	76	13.3	19	28	33	28.5	54	16.1
12	28	26.5	18.2	23.5	83	13.3	19	22	27	23.5	37.5	15.7
13	29	31.5	16.8	19.0	78	14.0	18	22	43	21.5	26	25
14	23.5	26	15.7	21.5	72	12.4	17	20	27.5	22	22	67
15	33	38	15.0	37	77	11.6	18	21	23.5	18.9	24	66
16	22	23.5	14.7	50	44	14.2	20	18	22	27.5	25	34
17	21	24	14.0	20.5	40	15.0	26	16	36	60	22.5	32
18	18.2	52	13.7	15.7	31.5	12.7	41	16	20	79	34	48
19	17.1	49	13.3	14.4	27	12.4	26	17	20	41	33.5	39
20	16.4	74	13.7	13.0	25	17.4	31	16	20	48	35	27
21	15.7	39	13.7	12.4	21.5	18.2	22	18	36	62	60	23
22	26	31.5	12.4	11.9	19.3	47	19	16	20	31.5	35.5	23.5
23	17.1	27	12.7	16.4	18.2	21	16.4	15	18	27	78	52
24	15.7	28	13.7	13.7	17.1	15.7	16.8	18	26	25	34	30.5
25	15.4	29	13.7	11.6	16.4	13.7	15.0	19	18	49	28	22.5
26	15.0	22.5	12.4	18.6	15.7	24	14.4	22	17	61	26	20
27	18.2	20.5	12.2	48	15.0	19.3	22	31	17	183	23	20
28	15.0	18.9	11.9	32.5	14.4	52	25.5	18	18	184	21.5	18.6
29	14.4	18.6	11.9	17.5	14.4	90	18.6	-	18	87	21.5	17.5
30	42	17.8	11.6	15.4	14.0	33.5	16.1	-	36	60	22	16.4
31	20.5	17.1	-	15.0	-	26.5	24	-	19	-	21.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	57	14.4	23.2	35.9	720	2,210
August	82	15.4	31.0	48.0	962	2,950
September	119	11.6	19.0	29.4	571	1,750
October	50	10.5	18.6	28.8	576	1,770
November	83	13.0	30.7	47.5	922	2,830
December	90	11.6	20.8	32.2	644	1,980
Calendar year 1938	246	10.5	29.7	46.0	10,850	33,280
January	41	14.4	20.8	32.2	644	1,980
February	98	15	28.2	43.6	790	2,420
March	174	17	40.2	62.2	1,250	3,830
April	184	15.4	52.1	80.6	1,560	4,790
May	78	21.5	31.4	48.6	972	2,980
June	67	15.7	26.6	41.2	799	2,450
Fiscal year 1938-39	184	10.5	28.5	44.1	10,410	31,940

*Partly estimated.

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 4.5 miles northwest of Wailua. Altitude, 365 feet, by barometer.

Drainage area.- 3.3 square miles.

Records available.- December 1936 to June 1939. July 1910 to May 1915 at site half a mile upstream, known as "Kapaa River at Kapaa", June 1915 to April 1920 at site three-quarters of a mile upstream, known as "Kapaa River near Kealia".

Extremes.- Maximum discharge during year, 1,880 million gallons a day (2,910 second-feet) Apr. 8 (gage height, 3.53 feet), from rating curve extended above 330 million gallons a day; no flow at times, when low flow is diverted into Kapahi ditch.
1936-39: 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 good. Entire low flow is diverted into several ditches above station.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

-0.05	0	0.30	7.2	0.90	70
.00	.2	.40	13.2	1.10	111
.10	.9	.50	21	1.30	166
.20	3.2	.70	42		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.6	1.6	0	0	1.7	1.2	15.5	5.3	6.4	1.0	20.5	0
2	12.5	1.3	0	0	0	10.0	13.2	9.0	22.5	4.4	17.1	0
3	14.0	0	0	0	0	2.9	11.4	8.4	42	11.8	9.1	2.9
4	14.8	21	0	0	1.2	.9	9.3	113	72	15.5	2.0	0
5	8.6	.6	0	0	14.4	.3	9.0	92	98	8.7	4.3	0
6	16.7	0	0	0	7.8	.8	15.0	33	48	41	7.1	.4
7	22.5	1.4	0	0	2.2	.8	15.3	44	20	112	4.6	1.5
8	7.8	1.7	7.9	0	1.7	0	29	22.5	23	150	1.0	.3
9	4.8	32	66	0	6.0	0	12.0	20	18.7	27.5	2.0	.8
10	9.0	49	.4	0	4.5	14.1	3.0	20	16.3	23	12.3	2.3
11	8.4	19.8	0	0	62	3.9	3.4	24	17.9	20.5	33.5	0
12	19.2	14.8	0	0	32.5	2.1	5.7	18.7	14.8	14.8	24	0
13	13.2	21	0	0	39	2.6	6.6	14.1	23.5	14	15.5	5.6
14	4.5	18.7	0	0	33	1.3	1.55	15.5	10.3	17.1	12.6	40
15	10.8	26.5	0	0	41	.2	9.6	14.0	6.0	11.9	18.3	36
16	0	14.8	0	19.3	20	3.9	6.9	18.4	1.3	18.8	18.8	4.2
17	6.8	17.1	0	2.4	26	4.1	17.4	13.2	5.7	34.5	10.7	9.9
18	.4	50	0	4.1	18.7	4.0	25.5	8.4	8.6	29.5	19.0	11.1
19	0	47	0	0	17.1	.4	12.0	6.0	8.4	12.6	14.7	2.0
20	2.7	57	0	0	15.2	1.2	6.1	2.0	3.2	36	13.6	0
21	2.7	25	0	1.1	13.2	1.5	9.1	0	6.0	53	38	0
22	9.3	22	0	1.6	6.6	8.8	11.4	0	6.2	20	4.5	1.0
23	2.1	17.1	0	3.1	0	5.6	7.9	0	3.4	17.1	56	8.3
24	6.8	17.9	0	.3	2.1	4.4	5.6	0	14.5	5.6	3.6	.8
25	2.6	17.5	0	1.1	1.5	1.4	1.6	0	15.8	40	.6	0
26	2.2	15.5	0	7.5	3.8	14.8	0	0	7.1	47	1.1	0
27	5.3	14.4	0	39	9.0	11.9	1.6	6.0	8.3	77	0	0
28	0	13.5	0	25.5	2.4	38.5	3.4	0	7.3	104	0	0
29	0	4.1	0	7.3	.9	79	1.7	-	1.4	45	0	0
30	9.9	.9	0	6.0	.4	25	0	-	1.8	29.5	.1	0
31	6.1	0	-	2.5	-	23	8.9	-	0	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	22.5	0	7.24	11.2	224	688
August	57	0	17.5	27.1	543	1,670
September	66	0	2.48	3.84	74.3	228
October	39	0	3.90	6.03	121	371
November	62	0	12.8	19.8	384	1,180
December	79	0	8.66	13.4	269	824
Calendar year 1938	310	0	14.4	22.3	5,240	16,080
January	29	0	8.99	13.9	279	855
February	113	0	18.1	28.0	508	1,560
March	98	0	17.4	26.9	538	1,650
April	150	1.0	34.8	53.8	1,040	3,200
May	56	0	11.8	18.3	365	1,120
June	40	0	4.24	6.56	127	390
Fiscal year 1938-39	150	0	12.3	19.0	4,470	13,740

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, 360 feet, by barometer.

Records available.- April 1909 to May 1914, May 1915 to June 1939.

Average discharge.- 21 years (1917-20, 1921-39), 6.70 million gallons a day (10.4 second-feet).

Extremes.- Maximum discharge during year, 69 million gallons a day (107 second-feet) Sept. 9 (gage height, 3.34 feet); minimum, 0.04 million gallons a day (0.06 second-foot) Nov. 11, 12.

1909-14, 1915-39: Maximum discharge, 233 million gallons a day (361 second-feet) Mar. 31, 1923 (gage height, 3.15 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent except those for period of missing gage heights, July 26 to Aug. 5, which were computed on basis of records for station on Kapaa River and are poor. Ditch diverts water from Kapaa River for irrigation in vicinity of Kapaa. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.8	2.0	4.1	4.1	3.8	4.9	0.23	2.6	7.0	2.75	2.45	4.3
2	23	.6	4.9	3.25	6.3	2.65	.23	.31	4.5	.23	2.75	4.2
3	.27	.4	5.1	4.5	4.7	4.4	.23	.27	1.37	2.45	7.6	6.1
4	.27	9.0	5.7	4.3	4.3	2.3	1.69	.35	.31	.27	12.0	4.4
5	6.8	6.0	5.3	6.7	3.4	2.8	1.10	.42	.37	3.05	8.5	4.2
6	6.4	8.0	6.7	9.0	.27	2.95	2.4	.27	.19	.95	5.4	8.7
7	5.6	5.3	5.3	6.1	3.2	3.75	1.95	.31	.16	5.1	7.9	3.95
8	6.4	7.6	8.0	5.3	4.2	3.05	.27	.16	.13	4.3	6.6	3.8
9	5.6	11.7	37	3.6	2.8	2.95	2.2	.13	.13	.13	6.7	4.5
10	.40	11.8	9.0	5.0	2.25	2.75	4.7	.13	.13	1.09	5.1	7.0
11	8.1	6.8	7.2	8.4	.22	1.19	4.5	.13	.13	1.00	.23	4.4
12	5.7	1.42	5.5	13.8	2.25	2.7	3.2	.10	.13	.34	1.09	4.9
13	6.0	1.21	5.6	8.5	.16	2.3	4.8	.23	1.20	.19	.23	11.3
14	10.1	.35	5.7	9.6	.13	2.0	3.75	.31	1.55	.19	.19	3.8
15	9.8	1.12	3.9	4.7	.13	2.7	.31	.23	1.38	.19	.19	8.1
16	11.0	1.89	5.8	2.3	.10	2.2	.31	.19	4.2	3.8	.10	12.7
17	4.9	.31	5.3	10.3	.13	2.15	2.85	2.2	5.0	10.3	5.2	4.9
18	7.6	1.08	3.7	5.5	.13	.23	3.9	5.1	2.45	15.7	8.4	3.55
19	6.7	1.08	5.5	6.45	.13	2.95	.19	7.4	.19	10.0	8.2	12.0
20	3.95	.31	5.9	4.9	.13	3.7	2.15	6.9	5.4	4.4	8.5	6.3
21	3.5	.27	5.8	4.0	.16	2.65	1.03	5.2	9.0	4.3	2.35	4.4
22	4.5	.23	4.9	1.59	1.85	.32	1.40	3.9	6.3	.31	12.9	4.5
23	5.4	.10	4.7	.27	4.4	.19	3.3	3.6	6.8	.31	9.6	9.9
24	.27	.19	5.6	4.4	2.4	.16	3.8	3.45	5.6	10.0	12.5	6.8
25	*4.5	.19	4.8	2.3	3.05	1.37	2.75	3.6	1.75	8.3	10.8	4.3
26	3.7	.19	5.4	3.65	2.65	1.37	3.15	3.7	5.6	.86	10.4	4.6
27	2.4	.19	6.0	1.97	1.22	1.28	7.5	6.5	3.15	7.4	7.9	4.9
28	6.0	.19	5.7	.93	4.1	1.47	5.0	4.0	.16	6.9	7.0	5.8
29	4.9	8.8	5.8	1.63	2.45	2.1	3.25	-	2.85	4.8	6.4	4.8
30	3.4	6.2	5.7	.35	3.05	.27	3.45	-	4.6	.31	5.5	4.3
31	1.6	4.3	-	2.55	-	.23	3.25	-	4.0	-	5.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	23	0.27	5.76	8.91	179	548
August	11.8	.10	3.19	4.94	98.8	303
September	37	3.7	6.65	10.3	200	613
October	13.8	.27	4.74	7.33	147	451
November	6.3	.10	2.14	3.31	64.1	197
December	4.9	.16	2.13	3.30	66.0	203
Calendar year 1938	37	0	4.61	7.13	1,680	5,170
January	7.5	.19	2.54	3.93	78.8	242
February	7.4	.10	2.20	3.40	61.7	189
March	9.0	.13	2.77	4.29	85.7	263
April	15.7	.19	3.66	5.66	110	337
May	12.9	.10	6.06	9.38	188	577
June	12.7	3.55	5.91	9.14	177	544
Fiscal year 1938-39	37	.10	3.99	6.17	1,460	4,470

*Partly estimated.

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 1939. Equivalent records from July 1925 to November 1936, at site 150 feet downstream, obtained by East Kauai Water Co.

Extremes.- Maximum discharge during year, 18.7 million gallons a day (28.9 second-feet) Aug. 10 (gage height, 2.29 feet); minimum, 0.04 million gallons a day (0.06 second-foot) Aug. 26.

1936-39: Maximum discharge, 23.6 million gallons a day (36.5 second-feet) Feb. 1, 1938 (gage height, 2.66 feet); minimum, 0.03 million gallons a day (0.05 second-foot) on several days in November and December 1936 and January 1937 and February 19, 20, 1938.

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

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.2	6.8	6.8	4.8	6.2	6.8	0.12	6.2	10.7	7.7	0.08	6.6
2	4.9	6.8	5.4	5.9	5.0	6.4	.10	5.9	7.6	6.4	.07	6.8
3	.44	6.4	5.0	5.0	5.0	6.8	.08	5.4	.55	7.7	.06	8.2
4	.40	7.2	7.7	5.4	4.0	6.4	.08	6.2	.14	.28	.06	7.7
5	.37	7.2	5.4	6.0	4.4	5.9	.08	4.2	.14	.26	.06	7.2
6	4.0	7.2	4.7	10.7	5.9	5.9	.07	2.6	.08	.26	.06	8.7
7	6.8	6.8	5.4	3.2	5.9	6.8	.07	2.2	.06	.58	.06	8.2
8	6.4	7.2	7.5	4.8	5.9	5.9	.06	1.60	.06	.27	4.8	7.2
9	6.4	8.2	14.0	6.6	5.9	5.9	.05	.92	.05	.06	9.2	7.7
10	5.9	4.1	9.2	4.1	5.9	7.2	4.6	.62	.05	.07	8.0	9.2
11	6.4	.16	7.2	6.2	4.8	6.4	7.2	.48	.05	.07	1.08	7.2
12	6.8	.12	6.8	11.2	.14	7.7	7.2	.37	.05	.07	1.10	7.2
13	6.4	.12	5.4	8.1	.08	7.7	7.7	.34	.05	.07	.96	10.2
14	6.4	.11	4.5	10.2	.08	6.8	7.2	.28	3.6	.07	.88	10.2
15	6.8	.11	6.8	7.7	.08	6.4	7.7	.25	6.4	.06	.74	10.7
16	6.4	.10	5.0	3.2	.08	7.2	7.2	.23	6.4	.05	.74	10.2
17	6.4	.11	4.9	.07	.08	7.7	7.7	.19	6.6	.05	.70	8.2
18	5.9	.12	6.4	2.0	.07	6.8	8.2	.19	6.8	6.6	.74	7.2
19	5.9	.10	3.95	7.2	.07	6.8	7.7	.14	6.8	9.2	1.77	7.2
20	5.9	.07	4.1	4.5	.06	7.7	7.7	2.65	4.8	6.4	6.2	7.7
21	5.9	.05	5.1	3.95	.05	8.2	4.5	7.2	.37	5.2	9.2	7.7
22	6.2	.06	4.7	5.9	3.35	8.2	.34	6.4	.34	5.0	8.7	8.2
23	5.9	.05	4.8	5.9	5.4	7.7	.30	5.9	.28	.10	7.3	12.1
24	5.9	.06	6.7	4.2	5.4	7.2	4.0	5.7	.34	.08	4.9	9.7
25	5.9	.05	9.1	5.9	6.4	6.8	5.4	6.4	.34	.37	4.5	7.7
26	6.8	.05	4.6	10.7	3.55	8.7	5.9	8.2	.28	.14	4.4	5.9
27	7.2	.05	4.6	15.1	.26	9.2	8.1	9.7	.28	.07	4.4	5.9
28	6.8	.05	3.75	9.6	3.05	6.8	8.7	8.2	4.4	.10	4.4	3.95
29	6.8	.06	3.35	6.4	6.4	2.4	7.7	-	6.8	.10	7.2	4.4
30	7.7	5.6	3.45	6.4	5.9	.14	7.2	-	8.7	.08	8.2	4.7
31	7.2	6.8	-	5.9	-	.12	8.7	-	7.7	-	8.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.2	0.37	5.85	9.05	181	557
August	8.2	.05	2.64	4.08	81.9	251
September	14.0	3.35	5.88	9.10	176	541
October	15.1	.07	6.36	9.84	197	605
November	6.4	.05	3.28	5.07	98.4	302
December	9.2	.12	6.47	10.0	201	616
Calendar year 1938	15.1	.05	4.30	6.65	1,570	4,820
January	8.7	.05	4.57	7.07	142	435
February	9.7	.14	3.60	5.57	101	309
March	10.7	.05	2.93	4.53	90.8	279
April	9.2	.05	1.92	2.97	57.5	176
May	9.2	.06	3.51	5.43	109	334
June	12.1	3.95	7.80	12.1	234	718
Fiscal year 1938-39	15.1	.05	4.57	7.07	1,670	5,120

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, 4⅛ miles northwest of Kealia. Altitude, 220 feet, by barometer.
Drainage area.- 5.5 square miles.
Records available.- August to November 1910, December 1912 to June 1939.
Average discharge.- 20 years (1919-39), 13.6 million gallons a day (21.0 second-feet).
Extremes.- Maximum discharge during year, 3,020 million gallons a day (4,670 second-feet) Apr. 8 (gage height, 7.21 feet), from rating curve extended above 230 million gallons a day; minimum, 2.8 million gallons a day (4.3 second-feet) Oct. 24, 25.
1910, 1912-39: Maximum discharge, 3,580 million gallons a day (5,540 second-feet) Mar. 19, 1937 (gage height, 7.72 feet), from rating curve extended above 300 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 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to July 6				July 7 to June 30					
1.2	3.8	1.6	11.5	0.9	2.35	1.5	8.6	2.3	59
1.4	6.1	1.8	22	1.0	3.0	1.6	11.5	2.6	95
1.5	8.0			1.2	4.4	1.8	22	3.0	162
				1.4	6.6	2.0	34.5	3.5	282

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.8	5.7	5.1	3.4	3.85	4.8	9.1	7.0	14.0	4.8	18.2	6.4
2	17.4	4.4	5.1	3.35	7.4	10.0	7.4	10.6	19.8	4.6	15.2	6.3
3	6.6	4.0	5.0	3.3	3.9	7.1	6.2	7.0	23	10.0	13.0	9.3
4	5.8	22	5.1	3.2	3.75	3.85	5.7	149	38	7.2	11.5	6.2
5	6.4	7.1	4.8	3.65	4.6	3.55	5.2	81	97	5.3	10.9	5.8
6	11.5	6.0	4.7	5.7	3.85	3.7	7.7	33.5	29.5	21	10.6	7.4
7	37	4.8	4.6	3.65	3.55	6.0	9.4	52	15.0	153	10.0	6.7
8	14.5	7.4	4.8	3.3	3.3	3.7	14.4	21	13.9	163	15.5	6.1
9	7.6	36.5	39.5	3.2	3.2	3.4	6.8	16.0	11.5	36	20.5	5.9
10	6.7	127	8.0	3.05	3.4	17.0	6.0	13.0	10.3	34	14.5	6.2
11	8.4	19.3	7.6	7.1	24	4.3	6.8	12.5	9.1	23.5	19.5	5.3
12	10.6	10.0	7.0	11.4	19.2	3.7	7.0	10.3	9.1	13.5	15.5	5.2
13	10.0	12.2	5.9	5.3	19.3	3.55	8.8	18.4	9.4	11.2	11.2	6.8
14	7.0	12.2	5.6	6.1	7.8	3.5	5.8	14.0	8.0	12.0	10.0	29.5
15	8.8	11.5	5.3	4.2	8.0	3.15	6.0	11.5	8.6	10.0	10.9	34
16	6.8	7.8	4.8	5.1	6.1	3.4	6.8	11.5	8.0	15.2	11.2	9.1
17	6.2	8.6	4.3	4.2	19.1	3.55	21.5	8.0	13.2	26	9.1	6.8
18	5.8	54	4.1	3.4	10.0	3.2	24	7.0	9.1	35.5	10.9	11.9
19	5.4	31.5	4.0	3.35	6.8	3.3	10.6	6.8	7.8	14.0	15.9	8.0
20	5.1	28.5	3.9	3.2	7.4	3.5	8.4	6.4	7.0	18.2	10.9	5.7
21	5.0	13.0	4.2	3.05	5.1	3.3	7.2	6.6	10.5	45	23	5.1
22	6.6	11.2	3.9	3.0	4.6	15.7	6.8	5.9	7.6	15.0	13.0	4.9
23	5.1	10.6	3.9	3.0	4.3	6.4	6.0	5.4	6.2	12.0	36	26
24	4.6	10.0	3.9	2.95	4.0	5.2	7.4	5.7	9.6	10.9	10.3	12.6
25	6.4	8.6	4.0	3.05	4.0	4.6	5.6	5.4	6.7	53	9.1	5.8
26	5.1	7.8	3.75	5.5	3.85	15.3	5.1	5.7	5.8	61	8.6	5.6
27	5.1	7.2	3.7	38	3.7	8.8	6.3	12.1	5.3	79	7.8	5.3
28	5.0	6.8	3.7	24	3.55	14.3	10.0	13.8	5.1	142	7.4	4.8
29	4.5	6.4	3.7	6.7	3.55	67	12.4	-	5.0	36	7.6	4.5
30	19.4	6.0	3.5	4.8	3.6	18.2	5.9	-	5.1	21.5	7.2	4.3
31	6.1	5.6	-	4.2	-	13.5	8.8	-	4.8	-	6.7	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	37	4.5	8.62	13.3	267	820
August	127	4.0	16.6	25.7	514	1,580
September	39.5	3.5	5.92	9.16	177	545
October	38	2.95	6.05	9.36	187	575
November	24	3.2	6.96	10.8	209	641
December	67	3.15	8.73	13.5	271	830
Calendar year 1938	506	2.95	15.8	24.4	5,770	17,730
January	24	5.1	8.55	13.2	265	814
February	149	5.4	19.9	30.8	557	1,710
March	97	4.8	14.0	21.7	433	1,330
April	163	4.6	36.4	56.3	1,090	3,360
May	36	6.7	13.0	20.1	402	1,230
June	34	4.3	8.92	13.8	268	821
Fiscal year 1938-39	163	2.95	12.7	19.6	4,640	14,260

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. Altitude, 831 feet, by levels from Lihue Plantation bench marks.

Records available.- May 1915 to June 1939.

Average discharge.- 16 years (1921-25, 1927-39), 3.34 million gallons a day (5.17 second-feet).

Extremes.- Maximum discharge during year, 61 million gallons a day (94 second-feet) Apr. 7 (gage height, 3.07 feet); minimum, 0.01 million gallons a day (0.02 second-foot) June 23-27.

1915-39: Maximum discharge recorded, 130 million gallons a day (201 second-feet) Jan. 16, 1921 (gage height, 6.25 feet, former site and datum); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good. 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.7	7.2	2.3	1.33	3.05	3.85	0.16	0.10	7.8	2.6	0.04	2.6
2	10.2	3.35	2.2	1.25	6.7	4.9	.10	.10	.16	2.2	.04	2.5
3	3.8	2.8	2.2	1.33	2.4	4.2	.10	.04	.09	7.7	.04	4.2
4	3.7	10.3	7.3	1.25	2.05	2.0	.10	.62	.13	4.3	.04	3.05
5	4.5	4.9	2.95	1.49	2.0	1.74	.10	.28	.26	3.2	.06	3.05
6	16.9	5.6	2.3	7.8	3.1	3.95	.10	.04	.06	5.4	.06	2.8
7	3.0	4.2	2.1	1.83	2.0	3.8	.06	2.65	.04	14.0	.06	2.7
8	1.06	9.3	4.7	1.41	1.83	2.0	.10	1.41	.04	.94	4.5	2.7
9	2.5	22	12.3	1.57	2.3	2.25	.08	1.80	.04	.08	2.05	2.85
10	3.3	6.6	5.2	1.25	3.25	16.2	.08	1.62	.02	.17	.06	5.3
11	7.6	.04	5.4	4.5	11.2	3.35	.08	.83	.04	.10	.06	2.6
12	3.95	.04	3.7	8.6	12.4	3.15	.06	.04	.04	.08	.06	2.95
13	1.82	.04	2.6	6.1	15.8	3.25	.04	.06	.04	.08	.06	7.2
14	3.55	.04	2.4	6.2	10.3	2.5	.04	.04	.06	.06	.06	8.7
15	4.4	.04	2.2	2.3	6.3	1.92	.04	.04	.04	.06	.06	.02
16	2.1	.04	2.2	5.0	.06	3.05	.04	.04	.04	.06	.06	.02
17	1.65	.02	2.0	2.7	.13	3.15	.04	.04	.14	.10	.06	.02
18	2.8	.10	1.74	1.92	.04	2.5	.16	.04	.09	.18	.06	.02
19	3.05	.06	1.74	1.83	.04	2.5	.04	.04	.04	.10	.06	4.3
20	2.8	.04	1.74	1.65	.04	3.9	.04	2.15	.04	.13	.06	4.8
21	2.6	.04	2.3	1.41	.04	3.8	.04	4.7	.06	.12	.10	3.9
22	6.0	.04	1.65	1.33	2.1	8.6	.04	2.95	1.44	.04	.06	4.0
23	3.05	.02	1.62	1.33	2.5	4.3	.04	2.5	2.6	.04	.08	8.8
24	2.5	.04	1.65	1.57	2.2	5.4	.20	2.4	6.6	.04	.06	.01
25	7.3	.02	2.1	1.25	2.1	3.4	.04	3.05	3.6	.34	.06	.01
26	3.6	.02	1.57	7.2	2.0	13.0	1.95	3.8	2.7	.10	1.92	.08
27	4.8	.02	1.41	24	1.83	8.8	6.4	11.3	2.6	.06	3.7	2.85
28	3.7	.02	1.57	16.2	1.74	9.9	9.6	8.3	2.6	.13	3.45	3.15
29	3.2	2.25	1.57	4.8	1.92	.66	7.5	-	3.05	.04	3.8	2.6
30	17.0	3.05	1.33	3.25	1.86	.35	4.5	-	3.95	.04	4.4	2.5
31	7.1	2.6	-	2.6	-	.22	7.2	-	2.3	-	3.15	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	17.0	1.06	4.88	7.55	151	464
August	22	.02	2.74	4.24	84.8	260
September	12.3	1.33	2.87	4.44	86.0	264
October	24	1.25	4.07	6.30	126	387
November	15.8	.04	3.44	5.32	103	317
December	16.2	.22	4.28	6.62	133	407
Calendar year 1938	24	.01	2.58	3.99	940	2,890
January	9.6	.04	1.26	1.95	39.1	120
February	11.3	.04	1.82	2.82	51.0	156
March	7.8	.02	1.31	2.03	40.7	125
April	14.0	.04	1.42	2.20	42.5	130
May	4.5	.04	.915	1.42	28.4	87
June	8.8	.01	3.01	4.66	90.3	277
Fiscal year 1938-39	24	.01	2.67	4.13	976	2,990

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 1939.

Extremes.- Maximum discharge during year, 75 million gallons a day (116 second-feet) Apr. 8 (gage height, 2.36 feet); no flow at times, when water was turned out of ditch.
1936-39: Maximum discharge, 88 million gallons a day (136 second-feet) Feb. 2, 1938 (gage height, 2.60 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.06	0.05	0.26	0.13	0.06	0.13	6.4	6.4	5.8	0.26	8.7	0.26
2	0	.13	.26	.13	.03	.13	4.5	4.4	14.7	.26	7.3	.32
3	0	.13	.26	.06	0	0	3.6	3.3	14.6	.26	5.5	.32
4	0	.06	.26	.13	0	0	3.1	24	14.6	.19	4.5	.26
5	0	0	.19	.13	0	0	2.8	22.5	17.6	.13	4.2	.19
6	.73	.01	.19	.10	0	0	7.9	11.6	13.9	.19	3.8	.19
7	16.8	.19	.19	0	0	0	9.8	17.2	6.8	14.5	3.6	.19
8	8.9	.19	.19	0	0	0	13.7	6.8	10.0	19.6	1.17	.19
9	2.45	.26	.19	0	0	.06	4.7	6.8	7.3	12.0	5.9	.13
10	.90	18.6	0	0	.04	.03	4.4	6.4	6.3	14.2	8.2	.06
11	.19	13.4	0	0	.06	0	5.3	8.1	5.1	11.0	9.3	0
12	7.3	6.3	0	0	0	0	6.2	5.3	4.7	5.3	7.1	0
13	6.0	9.9	0	0	0	0	6.2	3.25	7.3	4.4	4.4	0
14	2.05	10.1	0	0	0	0	3.4	1.03	4.4	7.0	3.6	6.4
15	3.4	11.1	0	0	4.8	0	4.5	1.00	5.0	4.5	5.9	16.3
16	2.8	5.1	0	0	6.0	0	5.6	2.95	3.8	12.6	6.4	8.9
17	2.8	5.9	0	0	13.4	0	12.9	3.8	7.7	15.5	4.2	6.2
18	.76	21.5	0	0	6.0	0	11.7	3.25	6.5	17.2	8.5	11.0
19	.32	20.5	0	0	6.7	0	6.8	3.1	4.4	9.7	9.5	6.7
20	.32	18.1	.03	0	5.7	0	4.7	1.02	3.8	15.6	8.4	.06
21	.32	8.7	.13	0	3.4	0	4.8	.13	7.4	17.6	12.3	.06
22	.19	9.2	.06	0	1.07	0	3.95	.13	2.85	7.5	10.7	.06
23	0	6.4	.06	0	.13	0	3.25	.13	.51	6.0	16.2	12.0
24	0	6.4	.06	.15	.13	0	5.2	.13	.38	5.3	6.6	10.9
25	.02	4.7	.06	.26	.19	0	2.95	.06	.32	14.8	5.1	4.5
26	0	3.95	.06	.32	.19	0	.8	.06	.32	16.1	3.45	2.75
27	0	3.5	.06	.26	.13	0	.26	.03	.32	19.0	.32	1.62
28	0	3.25	.06	.13	.13	5.5	.19	0	.26	23	.32	.13
29	0	1.00	.13	.13	.13	24.5	.13	-	.26	18.3	.26	.19
30	.11	.26	.13	.06	.13	13.8	.13	-	.32	10.7	.19	.19
31	.04	.26	-	.06	-	12.3	2.15	-	.32	-	.19	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.8	0	1.82	2.82	56.5	173
August	21.5	0	6.10	9.44	189	580
September	.26	0	.094	.145	2.83	8.7
October	.32	0	.066	.102	2.05	6.3
November	13.4	0	1.61	2.49	48.4	149
December	24.5	0	1.82	2.82	56.4	173
Calendar year 1938	37	0	4.53	7.01	1,650	5,080
January	13.7	.13	4.90	7.58	152	467
February	24	0	5.10	7.89	143	438
March	17.6	.26	5.73	8.87	178	545
April	23	.13	10.1	15.6	303	929
May	16.2	.19	5.67	8.77	176	540
June	16.3	0	3.00	4.64	90.1	276
Fiscal year 1938-39	24.5	0	3.83	5.93	1,400	4,280

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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. Altitude about 270 feet, by levels from approximate site of two demolished Geological Survey bench marks.

Records available.- December 1936 to June 1939. Records obtained 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, 11.0 million gallons a day (17.0 second-feet) Aug. 10 (gage height, 1.63 feet); no flow at times, when water was turned out of ditch. 1936-39: 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 except those for periods of missing gage heights, Dec. 19-22, Jan. 26, Apr. 9, 10, which were computed on basis of records for Anahola River and are poor. Ditch diverts water from Anahola River for irrigation of sugarcane. Flow regulated by spillways and gates.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.6	5.6	6.0	3.25	3.9	3.95	0	7.4	6.0	5.6	0	5.6
2	2.7	5.2	5.6	3.1	4.5	3.65	0	7.4	6.0	5.2	0	5.6
3	.02	4.9	5.6	3.05	4.2	4.0	0	7.4	.45	6.9	0	6.0
4	.02	5.6	5.6	3.05	3.75	3.65	0	4.7	0	1.80	0	5.6
5	5.2	6.4	5.6	3.15	4.2	3.5	0	0	0	3.85	3.0	6.4
6	6.4	6.0	5.1	4.0	3.8	3.6	0	0	0	3.55	6.0	5.6
7	7.4	6.0	5.0	3.45	3.5	4.5	0	0	0	0	7.8	5.6
8	4.7	7.4	5.0	3.05	3.3	3.8	0	0	0	*1.64	7.8	5.6
9	3.05	6.9	6.4	2.9	3.25	3.45	4.0	0	0	0	7.8	5.6
10	.10	3.05	6.0	2.85	3.3	4.8	6.4	0	0	2.0	5.2	5.6
11	2.45	0	5.6	2.8	2.5	4.2	7.8	0	0	*.47	0	5.2
12	5.9	0	5.6	4.5	3.35	3.75	7.8	0	2.45	0	0	5.2
13	8.7	0	5.1	4.6	2.6	3.65	8.2	0	6.4	0	0	4.6
14	7.8	0	4.8	4.7	1.70	3.5	6.4	0	7.8	0	0	5.6
15	8.0	0	4.7	3.8	0	3.25	3.25	0	7.4	0	0	8.2
16	4.2	0	4.7	4.2	0	3.4	4.6	0	4.7	0	0	8.2
17	3.2	0	4.6	4.8	0	3.5	4.6	0	3.0	2.5	0	7.4
18	7.4	0	4.3	3.25	0	*3.3	2.55	0	2.65	5.0	2.25	5.9
19	6.0	0	4.3	3.3	0	3.45	0	*4.2	.01	6.9	2.0	6.1
20	6.0	0	4.2	2.95	0	3.45	0	7.4	.01	8.2	4.0	5.2
21	5.6	0	4.3	2.85	1.80	3.8	0	5.6	0	5.6	5.0	6.0
22	6.0	0	4.1	2.8	2.0	4.2	0	5.2	0	3.5	5.1	5.6
23	5.6	0	3.9	2.9	1.50	*4.5	0	5.2	0	4.0	5.2	6.9
24	5.6	0	3.9	3.1	3.35	4.6	3.2	5.2	0	8.2	5.2	8.7
25	6.9	0	3.95	3.15	4.2	4.2	*5.0	5.2	0	5.6	3.15	6.4
26	5.6	0	3.75	4.2	4.1	3.1	5.6	5.2	0	5.9	2.25	6.7
27	5.6	0	3.65	5.6	3.9	2.1	*5.1	5.6	3.7	5.0	3.7	7.4
28	5.6	2.95	3.6	6.0	3.75	1.82	5.6	5.6	4.6	2.3	5.6	5.2
29	5.1	6.9	3.6	5.6	3.65	.58	5.6	-	5.6	0	5.6	4.9
30	6.0	6.4	3.4	4.7	3.6	0	5.1	-	5.2	0	6.0	4.6
31	5.6	6.0	-	4.2	-	0	5.6	-	5.6	-	5.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.7	0.02	5.03	7.78	156	479
August	7.4	0	2.56	3.96	79.3	243
September	6.4	3.4	4.73	7.32	142	436
October	6.0	2.8	3.74	5.79	116	356
November	4.5	0	2.66	4.12	79.7	245
December	4.8	0	3.33	5.15	103	317
Calendar year 1938	12.0	0	3.61	5.59	1,320	4,040
January	8.2	0	3.11	4.81	96.4	296
February	7.4	0	2.90	4.49	81.3	250
March	7.8	0	2.31	3.57	71.6	220
April	8.2	0	3.12	4.83	93.7	288
May	7.8	0	3.17	4.90	98.2	302
June	8.7	4.6	6.04	9.35	181	556
Fiscal year 1938-39	8.7	0	3.56	5.51	1,300	3,990

*Partly estimated.

Ka Loko ditch near Kilauea

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

Records available.- August 1932 to June 1939.

Extremes.- Maximum discharge during year, 90 million gallons a day (139 second-feet) Aug. 10 (gage height, 3.92 feet); minimum, 1.16 million gallons a day (1.79 second-feet) Oct. 10, 22-25.

1932-39: 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 excellent except those for periods when clock was not running, July 7, 8, Dec. 30 to Jan. 6, which were computed on basis of records for stations on nearby ditches and 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.25	2.55	2.35	1.47	1.47	2.65	2.2	2.65	6.4	1.98	6.2	2.85
2	3.6	1.89	2.25	1.47	2.4	2.3	2.0	3.15	9.0	1.89	5.5	2.55
3	2.75	1.63	2.25	1.39	1.39	2.25	2.1	2.55	8.4	5.9	4.6	3.1
4	2.45	8.8	2.45	1.39	1.23	1.65	2.5	23	10.9	3.05	4.4	2.45
5	2.65	3.6	2.25	1.71	1.75	1.54	2.4	19.6	18.9	2.35	4.0	2.45
6	5.9	3.2	2.05	2.35	1.54	2.45	3.0	7.6	7.3	3.5	3.8	3.25
7	7.0	2.25	2.05	1.39	1.31	2.55	3.7	8.4	4.1	25.5	*3.55	2.65
8	5.0	3.7	2.15	1.39	1.31	1.80	6.1	4.6	4.5	17.4	*7.4	2.65
9	3.55	8.6	15.0	1.31	1.39	1.89	2.85	4.8	3.7	5.6	8.8	2.35
10	3.05	26.5	3.7	1.16	1.47	4.4	2.65	4.3	3.45	5.5	5.5	2.45
11	3.9	6.3	2.85	3.5	4.3	2.05	3.05	4.4	3.25	4.5	6.5	2.15
12	5.5	3.45	2.55	4.1	7.2	1.80	3.25	3.45	3.25	2.45	5.8	2.15
13	5.4	5.5	2.05	2.15	6.6	1.71	2.95	4.9	3.25	2.75	3.9	3.8
14	3.35	4.2	1.89	2.8	3.9	1.63	2.25	3.35	2.75	3.55	3.35	5.7
15	4.1	4.6	1.89	2.6	4.6	1.54	2.25	3.05	6.2	3.15	4.5	10.0
16	3.05	3.15	1.89	3.05	2.85	2.05	2.55	3.05	3.25	3.8	4.3	3.55
17	2.75	3.7	1.80	1.89	6.2	1.71	6.7	2.85	3.25	7.4	3.65	3.05
18	2.55	11.2	1.71	1.54	3.05	1.63	9.0	2.75	2.75	7.0	4.7	4.2
19	2.45	7.8	1.71	1.47	2.8	1.63	3.7	2.65	2.65	4.3	6.2	3.8
20	2.35	8.8	1.71	1.39	2.55	1.71	2.95	2.35	2.65	5.1	4.5	2.55
21	2.35	4.4	1.80	1.31	2.05	1.80	2.95	2.65	4.3	9.6	7.9	2.35
22	3.1	4.4	1.63	1.23	1.89	3.2	3.05	2.15	2.75	3.9	6.0	2.25
23	2.25	3.8	1.71	1.23	1.80	2.7	2.55	2.05	2.35	3.45	8.5	5.8
24	2.05	3.9	1.71	1.23	1.80	2.7	2.35	2.55	4.9	3.25	4.3	3.8
25	3.15	3.35	1.71	1.23	1.80	2.05	2.25	2.25	2.65	8.4	3.8	2.45
26	2.45	2.95	1.54	2.25	1.71	8.2	2.05	2.55	2.25	12.1	3.55	2.15
27	2.45	2.85	1.54	11.1	1.63	3.25	2.7	4.8	2.15	10.2	3.25	2.35
28	2.15	2.75	1.71	7.9	1.63	5.9	4.1	3.1	1.98	19.3	3.15	2.15
29	1.98	2.75	1.54	2.65	1.63	14.5	4.1	-	2.05	7 3	3.25	1.98
30	4.5	2.65	1.47	2.05	1.87	5.0	2.45	-	2.35	5.9	3.15	1.98
31	2.5	2.45	-	1.63	-	2.5	3.2	-	1.98	-	2.05	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.0	1.98	3.34	5.17	104	318
August	26.5	1.63	5.09	7.83	158	484
September	15.0	1.47	2.43	3.76	72.9	224
October	11.1	1.16	2.37	3.67	73.3	225
November	7.2	1.23	2.57	3.98	77.1	237
December	14.5	1.54	2.99	4.63	92.7	285
Calendar year 1938	33.5	1.16	3.83	5.93	1,400	4,290
January	9.0	2.0	3.24	5.01	100	308
February	23	2.05	4.84	7.49	136	416
March	18.9	1.98	4.50	6.96	140	428
April	25.5	1.89	6.67	10.3	200	614
May	8.8	2.05	4.84	7.49	150	460
June	10.0	1.98	3.17	4.90	95.0	291
Fiscal year 1938-39	26.5	1.16	3.83	5.93	1,400	4,290

*Partly estimated.

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, 430 feet, by barometer.

Records available.- August 1932 to June 1939.

Extremes.- Maximum discharge during year, 28 million gallons a day (43 second-feet) Aug. 10 (gage height, 1.89 feet); no flow during several periods in year.
1932-39: Maximum discharge, 32.5 million gallons a day (50.3 second-feet) Mar. 7, 1938 (gage height, 2.06 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good. Ditch diverts water from Puu Ka Ele Stream 1 mile southwest of station. Flow regulated by wasteway gate 100 feet above station. No diversion. Water used for irrigation in vicinity of Kilauea.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.95	3.0	3.05	1.89	2.65	3.3	0	3.8	5.6	2.65	0	3.7
2	4.2	2.15	2.85	1.89	4.2	3.5	0	3.45	0	2.55	0	3.35
3	2.75	1.89	2.85	1.89	2.55	3.0	2.45	3.15	0	7.5	4.7	3.8
4	2.45	7.1	3.15	1.89	2.35	2.35	3.25	3.15	.02	4.3	5.5	3.35
5	2.45	5.4	2.75	2.2	2.85	2.25	3.05	.88	.36	3.45	5.0	3.7
6	3.25	4.8	2.55	2.95	2.45	3.65	3.95	.04	0	4.2	4.7	4.5
7	8.6	3.25	2.75	1.80	2.25	3.95	4.9	.24	0	7.5	4.5	3.55
8	6.0	4.0	2.75	1.80	2.2	2.65	4.9	0	0	.27	3.05	3.45
9	3.45	8.3	9.1	1.71	2.55	2.55	3.1	0	0	0	0	3.55
10	2.95	15.0	4.4	1.63	2.55	4.8	3.7	0	0	0	4.7	3.55
11	3.15	9.5	3.45	3.7	5.9	2.65	4.0	0	0	0	2.8	3.45
12	5.2	5.6	3.15	5.2	7.5	2.45	4.0	0	2.0	0	0	3.45
13	4.8	8.0	2.75	2.35	8.8	2.45	4.0	0	5.0	3.55	3.75	5.6
14	3.55	6.7	2.55	3.4	6.4	2.15	3.35	0	4.3	4.5	4.3	5.5
15	4.6	7.4	2.55	3.25	7.7	1.98	3.35	0	2.9	4.3	2.55	7.9
16	3.35	4.9	2.55	4.3	5.0	2.65	3.7	0	0	4.1	2.1	5.2
17	2.95	5.4	2.45	2.65	8.4	2.35	6.6	0	0	6.8	4.4	5.2
18	2.75	11.1	2.45	2.05	4.9	2.05	7.5	0	0	7.9	5.0	6.2
19	2.65	10.5	2.25	1.98	4.7	2.15	5.2	1.35	0	6.0	3.55	4.6
20	2.55	2.95	2.35	1.89	4.3	2.25	4.3	3.35	0	3.75	2.6	3.7
21	2.6	0	2.35	1.80	3.55	2.35	5.1	3.8	0	.03	4.5	3.35
22	3.35	0	2.15	1.71	3.25	4.5	4.4	3.25	0	0	6.0	3.25
23	2.45	0	2.15	1.71	2.95	3.65	3.9	3.05	1.18	1.79	1.65	5.7
24	2.25	0	2.15	1.71	2.75	3.8	4.0	3.85	4.5	4.3	4.8	4.3
25	3.15	0	2.15	1.63	2.75	3.05	3.35	3.8	3.35	3.75	5.1	3.25
26	2.45	0	1.98	2.55	2.45	6.9	3.25	3.65	3.05	.69	4.9	3.05
27	2.55	2.85	1.98	10.1	2.35	4.4	4.1	4.8	2.95	1.04	4.4	3.8
28	2.35	3.55	2.05	8.6	2.25	5.7	5.0	3.45	2.85	1.56	4.3	3.15
29	2.35	3.7	1.98	3.7	2.45	3.35	5.0	-	3.05	.27	4.3	2.85
30	4.5	3.45	1.98	3.45	2.9	2.35	3.55	-	3.05	.08	3.9	2.75
31	2.45	3.15	-	2.95	-	0	4.0	-	2.75	-	4.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.6	2.25	3.39	5.25	105	322
August	15.0	0	4.63	7.16	144	441
September	9.1	1.98	2.79	4.32	83.6	257
October	10.1	1.63	2.91	4.50	90.3	277
November	8.8	2.2	3.93	6.08	118	362
December	6.9	0	3.07	4.75	95.2	292
Calendar year 1938	15.0	0	3.47	5.37	1,270	3,880
January	7.5	0	3.90	6.03	121	371
February	4.8	0	1.75	2.71	49.1	151
March	5.6	0	1.51	2.34	46.9	144
April	7.9	0	2.89	4.47	86.8	266
May	6.0	0	3.58	5.54	111	341
June	7.9	2.75	4.09	6.33	123	377
Fiscal year 1938-39	15.0	0	3.21	4.97	1,170	3,600

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, 410 feet, by barometer.

Records available.- June 1934 to June 1939.

Extremes.- Maximum discharge during year, 51 million gallons a day (79 second-feet) Aug. 10 (gage height, 2.72 feet); minimum, 0.32 million gallons a day (0.50 second-foot) Nov. 24, 25.

1934-39: 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 except those for periods when clock was not running, July 1, 8-15, Aug. 14 to Sept. 5, 14-18, Oct. 2-4, 13-18, 20-25, Dec. 25 to Jan. 5, Feb. 19 to Mar. 4, Mar. 29 to Apr. 9, May 9-16, which were computed on basis of records for stations on nearby ditches and are poor. 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.5	3.25	2.9	*1.80	2.75	4.2	0.e	1.23	9.0	2.5	0.52	3.25
2	*3.9	2.85	2.7	1.8	3.05	3.2	.7	1.16	5.0	2.0	.41	3.25
3	3.45	2.75	2.7	1.8	2.55	3.3	.7	1.09	2.5	4.5	1.87	5.6
4	3.05	10.6	2.9	1.8	2.25	2.45	.8	4.0	1.5	2.5	2.25	3.55
5	3.05	5.7	2.6	*2.25	2.45	2.35	.7	.95	*1.09	2.0	4.0	3.45
6	6.0	4.2	*2.45	4.5	2.65	3.9	*2.25	.75	.es	2.5	5.0	3.s
7	16.5	3.35	2.55	2.15	2.35	3.55	4.3	.75	.63	5.0	4.6	3.35
8	6.0	4.2	2.75	1.98	2.25	2.75	9.7	.63	.63	1.5	8.5	3.15
9	3.0	10.8	6.1	1.80	2.35	5.5	5.2	.63	.57	1.0	3.0	3.15
10	2.0	13.9	5.0	1.71	2.75	7.9	4.6	.57	.46	*.75	1.0	3.25
11	2.5	.95	3.8	4.6	9.9	3.7	4.6	.52	.52	.68	.8	3.05
12	7.0	2.15	2.95	5.2	15.0	3.25	4.5	2.5	.46	.56	.6	2.95
13	4.0	3.25	2.75	2.4	12.5	3.15	2.75	4.6	.57	.46	.5	5.8
14	2.5	2.5	2.4	3.2	9.1	2.85	.75	4.1	.57	.41	.5	7.5
15	1.7	2.4	2.4	2.9	5.0	2.45	.75	2.85	.52	.41	.5	5.9
16	*1.98	1.8	2.4	7.0	.75	4.8	.75	1.98	.52	.41	1.0	2.15
17	2.9	2.5	2.5	4.0	.68	3.25	.95	1.80	3.3	.41	*1.31	1.89
18	3.35	4.0	2.3	3.0	.52	2.85	1.02	*1.71	2.8	.46	1.63	2.35
19	3.15	3.0	*2.05	*2.45	.52	3.45	.68	1.6	1.98	.36	2.05	2.15
20	3.05	1.5	2.25	2.3	.46	3.9	.63	1.5	1.54	.41	1.63	2.6
21	3.3	.9	2.35	2.3	.41	5.1	.57	1.3	1.63	.57	1.47	3.8
22	8.0	.8	2.05	2.2	.36	11.8	.52	.9	1.23	.41	1.02	3.35
23	3.55	.7	1.98	2.1	.36	7.2	.52	2.0	1.09	.36	1.31	9.4
24	3.05	.6	1.89	2.1	.36	5.6	.52	7.0	1.16	1.09	.95	5.9
25	3.8	.6	1.89	2.0	1.83	4.5	.52	2.5	1.02	4.0	.75	1.47
26	3.15	.6	1.89	*2.75	2.85	10	.46	2.0	.95	.95	.68	2.25
27	3.15	2.0	1.89	14.4	2.75	6.0	2.8	7.0	1.81	1.02	.63	3.15
28	2.75	3.1	1.89	9.7	2.55	7.0	7.5	2.5	*2.95	1.09	.52	2.95
29	2.75	3.5	1.89	4.1	2.65	15	2.2	-	2.0	.68	1.67	2.85
30	6.6	3.2	1.89	3.75	2.55	6.0	1.23	-	1.5	.57	3.25	2.75
31	3.6	2.9	-	3.15	-	1.1	1.23	-	5.0	-	3.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.5	1.7	4.07	6.30	126	388
August	13.9	.6	3.37	5.21	105	321
September	6.1	1.89	2.60	4.02	78.1	240
October	14.4	1.71	3.46	5.35	107	329
November	15.0	.36	3.22	4.98	96.5	296
December	15	1.1	4.90	7.58	152	467
Calendar year 1938	16.5	.09	3.19	4.94	1,170	3,580
January	9.7	.46	2.10	3.25	65.2	200
February	7.0	.52	2.15	3.33	60.1	185
March	9.0	.46	1.79	2.77	55.4	170
April	5.0	.36	1.32	2.04	39.6	121
May	8.5	.41	1.85	2.86	57.3	176
June	9.4	1.47	3.67	5.68	110	338
Fiscal year 1938-39	16.5	.36	2.88	4.46	1,050	3,230

*Partly estimated.

Hanalei River at altitude 625 feet, near Hanalei

Location.- Lat. 22°07'10", long. 159°28'05", 0.4 mile downstream from confluence with Kaapoko Stream and 6¼ miles southeast of Hanalei. Altitude, 625 feet, from topographic map.

Drainage area.- 7.4 square miles.

Records available.- January 1914 to June 1939.

Average discharge.- 21 years (1918-39), 49.3 million gallons a day (76.3 second-feet).

Extremes.- Maximum discharge during year, 13,500 million gallons a day (20,900 second-feet) Apr. 27 (gage height, 11.12 feet), from rating curve extended above 200 million gallons a day; minimum, not determined, owing to faulty gage-height record.
1914-39: Maximum discharge, that of Apr. 27, 1939; minimum, 5.8 million gallons a day (9.0 second-feet) Apr. 28, May 1-3, 1926.

Remarks.- Records good except those for periods of missing gage heights, Sept. 7, 14-17, Sept. 26 to Oct. 30, May 29 to June 2, June 4, 5, 7-9, 11, 12, 26, 28-30, which were computed on basis of records for stations on Kalalau, Hanakoa and Hanakapiai Streams near Hanalei and 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.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	32	31	20	11	20.5	13.4	26	20.5	217	10.7	60	16
2	112	16.0	15.0	10.5	18.4	12.8	20	15.4	97	10.4	52	15
3	21	14.0	18.4	12	14.0	12.0	17.5	15.4	168	36.5	46	*20.5
4	18.0	106	76	17	15.7	11.0	16.2	103	200	14.9	41	14.5
5	17.5	26	15.5	25	21.5	10.4	14.9	102	197	11.7	37	13.6
6	54	20	15.5	30	50	11.7	24.5	50	137	56	37	*22.5
7	70	17.0	25	18	18.0	11.7	26	128	40	201	35.5	15.1
8	35	22	45	16	212	10.1	58	32	46	123	38	13.9
9	22	107	28.5	17	64	10.4	21	27	28	38.5	52	13.6
10	19.0	155	22	16	32	31.5	18.4	33.5	24	31	83	*15.1
11	22	67	18.5	22	147	13.1	17.5	31.5	31.5	24	144	13.6
12	30	29	15.5	19	193	14.2	17.9	20.5	19.3	17.5	76	13.2
13	29	43	14.0	17	171	14.2	18.8	21	70	15.4	52	*35.5
14	25.5	36.5	13	15	134	12.0	16.2	17.9	22.5	15.4	46	*111
15	47	56	12	25	104	10.7	20.5	17.9	21	13.4	44	112
16	24	24	16	30	48	16.8	16.6	16.2	16.6	43	31	33.5
17	23	24	13	28	40	16.3	31.5	14.9	20	79	32	45
18	18.5	91	*12.0	20	31	12.8	75	13.8	14.2	118	62	183
19	17.0	90	12.0	16	28	13.4	23	13.8	18.4	38.5	54	58
20	15.5	109	13.5	14	28	71	25.5	12.4	26.5	46	47	26.5
21	15.5	47	13.5	13	21	55	20	14.2	24	77	78	24.5
22	28.5	50	11.5	12	18.4	50	16.6	12.8	16.2	29	40	27.5
23	15.5	57	12.0	12	17.1	20.5	15.4	11.7	13.4	23.5	102	89
24	14.5	53	13.5	11	16.2	17.1	14.9	13.6	16.2	22.5	30	34.5
25	20.5	56	12.5	11	15.8	14.2	13.4	19.0	12.8	78	26.5	25
26	16.4	45	12	20	14.5	25.5	14.5	25	12.0	116	25	21.5
27	21	42	11	100	13.4	21.5	29.5	47	11.7	518	24.5	*25.5
28	14.0	40	40	80	12.8	73	29	29	11.4	202	24	15.4
29	14.0	37	25	58	12.8	130	19.7	-	11.0	129	17	14.2
30	66	21	15	30	12.4	37.5	16.2	-	20	80	16	13.9
31	22	21	-	*22.5	-	34.5	25	-	11.4	-	21	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	112	14.0	29.0	44.9	900	2,760
August	155	14.0	50.1	77.5	1,550	4,760
September	76	11	19.5	30.2	586	1,800
October	100	10.5	23.9	37.0	742	2,280
November	212	12.4	51.5	79.7	1,540	4,740
December	130	10.1	26.1	40.4	808	2,480
Calendar year 1938	330	9.7	40.5	62.7	14,780	45,360
January	75	13.4	23.2	35.9	719	2,210
February	128	11.7	31.4	48.6	879	2,700
March	217	11.0	50.8	78.6	1,570	4,830
April	518	10.4	74.0	114	2,220	6,810
May	144	16	47.5	73.5	1,470	4,520
June	183	13.2	36.1	55.9	1,080	3,320
Fiscal year 1938-39	518	10.1	38.6	59.7	14,060	43,210

*Partly estimated.

Hanakapiai Stream near Hanalei

Location.- Lat. 22°11'20", long. 159°35'50", 1⅛ miles upstream from mouth and 6 miles west of Hanalei. Altitude, 450 feet, by barometer.

Drainage area.- 2.6 square miles.

Records available.- December 1931 to June 1939.

Extremes.- Maximum discharge during year, 258 million gallons a day (399 second-feet) Apr. 7 (gage height, 3.54 feet), from rating curve extended above 60 million gallons a day; minimum, 2.65 million gallons a day (4.10 second-feet) Mar. 31, Apr. 1, 2.
1931-39: 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, 2.5 million gallons a day (3.9 second-feet) Jan. 16-19, Mar. 12, 13, 21, 22, 1934.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.3	2.65	1.0	13.4	2.1	62
.4	3.55	1.2	18.5	2.4	87
.6	6.0	1.5	28.5		
.8	9.2	1.8	42		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.0	4.7	5.4	4.6	3.9	15.3	10.5	9.7	33.5	2.65	7.4	3.8
2	15.1	4.4	5.2	4.4	3.55	4.7	7.5	7.2	21	2.75	5.6	3.35
3	5.9	4.2	5.2	4.2	3.55	3.9	5.5	5.2	11.5	44	5.0	4.7
4	5.6	18.6	5.4	4.2	3.45	3.55	4.8	5.1	17.4	10.2	5.6	3.8
5	5.5	7.8	5.2	4.7	3.35	3.35	4.5	17.0	9.7	11.1	4.4	3.65
6	30.5	5.2	5.1	12.2	3.35	3.35	24.5	8.3	11.2	23.5	3.9	7.1
7	54	4.8	5.2	5.4	3.35	4.9	17.8	16.9	7.4	76	3.8	4.7
8	15.8	11.4	5.1	4.8	3.3	4.4	9.6	6.0	6.4	12.9	4.6	3.55
9	8.5	40	5.1	4.7	3.3	9.4	6.9	4.7	5.9	7.8	6.6	3.35
10	7.4	28.5	5.1	4.5	3.65	36	15.3	4.4	4.7	22	6.6	3.3
11	7.9	16.3	5.6	4.5	19.2	7.8	11.1	3.9	4.5	9.5	31	3.2
12	12.2	7.4	5.2	4.6	17.6	6.4	11.6	3.65	3.8	5.6	13.7	3.1
13	8.6	9.0	5.0	5.2	24.5	4.7	18.2	3.55	3.45	4.6	6.6	3.2
14	9.7	6.2	4.7	5.4	20.5	4.1	10.2	3.45	3.3	5.0	5.1	3.2
15	18.4	7.1	4.6	7.1	32	3.65	13.1	3.35	3.3	4.4	6.2	5.7
16	6.8	5.5	4.7	6.1	11.2	18.5	7.7	3.35	3.2	35.5	7.2	4.9
17	11.4	8.0	4.6	4.7	8.2	8.4	18.2	3.45	3.1	31.5	6.7	3.9
18	5.9	22.5	4.7	4.8	6.4	5.5	14.9	3.3	2.9	48	11.8	3.45
19	5.1	32	4.6	15.1	8.0	5.5	8.6	3.2	3.4	24.5	27.5	3.3
20	4.8	12.3	4.6	5.0	12.1	8.0	5.9	3.1	10.4	44	12.3	3.0
21	4.6	8.9	5.1	4.5	5.6	6.2	5.2	3.3	9.1	48	21	3.0
22	5.5	13.4	4.7	4.2	4.8	4.6	4.5	3.1	6.1	10.4	11.6	5.2
23	4.5	8.9	4.6	4.4	4.1	6.2	4.4	3.0	3.8	10.4	8.2	36.5
24	4.5	7.2	5.3	4.5	3.8	13.5	4.6	3.2	3.3	11.5	6.0	10.4
25	4.4	6.6	5.1	4.1	3.8	8.3	4.0	4.2	3.1	6.4	4.8	5.0
26	4.2	6.2	4.6	7.1	4.1	11.1	8.0	3.3	3.0	11.8	4.4	3.9
27	4.1	5.9	4.5	45	3.8	5.9	29.5	4.7	2.9	7.3	3.9	3.55
28	4.1	5.7	9.2	25	3.45	44	14.6	6.6	2.85	23	3.65	3.35
29	4.1	5.6	5.6	7.4	4.4	62	6.3	-	2.75	13.1	3.65	3.2
30	18.3	5.5	4.7	5.1	11.3	18.6	5.2	-	2.85	9.6	4.0	3.1
31	6.1	5.4	-	4.4	-	27	7.4	-	2.75	-	4.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	54	4.1	9.95	15.4	308	947
August	40	4.2	10.8	16.7	335	1,030
September	9.2	4.5	5.12	7.92	154	472
October	45	4.1	7.48	11.6	232	712
November	32	3.3	8.12	12.6	244	748
December	62	3.35	11.9	18.4	369	1,130
Calendar year 1938	132	3.3	12.4	19.2	4,510	13,840
January	29.5	4.0	10.3	15.9	320	982
February	17.0	3.0	5.36	e.29	150	461
March	33.5	2.75	6.86	10.6	213	652
April	76	2.65	19.2	29.7	577	1,770
May	31	3.65	8.30	12.8	257	790
June	36.5	3.0	5.18	8.01	155	477
Fiscal year 1938-39	76	2.65	9.08	14.0	3,310	10,170

Hanakoa Stream near Hanalei

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

Drainage area.- 1.1 square miles.

Records available.- December 1931 to June 1939.

Extremes.- Maximum discharge during year, 152 million gallons a day (235 second-feet) Apr. 3 (gage height, 3.39 feet), from rating curve extended above 30 million gallons a day; minimum, 0.43 million gallons a day (0.66 second-foot) June 20, 21, 29, 30.
1931-39: 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 good. No diversions.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.43	1.2	2.2	1.8	15.5
1.05	.56	1.3	3.65	2.0	24
1.1	1.01	1.4	5.4	2.2	34.5
1.15	1.57	1.6	9.8		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.81	0.75	0.58	0.50	0.58	3.4	3.05	1.99	8.3	0.50	1.69	0.63
2	26.5	.69	.58	.47	.54	.90	1.81	1.44	5.5	.54	1.33	.58
3	1.01	.69	.58	.47	.54	.69	1.44	.90	3.2	26	1.11	.73
4	1.01	1.98	.63	.47	.50	.63	1.11	1.01	6.1	4.0	1.33	.58
5	.90	1.22	.58	.54	.50	.58	.90	6.3	2.35	4.1	.90	.58
6	10.2	.75	.58	1.53	.50	.63	7.3	2.4	2.5	6.9	.81	.84
7	17.2	.69	.58	.58	.50	1.01	6.4	7.7	1.44	31	.75	.63
8	4.8	2.1	.54	.54	.54	.63	2.2	1.69	1.11	4.2	.90	.54
9	1.93	14.4	.54	.50	.75	.95	1.57	1.22	1.01	2.5	1.11	.50
10	1.44	6.3	.54	.50	.63	9.2	4.7	1.01	.75	9.9	1.30	.50
11	1.57	4.2	.63	.47	4.8	1.69	3.1	.81	.75	3.2	12.9	.50
12	2.05	1.69	.54	.47	4.9	1.11	3.2	.69	.69	1.69	4.4	.50
13	1.57	1.69	.54	.50	6.9	.75	5.7	.63	.63	1.33	1.81	.50
14	1.37	1.22	.50	.50	4.5	.63	3.05	.63	.63	1.33	1.11	.54
15	4.3	1.33	.50	.58	12.1	.58	3.8	.63	.63	1.01	1.11	.69
16	1.44	1.01	.50	.75	3.3	4.3	2.05	.63	.58	11.0	1.22	.69
17	2.65	1.22	.50	.54	1.93	1.57	4.7	.63	.63	11.3	1.12	.58
18	1.33	4.1	.50	.50	1.44	.81	3.2	.58	.54	19.6	2.05	.50
19	1.01	10.1	.50	.81	1.78	.81	2.05	.54	.87	10.0	8.9	.47
20	.90	2.35	.50	.58	3.45	1.33	1.44	.54	3.65	16.3	3.1	.43
21	.81	1.57	.54	.50	1.44	1.01	1.22	.90	1.69	21	5.6	.43
22	.90	2.4	.54	.47	1.22	.69	1.01	.54	1.22	4.2	2.8	.85
23	.81	1.44	.50	.47	.90	1.34	.90	.50	.75	3.7	1.93	10.5
24	.75	.90	.54	.50	.75	3.35	1.01	.54	.63	3.75	1.33	2.0
25	.75	.81	.58	.47	.69	2.2	.81	.75	.58	2.2	1.01	.75
26	.69	.75	.50	.47	.81	1.93	1.89	.50	.54	5.0	.81	.54
27	.69	.69	.47	11.0	.69	1.11	8.2	.63	.50	2.35	.75	.50
28	.69	.63	1.68	6.8	.63	17.6	3.95	.75	.50	3.8	.69	.47
29	.69	.63	1.11	1.44	.81	31	1.57	-	.50	2.9	.69	.43
30	4.2	.58	.54	.81	2.6	5.9	1.11	-	.50	2.2	.75	.43
31	1.11	.58	-	.69	-	6.6	1.44	-	.50	-	.81	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	26.5	0.69	3.10	4.80	96.1	295
August	14.4	.58	2.24	3.47	69.5	213
September	1.68	.47	.598	.925	17.9	55
October	11.0	.47	1.14	1.76	35.4	109
November	12.1	.50	2.04	3.16	61.2	188
December	31	.58	3.38	5.23	105	322
Calendar year 1938	72	.47	3.83	5.93	1,400	4,290
January	8.2	.81	2.77	4.29	85.9	264
February	7.7	.50	1.32	2.04	37.1	114
March	8.3	.50	1.61	2.49	49.8	153
April	31	.50	7.25	11.2	218	667
May	12.9	.69	2.13	3.30	66.1	203
June	10.5	.43	.947	1.47	28.4	87
Fiscal year 1938-39	31	.43	2.38	3.68	870	2,670

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, 960 feet, by barometer.

Drainage area.- 1.6 square miles.

Records available.- November 1931 to June 1939.

Extremes.- Maximum discharge during year, 44 million gallons a day (68 second-feet) Apr. 3 (gage height, 2.07 feet), from rating curve extended above 18 million gallons a day; minimum, 2.25 million gallons a day (3.48 second-feet) several times during year.

1931-39: Maximum discharge, 229 million gallons a day (354 second-feet) June 10, 1938 (gage height, 3.37 feet), from rating curve extended above 18 million gallons a day; minimum, 1.9 million gallons a day (2.9 second-feet) Dec. 10, 11, 1933.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.9	2.25	1.1	4.4	1.4	10.5
1.0	3.15	1.2	6.1	1.6	17.0

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.5	3.5	3.6	3.35	3.05	3.35	4.1	2.85	2.85	2.25	2.85	2.4
2	3.6	3.35	3.5	3.35	3.05	3.15	3.5	2.55	3.25	2.75	2.75	2.5
3	3.5	3.35	3.5	3.35	3.05	3.15	3.15	2.5	3.5	15.3	2.75	2.5
4	3.5	3.35	3.6	3.35	3.05	3.15	2.95	2.55	5.1	6.1	2.75	2.5
5	3.5	3.35	3.5	3.35	3.05	3.15	2.85	4.7	3.75	5.1	2.75	2.4
6	4.0	3.35	3.5	3.35	3.05	3.15	3.5	6.6	3.75	3.9	2.75	2.4
7	4.4	3.35	3.5	3.35	2.95	3.15	3.6	12.1	3.15	7.5	2.75	2.3
8	4.1	3.5	3.5	3.35	2.95	2.95	3.15	4.9	2.95	4.7	2.95	2.4
9	3.75	4.4	3.5	3.25	2.95	2.95	2.95	3.6	2.75	4.0	2.95	2.4
10	3.6	5.6	3.5	3.25	2.95	3.5	3.15	3.15	2.55	4.2	3.35	2.4
11	3.6	4.6	3.5	3.25	3.15	3.15	3.15	2.95	2.5	3.6	13.4	2.5
12	3.6	4.3	3.5	3.25	3.25	2.95	3.25	2.75	2.5	3.15	6.3	2.55
13	3.6	4.1	3.5	3.15	3.6	2.95	4.0	2.65	2.5	3.05	4.0	2.55
14	3.6	4.0	3.5	3.15	3.25	2.95	3.5	2.55	2.5	2.85	3.25	2.5
15	3.75	4.0	3.5	3.15	4.1	2.95	3.35	2.55	2.5	2.75	2.95	2.4
16	3.5	4.0	3.35	3.15	3.5	3.05	3.15	2.55	2.4	4.1	2.85	2.4
17	3.6	4.0	3.35	3.15	3.15	2.95	3.35	2.5	2.4	4.7	2.75	2.4
18	3.5	4.1	3.35	3.25	3.05	2.95	3.15	2.5	2.4	6.2	2.85	2.4
19	3.5	4.7	3.35	3.15	3.15	2.95	2.95	2.5	2.55	6.3	3.6	2.4
20	3.5	4.1	3.35	3.15	3.15	2.95	2.75	2.5	2.85	8.3	3.05	2.4
21	3.5	4.0	3.35	3.15	3.05	2.95	2.65	2.5	2.55	9.8	3.15	2.4
22	3.5	4.0	3.35	3.15	3.05	2.95	2.65	2.4	2.4	5.8	2.85	2.5
23	3.5	3.85	3.35	3.15	3.05	3.05	2.65	2.4	2.4	5.1	2.75	3.15
24	3.5	3.65	3.35	3.15	2.95	3.15	2.65	2.4	2.4	4.6	2.75	2.55
25	3.5	3.85	3.35	3.15	2.95	3.25	2.55	2.4	2.3	4.1	2.65	2.4
26	3.5	3.75	3.35	3.15	2.95	3.15	2.65	2.4	2.3	4.1	2.65	2.4
27	3.5	3.75	3.35	4.1	2.95	3.05	3.05	2.4	2.25	3.5	2.65	2.5
28	3.5	3.75	3.75	3.85	3.05	6.7	2.85	2.3	2.25	3.25	2.65	2.4
29	3.5	3.75	3.5	3.15	3.05	14.1	2.65	-	2.3	3.05	2.75	2.4
30	3.75	3.75	3.5	3.15	3.25	5.9	2.55	-	2.25	2.95	2.65	2.5
31	3.5	3.6	-	3.15	-	5.1	2.55	-	2.25	-	2.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.4	3.5	3.61	5.59	112	344
August	5.6	3.35	3.90	6.03	121	371
September	3.75	3.35	3.46	5.35	104	318
October	4.1	3.15	3.27	5.06	101	311
November	4.1	2.95	3.12	4.83	93.8	288
December	14.1	2.95	3.70	5.72	115	352
Calendar year 1938	46	2.85	4.85	7.50	1,770	5,440
January	4.1	2.55	3.06	4.73	95.0	291
February	12.1	2.3	3.24	5.01	90.7	278
March	5.1	2.25	2.72	4.21	84.4	259
April	15.3	2.25	4.90	7.58	147	451
May	13.4	2.5	3.34	5.17	104	318
June	3.15	2.3	2.46	3.81	73.9	227
Fiscal year 1938-39	15.3	2.25	3.40	5.26	1,240	3,810

Right Branch of North Fork of Kaukonahua Stream near Wahiawa

Location.- Masonry dam 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 of Kaukonahua Stream, and 8 miles northeast of Wahiawa. Altitude, 1,200 feet, from topographic map.
Drainage area.- 1.2 square miles.
Records available.- May 1913 to January 1933, February 1934 to June 1939.
Average discharge.- 20 years (1915-24, 1926-32, 1934-39), 8.02 million gallons a day (12.4 second-feet).
Extremes.- Maximum discharge during year, 1,370 million gallons a day (2,120 second-feet) Mar. 2 (gage height, 9.00 feet), from rating curve extended above 40 million gallons a day; minimum, 0.87 million gallons a day (1.35 second-feet) Dec. 15, 16.
1913-39: Maximum discharge, that of Mar. 2, 1939; minimum, 0.09 million gallons a day (0.15 second-foot) Mar. 22, 1926.
Remarks.- Records good except those for periods of faulty records, Feb. 5, 10, 11, 14, 25, 26 (computed on basis of records for station on the Left Branch) and those for discharges above 60 million gallons a day, which are poor. No diversions above station.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Aug. 9		Aug. 10 to June 30			
2.8	1.35	2.7	0.75	3.4	15.1
3.0	3.4	2.8	1.35	3.7	29.5
3.2	7.3	2.9	2.45	4.0	49
3.4	14.1	3.0	3.9	4.5	88
3.6	23	3.2	8.3	5.0	144

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.2	2.15	3.75	0.99	20	1.68	2.9	6.0	93	2.25	11.1	2.25
2	4.8	1.52	3.45	1.31	5.5	7.9	2.35	*18.9	86	2.5	4.1	2.1
3	2.5	1.35	12.7	1.29	1.90	1.90	2.1	4.8	22	16.7	4.0	1.79
4	2.05	14.3	23	.99	1.46	1.23	2.1	3.75	17.5	4.3	3.65	1.46
5	1.76	3.0	8.6	12.6	26	1.23	2.7	9.0	86	2.45	2.6	1.57
6	*1.69	9.8	4.3	7.8	2.6	1.23	3.0	5.2	34.5	2.35	2.9	11.6
7	*1.60	2.1	4.8	1.79	2.4	1.11	5.9	4.1	11.1	17.5	2.35	2.25
8	1.44	3.2	4.1	1.46	3.3	.99	7.6	3.4	8.6	139	2.0	4.7
9	1.35	14.8	3.2	1.11	12.3	1.11	2.1	10.0	6.6	8.8	2.6	8.8
10	2.25	28	3.05	1.14	3.25	3.6	1.79	20	9.5	35.5	3.1	2.7
11	2.95	8.9	3.9	8.0	23	1.57	1.68	15	13.0	5.8	1.79	2.9
12	6.9	3.7	2.45	2.9	29.5	1.29	4.2	6.8	11.0	4.5	1.57	7.3
13	22	16.9	2.25	1.54	19.5	1.05	1.90	5.0	6.6	3.75	1.35	15.5
14	11.4	33	2.0	2.55	19.1	.99	1.57	5.4	4.7	4.1	1.29	21.5
15	14.7	9.1	1.79	16.6	28	.87	1.57	7.0	3.9	3.05	5.1	44
16	3.5	4.6	1.79	13.0	9.0	9.0	23.5	4.5	5.8	4.0	3.15	12.1
17	3.9	8.8	1.57	2.8	5.8	1.68	37.5	3.9	16.2	6.6	6.0	42
18	2.65	20.5	1.57	1.90	4.7	1.11	22.5	3.75	3.9	31	3.25	29.5
19	4.7	25.5	1.46	1.90	3.75	2.9	5.0	3.2	3.3	5.4	10.7	19.2
20	2.2	15.2	3.75	1.46	3.45	32.5	18.4	4.3	3.3	5.7	3.4	8.0
21	3.35	6.2	1.46	1.23	3.05	14.2	9.0	4.3	2.9	3.45	15.9	6.0
22	4.8	4.7	1.23	1.23	2.75	11.9	5.1	2.6	2.45	3.05	13.8	5.5
23	2.7	4.0	1.29	1.23	2.45	3.45	17.5	2.35	2 35	2.6	10.2	15.8
24	1.94	7.4	1.23	1.05	2.25	2.45	8.3	3.45	2.25	6.6	3.45	23
25	2.6	24.5	1.29	1.11	2.1	3.35	3.75	4.0	2.45	8.8	9.3	5.4
26	2.65	4.8	7.7	.93	1.90	10.4	4.1	11	2.1	4.3	3.05	5.8
27	1.86	4.7	1.46	1.09	1.68	47	9.3	4.6	1.90	2.9	3.25	34
28	1.78	6.2	1.74	16.2	1.57	18.7	6.9	84	4.1	27.5	2.25	10.5
29	1.69	23	1.35	2.0	1.35	5.0	3.75	-	8.4	15.0	2.6	4.5
30	6.8	12.8	1.08	2.1	1.57	3.6	5.8	-	6.6	4.1	6.3	5.4
31	2.1	4.7	-	1.46	-	3.2	*16.6	-	4.4	-	7.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	22	1.35	4.51	6.98	140	429
August	33	1.35	10.6	16.4	330	1,010
September	23	1.08	3.78	5.85	113	348
October	16.6	.93	3.64	5.63	113	346
November	29.5	1.35	8.17	12.6	245	752
December	47	.87	6.39	9.89	198	608
Calendar year 1938	81	.87	7.38	11.4	2,690	8,270
January	37.5	1.57	7.76	12.0	240	738
February	64	2.35	9.31	14.4	261	800
March	93	1.90	15.7	24.3	487	1,490
April	139	2.25	12.8	19.8	384	1,180
May	15.9	1.29	4.96	7.67	154	472
June	44	1.46	11.9	18.4	357	1,100
Fiscal year 1938-39	139	.87	8.28	12.8	3,020	9,270

*Partly estimated.

Left Branch of North Fork of Kaukonahua Stream near Wahiawa

Location.- Lat. 21°31'10", long. 157°56'55", 100 feet upstream from intake of Wahiawa Water Co.'s tunnel, which is just downstream from confluence of Right and Left Branches of North Fork of Kaukonahua Stream, and 8 miles northeast of Wahiawa. Altitude, 1,200 feet, from topographic map. Columbus control installed July 2.

Drainage area.- 1.5 square miles.

Records available.- May 1913 to June 1939.

Average discharge.- 22 years (1915-24, 1926-39), 11.6 million gallons a day (17.9 second-feet).

Extremes.- Maximum discharge during year, 2,100 million gallons a day (3,250 second-feet) Mar. 2 (gage height, 9.23 feet), from rating curve extended above 70 million gallons a day; minimum, 1.15 million gallons a day (1.78 second-feet) Dec. 15.
1913-39: 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, less than 0.1 million gallons a day (0.2 second-foot) June 15, 1931.

Remarks.- Records good except those for period of missing gage heights, July 1, 2, Aug. 10 to Sept. 30 (computed on basis of records for station on the Right Branch) and those above 90 million gallons a day, which are fair. No diversions above station.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.7	0.79	2.4	9.1	4.0	185
1.8	1.24	2.7	20.5	4.5	300
1.9	1.84	3.0	42	5.0	435
2.0	2.7	3.3	74		
2.2	5.1	3.6	115		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16	4.2	6.0	1.66	5.2	2.85	5.4	7.0	94	3.2	23	3.75
2	8.0	2.9	5.6	2.1	8.8	9.4	3.35	13.4	111	4.3	6.4	4.2
3	4.0	2.6	18	2.35	3.65	3.2	2.9	4.8	49	34.5	8.1	3.1
4	2.9	34.5	30	1.72	2.0	1.72	2.8	4.0	27	6.9	7.4	2.8
5	2.0	6.2	12	24	28.5	1.66	2.9	11.3	79	3.65	4.7	3.1
6	3.2	16.2	7.0	17.8	2.9	2.55	4.1	6.1	17.0	1.65	13.2	16.1
7	3.1	3.75	7.4	3.0	2.55	1.92	13.3	4.9	8.4	37	4.7	8.2
8	2.55	5.3	6.6	2.9	2.75	1.42	15.4	4.8	8.5	311	3.9	10.0
9	2.2	17.1	5.6	2.0	6.7	3.0	3.45	12.7	6.0	10.9	5.3	31
10	7.2	40	5.4	1.78	5.6	5.4	2.8	37.5	10.0	53	5.9	6.3
11	7.3	15	6.0	22	30.5	4.3	2.7	29	21	7.1	3.45	6.7
12	16.3	4.5	4.0	29	26	2.9	7.4	12.4	33.5	5.8	3.0	28
13	34.5	25	3.5	4.1	17.3	1.84	3.2	6.4	8.0	5.0	2.8	33.5
14	25.5	45	3.3	4.8	24	1.48	2.55	6.4	5.6	11.0	2.6	16.8
15	34	14	3.2	42	58	.79	2.7	6.6	5.0	4.6	19.3	56
16	6.5	6.0	3.2	21	11.2	22.5	68	4.8	7.1	6.8	7.6	34.5
17	6.4	12	2.9	5.2	6.5	3.0	41	4.4	14.6	9.5	16.8	75
18	4.3	20	2.8	3.55	5.3	1.84	40	4.0	4.4	48	9.7	37
19	14.5	25	2.5	3.4	4.4	6.7	7.0	3.75	3.75	7.4	29.5	23.5
20	4.0	22	5.4	2.8	3.75	33.5	16.1	12.8	4.6	7.1	6.5	11.4
21	14.7	8.0	2.5	2.55	3.45	11.9	6.9	9.5	3.75	4.8	29	8.7
22	7.8	6.0	2.2	2.45	3.1	10.6	8.0	3.35	3.1	4.2	9.6	8.1
23	4.4	5.4	2.1	2.2	2.8	3.75	23.5	3.0	2.9	3.65	8.6	48
24	3.55	11	2.1	1.93	2.6	2.8	9.2	4.0	2.8	13.1	4.6	36.5
25	6.6	35	2.1	2.2	2.6	3.55	4.4	4.4	4.6	16.9	12.5	9.1
26	12.3	15	11	1.78	2.25	11.8	4.5	19.7	2.7	6.9	4.6	9.2
27	3.8	13	2.5	2.1	2.1	68	11.6	8.6	2.45	4.2	6.8	39
28	3.95	9.0	2.7	22.5	2.0	31	6.0	134	7.0	97	3.45	17.4
29	3.2	30	2.2	3.35	1.84	6.2	5.0	-	24	34	5.2	6.7
30	2.1	16	1.8	3.85	2.25	4.4	7.5	-	14.2	6.9	10.6	10.9
31	4.4	14	-	2.45	-	10.4	32	-	7.0	-	15.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	34.5	2.0	8.75	13.5	271	832
August	45	2.5	15.6	24.1	483	1,480
September	30	1.8	5.72	8.85	172	527
October	42	1.66	7.89	12.2	245	750
November	58	1.84	9.35	14.5	281	861
December	68	.79	8.92	13.8	276	846
Calendar year 1938	93	.79	10.5	16.2	3,840	11,780
January	68	2.55	11.8	18.3	366	1,120
February	134	3.0	13.7	21.2	384	1,180
March	111	2.45	19.1	29.6	592	1,820
April	311	1.65	25.7	39.8	770	2,360
May	29.5	2.6	9.51	14.7	295	905
June	75	2.8	20.2	31.3	607	1,860
Fiscal year 1938-39	311	.79	13.0	20.1	4,740	14,540

Puhawai Stream at Lualualei, near Waianae

Location.- Parshall flumes, lat. 21°28'10", long. 158°08'00", in Lualualei Valley, 1 mile north of McCandless ranch house and 5 miles northeast of Waianae. Altitude, 600 feet, from topographic map.

Drainage area.- 0.6 square mile.

Records available.- September 1930 to June 1939.

Extremes.- Maximum discharge during year, 16.7 million gallons a day (25.8 second-feet) Feb. 7 (gage height, 2.62 feet for 6-inch flume and 2.82 feet for 4-foot flume), from rating curves extended beyond 3.2 and 1.0 million gallons a day by 6-inch and 4-foot Parshall flume formulas, respectively; minimum, 0.03 million gallons a day (0.05 second-foot) July 23, 24, 29-30.

1930-39: Maximum discharge, 60 million gallons a day (93 second-feet) Feb. 21, 1932 (gage height, 3.58 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Dec. 19, 20, 1931, Jan. 11, 1932, June 25, 26, 1935, Sept. 22, 23, 1936.

Remarks.- Records fair. Continuous rainfall records are obtained at station.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.13	0.06	0.06	0.09	0.08	0.07	0.10	0.21	0.12	0.10	0.12	0.10
2	.11	.06	.05	.08	.08	.08	.09	.16	.18	.24	.12	.10
3	.09	.05	.05	.06	.09	.07	.09	.13	.15	.30	.12	.10
4	.09	.08	.07	.06	.10	.07	.09	.15	1.89	.31	.10	.09
5	.08	.07	.06	.06	.19	.08	.09	1.52	1.63	.24	.10	.09
6	.08	.06	.05	.07	.11	.08	.10	2.4	.56	.20	.11	.10
7	.08	.06	.06	.07	.10	.10	.10	5.3	.33	.33	.11	.10
8	.08	.06	.06	.08	.09	.08	.10	1.13	.24	.49	.11	.10
9	.09	.30	.06	.07	.08	.07	.09	.36	.21	.40	.38	.10
10	.08	1.41	.05	.07	.08	.06	.09	.26	.18	.84	.44	.10
11	.09	.19	.05	.07	.12	.06	.08	.20	.18	.64	.22	.10
12	.09	.10	.06	.07	.14	.06	.10	.15	.15	.39	.19	.10
13	.10	.09	.07	.26	.15	.06	.12	.13	.14	.26	.16	.10
14	.08	.07	.08	.11	.11	.07	.10	.13	.15	.20	.13	.10
15	.09	.06	.08	.46	.19	.06	.10	.12	.14	.16	.13	.13
16	.07	.06	.08	.12	.14	.09	.10	.11	.14	.15	.14	.12
17	.07	.08	.07	.08	.12	.09	.14	.11	.25	.13	.14	.11
18	.07	.16	.07	.08	.11	.08	.19	.11	.18	.13	.14	.10
19	.07	.30	.07	.35	.10	.09	.12	.11	.16	.12	.12	.11
20	.07	.12	.07	.16	.10	.10	.10	.11	.20	.13	.12	.10
21	.07	.08	.06	.11	.10	.08	.09	.11	.30	.12	.12	.10
22	.06	.07	.06	.09	.10	.08	.09	.10	.16	.11	.12	.10
23	.05	.07	.06	.15	.09	.08	.24	.10	.14	.11	.12	.10
24	.05	.18	.06	.13	.08	.08	.14	.10	.15	.11	.12	.10
25	.06	.15	.06	.10	.08	.09	.10	.10	.15	.12	.10	.09
26	.06	.10	.06	.09	.08	.10	.11	.11	.14	.12	.10	.09
27	.06	.08	.07	.11	.07	.10	.12	.10	.12	.11	.10	.09
28	.05	.08	.07	.18	.06	.32	.11	.11	.11	.15	.10	.09
29	.05	.07	.07	.11	.06	.14	.11	-	.10	.13	.10	.08
30	.11	.06	.07	.08	.06	.11	.10	-	.10	.12	.10	.08
31	.06	.06	-	.08	-	.11	.29	-	.10	-	.11	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.13	0.05	0.077	0.119	2.39	7.3
August	1.41	.05	.143	.221	4.44	14
September	.08	.05	.064	.099	1.91	5.9
October	.46	.06	.119	.184	3.70	11
November	.19	.06	.102	.158	3.06	9.4
December	.32	.06	.091	.141	2.81	8.6
Calendar year 1938	50	.04	.339	.525	124	380
January	.29	.08	.116	.179	3.59	11
February	5.3	.10	.490	.758	13.7	42
March	1.89	.10	.282	.436	8.75	27
April	.84	.10	.232	.359	6.96	21
May	.44	.10	.142	.220	4.39	13
June	.13	.08	.099	.153	2.97	9.1
Fiscal year 1938-39	5.3	.05	.161	.249	58.7	179

Pearl Harbor Springs at Waiawa, near Pearl City

Location.- Sharp-crested weir, lat. 21°23'35", long. 157°59'15", at rear of Oahu Sugar Co.'s pumping plant 9, on right bank of Waiawa Stream, 0.7 mile from Pearl City and 9.8 miles northwest of Honolulu.

Records available.- March 1931 to June 1934, July 1937 to June 1939.

Extremes.- Maximum daily discharge during year, 15.3 million gallons a day (23.7 second-feet) several days in February, March and April; minimum, 8.7 million gallons a day (13.5 second-feet) Aug. 3-5, 9.
1931-34, 1937-39: Maximum daily discharge, 17 million gallons a day (26 second-feet) Mar. 15-17, 1932, Mar. 3, 4, 8, 1933; minimum, 8.7 million gallons a day (13.5 second-feet) several days in July, August, and September, 1933, and August 1938.

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 run-off caused by flood not included in figures of discharge given below.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.9	7.3	2.1	13.6
2.0	10.3	2.2	17.1

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.3	9.0	13.9	12.9	13.6	14.6	14.6	14.9	15.3	14.2	13.6	13.6
2	10.3	9.0	13.9	12.9	13.6	14.6	14.6	15.3	15.3	14.6	10.5	13.6
3	11.2	8.7	13.9	12.9	13.6	14.6	14.6	15.3	14.9	15.3	9.6	13.2
4	13.9	8.7	13.9	12.9	13.6	14.6	14.2	15.3	14.9	14.6	9.6	13.2
5	10.9	8.7	13.9	12.9	13.6	14.6	14.2	15.3	15.3	14.6	9.6	13.2
6	10.6	10.0	13.6	12.5	13.6	14.6	13.6	15.3	15.3	14.6	11.2	13.2
7	10.6	12.9	13.6	12.5	13.6	14.2	13.9	15.3	15.3	14.6	13.6	13.2
8	10.3	9.6	13.6	12.5	13.6	14.2	13.9	15.3	15.3	14.6	10.3	13.2
9	10.0	8.7	13.6	12.5	13.6	14.2	13.9	15.3	15.3	15.3	9.6	13.2
10	10.0	12.9	13.6	12.5	13.6	14.2	14.2	15.3	15.3	15.3	9.6	13.6
11	10.0	12.5	13.6	12.5	13.9	14.2	14.2	15.3	15.3	14.6	9.6	13.6
12	10.0	12.2	13.6	12.5	13.9	14.2	14.2	15.3	14.9	14.6	9.6	13.6
13	10.0	12.5	13.2	12.5	13.9	14.2	14.2	15.3	14.9	14.6	11.9	13.6
14	10.0	12.5	13.2	12.5	13.9	14.2	14.6	15.3	14.9	14.6	13.6	13.6
15	10.0	12.5	13.2	12.5	13.9	14.2	14.6	15.3	14.9	14.6	10.3	13.2
16	11.2	13.2	13.2	12.5	14.2	14.2	14.6	15.3	14.9	14.6	9.6	13.6
17	11.9	13.2	13.2	12.9	14.9	14.2	14.6	15.3	14.9	14.6	9.6	13.2
18	10.0	13.2	13.2	12.9	14.9	14.2	14.9	15.3	14.9	14.6	10.3	12.9
19	10.0	13.2	13.2	12.9	14.9	14.2	14.9	15.3	14.9	14.6	9.6	13.2
20	10.0	13.2	13.2	13.2	14.9	14.2	14.9	15.3	14.9	14.2	11.5	13.2
21	10.0	13.2	13.2	13.2	14.9	13.9	14.9	15.3	14.9	14.2	13.6	13.2
22	9.6	13.2	13.2	13.6	14.9	13.9	14.9	15.3	14.6	14.6	10.3	13.6
23	9.6	13.2	13.2	13.6	14.9	13.9	14.9	15.3	14.6	13.9	10.3	13.6
24	9.3	13.2	13.2	13.6	14.9	14.2	14.9	15.3	14.6	13.6	11.2	13.2
25	9.3	13.2	12.9	13.6	14.9	14.2	14.9	15.3	14.6	13.6	9.3	13.2
26	9.0	13.2	12.9	13.6	14.9	14.2	14.9	15.3	14.6	13.6	9.0	13.2
27	9.0	13.2	12.9	13.6	14.9	14.2	14.9	15.3	14.6	13.6	11.2	13.2
28	9.0	13.6	12.9	13.6	14.9	14.2	14.9	15.3	14.6	13.6	13.2	13.2
29	9.0	13.6	12.9	13.6	14.6	14.2	14.9	-	14.2	13.6	13.2	13.2
30	9.0	13.9	12.9	13.6	14.6	14.2	14.9	-	14.2	13.6	13.2	13.2
31	9.0	13.9	-	13.6	-	14.2	14.9	-	14.2	-	13.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.9	9.0	10.1	15.6	313	961
August	13.9	8.7	12.1	18.7	374	1,150
September	13.9	12.9	13.4	20.7	400	1,230
October	13.6	12.5	13.0	20.1	403	1,240
November	14.9	13.6	14.3	22.1	428	1,310
December	14.6	13.9	14.2	22.0	442	1,360
Calendar year 1938	14.9	8.7	12.8	19.8	4,680	14,360
January	14.9	13.6	14.6	22.6	451	1,380
February	15.3	14.9	15.3	23.7	428	1,310
March	15.3	14.2	14.9	23.1	461	1,420
April	15.3	13.6	14.4	22.3	431	1,320
May	13.6	9.0	11.0	17.0	341	1,050
June	13.6	12.9	13.3	20.6	400	1,230
Fiscal year 1938-39	15.3	8.7	13.3	20.6	4,870	14,960

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, two-fifths of a mile from Pearl City and 8.9 miles northwest of Honolulu. Zero of gage is 0.5 foot below mean sea level.

Records available.- July 1931 to June 1939.

Extremes.- Maximum daily discharge during year, 4.5 million gallons a day (7.0 second-feet) Nov. 12, 13; minimum, 3.45 million gallons a day (5.34 second-feet) June 23-30. 1931-39: Maximum daily discharge, 6.0 million gallons a day (9.3 second-feet) June 4, 1932, Mar. 4, 1933; minimum, 1.55 million gallons a day (2.40 second-feet) July 22, 1931.

Remarks.- Records excellent. Discharge for Nov. 18-22 interpolated. About a million gallons a day is occasionally diverted from stream. Surface run-off caused by flood not included in figures of discharge given below.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

2.0	3.1
2.1	4.0
2.2	5.0

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.0	3.8	4.3	4.0	4.4	4.0	4.0	3.9	3.8	3.85	3.75	3.65
2	4.0	3.9	4.3	4.0	4.4	4.0	4.0	3.9	4.0	3.75	3.75	3.65
3	4.0	3.9	4.3	4.0	4.4	4.0	4.0	4.0	3.9	3.8	3.75	3.65
4	4.0	3.9	4.3	4.0	4.4	4.0	3.9	4.0	3.9	3.8	3.8	3.65
5	4.0	3.9	4.3	4.0	4.4	4.0	3.9	4.0	3.8	3.8	3.8	3.65
6	4.0	3.9	4.2	4.0	4.4	4.0	3.9	4.0	3.9	3.8	3.8	3.65
7	4.0	3.9	4.2	4.0	4.4	4.0	3.9	4.0	3.9	3.8	3.8	3.65
8	3.9	4.0	4.2	4.0	4.4	4.0	3.9	3.9	3.9	3.8	3.75	3.65
9	3.9	4.2	4.2	4.0	4.4	4.0	3.9	4.0	3.9	3.9	3.75	3.75
10	3.9	4.2	4.2	4.0	4.4	4.0	3.9	4.0	3.9	4.0	3.65	3.75
11	3.9	4.2	4.2	4.0	4.4	4.0	3.9	4.0	3.9	3.9	3.65	3.75
12	3.9	4.2	4.2	4.0	4.5	4.0	3.9	4.0	3.9	3.8	3.65	3.75
13	3.9	4.2	4.2	4.0	4.5	4.0	3.9	4.0	3.9	3.8	3.85	3.65
14	3.9	4.2	4.2	4.0	4.4	4.0	3.9	4.0	3.9	3.8	3.75	3.65
15	3.9	4.2	4.2	4.1	4.1	3.9	3.9	4.0	3.9	3.8	3.75	3.65
16	3.9	4.2	4.1	4.2	4.1	3.9	3.9	4.0	3.9	3.9	3.75	3.55
17	3.9	4.2	4.1	4.2	4.1	3.9	4.0	3.9	3.9	3.9	3.75	3.55
18	3.9	4.2	4.1	4.3	*4.1	3.9	4.0	3.9	3.9	3.8	3.8	3.55
19	3.8	4.2	4.1	4.3	*4.1	3.9	4.0	3.8	3.9	3.8	3.75	3.55
20	3.8	4.2	4.1	4.3	*4.0	3.9	4.0	3.9	3.8	3.8	3.75	3.55
21	3.8	4.3	4.1	4.3	*4.0	3.8	4.0	3.9	3.8	3.8	3.75	3.55
22	3.8	4.3	4.1	4.3	*4.0	3.8	4.0	3.9	3.8	3.8	3.75	3.55
23	3.8	4.3	4.1	4.4	4.0	3.8	4.0	3.8	3.8	3.8	3.75	3.45
24	3.8	4.3	4.1	4.4	4.0	3.8	3.9	3.9	3.8	3.8	3.75	3.45
25	3.8	4.3	4.1	4.4	4.0	3.9	3.9	3.8	3.8	3.8	3.76	3.45
26	3.8	4.3	4.1	4.4	4.0	4.0	3.9	3.9	3.8	3.8	3.75	3.45
27	3.8	4.3	4.1	4.4	4.0	4.0	3.9	3.9	3.8	3.8	3.75	3.45
28	3.8	4.3	4.1	4.4	4.0	4.0	3.9	3.9	3.75	3.75	3.65	3.45
29	3.9	4.3	4.0	4.4	4.0	4.0	3.9	-	3.75	3.75	3.85	3.45
30	3.9	4.3	4.0	4.4	4.0	4.0	3.9	-	3.75	3.75	3.85	3.45
31	3.8	4.3	-	4.4	-	4.0	3.9	-	3.85	-	3.65	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.0	3.8	3.89	6.02	120	370
August	4.3	3.8	4.16	6.44	129	396
September	4.3	4.0	4.16	6.44	125	383
October	4.4	4.0	4.18	6.47	130	398
November	4.5	4.0	4.21	6.51	126	388
December	4.0	3.8	3.95	6.11	122	376
Calendar year 1938	4.7	3.8	4.13	6.39	1,510	4,620
January	4.0	3.9	3.93	6.08	122	374
February	4.0	3.8	3.94	6.10	110	338
March	4.0	3.85	3.85	5.96	119	366
April	4.0	3.85	3.81	5.89	114	351
May	3.8	3.65	3.73	5.77	116	355
June	3.75	3.45	3.59	5.55	108	330
Fiscal year 1938-39	4.5	3.45	3.95	6.11	1,440	4,420

*Interpolated.

Pearl Harbor Springs at Loko Kukona, near Pearl City

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

Records available.- June 1931 to June 1939.

Extremes.- Maximum daily discharge during year, 2.8 million gallons a day (4.3 second-feet) Nov. 20-27; minimum, 2.15 million gallons a day (3.33 second-feet) June 8-19.
1931-39: Maximum daily discharge recorded, 4.0 million gallons a day (6.2 second-feet) Mar. 21, 22, Mar. 31 to Apr. 3, 1932; minimum, 2.05 million gallons a day (3.17 second-feet) Aug. 13, 1936.

Remarks.- Records excellent. No diversions. Surface run-off caused by floods not included in figures of discharge given below.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

2.1	1.75
2.2	2.55
2.3	3.4

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.55	2.55	2.55	2.45	2.4	2.7	2.6	2.4	2.55	2.4	2.4	2.2
2	2.55	2.55	2.55	2.45	2.4	2.7	2.6	2.45	2.6	2.45	2.4	2.2
3	2.6	2.55	2.6	2.55	2.4	2.7	2.6	2.45	2.55	2.45	2.4	2.2
4	2.7	2.55	2.6	2.55	2.4	2.6	2.55	2.45	2.55	2.45	2.3	2.2
5	2.7	2.55	2.6	2.55	2.4	2.6	2.55	2.4	2.55	2.4	2.3	2.2
6	2.7	2.55	2.6	2.55	2.4	2.6	2.55	2.4	2.55	2.4	2.2	2.2
7	2.55	2.55	2.6	2.55	2.4	2.6	2.55	2.4	2.55	2.4	2.2	2.2
8	2.45	2.55	2.6	2.55	2.4	2.6	2.55	2.3	2.55	2.4	2.2	2.15
9	2.45	2.55	2.6	2.55	2.4	2.6	2.55	2.3	2.55	2.4	2.2	2.15
10	2.45	2.55	2.55	2.55	2.4	2.6	2.6	2.4	2.6	2.4	2.2	2.15
11	2.55	2.55	2.55	2.55	2.4	2.6	2.55	2.4	2.6	2.3	2.2	2.15
12	2.4	2.6	2.55	2.55	2.4	2.55	2.55	2.45	2.6	2.4	2.3	2.15
13	2.4	2.6	2.55	2.55	2.4	2.45	2.55	2.45	2.55	2.4	2.3	2.15
14	2.4	2.6	2.55	2.55	2.6	2.45	2.6	2.45	2.45	2.4	2.4	2.15
15	2.4	2.6	2.55	2.6	2.7	2.45	2.6	2.45	2.45	2.4	2.4	2.15
16	2.4	2.6	2.55	2.6	2.7	2.55	2.6	2.45	2.45	2.4	2.3	2.15
17	2.45	2.6	2.55	2.6	2.7	2.55	2.6	2.45	2.45	2.4	2.3	2.15
18	2.45	2.7	2.55	2.6	2.7	2.55	2.6	2.45	2.45	2.4	2.3	2.15
19	2.55	2.7	2.55	2.6	2.7	2.55	2.6	2.45	2.45	2.4	2.3	2.15
20	2.55	2.6	2.55	2.6	2.8	2.55	2.6	2.45	2.45	2.4	2.3	2.2
21	2.55	2.6	2.55	2.6	2.8	2.55	2.6	2.45	2.45	2.4	2.2	2.45
22	2.55	2.6	2.55	2.6	2.8	2.55	2.6	2.55	2.45	2.4	2.2	2.45
23	2.55	2.6	2.55	2.55	2.8	2.45	2.7	2.55	2.45	2.4	2.2	2.4
24	2.55	2.6	2.55	2.55	2.8	2.55	2.6	2.55	2.45	2.4	2.3	2.4
25	2.55	2.6	2.55	2.45	2.8	2.55	2.6	2.55	2.45	2.4	2.3	2.4
26	2.55	2.6	2.55	2.45	2.8	2.55	2.7	2.55	2.4	2.4	2.3	2.4
27	2.55	2.6	2.55	2.45	2.8	2.55	2.55	2.55	2.4	2.4	2.3	2.4
28	2.55	2.6	2.45	2.4	2.7	2.6	2.55	2.55	2.3	2.4	2.3	2.4
29	2.55	2.6	2.45	2.4	2.7	2.6	2.55	-	2.3	2.4	2.3	2.4
30	2.55	2.55	2.45	2.4	2.7	2.6	2.55	-	2.3	2.4	2.3	2.4
31	2.55	2.55	-	2.4	-	2.6	2.45	-	.2.3	-	2.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.7	2.4	2.53	3.91	78.3	240
August	2.7	2.55	2.59	4.01	80.2	246
September	2.6	2.45	2.55	3.95	76.6	235
October	2.6	2.4	2.53	3.91	78.4	240
November	2.8	2.4	2.59	4.01	77.8	239
December	2.7	2.45	2.57	3.98	79.7	245
Calendar year 1938	3.3	2.4	2.72	4.21	992	3,040
January	2.7	2.45	2.58	3.99	80.0	246
February	2.55	2.3	2.45	3.79	68.7	211
March	2.6	2.3	2.48	3.84	76.8	236
April	2.45	2.3	2.40	3.71	72.0	221
May	2.4	2.2	2.29	3.54	70.9	218
June	2.45	2.15	2.25	3.48	67.5	207
Fiscal year 1938-39	2.8	2.15	2.48	3.84	907	2,780

Pearl Harbor Springs at Waiau, near Pearl City

Location.- Sharp-crested weir, lat. 21°23'25", long. 157°57'40", on left bank of Waiau Stream, 440 feet (revised) downstream from New Kamehameha Highway, 0.8 mile from Pearl City, and 8.5 miles northwest of Honolulu. Zero of gage is 0.74 foot below mean sea level.

Records available.- May 1931 to Feb. 1939 (discontinued).

Extremes.- Maximum daily discharge during period, 9.3 million gallons a day (14.4 second-feet) Aug. 23, 24, 27; minimum, 7.1 million gallons a day (11.0 second-feet) July 1. 1931-39: Maximum daily discharge, 10.1 million gallons a day (15.6 second-feet) May 24, Dec. 18, 19, 1937; minimum, 3.2 million gallons a day (5.0 second-feet) Aug. 23, 1931.

Remarks.- Records excellent. Discharge interpolated Aug. 1-4. A small pumping plant diverts water above station for irrigation. Surface run-off caused by flood not included in figures of discharge given below.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

2.0	6.0
2.1	7.9
2.2	9.9

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.1	*8.5	8.8	8.3	8.1	8.1	8.1	7.9				
2	8.1	*8.5	8.8	8.3	8.1	8.1	8.1	7.9				
3	8.5	*8.5	8.8	8.1	8.1	7.9	8.1	7.9				
4	8.7	*8.5	8.8	8.1	7.9	8.1	7.9	7.9				
5	8.5	8.5	8.8	8.1	7.9	8.1	7.9	7.9				
6	8.5	8.5	8.8	8.1	7.9	7.9	7.9	7.9				
7	8.3	8.7	8.8	8.1	7.9	7.9	7.9	7.9				
8	8.5	8.7	8.8	8.1	7.9	7.9	7.9	7.9				
9	8.5	8.7	8.8	7.9	7.9	7.9	7.9	7.9				
10	8.5	8.8	8.8	7.9	7.9	7.9	7.7	7.9				
11	8.5	8.8	8.8	7.9	8.1	7.9	7.7	8.1				
12	8.3	8.8	8.8	7.9	8.1	7.9	7.7	8.1				
13	8.3	8.8	8.8	7.9	8.1	7.9	7.7	8.3				
14	8.3	8.8	8.7	7.9	8.1	7.9	7.7	8.1				
15	8.3	8.8	8.7	7.9	8.1	7.7	7.7	-				
16	8.3	8.8	8.7	7.9	8.3	7.7	7.7	-				
17	8.3	8.8	8.7	7.9	8.3	7.7	7.7	-				
18	8.3	9.0	8.7	8.1	8.3	7.9	7.9	-				
19	8.3	9.0	8.7	8.1	8.3	7.9	7.7	-				
20	8.3	9.0	8.7	8.1	8.3	7.9	7.7	-				
21	8.1	9.0	8.5	8.1	8.3	7.7	7.9	-				
22	8.1	9.0	8.5	8.1	8.3	7.7	7.9	-				
23	8.1	9.3	8.3	8.1	8.3	7.7	7.9	-				
24	8.1	9.3	8.3	8.1	8.3	7.7	7.7	-				
25	8.3	9.0	8.3	8.1	8.3	7.9	7.7	-				
26	8.3	9.0	8.3	8.1	8.3	7.9	7.9	-				
27	8.3	9.3	8.3	8.1	8.3	7.9	7.9	-				
28	8.3	9.0	8.3	8.1	8.1	8.1	7.9	-				
29	8.3	9.0	8.3	8.1	8.1	8.1	7.9	-				
30	8.5	8.8	8.3	8.1	8.1	8.1	7.9	-				
31	8.5	8.8	-	8.1	-	8.1	7.9	-				

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.7	7.1	8.30	12.8	257	790
August	9.3	8.5	8.84	13.7	274	841
September	8.8	8.3	8.62	13.3	259	794
October	8.3	7.9	8.05	12.5	250	766
November	8.3	7.9	8.13	12.6	[illegible]4	749
December	8.1	7.7	7.91	12.2	24[illegible]	752
Calendar year 1938	9.7	6.9	8.56	13.2	3,120	9,580
January	8.1	7.7	7.84	12.1	243	746
February 1-14	8.3	7.9	7.97	12.3	112	342
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	-	-	-	-	-	-
The period	-	-	-	-	-	5,780

*Interpolated.

Pearl Harbor Springs at Kalauao, near Aiea

Location.- Sharp-crested weir, lat. 21°23'00", long. 157°56'50", on left bank of Kalauao Stream, a quarter of a mile downstream from Honolulu Plantation pump 6, 1.1 miles from Aiea, and 7.6 miles northwest of Honolulu. Zero of gage is 1.10 feet below mean sea level.

Records available.- March 1931 to June 1939.

Extremes.- Maximum daily discharge during year, 22.5 million gallons a day (34.8 second-feet) Aug. 25-28, Oct. 18; minimum, 15.6 million gallons a day (24.1 second-feet) Aug. 2-5, Dec. 23.
1931-39: Maximum daily discharge, 25 million gallons a day (39 second-feet) Feb. 17-26, 1938; minimum, 8.7 million gallons a day (13.5 second-feet) Aug. 23, 1934.

Remarks.- Records excellent. 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 run-off caused by flood not included in figures of discharge given below.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

2.0	11.3
2.2	18.7
2.3	23

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.2	16.0	16.8	16.8	21	20.5	21	21	20.5	20.5	18.0	18.0
2	17.2	15.6	16.8	21	20.5	16.8	21	21.5	20.5	20.5	18.4	18.0
3	21.5	15.6	16.8	16.4	20.5	16.4	16.8	21.5	20.5	18.7	18.4	19.9
4	22	15.6	19.1	16.0	18.0	21.5	17.6	19.1	20.5	20.5	18.7	19.9
5	17.6	15.6	17.2	16.4	19.5	18.0	17.6	21.5	20.5	20.5	20.5	16.8
6	17.2	16.4	16.4	16.8	22	18.0	16.8	20.5	20.5	20.5	20.5	17.2
7	17.2	21.5	16.4	18.0	19.1	17.6	18.4	21.5	20.5	20.5	20.5	16.8
8	18.4	16.8	16.8	18.4	22	16.4	20.5	21.5	20.5	20.5	20.5	16.8
9	18.0	17.6	16.4	21.5	17.2	19.9	17.2	21.5	21	21	20.5	17.2
10	21.5	22	16.4	17.2	21.5	17.2	17.2	21.5	21	21.5	18.0	17.2
11	18.0	22	16.8	17.2	22	21.5	18.7	21.5	21	21.5	19.1	19.1
12	16.8	22	16.4	17.6	20.5	17.6	18.4	21.5	21	21.5	20.5	19.5
13	16.8	22	16.8	17.6	22	16.4	18.4	21.5	21	21.5	20.5	17.2
14	16.8	22	16.4	17.6	22	18.0	18.4	19.1	18.7	21.5	20.5	16.9
15	16.8	22	16.4	17.6	22	16.8	18.7	19.1	18.7	21.5	18.7	17.2
16	16.8	22	17.2	22	22	16.8	17.2	19.1	18.7	21.5	19.9	18.0
17	17.2	17.2	16.8	22	22	17.2	18.4	18.6	18.7	21.5	20.5	18.0
18	17.2	17.2	20.5	22.5	18.7	21	19.5	18.4	20.5	21.5	20.5	19.1
19	16.8	22	16.4	18.0	22	16.8	20.5	20.5	21.0	19.5	20.5	16.8
20	17.2	22	17.6	18.7	22	17.2	20.5	18.7	19.1	19.1	20.5	16.8
21	16.4	22	17.6	17.2	22	16.4	20.5	18.4	18.7	18.7	20.5	16.8
22	16.8	22	16.8	18.0	18.0	16.4	20.5	18.4	18.7	21	16.8	16.8
23	16.4	22	17.2	21.5	18.0	15.6	19.5	18.4	18.7	21.5	18.4	16.8
24	21.5	22	18.0	21	21.5	17.2	20.5	18.4	18.2	18.2	18.4	18.4
25	16.8	22.5	21	18.7	18.4	20.5	18.7	18.4	20.5	18.0	20.5	19.5
26	16.4	22.5	16.8	18.7	18.7	20.5	18.7	20.5	20.5	17.6	18.0	17.2
27	16.4	22.5	16.8	16.4	21	17.6	19.9	18.7	17.2	17.6	18.0	18.4
28	16.4	22.5	16.4	17.6	18.0	20.5	20.5	19.5	18.4	17.2	20.5	16.8
29	16.4	17.2	17.2	18.7	17.2	20.5	21	-	18.4	21	18.4	16.8
30	16.4	16.8	16.4	22	16.4	21	21	-	18.4	21	18.0	16.8
31	18.7	16.4	-	18.0	-	21	20.5	-	19.1	-	18.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	22	16.4	17.6	27.2	547	1,680
August	22.5	15.6	19.7	30.5	612	1,880
September	21	16.4	17.2	26.6	515	1,580
October	22.5	16.0	18.6	28.8	577	1,770
November	22	16.4	20.2	31.3	606	1,860
December	21.5	15.6	18.3	28.3	569	1,750
Calendar year 1938	25	15.6	19.8	30.3	7,150	21,970
January	21	16.8	19.2	29.7	594	1,820
February	21.5	18.4	20.0	30.9	560	1,720
March	21	17.2	19.7	30.5	611	1,880
April	21.5	17.2	20.2	31.3	606	1,860
May	20.5	16.8	19.4	30.0	601	1,840
June	19.9	16.8	17.7	27.4	531	1,630
Fiscal year 1938-39	22.5	15.6	19.0	29.4	6,930	21,270

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Moanalua Stream near Honolulu

Location.- Concrete weir control, lat. 21°23'30", long. 157°51'10", 5½ miles upstream from mouth and 5.6 miles north of Honolulu post office. Zero of gage is 339.12 feet above mean sea level.

Drainage area.- 3.2 square miles.

Records available.- June 1926 to June 1939.

Average discharge.- 13 years (1926-39), 2.76 million gallons a day (4.27 second-feet).

Extremes.- Maximum discharge during year, 1,310 million gallons a day (2,030 second-feet) Mar. 5 (gage height, 8.16 feet), from rating curve extended above 62 million gallons a day based on data for similar weirs; no flow for several periods during year.
1926-39: Maximum discharge, 2,370 million gallons a day (3,670 second-feet) Nov. 18, 1930 (gage height, 11.58 feet), from rating curve extended above 40 million gallons a day based on weir formulas; no flow during dry weather.

Remarks.- Records good except those for discharges above 100 million gallons a day, which are poor. Continuous records of rainfall are obtained at station.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.6	1.70	1.2	11.1	2.5	82
.2	.05	.8	3.75	1.6	24.5	3.0	128
.4	.48	1.0	6.8	2.0	45	3.5	184

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.1	0	0.01	0	0	0	0.45	2.05	48	0	4.4	0.02
2	.36	0	.01	0	0	0	.12	1.15	55	.66	1.42	.01
3	.04	0	0	0	0	0	.03	.55	6.8	19.7	1.07	.01
4	.02	9.5	.15	0	0	0	.02	.15	11.9	35	.58	0
5	.02	2.15	.01	0	0	0	.01	3.2	149	5.2	.31	0
6	.01	1.14	.01	0	0	0	1.72	3.0	23	2.9	.16	.05
7	.01	.08	0	0	0	0	.48	2.2	5.6	12.1	.08	.03
8	0	.01	0	0	0	0	1.14	.98	2.8	106	.12	.01
9	0	8.4	0	0	0	0	.24	.36	1.70	17.7	4.0	0
10	0	21	.63	0	0	0	.05	7.8	1.63	34.5	6.3	0
11	0	3.2	.[illegible]	0	0	0	.02	.80	3.2	8.0	1.35	0
12	0	.64	.[illegible]	0	0	0	.02	.31	1.56	3.7	.53	0
13	0	3.9	.01	0	0	0	.02	.15	.95	2.05	.22	.01
14	0	2.55	0	0	.14	0	.01	.04	.64	1.42	.08	2.2
15	0	1.03	0	8.2	2.9	0	.01	.04	.45	.95	.38	7.8
16	0	.25	0	.96	.91	0	4.0	.04	.44	.84	.53	6.8
17	0	.88	0	.01	.18	0	21	.25	1.41	1.64	.36	4.6
18	0	11.8	0	0	.03	0	16.1	.23	.88	16.4	.99	5.8
19	0	20.5	0	0	.01	0	3.85	.05	.25	4.8	2.3	4.6
20	0	8.0	0	0	.01	.19	1.63	.34	.15	2.4	1.0	1.70
21	0	2.1	0	0	0	.04	.79	1.79	.05	1.87	6.1	.84
22	.08	.84	0	0	0	1.75	.48	.12	.03	1.40	2.95	.39
23	0	.34	0	0	0	.35	11.8	.03	.02	.69	1.35	1.20
24	0	1.31	0	0	0	.08	8.6	.02	.42	.42	.64	12.8
25	0	4.1	0	0	0	.85	1.66	.01	2.15	16.1	.28	1.72
26	0	3.5	0	0	0	.36	.84	1.97	.18	4.0	.12	.74
27	0	.16	0	0	0	46	1.47	.19	.03	1.69	.05	2.65
28	0	.04	0	1.89	0	31.5	4.0	120	.01	2.25	.03	.64
29	0	.22	0	.14	0	6.6	1.35	-	.01	2.8	.03	.19
30	0	.03	0	.01	0	2.5	.74	-	.01	.90	.03	.18
31	0	.01	-	0	-	1.14	.95	-	.01	-	.03	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.1	0	0.182	0.282	5.64	17
August	21	0	3.47	5.37	108	330
September	.63	0	.038	.059	1.14	3.5
October	8.2	0	.362	.560	11.2	34
November	2.9	0	.139	.215	4.18	13
December	46	0	2.95	4.56	91.4	280
Calendar year 1938	87	0	2.88	4.46	1,050	3,230
January	21	.01	2.70	4.18	83.6	257
February	120	.01	5.28	8.17	148	454
March	149	.01	10.3	15.9	318	977
April	108	0	10.3	15.9	310	952
May	6.3	.03	1.22	1.89	37.8	116
June	12.8	0	1.83	2.83	55.0	169
Fiscal year 1938-39	149	0	3.22	4.98	1,170	3,600

Kalihi Stream near Honolulu

Location.- Lat. 21°22'10", long. 157°50'25", at Kioi Pool, three-eighths of a mile upstream from Catholic Orphanage and 4.4 miles north of Honolulu post office. Zero of gage is 464.40 feet above mean sea level.

Drainage area.- 2.7 square miles.

Records available.- September 1913 to June 1939.

Average discharge.- 22 years (1916-20, 1921-39), 5.25 million gallons a day (8.12 second-feet).

Extremes.- Maximum discharge during year, 1,330 million gallons a day (2,060 second-feet) Feb. 28 (gage height, 10.18 feet), from rating curve extended above 220 million gallons a day by test on model of station site; minimum, 0.84 million gallons a day (1.30 second-feet) Oct. 9.

1913-39: 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 excellent except those for periods when clock was not running, Oct. 21 to Nov. 14, which were computed on basis of records for stations on streams from the Waiomao to the Kalihi and are poor. Water for domestic use diverted from stream above station.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.60	1.4	8.7	2.3	30.5	3.5	74
1.0	2.2	1.7	14.8	2.6	40	4.0	98
1.2	5.1	2.0	22	3.0	54		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.2	1.64	2.45	1.21	3.2	1.21	3.5	4.9	40	2.0	9.8	2.35
2	2.45	1.55	2.35	1.13	6.3	1.78	2.85	5.1	47	2.1	5.4	2.2
3	2.1	1.52	3.6	1.13	3.2	1.37	2.7	4.0	10.8	29	6.2	2.1
4	2.0	29	6.3	1.13	2.3	1.21	2.6	3.35	17.8	35	4.5	2.0
5	1.91	4.0	2.45	1.21	2.05	1.13	2.6	4.8	98	6.6	3.65	2.85
6	2.0	3.1	2.2	1.28	1.90	1.13	6.4	5.6	26	6.3	3.35	3.1
7	1.82	2.6	2.35	1.05	1.80	1.05	4.2	7.3	10.8	20.5	3.1	2.35
8	1.73	2.65	4.4	1.05	2.0	1.05	4.3	4.9	8.1	93	4.4	2.0
9	1.64	25.5	3.8	.97	2.3	1.13	3.0	4.0	6.6	15.1	11.7	2.35
10	1.82	23	2.2	1.13	2.0	1.96	2.6	8.7	6.3	25	8.6	2.0
11	2.55	6.1	3.95	1.28	4.0	1.55	2.45	4.9	5.8	10.0	4.6	2.0
12	4.2	11.0	2.1	1.21	3.0	1.28	4.0	4.3	4.9	7.4	3.8	4.7
13	2.1	8.3	1.91	1.21	2.5	1.21	2.6	3.65	4.5	6.0	3.25	3.5
14	2.55	7.6	1.82	.97	3.2	1.05	2.45	3.5	4.1	5.1	3.0	6.6
15	3.5	4.8	1.73	16.8	6.7	.97	2.85	3.35	3.8	4.6	4.0	15.4
16	2.1	3.8	1.73	4.6	4.5	1.96	21	3.1	4.1	6.5	3.5	9.5
17	2.0	6.6	1.73	1.91	3.0	1.28	24	3.5	4.0	7.5	4.0	11.8
18	1.73	21	1.64	1.55	2.35	1.05	19.6	2.85	3.5	14.2	3.8	12.2
19	1.91	23	1.64	1.46	2.0	1.07	7.6	2.45	3.35	6.8	10.8	6.8
20	1.64	10.7	1.55	1.28	1.82	4.0	5.8	5.0	3.1	6.1	4.5	4.8
21	2.3	6.1	1.46	1.20	1.73	1.91	4.6	3.65	2.7	5.1	7.8	4.1
22	5.5	4.9	1.46	1.30	1.73	2.3	4.0	2.6	2.6	4.3	5.1	3.5
23	1.91	4.3	1.46	1.20	1.64	1.91	14.9	2.35	2.45	3.8	3.8	7.1
24	2.45	4.5	1.55	1.10	1.46	1.64	8.2	2.2	3.95	4.0	3.25	11.8
25	2.4	6.5	1.46	1.40	1.46	3.6	4.9	2.2	3.5	10.4	3.25	4.9
26	2.2	4.0	1.37	1.30	1.37	3.2	4.5	3.4	2.6	4.6	2.85	4.0
27	1.82	3.35	1.37	1.50	1.28	60	4.3	2.45	2.35	3.8	2.6	10.3
28	1.73	3.0	1.28	2.5	1.28	31	6.3	78	2.35	6.3	2.45	4.1
29	1.64	3.25	1.28	1.70	1.28	8.9	4.1	-	2.45	5.3	2.45	3.35
30	4.2	2.85	1.21	1.70	1.21	5.6	4.5	-	2.2	3.8	2.45	3.25
31	2.0	2.6	-	1.60	-	4.5	5.8	-	2.0	-	3.55	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.2	1.64	2.55	3.95	79.1	243
August	29	1.52	7.83	12.1	243	745
September	6.3	1.21	2.19	3.39	65.8	202
October	16.8	.97	1.94	3.00	60.1	184
November	6.7	1.21	2.49	3.85	74.6	229
December	60	.97	4.94	7.64	153	470
Calendar year 1938	95	.97	6.16	9.53	2,250	6,900
January	24	2.45	6.23	9.64	193	593
February	78	2.2	6.65	10.3	186	571
March	98	2.0	11.0	17.0	342	1,050
April	93	2.0	12.0	18.6	360	1,110
May	11.7	2.45	4.69	7.25	146	447
June	15.4	2.0	5.23	8.09	157	482
Fiscal year 1938-39	98	.97	5.64	8.73	2,060	6,330

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. Zero of gage is 631.71 feet above mean sea level.

Drainage area.- 3.4 square miles.

Records available.- October 1913 to June 1939.

Average discharge.- 20 years (1917-20, 1922-39), 5.91 million gallons a day (9.14 second-feet).

Extremes.- Maximum discharge during year, 794 million gallons a day (1,230 second-feet) Mar. 5 (gage height, 5.77 feet), from rating curve extended above 300 million gallons a day based on weir formulas and by test on model of station site; minimum, 0.51 million gallons a day (0.79 second-foot) Dec. 23.

1913-39: Maximum discharge, 1,600 million gallons a day (2,480 second-feet) Jan. 16, 1921 (gage height, 8.74 feet, from floodmarks), from rating curve extended above 300 million gallons a day based on weir formulas and by test on model of station site; minimum, 0.06 million gallons a day (0.09 second-foot) Sept. 10, 11, 1925.

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

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.60	0.6	1.65	0.9	3.1	1.2	6.5	2.5	68
.4	.90	.7	2.1	1.0	3.65	1.5	14.9	3.0	105
.5	1.25	.8	2.6	1.1	4.6	2.0	37.5		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.1	3.85	5.6	3.05	4.3	1.SS	2.3	4.1	32.5	3.75	11.5	4.3
2	S.1	3.65	5.6	3.05	6.6	2.45	2.1	3.6	56	4.1	8.1	4.3
3	6.3	3.7	6.1	3.05	3.25	1.88	2.1	3.45	10.S	19.3	8.8	4.2
4	6.3	18.2	7.3	3.05	2.65	1.78	2.05	3.2	13.5	2S	7.9	3.95
5	6.3	4.1	5.4	3.15	2.55	1.7S	1.92	3.65	63	6.0	7.4	4.5
6	5.9	4.0	5.0	3.0	2.45	1.78	2.85	3.75	20.5	6.1	7.2	4.8
7	5.7	4.1	5.0	2.85	2.25	1.65	2.15	5.7	10.S	8.S	7.0	3.95
8	5.7	4.8	4.6	2.8	2.35	1.65	2.45	3.55	S.3	82	7.0	3.65
9	5.6	11.2	6.2	2.7	2.6	1.70	2.15	3.25	7.6	14.5	12.4	3.85
10	5.6	19.6	4.5	2.95	2.3	2.2	2.1	4.1	7.4	22.5	8.7	3.35
11	5.6	6.2	5.2	3.2	4.0	1.78	1.92	3.7	7.4	11.4	7.4	3.5
12	6.1	6.8	4.5	2.8	3.55	1.70	2.15	3.5	6.5	10.2	7.2	5.1
13	5.6	10.0	4.3	2.8	3.1	1.61	1.96	3.4	6.3	9.6	6.7	6.8
14	5.6	7.3	4.2	2.8	3.95	4.2	1.96	3.3	6.1	9.4	6.5	7.6
15	6.1	6.1	4.1	12.6	4.6	5.7	2.25	3.3	6.1	9.1	7.6	13.7
16	5.6	5.7	4.0	4.4	3.05	2.45	10.4	3.0	5.9	9.9	7.0	S.6
17	5.6	6.5	3.95	3.1	2.7	1.96	11.0	3.9	5.9	10.2	7.2	12.0
18	5.2	15.6	3.95	2.95	2.5	1.8S	10.6	3.2	5.6	13.6	7.0	21.5
19	5.2	19.7	3.75	2.95	2.3	1.S3	4.0	3.0	5.4	9.9	8.7	9.4
20	4.8	11.2	3.6	2.85	2.3	2.4	3.4	3.75	5.8	9.9	6.9	6.7
21	5.6	7.2	3.6	2.S	2.15	2.1	2.95	3.45	5.2	S.8	8.9	6.3
22	5.8	6.5	3.5	2.95	2.15	1.64	2.8	3.0	5.2	8.3	9.7	6.1
23	5.0	6.3	3.6	2.75	2.05	.90	S.5	2.55	5.0	8.1	5.9	8.1
24	5.2	6.5	3.55	2.3	2.05	.81	5.7	2.45	4.8	8.1	5.4	11.8
25	5.2	7.7	3.4	2.7	2.05	1.41	3.25	2.95	4.6	10.0	5.4	6.1
26	5.4	6.3	3.4	2.55	1.92	1.44	5.1	3.95	4.6	S.3	4.8	5.9
27	4.8	6.1	3.25	2.6	1.SS	21.5	5.7	2.9	4.6	7.9	4.6	9.1
28	4.8	6.0	3.2	4.1	1.7S	14.5	11.3	56	4.6	9.6	4.5	5.7
29	4.5	6.8	3.15	2.8	1.65	3.95	4.6	-	4.8	8.1	4.5	5.4
30	4.S	5.9	3.1	2.S	1.S3	2.7	4.5	-	4.4	7.6	4.4	5.2
31	4.3	5.6	-	2.6	-	2.6	5.6	-	4.1	-	5.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.1	4.3	5.75	8.90	178	547
August	19.7	3.65	7.S5	12.1	243	746
September	7.3	3.1	4.35	6.73	131	401
October	12.6	2.3	3.26	5.04	101	310
November	6.6	1.65	2.76	4.27	82.9	254
December	21.5	.S1	3.16	4.S9	97.8	300
Calendar year 1938	66	.S1	7.09	11.0	2,590	7,940
January	11.3	1.92	4.25	6.5S	132	405
February	56	2.45	5.34	8.26	150	459
March	63	4.1	11.1	17.2	343	1,050
April	S2	3.75	12.S	19.8	383	1,180
May	12.4	4.4	7.15	11.1	222	680
June	21.5	3.35	6.85	10.6	205	631
Fiscal year 1938-39	S2	.S1	6.22	9.62	2,270	6,960

West Branch of Manoa Stream near Honolulu

Location.- Combination Parshall flume and concrete weir control, lat. 21°19'50", long. 157°48'15", 75 feet upstream from lower highway and 4 miles northeast of Honolulu post office. Zero 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 1939. May 1913 to January 1921 at site 200 feet upstream.
Average discharge.- 20 years (1913-20, 1926-39), 2.85 million gallons a day (4.41 second-feet).
Extremes.- Maximum discharge during year, 1,300 million gallons a day (2,010 second-feet) Mar. 2 (gage height, 5.70 feet), from rating curve extended above 33 million gallons a day by test on model of station site; minimum, 0.40 million gallons a day (0.62 second-foot) Dec. 15, 16.
1913-21, 1925-39: Maximum gage height, 10.4 feet, Jan. 16, 1921, at former site and datum, from floodmarks (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. Discharge for days of faulty gage heights, June 27-30, computed on basis of records for stations on nearby streams. No diversions above station.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Mar. 2

0.1	0.25	0.8	5.6	1.4	23
.2	.62	1.0	9.7	1.6	32
.4	1.70	1.2	15.8	1.8	43
.6	3.2				

Mar. 3 to June 30

0.2	0.62	0.8	6.8	1.7	44
.3	1.11	1.0	11.8	2.0	67
.4	1.78	1.2	18.6	2.5	116
.6	3.8	1.4	27		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.2	1.23	1.40	0.55	2.15	0.58	1.01	4.1	9.8	0.67	10.5	1.18
2	1.58	1.06	1.29	.55	5.0	1.11	.86	2.6	37.5	.67	3.25	1.24
3	1.29	1.01	2.3	.55	1.99	.67	.77	2.1	4.1	18.1	6.7	2.0
4	1.11	21	2.4	.55	1.23	.55	.77	1.64	4.2	19.5	3.25	1.06
5	1.01	2.8	1.46	.69	.96	.58	.72	1.87	11.0	3.15	2.15	2.55
6	1.01	2.0	1.11	.73	.86	.55	2.6	1.92	3.8	2.45	1.71	6.0
7	.91	1.78	1.58	.55	.77	.51	1.23	3.2	2.35	2.7	1.51	2.7
8	.82	3.35	3.65	.55	.77	.47	1.11	1.85	1.87	78	1.65	1.58
9	.77	4.5	7.4	.47	.77	.58	1.06	1.58	1.58	8.8	7.0	2.75
10	1.01	9.8	1.78	1.13	.72	1.38	1.29	3.55	1.51	12.4	3.15	1.65
11	1.32	3.1	2.7	.96	1.46	1.11	.91	2.15	2.05	4.8	1.78	2.25
12	4.8	2.2	1.40	.72	1.92	.77	1.29	2.0	1.44	3.45	1.44	8.6
13	2.1	5.1	1.23	1.34	1.46	.62	1.06	1.78	1.24	2.7	1.24	7.9
14	1.69	5.3	1.11	1.27	3.4	.51	1.01	1.58	1.11	2.6	1.11	6.9
15	3.25	2.4	1.06	11.3	5.4	.44	2.25	1.40	1.06	1.96	5.0	14.7
16	1.7	1.85	1.01	2.65	3.1	1.17	14.7	1.40	1.01	18.0	4.2	13.2
17	2.0	3.95	.96	1.23	1.87	.58	11.6	3.25	1.06	4.2	4.2	11.3
18	1.23	8.3	.82	.96	1.40	.47	8.4	2.0	1.42	6.8	4.4	13.2
19	1.93	14.5	.86	1.21	1.17	.44	3.1	1.52	1.11	4.2	7.4	6.3
20	1.06	5.6	.82	.96	1.01	.92	2.3	3.9	1.06	2.9	2.9	4.1
21	1.84	2.9	.67	.67	.91	.67	1.78	2.95	.86	2.05	6.3	3.8
22	5.0	2.4	.67	1.12	.86	.77	1.58	1.58	.82	1.71	8.3	3.15
23	1.46	2.1	.90	.67	.86	.58	5.6	1.35	1.00	1.51	3.25	7.3
24	2.15	2.45	.77	.51	.82	.58	4.5	1.23	4.3	1.71	2.25	21.5
25	2.6	6.8	.72	.72	.77	1.49	1.85	1.35	1.79	3.7	2.05	3.8
26	3.35	2.4	.72	.55	.72	1.09	6.3	2.9	.96	1.77	1.65	3.65
27	1.58	1.85	.62	.58	.67	5.6	4.6	1.64	.86	1.31	1.38	4.0
28	1.35	1.64	.62	4.2	.62	7.4	6.8	33	.86	10.2	1.24	3.0
29	1.17	3.1	.58	1.24	.62	2.45	2.5	-	1.01	2.7	1.24	2.7
30	2.3	2.2	.55	1.23	.58	1.46	2.4	-	.86	1.71	1.31	2.9
31	1.84	1.52	-	.91	-	1.46	6.0	-	.72	-	3.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.2	0.77	1.98	3.06	61.4	189
August	21	1.01	4.20	6.50	130	400
September	7.4	.55	1.44	2.23	43.2	132
October	11.3	.47	1.33	2.06	41.3	127
November	5.4	.58	1.49	2.31	44.8	138
December	7.4	.44	1.21	1.87	37.6	115
Calendar year 1938	29.5	.44	2.90	4.49	1,060	3,250
January	14.7	.72	3.29	5.09	102	313
February	33	1.23	3.26	5.04	91.4	280
March	37.5	.72	3.36	5.20	104	320
April	78	.67	7.61	11.8	226	701
May	10.5	1.11	3.45	5.34	107	328
June	21.5	1.06	5.57	8.62	167	512
Fiscal year 1938-39	78	.44	3.17	4.90	1,160	3,560

East Branch of 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. Zero 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 1939.

Average discharge.- 20 years (1913-20, 1926-39), 3.16 million gallons a day (4.89 second-feet).

Extremes.- Maximum discharge during year, 358 million gallons a day (554 second-feet) Mar. 2 (gage height, 4.26 feet), from rating curve extended above 17 million gallons a day by test of model of station site; minimum, 2.35 million gallons a day (3.64 second-feet) Jan. 5.

1913-21, 1925-39: Maximum gage height, 10.4 feet, Jan. 16, 1921, at former site and datum, from floodmarks (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. East Manoa ditch diverts water from stream about 1,500 feet above station. Board of Water Supply diverts ground water from tunnels in drainage area.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.85	1.0	8.1	1.6	19.5
.6	3.55	1.2	10.9	1.8	26
.8	5.6	1.4	14.8	2.0	35

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.8	3.2	3.35	2.55	4.7	2.55	2.5	6.0	5.2	2.5	6.2	3.2
2	3.85	3.1	3.35	2.65	9.5	3.15	2.4	4.1	10.4	2.65	4.3	3.3
3	3.75	3.1	4.4	2.65	4.7	2.55	2.4	3.65	3.1	14.0	6.4	4.0
4	3.65	23	4.0	2.75	3.65	2.5	2.4	3.45	3.5	14.0	4.2	3.2
5	3.65	4.3	3.2	2.8	3.45	2.65	2.4	3.95	6.2	3.35	3.75	4.1
6	3.85	3.85	3.1	2.65	3.35	2.5	6.6	3.85	4.4	3.8	3.55	5.9
7	3.55	3.85	3.55	2.65	3.35	2.4	3.3	4.8	3.3	12.7	3.35	3.55
8	3.45	5.6	6.4	2.55	3.3	2.5	2.85	3.35	3.0	28.5	3.3	2.9
9	3.35	8.3	8.0	2.5	3.3	2.65	2.85	3.2	2.9	7.0	7.5	3.65
10	3.9	9.7	3.85	3.05	3.1	4.1	3.1	5.3	3.0	7.7	4.2	3.1
11	4.2	4.8	4.6	2.9	3.35	3.45	2.55	3.55	3.0	5.2	3.45	3.7
12	6.6	5.2	3.55	2.75	3.85	2.85	2.9	3.75	2.9	4.1	3.2	8.0
13	4.0	6.7	3.35	3.45	3.45	2.55	2.75	3.55	2.9	3.65	3.1	5.8
14	4.0	7.9	3.3	3.3	4.6	2.5	2.85	3.1	2.85	3.3	3.1	6.3
15	4.3	4.7	3.35	19.0	5.8	2.5	3.8	2.85	2.75	3.15	4.9	9.9
16	3.75	4.5	3.35	5.6	4.4	3.0	13.4	2.75	2.75	6.0	4.5	8.1
17	3.9	5.8	3.3	3.75	3.3	2.55	9.5	5.5	2.85	4.7	4.7	8.5
18	3.3	11.9	3.3	3.2	3.0	2.55	7.9	3.5	3.05	7.2	4.3	8.5
19	4.2	14.2	3.4	3.45	2.85	2.55	4.2	3.0	2.85	4.2	6.7	5.7
20	3.3	6.4	3.2	2.75	2.65	2.75	3.65	5.4	2.75	3.95	3.95	4.7
21	4.8	5.2	3.1	2.65	2.65	2.55	3.3	3.9	2.75	3.65	5.9	5.0
22	7.4	4.6	3.0	2.85	2.55	2.65	3.2	2.9	2.75	3.45	5.9	4.4
23	2.9	4.3	3.2	2.55	2.55	2.55	8.2	2.85	2.65	3.45	3.95	6.4
24	3.95	4.3	2.85	2.55	2.5	2.65	7.0	2.85	7.7	3.45	3.55	10.8
25	5.0	7.3	2.85	3.0	2.5	4.0	3.55	3.1	4.6	4.2	3.45	4.7
26	5.7	4.2	2.75	2.75	2.5	3.2	6.8	4.7	2.85	3.35	3.35	4.5
27	3.65	3.85	2.65	3.0	2.5	10.0	5.6	3.1	2.65	3.2	3.3	5.1
28	3.35	3.75	2.55	8.7	2.55	8.3	5.0	18.4	2.65	7.4	3.2	3.85
29	3.2	4.8	2.55	4.2	2.5	3.3	3.75	-	2.55	4.1	3.3	3.55
30	4.3	4.1	2.55	3.9	2.5	2.65	5.1	-	2.55	3.45	3.35	3.65
31	3.55	3.55	-	3.3	-	2.65	7.2	-	2.55	-	4.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.4	2.9	4.17	6.45	129	396
August	23	3.1	6.13	9.48	190	583
September	8.0	2.55	3.53	5.46	106	325
October	19.0	2.5	3.75	5.80	116	357
November	9.5	2.5	3.50	5.42	105	322
December	10.0	2.4	3.20	4.95	99.3	305
Calendar year 1938	29	2.4	4.94	7.64	1,800	5,530
January	13.4	2.4	4.61	7.13	143	439
February	18.4	2.75	4.30	6.65	120	369
March	10.4	2.55	3.55	5.49	110	337
April	28.5	2.5	6.04	9.35	181	557
May	8.2	3.1	4.32	6.68	134	411
June	10.8	2.9	5.27	8.15	158	485
Fiscal year 1938-39	28.5	2.4	4.36	6.75	1,590	4,890

East Manoa ditch near Honolulu

Location.- Parshall flume, lat. 21°19'50", long. 157°48'05", 150 feet east of lower highway and gaging station on East Branch of Manoa Stream and 4 miles northwest of Honolulu post office. Zero of gage is 317.09 feet above mean sea level (Board of Water Supply bench mark).

Records available.- May 1915 to December 1916, January 1918 to January 1921, August 1925 to July 1939 (discontinued).

Average discharge.- 13 years (1926-39), 0.634 million gallons a day (0.981 second-foot).

Extremes.- Maximum discharge during period, 9.9 million gallons a day (15.3 second-feet) Feb. 28 (gage height, 1.52 feet); no flow May 8.
1915-16, 1918-21, 1925-39: Maximum discharge, about 26 million gallons a day (40 second-feet) Jan. 16, 1921 (gage height, 2.27 feet, former datum); no flow Aug. 26, 1927, May 8, 1939.

Remarks.- Records poor. Discharge for period of missing gage heights, Nov. 7-18, Jan. 12, 13, computed on basis of records for stations on nearby streams. Ditch diverts water from East Manoa Stream about a quarter of a mile above station by means of crude stone dam.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.11	0.10	0.05	0.06	0.69	0.17	0.15	0.08	0.19	0.08	0.13	0.06
2	.05	.10	.05	.06	.96	.15	.15	.06	.44	.08	.06	.05
3	.05	.10	.05	.06	.39	.13	.15	.05	.11	.35	.08	.05
4	.05	.20	.05	.06	.21	.11	.15	.05	.06	.36	.05	.05
5	.05	.06	.05	.06	.19	.11	.13	.05	.06	.10	.04	.05
6	.05	.06	.05	.06	.19	.10	.17	.05	.08	.05	.02	.06
7	.05	.05	.05	.05	.19	.10	.10	.05	.11	.25	.01	.08
8	.05	.06	.13	.05	.19	.10	.10	.05	.10	.64	.05	.10
9	.05	.06	.15	.21	.19	.06	.10	.06	.10	.16	.19	.08
10	.04	.10	.06	.36	.19	.06	.10	.11	.10	.25	.15	.04
11	.05	.06	.05	.36	.22	.06	.08	*.10	.08	.11	.11	.05
12	.06	.05	.05	.36	.28	.06	.08	.10	.08	.05	.10	.06
13	.05	.06	.05	.39	.27	.06	.06	.10	.06	.05	.10	.06
14	.05	.06	.05	.39	.40	.06	.06	*.11	.06	.08	.08	.04
15	.05	.05	.05	.58	.55	.06	.08	.10	.06	.08	.10	.11
16	.04	.05	.05	.13	.47	.05	.36	.08	.06	.17	.10	.09
17	.04	.05	.05	.10	.40	.05	.22	.15	.08	.13	.10	.18
18	.04	.10	.05	.27	.36	.05	.15	.13	.08	.31	.10	.14
19	.04	.19	.06	.69	.33	.05	.08	.08	.06	.13	.13	.10
20	.04	.10	.05	.69	.30	.08	.06	.10	.06	.08	.10	.06
21	.05	.05	.05	.69	.30	.08	.06	.15	.06	.08	.10	.08
22	.12	.05	.06	.73	.27	.10	.05	.10	.06	.08	.10	.06
23	.10	.05	.06	.73	.27	.08	.10	.08	.05	.08	.08	.11
24	.10	.05	.06	.77	.27	.08	.16	.06	.08	.06	.11	.21
25	.13	.06	.06	.81	.25	.10	.06	.08	.06	.06	.11	.05
26	.13	.05	.06	.77	.19	.11	.10	.11	.10	.06	.11	.05
27	.11	.05	.06	.77	.19	.25	.08	.06	.11	.06	.10	.06
28	.11	.05	.06	1.00	.19	.18	.06	.53	.11	.10	.10	.05
29	.10	.05	.06	.69	.19	.13	.04	-	.10	.04	.10	.05
30	.10	.05	.06	.69	.17	.19	.04	-	.10	.02	.08	.05
31	.10	.05	-	.60	-	.17	.07	-	.08	-	.06	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.13	0.04	0.070	0.108	2.16	6.6
August	.20	.05	.072	.111	2.22	6.8
September	.15	.05	.060	.093	1.79	5.5
October	1.00	.05	.427	.661	13.2	41
November	.96	.17	.309	.478	9.26	28
December	.25	.05	.101	.156	3.14	9.6
Calendar year 1938	1.00	.03	.136	.210	49.7	153
January	.36	.04	.108	.167	3.35	10
February	.53	.05	.101	.156	2.83	8.7
March	.44	.05	.095	.147	2.94	9.0
April	.64	.02	.138	.214	4.15	13
May	.19	.01	.092	.142	2.85	8.7
June	.21	.04	.076	.118	2.28	7.0
Fiscal year 1938-39	1.00	.01	.138	.214	50.2	154

*Partly estimated.

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. Zero 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 1939. April 1912 to September 1913, above present site and just below Mahoe Springs.

Average discharge.- 13 years (1926-39), 1.53 million gallons a day (2.37 second-feet).

Extremes.- Maximum discharge during year, 309 million gallons a day (478 second-feet) Oct. 15 (gage height, 4.55 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.20 million gallons a day (0.31 second-foot) Dec. 20-27.

1912-13, 1926-39: 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 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.08	1.4	1.76	1.7	5.5	2.2	19.0
1.1	.28	1.5	2.7	1.8	7.4	2.4	27
1.2	.60	1.6	3.9	2.0	12.5	2.6	36
1.3	1.10						

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.5	0.60	0.65	0.28	0.54	0.38	0.38	3.25	3.9	0.50	3.15	*0.85
2	.85	.57	.60	.31	2.4	.38	.41	1.58	12.7	.50	1.30	*.85
3	.70	.54	.60	.31	.98	.34	.41	1.30	2.95	10.7	2.0	*.85
4	.70	13.1	.76	.31	.54	.34	.41	1.00	2.25	24	1.56	*.85
5	.70	1.63	.54	.34	.54	.34	.38	1.19	1.80	2.06	1.30	*.85
6	.70	.95	.50	.34	.54	.31	1.38	1.30	2.05	1.69	1.30	1.50
7	.65	.85	.95	.34	.54	.28	.41	1.52	1.23	6.4	1.30	.65
8	.65	.85	1.49	.31	.50	.28	.38	1.05	1.17	9.0	1.30	.70
9	.60	2.55	4.5	.31	.50	.28	.34	1.00	1.17	5.1	5.9	.75
10	.60	9.0	.70	.34	.47	.28	.38	.95	1.10	7.7	2.9	.90
11	.60	1.76	1.01	.31	.44	.28	.34	.95	1.05	2.7	1.43	1.05
12	1.85	1.68	.50	.31	.44	.28	.38	.90	1.00	1.76	1.17	2.3
13	.65	2.5	.47	.31	.44	.26	.34	.85	.95	1.43	1.17	1.79
14	.57	2.05	.47	.28	.55	.24	.38	.85	.80	1.36	1.17	1.82
15	.57	1.05	.47	30.5	.78	.22	.34	.75	.70	1.30	1.50	3.45
16	.57	.90	.44	2.55	.54	.22	8.7	.70	.73	1.50	1.76	2.5
17	.60	1.00	.44	.60	.54	.22	5.4	1.68	.60	2.25	1.56	3.7
18	.57	9.6	.44	.54	.54	.22	2.7	.97	.57	3.3	1.69	3.7
19	.85	15.7	.44	.54	.54	.22	.90	.70	.54	1.95	3.9	2.05
20	.57	2.7	.41	.57	.54	.22	.60	1.55	.54	1.76	1.50	1.36
21	1.63	1.63	.38	.57	.54	.22	.60	1.14	.54	1.56	1.99	1.30
22	5.1	1.17	.34	.57	.54	.22	.65	.75	.50	1.30	2.0	1.30
23	.70	1.10	.34	.57	.50	.22	4.0	.75	.50	1.23	1.23	1.69
24	1.19	1.05	.31	.54	.47	.22	3.5	.80	1.57	1.30	*1.10	5.3
25	.90	2.45	.31	.54	.44	.22	.95	.75	.99	1.30	*1.10	1.43
26	.96	1.05	.31	.54	.44	.22	1.91	1.33	.50	1.55	*1.05	1.23
27	.65	.90	.31	.50	.41	3.0	1.63	.75	.50	1.05	*.95	1.30
28	.65	.85	.28	1.85	.38	4.4	1.00	17.6	.50	3.15	*.95	1.23
29	.60	1.18	.28	.60	.38	.58	.95	-	.50	1.23	*.95	1.23
30	.90	.94	.28	.70	.38	.34	.90	-	.54	1.00	*.90	1.10
31	.86	.70	-	.54	-	.34	3.85	-	.54	-	*.90	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.5	0.57	1.07	1.66	33.2	102
August	15.7	.54	2.66	4.12	82.6	253
September	4.5	.28	.651	1.01	19.5	60
October	30.5	.28	1.52	2.35	47.2	145
November	2.4	.38	.579	.896	17.4	53
December	4.4	.22	.502	.777	15.6	48
Calendar year 1938	49	.22	2.02	3.13	738	2,260
January	8.7	.34	1.45	2.24	44.9	138
February	17.6	.70	1.71	2.65	47.9	147
March	12.7	.50	1.45	2.24	45.0	138
April	24	.50	3.39	5.25	102	312
May	5.9	.90	1.68	2.60	52.0	160
June	5.3	.65	1.65	2.55	49.6	152
Fiscal year 1938-39	30.5	.22	1.52	2.35	557	1,710

*Partly estimated.

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. Zero 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 1939. April 1911 to December 1912 at highway bridge below present site.

Average discharge.- 13 years (1926-39), 1.36 million gallons a day (2.10 second-feet).

Extremes.- Maximum discharge during year, 602 million gallons a day (931 second-feet) Oct. 15 (gage height, 5.43 feet), from rating curve extended above 45 million gallons a day by test on model of station site; minimum, 0.01 million gallons a day (0.02 second-foot) Oct. 10.

1911-12, 1926-39: Maximum discharge, that of Oct. 15, 1938; no flow in extremely dry weather.

Remarks.- Records excellent except those during period of missing gage heights, Aug. 24-31, which were computed on basis of records for stations on all streams between the Pukele and the Kalihi and are fair. Board of Water Supply diverts ground water from tunnels in drainage area.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.01	1.3	0.63	1.6	2.7	2.0	9.4	2.6	33.5
1.1	.10	1.4	1.15	1.7	3.85	2.2	15.5	2.8	44
1.2	.30	1.5	1.83	1.8	5.3	2.4	24	3.0	55

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.2	0.37	0.26	0.04	0.54	0.05	0.46	4.6	3.2	0.16	2.45	0.26
2	.72	.26	.24	.06	2.75	.04	.30	1.89	11.7	.26	.94	.22
3	.40	.22	.34	.02	1.67	.05	.24	1.32	3.0	10.90	1.71	.31
4	.30	17.4	.57	.01	.60	.03	.20	.79	2.3	24.5	1.00	.22
5	.26	1.64	.28	.01	.43	.05	.20	.86	1.36	3.05	.53	.39
6	.26	.94	.24	.05	.30	.03	1.85	1.40	1.99	3.15	.40	1.63
7	.22	.56	.74	.04	.26	.01	.94	1.59	.79	9.0	.33	.60
8	.16	.82	.52	.05	.22	.01	.60	.89	.56	9.7	.30	.37
9	.14	2.05	1.95	.01	.24	.01	.40	.56	.43	4.8	7.0	.40
10	.22	9.4	.50	.11	.20	.40	.40	.60	.40	6.5	3.4	.37
11	.58	1.37	.75	.19	.22	.29	.26	.50	.37	2.3	1.10	.30
12	1.49	.91	.50	.08	.63	.19	.40	.76	.30	1.35	.68	2.7
13	.73	1.68	.33	.07	.60	.09	.28	.60	.28	.94	.50	2.15
14	.44	1.71	.26	.27	.94	.06	.33	.40	.26	.73	.40	1.91
15	.46	.73	.24	49	1.03	.04	.56	.37	.24	.56	1.05	4.3
16	.30	.50	.26	5.0	.68	.08	9.3	.30	.31	.99	1.33	3.2
17	.53	.66	.20	1.59	.46	.07	7.4	1.88	.22	1.84	.97	3.05
18	.26	6.6	.18	1.05	.30	.04	4.9	1.17	.40	3.45	1.10	4.8
19	1.05	15.8	.18	1.17	.26	.03	1.68	.53	.32	1.56	3.65	2.1
20	.38	2.2	.33	.89	.22	.06	1.05	1.53	.20	1.29	1.14	.94
21	1.65	1.24	.16	.63	.18	.06	.68	1.52	.16	.94	1.50	.79
22	5.8	.73	.12	.53	.16	.06	.56	.53	.16	.63	1.41	.56
23	.63	.56	.18	.30	.12	.08	4.3	.40	.27	.50	.94	1.22
24	1.40	.50	.14	.24	.09	.10	3.7	.30	4.2	.46	.56	4.0
25	1.14	2.0	.10	.26	.08	1.33	.99	.37	1.74	.43	.43	.94
26	.89	.55	.10	.20	.07	.57	2.15	.68	.73	.79	.37	.73
27	.56	.45	.09	.36	.06	5.0	1.88	.37	.40	.62	.30	.89
28	.40	.40	.07	2.1	.06	7.7	.94	12.4	.33	3.8	.26	.56
29	.30	.80	.06	1.17	.05	1.52	.60	-	.28	1.30	.26	.40
30	1.98	.45	.05	1.10	.04	.78	.79	-	.24	.63	.30	.30
31	.70	.33	-	.56	-	.60	2.65	-	.20	-	.48	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.8	0.14	0.921	1.42	28.6	88
August	17.4	.22	2.38	3.68	73.8	227
September	1.95	.05	.331	.512	9.94	31
October	49	.01	2.17	3.36	67.2	206
November	2.75	.04	.449	.695	13.5	41
December	7.7	.01	.627	.970	19.4	60
Calendar year 1938	49	.01	1.86	2.88	677	2,080
January	9.3	.20	1.64	2.54	51.0	156
February	12.4	.30	1.40	2.17	39.1	120
March	11.7	.16	1.20	1.86	37.3	115
April	24.5	.16	3.24	5.01	97.1	298
May	7.0	.26	1.19	1.84	36.8	113
June	4.8	.22	1.35	2.09	40.6	125
Fiscal year 1938-39	49	.01	1.41	2.18	514	1,580

Kahaluu Stream near Heeia

Location.- 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 Heeia post office. A modified Parshall flume was installed Apr. 25, 1939. Zero of gage is 357.22 feet above mean sea level (Wright, Harvey & Wright Engineering Co. levels).

Drainage area.- 0.4 square mile.

Records available.- October 1935 to June 1939.

Extremes.- Maximum discharge recorded during year, 173 million gallons a day (268 second-feet) Feb. 28 (gage height, 4.10 feet), from rating curve computed from 11 to 240 million gallons a day by Parshall flume formula and extended above; minimum recorded, 3.2 million gallons a day (5.0 second-feet) Mar. 20, 26-28.

1935-39: Maximum discharge, 290 million gallons a day (449 second-feet) Sept. 27, 1937 (gage height, 5.47 feet), from rating curve computed from 11 to 240 million gallons a day by Parshall flume formula, and extended above; minimum, 2.35 million gallons a day (3.64 second-feet) Sept. 3-5, 1936.

Remarks.- Records good except those for periods of missing gage heights, Dec. 28 to Jan. 11, Jan. 16 to Feb. 21, which were computed on basis of records for station on Waihee Stream and are fair. No diversions above station. Continuous records of rainfall are obtained at the station.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Apr. 20				Apr. 21 to June 30			
0.3	2.65	0.6	8.0	0.6	2.75	0.8	4.8
.4	4.2	.7	10.2	.7	3.7	.9	6.0
.5	6.0	.9	15.3				

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.5	4.5	4.2	4.5	4.5	4.2	4.2	4.3	4.2	3.55	3.5	3.5
2	4.5	4.5	4.2	4.3	4.5	4.2	4.2	4.8	5.4	3.55	3.5	3.6
3	4.5	4.5	4.2	4.3	4.3	4.2	4.2	4.2	3.85	6.5	3.5	3.6
4	4.5	5.7	4.7	4.3	4.2	4.2	4.2	4.2	4.6	6.4	3.5	3.6
5	4.5	4.8	4.2	4.3	4.2	4.2	4.2	5.6	9.4	3.85	3.5	3.6
6	4.5	4.7	4.2	4.3	4.2	4.2	4.5	4.5	4.2	5.3	3.5	3.7
7	4.5	4.5	4.2	4.3	4.2	4.2	4.2	5.2	3.85	8.7	3.5	3.6
8	4.5	4.7	4.2	4.3	4.2	4.2	4.1	4.5	3.85	8.8	3.5	3.6
9	4.5	6.5	4.2	4.3	4.2	4.2	4.0	4.5	3.85	3.95	3.8	3.6
10	4.5	8.1	4.2	4.3	4.2	4.2	4.0	4.5	3.85	5.0	4.0	3.6
11	4.5	4.7	4.3	4.3	4.2	4.2	4.0	4.5	3.85	3.7	3.6	3.6
12	4.7	4.3	4.3	4.3	4.7	4.2	4.0	4.3	3.85	3.55	3.6	3.7
13	4.5	4.2	4.3	4.5	4.3	4.2	4.0	4.3	3.85	3.35	3.6	3.6
14	4.5	4.5	4.3	4.5	4.2	4.2	3.85	4.2	3.85	3.35	3.6	3.7
15	4.5	4.2	4.3	7.4	4.2	4.2	3.85	4.2	3.85	3.35	3.6	3.8
16	4.5	4.2	4.3	4.7	4.2	4.2	5.0	4.2	3.85	3.35	3.6	3.7
17	4.5	4.2	4.5	4.3	4.2	4.2	5.2	4.2	3.85	3.55	3.6	3.7
18	4.5	5.2	4.5	4.3	4.2	4.2	6.0	4.2	4.0	3.7	3.6	3.7
19	4.5	5.2	4.7	4.3	4.2	4.2	4.5	4.2	3.7	3.7	3.6	3.7
20	4.5	4.3	4.7	4.3	4.2	4.2	4.3	4.2	3.55	3.85	3.5	3.7
21	4.8	4.2	4.5	4.3	4.2	4.2	4.1	4.0	3.55	3.5	3.5	3.7
22	4.7	4.2	4.5	4.3	4.2	4.2	4.1	3.85	3.55	3.5	3.5	3.7
23	4.5	4.2	4.5	4.3	4.2	4.2	5.2	3.85	3.55	3.5	3.5	3.9
24	4.5	4.2	4.5	4.2	4.2	4.2	4.5	3.85	3.85	3.5	3.5	4.9
25	4.7	4.2	4.5	4.2	4.2	4.2	4.2	3.85	3.55	3.65	3.5	3.7
26	4.5	4.2	4.5	4.2	4.2	4.2	4.1	3.85	3.35	4.2	3.5	3.8
27	4.5	4.2	4.5	4.2	4.2	9.0	4.1	3.85	3.35	3.7	3.5	3.8
28	4.5	4.2	4.5	5.2	4.2	4.5	4.1	10.8	3.35	3.7	3.5	3.7
29	4.5	4.2	4.5	4.3	4.2	4.4	4.0	-	3.55	3.6	3.5	3.6
30	4.5	4.2	4.5	4.3	4.2	4.3	4.0	-	3.55	3.5	3.5	3.6
31	4.5	4.2	-	4.2	-	4.2	4.6	-	3.55	-	3.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.8	4.5	4.53	7.01	140	431
August	8.1	4.2	4.64	7.18	144	441
September	4.7	4.2	4.39	6.79	132	404
October	7.4	4.2	4.45	6.89	138	423
November	4.7	4.2	4.24	6.56	127	391
December	9.0	4.2	4.37	6.76	136	416
Calendar year 1938	15.6	3.85	4.60	7.12	1,680	5,150
January	6.0	3.85	4.31	6.67	134	410
February	10.8	3.85	4.52	6.99	127	389
March	9.4	3.35	4.00	6.19	124	381
April	8.8	3.35	4.25	6.58	127	391
May	4.0	3.5	3.55	5.49	110	338
June	4.9	3.5	3.71	5.74	111	342
Fiscal year 1938-39	10.8	3.35	4.25	6.58	1,550	4,760

Waihee Stream near Heeia

Location.- 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 Heeia post office. A modified Parshall flume was installed Apr. 25, 1939. Zero of gage is about 193 feet above mean sea level.

Drainage area.- 1.1 square miles.

Records available.- December 1935 to June 1939.

Extremes.- Maximum discharge during year, 465 million gallons a day (719 second-feet) Feb. 28 (gage height, 5.47 feet), from rating curve computed from 20 to 230 million gallons a day by Parshall flume formula and extended above; minimum, 6.0 million gallons a day (9.3 second-feet) between June 22-30.
1935-39: Maximum discharge, that of Feb. 28, 1939; minimum, 4.9 million gallons a day (7.6 second-feet) Jan. 24, 25, 1936.

Remarks.- Records good except those for periods of missing gage heights, Oct. 5, 6, Oct. 29 to Nov. 15, Dec. 17 to Jan. 11, June 22-30, which were computed on basis of records for stations on Kalihi and Kahaluu Streams and are fair. No diversions above station.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Apr. 16						Apr. 17 to June 30			
0.5	6.8	0.9	17.5	1.2	27.5	0.9	6.0	1.2	10.5
.6	9.1	1.0	20.5	1.4	35.5	1.0	7.4	1.4	14.2
.7	11.6	1.1	24	1.6	44				
.8	14.5								

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.6	7.9	7.9	7.7	9.2	7.4	7.0	7.7	7.9	6.6	7.0	6.7
2	8.4	7.9	7.9	7.4	9.2	7.4	7.0	8.6	13.3	6.8	7.0	6.7
3	8.4	7.9	8.4	7.4	8.0	7.4	7.0	7.2	8.4	12.9	7.0	6.7
4	8.4	11.7	8.8	7.4	7.8	7.4	7.0	7.2	11.4	11.9	7.0	6.7
5	8.4	8.4	8.1	7.4	7.8	7.4	7.0	9.4	22.5	8.1	7.0	6.7
6	8.1	7.9	7.9	7.4	7.8	7.4	7.8	7.7	8.4	9.1	7.0	6.8
7	8.1	7.9	7.9	7.4	7.8	7.4	7.0	8.8	7.4	16.7	7.0	6.7
8	7.9	8.1	8.1	7.4	7.8	7.4	7.0	7.4	7.2	16.5	7.0	6.7
9	7.9	12.5	8.1	7.4	7.8	7.4	7.0	7.4	7.0	8.4	7.4	6.8
10	7.9	16.4	8.1	7.4	7.8	7.2	7.0	9.0	6.8	14.7	7.4	6.7
11	7.9	10.3	8.1	7.4	7.8	7.0	7.0	7.4	6.8	8.4	7.0	6.7
12	8.1	9.1	8.1	7.7	8.8	7.0	7.0	7.2	6.8	7.9	7.0	7.0
13	7.9	8.6	8.4	7.7	8.0	7.0	7.0	7.2	6.8	7.7	7.0	7.0
14	7.9	9.2	8.4	7.7	8.0	7.0	6.8	7.0	6.8	7.7	7.0	7.0
15	8.1	8.6	8.4	13.7	8.0	7.0	7.0	7.0	6.8	7.2	7.0	7.1
16	7.9	8.6	8.4	9.7	7.9	7.0	8.8	7.0	6.8	6.8	7.0	7.0
17	7.9	8.4	8.4	7.9	8.1	7.0	8.9	7.0	6.8	6.8	7.0	7.3
18	7.7	10.1	8.4	7.7	7.9	7.0	11.9	7.0	6.8	7.9	7.0	7.4
19	7.9	10.7	8.6	7.9	7.9	7.0	7.7	7.0	6.8	7.1	7.0	7.0
20	7.7	9.4	8.3	7.7	7.7	7.0	7.2	7.0	6.8	6.8	6.8	6.7
21	7.9	8.8	7.7	7.7	7.7	7.0	7.2	6.8	6.8	7.0	6.8	6.7
22	8.4	8.6	7.7	8.1	7.7	7.0	7.2	6.6	6.8	7.0	6.8	6.8
23	7.7	8.6	7.7	7.9	7.4	7.0	9.1	6.4	6.8	7.1	6.8	7.2
24	7.7	8.6	7.9	7.7	7.4	7.0	7.7	6.4	7.4	7.1	6.8	12
25	7.9	8.4	7.7	8.1	7.4	7.0	7.2	6.4	7.0	7.0	6.8	7.0
26	7.7	8.4	7.7	7.7	7.4	7.0	7.2	6.6	6.8	9.2	6.7	6.9
27	7.7	8.1	7.7	7.7	7.4	18	7.2	6.8	6.6	7.3	6.7	7.0
28	7.7	8.1	7.7	11.0	7.4	7.6	7.2	44	6.6	7.1	6.7	7.0
29	7.7	8.1	7.7	8.0	7.4	7.4	7.0	-	6.6	7.1	6.7	6.9
30	7.9	8.1	7.7	7.9	7.4	7.2	7.0	-	6.6	7.0	6.7	6.6
31	7.9	8.1	-	7.8	-	7.0	8.3	-	6.4	-	6.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.6	7.7	7.98	12.3	247	759
August	16.4	7.9	9.08	14.0	282	864
September	8.8	7.7	8.06	12.5	242	742
October	13.7	7.4	8.03	12.4	249	764
November	9.2	7.4	7.86	12.2	236	723
December	16	7.0	7.52	11.6	233	715
Calendar year 1938	36.5	7.0	8.61	13.3	3,140	9,650
January	11.9	6.8	7.50	11.6	232	713
February	44	6.4	8.61	13.3	241	740
March	22.5	6.4	7.83	12.1	243	745
April	16.7	6.6	8.63	13.4	259	795
May	7.4	6.7	6.93	10.7	215	660
June	12	6.6	7.05	10.9	212	649
Fiscal year 1938-39	44	6.4	7.92	12.3	2,890	8,870

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Oahu during fiscal year July 1938 to June 1939

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
July 21	Pearl Harbor Springs.	Pacific Ocean.	At 27-inch culvert 300 feet west of Waiau railway station.	2.49	1.61
Aug. 29	....do.....	....do.....	....do.....	3.57	2.31
Nov. 25	....do.....	....do.....	....do.....	5.22	3.37
Dec. 22	....do.....	....do.....	....do.....	4.36	2.82
Feb. 20	....do.....	....do.....	....do.....	5.08	3.28
Mar. 25	....do.....	....do.....	....do.....	5.32	3.44
May 6	....do.....	....do.....	....do.....	4.80	3.10
June 20	....do.....	....do.....	....do.....	4.48	2.90
July 21	....do.....	....do.....	At wooden culvert 10 feet west of Waiau railway station.	.778	.503
Aug. 29	....do.....	....do.....	....do.....	.741	.479
Nov. 25	....do.....	....do.....	....do.....	.817	.528
Dec. 22	....do.....	....do.....	....do.....	.751	.485
Feb. 20	....do.....	....do.....	....do.....	.879	.568
Mar. 31	....do.....	....do.....	....do.....	.946	.611
May 6	....do.....	....do.....	....do.....	.906	.586
June 20	....do.....	....do.....	....do.....	.439	.284
Nov. 25	....do.....	....do.....	At ditch levee 1,000 feet west of Puukapu gaging station.	.387	.250
Dec. 22	....do.....	....do.....	....do.....	.510	.330
Feb. 23	....do.....	....do.....	....do.....	1.24	.800
Nov. 25	....do.....	....do.....	New ditches about 600 feet west of Puukapu gaging station.	2.85	1.84
Dec. 22	....do.....	....do.....	....do.....	.869	.562
Feb. 23	....do.....	....do.....	....do.....	2.44	1.57
Mar. 31	....do.....	....do.....	....do.....	3.37	2.18
May 8	....do.....	....do.....	....do.....	3.01	1.95
June 20	....do.....	....do.....	....do.....	2.82	1.82
July 21	....do.....	....do.....	At discontinued gaging station at Kaluaoopu.	14.2	9.18
Nov. 25	....do.....	....do.....	....do.....	12.3	7.95
Dec. 29	....do.....	....do.....	....do.....	45.8	29.6
Mar. 25	....do.....	....do.....	....do.....	53.2	34.4
May 6	....do.....	....do.....	....do.....	15.6	10.1
June 20	....do.....	....do.....	....do.....	9.31	6.02
Oct. 6	By-passed water....	....do.....	At point between East Manoa ditch and East Manoa Stream.	.606	.392
Sept.21	Haiku.....	....do.....	At altitude of 682 feet.....	.352	.228
21	....do.....	....do.....	At altitude of 654 feet.....	1.70	1.10
21	....do.....	....do.....	At altitude of 616 feet.....	1.42	.918
21	....do.....	....do.....	At altitude of 547 feet.....	1.82	1.18
21	....do.....	....do.....	At altitude of 460 feet.....	1.80	1.16
21	....do.....	....do.....	At altitude of 446 feet.....	2.85	1.84
21	....do.....	....do.....	At old station site.....	3.53	2.28

Halawa Stream near Halawa

Location.- Concrete and masonry dam, 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.- 4.5 square miles.

Records available.- August 1917 to July 1932, November 1937 to June 1939.

Average discharge.- 15 years (1918-32, 1938-39) 18.5 million gallons a day (28.6 second-feet).

Extremes.- Maximum discharge during year, 2,410 million gallons a day (3,730 second-feet) Aug. 19 (gage height, 9.82 feet), from rating curve extended above 100 million gallons a day; minimum, 2.7 million gallons a day (4.2 second-feet) Oct. 4, 5.
1917-32, 1937-39: Maximum discharge, that of Aug. 19, 1938; minimum, 0.8 million gallons a day (1.2 second-feet) Oct. 13-15, 19, 1917.
A greater discharge may have occurred Jan. 20, 1929.

Remarks.- Records good except those above 150 million gallons a day, which are poor. A 1-inch pipe-line diverts water about a quarter of a mile above station for domestic use of Halawa village.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.8	2.2	2.4	16.0	3.5	145
2.0	5.1	2.7	35.5	4.0	245
2.2	9.3	3.0	66	4.5	350

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.6	8.8	7.2	3.0	58	4.8	11.8	50	35	31	50	6.4
2	4.8	7.0	8.6	3.0	47	16.7	8.2	17.1	69	16.1	11.2	5.1
3	8.2	10.0	44	2.8	26.5	8.7	6.8	11.5	36	6.4	34.5	27
4	5.1	125	22.5	2.7	27.5	5.0	7.0	10.1	160	235	17.2	7.0
5	43	20.5	18.6	2.8	13.2	9.0	7.0	10.1	27.5	64	9.1	13.7
6	5.5	14.4	8.6	6.4	8.6	6.0	24	53	16.0	34	7.9	20.5
7	5.9	13.6	12.5	3.7	7.0	4.6	17.4	121	10.9	14.4	7.0	22.5
8	4.6	12.8	7.9	5.7	6.0	4.0	11.5	32.5	8.8	20.5	6.2	7.5
9	3.5	33.5	6.4	3.4	6.4	13.8	16.2	25	7.7	21	5.7	19.5
10	5.3	46	9.1	3.0	5.7	15.3	13.6	41	10.6	24.5	5.1	9.3
11	8.8	16.0	23.5	5.8	11.2	14.0	27.5	31.5	14.7	12.0	4.8	10.4
12	83	10.1	14.0	18.4	43	20	36	15.2	9.1	8.8	4.5	44
13	14.0	27	7.7	11.9	15.0	9.3	23.5	11.7	9.0	8.4	4.1	16.8
14	11.7	59	6.2	33.5	12.2	5.9	17.6	9.8	23	13.6	3.8	41
15	28.5	18.8	10.8	158	19.8	4.5	23	10.1	13.5	20	9.0	58
16	8.4	12.0	9.6	35	22	39.5	47	10.1	21.5	26.5	27	21
17	12.5	18.9	6.0	30.5	11.8	9.3	150	35	12.2	71	52	32.5
18	9.4	249	5.3	10.6	7.9	5.7	73	10.9	8.2	149	18.5	32.0
19	10.8	286	4.8	7.0	6.4	5.7	21.5	10.1	6.2	76	56	23.0
20	8.3	38	5.1	6.8	13.0	26	14.8	35	23	43	16.6	21.0
21	40	24	4.6	6.0	6.8	10.1	11.2	19.2	32.5	20.5	19.6	18.3
22	30	13.6	4.1	4.8	6.0	22.5	68	9.1	12.6	21.5	9.1	11.2
23	8.2	15.5	5.6	4.1	4.9	14.3	186	7.7	15.8	12.8	7.2	28
24	11.2	140	6.2	3.8	4.5	201	37	7.5	49	172	5.9	15.4
25	22.5	105	4.8	9.4	4.1	108	15.6	9.4	39.5	76	6.0	9.6
26	25	17.6	6.4	6.0	3.8	193	27	11.6	16.5	18.2	5.7	21
27	10.1	13.2	5.1	4.5	3.4	117	23	7.9	9.1	12.8	4.8	14.8
28	10.1	12.0	3.8	38.5	3.2	35	22	28	8.6	15.0	4.3	9.6
29	8.6	12.0	3.4	72	9.1	15.2	29	-	10.6	11.2	5.4	7.5
30	33.5	10.1	3.1	29	6.6	10.4	48	-	8.6	11.9	11.2	9.6
31	24	8.2	-	12.2	-	15.5	43	-	6.4	-	20.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	83	3.5	15.3	23.7	473	1,450
August	286	7.0	45.1	69.8	1,400	4,290
September	44	3.1	9.52	14.7	286	876
October	158	2.7	17.6	27.2	544	1,670
November	58	3.2	14.0	21.7	421	1,290
December	201	4.0	25.7	39.8	796	2,440
Calendar year 1938	295	2.7	25.7	39.8	9,400	28,810
January	186	6.8	34.5	53.4	1,070	3,280
February	121	7.5	23.3	36.1	651	2,000
March	160	6.2	23.6	36.5	731	2,240
April	235	6.4	42.2	65.3	1,270	3,890
May	52	3.8	14.5	22.4	450	1,380
June	58	5.1	19.4	30.0	583	1,790
Fiscal year 1938-39	286	2.7	23.8	36.8	8,680	26,600

Waiakeakua Stream near Wailau

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

Drainage area.- 1.4 square miles.

Records available.- October 1919 to September 1929, September 1937 to June 1939.

Average discharge.- 10 years (1920-29, 1938-39) 8.07 million gallons a day (12.5 second-feet).

Extremes.- Maximum discharge during year, 951 million gallons a day (1,470 second-feet) Aug. 24 (gage height, 8.26 feet), from rating curve extended above 140 million gallons a day; minimum, 2.0 million gallons a day (3.1 second-feet) Dec. 9, 10.
1919-29, 1937-39: Maximum discharge, that of Aug. 24, 1938; minimum, 1.3 million gallons a day (2.0 second-feet) Mar. 7, 1920.

Remarks.- Records good. Discharge for period of missing gage heights, Dec. 6-9, computed on basis of records for all nearby streams. No diversions.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Sept. 18				Sept. 19 to June 30			
1.5	2.2	2.3	25	1.7	2.5	2.2	14.8
1.7	5.1	2.6	43	1.8	4.0	2.4	24
1.9	9.6	3.0	75	1.9	5.9	2.7	45
2.1	16.0	3.5	124	2.0	8.3	3.0	74

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.4	5.1	6.2	3.85	9.9	*3.55	5.5	18.2	14.3	27.5	22.5	4.4
2	3.7	4.8	7.6	3.7	12.3	*3.7	5.0	9.2	18.6	6.1	7.1	4.2
3	4.1	5.4	20.5	3.7	10.5	*3.85	4.8	7.6	10.9	3.85	18.5	15.0
4	3.6	24.5	10.9	3.7	11.9	*3.85	4.6	6.9	64	56	8.4	5.6
5	3.6	7.0	9.2	4.0	7.0	*3.55	4.6	7.3	14.0	16.9	6.4	6.3
6	3.6	7.1	7.1	4.4	5.5	3.6	8.2	10.4	9.5	9.8	5.7	12.8
7	3.4	5.7	7.9	3.85	5.0	3.5	7.3	38	7.1	6.9	5.3	*10.9
8	3.3	6.6	5.9	4.0	4.6	5.0	5.5	10.5	6.6	10.3	5.1	*6.1
9	3.3	10.7	5.3	3.7	4.6	4.5	7.8	11.7	6.1	8.3	5.0	9.2
10	3.9	13.0	5.9	3.85	4.2	*5.0	7.0	21	8.0	13.8	4.6	6.1
11	4.4	7.7	10.4	3.85	4.6	5.6	13.0	17.4	6.6	6.6	4.6	7.3
12	19.6	7.3	7.0	11.7	16.6	6.7	23	10.0	7.6	5.9	4.4	26.5
13	6.3	9.7	5.3	5.1	6.0	5.0	12.3	8.3	5.7	5.5	4.0	10.3
14	6.1	14.8	4.9	14.3	5.8	4.6	11.5	7.6	5.3	6.4	4.0	13.7
15	10.7	7.2	5.1	45	8.7	4.2	11.6	7.3	5.1	13.3	7.3	26.5
16	5.7	6.8	4.8	11.3	8.6	16.5	16.5	7.8	5.1	8.9	14.9	13.4
17	5.8	8.3	4.4	6.9	5.7	5.5	25.5	18.5	5.4	12.5	28	14.4
18	4.8	73	*4.2	5.5	5.1	4.8	28.5	7.6	5.0	49	12.8	14.8
19	5.2	76	*4.6	5.0	4.8	6.6	12.3	7.1	4.8	19.0	21	10.3
20	5.0	15.3	4.4	4.6	4.6	11.1	10.6	14.6	10.6	13.4	9.5	10.5
21	10.8	11.5	4.4	4.6	4.4	5.9	8.9	9.6	7.2	12.0	10.9	8.7
22	7.4	8.4	4.4	4.4	4.2	7.4	19.8	7.1	5.1	13.5	6.9	7.3
23	5.1	10.8	5.0	4.2	3.85	7.2	18.0	6.6	5.1	8.1	5.9	11.6
24	5.3	44	4.6	4.0	3.7	17.8	14.0	6.6	6.3	33	5.3	8.4
25	4.9	38	4.4	4.6	3.85	24.5	9.5	9.1	8.1	20	5.3	6.6
26	8.0	12.8	4.6	4.4	3.55	8.3	14.5	7.6	5.1	8.6	4.8	8.6
27	5.1	10.2	4.2	4.0	3.4	12.4	10.8	6.9	4.8	7.3	4.4	8.8
28	5.1	8.6	4.0	10.0	3.25	7.5	10.6	12.2	4.8	6.9	4.2	6.1
29	4.8	8.4	4.0	17.4	*3.4	6.4	12.3	-	5.0	6.9	5.6	5.7
30	9.6	7.2	3.85	8.7	*3.55	5.5	14.2	-	4.6	9.2	5.3	6.4
31	8.4	6.4	-	5.3	-	6.7	14.1	-	4.2	-	5.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	19.6	3.3	5.97	9.24	185	568
August	76	4.8	15.6	24.1	482	1,480
September	20.5	3.85	6.17	9.55	185	568
October	45	3.7	7.21	11.2	224	686
November	16.6	3.25	6.10	9.44	183	562
December	24.5	3.5	7.11	11.0	220	676
Calendar year 1938	85	3.25	9.09	14.1	3,320	10,190
January	28.5	4.6	12.0	18.6	372	1,140
February	38	6.6	11.2	17.3	313	960
March	64	4.2	9.05	14.0	281	861
April	56	3.85	14.2	22.0	425	1,310
May	28	4.0	8.50	13.2	264	809
June	26.5	4.2	10.2	15.8	306	941
Fiscal year 1938-39	76	3.25	9.42	14.6	3,440	10,560

*Partly estimated.

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. Zero of gage is 546 feet above mean sea level, by Reclamation Service levels.

Drainage area.- 4.4 square miles.

Records available.- October 1919 to December 1928, September 1937 to June 1939.

Extremes.- Maximum discharge during period, 4,820 million gallons a day (7,460 second-feet) Aug. 19 (gage height, 8.25 feet), from rating curve extended above 220 million gallons a day; minimum, 5.4 million gallons a day (8.4 second-feet) Oct. 2.
1919-28 (revised), 1937-39: Maximum discharge recorded, that of Aug. 19, 1938; 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 (discharge not determined).

Remarks.- Records good except those for periods of missing gage heights, Jan. 17, 18, June 16-30, which were computed on basis of records for all stations on Molokai and are fair.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Sept. 22

0.5	6.2	1.5	32.5	3.5	445
.7	9.3	2.0	65	4.0	670
.9	13.2	2.5	138		
1.1	18.3	3.0	265		

Sept. 23 to June 30

0.9	3.5	1.6	28.5
1.1	7.0	2.0	64
1.3	13.2	2.5	138

Note.- Same as preceding table above 2.5 feet.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.0	10.2	17.8	5.8	12.8	7.0	16.6	32	43	10.9	56	14.5
2	8.2	9.3	22.0	5.8	35.5	28.5	13.6	24	65	9.2	28.5	13.6
3	8.2	9.3	34	6.6	13.3	10.0	12.5	18.5	37	10.9	70	40
4	7.9	35.5	23.5	5.8	13.8	7.8	11.8	16.2	148	301	40	18.4
5	8.0	13.7	18.3	8.9	13.9	7.8	10.8	15.3	75	91	265	20
6	7.9	15.5	16.6	13.0	9.2	10.0	17.2	24.5	59	58	21.5	42
7	7.7	12.5	17.6	6.8	8.1	7.0	25.5	43	32	33.5	18.5	32.5
8	7.6	14.3	14.2	9.3	8.0	16.3	22	25	25	32.5	16.6	19.0
9	7.4	28	13.2	6.6	10.8	23	21	22	20.5	30	26	25.5
10	9.8	36.5	15.6	6.8	8.1	27.5	23.5	35.5	27.5	177	15.4	17.1
11	11.4	26	29.5	7.8	14.3	22	44	31	24	45	13.2	17.5
12	28	16.8	18.2	13.5	44	23	49	23	22	29	11.8	42
13	12.9	22.5	13.9	8.9	22	15.8	43	18.5	16.2	25	11.1	28.5
14	10.9	24	13.0	11.0	22.5	11.4	49	17.1	14.1	30.5	10.4	33
15	29	17.8	14.2	257	39.5	9.7	51	18.3	12.8	59	45	63
16	13.4	16.1	13.2	44	34	52	39	17.7	12.8	45	74	35
17	12.8	19.7	12.4	18.5	20	19.0	45	69	14.9	164	93	40
18	10.2	222	12.2	13.2	15.4	14.1	50	22	11.8	179	91	38
19	10.2	517	12.8	11.1	12.5	23	43	17.5	12.1	85	93	33
20	12.5	59	*12.2	9.7	12.5	52	35.5	30	64	56	48	27
21	23.5	43	*9.4	8.6	10.0	33.5	24	32.5	28.5	42	49	24
22	18.9	30	*7.5	8.1	10.4	36.5	36	17.1	15.5	58	32.5	22
23	11.7	37	11.4	7.5	8.6	28	29	15.4	14.9	35	24	34
24	12.6	88	9.4	7.0	8.1	67	30.5	15.8	12.8	110	20	22
25	10.2	87	7.3	8.9	8.1	125	20.5	29	16.4	84	21	17
26	12.4	38.5	7.0	8.4	7.3	33.5	54	23	12.5	42	17.1	25
27	9.8	30.5	6.6	6.8	6.8	43	38.5	17.1	11.1	30.5	14.9	18
28	10.0	26	6.4	12.4	6.8	27	29.5	40	14.1	25.5	13.2	13
29	9.4	24	6.2	22	12.5	22	30.5	-	16.0	22.5	25.5	9.8
30	19.1	21	6.0	18.7	8.9	17.5	35	-	11.6	34.5	21.5	10
31	16.8	18.3	-	10.0	-	20.5	25.5	-	9.2	-	24	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	29	7.4	12.5	19.3	387	1,190
August	517	9.3	50.6	78.3	1,570	4,820
September	34	6.0	14.1	21.8	422	1,290
October	257	5.8	19.0	29.4	588	1,810
November	44	6.8	15.3	23.7	458	1,400
December	125	7.0	27.1	41.8	840	2,580
Calendar year 1938	517	5.8	27.3	42.2	9,950	30,550
January	54	10.8	31.5	48.7	976	3,000
February	69	15.3	25.4	39.3	710	2,180
March	148	9.2	29.1	45.0	902	2,770
April	301	9.2	65.4	101	1,960	6,020
May	93	10.4	34.6	53.5	1,070	3,290
June	63	9.8	26.5	41.0	794	2,440
Fiscal year 1938-39	517	5.8	29.3	45.3	10,680	32,790

*Partly estimated.

Pelekunu Stream near Pelekunu

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

Drainage area.- 2.4 square miles.

Records available.- December 1919 to January 1929, September 1937 to June 1939.

Extremes.- Maximum discharge during year, 654 million gallons a day (1,010 second-feet) Aug. 19 (gage height, 3.88 feet), from rating curve extended above 80 million gallons a day; minimum, 3.1 million gallons a day (4.8 second-feet) Oct. 2, 14.
1919-29, 1937-39: Maximum discharge, 1,330 million gallons a day (2,060 second-feet) Jan. 20, 1929 (gage height, 11.5 feet, estimated, from floodmarks), from rating curve extended above 20 million gallons a day; minimum, 1.8 million gallons a day (2.8 second-feet) Mar. 7, July 13, 1920.

Remarks.- Records excellent. No diversions.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to June 19						June 20 to June 30	
0.8	2.6	1.3	10.6	2.5	133	1.2	7.0
.9	3.4	1.6	23.5	3.0	255	1.3	10.0
1.1	6.0	2.0	57			1.4	13.5

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.4	3.8	5.8	3.2	6.2	4.1	9.3	10.5	17.2	4.3	18.6	6.6
2	4.1	3.6	6.8	3.1	29.5	11.5	7.4	9.6	31.5	4.2	10.3	6.4
3	4.1	3.6	10.3	3.2	6.8	4.6	6.4	7.6	17.0	5.9	23	12.3
4	4.0	17.8	7.0	3.2	5.4	4.2	5.8	6.6	20	120	16.3	7.6
5	4.0	6.2	5.2	5.4	4.8	4.2	5.4	6.5	20.5	51	10.9	8.9
6	3.8	6.2	5.0	8.0	4.4	4.7	5.8	8.7	25.5	33	9.0	12.3
7	3.7	5.2	5.0	3.7	4.1	4.0	11.1	11.8	12.9	18.6	7.8	10.4
8	3.6	5.1	4.4	4.4	4.1	6.4	8.6	8.8	9.8	13.6	7.2	7.0
9	3.5	8.6	4.2	3.4	4.4	8.4	7.4	7.0	8.0	12.9	17.8	8.3
10	4.5	17.1	4.5	3.5	4.1	9.0	11.0	7.7	11.5	75	7.4	6.6
11	4.7	13.8	7.7	3.8	7.8	9.4	21.5	7.0	11.1	26	6.4	6.6
12	10.7	7.6	5.1	3.3	17.1	9.8	22.5	6.4	7.6	15.5	5.8	12.0
13	4.8	9.8	4.2	3.2	10.8	7.0	28	5.6	6.4	12.6	5.7	9.3
14	4.2	10.2	4.0	3.2	11.0	5.2	34	5.6	5.7	13.2	5.4	11.6
15	12.7	7.6	5.1	61	22.5	4.4	28	7.5	5.4	21	14.5	23.5
16	5.3	6.4	4.5	19.8	17.1	19.4	32	7.7	5.2	19.0	23.5	21
17	5.5	7.4	4.0	7.6	10.6	7.9	37.5	39.5	5.2	51	25	29
18	4.3	102	3.8	5.8	7.8	5.8	37.5	10.6	4.8	64	34	23.5
19	4.2	135	4.1	5.1	6.4	11.1	21.5	7.8	4.6	42	32	15.1
20	4.8	29.5	3.7	4.5	6.4	34	19.7	10.0	27.5	32	19.1	12.0
21	8.5	18.1	3.5	4.3	5.4	20	11.9	11.8	11.7	23	24.5	13.5
22	7.4	11.6	3.4	4.1	5.4	23	14.2	6.6	8.5	25	13.9	12.8
23	4.6	12.5	4.3	3.8	4.5	17.2	11.8	6.0	7.0	16.0	10.6	12.4
24	4.8	29	3.8	3.7	4.3	56	14.5	7.3	6.2	37.5	8.8	10.7
25	4.2	28	3.4	4.0	4.5	117	9.3	10.0	6.4	21	8.5	8.8
26	4.4	14.3	3.3	3.8	4.3	25	38.5	8.6	5.6	13.9	7.4	8.5
27	4.0	11.3	3.3	3.6	3.8	25	26	6.2	5.1	11.6	6.6	9.0
28	3.8	9.0	3.2	4.8	3.8	25	16.0	11.3	6.7	9.8	6.2	7.6
29	3.7	8.0	3.2	8.0	6.2	16.2	14.2	-	6.4	10.7	10.4	7.3
30	5.8	7.0	3.2	6.9	4.3	11.3	15.1	-	5.0	11.7	9.4	10.8
31	5.8	6.2	-	4.3	-	11.5	11.6	-	4.4	-	10.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.7	3.5	5.09	7.88	158	485
August	135	3.6	18.1	28.0	562	1,720
September	10.3	3.2	4.63	7.16	139	427
October	61	3.1	6.76	10.5	210	644
November	29.5	3.8	7.93	12.3	238	730
December	117	4.0	16.8	26.0	522	1,600
Calendar year 1938	240	3.1	14.5	22.4	5,290	16,220
January	38.5	5.4	17.5	27.1	544	1,670
February	39.5	5.6	9.30	14.4	260	799
March	31.5	4.4	10.7	16.6	330	1,010
April	120	4.2	27.2	42.1	815	2,500
May	34	5.4	13.4	20.7	417	1,280
June	29	6.4	11.7	18.1	351	1,080
Fiscal year 1938-39	135	3.1	12.5	19.3	4,550	13,940

Lanipuni Stream near Pelekunu

Location.- Concrete and boulder control, lat. 21°08'40", long. 156°52'30", 0.4 mile upstream from confluence with Pelekunu Stream, 1½ miles southeast of Pelekunu, and 6.8 miles northwest of Pukoo. Zero of gage is 418 feet, by hand levels from Geological Survey bench mark.

Drainage area.- 0.8 square mile.

Records available.- December 1919 to September 1929, September 1937 to June 1939.

Average discharge.- 10 years (1920-29, 1938-39) 10.4 million gallons a day (16.1 second-feet).

Extremes.- Maximum discharge during year, 1,390 million gallons a day (2,150 second-feet) Oct. 15 (gage height, 5.15 feet), from rating curve extended above 35 million gallons a day; minimum, 1.66 million gallons a day (2.57 second-feet) Oct. 4.
1919-29, 1937-39: Maximum discharge, that of Oct. 15, 1938; minimum, that of Oct. 4, 1938.

Remarks.- Records good except those for discharges above 60 million gallons a day, which are fair. No diversions.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Oct. 15

0.3	1.5	0.8	8.2	2.0	81
.4	2.3	1.0	13.7	2.5	154
.5	3.3	1.3	26	3.0	261
.6	4.6	1.6	45		

Oct. 16 to June 30

0.4	2.3	1.0	16.1
.5	3.5	1.3	27.5
.6	5.2	1.6	45
.8	10.2		

Note.- Same as preceding table above 1.6 feet.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.6	4.5	3.0	1.7	6.1	3.4	7.0	8.9	14.6	3.4	18.8	5.4
2	4.1	4.3	3.7	1.7	16.0	8.3	6.1	7.6	18.2	3.4	10.2	4.9
3	4.2	8.8	5.5	1.8	5.2	3.85	5.7	6.4	8.6	3.5	21	9.6
4	4.0	19.1	3.6	1.7	4.5	3.4	5.4	5.9	12.3	6.4	11.6	5.4
5	4.1	6.0	2.8	2.5	4.0	3.4	5.0	5.7	14.7	14.1	7.3	6.1
6	4.1	6.9	2.7	4.0	3.65	3.5	5.9	6.6	15.2	9.1	6.1	12.5
7	3.8	5.4	2.8	2.1	3.4	3.25	12.2	11.5	7.0	5.7	5.4	7.9
8	3.7	5.2	2.4	2.4	3.4	11.3	8.4	7.2	5.9	4.9	5.0	5.4
9	3.7	14.4	2.3	1.9	3.65	9.6	7.0	5.9	5.2	4.0	4.9	7.0
10	4.6	9.3	2.5	2.2	3.25	9.9	9.7	5.9	7.2	34	4.5	5.2
11	4.3	9.4	6.6	2.1	6.5	7.9	10.1	6.1	6.6	7.0	4.4	5.7
12	9.6	6.9	3.0	4.5	11.2	7.3	26	5.7	5.7	5.2	4.0	10.0
13	4.5	7.9	2.5	2.4	6.4	5.7	16.4	5.2	4.9	4.7	3.85	6.8
14	9.2	9.3	2.4	3.7	8.4	4.5	16.5	5.0	4.5	6.6	3.85	9.1
15	7.4	5.9	2.6	107	11.4	4.0	21	5.9	4.4	26.5	13.4	15.2
16	5.7	5.7	2.4	10.2	11.2	14.0	24.5	7.6	4.2	14.1	24.5	17.6
17	5.7	6.8	2.4	5.4	6.6	5.9	28	22	4.0	45	28	15.9
18	4.5	179	2.2	4.5	4.9	4.7	25.5	6.4	3.85	57	29	11.9
19	4.3	86	2.7	4.0	4.4	10.0	11.6	5.4	3.85	24.5	25.5	7.8
20	17.1	9.0	2.2	3.65	4.4	23.5	12.5	9.1	7.4	21	12.2	6.4
21	14.3	6.4	2.1	3.4	3.85	15.6	7.8	8.8	9.4	11.9	15.6	6.1
22	6.2	4.8	2.1	3.25	3.85	12.0	11.5	5.2	6.4	15.3	8.3	6.1
23	5.6	5.3	2.6	3.15	3.4	7.1	9.1	4.9	4.5	8.3	6.6	7.3
24	5.4	9.8	2.2	3.0	3.25	47	11.3	5.7	4.2	5.4	5.7	6.1
25	4.5	8.3	1.9	4.0	3.5	112	7.0	13.9	4.7	12.7	6.1	5.4
26	4.9	4.8	1.9	3.25	3.25	12.2	21.5	8.5	3.65	7.8	5.0	5.4
27	4.3	4.2	1.9	3.0	3.0	21.5	14.9	7.3	3.65	6.6	4.7	5.0
28	4.2	3.7	1.8	5.4	3.15	11.1	10.8	12.3	6.1	5.9	4.5	4.9
29	4.9	3.6	1.8	11.1	5.6	8.7	11.6	-	5.0	7.4	6.8	5.0
30	12.8	3.2	1.7	7.3	3.5	7.0	15.1	-	3.85	11.7	7.7	7.3
31	5.7	3.0	-	4.5	-	9.8	9.9	-	3.5	-	9.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	17.1	3.7	6.00	9.28	186	571
August	179	3.0	15.1	23.4	467	1,430
September	6.6	1.7	2.68	4.15	80.3	246
October	107	1.7	7.12	11.0	221	678
November	16.0	3.0	5.50	8.51	165	506
December	112	3.25	13.3	20.6	411	1,260
Calendar year 1938	323	1.7	11.9	18.4	4,360	13,380
January	28	5.0	13.0	20.1	403	1,240
February	22	4.9	7.74	12.0	217	665
March	18.2	3.5	6.89	10.7	213	655
April	57	3.4	13.1	20.3	393	1,210
May	29	3.85	10.5	16.2	324	994
June	17.6	4.9	7.81	12.1	234	719
Fiscal year 1938-39	179	1.7	9.08	14.0	3,310	10,170

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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. Altitude, 253 feet, by Reclamation Service levels.

Drainage area.- 4.0 square miles.

Records available.- August 1931 to July 1932, September 1937 to June 1939. June 1919 to November 1930 at site 500 feet upstream.

Extremes.- Maximum discharge during period, 1,690 million gallons a day (2,610 second-feet) Aug. 18 (gage height, 5.31 feet), from rating curve extended above 50 million gallons a day; minimum, 7.2 million gallons a day (11.1 second-feet) Mar. 31 to Apr. 3.

1919-32, 1937-39: 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; minimum, 1.3 million gallons a day (2.0 second-feet) Nov. 1, 2, 1925, June 5, 1926.

Remarks.- Records good except those above 75 million gallons a day, which are poor. Kalaupapa water-supply system diverts water above station.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to May 29						May 30 to June 30			
0.7	7.2	1.3	28	2.5	155	1.4	8.6	1.6	16.7
.9	12.0	1.7	54	3.0	270	1.5	12.2	1.8	28.5
1.1	19.0	2.0	84	3.5	435				

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.0	13.0	9.6	8.7	8.9	8.0	11.2	10.1	21.5	7.2	24.5	10.4
2	13.6	12.0	9.3	8.7	32	11.5	9.3	10.1	31	7.2	12.3	9.7
3	13.6	12.0	9.6	8.7	9.3	8.5	8.7	9.1	12.8	7.4	30	11.8
4	13.6	20	10.6	8.7	8.5	7.8	8.7	8.7	9.6	131	19.2	10.4
5	13.6	12.7	9.8	8.7	8.0	7.6	8.7	8.8	11.1	38	11.7	11.8
6	13.6	12.0	9.3	10.6	7.8	7.6	8.9	17.2	18.2	21.5	10.9	12.2
7	13.6	12.7	8.9	8.9	7.8	7.2	16.0	10.6	9.3	12.0	10.6	12.2
8	13.6	11.5	8.7	9.1	8.0	16.7	10.6	12.7	8.7	10.4	10.4	9.0
9	13.6	12.0	8.7	8.7	8.0	13.0	9.8	9.3	8.2	9.8	19.1	9.0
10	13.6	24	8.9	8.7	8.0	11.2	16.7	9.1	8.2	56	12.3	9.3
11	13.6	16.4	10.1	8.5	8.7	12.7	24	8.9	13.5	13.4	10.9	9.3
12	16.0	12.0	9.6	9.1	14.5	10.9	35	8.7	8.7	10.1	10.6	12.0
13	14.3	13.0	9.1	8.2	12.7	9.6	21.5	8.7	8.0	9.6	10.4	12.2
14	13.0	13.0	8.7	8.2	12.7	8.0	29	8.5	7.8	9.6	10.1	11.5
15	17.5	12.3	8.7	59	19.4	7.8	21	8.7	7.8	29	19.1	22.5
16	13.6	11.2	8.7	14.0	15.7	14.2	33.5	8.9	8.0	22	37.5	16.4
17	14.3	11.5	8.9	9.1	10.1	9.8	26	40	7.8	51	30.5	19.3
18	13.3	235	9.1	8.7	8.5	8.0	16.6	9.8	7.6	86	31.5	17.2
19	12.3	84	9.1	8.5	7.6	12.4	11.7	8.7	7.6	31.5	26.5	12.6
20	21.5	16.2	9.1	8.7	8.0	31	15.3	8.7	30.5	24.5	14.0	9.7
21	25	12.7	9.1	8.7	8.0	14.5	9.9	10.9	13.3	14.6	18.1	9.7
22	21	11.2	9.1	8.7	8.2	14.5	15.7	8.7	11.2	16.4	11.5	9.7
23	13.3	10.4	8.9	8.7	8.0	9.5	13.0	8.0	8.5	12.0	9.8	9.3
24	13.6	14.0	8.9	8.5	8.0	273	18.5	8.0	8.0	57	9.1	9.3
25	13.0	16.3	8.7	8.5	8.0	74	10.1	8.2	7.8	15.0	8.9	8.6
26	12.7	10.9	8.7	8.5	8.0	12.7	51	10.4	7.6	12.3	8.9	8.6
27	12.3	9.8	8.7	8.5	7.8	26.5	22	8.7	7.6	10.9	8.9	8.6
28	12.0	9.3	8.7	9.1	8.0	20.5	13.3	12.3	7.6	10.6	8.7	8.6
29	12.0	9.6	8.7	20.5	11.2	13.7	12.4	-	8.2	10.9	8.7	8.6
30	22.5	9.6	8.7	13.8	8.7	10.9	17.9	-	7.8	14.9	14.0	10.4
31	15.7	9.6	-	9.8	-	13.2	11.7	-	7.6	-	14.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25	12.0	14.8	22.9	459	1,410
August	235	9.3	22.3	34.5	690	2,120
September	10.6	8.7	9.09	14.1	273	837
October	59	8.2	11.1	17.2	345	1,060
November	32	7.6	10.3	15.9	308	946
December	273	7.2	23.0	35.6	712	2,180
Calendar year 1938	474	7.2	21.0	32.5	7,780	23,560
January	51	8.7	17.3	26.8	538	1,650
February	40	8.0	10.7	16.6	300	922
March	31	7.6	11.0	17.0	341	1,050
April	131	7.2	25.4	39.3	762	2,340
May	37.5	8.7	15.6	24.1	484	1,480
June	22.5	8.6	11.3	17.5	340	1,040
Fiscal year 1938-39	273	7.2	15.2	23.5	5,550	17,040

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
May 25	Waikolu.....	Pacific Ocean..	At altitude 785 feet near Kalaupapa	5.42	3.50
July 8	....do.....	....do.....	At altitude 650 feet near Kalaupapa	8.97	5.80
8	....do.....	....do.....	At pipe-line crossing near Kalaupapa	19.6	12.7

Honokahau Stream near Honokahau

Location.- Masonry dam control, lat. 20°57'45", long. 156°35'20", 1,000 feet upstream from intake of Honokahau ditch and about 5 miles southeast of Honokohau. Altitude, about 950 feet, by barometer.
Drainage area.- 4.2 square miles.
Records available.- March 1913 to September 1920, May 1922 to June 1939.
Average discharge.- 21 years (1916-20, 1922-39), 26.3 million gallons a day (40.7 second-feet).
Extremes.- Maximum discharge during year, 1,900 million gallons a day (2,940 second-feet) Apr. 4 (gage height, 7.65 feet), from rating curve extended above 120 million gallons a day; minimum, 9.5 million gallons a day (14.7 second-feet) Jan. 5, 6.
1913-20, 1922-39: Maximum discharge, 2,200 million gallons a day (3,400 second-feet) Feb. 13, 1924 (gage height, 7.92 feet), from rating curve extended above 100 million gallons a day; minimum, 6.2 million gallons a day (9.6 second-feet) June 30, 1926.
Remarks.- Records good except those for period of missing gage heights, Mar. 5-27, which were computed on basis of records for stations on nearby ditches and streams, and those above 200 million gallons a day, which are poor. No diversions.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Oct. 15				Oct. 16 to June 30					
2.1	12.4	2.8	52	2.0	8.7	2.5	29	3.3	114
2.2	16.0	3.0	73	2.1	11.5	2.7	42	3.6	165
2.4	25	3.4	130	2.3	18.9	3.0	73	4.0	250
2.6	37	3.8	204						

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	75	18.8	17.2	13.8	14.8	12.5	13.5	13.5	67	24.5	99	13.5
2	24	18.4	18.4	14.2	14.2	12.9	12.2	12.2	31	13.2	45	19.0
3	24	21.5	37	14.6	12.2	11.2	10.1	11.5	16.4	10.9	71	50
4	21.5	33	26.5	14.2	11.8	11.2	9.8	11.2	121	121	35.5	16.1
5	21.5	19.2	18.0	16.8	11.8	11.5	9.8	10.9	60	41	15.7	15.7
6	22	37.5	17.9	21	11.5	10.9	12.2	11.8	20	18.1	18.5	46
7	28	27.5	37	19.5	11.5	29.5	63	21	14	26.5	14.6	33.5
8	22.5	30.5	18.4	30	11.5	67	14.6	19.1	13	21	13.9	13.9
9	21	48	16.8	17.6	14.3	85	49	11.5	13	26.5	13.9	29
10	24	26.5	18.4	24	12.2	36	50	10.7	18	49.0	13.2	14.6
11	26	22	67	16.0	11.5	20.5	30.5	19.6	20	13.9	12.9	29.5
12	42	30.5	19.6	47	29.5	21.5	74	17.2	45	11.8	12.9	84
13	33	37.5	17.2	21	37	13.2	34.5	12.8	20	11.2	12.5	32.5
14	24.5	63	16.8	59	15.8	11.8	42	11.2	14	17.7	12.5	33.5
15	31	22.5	17.6	199	20	11.2	44	18.2	13	74	37	38.5
16	21	34	17.6	24.5	32	36	132	20.5	12	48	103	62
17	33	46	27.5	38	14.2	14.2	22	77	18	80	75	67
18	24	134	18.0	15.7	12.5	13.2	52	13.5	20	197	60	44
19	20	88	32	14.6	12.2	23	14.2	11.5	15	57	80	19.4
20	75	42	18.4	13.5	12.2	27.5	30	25.5	60	59	18.4	16.1
21	96	33.5	16.0	12.9	11.5	16.1	12.5	18.9	20	37.5	23.5	15.7
22	28	19.6	15.6	12.5	11.5	13.9	34.5	11.5	15	91	19.4	17.3
23	19.6	28.5	17.2	12.2	11.2	11.2	17.2	10.9	13	38.5	15.7	17.5
24	25	33	16.0	12.2	11.2	18.6	42	21.5	12	218	13.5	13.9
25	19.2	60	15.3	13.2	11.5	49	13.5	15.6	12	21.5	38	13.2
26	26	21	15.3	13.5	11.2	12.2	70	23.5	12	14.2	30.5	18.1
27	22.5	18.0	14.9	12.2	11.5	11.5	62	134	12	13.5	16.9	16.7
28	21.5	18.4	15.3	32	11.2	18.3	21	83	16.8	12.9	14.2	15.2
29	22	18.8	15.3	71	49	10.9	18.1	-	18.4	34.5	27	16.9
30	43	17.6	14.1	43	12.9	10.1	39.5	-	13.2	43	19.0	17.2
31	29	17.2	-	13.9	-	19.6	19.6	-	11.5	-	36	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	96	19.2	31.1	48.1	965	2,960
August	134	17.2	35.0	54.2	1,090	3,330
September	67	14.1	21.1	32.6	632	1,940
October	199	12.2	28.5	44.1	883	2,710
November	49	11.2	15.8	24.4	475	1,460
December	85	10.1	21.7	33.6	671	2,060
Calendar year 1938	505	10.1	37.0	57.2	13,490	41,400
January	132	9.8	34.5	53.4	1,070	3,280
February	134	10.7	24.3	37.6	679	2,080
March	121	11.5	24.7	38.2	766	2,350
April	218	10.9	48.2	74.6	1,450	4,440
May	103	12.5	32.8	50.7	1,020	3,120
June	84	13.2	28.0	43.3	840	2,580
Fiscal year 1938-39	218	9.8	28.9	44.7	10,540	32,310

Honokawai ditch near Lahaina

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

Records available.- July 1912 to June 1939.

Average discharge.- 20 years (1919-39), 5.87 million gallons a day (9.08 second-feet).

Extremes.- Maximum daily discharge, 21 million gallons a day (32 second-feet) May 16; minimum, 2.65 million gallons a day (4.10 second-feet) Apr. 28.
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.- Record of daily discharges since July 1932 furnished by Pioneer Mill Co. Ditch diverts water for power and irrigation from Honokawai Stream just above station. Flow regulated by head gates at intake.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.0	4.1	3.8	3.7	3.4	3.25	3.75	3.1	8.9	3.25	11.1	3.2
2	4.4	4.1	3.8	3.7	3.4	3.4	3.2	3.0	10.7	3.35	5.4	4.0
3	4.1	4.1	7.9	3.65	3.4	3.3	3.05	3.0	6.0	3.0	10.3	10.4
4	4.1	4.9	6.1	3.65	3.4	3.25	3.0	3.0	7.8	4.0	5.3	3.65
5	3.9	4.5	4.1	4.1	3.35	3.2	3.0	3.0	8.2	6.0	2.95	3.6
6	4.0	7.0	6.6	5.5	3.3	3.15	3.1	3.0	4.0	3.55	3.0	9.9
7	4.6	6.0	6.4	4.6	3.3	6.1	14.2	7.0	3.55	5.1	2.95	7.5
8	4.3	5.9	4.1	7.4	3.3	16.6	3.8	5.6	3.45	3.9	2.95	3.3
9	4.0	9.3	3.1	4.6	3.3	17.6	11.2	3.1	3.5	3.3	3.25	5.0
10	4.4	6.5	3.8	5.6	3.3	12.1	13.4	3.0	3.85	3.0	3.1	3.5
11	5.0	4.8	14.3	4.1	3.3	4.8	7.6	3.65	4.0	2.85	2.95	4.8
12	6.5	5.6	4.4	3.9	5.1	5.6	12.2	3.45	6.6	2.7	2.95	12.8
13	5.1	8.4	4.0	4.4	8.2	3.55	8.5	3.35	4.0	2.7	2.9	7.0
14	4.9	8.0	3.9	7.7	4.2	3.25	11.1	3.0	3.35	3.75	2.8	11.8
15	7.8	4.6	3.85	8.5	4.8	3.2	13.9	4.5	3.2	11.6	7.7	11.8
16	4.3	6.2	3.8	3.75	5.8	10.1	18.7	6.1	3.15	5.4	21	11.2
17	6.8	8.4	5.6	3.9	3.5	3.85	4.9	13.9	3.55	7.8	15.3	13.6
18	5.2	19.8	4.5	3.45	3.35	3.45	10.0	3.35	3.7	8.4	15.6	9.8
19	4.2	13.2	6.7	3.4	3.2	8.0	3.6	3.0	3.35	5.9	14.4	4.4
20	10.8	9.6	4.5	3.4	3.15	8.5	9.4	5.6	12.1	5.2	3.9	3.65
21	16.5	8.5	3.85	3.4	3.15	3.65	3.4	4.6	4.3	4.6	5.0	3.6
22	5.7	4.2	3.8	3.4	3.15	3.75	5.1	3.05	3.35	7.8	3.7	3.75
23	4.2	5.2	3.85	3.4	3.15	3.25	3.55	2.9	3.2	5.8	3.1	5.6
24	4.9	5.3	3.8	3.4	3.15	3.75	6.8	5.0	3.1	9.1	2.95	3.7
25	4.2	8.9	3.75	3.4	3.15	6.7	3.25	7.4	3.1	3.2	11.3	3.4
26	4.2	4.6	3.7	3.4	3.15	3.3	15.8	5.0	3.1	2.7	5.0	3.25
27	4.4	3.95	3.65	3.3	3.15	3.15	14.5	10.5	3.05	2.7	3.6	3.35
28	4.0	3.8	3.65	4.1	3.15	4.0	4.8	9.5	5.2	2.65	3.25	3.6
29	4.1	3.7	3.7	8.8	9.2	3.3	3.7	-	5.6	4.0	6.5	3.85
30	12.5	3.65	3.7	7.6	3.45	3.15	6.4	-	3.45	7.0	4.6	4.5
31	5.7	3.65	-	3.5	-	3.15	3.7	-	3.05	-	8.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.5	3.9	5.77	8.93	179	549
August	19.8	3.65	6.47	10.0	200	615
September	14.3	3.1	4.76	7.36	143	438
October	8.8	3.3	4.54	7.02	141	432
November	9.2	3.15	3.86	5.97	116	356
December	17.6	3.15	5.40	8.36	167	514
Calendar year 1938	24	2.95	5.76	8.91	2,100	6,450
January	18.7	3.0	7.50	11.6	233	714
February	13.9	2.9	4.81	7.44	135	413
March	12.1	3.05	4.76	7.36	147	453
April	11.6	2.65	4.81	7.44	144	443
May	21	2.8	6.37	9.86	197	606
June	15.6	3.2	6.12	9.47	184	563
Fiscal year 1938-39	21	2.65	5.44	8.42	1,990	6,100

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 1939.

Average discharge.- 21 years (1917-20, 1921-39), 4.95 million gallons a day (7.66 second-feet).

Extremes.- Maximum daily discharge, 10.9 million gallons a day (16.9 second-feet) Apr. 18; minimum, 2.7 million gallons a day (4.2 second-feet) Nov. 28, Dec. 4-6.
1911-32: Maximum discharge, 18 million gallons a day (28 second-feet) Dec. 25, 1920 (gage height, 1.53 feet, former site and datum); no flow occasionally, when water was shut out of ditch.

Remarks.- Record of daily discharge since January 1932 furnished by Pioneer Mill Co. Intake in Olowalu Stream at altitude of about 450 feet. Water used for power and irrigation. Regulated by head gates.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.4	5.1	4.6	3.2	5.0	2.85	3.6	7.2	8.5	5.8	9.9	7.7
2	10.1	4.6	4.6	3.2	4.5	2.8	3.4	6.5	9.0	4.7	9.7	7.3
3	8.7	4.5	5.0	3.15	4.1	2.75	3.2	6.0	8.9	5.6	9.9	8.7
4	7.2	4.4	4.6	3.05	3.85	2.7	3.1	5.5	8.9	7.9	9.8	7.6
5	6.7	4.3	4.1	3.1	3.65	2.7	3.05	4.8	9.1	9.8	9.6	7.0
6	6.2	4.8	4.1	3.05	3.55	2.7	3.2	5.0	9.0	9.6	9.5	7.2
7	6.3	4.8	4.1	3.15	3.35	3.3	6.7	5.8	8.7	9.4	9.4	8.2
8	5.8	5.1	3.9	4.2	3.3	6.3	4.8	7.2	8.6	9.4	9.4	6.7
9	5.5	6.2	3.75	3.65	3.3	8.4	6.6	5.6	8.0	9.4	9.8	7.3
10	5.4	7.8	3.95	3.6	3.15	8.0	8.4	5.1	7.4	9.3	9.7	6.7
11	5.5	5.7	6.6	3.25	3.1	7.2	8.2	5.1	6.6	9.2	9.5	6.9
12	5.7	5.1	4.6	3.3	3.45	6.4	8.2	4.9	6.9	8.4	9.4	8.4
13	5.7	5.3	4.1	3.3	4.0	4.8	8.4	4.6	6.6	7.6	9.2	9.5
14	5.5	6.0	4.0	3.95	3.65	4.1	8.5	4.3	5.8	7.6	8.5	9.4
15	5.6	5.2	3.95	6.0	3.35	3.75	8.4	4.2	5.5	9.8	8.4	9.5
16	5.1	6.8	3.85	9.0	4.8	5.6	9.1	3.0	5.6	9.9	9.9	9.5
17	4.9	8.0	4.2	6.2	3.55	4.2	8.7	8.3	7.0	10.1	10.0	9.6
18	5.0	10.3	3.85	4.9	3.2	3.8	8.5	6.2	8.8	10.9	9.7	9.5
19	4.8	10.6	4.4	5.0	3.1	3.7	8.3	5.2	8.6	10.2	9.8	9.4
20	4.6	10.2	3.8	4.6	3.0	4.0	8.1	5.3	9.4	10.0	9.5	9.2
21	5.9	10.0	3.6	4.1	2.95	3.6	7.7	5.4	9.2	9.8	9.5	8.8
22	7.3	9.3	3.55	4.7	2.9	3.3	7.5	4.6	9.0	9.8	9.4	8.4
23	6.0	8.3	3.45	4.5	2.85	3.2	6.8	4.6	8.7	9.8	9.2	7.9
24	6.1	7.6	3.35	3.8	2.8	4.8	7.7	5.1	7.9	10.4	9.0	6.9
25	5.3	6.8	3.3	3.95	2.85	6.4	6.8	4.3	8.3	10.0	9.0	6.4
26	5.2	6.1	3.35	3.7	2.8	4.4	8.3	4.4	7.3	9.9	9.1	6.2
27	5.0	5.6	3.3	3.4	2.75	3.95	8.3	7.2	6.7	9.8	8.5	5.8
28	4.9	5.4	3.3	5.3	2.7	4.6	8.0	8.4	6.7	9.6	7.8	5.6
29	4.7	5.1	3.25	5.5	5.1	4.2	7.9	-	6.8	9.7	8.7	6.0
30	7.1	4.9	3.25	8.4	3.15	3.65	7.8	-	6.2	9.0	8.0	6.2
31	6.7	4.7	-	6.4	-	3.5	7.5	-	6.0	-	8.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.1	4.6	6.03	9.33	187	574
August	10.6	4.3	6.41	9.92	199	609
September	6.6	3.25	3.99	6.17	120	367
October	9.0	3.05	4.41	6.82	137	419
November	5.1	2.7	3.46	5.35	104	319
December	8.4	2.7	4.38	6.78	136	416
Calendar year 1938	11.4	2.7	6.44	9.96	2,350	7,210
January	9.1	3.05	6.93	10.7	215	659
February	8.4	3.0	5.49	8.49	154	472
March	9.4	5.5	7.73	12.0	240	736
April	10.9	4.7	9.08	14.0	272	836
May	10.0	7.8	9.28	14.4	288	883
June	9.6	5.6	7.78	12.0	234	717
Fiscal year 1938-39	10.9	2.7	6.26	9.69	2,290	7,010

Oheo Stream below diversion dam, near Kipahulu

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

Drainage area.- 5.8 square miles.

Records available.- February 1927 to September 1929, December 1931 to June 1939.

Extremes.- Maximum discharge during year (estimated), 3,790 million gallons a day (5,860 second-feet) Mar. 4, from computation by broad crested weir formula of discharge over dam just above station; minimum not determined owing to faulty gage height record.

1927-29, 1931-39: 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. Discharges for Sept. 9 to Oct. 21, Oct. 25 to Dec. 6, Jan. 12 to June 30 not computed because of insufficient data. Small quantity of water is diverted for domestic supply and livestock.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.2	0.01	1.7	2.85	2.6	31.5	4.0	149
1.3	.06	2.0	8.6	3.0	58	5.0	285
1.5	.76	2.3	18.0	3.5	98	6.0	470

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	61	2.75	0.69	-		-	1.15					
2	3.05	.34	9.8	-		-	.86					
3	.44	11.4	102	-		-	.34					
4	.10	74	118	-		-	.50					
5	.04	8.3	18.9	-		-	1.11					
6	.04	15.8	9.1	-		-	.65					
7	16.3	2.0	30.5	-		5.1	117					
8	1.71	.20	29.5	-		39.5	68					
9	.06	15.3	-	-		77	55					
10	25	17.0	-	-		57	138					
11	10.3	37.5	-	-		15.2	59					
12	64	1.56	-	-		27	-					
13	40	19.1	-	-		13.5	-					
14	25	30.5	-	-		2.1	-					
15	50	7.4	-	-		.56	-					
16	8.6	4.8	-	-		139	-					
17	11.6	4.4	-	-		18.1	-					
18	1.81	55	-	-		12.4	-					
19	.16	194	-	-		135	-					
20	.08	33.5	-	-		622	-					
21	1.37	18.3	-	-		461	-					
22	.08	4.3	-	1.04		390	-					
23	.03	235	-	.30		169	-					
24	.03	388	-	.20		8.3	-					
25	.12	276	-	-		4.1	-					
26	8.2	11.1	-	-		8.3	-					
27	.12	6.8	-	-		62	-					
28	.21	8.0	-	-		6.8	-					
29	17.3	11.2	-	-		2.05	-					
30	41	5.2	-	-		1.06	-					
31	23	1.15	-	-		.76	-					

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	64	0.03	13.2	20.4	411	1,260
August	388	.20	48.4	74.9	1,500	4,600
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Calendar year	-	-	-	-	-	-
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	-	-	-	-	-	-
Fiscal year	-	-	-	-	-	-

Right Branch of 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, 1,100 feet. Columbus control installed and datum lowered 8 feet Apr. 21, 1938.

Drainage area.- 0.1 square mile.

Records available.- February 1927 to June 1939.

Extremes.- Maximum discharge during year, 872 million gallons a day (1,350 second-feet) Mar. 4 (gage height, 4.78 feet), from rating curve extended above 12 million gallons a day; minimum, 0.36 million gallons a day (0.56 second-feet) Oct. 23, 24.
1927-37: Maximum discharge, 1,940 million gallons a day (3,000 second-feet) Apr. 29, 1937 (gage height, 15.74 feet, former datum); minimum, 0.15 million gallons a day (0.23 second-foot) Dec. 18, 1929.

Remarks.- Records good except those for periods when clock was not running, June 27-29, Oct. 10-21, 1938, which were computed on basis of records for stations on all nearby streams and are poor. No diversions.

Rating table, April 1938 to June 1939 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.38	1.2	2.5	2.0	26
.9	.64	1.4	5.1	2.3	51
1.0	1.06	1.7	12.4		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.7	1.56	1.32	7.8	12.8	1.01	1.38	3.7	5.3	3.3	9.7	1.66
2	1.50	1.21	2.15	1.50	5.8	3.25	1.38	2.85	10.0	7.2	3.4	2.25
3	1.38	4.4	9.6	1.44	10.7	3.85	1.26	2.0	13.4	2.5	10.4	9.7
4	1.06	3.7	9.3	1.26	11.7	1.39	1.58	1.66	46	8.8	3.05	3.1
5	1.11	2.05	4.0	2.8	4.5	1.90	1.94	1.74	9.4	24	2.4	2.65
6	1.19	2.6	2.95	2.1	2.25	2.65	1.82	7.7	6.8	5.1	2.5	9.3
7	4.8	1.47	5.4	1.32	2.0	1.21	5.6	11.0	2.7	3.4	2.15	8.0
8	1.58	1.11	3.85	1.28	2.25	2.4	3.8	2.9	2.8	4.2	4.5	2.4
9	1.21	1.22	2.4	1.01	5.7	4.3	7.3	12.0	2.35	10.4	1.74	3.5
10	1.99	1.44	6.3	2.5	2.35	4.1	5.8	18.0	3.05	6.7	1.38	2.1
11	2.8	2.6	4.1	1.8	3.15	2.0	2.65	10.5	2.75	2.7	1.21	1.95
12	8.2	1.38	2.35	1.3	14.1	2.4	4.3	4.4	2.9	2.4	.96	14.2
13	5.5	2.1	1.91	1.1	5.3	2.35	4.3	2.85	1.91	2.25	.67	6.2
14	3.6	4.1	1.66	1.0	3.4	1.38	2.75	2.35	6.1	4.0	.58	4.0
15	2.75	1.83	1.50	4.0	6.4	1.16	2.2	4.6	3.05	5.2	4.3	9.2
16	1.91	3.2	1.38	2.0	3.5	5.6	9.4	2.7	1.86	3.8	12.3	10.2
17	1.66	2.35	2.5	3.0	2.7	1.66	4.4	2.6	24	11.3	6.1	8.6
18	1.50	9.8	1.78	2.0	2.1	2.35	7.3	2.0	8.6	17.8	10.4	7.2
19	1.32	16.2	3.05	1.5	1.83	2.75	3.05	1.66	3.15	4.0	6.6	4.2
20	1.21	5.3	1.62	1.3	1.58	7.6	3.6	5.7	34.5	7.4	3.8	4.6
21	2.25	4.3	1.32	1.1	1.50	7.1	3.6	2.65	5.0	5.4	5.6	2.7
22	1.26	2.35	1.54	.86	1.38	4.3	3.25	1.74	3.6	3.65	2.35	2.8
23	1.11	9.1	2.15	.47	1.26	6.9	6.6	1.50	3.15	2.85	2.15	4.7
24	1.06	12.4	1.32	.45	1.21	2.1	2.5	1.38	24	7.3	1.83	3.05
25	1.74	11.4	1.35	.50	1.16	5.3	2.0	1.52	45	16.0	5.6	2.35
26	5.6	2.95	7.1	1.24	1.06	4.7	4.4	3.65	7.6	10.0	2.15	2.35
27	1.38	2.35	1.32	.61	1.06	9.1	5.1	12.4	3.9	3.5	1.91	4.1
28	1.91	2.95	1.06	1.29	1.01	2.5	9.8	11.8	3.6	6.2	1.38	2.35
29	2.4	2.85	2.25	1.67	1.73	1.91	2.6	-	5.0	6.7	2.75	2.0
30	3.75	2.1	2.6	6.0	1.06	1.58	2.25	-	3.4	7.4	2.7	2.6
31	4.1	1.50	-	2.85	-	1.38	4.5	-	3.05	-	5.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.2	1.06	2.44	3.78	75.5	232
August	16.2	1.11	4.00	6.19	124	380
September	9.6	1.06	3.04	4.70	91.1	280
October	7.8	.45	1.90	2.94	59.0	181
November	14.1	1.01	3.88	6.00	117	358
December	9.1	1.01	3.30	5.11	102	314
Calendar year 1938	-	-	-	-	-	-
January	9.8	1.26	3.96	6.13	123	376
February	18.0	1.38	4.98	7.71	140	428
March	46	1.86	9.61	14.9	298	914
April	24	2.25	6.85	10.6	205	631
May	12.3	.58	3.92	6.07	122	373
June	14.2	1.66	4.80	7.43	144	442
Fiscal year 1938-39	46	.45	4.38	6.78	1,500	4,910

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 June 1939. Records at same site obtained by East Maui Irrigation Co. June 1930 to June 1932.

Extremes.- Maximum discharge during year not determined, owing to faulty gage-height record; no flow Sept. 28 to Oct. 12, Nov. 27 to Dec. 8.
1932-39: Maximum discharge, 1,220 million gallons a day (1,890 second-feet) Apr. 7, 1938 (gage height, 5.90 feet), from rating curve extended above 70 million gallons a day; no flow occasionally during dry weather.

Remarks.- Records good except those for periods of faulty gage heights, July 3-5, Feb. 16-28, Mar. 2-14 (computed on basis of records for stations on nearby streams), and those above 300 million gallons a day, which are poor. Koolau ditch diverts water 1 mile above station for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.4	4.6	1.0	45
.1	.2	.5	7.8	1.2	65
.2	.9	.6	12.0	1.5	97
.3	2.3	.8	23.5		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.1	2.5	1.5	0	6.8	0	1.9	5.1	48	4.4	13.2	4.4
2	4.1	2.3	1.2	0	9.6	0	1.7	4.6	60	4.4	5.2	4.1
3	4.1	2.4	1.3	0	1.3	0	1.7	4.4	15	4.4	10.2	4.4
4	4.1	3.0	1.5	0	15.0	0	1.5	4.1	80	4.4	6.9	4.4
5	4.1	2.3	1.2	0	1.6	0	1.5	3.9	45	8.0	5.6	4.1
6	*3.9	2.3	1.0	0	1.2	0	1.5	3.9	20	5.2	5.2	4.4
7	4.1	2.2	1.2	0	.8	0	3.6	28	12	4.9	4.9	4.9
8	3.9	2.2	.9	0	.6	.1	2.5	5.9	15	5.2	4.9	4.9
9	3.9	2.2	.7	0	.5	2.1	2.8	4.9	10	4.6	4.6	4.9
10	3.9	2.0	.8	0	.3	.9	4.1	4.6	7.0	44	4.6	4.9
11	3.9	2.0	1.2	0	.5	.9	3.2	4.6	5.6	5.2	4.4	4.6
12	3.7	1.9	1.0	2.9	6.2	.9	4.2	4.4	5.4	4.9	4.4	5.6
13	3.9	1.9	.8	.8	5.6	.8	4.1	4.4	5.4	4.6	4.1	5.2
14	3.7	2.0	.7	.5	3.7	.8	4.7	4.1	5.0	4.6	4.1	5.2
15	3.9	2.0	.6	32.5	3.7	.8	4.4	4.1	4.9	10.1	4.4	5.6
16	3.7	1.9	.5	3.3	2.8	.8	38.5	4.1	10.1	4.6	5.9	7.6
17	3.7	1.9	.5	11.7	2.3	.8	10.6	13.0	4.6	29	6.5	9.5
18	3.7	6.3	.4	6.9	2.0	.8	8.8	4.5	4.4	84	6.8	7.5
19	3.4	5.2	.3	2.3	1.6	1.4	7.2	4.2	4.1	16.9	7.5	6.8
20	4.6	4.4	.4	1.7	1.3	47	11.1	4.2	4.1	29	6.5	5.9
21	4.4	3.7	.3	1.2	.9	9.4	6.8	4.1	4.1	33.5	6.2	5.6
22	3.9	3.2	.2	.8	.7	26.5	6.6	4.0	3.9	22.5	6.2	4.9
23	3.7	2.8	.2	.7	.6	6.8	5.9	4.0	3.9	*22.5	5.9	4.6
24	3.7	6.1	.2	.5	.4	5.2	7.2	15	3.9	36	5.9	4.4
25	3.4	6.1	.2	.4	.2	4.1	5.2	20	4.6	8.6	5.9	4.1
26	3.2	4.1	.2	.3	.1	3.7	4.9	14	4.1	7.5	5.6	3.9
27	3.0	3.4	.1	.2	.1	3.4	10.3	70	4.1	6.5	5.2	3.7
28	3.0	2.8	.1	.2	0	2.8	7.3	60	4.1	5.9	4.9	3.4
29	2.8	2.2	0	.1	0	2.3	6.2	-	4.1	4.9	4.9	3.4
30	2.8	1.9	0	.7	0	2.2	5.2	-	4.1	6.3	4.6	3.2
31	2.8	1.6	-	.3	-	2.0	4.9	-	4.1	-	4.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.6	2.8	3.71	5.74	115	353
August	6.3	1.6	2.93	4.53	90.8	279
September	1.5	0	.64	.99	19.2	59
October	32.5	0	2.19	3.39	68.0	209
November	15.0	0	2.35	3.64	70.4	216
December	47	0	4.08	6.31	126	388
Calendar year 1938	791	0	13.5	20.9	4,940	15,180
January	38.5	1.5	6.13	9.48	190	583
February	70	3.9	11.1	17.2	312	958
March	80	3.9	13.2	20.4	411	1,260
April	84	4.4	14.6	22.6	437	1,340
May	13.2	4.1	5.79	8.96	180	551
June	9.5	3.2	5.00	7.74	150	461
Fiscal year 1938-39	84	0	5.94	9.19	2,170	6,660

*Partly estimated.

West Makapipi Spring near Nahiku

Location.- Parshall flume, lat. 20°4S'20", long. 156°06'20", half a mile upstream from highway, 1.7 miles south of Nahiku, and 4¾ miles southeast of Keanae post office.

Records available.- July 1932 to June 1939. Records at same site obtained by East Maui Irrigation Co. June 1931 to June 1932.

Extremes.- Maximum discharge recorded during year, 3.05 million gallons a day (4.72 second-feet) Feb. 27 (gage height, 0.84 foot); minimum, 0.09 million gallons a day (0.14 second-foot) Nov. 24-26.

1932-39: Maximum discharge, 32 million gallons a day (50 second-feet) Feb. 25, 1935 (gage height, 2.93 feet), 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 missing gage heights, Mar. 1-13, which were computed on basis of records for stations on nearby streams and are fair. No diversions.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.05	0.3	0.40	0.5	1.26
.2	.17	.4	.79	.6	1.75

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.41	0.93	0.40	0.16	0.13	0.10	0.50	1.12	1.50	1.41	1.02	1.41
2	1.41	.93	.38	.16	.16	.11	.50	1.12	1.50	1.41	1.02	1.36
3	1.41	.88	.38	.16	.14	.11	.50	1.17	1.40	1.41	1.02	1.36
4	1.41	.88	.35	.16	.17	.14	.50	1.21	1.40	1.41	1.07	1.36
5	1.41	.84	.35	.16	.14	.16	.50	1.21	1.40	1.46	1.12	1.36
6	1.41	.84	.32	.16	.13	.16	.50	1.26	1.30	1.41	1.12	1.36
7	1.41	.79	.32	.16	.11	.17	.62	1.36	1.30	1.41	1.17	1.36
8	1.36	.79	.30	.16	.11	.19	.62	1.36	1.30	1.41	1.21	1.36
9	1.36	.75	.30	.16	.10	.27	.62	1.36	1.20	1.41	1.26	1.36
10	1.36	.75	.27	.16	.10	.27	.75	1.36	1.20	1.41	1.26	1.36
11	1.31	.71	.30	.16	.10	.27	.75	1.36	1.20	1.36	1.31	1.31
12	1.31	.71	.27	.19	.13	.30	.79	1.36	1.20	1.31	1.31	1.31
13	1.31	.71	.25	.17	.14	.32	.84	1.36	1.12	1.31	1.31	1.31
14	1.31	.66	.25	.17	.13	.32	.84	1.36	*1.12	1.31	1.36	1.31
15	1.31	.66	.23	.23	.13	.35	.88	1.36	1.12	1.31	1.36	1.31
16	1.26	.62	.23	.21	.11	.35	1.02	1.36	1.12	1.26	1.41	1.36
17	1.26	.62	.21	.25	.11	.35	.98	1.41	1.12	1.31	1.46	1.36
18	1.21	.66	.21	.23	.11	.38	.98	1.41	1.17	1.41	1.46	1.31
19	1.21	.66	.21	.17	.10	.40	.98	1.41	1.17	1.26	1.46	1.31
20	1.21	.62	.21	.16	.10	.54	.98	1.36	1.21	1.31	1.50	1.26
21	1.21	.58	.19	.16	.10	.54	.98	1.36	1.26	1.31	1.46	1.26
22	1.17	.58	.19	.16	.09	*.54	.98	1.36	1.31	1.21	1.46	1.21
23	1.12	.54	.19	.14	.09	*.54	.98	1.36	1.36	1.21	1.46	1.21
24	1.12	.58	.19	.14	.09	.54	.98	1.36	1.36	1.21	1.46	1.71
25	1.12	.58	.19	.13	.09	.54	.98	1.36	1.41	1.12	1.46	1.17
26	1.07	.54	.17	.13	.09	.54	.98	1.36	1.41	1.12	1.46	1.17
27	1.02	.50	.17	.13	.10	.50	1.02	1.55	1.41	1.07	1.46	1.17
28	1.02	.47	.16	.11	.10	.50	1.02	1.55	1.41	1.02	1.46	1.12
29	1.02	.44	.16	.11	.10	.50	1.07	-	1.41	1.02	1.41	1.12
30	.98	.44	.16	.11	.10	.50	1.07	-	1.41	1.02	1.41	1.12
31	.93	.40	-	.11	-	.50	1.12	-	1.41	-	1.41	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.41	0.93	1.24	1.92	38.4	118
August	.93	.40	.666	1.03	20.7	63
September	.40	.16	.250	.387	7.51	23
October	.25	.11	.160	.248	4.97	15
November	.17	.09	.113	.175	3.40	10
December	.54	.10	.355	.549	11.0	34
Calendar year 1938	1.85	.09	.875	1.35	319	980
January	1.12	.50	.833	1.29	25.8	79
February	1.55	1.12	1.34	2.07	37.5	115
March	1.50	1.12	1.30	2.01	40.2	123
April	1.46	1.02	1.29	2.00	38.6	118
May	1.50	1.02	1.33	2.06	41.1	126
June	1.41	1.12	1.28	1.98	38.5	118
Fiscal year 1938-39	1.55	.09	.843	1.30	308	942

*Partly estimated.

Hanawi Stream near Nahiku

Location.- Lat. 20°48'35", long. 156°06'50", 200 feet upstream from Koolau ditch intake and trail, 1¾ miles southwest of Nahiku, and 4¾ miles southeast of Keanae.
Drainage area.- 0.8 square mile.
Records available.- January 1914 to January 1916 and November 1921 to June 1939.
Average discharge.- 17 years (1922-39), 13.2 million gallons a day (20.4 second-feet).
Extremes.- Maximum discharge during year, 840 million gallons a day (1,300 second-feet) Feb. 27 (gage height, 8.95 feet), from rating curve extended above 120 million gallons a day; minimum, 2.0 million gallons a day (3.1 second-feet) Oct. 4.
1914-16, 1921-39: Maximum gage height about 20 feet during flood of Jan. 18, 1916, from floodmarks (discharge not determined); minimum discharge, 1.2 million gallons a day (1.9 second-feet) Feb. 19, 1936.
Remarks.- Records good except those for periods of missing gage heights, Aug. 9-28, Aug. 31 to Sept. 13, Nov. 2-13, May 3, 4 (computed on basis of records for stations on nearby streams). and those above 200 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.9	1.6	21	4.0	166
.5	3.4	2.0	34	4.5	216
.7	5.4	2.5	58	5.0	274
1.0	9.1	3.0	89		
1.3	14.4	3.5	123		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.6	3.2	3.2	2.2	56	4.0	6.8	9.4	47	5.0	39	7.9
2	4.7	2.8	4.0	2.2	35	6.2	5.5	9.0	100	4.4	18.8	9.1
3	4.6	6.6	6.6	2.2	9.0	4.2	5.3	7.7	21	4.1	40	32.5
4	4.2	6.2	8.0	2.2	20	3.8	5.1	6.8	135	32	18	8.8
5	4.2	3.3	4.0	6.8	5.0	3.7	4.8	6.5	55	81	12.5	10.4
6	4.0	4.0	3.5	13.0	4.5	3.7	4.7	6.4	66	17.3	9.9	16.0
7	6.7	3.6	3.2	4.0	4.2	6.4	48	75	25.5	6.3	8.4	17.0
8	4.3	3.3	2.9	7.3	4.0	39.5	22	11.0	29.5	15.0	7.6	7.0
9	3.8	19	2.6	4.9	4.5	41	27	6.8	18.7	46	7.1	7.0
10	3.8	8.0	5.0	9.4	4.4	22.5	71	8.7	10.8	67	6.7	6.0
11	4.2	12	17	6.2	14	9	22.5	6.4	11.2	7.1	6.4	6.5
12	3.9	6.2	8.0	9.5	40	9.6	26	5.9	12.0	8.7	6.0	10.0
13	5.3	6.6	3.1	5.1	30	7.3	24.5	5.3	9.0	5.6	5.8	8.6
14	4.4	6.0	2.9	3.8	15	5.4	50	5.2	8.2	7.6	5.5	6.7
15	8.8	5.4	2.8	31	35.5	4.6	50	6.1	7.9	63	7.1	9.3
16	5.2	6.0	2.7	7.1	14.4	10.1	130	7.6	19.8	20.5	37.5	25
17	6.4	7.0	3.4	21.5	6.8	6.4	13.5	25.5	8.1	112	19.9	17.8
18	5.1	45	3.1	9.7	5.3	5.9	22	5.9	7.1	138	38	8.3
19	4.1	22	15.6	5.0	4.4	23.5	9.9	5.2	6.6	36	32.5	6.8
20	11.7	12	4.6	4.1	4.1	118	28.5	5.3	6.4	42	14.8	6.1
21	11.9	13	3.3	3.6	3.9	30	9.0	5.9	6.0	56	13.0	5.6
22	5.9	8.0	3.3	3.4	3.7	39.5	9.9	4.3	6.0	51	8.4	8.5
23	4.6	8.4	5.0	3.0	3.6	7.9	8.9	4.1	5.5	59	6.6	7.6
24	4.2	13	3.2	2.8	3.5	6.4	16.8	14.8	5.9	71	5.9	5.5
25	3.7	20	2.9	2.7	3.7	10.1	8.8	35	9.7	10.5	7.2	5.3
26	3.6	7.0	2.8	3.0	3.7	6.0	89	19.7	5.8	8.7	5.5	5.3
27	3.3	5.4	2.6	2.5	3.7	6.0	75	265	5.5	8.2	5.1	4.6
28	3.6	4.0	2.5	3.4	3.8	6.4	17.1	119	9.0	8.2	4.7	4.2
29	3.2	3.3	2.5	14.4	8.7	5.5	11.1	-	12.8	9.7	7.5	5.2
30	3.5	3.1	2.3	14.1	4.6	5.2	14.5	-	7.3	23.5	9.3	5.3
31	7.0	3.0	-	4.2	-	8.4	9.0	-	5.4	-	11.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.9	3.2	5.15	7.97	160	489
August	45	2.8	8.92	13.8	276	848
September	17	2.3	4.55	7.04	137	419
October	31	2.2	6.91	10.7	214	658
November	56	3.5	12.0	18.6	359	1,100
December	118	3.7	15.0	23.2	466	1,430
Calendar year 1938	380	2.2	17.8	27.5	6,500	19,950
January	130	4.7	27.3	42.2	846	2,600
February	265	4.1	24.8	38.4	694	2,130
March	135	5.4	22.1	34.2	684	2,100
April	138	4.1	34.1	52.8	1,020	3,140
May	40	4.7	13.7	21.2	426	1,310
June	32.6	4.2	9.46	14.6	284	871
Fiscal year 1938-39	265	2.2	15.3	23.7	5,570	17,100

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, 500 feet, by barometer.
Drainage area.- 1.6 square miles.
Records available.- July 1932 to June 1939. Records at same site obtained by East Maui Irrigation Co. January 1927 to June 1932.
Extremes.- Maximum discharge during year, 6,820 million gallons a day (10,600 second-feet) Feb. 27 (gage height, 9.36 feet), from rating curve extended above 28 million gallons a day; minimum, 14.5 million gallons a day (22.4 second-feet) July 6.
1932-39: Maximum discharge, 7,180 million gallons a day (11,100 second-feet) Mar. 21, 1937 (gage height, 9.54 feet); 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 excellent except those for periods of missing gage heights, July 1-4, 14, 15, which were computed on basis of records for stations on all nearby streams and are poor. Entire flow of stream above station up to 25 million gallons a day is diverted by the East Maui Irrigation Co.'s ditch at altitude 1,300 feet for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.8	8.6	1.8	80	3.5	486
1.0	15.7	2.0	106	4.0	696
1.2	26.5	2.2	140	4.5	955
1.4	40	2.5	198	5.0	1,260
1.6	59	3.0	322	5.5	1,630

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	15	16.7	16.7	15.7	100	14.9	15.7	18.3	94	15.3	55	16.7
2	15	16.7	16.7	15.7	45	15.3	15.7	17.1	206	15.3	18.1	16.7
3	15	17.1	17.1	15.7	17.1	14.9	15.7	16.7	33.5	15.3	52	34
4	15	17.6	17.1	15.7	61	14.9	15.7	16.2	862	58	31	17.1
5	14.9	17.1	17.1	16.2	17.6	14.9	15.7	16.2	128	99	17.1	16.7
6	*14.9	16.7	17.1	16.2	17.1	14.9	15.7	16.2	135	22	16.7	17.5
7	15.3	16.7	17.1	15.7	16.7	14.9	65	180	35	15.7	16.2	22.5
8	15.3	17.1	16.7	15.7	16.7	33.5	29	22.5	25	18.7	16.2	17.1
9	14.9	22.5	16.2	15.7	16.7	52	30	17.1	23.5	61	16.2	17.6
10	14.9	16.7	16.7	16.2	16.7	26.5	79	16.7	16.7	159	16.2	17.6
11	14.9	17.1	17.6	16.2	19.9	21.5	24	16.2	16.2	21.5	15.7	17.1
12	14.9	16.7	16.7	20.5	88	17.1	31.5	15.7	16.2	17.6	15.7	18.1
13	*14.9	17.6	16.7	17.1	45	16.2	21.5	15.7	15.7	16.2	15.7	17.6
14	15.3	18.1	16.7	16.7	20	15.7	60	15.7	15.7	16.2	15.7	18.1
15	15.7	17.1	16.7	65	28.5	15.7	68	15.7	15.3	85	16.6	18.6
16	16.7	17.1	16.7	19.5	18.1	15.7	317	15.7	32.5	19.0	37	34
17	18.7	17.1	16.7	66	17.1	15.7	58	26.5	15.7	213	29.5	28.5
18	16.7	69	16.7	24.5	16.7	15.7	59	15.7	15.7	385	45	19.5
19	16.7	30.5	18.7	19.1	16.2	28.5	44	15.7	15.3	53	41	18.6
20	26	19.5	16.7	18.1	16.2	247	63	15.7	15.3	79	18.1	18.1
21	18.1	18.6	16.7	17.6	16.2	35	40	15.7	15.3	110	17.6	17.6
22	16.7	18.1	16.7	17.1	15.7	80	21	15.3	15.3	88	17.1	17.6
23	16.7	18.1	16.7	16.7	15.7	22.5	18.6	15.3	14.9	96	16.7	17.6
24	16.7	35	16.7	16.7	15.3	18.1	21	16.3	15.3	147	16.2	17.1
25	16.7	43	16.7	16.7	15.3	18.9	17.6	32	16.7	18.1	16.7	17.1
26	16.7	18.1	16.7	16.2	15.3	17.6	117	22	15.3	17.1	16.2	17.1
27	16.2	17.6	16.7	16.2	15.3	16.7	125	1,280	15.3	16.2	15.7	16.7
28	16.7	17.6	16.7	16.7	15.3	16.2	22	421	15.3	15.7	15.7	16.7
29	16.7	17.1	16.2	23.5	15.3	16.7	19.1	-	15.3	15.7	16.4	16.7
30	17.1	17.1	16.2	19.2	14.9	15.7	18.4	-	15.3	29.5	16.7	16.7
31	17.1	16.7	-	16.7	-	15.7	18.1	-	15.3	-	17.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	26	14.9	16.3	25.2	504	1,550
August	69	16.7	21.0	32.5	652	2,000
September	18.7	16.2	16.8	26.0	504	1,550
October	66	15.7	20.5	31.7	634	1,950
November	100	14.9	25.5	39.5	765	2,350
December	247	14.9	29.0	44.9	899	2,760
Calendar year 1938	1,500	14.1	48.6	75.2	17,730	54,430
January	317	15.7	47.8	74.0	1,480	4,550
February	1,280	15.3	82.9	128	2,320	7,130
March	862	14.9	61.3	94.8	1,900	5,840
April	385	15.3	64.6	100	1,940	5,950
May	55	15.7	22.2	34.3	687	2,110
June	34	16.7	19.1	29.6	573	1,760
Fiscal year 1938-39	1,280	14.9	35.2	54.5	12,860	39,500

*Partly estimated.

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 1939.
Average discharge.- 17 years (1922-39), 11.0 million gallons a day (17.0 second-feet).
Extremes.- Maximum discharge during year, 1,330 million gallons a day (2,060 second-feet) Feb. 27 (gage height, 7.18 feet), from rating curve extended above 140 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Oct. 2-5.
1921-39: 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 excellent except those for periods of missing gage heights, Aug. 28 to Sept. 13, Oct. 17, 18 (computed on basis of records for stations on nearby streams), and those above 200 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.1	0.8	4.8	1.6	25	2.8	106
.4	.4	1.0	6.6	1.8	32	3.0	130
.5	1.1	1.2	13.3	2.0	41	3.5	212
.6	2.1	1.4	18.6	2.4	68	4.0	320

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.1	2.1	2.5	0.3	28	2.1	5.3	6.3	29.5	3.1	50.5	6.4
2	6.6	1.1	3.5	.3	11.8	4.0	2.8	7.6	51	2.6	13.5	8.0
3	6.4	5.7	6.0	.2	3.3	2.2	2.3	5.2	15.8	2.3	35.5	25
4	6.2	5.4	7.0	.2	16.5	1.6	2.0	4.0	143	5.5	17.2	8.5
5	6.2	2.2	3.0	4.8	2.9	1.3	1.9	3.6	29.5	35	9.0	8.9
6	6.2	2.6	2.4	11.0	2.1	1.5	1.8	3.6	26	12.6	6.6	13.1
7	7.8	2.6	2.0	3.4	2.3	4.1	42	48	18.4	5.9	5.2	17.2
8	2.6	2.4	1.7	6.4	1.9	35.5	14.0	9.1	22.5	7.2	4.4	5.2
9	1.9	16.9	1.0	4.4	2.0	35.5	21	4.4	15.4	16.0	4.0	4.8
10	1.9	5.2	2.0	9.6	2.3	19.7	46	4.2	9.3	52	3.6	3.6
11	2.3	10.6	10	6.4	12.8	8.4	17.8	3.8	8.1	6.8	3.3	4.7
12	2.3	4.2	4.0	8.5	38	8.8	21.5	3.2	8.2	7.2	3.1	10.0
13	4.2	5.1	2.5	4.6	23.5	6.1	22	2.9	5.7	4.7	2.8	8.2
14	3.0	4.2	1.3	2.5	14.4	3.2	33	2.8	4.0	7.2	2.6	5.0
15	7.3	3.4	.6	21	26	2.6	34.5	3.7	3.9	44	5.0	8.1
16	3.3	4.2	.5	5.3	13.6	9.3	93	6.2	6.3	20	34.5	18.5
17	4.8	4.9	1.7	14	5.7	5.8	10.8	22	4.6	78	19.3	15.3
18	3.2	46	1.9	6.0	3.4	5.1	17.9	4.4	3.8	100	32	5.7
19	2.2	21	10.9	2.7	2.8	20.5	9.5	3.1	3.3	28.5	28	4.0
20	8.9	8.9	3.8	2.1	2.6	68	22.5	3.2	3.1	34	13.3	3.3
21	11.9	8.9	2.1	1.9	2.7	20	7.0	4.1	3.1	43	13.0	2.9
22	4.0	4.4	1.9	2.0	2.1	20.5	7.9	2.7	3.3	39	7.0	5.8
23	2.5	3.4	3.3	1.0	1.9	5.5	6.2	2.3	3.1	42	4.5	6.0
24	2.2	10.1	2.1	.8	1.8	3.8	12.6	12.4	3.5	51	3.8	3.3
25	1.9	14.1	1.4	1.0	1.5	7.2	5.0	31	9.8	8.6	6.1	2.9
26	1.7	3.9	.9	1.5	1.2	4.6	41	18.1	4.2	5.5	3.8	2.9
27	1.0	2.8	.5	.7	.9	4.3	41	270	3.8	4.5	3.1	2.5
28	1.9	2.6	.4	.8	1.0	6.5	12.5	82	6.6	3.9	2.7	2.1
29	1.8	2.4	.3	12.3	7.3	4.0	9.6	-	11.3	5.1	5.9	3.2
30	2.4	2.2	.3	12.3	2.8	2.9	12.0	-	6.4	14.1	8.5	3.6
31	5.0	2.1	-	3.4	-	5.7	7.2	-	3.8	-	10.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.9	1.0	4.18	6.47	130	398
August	46	1.1	6.95	10.8	216	662
September	10.9	.3	2.72	4.21	81.5	250
October	21	.2	4.88	7.55	151	465
November	38	.9	7.97	12.3	239	734
December	68	1.3	10.7	16.6	330	1,010
Calendar year 1938	354	.2	13.5	20.9	4,930	15,110
January	93	1.8	18.8	29.1	584	1,790
February	270	2.3	20.5	31.7	574	1,760
March	143	3.1	15.2	23.5	470	1,440
April	100	2.3	23.0	35.6	689	2,120
May	35.5	2.6	11.0	17.0	342	1,050
June	25	2.1	7.29	11.3	219	671
Fiscal year 1938-39	270	.2	11.0	17.0	4,030	12,350

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 from Keanae post office. Altitude, 620 feet, by barometer.

Drainage area.- 0.5 square mile.

Records available.- July 1932 to June 1939. Records at same site obtained by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge during year, 568 million gallons a day (879 second-feet) Mar. 4 (gage height, 3.93 feet), from rating curve extended above 10 million gallons a day; minimum, 1.2 million gallons a day (1.9 second-feet) Oct. 4, 5.

1932-39: 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; minimum, 1.1 million gallons a day (1.7 second-feet) several days in August 1934 and January 1935.

Remarks.- Records good except those for periods of missing gage heights, Dec. 30 to Jan. 4, Feb. 25, Mar. 12, which were computed on basis of records for stations on all nearby streams and are fair, and those above 100 million gallons a day which are poor. Koolau ditch diverts water 4,000 feet above station, at 1,300 feet altitude, for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.7	0.5	5.3	0.8	15.6	1.4	55	2.0	123
.3	1.6	.6	8.0	1.0	26	1.6	74	2.5	204
.4	3.2	.7	11.4	1.2	39	1.8	97		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.6	1.4	1.5	1.2	23	1.5	1.6	2.4	28	1.4	28.5	1.6
2	1.6	1.3	1.5	1.2	8.6	1.5	1.5	3.6	44	1.4	9.1	1.6
3	1.6	1.5	1.8	1.2	1.8	1.4	1.4	1.9	17.9	1.4	31.5	16.4
4	1.6	3.0	1.8	1.2	21	1.3	1.4	1.8	119.0	4.4	17.5	2.7
5	1.8	1.4	1.6	1.3	1.8	1.3	1.4	1.9	30.5	30	5.3	1.8
6	1.6	1.4	1.5	3.9	1.6	1.4	1.4	1.9	29.5	6.6	1.9	6.2
7	2.2	1.3	1.5	1.4	1.5	1.4	29.5	34	14.3	1.8	1.8	12.3
8	1.5	1.4	1.4	1.3	1.5	22.5	10.9	8.4	20	3.2	1.8	1.9
9	1.4	11.0	1.3	1.3	1.5	29.5	11.7	1.9	13.0	18.4	1.6	1.8
10	1.4	1.9	1.4	1.5	1.4	8.6	37.5	1.9	5.6	41	1.6	1.6
11	1.4	2.9	7.2	1.9	4.9	2.1	12.7	1.8	3.9	3.2	1.5	1.5
12	1.4	1.5	1.6	5.2	30	1.8	13.2	1.8	2.5	1.9	1.5	5.5
13	1.6	1.5	1.4	2.1	26	1.6	18.0	1.6	1.9	1.6	1.4	2.6
14	1.6	1.8	1.4	1.5	10.0	1.5	21.5	1.6	1.6	1.8	1.4	2.1
15	1.9	1.6	1.4	61	24	1.5	24.5	1.6	1.6	28	1.6	3.3
16	1.5	1.5	1.4	3.2	6.2	1.5	66	1.8	6.5	10.9	27.5	14.1
17	1.5	1.5	1.4	19.4	2.1	1.5	4.7	14.7	1.9	53	15.5	14.0
18	1.5	41	1.3	6.9	1.6	1.6	9.4	1.9	1.6	86	19.7	2.7
19	1.4	24	4.0	2.1	1.5	14.4	2.7	1.6	1.5	27	25.5	2.2
20	5.5	5.2	1.6	1.8	1.5	63	14.6	1.6	1.5	33	7.4	2.1
21	7.0	3.8	1.4	1.6	1.4	23	2.6	1.6	1.5	41	6.5	1.9
22	1.8	1.8	1.3	1.6	1.4	21.5	6.9	1.6	1.5	30.5	2.4	1.8
23	1.5	1.8	1.3	1.5	1.4	3.7	2.2	1.5	1.5	34	1.8	2.1
24	1.5	10.4	1.3	1.5	1.4	1.9	2.2	1.5	1.7	36	1.6	1.8
25	1.4	13.7	1.3	1.5	1.4	3.6	2.2	15	4.4	6.1	1.9	1.6
26	1.4	2.1	1.3	1.5	1.4	1.9	31	18.1	1.5	2.2	1.6	1.6
27	1.4	1.8	1.2	1.4	1.3	1.9	41	165	1.5	1.9	1.5	1.6
28	1.4	1.6	1.2	1.5	1.3	2.1	14.0	106	1.8	1.8	1.5	1.6
29	1.4	1.6	1.2	5.8	1.8	2.2	9.2	-	2.6	1.8	1.5	1.6
30	1.5	1.5	1.2	7.0	1.5	1.9	9.0	-	1.6	9.4	1.9	1.5
31	1.9	1.5	-	1.8	-	1.8	2.8	-	1.5	-	3.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.0	1.4	1.86	2.88	57.8	177
August	41	1.3	4.83	7.47	150	459
September	7.2	1.2	1.69	2.61	50.7	156
October	61	1.2	4.75	7.35	147	452
November	30	1.3	6.19	9.58	186	570
December	63	1.3	7.30	11.3	226	695
Calendar year 1938	273	1.2	10.5	16.2	3,840	11,770
January	66	1.4	13.2	20.4	409	1,250
February	165	1.5	14.3	22.1	400	1,230
March	119	1.5	11.9	18.4	367	1,130
April	86	1.4	17.4	26.9	521	1,600
May	31.5	1.4	7.40	11.4	229	704
June	16.4	1.5	3.84	5.94	115	353
Fiscal year 1938-39	165	1.2	7.83	12.1	2,860	8,780

Koolau ditch at Nahiku weir, near Nahiku

Location.- Masonry dam and weir control, lat. 20°48'55", long. 156°07'15", between Kapaula and Waiohue Streams, 3½ miles southwest of Nahiku and 4 miles southeast of Keanae.

Records available.- February 1919 to June 1939.

Average discharge.- 20 years (1919-39), 21.5 million gallons a day (33.3 second-feet).

Extremes.- Maximum discharge during year, 56 million gallons a day (87 second-feet) Jan. 30 (gage height, 1.63 feet); no flow Feb. 28, Mar. 1, 3.
1919-39: Maximum discharge, 61 million gallons a day (94 second-feet) May 3, 1934 (gage height, 1.68 feet); no flow occasionally, when intake gates are closed.

Remarks.- Records excellent. Flow regulated by spillways and gates. Ditch diverts water, at altitude of about 1,200 feet, 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	22.5	14.0	13.6	9.3	36	13.6	23	3e	46	19.2	50	26.5
2	18.8	12.7	14.0	9.0	35.5	18.1	19.5	38	52	17.8	48	29
3	17.8	24	19.9	9.0	20.5	14.0	16.1	31	45	16.4	50	45
4	16.7	22	25.5	9.0	36	12.7	17.0	27.5	45	22.5	48	33.5
5	16.4	14.9	15.3	17.6	20.5	12.0	16.4	25	45	50	45	35.5
6	15.3	15.3	13.3	30	17	12.3	16.0	24.5	50	38	42	40
7	22.5	14.6	13.3	14.3	18.1	18.1	44	43	50	25	35.5	42
8	17.0	14.6	12.0	21	15.3	39	34.5	40	50	31	33.5	31
9	15.3	22.5	11.1	16.4	15.6	48	35	29	48	37.5	29	29
10	15.0	19.9	14.0	26	15.3	40	52	29	42	33	27.5	24.5
11	15.6	29	38	21.5	37	31	45	24.5	42	22	25	25.5
12	15.6	19.5	16.4	23.5	50	33.5	45	22.5	42	29.5	23.5	35.5
13	21.5	22	13.3	21.5	50	27.5	50	20.5	38	23	22	35.5
14	18.4	22	12.3	15.6	45	21.5	48	19.9	31	27	20.5	29.5
15	29	18.8	11.7	20.5	50	18.8	50	22	30	46	26	38
16	20.5	21	11.1	31	45	32	50	27.5	35.5	48	50	45
17	23	22	12.7	38	30	24	33.5	42	31	50	45	48
18	19.2	42	12.0	38	23.5	22.5	38	23.5	26.5	52	48	40
19	16.0	45	29.5	23.5	20.5	33	29	19.9	25	50	50	31
20	24	38	17.4	19.2	18.8	52	42	20.5	23.5	50	48	27.5
21	38	38	13.0	17.0	17.8	50	30.5	22	22.5	50	45	23.5
22	23	27	12.7	16.0	16.0	45	20.5	17.8	22.5	50	38	28.5
23	18.8	24.5	16.4	14.0	15.3	40	39	16.7	20.5	50	29.5	31
24	17.4	38	12.7	13.0	14.3	31	45	36	23	50	25.5	23
25	15.6	40	11.7	12.7	14.0	35.5	35.5	42	35.5	48	31	20.5
26	15.0	25.5	11.4	12.7	13.6	26.5	48	45	22.5	40	24.5	19.9
27	14.0	22	10.5	11.1	13.0	26.5	50	48	20.5	35.5	21.5	18.1
28	14.6	19.2	10.2	12.7	13.3	28	48	36.5	28	31	19.9	17.0
29	13.6	17.4	9.9	24	25	22.5	45	-	38	33.5	25.5	18.1
30	16.3	16.0	9.6	30	15.0	20.5	45	-	27	38	29	18.8
31	21.5	14.6	-	17.8	-	26.5	40	-	21	-	33.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	38	13.6	19.0	29.4	588	1,800
August	45	12.7	23.7	36.7	736	2,260
September	38	9.6	14.8	22.9	444	1,360
October	38	9.0	19.2	29.7	595	1,830
November	50	13.0	25.2	39.0	757	2,320
December	52	12.0	28.2	43.6	876	2,690
Calendar year 1938	52	0	26.6	41.2	9,700	29,780
January	52	16.0	37.2	57.6	1,150	3,540
February	48	16.7	29.7	46.0	832	2,550
March	52	20.5	34.8	53.8	1,080	3,310
April	52	16.4	37.1	57.4	1,110	3,420
May	50	19.9	35.1	54.3	1,090	3,340
June	48	17.0	30.3	46.9	910	2,790
Fiscal year 1938-39	52	9.0	27.9	43.2	10,170	31,210

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, about 650 feet, by barometer.

Drainage area.- 0.1 square mile.

Records available.- July 1932 to June 1939. Records at same site obtained by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge during year, 52 million gallons a day (80 second-feet) Mar. 4 (gage height, 2.68 feet), from rating curve extended above 14 million gallons a day by tests on model of station site; minimum, 0.37 million gallons a day (0.57 second-foot) Sept. 28-30.

1932-39: Maximum discharge, 73 million gallons a day (113 second-feet) Mar. 6, 1933 (gage height, 1.87 feet, former datum), from rating curve extended above 1 million gallons a day by formula for V-notch weirs; minimum, 0.30 million gallons a day (0.46 second-foot) several days in October, November, 1933, and April, May, and June, 1934.

Remarks.- Records good except those for periods when clock was not running, July 7-18, Oct. 21-24, Nov. 7, 20, 21, Dec. 5, 15-20, which were computed on basis of records for stations on nearby streams and are fair. No diversions.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.46	0.43	0.53	0.40	0.78	0.43	0.53	1.72	2.1	0.46	1.04	0.53
2	.49	.40	.49	.40	.65	.46	.53	.75	1.38	.46	.65	.53
3	.46	.43	.57	.40	.57	.46	.49	.65	1.33	.43	1.31	.64
4	.46	.89	.57	.40	2.85	*.43	.46	.61	9.5	.62	.75	.53
5	.43	.46	.49	.43	.61	.43	.46	.61	9.5	1.77	.70	.53
6	.43	.46	.49	.46	*.57	.43	.46	.65	1.40	.70	.65	.68
7	.43	.43	.49	.43	.56	.43	3.45	4.1	.85	.53	.61	.67
8	.43	.46	.46	.47	*.53	.65	.65	.82	.90	.53	.57	.57
9	.43	.46	.43	.43	.53	1.56	.88	.65	.80	.53	.53	.57
10	.43	.46	.46	.48	.49	.81	.79	.70	*.80	1.92	.53	.53
11	.43	.49	.66	.49	.68	.61	.74	.61	*.75	2.7	.53	.53
12	.43	.43	.46	.66	1.30	.65	1.27	.57	*.85	.61	.49	1.09
13	.44	.46	.43	.49	.98	.57	.85	.57	.65	.57	.49	.70
14	.43	.62	.43	.49	.85	.53	.86	.53	.57	.61	.49	.70
15	.43	.53	.40	1.85	1.16	.46	.90	.57	.57	.57	.60	.96
16	.42	.49	.43	.70	.75	.46	1.68	.66	1.13	.70	.95	1.50
17	.42	.49	.46	3.35	.65	.45	.96	.88	.57	.67	.80	.95
18	.40	1.84	.43	.90	.61	.46	1.24	.57	.53	3.55	.80	.90
19	*.40	1.18	.46	.70	*.57	.60	.85	.53	.53	1.38	.80	.75
20	.44	.75	.43	*.57	.56	1.7	1.07	.61	.49	2.2	.70	.65
21	.64	.70	.46	.56	.54	1.07	.80	.57	.49	1.98	.80	.65
22	.49	.65	.43	.55	*.53	1.18	1.30	.53	.46	.90	.65	.65
23	.46	.61	.43	.52	.53	.80	1.42	.49	.46	.80	.61	.70
24	.43	.89	.40	.52	.49	.70	1.52	.53	4.4	.85	.61	.61
25	.43	1.06	.40	*.49	.49	.65	.75	.57	1.56	.70	.65	.61
26	.43	.65	.40	.49	.46	.61	.91	.85	.49	.70	.61	.61
27	.43	.65	.40	.46	.46	.70	1.58	7.1	.49	.65	.57	.53
28	.43	.61	.40	.53	.43	.76	2.25	6.1	.46	.61	.53	.49
29	.43	.57	.40	.68	.49	.61	1.74	-	.53	.65	.53	.49
30	.43	.53	.40	.57	.46	.57	.90	-	.49	.87	.53	.46
31	.52	.53	-	.59	-	.57	.80	-	.49	-	.75	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.64	0.40	0.445	0.689	13.8	42
August	1.84	.40	.633	.979	19.6	60
September	.66	.40	.456	.706	13.7	42
October	3.35	.40	.660	1.02	20.5	63
November	2.85	.43	.704	1.09	21.1	65
December	1.7	.43	.671	1.04	20.8	64
Calendar year 1938	5.8	.40	.868	1.34	317	972
January	3.45	.46	1.07	1.66	33.1	102
February	7.1	.49	1.22	1.89	34.1	105
March	9.5	.46	1.47	2.27	45.5	140
April	3.55	.43	1.01	1.56	30.2	93
May	1.31	.49	.672	1.04	20.8	64
June	1.50	.46	.677	1.05	20.3	62
Fiscal year 1938-39	9.5	.40	.804	1.24	294	902

*Partly estimated.

Paakea Stream near Nahiku

Location.- Concrete control, lat. 20°49'25", long. 156°07'05", 3,000 feet downstream from highway, 1⅛ miles west of Nahiku, and 3¼ miles southeast of Keanae post office. Altitude, 650 feet, by barometer.

Drainage area.- 0.5 square miles.

Records available.- July 1932 to June 1939. Records at same site obtained by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge during year not determined, owing to faulty gage height record; minimum, 2.3 million gallons a day (3.6 second-feet) for several periods. 1932-39: Maximum discharge, 234 million gallons a day (362 second-feet) May 2, 1937 (gage height, 5.48 feet), from rating curve extended above 20 million gallons a day; minimum, 1.8 million gallons a day (2.8 second-feet) Feb. 18, 19, 1936.

Remarks.- Records excellent except those for period of faulty gage heights, Feb. 27, 28 (computed on basis of records for stations on Makapipi and Waiaaka Streams), and those above 30 million gallons a day, 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 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.6	0.8	10.9	1.4	30
.5	3.0	.9	14.7	1.6	37
.6	4.9	1.0	18.0	1.8	44
.7	7.4	1.2	24		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.5	2.7	2.7	2.5	6.6	2.5	2.5	4.4	12.8	2.5	3.2	2.7
2	2.5	2.5	2.7	2.5	3.4	2.7	2.5	3.4	9.8	2.3	3.4	2.7
3	2.5	3.7	3.0	2.5	2.8	2.5	2.3	3.0	5.4	2.3	9.1	7.5
4	2.3	4.5	3.2	2.5	16.1	2.3	2.5	3.0	32.5	2.6	5.1	2.8
5	2.3	2.8	2.8	3.7	3.0	2.3	2.5	2.8	17.7	9.3	3.2	2.7
6	2.3	3.0	2.7	3.3	2.8	2.5	2.5	3.0	10.8	3.2	3.0	4.4
7	2.7	2.8	3.0	2.8	2.8	2.5	12.8	23	4.9	2.8	2.8	4.1
8	2.5	3.0	2.7	2.8	2.7	8.1	3.6	5.1	4.1	2.8	2.8	2.8
9	2.5	6.4	2.7	2.8	2.8	12.5	5.6	3.2	4.0	4.8	2.7	3.0
10	2.5	3.0	3.2	3.2	2.7	6.3	5.6	3.2	3.8	14.0	2.7	2.8
11	2.5	3.55	7.3	2.8	3.75	3.2	3.4	2.8	3.6	3.0	2.7	2.8
12	2.5	2.8	2.8	4.1	9.1	3.2	9.0	2.8	3.6	3.0	2.7	6.0
13	2.8	3.0	2.7	3.0	5.2	2.8	4.0	2.7	3.4	2.8	2.7	3.6
14	2.7	3.4	2.7	2.7	4.2	2.8	4.6	2.7	2.7	3.0	2.7	3.4
15	3.2	3.2	2.7	15.0	4.6	2.7	6.7	2.8	2.7	5.6	3.8	3.8
16	2.7	2.8	2.7	3.6	3.6	3.0	17.7	3.0	3.45	3.85	15.4	11.6
17	2.7	2.8	2.8	16.1	3.2	2.8	4.0	5.8	2.8	9.7	4.7	5.5
18	2.7	16.6	2.7	4.5	3.0	3.4	5.7	2.8	2.7	23.5	7.5	4.0
19	2.5	9.8	5.3	3.4	3.0	8.5	3.8	2.8	2.5	6.8	5.9	3.6
20	4.4	3.6	2.8	3.2	2.8	19.9	7.2	2.8	2.5	12.4	3.6	3.2
21	5.4	4.2	2.8	3.0	2.7	6.0	3.4	2.8	2.5	15.2	3.8	3.2
22	3.0	3.2	2.7	2.8	2.5	7.0	4.4	2.7	2.5	6.1	3.4	3.0
23	2.7	3.2	2.7	2.8	2.5	3.2	4.2	2.5	2.3	9.7	2.8	3.4
24	2.7	3.85	2.7	2.7	2.5	2.8	7.3	3.8	3.7	11.7	2.8	3.0
25	2.5	4.7	2.7	2.7	2.5	3.7	3.4	6.4	6.1	3.2	3.2	3.0
26	2.5	3.2	2.5	2.7	2.5	2.7	3.8	4.2	2.7	3.0	2.8	3.0
27	2.5	3.0	2.5	2.5	2.5	2.8	7.0	40	2.5	2.8	2.7	2.8
28	2.7	3.0	2.5	2.8	2.5	3.15	5.1	20	3.0	2.8	2.7	2.8
29	2.5	2.8	2.5	7.0	3.1	2.7	4.6	-	3.4	2.8	2.7	3.0
30	3.4	2.8	2.5	3.95	2.5	2.5	3.8	-	2.7	8.0	2.8	2.8
31	3.1	2.7	-	3.0	-	3.25	3.4	-	2.5	-	3.55	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	5.4	2.3	2.78	4.30	86.3	265
August	16.6	2.5	3.95	6.11	123	376
September	7.3	2.5	2.98	4.61	89.3	274
October	16.1	2.5	3.97	6.14	123	377
November	16.1	2.5	3.80	5.88	114	350
December	19.9	2.3	4.40	6.81	136	418
Calendar year 1938	68	2.3	5.29	8.18	1,930	5,920
January	17.7	2.3	5.13	7.94	159	488
February	40	2.5	5.98	9.25	168	514
March	32.5	2.3	5.47	8.46	170	521
April	23.5	2.3	6.18	9.56	186	569
May	15.4	2.7	4.19	6.48	130	399
June	11.6	2.7	3.77	5.83	113	347
Fiscal year 1938-39	40	2.3	4.37	6.76	1,600	4,900

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Waiohue Stream near Nahiku

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

Drainage area.- 1.5 square miles.

Records available.- October 1921 to June 1939.

Average discharge.- 17 years (1922-39), 8.42 million gallons a day (13.0 second-feet).

Extremes.- Maximum discharge during year, 544 million gallons a day (842 second-feet) Feb. 27 (gage height, 5.37 feet), from rating curve extended above 50 million gallons a day; minimum, 3.05 million gallons a day (4.72 second-feet) Aug. 9.
1921-39: 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, 1.4 million gallons a day (2.2 second-feet) Nov. 25, 1933.

Remarks.- Records good except those for periods when clock was not running, Sept. 3 to Oct. 18, Oct. 30 to Nov. 8 (computed on basis of records for stations on all nearby streams), and those above 100 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.6	2.05	0.9	5.1	1.2	10.6	1.8	33.5	2.6	93
.7	2.85	1.0	6.6	1.4	16.3	2.0	45	3.0	137
.8	3.8	1.1	8.4	1.6	24	2.2	59	3.5	203

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.1	3.4	3.6	2.6	15	3.8	5.0	6.8	18.3	4.1	19.9	5.1
2	4.4	3.25	3.7	2.5	11	4.3	4.4	7.0	24	3.8	9.6	5.4
3	4.3	5.6	5.4	2.5	6.0	3.7	4.2	5.8	11.1	3.7	20	15.6
4	4.2	5.5	6.0	2.5	13	3.5	4.1	5.4	91	4.3	10.6	6.0
5	4.2	3.5	4.0	5.0	7.0	3.3	3.8	5.1	21	16.4	7.1	6.6
6	3.95	3.5	3.7	9.0	5.4	3.4	3.8	5.1	16.4	6.4	6.6	10.1
7	5.1	3.25	3.4	5.0	5.0	4.8	25.5	30.5	11.4	4.6	6.2	10.4
8	4.1	3.55	3.2	7.0	4.8	17.8	7.0	6.3	13.1	5.4	5.7	5.6
9	3.8	9.9	3.1	5.4	4.3	20.5	12.3	5.1	10.2	7.1	5.4	5.7
10	3.8	4.2	5.6	11	4.3	10.9	20	5.1	8.3	29	5.1	5.2
11	4.1	5.8	13	7.0	8.2	5.6	8.2	4.8	7.5	5.1	4.8	5.7
12	3.95	4.0	7.0	10	17.2	6.2	15.1	4.7	8.6	5.9	4.6	9.9
13	6.2	4.8	4.0	6.0	13.4	5.1	12.4	4.3	6.4	5.0	4.3	7.7
14	4.6	4.8	3.5	5.0	7.9	4.7	16.3	4.3	5.8	6.2	4.2	6.2
15	6.6	4.0	3.4	14	12.0	4.4	18.8	4.3	5.6	19.6	6.4	8.3
16	4.7	4.6	3.3	6.0	8.2	7.2	45	6.5	5.6	11.3	21.5	15.1
17	5.7	4.3	4.0	12	6.4	5.2	9.6	11.3	5.1	33.5	10.9	10.4
18	4.4	24	3.3	7.0	5.8	5.0	13.7	4.7	4.8	52	16.7	6.4
19	3.8	12.8	10	4.7	5.6	13.2	9.5	4.3	4.6	15.4	15.1	5.7
20	9.9	5.8	4.5	4.3	5.4	32	16.8	4.6	4.3	22.5	7.7	5.1
21	9.6	7.3	3.8	4.1	5.1	12.7	7.5	4.6	4.2	25.5	8.7	4.8
22	4.7	4.7	3.8	3.95	4.8	12.2	10.0	4.1	4.2	21.5	6.4	5.6
23	4.1	4.8	5.4	3.7	4.6	6.3	8.8	3.8	3.95	21	5.7	6.4
24	3.8	6.2	3.5	3.6	4.3	5.8	10.6	7.8	4.4	7.6	5.6	4.7
25	3.6	7.5	3.2	3.6	4.3	7.5	6.3	13.1	8.5	8.4	7.2	4.3
26	3.6	4.7	3.0	3.6	4.1	5.7	18.8	9.4	4.4	7.3	5.6	4.3
27	3.4	4.4	2.8	3.3	3.8	5.8	20	192	4.2	6.8	5.0	3.95
28	3.9	4.2	2.7	4.0	3.8	7.4	9.7	39	6.0	6.3	4.7	3.8
29	3.5	4.1	2.7	8.9	6.9	5.4	7.9	-	7.1	7.0	5.9	3.95
30	4.2	3.95	2.6	9.0	4.2	4.8	9.6	-	5.2	12.8	6.2	4.1
31	5.3	3.8	-	3.5	-	6.1	7.0	-	4.3	-	7.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.9	3.4	4.73	7.32	147	450
August	24	3.25	5.68	8.79	176	541
September	13	2.6	4.37	6.76	131	403
October	14	2.5	5.80	8.97	180	552
November	17.2	3.8	7.06	10.9	212	650
December	32	3.3	7.88	12.2	244	750
Calendar year 1938	187	2.5	9.63	14.9	3,510	10,790
January	45	3.8	12.0	18.6	372	1,140
February	192	3.8	14.7	22.7	410	1,260
March	91	3.95	11.0	17.0	340	1,040
April	52	3.7	12.8	19.8	386	1,180
May	21.5	4.2	8.41	13.0	261	800
June	15.6	3.8	6.74	10.4	202	620
Fiscal year 1938-39	192	2.5	8.38	13.0	3,060	9,390

West Kopiliula Stream near Keanae

Location.- Lat. 20°40'10", long. 156°08'15", 600 feet upstream from Koolau ditch crossing and highway bridge and 3 miles southeast of Keanae post office.
Drainage area.- 3.9 square miles.
Records available.- January 1914 to September 1917, October 1921 to June 1939.
Average discharge.- 15 years (1922-34, 1936-39), 19.9 million gallons a day (30.8 second-feet).
Extremes.- Maximum discharge during year, 2,050 million gallons a day (3,170 second-feet) Mar. 4 (gage height, 6.63 feet), from rating curve extended above 75 million gallons a day; minimum, 1.70 million gallons a day (2.63 second-feet) Oct. 1, 2.
1914-17, 1921-39: 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 good except those for periods of missing gage heights, Oct. 3-8, 12-15, Feb. 8-17 (computed on the basis of records for stations on nearby streams), and those above 100 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Feb. 25				Feb. 26 to June 30					
0.4	1.70	1.4	39	0.5	2.75	1.2	23.5	2.5	165
.6	4.7	1.7	63	.6	4.2	1.4	35	3.0	265
.8	9.6	2.0	93	.8	8.4	1.7	59	3.5	400
1.0	16.7	2.5	163	1.0	14.6	2.0	92	4.0	555
1.2	26								

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.6	2.5	3.0	1.9	26	3.85	7.0	9.7	27.5	3.6	34.5	8.7
2	4.4	2.35	4.0	1.83	21	6.0	4.9	12.2	74	3.35	17.9	9.2
3	4.2	9.1	6.4	1.83	6.2	3.35	4.5	9.1	22	3.2	40	30.5
4	3.7	6.1	7.7	1.83	18.8	3.0	4.2	7.2	290	16.0	19.5	8.6
5	3.85	2.75	3.35	5.0	4.9	2.75	3.7	6.2	46	69	10.3	10.4
6	3.65	4.0	2.85	15	4.2	3.0	3.5	6.2	36	23	7.9	14.9
7	6.9	2.9	2.75	4.5	4.4	8.2	61	54	21	11.6	6.6	19.1
8	3.5	3.1	2.6	7.0	3.15	43	21.5	13	22	10.2	5.7	6.3
9	3.35	13.8	2.5	6.0	4.0	45	30	8.0	16.2	21.5	5.2	6.6
10	3.35	7.1	4.6	13	3.9	25.5	79	9.0	10.1	75	4.8	5.0
11	4.0	12.9	18.6	6.6	13.7	12.2	29.5	7.0	9.0	9.4	4.2	6.4
12	3.7	6.0	4.2	13	37	13.7	31	6.0	9.7	9.3	4.1	9.9
13	6.1	6.2	3.15	5.0	27.5	10.0	33.5	5.2	6.8	6.9	3.9	8.5
14	3.85	5.0	2.85	3.5	15.0	6.0	64	5.0	5.9	9.1	3.75	5.3
15	9.3	4.6	2.75	25	39.5	4.7	55	6.0	5.7	61	6.9	8.0
16	4.5	5.4	2.6	5.1	20.5	13.8	154	4.0	7.7	25.5	36	20.5
17	6.7	6.3	4.2	18.4	10.1	8.2	17.9	25	6.4	151	22	13.4
18	3.9	6.3	3.15	7.6	6.9	8.1	24	6.5	5.2	218	41	6.6
19	3.0	35.5	14.5	4.2	5.6	26.5	13.2	5.4	4.8	39.5	38.5	5.0
20	11.8	12.3	4.4	3.7	5.1	80	24	6.2	4.6	38.5	15.0	4.4
21	13.1	12.9	3.0	3.85	4.7	18.9	9.3	6.3	5.0	52	13.4	3.75
22	4.6	6.9	3.35	4.0	3.85	16.3	10.4	4.0	5.2	53	8.0	7.5
23	3.35	7.0	5.0	3.0	3.5	8.0	9.7	4.2	4.1	53	5.7	6.8
24	3.35	13.6	2.75	2.75	3.35	6.2	15.4	17.1	4.9	67	4.8	3.75
25	2.85	21	2.6	2.85	3.35	13.8	8.0	42	9.6	12.2	7.1	3.9
26	2.85	6.7	2.35	3.7	3.35	6.0	91	21	5.2	8.7	4.4	3.75
27	2.6	5.1	2.2	2.6	3.15	6.2	77	507	4.8	7.2	3.75	3.2
28	3.6	4.5	2.1	4.8	3.15	9.7	17.4	116	7.8	6.6	3.6	3.2
29	2.75	3.7	2.1	16.3	11.4	6.5	12.2	-	11.2	8.8	8.7	4.9
30	3.55	3.0	1.96	18.0	4.2	5.6	16.4	-	6.2	22	10.2	5.0
31	6.4	2.85	-	5.4	-	10.7	10.9	-	4.1	-	11.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.1	2.6	4.79	7.41	148	455
August	35.5	2.35	7.95	12.3	246	756
September	18.6	1.96	4.25	6.58	128	391
October	25	1.83	7.01	10.8	217	667
November	39.5	3.15	10.7	16.6	321	986
December	80	2.75	14.0	21.7	435	1,330
Calendar year 1938	830	1.83	24.3	37.6	8,880	27,240
January	154	3.5	30.4	47.0	943	2,890
February	507	4.0	33.3	51.5	932	2,860
March	290	4.1	22.5	34.8	699	2,140
April	218	3.2	36.5	56.5	1,100	3,360
May	41	3.6	13.2	20.4	409	1,250
June	30.5	3.2	8.44	13.1	253	777
Fiscal year 1938-39	507	1.83	16.0	24.8	5,830	17,860

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 and July 1922 to June 1939.

Average discharge.- 17 years (1922-39), 20.4 million gallons a day (31.6 second-feet).

Extremes.- Maximum discharge during year, 1,840 million gallons a day (2,850 second-feet) Mar. 4 (gage height, 7.90 feet), from rating curve extended above 300 million gallons a day; minimum, 2.85 million gallons a day (4.41 second-feet) Oct. 2.

1913-17, 1922-39: 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.

Flood of Dec. 24, 1921 may have reached a higher stage than 9.26 feet, the maximum given, but owing to destruction of station no data are available for this peak.

Remarks.- Records good except those for periods of missing gage heights, Mar. 24, Mar. 27 to Apr. 10, May 5 to June 14, June 17-30, which were computed on basis of records for West Wailuaiki Stream near Keanae and are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.6	2.7	1.2	8.5	2.0	28	3.2	105	4.5	310
.8	4.1	1.4	11.5	2.4	46	3.6	151	5.0	425
1.0	6.0	1.6	16.0	2.8	72	4.0	213		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.5	4.1	4.5	3.1	21.5	4.0	7.0	9.6	36.5	4.5	57	11
2	5.9	3.9	5.4	2.9	18.0	5.8	5.0	10.5	58	4.0	23.5	12
3	5.8	15.2	9.0	3.5	5.8	3.65	4.6	8.9	33	3.6	58	46
4	5.3	9.5	8.9	3.1	27	3.35	4.3	7.0	240	6.7	29.5	12
5	5.5	4.6	4.5	15.6	5.0	3.2	4.0	6.4	79	59	14	13
6	5.1	6.3	4.0	14.7	4.2	3.35	4.0	6.1	42	22	10	20
7	9.1	5.0	3.9	7.3	4.6	9.7	88	69	30	14	8.5	30
8	5.1	5.0	3.65	13.2	3.7	61	24.5	13.4	30	9.5	7.0	9.0
9	4.7	19.6	3.5	7.9	4.5	67	35	7.2	24.5	8.5	6.0	8.1
10	4.8	8.4	9.2	23.5	4.4	32.5	100	6.7	12.6	65	5.6	6.2
11	5.5	17.7	31	11.0	17.7	12.2	35.5	6.4	11.6	11.2	5.0	7.8
12	5.0	7.4	5.1	11.8	42	13.4	36.5	5.7	13.0	10.4	4.6	12
13	8.1	7.9	4.0	7.2	28.5	9.0	43	5.1	9.2	8.1	4.3	10
14	5.6	6.6	3.7	4.6	14.2	5.8	76	5.0	7.7	10.6	3.8	6.8
15	11.6	6.4	3.6	34	40	4.9	71	6.5	7.2	76	7.0	10.9
16	6.6	7.2	3.6	6.6	22	16.2	183	7.7	7.3	38.5	55	35.5
17	8.8	8.2	6.0	25	9.1	8.0	23.5	36	7.0	153	36	22
18	5.8	86	4.2	9.7	6.8	7.3	30.5	6.8	6.5	204	53	8.5
19	4.8	54	26	5.6	5.6	31.5	13.9	5.5	6.2	56	67	6.5
20	24	15.2	5.4	4.5	5.2	94	34	5.8	6.0	60	21	6.0
21	20.5	17.5	4.2	4.2	5.0	21	9.9	7.1	6.0	72	19	5.0
22	7.1	8.2	5.1	4.5	4.4	17.2	12.4	4.6	6.0	70	10	8.8
23	5.4	8.0	6.6	3.9	4.1	7.7	9.9	4.6	5.8	77	7.4	8.0
24	5.2	18.3	4.0	3.6	3.9	6.4	21.5	23	6.0	119	6.3	4.7
25	4.6	21	3.7	3.65	4.0	32	8.5	47	9.2	17.3	8.0	5.0
26	4.7	7.8	3.6	4.0	3.9	8.1	109	31.5	8.0	11.9	5.5	4.6
27	4.3	6.0	3.35	3.2	3.6	6.7	90	403	5.5	9.6	4.8	4.0
28	5.5	5.5	3.2	5.6	3.85	13.9	20.5	145	8.0	8.5	4.5	3.8
29	4.4	4.9	3.15	26	15.2	6.7	12.8	-	13	10.6	11	6.1
30	5.4	4.6	3.2	23.5	4.8	5.2	16.4	-	7.0	27.5	15	6.1
31	9.2	4.3	-	5.5	-	11.4	10.5	-	5.2	-	16	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	24	4.3	7.10	11.0	220	675
August	86	3.9	13.0	20.1	404	1,240
September	31	3.15	6.32	9.78	189	581
October	34	2.9	9.76	15.1	302	928
November	42	3.6	11.4	17.6	343	1,050
December	94	3.2	17.2	26.6	532	1,630
Calendar year 1938	827	2.9	25.8	39.9	9,420	28,900
January	183	4.0	36.9	57.1	1,140	3,510
February	403	4.6	32.2	49.8	901	2,770
March	240	5.2	24.2	37.4	749	2,300
April	204	3.8	41.7	64.5	1,250	3,840
May	67	3.8	18.8	29.1	583	1,790
June	46	3.8	11.7	18.1	350	1,070
Fiscal year 1938-39	403	2.9	19.1	29.6	6,960	21,380

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 1939.

Average discharge.- 17 years (1922-39), 26.1 million gallons a day (40.4 second-feet).

Extremes.- Maximum discharge during year, 2,400 million gallons a day (3,710 second-feet) Mar. 4 (gage height, 10.05 feet), from rating curve extended above 420 million gallons a day; minimum recorded, 3.15 million gallons a day (4.87 second-feet) Oct. 28.
1914-17, 1921-39: Maximum discharge, 4,500 million gallons a day (6,960 second-feet), estimated, Jan. 14, 1923 (gage height, about 13.5 feet, from floodmarks), from rating curve extended above 420 million gallons a day; minimum, 0.3 million gallons a day (0.5 second-foot) July 26, 1922.

Remarks.- Records good except those for periods of missing gage heights, July 1 to Oct. 20, Apr. 14, 15, 17-30, May 1, 2 (computed on basis of records for nearby stations), and those above 600 million gallons a day, which are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.5	1.95	1.6	22	4.0	270
.7	3.5	2.0	40	5.0	510
1.0	7.2	2.5	73	6.0	835
1.3	13.0	3.0	121		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.5	4.8	5.1	3.6	19.2	4.7	8.8	12.7	44	5.1	65	12.7
2	6.9	4.7	6.2	3.3	18.0	6.0	6.2	12.4	63	4.7	27	13.4
3	6.7	17.5	10.3	4.1	6.8	4.1	5.5	11.2	36.5	4.4	66	53
4	6.1	10.8	10.1	3.6	28	3.7	5.0	8.2	364	7.8	36	14.5
5	6.4	5.4	5.1	17.9	6.0	3.5	4.5	7.0	104	67	15.9	14.9
6	6.0	7.1	4.7	16.9	4.9	3.5	4.3	6.2	48	25.5	11.5	22.5
7	10.4	5.8	4.5	8.4	4.8	9.4	120	72	30	16.4	9.5	34
8	6.0	5.8	4.3	15.1	4.1	78	30	15.6	30	10.9	7.9	10.2
9	5.3	23	4.1	9.0	4.7	74	48	8.6	25.5	9.9	7.0	9.3
10	5.6	9.6	10.5	27	4.4	42	134	7.5	13.9	75	6.6	7.2
11	6.4	20.5	35.5	12.6	15.5	17.3	47	6.9	11.6	11.9	5.7	8.9
12	5.7	8.5	5.9	13.5	38.5	18.1	49	6.0	12.4	10.7	5.3	14.2
13	9.3	9.0	4.7	8.2	28	12.8	54	5.3	9.2	8.6	5.0	11.7
14	6.6	7.5	4.4	5.5	17.0	8.2	102	5.0	7.9	12.1	4.6	7.8
15	13.6	7.3	4.3	39	53	6.8	88	6.0	7.2	106	8.0	10.5
16	7.6	8.2	4.3	7.6	28	19.0	237	7.0	7.2	46	63	36.5
17	10	9.3	7.0	28.5	12.6	11.4	31.5	45	6.3	160	41	24.5
18	6.9	104	5.0	11.1	9.8	11.1	38	8.2	5.7	258	61	9.7
19	5.6	62	30	6.5	7.2	37.5	18.0	6.2	5.5	64	77	7.6
20	27.5	17.3	6.2	5.1	6.4	104	34	5.8	5.3	69	24	6.8
21	23.5	20	5.0	4.7	5.8	22.5	12.6	7.6	5.7	82	22	6.8
22	8.1	9.3	5.9	4.6	5.1	17.9	13.6	5.0	6.9	80	11.8	10.1
23	6.4	7.4	7.8	4.1	4.6	10.0	16.9	4.9	5.7	87	8.4	9.1
24	6.0	21	4.7	3.8	4.3	8.2	28.5	23.5	5.9	149	7.0	5.6
25	5.3	24	4.4	3.7	4.4	39.5	11.5	55	13.5	20	9.1	6.9
26	5.4	8.9	4.3	4.0	4.4	11.3	163	37.5	8.6	13.7	6.3	5.6
27	5.0	7.0	4.0	3.3	4.0	8.6	111	675	6.3	11	5.5	4.7
28	6.4	6.3	3.8	5.4	3.95	13.2	22.5	215	9.1	9.9	5.1	4.5
29	5.0	5.6	3.7	28.5	16.5	7.5	15.0	-	15.5	12.1	12.2	7.0
30	6.3	5.2	3.9	30.5	6.1	6.3	18.6	-	8.0	31.5	16.9	7.0
31	11.6	5.0	-	6.8	-	12.0	16.3	-	6.0	-	18.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27.5	5.0	8.23	12.7	255	783
August	104	4.7	15.1	23.4	468	1,440
September	35.5	3.7	7.32	11.3	220	674
October	39	3.3	11.2	17.3	346	1,060
November	53	3.95	12.5	19.3	376	1,150
December	104	3.5	20.4	31.6	632	1,940
Calendar year 1938	1,210	2.45	32.7	50.6	11,930	36,600
January	237	4.3	48.2	74.6	1,490	4,590
February	675	4.9	45.9	71.0	1,280	3,940
March	364	5.3	29.9	46.3	928	2,850
April	258	4.4	49.0	75.8	1,470	4,510
May	77	4.6	21.6	33.4	670	2,060
June	53	4.5	13.2	20.4	395	1,210
Fiscal year 1938-39	675	3.3	23.4	36.2	8,530	26,210

Wailuanui Stream near Keanae

Location.- Concrete weir control, lat. 20°50'20", long. 156°08'30", 500 feet below highway, 1.6 miles southeast of Keanae post office, and 3 miles northwest of Nahiku. Altitude, 620 feet, by barometer. Datum lowered 0.12 foot Nov. 3, 1938.

Drainage area.- 1.8 square miles.

Records available.- July 1932 to March 1936, November 1938 to June 1939. March 1927 to June 1932, furnished by East Maui Irrigation Co.

Extremes.- Maximum discharge during period, 1,010 million gallons a day (1,560 second-feet) Mar. 4 (gage height, 7.03 feet), from rating curve based on standard Hofmann weir curve from 10 to 100 million gallons a day and extended above; minimum, 0.47 million gallons a day (0.73 second-foot) Apr. 2-4.

1932-36, 1938-39: Maximum discharge, that of Mar. 4, 1939; minimum, 0.12 million gallons a day (0.19 second-foot) Oct. 10-12, 1933, former datum.

Remarks.- Records good except those for periods of missing gage heights, Apr. 28-30, May 1, 26-31, June 1-13, 21-28 (computed on basis of records for stations on nearby streams), and those above 100 million gallons a day, which are poor. Koolau ditch diverts all low flow, at altitude of about 1,200 feet, for irrigation in central Maui.

Rating table, November 1938 to June 1939 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.30	0.8	5.2	2.5	84
.4	.70	1.0	9.7	3.0	130
.5	1.37	1.2	16.0	3.5	190
.6	2.3	1.5	28	4.0	260
.7	3.55	2.0	51	5.0	450

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1					-	1.29	1.85	5.1	46	0.55	50	2.0
2					-	1.61	1.61	3.25	46	.51	17.9	1.5
3					-	1.29	1.37	2.55	22	.51	58	25
4					32.5	1.21	1.37	2.1	170	1.25	23	2.7
5					2.2	1.13	1.29	1.90	82	42	2.3	2.3
6					1.90	1.21	1.21	2.1	45	8.5	1.70	7.0
7					1.80	1.44	85	94	21.5	1.24	1.45	20
8					1.69	47	14.4	7.0	23	1.97	1.37	1.8
9					1.90	73	28	2.8	12.2	4.6	1.29	1.5
10					1.61	23	84	2.55	3.45	45	1.13	1.3
11					8.2	3.8	25	2.1	2.6	1.37	1.07	1.1
12					30	3.7	38.5	2.0	4.3	1.53	1.00	7.0
13					20.5	1.80	38.5	1.80	2.2	1.13	.93	2.2
14					7.8	1.53	70	1.61	1.90	1.46	.87	1.70
15					30	1.45	68	1.80	1.80	39	4.7	2.65
16					14.6	6.7	163	2.55	1.95	21	54	36.5
17					2.7	1.80	28	28	1.61	110	17.4	14.4
18					2.2	1.45	26.5	1.90	1.53	158	37.5	2.7
19					2.1	25.5	5.1	1.61	1.37	50	45	2.1
20					1.90	87	32	1.91	1.37	61	8.9	1.61
21					1.80	14.3	3.05	1.85	1.29	63	7.2	1.5
22					1.61	11.9	11.9	1.45	1.29	59	1.90	1.4
23					1.53	2.7	9.9	1.37	1.21	52	1.61	2.2
24					1.53	2.3	22	15.4	1.29	71	1.45	1.8
25					1.53	20.5	2.7	28	10.1	2.95	2.1	1.3
26					1.45	2.0	124	17.8	.81	1.53	1.6	1.1
27					1.37	1.90	83	288	.65	1.37	1.4	1.0
28					1.37	6.7	16.7	129	1.76	1.2	1.3	.93
29					5.7	2.1	4.8	-	5.4	1.1	1.1	.93
30					1.37	1.80	6.9	-	.87	1.0	1.5	.93
31					-	4.7	4.7	-	.60	-	4.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November 4-30	32.5	1.37	6.77	10.3	183	561
December	87	1.13	11.5	17.8	358	1,100
Calendar year	-	-	-	-	-	-
January	163	1.21	32.4	50.1	1,000	3,080
February	288	1.37	23.3	36.1	652	2,000
March	170	.60	16.7	25.8	517	1,590
April	158	.51	28.8	41.5	805	2,470
May	58	.87	11.5	17.8	355	1,090
June	36.5	.93	5.00	7.74	150	461
The period	-	-	-	-	-	12,350

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 1939. January 1914 to October 1917 at site 500 feet upstream.

Average discharge.- 17 years (1922-39), 5.91 million gallons a day (9.14 second-feet).

Extremes.- Maximum discharge during year, 594 million gallons a day (919 second-feet) Mar. 4 (gage height, 5.47 feet), from rating curve extended above 50 million gallons a day; minimum, 1.06 million gallons a day (1.64 second-feet) Dec. 6.
1914-17, 1921-39: 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 period of missing gage heights, Jan. 7-24, which were computed on basis of records for stations on all nearby streams and are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.15	0.7	6.3	1.3	33	2.0	83
.5	2.5	1.0	17.0	1.6	52	2.5	132

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.3	1.75	1.88	1.15	5.8	1.37	2.5	3.5	14.9	2.3	18.6	3.95
2	2.0	1.62	2.3	1.15	3.4	2.0	2.0	3.25	11.0	2.0	7.2	4.1
3	2.0	9.6	4.2	1.37	2.15	1.37	1.75	3.55	6.2	2.0	19.1	17.5
4	1.75	4.8	3.95	1.26	16.2	1.15	1.62	2.5	69	2.75	9.2	4.3
5	1.75	2.3	20	5.2	2.5	1.15	1.49	2.15	17.8	11.1	4.6	5.5
6	1.62	2.9	1.88	6.4	2.0	1.15	1.37	2.15	8.1	3.85	3.65	8.5
7	3.35	2.15	1.75	3.4	2.0	3.8	2.2	28.5	7.1	3.95	3.05	7.4
8	1.75	2.15	1.62	3.95	1.75	19.4	11	4.1	8.8	3.65	2.7	3.25
9	1.49	5.0	1.62	2.7	1.88	23	14	2.7	6.2	2.95	2.3	3.25
10	1.49	2.65	3.2	7.0	1.75	10.5	30	2.7	4.6	22	2.15	2.5
11	1.75	5.9	13.8	4.3	6.8	3.9	13	2.3	4.2	3.65	2.0	3.65
12	1.75	3.1	2.15	7.4	14.3	4.6	14	2.15	5.1	3.65	1.88	8.0
13	3.75	4.0	1.88	3.25	10.1	3.05	15	1.88	3.65	2.8	1.75	5.5
14	2.3	3.45	1.75	2.5	5.9	2.3	30	1.88	3.05	3.9	1.75	3.85
15	5.3	3.4	1.62	21.5	8.6	2.0	27	2.5	2.7	12.4	4.0	5.5
16	2.85	3.85	1.49	3.65	6.4	5.0	50	4.8	2.7	9.7	25	18.8
17	4.1	4.1	2.6	23	3.25	2.7	6.0	7.9	2.3	23	9.3	9.2
18	2.9	24	1.88	5.5	2.5	2.5	7.0	2.5	2.15	36.5	17.3	4.2
19	2.15	16.2	10.8	3.25	2.15	10.2	5.0	2.15	2.0	13.1	15.9	3.45
20	13.0	5.4	2.3	2.5	2.0	24.5	8.0	2.55	2.0	19.2	6.2	3.05
21	10.3	7.2	1.88	2.3	1.75	7.2	4.5	3.1	2.0	21	6 4	2.5
22	3.45	3.65	2.15	2.0	1.62	6.8	4.7	2.0	2.15	17.4	4.0	4.8
23	2.5	3.6	3.0	1.88	1.49	3.05	4.4	1.88	1.88	18.9	2.9	5.1
24	2.3	7.2	1.88	1.75	1.37	2.5	5.5	9.2	2.4	22.5	2.5	3.05
25	2.0	4.7	1.75	1.75	1.49	10.4	3.65	12.6	7.4	4.8	3.85	2.7
26	1.88	3.05	1.62	1.62	1.37	2.9	12.4	7.6	2.5	3.85	2.5	2.5
27	1.88	2.7	1.49	1.49	1.26	2.7	13.6	102	2.3	3.25	2.15	2.3
28	2.35	2.5	1.37	2.7	1.26	3.6	6.3	34	4.6	2.9	2.0	2.15
29	1.75	2.3	1.37	7.1	5.4	2.3	4.5	-	7.2	3.8	4.4	3.05
30	2.3	2.15	1.26	6.1	1.62	1.88	4.8	-	3.65	11.9	4.6	3.05
31	3.9	1.88	-	2.15	-	4.0	3.65	-	2.7	-	6.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.0	1.49	3.03	4.69	94.0	288
August	24	1.62	4.81	7.44	149	458
September	13.8	1.26	2.75	4.25	82.4	253
October	23	1.15	4.56	7.06	141	434
November	16.2	1.26	4.00	6.19	120	368
December	24.5	1.15	5.58	8.63	173	531
Calendar year 1938	122	.98	6.63	10.3	2,420	7,430
January	50	1.37	10.0	15.5	311	954
February	102	1.88	9.22	14.3	258	792
March	69	1.88	7.17	11.1	222	682
April	36.5	2.0	9.82	15.2	295	905
May	25	1.75	6.42	9.93	199	610
June	18.8	2.15	5.22	8.08	157	481
Fiscal year 1938-39	102	1.15	6.03	9.33	2,200	6,760

West Wailuanui Stream near Keanae

Location.- Concrete spillway and overflow dam, lat. 20°49'40", long. 156°08'55", 150 feet upstream from Koolau ditch crossing and intake and 2¼ miles south of Keanae post office. Columbus control installed and datum raised 3.38 feet Sept. 29.
Drainage area.- 0.7 square mile.
Records available.- December 1913 to October 1917 and July 1922 to June 1939.
Average discharge.- 17 years (1922-39), 9.57 million gallons a day (14.8 second-feet).
Extremes.- Maximum discharge during year, 755 million gallons a day (1,170 second-feet) Mar. 4 (gage height, 6.28 feet), from rating curve extended above 19 million gallons a day; minimum, 1.00 million gallons a day (1.55 second-feet) Oct. 3.
1913-17, 1922-39: Maximum discharge, 1,220 million gallons a day (1,890 second-feet) Jan. 14, 1923 (gage height, 7.70 feet, former datum), from rating curve extended above 82 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) July 16-21, 1922.
Remarks.- Records fair except those for periods of faulty gage heights, July 1 to Sept. 28, and during construction Apr. 3-15, which were computed on basis of records for stations on all nearby streams and are poor. No diversions. Water used for irrigation of sugarcane in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.80	1.2	4.2	2.0	32
.9	1.30	1.4	8.0	2.5	69
1.0	2.0	1.7	17.5	3.0	124

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.1	2.2	2.6	1.20	5.8	1.86	3.2	7.4	19.0	2.1	21	4.7
2	2.8	2.1	3.0	1.10	4.8	2.75	2.55	6.4	22.5	*1.79	10.5	4.9
3	2.8	10	5.4	1.25	2.75	1.72	2.3	5.5	16.0	2.0	22	16.6
4	2.4	5.6	6.0	1.20	12.6	1.58	2.1	3.95	95	3.0	13.0	5.1
5	2.5	2.6	2.6	5.0	2.75	1.51	2.0	3.45	40	23	7.3	6.3
6	2.4	3.3	2.2	6.3	2.2	1.58	1.93	3.2	23	7.0	5.5	8.9
7	4.5	2.6	2.1	3.1	2.2	4.9	34	27.5	12.6	7.0	4.7	8.6
8	2.4	2.7	2.1	4.4	1.86	20.5	11.3	6.3	12.3	6.4	3.95	4.1
9	2.2	10	2.0	2.75	2.3	27	14.6	3.95	9.1	6.0	3.45	4.1
10	2.2	5.0	4.0	8.2	1.93	13.4	42	3.8	6.8	25	3.2	3.1
11	2.6	9.0	15	5.0	7.3	6.2	16.3	3.45	5.8	7.0	2.85	4.5
12	2.6	4.5	3.0	6.9	13.4	6.9	17.9	2.85	7.0	6.6	2.65	8.4
13	4.5	4.7	2.5	4.3	10.6	4.7	20	2.55	4.8	5.0	2.5	6.1
14	3.2	4.2	2.3	2.55	6.7	3.3	37	2.5	3.95	7.0	2.3	4.1
15	7.0	4.0	2.0	17.6	15.0	2.75	30	3.3	3.6	30	5.4	5.9
16	3.8	4.5	1.7	3.7	11.3	7.0	71	5.5	3.45	15.2	24.5	17.5
17	5.0	5.0	3.3	21	5.3	4.0	16.1	13.7	2.95	57	12.9	9.4
18	3.2	27	2.6	5.9	4.1	3.9	15.9	3.7	2.75	88	19.2	4.8
19	2.8	18	12	3.3	3.3	11.4	8.7	2.95	2.55	29.5	25	3.95
20	13	9.0	3.5	2.65	2.85	30	14.9	3.85	2.55	28	10.4	3.6
21	10	10	2.5	2.3	2.55	9.5	5.8	3.7	2.55	27.5	9.3	8.1
22	6.0	5.2	2.7	2.1	2.3	7.8	8.6	2.5	2.95	31.5	5.6	5.8
23	3.1	5.0	4.0	2.0	2.1	4.4	10.4	2.65	2.3	26.5	4.1	5.7
24	3.1	11	2.4	1.86	1.93	3.7	12.1	10.1	2.9	34.0	3.3	3.3
25	2.4	14	1.9	1.86	2.0	10.2	5.5	16.4	8.3	10.2	5.0	3.2
26	2.4	5.0	1.7	1.86	1.93	4.3	67	10.3	3.3	6.7	3.1	2.95
27	2.0	4.0	1.5	1.25	1.72	3.7	42	120	2.9	5.2	2.65	2.5
28	2.8	3.5	1.3	3.2	1.68	5.0	12.6	49	4.9	4.4	2.4	2.5
29	2.3	3.0	*1.15	7.6	6.9	3.3	7.3	-	7.4	5.6	5.4	3.9
30	2.7	2.5	1.28	7.9	2.2	2.75	8.0	-	3.6	12.2	5.9	3.6
31	4.0	2.4	-	2.85	-	5.4	9.0	-	2.5	-	7.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13	2.0	3.74	5.79	116	355
August	27	2.1	6.50	10.1	202	619
September	15	1.15	3.34	5.17	100	308
October	21	1.10	4.59	7.10	142	436
November	15.0	1.68	4.81	7.44	144	443
December	30	1.51	7.00	10.8	217	666
Calendar year 1938	150	1.10	10.3	15.9	3,760	11,540
January	71	1.93	17.8	27.5	552	1,690
February	120	2.5	11.8	18.3	330	1,010
March	95	2.3	10.9	16.9	339	1,040
April	88	1.79	17.3	26.8	520	1,600
May	25	2.3	8.26	12.8	256	786
June	17.5	2.5	5.71	8.83	171	525
Fiscal year 1938-39	120	1.10	8.47	13.1	3,090	9,480

*Partly estimated.

Taro patch feeder ditch at Keanae

Location.- Parshall flume, lat. 20°51'40", long. 156°09'00", 100 feet southeast of highway bridge over Piinaaua Stream at Keanae, 4¼ miles northwest of Nahiku, and 4⅝ miles southeast of Kailua.

Records available.- September 1934 to June 1939.

Extremes.- Maximum discharge during year, 10.9 million gallons a day (16.9 second-feet) Mar. 4 (gage height, 1.96 feet), from rating curve extended above 3.2 million gallons a day by Parshall flume formula; minimum, 0.05 million gallons a day (0.08 second-foot) Mar. 5, 6.

1934-39: Maximum discharge, 19.4 million gallons a day (30.0 second-feet) Feb. 25, 1935 (gage height, 2.86 feet), from rating curve computed from 3.2 to 18.0 million gallons a day by Parshall flume formula and extended above; 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 except those for periods of missing gage heights, Aug. 21-29, Mar. 29 to Apr. 10, June 2, 3, 21-30, which were computed on basis of field notes and records for stations on nearby streams and are fair.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.35	2.1	2.0	1.77	2.2	2.25	2.4	2.65	2.6	2.0	2.85	2.65
2	2.3	2.1	2.0	1.77	2.25	2.2	2.35	2.55	2.7	2.0	2.5	2.65
3	2.25	2.3	2.0	1.77	2.1	2.15	2.35	2.55	2.55	2.0	2.8	2.8
4	2.25	2.3	2.0	1.72	2.45	2.1	2.25	2.55	2.8	.3	2.65	2.55
5	2.25	2.15	1.96	1.77	2.15	2.1	2.2	2.5	.05	.3	2.5	2.5
6	2.25	2.15	1.91	1.96	2.15	2.1	2.2	2.45	1.36	2.1	2.45	2.65
7	2.25	2.1	1.91	1.82	2.1	2.15	3.2	3.2	2.05	2.1	2.45	2.7
8	2.25	2.1	1.91	1.77	2.05	2.85	2.6	2.45	2.1	2.1	2.4	2.5
9	2.25	2.1	1.87	1.77	2.1	3.25	2.65	2.4	2.1	2.1	2.4	2.4
10	2.25	2.1	1.87	1.87	2.0	2.8	2.95	2.35	1.96	2.1	2.35	2.4
11	2.25	2.2	2.3	1.82	2.2	2.55	2.65	2.35	1.91	2.2	2.35	2.4
12	2.25	2.1	2.0	1.91	2.5	2.45	2.7	2.3	1.96	2.15	2.3	2.55
13	2.25	2.1	2.05	1.82	2.4	2.4	2.85	2.3	2.0	2.1	2.3	2.5
14	2.25	2.05	2.05	1.72	2.35	2.4	2.85	2.25	1.96	2.15	2.25	2.5
15	2.35	2.05	2.05	1.96	2.6	2.35	3.15	2.25	2.0	2.85	2.25	2.5
16	2.25	2.0	2.0	1.72	2.4	2.4	3.65	2.3	2.0	2.5	2.75	2.8
17	2.25	2.0	1.96	2.15	2.25	2.4	2.75	2.6	2.0	3.2	2.35	2.75
18	2.25	2.65	1.96	1.87	2.25	2.35	2.8	2.3	2.0	3.5	2.45	2.5
19	2.25	2.6	2.2	1.67	2.2	2.5	2.6	2.3	2.0	2.65	2.7	2.5
20	2.4	2.25	2.05	1.67	2.15	3.1	2.75	2.3	2.0	2.75	2.35	2.45
21	2.5	2.1	2.0	1.63	2.15	2.5	2.6	2.3	2.0	2.8	2.25	2.4
22	2.3	2.0	2.0	1.92	2.1	2.5	2.7	2.25	2.0	2.9	2.15	2.5
23	2.25	2.0	2.0	2.3	2.05	2.45	2.65	2.2	1.96	3.0	2.1	2.7
24	2.25	2.3	2.0	2.3	.71	2.4	2.9	2.45	1.96	3.25	2.1	2.5
25	2.2	2.2	2.0	2.25	.78	2.65	2.6	2.65	2.1	2.45	2.1	2.4
26	2.15	2.2	2.0	2.25	2.1	2.45	3.2	2.65	2.0	2.45	2.1	2.3
27	2.15	2.1	1.96	2.25	2.15	2.4	3.15	4.5	1.96	2.45	2.05	2.2
28	2.15	2.1	1.91	2.25	2.15	2.45	2.7	1.14	1.96	2.4	2.05	2.2
29	2.15	2.1	1.87	2.4	2.35	2.45	2.6	-	2.0	2.4	2.35	2.2
30	2.15	2.05	1.87	2.5	2.25	2.35	2.6	-	2.0	2.6	2.7	2.3
31	2.15	2.0	-	2.15	-	2.45	2.65	-	2.0	-	2.75	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2.5	2.15	2.25	3.48	69.8	214
August	2.65	2.0	2.15	3.33	66.6	205
September	2.3	1.87	1.99	3.08	59.7	183
October	2.5	1.63	1.95	3.02	60.5	186
November	2.6	.71	2.12	3.28	63.6	195
December	3.25	2.1	2.45	3.79	75.9	233
Calendar year 1938	4.0	.33	2.31	3.57	842	2,580
January	3.65	2.2	2.72	4.21	84.3	259
February	4.5	1.14	2.47	3.82	69.0	212
March	2.8	.05	2.00	3.09	62.0	190
April	3.5	.3	2.33	3.61	69.8	214
May	2.85	2.05	2.39	3.70	74.1	227
June	2.8	2.2	2.50	3.87	75.0	230
Fiscal year 1938-39	4.5	.05	2.28	3.53	830	2,550

Koolau ditch near Keanae

Location.- Concrete dam control, 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 1939.

Average discharge.- 21 years (1918-39), 66.7 million gallons a day (103 second-feet).

Extremes.- Maximum discharge during year, 141* million gallons a day (218 second-feet) on many days; maximum gage height, 5.97 feet, Mar. 4; minimum, 27 million gallons a day (42 second-feet) Oct. 2, 3.
1910-12, 1917-39: 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 good except those for periods of missing gage heights, Aug. 11-19, Oct. 12-19, Jan. 25, Mar. 12-18, which were computed on basis of records for Koolau ditch at Haipuaena and are fair. Flow regulated by gates and spillways. Ditch diverts water at altitude 1,200 feet from nearly all streams from the Makapipi west to the Alo for power and irrigation in central Maui. No diversions above station except from several spillways.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	62	39	41	29.5	96	41	75	105	132	52	141	99
2	52	35.5	46	28	109	57	55	112	138	48	140	108
3	50	97	74	29.5	59	39	50	93	141	44	140	122
4	44	80	85	29.5	100	35.5	48	74	140	56	141	104
5	46	42	42	62	55	35.5	44	66	141	140	132	124
6	42	55	39	110	48	35.5	42	66	140	129	112	128
7	77	44	39	49	50	81	121	106	140	108	92	132
8	46	45	35.5	90	41	113	122	116	140	99	81	89
9	41	74	34	80	46	139	106	77	141	96	74	85
10	41	71	52	112	44	140	134	77	124	140	70	70
11	48	110	124	92	119	116	140	70	120	87	62	86
12	44	62	50	86	136	124	141	62	130	94	59	112
13	77	76	41	80	140	96	134	55	98	73	55	122
14	51	70	37	49	128	62	122	52	86	100	52	85
15	101	60	34	120	141	55	122	66	80	131	74	112
16	60	72	34	90	140	113	122	84	78	140	141	136
17	83	80	48	100	100	83	140	127	74	134	140	140
18	56	140	39	110	74	77	140	70	66	122	141	108
19	44	140	106	60	62	106	124	55	59	134	140	85
20	66	132	55	52	55	140	140	62	59	134	136	74
21	130	128	41	48	52	140	108	72	59	134	140	62
22	69	85	42	46	46	132	100	48	62	134	112	95
23	52	72	58	41	42	100	108	48	52	134	81	104
24	48	125	37	37	41	81	116	124	59	134	70	62
25	42	128	34	37	41	99	105	140	116	140	94	62
26	42	77	34	39	41	83	134	136	66	120	66	59
27	39	62	31	34	37	77	134	121	60	96	59	50
28	47	55	31	52	37	91	141	126	85	85	55	48
29	39	48	29.5	82	102	70	132	-	120	108	92	68
30	48	44	29.5	104	48	59	132	-	81	111	116	66
31	70	42	-	57	-	86	124	-	59	-	110	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	130	39	56.7	87.7	1,760	5,390
August	140	35.5	77.1	119	2,390	7,340
September	124	29.5	47.4	73.3	1,420	4,370
October	120	28	65.7	102	2,040	6,250
November	141	37	74.3	115	2,230	6,840
December	140	35.5	87.3	135	2,710	8,310
Calendar year 1938	157	28	83.5	129	30,490	93,550
January	141	42	111	172	3,460	10,610
February	140	48	86.1	133	2,410	7,400
March	141	52	98.3	152	3,050	9,350
April	140	44	109	169	3,260	10,000
May	141	52	101	156	3,120	9,570
June	140	48	93.2	144	2,800	8,580
Fiscal year 1938-39	141	28	83.9	130	30,650	94,010

*Maximum discharge limited by reduced capacity of ditch due to cave-in of tunnel below control.

Honomanu Stream near Keanae

Location.- Masonry dam 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. Columbus control installed and datum raised 1.37 feet May 27.
Drainage area.- 3.3 square miles.
Records available.- November 1913 to June 1939.
Average discharge.- 23 years (1916-39), 15.8 million gallons a day (24.4 second-feet).
Extremes.- Maximum discharge during year, 728 million gallons a day (1,130 second-feet) Mar. 4 (gage height, 6.28 feet), from rating curve extended above 460 million gallons a day; minimum, 0.80 million gallons a day (1.24 second-feet) Oct. 2, 3.
1913-39: Maximum discharge, 1,580 million gallons a day (2,440 second-feet) Feb. 25, 1935 (gage height, 8.98 feet, former datum), from rating curve extended above 460 million gallons a day; minimum, 0.08 million gallons a day (0.12 second-foot) Mar. 24, 1928.
Remarks.- Records good except those for period of missing gage heights, Apr. 27 to May 27, which were computed on basis of records for stations on all nearby streams and are fair. No diversions. Water used for irrigation in central Maui.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1 to May 26						May 27 to June 30			
1.6	0.65	2.4	16.8	3.3	80	1.0	2.2	1.7	20
1.8	2.15	2.6	26	3.6	114	1.2	4.6	2.0	41
2.0	5.2	2.8	37.5	4.0	173	1.4	8.6	2.5	92
2.2	10.0	3.0	52	4.5	269				

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.65	1.55	2.15	1.05	7.5	1.85	5.6	10.6	16.9	2.8	45	13.0
2	2.4	1.15	3.1	.85	8.0	2.05	2.65	7.9	20	2.55	22	10.4
3	2.4	11.4	4.1	1.10	2.65	1.35	2.05	4.3	10.8	2.15	40	59
4	1.95	6.7	6.3	1.00	4.0	1.15	1.75	3.2	129	2.05	25	10.4
5	2.4	2.65	3.45	6.0	1.95	1.05	1.45	2.55	32	13.4	13	10.8
6	2.05	5.6	2.15	10.2	1.65	1.05	1.35	2.3	21	21.5	7.0	27
7	6.1	5.0	2.25	3.75	1.55	7.2	86	28.5	11.9	15.9	4.5	28
8	4.1	3.2	2.55	11.3	1.35	62	13.4	8.1	15.4.	6.0	4.0	6.1
9	2.05	28	1.65	9.8	1.55	53	31	3.6	13.1	7.7	3.5	5.3
10	1.75	8.0	7.3	17.2	1.55	26	50	4.2	7.0	38	4.0	4.5
11	2.4	11.4	31	8.8	5.5	9.4	20	4.2	6.7	6.8	2.7	6.7
12	4.0	4.5	4.8	18.3	14.5	11.2	23	3.2	7.8	5.4	2.3	19.6
13	7.4	4.3	2.4	6.8	9.0	6.3	34.5	2.55	6.3	4.3	2.1	13.2
14	4.7	3.8	1.95	3.2	8.4	3.3	48	2.15	4.0	7.9	2.0	5.8
15	7.9	3.45	1.65	49	29	2.65	43	3.05	3.85	62	8.0	8.0
16	5.7	4.0	1.55	8.2	16.1	12.7	138	6.4	3.05	24	50	45
17	7.9	5.0	2.8	25.5	6.3	6.7	17.5	32	3.05	125	30	25.5
18	4.8	62	2.55	9.1	3.2	8.0	24	5.0	2.95	132	40	7.4
19	2.4	55	12.8	4.0	2.4	19.8	9.7	2.8	2.55	34	45	7.0
20	14.7	14.0	4.6	2.65	2.05	33.5	15.8	3.25	2.4	36	18	5.4
21	12.8	12.8	2.4	2.15	1.85	7.7	6.1	6.3	2.95	40	20	3.65
22	5.2	5.6	2.65	1.85	1.55	5.9	10.7	2.65	3.95	42	8.0	17.6
23	2.65	5.9	2.95	1.65	1.35	3.45	7.9	2.4	3.8	46	6.0	8.4
24	2.3	54	1.95	1.45	1.15	2.8	15.1	15.3	3.3	70	4.5	4.5
25	1.85	13.2	1.45	1.45	1.35	5.2	6.3	33.5	14.3	11.3	8.0	6.6
26	1.75	6.5	1.25	1.55	1.85	3.3	103	16.2	5.9	7.4	5.0	15.7
27	1.55	4.0	1.15	1.35	1.45	2.3	54	266	3.6	6.0	3.0	6.9
28	2.15	3.3	1.05	3.8	1.35	2.65	10.6	74	6.6	5.0	2.6	3.9
29	1.55	2.65	1.00	21.5	14.7	2.4	7.7	-	12.3	15	15.4	9.2
30	3.8	2.4	1.80	18.0	3.2	1.95	7.9	-	5.2	30	17.3	6.1
31	2.65	2.05	-	3.2	-	9.0	13.9	-	3.3	-	19.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.7	1.55	4.13	6.39	128	393
August	62	1.15	11.4	17.6	353	1,080
September	31	1.00	3.96	6.13	119	364
October	49	.85	8.25	12.8	256	785
November	29	1.15	5.27	8.15	158	485
December	62	1.05	10.2	15.8	317	973
Calendar year 1938	620	.75	17.3	26.8	6,330	19,400
January	138	1.35	26.2	40.5	812	2,490
February	266	2.15	19.9	30.8	556	1,710
March	129	2.4	12.4	19.2	385	1,180
April	132	2.05	27.4	42.4	822	2,520
May	50	2.0	15.4	23.8	477	1,460
June	59	3.65	13.4	20.7	401	1,230
Fiscal year 1938-39	266	.85	13.1	20.3	4,780	14,670

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.
Drainage area.- 1.1 square miles.
Records available.- October 1913 to June 1939.
Average discharge.- 23 years (1916-39), 10.4 million gallons a day (16.1 second-feet).
Extremes.- Maximum discharge during year, 340 million gallons a day (526 second-feet) Aug. 24 (gage height, 4.68 feet), from rating curve extended above 130 million gallons a day; minimum, 0.3 million gallons a day (0.5 second-foot) Oct. 1-3.
1913-39: Maximum discharge, 582 million gallons a day (900 second-feet) Feb. 17, 1929 (gage height, 6.25 feet), from rating curve extended above 130 million gallons a day; minimum, 0.20 million gallons a day (0.31 second-foot) Dec. 12, 1937, Jan. 22, 1938.
Remarks.- Records good except those for periods of missing gage heights, July 1 to Aug. 10, Oct. 9-15, which were computed on basis of records for stations on nearby streams and are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.2	0.8	4.0	1.9	34.5
.2	.4	1.0	6.9	2.2	51
.3	.7	1.2	10.7	2.5	71
.4	1.0	1.4	15.7	3.0	115
.6	2.2	1.6	22	3.5	175

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.3	0.5	0.7	0.3	3.0	0.5	2.8	4.0	13.3	1.2	32.5	4.9
2	.8	.4	1.3	.3	4.2	1.0	.8	2.8	15.7	.9	11.9	5.0
3	.8	7.0	2.9	.4	.9	.4	.6	1.4	7.2	.8	29.5	30.5
4	.7	2.5	3.4	.3	1.8	.3	.5	1.1	62	1.0	15.2	6.2
5	.8	1.2	1.2	4.7	.6	.3	.4	.9	22	7.2	5.3	5.5
6	.7	3.5	.7	6.2	.5	.3	.3	.8	12.6	9.8	3.9	10.2
7	3.4	3.0	.6	1.5	.4	3.5	55	24.5	7.2	6.1	2.9	16.3
8	2.1	1.4	.6	5.4	.4	40	7.9	4.2	11.4	3.8	2.1	3.1
9	.7	20	.4	4.5	.7	45	21	1.4	8.7	2.1	2.0	3.0
10	.6	4.0	2.4	12	.5	19.1	30.5	2.2	4.3	26	2.2	2.2
11	1.0	7.6	25	5.0	3.6	6.0	12.6	1.7	3.9	3.4	1.3	3.3
12	1.7	2.5	1.8	13	10.8	6.3	15.6	1.2	5.6	2.6	1.0	18.3
13	3.5	3.1	.9	3.5	7.2	3.4	23.5	.8	3.8	1.8	.9	7.6
14	2.3	2.5	.6	1.5	5.2	1.6	29.5	.7	2.2	4.1	.8	3.3
15	5.0	2.1	.5	25	21	1.0	36	1.2	1.9	44	3.3	5.1
16	2.4	2.8	.4	4.6	9.3	8.3	84	3.7	1.5	15.5	38	27.5
17	4.0	3.9	1.3	19.6	3.3	3.5	10.9	20.5	1.4	65	18.4	16.5
18	1.8	43	.8	5.7	1.5	3.1	17.1	2.1	1.2	81	27.5	4.1
19	.9	41	9.0	2.1	1.0	13.5	5.0	1.2	.9	22.5	32.5	3.3
20	9.0	9.2	2.2	1.3	.8	28	13.0	1.8	.9	28	8.7	2.4
21	8.0	8.4	.9	.9	.6	4.7	3.4	3.5	1.0	27	10.2	1.7
22	3.1	3.4	.8	.7	.5	3.6	9.5	1.0	.9	35	4.3	8.2
23	1.4	3.3	1.3	.6	.4	1.9	4.2	.8	1.2	36	2.6	6.0
24	.9	36	.6	.4	.3	1.3	8.6	11.6	1.1	55	1.9	2.4
25	.7	7.6	.4	.5	.3	2.5	2.8	25	8.8	7.3	3.6	2.2
26	.7	3.1	.4	.6	.4	1.4	48	12.0	2.7	4.0	2.2	3.5
27	.6	2.1	.3	.4	.3	.9	32	139	1.5	2.9	1.4	2.4
28	.8	1.7	.3	1.1	.3	1.1	4.3	32.5	3.6	2.2	1.2	1.2
29	.7	1.2	.3	9.8	9.8	2.6	3.0	-	8.9	6.7	5.0	3.7
30	2.2	.9	.5	13.4	1.2	1.0	3.9	-	3.1	15.8	8.4	2.9
31	1.0	.7	-	1.2	-	5.0	4.3	-	1.6	-	10.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.0	0.6	2.05	3.17	63.6	195
August	43	.4	7.41	11.5	230	705
September	25	.3	2.08	3.22	62.5	192
October	25	.3	4.73	7.32	146	450
November	21	.3	3.03	4.69	90.8	279
December	45	.3	6.81	10.5	211	648
Calendar year 1938	210	.20	9.38	14.5	3,420	10,520
January	84	.3	15.8	24.4	491	1,510
February	139	.7	10.8	16.7	304	932
March	62	.9	7.16	11.1	222	682
April	81	.8	17.3	26.8	519	1,590
May	38	.8	9.40	14.5	291	894
June	30.5	1.2	7.08	11.0	212	652
Fiscal year 1938-39	139	.3	7.79	12.1	2,840	8,730

Haipuaena diversion ditch at Kolea Gulch, near Keanae

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

Records available.- March 1938 to June 1939.

Extremes.- Maximum discharge during year, 17.0 million gallons a day (26.3 second-feet) Oct. 15 (gage height, 1.93 feet); minimum, 0.95 million gallons a day (1.47 second-feet) Oct. 3.
1938-39: Maximum discharge, that of Oct. 15, 1938; minimum, 0.94 million gallons a day (1.45 second-feet) Mar. 1, 1938.

Remarks.- Records excellent except those for period when clock was not running, Feb. 9-20, which were computed on basis of records for station on Haipuaena Stream near Huelo and are fair. Haipuaena diversion 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.1	1.65	1.85	1.25	2.5	1.58	2.3	2.7	3.5	1.92	4.9	2.8
2	1.92	1.51	2.05	1.07	2.65	1.78	1.92	2.5	3.85	1.92	3.5	2.65
3	1.98	2.75	2.35	1.38	2.05	1.45	1.78	2.2	2.95	1.65	4.9	4.7
4	1.85	2.5	2.4	1.25	2.35	1.31	1.72	2.1	5.3	1.65	3.8	2.8
5	1.92	1.92	1.98	2.25	1.92	1.25	1.58	2.05	4.3	3.1	2.8	2.9
6	1.92	2.3	1.85	2.85	1.78	1.19	1.51	1.98	3.6	3.45	2.65	3.45
7	2.5	2.2	1.78	2.1	1.78	2.5	5.8	4.0	3.05	3.0	2.4	3.6
8	2.1	1.98	1.78	2.85	1.65	5.1	3.05	2.7	3.5	2.35	2.3	2.4
9	1.55	2.85	1.58	2.65	1.85	5.1	3.95	2.2	3.3	2.3	2.3	2.35
10	1.72	2.6	2.5	3.55	1.72	4.2	5.1	2.5	2.65	4.4	2.2	2.2
11	1.98	3.05	4.5	2.6	2.65	2.8	3.6	2.3	2.6	2.45	2.05	2.35
12	2.1	2.35	2.2	3.35	3.5	2.95	3.75	2.1	2.65	2.3	1.92	3.15
13	2.65	2.4	1.92	2.6	3.1	2.4	4.6	2.0	2.6	2.1	1.85	2.8
14	2.35	2.2	1.85	2.2	2.9	2.05	2.65	1.8	2.2	2.6	1.85	2.3
15	2.8	2.2	1.72	4.9	4.5	1.92	5.5	2.1	2.1	5.7	2.25	2.5
16	2.35	2.3	1.72	2.65	3.5	3.15	7.0	3.0	2.05	4.0	5.4	4.3
17	2.7	2.5	2.05	4.0	2.65	2.35	3.35	4.0	1.98	6.4	3.8	3.5
18	2.35	5.4	1.85	2.9	2.3	2.5	3.9	2.5	1.92	6.5	4.7	2.35
19	1.98	5.5	3.2	2.35	2.1	3.7	2.9	2.1	1.85	4.5	5.0	2.3
20	2.95	3.3	2.3	2.1	2.05	4.4	3.65	2.2	1.85	5.0	3.2	2.05
21	3.3	3.2	1.92	1.98	1.92	2.65	2.65	2.5	1.92	4.8	3.35	1.92
22	2.4	2.5	1.98	1.92	1.78	2.4	3.2	1.98	1.92	5.0	2.6	3.25
23	2.05	2.45	2.05	1.85	1.72	2.2	2.7	1.92	1.98	5.2	2.3	2.85
24	1.92	4.6	1.78	1.72	1.58	2.05	3.35	3.55	1.92	5.8	2.1	2.2
25	1.78	2.95	1.65	1.78	1.45	2.3	2.6	4.5	3.05	3.05	2.4	2.2
26	1.72	2.4	1.58	1.78	1.58	1.98	6.1	3.5	2.3	2.6	2.2	2.5
27	1.78	2.1	1.38	1.58	1.38	1.85	5.0	7.8	2.05	2.35	1.98	2.2
28	1.92	2.05	1.31	1.98	1.38	1.92	2.9	4.6	2.5	2.2	1.92	1.78
29	1.72	1.92	1.19	3.25	3.25	2.2	2.6	-	3.2	2.95	2.75	2.4
30	2.2	1.92	1.51	3.45	1.92	1.92	2.7	-	2.35	3.55	3.1	2.3
31	1.98	1.85	-	2.05	-	2.55	2.8	-	2.05	-	3.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.3	1.72	2.16	3.34	66.8	205
August	5.5	1.51	2.63	4.07	81.4	250
September	4.5	1.19	1.99	3.08	59.8	183
October	4.9	1.07	2.39	3.70	74.2	228
November	4.5	1.38	2.25	3.48	67.5	207
December	5.1	1.19	2.51	3.88	77.7	238
Calendar year	-	-	-	-	-	-
January	7.0	1.51	3.43	5.31	106	327
February	7.8	1.8	2.84	4.39	79.4	244
March	5.3	1.85	2.68	4.15	83.0	255
April	6.5	1.85	3.51	5.43	105	323
May	5.4	1.85	2.95	4.58	91.8	282
June	4.7	1.78	2.70	4.18	81.0	249
Fiscal year 1938-39	7.8	1.07	2.67	4.13	974	2,990

Spreckels ditch at Haipuaena weir, near Huelo

Location.- Sharp-crested weir, lat. 20°51'20", long. 156°11'25", on Spreckels ditch trail between Haipuaena and Puohokamoa Streams, 3½ miles southeast of Kailua and 5.1 miles southeast of Huelo.

Records available.- April 1922 to June 1939. February 1930 to October 1935 at site 100 feet upstream.

Average discharge.- 16 years (1922-29, 1930-39), 15.0 million gallons a day (23.2 second-feet).

Extremes.- Maximum discharge during year, 67 million gallons a day (104 second-feet) Mar. 4 (gage height, 1.93 feet); minimum, 0.16 million gallons a day (0.25 second-foot) Oct. 2, 3.

1922-39: 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 except those for periods of missing gage heights, Aug. 1-10, June 22-30, which were computed on basis of records for stations on all nearby streams and are poor. Regulated by gates and spillways. Spreckels ditch diverts 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 ditch to East Maui Irrigation Co.'s hydroelectric plant at Kolea Gulch. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.6	4.0	3.25	0.28	11.4	1.63	10.5	16.3	25	5.2	42	14.7
2	4.3	3.5	6.8	.18	14.2	5.6	3.95	13.2	27	3.95	26	18.0
3	4.9	12	13.4	.66	3.95	.73	2.45	7.S	20	2.95	42	38.5
4	2.3	16	15.6	.2S	9.6	.25	1.63	5.4	31	3.6	30	18.6
5	3.8	10	6.2	10.S	2.55	.22	.94	3.95	32.5	21	1S.4	1S.5
6	3.15	6.0	2.95	18.1	1.40	.25	.66	3.55	26.5	24.5	15.6	24.5
7	14.3	4.0	3.2	8.6	1.30	15.3	44	29	21.5	19.0	10.4	28
8	6.7	3.5	3.45	19.0	.84	37	17.4	14.2	26	13.6	7.S	10.0
9	2.55	10	1.30	17.8	3.6	43	28	6.7	22.5	10.2	7.1	10.2
10	2.45	20	11.5	27	1.32	35	45	9.9	14.8	36	7.8	7.6
11	4.S	23	35	17.1	16.5	19.4	28	S.0	15.2	11.8	4.3	12.8
12	8.2	12.4	8.9	19.4	27.5	21	30.5	5.2	19.2	10.4	3.1	24.5
13	17.7	14.0	3.95	12.9	23.5	13.2	39	3.25	13.6	8.5	2.45	20.5
14	9.4	13.0	2.55	6.S	18.5	6.2	42	2.85	8.5	15.7	1.98	12.8
15	19.4	11.5	1.86	34.5	36.5	3.95	48	7.0	S.9	47	11.0	1S.0
16	10.6	14.8	1.63	14.9	25.5	20.5	57	14.1	6.7	31	48	34
17	17.2	17.4	7.3	34	13.5	14.2	27	31.5	5.8	4S	30	29
18	10.2	43	4.5	1S.4	6.7	13.3	31.5	9.2	4.5	51	39	15.6
19	4.1	45	20	9.0	4.3	27.5	19.6	4.9	3.4	39	45	12.4
20	15.7	25.5	9.S	5.6	3.25	40	29.5	7.7	3.55	45	23	9.5
21	26.5	25	4.4	3.95	2.3	17.6	14.0	12.9	4.7	39.5	25	5.S
22	11.S	16.0	4.6	2.95	1.40	14.0	23.5	3.95	5.9	42	15.6	S.0
23	5.8	11.4	7.4	2.1	.73	7.8	17.2	3.4	5.6	42	9.2	16
24	4.5	31.5	2.55	1.20	.44	5.8	24	24.5	7.3	49	6.7	7.0
25	2.95	17.2	1.52	1.30	.72	10.8	12.1	35.5	25.5	21.5	14.4	6.0
26	•3.1	13.7	.94	1.9S	1.10	6.6	48	27.5	11.4	15.6	7.8	6.0
27	1.98	S.S	.39	.49	.49	4.5	40	48	7.4	10.5	4.9	5.0
28	5.4	7.6	.22	6.S	.96	6.5	18.0	36	13.3	8.2	3.S	4.0
29	2.85	5.2	.20	20	24	8.2	14.0	-	24	18.6	13.S	6.0
30	10.1	3.95	2.25	23	5.1	3.6	15.9	-	12.9	26.5	23	5.4
31	6.1	3.25	-	5.6	-	11.S	16.0	-	7.1	-	23.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	26.5	1.9S	S.14	12.6	252	775
August	45	3.25	14.5	22.6	452	1,390
September	35	.20	6.25	9.67	188	576
October	34.5	.1S	11.1	17.2	345	1,060
November	36.5	.44	8.77	13.6	263	S08
December	43	.22	13.4	20.7	415	1,270
Calendar year 193S	71	.18	14.5	22.4	5,280	16,210
January	57	.66	24.2	37.4	749	2,300
February	4S	2.85	14.1	21.8	395	1,210
March	32.5	3.4	14.9	23.1	461	1,420
April	51	2.95	24.0	37.1	721	2,210
May	4S	1.98	18.1	28.0	563	1,730
June	38.5	4.0	14.9	23.1	447	1,370
Fiscal year 193S-39	57	.1S	14.4	22.3	5,250	16,120

Koolau ditch at Haipuaena, near Huelo

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

Records available.- April 1932 to June 1939.

Extremes.- Maximum discharge during year, 203 million gallons a day (314 second-feet) Apr. 5 (gage height, 4.98 feet); minimum, 28.5 million gallons a day (44.1 second-feet) Oct. 2.
1932-39: Maximum discharge, that of Apr. 5, 1939; no flow at times, when water was shut out of ditch.

Remarks.- Records excellent. Flow regulated by flood gates. No diversions. Water used for domestic supply and irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	74	44	46	325	94	46	85	113	162	59	169	102
2	59	39	52	295	113	63	59	113	169	55	162	108
3	59	117	84	34	63	44	55	94	155	52	176	156
4	52	92	90	325	106	41	52	80	149	58	162	113
5	52	48	50	80	63	39	50	72	169	155	137	125
6	48	63	44	122	52	39	48	72	162	147	113	137
7	84	52	42	59	55	88	160	132	155	126	99	149
8	52	52	39	75	48	139	139	124	169	107	85	89
9	46	82	37	81	55	176	126	85	155	104	80	89
10	48	81	56	138	50	169	183	85	131	176	76	76
11	52	122	156	102	122	125	162	76	125	95	67	89
12	50	67	55	92	155	131	155	67	137	99	63	132
13	84	82	44	87	149	99	183	59	103	76	59	137
14	59	76	41	55	131	72	176	59	89	107	55	89
15	115	67	39	133	176	63	183	72	85	168	82	113
16	67	76	37	94	155	129	183	92	85	169	183	155
17	94	85	54	108	103	89	155	152	80	183	155	149
18	63	162	44	118	80	80	155	76	72	183	169	103
19	60	176	125	72	67	117	131	63	67	176	176	85
20	76	143	61	59	63	176	162	69	63	183	149	76
21	150	143	46	52	59	143	108	85	63	183	155	67
22	80	89	48	52	52	131	142	55	72	176	113	113
23	59	82	62	46	50	103	119	55	59	176	85	111
24	55	149	42	42	46	85	155	142	67	176	76	67
25	50	143	39	42	48	106	103	155	143	149	98	67
26	48	85	37	44	46	89	173	149	76	125	72	72
27	44	67	355	37	42	80	176	170	67	103	63	55
28	54	63	325	58	42	93	149	162	93	89	59	55
29	44	55	325	93	123	76	137	-	137	124	98	72
30	55	52	34	123	55	63	137	-	89	125	125	72
31	71	48	-	63	-	93	137	-	63	-	130	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	150	44	64.3	99.5	1,990	6,120
August	176	39	87.2	135	2,700	8,290
September	156	32.5	53.5	82.8	1,600	4,920
October	138	29.5	72.8	113	2,260	6,920
November	176	42	82.1	127	2,460	7,560
December	176	39	96.4	149	2,990	9,170
Calendar year 1938	183	29.5	92.5	143	33,760	103,600
January	183	48	133	206	4,140	12,700
February	170	55	97.4	151	2,730	8,370
March	169	59	110	170	3,410	10,470
April	183	52	130	201	3,900	11,980
May	183	55	113	175	3,490	10,710
June	156	55	101	156	3,020	9,280
Fiscal year 1938-39	183	29.5	95.1	147	34,690	106,500

Puohokamoa Stream near Huelo

Location.- Masonry dam control, lat. 20°51'20", long. 156°11'25", just upstream from Spreckels ditch inflow and trail crossing, 3 miles southeast of Kailua, and 4.4 miles (revised) southeast of Huelo.

Drainage area.- 2.6 square miles.

Records available.- December 1910 to June 1939.

Average discharge.- 22 years (1917-39), 22.0 million gallons a day (34.0 second-feet).

Extremes.- Maximum discharge during year, 1,160 million gallons a day (1,790 second-feet) Aug. 24 (gage height, 6.62 feet), from rating curve extended above 400 million gallons a day; minimum, 2.5 million gallons a day (3.9 second-feet) Oct. 2, 3.
1910-39: Maximum discharge, 1,430 million gallons a day (2,210 second-feet) Apr. 7, 1938 (gage height, 7.54 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, former site and datum.

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 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.8	2.6	1.2	15.5	2.1	100	3.5	340	5.0	675
.9	4.6	1.5	36	2.5	165	4.0	440		
1.0	7.5	1.8	63	3.0	252	4.5	550		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.9	4.4	6.0	3.2	11.9	4.2	11.5	12.9	36	6.6	76	17.9
2	6.3	4.0	8.6	2.8	13.4	6.0	6.0	11.1	39.5	5.8	35	18.0
3	6.6	25	13.0	3.6	5.5	3.6	4.9	8.2	22.5	5.2	71	79
4	5.5	16.2	14.2	3.2	7.0	3.2	4.4	6.9	153	8.3	41	19.8
5	6.3	6.0	6.9	16.7	4.2	3.2	4.2	6.3	54	25	19.4	19.0
6	5.8	10.2	5.5	19.4	4.0	3.2	4.0	5.8	32.5	23	15.1	30
7	11.1	9.6	4.9	8.2	3.8	13.6	118	70	24.5	17.6	12.0	36.5
8	7.2	6.3	4.4	16.7	3.8	90	21	14.6	38.5	13.3	9.7	12.4
9	4.9	39	4.2	13.7	4.9	118	44	8.2	27.5	8.9	9.7	12.4
10	4.9	13.0	16.3	34	3.8	47	57	11.1	17.7	64	9.3	9.7
11	6.0	25	57	14.1	14.3	20	31.5	8.9	16.6	12.4	6.9	13.0
12	8.2	10.7	8.6	45	31.5	18.8	35.5	6.9	21.5	10.4	6.3	30
13	14.6	12.4	5.8	12.4	22.5	12.9	47	5.8	15.1	8.9	5.8	24
14	8.9	10.7	4.9	7.5	16.6	8.2	54	5.5	10.7	15.0	5.2	12.4
15	19.9	9.4	4.4	*89	47	6.9	80	7.2	10.0	102	13.1	18.0
16	9.8	11.1	4.4	14.6	26.5	26.5	187	13.5	8.6	45	86	74
17	16.5	14.2	7.5	39.5	12.0	13.7	33	46	7.9	139	43	42
18	10.0	95	5.5	18.1	7.5	12.4	44	9.3	7.2	181	64	15.1
19	6.0	100	32.5	9.3	6.0	37.5	19.9	6.6	6.6	53	74	12.0
20	38	28	9.0	7.2	5.5	64	39.5	8.1	6.6	63	26.5	10.4
21	34	26.5	5.8	6.6	4.9	17.2	14.6	13.5	6.9	61	29.5	8.2
22	12.0	13.7	6.0	5.8	4.4	14.2	29	6.0	6.6	83	15.5	25.5
23	7.5	13.1	7.2	5.2	4.0	9.3	16.6	5.8	6.6	91	10.7	20.5
24	6.6	96	4.6	4.6	3.8	7.5	24.5	35.5	6.9	140	8.9	9.7
25	5.5	26	4.2	4.9	3.8	12.7	12.9	63	24.5	28	14.2	9.3
26	5.5	13.3	4.0	4.6	3.8	7.5	78	33	10.0	17.2	9.7	10.4
27	4.9	10.0	3.6	3.8	3.6	6.6	68	324	7.5	13.3	7.2	9.3
28	6.3	9.3	3.4	6.1	3.6	6.9	16.6	87	15.0	11.1	6.3	6.3
29	4.9	7.2	3.2	23.5	29	13.2	12.9	-	29	23.5	16.8	14.7
30	11.5	6.3	3.6	32	6.6	6.9	15.2	-	12.4	41	25	11.1
31	7.2	6.0	-	6.3	-	15.4	13.3	-	7.5	-	28.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	38	4.9	10.0	15.5	311	955
August	100	4.0	21.9	33.9	678	2,080
September	57	3.2	8.97	13.9	269	826
October	89	2.8	15.5	24.0	482	1,480
November	47	3.6	10.6	16.4	319	980
December	118	3.2	20.3	31.4	630	1,930
Calendar year 1938	570	2.8	26.6	41.2	9,710	29,800
January	187	4.0	37.0	57.2	1,150	3,520
February	324	5.5	30.0	46.4	841	2,580
March	153	6.6	22.2	34.3	689	2,120
April	181	5.2	43.9	67.9	1,320	4,040
May	86	5.2	25.8	39.9	801	2,460
June	79	6.3	21.0	32.5	631	1,940
Fiscal year 1938-39	324	2.8	22.2	34.3	8,120	24,910

*Partly estimated.

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 1939.

Average discharge.- 20 years (1918-24, 1925-39), 6.09 million gallons a day (9.42 second-feet).

Extremes.- Maximum discharge during year, 69 million gallons a day (107 second-feet) Jan. 7 (gage height, 3.12 feet); minimum, 0.38 million gallons a day (0.59 second-foot) Oct. 1-3.

1917-39: 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 submerged orifice formulas; no flow Jan. 8, 1937.

Remarks.- Records good except those for periods of missing gage heights, Oct. 3, 4, 7-17, Oct. 26 to Dec. 10, which were computed on basis of records for stations on Spreckels and Lowrie ditches and are fair. 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.0	0.67	0.79	0.38	1.9	0.8	1.68	3.9	15.0	0.91	26.5	1.30
2	.91	.62	.91	.38	2.7	1.1	1.22	3.15	12.5	.79	4.8	1.86
3	.85	4.9	1.78	.38	1.2	.9	1.06	1.86	7.1	.79	26.5	21.5
4	.73	2.95	2.7	.56	1.6	.8	.99	1.60	29	1.45	8.8	2.15
5	.73	.79	.85	*7.8	1.1	.7	.99	1.45	8.3	5.8	3.1	2.15
6	.67	1.26	.73	1.68	.9	.7	.91	1.60	3.4	3.0	2.5	5.1
7	1.68	1.22	.91	1.4	.8	3.1	36.5	17.5	1.96	2.35	1.86	8.0
8	.79	1.06	.67	4.8	.7	9.6	4.6	4.0	3.45	2.9	1.45	1.45
9	.56	3.8	.67	4.2	1.1	28	15.3	2.3	3.95	1.30	1.22	1.92
10	.56	1.06	1.78	9.6	.9	17	20	2.8	3.3	11.5	1.06	1.06
11	.67	1.68	17.3	3.9	3.6	2.15	5.5	2.05	3.1	1.54	.91	1.86
12	1.07	.79	1.06	4.9	10	2.4	15.2	1.77	5.7	1.22	.85	9.3
13	3.15	1.38	.73	2.3	7.0	1.53	13.4	1.45	2.8	1.06	.79	4.5
14	1.22	2.45	.67	1.2	4.5	1.14	16.8	1.30	1.77	2.25	.73	3.0
15	3.15	1.06	.67	17	19	.99	27.5	1.78	1.98	25.5	3.6	5.8
16	1.14	1.53	.62	3.0	8.4	3.25	57	3.9	1.37	6.9	34	23.5
17	1.96	2.6	.85	16	2.5	1.86	9.9	16.9	1.14	24.5	13.9	11.4
18	1.57	35.5	.73	6.0	1.7	1.53	14.8	2.15	.91	41	18.0	4.1
19	.73	32.5	3.5	2.5	1.4	11.4	3.9	1.45	.85	14.6	25.5	3.0
20	9.2	3.5	1.10	1.86	1.1	24.5	9.9	2.2	.85	28	4.8	2.05
21	11.2	2.3	.73	1.60	1.0	3.7	2.6	2.6	.91	15.2	4.3	1.60
22	1.84	1.96	.67	1.37	.9	2.9	8.1	1.22	.73	30	2.9	3.6
23	1.06	1.53	.99	1.22	.8	1.86	3.9	1.06	.73	23.5	1.68	3.1
24	1.06	14.4	.67	1.06	.8	1.77	6.8	5.5	1.05	37	1.30	1.53
25	.85	6.7	.62	.91	.8	3.0	2.3	19.7	9.6	2.4	2.7	1.60
26	.79	2.15	.62	.8	.7	1.77	35	7.2	1.68	2.25	1.53	1.60
27	.73	1.53	.56	.7	.7	2.4	28	51	.91	1.60	1.14	1.37
28	1.14	1.37	.56	1.2	.7	2.4	3.55	30	2.2	1.30	.91	.91
29	.79	1.22	.56	5.3	7.6	2.6	2.6	-	3.1	3.3	1.41	2.05
30	1.46	1.06	.56	6.8	1.0	1.53	3.25	-	2.8	12.8	2.3	1.68
31	1.14	.91	-	1.1	-	2.15	5.4	-	1.06	-	4.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	11.2	0.56	1.79	2.77	55.4	170
August	35.5	.62	4.40	6.81	136	419
September	17.3	.56	1.82	2.35	45.6	140
October	17	.38	3.61	5.59	112	343
November	19	.7	2.90	4.49	87.1	267
December	28	.7	4.50	6.96	140	428
Calendar year 1938	68	.38	5.95	9.21	2,170	6,660
January	57	.91	11.6	17.9	359	1,100
February	51	1.06	6.91	10.7	193	593
March	29	.73	4.30	6.65	133	409
April	41	.79	10.2	15.8	307	941
May	34	.73	6.62	10.2	205	630
June	23.5	.91	4.47	6.92	134	411
Fiscal year 1938-39	57	.38	5.23	8.09	1,910	5,850

*Partly estimated.

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Spreckels ditch at Wahinepee, near Huelo

Location.- Parshall flume, lat. 20°51'25", long. 156°11'20", between Puohokamoa and Alo Streams, 700 feet downstream from intake from Puohokamoa Stream, 2½ miles west of Keanae, and 4.4 miles southeast of Huelo.

Records available.- August 1928 to December 1938 (discontinued).

Extremes.- Maximum discharge during period, 122 million gallons a day (189 second-feet) Aug. 24 (gage height, 3.63 feet); no flow at times owing to regulation.
1928-38: Maximum discharge, 126 million gallons a day (195 second-feet) Dec. 29, 1936 (gage height, 3.71 feet); no flow at times owing to regulation.

Remarks.- Records good. Intake of Spreckels ditch is on Puohokamoa Stream just below intake of Koolau ditch, and for ordinary stages it takes all water which passes Koolau ditch intake. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.29	0.09	0.06	0.28	4.1	0.01						
2	.13	.06	.03	.28	1.00	.09						
3	.13	9.2	.59	.33	.13	0						
4	.09	1.53	.53	.33	.43	0						
5	.09	.09	.13	7.4	.13	0						
6	.13	.18	.13	3.65	.09	0						
7	.22	.17	.17	.44	.13	.33						
8	.13	.13	.06	1.25	.13	33						
9	.09	12.0	.03	.46	.24	-						
10	.09	.31	.28	15.3	.13	-						
11	.13	4.4	33.5	.70	.75	-						
12	.17	.1	.17	15.6	16.4	-						
13	.60	.37	.13	.43	3.15	-						
14	.17	.22	.13	.09	1.79	-						
15	1.86	.13	.09	33	28.5	-						
16	.18	.22	.09	.36	4.2	-						
17	.71	.69	.09	26	.25	-						
18	.28	46	.13	1.75	.06	-						
19	.09	47	14.0	.09	.03	-						
20	11.3	5.7	.40	.01	.03	-						
21	18.0	5.4	.33	.01	.01	-						
22	.29	.28	.33	0	0	-						
23	.13	2.45	.33	0	0	-						
24	.13	19.3	.28	0	0	-						
25	.13	7.6	.28	0	0	-						
26	.09	.28	.28	.01	0	-						
27	.09	.17	.28	0	.01	-						
28	.09	.13	.28	.03	.09	-						
29	.09	.09	.28	8.9	11.3	-						
30	.33	.09	.28	14.8	.06	-						
31	.13	.06	-	.09	-	-						

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	18.0	0.09	1.17	1.81	36.4	112
August	47	.06	5.30	8.20	164	505
September	33.5	.03	1.79	2.77	53.7	165
October	33	0	4.24	6.56	132	404
November	28.5	0	2.44	3.78	73.1	224
December 1-8	33	0	4.18	6.47	33.4	103
The period	-	-	-	-	-	1,510

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.
Drainage area.- 4.4 square miles.
Records available.- January 1922 to June 1939.
Average discharge.- 17 years (1922-39), 16.6 million gallons a day (25.7 second-feet).
Extremes.- Maximum discharge during year, 1,800 million gallons a day (2,790 second-feet) Feb. 27 (gage height, 6.96 feet), from rating curve extended above 370 million gallons a day; minimum, 0.87 million gallons a day (1.35 second-feet) probably Oct. 2-4.
1922-39: Maximum discharge, 4,660 million gallons a day (7,210 second-feet) Oct. 16, 1924 (gage height, 10.45 feet), from rating curve extended above 370 million gallons a day; minimum, 0.4 million gallons a day (0.6 second-foot) Nov. 16, 1929.
Remarks.- Records excellent except those for period when clock was not running, Aug. 29 to Oct. 14, which were computed on basis of records for stations on Alo, Kaalea, and Oopuola Stream and are fair. Haleakala ranch and Kula pipe lines divert small quantities of water above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.76	1.8	14.5	3.6	195
1.0	1.12	2.0	23	4.0	277
1.2	2.25	2.4	46	4.5	410
1.4	4.5	2.8	80		
1.6	8.7	3.2	129		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.95	2.1	3.0	1.6	5.1	2.35	8.6	9.0	18.4	3.15	59	10.4
2	2.9	1.66	2.8	1.5	10.5	2.9	3.4	8.0	25	2.8	21	10.3
3	2.95	9.6	14	2.4	3.8	1.66	2.7	4.9	16.8	2.45	51	58
4	2.5	7.6	15	1.8	3.25	1.46	2.35	3.8	107	4.1	30	12.7
5	2.5	3.05	4.0	11	2.2	1.41	2.05	3.15	39	19.2	12.0	10.4
6	2.6	4.2	2.6	12	1.86	1.31	1.92	3.05	28	32	8.2	21.5
7	4.3	4.5	2.8	4.5	1.92	5.3	118	50	12.6	17.0	7.1	30
8	3.3	3.15	2.5	8.5	1.62	73	21	14.1	18.6	7.8	5.1	7.8
9	2.2	52	2.0	7.0	2.45	92	43	5.3	19.2	4.7	4.5	6.4
10	2.05	11.4	8.0	15	1.86	31.5	64	5.6	8.7	66	4.7	5.8
11	2.5	14.4	20	7.0	5.6	13.5	28	4.5	9.0	9.9	3.7	6.4
12	3.5	5.4	2.5	20	16.7	13.5	28	4.1	10.2	6.6	3.05	19.8
13	6.9	5.4	1.5	7.0	12.1	9.2	48	3.05	9.8	5.3	2.8	16.0
14	5.0	5.1	1.3	4.0	8.4	4.9	64	2.8	5.6	9.1	2.5	8.0
15	9.9	4.4	1.2	70	42	3.55	69	3.3	4.7	99	5.0	10.0
16	5.0	5.1	1.0	11.6	21.5	17.3	197	5.8	3.95	34.5	62	49
17	8.1	6.7	1.5	14.8	9.3	10.4	25	48	3.55	150	35	34
18	6.0	86	1.6	11.0	4.7	9.7	37	7.0	3.55	174	55	10.0
19	3.85	97	10	4.9	3.4	26	13.3	3.8	2.95	45	62	8.7
20	13.3	21	2.7	3.55	2.9	51	23	3.65	3.05	50	16.5	6.4
21	18.6	16.0	2.0	2.95	2.5	9.6	8.7	7.9	3.55	45	19.0	4.9
22	6.2	7.8	1.9	2.5	2.1	7.3	13.8	3.7	3.05	66	8.7	12.1
23	3.7	6.9	3.3	2.2	1.92	4.9	10.9	2.95	3.3	77	6.4	10.1
24	3.05	79	1.6	1.92	1.66	3.95	18.3	19.7	3.05	118	4.7	5.1
25	2.6	16.6	1.6	1.99	1.66	4.7	9.0	43	10.4	16.7	6.8	5.0
26	2.5	8.5	1.5	2.1	1.86	3.95	143	28.5	6.4	10.0	5.1	7.3
27	2.2	5.4	1.4	1.60	1.80	3.3	93	313	3.8	7.1	3.7	7.5
28	2.8	4.5	1.4	2.3	1.55	3.15	13.0	62	6.6	5.8	3.05	3.95
29	2.35	4.0	1.6	15.3	16.5	8.3	8.0	-	15.1	10.2	10.8	7.6
30	5.0	3.5	1.6	30	4.3	3.8	8.2	-	7.6	25.5	17.6	6.6
31	4.0	3.2	-	4.2	-	8.6	7.6	-	4.1	-	22.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	18.6	2.05	4.72	7.30	146	449
August	97	1.66	16.3	25.2	505	1,550
September	20	1.0	3.93	6.08	118	362
October	70	1.5	9.23	14.3	286	878
November	42	1.55	6.57	10.2	197	605
December	92	1.31	14.0	21.7	434	1,330
Calendar year 1938	1,180	1.0	23.9	37.0	8,720	26,750
January	197	1.92	36.5	56.5	1,130	3,480
February	313	2.8	24.1	37.3	674	2,070
March	107	2.95	13.4	20.7	417	1,280
April	174	2.45	37.5	58.0	1,120	3,450
May	62	2.5	18.0	27.9	558	1,710
June	58	3.95	13.7	21.2	412	1,260
Fiscal year 1938-39	313	1.0	16.4	25.4	6,000	18,420

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.

Drainage area.- 0.2 square mile.

Records available.- December 1910 to June 1939.

Average discharge.- 28 years (1911-39), 5.09 million gallons a day (7.88 second-feet).

Extremes.- Maximum discharge during year, 311 million gallons a day (481 second-feet) Aug. 24, Mar. 4 (gage height, 3.40 feet), from rating curve extended above 50 million gallons a day; minimum, 0.42 million gallons a day (0.65 second-foot) Oct. 2, 3. 1910-39: Maximum discharge, 1,600 million gallons a day (2,480 second-feet) Nov. 18, 1930 (gage height, 6.90 feet), from rating curve extended above 15 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Nov. 22, 23, 1932.

Remarks.- Records good except those for periods of missing gage heights, Oct. 12-14, May 18 to June 10, 27-30, which were computed on basis of records for stations on nearby streams and are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.35	1.0	3.5	1.6	24
.6	.60	1.2	7.4	1.9	46
.8	1.55	1.4	13.8		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.8	.84	.92	.48	3.75	.83	1.57	3.35	15.4	1.22	15.8	1.9
2	1.28	.72	1.28	.45	2.3	2.85	1.16	2.65	11.1	1.00	7.0	2.5
3	1.22	6.2	4.9	.64	1.22	.84	.96	1.70	7.5	.92	15.2	11
4	.96	4.7	4.4	.50	3.45	.72	.92	1.44	42	3.75	7.7	3.2
5	.88	1.16	1.16	5.4	1.06	.64	.84	1.28	13.7	6.8	3.65	4.0
6	.88	2.7	.96	3.3	.92	.72	.80	1.33	6.9	3.25	2.9	6.0
7	2.45	1.74	.92	1.50	.92	5.0	21	22.5	5.0	3.65	2.1	5.4
8	.88	1.71	.76	2.8	.99	10.2	3.6	2.8	6.3	4.3	1.55	2.1
9	.72	1.51	.72	1.56	2.55	17.8	7.2	1.78	3.7	1.50	1.50	2.8
10	.76	1.16	2.35	7.6	1.00	8.3	8.2	3.35	4.2	13.6	1.33	1.8
11	1.07	4.4	9.6	2.1	7.0	3.2	5.6	2.0	3.45	2.55	1.11	2.9
12	1.33	1.66	1.22	15	10.8	4.2	11.0	1.50	7.7	2.6	.96	10.2
13	4.6	3.6	.92	2.5	8.2	2.3	8.9	1.16	2.65	1.72	.88	7.2
14	1.62	3.65	.84	1.5	6.2	1.50	7.7	1.11	2.0	2.8	.84	4.0
15	6.1	2.85	.76	27	9.3	1.28	14.4	2.45	2.8	8.4	4.4	6.6
16	1.50	3.9	.72	3.25	6.3	5.9	30	5.6	1.70	6.0	17.3	18.2
17	3.3	5.9	1.49	18.6	2.65	2.5	9.9	10.3	1.38	10.6	7.9	9.0
18	2.2	22.5	.92	5.4	1.92	1.85	10.1	2.5	1.22	27	9.0	4.5
19	1.16	16.6	5.0	2.2	1.50	9.5	5.3	1.55	1.06	9.8	11	3.25
20	6.2	5.2	1.32	1.62	1.33	15.8	10.2	2.8	1.28	14.6	4.5	2.3
21	15.8	5.8	1.13	1.38	1.16	5.3	3.15	3.35	1.16	13.7	5.0	1.85
22	2.6	3.3	.92	1.16	1.06	3.7	12.0	1.33	.92	12.9	3.0	3.15
23	1.55	2.8	1.70	1.00	.92	2.1	6.3	1.16	.84	7.6	1.8	3.4
24	1.50	24	.80	.88	.84	1.88	7.4	4.7	1.61	11.2	1.6	1.78
25	1.16	5.8	.68	.84	.80	2.9	2.9	7.9	11.9	3.85	3.5	1.44
26	1.06	2.65	.60	1.14	.76	1.62	8.4	7.3	1.97	2.65	1.8	1.33
27	.92	2.0	.58	.72	.72	1.86	12.3	43	1.28	2.1	1.2	1.2
28	1.50	1.78	.55	1.86	.68	1.73	4.5	28	3.65	1.70	1.1	1.1
29	1.06	1.38	.52	5.4	6.4	8.5	2.9	-	4.6	6.3	1.8	2.4
30	1.88	1.16	.50	3.85	1.05	1.78	3.75	-	2.9	7.1	4.0	2.0
31	1.29	1.06	-	1.46	-	1.97	3.35	-	1.38	-	5.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.8	0.72	2.36	3.65	73.2	225
August	24	.72	4.66	7.21	144	443
September	9.6	.50	1.64	2.54	49.1	151
October	27	.45	3.97	6.14	123	378
November	10.8	.68	2.92	4.52	87.8	269
December	17.8	.64	4.17	6.45	129	397
Calendar year 1938	105	.45	5.70	8.82	2,080	6,400
January	30	.80	7.30	11.3	226	694
February	43	1.11	6.07	9.39	170	521
March	42	.84	5.59	8.65	173	532
April	27	.92	6.51	10.1	195	599
May	17.3	.84	4.72	7.30	146	449
June	18.2	1.1	4.28	6.62	128	394
Fiscal year 1938-39	43	.45	4.51	6.98	1,640	5,050

Kaaiea Stream near Huelo

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

Drainage area.- 0.5 square mile.

Records available.- December 1921 to June 1939.

Average discharge.- 17 years (1922-39), 4.93 million gallons a day (7.63 second-feet).

Extremes.- Maximum discharge during year, 377 million gallons a day (583 second-feet) Mar. 4 (gage height, 3.83 feet), from rating curve extended above 130 million gallons a day; minimum, 0.44 million gallons a day (0.68 second-foot) Oct. 2.
1921-39: Maximum discharge, 2,300 million gallons a day (3,560 second-feet) Nov. 18, 1930 (gage height, 7.93 feet, former site and datum), from rating curve extended above 50 million gallons a day; minimum, 0.3 million gallons a day (0.5 second-foot) July 17, 1922, Mar. 22, 1927, Nov. 16, 1929, Oct. 26, 1933.

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

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.26	0.5	2.4	0.8	8.7	1.3	30.5
.3	.60	.6	4.0	.9	11.5	1.6	49
.4	1.30	.7	6.1	1.0	15.2	2.0	79

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.95	.81	.81	.52	4.2	.75	1.78	2.6	13.4	1.20	16.4	1.68
2	1.30	.70	1.30	.48	2.4	3.9	1.12	2.35	11.2	.95	7.2	2.4
3	1.20	6.5	5.0	.65	1.12	.81	.95	1.47	6.2	.81	15.3	11.8
4	.95	4.1	4.3	.56	1.88	.70	.88	1.30	43	3.35	8.0	3.1
5	.88	1.20	1.20	5.6	.95	.60	.75	1.12	13.6	6.4	3.3	3.75
6	.88	2.9	.95	3.9	.75	.65	.75	1.12	6.5	3.5	2.55	6.0
7	2.0	1.91	.95	1.63	.75	6.0	21.5	24.5	4.6	3.85	1.80	5.6
8	.81	1.68	.81	3.0	.75	12.3	3.6	2.85	6.9	5.3	1.47	1.91
9	.70	2.85	.75	2.15	1.97	18.4	7.2	1.68	3.8	1.58	1.30	2.7
10	.70	1.47	2.55	9.1	.95	8.0	8.5	3.35	3.4	14.7	1.20	1.58
11	.95	5.1	11.6	2.65	6.2	2.8	5.5	1.91	3.15	2.4	1.04	2.7
12	1.27	1.90	1.47	16.3	10.3	3.9	9.3	1.47	6.3	2.15	.88	9.7
13	3.85	3.7	1.12	2.8	7.5	2.4	8.6	1.12	2.95	1.47	.81	7.2
14	1.61	3.15	.95	1.58	6.2	1.47	7.8	1.12	1.91	2.65	.75	3.65
15	6.2	2.7	.88	31.5	9.0	1.12	14.7	2.15	1.80	10.0	3.7	6.2
16	1.70	3.3	.75	3.3	5.4	6.0	31.5	4.8	1.47	6.4	17.5	19.2
17	3.5	5.2	1.77	9.3	2.4	2.4	11.1	10.8	1.30	11.0	7.2	8.4
18	2.1	21.5	1.12	4.8	1.58	1.80	9.6	2.4	1.12	29	8.4	3.8
19	1.12	19.8	7.0	2.0	1.30	9.5	4.3	1.47	1.04	9.1	12.0	2.8
20	8.6	4.8	1.72	1.47	1.12	14.9	11.1	2.7	1.19	14.3	4.6	2.15
21	14.3	5.6	1.20	1.20	1.04	4.2	3.0	3.0	1.20	5.4	5.5	1.58
22	2.55	2.7	1.12	1.04	.88	3.3	11.7	1.30	.95	14.5	2.8	3.05
23	1.58	2.65	1.83	.88	.75	1.91	5.0	1.12	.81	8.0	1.68	3.8
24	1.47	25.5	.88	.75	.70	1.47	8.1	5.8	1.12	13.8	1.39	1.68
25	1.12	5.5	.70	.81	.70	2.4	2.55	10.0	9.30	3.5	3.6	1.39
26	1.04	2.4	.65	.88	.70	1.47	8.0	5.8	2.0	2.4	1.68	1.20
27	.88	1.80	.65	.70	.60	1.39	11.9	51	1.30	1.80	1.12	1.04
28	1.30	1.47	.56	1.51	.60	1.39	4.0	24.5	3.95	1.58	.95	.95
29	1.12	1.20	.52	5.1	6.8	8.1	2.55	-	5.5	6.0	1.84	2.5
30	1.99	1.04	.56	4.2	1.12	1.80	2.7	-	2.7	6.9	4.1	2.15
31	1.47	.95	-	1.30	-	1.96	2.4	-	1.47	-	5.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.3	0.70	2.33	3.61	72.1	221
August	25.5	.70	4.71	7.29	146	448
September	11.6	.52	1.86	2.88	55.7	171
October	31.5	.48	3.92	6.07	122	373
November	10.3	.60	2.69	4.16	80.6	247
December	18.4	.60	4.12	6.37	128	392
Calendar year 1938	106	.48	5.45	8.43	1,990	6,110
January	31.5	.75	7.18	11.1	222	683
February	51	1.12	6.24	9.65	175	536
March	43	.81	5.33	8.25	165	507
April	29	.81	6.47	10.0	194	595
May	17.5	.75	4.70	7.27	146	447
June	19.2	.95	4.19	6.48	126	386
Fiscal year 1938-39	51	.48	4.47	6.92	1,630	5,010

Oopuola Stream near Huelo

Location.- Concrete weir control, lat. 20°52'15", long. 156°12'30", between Kaaiea and Naiiiilihaele 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 1939. December 1910 to June 1915, at site half a mile downstream; records not equivalent.

Extremes.- Maximum discharge during year, 273 million gallons a day (422 second-feet) Mar. 4 (gage height, 4.48 feet), from rating curve extended above 20 million gallons a day by tests on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) July 12, Sept. 17.

1930-39: 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 tests on model of station site; minimum, 0.09 million gallons a day (0.14 second-foot) Feb. 18, 19, 1936.

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

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.6	0.05	2.0	2.6	2.8	18.8
1.7	.22	2.2	5.8	2.8	30
1.8	.68	2.4	11.2		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.67	0.45	0.40	0.22	2.15	0.33	0.92	1.43	7.7	0.55	5.2	0.55
2	.74	.37	.40	.20	1.08	1.21	.60	1.32	5.9	.37	2.55	.74
3	.55	2.55	1.78	.33	.45	.37	.50	.74	3.6	.37	5.4	2.9
4	.40	2.25	1.38	.25	.83	.33	.45	.68	24.5	1.93	2.75	1.07
5	.33	.60	.50	2.05	.37	.33	.40	.60	5.4	2.95	1.48	1.40
6	.29	.85	.37	2.2	.29	.29	.40	.60	3.0	1.42	1.02	2.1
7	.74	.85	.45	.67	.25	1.38	6.0	13.3	1.78	1.59	.80	2.05
8	.29	1.02	.33	1.40	.24	3.0	1.69	1.44	2.0	2.5	.60	.74
9	.20	.60	.25	1.17	1.02	5.6	2.8	.80	2.45	.74	.55	1.25
10	.18	.50	.89	3.45	.37	3.0	2.9	1.70	1.40	6.7	.50	.80
11	.18	1.14	3.35	1.26	2.15	1.34	1.99	.95	1.38	1.19	.40	1.16
12	.30	.55	.37	4.7	3.5	1.86	3.7	.74	3.15	1.02	.37	4.2
13	1.43	1.32	.22	1.12	2.7	1.10	3.2	.55	1.19	.68	.37	3.05
14	.41	1.84	.20	.60	1.94	.68	3.85	.50	.80	1.15	.33	1.97
15	1.89	.87	.18	12.8	3.0	.55	4.7	1.21	.80	3.15	.99	3.5
16	.45	1.44	.15	1.74	2.25	2.5	9.1	2.4	.60	2.95	6.5	6.6
17	.63	2.35	.20	3.15	.87	1.10	4.8	4.0	.55	4.7	2.8	2.95
18	.64	9.1	.22	1.86	.55	.80	4.2	1.19	.45	10.1	3.7	1.88
19	.29	7.1	1.40	.80	.45	2.6	2.1	.87	.40	3.65	4.4	1.38
20	1.32	2.1	.38	.68	.40	6.7	3.9	1.15	.60	5.7	1.99	.95
21	6.7	1.75	.25	.55	.37	2.1	1.28	1.43	.55	4.9	1.79	.74
22	.85	1.19	.25	.50	.33	1.64	4.4	.68	.40	4.9	1.12	.74
23	.50	.95	.44	.40	.33	.55	2.55	.55	.37	2.1	.68	.74
24	.50	12.8	.22	.33	.29	.68	4.0	1.11	.47	3.75	.50	.55
25	.40	2.5	.22	.33	.29	1.07	1.38	2.4	4.6	1.19	1.40	.55
26	.40	1.02	.20	.33	.29	.74	2.45	2.2	.85	.87	.68	.45
27	.33	.74	.20	.33	.29	.68	6.9	16.6	.50	.68	.50	.40
28	.45	.68	.20	.64	.29	.68	2.7	13.0	1.79	.55	.40	.37
29	.45	.55	.22	2.1	2.1	7.6	1.48	-	1.79	2.55	.45	.94
30	.80	.50	.22	2.0	.50	.95	1.59	-	1.13	2.3	.95	.68
31	.96	.40	-	.60	-	1.03	1.38	-	.80	-	2.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.7	0.18	0.815	1.26	25.3	78
August	12.8	.37	1.97	3.05	60.9	187
September	3.35	.15	.545	.843	16.3	50
October	12.8	.20	1.57	2.43	48.8	150
November	3.5	.24	.998	1.54	29.9	92
December	7.6	.29	1.70	2.63	52.8	162
Calendar year 1938	39	.15	2.03	3.14	741	2,280
January	9.1	.40	2.85	4.41	88.3	271
February	16.6	.50	2.65	4.10	74.1	228
March	24.5	.37	2.60	4.02	80.7	248
April	10.1	.37	2.57	3.98	77.2	237
May	6.5	.33	1.72	2.66	53.2	163
June	6.6	.37	1.58	2.44	47.4	145
Fiscal year 1938-39	24.5	.15	1.79	2.77	655	2,010

Naiiilihaele 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 2⅔ miles southeast of Huelo.
Drainage area.- 2.8 square miles.
Records available.- December 1910 to June 1918 and August 1919 to June 1939.
Average discharge.- 18 years (1920-24, 1925-39), 23.3 million gallons a day (26.1 second-feet).
Extremes.- Maximum discharge during year, 3,260 million gallons a day (5,040 second-feet) Feb. 27 (gage height, 7.70 feet), from rating curve extended above 130 million gallons a day; minimum, 4.2 million gallons a day (6.5 second-feet) probably Oct. 2, 3.

1910-18, 1919-39: Maximum discharge, 3,800 million gallons a day (5,880 second-feet) Apr. 7, 1938 (gage height, 8.07 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 period of missing gage heights, Sept. 16 to Oct. 11 (computed on basis of records for stations on nearby streams) and those above 200 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating tables, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

July 1-19				July 20 to June 30					
2.0	4.4	2.8	50	1.9	3.1	2.7	41	4.0	290
2.2	10.0	3.0	73	2.0	5.2	3.0	73	4.5	470
2.4	18.6	3.3	120	2.2	11.4	3.3	119	5.0	710
2.6	31			2.4	20.5	3.6	179	5.5	1,010

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.0	6.9	8.0	4.6	20	6.6	12.8	14.4	76	9.0	104	15.3
2	8.1	6.0	9.7	4.4	15.3	10.9	8.7	14.2	63	8.0	40	19.2
3	7.4	29.5	22.5	4.3	8.0	6.0	7.7	10.7	29.5	7.4	89	95
4	6.6	19.8	21.5	4.2	8.8	5.2	7.2	9.4	292	19.7	43	20.5
5	6.6	8.0	9.4	9.0	6.6	5.0	6.6	9.0	73	35.5	21	23.5
6	6.6	13.0	7.7	16	6.0	5.0	6.3	8.3	35.5	23	16.4	37
7	10.1	10.7	7.4	7.0	6.0	28	157	208	27	25	13.4	33.5
8	6.6	9.3	6.6	10	5.7	86	21	16.4	45	27	11.4	13.8
9	5.6	55	6.0	8.0	9.6	169	44	11.1	29.5	11.1	10.7	15.9
10	5.4	12.5	12.9	35	6.3	44	52	17.2	21	120	10.0	12.2
11	6.6	27	79	17	25	20	33	11.8	21.5	15.0	9.0	17.2
12	8.1	12.3	10.0	69	47	21	45	9.7	34	12.6	8.0	46
13	15.6	18.1	7.7	14.6	32	15.4	48	8.7	19.6	11.1	7.7	31.5
14	9.0	15.9	6.9	9.7	23	11.1	52	8.0	13.8	16.5	7.2	18.0
15	30.5	13.5	6.3	181	52	9.7	100	12.1	12.2	89	21.5	30.5
16	10.0	16.4	6.0	16.9	29	34.5	280	19.2	11.1	45	109	149
17	17.8	23	6.0	52	14.6	16.3	60	70	10.4	139	39.5	47
18	11.2	148	6.4	23	11.1	13.0	58	13.0	9.4	258	57	20
19	7.4	150	35	11.8	9.7	57	25.5	10.0	8.7	52	77	16.4
20	62	27	15	10.0	8.7	93	73	11.5	9.4	79	26.5	14.2
21	79	29.5	8.0	9.0	7.7	21.5	19.0	19.4	9.7	75	33	11.8
22	15.4	16.9	7.4	8.3	7.2	19.1	61	9.0	7.7	106	19.2	22.5
23	10.7	21	8.0	7.4	6.6	12.6	21	8.0	7.4	84	12.6	24.5
24	9.4	173	6.4	6.9	6.0	11.1	38	41	7.7	165	10.7	12.2
25	8.0	29	5.6	6.6	5.8	14.2	15.4	70	32.5	25	18.8	10.4
26	7.4	15.9	5.2	6.6	5.8	10.7	57	48	11.1	18.0	12.2	9.7
27	6.9	13.0	5.0	5.8	5.2	9.4	82	447	9.5	14.6	9.7	8.7
28	8.3	11.8	4.9	8.2	5.4	9.7	22	159	24	12.6	8.7	8.0
29	7.4	10.4	4.8	26.5	38.5	45	15.9	-	34	29	15.7	17.6
30	14.4	9.4	4.7	29.5	9.4	11.0	16.4	-	15.0	47	29.5	13.4
31	11.3	8.7	-	8.7	-	15.8	14.2	-	10.0	-	36.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	79	5.4	13.9	21.5	431	1,320
August	173	6.0	31.0	48.0	960	2,950
September	79	4.7	11.7	18.1	350	1,070
October	181	4.2	20.4	31.6	631	1,940
November	52	5.2	14.7	22.7	442	1,360
December	169	5.0	27.0	41.8	837	2,570
Calendar year 1938	846	3.8	36.2	56.0	13,220	40,590
January	280	6.3	47.1	72.9	1,460	4,480
February	447	8.0	46.2	71.5	1,290	3,970
March	292	7.4	32.6	50.4	1,010	3,100
April	258	7.4	52.6	81.4	1,580	4,850
May	109	7.2	29.9	46.3	928	2,850
June	149	8.0	27.2	42.1	814	2,500
Fiscal year 1938-39	447	4.2	29.4	45.5	10,730	32,960

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 2⅝ miles south of Huelo.
Drainage area.- 3.0 square miles.
Records available.- December 1910 to June 1918, July 1919 to June 1939.
Average discharge.- 20 years (1919-39), 18.9 million gallons a day (29.2 second-feet).
Extremes.- Maximum discharge during year, 2,610 million gallons a day (4,040 second-feet) Feb. 7 (gage height, 7.95 feet), from rating curve extended above 150 million gallons a day; minimum, 2.2 million gallons a day (3.4 second-feet) probably Oct. 4. 1910-18, 1919-39: 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 periods of missing gage heights, Sept. 23 to Oct. 11, Jan. 13, 14, Apr. 19-22, May 18 to June 9 (computed on basis of records for six nearby streams) and those above 200 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.7	1.34	2.4	15.2	4.0	163
1.8	2.3	2.7	27.5	4.5	253
1.9	3.6	3.0	47	5.0	370
2.0	5.2	3.3	74		
2.2	9.6	3.6	109		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.9	3.2	4.1	2.6	7.2	3.45	9.5	7.8	28.5	4.1	67	8.0
2	3.9	2.8	4.4	2.4	9.2	3.9	4.9	7.1	33.5	3.6	26	7.0
3	3.6	9.9	7.6	2.3	4.2	2.95	4.1	5.8	17.6	3.35	63	64
4	8.45	8.4	8.8	2.2	3.6	2.7	3.6	5.0	122	7.1	36.5	10
5	3.45	3.75	4.9	4.5	3.2	2.55	3.35	4.7	46	26	13.8	9.0
6	3.45	4.6	4.1	8.0	2.95	2.45	3.2	4.4	29	30	10.1	11
7	3.75	4.4	3.75	3.5	2.8	11.2	145	137	16.1	14.9	8.1	20
8	3.45	3.6	3.45	4.5	2.8	92	23.5	15.0	32	13.5	6.9	8.0
9	3.45	86	3.2	4.0	3.2	110	41	7.1	23.5	5.6	6.3	8.4
10	3.45	12.4	5.5	15	2.8	34	72	7.6	11.5	118	5.8	7.1
11	3.45	17.9	46	7.0	7.4	15.3	35	6.2	11.6	12.4	5.0	8.4
12	3.7	6.3	7.0	11.1	22.5	13.1	31	5.4	16.1	7.1	4.7	23.5
13	5.0	7.4	4.6	7.0	15.6	10.1	50	4.7	10.7	6.0	4.4	16.9
14	4.1	6.2	3.9	4.2	12.1	6.2	60	4.2	7.1	8.1	4.2	9.1
15	13.5	5.2	3.6	68	46	5.0	89	5.2	6.5	97	9.2	13.6
16	4.7	6.2	3.45	12.4	21	22.5	250	9.0	5.6	41	82	63
17	8.4	8.2	3.45	15.5	9.2	11.4	39.5	56	5.2	148	29	44
18	6.1	92	3.6	12.3	5.8	8.8	43	7.8	5.0	226	30	11.5
19	3.9	121	19.1	5.4	4.7	30.5	16.6	5.6	4.4	54	80	8.8
20	20.5	25	8.3	4.4	4.1	60	41	5.2	4.4	60	25	7.4
21	32	17.7	4.7	4.1	3.75	13.0	11.8	10.1	5.0	50	23	6.2
22	7.6	9.1	4.1	3.6	3.45	10.8	25	4.9	4.2	90	13	13.3
23	4.6	10.2	5.0	3.2	3.2	6.7	12.0	4.4	3.9	84	8.0	13.5
24	3.9	106	4.1	2.95	2.95	5.8	29	32	3.75	154	7.0	6.9
25	3.6	20.5	3.7	2.95	2.8	6.1	10.4	51	8.1	22.5	7.6	5.8
26	3.45	9.4	3.2	2.8	2.8	5.0	112	32.5	4.9	12.3	6.0	5.6
27	3.2	7.1	3.0	2.7	2.7	4.6	85	342	4.1	9.4	5.2	5.6
28	3.35	6.3	2.9	2.95	2.55	5.5	15.8	74	8.7	7.8	4.7	4.6
29	3.2	5.6	2.8	9.8	20.5	9.1	10.4	-	21	10.9	7.0	10.9
30	6.6	5.0	2.7	27	5.5	5.0	9.4	-	7.6	26	12	8.4
31	5.3	4.4	-	4.7	-	9.8	8.1	-	4.9	-	18	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	32	3.2	6.03	9.33	187	574
August	121	2.8	20.5	31.7	636	1,950
September	46	2.7	6.30	9.75	189	580
October	68	2.2	8.49	13.1	263	807
November	46	2.55	8.02	12.4	241	738
December	110	2.45	17.1	26.5	530	1,620
Calendar year 1938	1,140	2.2	28.0	43.3	10,220	31,390
January	250	3.2	41.7	64.5	1,290	3,970
February	342	4.2	30.8	47.7	862	2,640
March	122	3.75	16.5	25.5	512	1,570
April	226	3.35	45.1	69.8	1,350	4,150
May	82	4.2	20.3	31.4	628	1,930
June	64	4.6	14.6	22.6	440	1,350
Fiscal year 1938-39	342	2.2	19.5	30.2	7,130	21,880

Hoolawa111i1 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.
Drainage area.- Not determined.
Records available.- April 1911 to June 1939.
Average discharge.- 27 years (1911-15, 1916-39), 5.14 million gallons a day (7.95 second-feet).
Extremes.- Maximum discharge during year, 787 million gallons a day (1,220 second-feet) Feb. 7 (gage height, 5.42 feet), from rating curve extended above 220 million gallons a day; minimum, 1.15 million gallons a day (1.78 second-feet) Oct. 2, 3.
1911-39: Maximum discharge, that of Feb. 7, 1939; minimum, 0.2 million gallons a day (0.3 second-foot) June 8, 1926.
Remarks.- Records good except those for periods of missing gage heights, Sept. 2, 3, May 18 to June 6, which were computed on basis of records for stations on nearby streams and are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

1.3	0.75	1.6	4.2	2.2	24.5
1.4	1.50	1.8	8.7	2.5	43
1.5	2.7	2.0	15.2	3.0	88

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.6	1.86	*2.6	1.31	3.3	1.98	3.15	4.5	15.5	2.2	9.S	2.8
2	2.35	1.74	2.7	1.23	2.85	2.35	2.S5	4.0	11.1	2.1	5.3	3.0
3	2.2	2.45	3.75	1.40	2.35	1.98	2.6	3.6	7.2	2.1	9.7	6.0
4	2.1	2.9	*3.15	1.50	2.2	1.86	2.45	3.3	22.5	6.5	7.5	3.2
5	1.98	2.1	2.45	2.25	2.1	1.74	2.35	3.15	10.S	5.4	4.8	3.1
6	1.86	2.1	2.35	2.9	1.9S	1.74	2.35	3.0	7.4	3.9	4.0	3.3
7	1.86	1.98	2.2	1.98	1.86	3.15	7.9	51	5.8	4.8	3.6	4.0
8	1.74	1.98	2.1	2.35	1.86	4.9	3.75	5.8	5.8	4.5	3.15	3.15
9	1.74	2.2	2.35	2.1	1.98	10.7	5.0	4.2	4.8	3.3	3.0	3.3
10	1.74	1.98	5.1	3.7	1.86	5.1	5.6	4.2	4.6	13.2	2.7	2.85
11	1.74	2.35	2.6	2.6	3.1	3.75	4.8	3.6	4.0	4.2	2.6	3.0
12	1.74	1.98	2.2	4.4	4.8	3.9	6.4	3.3	6.1	3.75	2.45	5.9
13	1.98	2.35	2.1	2.7	4.4	3.45	8.2	3.0	4.0	3.45	2.35	5.0
14	1.74	2.45	1.98	2.2	4.1	3.0	7.8	2.85	3.6	3.75	2.2	4.2
15	2.7	2.1	1.98	11.8	5.4	2.85	10.0	3.45	3.3	6.8	2.8	6.0
16	1.86	2.65	1.98	3.9	4.8	3.9	24	3.45	3.15	6.8	7.8	10.2
17	1.86	3.7	1.98	5.6	3.6	3.3	15.2	6.7	3.0	10.4	6.0	7.8
18	1.86	15.6	2.1	4.3	3.15	3.0	11.0	3.3	2.85	22	5.8	5.2
19	1.74	13.9	2.7	3.15	3.0	4.9	7.5	3.0	2.6	8.7	9.0	4.4
20	2.25	5.8	2.1	2.85	2.7	10.6	10.7	3.0	2.7	10.8	5.0	3.9
21	10.7	5.0	1.98	2.7	2.6	4.8	6.0	3.0	2.6	8.9	4.5	3.45
22	2.85	4.0	2.1	2.6	2.45	4.2	11.4	2.6	2.35	12.7	3.8	3.45
23	2.45	3.9	2.1	2.35	2.35	3.6	6.0	2.45	2.2	8.0	3.3	3.15
24	2.45	28	1.86	2.35	2.2	3.45	6.7	3.45	2.1	9.9	3.0	2.85
25	2.2	7.2	1.86	2.2	2.2	5.9	5.0	4.6	3.6	5.8	3.2	2.6
26	2.1	4.8	1.74	2.2	2.1	3.45	7.0	4.8	2.35	4.8	2.9	2.45
27	1.98	4.0	1.74	2.1	1.98	3.15	15.0	30.5	2.2	4.0	2.7	2.45
28	1.98	3.6	1.62	2.2	1.98	3.15	8.2	19.1	3.15	3.6	2.5	2.35
29	1.98	3.3	1.50	2.9	3.0	5.9	5.6	-	3.6	4.0	2.7	2.6
30	1.98	3.0	1.50	3.3	2.1	3.15	5.4	-	2.7	4.4	3.0	2.45
31	2.1	2.85	-	2.35	-	3.3	4.4	-	2.35	-	4.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.7	1.74	2.34	3.62	72.4	222
August	28	1.74	4.64	7.18	144	441
September	5.1	1.50	2.28	3.53	68.5	210
October	11.8	1.23	2.95	4.56	91.5	281
November	5.4	1.86	2.81	4.35	84.4	259
December	10.7	1.74	3.94	6.10	122	375
Calendar year 1938	119	1.23	5.26	8.14	1,920	5,890
January	24	2.35	7.24	11.2	224	688
February	51	2.45	6.89	10.7	193	592
March	22.5	2.1	5.16	7.98	160	491
April	22	2.1	6.49	10.0	195	598
May	9.8	2.2	4.38	6.78	136	416
June	10.2	2.35	3.94	6.10	118	362
Fiscal year 1938-39	51	1.23	4.41	6.82	1,610	4,940

*Partly estimated.

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. Altitude, 1,240 feet.

Drainage area.- Not determined.

Records available.- December 1910 to June 1939.

Average discharge.- 27 years (1911-15, 1916-39), 8.14 million gallons a day (12.6 second-feet).

Extremes.- Maximum discharge during year, 2,980 million gallons a day (4,610 second-feet) Feb. 7 (gage height, 5.72 feet), from rating curve based on weir rating between 100 and 375 million gallons a day and extended above; minimum, 1.34 million gallons a day (2.07 second-feet) Oct. 4, 5.

1910-39: Maximum discharge, that of Feb. 7, 1939; minimum, 0.15 million gallons a day (0.23 second-foot) Oct. 25, 1917.

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

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.13	0.8	9.5	1.4	48
.5	2.2	.9	13.5	1.7	84
.6	3.9	1.0	18.3	2.0	135
.7	6.3	1.2	31	2.5	255

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.1	1.99	3.75	1.56	3.65	2.2	4.6	7.3	22.5	3.05	22.5	5.6
2	3.4	1.88	3.9	1.56	3.75	2.7	3.75	6.6	17.2	2.9	12.3	6.1
3	3.2	3.55	5.3	1.56	2.55	1.99	3.4	5.6	11.9	2.7	23	22.5
4	3.05	3.2	5.1	1.45	2.2	1.88	3.2	5.1	51	9.0	17.0	8.5
5	2.9	2.1	3.55	2.6	2.1	1.88	3.05	4.6	21	9.9	10.7	8.5
6	2.7	2.55	3.2	3.85	1.99	1.77	2.9	4.4	14.5	7.3	8.9	8.9
7	2.7	2.2	3.05	1.99	1.99	6.2	27	137	11.9	7.1	7.6	10.2
8	2.55	2.1	2.9	2.7	1.88	16.7	7.2	9.2	14.9	6.7	6.6	6.1
9	2.35	9.8	2.55	2.9	2.1	36	10.6	6.9	11.9	4.6	5.8	6.3
10	2.2	3.4	3.2	6.4	1.88	10.3	13.1	6.6	9.9	42	5.6	5.6
11	2.35	4.6	11.0	3.55	3.65	6.6	11.9	5.8	8.9	6.9	4.9	5.8
12	2.2	2.9	3.4	4.8	6.2	6.9	11.7	5.1	11.1	5.8	4.6	9.8
13	2.7	3.4	2.9	2.9	5.8	5.8	16.4	4.6	7.9	5.1	4.1	8.5
14	2.35	3.4	2.7	2.2	4.9	4.6	17.3	4.1	6.9	5.6	3.75	6.6
15	5.2	2.9	2.55	22.5	10.2	4.1	27.5	4.9	6.1	19.6	4.6	8.9
16	2.7	3.65	2.35	5.3	6.9	8.0	84	5.6	5.6	13.6	17.3	25.5
17	3.2	4.6	2.55	7.8	4.6	5.8	30.5	17.5	5.3	33	12.6	17.3
18	2.7	30	2.35	7.5	3.75	4.6	21	5.6	4.9	66	12.7	9.2
19	2.2	29	6.2	4.1	3.4	10.0	13.5	4.6	4.4	20	20	7.9
20	8.1	9.9	3.2	3.55	3.2	19.0	24.5	4.4	4.6	22.5	11.1	6.9
21	12.5	8.9	2.55	3.4	2.9	8.2	11.1	5.1	4.4	17.4	11.5	6.1
22	3.9	6.6	2.35	3.05	2.7	6.9	18.1	3.9	3.75	29.5	8.5	6.9
23	3.4	6.4	2.55	2.9	2.55	5.8	10.7	3.55	3.4	28.5	6.6	6.9
24	3.2	40	2.1	2.7	2.35	5.3	13.5	9.8	3.4	52	5.8	5.6
25	2.7	11.1	1.99	2.55	2.35	8.4	8.9	14.5	5.1	15.9	6.3	4.9
26	2.55	7.9	1.88	2.35	2.2	5.1	16.9	11.9	3.2	11.1	5.6	4.6
27	2.35	6.6	1.77	2.2	2.1	4.4	28	123	3.05	8.9	4.9	4.1
28	2.35	5.6	1.77	2.35	1.99	4.4	13.6	35.5	29	7.6	4.4	3.55
29	2.2	5.1	1.66	3.05	5.6	6.9	9.9	-	7.9	8.2	4.9	5.3
30	2.55	4.6	1.56	5.8	2.7	4.4	8.9	-	4.4	10.0	7.5	4.6
31	2.55	4.1	-	2.7	-	4.9	7.6	-	3.4	-	9.7	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.5	2.2	3.33	5.15	103	316
August	40	1.88	7.55	11.7	234	718
September	11.0	1.56	3.20	4.95	95.9	294
October	22.5	1.45	3.99	6.17	124	380
November	10.2	1.88	3.47	5.37	104	320
December	36	1.77	7.15	11.1	222	680
Calendar year 1938	431	1.45	11.4	17.6	4,150	12,730
January	84	2.9	15.6	24.1	484	1,490
February	137	3.55	16.5	25.5	463	1,420
March	51	3.05	10.4	16.1	323	992
April	66	2.7	16.1	24.9	482	1,480
May	23	3.75	9.40	14.5	291	894
June	25.5	3.55	8.24	12.7	247	759
Fiscal year 1938-39	137	1.45	8.70	13.5	3,170	9,740

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 2⅝ miles west of Kailua. Altitude, above 1,250 feet.

Drainage area.- 1.0 square mile.

Records available.- December 1910 to June 1939.

Average discharge.- 26 years (1911-14, 1916-39), 3.22 million gallons a day (4.98 second-feet).

Extremes.- Maximum discharge during year, 378 million gallons a day (585 second-feet) Feb. 7 (gage height, 4.45 feet), from rating curve extended above 70 million gallons a day; minimum, 0.57 million gallons a day (0.88 second-foot) Aug. 9.
1910-39: Maximum discharge, 1,220 million gallons a day (1,890 second-feet) Nov. 18, 1930 (gage height, 7.28 feet), from rating curve extended above 70 million gallons a day; minimum, 0.01 million gallons a day (0.02 second-foot) several days in 1933 and 1934.

Remarks.- Records good except those for periods of missing gage heights, Sept. 3-6, 25-28, which were computed on basis of records for stations on nearby streams and are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.6	1.45	1.4	16.5
.7	2.55	1.7	25
.9	5.4	2.0	37
1.1	9.2		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.90	0.77	2.05	0.65	1.79	0.84	1.89	3.4	11.5	1.08	8.1	1.78
2	1.56	.77	*1.67	.65	1.30	1.25	1.56	3.35	8.1	1.08	4.2	1.89
3	1.45	1.45	2.1	.65	.84	.92	1.45	2.7	5.6	1.00	8.0	4.4
4	1.35	1.40	2.0	.65	.70	.84	1.35	2.45	14.7	7.5	6.7	2.35
5	1.35	.77	1.45	.65	.77	.84	1.25	2.2	8.5	4.2	4.6	2.6
6	1.25	.84	1.35	.70	.77	.77	1.25	2.1	6.2	2.8	3.9	2.6
7	1.25	.77	*1.17	.70	.70	2.45	6.2	26.5	5.4	3.2	3.35	2.55
8	1.17	.70	1.17	.70	.70	3.45	2.4	4.8	5.2	2.55	2.95	1.89
9	1.08	.84	1.08	*.77	.77	9.4	3.25	3.5	4.5	1.89	2.8	2.1
10	1.09	.84	1.08	*2.05	.70	4.1	3.75	3.35	4.2	10.8	2.55	1.78
11	1.08	1.08	1.00	1.17	2.0	2.7	3.15	2.95	3.75	2.95	2.35	1.89
12	1.08	.77	1.00	3.0	3.05	2.8	4.5	2.55	5.1	2.7	2.1	3.75
13	1.17	.92	1.17	1.08	2.55	2.35	5.8	2.35	3.2	2.35	1.89	3.1
14	1.00	1.17	1.08	.77	2.1	1.89	5.4	2.1	2.8	2.55	1.78	2.35
15	1.68	.77	1.17	8.0	3.35	1.78	7.9	2.55	2.55	6.0	2.3	3.55
16	1.00	1.51	1.25	1.89	2.5	2.95	22.5	2.45	2.35	4.6	6.8	6.9
17	1.00	2.25	1.17	2.9	1.56	2.1	15.2	5.4	2.2	8.9	4.7	4.4
18	1.00	11.6	.92	2.15	1.45	1.78	10.2	2.2	2.0	18.2	4.4	3.35
19	.84	8.9	1.44	1.35	1.35	3.55	7.0	2.0	1.89	7.4	7.8	3.1
20	2.15	3.35	1.00	1.08	1.25	7.3	9.8	2.0	2.0	8.4	4.0	2.55
21	7.9	2.95	.92	1.08	1.25	3.2	5.6	2.1	1.89	7.5	3.75	2.35
22	1.45	2.45	.84	1.00	1.17	2.8	9.8	1.67	1.67	9.4	3.2	2.45
23	1.25	2.45	.92	1.08	1.17	2.35	5.1	1.56	1.45	6.9	2.7	2.0
24	1.25	15.6	*.77	1.00	1.08	2.1	5.7	2.6	1.45	8.2	2.45	1.89
25	1.00	4.2	.70	.92	1.00	3.8	4.4	3.45	2.65	5.6	2.55	1.78
26	.95	3.2	.70	.92	1.00	2.2	6.0	3.85	1.35	4.6	2.2	1.56
27	.84	2.7	.70	.84	1.00	1.89	12.6	25	1.25	4.0	2.1	1.45
28	.92	2.45	.70	1.00	1.00	1.78	6.4	14.0	2.3	3.5	1.89	1.35
29	.84	2.2	*.70	1.44	1.78	5.1	4.5	-	2.7	3.65	2.0	1.83
30	.84	2.0	.65	2.0	1.00	1.89	4.2	-	1.45	4.1	2.1	1.56
31	.92	1.89	-	.92	-	2.35	3.65	-	1.17	-	3.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.9	0.84	1.41	2.18	43.6	134
August	15.6	.70	2.69	4.16	83.5	256
September	2.1	.65	1.13	1.75	33.9	104
October	8.0	.65	1.41	2.18	43.8	134
November	3.35	.70	1.39	2.15	41.6	128
December	9.4	.77	2.69	4.16	83.5	256
Calendar year 1938	88	.65	3.97	6.14	1,450	4,450
January	22.5	1.25	5.93	9.18	184	564
February	26.5	1.56	4.83	7.47	135	415
March	14.7	1.17	3.91	6.05	121	372
April	18.2	1.00	5.25	8.12	158	484
May	8.1	1.78	3.66	5.66	113	348
June	6.9	1.35	2.57	3.98	77.1	237
Fiscal year 1938-39	26.5	.65	3.06	4.73	1,120	3,430

*Partly estimated.

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.

Drainage area.- 2.0 square miles.

Records available.- July 1932 to June 1939. Records at same site obtained by East Maui Irrigation Co. April 1930 to June 1932.

Extremes.- Maximum discharge during year, 766 million gallons a day (1,190 second-feet) Feb. 7 (gage height, 4.69 feet), from rating curve extended above 80 million gallons a day; minimum discharge, 0.08 million gallons a day (0.12 second-foot) Nov. 7.

1932-39: Maximum discharge, that of Feb. 7, 1939; minimum, 0.04 million gallons a day (0.06 second-foot) Oct. 31, 1933.

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 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.6	3.75	1.3	30
.2	.16	.7	5.8	1.6	50
.3	.51	.8	8.6	2.0	88
.4	1.15	.9	11.6		
.5	2.2	1.0	15.2		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.16	0.12	0.14	0.12	0.10	0.10	0.16	11.6	35.5	0.12	1.35	0.16
2	.16	.10	.14	.12	.10	.12	.16	11.0	30.5	.12	.16	.16
3	.16	.10	.14	.12	.10	.12	.12	.63	26	.12	.62	.34
4	.20	.12	.14	.10	.10	.12	.10	.23	47	1.77	.24	.20
5	.16	.14	.14	.14	.10	.10	.10	.20	29.5	1.04	.16	.16
6	.16	.14	.12	.12	.10	.10	.10	.16	28.5	.23	.16	.16
7	.16	.14	.14	.12	.10	.10	1.11	77	28.5	.44	.16	.23
8	.16	.16	.14	.12	.10	.12	.23	6.0	28	.41	.16	.20
9	.14	.16	.14	.12	.10	1.77	.16	.70	23	.16	.16	.20
10	.14	.14	.14	.12	.10	.16	.16	.40	5.1	9.8	.16	.20
11	.14	.14	.59	.12	.10	.16	.16	.20	11.0	.23	.16	.20
12	.12	.14	.12	.12	.23	.16	.23	.16	1.27	.20	.16	1.04
13	.14	.14	.12	.12	.20	.16	.30	.16	.44	.20	.16	.23
14	.16	.16	.12	.12	.14	.16	9.2	.16	.23	.20	.16	.37
15	.16	.12	.12	1.34	.12	.16	19.1	.16	.23	.30	.16	1.58
16	.16	.10	.12	.20	.12	.16	26	.16	.23	.76	.33	2.65
17	.16	.12	.12	.23	.12	.14	22.5	2.45	.23	1.80	.26	.48
18	.12	8.9	.12	.14	.12	.14	17.8	1.40	.23	12.2	.20	.26
19	.10	4.0	.12	.14	.12	.14	14.1	.16	.23	.30	1.51	.23
20	.18	.26	.10	.14	.12	2.1	22.5	.16	.23	.65	.23	.23
21	1.36	.26	.10	.14	.10	.23	7.0	.16	.12	.26	.20	.23
22	.20	.20	.10	.14	.10	.23	14.0	.16	.12	.98	.16	.23
23	.20	.16	.10	.12	.10	.23	13.0	.16	.14	.23	.16	.23
24	.16	30.5	.12	.10	.12	.23	22	.16	.14	.60	.16	.20
25	.12	.55	.12	.10	.12	.23	4.3	.16	.14	.23	.20	.20
26	.12	.20	.12	.10	.12	.20	15.5	.42	.14	.20	.23	.16
27	.10	.14	.12	.10	.12	.20	30.5	41	.12	.20	.20	.16
28	.12	.14	.12	.12	.10	.20	28	31	.12	.20	.20	.16
29	.12	.14	.14	.10	.10	1.86	22	-	.12	.20	.16	.16
30	.12	.12	.14	.12	.10	.20	19.9	-	.12	.20	.16	.16
31	.12	.14	-	.10	-	.16	18.2	-	.12	-	.16	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.36	0.10	0.186	0.288	5.78	18
August	30.5	.10	1.55	2.40	48.0	147
September	.59	.10	.140	.217	4.21	13
October	1.34	.10	.165	.255	5.11	16
November	23	.10	.116	.179	3.47	11
December	2.1	.10	.331	.512	10.3	31
Calendar year 1938	183	.10	2.01	3.11	735	2,260
January	30.5	.10	10.6	16.4	329	1,010
February	77	.16	6.65	10.3	186	572
March	47	.12	9.59	14.8	297	912
April	12.2	.12	1.14	1.76	34.4	105
May	1.51	.16	.279	.432	8.65	27
June	2.65	.16	.372	.576	11.2	34
Fiscal year 1938-39	77	.10	2.58	3.99	943	2,900

Honopou Stream above Haiku ditch, near Huelo

Location.- Concrete weir control, lat. 20°55'05", long. 156°14'55', 150 feet downstream from Government Road and 1½ miles west of Huelo.

Drainage area.- 2.2 square miles.

Records available.- July 1932 to June 1939. Records at same site obtained by East Maui Irrigation Co. November 1926 to June 1932.

Extremes.- Maximum discharge during year, 190 million gallons a day (294 second-feet) Mar. 4 (gage height, 2.50 feet), from rating curve extended above 15 million gallons a day; minimum, 0.23 million gallons a day (0.36 second-foot) Nov. 28, 29.
1932-39: Maximum discharge, 250 million gallons a day (387 second-feet) Dec. 29, 1936 (gage height, 2.76 feet); minimum, 0.08 million gallons a day (0.12 second-foot) Dec. 1, 2, 1933.

Remarks.- Records good. Discharge for days of missing gage heights, Oct. 23, June 8-13, 19-26, computed on basis of records for stations below Haiku ditch and at Lowrie ditch siphon. 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 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.20	0.5	2.4	1.0	16.3
.3	.59	.6	4.0	1.2	27
.4	1.29	.8	8.8	1.4	40

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.54	0.32	0.44	0.32	0.32	0.26	0.56	11.8	33.5	0.40	3.6	0.49
2	.49	.32	.44	.29	.49	.34	.40	11.7	30.5	.36	1.54	.44
3	.49	.40	.44	.29	.32	.26	.36	1.28	25.5	.36	3.1	1.57
4	.44	.44	.40	.26	.29	.26	.36	.64	38	3.15	2.40	.94
5	.44	.36	.40	.32	.29	.26	.36	.59	28.5	4.2	.79	.49
6	.44	.36	.40	.32	.29	.26	.36	.64	27.5	1.58	.64	.56
7	.44	.32	.44	.32	.29	.26	2.55	.41	27	.98	.59	1.07
8	.40	.40	.40	.32	.26	.57	.92	12.4	27	1.17	.49	.50
9	.40	.32	.40	.29	.29	3.5	.67	5.5	24	.54	.49	.45
10	.40	.36	.44	.44	.26	1.11	1.79	6.4	6.0	9.5	.49	.45
11	.36	.32	1.47	.36	.60	.75	1.54	.88	12.3	.78	.49	.45
12	.36	.32	.44	.36	1.05	.59	1.24	.69	3.15	.59	.44	2.5
13	.40	.36	.40	.32	.89	.49	2.1	.64	1.35	.59	.44	.80
14	.36	.40	.40	.29	.44	.44	10.6	.64	.64	.54	.44	1.23
15	.44	.29	.40	2.1	.44	.40	19.8	.64	.59	1.69	.44	3.55
16	.36	.29	.36	.69	.44	.44	24.5	.59	.59	2.85	1.54	4.1
17	.36	.32	.36	1.17	.40	.44	19.8	5.3	.54	4.8	1.60	2.4
18	.32	7.8	.36	.75	.36	.40	18.7	.64	.49	14.0	1.22	.91
19	.32	7.2	.40	.54	.32	.39	13.9	.59	.49	2.7	3.95	.60
20	.40	1.12	.36	.49	.32	4.7	22	.54	.54	3.4	1.21	.50
21	1.94	.95	.36	.40	.32	1.06	6.4	.59	.54	2.4	1.20	.45
22	.40	.64	.32	*.40	.32	.81	14.9	.54	.54	3.75	.76	.56
23	.36	.59	.36	.36	.32	.54	12.3	.49	.49	2.5	.59	.60
24	.36	20.5	.32	*.32	.32	.59	21.5	.59	.40	3.2	.54	.54
25	.36	1.60	.32	.32	.32	.54	4.4	.64	.64	1.78	.59	.50
26	.40	.69	.32	.32	.29	.49	16.3	1.10	.44	.81	.49	.50
27	.36	.64	.32	.32	.26	.44	27	32	.40	.75	.49	.49
28	.36	.59	.32	.32	.26	.61	26.5	31	.40	.75	.44	.44
29	.32	.49	.32	.36	.32	2.45	21	-	.81	.88	.44	.40
30	.36	.49	.32	.54	.29	.60	19.9	-	.40	.73	.44	.36
31	.36	.49	-	.36	-	.40	18.7	-	.40	-	1.22	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.94	0.32	0.443	0.685	13.7	42
August	20.5	.29	1.60	2.48	49.7	152
September	1.47	.32	.414	.641	12.4	38
October	2.1	.26	.460	.712	14.3	44
November	1.05	.26	.379	.586	11.4	35
December	4.7	.26	.795	1.23	24.6	76
Calendar year 1938	97	.26	2.07	3.20	757	2,320
January	27	.36	10.7	16.6	331	1,020
February	32	.41	4.62	7.15	129	397
March	38	.40	9.47	14.7	294	901
April	14.0	.36	2.39	3.70	71.7	220
May	3.95	.44	1.07	1.66	33.1	102
June	4.1	.36	.961	1.49	28.8	89
Fiscal year 1938-39	38	.26	2.78	4.30	1,010	3,120

*Partly estimated.

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 1⅛ miles west of Huelo.

Drainage area.- 2.3 square miles.

Records available.- July 1932 to June 1939. Records at same site obtained by East Maui Irrigation Co. November 1926 to June 1932.

Extremes.- Maximum discharge recorded during year, 2,200 million gallons a day (3,400 second-feet) Feb. 7 (gage height, 6.50 feet), from rating curve extended above 39 million gallons a day; minimum, 0.03 million gallons a day (0.05 second-foot) July 22.
1932-39: Maximum discharge recorded, that of Feb. 7, 1939; minimum discharge, 0.02 million gallons a day (0.03 second-foot) Nov. 27, 1933.

Remarks.- Records good except those for periods of missing gage heights, Jan. 21-23, Feb. 17 to Mar. 19 (computed on basis of records for stations on nearby streams), and those above 200 million gallons a day, which are poor. Wailoa, New Hamakua, Old Hamakua, and Haiku ditches divert most of flow above this station. Water used for irrigation in central Maui.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.6	4.1	1.5	40
.2	.22	.7	6.1	2.0	80
.3	.67	.8	8.6	2.5	138
.4	1.41	.9	11.6	3.0	217
.5	2.55	1.0	15.1	3.5	349

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.80	0.73	0.86	0.56	0.60	0.80	0.92	e.1	220	0.56	51	0.92
2	.73	.73	.66	.56	1.26	.86	.73	22	180	.56	13.8	.92
3	.67	.90	.92	.51	.86	.80	.67	.10	150	.51	46	26.5
4	.67	2	.86	.51	.80	.73	.67	.08	270	4.2	29	2.8
5	.67	.67	.80	.56	.73	.73	.67	.08	170	.46	1.16	.86
6	.67	.61	.80	.99	.73	.73	.67	.08	150	1.80	.99	1.12
7	.61	.61	.86	.61	.73	.73	22.5	135	100	.08	.86	16.4
8	.61	.61	.80	.56	.73	6.3	6.7	18.2	20	12.2	.80	.92
9	.61	.86	.80	.56	.73	33.5	5.9	.12	6.0	.86	.80	.86
10	.61	.36	.86	2.1	.73	7.0	22.5	.10	1.5	32	.80	.86
11	.56	.99	18.5	.66	.90	1.32	12.3	.10	35	.67	.80	.80
12	.56	.80	.73	2.1	8.1	1.10	10.0	.10	6.0	.56	.80	12.6
13	.56	.80	.67	1.12	1.85	.86	30.5	.06	2.0	.56	.80	*3.75
14	.56	.80	.67	.37	1.22	.80	74	.06	1.1	.56	.73	1.15
15	.51	.73	.67	25.5	10.3	.80	139	.06	.9	35.5	.67	4.1
16	.29	.73	.67	3.6	3.1	1.14	175	*.06	.8	29	41	20.5
17	.29	.73	.61	3.1	.99	1.11	116	30	.8	46	26	28
18	.25	31.5	.61	5.8	.86	.80	113	5.0	.7	59	23	.99
19	.22	45	.80	.37	.80	2.75	21	.1	.7	33.5	53	.80
20	.33	7.9	.67	.33	.80	33.5	23	.06	*.67	57	1.02	.80
21	21.5	1.92	.61	.29	.80	1.17	7.0	.06	.73	46	10.3	.80
22	.44	.56	.61	.61	.80	.99	30	.06	.73	51	.37	.86
23	.80	.56	.61	.80	.80	.86	20	.06	.73	31.5	.37	.99
24	.80	36.5	.56	.73	.80	.80	83	.06	.73	57	.51	.73
25	.86	3.0	.56	.73	.73	.86	.70	.06	1.98	1.65	.92	.67
26	.80	.08	.56	.73	.73	.80	97	3.0	.80	.16	.86	.67
27	.80	.65	.56	.73	.73	.86	176	250	.67	.45	.86	.67
28	.80	.86	.61	.80	.73	.92	103	200	.67	1.15	.86	.67
29	.73	.86	.61	.80	1.36	6.0	26.5	-	1.34	1.52	.80	.67
30	.73	.86	.56	4.6	.92	.92	7.4	-	.61	7.4	.92	.67
31	.73	.86	-	.86	-	.73	2.7	-	.56	-	8.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	21.5	0.22	1.28	1.98	39.8	122
August	45	.08	4.67	7.23	145	444
September	18.5	.56	1.30	2.01	38.9	119
October	25.5	.29	2.00	3.09	62.2	191
November	10.3	.73	1.51	2.34	45.4	139
December	33.5	.73	3.59	5.55	111	341
Calendar year 1938	222	.06	7.13	11.0	2,600	7,970
January	176	.67	42.9	66.4	1,330	4,080
February	250	.06	24.0	37.1	673	2,060
March	270	.56	42.8	66.4	1,330	4,070
April	59	.08	17.1	26.5	513	1,580
May	53	.37	10.3	15.9	319	978
June	28	.67	4.44	6.87	133	408
Fiscal year 1938-39	270	.06	13.0	20.1	4,740	14,530

*Partly estimated.

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 1939.

Average discharge.- 16 years (1923-39), 116 million gallons a day (179 second-feet).

Extremes.- Maximum discharge during year, 174 million gallons a day (269 second-feet) Feb. 7 (gage height, 5.70 feet); minimum, 57 million gallons a day (88 second-feet) Dec. 6.

1922-39: Maximum discharge, 173 million gallons a day (268 second-feet) Nov. 23, 1930 (gage height, 5.77 feet); minimum, 11 million gallons a day (17 second-feet) Feb. 12, 1932.

Remarks.- Records excellent except those for periods of missing gage heights, July 1 to Aug. 23, Sept. 23 to Oct. 10, Oct. 19 to Nov. 5, Mar. 15-20, which were computed on basis of records for East Maui Irrigation Co.'s station on Wailoa ditch at Kamole weir and are good. 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	120	70	87	55	150	75	142	162	166	102	166	154
2	110	65	104	50	150	115	106	162	166	90	166	162
3	95	140	144	60	110	72	94	154	166	83	166	166
4	87	130	151	50	140	64	87	134	166	108	166	162
5	90	100	98	120	100	61	83	122	166	166	166	162
6	95	130	83	150	79	61	79	114	166	162	166	162
7	140	100	79	110	83	148	157	140	162	162	162	162
8	90	100	72	150	72	151	162	162	166	158	150	158
9	75	130	64	150	98	166	162	150	166	146	142	158
10	80	140	121	170	75	166	166	154	166	166	134	142
11	85	160	162	149	151	162	166	138	166	158	118	150
12	110	150	113	122	164	162	166	126	166	154	106	162
13	155	150	83	144	162	162	166	106	162	138	98	166
14	130	150	75	102	162	130	166	102	154	158	94	162
15	150	130	68	147	166	106	170	131	150	166	126	166
16	130	150	68	158	162	148	170	158	150	166	170	166
17	155	150	100	153	158	158	166	166	130	166	166	166
18	110	165	81	162	138	154	166	146	120	170	166	166
19	90	170	143	130	114	158	166	118	110	166	166	162
20	110	170	116	110	102	170	170	117	120	166	166	154
21	170	165	87	100	94	166	166	145	114	166	166	134
22	140	165	85	90	83	162	166	102	114	170	162	154
23	110	160	110	80	79	158	166	94	102	166	158	162
24	100	170	75	75	72	142	166	155	110	170	136	138
25	90	166	70	75	75	142	166	166	162	166	154	130
26	85	162	65	80	72	142	166	166	138	166	142	134
27	75	142	60	65	68	130	166	166	111	162	118	116
28	100	130	55	100	66	138	166	170	154	158	106	98
29	80	110	53	150	152	146	166	-	162	162	134	142
30	130	98	60	160	101	118	166	-	154	162	162	146
31	100	90	-	100	-	127	162	-	118	-	162	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	170	75	109	169	3,390	10,390
August	170	65	136	210	4,210	12,910
September	162	53	91.1	141	2,730	8,380
October	170	50	113	175	3,520	10,790
November	166	66	113	175	3,400	10,430
December	170	61	134	207	4,160	12,770
Calendar year 1938	170	50	130	201	47,600	146,100
January	170	79	153	237	4,730	14,520
February	170	94	140	217	3,930	12,050
March	166	102	146	226	4,520	13,880
April	170	83	153	237	4,600	14,110
May	170	94	147	227	4,560	14,000
June	166	98	152	235	4,560	14,010
Fiscal year 1938-39	170	50	132	204	48,310	148,200

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 1939.

Average discharge.- 21 years (1918-39), 29.3 million gallons a day (45.3 second-feet).

Extremes.- Maximum discharge during year, 126 million gallons a day (195 second-feet) Feb. 7 (gage height, 6.28 feet); minimum, 0.26 million gallons a day (0.40 second-foot) Oct. 2, 4.

1918-39: 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 excellent. 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.7	0.82	1.25	0.28	12.2	0.82	32.5	25.5	61	1.08	102	25.5
2	3.0	.62	1.25	.26	52	1.68	1.52	24.5	52	1.02	93	66
3	.97	41	25	.39	1.18	.71	1.25	7.1	35	.97	102	88
4	.87	42	43	.26	21.5	.62	1.13	2.25	36	26.5	102	64
5	.82	.97	1.45	16.5	1.02	.55	1.08	1.93	22	97	87	64
6	.82	2.05	1.08	70	.82	.55	1.02	3.65	19.8	87	54	83
7	9.3	4.7	1.25	.95	.87	44	80	50	11.6	54	24	89
8	.87	.87	.97	27.5	.71	61	77	87	18	56	3.9	18.5
9	.71	33.5	.87	33.5	1.22	102	46	24.5	50	11.5	1.85	21.5
10	.66	27.5	9.1	59	.92	99	99	40	59	97	1.78	2.25
11	.62	61	82	40	61	63	97	25.5	62	44	1.58	25.5
12	.62	3.1	4.0	29.5	80	62	91	18.6	80	21.5	1.52	61
13	28	25.5	.97	32	93	32	102	16.2	57	1.78	1.38	97
14	4.1	13.4	.82	1.02	74	1.08	70	16.2	10.9	43	1.31	44
15	54	4.6	.71	64	97	.87	50	19.8	7.2	92	9.5	78
16	1.50	13.2	.76	46	95	56	64	45	5.2	99	102	93
17	32	38.5	.92	61	39	37	69	101	2.8	101	95	99
18	13.4	84	.71	62	1.89	9.1	59	27	1.45	106	95	69
19	.87	101	50	3.0	1.45	34	59	8.5	1.31	102	102	29
20	9.4	89	19.5	1.52	1.31	102	59	4.5	1.38	104	95	5.1
21	91	85	.82	1.25	1.18	85	50	36.5	1.52	102	99	2.0
22	27	30.5	.66	1.08	1.08	72	48	1.45	1.25	104	64	38.5
23	.97	4.1	2.4	1.02	1.02	14.8	59	1.18	1.13	102	10.0	64
24	1.08	101	.71	.92	.92	1.65	54	59	1.08	104	2.0	4.5
25	.82	87	.55	.92	.87	30.5	42	85	79	101	38	1.52
26	.76	25	.51	.87	.82	12.6	50	90	12.7	69	9.9	2.55
27	.71	2.35	.47	.76	.71	1.52	59	82	1.18	31	1.78	2.5
28	.71	2.1	.39	2.1	.71	11.0	37.5	78	16.9	8.5	1.52	1.18
29	.71	1.78	.36	18.5	64	36	27	-	93	59	15.8	15.9
30	4.1	1.58	.32	65	1.61	2.45	30	-	27	60	78	12.2
31	16.0	1.38	-	1.52	-	13.7	28	-	1.31	-	76	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	91	0.62	10.4	16.1	321	985
August	101	.62	30.0	46.4	929	2,850
September	82	.32	8.43	13.0	253	776
October	70	.26	20.7	32.0	643	1,970
November	97	.71	23.6	36.5	709	2,180
December	102	.55	31.9	49.4	989	3,040
Calendar year 1938	109	.26	34.1	52.8	12,430	38,160
January	102	1.02	49.8	77.1	1,540	4,740
February	101	1.18	35.1	54.3	982	3,010
March	93	1.08	26.8	41.5	830	2,550
April	106	.97	62.9	97.3	1,890	5,790
May	102	1.31	47.5	73.5	1,470	4,520
June	99	1.18	42.2	65.3	1,270	3,890
Fiscal year 1938-39	106	.26	32.4	50.1	11,830	36,300

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 1939.

Extremes.- Maximum discharge during year, 58 million gallons a day (90 second-feet) Feb. 7 (gage height, 3.55 feet); no flow July 14, 15, Nov. 8, 9.
1918-22, 1936-39: Maximum discharge, 58 million gallons a day (90 second-feet) Jan. 16, 1921 and Feb. 7, 1939 (gage height, 3.25 and 3.55 feet, respectively, different sites); no flow for short periods.

Remarks.- Records good except those for periods of missing gage heights, Aug. 24, Sept. 22 to Oct. 10, which were computed on basis of records for stations on nearby streams and ditches and are poor. 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.05	0.01	0.12	0.02	0.04	0.03	0.32	0.06	3.3	0.06	13.3	0.20
2	.05	.01	.13	.02	.39	.02	.05	2.4	2.1	.06	2.35	.18
3	.05	.02	.13	.02	.04	.02	.05	.06	1.32	.06	14.2	6.2
4	.05	.05	.14	.02	.03	.02	.05	.05	1.10	1.69	6.8	.83
5	.05	.02	.16	.10	.04	.02	.05	.05	.52	.87	1.33	.33
6	.05	.02	.16	1.0	.03	.02	.05	.05	.55	1.00	.07	1.08
7	.04	.01	.16	.05	.03	.04	9.2	5.0	.59	.33	.06	2.75
8	.04	.01	.14	.5	.01	8.7	1.25	.09	.24	2.1	.06	.05
9	.04	.93	.14	.6	.02	18.1	2.8	.06	.05	.06	.06	.05
10	.04	.05	.16	1.1	.03	2.6	2.85	.06	.04	11.5	.06	.04
11	.04	.04	3.9	.26	.44	.74	2.2	.05	.04	.56	.07	.05
12	.04	.03	.20	.98	1.72	.09	3.55	.05	.03	.05	.07	3.0
13	.04	.02	.14	.19	1.37	.05	5.6	.05	.09	.04	.06	2.7
14	.02	.05	.12	.05	.70	.04	3.7	.05	.05	.06	.06	.27
15	.07	.04	.12	14.5	2.25	.02	.07	.05	.04	5.0	.12	1.99
16	.04	.04	.10	.59	1.92	.87	.06	.07	.04	4.5	9.6	10.1
17	.03	.18	.10	2.6	.28	.35	.04	8.6	.04	11.4	5.4	8.3
18	.04	9.9	.10	1.79	.04	.04	.05	.07	.04	29	3.2	.36
19	.03	11.2	.40	.05	.03	4.6	.05	.04	.04	10.4	12.7	.10
20	.94	.24	.18	.04	.03	11.5	.05	.04	.04	11.2	2.05	.07
21	7.0	.16	.12	.03	.02	.61	.05	.06	.04	5.4	3.1	.07
22	.05	.09	.10	.03	.02	.47	.05	.04	.04	17.0	.93	.30
23	.03	.05	.09	.03	.03	.04	.05	.04	.04	10.5	.09	.62
24	.03	2.5	.08	.03	.03	.04	.06	1.15	.04	21.5	.09	.10
25	.02	.51	.06	.03	.03	.51	.06	4.2	.90	3.25	.12	.09
26	.02	.17	.04	.03	.03	.07	.06	5.4	.06	.12	.13	.09
27	.02	.13	.04	.03	.03	.04	.05	12.9	.05	.05	.13	.09
28	.02	.12	.03	.03	.03	.04	.04	3.4	.09	.05	.13	.09
29	.02	.12	.03	.03	.42	2.85	.04	-	1.28	.50	.18	.09
30	.02	.12	.02	.92	.04	.05	.04	-	.06	2.45	.85	.09
31	.02	.12	-	.04	-	.05	.05	-	.06	-	2.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.0	0.02	0.290	0.449	9.00	28
August	11.2	.01	.870	1.35	27.0	83
September	3.9	.02	.247	.382	7.41	23
October	14.5	.02	.829	1.28	25.7	79
November	2.25	.01	.337	.521	10.1	31
December	18.1	.02	1.70	2.63	52.6	162
Calendar year 1938	39.5	.01	1.77	2.74	646	1,980
January	9.2	.04	1.05	1.62	32.6	100
February	12.9	.04	1.58	2.44	44.1	135
March	3.3	.03	.417	.645	12.9	40
April	29	.04	5.03	7.78	151	463
May	14.2	.06	2.56	3.96	79.5	244
June	10.1	.04	1.34	2.07	40.3	124
Fiscal year 1938-39	29	.01	1.35	2.09	492	1,510

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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.

Records available.- February 1930 to June 1939. January 1910 to March 1927 at site 1½ miles downstream.

Average discharge.- 25 years (1910-26, 1930-39), 34.2 million gallons a day (52.9 second-feet).

Extremes.- Maximum discharge during year, 72 million gallons a day (111 second-feet) Feb. 27 (gage height, 5.12 feet); minimum, 2.85 million gallons a day (4.41 second-feet) Feb. 10.
1930-39: Maximum discharge, 88 million gallons a day (136 second-feet) Mar. 21, 1937 (gage height, 5.44 feet); no flow at times.

Remarks.- Records excellent except those for periods when clock was not running, Aug. 24 to Oct. 9, Oct. 29 to Nov. 1, which were computed on basis of records for stations on nearby ditches and are poor. Lowrie ditch diverts water at altitude of 500 feet 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.4	6.6	10	7.0	15	7.8	30.5	33	51	8.9	56	43
2	7.9	6.1	10	6.0	34.5	10.2	12.8	40	22	8.2	53	22
3	9.1	21.5	20	6.0	10.5	7.3	11.0	43	9.8	7.8	56	48
4	8.2	46	30	6.0	16.4	6.4	10.3	24	14.5	22	56	43
5	6.2	22	20	15	9.4	6.1	9.6	18.0	8.4	56	48	48
6	7.5	13.8	16	40	8.2	6.1	9.4	19.2	8.2	50	40	43
7	10.8	8.9	13	20	9.7	11.2	47	19.6	8.2	38	33	56
8	7.7	8.7	12	25	7.8	29	53	7.7	16.0	38	20.5	40
9	6.8	21.5	11	30	10.0	56	46	6.2	31.5	15.5	15.5	16.8
10	6.8	35.5	10	*50	7.8	53	56	14.3	35.5	50	14.0	13.0
11	7.1	35.5	50	46	24	53	53	28.5	38	30.5	12.8	14.5
12	7.9	22	15	32	40	50	50	24	40	18.0	11.8	38
13	14.8	23	12	40	50	18.0	56	16.8	40	15.2	11.0	56
14	9.4	24.5	10	12.6	43	9.4	40	15.2	38	27	10.0	48
15	34.5	10.5	9.0	35.5	48	8.0	43	18.4	20.5	50	12.8	56
16	13.0	12.6	9.0	48	48	28	28	27	15.2	56	56	56
17	9.2	28	10	53	43	40	38	50	14.0	56	56	56
18	11.2	49	9.0	53	27	10.7	46	33	12.8	58	53	53
19	6.8	58	35	40	13.2	16.8	50	32	11.8	56	58	46
20	6.4	53	20	15.5	11.8	56	38	16.8	12.2	56	50	24
21	48	50	16	13.5	10.8	53	43	27	12.8	56	53	18.0
22	32	35.5	12	12.8	9.6	48	46	13.5	11.2	56	40	25.5
23	19.2	*29	15	10.8	8.9	22	46	12.2	9.8	56	38	43
24	14.5	60	11	9.6	8.4	14.0	53	33	9.6	56	23	18.0
25	5.8	58	9.0	9.6	8.2	24	40	48	47	56	23	14.5
26	7.3	20	8.0	9.6	7.8	17.9	50	50	25.5	38	18.0	13.8
27	6.8	16	8.0	8.2	7.5	14.8	43	53	9.8	35.5	14.0	13.0
28	6.9	14	7.0	10.1	7.3	21	50	53	12.6	28	12.2	11.8
29	6.8	13	7.0	15	36.5	31.5	48	-	53	43	14.2	14.0
30	8.0	12	7.0	35	29	33	46	-	22	33	40	13.8
31	10.7	11	-	20	-	15.6	40	-	10.0	-	56	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	48	5.8	11.8	18.3	367	1,130
August	60	6.1	26.6	41.2	825	2,530
September	50	7.0	14.4	22.3	431	1,320
October	53	6.0	23.7	36.7	735	2,260
November	50	7.3	20.4	31.6	611	1,880
December	56	6.1	25.1	38.8	778	2,390
Calendar year 1938	61	4.9	26.4	40.8	9,630	29,570
January	56	9.4	39.8	61.6	1,230	3,780
February	53	6.2	27.7	42.9	776	2,380
March	53	8.2	21.6	33.4	671	2,060
April	58	7.8	39.2	60.7	1,170	3,600
May	58	10.0	34.0	52.6	1,050	3,240
June	56	11.8	33.5	51.8	1,010	3,090
Fiscal year 1938-39	60	5.8	26.5	41.0	9,650	29,660

*Partly estimated.

Haiku ditch at Kapalalaea Gulch, near Huelo

Location.- Lat. 20°55'25", long. 156°15'35", in open section of ditch just downstream from tunnel between Honopou and Kapalalaea Gulches, 2.3 miles northwest of Huelo, and 3.4 miles northwest of Kailua.

Records available.- February 1930 to June 1939. January 1910 to October 1914, at site at Peahi weir on Old Haiku ditch. October 1914 to December 1928, at site at Manawai Gulch 2 miles downstream.

Average discharge.- 27 years (1910-28, 1930-39) 27.0 million gallons a day (41.8 second-feet).

Extremes.- Maximum discharge during year, 138 million gallons a day (214 second-feet) Apr. 18 (gage height, 5.61 feet); minimum, 0.25 million gallons a day (0.39 second-foot) Mar. 9.
1910-28, 1930-39: Maximum discharge, 195 million gallons a day (302 second-feet) Mar. 23, 1937 (gage height, 5.80 feet); no flow occasionally.

Remarks.- Records good except those for period when clock was not running, Oct. 9-11 (computed on basis of records for stations on nearby ditches), and those above 50 million gallons a day, which are poor. Haiku ditch diverts water at elevation 250 feet from all streams between Kailua Stream and Maliko Gulch. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.0	0.65	1.00	0.55	1.75	0.70	11.4	24.5	16.7	0.95	67	1.60
2	4.7	.60	.95	.55	14.3	.57	1.00	24.5	28.5	.90	41	1.40
3	1.90	5.8	1.75	.55	.80	.55	.85	5.6	1.10	.85	76	55
4	1.60	23	1.00	.55	.65	.50	.80	3.9	8.3	17.2	61	16.3
5	3.55	.85	.85	5.0	.60	.48	.80	3.4	.48	39	4.6	1.60
6	2.1	.80	.80	17.9	.50	.48	.80	3.9	.42	31.5	2.25	10.8
7	1.80	.70	.95	.75	.70	.45	53	14.8	.32	9.6	1.90	42
8	1.50	.85	.75	.60	.55	30.5	35.5	44	.30	28.5	1.70	2.75
9	1.40	22.5	.70	15	.60	65	20.5	36.5	.32	1.80	1.50	1.40
10	1.40	6.2	.90	20	.55	45	81	36	11.1	57	1.30	1.10
11	1.30	3.95	58	10	7.0	14.7	52	19.8	23	3.75	1.20	1.20
12	1.40	.60	2.0	17.3	31	8.0	26.5	4.8	28	2.6	1.10	32.5
13	1.60	.60	1.0	14.8	32.5	.95	91	4.1	11.1	2.5	1.10	43
14	1.10	.95	.80	.95	17.7	.70	51	3.75	2.35	2.5	1.00	9.6
15	13.4	.60	.75	45	68	.60	18.2	3.75	2.0	60	1.30	44
16	1.40	.50	.70	18.4	51	20.5	7.6	3.75	1.70	56	67	38
17	1.20	.60	.70	43	5.8	11.0	13.2	48	1.60	74	49	58
18	1.10	.61	.70	28.5	1.21	.75	4.8	3.85	1.50	108	49	9.5
19	1.10	110	13.5	2.7	.85	10.8	22	2.6	1.40	84	85	3.4
20	5.9	49	2.2	1.90	.75	72	26.5	2.35	1.40	87	25	2.6
21	47	29.5	.80	1.60	.75	12.3	11.3	3.7	1.40	80	40	2.35
22	1.52	2.6	.70	.95	.70	8.5	39	1.50	1.30	93	8.6	6.6
23	.80	2.0	.75	.75	.80	1.50	31.5	1.40	1.10	72	2.1	14.0
24	.75	80	.65	.75	.60	1.20	45	31	1.00	102	1.50	2.35
25	2.4	54	.60	.75	.60	2.4	10.2	26	25.5	33	2.1	1.70
26	.85	3.9	.60	.70	.60	1.61	33	47	3.05	5.2	1.20	1.60
27	.75	2.8	.60	.65	.55	.95	8.2	25.5	1.10	3.4	1.00	1.60
28	.75	1.80	.50	.70	.55	2.45	18.8	23	1.00	2.5	.95	1.70
29	.70	1.50	.50	.75	19.0	17.8	33	-	27.5	12.1	.95	1.70
30	.75	1.30	.50	35	1.45	4.4	42	-	1.50	11.9	5.0	1.80
31	.75	1.20	-	1.10	-	1.20	40	-	1.00	-	37	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	47	0.70	3.63	5.62	112	345
August	110	.50	13.2	20.4	410	1,260
September	58	.50	3.21	4.97	96.2	296
October	45	.55	9.28	14.4	288	883
November	68	.50	8.75	13.5	262	805
December	72	.45	10.9	16.9	339	1,040
Calendar year 1938	135	.28	19.7	30.5	7,200	22,090
January	91	.80	26.8	41.5	829	2,550
February	48	1.40	16.2	25.1	453	1,390
March	28.5	.30	6.68	10.3	207	635
April	108	.85	36.1	55.9	1,080	3,320
May	85	.95	20.6	31.9	639	1,960
June	58	1.10	13.7	21.2	411	1,260
Fiscal year 1938-39	110	.30	14.1	21.8	5,130	15,740

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Maui during fiscal year July 1938 to June 1939

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
May 8	Makamakaole.....	Pacific Ocean.....	At gaging station site near Waihee.	1.70	1.10
19	....do.....	....do.....	....do.....	7.53	4.87
22	....do.....	....do.....	....do.....	1.90	1.23
27	....do.....	....do.....	....do.....	1.76	1.14
June 3	....do.....	....do.....	....do.....	1.89	1.22
8	....do.....	....do.....	....do.....	1.72	1.11
10	....do.....	....do.....	....do.....	1.62	1.05
16	....do.....	....do.....	....do.....	2.58	1.67
17	....do.....	....do.....	....do.....	2.17	1.40
22	....do.....	....do.....	Just upstream from confluence with right branch and downstream from station site, near Waihee.	1.74	1.12
22	Right Branch.....	Makamakaole Stream.	Just upstream from confluence with Makamakaole Stream, near Waihee.	.349	.226
22	Second Right Branch.	Right Branch.....	Just upstream from confluence with right branch of Makamakaole Stream, near Waihee.	.155	.100
May 8	Marshall ditch	Canefield.....	At gaging station site near Waihee.	.340	.220
19	....do.....	....do.....	....do.....	.267	.173
22	....do.....	....do.....	....do.....	1.02	.659
27	....do.....	....do.....	....do.....	1.31	.847
June 16	....do.....	....do.....	....do.....	1.01	.653
May 23	Kahakuloa.....	Pacific Ocean.....	At altitude 1,400 feet, near Honokohau.	5.33	3.44
23	....do.....	....do.....	At altitude 1,350 feet, near Honokohau.	8.77	5.67
23	....do.....	....do.....	At altitude 1,100 feet, near Honokohau.	7.71	4.98
23	....do.....	....do.....	At altitude 700 feet, near Honokohau.	8.16	5.27
June 7	....do.....	....do.....	At gaging station site near Honokohau.	13.7	8.85
16	....do.....	....do.....	....do.....	10.5	6.79
28	....do.....	....do.....	....do.....	5.98	3.86

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 7⅔ miles northwest of Mountain View.
Records available.- September 1930 to June 1939.
Extremes.- Maximum discharge during year, 81 million gallons a day (125 second-feet) Mar. 2 (gage height, 3.69 feet), from rating curve based on weir formulas; minimum, 1.55 million gallons a day (2.40 second-feet) Oct. 29.
1930-39: Maximum discharge, 149 million gallons a day (231 second-feet) July 21, 1931 (gage height, 4.70 feet), from rating curve based on weir formulas; no flow at times, when tunnels and stream cease flowing during very dry periods.
Remarks.- Records excellent except those for period of faulty gage heights, Apr. 15 to May 15, which were computed on basis of records for stations on all nearby streams and are poor. No diversions. Large part of flow comes from three tunnels. Water is used for fluming sugarcane.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

0.5	1.70	1.2	6.4	3.0	39
.6	2.25	1.6	9.9	3.5	65
.7	2.85	2.0	14.6		
.9	4.1	2.5	23.5		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.6	5.4	6.8	2.55	4.2	3.85	9.0	14.3	8.1	6.0	14	2.1
2	7.2	4.6	6.4	2.45	3.25	3.7	8.1	16.0	31.5	6.0	13	2.1
3	7.2	4.7	6.4	2.6	2.8	3.4	7.2	15.3	27.5	6.0	12	5.2
4	7.2	4.4	12.1	2.5	3.6	3.15	6.8	14.0	34	5.6	10	5.3
5	7.5	4.3	6.4	5.5	3.4	2.9	6.4	12.7	38	5.6	11	4.4
6	8.1	4.8	6.0	10.2	3.15	2.95	6.0	10.9	45	5.6	9.5	4.2
7	8.1	5.3	6.0	7.6	5.4	3.05	13.0	15.6	48	10.0	9.0	6.0
8	8.1	4.6	5.6	7.6	6.1	13.9	16.0	15.8	46	8.9	8.8	5.0
9	7.6	4.4	5.4	8.1	7.4	12.1	17.7	17.4	43	10.7	8.4	4.7
10	7.6	4.1	5.6	9.0	7.2	12.5	28	40	35.5	10.0	8.0	4.6
11	7.6	5.6	5.1	8.6	12.1	14.0	32	35.5	27.5	10.9	7.5	4.4
12	7.2	4.3	4.9	8.1	18.9	16.0	32	34	22.5	9.9	7.0	4.8
13	8.8	4.1	4.7	7.6	21.5	15.3	26	27.5	18.6	10.4	6.5	5.2
14	8.1	3.9	4.5	7.2	27.5	14.0	20.5	21.5	14.0	9.9	5.8	4.9
15	8.1	3.8	4.3	6.8	27.5	12.1	17.6	17.6	12.1	10	5.4	5.6
16	8.2	4.3	4.1	6.4	22.5	10.4	24	14.0	10.9	12	5.1	5.8
17	7.6	3.9	3.95	6.5	18.6	9.4	21.5	11.5	10.4	16	4.4	6.8
18	7.6	4.1	3.7	6.0	16.0	8.6	25	10.4	9.4	18	4.1	6.8
19	7.2	5.4	4.1	5.6	13.3	10.8	23.5	9.4	9.0	20	4.0	6.8
20	7.2	7.0	3.5	5.2	11.5	14.2	22.5	8.6	8.1	19	3.95	6.8
21	6.4	6.4	3.35	4.8	9.9	26	20.5	7.6	7.6	17	3.7	6.8
22	6.0	6.0	3.15	4.4	9.0	30.5	18.6	6.8	7.2	15	3.6	6.8
23	5.6	6.4	2.95	4.1	8.1	34	16.8	6.8	6.8	13	3.35	8.6
24	5.3	9.3	2.85	3.85	7.2	32	14.6	6.8	6.4	17	3.1	7.6
25	4.9	9.0	3.1	3.6	6.4	26	13.3	6.4	6.0	17	2.95	7.6
26	4.7	8.1	3.8	3.4	6.0	20.5	14.0	8.4	6.0	16	2.8	7.2
27	4.3	8.1	3.05	3.15	5.2	16.8	13.3	9.2	5.6	15	2.6	6.8
28	4.0	7.6	2.9	3.05	4.7	15.3	11.5	8.6	5.3	14	2.5	6.8
29	3.85	7.6	2.8	2.85	4.2	12.7	10.9	-	5.6	13	2.35	7.6
30	4.2	7.2	2.65	2.75	4.2	10.9	10.4	-	5.6	12	2.3	7.2
31	8.1	6.8	-	2.6	-	10.4	14.9	-	6.0	-	2.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.8	3.85	6.81	10.5	211	648
August	9.3	3.8	5.66	8.76	176	539
September	12.1	2.65	4.67	7.23	140	430
October	10.2	2.45	5.31	8.22	165	505
November	27.5	2.8	10.0	15.5	301	923
December	34	2.9	13.6	21.0	421	1,290
Calendar year 1938	44	2.45	9.98	15.4	3,640	11,180
January	32	6.0	16.8	26.0	522	1,600
February	40	6.4	15.1	23.4	423	1,300
March	48	5.3	18.3	28.3	567	1,740
April	20	5.6	12.0	18.6	360	1,100
May	14	2.3	6.10	9.44	189	580
June	8.6	2.1	5.82	9.00	174	536
Fiscal year 1938-39	48	2.1	9.99	15.5	3,650	11,190

Wailuku River at Pukamaui, near Hilo

Location.- Lat. 19°42'45", long. 155°09'40", three-quarters of a mile upstream from intake of Hilo Boarding School ditch and 4½ miles west of Hilo. Altitude, 1,280 feet, by barometer.
Drainage area.- 97.2 square miles.
Records available.- April 1923 to June 1928, July 1929 to June 1939.
Extremes.- Maximum discharge during year, 5,220 million gallons a day (8,080 second-feet) May 6 (gage height, 13.45 feet), from rating curve extended above 2,000 million gallons a day; minimum, 3.8 million gallons a day (5.9 second-feet) Sept. 15, 16.

1923-28, 1929-39: Maximum discharge, 8,980 million gallons a day (13,900 second-feet) Feb. 17, 1937 (gage height, 16.9 feet, from floodmarks), from rating curve extended above 2,000 million gallons a day; no flow at times when all water was diverted.

Remarks.- Records good except those for period when clock was not running, May 25 to June 7 (computed on basis of records for station above Hilo Boarding School ditch), and those for high stages, which are fair. Hilo Water Works diverts water for domestic supply from pool at control. Flow regulated by this diversion.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

2.9	1.9	3.6	43	5.0	270	7.0	900
3.0	4.6	3.8	64	5.5	395	7.5	1,100
3.2	13.3	4.0	89	6.0	540	8.0	1,350
3.4	26	4.5	169	6.5	705	9.0	1,880

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	25.5	15.4	10.8	27.5	86	25.5	28.5	160	60	24	92	6.0
2	32	9.4	10.8	20.5	167	62	27.5	130	933	22.5	66	4.2
3	17.9	12.4	12.8	48	31.5	22.5	18.5	58	314	22.5	45	80
4	15.0	21	48	33	112	15.0	15.6	40	247	17.4	56	90
5	16.5	8.4	24	215	61	13.9	14.5	64	620	27	41	35
6	48	9.9	17.9	499	38.5	17.9	13.9	43	1,610	44	34	23
7	54	17.4	17.2	96	43	46	272	235	861	98	31	130
8	34	8.0	38.5	49	136	411	1,070	160	382	294	27.5	*40
9	22.5	115	23	38.5	117	431	342	204	236	115	23	21
10	26	55	16.8	36	110	217	930	1,620	134	108	20.5	16.2
11	22	55	12.3	24.5	426	110	354	259	89	67	17.4	11.8
12	17.4	19.8	9.9	17.9	1,770	61	110	110	69	52	14.5	10.8
13	28.5	13.3	6.9	16.2	910	39.5	62	70	70	63	12.3	22.5
14	38	12.3	5.0	14.5	316	31	43	46	74	72	11.3	12.8
15	40	11.8	4.1	15.0	282	24.5	91	32.5	85	72	10.8	14.5
16	29	15.0	5.4	31	110	22.5	1,190	25.5	45	241	14.4	17.0
17	25	10.4	7.3	19.8	81	20.5	166	19.1	54	288	12.8	82
18	22.5	10.4	8.0	15.0	56	23	742	17.4	38	443	10.8	54
19	16.2	162	31.5	189	42	168	206	11.8	24.5	162	10.4	44
20	17.9	80	21	122	34	689	307	11.8	21	96	10.8	23
21	15.6	34	11.3	61	30	1,330	160	15.6	22	77	12.3	18.5
22	12.8	18.5	11.8	27.5	24	1,340	142	9.9	22	138	12.3	16.2
23	11.3	111	10.8	22	19.8	320	103	11.7	21	96	12.3	12.8
24	10.4	216	10.4	16.8	16.8	169	64	73	20.5	328	*8.9	16.8
25	10.4	154	11.3	13.9	14.5	89	46	56	20.5	112	8.0	11.3
26	10.4	49	28.5	12.3	12.8	89	82	94	29	125	12	10.8
27	9.4	34	15.6	9.4	11.8	77	231	63	20.5	84	7.0	14.5
28	7.6	22	13.3	8.4	11.3	85	73	80	21	64	5.6	11.8
29	7.3	19.8	80	8.0	11.3	33.5	48	-	31.5	74	4.5	30
30	7.3	15.6	55	6.9	17.9	34	48	-	30	55	5.0	26
31	35.5	11.8	-	17.8	-	27.5	201	-	28.5	-	10	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	54	7.3	22.1	34.2	686	2,100
August	216	8.0	43.5	67.3	1,350	4,140
September	80	4.1	19.3	29.9	579	1,780
October	499	6.9	55.9	86.5	1,730	5,310
November	1,770	11.3	170	263	5,100	15,650
December	1,340	13.9	195	302	6,040	18,550
Calendar year	-	-	-	-	-	-
January	1,190	13.9	232	359	7,200	22,100
February	1,620	9.9	133	206	3,720	11,420
March	1,610	20.5	201	311	6,230	19,130
April	443	17.4	116	179	3,480	10,680
May	92	4.5	21.3	33.0	659	2,020
June	130	4.2	30.2	46.7	906	2,780
Fiscal year 1938-39	1,770	4.1	103	159	37,680	115,700

Peak discharge.- Dec. 21 (8 p.m.) 3,380 m.g.d. (5,230 sec.-ft.); Dec. 22 (1:30 a.m.) 4,300 m.g.d. (6,650 sec.-ft.); Jan. 8 (12:45 a.m.) 3,980 m.g.d. (6,160 sec.-ft.); Feb. 10 (12:30 a.m.) 3,940 m.g.d. (6,100 sec.-ft.); Feb. 10 (7:45 a.m.) 3,940 m.g.d. (6,100 sec.-ft.); Mar. 6 (1 a.m.) 5,220 m.g.d. (8,080 sec.-ft.).
*Partly estimated.

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.
Drainage area.- 124.5 square miles.
Records available.- July 1928 to June 1939.
Average discharge.- 10 years (1929-39) 197 million gallons a day (305 second-feet).
Extremes.- Maximum discharge during year, 8,960 million gallons a day (13,900 second-feet) Feb. 10 (gage height, 17.41 feet), from rating curve extended above 3,400 million gallons a day; minimum, 10.8 million gallons a day (16.7 second-feet) May 29.
1928-39: Maximum discharge, 19,000 million gallons a day (29,400 second-feet) Feb. 17, 1937 (gage height, 22.20 feet), from rating curve extended above 3,400 million gallons a day; minimum, 1.1 million gallons a day (1.7 second-feet) Jan. 9, 1934.
Remarks.- Records good except those for periods of missing gage heights, Oct. 19, 20, Oct. 27 to Nov. 12, Dec. 29 to Jan. 6, Jan. 12-19, Mar. 9-16 (computed on basis of records for station at Pukamaui), and those above 4,000 million gallons a day, which are poor. Flow regulated by head gates. Hilo Water Works diverts about 1 million gallons a day for domestic supply from pool at Pukamaui, three-quarters of a mile upstream, and water passing station is used for power by Hilo Electric Light Co.

Rating table, fiscal year 1938-39 (gage height, in feet, and discharge, in million gallons a day)

2.0	10.0	3.5	88	8.0	774
2.3	19.4	4.0	130	10.0	1,490
2.6	31.5	5.0	233	12.0	2,690
3.0	53	6.0	370	14.0	4,460

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	60	42	42	66	250	70	70	390	202	53	277	15.0
2	78	23.5	42	53	450	158	56	362	2,330	56	189	11.7
3	44	47	51	121	90	56	45	199	827	53	130	192
4	36.5	71	159	88	350	39	40	139	715	39	159	285
5	45	30	80	423	200	34	36	199	1,230	72	116	100
6	130	34	59	991	140	50	35	139	3,040	100	92	56
7	130	56	65	259	200	124	679	680	1,840	243	76	349
8	84	28	106	159	400	1,470	2,240	464	834	566	66	104
9	59	324	70	112	350	1,020	847	484	500	324	53	66
10	70	127	59	108	300	574	2,060	3,640	300	272	44	56
11	56	141	47	70	600	340	837	715	220	207	36.5	42
12	44	56	39	53	1,000	221	350	385	190	139	31.5	36.5
13	84	44	31.5	44	1,760	149	170	271	180	180	27	76
14	98	44	28.5	36.5	725	104	130	199	200	189	24	42
15	92	39	23.5	46	464	80	300	149	240	233	23	50
16	80	50	21.5	84	311	66	2,500	116	100	615	31.5	50
17	66	36.5	22.5	47	245	56	450	92	116	710	31	196
18	62	34	28.5	39	179	62	1,500	76	104	1,090	23.5	145
19	44	371	90	500	139	414	600	62	73	434	23	132
20	53	218	61	350	108	1,560	707	62	59	297	23	70
21	42	112	31.5	94	92	3,800	376	66	50	258	28.5	56
22	31.5	73	28	50	73	2,790	332	44	50	416	26.5	50
23	26.5	361	29	39	62	718	271	51	44	297	27.0	42
24	24	476	26	31.5	53	410	189	233	44	858	19.1	50
25	22.5	424	26	26.5	47	271	139	181	44	311	17.0	34
26	24	199	80	23.5	39	258	279	299	62	469	26.5	34
27	20	139	39	21	36.5	233	517	211	42	221	16.0	50
28	18.4	92	31.5	19	31.5	273	199	240	44	189	14.1	36.5
29	19.4	84	134	18	31	110	149	-	80	210	12.0	96
30	21.5	62	116	17	50	120	139	-	73	159	13.1	73
31	98	47	-	70	-	90	599	-	66	-	23	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	130	18.4	56.9	88.0	1,760	5,410
August	476	23.5	125	193	3,880	11,920
September	159	21.5	55.6	86.0	1,670	5,120
October	991	17	131	203	4,060	12,460
November	1,760	31	292	452	8,780	26,930
December	3,800	34	507	784	15,720	48,240
Calendar year 1938	4,300	9	237	367	86,650	265,900
January	2,500	35	543	840	16,840	51,680
February	3,640	44	362	560	10,150	31,140
March	3,040	42	448	693	13,900	42,650
April	1,090	39	309	478	9,260	28,420
May	277	12.0	54.8	84.8	1,700	5,210
June	349	11.7	86.5	134	2,600	7,970
Fiscal year 1938-39	3,800	11.7	247	382	90,320	277,200

Peak discharge.- Dec. 21 (10 p.m.) 7,600 m.g.d. (11,800 sec.-ft.); Dec. 22 (2 a.m.) 7,180 m.g.d. (11,100 sec.-ft.); Feb. 10 (1:30 a.m.) 8,960 m.g.d. (13,900 sec.-ft.); Feb. 10 (8:15 a.m.) 8,920 m.g.d. (13,800 sec.-ft.); Mar. 6 (1 a.m.) 7,320 m.g.d. (11,300 sec.-ft.); Mar. 6 (2:30 a.m.) 7,290 m.g.d. (11,300 sec.-ft.).

Hilo Boarding School ditch at intake, near Hilo

Location.- Parshall flume, lat. 19°43'00", long. 155°08'55", 200 feet downstream from intake diversion dam on Wailuku River and 3¾ miles northwest of Hilo.

Records available.- October 1931 to June 1939.

Extremes.- Maximum gage height during year, 5.19 feet (discharge greater than 21.5 million gallons a day or 33.3 second-feet) Feb. 10; minimum discharge, 7.2 million gallons a day (11.1 second-feet) May 29, 30.
1931-39: Maximum discharge, beyond measuring capacity of station; no flow when water was shut out of ditch Nov. 23, 24, 1933.

Remarks.- Records below maximum capacity of Parshall flume control (21.5 million gallons a day at gage height 2.5 feet) are excellent except those for period of missing gage heights, Nov. 12-19, which were computed on basis of records for station on Wailuku River above Hilo Boarding School ditch and are poor. Above gage height 2.5 feet the control is drowned by overflow from Wailuku River. Water is used by Hilo Electric Light Co. for power.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.7	9.2	9.2	9.7	10.2	9.2	10.2	11.8	10.7	9.2	11.2	7.8
2	10.2	8.7	9.2	9.2	10.7	10.2	9.7	11.8	*15.1	9.2	10.7	7.3
3	9.7	8.7	9.2	10.2	9.2	8.7	9.7	10.7	*14.0	9.2	10.2	9.2
4	9.2	9.7	10.7	9.7	10.2	8.2	9.2	10.7	12.9	9.2	10.7	10.7
5	9.2	8.7	10.2	10.7	9.7	8.2	9.2	10.7	*13.4	9.2	10.2	9.7
6	10.7	8.7	9.7	13.4	9.2	8.7	8.7	10.2	*18.8	10.2	9.7	9.2
7	10.7	9.2	9.7	11.2	9.2	9.7	*11.8	*12.3	*17.6	10.7	9.7	11.2
8	10.2	8.7	10.2	10.7	10.7	12.3	*16.4	11.8	12.9	12.3	9.7	9.7
9	9.7	9.7	9.7	10.2	10.7	14.0	*12.9	11.2	12.3	11.8	9.2	9.2
10	9.7	10.2	9.7	10.2	10.7	12.3	*17.6	*18.8	11.8	11.2	9.2	9.2
11	9.7	10.2	9.2	9.7	*12.9	11.2	12.9	12.9	11.2	11.2	8.7	8.7
12	9.2	9.7	9.2	9.2	*14	10.7	11.2	11.2	11.2	10.7	8.7	8.7
13	10.2	9.2	8.7	9.2	14	10.7	10.7	11.2	10.7	10.7	8.7	9.7
14	10.2	9.2	8.7	8.7	15	10.2	10.7	10.7	10.7	11.2	8.2	9.2
15	10.2	9.2	8.7	8.7	14	9.7	10.7	10.2	11.2	11.2	8.2	9.2
16	10.2	9.2	8.2	9.7	13	9.7	*17.6	10.2	10.2	12.3	8.7	9.2
17	10.2	9.2	8.2	9.2	12	9.2	11.8	9.7	10.2	12.3	8.7	10.7
18	9.7	8.7	8.2	8.7	11	9.2	*15.1	9.7	10.2	14.0	8.2	10.2
19	9.2	10.2	9.7	10.2	10.5	10.7	11.8	9.2	9.7	11.8	8.2	10.2
20	9.2	11.2	9.2	10.7	10.2	*15.1	12.9	9.2	9.2	11.2	8.2	9.7
21	9.2	10.2	8.7	10.2	9.7	*17.6	11.8	9.2	9.2	11.2	8.2	9.2
22	8.7	9.7	8.7	9.2	9.7	*17.6	11.8	8.7	9.2	11.8	8.2	9.2
23	8.7	10.7	8.7	8.7	9.2	12.9	11.2	8.7	9.2	11.2	8.2	8.7
24	8.7	*12.9	8.2	8.7	9.2	11.8	10.7	10.7	9.2	12.9	7.8	9.2
25	8.2	11.8	8.2	8.7	8.7	11.2	10.7	10.7	9.2	11.2	7.8	8.7
26	8.7	11.2	9.7	8.2	8.7	11.2	10.7	10.7	9.2	11.2	8.2	8.7
27	8.2	10.7	9.2	8.2	8.2	11.2	11.8	10.7	9.2	11.2	7.8	9.2
28	8.2	10.2	8.7	8.2	8.2	11.2	10.7	10.7	9.2	10.7	7.3	8.7
29	8.2	10.2	9.2	7.8	8.2	10.7	10.7	-	9.7	10.7	7.3	9.7
30	8.2	9.7	10.2	7.8	8.7	10.2	10.7	-	9.7	10.7	7.3	9.7
31	9.7	9.2	-	9.2	-	10.2	*12.3	-	9.7	-	8.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.7	8.2	9.41	14.6	292	895
August	12.9	8.7	9.81	15.2	304	933
September	10.7	8.2	9.17	14.2	275	844
October	13.4	7.8	9.49	14.7	294	903
November	15	8.2	10.5	16.2	316	969
December	*17.6	8.2	11.1	17.2	344	1,050
Calendar year 1938	*20	6.9	10.1	15.6	3,700	11,360
January	*17.6	8.7	11.7	18.1	364	1,120
February	*18.8	8.7	10.9	16.9	304	934
March	*18.8	9.2	11.2	17.3	347	1,060
April	14.0	9.2	11.1	17.2	332	1,020
May	11.2	7.3	8.75	13.5	271	833
June	11.2	7.3	9.32	14.4	280	858
Fiscal year 1938-39	18.8	7.3	10.2	15.8	3,720	11,420

*Control drowned by overflow from Wailuku River for part of day; discharge probably greater than that indicated.

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 1939.

Extremes.- Maximum discharge during year, 28 million gallons a day (43 second-feet) Jan. 31 (gage height, 3.51 feet); minimum, 0.01 million gallons a day (0.02 second-foot) probably May 29 to June 2.
1938-39: Maximum discharge, that of Jan. 31, 1939; minimum, 0.01 million gallons a day (0.02 second-foot) Mar. 30, 1938, May 29 to June 2, 1939.

Remarks.- Records excellent except those for periods when clock was not running, July 1-17, May 18 to June 30, which were computed on basis of records for stations on nearby streams and are poor. Water used to supplement the municipal supply of Hilo during dry periods.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.8	2.65	1.88	2.7	2.7	3.15	3.15	0.43	1.80	0.41	0.66	0.10
2	2.8	2.65	2.2	2.7	2.75	3.15	3.1	.38	3.15	.41	.62	.10
3	2.8	2.75	2.5	2.75	3.15	3.05	3.05	.35	2.05	.45	.64	.40
4	2.8	2.75	2.65	2.65	3.25	2.95	3.05	.34	2.1	.43	.68	.52
5	2.8	2.65	2.5	2.85	3.15	2.9	3.0	.34	2.45	.41	.66	.45
6	2.9	2.7	2.4	3.05	3.05	3.0	3.0	.34	2.7	.40	.66	.40
7	2.9	2.75	2.8	2.75	3.15	2.8	3.75	.87	2.3	.41	.66	.58
8	2.9	2.6	2.8	2.65	3.25	3.0	4.6	.55	2.0	.40	.66	.56
9	2.8	2.6	2.8	2.65	3.25	2.75	3.8	.61	2.5	.43	.66	.52
10	2.8	2.55	2.8	3.0	3.1	2.55	3.3	1.71	2.8	.59	.64	.50
11	2.8	2.6	2.75	3.2	3.35	2.35	2.3	.53	2.75	.60	.64	.40
12	2.8	2.55	2.8	3.15	3.6	*2.3	1.76	.41	2.7	.57	.68	.35
13	2.8	2.55	2.75	3.15	1.50	*2.25	1.49	.38	2.65	.57	.70	.40
14	3.0	2.55	2.7	3.15	.77	*2.85	1.36	.35	1.56	.55	.70	.45
15	2.9	2.55	2.65	3.2	.42	3.35	1.42	.34	.65	.60	.70	.45
16	2.9	2.55	2.6	3.3	.21	3.3	1.99	.34	.49	.64	.61	.45
17	2.8	2.5	2.6	3.2	.31	3.3	1.95	.57	.43	.64	*.49	.54
18	*2.8	2.5	2.65	3.25	1.42	3.3	3.35	.70	.49	.72	.45	.50
19	2.8	2.6	2.75	3.2	2.65	3.3	3.4	.72	.53	.60	.40	.45
20	2.8	2.35	2.65	3.2	3.1	3.3	3.4	.72	.49	.57	.45	.41
21	2.8	2.3	2.65	3.15	3.05	5.9	3.25	.72	.48	.60	.50	.38
22	2.75	2.3	2.65	3.1	3.0	5.8	3.1	.72	.46	.75	.50	.38
23	2.75	2.55	2.65	3.1	2.95	5.4	3.05	.72	.45	.75	.50	.36
24	2.75	2.8	2.65	3.05	2.9	5.0	3.05	.72	.45	.84	.50	.36
25	2.75	2.15	2.7	3.0	2.85	5.0	3.0	.72	.45	.77	.45	.36
26	2.75	2.05	2.75	2.95	2.8	5.0	2.9	1.31	.45	.72	.35	.36
27	2.7	2.05	2.65	2.8	2.75	4.6	2.9	1.88	.43	.70	.30	.36
28	2.65	2.0	2.65	2.75	2.7	4.8	3.1	1.80	.43	.70	.25	.36
29	2.65	1.96	2.7	2.7	2.7	3.6	3.25	-	.43	.66	.20	.45
30	2.65	1.92	2.7	2.7	2.95	3.15	3.25	-	.43	.62	.15	.45
31	2.75	1.88	-	2.55	-	3.1	3.25	-	.43	-	.12	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.0	2.65	2.80	4.33	86.6	266
August	2.8	1.88	2.45	3.79	75.9	233
September	2.8	1.88	2.63	4.07	79.0	242
October	3.3	2.55	2.95	4.56	91.6	281
November	3.6	.21	2.56	3.96	76.8	236
December	5.9	2.25	3.56	5.51	110	338
Calendar year	-	-	-	-	-	-
January	4.6	1.36	2.91	4.50	90.3	277
February	1.88	.34	.699	1.08	19.6	60
March	3.15	.43	1.34	2.07	41.5	127
April	.84	.40	.584	.904	17.5	54
May	.70	.12	.522	.808	16.2	50
June	.58	.10	.412	.637	12.4	38
Fiscal year 1938-39	5.9	.10	1.97	3.05	717	2,200

*Partly estimated.

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 above mouth, and 1.5 miles west of Waimanu. Altitude, 1,980 feet, by barometer.

Drainage area.- 0.5 square mile.

Records available.- March to June 1939.

Extremes.- Maximum discharge during period, 456 million gallons a day (706 second-feet) Apr. 18 (gage height, 3.17 feet), from rating curves extended above 7 million gallons a day by test on model of station site; minimum, 0.57 million gallons a day (0.88 second-foot) May 29.

Remarks.- Records good. No diversions.

Rating tables, March to June 1939 (gage height, in feet, and discharge, in million gallons a day)

Mar. 18-22, May 17 to June 30

0.4	0.70	1.0	7.3
.5	1.28	1.2	12.0
.6	2.15	1.4	17.8
.7	3.25	1.7	28.5
.8	4.5		

Mar. 23 to May 16

0.4	0.54	0.8	3.15	1.6	20
.5	.95	1.0	5.5	1.9	35
.6	1.50	1.2	8.8	2.1	48
.7	2.2	1.4	13.5	2.3	69

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1									-	1.17	16.3	2.9
2									-	1.06	4.4	3.2
3									-	.83	6.1	19.8
4									-	.79	11.8	10.4
5									-	14.8	3.6	3.5
6									-	7.8	1.85	3.35
7									-	3.8	*1.50	7.6
8									-	2.85	†1.2	1.52
9									-	1.94	†1.0	1.93
10									-	7.7	†.9	2.45
11									-	2.4	†.8	1.91
12									-	1.85	†.7	11.9
13									-	4.4	*.66	13.6
14									-	2.05	.66	5.4
15									-	7.4	.62	7.6
16									-	7.6	8.2	6.3
17									-	11.4	4.9	4.0
18									-	52	1.60	4.2
19									1.15	9.2	1.28	4.1
20									.91	7.8	7.4	2.05
21									1.60	10.1	3.35	2.35
22									4.4	12.7	2.8	2.15
23									1.58	18.3	1.60	1.96
24									.95	34.5	1.09	1.28
25									.74	3.5	1.86	3.4
26									.74	2.05	2.7	5.0
27									3.85	1.78	1.09	2.55
28									12.1	1.71	.70	1.52
29									12.6	5.3	.61	5.9
30									4.9	7.2	4.4	2.65
31									1.57	-	4.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July						
August						
September						
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 19-31	12.6	0.74	3.62	5.60	47.1	145
April	52	.79	8.20	12.7	246	755
May	16.3	.61	3.22	4.98	100	307
June	19.8	1.28	4.88	7.55	146	449
The period	-	-	-	-	-	1,660

*Partly estimated.
†No gage-height record; discharge computed on basis of records for stations on all nearby streams.

Punalulu Stream near Waimanu

Location.- Lat. 20°08'50", long. 155°39'40", 200 feet upstream from Waimanu trail, 1.0 mile southeast from head of Awini ditch, 1.5 miles upstream from mouth, and 1.5 miles west of Waimanu. Altitude, 1,870 feet, by barometer.

Drainage area.- 1.4 square miles.

Records available.- March to June 1939.

Extremes.- Maximum discharge for period, 181 million gallons a day (280 second-feet) Apr. 18 (gage height, 3.96 feet), from rating curve extended above 4 million gallons a day by test on model of station site; minimum, 0.39 million gallons a day (0.60 second-foot) May 29.

Remarks.- Records good. No diversions.

Rating table, March to June 1939 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.29	0.7	2.85	1.4	13.7
.4	.68	.8	4.0	1.7	21.5
.5	1.22	1.0	6.6	2.0	30
.6	1.93	1.2	9.9	2.5	54

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1									-	0.99	14.2	1.85
2									-	.83	4.1	2.15
3									-	.63	6.1	20.5
4									-	.54	13.5	10.3
5									-	15.5	3.2	2.55
6									-	8.4	1.70	2.7
7									-	3.2	1.22	6.6
8									-	2.55	1.04	1.28
9									-	1.41	.83	1.42
10									-	8.5	*.73	1.70
11									-	2.2	†.66	1.33
12									-	1.55	†.60	11.0
13									-	3.45	*.54	13.7
14									-	1.62	.50	4.0
15									-	6.8	.46	6.1
16									-	7.4	7.6	5.4
17									-	10.4	3.3	2.85
18									-	47	1.04	3.15
19									-	10.2	.73	3.0
20									0.50	8.9	6.4	1.55
21									1.10	11.4	2.25	1.62
22									3.15	14.7	1.55	1.55
23									1.35	22	1.04	1.35
24									.78	28.5	.68	.93
25									.59	3.55	1.16	2.75
26									.54	1.93	1.67	4.4
27									3.3	1.55	.73	1.94
28									11.7	1.41	.54	1.28
29									13.2	4.8	.46	4.8
30									4.4	7.3	3.25	1.90
31									1.35	-	3.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July						
August						
September						
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 20-31	13.2	0.50	3.50	5.42	42.0	129
April	47	.54	7.97	12.3	239	734
May	14.2	.46	2.74	4.24	85.1	261
June	20.5	.93	4.19	6.48	126	386
The period	-	-	-	-	-	1,510

*Partly estimated.
†No gage-height record; discharge interpolated.

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 above mouth, and 1.8 miles west of Waimanu. Altitude, 1,880 feet, by barometer.

Drainage area.- 0.22 square miles.

Records available.- March to June 1939.

Extremes.- Maximum discharge during period, 22 million gallons a day (34 second-feet) Apr. 18 (gage height, 1.74 feet), from rating curve extended above 0.7 million gallons a day by test on model of station site; minimum, 0.21 million gallons a day (0.32 second-foot) June 11, 12, 25, 28, 30.

Remarks.- Records good. No diversions.

Rating table, March to June 1939 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.15	0.6	1.89
.3	.33	.7	2.9
.4	.64	.8	4.3
.5	1.15	1.0	8.2

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1									-	0.27	1.15	0.25
2									-	.27	.60	.25
3									-	.25	.78	.97
4									-	.25	1.28	.41
5									-	2.7	.60	.27
6									-	.93	.53	.25
7									-	.56	.50	.31
8									-	.41	*.47	.23
9									-	.39	*.46	.23
10									-	1.87	*.44	.23
11									-	.47	*.41	.23
12									-	.41	*.38	.58
13									0.36	.41	.36	1.01
14									.31	.36	.36	.33
15									.29	.54	.36	.31
16									.29	.44	.38	.29
17									.29	.54	.36	.29
18									.27	6.2	.33	.27
19									.25	1.24	.33	.25
20									.27	1.51	.52	.25
21									.33	1.60	.36	.25
22									.54	2.35	.33	.25
23									.27	3.3	.31	.23
24									.25	3.35	.29	.23
25									.25	.97	.31	.47
26									.23	.72	.29	.36
27									.32	.60	.29	.25
28									.73	.57	.29	.23
29									1.02	.60	.27	.29
30									.41	.57	.27	.23
31									.29	-	.27	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July						
August						
September						
October						
November						
December						
Calendar year						
January	-	-	-	-	-	-
February	-	-	-	-	-	-
March 13-31	1.02	0.23	0.367	0.568	6.97	21
April	6.2	.25	1.16	1.79	34.6	106
May	1.28	.27	.448	.693	13.9	43
June	1.01	.23	.333	.515	10.0	31
The period	-	-	-	-	-	201

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

Paopao Stream near Waimanu

Location.- Lat. 20°09'05", long. 155°40'05", 150 feet upstream from Waimanu trail, 0.6 mile east of intake to Awini ditch, 1.9 miles west of Waimanu. Altitude, 1,910 feet, by barometer.

Drainage area.- 0.55 square mile.

Records available.- February to June 1939.

Extremes.- Maximum discharge during period, 126 million gallons a day (195 second-feet) Apr. 18 (gage height, 3.38 feet), from rating curve extended above 8 million gallons a day by test on model of station site; minimum, 0.26 million gallons a day (0.40 second-foot) Feb. 16.

Remarks.- Records good. No diversions.

Rating table, February to June 1939 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.20	0.5	1.48	1.0	8.7
.25	.34	.6	2.4	1.2	13.1
.3	.49	.7	3.65	1.4	18.4
.4	.89	.8	5.1	1.7	28.5

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1								-	0.84	0.49	6.8	0.49
2								-	4.2	.46	1.69	.78
3								-	1.60	.43	3.3	9.8
4								-	.72	.44	6.7	3.4
5								-	.77	9.3	1.50	.76
6								-	1.51	3.7	.89	.76
7								-	1.45	2.15	.76	2.15
8								-	1.25	1.13	.68	.46
9								-	.76	.76	.64	.56
10								-	.64	5.5	.60	.65
11								-	.53	1.04	.57	.43
12								-	4.3	.72	.49	4.9
13								-	.96	.92	.49	6.5
14								0.31	.53	.68	.46	1.41
15								.28	.46	2.8	.46	2.15
16								.28	.43	2.9	2.05	1.83
17								2.05	.46	3.45	1.20	.94
18								1.28	.43	24.5	.53	.96
19								.56	.37	5.0	.43	.99
20								4.3	.37	5.2	3.05	.60
21								1.07	.65	5.7	.82	.75
22								.46	1.90	7.7	.49	.57
23								1.91	.58	11.8	.46	.62
24								3.1	.43	13.2	.40	.46
25								.98	.37	1.94	.39	1.54
26								.90	.37	1.21	.55	2.4
27								12.2	1.98	.99	.37	.82
28								2.25	5.3	.89	.34	.49
29								-	6.5	2.45	.31	1.76
30								-	1.86	2.7	.58	.64
31								-	.64	-	.84	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
January	-	-	-	-	-	-
February 14-28	12.2	0.28	2.13	3.30	31.9	98
March	6.5	.37	1.39	2.15	43.2	132
April	24.5	.43	4.00	6.19	120	369
May	6.8	.31	1.25	1.93	38.8	119
June	9.8	.43	1.69	2.61	50.6	155
The period	-	-	-	-	-	873

Kukui Stream near Waimanu

Location.- Lat. 20°09'10", long. 155°40'10", 300 feet upstream from Waimanu trail crossing, 0.4 mile from head of Awini ditch, and 2.1 miles west of Waimanu. Altitude, about 1,940 feet, by barometer.

Drainage area.- 0.44 square mile.

Records available.- February to June 1939.

Extremes.- Maximum discharge during period, 45 million gallons a day (70 second-feet) Feb. 27 (gage height, 0.97 foot), from rating curve extended above 10 million gallons a day by test on model of station site; minimum, 0.28 million gallons a day (0.43 second-foot) Mar. 27.

Remarks.- Records good. No diversions above station.

Rating table, Feb. 8 to June 30, 1939 (gage height, in feet and discharge, in million gallons a day)

0.2	0.16	0.6	1.60	1.4	8.1
.3	.40	.8	2.8	1.7	12.2
.4	.70	1.0	4.3		
.5	1.10	1.2	6.0		

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1								-	0.61	0.43	2.6	0.33
2								-	1.63	.38	.98	.43
3								-	.89	.35	1.43	3.0
4								-	.52	.35	2.7	1.18
5								-	.62	3.6	.98	.46
6								-	.77	1.96	.70	.46
7								-	.61	1.23	.64	.80
8								*0.52	.61	.76	.58	.35
9								.46	.49	.61	.55	.43
10								.64	.43	2.4	.52	.43
11								.49	.40	.78	.49	.35
12								.43	1.65	.58	.46	1.74
13								.35	.64	.61	.46	2.35
14								.35	.46	.52	.46	.71
15								.35	.40	1.24	.43	.80
16								.38	.38	1.08	.78	.80
17								.86	.46	1.45	.61	.58
18								.78	.40	9.3	.43	.52
19								.46	.35	2.4	.40	.52
20								1.35	.35	2.35	1.11	.43
21								.55	.49	2.65	.52	.46
22								.35	.91	3.45	.40	.43
23								.56	.43	4.8	.38	.43
24								1.16	.35	5.6	.35	.35
25								.46	.33	1.45	.35	.85
26								.49	.33	1.02	.35	.88
27								4.1	.69	.86	.33	.46
28								1.44	1.69	.74	.33	.38
29								-	2.6	1.05	.33	.76
30								-	.88	1.17	.35	.40
31								-	.49	-	.38	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
January	-	-	-	-	-	-
February 8-28	4.1	0.35	0.787	1.22	16.5	51
March	2.6	.33	.705	1.09	21.9	67
April	9.3	.35	1.84	2.85	55.2	169
May	2.7	.33	.690	1.07	21.4	66
June	3.0	.33	.736	1.14	22.1	68
The period	-	-	-	-	-	421

*Partly estimated.

Awini ditch at East Honokaneiki Gulch, near Niulii

Location.- Lat. 20°09'55", long. 155°43'10", at flume across East Honokaneiki Gulch, 4⅛ miles southeast of Niulii.

Records available.- October 1927 to June 1939.

Average discharge.- 10 years (1928-38) 11.8 million gallons a day (18.3 second-feet).

Extremes.- Maximum discharge during period, 31 million gallons a day (48 second-feet) sometime during Jan. 7-22 (gage height, 3.59 feet); minimum, 1.26 million gallons a day (1.95 second-feet) Sept. 17; no flow many times during year.
1927-39: Maximum discharge, 34 million gallons a day (53 second-feet) Jan. 9, 1935 (gage height, 3.76 feet); no flow when ditch was dry or water was turned out.

Remarks.- Records good except those for periods when clock was not running, Nov. 20 to Jan. 4, Jan. 8-21, computed on basis of records for stations on all nearby streams and are poor. Discharge for July 1 to Sept. 16 not computed because of insufficient data. 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			-	1.54	8.0	17	20	18.2	23	10.3	25	15.0
2			-	1.30	5.6	9.0	12	12.9	14.6	9.1	22	14.9
3			-	1.30	4.2	6.0	7.0	11.0	20.5	6.9	22	23
4			-	1.18	3.15	3.5	3.5	12.2	11.6	5.6	25	24
5			-	1.18	2.85	3.0	*1.44	9.1	10.9	23.5	20	19.0
6			-	9.3	2.5	2.8	4.2	7.4	18.9	23	15.0	16.6
7			-	8.3	2.2	15	*23	6.9	19.8	14.2	12.2	23
8			-	12.8	2.15	24	24	10.3	21	17.4	10.3	12.6
9			-	19.3	2.4	22	21	8.0	20	11.6	9.7	10.0
10			-	20.5	3.55	20	23	11.0	18.2	17.0	8.6	14.3
11			-	13.0	4.5	16	22	11.0	13.6	17.6	8.0	10.3
12			-	6.6	20	13	21	7.4	21.5	12.2	6.9	21
13			-	11.1	14.4	11	23	6.4	22.5	13.8	6.4	25
14			-	5.6	15.3	9.5	22	5.6	12.9	13.6	6.0	21
15			-	7.0	13.0	8.6	21	5.0	9.1	21.5	5.8	23
16			-	20.5	10.5	8.2	19	4.9	7.4	12.0	17.2	21
17			*1.39	11.5	10.1	8.0	18	17.8	11.9	6.9	20	22
18			2.95	18.0	5.0	20	20	15.2	16.6	9.5	10.3	15.8
19			12.7	9.7	3.5	24	21	8.0	11.0	7.4	9.1	19.0
20			9.8	6.4	3.3	24	23	16.8	7.8	6.9	14.2	12.2
21			4.6	5.0	3.0	18	20	20	17.9	6.9	17.6	11.6
22			3.2	4.2	2.7	13	*17.4	10.3	20	7.4	14.7	11.6
23			2.8	3.55	2.5	10	15.0	7.6	12.9	8.0	10.3	11.6
24			2.55	3.1	2.3	8.2	12.2	23	8.6	8.8	7.4	9.1
25			2.95	3.5	2.5	7.4	11.6	18.6	6.4	6.4	6.4	11.6
26			7.5	3.35	11	7.2	23.5	18.9	5.8	5.6	11.0	15.6
27			4.2	2.8	11	7.0	24	21	6.3	10.6	6.9	15.2
28			2.8	5.3	8.0	16	19.0	22.5	22.5	6.9	5.7	10.3
29			2.15	15.0	15	15	14.3	-	25	17.4	4.9	19.5
30			1.77	16.0	16	8.0	15.6	-	21	22	10.2	16.3
31			-	15.3	-	7.0	24	-	13.6	-	16.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September 17-30	12.7	1.39	4.38	6.78	61.4	188
October	20.5	1.18	8.49	13.1	263	808
November	20	2.15	7.01	10.8	210	645
December	24	2.8	12.3	19.0	381	1,170
Calendar year	-	-	-	-	-	-
January	24	1.44	17.6	27.2	546	1,670
February	23	4.9	12.4	19.2	347	1,060
March	25	5.8	15.3	23.7	473	1,450
April	23.5	5.6	12.0	18.6	360	1,100
May	25	4.9	12.4	19.2	385	1,180
June	25	9.1	16.5	25.5	495	1,520
The period	-	-	-	-	-	10,790

*Partly estimated.

ISLAND OF HAWAII

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 1939.

Extremes.- Maximum discharge recorded during period, 68 million gallons a day (105 second-feet) Dec. 8 (gage height, 4.00 feet); minimum, 2.5 million gallons a day (3.9 second-feet) Jan. 22.
1927-39: 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 excellent except those for period of missing gage heights, Jan. 1-6, which were computed on basis of records for stations on all nearby ditches and streams and are poor. Discharge for July 1 to Sept. 16 not computed because of insufficient data. Flow regulated by head gates. Kohala ditch receives flow of Awini ditch and diverts 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 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			-	13.0	21	28	36.5	32.5	32.5	24	34.5	34.5
2			-	13.0	18.3	21	32.5	27	34.5	22	34.5	32.5
3			-	13.0	16.5	16.5	26	28	39	20	34.5	48
4			-	12.2	14.7	14.7	21	26	25	18.3	36.5	46
5			-	12.2	14.7	14.7	17.4	21	26	47	32.5	36.5
6			-	24.5	13.8	14.7	15.6	20	36.5	34.5	29	34.5
7			-	22	13.0	36	*49	24	39	28	26	46
8			-	29	13.0	50	48	27	39	30	24	29
9			-	34.5	13.8	32.5	43	22	41	26	24	25
10			-	41	14.7	41	48	25	36.5	31	23	29
11			-	29	14.8	32.5	43	26	28	31	21	25
12			-	20	32.5	28	39	20	36.5	26	20	36.5
13			-	23	25	26	46	19.2	39	29	20	48
14			-	18.3	30	22	43	18.3	28	28	19.2	39
15			-	18.3	27	20	39	17.4	24	34.5	19.2	46
16			-	39	24	19.2	39	17.4	22	31	36.5	41
17			*13.0	25.5	24	18.3	31	34.5	25	34.5	41	43
18			14.7	32.5	17.6	32.5	39	29	30	36.5	27	32.5
19			29	23	14.7	46	41	21	25	25	24	36.5
20			25	19.2	14.7	46	43	29	21	16.5	29	28
21			18.3	17.4	14.7	39	39	34.5	32.5	18.3	36.5	26
22			15.6	16.5	13.8	34.5	25.5	24	34.5	26	34.5	26
23			14.7	15.6	13.0	27	30	21	27.5	30	26	26
24			14.7	14.7	13.0	23	28	43	22	30	21	23
25			14.7	14.7	13.8	19.2	27.5	36.5	19.2	16.5	20	24
26			18.3	14.7	21	17.4	43	34.5	18.3	13.8	23	28
27			15.6	13.8	22	*16.5	39	34.5	19.2	19.2	20	28
28			14.7	15.9	19.2	*28	34.5	39	42	25	18.3	24
29			13.8	27	26	20	29	-	53	28	17.4	36.5
30			13.0	34.5	27	17.4	28	-	39	32.5	23	32.5
31			-	31	-	17.4	34.5	-	29	-	43	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
September 16-30	29	13.0	16.8	26.0	235	721
October	41	12.2	21.9	33.9	678	2,080
November	32.5	13.0	18.7	28.9	561	1,720
December	50	14.7	26.4	40.8	819	2,510
Calendar year	-	-	-	-	-	-
January	49	15.6	35.4	54.8	1,100	3,370
February	43	17.4	26.8	41.5	751	2,310
March	53	18.3	31.1	48.1	964	2,960
April	47	13.8	27.1	41.9	812	2,490
May	43	17.4	27.0	41.8	838	2,570
June	48	23	33.8	52.3	1,010	3,110
The period	-	-	-	-	-	23,840

*Partly estimated.

Kehena ditch near Kohala

Location.- Three sharp-crested weirs, lat. 20°07'25", long. 155°45'05", at old Honokane weir, near head of West Branch of Honokanenui Gulch, and 8½ miles southeast of Kohala.

Records available.- December 1917 to November 1919, April 1928 to June 1939.

Average discharge.- 11 years (1928-39) 7.72 million gallons a day (11.9 second-feet).

Extremes.- Maximum discharge during year, 39.5 million gallons a day (61.1 second-feet) Jan. 16 (gage height, 1.09 feet); no flow Sept. 14-17.
1917-19, 1928-39: Maximum discharge, 86 million gallons a day (133 second-feet) Jan. 27, 1918 (gage height, 2.16 feet, former datum); no flow during dry periods.

Remarks.- Records good. Flow regulated by several gates above station. Intake on Honokanenui Stream 2 miles upstream from station, at altitude of about 4,200 feet. No diversions. Water used for irrigation in vicinity of Hawi.

Discharge, in million gallons, fiscal year July 1938 to June 1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.12	0.50	0.30	0.10	2.1	9.6	11.6	4.4	4.7	1.90	20.5	12.6
2	.9e	.30	.40	.10	1.12	3.45	6.6	6.4	12.3	1.26	9.2	12.5
3	1.12	.40	3.2	.10	.61	1.41	2.25	12.0	14.0	1.12	11.3	26
4	.84	1.93	12.2	.61	.40	.61	1.26	5.4	3.05	2.2	25.5	25
5	.84	.84	3.45	.51	.40	.30	.84	2.25	4.0	31.5	7.3	9.4
6	3.75	3.7	1.26	14.3	.30	.20	.50	1.57	10.8	26.5	2.85	6.5
7	3.75	10.2	.84	5.2	.20	9.0	23	4.5	23.5	9.1	1.90	19.0
8	3.9	4.2	.61	14.4	.10	30	23	3.9	22	6.3	1.26	3.45
9	1.41	12.4	.50	17.2	.30	30	18.7	1.90	20.5	13.6	1.12	1.73
10	2.35	7.7	.40	16.2	.84	25	34.5	4.3	11.9	22.5	.e4	2.85
11	1.90	12.6	.30	4.6	.61	17.2	26	3.9	5.1	9.2	.61	2.65
12	.9e	4.4	.20	1.73	5.0	6.8	32	2.45	16.8	5.4	.61	13.8
13	11.3	5.6	.10	1.12	5.0	3.05	31	1.73	15.9	16.5	.40	18.3
14	7.8	6.2	0	.84	6.4	1.90	25.5	1.26	3.45	22.5	.30	6.2
15	21	3.25	0	.84	7.2	1.41	27.5	1.12	1.90	24	.30	13.6
16	15.8	3.05	0	2.85	4.4	1.41	34	1.26	1.41	24	16.1	10.4
17	7.2	3.45	0	1.41	2.65	1.50	12.1	10.4	1.41	28	15.8	14.8
18	15.3	20.5	.e4	.98	.98	15.4	16.6	3.05	1.41	33	6.2	7.5
19	2.65	17.1	9.3	.72	.40	22	16.e	1.57	.84	20.5	6.2	8.9
20	1.72	14.1	3.9	.50	.20	17.4	30.5	3.4	1.07	9.2	7.4	2.25
21	5.1	13.9	1.12	.40	.10	11.2	16.4	8.8	2.65	12.1	11.8	1.57
22	1.73	4.8	.61	.30	0	10.2	4.7	2.85	2.25	22	9.6	2.1
23	.98	6.4	.40	.20	0	3.45	3.05	2.75	1.73	25.5	2.45	1.73
24	2.65	4.6	.30	*.20	0	2.1	2.1	20.5	1.12	31	1.26	1.57
25	1.26	1.90	.52	*.10	.01	1.26	6.7	10.3	.84	8.6	.98	.98
26	4.8	1.26	2.5	.20	4.1	1.12	33	8.4	.61	3.25	1.12	1.90
27	2.1	.84	.72	.10	3.45	1.10	24.5	9.6	.96	2.1	.72	1.73
28	.98	.72	.40	.11	3.1	3.0	9.0	11.6	19.4	1.73	.40	.9e
29	1.12	.61	.20	3.55	5.9	1.41	3.9	-	27	3.0	.50	10.7
30	.84	.50	.10	11.3	11.2	.98	6.0	-	12.1	11.1	7.6	6.6
31	.61	.40	-	6.0	-	3.15	15.6	-	3.45	-	18.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	21	0.61	4.13	6.39	128	392
August	20.5	.30	5.43	8.40	168	517
September	12.2	0	1.49	2.31	44.7	137
October	17.2	.10	3.44	5.32	107	328
November	11.2	0	2.24	3.47	67.1	206
December	30	.20	7.63	11.8	237	726
Calendar year 1938	34.5	0	6.09	9.42	2,220	6,820
January	34.5	.50	16.1	24.9	499	1,530
February	20.5	1.12	5.41	8.37	152	465
March	27	.61	8.00	12.4	248	762
April	33	1.12	14.3	22.1	429	1,320
May	25.5	.30	6.16	9.53	191	586
June	26	.98	8.24	12.7	247	759
Fiscal year 1938-39	34.5	0	6.90	10.7	2,520	7,730

*Partly estimated.

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MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Hawaii during fiscal year July 1938 to June 1939

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
May 24	Third Branch of Waimanu.	Waimanu Stream.	At altitude of 2,800 feet, near Waimanu.	1.61	1.04
Mar. 14	Second Branch of Waimanu.	....do.....	At altitude of 2,990 feet, near Waimanu.	*.155	*.100
May 23	....do.....	....do.....	....do.....	*.155	*.100
Mar. 14	First Branch of Waimanu.	....do.....	At altitude of 2,930 feet, near Waimanu.	.720	.465
May 23	....do.....	....do.....	....do.....	1.58	1.02
Sept.15	Waiilikahi.....	Pacific Ocean..	At altitude of 2,700 feet, near Kohala.	.774	.500
14	Kaimu.....	....do.....	At altitude of 2,000 feet, near Kohala.	.883	.571
14	Punalulu.....	....do.....	....do.....	.464	.300
14	Waiaalala.....	....do.....	....do.....	.384	.248
14	Paopao.....	....do.....	....do.....	.308	.199
14	Kukui.....	....do.....	....do.....	.396	.256
14	Right Branch of Waimaile.	....do.....	....do.....	*.036	*.023
Feb. 15	....do.....	....do.....	....do.....	.036	.023
Sept.14	Waimaile.....	....do.....	....do.....	.179	.116
Feb. 15	....do.....	....do.....	....do.....	.318	.206
Sept.16	Waikaloa.....	....do.....	At diversion into Awini ditch, near Kohala.	.999	.646
16	West Branch of Waikaloa.	....do.....	....do.....	.127	.082
16	Waiapuka.....	....do.....	At Awini ditch 1 flume, near Kohala.	.353	.228
16	Kamoloumi.....	....do.....	At Awini ditch 2 flume, near Kohala.	.289	.187
16	Ohiahuea.....	....do.....	At Awini ditch 3 flume, near Kohala.	.566	.366
16	Awini ditch.....	Kohala ditch...	At adit east of Oniu Stream, near Kohala.	1.92	1.24
16	....do.....	....do.....	At adit west of Oniu Stream, near Kohala.	2.88	1.86
16	Kolealiilii.....	Pacific Ocean..	At diversion into Awini ditch, near Kohala.	.258	.167
16	West Kolealiilii...	....do.....	....do.....	.080	.052
16	Kaukini.....	....do.....	....do.....	.251	.162
16	Awini ditch.....	Kohala ditch...	At Kaukini Stream, near Kohala...	3.03	1.96
16	....do.....	....do.....	At adit east of Honopue Stream, near Kohala.	3.32	2.15
16	Honopue.....	Pacific Ocean..	At diversion into Awini ditch, near Kohala.	.498	.322
16	Kailikaula.....	....do.....	....do.....	.249	.161
16	Kalae Spring.....	....do.....	....do.....	.097	.063
16	Awini ditch.....	Kohala ditch...	At Honokea Stream, near Kohala...	3.16	2.04
16	Honokea.....	Pacific Ocean..	At diversion into Awini ditch, near Kohala.	*.031	*.020
16	Wapalu.....	....do.....	....do.....	*.016	*.010
17	Awini ditch.....	Kohala ditch...	At upper end of concrete lined section, east of Honokaneiki Gulch, near Kohala.	2.71	1.75
17	....do.....	....do.....	At lower end of concrete lined section, east of Honokaneiki Gulch, near Kohala.	2.09	1.35

*Estimated.

The following tables summarize in convenient form for general reference and for use in preliminary investigations the figures of yearly discharge and run-off for certain gaging stations in Hawaii. All gaging stations, both active and discontinued, at which 10 or more complete years of record have been collected and published are represented. The summaries present figures of maximum and minimum daily discharge and yearly mean discharge and run-off, for both the fiscal years ending June 30 and the calendar years. The figures for the fiscal years prior to 1914 and figures for the calendar years 1914 to 1932 have not been previously published in the annual water-supply papers but are included in these summaries.

The number of the water-supply paper in which the figures of daily and monthly discharge as well as yearly discharge are published is shown in the column headed W.S.P. (no. and page). The descriptions contained in the water-supply papers indicated give detailed information relative to the gaging stations, including location, diversions, and other pertinent information.

Summary of yearly discharge, in million gallons a day, at stations on ISLAND OF KAUAI

Waimea River below Kekaha ditch intake, near Waimea, Kauai
(Drainage area, 45.0 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1926	740-8	870	0.03	15.5	17,300	594	0	13.4	15,000
1927	740-8	1,110	0	50.0	55,900	2,810	.09	61.8	69,300
1928	740-8	2,810	.1	35.9	40,400	2,160	.36	39.4	44,200
1929	740-8	2,160	.21	35.8	40,100	932	0	36.3	40,600
1930	740-8	1,680	0	53.5	59,900	1,680	.4	48.6	54,400
1931	740-8	857	.1	23.2	26,000	581	.1	23.1	25,800
1932	740-8	1,310	.1	57.1	64,200	2,100	.1	55.1	61,800
1933	755-8	2,100	.1	45.3	50,700	1,590	.1	37.9	42,430
1934	770-8	1,590	.1	23.3	26,050	827	.1	21.5	24,110
1935	795-13	1,090	.05	26.7	29,920	1,090	.02	29.2	32,680
1936	815-7	1,300	.02	50.4	56,650	1,300	.04	68.0	76,420
1937	835-6	1,970	.04	74.0	82,860	1,970	.08	63.5	71,080
1938	865-6	1,730	.08	61.2	68,590	1,730	.08	53.3	59,680
1939	885-6	1,000	.08	35.9	40,240	-	-	-	-

Kawaikoi Stream near Waimea, Kauai
(Drainage area, 4.1 square miles)

1912	336-35	283	2.6	20.3	22,800	-	-	-	-
1920	555-19	202	-	16.1	18,100	401	2.5	24.9	28,000
1921	555-19	899	1.9	33.3	37,400	899	1.4	28.4	31,800
1922	555-19	366	1.4	23.0	25,700	366	2.0	22.2	24,900
1923	575-19	746	2.0	26.1	29,300	746	2.5	30.3	34,100
1924	595-17	-	2.5	22.2	24,900	-	2.1	19.2	21,600
1925	615-12	419	2.1	23.1	25,900	419	1.9	19.8	22,200
1926	635-10	115	1.6	10.6	11,900	209	1.6	9.79	11,000
1927	655-10	378	1.7	20.8	23,300	378	2.1	26.0	29,100
1928	675-9	305	2.1	21.4	24,100	634	1.6	24.9	28,000
1929	695-9	634	1.6	22.9	25,600	361	1.6	21.8	24,400
1930	710-10	361	1.6	27.0	30,200	319	2.0	22.7	25,500
1931	725-9	232	2.0	14.8	16,600	199	2.4	19.6	21,900
1932	740-16	199	2.4	25.9	29,100	216	2.0	18.6	20,900
1933	755-9	216	2.0	15.4	17,200	208	-	14.7	16,520
1934	770-9	218	-	15.1	16,910	218	1.6	17.0	19,110
1935	795-14	222	1.7	18.1	20,260	222	1.7	16.8	18,820
1936	815-8	324	2.0	20.4	22,880	355	2.0	30.9	34,720
1937	835-7	356	2.5	32.4	36,260	356	3.4	29.2	32,660
1938	865-7	269	3.8	30.3	33,970	269	2.1	23.5	26,270
1939	885-7	237	2.1	16.1	18,090	-	-	-	-

Waiahulu Stream near Waimea, Kauai
(Drainage area, 20.0 square miles)

1926	635-13	339	6.8	17.9	20,100	266	5.9	15.6	17,400
1927	655-13	571	5.9	33.3	37,300	571	5.4	33.8	37,900
1928	675-11	-	-	18.0	20,300	-	-	25.2	28,300
1929	695-11	-	-	26.3	29,400	690	7.2	32.4	36,200
1930	710-12	690	7.2	40.4	45,200	525	8.7	33.2	37,200
1931	725-11	383	8.7	21.8	24,400	391	7.0	24.7	27,700
1932	740-18	550	7.0	39.1	43,900	689	8.0	33.4	37,500
1933	755-11	689	8.0	26.7	29,800	585	6.6	24.8	27,730
1934	770-11	585	6.6	20.6	23,070	353	7.9	19.0	21,330
1935	795-16	391	7.9	21.3	23,830	428	7.9	22.2	24,900
1936	815-10	600	7.9	33.3	37,380	623	8.6	44.2	49,600
1937	835-10	660	8.6	45.6	51,070	660	9.5	40.5	45,330
1938	865-10	463	8.6	39.3	44,050	463	8.6	33.7	37,770
1939	885-10	495	9.1	23.8	26,680	-	-	-	-

Summary of yearly discharge, in million gallons a day, at stations on Island of Kauai--Continued

Koaie Stream at elevation 3,700 feet, near Waimea, Kauai
(Drainage area, 3.4 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1920	555-28	212	1.4	11.1	12,500	268	1.8	16.7	18,700
1921	555-28	1,110	2.2	25.5	28,600	1,110	1.8	22.5	25,100
1922	555-28	278	1.8	16.0	17,900	692	2.0	18.4	20,700
1923	575-24	692	2.4	24.1	27,000	582	-	22.3	25,000
1924	595-23	539	-	14.4	16,200	539	1.5	13.2	14,800
1925	615-18	226	.8	13.6	15,300	226	.8	12.2	13,700
1926	635-15	95	1.1	7.29	8,160	232	1.1	7.36	8,250
1927	655-15	261	1.5	18.0	20,200	383	2.4	22.2	24,800
1928	675-12	383	1.2	*15.7	17,600	372	1.2	16.0	18,000
1929	695-12	372	.7	14.6	16,300	190	.7	12.7	14,200
1930	710-13	398	1.0	15.3	17,100	398	1.5	15.1	16,900
1931	725-12	210	1.0	10.3	11,500	146	1.0	11.7	13,100
1932	740-19	510	1.1	20.5	23,000	-	-	-	-

*Erroneous figure published in Water Supply Paper 675.

Waialae River at elevation 3,700 feet, near Waimea, Kauai
(Drainage area, 3.3 square miles)

1921	525-16	1,090	2.2	21.3	23,800	1,090	1.7	19.7	22,000
1922	555-31	362	1.7	15.0	16,800	689	1.4	16.5	18,500
1923	575-26	689	1.4	21.6	24,100	573	.9	19.6	21,900
1924	595-25	-	-	12.1	13,600	-	-	11.9	13,400
1925	615-20	221	-	13.1	14,700	221	-	11.6	13,000
1926	635-17	163	1.1	6.35	7,120	142	.8	5.37	6,000
1927	655-17	370	.8	13.0	14,500	509	2.0	17.6	19,800
1928	675-13	509	1.4	13.4	15,100	362	1.4	13.1	14,700
1929	695-13	362	1.3	12.7	14,300	207	1.0	11.1	12,400
1930	710-14	396	1.0	12.5	14,000	396	1.0	13.5	15,100
1931	725-13	196	.8	9.33	10,500	129	.8	8.88	9,940
1932	740-20	607	.8	17.3	19,500	-	-	-	-

Kekaha ditch at camp 1, near Waimea, Kauai

1910	318-59	-	-	-	-	66	0	-	47,000
1911	318-59	61	0	-	44,400	58	0	-	45,300
1912	336-40	65	0	-	47,500	65	0	-	46,200
1913	430-34	65	19	42.1	47,200	60	0	-	47,400
1914	430-39	60	0	-	48,200	60	0	-	50,600
1915	430-39	60	0	-	49,300	-	-	-	-
1918	485-35	-	-	-	-	62	0	-	57,700
1919	515-10	62	0	-	56,200	64	0	-	49,200
1920	516-18	65	0	-	47,200	65	0	-	52,000
1921	535-20	67	0	-	50,000	67	5.5	40.1	44,800
1922	555-33	64	.1	41.8	46,800	64	.1	40.9	45,800
1923	575-27	58	13.1	38.1	42,700	-	10.1	38.0	42,600
1924	595-27	54	10.1	39.0	43,800	-	-	-	-
1925	615-21	-	-	-	-	58	11.5	37.9	42,400
1926	635-18	55	11.4	31.0	34,800	51	11.4	28.7	32,200
1927	655-20	51	6.3	30.6	34,200	49	0	-	38,100
1928	675-14	50	0	-	39,000	50	0	-	39,000
1929	695-14	56	0	-	39,000	56	2.3	33.0	36,900
1930	710-15	58	7.2	33.2	37,200	-	3.7	38.0	42,600
1931	725-14	-	3.7	36.3	40,700	-	3.8	35.1	39,300
1932	740-21	-	0	-	41,400	55	0	-	37,600
1933	755-12	55	0	-	38,300	51	0	-	37,840
1934	770-12	51	11.5	33.0	37,030	53	11.5	35.1	39,300
1935	795-17	53	21.5	33.3	37,350	53	21.5	32.3	36,170
1936	815-11	53	2.2	31.9	35,850	53	2.2	36.0	40,430
1937	835-11	53	20.5	39.6	44,390	53	20.5	40.4	45,280
1938	865-11	53	.1	41.4	46,330	53	.1	38.2	42,820
1939	885-11	53	26	35.8	40,100	-	-	-	-

Hanapepe River at Koula, near Eleele, Kauai
Drainage area, 18.8 square miles)

1918	485-42	1,610	11	78.8	88,200	1,610	11	94.8	106,000
1919	515-17	980	13.2	51.0	57,200	2,350	13.2	47.4	53,100
1920	516-25	2,350	7.6	69.0	77,600	1,860	7.6	71.9	80,900
1927	535-26	-	-	-	-	736	11.1	65.5	73,400
1928	675-16	736	9.5	48.7	54,700	320	9.5	44.4	49,900
1929	695-16	320	-	36.5	40,900	548	-	29.9	33,500
1930	710-17	548	10.5	32.4	36,300	630	12.4	46.7	52,400
1931	740-23	630	11	40.5	45,300	594	11	43.1	48,200
1932	740-23	-	13.5	90.4	102,000	-	13.5	77.7	87,300
1933	755-14	562	14	58.8	65,800	562	-	50.3	56,340
1934	770-15	536	10.5	32.3	36,180	536	10.5	40.8	45,690
1935	795-18	662	11.1	42.6	47,670	1,210	10.2	46.8	52,410
1936	815-12	1,210	10.0	46.8	52,590	684	10.0	62.2	69,910
1937	835-12	1,500	14.8	95.1	106,500	1,500	12.2	88.4	98,960
1938	865-12	902	12.2	69.4	77,780	571	9.2	59.8	66,990
1939	885-12	656	8.9	66.1	73,980	-	-	-	-

Summary of yearly discharge, in million gallons a day, at stations on Island of Kauai--Continued

Hanapepe ditch at Koula, near Eleele, Kauai

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1911	318-82	33	0	23.1	25,800	33	0	23.3	26,100
1912	336-59	33	0	29.3	32,900	*33	12.3	29.3	32,900
1913	373-40	37	11	30.4	34,100	†37	11	†29.6	†33,200
1914	430-59	†34	0	-	†30,200	34	0	-	29,400
1915	430-59	34	0	-	30,200	34	0	-	31,800
1916	455-46	34	0	-	28,800	34	0	-	29,400
1917	465-48	34	0	-	28,900	34	0	-	27,400
1918	485-43	36	2.3	27.5	30,800	36	0	-	30,200
1919	515-18	34	0	-	28,800	32	0	-	25,700
1920	516-26	34	0	-	26,100	34	0	-	30,800
1921	535-28	35	0	-	29,600	-	-	-	
1928	675-17	32	0	-	30,300	33	4.3	27.8	31,200
1929	695-17	33	0	-	30,000	33	0	-	24,100
1930	710-20	33	0	-	22,200	33	0	-	26,100
1931	725-19	33	0	-	25,300	32	13	22.3	24,900
1932	740-28	32	0	-	27,300	32	0	-	26,500
1933	755-16	32	1.3	23.4	26,200	32	1.3	22.3	24,960
1934	770-17	29	1.6	20.3	22,680	29	1.6	21.0	23,500
1935	795-20	33	0	22.3	24,960	33	0	23.0	25,740
1936	815-14	33	0	23.3	26,130	33	0	24.4	27,360
1937	835-14	33	0	25.0	28,000	33	0	25.0	28,030
1938	865-14	33	0	25.7	28,850	34	0	27.2	30,460
1939	885-13	34	0	28.3	31,640	-	-	-	-

*Record revised for calendar year 1912 but revisions have not been heretofore published.
†Supersedes record published in Water Supply Papers 373 and 430.

South Fork of Wailua River near Lihue, Kauai
(Drainage area, 22.4 square miles)

1915	430-63	3,420	6.5	126	141,000	1,260	6.5	113	126,000
1916	445-50	1,320	14	142	160,000	1,850	14	161	181,000
1918	485-47	2,540	12	141	158,000	-	-	-	-
1920	516-30	4,140	7.0	71.7	80,400	4,140	7.0	107	120,000
1922	555-37	1,800	5.1	69.6	78,100	2,020	5.6	80.2	89,900
1923	575-31	3,640	4.7	101	114,000	3,640	4.6	81.0	90,700
1924	595-31	1,090	4.6	45.5	51,200	1,090	4.7	43.6	49,000
1926	635-22	510	-	29.6	33,200	510	-	17.8	20,000
1927	655-25	2,040	1.8	83.8	93,900	4,310	-	125	140,000
1928	675-19	4,310	3.1	83.1	93,300	1,470	3.0	74.0	83,100
1929	695-18	1,470	2.1	57.7	64,700	4,410	2.1	56.1	62,700
1930	710-23	4,410	3.4	69.3	77,600	1,190	3.6	80.7	90,400
1931	725-22	976	1.5	53.9	60,300	600	1.5	46.1	51,600
1932	740-31	1,710	2.4	115	129,000	1,710	2.2	93.4	105,000
1933	755-17	2,520	2.2	82.8	92,800	2,520	1.7	70.1	78,530
1934	770-18	730	1.7	21.2	23,800	1,180	1.8	43.4	48,660
1935	795-21	1,450	2.0	54.4	60,920	1,450	2.0	59.1	66,150
1936	815-15	968	2.4	57.9	64,970	1,720	2.5	72.7	81,630
1937	835-15	2,860	2.5	127	142,100	2,860	2.3	110	123,700
1938	865-15	1,340	2.3	82.2	92,120	1,230	2.6	70.9	79,380
1939	885-14	1,210	2.6	81.4	91,180	-	-	-	-

North Fork of Wailua River at altitude 650 feet, near Lihue, Kauai
(Drainage area, 6.6 square miles)

1921	555-39	-	-	-	-	920	19.6	58.4	65,400
1922	555-39	371	19.6	47.9	53,600	508	21	50.7	56,700
1923	575-33	-	18.4	54.2	60,600	-	-	50.3	56,300
1924	595-33	356	13.0	40.0	45,000	356	10.6	34.0	38,200
1925	615-28	302	-	31.4	35,200	302	9.8	36.1	40,400
1926	635-24	160	10.4	30.0	33,600	276	10.4	27.5	30,800
1927	655-27	541	13.6	59.8	67,000	855	14.6	80.5	90,200
1928	675-20	855	20	66.1	74,300	417	20	62.0	69,600
1929	695-19	417	20	58.2	65,200	342	20	48.7	54,600
1930	710-24	-	20	47.4	53,100	315	21	54.7	61,400
1931	725-23	315	12	43.7	49,000	234	12	44.1	49,400
1932	740-32	596	16.5	75.0	84,200	596	21	64.9	72,800
1933	755-18	516	21	55.8	62,500	516	-	50.3	56,340
1934	770-19	385	5.8	35.9	40,240	385	5.8	49.3	55,180
1935	795-22	411	8.0	50.7	56,770	411	8.0	46.2	51,730
1936	815-16	397	1.6	46.7	52,510	549	1.6	57.1	64,110
1937	835-16	1,030	7.4	84.5	94,660	1,030	8.5	80.7	90,370
1938	865-16	472	5.1	66.1	74,040	340	4.0	57.0	63,900
1939	885-15	418	4.0	59.1	66,230	-	-	-	-

East Branch of North Fork of Wailua River near Lihue, Kauai
(Drainage area, 6.2 square miles)

1913	373-53	-	-	-	-	110	7.8	25.7	28,700
1914	430-75	110	10	26.0	29,100	-	-	-	-
1918	485-55	490	9	28.7	32,100	-	-	-	-
1921	535-38	1,430	14.0	49.7	55,800	1,430	-	46.5	52,200
1922	555-43	484	-	32.9	36,800	357	10.6	34.1	38,200
1923	575-36	619	10.6	38.6	43,200	619	7.7	36.5	40,800

Summary of yearly discharge, in million gallons a day, at stations on Island of Kauai--Continued

East Branch of North Fork of Wailua River near Lihue, Kauai--Continued
(Drainage area, 6.2 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1924	595-37	429	7.7	30.1	33,800	429	-	26.4	29,700
1925	615-31	328	-	24.1	27,000	328	7.6	26.5	29,700
1926	635-27	193	4.9	18.7	21,000	486	4.5	16.8	18,800
1927	655-30	804	4.5	40.6	45,500	974	-	49.4	55,200
1928	675-22	974	12.5	33.8	37,900	473	12.5	30.1	33,800
1929	695-21	473	11.9	29.1	32,600	687	-	28.5	31,900
1930	710-26	687	-	32.2	36,100	296	15	36.7	41,200
1931	725-25	239	10	27.9	31,300	151	10	25.1	28,160
1932	770-24	329	12.5	39.7	44,620	329	9.8	34.7	38,970
1933	770-24	368	9.8	32.0	35,870	368	8.3	28.8	32,290
1934	770-24	213	7.0	19.1	21,400	213	7.0	26.2	29,350
1935	795-26	159	10.1	27.7	31,040	186	10.1	24.7	27,630
1936	815-20	198	10.8	24.7	27,760	312	10.8	30.7	34,490
1937	835-22	504	11.4	41.2	46,220	504	11.3	37.0	41,420
1938	865-22	246	11.3	32.6	36,510	246	10.5	29.7	33,280
1939	885-21	184	10.5	28.5	31,940	-	-	-	-

Anahola River near Kealia, Kauai
(Drainage area, 5.5 square miles)

1915	430-82	282	2	12.3	13,700	130	2	11.5	12,900
1918	485-60	267	4.3	17.1	19,100	-	-	-	-
1920	516-44	312	2.7	10.8	12,100	312	3.2	13.6	15,300
1921	535-41	-	2.5	23.6	26,400	-	1.4	23.0	25,700
1922	555-48	246	1.4	14.5	16,200	238	2.7	14.5	16,200
1923	575-40	350	2.7	17.0	19,000	350	1.5	16.1	18,000
1924	595-41	135	1.5	11.5	12,900	135	2.2	10.1	11,300
1925	615-35	104	2.2	8.07	9,040	105	2.2	8.43	9,430
1926	635-30	105	1.6	6.21	6,950	63	1.6	5.15	5,770
1927	655-33	239	1.9	14.4	16,100	453	3.1	19.9	22,300
1928	675-24	453	3.0	14.1	15,800	444	2.6	12.0	13,500
1929	695-23	444	2.6	12.2	13,700	-	2.6	12.7	14,200
1930	710-28	-	2.6	15.2	17,100	252	4.0	16.6	18,600
1931	725-27	137	3.8	12.3	13,800	168	-	11.4	12,800
1932	740-36	-	2.3	16.4	18,500	-	1.9	12.8	14,300
1933	755-24	-	1.9	9.92	11,100	-	1.8	8.59	9,630
1934	770-28	289	1.8	8.76	9,820	289	1.8	13.1	14,680
1935	795-28	137	3.4	11.7	13,070	137	3.0	9.08	10,170
1936	815-22	239	3.0	10.7	12,010	488	4.0	16.3	18,310
1937	835-26	577	4.0	24.0	26,830	577	2.7	19.8	22,220
1938	865-26	506	2.7	17.2	19,280	506	2.95	15.8	17,730
1939	885-25	163	2.95	12.7	14,260	-	-	-	-

Anahola ditch above Kaneha Reservoir, near Kealia, Kauai

1917	465-64	-	-	-	-	22	1.6	4.62	5,180
1918	485-62	24	1.6	5.50	6,160	-	-	-	-
1920	516-46	-	0	-	4,600	-	-	-	-
1922	555-49	-	.4	4.48	5,010	-	.4	4.25	4,760
1923	575-42	10.8	.3	3.36	3,770	14.5	0	-	3,880
1924	595-43	18.2	0	-	4,570	18.2	0	-	4,140
1925	615-37	-	0	-	3,190	11.7	0	-	2,800
1928	675-25	13.5	0	-	3,050	17.8	0	-	3,160
1929	695-24	17.8	0	-	3,590	11.8	0	-	2,690
1930	710-29	12	0	-	2,570	12	0	-	2,930
1931	725-28	12	0	-	3,410	14	0	-	3,430
1932	740-37	14	0	-	2,910	14.5	0	-	2,930
1933	755-25	16	0	-	3,170	16	0	-	3,260
1934	770-29	17	.01	2.86	3,190	17	.01	3.09	3,460
1935	795-29	21.5	.01	3.23	3,620	21.5	.01	2.72	3,040
1936	815-23	15.1	.01	2.58	2,900	16.6	.02	3.00	3,370
1937	835-27	16.6	0	2.04	2,280	15.2	0	1.74	1,950
1938	865-27	15.2	.01	2.02	2,270	24	.01	2.58	2,890
1939	885-26	24	.01	2.67	2,990	-	-	-	-

Hanalei River at altitude 625 feet, near Hanalei, Kauai
(Drainage area, 7.4 square miles)

1916	445-65	678	25	90.8	102,000	835	25	87.5	98,200
1919	555-53	582	-	64.8	72,600	582	-	50.1	56,100
1920	555-53	890	-	59.3	66,600	1,050	28	78.9	88,600
1921	555-53	2,870	-	108	121,000	2,870	-	96.8	108,000
1922	555-53	636	28	68.2	76,400	771	-	68.9	77,100
1923	575-48	910	30	73.0	81,700	910	27	73.5	82,200
1924	595-47	739	23	61.6	69,200	739	23	53.0	59,500
1925	615-41	338	23	49.5	55,400	338	18.4	44.1	49,400
1926	635-35	208	6.6	27.8	31,200	215	6.6	24.5	27,400
1927	655-37	763	10.5	52.5	58,800	1,290	11.1	59.2	66,300
1928	675-26	1,290	10.8	39.8	44,700	651	10.8	38.7	43,500
1929	695-25	651	9.3	34.2	38,300	584	8.6	30.9	34,600
1930	710-30	584	8.6	35.4	39,600	462	11	41.9	47,000
1931	725-29	362	-	33.3	37,300	-	-	32.8	36,800
1932	740-38	792	-	58.3	65,400	792	10	50.8	57,000

Summary of yearly discharge, in million gallons a day, at stations on Island of Kauai--Continued

Hanalei River at altitude 625 feet, near Hanalei, Kauai--Continued
(Drainage area, 7.4 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1933	755-28	642	10	43.1	48,300	642	7.9	37.4	41,880
1934	770-32	372	7.2	26.0	29,170	372	7.2	31.6	35,430
1935	795-33	311	9.2	31.8	35,630	311	8.1	29.6	33,120
1936	815-27	288	8.1	28.3	31,790	478	8.1	39.7	44,580
1937	835-33	1,290	9.6	58.4	65,420	1,290	9.5	52.1	58,370
1938	865-33	410	9.5	43.1	48,300	330	9.7	40.5	45,360
1939	885-32	518	10.1	38.6	43,210	-	-	-	-

Waioli Stream near Hanalei, Kauai
(Drainage area, 1.6 square miles)

1917	515-42	336	6.0	23.2	25,900	117	7.0	15.1	16,900
1918	515-42	160	5.0	18.3	20,500	-	-	-	-
1920	516-53	129	-	15.6	17,500	137	5.6	19.5	21,900
1921	535-47	495	5.6	25.7	28,800	495	5.7	24.0	26,900
1922	555-59	244	5.7	21.6	24,200	242	6.4	21.5	24,100
1923	575-50	287	7.2	22.2	24,800	287	7.5	23.6	26,400
1924	595-49	205	7.0	19.4	*21,800	205	5.9	15.8	17,800
1925	615-42	150	5.9	17.1	19,100	150	6.0	18.9	21,200
1926	635-36	118	-	13.7	15,300	217	-	12.1	13,500
1927	655-38	357	-	26.6	29,800	357	-	31.5	35,200
1928	675-27	157	7.9	22.1	24,800	391	7.9	22.9	25,700
1929	695-26	391	6.7	20.1	22,500	171	-	15.7	17,500
1930	710-31	190	-	17.4	19,500	190	5.1	18.5	20,700
1931	725-30	138	-	14.4	16,100	110	-	15.1	17,000
1932	740-39	209	5.7	20.9	23,500	-	-	-	-

*Supersedes figures published in Water Supply Paper 595.

Lumahai River near Hanalei, Kauai
(Drainage area, 7.1 square miles)

1916	445-69	-	-	-	-	790	30	113	127,000
1921	535-49	-	-	92.6	104,000	-	26	88.1	98,800
1922	555-61	975	24	82.0	91,800	1,100	24	77.7	86,900
1923	575-52	-	24	72.2	80,900	-	24	83.3	93,300
1924	595-51	1,250	24	78.3	88,000	1,250	20	64.0	71,900
1925	615-44	968	16.8	64.3	72,000	968	16.8	64.1	71,900
1926	635-38	398	14.0	40.5	45,300	869	14.0	38.0	42,500
1927	655-40	1,370	14.9	84.5	94,600	1,370	15.7	97.0	109,000
1928	675-28	728	21	68.7	77,200	1,750	21	80.7	90,500
1929	695-27	1,750	15.3	74.7	83,600	1,130	15.3	64.9	72,800
1930	710-32	1,170	-	78.0	87,300	1,170	22	74.2	83,000
1931	755-29	797	17.5	52.1	58,400	672	17.5	61.5	69,000
1932	755-29	966	18	93.2	105,000	966	23	76.2	85,600
1933	755-29	-	18.5	62.3	69,800	-	-	-	-

ISLAND OF OAHU

Right Branch of North Fork of Kaukonahua Stream, near Wahiawa, Oahu
(Drainage area, 1.2 square miles)

1914	430-194	91	0.2	5.44	6,080	-	-	-	-
1915	430-194	-	-	-	-	125	0.4	7.17	8,040
1916	446-136	126	.6	8.29	9,310	126	.6	8.36	9,400
1917	465-108	101	.7	9.48	10,600	101	.4	6.08	6,820
1918	485-103	102	.4	6.41	7,180	102	.7	8.71	9,750
1919	515-63	58	.6	6.17	6,910	-	.3	5.63	6,310
1920	516-69	-	-	5.49	6,160	-	-	5.47	6,140
1921	535-63	230	.6	7.84	8,780	230	.6	8.32	9,330
1922	555-69	-	.8	7.30	8,180	119	.8	7.80	8,730
1923	575-62	-	.8	9.11	10,200	-	.8	8.40	9,420
1924	595-58	187	-	6.86	7,710	187	.3	6.37	7,160
1927	655-57	179	.2	8.99	10,100	179	.65	11.7	13,100
1928	675-29	94	.4	8.00	9,000	94	.4	7.41	8,340
1929	695-30	83	.5	6.84	7,660	135	.4	5.43	6,070
1930	710-34	135	.4	6.77	7,580	277	.4	10.5	11,700
1931	725-32	277	.2	7.77	8,690	94	.2	6.36	7,120
1932	740-45	165	.8	14.0	15,800	165	.4	12.1	13,600
1935	795-38	297	.44	6.66	7,470	297	.24	5.73	6,420
1936	815-32	111	.24	4.85	5,450	119	.24	8.33	9,350
1937	835-38	151	.99	11.9	13,330	151	.99	10.8	12,060
1938	865-37	101	1.17	8.97	10,040	81	.87	7.38	8,270
1939	885-36	139	.87	8.28	9,270	-	-	-	-

Left Branch of North Fork of Kaukonahua Stream, near Wahiawa, Oahu
(Drainage area, 1.5 square miles)

1914	430-196	88	0.3	7.08	6,930	-	-	-	-
1915	430-196	-	-	-	-	158	0.25	10.9	12,200
1916	445-138	214	.5	13.6	15,300	214	.5	14.2	15,900
1917	465-109	148	.8	14.3	16,000	148	.7	8.59	9,600
1918	485-105	217	.7	9.41	10,500	217	1.5	12.8	14,400
1919	515-65	125	.8	9.18	10,300	111	.2	8.03	9,000

Summary of yearly discharge, in million gallons a day, at stations on Island of Oahu--Continued

Left Branch of North Fork of Kaukonahua Stream, near Wahiawa, Oahu--Continued
(Drainage area, 1.5 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1920	516-71	231	0.1	8.84	9,940	231	0.1	9.58	10,800
1921	535-65	597	-	14.4	16,200	597	-	15.6	17,400
1922	555-71	213	-	12.2	13,600	131	1.3	11.5	12,900
1923	575-64	303	1.1	13.4	15,000	303	1.1	12.3	13,800
1924	595-60	270	.3	8.73	9,800	270	.3	8.07	9,070
1927	655-59	-	-	13.4	15,000	-	-	16.8	18,900
1928	675-31	-	1.0	11.4	12,800	145	1.0	11.0	12,400
1929	695-31	145	.9	9.36	10,500	142	.4	5.85	6,550
1930	710-35	142	.4	8.12	9,080	455	.6	13.9	15,600
1931	725-33	455	.1	10.8	12,100	168	.1	10.7	11,900
1932	740-46	421	2.0	22.5	25,300	421	.4	18.9	21,200
1933	755-36	-	.4	10.8	12,000	-	.1	7.46	8,360
1934	770-39	-	.1	7.18	8,050	-	.1	9.42	10,550
1935	795-39	630	.4	9.83	11,020	630	.3	8.70	9,760
1936	815-33	120	.3	6.83	7,680	147	.3	11.6	13,010
1937	835-39	198	1.2	15.7	17,560	198	1.4	14.0	15,660
1938	865-38	154	1.3	12.2	13,690	93	.79	10.5	11,780
1939	885-37	311	.79	13.0	14,540	-	-	-	-

Moanalua Stream near Honolulu, Oahu
(Drainage area, 3.2 square miles)

1927	655-42	258	0	4.50	5,040	258	0	6.76	7,560
1928	675-32	163	0	3.20	3,600	37	0	.809	908
1929	695-32	22	0	.270	302	-	0	.740	830
1930	710-37	75	0	1.91	2,150	355	0	3.48	3,900
1931	725-36	355	0	2.27	2,550	63	0	1.53	1,710
1932	740-58	209	0	6.17	6,930	209	0	5.38	6,040
1933	755-45	128	0	2.13	2,380	128	0	1.50	1,680
1934	770-47	130	0	1.05	1,170	130	0	1.70	1,900
1935	795-46	204	0	2.30	2,580	204	0	1.77	1,990
1936	815-40	14.9	0	.456	511	58	0	2.21	2,480
1937	835-46	95	0	4.52	5,060	95	0	4.11	4,600
1938	865-45	87	0	3.83	4,290	87	0	2.88	3,230
1939	885-44	149	0	3.22	3,600	-	-	-	-

Kalihi Stream near Honolulu, Oahu
(Drainage area, 2.7 square miles)

1917	465-79	68	1.0	5.41	6,060	68	0.25	3.62	4,050
*1918	*485-75	71	.25	5.23	5,850	87	.7	7.15	8,000
1919	515-45	87	.7	4.18	4,680	40	.7	3.03	3,400
1920	516-55	40	.5	2.78	3,120	60	.5	3.34	3,740
1922	555-63	-	.7	5.33	5,980	74	.9	4.91	5,510
1923	575-54	297	.9	8.15	9,130	297	.9	7.75	8,690
1924	595-53	-	.1	4.38	4,930	-	.1	3.66	4,120
1925	615-46	29	.5	3.05	3,410	30	-	3.09	3,460
1926	635-40	31	-	1.86	2,080	-	-	1.98	2,220
1927	655-44	-	.5	7.26	8,130	-	1.1	10.4	11,600
1928	675-33	172	1.1	6.75	7,580	35	1.0	3.99	4,480
1929	695-33	40	.5	3.24	3,630	-	.2	4.08	4,570
1930	710-38	-	.2	5.76	6,440	-	-	7.46	8,360
1931	725-37	-	-	5.09	5,710	79	-	4.79	5,360
1932	740-59	174	.7	9.26	10,400	174	.7	6.96	7,830
1933	755-46	117	.4	4.43	4,970	117	.2	3.19	3,570
1934	770-48	122	.2	2.97	3,330	122	.7	4.87	5,450
1935	795-47	216	1.13	5.46	6,120	216	1.0	4.71	5,280
1936	815-41	49	.78	3.49	3,920	86	.78	5.56	6,240
1937	835-47	121	1.37	8.44	9,460	121	1.46	7.76	8,690
1938	865-46	95	1.46	7.34	8,220	95	.97	6.16	6,900
1939	885-45	98	.97	5.64	6,330	-	-	-	-

*Record revised.

Nuuanu Stream below reservoir 2 wasteway, near Honolulu, Oahu
(Drainage area, 3.4 square miles)

1915	430-109	86	0.25	5.66	6,340	53	0.15	3.51	3,940
1916	445-84	111	.15	7.31	8,210	-	-	-	-
1918	485-77	80	.15	6.03	6,750	80	.4	7.11	7,960
1919	515-48	23	.4	2.15	2,410	8.1	.2	.891	999
1920	516-57	8.5	.2	.71	798	19.3	.2	.834	935
1922	555-65	-	-	-	-	68	.09	3.80	4,260
1923	575-56	222	.09	8.48	9,490	222	.25	8.10	9,060
1924	595-56	91	.25	2.90	3,260	91	.3	2.21	2,480
1925	615-49	11.0	.3	.934	1,040	-	-	1.13	1,260
1926	635-42	-	.15	.794	890	27	.15	.683	767
1927	655-45	332	.25	6.59	7,380	332	.8	11.2	12,600
1928	675-34	109	-	.774	8,720	31	-	4.44	4,980
1929	695-34	31	.9	3.12	3,500	136	.85	4.58	5,120
1930	710-39	136	.85	9.13	10,200	231	-	11.3	12,700
1931	725-38	231	.78	6.97	7,810	-	.78	7.65	8,580
1932	740-60	247	-	15.3	17,100	247	1.4	11.3	12,700
1933	755-47	181	.78	6.50	7,280	181	.3	4.91	5,500
1934	770-49	53	.3	2.82	3,160	53	1.1	5.30	5,940
1935	795-48	129	1.1	7.02	7,860	129	2.7	6.27	7,020

Summary of yearly discharge, in million gallons a day, at stations on Island of Oahu--Continued

Nuuanu Stream below reservoir 2 wasteway, near Honolulu, Oahu--Continued
(Drainage area, 3.4 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1936	815-42	15.3	1.70	4.29	4,810	56	1.70	6.77	7,600
1937	835-48	156	4.9	12.9	14,430	156	2.05	10.8	12,090
1938	865-47	66	2.05	7.52	8,410	66	.81	7.10	7,940
1939	885-46	82	.81	6.22	6,960	-	-	-	-

West Branch of Manoa Stream near Honolulu, Oahu
(Drainage area, 1.1 square miles)

1914	430-114	18	0.05	1.97	2,210	37	0.25	3.19	3,570
1915	430-114	30	.05	3.31	3,710	50	.05	3.80	4,260
1916	445-88	50	.4	5.10	5,720	50	.3	4.07	4,560
1917	465-85	21	.3	3.05	3,420	21	.3	2.07	2,320
1918	485-85	46	.3	2.60	2,910	46	-	3.15	3,520
1919	515-55	34	-	2.05	2,290	-	-	1.56	1,740
1920	516-62	-	-	1.32	1,480	26	-	1.64	1,840
1926	635-44	25	.05	1.10	1,110	25	.05	1.02	1,140
1927	655-48	90	.1	2.82	3,160	164	.4	6.00	6,720
1928	675-35	164	-	5.34	6,000	36	-	2.99	3,360
1929	695-35	36	.25	2.38	2,670	108	.2	3.13	3,500
1930	710-40	108	.2	3.50	3,910	106	.35	2.91	3,260
1931	725-39	106	.22	1.97	2,210	24	.22	2.42	2,710
1932	740-61	120	.5	5.12	5,760	120	.3	4.11	4,620
1933	755-48	37	.3	2.41	2,700	37	.10	1.80	2,010
1934	770-50	39	.10	1.38	1,550	39	.12	1.83	2,050
1935	795-49	81	.42	2.25	2,520	81	.42	2.28	2,560
1936	815-43	20	.36	1.78	2,000	33	.36	2.77	3,110
1937	835-49	40	.72	4.12	4,610	40	.58	3.63	4,060
1938	865-48	29.5	.58	3.36	3,760	29.5	.44	2.90	3,250
1939	885-47	78	.44	3.17	3,560	-	-	-	-

East Branch of Manoa Stream near Honolulu, Oahu
(Drainage area, 1.0 square miles)

1914	430-117	29	0.9	2.31	2,590	36	0.9	3.68	4,120
1915	430-117	48	1.5	3.93	4,400	48	1.5	3.13	3,500
1916	445-90	43	1.4	4.02	4,510	43	1.4	4.10	4,600
1917	465-87	17	1.0	3.22	3,600	17	.9	2.22	2,490
1918	485-87	24	.9	2.66	2,980	29	.9	3.52	3,940
1919	515-57	29	1.1	2.71	3,030	22	.7	2.00	2,240
1920	516-64	21	.4	1.51	1,690	24	.4	1.55	1,740
1926	635-45	19.0	.4	1.38	1,350	19.0	.4	1.18	1,320
1927	655-50	69	-	2.80	3,140	87	-	4.92	5,510
1928	675-36	87	-	4.70	5,280	14.7	1.5	3.47	3,900
1929	695-36	14.8	.8	2.59	2,900	28	.55	2.20	2,460
1930	710-41	46	.55	2.97	3,320	46	.75	3.72	4,170
1931	725-40	45	.7	2.71	3,030	27	.7	2.99	3,350
1932	740-62	51	.9	4.61	5,180	51	1.2	3.71	4,160
1933	755-49	29	1.0	2.60	2,920	29	.6	1.91	2,140
1934	770-51	39	.60	1.71	1,910	39	.73	2.08	2,320
1935	795-50	18.3	1.0	2.08	2,340	18.3	1.03	2.16	2,420
1936	815-44	13.0	.77	2.05	2,300	19.6	.77	2.81	3,150
1937	835-50	30	1.40	4.65	5,210	30	2.0	4.98	5,580
1938	865-49	29	2.0	5.05	5,660	29	2.4	4.94	5,530
1939	885-48	28.5	2.4	4.36	4,890	-	-	-	-

East Manoa ditch near Honolulu, Oahu

1916	445-92	3.2	0.7	1.44	1,620	-	-	-	-
1919	515-59	4.8	.7	1.27	1,420	3.6	0.5	1.08	1,210
1920	516-66	3.6	.4	.83	936	2.8	.4	.724	812
1926	635-47	-	.2	.662	663	2.5	.15	.418	469
1927	655-52	2.4	.15	.382	429	2.8	.05	.435	487
1928	675-37	2.8	.05	.532	598	1.2	.1	.563	631
1929	695-37	1.2	.1	.518	582	4.0	.25	.592	664
1930	710-42	6.5	.22	.643	720	6.5	.20	.753	843
1931	725-41	-	.20	.837	938	-	-	1.04	1,170
1932	740-63	4.9	-	1.42	1,590	4.9	.53	1.36	1,520
1933	755-50	2.2	.64	1.13	1,270	3.2	.25	.863	968
1934	770-52	4.6	.12	.714	800	4.7	.12	.800	897
1935	795-51	4.7	.18	.832	933	2.3	.25	.674	756
1936	815-45	5.3	.08	.668	751	5.3	.04	.623	698
1937	835-51	1.68	.04	.315	351	1.48	.04	.170	189
1938	865-50	.64	.03	.112	125	1.00	.03	.136	153
1939	885-49	1.00	.01	.138	154	-	-	-	-

Pukele Stream near Honolulu, Oahu
(Drainage area, 1.2 square miles)

1927	655-53	-	0.15	1.64	1,830	60	0.25	2.71	3,040
1928	675-38	60	.25	1.88	2,120	14.5	.2	.986	1,110
1929	695-38	11.7	.09	.841	942	32	.05	1.19	1,330
1930	710-43	-	.05	1.57	1,760	41	-	1.66	1,860
1931	725-42	41	.15	1.02	1,140	26	.15	1.50	1,680
1932	740-64	52	-	2.85	3,200	52	.19	1.86	2,090

Summary of yearly discharge, in million gallons a day, at stations on Island of Oahu--Continued

Pukele Stream near Honolulu, Oahu--Continued
(Drainage area, 1.2 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1933	755-51	-	0.19	1.23	1,380	-	0.09	0.975	1,090
1934	770-53	22	.09	.628	705	22	.12	.999	1,120
1935	795-52	49	.32	1.24	1,390	49	.20	1.10	1,230
1936	815-46	11.0	.16	.789	885	30	.16	1.34	1,510
1937	835-52	43	.44	2.44	2,730	43	.26	2.31	2,590
1938	865-51	49	.26	2.18	2,440	49	.22	2.02	2,260
1939	885-50	30.5	.22	1.52	1,710	-	-	-	-

Waiomao Stream above Pukele Stream, near Honolulu, Oahu
(Drainage area, 1.0 square miles)

1927	655-55	-	0	2.06	2,300	87	0.2	3.17	3,550
1928	675-39	87	.2	1.98	2,220	13.9	.03	.830	932
1929	695-39	5.1	.03	.524	587	35	0	.975	1,090
1930	710-44	35	0	1.47	1,650	37	.07	1.56	1,750
1931	725-43	37	.02	1.03	1,150	20	.02	1.13	1,260
1932	740-65	30	.02	1.91	2,140	30	0	1.27	1,420
1933	755-52	27	0	.787	884	27	0	.667	748
1934	770-54	23	0	.628	704	23	.01	.880	987
1935	795-53	38	.04	1.02	1,140	38	.02	.868	971
1936	815-47	9.4	.02	.760	853	29.5	.02	1.26	1,420
1937	835-53	63	.09	2.12	2,380	63	.08	2.10	2,350
1938	865-52	48	.08	2.01	2,250	49	.01	1.86	2,080
1939	885-51	49	.01	1.41	1,580	-	-	-	-

ISLAND OF MOLOKAI

Halawa Stream near Halawa, Molokai
(Drainage area, 4.5 square miles)

1918	485-151	236	0.7	19.8	22,300	236	3.1	25.7	28,900
1919	515-108	173	3.1	14.5	16,200	173	1.0	12.8	14,300
1920	516-134	134	1.0	10.9	12,210	-	-	12.7	14,200
1921	535-67	-	-	18.8	21,000	-	-	23.5	26,400
1922	555-74	250	-	23.5	26,300	149	-	19.0	21,300
1923	575-67	400	-	21.0	23,500	400	-	21.8	24,400
1924	595-62	139	2.6	16.2	18,200	138	2.1	14.4	16,100
1925	615-57	131	-	16.1	18,000	116	-	16.4	18,400
1926	635-55	120	1.8	13.1	14,700	196	1.8	12.8	14,300
1927	655-62	-	1.8	19.6	22,000	-	2.2	23.8	26,600
1928	675-41	-	3.8	21.2	23,800	-	-	18.2	20,400
1929	695-41	-	-	15.6	17,500	-	-	17.1	19,200
1930	710-45	-	-	19.8	22,200	246	-	21.5	24,000
1931	725-45	246	1.3	18.5	20,700	172	1.3	17.3	19,300
1932	740-67	245	2.7	24.9	27,900	-	-	-	-
1938	865-56	-	-	-	-	295	2.7	25.7	28,810
1939	885-55	286	2.7	23.8	26,600	-	-	-	-

Waikolu Stream at pipe-line crossing, near Kalaupapa, Molokai
(Drainage area, 3.7 square miles)

1920	516-144	-	-	7.31	8,200	-	-	8.76	9,840
1921	535-81	181	3.5	10.4	11,700	280	3.1	13.2	14,800
1922	555-88	-	-	16.5	18,500	-	-	13.6	15,200
1923	575-84	244	6.0	13.9	15,500	244	5.6	15.3	17,100
1924	595-74	258	5.6	12.0	13,500	258	-	11.2	12,600
1925	615-68	150	-	10.3	11,600	61	3.4	9.08	10,200
1926	635-65	104	3.4	7.38	8,280	236	3.4	6.87	7,700
1927	655-71	244	3.4	11.5	12,900	244	3.6	13.5	15,200
1928	675-47	89	4.1	10.3	11,600	99	-	9.39	10,500
1929	695-50	220	-	10.6	11,900	220	-	12.3	13,800
1930	710-47	-	-	16.3	18,300	-	-	-	-

ISLAND OF MAUI

Honokohau Stream near Honokohau, Maui
(Drainage area, 4.2 square miles)

1917	465-120	360	11	29.7	33,300	128	6.0	16.8	18,800
1918	485-107	232	6.0	22.5	25,200	232	7.2	31.3	36,100
1919	515-67	220	10.2	24.7	27,600	120	8.2	19.7	22,000
1920	516-73	-	7.2	16.6	18,600	-	-	-	-
1923	575-86	286	9.1	23.9	26,800	286	-	25.7	28,700
1924	595-76	293	-	25.4	28,500	345	10.6	26.9	30,200
1925	615-69	345	9.4	26.9	30,200	175	9.4	24.3	27,200
1926	635-67	156	6.2	17.9	20,100	156	-	13.9	15,500
1927	655-73	282	-	18.7	20,900	282	-	25.0	28,000
1928	675-48	308	8.5	27.4	30,800	308	-	26.8	30,100
1929	695-52	269	-	28.0	31,300	269	7.3	26.6	29,800
1930	710-50	257	7.3	29.9	33,500	374	11.5	34.5	38,600
1931	725-49	374	10.0	26.4	29,600	209	10	27.5	30,800
1932	740-71	277	11	39.0	43,800	292	11	34.5	38,800
1933	755-54	292	9.4	23.5	26,300	255	6.5	18.6	20,810
1934	770-56	-	6.5	21.8	24,370	-	7.0	25.5	28,550

Summary of yearly discharge, in million gallons a day, at stations on Island of Maui--Continued

Honokohau Stream near Honokohau, Maui--Continued
(Drainage area, 4.2 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1935	795-55	253	10.2	24.1	27,040	253	7.3	19.6	22,000
1936	815-51	121	7.1	17.6	19,770	234	7.1	26.2	29,440
1937	835-57	234	10.9	37.9	42,490	263	12.8	40.1	44,800
1938	865-63	505	12.8	41.9	46,880	505	10.1	37.0	41,400
1939	885-62	218	9.8	28.9	32,310	-	-	-	-

Honokawai ditch near Lahaina, Maui

1913	373-119	15	2.5	5.33	5,970	15	2.5	4.83	5,410
1914	430-226	15	3.1	4.45	4,980	9.3	3.2	5.29	5,920
1915	430-226	11	4.3	6.19	6,930	11	3.6	5.55	6,210
*1916	445-153	9.0	3.6	5.56	6,220	9.0	4.0	6.39	7,140
1919	515-68	-	-	-	-	23	2.4	5.41	6,060
1920	516-75	27	2.4	4.70	5,280	27	2.0	4.48	5,030
1921	535-85	20	1.6	4.48	5,010	31	1.6	5.01	5,610
1922	555-90	31	2.8	6.97	7,810	40	3.3	7.64	8,560
1923	575-89	40	2.8	6.45	7,220	33	2.8	6.78	7,590
1924	595-78	34	3.6	7.03	7,900	40	3.3	6.23	7,000
1925	615-71	40	2.3	6.79	7,610	33	2.3	7.07	7,930
1926	635-68	33	2.9	5.77	6,470	29	2.1	4.18	4,680
1927	655-75	29	1.8	3.70	4,150	39	1.8	5.33	5,980
1928	675-49	39	1.8	6.72	7,550	36	3.0	7.11	7,990
1929	695-53	36	3.3	7.57	8,480	35	2.5	6.41	7,180
1930	710-51	43	2.5	6.61	7,400	43	2.7	8.23	9,210
1931	725-50	42	3.4	7.22	8,080	38	2.5	6.88	7,710
1932	740-72	38	2.5	8.62	9,680	37	2.7	7.32	8,220
1933	755-55	25	1.4	4.68	5,240	25	1.4	3.77	4,220
1934	770-57	33	2.3	4.15	4,650	33	1.68	4.60	5,150
1935	795-56	33	1.68	4.66	5,220	33	2.3	4.18	4,690
1936	815-52	25.5	2.25	3.88	4,360	25.5	2.1	4.78	5,360
1937	835-58	22.5	2.1	5.57	6,230	26	2.55	6.19	8,930
1938	865-64	26	2.95	6.42	7,190	24	2.95	5.76	6,450
1939	885-63	21	2.65	5.44	6,100	-	-	-	-

*364 days; no record for Jan. 31, 1916.

Kanaha Stream above pipe-line intake near Lahaina, Maui
(Drainage area, 1.8 square miles)

1912	373-122	-	-	-	-	85	0.3	2.79	3,120
*1913	373-122	85	0.3	2.62	2,940	113	.5	4.07	4,560
1914	430-233	113	.4	4.38	4,900	92	.4	5.98	6,700
1915	430-233	92	.4	5.51	6,170	88	.2	3.48	3,890
1917	465-129	100	3.4	7.58	8,490	43	2.8	4.69	5,250
1918	485-110	143	2.5	4.90	5,490	143	2.5	7.28	8,140
1919	515-70	102	2.8	6.80	7,600	30	-	4.59	5,140
1920	516-77	54	-	3.80	4,270	54	-	3.92	4,400
1921	535-87	43	1.8	4.21	4,720	43	1.8	4.59	5,140
1922	555-93	65	1.8	6.36	7,120	65	2.0	5.75	6,440
1923	575-91	39	2.0	4.24	4,740	39	2.1	4.52	5,060
1924	595-80	20	2.1	3.91	4,390	39	2.0	3.85	4,320
1927	655-77	40	-	3.38	3,780	40	1.4	4.33	4,850
1928	675-50	40	1.6	5.07	5,690	38	2.0	5.05	5,670
1929	695-54	34	2.8	5.18	5,800	34	2.0	4.64	5,200
1930	710-52	28	2.0	4.67	5,230	28	2.2	5.47	6,130
1931	725-51	26	1.2	4.44	4,980	50	1.2	4.88	5,460
1932	740-73	50	1.8	6.18	6,770	-	-	-	-

*Record revised.
Note.- Records 1912-16 published as "Lahainaluna Stream near Lahaina"; records 1917-22 published as "Lahainaluna Stream above pipe-line intake, near Lahaina."

Olowalu ditch near Olowalu, Maui

1912	336-147	-	-	-	-	12.6	1.6	4.30	4,830
1913	373-129	7.9	1.9	3.61	4,050	9.7	1.9	3.79	4,240
1914	430-245	9.7	1.9	4.06	4,540	7.2	1.3	3.79	4,240
1915	445-153	5.8	1.3	3.88	3,790	6.8	1.5	3.74	4,110
1917	465-135	-	-	-	-	9.0	2.2	3.69	4,120
1918	485-111	9.0	1.9	4.18	4,690	7.4	1.2	5.08	5,690
1919	515-72	7.4	1.2	4.55	5,100	10.0	1.4	4.10	4,600
1920	516-79	-	.1	3.72	4,140	-	-	-	-
1921	535-89	-	-	-	-	12.8	1.7	3.91	4,380
1922	555-95	12.2	1.7	4.82	5,400	12.2	0	5.05	5,660
1923	575-92	11.0	0	4.55	5,100	11.0	1.3	4.94	5,530
1924	595-82	8.7	-	5.02	5,630	8.7	2.2	4.92	5,520
1925	615-75	8.7	2.2	5.03	5,630	8.7	2.4	5.00	5,600
1926	635-71	8.4	1.9	3.81	4,270	8.0	1.9	2.88	3,220
1927	655-78	8.0	1.9	3.63	4,070	9.1	1.9	4.84	5,430
1928	675-51	9.1	2.5	5.74	6,460	9.1	-	5.82	6,540
1929	695-55	8.7	-	5.12	5,740	8.7	1.5	4.14	4,630
1930	710-53	9.1	1.5	5.02	5,620	9.1	3.6	6.42	7,190
1931	725-52	9.1	2.8	5.13	5,740	11	2.8	5.31	5,940
1932	740-74	11	2.8	6.29	6,900	14	2.2	5.34	5,840
1933	755-56	16.5	2.2	4.54	5,090	16.5	.9	3.56	3,990
1934	770-58	8.9	.9	3.48	3,900	8.9	1.7	4.31	4,830

Summary of yearly discharge, in million gallons a day, at stations on Island of Maui--Continued

Olowalu ditch near Olowalu, Maui--Continued

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1935	795-57	13.7	1.64	4.72	5,290	13.7	1.64	3.92	4,400
1936	815-53	9.2	1.60	3.61	4,050	13.6	1.60	5.52	6,200
1937	835-59	13.6	3.05	7.32	8,200	10.2	3.85	7.38	8,260
1938	865-65	11.4	3.65	7.34	8,220	11.4	2.7	6.44	7,210
1939	885-64	10.9	2.7	6.26	7,010	-	-	-	-

Hanawi Stream near Nahiku, Maui
(Drainage area, 0.8 square miles)

1922	555-97	-	-	-	-	309	1.6	16.4	18,300
1923	575-95	-	1.6	10.9	12,200	-	-	14.2	15,900
1924	595-84	208	2.1	11.6	13,300	306	-	10.2	11,400
1925	615-77	306	-	12.4	13,900	165	-	11.8	13,300
1926	635-73	126	1.4	6.18	6,930	135	1.4	4.39	4,920
1927	655-81	164	1.4	8.16	9,130	164	-	11.5	12,900
1928	675-55	-	2.0	11.6	13,100	-	2.0	12.1	13,600
1929	695-58	191	2.2	14.6	16,300	192	1.8	13.8	15,400
1930	710-56	236	1.8	17.5	19,700	236	2.5	17.4	19,500
1931	725-54	195	2.4	9.83	11,000	188	2.4	11.8	13,200
1932	740-76	202	2.8	19.0	21,400	202	1.6	15.1	17,000
1933	755-60	247	1.6	9.24	10,400	247	-	7.35	8,240
1934	770-61	333	-	9.23	10,340	333	-	12.9	14,440
1935	795-66	320	2.2	14.4	16,100	320	1.7	11.5	12,940
1936	815-58	101	1.2	7.82	8,790	279	1.2	15.2	17,050
1937	835-64	279	2.7	24.4	27,350	249	3.0	23.3	26,080
1938	865-69	380	3.0	22.3	25,010	380	2.2	17.8	19,950
1939	885-69	265	2.2	15.3	17,100	-	-	-	-

Kapaula Stream near Nahiku, Maui
(Drainage area, 0.2 square miles)

1922	555-99	-	-	-	-	-	0.9	13.9	15,600
1923	575-96	237	0.9	10.7	12,000	237	1.2	14.1	15,800
1924	595-86	228	1.2	11.2	12,600	321	-	9.48	10,600
*1925	615-78	321	-	12.1	13,500	164	-	11.3	12,700
1926	635-74	146	.6	5.53	6,200	142	.6	4.01	4,480
*1927	655-83	276	.6	8.05	9,020	276	-	11.4	12,700
1928	675-56	156	-	10.5	11,800	156	1.2	10.3	11,600
1929	695-59	-	1.3	12.5	14,100	-	.8	12.0	13,400
1930	710-57	232	.8	14.4	16,200	232	1.2	14.1	15,800
1931	725-55	220	1.1	8.30	9,300	161	1.1	10.6	11,900
1932	740-77	177	1.6	15.4	17,300	177	.8	11.4	12,800
1933	755-61	198	.8	7.39	8,270	198	.2	5.84	6,540
1934	770-62	323	.2	7.77	8,700	323	.2	10.9	12,230
1935	795-70	357	1.0	11.9	13,290	357	.8	9.26	10,380
1936	815-61	94	.4	6.33	7,110	214	.4	12.2	13,710
1937	835-66	214	1.3	18.2	20,350	148	1.5	17.3	19,410
1938	865-71	354	1.5	17.4	19,530	354	.2	13.5	15,110
1939	885-71	270	.2	11.0	12,350	-	-	-	-

*Record revised.

Waiohue Stream near Nahiku, Maui
(Drainage area, 1.5 square miles)

1922	555-105	-	-	-	-	151	1.9	9.54	10,700
1923	575-100	127	1.9	7.96	8,900	127	2.6	9.77	10,900
1924	595-89	124	2.6	8.25	9,260	124	2.4	7.49	8,410
1925	615-82	-	2.4	8.37	9,370	72	2.5	8.04	9,010
1926	635-78	66	-	5.09	5,700	88	-	4.16	4,660
1927	655-86	197	-	7.01	7,850	197	-	9.22	10,300
1928	675-58	-	-	8.52	9,570	79	2.5	8.46	9,490
1929	695-61	104	3.0	9.67	10,800	104	2.1	8.82	9,880
1930	710-59	-	2.1	10.3	11,600	-	-	10.7	11,900
1931	725-57	110	2.5	7.06	7,910	87	2.5	8.29	9,280
1932	740-79	107	3.4	11.9	13,300	107	1.9	9.31	10,500
1933	755-63	88	1.9	6.31	7,070	88	1.4	5.15	5,760
1934	770-64	171	1.4	6.12	6,850	171	1.5	8.16	9,140
1935	795-81	167	2.6	8.63	9,670	167	2.1	7.12	7,970
1936	815-66	82	1.6	5.63	6,320	111	1.6	8.83	9,920
1937	835-71	111	2.7	12.1	13,560	85	3.3	11.9	13,340
1938	865-76	187	2.85	11.8	13,240	187	2.5	9.63	10,790
1939	885-76	192	2.5	8.38	9,390	-	-	-	-

West Kopiliula Stream near Keanae, Maui
(Drainage area, 3.9 square miles)

1916	445-173	578	2.6	32.9	36,800	578	2.8	34.7	38,900
1917	465-143	490	2.0	18.7	20,900	-	-	-	-
1922	555-107	-	-	-	-	489	1.5	20.9	23,400
1923	575-102	463	1.5	16.4	18,400	463	1.9	21.8	24,400
1924	595-91	424	1.9	18.0	20,200	424	-	16.1	18,100
1925	615-84	-	-	20.1	22,500	311	-	18.9	21,100
1926	635-80	193	-	9.77	10,900	260	-	8.34	9,340
1927	655-88	570	-	13.8	15,500	570	-	17.3	19,400
1928	675-59	-	-	16.7	18,700	230	-	17.4	19,500
1929	695-62	347	2.9	20.5	23,000	347	2.1	20.3	22,800

Summary of yearly discharge, in million gallons a day, at stations on Island of Maui--Continued

West Kopiliula Stream near Keanae, Maui
(Drainage area, 3.9 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1916	445-173	578	2.6	32.9	36,800	578	2.8	34.7	38,900
1917	465-143	490	2.0	18.7	20,900	-	-	-	-
1922	555-107	-	-	-	-	489	1.5	20.9	23,400
1923	575-102	463	1.5	16.4	18,400	463	1.9	21.8	24,400
1924	595-91	424	1.9	18.0	20,200	424	-	16.1	18,100
1925	615-84	-	-	20.1	22,500	311	-	18.9	21,100
1926	635-80	193	-	9.77	10,900	260	-	8.34	9,340
1927	655-88	570	-	13.8	15,500	570	-	17.3	19,400
1928	675-59	-	-	16.7	18,700	230	-	17.4	19,500
1929	695-62	347	2.9	20.5	23,000	347	2.1	20.3	22,800
1930	710-60	-	2.0	25.5	28,600	-	2.0	23.7	26,500
1931	755-64	406	1.8	15.2	17,000	440	1.8	21.2	23,700
1932	755-64	454	3.0	30.1	33,700	454	1.0	22.4	25,200
1933	755-64	600	1.0	14.6	16,400	600	.8	11.8	13,180
1934	770-65	-	.8	18.4	20,600	-	1.0	23.6	26,460
1936	-	-	-	-	-	501	.81	21.3	23,920
1937	835-72	501	1.90	30.7	34,430	321	2.85	28.8	32,290
1938	865-77	830	2.75	32.8	36,790	830	1.83	24.3	27,240
1939	885-77	507	1.83	16.0	17,860	-	-	-	-

East Wailuaiki Stream near Keanae, Maui
(Drainage area, 3.7 square miles)

1916	445-174	635	2.5	35.6	40,000	635	3.9	36.2	40,700
1917	465-145	418	3.3	20.4	22,800	-	-	-	-
1923	575-104	-	1.1	29.4	33,000	-	1.6	30.3	34,000
1924	595-93	327	2.8	18.4	20,700	482	2.6	15.9	17,800
1925	615-85	482	2.6	16.7	20,900	249	2.7	16.9	19,000
1926	635-81	191	-	9.09	10,200	224	-	7.40	8,290
1927	655-90	423	2.2	12.2	13,700	423	2.6	15.9	17,800
1928	675-60	219	2.6	16.2	18,200	219	2.6	17.9	20,100
1929	695-63	358	2.9	21.2	23,700	358	2.2	21.6	24,200
1930	710-61	338	2.2	26.8	30,000	338	2.6	25.1	28,100
1931	725-59	389	1.5	15.8	17,700	389	1.5	20.1	22,600
1932	740-81	397	2.8	29.1	32,700	397	1.4	22.1	24,900
1933	755-67	473	1.4	14.0	15,700	473	1.1	11.2	12,560
1934	770-66	698	1.1	15.7	17,530	698	1.2	21.6	24,180
1935	795-83	648	2.8	22.9	25,600	648	1.8	17.8	19,920
1936	815-68	163	1.3	12.1	13,590	330	1.3	22.7	25,520
1937	835-73	330	2.9	32.6	36,540	314	3.2	31.0	34,790
1938	865-78	827	3.0	33.3	37,300	827	2.9	25.8	28,900
1939	885-78	403	2.9	19.1	21,380	-	-	-	-

West Wailuaiki Stream near Keanae, Maui
(Drainage area, 3.6 square miles)

1917	465-147	728	2.5	24.0	26,800	-	-	-	-
1922	555-109	-	-	-	-	-	0.4	34.2	38,300
1923	575-106	-	.4	23.5	26,400	526	1.9	32.2	36,100
1924	595-94	693	1.6	27.3	30,700	1,180	1.3	24.6	27,600
1925	615-87	1,180	1.3	28.7	32,200	485	1.4	24.1	27,000
1926	635-83	369	.7	11.9	13,400	455	.7	9.85	11,000
1927	655-91	1,020	1.2	19.5	21,800	1,020	-	24.8	27,700
1928	675-61	330	-	22.8	25,600	393	1.0	24.8	27,800
1929	695-64	778	1.7	29.6	33,100	778	.8	31.6	35,500
1930	710-62	748	.8	38.8	43,400	748	2.2	36.3	40,600
1931	725-60	712	1.2	21.6	24,100	563	1.2	25.6	28,600
1932	740-82	617	3.2	39.3	44,100	617	.5	29.0	32,600
1933	755-68	631	.5	15.7	17,600	631	.7	12.7	14,250
1934	770-67	1,170	.9	18.7	20,910	1,170	1.3	24.9	27,890
1935	795-84	1,200	2.4	27.2	30,530	1,200	1.62	21.7	24,310
1936	815-69	205	1.19	13.8	15,460	531	1.19	28.5	32,010
1937	835-74	531	2.7	39.4	44,140	419	3.2	36.1	40,450
1938	865-79	1,210	2.45	42.1	47,140	1,210	2.45	32.7	36,600
1939	885-79	675	3.3	23.4	26,210	-	-	-	-

East Wailuanui Stream near Keanae, Maui
(Drainage area, 0.6 square miles)

1915	430-267	-	-	-	-	84	0.25	5.57	6,240
1916	445-177	168	1.1	8.08	9,070	168	1.0	8.08	9,070
1917	465-148	60	.7	4.99	5,590	-	-	-	-
1922	555-110	-	-	-	-	172	.3	6.40	7,160
1923	575-108	101	.3	5.27	5,900	101	.8	6.75	7,560
1924	595-96	118	.5	5.71	6,410	211	.5	4.98	5,600
1925	615-89	211	.5	5.60	6,270	75	.4	5.14	5,760
1926	635-85	75	.2	3.20	3,590	74	.2	2.41	2,700
1927	655-93	189	.4	4.55	5,090	189	.4	6.09	6,820
1928	675-62	-	.2	5.17	5,810	77	.2	5.09	5,720
1929	695-65	103	.7	6.14	6,870	120	.3	6.13	6,870
1930	710-63	120	.3	7.63	8,550	118	-	7.99	8,940
1931	725-61	118	.6	5.16	5,790	72	.6	5.60	6,280
1932	740-83	113	1.1	8.77	9,850	113	.6	7.13	8,010
1933	755-69	-	.6	5.16	5,770	-	.5	4.22	4,730

Summary of yearly discharge, in million gallons a day, at stations on Island of Maui--Continued

East Wailuanui Stream near Keanae, Maui--Continued
(Drainage area, 0.6 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1934	770-68	181	0.5	5.07	5,680	181	-	6.68	7,480
1935	795-88	116	.58	6.19	6,930	116	0.58	5.17	5,790
1936	815-71	82	.51	4.44	4,990	82	.51	6.25	7,020
1937	835-75	67	.98	8.29	9,290	73	1.37	8.32	9,320
1938	865-80	122	.98	8.07	9,040	122	.98	6.63	7,430
1939	885-81	102	1.15	6.03	6,760	-	-	-	-

West Wailuanui Stream near Keanae, Maui
(Drainage area, 0.7 square miles)

1915	430-269	-	-	-	-	250	0.7	12.4	13,900
1916	445-179	342	0.7	21.0	23,600	342	.7	20.2	22,700
1923	615-90	307	-	9.30	10,400	307	.3	13.1	14,700
1924	615-90	253	.3	10.3	11,500	340	.3	8.93	10,000
1925	615-90	340	.3	11.1	12,500	171	.6	10.2	11,400
1926	635-86	106	.4	4.98	5,580	144	.4	3.69	4,140
1927	655-94	305	.6	6.91	7,740	305	-	9.14	10,200
1928	675-63	-	-	8.75	9,840	-	-	8.39	9,420
1929	695-66	235	.7	10.0	11,200	235	.4	11.4	12,800
1930	710-64	223	.4	14.3	16,100	223	.8	13.4	15,000
1931	725-62	161	.8	7.86	8,810	174	.8	9.78	10,900
1932	740-84	174	1.3	13.6	15,300	168	.6	9.95	11,200
1933	755-70	247	.6	6.58	7,370	247	.5	5.31	5,950
1934	770-69	-	.5	6.82	7,640	-	.6	9.11	10,200
1935	795-89	274	.91	9.96	11,150	274	.9	8.25	9,230
1936	815-72	76	.68	5.83	6,550	175	.42	10.7	12,060
1937	835-76	175	.42	14.8	16,600	172	.35	13.4	14,990
1938	865-81	172	.35	13.2	14,850	150	1.10	10.3	11,540
1939	885-82	120	1.10	8.47	9,480	-	-	-	-

Honomanu Stream near Keanae, Maui
(Drainage area, 3.3 square miles)

1916	445-180	-	-	-	-	690	1.3	29.0	32,600
1917	465-151	395	0.9	14.1	15,800	271	.4	6.05	6,780
1918	495-120	435	.4	19.6	21,900	580	-	32.7	36,600
1919	515-78	580	.2	19.7	22,100	126	.2	7.92	8,860
1920	516-86	471	-	9.55	10,700	471	-	12.9	14,500
1921	535-95	361	.2	16.5	18,400	517	.2	24.5	27,400
1922	555-116	517	-	31.2	34,900	500	.3	21.1	23,600
1923	575-113	425	.3	15.6	17,400	425	.5	19.6	21,900
1924	595-102	376	.9	15.6	17,500	481	.7	14.3	16,000
1925	615-97	481	.7	17.4	19,400	293	.5	14.8	16,600
1926	635-91	227	.5	7.74	8,660	179	-	6.43	7,200
1927	655-99	376	.5	11.0	12,300	376	.5	14.7	16,500
1928	675-65	194	.3	14.6	16,400	194	.3	15.1	16,900
1929	695-68	344	1.0	17.0	19,100	344	.1	16.9	18,900
1930	710-66	380	.1	21.1	23,600	380	1.1	21.2	23,700
1931	725-64	241	.5	13.2	14,800	263	.5	15.3	17,200
1932	740-86	263	1.3	19.5	21,900	255	.2	13.9	15,600
1933	755-73	330	.2	9.80	11,000	330	.3	7.44	8,320
1934	770-72	496	.3	11.2	12,510	496	.4	14.5	16,300
1935	795-93	353	.75	14.7	16,510	353	.56	11.7	13,080
1936	815-75	60	.44	7.89	8,860	311	.44	15.9	17,820
1937	835-79	311	1.45	21.8	24,440	246	1.10	19.9	22,310
1938	865-84	620	.75	22.2	24,890	620	.75	17.3	19,400
1939	885-85	266	.85	13.1	14,670	-	-	-	-

Haipuaena Stream near Huelo, Maui
(Drainage area, 1.1 square miles)

1911	318-268	-	-	-	-	162	4.6	28.2	31,600
1912	336-164	109	1.9	23.3	26,100	109	1.9	20.9	23,500
1913	373-134	98	2.9	18.9	21,100	-	-	-	-
1914	430-273	-	-	-	-	122	1.0	15.6	17,500
1915	430-273	122	1.2	14.1	15,800	-	-	-	-
1916	445-182	-	-	-	-	230	1.6	16.1	18,000
1917	465-153	132	1.6	10.3	11,500	101	.7	4.60	5,160
1918	485-122	230	.7	10.2	11,400	230	1.4	15.1	16,900
1919	515-80	161	1.1	9.57	10,700	62	.3	6.02	6,730
1920	516-90	193	.3	6.22	6,980	193	.4	7.24	8,130
1921	535-99	133	.4	9.05	10,100	201	.7	12.8	14,300
1922	555-120	229	.7	15.4	17,200	229	.5	11.0	12,300
1923	575-117	170	.5	9.30	10,400	170	1.3	11.6	13,000
1924	595-105	190	1.2	9.80	11,000	216	1.2	8.95	10,100
1925	615-101	216	1.3	11.2	12,500	128	-	9.91	11,100
1926	635-94	126	-	5.21	5,830	117	-	4.71	5,290
1927	655-102	243	.9	8.07	9,040	243	1.1	11.4	12,800
1928	675-66	159	1.2	12.1	13,600	159	1.2	13.1	14,700
1929	695-69	156	1.4	13.4	15,000	156	.8	11.2	12,600
1930	710-67	199	.8	13.4	15,000	199	1.3	14.2	15,900
1931	725-65	131	1.3	9.99	11,200	157	1.3	12.0	13,400
1932	740-87	163	1.6	16.1	18,100	163	.4	11.7	13,100
1933	755-77	162	.4	7.05	7,910	162	-	5.28	5,910
1934	770-74	239	-	7.55	8,460	239	.6	10.5	11,770
1935	795-94	151	.9	10.7	12,020	151	.9	8.32	9,320
1936	815-76	47	.9	7.31	8,220	163	.9	12.7	14,330
1937	835-80	163	1.79	16.2	18,160	107	.22	13.8	15,430
1938	865-85	210	.20	12.5	14,000	210	.20	9.38	10,520
1939	885-86	139	.3	7.79	8,730	-	-	-	-

Summary of yearly discharge, in million gallons a day, at stations on Island of Maui--Continued

Puohokamoa Stream near Huelo, Maui
(Drainage area, 2.6 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1911	318-271	-	-	-	-	582	6.5	59.5	66,700
1912	336-166	524	2.1	41.8	46,900	187	2.1	29.2	32,800
*1915	430-276	-	-	-	-	254	3.6	22.0	24,600
1916	445-184	468	4.4	32.3	36,300	468	4.6	34.9	39,200
1918	485-124	436	.4	21.3	23,900	436	2.0	33.2	37,200
1919	515-82	306	1.2	20.7	23,200	153	.4	12.5	14,000
1920	516-96	379	.4	13.0	14,600	379	.6	14.4	16,200
1921	535-101	280	.6	16.9	18,900	388	.6	24.2	27,100
1922	555-122	402	-	31.3	35,100	402	-	23.3	26,100
1923	575-121	343	-	19.3	21,600	343	2.6	26.4	29,600
1924	595-109	448	2.1	24.2	27,200	475	-	20.2	22,700
1925	615-104	475	-	23.0	25,800	313	-	22.2	24,900
1926	635-98	313	1.8	13.5	15,100	236	-	9.76	11,000
1927	655-105	475	-	16.8	18,800	475	-	22.9	25,600
1928	675-68	-	1.0	22.0	24,700	314	1.0	22.6	25,300
1929	695-71	281	1.6	25.3	28,300	281	.2	22.9	25,700
1930	710-70	365	.2	27.5	30,800	365	3.0	29.0	32,500
1931	725-67	294	1.7	18.4	20,600	260	1.7	21.9	24,600
1932	740-89	308	3.8	30.8	34,600	308	.9	22.6	25,400
1933	755-81	-	.9	14.7	16,500	-	-	11.3	12,600
1934	770-78	-	-	15.1	16,910	-	1.6	21.9	24,510
1935	795-100	267	2.4	23.3	26,090	267	2.4	18.6	20,810
1936	815-79	94	1.9	16.4	18,380	376	1.9	27.3	30,670
1937	835-83	376	3.7	35.6	39,880	250	3.5	33.4	37,350
1938	865-89	570	3.0	33.3	37,310	570	2.8	26.6	29,800
1939	885-90	324	2.8	22.2	24,910	-	-	-	-

*Station moved to new location June 13, 1913.

Waiakamoi Stream above Wailoa ditch, near Huelo, Maui
(Drainage area, 4.4 square miles)

1911	318-276	-	-	-	-	151	0.7	11.6	13,000
1912	336-169	72	0.2	8.52	9,550	57	.3	6.85	7,660
1915	430-281	-	-	-	-	292	1.0	21.3	23,900
1916	516-103	840	1.0	33.2	37,300	840	1.0	33.5	37,700
1917	516-103	520	1.0	18.7	21,000	215	.2	7.74	8,690
1918	516-103	509	.2	18.8	21,000	532	1.6	30.0	33,600
1919	516-103	532	-	20.6	23,000	-	-	12.7	14,200
1920	516-103	378	.4	11.7	13,200	378	.2	16.0	17,900
1921	535-111	-	.2	18.4	20,700	512	-	23.5	26,400
*1922	555-135	629	.7	29.5	33,000	629	.6	19.0	21,300
1923	615-116	429	.6	15.2	17,000	429	1.1	19.4	21,700
1924	615-116	319	1.0	15.6	17,500	319	.9	14.0	15,700
1925	615-116	284	.9	18.3	20,500	264	.8	16.5	18,500
1926	635-109	200	.5	8.20	9,170	157	.5	6.65	7,460
1927	655-116	327	.6	11.0	12,400	327	.7	15.5	17,400
1928	675-73	173	1.1	16.0	18,000	173	1.1	16.6	18,700
1929	695-77	278	1.3	19.1	21,400	278	.4	17.6	19,800
1930	710-77	298	.4	20.7	23,200	298	1.0	20.4	22,800
1931	725-72	178	1.1	12.9	14,400	243	1.1	16.0	17,900
1932	740-94	269	1.8	20.7	23,200	269	.6	15.0	16,900
1933	755-88	352	.6	10.6	11,900	352	.5	7.30	8,170
1934	770-84	603	.5	11.0	12,330	603	.8	16.3	18,220
1935	795-107	381	1.1	17.9	20,040	381	1.0	14.0	15,720
1936	815-82	78	.8	10.1	11,370	380	.8	21.0	23,540
1937	835-86	390	1.46	28.1	31,520	390	1.31	25.2	28,260
1938	865-92	1,180	1.12	30.2	33,800	1,180	1.0	23.9	26,750
1939	885-93	313	1.0	16.4	18,420	-	-	-	-

*Station moved Jan. 28, 1922, to a site 250 feet above new Wailoa ditch.

Alo Stream near Huelo, Maui
(Drainage area, 0.2 square miles)

1911	318-274	-	-	-	-	53	0.06	5.96	6,680
1912	336-168	52	0.06	4.82	5,420	52	.13	3.95	4,430
1913	373-137	52	.3	3.58	4,010	71	.26	4.14	4,640
1914	430-278	71	.1	6.18	6,920	70	.1	9.21	10,300
1915	430-278	80	.65	7.81	8,750	80	.65	5.37	6,020
1916	445-185	158	.8	6.89	7,720	158	.8	6.95	7,790
1917	465-156	74	.8	4.54	5,080	74	.3	1.91	2,140
1918	485-126	134	.3	5.31	5,940	134	.4	7.96	8,910
1919	515-84	94	.4	4.62	5,180	47	.3	2.95	3,310
1920	516-98	151	.3	3.37	3,790	151	.3	3.68	4,140
1921	535-117	-	-	4.22	4,730	92	-	5.79	6,480
1922	555-142	116	.5	6.84	7,660	116	.5	5.25	5,870
1923	575-140	95	.5	4.95	5,530	95	.5	6.19	6,930
1924	595-126	107	.5	5.17	5,820	120	-	4.39	4,930
1925	615-123	120	-	4.46	5,000	44	.4	3.95	4,430
1926	635-113	44	.4	2.65	2,960	83	-	2.56	2,860
1927	655-121	160	-	4.56	5,120	160	-	6.97	7,810
1928	675-76	-	-	7.66	8,600	-	-	6.78	7,620
1929	695-76	-	-	6.34	7,100	-	.3	5.81	6,500
1930	710-76	95	.3	6.02	6,750	128	.6	6.46	7,250
1931	725-71	128	.4	4.37	4,890	33	.4	3.87	4,340
1932	740-93	59	.6	5.81	6,520	59	.2	4.64	5,210

Summary of yearly discharge, in million gallons a day, at stations on Island of Maui--Continued

Alo Stream near Huelo, Maui--Continued
(Drainage area, 0.2 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1933	755-91	51	0.2	2.69	3,020	-	-	2.07	2,320
1934	770-86	85	-	3.17	3,560	85	0.4	4.23	4,740
1935	795-109	60	.32	4.18	4,680	60	.32	3.51	3,930
1936	815-83	36	.28	3.28	3,690	79	.28	5.41	6,080
1937	835-87	79	.65	7.51	8,410	60	.65	7.20	8,060
1938	865-93	105	.55	7.03	7,880	105	.45	5.70	6,400
1939	885-94	43	.45	4.51	5,050	-	-	-	-

Kaaiea Stream near Huelo, Maui
(Drainage area, 0.5 square miles)

1922	675-77	-	-	-	-	192	0.4	5.65	6,330
1923	675-77	130	0.4	5.40	6,040	130	.5	6.67	7,480
1924	675-77	168	.4	5.54	6,230	201	.4	5.00	5,620
1925	675-77	201	.4	4.87	5,450	58	.4	4.06	4,550
1926	675-77	58	.4	2.73	3,060	102	.4	2.39	2,680
1927	675-77	224	.4	4.41	4,940	224	.4	5.52	6,190
1928	675-77	-	-	4.75	5,330	-	-	5.02	5,640
1929	695-78	68	.6	5.80	6,490	83	.3	5.46	6,110
1930	710-78	83	.3	6.02	6,740	120	.6	6.01	6,730
1931	725-73	120	-	4.05	4,530	44	-	4.65	5,210
1932	740-96	86	-	6.86	7,710	86	.3	5.50	6,180
1933	755-92	68	.3	3.26	3,650	41	.3	2.46	2,760
1934	770-87	105	.3	3.71	4,150	105	.37	4.72	5,290
1935	795-110	67	.37	4.38	4,910	67	.44	3.65	4,090
1936	815-84	35.5	.27	3.54	3,970	79	.27	5.54	6,230
1937	835-88	79	.60	7.29	8,160	54	.65	6.94	7,770
1938	865-94	106	.52	6.67	7,480	106	.48	5.46	6,110
1939	885-95	51	.48	4.47	5,010	-	-	-	-

Nailiilihaele Stream near Huelo, Maui
(Drainage area, 2.8 square miles)

1911	318-298	-	-	-	-	194	4.3	20.9	23,500
1915	430-286	-	-	-	-	400	4.0	28.7	32,200
1917	465-159	231	3.0	26.2	29,300	-	-	-	-
1921	535-123	-	-	13.9	15,500	-	-	18.7	21,000
1922	555-149	-	-	26.0	29,200	260	2.4	23.4	26,200
1923	575-146	232	2.4	19.1	21,300	232	2.5	20.7	23,200
1924	595-131	-	-	16.7	18,800	-	-	-	-
1925	615-128	-	-	-	-	168	2.3	20.5	23,000
1926	635-119	168	1.9	13.4	15,000	156	1.9	10.1	11,300
1927	655-126	285	2.2	16.1	18,000	285	2.8	21.7	24,300
1928	675-85	195	2.5	21.0	23,600	195	2.5	22.9	25,600
1929	695-81	148	3.8	25.2	28,200	148	-	20.4	22,800
1930	710-81	166	-	21.9	24,500	215	2.9	25.6	28,700
1931	725-75	215	4.6	20.8	23,300	216	4.6	26.4	29,500
1932	755-95	216	5.1	33.1	37,200	-	2.3	23.7	26,700
1933	755-95	180	2.3	14.8	16,500	149	1.5	10.3	11,600
1934	795-112	552	1.5	17.0	19,080	552	2.2	24.3	27,270
1935	795-112	296	2.9	23.9	26,750	296	2.5	18.5	20,700
1936	815-86	151	2.2	18.4	20,640	671	2.2	32.4	36,340
1937	835-90	671	4.2	44.9	50,350	435	4.4	43.0	48,200
1938	865-96	846	3.8	43.9	49,110	846	3.8	36.2	40,590
1939	885-97	447	4.2	29.4	32,960	-	-	-	-

Kailua Stream at Haiku-uka boundary near Kailiili, Maui
(Drainage area, 0.8 square miles)

1920	516-114	129	0	2.15	2,420	129	0.005	3.34	3,770
1921	575-147	-	.005	4.65	5,220	126	.02	6.09	6,820
1922	555-151	126	.02	7.47	8,340	103	.02	5.06	5,660
1923	575-147	134	.02	4.55	5,090	134	.04	6.38	7,150
1924	595-134	118	.04	5.12	5,750	132	.05	4.41	4,950
1925	615-130	132	-	5.77	6,460	101	.03	4.64	5,200
1926	635-121	75	.02	1.68	1,880	56	.02	1.35	1,510
1927	655-128	114	.03	2.45	2,740	114	-	3.38	3,790
1928	675-86	80	-	3.79	4,260	-	-	-	-
1933	755-98	118	.02	2.78	3,120	118	.01	2.07	2,320
1934	770-90	145	.01	3.12	3,500	-	-	-	-

Kailua Stream near Huelo, Maui
(Drainage area, 3.0 square miles)

1915	430-288	-	-	-	-	282	3.0	22.1	24,800
1917	465-161	223	1.1	16.5	18,500	-	-	-	-
1920	516-116	293	.1	8.41	9,450	293	.1	8.44	9,480
1921	535-127	252	.1	10.9	12,200	381	.1	20.8	23,300
1922	555-153	460	-	27.2	30,500	460	-	18.0	20,200
1923	575-150	-	.6	14.0	15,700	-	-	20.0	22,400
1924	595-135	397	1.7	18.7	21,000	434	1.4	16.5	18,600

Summary of yearly discharge, in million gallons a day, at stations on Island of Maui--Continued

Kailua Stream near Huelo, Maui--Continued
(Drainage area, 3.0 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1925	615-132	434	1.4	21.2	23,700	282	-	19.6	21,900
1926	635-122	265	-	9.87	11,000	190	-	7.22	8,090
1927	655-130	366	-	12.1	13,600	366	1.8	17.1	19,200
1928	675-87	274	1.4	18.3	20,500	274	1.4	19.4	21,800
1929	695-82	284	2.1	21.9	24,500	284	.9	21.1	23,700
1930	710-82	371	.9	26.5	29,600	470	2.2	27.5	30,800
1931	725-76	470	1.4	17.2	19,200	394	1.4	21.2	23,700
1932	740-98	394	2.3	28.5	32,000	380	-	19.4	21,700
1933	755-99	380	-	12.5	14,000	380	-	10.3	11,540
1934	770-91	765	-	13.1	14,700	765	1.1	18.1	20,270
1935	795-115	250	2.2	18.3	20,500	250	1.44	13.6	15,220
1936	815-87	88	.64	12.3	13,850	725	.64	23.9	26,850
1937	835-91	725	2.4	32.9	36,820	356	2.9	30.6	34,300
1938	865-97	1,140	2.5	35.2	39,430	1,140	2.2	28.0	31,390
1939	885-98	342	2.2	19.5	21,880	-	-	-	-
		Hoolawaliiii Stream near Huelo, Maui							
1912	336-190	27	1.3	4.01	4,500	25	1.3	3.90	4,380
1913	373-148	28	.84	3.59	4,020	28	.84	4.04	4,530
1914	430-291	138	1.3	6.83	7,660	138	1.3	11.3	12,600
1915	430-291	91	2.2	9.70	10,900	-	-	-	-
1917	465-162	91	1.3	5.25	5,880	66	.55	2.36	2,650
1918	485-137	285	.55	7.78	8,710	285	1.1	10.6	11,800
1919	515-94	64	1.0	5.36	6,000	69	.6	3.43	3,840
1920	516-119	172	.6	3.76	4,220	172	.7	4.24	4,750
1921	535-131	135	-	5.44	6,090	135	-	7.70	8,620
1922	555-157	140	.9	8.75	9,800	140	1.1	5.97	6,680
1923	575-152	-	1.1	4.24	4,750	-	-	4.87	5,450
1924	595-137	57	-	4.12	4,620	95	1.4	4.15	4,660
1925	615-133	95	1.4	4.33	4,840	22	1.6	4.08	4,570
1926	635-124	22	.2	3.14	3,510	38	.2	2.68	3,000
1927	655-131	75	1.0	4.19	4,690	75	1.2	5.18	5,800
1928	675-88	53	.8	4.47	5,020	53	.8	4.68	5,260
1929	695-83	47	-	5.44	6,090	47	-	5.30	5,930
1930	710-83	-	-	6.05	6,770	99	-	6.23	6,980
1931	755-102	99	1.3	4.31	4,830	39	1.3	4.88	5,470
1932	755-102	71	1.3	6.93	7,780	71	.7	5.17	5,800
1933	755-102	40	.7	2.95	3,300	28	.5	3.59	2,600
1934	770-92	68	.5	3.19	3,580	68	1.2	4.28	4,790
1935	795-116	38.5	1.40	4.16	4,660	38.5	1.40	3.53	3,960
1936	815-88	22	1.15	3.58	4,030	83	1.15	5.13	5,760
1937	835-92	83	1.62	6.46	7,230	43	1.74	6.19	6,930
1938	865-98	119	1.62	6.22	6,960	119	1.23	5.26	5,890
1939	885-99	51	1.23	4.41	4,940	-	-	-	-
		Hoolawanui Stream near Huelo, Maui							
1911	318-308	-	-	-	-	308	2	11.4	12,700
1912	336-191	165	1.0	8.08	9,080	65	1.0	6.85	7,700
1913	373-147	65	1.0	6.49	7,280	72	1.2	7.04	7,910
1914	430-293	145	1.2	10.5	11,800	145	1.4	16.6	18,600
1915	430-293	103	1.1	13.3	14,900	-	-	-	-
1917	465-164	136	1.1	7.30	8,180	52	.15	2.45	2,740
1918	485-138	171	.15	8.04	9,000	171	.7	12.5	14,000
1919	515-96	94	.7	7.59	8,500	66	.5	4.35	4,860
1920	516-121	143	.5	4.30	4,840	143	.4	4.61	5,180
1921	535-133	136	.4	6.34	7,100	146	.8	10.2	11,500
1922	555-159	146	.6	12.0	13,500	140	.5	8.12	9,100
1923	575-154	-	.5	6.52	7,310	-	.9	8.31	9,310
1924	595-139	112	.8	7.31	8,220	156	.7	7.11	7,980
1925	615-135	156	-	8.31	9,300	83	.5	7.44	8,330
1926	635-125	83	.5	4.27	4,780	74	.6	3.81	4,270
1927	655-133	165	.9	8.10	9,070	165	.9	10.0	11,200
1928	675-89	100	.8	7.92	8,890	100	.8	8.50	9,540
1929	695-84	93	-	9.76	10,900	94	-	9.03	10,100
1930	710-84	109	-	9.79	11,000	135	.5	10.1	11,400
1931	725-78	135	.9	6.81	7,620	75	.9	6.89	7,720
1932	740-100	-	2.3	9.77	11,000	-	.4	7.35	8,260
1933	755-105	90	.4	4.60	5,150	90	.3	3.52	3,940
1934	770-93	248	.3	5.69	6,370	248	*.8	7.81	8,740
1935	795-117	132	1.13	7.76	8,690	132	.83	5.82	6,520
1936	815-89	40	.64	4.78	5,370	220	.64	8.80	9,880
1937	835-93	220	1.66	12.0	13,420	140	1.99	11.5	12,930
1938	865-99	431	1.88	13.7	15,360	431	1.45	11.4	12,730
1939	885-100	137	1.45	8.70	9,740	-	-	-	-

*Supersedes figures published in Water Supply Paper 795.

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Summary of yearly discharge, in million gallons a day, at stations on Island of Maui--Continued

Honopou Stream near Huelo, Maui
(Drainage area, 1.0 square miles)

Year	W.S.P. (no. and page)	Fiscal year ending June 30				Calendar year			
		Maximum day	Minimum day	Mean	Run-off in acre-feet	Maximum day	Minimum day	Mean	Run-off in acre-feet
1911	318-310	-	-	-	-	85	0.8	4.79	5,370
1912	373-149	78	0.5	3.37	3,780	32	.4	2.55	2,870
1913	373-149	32	.4	2.61	2,930	23	.6	2.99	3,340
1914	430-296	43	.6	4.45	4,980	-	-	-	-
1917	465-165	38	.5	2.86	3,200	24	.2	1.36	1,520
1918	485-140	75	.2	3.77	4,220	75	.4	5.37	6,010
1919	515-97	30	.4	3.01	3,370	32	.4	1.90	2,130
1920	516-123	-	.3	2.05	2,300	-	.2	2.24	2,520
1921	535-135	70	.2	2.81	3,150	80	.2	4.14	4,620
1922	555-161	113	.3	5.14	5,760	113	.3	3.70	4,150
1923	575-156	73	.3	3.11	3,480	73	.4	3.85	4,310
1924	595-140	70	.4	3.21	3,600	119	.4	3.04	3,410
1925	615-137	119	.4	2.72	3,050	16.6	.4	2.39	2,670
1926	635-127	16.6	.4	1.81	2,020	37	.4	1.56	1,750
1927	655-134	83	.4	3.15	3,530	83	.5	3.82	4,280
1928	675-90	39	.5	2.82	3,170	39	.5	2.93	3,290
1929	695-85	43	.6	3.71	4,160	-	.5	3.63	4,080
1930	710-85	-	-	3.95	4,430	69	-	4.22	4,730
1931	725-79	69	-	2.62	2,940	21	-	2.81	3,150
1932	740-101	-	.8	4.41	4,960	-	.1	3.22	3,620
1933	755-106	-	.1	1.88	2,110	-	.1	1.42	1,590
1934	770-94	61	.1	2.11	2,370	61	.1	2.97	3,320
1935	795-118	33	.1	2.89	3,240	33	.25	2.16	2,420
1936	815-90	15.4	.25	2.11	2,370	59	.40	3.61	4,060
1937	835-94	59	.70	5.16	5,780	41	.77	5.01	5,610
1938	865-100	88	.77	4.92	5,510	88	.65	3.97	4,450
1939	885-101	26.5	.65	3.06	3,430	-	-	-	-

ISLAND OF HAWAII

Kohala ditch at Pololu, near Niulii, Hawaii

1928	675-100	-	-	-	-	41	11.0	25.3	28,400
1929	695-95	45	13.0	26.4	29,600	41	7.7	21.4	23,900
1930	710-96	41	7.7	22.1	24,800	39	5.2	27.1	30,300
1931	725-93	45	5.2	25.3	28,400	50	13	26.0	29,200
1932	740-116	-	15	30.2	33,900	61	10	27.0	30,400
1933	755-120	61	10	25.4	28,500	58	7.7	25.4	28,510
1934	770-116	61	3.8	23.6	26,440	61	3.8	22.3	25,040
1935	795-134	58	8.2	23.4	26,250	60	8.2	24.1	27,030
1936	815-105	60	9.8	23.6	26,510	58	0	29.1	32,720
1937	835-109	58	0	29.9	33,510	60	1.4	28.0	31,370
1938	865-117	60	8.6	27.5	30,820	-	-	-	-

Kehena ditch near Kohala, Hawaii

1918	485-158	-	-	-	-	51	0.2	10.5	11,700
1919	515-118	54	0	8.50	9,490	-	-	-	-
1929	695-96	52	.5	9.98	11,200	51	0	6.97	7,810
1930	740-117	43	0	8.80	9,860	43	0	10.9	12,200
1931	725-94	43	0	8.17	9,140	-	0	7.26	8,120
1932	740-117	-	.2	9.20	10,300	47	0	8.18	9,190
1933	755-121	47	0	6.91	7,730	42	0	6.89	7,720
1934	770-117	45	0	6.02	6,750	45	0	5.86	6,570
1935	795-135	41	.02	7.14	7,990	41	.04	6.85	7,670
1936	815-106	43	0	7.26	8,150	43	0	9.29	10,430
1937	835-110	39	0	7.50	8,400	33	0	6.32	7,090
1938	865-118	34.5	0	7.04	7,880	34.5	0	6.09	6,820
1939	885-123	34.5	0	6.90	7,730	-	-	-	-

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