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Harold L. Ickes, Secretary

GEOLOGICAL SURVEY
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Water-Supply Paper 865

SURFACE WATER SUPPLY *of* HAWAII

JULY 1, 1937, *to* JUNE 30, 1938

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TERRITORY OF HAWAII

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Gaging-station records--Continued.

SURFACE WATER SUPPLY OF HAWAII, JULY 1, 1937, to JUNE 30, 1938

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, 1938. Since the beginning of stream-gaging work in Hawaii, in 1910, records of flow of streams and ditches have been obtained at about 481 stations for periods ranging from a few months to 27 years. In addition, hundreds of miscellaneous measurements have been made, and rather extensive studies of ground water have been in Kau, 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, 1938, 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; Records of the drilled wells on Oahu, Hawaii: T. H. Division of Hydrography Bull. 4, 1938. Stearns, H. T., Geological 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 Oahu, Hawaii: T. H. Division of Hydrography Bull. 3, 1935.

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 a few 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 5 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 flows, 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 1938, 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, 1903-38

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		
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 1937 to June 1938. 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.	1925-38	East Kauai Water Co.
East Lawai ditch.....	Near Government Road near Kalaheo.	1924-38	McBryde Sugar Co.
Eleele ditch.....	Near Government Road near Kalaheo.	1924-38	Do.
Hanalei ditch.....	Above Kalihiwai Reservoir, near Kilauea.	1923-38	Kilauea Sugar Plantation Co.
Hanamaulu ditch.....	Below intake, near Hanamaulu.	1925-38	Lihue Plantation Co.
Hanapepe ditch.....	At Makaweli Plantation boundary near Makaweli.	1926-38	Hawaiian Sugar Co.
Hanapepe Field ditch....	Below Hanapepe River intake, near Eleele.	1924-38	McBryde Sugar Co.
Hanapepe Stream.....	At tidewater near Eleele.	1924-38	Do.
Kamoola ditch.....	Near Koloa boundary, near Koloa.	1924-38	Do.
Kapaia River diversion to field 8 reservoir.	Near Hanamaulu.....	1928-38	Lihue Plantation Co.
Kapaia River diversion to field 29.	Near Lihue.....	1927-38	Do.
Lawai Stream.....	½ mile above cannery near Kalaheo.	1924-38	McBryde Sugar Co.
Lihue lower ditch.....	Below intake, near Lihue...	1925-38	Lihue Plantation Co.
Lihue upper ditch.....	Below intake, near Lihue...	1925-38	Lihue Plantation Co.
Lumahai Stream.....	Near Hanalei, at altitude about 600 feet.	1934-38	McBryde Sugar Co.
Makaleha ditch.....	Near Mimino Reservoir, near Kealia.	1925-38	East Kauai Water Co.
Old Tunnel ditch.....	Above confluence with main Koloa ditch, near Koloa.	1925-38	Koloa Sugar Co.
Olokele ditch.....	At powerhouse near Makaweli.	1926-38	Hawaiian Sugar Co.
Stable storm ditch.....	At Stable Camp road crossing near Lihue.	1931-38	Lihue Plantation Co.
Storm ditch.....	Above Kalaheo-Lihue main highway near Koloa.	1926-38	Koloa Sugar Co.

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

ISLAND OF KAUAI--Continued

Stream	Location	Period	Operated by
Wahiawa Stream.....	Above Alexander Reservoir near Kalaheo.	1924-38	McBryde Sugar Co.
Wahiawa Stream, East Branch.	....do.....	1929-38	Do.
Waiahi River.....	Above Lihue ditch intake, near Lihue.	1925-38	Lihue Plantation Co.
Wailua ditch.....	Near flume 4, near Kapaa.....	1922-38	East Kauai Water Co.
Wainiha Stream.....	Near Hanalei, at altitude about 960 feet.	1927-38	McBryde Sugar Co.
West Lawai ditch.....	Near camp 12, near Kalaheo....	1924-38	Do.

ISLAND OF OAHU

*Alewa Heights Spring...	Below reservoir 3.....	1932-38	Board of Water Supply City and County of Honolulu.
*Booth Springs.....	In Pauao Valley, at altitude 685 feet.	1929-38	Do.
Helemano ditch.....	About 3 miles below Upper Helemano Reservoir.	1933-38	Waialua Agricultural Co.
*Hering Springs.....	In Makiki Valley, at altitude 970 feet.	1925-38	Board of Water Supply City and County of Honolulu.
*Kahuawai Springs.....	In Pauao Valley, at altitude 618 feet.	1925-38	Do.
*Kalihi tunnels.....	At diversion, at altitude 650 feet.	1926-38	Do.
Kamananui ditch.....	In Kawailoa Gulch about 500 yards above third siphon from Government Road.	1934-38	Waialua Agricultural Co.
Kipapa Stream.....	At altitude 375 feet.....	1917-38	Waiahole Water Co.
*Makiki Springs.....	In Makiki Valley, at altitude 350 feet.	1926-38	Board of Water Supply City and County of Honolulu.
*Manoa tunnels.....	Upper Manoa Valley.....	1925-38	Do.
*Nuuanu tunnels.....	At Lower Luakaha.....	1926-38	Do.
*Nuuanu tunnel 3.....	At overflow, in upper Nuuanu Valley.	1931-38	Do.
*Palolo tunnel.....	Upper Palolo Valley.....	1926-38	Do.
Wahiawa Reservoir outlet	About 1,200 feet below dam...	1912-38	Wahiawa Water Co.
Waiahole Stream.....	At altitude 250 feet.....	1919-38	Waiahole Water Co.
Waiahole tunnel.....	At adit 8.....	1916-38	Do.
Waiawa Stream.....	At altitude 750 feet.....	1917-38	Do.
Waikakalau Stream.....	....do.....	1917-38	Do.

ISLAND OF MAUI (East Maui)

Banana Spring.....	Near east wall of Keanae Valley, at altitude 700 feet.	1933-38	East Maui Irrigation Co.
Hanawi Stream.....	In low-water channel of Hanawi Gulch near Nahiku, at altitude 650 feet.	1933-38	Do.
Hanawi Spring, upper high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 675 feet.	1932-38	Do.
Hanawi Spring, lower high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 575 feet.	1932-38	Do.
Makapipi ditch.....	At west edge of Makapipi Gulch near Nahiku, at altitude 1,300 feet.	1933-38	Do.
Oheo Spring.....	In Keanae Valley, along Belt road $\frac{5}{8}$ mile east of Keanae P. O., at altitude 200 feet.	1933-38	Do.

ISLAND OF MAUI (West Maui)

Everett ditch.....	Below intake, near Wailuku....	1935-38	Wailuku Sugar Co.
Iao pipe line.....	....do.....	1933-38	County of Maui.
Iao-Waikapu ditch.....	At lower end of tunnels near Wailuku.	1923-38	Wailuku Sugar Co.
Kama ditch.....	Below intake, near Wailuku....	1933-38	Do.
Maniania ditch.....	....do.....	1923-38	Do.
North Waiehu ditch.....	Near end of Waiehu Camp road, near Wailuku.	1922-38	Do.
South Waikau ditch.....	Above first lateral, near Waikapu.	1935-38	Wailuku Sugar Co.
Do.....	Below tunnel sections near Waikapu.	1923-38	Do.
Spreckels ditch.....	Below intake, near Waihee.	1931-38	Do.
Waihee ditch.....	....do.....	1922-38	Do.

ISLAND OF HAWAII

Kohala ditch.....	At Awini weir in Honokane, near Niulii.	†1917-38	Kohala Ditch Co.
Kohala ditch.....	At Niulii weir, near Niulii.	†1917-38	Do.
Pololu Inlet 1.....	At Pololu, near Niulii.....	1929-38	Do.
Pololu Inlet 2.....	....do.....	1929-38	Do.
Waiapuka Stream.....	Above Kohala ditch, near Niulii.	1929-38	Do.
Waipuhi Stream.....	Above Kohala ditch, near Halawa.	1933-38	Do.
Makapala Stream.....	....do.....	1929-38	Do.

*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
Waipunalau Stream.....	Above Kohala ditch, near Halawa.	1929-38	Kohala Ditch Co.
Mountain House tunnel.....	6.0 miles north of Wiohinu.	1927-38	Hutchinson Sugar Plantation Co.
Plantation Springs tunnel...	8.7 miles north of Naalehu.	1927-38	Do.
Shirakura tunnel 20.....	In Moaula Gulch, at altitude 4,650 feet, 6.5 miles from Pahala.	1929-38	Hawaiian Agricultural Co.
Domestic supply tunnel 16...	3.8 miles from Pahala, at altitude 2,800 feet.	1926-38	Do.
Tanaka tunnel 15.....	In Hionamoa Gulch, at altitude 3,000 feet, 3.4 miles from Pahala.	1926-38	Do.
Double Arch tunnel 11.....	In Piikea Gulch, at altitude, 4,150 feet, 5.35 miles from Pahala.	1926-38	Do.
Mud Flow tunnel 2.....	In Piikea Gulch, at altitude 3,750 feet, 4.8 miles from Pahala.	1926-38	Do.
Noguchi tunnel 19.....	5.3 miles from Pahala, at altitude 3,500 feet.	1928-38	Do.
Makakupu tunnel 13.....	In Waiakaloa Gulch, at altitude 3,750 feet, 6.1 miles from Pahala.	1926-38	Do.
Upper Hamakua ditch and Reservoir 3 weir.	At base of Puu Lala, near Honokaa.	‡1907-12 1921-38	Hawaiian Irrigation Co.
Lower Hamakua ditch.....	At main weir near Kukuihaele	†1921-38	Do.
Honokaapa ditch.....	At Kuhuihaele Village.....	1923-38	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, 1938, 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.

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 1938.

Average discharge.- 13 years (1925-38), 42.5 million gallons a day (65.8 second-feet).

Extremes.- Maximum discharge during year, 7,500 million gallons a day (11,600 second-feet) Mar. 26 (gage height, 16.95 feet), from rating curve extended above 500 million gallons a day; minimum, 0.07 million gallons a day (0.11 second-foot) Aug. 8.
1921-38: 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 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Mar. 26						Mar. 27 to June 30			
3.8	0.08	4.7	8.8	7.0	212	4.6	0.05	6.5	118
3.9	.13	5.0	17.5	8.0	460	4.8	.30	7.0	207
4.0	.30	5.5	42	9.0	820	5.0	1.8	8.0	460
4.2	1.40	6.0	79	10.0	1,300	5.5	20	9.0	820
4.4	3.55	6.5	133	11.0	1,890	6.0	58		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.10	207	0.10	0.1	132	0.08	24	118	139	209	64	238
2	.10	362	.10	35.5	51	.10	4.1	836	63	58	154	150
3	19.6	82	.19	.97	2.2	.10	.27	452	46	79	78	45
4	150	15.7	31	1.78	.08	.10	.23	284	*25	36	38	2.7
5	210	.20	3.5	4.1	53	.10	.16	321	*15	50	9.8	.19
6	131	.10	*3.0	.12	72	.11	.15	144	4.1	286	.25	.15
7	165	.10	*4.5	.12	64	.11	.12	63	4.9	66	.15	.15
8	13.0	.08	5.3	.12	92	.11	10.4	49	299	34	.15	.14
9	.12	.08	.85	.12	23.5	.12	.36	37	108	17.6	6.8	.14
10	.12	.08	.10	.10	35.5	.12	.16	30	41	499	10.3	390
11	.10	.08	.09	.10	11.6	.18	.12	51	68	365	.19	300
12	.10	.08	.24	.10	1.98	291	.12	490	168	123	35	74
13	.12	.08	.14	.10	.12	3.95	.12	395	312	45	6.8	12.4
14	1.37	.08	.08	.10	.11	.18	.12	116	430	20	2.15	48
15	15.2	36.5	.08	3.75	.10	.12	.12	71	278	15.2	.14	146
16	2.45	483	.09	.12	.08	.10	.12	48	109	8.7	.16	21
17	290	871	.10	.11	.10	.10	.11	37	45	2.75	.15	8.6
18	21	†67	.10	151	.09	.09	.11	30	19.5	1.04	.15	35.5
19	.12	†6.4	.10	2.6	.09	.09	.11	25.5	66	.24	.14	4.6
20	78	†.64	.10	.10	.08	.13	.11	22.5	28.5	.19	.14	5.3
21	61	.12	.10	.12	.08	1.54	.11	21	14.5	.15	51	60
22	53	.10	.10	.11	.10	.10	.11	21	7.6	.14	3.3	.18
23	2.1	.08	.10	.12	.10	120	.11	34	11.6	.13	.22	.15
24	.13	8.2	.11	.12	.10	107	5.1	30	10.6	.12	.16	.15
25	33	2.45	.10	.12	220	286	.11	49	1.84	.12	.15	.14
26	115	.12	.10	.12	19.3	292	.10	56	861	74	96	.13
27	20	4.1	.10	.11	.34	83	52	116	511	110	9.1	.14
28	4.2	9.5	3.5	.10	.10	91	1,160	98	128	.33	.24	.15
29	.12	13.2	1.14	345	.09	78	1,730	-	224	.15	.51	.16
30	.12	10.9	.11	55	.09	81	248	-	181	.16	.34	4.7
31	.38	.52	-	39.5	-	42	153	-	110	-	1.40	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	290	0.10	44.7	69.2	1,390	4,260
August	871	.08	70.4	109	2,180	6,690
September	31	.08	1.84	2.85	55.2	169
October	345	.10	20.7	32.0	642	1,970
November	220	.08	26.0	40.2	780	2,390
December	292	.08	47.7	73.8	1,480	4,540
Calendar year 1937	1,970	.08	63.5	98.2	23,160	71,080
January	1,730	.10	109	169	3,390	10,400
February	836	21	144	223	4,040	12,410
March	861	1.84	140	217	4,330	13,290
April	499	.12	66.7	103	2,000	6,140
May	154	.14	18.4	28.5	569	1,750
June	390	.13	49.8	77.1	1,490	4,580
Fiscal year 1937-38	1,730	.08	61.2	94.7	22,350	68,590

Peak discharge.- Jan. 28 (3 p.m.) 5,910 m.g.d. (9,140 sec.-ft.); Jan. 29 (10 a.m.) 5,310 m.g.d. (8,220 sec.-ft.); Mar. 26 (7 p.m.) 7,500 m.g.d. (11,600 sec.-ft.).
*Partly estimated.
†Gage height missing; discharge computed on basis of records for stations on nearby streams.

Kawaikoi Stream near Waimea

Location.- Concrete control, lat. 22°08'00", long. 159°37'15", at old trail crossing, 12¼ miles northeast of Waimea. Altitude, 3,420 feet, by barometer.

Drainage area.- 4.1 square miles.

Records available.- April 1909 to June 1938. July 1917 to July 1919 (unpublished).

Average discharge.- 19 years (1919-38), 22.0 million gallons a day (34.0 second-feet).

Extremes.- Maximum discharge during year, 4,670 million gallons a day (7,230 second-feet) Dec. 23 (gage height, 11.20 feet), from rating curve extended above 180 million gallons a day; minimum, 3.7 million gallons a day (5.7 second-feet) Oct. 17, Dec. 8, 9.

1909-38: Maximum discharge, that of Dec. 23, 1937; 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

2.0	2.7	2.6	14.4	4.0	141
2.2	5.1	3.0	30.5	4.5	241
2.4	8.9	3.5	70	5.1	380

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.4	179	7.8	11.4	126	4.4	16.7	22.5	53	79	36	44
2	6.0	102	8.1	13.1	40	4.2	16.0	159	13.5	20.5	61	24.5
3	48	35.5	24	8.1	15.7	4.2	10.9	56	9.2	32.5	29.5	14.7
4	174	25	35	36	12.3	4.2	8.9	31	7.6	16.0	16.0	10.4
5	178	16.0	11.7	11.2	32.5	4.1	7.8	32	6.8	119	10.6	8.3
6	76	18.6	11.6	10.0	32	3.9	7.0	16.4	6.3	143	8.9	7.2
7	85	11.4	23.5	11.4	36.5	3.8	6.8	12.6	17.0	26.5	7.8	6.6
8	20.5	9.4	32	6.5	64	3.8	46	10.6	202	18.8	20	7.8
9	16.0	11.7	11.7	11.7	32.5	17.0	12.9	9.4	41	40	53	34.5
10	13.2	10.4	8.3	6.1	31	8.3	7.4	8.5	42	228	27	236
11	9.2	10.9	9.4	4.8	15.7	5.6	6.3	8.5	36.5	151	23	67
12	13.6	26	12.9	4.4	11.4	70	5.8	51	118	43	36	22.5
13	14.7	11.4	8.3	4.6	9.4	9.6	5.4	39	152	24.5	15.8	12.0
14	9.4	13.6	6.5	4.3	8.3	6.6	5.1	12.3	202	27	17.9	85
15	8.9	100	5.8	4.1	7.6	5.3	4.8	9.4	126	21	21.5	54
16	24.5	150	6.6	3.9	7.0	4.6	4.7	8.3	44	14.7	10.4	21.5
17	148	238	8.7	5.8	6.8	4.2	4.4	7.4	24.5	12.6	8.5	45
18	16.4	25	5.8	45	6.3	4.1	4.3	7.0	46	11.4	7.4	37.5
19	19.1	16.4	5.3	8.5	6.0	3.8	4.3	6.6	37.5	10.6	6.6	36.5
20	64	12.9	4.8	6.8	6.8	4.2	4.2	6.3	22.5	9.9	7.0	21.5
21	27.5	10.9	4.6	8.7	14.4	4.8	4.1	6.0	15.7	8.9	80	15.7
22	16.7	9.4	4.4	9.6	8.3	4.2	4.1	6.0	12.3	8.1	13.2	10.9
23	12.9	9.6	4.6	10.9	6.0	199	34.5	8.9	17.8	7.6	11.4	9.2
24	34	10.9	4.7	11.4	5.6	54	19.3	9.6	12.9	7.2	7.8	8.1
25	49	8.9	4.4	16.6	28	103	6.3	17.1	9.9	7.4	22.5	7.6
26	151	21.5	10.8	6.0	10.4	68	5.4	12.8	242	98	49	6.8
27	39	37	8.7	5.0	6.5	68	13.8	32.5	85	18.6	14.7	6.3
28	18.8	34.5	9.1	4.6	5.3	70	243	21	24.5	12.0	16.0	6.1
29	12.6	26	8.3	190	4.8	46	269	-	36	10.6	31	12.2
30	10.6	17.0	18.2	33.5	4.6	50	32.5	-	59	25	24.5	12.3
31	20.5	9.6	-	66	-	24.5	30	-	74	-	18.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	178	4.4	43.3	67.0	1,340	4,120
August	238	8.9	39.3	60.8	1,220	3,740
September	35	4.4	10.9	16.9	326	999
October	190	3.9	18.7	28.9	580	1,780
November	126	4.6	20.1	31.1	602	1,850
December	199	3.8	28.0	43.3	867	2,660
Calendar year 1937	356	3.4	29.2	45.2	10,640	32,660
January	269	4.1	27.5	42.5	852	2,610
February	159	6.0	22.4	34.7	628	1,930
March	242	6.3	58.0	89.7	1,800	5,510
April	228	7.2	41.7	64.5	1,250	3,840
May	80	6.6	23.0	35.6	712	2,190
June	236	6.1	29.7	46.0	892	2,740
Fiscal year 1937-38	269	3.8	30.3	46.9	11,070	33,970

Mohihi Stream at altitude 3,500 feet, near Waimea

Location.- 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 1938. April 1909 to December 1912 at site 2 miles downstream (fragmentary).

Extremes.- Maximum discharge during year, 440 million gallons a day (681 second-feet) Mar. 26 (gage height, 5.10 feet), from rating curve extended above 21 million gallons a day; minimum, 0.9 million gallons a day (1.4 second-feet) July 2.
1920-26, 1936-38: 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 for periods when clock was stopped, Oct. 20-31, Dec. 11-13 (computed on basis of records for nearby stations) and those above 40 million gallons a day, which are poor. No diversions.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.5	1.6	5.0	2.5	27
1.2	1.4	1.8	8.2	3.0	53
1.4	2.8	2.0	12.4	3.5	96

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.0	21.5	1.9	1.7	18.5	1.2	4.3	8.0	10.0	18.2	7.8	20.5
2	.9	21.5	1.6	4.0	8.4	1.2	3.5	46	4.4	6.2	12.1	10.3
3	6.5	9.6	2.9	2.2	3.7	1.1	2.9	22	2.9	7.0	8.4	5.3
4	14.2	5.6	9.4	4.0	2.6	1.1	2.2	11.6	2.2	5.0	4.9	3.0
5	17.8	3.4	3.7	3.2	4.5	1.0	1.9	14.5	1.9	4.4	3.0	2.2
6	14.7	2.8	2.5	1.7	8.0	1.0	1.7	7.6	1.8	25.5	2.4	1.9
7	16.1	2.2	4.6	2.0	11.1	1.0	1.6	4.8	2.0	7.6	2.0	1.6
8	5.1	1.9	5.8	1.5	12.8	1.0	2.2	3.7	29	5.2	1.9	1.6
9	2.4	1.9	3.0	1.8	6.8	1.5	3.0	3.1	12.5	5.4	3.5	2.2
10	1.8	1.9	1.9	1.4	7.9	1.4	1.8	2.6	9.8	51	5.6	36.5
11	1.5	1.8	1.8	1.2	4.3	1.5	1.6	2.6	11.0	33	4.3	40
12	1.5	3.2	1.9	1.1	2.9	18	1.4	21.5	16.7	14.8	7.6	10.5
13	1.6	2.6	1.8	1.1	2.3	3.5	1.4	20	25.5	7.2	4.2	4.8
14	1.6	3.0	1.5	1.0	1.9	2.1	1.3	5.7	35.5	5.8	4.8	9.6
15	1.7	10.3	1.4	1.1	1.8	1.6	1.2	4.0	27.5	5.3	3.4	16.4
16	2.1	38.5	1.3	1.2	1.7	1.4	1.2	3.2	12.2	4.2	2.6	6.0
17	22.5	67	1.5	1.2	1.8	1.3	1.2	2.7	6.8	3.5	2.0	4.3
18	4.8	9.0	1.4	18.3	1.6	1.2	1.1	2.4	5.8	3.1	1.8	6.4
19	2.6	5.0	1.2	3.1	1.5	1.2	1.0	2.2	10.0	2.7	1.6	3.9
20	9.5	3.6	1.2	1.5	1.4	1.3	1.0	1.9	6.7	2.5	1.6	3.3
21	8.5	2.8	1.1	2.0	1.6	1.5	1.0	1.8	4.5	2.3	7.5	3.6
22	6.8	2.4	1.0	2.4	1.8	1.2	1.0	1.8	3.5	2.1	3.5	2.6
23	2.9	2.2	1.0	2.5	1.5	6.7	1.7	2.1	3.3	1.9	2.3	2.1
24	2.9	2.6	1.0	3.0	1.5	13.3	3.6	2.2	3.5	1.9	1.8	1.8
25	8.6	2.1	1.0	4.0	12.2	29.5	1.5	5.1	2.7	1.9	1.8	1.7
26	8.0	2.6	1.6	2.0	4.7	29	1.2	4.3	44	11.2	11.3	1.6
27	6.5	6.3	1.6	1.3	2.2	11.6	6.8	10.3	34.5	4.9	8.3	1.5
28	3.9	9.9	1.8	1.1	1.6	10.9	79	7.4	9.8	2.7	2.9	1.5
29	2.2	9.8	2.4	25	1.4	9.2	81	-	17.8	2.3	4.6	1.7
30	1.8	5.4	1.5	4.0	1.3	11.3	14.1	-	13.2	2.3	6.2	2.7
31	1.8	2.7	-	10	-	5.9	10.1	-	11.5	-	4.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	22.5	0.9	5.93	9.18	184	564
August	67	1.8	8.55	13.2	265	814
September	9.4	1.0	2.22	3.43	66.5	204
October	25	1.0	3.60	5.57	112	342
November	18.5	1.3	4.51	6.98	135	415
December	29.5	1.0	5.64	8.73	175	536
Calendar year 1937	101	.7	6.58	10.2	2,400	7,370
January	81	1.0	7.69	11.9	238	732
February	46	1.8	8.04	12.4	225	691
March	44	1.8	12.3	19.0	382	1,170
April	51	1.9	8.37	13.0	251	771
May	12.1	1.6	4.51	6.98	140	429
June	40	1.5	7.04	10.9	211	648
Fiscal year 1937-38	81	.9	6.53	10.1	2,380	7,320

Kokee ditch near Waimea

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

Records available.- September 1926 to June 1938.

Average discharge.- 11 years (1927-38), 18.9 million gallons a day (29.2 second-feet).

Extremes.- Maximum discharge during year, 76 million gallons a day (118 second-feet) Mar. 26 (gage height, 2.69 feet); no flow Feb. 3, 5, 13, when water was shut out of ditch.

1926-38: Maximum discharge, that of Mar. 26, 1938; no flow occasionally, when water was shut out of ditch.

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

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.4	56	13.4	17.4	35	6.6	16.2	37.5	24.5	35	46	39
2	6.9	56	12.8	16.2	25.5	6.6	22	21	17.0	30.5	50	34.5
3	42	46	21	12.5	22	6.4	18.2	11.7	19.5	28.5	42	22
4	48	33.5	43	35.5	17.0	6.4	14.6	22	21	29	26	15.8
5	56	22	18.2	19.7	32.5	6.1	13.2	8.1	19.5	30	19.5	13.2
6	54	23	15.4	11.7	27.5	5.8	12.1	12.4	18.2	29	17.0	11.9
7	54	17.0	29	17.8	24.5	5.8	11.7	25.5	18.2	26	15.8	11.0
8	30	14.1	36.5	10.2	27	5.6	29.5	22	52	30.5	19.8	11.5
9	21	15.8	18.4	15.2	29.5	21.5	23.5	19.5	42	33.5	41	28.5
10	18.2	14.6	13.4	10.2	27.5	13.5	13.7	17.0	37	28	37	56
11	13.4	14.6	13.4	8.1	16.7	9.4	11.7	17.0	27	30.5	27.5	45
12	15.5	28.5	17.0	7.4	17.0	39.5	10.6	15.2	28.5	29	43	27.5
13	18.2	17.0	13.2	7.3	13.4	18.1	10.0	8.0	35	32	22	21
14	13.2	16.4	10.8	7.1	12.1	11.2	9.4	19.1	26.5	28	24.5	36
15	11.7	30	9.8	6.6	10.8	9.2	9.2	27.5	20	22	30.5	50
16	17.8	61	9.4	6.6	10.2	8.0	8.7	24.5	23	27.5	18.2	30.5
17	53	37	13.2	6.6	10.2	7.3	8.5	22	29.5	26	14.6	31
18	22.5	26	10.0	38.5	9.4	6.8	8.1	21	36	23	13.4	47
19	20.5	27.5	9.1	15.8	8.9	6.4	7.8	19.5	46	22	12.3	32
20	48	21	8.5	12.3	8.5	7.3	7.6	18.2	34.5	21	12.3	31
21	33.5	18.2	8.1	14.8	16.7	8.3	7.6	18.2	29	19.5	43	23
22	23	15.6	6.2	14.4	11.7	6.9	7.4	17.0	24.5	18.2	21.5	17.0
23	17.0	15.8	7.5	14.6	9.1	21.5	14.0	21	27.5	17.0	18.2	14.6
24	29.5	17.0	8.1	11.9	8.3	43	30.5	23.5	24.5	17.0	13.9	13.7
25	45	14.6	8.0	21.5	26.5	53	11.7	18.5	21	15.8	19.5	12.8
26	51	23.5	11.4	10.2	16.4	56	9.4	10.7	30	51	49	12.1
27	50	44	15.5	8.1	10.2	48	13.2	19.9	32	30.5	23	11.2
28	27.5	40	11.9	7.3	8.3	27.5	56	18.3	34	22	22	11.0
29	18.2	33.5	14.4	49	7.6	18.5	54	-	38.5	19.5	30	14.2
30	15.8	26	18.2	41	7.1	17.0	32	-	29	30.5	33	19.2
31	14.8	15.8	-	56	-	10.7	37.5	-	35	-	23	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	56	6.9	28.9	44.7	897	2,750
August	61	14.1	27.1	41.9	841	2,580
September	43	6.2	14.8	22.9	445	1,370
October	56	6.6	17.1	26.5	532	1,630
November	35	7.1	16.9	26.1	507	1,560
December	56	5.6	16.7	25.8	518	1,590
Calendar year 1937	61	5.6	21.7	33.6	7,910	24,290
January	56	7.4	17.4	26.9	540	1,660
February	37.5	8.0	19.1	29.6	536	1,640
March	52	17.0	29.1	45.0	902	2,770
April	51	15.8	26.7	41.3	802	2,460
May	50	12.3	26.7	41.3	828	2,540
June	56	11.0	24.8	38.4	743	2,280
Fiscal year 1937-38	61	5.6	22.2	34.3	8,090	24,830

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 1938. July 1918 to November 1920 at same site (fragmentary and unreliable; unpublished).
Average discharge.- 13 years (1925-38), 29.5 million gallons a day (45.6 second-feet).
Extremes.- Maximum discharge during year, 1,420 million gallons a day (2,200 second-feet) Mar. 26 (gage height, 6.98 feet), from rating curve extended above 400 million gallons a day; minimum, 8.3 million gallons a day (12.8 second-feet) Jan. 23.
1916, 1917-18, 1925-38: 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 except those for period of missing gage heights, Mar. 3-15, which were computed on basis of records for stations on nearby streams and are fair. Kokee ditch diverts water above station for irrigation near Kekaha.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Mar. 26				Mar. 27 to June 30			
0.9	6.6	2.0	75	0.9	9.7	2.0	85
1.0	9.5	2.5	137	1.0	12.7	2.5	148
1.2	17.0	3.0	221	1.2	21.5	3.0	232
1.4	27	3.5	327	1.4	33	4.0	455
1.6	40	4.0	454	1.6	48	5.0	750

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.5	195	13.7	12.2	124	10.5	23.5	59	125	142	19.2	48
2	11.2	119	12.9	13.3	33.5	10.2	12.2	398	50	34.5	54	30
3	19.3	24	13.3	13.3	15.8	10.2	11.5	244	15	31.5	26	20
4	156	16.2	26	13.8	13.7	10.2	10.5	124	14	23	18.6	15.5
5	195	14.1	16.2	15.4	12.9	9.8	10.2	155	13	28.5	15.5	14.3
6	80	12.6	14.1	12.2	18.3	9.8	9.8	84	12	257	14.3	12.7
7	82	12.2	14.5	12.2	23	9.5	9.8	33.5	17	54	13.9	12.4
8	16.3	11.9	17.5	11.9	50	9.5	36	26.5	200	30.5	13.1	12.1
9	12.9	11.5	15.0	11.9	18.5	12.6	13.5	24	45	28	28	14.0
10	11.9	11.5	13.3	11.9	18.5	11.2	10.5	22	40	311	23	245
11	11.2	11.5	12.6	11.2	15.0	12.5	9.8	22.5	35	223	16.3	149
12	11.2	11.9	12.6	11.2	12.9	118	9.5	144	120	87	25	37.5
13	11.2	12.9	12.6	10.9	12.2	19.6	9.2	201	180	35	16.7	17.7
14	11.2	12.2	12.2	10.9	11.5	13.7	9.2	61	250	21	16.7	66
15	11.2	57	11.9	10.9	11.2	11.9	9.2	31	150	20.5	15.1	77
16	11.5	249	11.9	11.2	11.2	11.2	8.9	25.5	87	18.6	13.9	18.6
17	164	334	11.9	13.3	11.2	10.9	8.9	22.5	43	17.7	13.1	22
18	19.6	50	11.9	64	10.9	10.5	8.9	21	26.5	17.7	12.7	32
19	12.9	18.0	11.5	17.9	10.9	10.9	8.6	20	48	15.9	12.1	21
20	41	15.0	11.5	14.1	10.9	12.2	8.6	19.0	22.5	15.5	11.8	18.1
21	17.2	14.1	11.5	15.0	10.9	12.2	8.6	18.5	19.5	15.1	61	14.7
22	18.6	12.9	12.2	12.9	11.2	11.5	8.6	18.5	17.5	14.7	16.3	13.9
23	13.3	12.6	11.9	12.2	10.9	126	17.2	23.5	17.0	14.3	12.7	12.7
24	13.9	12.6	11.5	12.2	10.9	68	21	21.5	17.0	14.3	12.1	12.4
25	24.5	12.6	11.5	12.2	22.5	141	9.5	25.5	17.0	13.9	12.1	12.4
26	122	12.6	11.9	12.2	15.8	95	8.9	38.5	242	86	34.5	12.4
27	28	15.8	12.9	11.5	12.2	53	8.9	72	293	23.5	17.7	12.4
28	15.4	20	12.6	11.2	11.2	67	*308	63	76	15.9	13.9	12.4
29	12.6	21	12.9	221	10.9	61	*463	-	111	14.7	14.3	12.4
30	11.5	19.0	12.2	29	10.5	67	*117	-	109	14.7	19.6	13.1
31	11.5	14.5	-	45	-	37	*78	-	79	-	16.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	195	11.2	38.4	59.4	1,190	3,660
August	334	11.5	44.1	68.2	1,370	4,200
September	26	11.5	13.3	20.6	398	1,220
October	221	10.9	22.5	34.8	698	2,140
November	124	10.5	19.1	29.6	573	1,760
December	141	9.5	34.6	53.5	1,070	3,290
Calendar year 1937	660	9.5	40.5	62.7	14,770	45,330
January	463	8.6	41.5	64.2	1,290	3,950
February	398	18.5	72.1	112	2,020	6,190
March	293	12	80.4	124	2,490	7,640
April	311	13.9	54.6	84.5	1,640	5,030
May	61	11.8	19.6	30.3	609	1,870
June	245	12.1	33.7	52.1	1,010	3,100
Fiscal year 1937-38	463	8.6	39.3	60.8	14,360	44,050

Peak discharge.- Aug. 17 (8 a.m.) 1,310 m.g.d. (2,030 sec.-ft.); Dec. 23 (6 p.m.) 1,120 m.g.d. (1,730 sec.-ft.); Mar. 26 (8 p.m.) 1,420 m.g.d. (2,200 sec.-ft.).

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 1938.

Average discharge.- 19 years (1918-24, 1925-38), 37.5 million gallons a day (58.0 second-feet).

Extremes.- Maximum discharge during year, 69 million gallons a day (107 second-feet) July 25 (gage height, 4.27 feet); minimum, 0.1 million gallons a day (0.2 second-foot) Feb. 5.
1907-38: 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	33	51	41	41	53	33	34	30	34	51	51	53
2	32	51	38	48	51	32	36	29	33	51	51	53
3	44	53	41	46	48	32	36	23.5	32	51	51	53
4	51	53	51	48	43	32	36	.1	32	51	48	51
5	53	51	48	48	51	31	34	.1	48	51	48	43
6	53	51	43	38	48	31	33	16.4	51	53	43	39
7	53	46	51	43	48	31	33	30	48	51	41	37
8	51	41	51	37	48	31	36	30	48	51	39	36
9	48	41	48	38	48	37	37	30	51	53	48	36
10	46	41	39	37	48	34	34	30	51	53	51	51
11	39	39	38	33	48	36	32	30	51	53	48	48
12	41	51	41	32	46	51	31	26.5	51	51	51	51
13	48	48	43	32	41	46	30	29.5	51	51	48	48
14	46	46	37	31	38	43	30	31	48	51	48	51
15	53	48	34	40	37	37	29	31	48	51	41	51
16	53	51	34	41	37	33	29	31	51	51	38	51
17	51	39	34	38	41	32	29	31	51	51	36	48
18	51	39	33	48	38	31	28	31	53	51	34	51
19	48	38	32	51	36	30	28	31	51	48	33	48
20	51	37	32	48	34	36	28	31	53	46	33	48
21	53	39	32	46	34	37.5	28	31	51	43	51	48
22	53	38	32	39	34	32	28	30	51	41	46	43
23	51	39	33	36	33	32	28	31	51	39	38	39
24	51	39	43	36	34	37	43	31	51	39	34	37
25	51	38	39	39	48	37	31	31	48	39	37	36
26	51	46	39	36	51	39	30	31	36.5	48	51	34
27	51	51	37	33	43	38	39.5	31	45	51	48	34
28	51	53	39	32	38	37	33	32	48	46	43	36
29	43	53	46	46	36	37	22	-	48	43	51	39
30	41	48	37	51	34	36	28	-	48	41	51	51
31	46	46	-	53	-	36	29	-	51	-	51	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	53	32	48.0	74.3	1,490	4,560
August	53	37	45.3	70.1	1,400	4,310
September	51	32	39.5	61.1	1,190	3,640
October	53	31	40.8	63.1	1,260	3,880
November	53	33	42.2	65.3	1,270	3,890
December	51	30	35.4	54.8	1,100	3,370
Calendar year 1937	53	20.5	40.4	62.5	14,740	45,280
January	43	22	31.7	49.0	982	3,020
February	32	.1	27.5	42.5	770	2,360
March	53	32	47.2	73.0	1,460	4,490
April	53	39	48.3	74.7	1,450	4,460
May	51	33	44.6	69.0	1,380	4,240
June	53	34	44.8	69.3	1,340	4,120
Fiscal year 1937-38	53	.1	41.4	64.1	15,090	46,330

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 1938. August 1910 to December 1916, at site half a mile upstream; records equivalent.
Average discharge.- 14 years (1917-20, 1927-38), 56.6 million gallons a day (87.6 second-feet).
Extremes.- Maximum discharge during year, 3,260 million gallons a day (5,040 second-feet) June 11 (gage height, 6.43 feet), from rating curve extended above 2,400 million gallons a day; minimum discharge recorded, 9.6 million gallons a day (14.9 second-feet) May 20.
1910-21, 1926-38: 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 fair except those for periods when intake was plugged or clock stopped, Nov. 11-23, Dec. 29 to Jan. 30, Apr. 14-30, May 15-24, June 4-9, 13-18, 22, 24-28, which were computed on basis of records for station on East Branch of North Fork of Wailua River and are poor. Hanapepe ditch diverts water from river 3 miles above station for irrigation in vicinity of Makaweli.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Nov. 25								Nov. 26 to June 30			
0.2	10.8	1.0	64	2.0	238	3.2	700	0.3	10.2	1.3	98
.4	18	1.2	87	2.3	325	3.5	860	.6	25.5	1.6	148
.6	29	1.4	114	2.6	430	4.0	1,170	.8	41	2.0	238
.8	45	1.7	168	2.9	560			1.0	60	2.5	395

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	31.5	104	24	33	199	15.8	35	100	17.9	141	54	400
2	16	725	21.5	143	110	15.3	32	550	14.3	33.5	139	341
3	32.5	429	25	41	45	15.8	27	245	13.9	78	128	164
4	127	139	54	45	88	16.3	23	300	13.5	28.5	163	40
5	93	72	26	25.5	147	16.3	21	194	12.7	22.5	41	30
6	154	72	43	28	140	16.3	20	97	15.3	26.5	27.5	27
7	157	46	42	25	112	15.8	19	75	65	16.3	27.5	25
8	56	40	26	20.5	90	15.8	36	64	232	16.3	20	24
9	52	36	21.5	21	64	17.4	25	70	48	73	20.5	27
10	35.5	30	20	17.2	86	15.3	21	56	20	216	18.9	280
11	38	33.5	19.0	17.2	50	19.0	19	224	17.4	182	15.3	365
12	37	34	45	16.8	35	128	17	409	85	52	33.5	138
13	25	28	22.5	17.6	28	24.5	16	253	182	69	89	50
14	29	46	19.5	19.0	25	15.8	16	88	180	50	29.5	40
15	33.5	64	18.0	184	23	13.5	15	96	100	40	25	45
16	114	410	20.5	36.5	20	13.1	14	72	45	35	22	35
17	413	902	20.5	32	19	12.7	14	62	27.5	31	20	38
18	71	105	16.4	300	18	12.2	13	57	97	30	19	32
19	42	59	16.4	45	17	12.2	13	49	48	50	18	27
20	99	45	15.6	28	17	34	19	40	60	35	30	28
21	111	36.5	15.6	24	17	21	15	26	37	30	100	25
22	142	31	18.2	20.5	16	15.8	13	23	24.5	27	24	22
23	77	46	27.5	19.0	30	18.9	25	33.5	36	25	21	22.5
24	45	32	45	18.5	137	25	18	23.5	21	23	19	19
25	83	32	58	19.5	470	210	16	20.5	21	21	42	18
26	69	37	32.5	17.6	82	544	20	18.9	302	35	155	17
27	38	30.5	21.5	16.8	34	164	110	28.5	139	25	22.5	17
28	34	38	73	16.8	22.5	58	400	18.9	44	23	36.5	19
29	63	51	35	296	19.4	50	500	-	50	21	40	35
30	83	31	33	126	16.3	45	250	-	44	24	27	25.5
31	36.5	28	-	97	-	40	139	-	58	-	69	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	413	16.0	78.6	122	2,440	7,480
August	902	28	123	190	3,810	11,700
September	73	15.6	29.2	45.2	876	2,690
October	300	16.8	57.0	88.2	1,770	5,420
November	470	16	72.6	112	2,180	6,680
December	544	12.2	52.8	81.7	1,640	5,020
Calendar year 1937	1,500	12.2	88.4	137	32,270	98,960
January	500	13	62.0	95.9	1,920	5,900
February	550	18.9	118	183	3,290	10,110
March	302	12.7	66.8	103	2,070	6,360
April	216	16.3	49.3	76.3	1,480	4,540
May	163	15.3	48.3	74.7	1,500	4,590
June	400	17	79.2	123	2,380	7,290
Fiscal year 1937-38	902	12.2	69.4	107	25,360	77,780

Peak discharge.- Oct. 18 (2:15 a.m.) 2,870 m.g.d. (4,440 sec.-ft.); Mar. 26 (7:45 p.m.) 3,170 m.g.d. (4,900 sec.-ft.); June 11 (7 p.m.) 3,260 m.g.d. (5,040 sec.-ft.).

Hanapepe ditch below intake, near Eleele

Location.- Lat. 21°58'55", long. 159°32'05", 1 mile downstream from intake and 7 miles northeast of Eleele. Altitude, 500 feet, by barometer.

Records available.- March 1930 to June 1938.

Extremes.- Maximum discharge during year, 33 million gallons a day (51 second-feet) Aug. 2, 16, 17 (gage height, 3.68 feet); no flow occasionally, when water was turned out of ditch.

1930-38: Maximum discharge, 41 million gallons a day (63 second-feet) Nov. 12, 1931 (gage height, 3.96 feet); no flow occasionally, owing to closing of head gates.

Remarks.- Records good except those for periods of faulty or missing gage heights, Dec. 2-16, Jan. 27-30, May 1, 2, June 17, 18, which were computed on basis of records for station on Hanapepe ditch at Koula and are fair. Ditch diverts water from Hanapepe River for irrigation in vicinity of Makaweli.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	27	32	27	32	32	29	29	22	27	30	30	32
2	27	33	30	32	31	28	29	9.2	26	30	30	32
3	31	32	32	32	30	28	27	0	25	30	30	32
4	32	32	32	32	30	28	27	0	24	30	30	32
5	32	32	32	32	30	28	26	0	24	30	30	32
6	32	32	32	32	30	28	26	0	25	30	30	32
7	32	32	32	32	30	28	26	0	25	29	32	32
8	31	32	32	32	30	28	29	0	27	30	30	32
9	32	32	32	30	30	28	27	0	29	30	30	32
10	27	32	32	30	30	28	26	0	29	32	32	32
11	21	32	32	30	30	29	26	4.3	29	30	30	30
12	32	32	32	30	29	29	26	7.3	29	30	32	29
13	30	32	32	29	30	28	26	2.0	27	30	29	30
14	26	32	32	30	30	29	26	0	26	30	31	32
15	30	32	30	32	30	29	25	0	27	30	30	30
16	31	33	32	32	30	28	26	0	30	30	30	32
17	32	32	32	32	30	27	24	0	29	29	30	32
18	32	32	32	32	29	27	25	0	30	29	30	32
19	32	33	30	32	29	27	25	0	30	28	29	32
20	32	32	29	32	29	30	24	7.6	30	29	29	32
21	30	32	29	30	29	29	24	22	30	29	30	32
22	32	32	30	30	29	29	25	24	29	29	29	32
23	29	32	32	29	29	30	25	25	30	29	27	32
24	32	30	32	29	30	30	25	24	29	26	29	32
25	32	32	32	29	32	7.2	25	25	30	27	30	32
26	32	30	32	29	30	17.0	27	25	30	27	32	32
27	32	30	32	27	29	30	31	24	30	29	32	32
28	32	30	32	27	30	30	31	25	29	27	32	32
29	32	32	32	32	30	30	15	-	30	29	32	30
30	32	30	32	30	30	30	6	-	30	29	32	30
31	32	29	-	32	-	30	22	-	30	-	32	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	32	21	30.6	47.3	948	2,910
August	33	29	31.7	49.0	982	3,010
September	32	27	31.4	48.6	941	2,890
October	32	27	30.7	47.5	951	2,920
November	32	29	29.9	46.3	897	2,750
December	30	7.2	27.6	42.7	856	2,630
Calendar year 1937	34	0	29.6	45.8	10,790	33,120
January	31	6	25.2	39.0	781	2,400
February	25	0	8.80	13.6	246	756
March	30	24	28.2	43.6	875	2,690
April	32	26	29.2	45.2	877	2,690
May	32	27	30.4	47.0	941	2,890
June	32	29	31.6	48.9	947	2,910
Fiscal year 1937-38	33	0	28.1	43.5	10,240	31,450

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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 1938.

Average discharge.- 21 years (1910-20, 1927-38), 25.7 million gallons a day (39.8 second-feet).

Extremes.- Maximum discharge during year, 35.5 million gallons a day (54.9 second-feet) Mar. 26 (gage height, 3.08 feet); no flow occasionally, when head gates were closed.

1910-21, 1927-38: 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 except those for period of faulty gage heights, May 11 to June 17, which were computed on basis of records for station on Hanapepe ditch at intake and are fair. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.5	28	26	28	28	30	0	S.7	28	30	30	32
2	22.5	30	28	28	28	28	15.9	6.2	26	30	29.5	32
3	26	30	28	28	28	28	24	0	26	30	28	33
4	28	30	28	28	30	28	24	.2	24	30	30	33
5	24.5	30	28	28	30	26	24	0	24	30	*30	33
6	28	30	28	28	28	26	24	0	24	30	*30	33
7	28	28	28	26	28	26	24	0	24	28	*30	33
8	26	30	28	26	30	26	26	0	29	28	*30	33
9	28	30	28	26	30	26	24	1.3	26.5	30	*30	33
10	22.5	28	26	26	30	26	24	3.5	30	33	*30	33
11	17.8	28	26	26	14.7	28	24	6.2	30	30	*30	32
12	26	28	28	24	26	28	24	13.9	30	28	30	30
13	26	28	26	26	26	25.5	22.5	12.8	28	30	30	30
14	23.5	28	26	26	11.6	28	22.5	9.4	30.5	28	30	32
15	26	28	26	28	26	28	22.5	2.6	26	30	30	31
16	28	30	28	28	26	26	22.5	0	30	28	30	33
17	30	33	26	28	6.8	24	22.5	0	30	28	30	33
18	30	33	28	30	0	24	22.5	2.8	30	28	30	*33
19	28	33	26	30	0	24	22.5	5.2	30	27.5	30	33
20	30	30	26	28	0	26	22.5	10.8	33	30	30	33
21	27.5	30	26	28	10.7	28	22.5	21	30	27.5	29	28.5
22	30	28	26	28	22.5	28	22.5	24	30	26	28	30
23	25.5	30	28	26	24	28	22.5	26	30	21.5	29	33
24	28	28	28	26	28	28	22.5	24	30	24.5	30	33
25	30	28	28	26	28	12.6	24	26	30	26	32	33
26	28	28	23	24	30	7.9	26	24	30	27.5	32	30
27	28	28	26	24	30	28	30	24.5	28	28	32	30
28	28	28	28	23.5	30	28	30	26	30	28	32	33
29	28	28	28	30	30	30	7.5	-	30	28	32	30
30	28	28	28	28	30	6.2	4.0	-	30	28	32	33
31	28	26	-	28	-	2.6	11.8	-	30	-	32	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	30	8.5	26.3	40.7	816	2,510
August	33	26	29.1	45.0	903	2,770
September	28	23	27.0	41.8	811	2,490
October	30	23.5	27.0	41.8	838	2,570
November	30	0	23.0	35.6	690	2,120
December	30	2.6	24.5	37.9	759	2,330
Calendar year 1937	33	0	25.0	38.7	9,130	28,030
January	30	0	21.3	33.0	661	2,030
February	26	0	9.97	15.4	279	857
March	33	24	28.7	44.4	889	2,730
April	33	21.5	28.4	43.9	852	2,610
May	32	28	30.2	46.7	936	2,880
June	33	28.5	32.0	49.5	962	2,950
Fiscal year 1937-38	33	0	25.7	39.8	9,400	28,850

*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 1938. December 1911 to November 1918, at site a third of a mile upstream.
Average discharge.- 16 years (1921-24, 1925-38), 70.9 million gallons a day (110 second-feet).
Extremes.- Maximum discharge during year, 8,420 million gallons a day (13,000 second-feet) Nov. 25 (gage height, 7.46 feet), from rating curve extended above 9,000 million gallons a day; minimum, 2.2 million gallons a day (3.4 second-feet) Sept. 22.
1911-38: Maximum discharge, 29,000 million gallons a day (44,900 second-feet) Jan. 16, 1920 (gage height, 11.25 feet), from rating curve extended above 9,000 million gallons a day; minimum, 1.2 million gallons a day (1.9 second-feet) May 3, 1926.
Remarks.- Records good. Lihue and Hanamaula ditches divert water above station, at altitudes of 600 and 500 feet, respectively, for irrigation in vicinity of Lihue.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Nov. 25

0.7	1.6	1.7	21.5	3.1	245
.9	2.8	1.9	34	3.5	400
1.1	5.0	2.1	51	4.0	665
1.3	8.4	2.4	86	4.5	1,010
1.5	13.5	2.7	140	5.0	1,550

Nov. 26 to June 30

0.9	3.2	1.5	16.1	2.6	120
1.0	4.4	1.8	30	3.0	215
1.2	7.8	2.2	61	3.5	400

Note.- Same as preceding table above 3.5 feet.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.9	89	34	8.8	326	38	59	167	14.6	271	6.7	381
2	3.9	*360	5.2	68	197	37.5	45	1,230	6.7	80	83	234
3	4.2	*371	3.8	20.5	23	34.5	34	421	6.3	116	125	122
4	5.3	*120	12.4	32.5	80	13.5	28.5	298	5.8	56	226	87
5	15.7	*70	10.5	10.4	165	26.5	10.4	288	6.6	27.5	86	52
6	56	*80	22	4.6	156	7.2	10.1	140	5.6	61	51	25
7	99	43	34.5	4.3	142	4.3	13.2	138	359	23.5	42	7.2
8	20.5	53	7.6	4.4	88	3.7	13.9	111	774	10.5	35.5	5.4
9	157	21.5	4.3	3.9	70	3.6	32.5	111	138	83	30.5	7.0
10	62	6.9	3.4	3.4	91	3.4	22.5	94	61	429	20.5	300
11	56	6.2	3.4	3.2	73	4.0	12.8	246	48	338	8.5	382
12	30	42	18.8	3.2	52	34.5	7.0	635	152	99	10.7	289
13	6.0	54	11.1	3.3	46	5.1	5.6	357	214	156	101	66
14	4.2	8.9	4.3	3.4	42	4.3	5.3	140	252	68	33.5	35.5
15	4.2	6.9	3.1	76	36.5	4.4	5.6	120	181	78	13.6	89
16	28	249	3.0	5.2	31	4.6	5.3	102	99	55	19.7	41
17	269	1,230	3.5	3.4	32.5	4.3	5.3	91	64	55	6.1	50
18	72	102	3.0	415	25	4.0	5.0	78	208	37	5.2	63
19	35	38.5	2.5	82	18.4	3.8	5.2	71	111	93	4.8	53
20	53	27.5	2.5	53	14	4.0	5.4	65	112	61	5.2	30.5
21	34.5	27.5	2.4	40	23.5	4.4	6.9	60	80	32.5	5.3	25
22	97	39.5	2.3	27	7.3	4.0	5.3	58	61	23	5.4	11.6
23	41	29.5	2.8	24	3.5	13.6	5.1	45	66	30.5	4.8	22
24	22	24.5	4.5	25.5	39	45	5.0	40	46	34	4.8	7.8
25	91	8.2	18.6	35.5	1,340	240	4.6	35	39	11.2	5.3	6.5
26	83	7.4	19.0	16.0	154	629	4.7	32	460	17.0	158	5.9
27	29	6.7	12.8	16.3	72	271	54	35.5	304	8.3	12.4	5.4
28	21	17.7	139	12.6	56	114	563	30.5	100	6.3	5.8	5.3
29	65	239	12.6	264	49	71	828	-	51	5.8	17.9	5.8
30	72	75	6.5	238	42	69	180	-	35.5	6.7	21	6.8
31	28	40	-	173	-	96	163	-	110	-	53	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	269	3.9	50.6	78.3	1,570	4,810
August	1,230	6.2	113	175	3,490	10,720
September	139	2.3	13.8	21.4	413	1,270
October	415	3.2	54.2	83.9	1,680	5,160
November	1,340	3.5	117	181	3,500	10,730
December	629	3.4	58.1	89.9	1,800	5,530
Calendar year 1937	2,860	2.3	110	170	40,310	123,700
January	828	4.6	69.4	107	2,150	6,600
February	1,230	30.5	187	289	5,240	16,080
March	774	5.6	135	209	4,170	12,800
April	429	5.8	79.1	122	2,370	7,280
May	226	4.8	39.0	60.3	1,210	3,710
June	382	5.3	80.7	125	2,420	7,430
Fiscal year 1937-38	1,340	2.3	82.2	127	30,010	92,120

Peak discharge.- Aug. 17 (9:30 a.m.) 5,290 m.g.d. (8,180 sec.-ft.); Oct. 18 (4:45 a.m.) 5,320 m.g.d. (8,230 sec.-ft.); Nov. 25 (2:30 p.m.) 8,420 m.g.d. (13,000 sec.-ft.).
*Partly estimated.

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 7¾ miles northwest of Lihue. Altitude, 650 feet, from topographic map.
Drainage area.- 6.6 square miles.
Records available.- August 1910 to June 1938. December 1910 to September 1914, at site 300 feet downstream from confluence of main and east branches; records not equivalent.
Average discharge.- 17 years (1921-38), 52.6 million gallons a day (81.4 second-feet).
Extremes.- Maximum discharge during year, 2,370 million gallons a day (3,670 second-feet) Jan. 23 (gage height, 6.74 feet), from rating curve extended above 600 million gallons a day and slope measurement of 2,250 million gallons a day; minimum, 4.9 million gallons a day (7.6 second-feet) Jan. 23.
1910-38: Maximum discharge, 3,720 million gallons a day (5,760 second-feet) Mar. 19, 1937 (gage height, 8.67 feet); minimum not determined owing to water surface going below intake; minimum daily discharge, 1.6 million gallons a day (2.5 second-feet), estimated, May 23-25, 28, 1936.
Remarks.- Records good except those for period when clock was not running, Mar. 12-22, which was computed on basis of records for stations on nearby streams and are fair. Since 1925 Hanalei tunnel has discharged its water into river, and North Wailua and Stable storm ditches have diverted water above station for irrigation in vicinity of Lihue.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 28						Jan. 29 to June 30					
-0.6	3.8	0.7	48	2.5	302	-0.4	5.1	0.4	38	2.5	300
-.4	7.2	.9	61	3.0	436	-.2	8.8	1.0	64	3.0	435
-.2	11.8	1.2	89	3.5	594	0	13.7	1.5	117		
+.1	21	1.6	139			.3	24	2.0	195		
.4	33	2.0	198								

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.9	84	40	49	192	36	57	102	27	123	60	237
2	10.1	197	39.5	132	116	35	48	288	25	64	88	193
3	16.3	180	44	54	69	33	43	134	24	68	91	112
4	39.5	100	68	75	78	32.5	39.5	114	13.5	52	129	73
5	18.6	76	45	48	97	31.5	37	83	6.7	87	68	56
6	58	92	52	51	107	31	35	60	7.8	116	49	46
7	95	58	58	43	89	30	34.5	85	92	38	49	43
8	51	56	45	58	68	29	41	56	270	56	52	38
9	100	51	38.5	46	62	29.5	33	62	77	88	64	47
10	76	42	37	38	62	28	31	58	56	340	58	208
11	75	44	37.5	37	52	26.5	30	155	52	177	40	177
12	61	40	73	37	46	37	29	291	100	105	52	108
13	46	25	37.5	35	41	10.8	29	126	110	124	74	60
14	46	35	30	43	39	10.4	28	78	156	88	43	60
15	48	52	33	130	37.5	10.8	27.5	64	128	73	35.5	72
16	79	182	44	45	37	10.6	27	52	87	56	32	56
17	165	472	36	41	35	10.4	26.5	46	65	49	29.5	60
18	79	96	26.5	137	34	10.1	26.5	43	78	40	28	52
19	54	65	17.9	43	32.5	10.1	27	40	63	56	25	43
20	94	52	16.7	41	35	11.3	13.2	38	66	46	15.1	46
21	86	46	16.7	38	36	10.8	5.2	35.5	57	40	48	40
22	84	45	21.5	38	31	10.6	5.1	33	48	35.5	15.8	52
23	72	51	26	43	34	61	17.3	38	51	33	13.7	44.5
24	51	43	30.5	56	164	48	9.4	32	38	33	12.7	33
25	94	46	48	46	447	94	5.2	30	75	31.5	32.5	31.5
26	92	46	25	36	84	247	11.2	28	299	52	114	29.5
27	69	45	47	35	58	111	106	33.5	142	32	33	29
28	58	75	188	42	49	106	305	27.5	78	31	32.5	29
29	108	108	69	197	44	93	320	-	64	31	46	38.5
30	92	54	66	113	37.5	80	109	-	72	44	43	38
31	58	48	-	166	-	78	110	-	130	-	56	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	165	9.9	67.3	104	2,090	6,400
August	472	25	84.1	130	2,610	8,000
September	188	16.7	45.2	69.9	1,360	4,160
October	197	35	64.3	99.5	1,990	6,120
November	447	31	77.1	119	2,310	7,100
December	247	10.1	45.9	71.0	1,420	4,370
Calendar year 1937	1,030	8.5	80.7	125	29,450	90,370
January	320	5.1	53.7	83.1	1,670	5,110
February	291	27.5	79.7	123	2,230	6,850
March	299	6.7	82.6	128	2,560	7,860
April	340	31	73.6	114	2,210	6,780
May	129	12.7	49.3	76.3	1,530	4,690
June	237	29	71.7	111	2,150	6,600
Fiscal year 1937-38	472	5.1	66.1	102	24,130	74,040

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 1938.

Extremes.- Maximum discharge during year, 68 million gallons a day (105 second-feet) Dec. 23 (gage height, 1.67 feet); no flow at times, when water was shut out of ditch.
1932-38: Maximum discharge, 78 million gallons a day (121 second-feet) Mar. 19, 1937 (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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	22	44	25.5	32.5	52	24	30.5	38.5	20.5	43	34.5	48
2	23.5	51	25	44	44	23.5	26.5	51	19.9	33	41	47
3	31.5	50	29	34.5	34.5	22.5	24.5	41	19.5	34.5	42	41
4	42	42	36.5	42	36.5	22	23.5	36.5	19.1	27	47	34.5
5	36.5	36.5	28	30	44	21.5	23	32	18.7	30.5	34.5	28
6	44	36.5	34.5	32	42	21	22	27	20.5	46	28.5	26
7	46	30.5	36.5	26.5	40	21	23	31.5	27.5	34.5	28.5	25
8	31	30.5	29.5	34.5	37.5	20.5	27.5	26.5	51	31	34.5	25
9	39	28.5	25.5	28.5	34.5	21.5	22	32.5	34	39	34.5	32.5
10	39	26.5	24	25	34.5	20.5	20.5	31.5	31	56	33.5	46
11	36.5	29.5	25.5	24	29.5	25.5	20.5	47	31	53	29	44
12	34.5	32	36.5	24	27.5	31	19.9	52	46	43	31.5	40
13	29	26.5	24	25	25.5	21	19.9	40	47	42	36.5	31.5
14	30	30	23	30.5	24	20.5	19.5	32	50	37.5	28.5	34.5
15	34.5	39	22.5	45	23.5	21.5	19.5	31.5	44	34.5	25.5	35.5
16	42	52	25	33	23	21	19.1	26.5	37.5	29.5	24	31.5
17	50	55	23	30	22.5	20.5	19.0	24.5	31	28.5	22.5	34.5
18	36.5	41	23	39.5	21.5	20.5	19.1	24	38	26.5	21.5	29.5
19	31.5	34.5	22	27.5	21	19.9	19.5	23	31.5	28	21	26
20	42	30	21.5	25	23.5	21.5	18.7	22	33	25	24.5	27.5
21	39	27	22	24.5	24.5	19.9	18.7	21.5	28.5	23.5	37	26
22	36.5	26	25	26.5	21.5	20.5	18.7	21	24.5	23	24	27.5
23	34.5	31	26.5	29	24.5	29	28	22	29.5	22.5	22.5	25
24	30	26.5	28.5	34	42	39	21.5	20.5	24	22	21	22.5
25	42	28.5	32	28	55	44	19.5	20.5	40	22.5	33.5	22
26	40	29.5	27.5	24	36.5	50	27	20.5	46	31.5	44	21.5
27	39	30	28.5	23	29.5	42	47	22	47	23	31.5	22
28	34.5	39	41	25	26.5	46	54	19.9	36	22.5	34.5	23
29	44	42	34.5	54	25.5	42	53	-	36	23	36.5	27.5
30	39	31	34.5	44	24	39	39	-	40	28.5	34.5	28
31	34.5	27	-	50	-	37	39	-	48	-	40	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	50	22	36.6	56.6	1,130	3,480
August	55	26	34.9	54.0	1,080	3,320
September	41	21.5	28.0	43.3	840	2,580
October	54	23	32.1	49.7	995	3,050
November	55	21	31.7	49.0	950	2,920
December	50	19.9	27.4	42.4	849	2,610
Calendar year 1937	61	.09	33.4	51.7	12,170	37,390
January	54	18.7	25.9	40.1	803	2,460
February	52	19.9	29.9	46.3	838	2,570
March	51	18.7	33.9	52.5	1,050	3,220
April	56	22	32.1	49.7	964	2,960
May	47	21	31.7	49.0	982	3,010
June	48	21.5	31.1	48.1	932	2,860
Fiscal year 1937-38	56	18.7	31.3	48.4	11,410	35,040

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. Zero of gage is 1,105.45 feet above mean sea level, by Lihue Plantation Co. levels.

Records available.- July 1932 to June 1938. Records from 1926 to June 1932 obtained by Lihue Plantation Co.

Extremes.- Maximum discharge during year, 47 million gallons a day (73 second-feet) June 1 (gage height, 1.35 feet); no flow for several periods of a few days each, when water was diverted around station.

1932-38: 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.6	19.4	15.6	18.1	12.6	14.4	12.0	10.0	12.9	0	15.5	14.4
2	13.9	14.3	15.2	22	12.3	14.2	12.3	11.0	12.9	5.4	17.1	8.6
3	19.6	12.9	18.0	19.0	12.4	13.6	12.6	9.8	12.5	13.2	18.8	11.1
4	28.5	12.0	21	21	12.6	13.3	12.6	9.8	12.5	3.1	18.8	11.8
5	23	12.9	17.3	17.6	12.3	13.3	12.6	9.5	12.6	.07	18.1	11.5
6	32	12.9	18.4	19.2	11.4	12.9	12.6	11.0	13.9	.04	17.6	12.0
7	25.5	12.3	18.7	17.3	11.7	12.9	13.3	12.3	14.1	0	17.8	13.3
8	15.9	12.3	17.3	19.7	12.0	12.6	14.2	12.0	12.3	9.4	17.8	15.2
9	16.2	15.6	15.2	17.6	12.3	13.3	12.9	12.9	12.3	12.7	17.1	15.8
10	15.9	17.4	15.2	15.6	12.6	12.6	12.6	12.9	12.3	13.9	17.8	14.0
11	17.0	18.0	15.6	15.2	12.3	17.8	12.3	13.3	11.4	33.5	17.1	13.3
12	16.1	18.7	20	15.9	12.3	18.8	12.3	12.6	12.2	.11	17.2	12.7
13	15.6	17.6	15.9	16.2	12.3	13.6	12.6	11.0	12.2	0	18.1	12.0
14	20	19.8	14.9	20.5	12.3	13.6	12.3	11.4	12.5	4.5	15.5	12.4
15	19.3	22.5	14.0	29	12.0	14.2	12.0	12.6	11.0	11.5	15.0	12.6
16	35	24.5	17.5	19.8	12.3	12.8	11.7	12.6	11.7	11.5	14.9	12.4
17	18.1	13.6	15.6	21	12.3	12.3	11.7	12.6	12.9	11.8	14.3	12.4
18	15.2	12.2	14.8	18.6	12.3	12.0	12.0	12.9	13.2	11.8	13.6	12.4
19	15.7	16.2	14.2	15.6	12.9	12.0	12.3	12.6	12.2	11.9	13.3	11.8
20	16.2	18.7	13.9	15.4	12.9	14.7	12.0	12.6	12.9	12.0	14.2	12.1
21	19.4	17.0	14.2	15.2	13.3	12.6	12.0	12.6	12.5	12.3	18.9	11.8
22	19.4	17.0	15.8	14.9	12.9	12.9	11.7	12.6	12.3	12.7	14.6	13.0
23	20	19.4	20	15.2	13.3	14.2	15.2	12.9	12.8	12.7	13.3	13.0
24	19.0	17.0	20.5	15.9	18.0	20.5	12.4	12.6	12.5	12.7	13.0	12.9
25	20	18.4	22.5	15.2	13.5	16.9	12.0	13.3	12.9	12.8	24	13.0
26	19.4	18.7	18.0	14.9	9.3	11.8	18.3	12.6	12.0	14.6	33.5	12.7
27	18.7	18.7	17.7	14.2	8.7	11.7	32.5	13.9	9.7	14.0	20	13.6
28	18.7	21	11.1	14.5	8.2	12.3	21	13.3	9.4	13.6	24	15.2
29	21.5	21.5	12.3	12.9	11.0	13.6	10.1	-	12.4	13.8	25	16.9
30	20	19.0	15.4	11.7	14.6	12.9	9.2	-	13.8	15.0	21.5	17.1
31	18.0	13.9	-	12.0	-	12.9	9.8	-	3.65	-	24	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	35	13.6	19.6	30.3	606	1,860
August	24.5	12.0	16.9	26.1	525	1,610
September	22.5	11.1	16.5	25.5	496	1,520
October	29	11.7	17.1	26.5	531	1,630
November	18.0	8.2	12.3	19.0	369	1,130
December	20.5	11.7	13.8	21.4	427	1,310
Calendar year 1937	35	5.9	14.7	22.7	5,360	16,440
January	32.5	9.2	13.3	20.6	413	1,270
February	13.9	9.5	12.1	18.7	339	1,040
March	14.1	3.65	12.1	18.7	374	1,150
April	33.5	0	10.0	15.5	301	923
May	33.5	13.0	18.1	28.0	561	1,720
June	17.1	8.6	13.0	20.1	391	1,200
Fiscal year 1937-38	35	0	14.6	22.6	5,330	16,360

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 1938. Records for April 1931 to December 1936 obtained by Lihue Plantation Co. from staff gage at site 1 mile downstream.

Extremes.- Maximum discharge during year, 48 million gallons a day (74 second-feet) Jan. 28 (gage height, 1.76 feet); no flow at times, when water was shut out of ditch. 1936-38: Maximum discharge, that of Jan. 28, 1938; minimum, no flow at times, when water was shut out of ditch.

Remarks.- Records excellent. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	19.8	0	0	0		0	0		0	0	0	
2	21.5	0	0	0		0	0		0	0	1.35	
3	28	0	0	0		0	0		0	0	.19	
4	36.5	0	0	0		0	0		10.8	0	.19	
5	35	0	0	0		0	0		19.8	0	0	
6	14.4	0	0	0		0	0		19.8	0	0	
7	0	0	0	0		0	0		24.5	0	0	
8	0	0	0	0		0	0		18.2	0	0	
9	0	0	0	0		0	0		0	0	.18	
10	0	0	0	0		0	0		0	0	0	
11	0	0	0	0		12.5	0		0	0	0	
12	0	11.7	0	0		24.5	0		0	0	0	
13	0	14.5	0	3.4		18.2	0		0	0	0	
14	0	14.7	4.1	7.7		17.6	0		0	0	0	
15	0	15.3	0	9.6		17.6	0		0	0	0	
16	0	12.5	0	7.7		17.3	0		0	0	0	
17	0	0	0	7.7		17	0		0	0	0	
18	0	0	7.8	8.9		16.4	0		0	4.9	0	
19	0	0	15.6	4.4		16.2	0		0	0	4.2	
20	0	0	15.6	0		18	14.2		0	0	15.9	
21	0	0	15.3	0		16.4	21.5		0	0	17.3	
22	0	0	15.9	0		16.4	19.8		0	0	15.9	
23	0	0	16.3	0		22	24.5		0	0	15.6	
24	0	0	16.7	0		29.5	24.5		0	0	15.3	
25	0	0	17	0		31	21.5		0	0	19.8	
26	0	0	16.7	0		35	24.5		0	0	6.1	
27	0	0	4.9	0		16.2	33		0	0	10.8	
28	0	0	0	0		0	36.5		0	0	15.3	
29	0	0	0	0		0	16		0	0	4.6	
30	0	0	0	0		0	0		0	0	0	
31	0	0	-	0		0	0		0	-	0	

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	36.5	0	5.01	7.75	155	476
August	15.3	0	2.22	3.43	68.7	211
September	17.0	0	4.86	7.52	146	448
October	9.6	0	1.59	2.46	49.4	152
November	0	0	0	0	0	0
December	35	0	11.0	17.0	342	1,050
Calendar year 1937	36.5	0	3.59	5.55	1,310	4,020
January	36.5	0	7.61	11.8	236	724
February	0	0	0	0	0	0
March	24.5	0	3.00	4.64	93.1	286
April	4.9	0	.163	.252	4.9	15
May	19.8	0	4.60	7.12	143	438
June	0	0	0	0	0	0
Fiscal year 1937-38	36.5	0	3.39	5.25	1,240	3,800

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 1938.

Average discharge.- 18 years (1916-22, 1926-38), 7.99 million gallons a day (12.4 second-feet).

Extremes.- Maximum discharge during year, 13.3 million gallons a day (20.6 second-feet) Dec. 12 (gage height, 0.54 foot); no flow several days during year, when intake gate was closed.

1910-38: 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.1	5.3	6.2	5.9	2.4	2.2	2.4	2.2	5.1	1.78	5.1	3.2
2	5.3	5.1	6.2	6.2	2.1	2.2	2.2	2.4	5.1	1.78	5.3	1.40
3	8.6	5.1	6.5	5.9	1.98	2.2	2.2	1.78	5.1	1.78	5.3	1.40
4	10.9	4.3	6.5	6.2	1.98	2.2	2.2	.83	3.65	1.78	5.6	4.5
5	8.3	4.8	5.9	5.9	2.2	3.4	1.98	.21	2.8	1.78	5.6	5.5
6	5.9	4.8	6.2	6.2	2.2	5.9	1.98	.98	3.0	1.98	5.1	5.6
7	5.3	4.8	6.2	6.2	2.2	5.9	1.98	1.40	5.3	1.78	5.3	5.6
8	5.3	4.8	6.2	6.2	1.98	5.9	1.98	1.58	7.8	1.78	5.6	5.6
9	5.1	2.45	5.9	5.9	1.98	5.9	1.98	1.58	4.8	1.98	5.6	5.9
10	5.1	0	5.9	5.9	1.98	6.2	3.3	1.58	4.5	2.2	5.4	2.6
11	5.1	0	5.9	5.9	1.98	5.4	6.2	1.78	4.3	1.98	5.6	1.78
12	5.1	2.3	6.2	6.2	1.98	5.8	5.9	1.32	4.8	1.78	5.9	1.78
13	5.6	4.2	5.9	5.9	1.78	2.1	5.9	.79	5.1	1.78	4.4	4.9
14	5.6	.70	5.3	5.9	1.58	4.3	5.9	1.58	5.9	1.58	.80	5.6
15	5.6	1.09	6.2	6.5	1.58	6.8	5.9	1.58	5.4	1.58	1.40	5.6
16	5.3	.69	6.2	5.9	1.58	6.5	5.6	1.58	5.1	1.40	2.65	5.6
17	5.3	.70	6.1	6.2	1.40	6.5	5.9	1.58	5.3	2.2	3.25	5.7
18	5.1	0	5.6	3.3	1.58	6.5	6.1	1.40	5.9	5.1	3.2	4.0
19	5.6	0	4.6	1.38	2.6	6.5	6.2	1.40	5.6	5.3	5.7	2.55
20	5.6	1.13	5.6	1.40	5.2	6.9	3.6	1.40	5.6	5.1	5.1	5.6
21	3.65	.36	5.9	1.40	5.6	6.7	2.4	1.40	5.3	5.1	5.6	5.6
22	2.35	.92	6.2	1.24	6.2	6.8	2.8	2.8	5.1	5.1	5.3	5.3
23	2.8	3.1	5.8	1.09	5.9	5.4	3.65	5.6	5.1	5.3	5.1	5.3
24	2.8	.80	6.2	1.09	5.6	1.45	4.3	5.3	5.3	5.3	4.6	5.6
25	3.0	1.12	6.2	1.40	1.52	2.4	3.2	5.3	5.9	5.6	5.1	5.6
26	3.05	3.15	6.2	1.88	1.67	1.51	5.1	5.3	3.75	5.6	5.6	5.5
27	3.05	6.2	6.1	1.78	2.2	1.17	6.2	5.6	.31	5.3	5.1	5.6
28	4.3	6.2	5.4	1.58	1.98	2.2	1.76	5.1	1.09	5.1	5.6	5.6
29	4.8	5.9	5.6	2.2	2.4	2.2	.43	-	1.78	5.1	5.6	5.2
30	4.8	5.9	5.9	2.1	2.3	2.2	1.58	-	1.78	5.1	5.6	5.1
31	5.1	6.2	-	2.4	-	1.90	2.4	-	1.78	-	5.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	10.9	2.35	5.11	7.91	158	486
August	6.2	0	2.97	4.60	92.1	283
September	6.5	4.6	5.96	9.22	179	549
October	6.5	1.09	4.10	6.34	127	390
November	6.2	1.40	2.59	4.01	77.6	238
December	6.9	1.17	4.30	6.65	133	409
Calendar year 1937	10.9	0	4.01	6.20	1,460	4,500
January	6.2	.43	3.65	5.65	113	347
February	5.6	.21	2.33	3.61	65.4	201
March	7.8	.31	4.43	6.85	137	421
April	5.6	1.40	3.30	5.11	99.0	304
May	5.9	.80	4.87	7.54	151	463
June	5.9	1.40	4.63	7.16	139	426
Fiscal year 1937-38	10.9	0	4.03	6.24	1,470	4,520

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 1938. 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, 40 million gallons a day (62 second-feet) Dec. 24 (gage height, 3.62 feet); minimum, 2.7 million gallons a day (4.2 second-feet) Jan. 3.

1936-38: Maximum discharge, 45 million gallons a day (63 second-feet) June 5, 1937 (gage height, 3.54 feet); minimum, 0.7 million gallons a day (1.1 second-feet) Dec. 16, 17.

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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	33.5	6.6	30.5	10.1	11.7	15.1	8.6	9.1	29	8.1	11.2	22.5
2	30.5	6.6	30.5	9.6	7.6	20.5	8.1	9.1	34.5	7.6	22.5	37.5
3	21	6.6	30.5	8.6	7.6	25	7.2	7.1	37.5	7.6	24	37.5
4	9.3	6.6	21	8.6	7.6	8.6	24	7.1	37.5	7.6	18.7	21.5
5	10.9	6.6	10.0	7.6	7.6	8.6	34.5	7.6	32	7.6	18.7	10.1
6	30.5	6.6	30	6.6	7.6	23.5	33.5	7.6	26.5	9.6	18.7	25.5
7	32.5	6.6	34.5	11.2	7.6	29	32	7.6	14.4	13.9	15.1	34.5
8	20	9.3	36	22.5	7.6	26.5	19.4	7.6	8.1	21	13.9	37.5
9	18.7	20.5	33.5	19.6	9.3	34.5	26	8.1	6.6	19.6	32	39
10	15.2	33.5	32	8.6	12.2	34.5	32	8.6	6.6	11.8	36	22.5
11	11.3	34.5	28	20	9.8	27.5	32	9.1	6.6	25	37.5	9.1
12	18.7	34.5	21	26.5	16.3	21	34.5	8.1	6.6	24	37.5	8.1
13	18.7	34.5	36	27.5	12.2	36	33.5	7.6	6.6	24	37.5	7.6
14	28	26	36	27.5	8.6	34.5	33.5	7.1	6.2	20	25.5	7.6
15	24.5	8.4	36	34.5	10.5	33.5	23.5	7.1	6.2	10.6	12.2	7.6
16	16.3	23	37.5	29	29	32	10.9	7.1	6.2	13.4	29	7.6
17	9.8	19.1	37.5	15.6	36	32	22.5	7.6	6.2	11.2	34.5	8.1
18	8.8	8.1	37.5	27.5	37.5	25	27.5	8.6	8.6	21	34.5	8.1
19	12.1	7.7	20.5	26.5	39	13.5	29	9.1	10.1	26.5	36	8.1
20	16.3	6.2	37.5	19.9	29	21	33.5	9.1	11.7	26.5	36	22
21	16.3	6.2	36	16.3	18.8	26.5	33.5	9.1	16.3	22.5	26.5	29
22	16.3	6.2	35.5	16.3	36	29	24.5	11.5	18.7	15.1	13.4	29
23	16.3	6.2	34.5	12.2	36	29	10.5	21	24	10.6	28	29
24	9.9	6.2	36	10.1	34.5	25	22.5	21	24	8.6	36	36
25	8.2	6.2	37.5	15.1	21.5	7.1	24	21	24	24.5	37.5	27
26	8.2	6.2	39	16.3	7.6	7.6	17.5	16.6	18.3	33.5	40	17.1
27	8.2	10.4	39	16.3	7.6	7.6	21	11.7	9.1	33.5	40	36
28	9.5	14.5	28	16.3	7.6	8.1	20	25	9.1	33.5	26	37.5
29	13.4	8.6	17.4	16.3	7.6	8.1	9.1	-	9.1	33.5	9.1	39
30	10.6	10.2	9.6	11.7	10.1	8.6	9.1	-	9.1	27	9.1	39
31	6.6	21.5	-	9.4	-	8.6	8.6	-	9.1	-	14.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	33.5	6.6	16.5	25.5	510	1,570
August	34.5	6.2	13.4	20.7	414	1,270
September	39	9.6	31.0	48.0	928	2,850
October	34.5	6.6	16.9	26.1	524	1,610
November	39	7.6	16.7	25.8	502	1,540
December	36	7.1	21.5	33.3	667	2,050
Calendar year 1937	41	3.7	15.8	24.4	5,760	17,700
January	34.5	7.2	22.8	35.3	706	2,170
February	25	7.1	10.6	16.4	297	911
March	37.5	6.2	15.4	23.8	478	1,470
April	33.5	7.6	18.6	28.8	559	1,720
May	40	9.1	26.2	40.5	811	2,490
June	39	7.6	23.4	36.2	701	2,150
Fiscal year 1937-38	40	6.2	19.4	30.0	7,100	21,800

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 1938.

Average discharge.- 18 years (1920-38), 31.9 million gallons a day (49.4 second-feet).

Extremes.- Maximum discharge during year, 1,010 million gallons a day (1,560 second-feet) Sept. 28 (gage height, 6.93 feet), from rating curve extended above 270 million gallons a day; minimum, 11.0 million gallons a day (17.0 second-feet) Dec. 19.
1912-38: Maximum discharge, 3,340 million gallons a day (5,170 second-feet) Dec. 24, 1927 (gage height, 10.57 feet), from rating curve extended above 500 million gallons a day; minimum, 4.4 million gallons a day (6.8 second-feet) July 3, 13, 1926.

Remarks.- Records good. No diversions above station.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to July 19		July 20 to June 30			
1.0	9.8	1.1	10.2	2.3	82
1.2	16.4	1.2	13.0	2.6	112
1.4	25	1.4	20	3.0	153
1.6	35.5	1.6	29	3.5	215
1.9	54	1.8	41	4.0	293
2.2	76	2.0	55		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.2	27	19.9	25	113	17.8	27	45	14.7	56	23.5	97
2	12.2	48	18.9	60	56	17.5	23	246	14.7	31.5	30.5	71
3	16.0	62	20	26.5	37.5	16.8	21	97	14.4	35	44	44
4	37	38	27.5	32	38	16.1	19.3	77	13.7	26	48	31
5	24.5	29	21	23.5	44	15.4	17.8	55	13.7	33.5	27	26.5
6	31	32	22	24	45	15.0	17.1	41	13.7	63	22.5	23.5
7	54	23	27.5	21.5	38	14.4	16.8	38	65	30	27	22
8	23.5	21	23	26	29.5	14.0	20.5	31	142	27	27	21.5
9	40	20	18.6	22	29	13.3	16.4	28.5	48	44	30	23
10	24	18.9	17.1	18.6	31	13.3	15.4	27.5	28	152	28.5	90
11	23.5	20.5	17.1	17.8	27	12.7	14.7	46	27	95	24	78
12	23	23.5	24.5	17.5	23.5	13.3	14.4	154	53	55	27.5	47
13	19.7	18.2	16.8	17.5	21.5	12.2	14.0	67	60	48	27	31
14	20	21.5	15.4	18.2	20	11.9	13.7	41	92	41	22	31.5
15	20.5	25	14.4	29	19.3	12.2	13.0	35.5	73	35	20	36
16	35.5	71	16.8	19.3	18.6	12.2	12.7	30	44	34	18.6	28.5
17	58	212	15.7	19.6	17.8	11.9	12.4	27.5	34.5	29	17.8	32
18	31.5	44	14.0	67	17.1	11.6	12.4	26	41	27	17.1	29.5
19	24	32	13.7	21	16.4	11.3	12.2	23.5	33	36	16.4	24
20	37.5	27.5	13.0	18.2	16.1	11.6	14.7	22	34	29.5	17.8	24.5
21	24	23.5	13.0	17.1	*16.0	11.6	13.0	20	29.5	25	30	21.5
22	23	22	14.4	17.1	*15.0	11.3	11.9	19.3	24	22	17.5	19.3
23	27	22	16.4	16.4	14.7	43	17.3	18.6	27	21	16.1	18.2
24	20.5	19.6	21	21	24	50	15.7	17.8	22	20	15.4	17.1
25	39	19.3	28	17.5	192	59	11.9	17.1	22	19.3	25.5	16.8
26	34	20.5	20.5	15.4	43	110	11.9	16.1	99	25.5	55	16.1
27	27	18.9	44	14.4	28	52	20.5	15.7	74	19.3	24	15.4
28	21	26.5	157	26	*23.5	44	146	15.4	38	18.2	26.5	15.0
29	22.5	70	32	103	*21.5	38	198	-	31	18.9	30	16.8
30	27.5	33	31.5	48	*20	36	65	-	29.5	21.5	27	19.6
31	20.5	23	-	82	-	37.5	57	-	55	-	37	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	58	12.2	27.5	42.5	854	2,620
August	212	18.2	35.9	55.5	1,110	3,410
September	157	13.0	25.2	39.0	755	2,320
October	103	14.4	29.1	45.0	902	2,770
November	192	14.7	35.3	54.6	1,060	3,250
December	110	11.3	24.7	38.2	767	2,350
Calendar year 1937	504	11.3	37.0	57.2	13,490	41,420
January	198	11.9	28.9	44.7	897	2,750
February	246	15.4	46.4	71.8	1,300	3,980
March	142	13.7	42.3	65.4	1,310	4,020
April	152	18.2	37.9	58.6	1,140	3,490
May	55	15.4	26.5	41.0	820	2,520
June	97	15.0	32.9	50.9	987	3,030
Fiscal year 1937-38	246	11.3	32.6	50.4	11,900	36,510

*Gage height missing; discharge computed on basis of records for stations on nearby streams.

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 1938. 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, 1,270 million gallons a day (1,960 second-feet) Aug. 17 (gage height, 3.00 feet), from rating curve extended above 330 million gallons a day; no flow at times, when low flow is diverted into Kapahi ditch.

1936-38: 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 except those above 400 million gallons a day, which are poor. Entire low flow is diverted into several ditches above station.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

-0.05	0	0.40	14.1	1.30	166
.00	.3	.50	21.5	1.50	234
.10	1.3	.70	42	1.70	318
.20	4.0	.90	70		
.30	8.2	1.10	111		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	19.3	2.4	4.0	98	12.9	21.5	61	1.2	48	14.1	49
2	0	34	2.6	22.5	34.5	7.7	17.8	310	.6	21.5	15.6	35
3	.1	32	6.9	5.7	21	6.2	14.8	54	0	26	39.5	23.5
4	15.0	19.3	22.5	13.1	22	4.1	1.4	55	0	17.8	27	17.1
5	13.5	10.4	2.6	.1	22.5	4.9	4.8	32.5	.9	25	6.3	16.3
6	17.1	5.4	4.4	4.9	19.3	0	4.2	20	1.2	43	5.2	4.2
7	45	.8	4.7	.3	19.3	1.7	1.0	31	143	1.2	6.9	0
8	9.3	2.4	.5	10.2	16.0	2.3	.6	19.3	112	1.4	25	0
9	8.8	.4	0	4.4	17.1	2.4	0	19.3	27.5	19.4	7.8	.2
10	5.2	.1	0	1.4	19.3	.7	0	18.5	21	84	5.7	59
11	9.3	3.4	0	0	17.8	0	0	46	22.5	32	4.6	76
12	7.4	7.5	18.0	.9	10.6	0	0	130	46	14.0	8.0	26
13	.8	7.0	.4	.1	10.0	0	0	39.5	41	12.4	21	18.3
14	2.0	9.1	0	1.1	10.9	0	0	17.7	48	13.3	13.0	21
15	9.5	13.9	0	4.4	1.2	0	.7	15.5	38	19.3	8.8	23.5
16	18.8	35.5	0	2.8	0	0	3.1	15.8	23.5	9.9	5.1	15.6
17	38.5	254	0	19.8	0	0	0	14.8	12.9	15.6	3.3	20.5
18	22.5	26	0	53	0	0	0	14.8	10.2	1.5	2.9	17.8
19	8.0	18.0	0	12.5	0	0	0	14.1	6.4	55	3.8	14.7
20	16.0	16.3	0	12.5	0	0	4.6	14.1	20	9.5	2.5	15.7
21	13.6	15.6	0	6.6	0	0	.6	12.8	3.0	6.1	14.1	15.6
22	11.1	15.2	0	11.5	0	0	0	12.5	3.8	11.7	5.0	9.3
23	12.6	16.3	0	12.9	0	4.0	13.9	5.7	12.0	10.6	.6	.7
24	2.4	4.2	.5	23	10.8	18.1	2.7	4.0	5.3	12.9	0	0
25	29.5	.1	0	13.2	123	33.5	1.7	2.6	10.4	1.2	11.2	0
26	22	.1	.2	8.4	19.3	58	.4	.9	111	12.6	35.5	3.7
27	26	0	18.9	4.0	15.6	44	0	30	62	.6	6.9	.4
28	12.4	2.2	57	26	135	52	110	.8	12.6	0	9.4	0
29	10.7	55	11.7	89	12.9	30	120	-	9.5	0	15.6	.5
30	19.2	10.1	18.0	38	12.9	27	36.5	-	25.5	7.9	4.8	0
31	11.8	1.7	-	64	-	37.5	26	-	76	-	.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	45	0	13.5	20.9	418	1,280
August	254	0	20.5	31.7	635	1,950
September	57	0	5.71	8.83	171	526
October	89	0	15.2	23.5	470	1,440
November	123	0	18.2	28.2	548	1,680
December	58	0	11.2	17.3	347	1,060
Calendar year 1937	563	0	21.8	33.7	7,970	24,450
January	120	0	12.5	19.3	386	1,190
February	310	.8	35.2	54.5	985	3,020
March	143	0	29.3	45.3	907	2,780
April	84	0	17.8	27.5	533	1,640
May	39.5	0	10.6	16.4	329	1,010
June	76	0	16.1	24.9	484	1,480
Fiscal year 1937-38	310	0	17.0	26.3	6,210	19,060

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. Control, which had been a 20-foot weir, was changed to a 4-foot Parshall flume Nov. 26, 1936, and datum lowered 2.52 feet. Altitude, 360 feet, by barometer.

Records available.- April 1909 to May 1914, May 1915 to June 1938.

Average discharge.- 20 years (1917-20, 1921-38), 6.84 million gallons a day (10.6 second-feet).

Extremes.- Maximum discharge during year, 39.5 million gallons a day (61.1 second-feet) July 4 (gage height, 2.35 feet); no flow occasionally, when water was shut out of ditch.

1909-14, 1915-38: 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. Ditch diverts water from Kapaa River for irrigation in vicinity of Kapaa. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.2	0.31	4.2	6.7	0.22	0.80	0.07	0.85	4.1	1.69	0.35	11.2
2	3.8	5.3	3.05	4.4	.16	4.4	.07	1.2	4.7	.50	7.1	7.9
3	7.0	7.8	4.0	3.6	1.78	2.3	.09	0	4.9	.45	.40	3.45
4	14.8	5.3	3.8	5.7	.19	2.1	11.1	.02	4.9	.40	7.1	2.3
5	6.0	8.0	7.8	7.3	1.20	1.40	7.2	0	5.1	.35	13.1	.23
6	7.3	12.0	7.2	6.0	.35	5.5	7.0	0	3.05	.31	9.5	4.9
7	3.9	9.9	11.8	6.6	.35	4.1	9.1	0	3.0	12.2	9.3	5.1
8	9.9	7.8	12.9	5.6	.27	3.7	12.8	0	.16	11.1	1.99	6.9
9	10.8	8.7	8.2	3.9	.23	3.7	5.7	0	.73	7.7	13.8	7.2
10	7.7	7.4	6.7	4.4	.23	4.4	5.2	0	.27	10.2	14.7	8.7
11	3.3	6.6	7.4	5.1	1.17	3.25	5.0	0	.27	20.5	10.4	.21
12	2.9	6.2	4.1	4.9	5.1	3.45	5.5	.01	.27	14.5	10.1	.16
13	9.0	2.5	7.3	5.3	3.9	3.15	3.45	0	.70	13.1	6.6	.16
14	8.8	5.8	5.2	6.7	1.82	2.95	3.35	0	8.3	11.5	4.4	.57
15	2.2	7.6	4.0	7.8	9.9	2.95	2.55	.03	8.7	1.48	4.6	.35
16	1.83	7.4	8.0	5.0	7.2	2.95	.84	.04	2.65	7.8	5.9	.31
17	3.5	.88	5.7	2.7	4.7	2.95	3.35	.22	6.6	3.25	4.3	.31
18	.23	.40	3.9	3.6	4.5	3.35	3.4	1.45	16.1	10.4	3.6	.27
19	12.4	.35	3.7	3.6	4.4	2.85	4.3	.94	11.3	12.3	5.1	1.54
20	14.7	.35	4.6	1.9	5.8	4.0	3.5	.16	1.38	16.5	6.4	9.1
21	6.0	.40	4.6	6.4	4.9	4.6	8.4	1.16	17.9	9.7	14.7	3.75
22	7.8	.35	4.9	3.2	5.2	2.95	7.4	1.07	11.2	4.7	4.5	2.05
23	4.6	8.2	8.0	1.96	5.1	7.3	1.80	6.3	5.3	4.2	5.9	5.9
24	8.0	9.4	11.2	1.84	5.0	15.1	5.0	5.4	9.0	1.64	6.0	5.7
25	.90	10.4	8.5	3.65	.31	.23	2.8	2.7	8.2	11.8	10.8	5.6
26	4.0	9.9	7.4	4.7	.43	.20	3.45	4.1	6.4	8.4	12.8	1.75
27	.31	6.5	5.2	4.0	.93	.10	4.5	1.71	.13	8.0	7.4	5.0
28	1.36	9.4	3.25	2.8	.93	.10	10.1	4.5	13.8	7.4	7.2	4.2
29	4.0	7.6	2.5	.13	.86	.07	.31	-	11.9	8.0	.80	5.5
30	3.15	10.9	3.7	.10	.93	.07	.23	-	9.8	5.1	8.0	9.4
31	1.93	7.7	-	1.93	-	.07	.19	-	5.4	-	12.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.8	0.23	5.69	8.80	176	541
August	12.0	.31	5.93	9.18	184	565
September	12.9	2.5	6.09	9.42	183	561
October	7.8	.10	4.24	6.56	132	404
November	9.9	.16	2.60	4.02	78.1	240
December	15.1	.07	3.07	4.75	95.0	292
Calendar year 1937	15.1	0	3.67	5.68	1,340	4,120
January	12.8	.07	4.44	6.87	138	423
February	6.3	0	1.14	1.76	31.9	98
March	17.9	.13	6.01	9.30	186	571
April	20.5	.31	7.51	11.6	225	691
May	14.7	.35	7.39	11.4	229	703
June	11.2	.16	3.99	6.17	120	367
Fiscal year 1937-38	20.5	0	4.87	7.54	1,780	5,460

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 1938. Equivalent records for July 1925 to November 1938, at 150 feet downstream, obtained by East Kauai Water Co.

Extremes.- Maximum discharge during year, 23.6 million gallons a day (36.5 second-feet) Feb. 1 (gage height, 2.66 feet); minimum, 0.03 million gallons a day (0.05 second-foot) Feb. 19, 20.

1936-38: Maximum discharge, that of Feb. 1, 1938; 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 sugarcane. Flow regulated by gates at intake and wasteway 1 mile upstream.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.0	6.0	8.2	8.2	2.8	0.24	0.12	2.8	5.1	0.08	6.4	11.8
2	6.4	4.6	8.2	8.7	1.20	.22	.10	7.8	4.9	.06	6.4	5.9
3	7.8	.46	8.7	7.8	.76	3.45	.10	.36	5.2	.06	4.7	.99
4	7.8	.39	9.2	8.2	.57	5.6	.10	.30	5.1	.06	3.8	.76
5	2.75	2.85	8.2	7.8	.46	5.6	.10	.14	6.0	2.65	3.75	.64
6	.30	4.8	8.2	8.2	.36	4.5	.10	.12	6.9	7.4	3.6	5.6
7	.54	4.5	7.4	7.8	.30	4.4	1.17	.10	8.0	6.9	3.75	7.8
8	.30	4.5	6.0	8.2	.27	4.5	6.4	.08	4.2	4.8	3.75	6.4
9	.24	4.5	6.0	8.2	.24	4.4	6.4	.08	.14	4.2	3.65	7.4
10	2.65	5.2	6.0	7.8	.33	4.8	5.2	.08	.10	4.2	3.6	8.0
11	6.0	6.0	6.0	7.8	.30	6.4	5.2	.08	.10	4.0	3.5	2.55
12	6.0	6.0	6.4	7.8	.19	6.4	4.4	.30	.10	1.11	3.5	1.16
13	6.0	6.0	6.0	7.8	.19	6.4	6.4	.10	.10	.93	3.65	.93
14	6.0	6.4	6.9	7.8	.17	6.0	6.4	.08	.10	.80	3.4	.84
15	6.0	6.4	7.4	7.8	.19	6.4	6.4	.06	.10	.65	3.15	.72
16	6.4	6.9	7.4	5.0	4.0	6.9	6.0	.06	.08	.50	3.1	4.3
17	5.4	5.5	7.8	4.4	6.0	6.4	6.0	.05	.08	.39	5.2	6.0
18	.97	.17	7.4	3.7	6.0	5.6	6.0	.05	.08	4.0	6.0	4.2
19	.84	.14	7.4	.36	6.0	6.0	5.2	.05	.08	6.9	6.0	.80
20	.88	.12	6.0	.27	4.5	5.1	6.0	.05	.08	6.0	6.0	1.20
21	.80	.12	6.0	.24	6.0	4.9	2.55	.05	.08	4.3	6.4	.93
22	2.1	.10	5.4	.19	4.7	6.4	2.65	.05	.10	1.40	6.0	4.4
23	6.0	.10	9.2	.17	4.7	6.9	8.2	.06	.12	1.30	5.6	6.0
24	6.0	.10	12.4	.22	4.8	11.3	9.2	2.5	.12	1.20	5.2	6.3
25	6.4	3.4	12.4	.22	8.2	9.2	6.9	6.4	.14	1.16	8.7	6.0
26	6.4	6.4	11.8	.17	2.9	7.4	7.4	6.0	.25	4.7	8.7	6.9
27	6.4	8.7	12.9	4.0	.57	5.5	9.7	6.0	.14	6.0	6.4	6.0
28	6.0	11.2	8.7	6.0	.50	.61	13.2	5.6	.12	6.0	6.4	6.9
29	6.0	9.7	6.0	7.4	.36	.12	10.7	-	.12	6.0	6.9	8.7
30	6.0	9.2	8.2	2.6	.30	.12	1.93	-	.10	6.0	6.4	10.2
31	6.0	8.7	-	1.52	-	.14	1.16	-	.10	-	8.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	7.8	0.24	4.43	6.85	137	422
August	11.2	.10	4.49	6.95	139	427
September	12.9	6.0	7.96	12.3	239	733
October	8.7	.17	5.04	7.80	156	480
November	8.2	.17	2.26	3.50	67.9	208
December	11.3	.12	4.90	7.58	152	466
Calendar year 1937	12.9	.03	3.26	5.04	1,190	3,660
January	13.2	.10	4.88	7.55	151	465
February	7.8	.05	1.41	2.18	39.4	121
March	8.0	.08	1.55	2.40	47.9	147
April	7.4	.06	3.12	4.83	93.8	288
May	8.7	3.1	5.22	8.08	162	497
June	11.8	.64	4.68	7.24	140	431
Fiscal year 1937-38	13.2	.05	4.18	6.47	1,520	4,680

Anahola River near Kealia

Location.- Concrete dam and orifice control, lat. 22°08'55", long. 159°21'20", just upstream from intake of Lower Anahola ditch, 4½ miles northwest of Kealia. Altitude, 220 feet, by barometer.
Drainage area.- 5.5 square miles.
Records available.- August to November 1910, December 1912 to June 1938.
Average discharge.- 19 years (1919-38), 13.6 million gallons a day (21.0 second-feet).
Extremes.- Maximum discharge during year, 2,130 million gallons a day (3,300 second-feet) Feb. 2 (gage height, 6.33 feet), from rating curve extended above 230 million gallons a day; minimum, 2.65 million gallons a day (4.10 second-feet) Dec. 19.
1910, 1912-38: 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 excellent except those for periods of missing gage heights, July 1, 2, Mar. 8-11 (computed on basis of records for stations on nearby streams) and those above 300 million gallons a day, which are fair. Anahola ditch diverts water 3 miles above station for irrigation in vicinity of Kealia.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Aug. 17						Aug. 18 to June 30					
0.9	2.85	1.4	7.1	2.2	50	0.9	2.00	1.6	11.5	3.0	162
1.1	4.3	1.45	7.7	2.5	81	1.0	2.55	1.8	22	3.5	282
1.25	5.6	1.5	8.5	2.9	143	1.2	3.8	2.0	34.5	4.0	456
1.3	6.0	1.7	16.5	3.4	254	1.4	6.1	2.3	59	4.5	692
1.35	6.6	1.9	28			1.5	8.0	2.6	95		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.1	13.6	6.6	8.0	83	3.65	11.5	80	5.8	70	7.8	55
2	4.2	12.9	5.7	10.8	29.5	3.65	8.6	506	5.3	24.5	8.0	28.5
3	5.3	13.9	6.2	4.4	17.0	3.5	7.4	68	4.9	22	14.4	14.0
4	21	8.3	13.5	14.3	14.0	3.45	6.4	43	4.8	16.0	11.5	10.2
5	7.9	8.0	6.8	6.1	11.5	3.4	5.4	31.5	15.2	15.0	7.4	8.5
6	11.1	8.8	7.2	5.3	9.1	3.3	4.9	21	7.4	30.5	6.5	7.6
7	8.3	7.2	8.2	5.2	8.5	3.25	5.2	17.6	398	12.5	7.2	7.2
8	5.6	6.6	6.8	12.7	7.4	3.15	49	15.0	100	11.0	8.0	6.6
9	6.8	6.3	5.3	8.2	7.0	3.1	10.6	13.0	40	21.5	7.8	6.6
10	5.4	6.1	4.8	4.9	7.0	3.05	7.6	12.0	15.0	42	8.8	59
11	4.7	5.9	6.1	4.8	6.6	2.95	6.6	27.5	14.0	35	6.8	74
12	4.9	6.6	9.1	5.3	6.0	3.05	6.0	162	26	12.5	7.8	16.5
13	5.0	5.9	5.2	4.6	5.7	2.9	5.7	36	29.5	10.6	12.3	10.6
14	4.6	5.8	4.4	4.7	5.3	2.9	5.1	21	55	12.5	8.4	11.7
15	4.8	13.9	4.1	5.2	5.1	2.9	4.7	16.0	29.5	11.5	6.2	15.2
16	9.8	57	4.2	3.8	3.8	2.9	4.4	13.5	19.8	9.4	5.8	10.6
17	62	162	4.4	9.6	4.6	2.75	4.0	12.0	15.5	14.6	5.4	12.5
18	7.6	14	3.8	47	4.4	2.75	3.8	11.0	15.0	9.4	5.1	10.2
19	7.1	9.4	4.0	6.6	4.2	2.7	3.75	9.8	13.0	66	4.7	8.2
20	9.1	8.2	3.8	5.2	4.0	3.0	4.1	9.1	13.5	11.5	4.7	21.5
21	7.7	8.2	3.75	4.7	3.9	3.15	6.5	8.5	10.6	9.1	14.4	10.6
22	6.9	9.8	3.6	9.3	3.65	2.75	4.1	8.0	9.4	8.2	5.4	8.2
23	7.2	8.2	4.7	7.9	3.5	10.1	9.8	7.8	8.8	7.8	4.6	7.4
24	5.9	7.8	5.2	18.4	3.6	24.5	7.2	7.4	8.2	7.6	4.3	7.0
25	25	7.0	7.8	9.1	89	22.5	4.3	6.8	10.2	7.6	17.6	7.2
26	19.8	8.8	7.6	6.1	7.4	12.0	4.1	6.6	111	9.8	47	6.6
27	11.1	7.6	10.1	5.2	7.0	45	3.8	6.2	46	7.2	10.6	6.0
28	7.7	7.0	18.4	6.2	5.1	46	102	6.0	18.2	6.6	10.4	5.7
29	7.7	57	4.9	104	4.2	16.6	110	-	19.3	6.2	11.3	6.6
30	9.1	14.0	13.6	21.5	3.9	17.6	24	-	48	7.6	9.8	9.1
31	7.4	7.8	-	63	-	21.5	13.5	-	94	-	9.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	62	4.1	10.2	15.8	315	966
August	162	5.8	16.9	26.1	524	1,610
September	18.4	3.6	6.67	10.3	200	614
October	104	3.8	13.9	21.5	432	1,330
November	89	3.5	12.5	19.3	376	1,150
December	46	2.7	9.16	14.2	284	872
Calendar year 1937	577	2.7	19.8	30.6	7,240	22,220
January	110	3.75	14.6	22.6	454	1,390
February	506	6.0	42.2	65.3	1,180	3,630
March	398	4.8	39.1	60.5	1,210	3,720
April	70	6.2	17.9	27.7	536	1,640
May	47	4.3	9.67	15.0	300	920
June	74	5.7	15.6	24.1	469	1,440
Fiscal year 1937-38	506	2.7	17.2	26.6	6,280	19,280

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 mark.

Records available.- May 1915 to June 1938.

Average discharge.- 15 years (1921-25, 1927-38), 3.39 million gallons a day (5.25 second-feet).

Extremes.- Maximum discharge during year, 51 million gallons a day (79 second-feet) Jan. 28 (gage height, 2.73 feet); no flow Feb. 15-17.
1915-38: 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.65	0.04	4.1	0.06	0.04	0.02	0.04	0.38	1.92	0.04	4.1	2.65
2	1.65	.04	3.8	.08	.02	.02	.04	2.2	1.74	.02	9.5	.04
3	4.3	.04	3.35	1.53	.02	.01	.04	.04	1.65	.02	4.7	.04
4	12.4	.04	1.35	3.2	.02	.01	.04	.02	1.57	.02	.04	.06
5	11.6	5.6	.06	.06	.04	.01	.04	.02	3.0	.02	.04	3.55
6	15.2	3.2	3.0	.06	.06	1.26	.04	.02	1.74	.04	.02	4.3
7	11.8	.06	1.50	2.7	.06	1.57	.04	.04	6.4	.04	.04	3.7
8	4.4	2.85	4.4	9.5	.06	1.49	.06	.02	.12	.02	.04	3.45
9	9.3	4.3	3.8	3.5	.04	1.41	.02	.02	.02	.04	.04	6.0
10	4.2	3.7	3.35	.02	.04	1.33	.02	.04	.02	.08	.04	4.3
11	3.15	4.0	4.8	2.5	.04	1.25	.02	.04	.12	.04	.04	.13
12	4.2	6.0	6.1	3.6	.04	1.49	.02	.05	.04	.04	.04	.06
13	3.95	3.45	1.36	3.35	.02	1.33	.68	.02	.04	.04	.06	.06
14	3.05	4.5	3.05	3.9	.04	1.25	1.92	.02	.04	.04	.04	.04
15	4.9	9.9	2.7	6.0	.04	1.41	1.74	.01	.04	.02	.04	3.8
16	13.7	.04	3.25	3.45	1.93	1.41	1.65	.01	.04	.02	.04	6.4
17	6.3	.62	2.95	9.7	2.5	1.25	1.57	.01	.04	.02	.04	3.5
18	3.35	.04	2.5	5.5	2.3	1.25	1.49	.02	.02	.02	2.15	1.40
19	7.1	.02	2.8	.02	2.1	1.18	1.49	.02	.02	.02	2.7	3.9
20	3.2	.02	2.4	.02	2.0	1.25	2.15	.02	.04	.02	2.75	2.2
21	.04	.02	2.3	.02	1.92	1.41	1.74	.02	.04	.02	12.1	.04
22	.04	.04	3.15	.02	1.83	1.18	1.41	.02	.02	.02	3.6	3.05
23	4.2	.04	4.8	.02	1.74	6.4	8.0	.02	.02	.02	2.95	3.7
24	5.4	1.71	7.4	.02	5.4	14.8	3.8	.04	.02	.02	2.6	3.25
25	4.0	3.7	7.6	.02	7.6	4.4	1.83	1.28	.02	.02	12.2	3.15
26	.06	5.8	6.8	.01	.02	.4	2.0	2.0	.08	.02	8.7	2.95
27	.04	4.8	8.2	.01	.01	3.0	5.5	1.92	.06	.02	4.9	2.7
28	.04	7.3	4.1	.01	.02	.35	9.9	1.83	.04	.02	8.1	2.6
29	3.2	5.6	2.0	.02	.02	.13	.13	-	.04	.02	2.9	3.6
30	1.80	.04	5.3	.02	.02	.10	.04	-	.06	.02	9.4	6.8
31	.06	1.54	-	.04	-	.08	.02	-	.08	-	3.7	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.2	0.04	4.78	7.40	148	455
August	9.9	.02	2.55	3.95	79.0	243
September	8.2	.06	3.74	5.79	112	345
October	9.7	.01	1.90	2.94	59.0	181
November	7.6	.01	1.00	1.55	30.0	92
December	14.8	.01	1.69	2.61	52.4	161
Calendar year 1937	15.2	0	1.74	2.69	635	1,950
January	9.9	.02	1.53	2.37	47.5	146
February	2.2	.01	.362	.560	10.2	31
March	6.4	.02	.616	.953	19.1	59
April	.08	.02	.027	.042	.82	2.5
May	12.2	.02	3.15	4.87	97.6	300
June	6.8	.04	2.71	4.19	81.4	250
Fiscal year 1937-38	15.2	.01	2.02	3.13	737	2,270

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 northwest of Kealia.

Records available.- December 1936 to June 1938.

Extremes.- Maximum discharge during year, 88 million gallons a day (136 second-feet) Feb. 2 (gage height, 2.60 feet); no flow on several days during year.
1936-38: Maximum discharge, that of Feb. 2, 1938; no flow at times when water was turned out of ditch.

Remarks.- Records good except those for period of faulty gage heights, Dec. 27-31, which were computed on basis of records for stations on nearby ditches and streams and are poor. Water that passes station is returned to Anahola River.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.02	11.9	0.22	5.0	26	2.8	7.5	14.9	0.43	18.9	2.65	18.7
2	.02	13.8	.19	11.0	15.5	2.8	5.7	37	.43	9.8	.26	18.7
3	.02	13.9	3.0	3.0	11.3	2.15	4.4	18.3	.43	11.3	9.8	9.9
4	.01	9.1	9.7	12.2	9.6	2.0	3.65	14.9	.38	6.8	14.2	7.0
5	0	1.50	4.8	5.0	9.4	2.0	3.3	10.2	.43	7.1	6.4	1.68
6	.02	5.2	3.65	5.2	7.0	.55	2.95	6.4	.34	14.8	5.0	.19
7	.02	5.2	6.4	1.58	6.4	.12	3.25	6.2	12.1	6.8	7.5	.19
8	0	1.40	2.5	.19	4.8	.12	14.8	5.1	27.5	6.5	9.2	.19
9	.01	.19	.19	3.2	5.2	.12	4.8	5.8	12.6	12.4	10.7	.19
10	0	.19	.12	3.85	5.2	.12	3.5	5.4	8.2	26	10.5	15.9
11	0	.19	.12	.91	5.2	.12	2.95	17.4	6.5	21.5	6.4	24
12	0	.19	5.7	.19	3.85	.12	2.8	28.5	18.6	10.5	8.7	9.8
13	0	.12	2.55	.26	3.5	.12	1.90	13.4	19.8	8.0	11.4	6.2
14	0	.19	.19	.26	3.5	.19	.19	7.1	24.5	12.5	6.1	12.1
15	0	2.0	.12	.19	3.3	.19	.19	5.9	17.6	9.4	5.4	6.4
16	.02	18.5	.12	.12	1.22	.19	.19	5.0	11.3	7.2	4.2	.26
17	13.0	24	.19	.19	.52	.19	.19	4.4	7.0	11.2	3.85	6.8
18	2.6	8.9	.19	8.0	.52	.19	.19	4.2	10.1	7.0	1.04	6.0
19	.19	6.2	.19	4.2	.48	.19	.19	3.85	7.7	18.9	.26	1.34
20	7.1	5.2	.19	3.5	.52	.19	.19	3.65	8.7	8.0	.19	10.1
21	8.9	5.5	.19	4.8	.62	.19	.19	3.5	5.9	5.8	.12	5.8
22	5.8	4.8	.19	10.4	.62	.19	.19	3.15	5.0	4.9	.07	1.09
23	1.75	4.6	.19	4.3	.73	.26	.26	2.95	4.6	4.4	.07	.10
24	.19	2.3	.19	21	.73	.19	.19	2.8	4.1	4.0	.07	.07
25	14.7	.19	.19	17.8	15.3	10.3	.19	1.19	12.2	4.0	.12	.07
26	18.2	.19	.19	14.7	6.3	14.4	.19	.34	18.2	9.2	13.2	.10
27	14.2	.19	.19	13.9	7.5	12	.19	.43	19.7	4.1	2.85	.07
28	6.6	.26	15.5	15.1	4.4	13	11.0	.43	8.3	3.5	4.6	.07
29	4.6	17.4	10.6	26	3.85	8.0	26	-	9.3	3.5	10.5	.10
30	9.0	9.8	7.2	17.6	3.15	7.0	12.8	-	19.8	5.8	3.15	.10
31	8.3	4.2	-	26	-	10	10.3	-	26	-	7.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	18.2	0	3.72	5.76	115	354
August	24	.12	5.72	8.85	177	544
September	15.5	.12	2.50	3.87	75.0	230
October	26	.12	7.73	12.0	240	735
November	26	.48	5.54	8.57	166	510
December	14.4	.12	2.90	4.49	90.0	276
Calendar year 1937	36.5	0	6.35	9.82	2,320	7,110
January	26	.19	4.01	6.20	124	382
February	37	.34	8.30	12.8	232	713
March	27.5	.34	10.6	16.4	328	1,010
April	26	3.5	9.46	14.6	284	871
May	14.2	.07	5.36	8.29	166	510
June	24	.07	5.44	8.42	163	501
Fiscal year 1937-38	37	0	5.92	9.16	2,160	6,640

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, 271± 5 feet, by levels from approximate site of two demolished Geological Survey bench marks.

Records available.- December 1936 to June 1938. 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, 14.2 million gallons a day (22.0 second-feet) June 15 (gage height, 1.92 feet); no flow at times, when water was turned out of ditch. 1936-38: 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. Water used for irrigation of sugarcane. Flow regulated by spillways and gates.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.1	1.88	5.4	8.5	0	0	0	0	3.85	0.95	9.2	12.0
2	5.0	2.45	5.2	5.3	0	0	0	.57	6.4	.86	6.9	6.6
3	5.6	0	5.9	0	0	0	0	0	7.4	.01	6.6	0
4	1.51	0	4.2	2.65	0	0	0	0	6.9	2.0	2.95	6.5
5	2.85	2.25	0	4.7	0	0	0	0	7.4	4.7	3.55	6.0
6	3.95	5.8	4.5	5.6	0	2.75	3.05	0	7.8	7.4	4.2	6.9
7	4.5	3.75	6.0	5.6	0	3.75	3.8	0	6.1	7.8	4.3	6.9
8	5.2	1.88	6.0	4.7	0	4.1	2.6	0	2.65	8.3	4.6	6.9
9	6.2	4.3	6.0	3.0	0	4.2	0	0	0	4.7	5.6	6.9
10	3.5	4.5	6.0	0	*1.60	3.95	2.7	0	0	3.6	5.1	3.75
11	2.35	5.2	3.65	3.85	*0	3.8	5.2	0	0	1.29	6.4	0
12	5.6	6.0	.01	4.5	*2.45	3.75	6.9	0	0	1.01	9.7	0
13	5.6	5.9	3.05	4.3	2	3.75	6.9	0	0	.01	11.5	0
14	5.2	3.35	5.0	4.2	0	3.6	5.6	0	0	.18	7.7	6.6
15	5.2	2.55	5.6	4.4	1.31	3.6	5.6	0	0	.01	3.45	8.7
16	6.6	6.9	5.6	2.45	2.9	3.5	5.2	0	1.68	.01	6.4	2.6
17	3.7	1.53	5.6	.01	3.9	3.25	4.9	0	1.68	.01	7.4	3.2
18	1.63	.01	5.2	2.4	4.9	3.4	4.8	0	1.01	2.6	7.8	5.2
19	4.2	0	5.2	0	4.8	3.15	4.7	0	.94	4.2	6.4	5.6
20	4.3	0	5.0	0	4.7	3.6	5.8	0	0	4.5	6.0	7.4
21	3.8	0	4.9	1.59	4.6	3.95	6.0	0	.98	4.8	7.4	9.2
22	3.65	4	4.7	3.35	4.5	3.4	5.1	0	0	4.9	6.9	7.8
23	3.45	6	5.2	2.1	4.3	3.65	5.2	.79	0	1.78	6.0	3.75
24	1.38	6	5.5	0	4.3	6.6	5.6	0	0	.01	6.0	0
25	0	5.7	6.0	1.69	6.9	6.9	5.0	1.68	0	3.8	6.4	4.3
26	0	6.0	6.0	2.4	2.75	2.75	4.8	1.63	1.96	1.92	10.2	6.0
27	0	6.4	6.4	2.2	0	1.60	4.5	0	0	2.8	10.5	6.0
28	2.35	6.4	7.8	2.1	0	0	2.6	1.98	0	4.6	7.4	6.4
29	5.6	3.55	8.2	1.08	0	0	0	-	0	7.4	11.8	6.4
30	5.4	4.0	6.9	0	0	0	0	-	0	9.7	10.2	6.0
31	3.05	5.6	-	0	-	0	0	-	0	-	9.7	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.6	0	3.76	5.82	116	357
August	6.9	0	3.61	5.59	112	343
September	8.2	0	5.16	7.98	155	475
October	8.5	0	2.67	4.13	82.7	254
November	6.9	0	1.86	2.88	55.9	172
December	6.9	0	2.68	4.15	83.0	255
Calendar year 1937	8.5	0	2.41	3.73	880	2,700
January	6.9	0	3.44	5.32	107	327
February	1.98	0	.238	.368	6.65	20
March	7.8	0	1.83	2.83	56.8	174
April	9.7	.01	3.20	4.75	95.8	294
May	11.8	2.95	7.04	10.9	218	670
June	12.0	0	5.25	8.12	158	484
Fiscal year 1937-38	12.0	0	3.41	5.28	1,250	3,820

*Partly estimated.

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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 1938.

Extremes.- Maximum discharge during year, 94 million gallons a day (146 second-feet) Mar. 7 (gage height, 4.05 feet); minimum, 0.63 million gallons a day (0.98 second-foot) Jan. 28.
1932-38: 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 24-27, Apr. 24-29, May 24 to June 2, 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.63	5.1	2.95	3.05	20.5	2.15	4.6	9.6	2.55	4.9	3.7	8.0
2	1.54	8.8	2.75	3.45	10.5	2.15	3.45	21.5	2.45	1.54	5.0	9.0
3	2.05	6.7	3.25	2.25	6.6	2.05	3.05	6.5	2.25	1.63	8.1	7.5
4	4.5	4.6	5.0	6.4	6.3	1.98	*2.75	6.1	2.35	3.85	5.8	4.4
5	3.5	4.1	3.15	3.05	6.2	1.98	*2.45	5.1	5.9	5.0	3.45	3.8
6	5.4	4.8	3.55	3.8	4.9	1.89	2.35	4.7	3.3	5.8	3.05	3.35
7	4.1	3.35	3.55	3.05	4.5	1.80	2.6	4.7	33.5	4.5	3.35	3.25
8	2.25	2.95	2.75	6.3	3.9	1.71	16.1	4.7	13.9	4.3	3.55	3.15
9	2.35	3.05	2.45	4.3	3.7	1.71	4.3	4.5	1.80	6.2	3.05	3.05
10	1.98	2.75	2.35	2.75	3.7	1.63	2.95	4.4	2.0	8.5	3.55	10.6
11	1.8	2.75	2.65	2.65	3.35	1.54	2.55	4.5	2.85	7.3	3.05	22
12	1.89	3.25	4.2	2.95	3.15	1.80	2.35	10.6	4.5	4.9	3.7	6.3
13	2.05	2.85	2.45	2.75	2.95	1.63	2.35	3.0	5.0	4.6	5.2	4.4
14	1.98	2.95	2.25	2.75	2.85	1.71	2.15	3.8	4.8	4.9	3.7	4.4
15	2.6	4.1	2.15	2.95	2.75	1.71	2.05	4.6	1.98	5.1	2.95	5.1
16	6.4	9.8	2.25	2.35	2.65	1.63	1.98	4.3	2.5	4.3	2.85	4.1
17	15.2	20.5	2.25	2.8	2.55	1.54	1.98	3.9	2.75	4.4	2.75	4.5
18	3.55	4.7	2.05	10.2	2.45	1.54	1.89	4.0	2.75	3.8	2.55	3.8
19	2.75	3.9	2.05	2.75	2.45	1.47	1.80	3.55	2.35	9.2	2.35	3.45
20	3.75	3.45	2.05	2.45	2.45	1.71	1.89	3.45	2.6	4.4	2.35	8.4
21	3.45	3.7	2.05	2.15	2.35	1.80	2.05	3.35	2.25	3.35	4.8	4.0
22	3.35	3.9	2.05	4.8	2.15	1.54	1.89	3.05	1.98	3.35	2.55	3.25
23	3.95	3.55	2.65	3.55	2.15	2.39	3.55	3.05	1.98	3.15	2.25	2.95
24	3.0	3.35	2.85	5.4	2.55	8.3	2.95	2.95	1.89	3.1	2.2	2.75
25	5.3	2.95	3.7	3.35	10.6	11.4	2.05	2.85	2.25	3.0	4.5	3.05
26	4.0	3.45	4.0	2.55	3.8	5.7	1.98	2.65	12.6	4.0	9.0	2.65
27	3.5	3.05	4.3	2.35	3.9	12.6	1.98	2.55	11.4	3.0	4.0	2.55
28	2.95	3.15	3.95	2.8	2.95	11.7	10.4	2.45	1.80	2.9	4.5	2.45
29	2.95	7.4	2.25	19.0	2.65	5.6	23.5	-	1.50	3.0	4.3	2.95
30	4.0	7.0	4.4	9.1	2.35	6.6	7.7	-	3.05	3.9	3.9	3.8
31	3.1	3.8	-	12.3	-	8.3	3.8	-	5.3	-	4.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.2	1.54	3.57	5.52	111	340
August	20.5	2.75	4.83	7.47	150	459
September	5.0	2.05	2.94	4.55	88.3	271
October	19.0	2.15	4.53	7.01	140	431
November	20.5	2.15	4.46	6.90	134	411
December	12.6	1.47	3.59	5.55	111	341
Calendar year 1937	38	1.02	4.33	6.70	1,580	4,850
January	23.5	1.80	4.11	6.36	127	391
February	21 5	2.45	5.01	7.75	140	431
March	33.5	1.50	4.78	7.40	148	454
April	9.2	1.54	4.40	6.81	132	405
May	9.0	2.2	3.89	6.02	121	370
June	22	2.45	5.10	7.89	153	469
Fiscal year 1937-38	33.5	1.47	4.26	6.59	1,560	4,770

*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 1938.

Extremes.- Maximum discharge during year, 32.5 million gallons a day (50.3 second-feet) Mar. 7 (gage height, 2.06 feet); no flow during several periods in year.
1932-38: Maximum discharge, that of Mar. 7, 1938; no flow occasionally, when water was shut out of ditch.

Remarks.- Records excellent except those for periods when clock was not running, Sept. 21-25, Oct. 17, Oct. 25 to Nov. 4, Nov. 13-15, Dec. 4-9, 23-26, 29-31, Jan. 1-4, Mar. 21 to Apr. 18, which were computed on basis of records for stations on Ka Loko and Kalihiwai ditches and are poor. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.25	5.8	4.1	4.0	0	2.85	3.3	7.6	3.05	4.5	4.0	11.4
2	2.25	11.6	3.85	4.9	0	2.85	3.1	3.9	2.95	2.0	6.0	13.8
3	2.75	10.7	4.2	3.45	0	2.75	3.1	.41	2.85	2.1	7.9	11.2
4	5.3	6.7	5.8	4.3	0	2.6	3.1	.31	2.85	4.5	6.6	3.75
5	4.4	6.3	3.8	2.5	0	2.4	*3.05	.07	3.45	5.6	4.3	3.55
6	5.6	7.4	4.3	4.5	.27	2.3	2.95	0	3.05	6.2	3.8	4.5
7	4.7	4.9	4.1	3.55	0	2.2	3.1	0	5.5	5.0	4.0	4.0
8	3.05	4.3	3.55	3.3	.12	2.0	3.75	0	1.79	4.5	4.0	3.8
9	3.05	4.1	3.25	.09	.85	1.9	.44	0	.30	6.0	3.45	3.65
10	2.75	3.8	3.25	2.3	.67	1.52	3.85	0	0	8.0	3.45	7.1
11	2.55	3.7	3.35	3.25	.23	2.15	3.35	.13	0	7.0	3.25	1.05
12	2.65	4.1	5.4	3.35	.16	2.35	3.25	1.4	.48	6.6	3.55	4.4
13	3.05	3.9	3.35	3.15	.1	2.45	2.0	.32	.76	5.2	6.0	5.0
14	2.95	3.8	2.95	3.15	1.5	2.25	0	2.85	1.14	5.4	3.9	5.0
15	3.45	4.3	2.85	3.35	2.8	2.05	2.1	6.3	.54	5.6	3.15	5.6
16	8.9	11.1	2.85	2.85	*2.85	1.98	2.95	5.5	.12	5.0	3.15	4.5
17	14.0	4.7	2.75	3.5	2.85	1.98	2.85	3.15	.68	5.2	2.95	4.5
18	5.6	4.4	2.65	*7.0	2.75	2.25	2.75	0	.08	4.5	2.85	4.3
19	4.4	4.9	2.55	3.35	2.55	2.25	2.65	3.1	0	*6.6	2.75	3.8
20	5.6	4.5	*2.55	2.95	2.45	2.05	2.65	4.0	.04	4.9	2.65	4.6
21	4.6	4.5	2.5	2.85	2.45	2.75	2.55	3.9	.02	4.3	5.2	3.4
22	5.2	4.7	2.5	.74	2.25	6.7	2.45	3.7	0	3.9	2.95	3.55
23	6.0	4.5	2.8	0	2.25	5.0	3.15	3.55	0	3.8	2.65	3.35
24	3.9	4.0	3.0	.03	2.95	6.0	2.85	3.45	0	3.55	2.55	3.15
25	9.1	3.7	3.5	.03	11.7	6.2	2.45	3.35	1.5	3.45	5.2	3.25
26	6.5	3.9	3.55	.03	4.5	4.5	2.55	3.15	9.0	4.6	11.6	2.95
27	5.7	3.55	4.1	.03	5.0	*8.0	2.65	3.15	8.0	3.35	4.6	2.85
28	4.3	4.3	2.7	.03	3.35	*6.7	3.55	2.95	2.5	3.25	5.4	2.75
29	4.1	9.5	2.4	.4	3.15	3.5	2.65	-	2.0	3.35	5.0	2.95
30	5.5	10.9	5.1	.15	2.85	3.3	.32	-	3.5	3.8	4.3	3.65
31	4.0	5.5	-	0	-	3.5	4.0	-	5.0	-	5.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.0	2.25	4.78	7.40	148	455
August	11.6	3.55	5.61	8.68	174	534
September	5.8	2.4	3.45	5.34	104	318
October	7.0	0	2.36	3.65	73.1	224
November	11.7	0	2.02	3.13	60.6	186
December	8.0	1.52	3.27	5.06	101	311
Calendar year 1937	14.0	0	3.00	4.64	1,100	3,360
January	4.0	0	2.69	4.16	83.5	256
February	7.6	0	2.37	3.67	66.2	203
March	9.0	0	1.97	3.05	61.2	188
April	8.0	2.0	4.72	7.30	142	435
May	11.6	2.55	4.40	6.81	136	418
June	13.8	1.05	4.71	7.29	141	434
Fiscal year 1937-38	14.0	0	3.54	5.48	1,290	3,960

*Partly estimated.

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 1938.

Extremes.- Maximum discharge recorded during year, 64 million gallons a day (99 second-feet) Mar. 7 (gage height, 3.17 feet); minimum discharge not determined, owing to faulty record.
1934-38: Maximum discharge, that of Mar. 7, 1938; 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, Jan. 5-18, 27, 28, Mar. 20-31, Apr. 4-20, May 6-31, June 1, 9, 10, 12-17, 21-30, 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 1937 to June 193e

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.35	10.1	0.78	4.6	1.31	3.45	0.63	6.7	3.25	*0.68	4.3	3.0
2	2.35	21	.68	4.5	.88	3.45	.57	7.9	3.05	.63	6.4	*1.39
3	3.15	13.2	.68	.68	.52	3.35	.52	1.31	2.95	2.5	4.4	1.31
4	8.3	1.23	.75	.68	.41	3.25	.49	2.3	2.95	3.0	1.02	2.05
5	8.5	7.7	.63	3.4	.63	3.15	.45	1.16	2.95	4.5	.95	2.15
6	13.3	11.1	.57	5.8	.52	3.05	.40	1.02	2.75	5.4	.90	3.15
7	8.0	4.7	.57	3.1	.32	2.95	.45	.95	12.5	4.0	1.0	4.3
8	4.6	2.35	.49	4.2	.27	2.85	3.5	1.82	1.02	4.0	1.1	3.9
9	8.6	2.15	.41	2.65	.32	2.75	3.0	4.2	4.5	6.0	.90	3.8
10	4.7	2.05	2.3	1.80	.32	2.75	2.5	3.35	3.65	7.0	1.0	5.0
11	3.8	1.98	3.9	1.54	.27	2.65	2.2	2.4	1.71	6.0	.90	*1.23
12	3.8	1.98	6.2	1.47	.23	2.75	2.1	2.05	3.05	4.5	3.5	1.2
13	4.9	1.89	3.8	1.47	.23	2.65	2.0	1.47	2.7	4.0	4.5	1.1
14	4.1	2.75	3.45	1.39	2.65	2.65	1.9	1.23	1.47	4.5	3.5	1.0
15	6.2	2.3	3.25	1.89	4.0	2.65	1.8	1.23	.63	5.0	3.3	1.1
16	29.5	2.95	3.15	1.37	3.9	2.55	1.7	1.94	.52	4.0	3.3	1.5
17	14.7	1.47	3.05	1.50	3.8	2.45	1.7	4.6	.52	4.0	3.2	3.0
18	4.9	.95	2.95	4.1	3.55	2.45	.50	2.6	.63	3.5	3.1	5.2
19	6.8	.75	3.05	1.63	3.45	2.45	.09	3.55	.57	7.0	3.0	3.1
20	8.7	.68	2.85	1.39	3.35	2.85	1.56	4.4	.60	5.4	2.9	1.98
21	8.1	.57	2.85	1.16	3.25	2.85	2.45	4.3	.56	4.7	5.6	1.9
22	8.3	.52	2.85	2.45	3.15	2.55	2.35	4.0	.54	2.9	3.5	1.8
23	8.4	1.62	3.95	2.25	2.95	1.5	2.45	2.8	.54	1.47	3.0	1.7
24	5.8	1.80	5.2	2.8	3.55	2.0	2.45	.68	.52	1.39	2.9	1.7
25	3.95	1.63	5.4	2.05	*10.7	2.2	2.45	.63	1.5	2.75	5.0	1.7
26	1.16	1.71	3.55	1.47	3.25	1.2	2.75	1.23	7.0	3.3	10	1.6
27	2.6	1.63	3.35	1.31	3.35	1.6	1.7	1.80	6.0	2.6	4.5	1.5
28	4.7	2.05	12.1	1.23	3.45	1.5	3.5	2.7	.7	3.35	5.0	1.4
29	5.6	4.9	4.6	9.4	3.7	.95	5.5	-	.6	3.55	4.5	2.0
30	7.1	5.4	5.8	5.0	3.8	1.09	3.25	-	.8	4.0	3.5	4.0
31	5.8	2.3	-	3.25	-	.88	7.1	-	1.0	-	4.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	29.5	1.16	6.86	10.6	213	653
August	21	.52	3.79	5.86	117	360
September	12.1	.41	3.11	4.81	93.2	286
October	9.4	.68	2.63	4.07	81.5	250
November	10.7	.23	2.40	3.71	72.1	221
December	3.45	.88	2.43	3.76	75.4	231
Calendar year 1937	29.5	.19	2.98	4.61	1,090	3,340
January	7.1	.09	2.06	3.19	64.0	196
February	7.9	.63	2.65	4.10	74.3	228
March	12.5	.52	2.31	3.57	71.7	220
April	7.0	.63	3.85	5.96	116	355
May	10	.90	3.38	5.23	105	321
June	5.2	1.0	2.33	3.61	69.8	214
Fiscal year 1937-38	29.5	.09	3.16	4.89	1,150	3,540

*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 1938.
Average discharge.- 20 years (1918-38), 49.8 million gallons a day (77.1 second-feet).
Extremes.- Maximum discharge during year, 2,320 million gallons a day (3,590 second-feet) Jan. 28 (gage height, 6.20 feet), from rating curve extended above 200 million gallons a day; minimum, 9.3 million gallons a day (14.4 second-feet) Oct. 19, 21.
1914-38: Maximum discharge, 11,100 million gallons a day (17,200 second-feet) Mar. 19, 1937 (gage height, 10.52 feet), from rating curve extended above 200 million gallons a day; minimum, 5.8 million gallons a day (9.0 second-feet) Apr. 28, May 1-3, 1926.
Remarks.- Records good except those for period when clock was not running, Feb. 6 to Mar. 19, 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.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.5	7.9	0.8	16.5	1.5	61	2.4	170	3.5	451
.6	9.7	1.0	26	1.8	88	2.7	227		
.7	12.5	1.2	38	2.1	124	3.1	325		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.7	46	19	22	149	16	28	47	100	78	27.5	201
2	10.5	115	18	96	67	15	24	211	40	33	49	130
3	16	117	19.5	26	37	14	21	77	20	38	49	60
4	53	55	29	41	42	13.5	18.5	59	17	24	79	33
5	31	36	23	22	69	12.5	16.5	40	16	115	28	26
6	61	41	27	23	60	12	15.5	25	15	115	21	23
7	84	25	32	19.5	47	12	15.5	20	60	35	28.5	22
8	24	22	24	39	36	11.5	21.5	18	200	30	34	21
9	54	21	18.5	22	32	11.5	15	16	80	69	34	30.5
10	26.5	19	17	18.5	33	11	13.5	16	70	330	27	160
11	22	24	18	16.5	26	11.5	12.5	17	70	203	23	142
12	24.5	26	26.5	15.5	22	27	12	35	90	71	29	60
13	19	19	15.5	15.5	19.5	11	11.5	25	180	65	36	31
14	19	22	14.5	20	18.5	10.5	11.5	18	250	45	28	36
15	26	62	13.5	71	17.5	10.5	11	15	200	36	23	40
16	76	190	15.5	20	16.5	10	11	13	140	30	18.5	27
17	101	410	13.5	18	15.5	9.7	10.5	13	90	29	17.5	33
18	39	53	13	88	15	9.7	10.5	12	60	24	16	27
19	30	34	12.5	19	14	9.5	10.5	12	45	24	15.5	22
20	57	28	12	16	15.5	9.7	10.5	12	35	21	17.1	21
21	38	24	11.5	15.5	15.5	9.7	10.5	11	29	19	58	22
22	34	22	14.4	17.5	13.5	9.7	9.7	11	23	17.5	18	21
23	32	22	15.5	18.5	13.5	62	32	30	27	16	15.5	18
24	24	19	19	24.5	92	52	17	25	19.5	15.5	14.5	16.5
25	59	19	26	19	352	90	11	20	56	12	33	15.5
26	44	21	18.5	14.5	44	194	11.5	17	287	24	100	15
27	42	20	22	13.5	27	104	120	30	106	15.5	25	15.5
28	27	40	187	21.5	22	78	329	25	40	14.5	31	15
29	41	60	24	187	19	57	303	-	37.5	15.5	37	19.5
30	35	28	28	61	17.5	51	63	-	58	19	34	21
31	25	22	-	114	-	42	68	-	109	-	61	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	101	9.7	38.2	59.1	1,180	3,630
August	410	19	53.6	82.9	1,660	5,100
September	187	11.5	24.9	38.5	747	2,290
October	187	13.5	36.6	56.6	1,140	3,480
November	352	13.5	45.6	70.6	1,370	4,200
December	194	9.5	32.2	49.8	998	3,060
Calendar year 1937	1,290	9.5	52.1	80.6	19,030	58,370
January	329	9.7	41.1	63.6	1,280	3,910
February	211	10	31.1	48.1	870	2,670
March	287	15	82.9	128	2,570	7,890
April	330	12	52.8	81.7	1,580	4,860
May	100	14.5	33.1	51.2	1,030	3,150
June	201	15	44.2	68.4	1,320	4,060
Fiscal year 1937-38	410	9.5	43.1	66.7	15,740	48,300

Hanakapiai Stream near Hanalei

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

Drainage area.- 2.6 square miles.

Records available.- December 1931 to June 1938.

Extremes.- Maximum discharge during year, 2,680 million gallons a day (4,150 second-feet) Dec. 23 (gage height, 8.41 feet), from rating curve extended above 60 million gallons a day; minimum, 4.0 million gallons a day (6.2 second-feet) Sept. 26.
1931-38: Maximum discharge, that of Dec. 23, 1937; minimum, 2.5 million gallons a day (3.9 second-feet) Jan. 16-19, Mar. 12, 13, 21, 22, 1934.

Remarks.- Records good except those above 100 million gallons a day, which are poor. No diversions.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.4	2.8	1.2	14.5	2.4	78
.6	4.4	1.5	23.5	2.8	121
.8	6.7	1.8	36	3.0	151
1.0	10.0	2.1	54		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.2	81	5.8	8.0	85	4.7	12.1	10.0	32	34	14.8	26.5
2	6.4	65	5.5	7.3	22.5	4.6	11.2	54	8.5	10.6	24	13.2
3	19.6	21.5	11.7	6.0	10.0	4.6	8.7	20	7.2	14.1	13.6	8.6
4	90	17.5	17.2	19.8	9.0	4.9	7.8	12.4	6.6	8.5	8.0	6.8
5	84	10.2	7.4	7.4	16.4	4.4	7.2	11.3	6.4	86	6.6	6.0
6	58	10.8	8.6	9.0	18.7	4.4	7.0	8.0	6.2	52	6.0	5.6
7	41	7.1	11.0	7.4	28	4.4	7.2	7.2	63	12.6	5.7	5.4
8	15.6	6.3	12.1	11.1	23	4.4	53	6.9	96	8.7	9.1	5.9
9	13.2	6.3	6.9	9.6	14.5	16.9	10.3	6.6	20	31	16.4	24.5
10	10.2	6.2	5.9	6.0	14.0	6.8	7.8	6.4	23	84	11.0	132
11	8.2	8.2	6.8	5.5	9.4	5.1	7.2	6.6	18.8	52	12.2	17.0
12	10.5	10.0	9.6	5.3	7.3	20.5	7.0	13.0	43	15.9	14.1	9.8
13	12.8	7.8	5.9	5.4	6.3	5.9	6.9	10.9	49	9.0	9.1	7.2
14	9.5	11.0	5.3	4.8	5.9	5.4	6.8	7.0	68	15.6	9.0	23.5
15	13.0	59	4.9	4.8	5.5	4.9	6.4	7.4	49	10.0	8.4	18.0
16	60	43	4.9	4.6	5.5	4.6	6.4	6.8	19.8	7.5	6.8	9.2
17	88	76	4.8	8.6	5.4	4.4	6.3	6.4	12.1	7.0	6.0	13.5
18	15.3	12.0	4.4	11.5	5.1	4.3	6.3	6.4	16.2	6.9	5.6	16.2
19	13.9	8.3	4.4	5.6	5.0	4.3	6.3	6.3	13.0	6.4	5.4	8.2
20	36	7.1	4.3	5.0	9.1	4.6	6.3	6.0	10.0	6.2	9.3	7.7
21	39.5	6.3	4.2	7.2	10.4	4.6	6.2	6.0	8.0	5.9	45	6.4
22	16.2	5.8	4.1	16.5	5.8	4.3	6.2	5.9	7.2	5.6	7.8	5.6
23	12.0	8.7	4.6	11.2	5.1	80	17.7	19.8	10.1	5.5	6.8	5.4
24	11.5	6.3	4.6	13.3	5.4	31	9.5	9.2	7.4	5.5	5.9	5.0
25	35.5	7.0	4.1	9.6	10.7	70	6.6	10.0	6.8	5.5	17.9	5.0
26	67	10.5	15.0	6.5	6.0	62	7.0	7.7	53	22	23.5	4.8
27	34	10.9	6.5	5.9	5.4	50	9.6	17.5	34.5	7.5	8.4	5.0
28	14.3	17.7	6.6	15.2	5.0	43	63	15.2	11.0	6.4	8.7	4.8
29	10.0	15.0	5.5	111	4.9	33	59	-	11.2	6.8	13.9	6.2
30	10.0	9.4	19.6	*23.5	4.8	40	13.6	-	22.5	13.8	11.0	6.0
31	15.7	6.8	-	38	-	18.2	11.6	-	62	-	11.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	90	6.2	28.3	43.8	877	2,690
August	81	5.8	18.7	28.9	579	1,780
September	19.6	4.1	7.41	11.5	222	682
October	111	4.6	13.2	20.4	411	1,260
November	85	4.8	12.3	19.0	369	1,130
December	80	4.3	18.1	28.0	560	1,720
Calendar year 1937	175	4.1	17.4	26.9	6,360	19,510
January	63	6.2	13.2	20.4	408	1,250
February	54	5.9	11.1	17.2	311	954
March	96	6.2	25.9	40.1	802	2,460
April	86	5.5	18.8	29.1	562	1,730
May	45	5.4	11.8	18.3	366	1,120
June	132	4.8	14.0	21.7	419	1,290
Fiscal year 1937-38	132	4.1	16.1	24.9	5,890	18,070

Hanakoa Stream near Hanalei

Location.- Lat. 22°11'00", long. 159°37'35", three-quarters of a mile upstream from mouth and 7⅛ miles west of Hanalei. Altitude, 470 feet, by barometer.

Drainage area.- 1.1 square miles.

Records available.- December 1931 to June 1938.

Extremes.- Maximum discharge during year, 569 million gallons a day (880 second-feet) June 10 (gage height, 5.51 feet), from rating curve extended above 30 million gallons a day; minimum, 0.46 million gallons a day (0.71 second-foot) Jan. 22, 23.
1931-38: Maximum discharge, that of June 10, 1938; minimum, 0.17 million gallons a day (0.26 second-foot) Mar. 21, 22, 1934.

Remarks.- Records good except those above 50 million gallons a day, which are poor. No diversions.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to June 10						June 11 to June 30	
1.05	0.46	1.4	5.1	2.4	47	1.1	1.01
1.1	.81	1.6	9.7	2.7	71	1.2	2.2
1.15	1.30	1.8	15.5	3.0	101	1.3	3.65
1.2	1.89	2.0	24			1.4	5.4
1.3	3.35	2.2	34.5			1.6	9.8

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.73	35	1.41	1.63	31	0.66	2.9	2.35	17.0	13.0	3.7	6.3
2	.73	26	1.41	1.30	8.0	.66	2.45	29.5	2.2	2.9	8.7	3.85
3	4.8	7.4	3.55	1.10	3.2	.59	1.63	8.5	1.41	3.35	3.2	1.76
4	40	5.3	4.9	5.6	2.6	.81	1.30	4.9	1.10	1.76	1.52	1.30
5	34.5	3.5	1.89	1.76	4.2	.59	1.10	3.35	.90	39.5	1.00	1.10
6	19.6	3.2	2.2	1.89	5.5	.59	1.00	1.75	.90	26	.81	.90
7	12.5	2.35	2.75	1.52	7.4	.59	1.00	1.30	15.0	4.6	.66	.81
8	4.2	2.05	3.5	1.41	8.6	.52	29	1.20	47	2.75	1.00	1.00
9	3.7	1.89	1.75	1.52	4.6	5.3	2.75	1.00	8.1	9.0	2.9	5.3
10	2.45	1.76	1.52	1.00	4.4	1.41	1.41	.90	7.6	45	2.2	72
11	1.89	2.2	1.63	1.00	2.75	.90	1.20	1.00	5.7	25	1.30	9.8
12	2.6	2.9	1.89	.90	1.89	7.2	1.00	5.0	17.4	7.0	5.2	4.2
13	2.9	1.89	1.20	.90	1.52	1.41	.90	3.25	26.5	3.9	1.52	2.65
14	1.89	2.6	1.10	.81	1.41	1.10	.81	1.20	36	3.9	1.63	8.0
15	1.89	22.5	1.00	.73	1.30	.90	.73	1.10	24.5	2.75	2.05	9.3
16	16.0	27	1.00	.66	1.20	.73	.66	.81	7.7	1.89	1.20	3.05
17	30.5	39.5	1.00	1.23	1.10	.73	.66	.73	4.0	1.63	.90	4.4
18	3.9	4.9	.90	2.65	1.00	.66	.59	.73	4.4	1.41	.81	5.7
19	4.1	3.35	.90	1.20	1.00	.66	.59	.66	3.35	1.30	.73	2.5
20	9.0	2.6	.81	.90	1.30	.81	.59	.66	2.35	1.20	.66	2.05
21	10.6	2.05	.81	1.97	1.76	.81	.52	.59	1.76	1.10	16.3	1.69
22	3.9	1.76	.81	3.2	1.00	.59	.52	.59	1.41	1.00	2.05	1.44
23	2.75	2.35	.90	2.05	.90	26.5	7.6	10.1	2.2	.90	1.30	1.33
24	2.75	1.76	.90	1.76	.90	19.6	1.81	2.3	1.30	.81	1.00	1.22
25	9.9	1.76	.73	1.76	1.89	30.5	.73	2.45	1.20	.90	1.64	1.11
26	25	2.75	3.0	1.20	1.10	26.5	.81	1.41	30	7.3	11.6	1.01
27	7.4	3.35	1.20	1.00	.90	15.3	1.30	5.9	19.0	1.41	2.2	1.11
28	3.9	4.8	1.20	3.1	.81	12.5	25.5	3.9	3.35	1.00	1.76	1.01
29	2.6	3.9	1.00	48	.73	8.7	36	-	2.6	1.00	2.4	1.44
30	2.45	2.45	4.9	6.3	.73	12.8	4.4	-	3.7	3.3	2.75	1.22
31	3.8	1.76	-	10.8	-	4.6	3.35	-	19.1	-	1.63	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	40	0.73	8.80	13.6	273	838
August	39.5	1.76	7.31	11.3	227	695
September	4.9	.73	1.73	2.68	51.8	159
October	48	.66	3.58	5.54	111	340
November	31	.73	3.49	5.40	105	321
December	30.5	.52	5.97	9.24	185	568
Calendar year 1937	76	.52	5.56	8.60	2,030	6,220
January	36	.52	4.35	6.73	135	414
February	29.5	.59	3.47	5.37	97.1	298
March	47	.90	10.3	15.9	319	978
April	45	.81	7.22	11.2	217	665
May	16.3	.66	2.78	4.30	86.3	265
June	72	.81	5.28	8.17	159	487
Fiscal year 1937-38	72	.52	5.38	8.32	1,970	6,030

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 1938.

Extremes.- Maximum discharge during year, 229 million gallons a day (354 second-feet) June 10 (gage height, 3.37 feet), from rating curve extended above 18 million gallons a day; minimum, 2.75 million gallons a day (4.25 second-feet) Jan. 23.
1931-38: Maximum discharge, that of June 10, 1938; minimum, 1.9 million gallons a day (2.9 second-feet) Dec. 10, 11, 1933.

Remarks.- Records good except those above 25 million gallons a day, which are poor. No diversions.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.9	2.25	1.2	6.1	2.0	37
1.0	3.15	1.4	10.5	2.5	81
1.1	4.4	1.6	17.0		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.7	10.0	3.85	3.75	9.1	3.5	4.4	6.3	12.0	8.2	4.4	4.4
2	4.7	10.0	3.85	3.75	6.9	3.35	4.1	21.5	6.5	5.9	5.6	4.4
3	5.2	7.3	4.1	3.75	4.9	3.35	3.75	13.6	5.2	5.2	5.1	4.1
4	9.4	6.1	4.1	3.85	4.3	3.35	3.5	10.3	4.6	4.7	4.6	4.1
5	13.7	5.4	4.0	3.75	4.1	3.35	3.35	8.9	4.4	15.5	4.3	4.1
6	10.3	5.1	3.85	3.75	4.1	3.35	3.25	5.9	4.1	33	4.1	4.0
7	8.6	4.9	3.85	3.75	4.1	3.35	3.15	4.9	5.2	8.6	4.1	4.0
8	6.9	4.7	3.85	3.6	5.2	3.35	16.1	4.4	15.0	6.5	4.1	4.1
9	5.9	4.7	3.85	3.6	4.4	4.3	6.3	4.0	6.9	5.9	4.3	4.7
10	5.2	4.6	3.75	3.6	4.3	3.6	4.3	3.85	6.7	10.4	4.3	27
11	4.9	4.4	3.75	3.6	4.0	3.6	3.75	3.85	6.3	8.3	4.3	8.6
12	4.9	4.4	3.75	3.6	3.85	6.4	3.5	8.3	8.1	6.3	4.4	5.9
13	4.9	4.4	3.75	3.6	3.75	4.1	3.25	8.8	13.5	5.2	4.3	4.7
14	4.7	4.4	3.75	3.6	3.75	3.75	3.15	5.9	18.2	4.9	4.4	5.6
15	4.6	7.5	3.75	3.6	3.75	3.6	3.05	5.1	15.6	4.6	4.6	6.5
16	5.4	16.2	3.75	3.6	3.75	3.5	2.95	4.4	9.8	4.4	4.3	4.8
17	9.4	35	3.75	3.7	3.75	3.5	2.95	4.1	7.1	4.4	4.3	4.8
18	6.1	9.8	3.75	3.85	3.6	3.35	2.85	4.1	6.1	4.3	4.1	5.2
19	5.6	7.1	3.75	3.75	3.6	3.35	2.85	4.0	5.4	4.1	4.1	4.4
20	5.9	5.8	3.75	3.6	3.6	3.6	2.85	3.85	4.9	4.1	4.1	4.1
21	5.6	5.1	3.75	3.85	3.6	3.5	2.85	3.85	4.6	4.0	5.6	4.0
22	5.1	4.7	3.75	4.0	3.6	3.35	2.85	3.75	4.4	4.0	4.3	3.85
23	4.9	4.4	3.75	3.75	3.6	12.2	5.3	6.6	4.3	3.85	4.1	3.75
24	4.9	4.3	3.75	3.75	3.6	10.1	4.1	5.4	4.1	3.85	4.1	3.75
25	5.4	4.3	3.75	3.75	3.6	12.8	3.25	5.2	4.1	3.85	4.3	3.6
26	8.9	4.4	3.85	3.75	3.6	11.0	3.15	4.6	24.5	5.2	4.6	3.6
27	7.5	4.4	3.75	3.75	3.6	9.3	3.15	6.9	26	4.3	4.3	3.6
28	5.9	4.4	3.75	3.85	3.6	8.6	14.6	6.2	9.3	4.1	4.1	3.6
29	5.2	4.3	3.75	10.4	3.5	7.3	48	-	7.1	4.0	4.1	3.6
30	4.9	4.1	4.0	6.1	3.5	6.3	12.8	-	6.5	4.4	4.1	3.6
31	4.9	4.0	-	5.4	-	5.1	8.1	-	6.7	-	4.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	13.7	4.6	6.26	9.69	194	596
August	35	4.0	6.78	10.5	210	645
September	4.1	3.75	3.81	5.89	114	351
October	10.4	3.6	4.06	6.28	126	387
November	9.1	3.5	4.15	6.42	125	382
December	12.8	3.35	5.26	8.14	163	501
Calendar year 1937	74	3.35	6.50	10.1	2,370	7,280
January	48	2.85	6.18	9.56	192	588
February	21.5	3.75	6.38	9.87	179	548
March	26	4.1	8.62	13.3	267	820
April	33	3.85	6.54	10.1	196	602
May	5.6	4.1	4.37	6.76	136	416
June	27	3.6	5.22	8.08	156	480
Fiscal year 1937-38	48	2.85	5.64	8.73	2,060	6,320

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 1938.

Average discharge.- 19 years (1915-24, 1926-32, 1934-38), 8.00 million gallons a day (12.4 second-feet).

Extremes.- Maximum discharge during year, 713 million gallons a day (1,100 second-feet) Sept. 28 (gage height, 7.82 feet), from rating curve extended above 40 million gallons a day; minimum, 0.93 million gallons a day (1.44 second-feet) July 1.

1913-38: Maximum discharge, 1,160 million gallons a day (1,790 second-feet) Jan. 1, 1933 (gage height, 9.63 feet), from rating curve extended above 120 million gallons a day; minimum, 0.09 million gallons a day (0.15 second-foot) Mar. 22, 1926.

Remarks.- Records good except those for periods of faulty gage heights, Dec. 15-21, Jan. 6-17, Feb. 7-21, Feb. 25 to Apr. 1, May 30 to June 2, 8-27 (computed on basis of records for station on the left Branch) and those above 60 million gallons a day, which are poor. No diversions above station.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

2.6	0.30	3.2	7.3	4.0	50
2.8	1.35	3.4	14.1	4.4	91
3.0	3.4	3.6	23	4.8	145

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.17	21.5	1.86	5.0	18.0	5.4	5.8	23.5	1.6	5.0	3.7	35
2	1.52	101	1.78	3.8	15.6	3.55	4.8	28	1.4	2.95	10.1	33
3	1.35	30	1.69	2.75	3.6	2.2	3.95	36.5	1.4	5.3	23	9.6
4	8.5	8.3	5.8	2.85	36	2.05	3.4	6.1	1.3	2.2	9.5	5.8
5	7.8	6.3	2.65	4.6	15.1	1.86	3.0	14.9	1.5	2.1	3.25	4.4
6	4.1	4.8	2.1	2.3	20.5	1.69	2.8	4.4	2.5	29	4.2	3.65
7	5.3	4.6	9.4	3.5	7.0	1.60	4.0	3.8	8.0	11.6	2.75	3.4
8	2.4	3.65	8.2	4.2	7.4	1.44	12.0	4.0	30	4.9	2.1	3.2
9	1.78	3.25	2.4	2.1	3.75	1.52	4.5	4.5	4.0	42	9.9	15
10	1.44	3.15	2.85	1.94	3.15	1.35	3.2	11	4.1	44	3.65	50
11	1.44	3.15	8.7	1.78	6.5	1.41	2.6	35	2.8	15.3	5.0	25
12	1.44	3.4	21.5	1.69	2.75	28	2.5	10	4.0	13.0	4.8	27
13	1.23	7.6	3.0	4.8	2.3	2.1	2.2	13	7.0	6.3	6.0	7.0
14	6.3	4.5	2.3	20.6	2.1	*5.5	2.0	4.5	4.5	8.4	3.95	6.4
15	1.60	12.2	2.5	5.4	2.05	2.5	1.8	3.8	2.7	4.4	2.5	4.5
16	2.15	40	2.1	4.4	1.86	1.8	1.7	3.2	2.5	3.65	2.05	3.8
17	84	46	1.86	5.1	1.78	3.5	1.8	3.0	12	3.25	1.86	3.3
18	4.8	5.4	1.69	3.9	1.60	1.7	1.6	4.8	10	2.85	1.69	4.0
19	3.0	4.2	1.69	2.3	1.52	1.4	1.52	3.0	13	2.65	1.86	3.0
20	5.0	3.4	1.52	2.05	1.44	1.3	14.5	2.7	4.0	2.4	12.1	2.6
21	24	3.0	1.44	1.86	3.7	2.0	5.6	2.5	3.2	2.2	29	2.3
22	7.5	2.75	1.52	2.25	1.52	14.2	2.2	3.0	2.7	2.1	3.4	2.2
23	6.5	2.5	2.1	2.4	4.3	39.5	1.78	2.3	3.0	2.05	2.5	2.0
24	5.3	2.3	2.2	4.8	88	38.5	4.8	2.1	2.0	1.94	2.1	7.0
25	11.2	2.3	9.8	2.85	62	76	1.69	2.1	3.0	1.78	21	4.0
26	4.8	3.05	61	1.69	6.3	19.5	33.5	1.7	1.9	1.86	33.5	2.2
27	4.6	2.4	53	1.52	4.6	10.2	81	1.5	20	1.69	3.95	4.0
28	3.15	5.4	55	1.35	3.4	38	67	1.5	4.5	1.52	11.7	7.1
29	24.5	3.15	5.0	4.1	2.75	62	11.9	-	9.0	1.44	20	2.05
30	4.2	2.75	4.3	2.4	2.65	17.9	7.3	-	17	1.94	35	2.85
31	3.15	2.3	-	1.60	-	8.3	6.0	-	18	-	23	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	84	1.17	7.91	12.2	245	753
August	101	2.3	11.2	17.3	348	1,070
September	61	1.44	9.36	14.5	281	862
October	20.5	1.35	3.61	5.59	112	343
November	88	1.44	11.1	17.2	333	1,020
December	76	1.3	12.8	19.8	398	1,220
Calendar year 1937	151	.99	10.8	16.7	3,930	12,060
January	81	1.52	9.76	15.1	302	928
February	36.5	1.5	8.42	13.0	236	724
March	30	1.3	6.54	10.1	203	622
April	44	1.44	7.66	11.9	230	705
May	35	1.69	9.65	14.9	299	918
June	50	2.0	9.51	14.7	285	876
Fiscal year 1937-38	101	1.17	8.97	13.9	3,270	10,040

*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.
Drainage area.- 1.5 square miles.
Records available.- May 1913 to June 1938.
Average discharge.- 21 years (1915-24, 1926-38), 11.5 million gallons a day (17.8 second-feet).
Extremes.- Maximum discharge during year, 2,290 million gallons a day (3,540 second-feet) Sept. 28 (gage height, 8.43 feet), from rating curve extended above 70 million gallons a day; minimum, 1.2 million gallons a day (1.9 second-feet) July 1.
1913-38: 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, Jan. 4-13 (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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.0	1.1	1.8	17.3	3.5	160
1.2	2.9	2.0	26	4.0	240
1.4	6.1	2.5	55		
1.6	10.9	3.0	100		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.6	17.9	2.9	8.3	38.5	5.3	7.4	50	1.8	6.7	10.7	40
2	2.9	154	3.2	4.8	25	3.9	5.9	33	1.4	4.2	28.5	39
3	3.7	56	2.6	4.2	6.6	2.4	5.0	47	1.4	12.1	31	11.6
4	22	13.0	11.2	6.2	41	2.0	4.3	7.2	1.3	3.5	14.5	7.4
5	12.9	13.5	8.5	8.5	26.5	1.9	4.0	19.0	1.8	3.9	6.0	5.9
6	11.6	8.6	5.8	3.5	30	1.7	3.7	5.7	3.5	37	7.3	4.8
7	7.3	7.2	11.3	9.2	12.2	1.6	5.0	4.8	11.5	15.7	4.9	4.7
8	3.7	5.7	14.8	6.8	10.3	1.5	15	5.0	37	7.0	3.6	1.5
9	2.9	5.6	3.9	3.2	5.4	1.6	6.0	6.1	5.7	46	17.6	18.0
10	2.1	6.5	4.5	2.8	4.5	1.4	4.5	12.3	6.0	64	6.1	68
11	2.2	7.9	20.5	2.5	16.6	1.8	3.5	38.5	3.2	25.5	6.4	35
12	2.4	11.8	26.5	2.2	4.5	42	3.1	10.3	4.5	28	9.2	37
13	1.7	29	4.8	12.3	3.6	2.6	2.8	13.9	8.1	11.4	8.4	8.6
14	10.2	14.2	3.7	20.5	3.2	13.7	2.5	5.2	5.6	27.5	8.7	7.4
15	2.6	18.7	4.3	5.3	2.9	3.5	2.2	4.3	3.2	7.9	4.5	5.6
16	5.5	52	3.0	3.5	2.7	2.1	2.0	3.9	2.8	6.1	3.5	4.5
17	89	78	2.8	5.6	2.5	3.8	2.1	3.6	15.2	5.2	3.0	4.2
18	7.0	9.3	2.4	5.2	2.2	2.0	2.0	5.2	33	4.7	2.8	5.3
19	4.0	7.0	2.6	2.8	2.0	1.6	1.8	3.7	12.0	4.2	3.0	3.5
20	7.2	5.9	2.4	2.6	2.0	1.5	19.7	3.0	4.8	3.9	14.5	3.3
21	30	5.0	1.9	2.4	5.4	2.6	20.5	2.7	3.9	3.5	39	2.9
22	14.8	4.5	2.5	4.5	2.0	21	4.6	2.5	3.5	3.2	5.2	2.8
23	15.3	4.2	5.0	4.2	9.2	*62	2.8	2.4	4.2	3.0	4.2	2.6
24	8.9	4.0	7.4	7.5	61	*50	9.5	2.4	2.7	3.0	3.5	9.6
25	24	4.0	17.1	4.6	38.5	*82	2.6	2.4	4.5	2.6	39	5.4
26	8.8	6.4	94	2.5	5.6	*19.5	40	1.9	2.5	4.7	58	2.5
27	10.9	4.8	39	2.0	4.5	11.5	71	1.7	23	2.5	6.3	4.5
28	5.7	11.1	39	1.7	3.6	63	93	1.7	5.7	2.4	13.5	10.6
29	20.5	5.1	6.1	8.1	3.0	69	13.6	-	9.3	2.2	25	2.5
30	9.5	6.3	5.6	4.0	2.9	22	9.4	-	18.0	5.0	44	6.9
31	5.0	4.0	-	2.5	-	9.9	8.6	-	18.2	-	24	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	89	1.6	11.5	17.8	356	1,090
August	154	4.0	18.7	28.9	581	1,780
September	94	1.9	12.0	18.6	359	1,100
October	20.5	1.7	5.29	8.18	164	503
November	61	2.0	12.6	19.5	378	1,160
December	82	1.4	16.5	25.5	510	1,570
Calendar year 1937	198	1.4	14.0	21.7	5,110	15,660
January	93	1.8	12.2	18.9	378	1,160
February	50	1.7	10.7	16.6	299	919
March	37	1.3	8.36	12.9	259	796
April	64	2.2	11.9	18.4	357	1,090
May	58	2.8	14.7	22.7	456	1,400
June	68	1.5	12.2	18.9	366	1,120
Fiscal year 1937-38	154	1.3	12.2	18.9	4,460	13,690

*Partly estimated.

Puhawai Stream at Lualualei, near Waianae

Location.- Parshall flume, 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 1938.

Extremes.- Maximum discharge during year not determined, owing to faulty gage-height record; minimum, 0.02 million gallons a day (0.03 second-foot) Sept. 21, 22, Oct. 2-7, 10-12, 16, Nov. 29, 30.
1930-38: 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 except those for periods of faulty gage heights, Dec. 23-27, Jan. 28 to Feb. 5, 12-16, Mar. 6, 7, 20-28, Apr. 9, 10 (computed on basis of rainfall and records for stations on streams in Kaukonahua and Moanalua Valleys) and those above 5 million gallons a day, which are poor. Continuous rainfall records are obtained at station.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.05	0.12	0.06	0.03	0.07	0.03	0.22	0.05	0.25	0.35	0.13	0.12
2	.06	.12	.05	.02	.11	.03	.17	4.0	.18	.23	.14	.18
3	.05	.06	.05	.02	.05	.04	.13	50	.20	.22	.13	.13
4	.06	.05	.07	.02	.23	.07	.10	3.0	.15	.19	.13	.12
5	.06	.05	.06	.02	.34	.03	.09	5.0	.14	.20	.12	.12
6	.04	.04	.05	.02	.39	.03	.06	1.96	.25	.35	.12	.10
7	.05	.03	.05	.02	.22	.03	.06	.97	.15	.20	.10	.09
8	.17	.03	.05	.03	.16	.03	.18	.63	.69	.15	.10	.09
9	.08	.03	.05	.03	.10	.06	.13	.39	.38	2.0	.13	.09
10	.06	.05	.05	.02	.06	.03	.09	.30	.28	3.0	.12	.10
11	.05	.03	.06	.02	.06	.03	.06	.25	.29	.82	.12	.29
12	.05	.03	.05	.02	.05	3.2	.06	.20	.25	.49	.10	.22
13	.04	.03	.07	.03	.05	.26	.06	.70	.21	.35	.48	.12
14	.03	.04	.06	.03	.04	.12	.05	.40	.18	.31	.75	.09
15	.03	.06	.04	.03	.04	.06	.05	.30	.17	.28	.42	.09
16	.03	.06	.04	.02	.04	.05	.05	.60	.13	.25	.20	.08
17	.05	.30	.04	.05	.09	.04	.05	.47	.10	.20	.15	.08
18	.04	.10	.03	.07	.06	.04	.05	.36	.08	.18	.13	.08
19	.03	.06	.03	.07	.05	.03	.04	.32	.09	.17	.12	.08
20	.05	.05	.03	.05	.05	.03	.05	.26	.08	.16	.12	.08
21	.05	.05	.02	.12	.05	.03	.06	.20	.08	.14	.12	.10
22	.04	.05	.02	.08	.03	.03	.05	.18	.08	.14	.12	.10
23	.03	.03	.03	.19	.03	.59	.06	.20	.07	.12	.13	.10
24	.05	.03	.03	.28	.03	.34	.18	.23	.07	.12	.12	.10
25	.05	.03	.03	.14	.04	1.2	.05	.29	.06	.12	.13	.10
26	.05	.03	.08	.06	.03	7.7	.05	.22	.06	.12	.16	.10
27	.05	.04	.05	.05	.03	1.5	.05	.22	.90	.10	.12	.09
28	.06	.05	.03	.05	.03	.58	2.0	.22	.40	.12	.12	.09
29	.05	.05	.03	.04	.02	.64	.50	-	.90	.10	.10	.08
30	.03	.30	.03	.04	.02	.49	.50	-	1.12	.10	.10	.09
31	.03	.13	-	.04	-	.32	.10	-	.60	-	.10	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.17	0.03	0.051	0.079	1.57	4.8
August	.30	.03	.069	1.07	2.13	6.5
September	.08	.02	.045	.070	1.34	4.1
October	.28	.02	.055	.085	1.71	5.2
November	.39	.02	.086	1.33	2.57	7.9
December	7.7	.03	.570	.882	17.7	54
Calendar year 1937	7.7	.02	.209	.323	76.3	234
January	2.0	.04	.173	.268	5.35	16
February	50	.05	2.57	3.98	71.9	221
March	1.12	.06	.277	.429	8.59	26
April	3.0	.10	.376	.582	11.3	35
May	.75	.10	.165	.255	5.13	16
June	.29	.08	.110	.170	3.30	10
Fiscal year 1937-38	50	.02	.363	.562	133	406

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 miles (revised) from Pearl City and 9.8 miles (revised) northwest of Honolulu.

Records available.- March 1931 to June 1934, July 1937 to June 1938.

Extremes.- Not determined because extremes at gaging-station site are caused by changes in tidal backwater.

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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.9	7.3
2.0	10.3
2.1	13.6
2.2	17.1

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.2	12.9	9.3	13.2	12.5	13.2	13.9	13.9	14.6	13.2	13.2	12.9
2	14.2	12.9	9.0	13.2	12.5	13.2	13.9	14.2	14.6	13.2	12.9	13.9
3	14.2	12.9	10.3	13.6	12.5	13.2	13.9	14.2	14.6	13.6	12.5	13.6
4	14.1	12.9	12.9	13.6	12.5	13.2	13.9	14.2	14.2	13.6	12.5	13.6
5	14.1	12.9	12.9	13.6	12.5	13.6	13.6	14.2	14.2	13.6	12.9	13.6
6	14.1	12.9	12.9	13.6	12.5	13.6	13.6	14.2	14.2	13.6	13.2	13.6
7	14.0	12.9	9.6	13.6	12.9	13.6	13.6	13.9	14.2	13.6	10.9	13.2
8	14.0	12.9	8.5	13.6	12.9	13.6	13.6	13.9	14.2	13.6	9.6	10.6
9	13.9	9.3	8.7	13.6	12.9	13.6	13.6	14.2	14.2	13.6	9.3	9.6
10	13.9	8.5	9.0	13.6	12.9	13.6	13.6	14.2	14.2	13.6	9.3	9.6
11	13.9	8.7	*9.0	13.6	12.9	13.6	13.6	14.6	14.2	13.6	9.3	10.6
12	13.8	8.7	*9.1	13.6	12.9	13.6	13.6	14.6	14.2	13.6	9.3	13.6
13	13.8	8.5	*9.2	13.6	12.9	13.6	13.2	14.6	14.2	13.6	9.6	10.3
14	13.7	8.7	*9.3	13.6	12.9	13.9	13.2	14.6	14.2	13.6	10.9	9.6
15	13.7	9.0	9.3	13.6	12.5	13.9	13.2	14.6	14.2	13.6	13.2	9.6
16	13.7	8.7	9.3	13.6	12.2	14.2	13.2	14.6	14.2	13.6	9.6	9.6
17	13.6	8.7	9.3	13.6	12.2	14.2	13.2	14.6	14.2	13.2	9.6	9.6
18	13.6	8.7	10.9	13.6	12.2	14.2	12.9	14.6	13.9	13.2	9.3	9.3
19	13.5	8.7	11.9	13.6	12.2	14.2	12.9	14.6	13.9	13.2	8.7	9.3
20	13.5	8.7	9.3	13.6	12.5	13.9	12.9	14.6	13.9	13.2	9.0	9.6
21	13.5	10.6	9.3	13.2	12.9	13.9	12.9	14.6	13.9	12.9	10.3	9.3
22	13.4	12.5	9.0	12.9	12.9	13.9	12.9	14.6	13.9	12.9	12.9	10.0
23	13.4	9.3	9.0	12.9	13.2	13.6	13.2	14.6	*13.8	13.2	9.3	10.3
24	13.3	8.6	9.0	13.2	13.2	13.6	13.6	14.6	*13.7	13.2	8.7	10.3
25	13.3	8.5	9.0	12.9	13.2	13.6	13.6	14.6	*13.6	13.2	8.7	11.5
26	13.2	8.5	8.7	12.5	12.9	13.9	13.6	14.6	*13.5	12.9	8.7	13.9
27	13.2	8.5	9.0	12.5	12.9	13.9	13.6	14.6	*13.4	12.9	8.7	10.3
28	13.2	10.3	12.2	12.5	13.2	13.9	13.9	14.6	*13.3	12.9	10.9	10.3
29	12.9	11.2	13.2	12.5	12.9	13.6	13.9	-	*13.2	12.9	12.9	10.3
30	12.9	9.3	13.2	12.5	12.9	13.6	13.9	-	13.2	12.9	13.6	10.0
31	12.9	9.3	-	12.5	-	13.6	13.9	-	13.2	-	10.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.2	12.9	13.6	21.0	423	1,300
August	12.9	8.5	10.1	15.6	315	965
September	13.2	8.5	10.0	15.5	301	925
October	13.6	12.5	13.3	20.6	411	1,260
November	13.2	12.2	12.7	19.6	382	1,170
December	14.2	13.2	13.7	21.2	425	1,300
Calendar year						
January	13.9	12.9	13.5	20.9	418	1,280
February	14.6	13.9	14.4	22.3	404	1,240
March	14.6	13.2	14.0	21.7	433	1,330
April	13.6	12.9	13.3	20.6	400	1,230
May	13.6	8.7	10.6	16.4	330	1,010
June	13.9	9.3	11.0	17.0	332	1,020
Fiscal year 1937-38	14.6	8.5	12.5	19.3	4,570	14,030

*Gage height missing; discharge interpolated.

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 1938.

Extremes.- Not determined because extremes at gaging-station site are caused by changes in tidal backwater.

Remarks.- Records excellent. 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

2.0	2.95
2.1	3.9
2.2	4.9

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.9	3.6	3.4	3.4	3.5	3.7	4.1	3.9	4.2	4.3	4.6	4.2
2	3.9	3.5	3.5	3.4	3.5	3.7	4.1	3.9	4.3	4.3	4.6	4.1
3	3.9	3.5	3.5	3.4	3.6	3.7	4.1	3.9	4.3	4.3	4.6	4.1
4	3.9	3.5	3.5	3.4	3.7	3.8	4.1	3.9	4.3	4.3	4.6	4.2
5	3.9	3.5	3.5	3.3	3.7	3.9	4.1	3.9	4.3	4.3	4.6	4.2
6	3.9	3.5	3.5	3.3	3.7	3.9	4.1	3.9	4.3	4.3	4.6	4.2
7	3.9	3.5	3.4	3.3	3.8	3.8	4.2	3.9	4.3	4.2	4.6	4.2
8	3.8	3.5	3.4	3.3	3.8	3.8	4.2	3.9	4.3	4.2	4.6	4.1
9	3.7	3.5	3.4	3.4	3.8	3.8	4.2	3.9	4.2	4.3	4.7	3.95
10	3.5	3.5	3.4	3.4	3.9	3.8	4.3	3.9	4.2	4.4	4.6	3.9
11	3.5	3.5	3.4	3.4	3.9	3.8	4.1	3.9	4.2	4.4	4.5	3.95
12	3.4	3.5	3.4	3.5	3.9	3.8	3.95	3.95	4.1	4.4	4.4	3.95
13	3.4	3.5	3.5	3.5	3.9	3.8	3.95	3.95	4.1	4.4	4.4	3.9
14	3.4	3.5	3.5	3.6	3.9	3.8	3.95	3.95	4.1	4.5	4.4	3.9
15	3.4	3.5	3.6	3.6	3.9	3.8	3.95	3.95	3.95	4.6	4.4	3.9
16	3.4	3.5	3.6	3.6	3.9	3.8	3.95	4.1	3.95	4.6	4.4	3.9
17	3.4	3.5	3.6	3.6	3.9	3.8	3.95	4.1	3.95	4.6	4.3	3.9
18	3.4	3.5	3.6	3.5	3.9	3.8	3.95	4.2	3.95	4.6	4.2	3.9
19	3.4	3.5	3.6	3.3	3.9	3.9	3.9	4.2	4.1	4.6	4.2	3.9
20	3.4	3.5	3.6	3.25	3.9	3.9	3.9	4.3	4.1	4.5	4.2	3.9
21	3.4	3.5	3.5	3.25	3.9	3.9	3.9	4.3	3.95	4.5	4.2	3.9
22	3.4	3.5	3.6	3.25	3.9	3.9	3.9	4.3	3.95	4.5	4.2	3.9
23	3.5	3.6	3.6	3.3	3.9	3.8	3.9	4.3	3.95	4.5	4.3	3.9
24	3.6	3.5	3.5	3.3	3.9	3.8	3.9	4.3	3.95	4.5	4.3	3.9
25	3.6	3.5	3.6	3.4	3.9	3.9	3.8	4.3	4.1	4.5	4.3	3.9
26	3.6	3.4	3.4	3.5	3.9	3.95	3.8	4.3	4.1	4.5	4.3	3.9
27	3.6	3.4	3.4	3.5	3.9	3.95	3.8	4.2	4.2	4.4	4.3	3.8
28	3.6	3.4	3.4	3.6	3.9	3.95	3.8	4.2	4.2	4.4	4.4	3.8
29	3.6	3.5	3.4	3.5	3.8	3.96	3.9	-	4.1	4.4	4.4	3.8
30	3.6	3.5	3.4	3.5	3.7	4.1	3.9	-	4.2	4.5	4.4	3.8
31	3.6	3.4	-	3.5	-	4.1	3.9	-	4.3	-	4.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.9	3.4	3.60	5.57	112	342
August	3.6	3.4	3.49	5.40	108	332
September	3.6	3.4	3.49	5.40	105	321
October	3.6	3.25	3.42	5.29	106	325
November	3.9	3.5	3.82	5.91	115	352
December	4.1	3.7	3.85	5.96	119	366
Calendar year 1937	4.6	3.25	3.89	6.02	1,420	4,350
January	4.3	3.8	3.99	6.17	124	379
February	4.3	3.9	4.06	6.28	114	349
March	4.3	3.95	4.14	6.41	128	393
April	4.6	4.2	4.43	6.85	133	408
May	4.7	4.2	4.42	6.84	137	420
June	4.2	3.8	3.96	6.13	119	365
Fiscal year 1937-38	4.7	3.25	3.89	6.02	1,420	4,350

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 1938.

Extremes.- Not determined because extremes at gaging station-site are caused by changes in tidal backwater.

Remarks.- Records excellent. Discharge for Oct. 16-26 interpolated. No diversions. Surface run-off caused by floods not included in figures of discharge given below.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

2.2	2.55
2.3	3.4

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.15	3.05	3.25	3.05	3.05	2.9	2.9	2.8	2.6	2.8	3.05	2.9
2	3.05	3.05	3.25	3.05	3.05	2.9	2.9	2.9	2.6	2.9	2.95	2.95
3	3.05	3.05	3.25	3.05	3.05	2.9	2.95	2.9	2.7	2.9	2.95	2.95
4	3.05	3.15	3.25	3.05	3.15	2.9	2.95	2.9	2.8	2.9	2.95	2.95
5	3.05	3.15	3.25	3.05	3.15	2.9	2.95	2.95	2.8	2.9	2.95	2.9
6	3.05	3.15	3.25	3.15	3.15	2.9	2.95	2.95	2.7	2.9	2.95	2.9
7	3.15	3.15	3.25	3.25	3.25	2.8	2.95	2.95	2.7	2.9	3.05	2.9
8	3.15	3.15	3.25	3.25	3.25	2.8	2.95	2.95	2.7	2.9	3.05	2.9
9	3.15	3.15	3.25	3.25	3.15	2.8	2.95	2.95	2.7	2.9	3.05	2.9
10	3.15	3.05	3.25	3.25	3.15	2.7	2.95	2.95	2.8	2.95	2.95	2.9
11	3.15	3.05	3.25	3.25	3.15	2.7	2.95	2.95	2.7	2.9	2.95	2.9
12	3.15	3.05	3.25	3.25	3.05	2.7	2.95	3.05	2.7	2.9	2.95	2.9
13	3.15	3.05	3.15	3.25	3.05	2.7	2.95	3.15	2.8	2.9	2.95	2.9
14	3.15	2.95	3.05	3.25	3.05	2.7	2.95	3.15	2.8	2.9	2.95	2.9
15	3.15	2.95	3.05	3.25	3.05	2.7	2.95	2.95	2.95	2.9	2.95	2.8
16	3.05	2.95	3.05	3.25	3.05	2.7	2.95	2.95	2.95	2.9	2.95	2.8
17	3.05	2.95	3.05	3.25	3.05	2.7	2.95	2.95	2.95	2.9	2.95	2.7
18	3.05	2.95	3.05	3.25	3.05	2.8	2.9	2.95	2.95	2.9	2.95	2.7
19	3.05	2.95	3.15	3.25	3.05	2.8	2.8	3.05	3.05	2.9	2.9	2.7
20	2.95	3.05	3.15	3.15	3.05	2.8	2.8	2.95	3.15	2.9	2.8	2.7
21	2.95	3.05	3.15	3.15	3.05	2.7	2.7	2.95	3.25	2.9	2.8	2.7
22	2.95	3.05	3.15	3.15	3.05	2.7	2.7	2.95	3.3	2.9	2.9	2.7
23	2.95	3.05	3.05	3.15	2.95	2.7	2.8	2.95	3.3	2.9	2.9	2.6
24	2.95	2.95	2.95	3.05	2.95	2.7	2.8	2.9	3.25	2.9	2.8	2.6
25	2.95	2.95	2.95	3.05	3.05	2.8	2.8	2.8	3.05	2.9	2.8	2.7
26	2.95	2.95	2.95	3.05	3.05	2.8	2.8	2.8	2.8	2.95	2.8	2.7
27	2.95	2.95	2.95	3.05	3.05	2.8	2.8	2.7	2.7	2.95	2.8	2.6
28	2.95	2.95	2.95	2.95	3.05	2.8	2.9	2.6	2.6	2.95	2.8	2.55
29	2.95	2.95	3.05	2.95	3.05	2.8	2.9	-	2.6	2.95	2.8	2.55
30	2.95	3.05	3.15	2.95	2.95	2.8	2.9	-	2.8	2.95	2.8	2.55
31	3.05	3.15	-	2.95	-	2.8	2.8	-	2.8	-	2.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.15	2.95	3.05	4.72	94.4	290
August	3.15	2.95	3.03	4.69	94.0	289
September	3.25	2.95	3.13	4.84	94.0	288
October	3.25	2.95	3.14	4.86	97.2	298
November	3.25	2.95	3.07	4.75	92.2	283
December	2.9	2.7	2.78	4.30	86.2	265
Calendar year 1937	3.3	2.55	2.98	4.61	1,090	3,340
January	2.95	2.7	2.89	4.47	89.4	275
February	3.15	2.6	2.93	4.53	82.0	251
March	3.3	2.6	2.86	4.43	88.6	272
April	2.95	2.8	2.91	4.50	87.2	268
May	3.05	2.8	2.91	4.50	90.3	277
June	2.95	2.55	2.78	4.30	83.4	256
Fiscal year 1937-38	3.3	2.55	2.96	4.58	1,080	3,310

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, a fifth of a mile downstream from 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 June 1938.

Extremes.- Not determined because extremes at gaging-station site are caused by changes in tidal backwater.

Remarks.- Records excellent. Discharge for Aug. 7 to Sept. 14 interpolated. 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

2.0	6.0
2.1	7.9
2.2	9.9
2.3	12.1

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.8	8.8	8.6	8.7	8.3	8.3	9.0	9.0	9.3	9.0	8.8	8.3
2	8.7	8.8	8.6	8.7	8.3	8.3	9.0	9.0	9.3	9.0	8.8	8.3
3	8.8	8.8	8.6	8.7	8.3	8.3	9.0	9.3	9.3	9.3	8.8	8.3
4	8.8	8.8	8.6	8.5	8.5	8.3	9.0	9.3	9.3	9.3	8.7	8.3
5	9.0	8.8	8.6	8.5	8.5	8.5	9.0	9.3	9.3	9.0	8.7	8.5
6	9.0	8.8	8.6	8.5	8.8	8.5	9.0	9.3	9.3	9.0	8.5	8.5
7	8.8	8.6	8.6	8.5	8.8	8.3	9.0	9.3	9.5	8.8	8.7	8.3
8	8.8	8.6	8.6	8.7	8.8	8.3	9.0	9.5	9.5	8.8	8.7	8.3
9	8.8	8.6	8.6	8.5	8.8	8.3	9.0	9.5	9.5	9.0	8.7	8.3
10	8.8	8.6	8.6	8.5	8.8	8.5	9.0	9.5	9.5	9.3	8.7	8.3
11	8.8	8.6	8.6	8.5	8.8	8.5	9.0	9.5	9.5	9.3	8.5	8.3
12	8.8	8.6	8.6	8.3	8.8	8.8	8.8	9.5	9.5	9.3	8.5	8.3
13	8.7	8.6	8.6	8.3	8.8	8.8	8.8	9.7	9.5	9.3	8.5	8.3
14	8.7	8.6	8.6	8.3	8.8	8.8	8.8	9.5	9.3	9.3	8.5	8.3
15	8.7	8.6	8.5	8.3	8.8	8.8	8.8	9.5	9.3	9.3	8.5	8.1
16	8.7	8.6	8.5	8.3	8.7	8.8	8.8	9.5	9.3	9.3	8.5	7.9
17	8.7	8.6	8.5	8.5	8.7	9.7	8.8	9.5	9.3	9.3	8.5	7.1
18	8.7	8.6	8.7	8.5	8.7	10.1	8.8	9.5	9.3	9.3	8.3	7.1
19	8.7	8.6	8.7	8.3	8.7	10.1	8.8	9.5	9.3	9.0	8.3	7.3
20	8.7	8.6	8.5	8.3	8.7	9.9	8.8	9.5	9.3	8.8	8.3	7.3
21	8.5	8.6	8.3	8.3	8.8	8.8	8.8	9.5	9.3	8.8	8.3	7.1
22	8.5	8.6	8.5	8.3	8.8	8.8	8.8	9.5	9.3	8.8	8.5	6.9
23	8.5	8.6	8.5	8.3	8.7	8.8	8.8	9.5	9.0	8.8	8.5	6.9
24	8.7	8.6	8.3	8.3	8.7	8.8	8.8	9.5	9.0	8.8	8.5	7.1
25	8.7	8.6	8.5	8.3	8.8	8.8	8.8	9.5	9.0	8.8	8.3	7.1
26	8.7	8.6	8.5	8.3	8.8	8.8	8.8	9.5	9.3	8.8	8.3	7.1
27	8.7	8.6	8.5	8.3	8.8	9.0	8.8	9.7	9.3	8.8	8.3	7.1
28	8.7	8.6	8.5	8.3	8.8	9.0	9.0	9.5	9.0	8.8	8.3	7.3
29	8.7	8.6	8.5	8.3	8.7	9.0	9.0	-	9.0	8.8	8.3	7.3
30	8.5	8.6	8.5	8.3	8.5	9.0	9.0	-	9.3	8.8	8.3	7.1
31	8.7	8.6	-	8.5	-	9.0	9.0	-	9.0	-	8.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.0	8.5	8.72	13.5	270	830
August	8.8	8.6	8.64	13.4	268	822
September	8.7	8.3	8.55	13.2	256	787
October	8.7	8.3	8.42	13.0	261	801
November	8.8	8.3	8.69	13.4	261	800
December	10.1	8.3	8.83	13.7	274	840
Calendar year 1937	10.1	8.3	8.93	13.8	3,260	10,000
January	9.0	8.8	8.90	13.8	276	846
February	9.7	9.0	9.44	14.6	264	811
March	9.5	9.0	9.29	14.4	288	884
April	9.3	8.8	9.02	14.0	271	831
May	8.8	8.3	8.50	13.2	263	808
June	8.5	6.9	7.75	12.0	232	713
Fiscal year 1937-38	10.1	6.9	8.72	13.5	3,180	9,770

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 1938.

Extremes.- Not determined because extremes at gaging station site are caused by changes in tidal backwater.

Remarks.- Records excellent. Discharge for periods of missing gage heights, Mar. 25-28, Apr. 12 to May 7, June 7-15, computed on basis of records for all other stations on Pearl Harbor Springs. 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.9	8.1	2.2	18.7	2.4	27
2.0	11.3	2.3	23		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.9	22	15.6	14.9	15.6	16.0	22.5	22.5	19.9	23.5	23.5	18.0
2	15.3	18.7	14.2	17.2	15.6	16.0	22.5	23	19.9	23	23.5	22.5
3	16.8	17.6	16.0	18.7	15.6	13.8	22.5	23	19.5	23.5	23.5	22.5
4	21.5	18.4	18.7	14.5	15.6	18.0	22.5	23	19.5	23.5	23.5	23
5	19.9	22	22	14.5	21.5	19.5	18.4	23	19.9	19.1	19.1	23
6	15.3	22	22	14.2	21	14.2	17.6	23.5	23.5	20.5	18.7	18.7
7	14.9	22	16.4	16.0	21	15.6	15.6	23	20.5	23	20.5	18.7
8	14.9	22	15.6	15.6	21.5	16.0	17.6	22.5	23.5	19.1	21.5	18.7
9	14.9	16.4	18.0	18.0	21.5	14.5	22.5	23	23.5	21	18.7	18.7
10	16.0	16.0	18.0	19.1	21.5	16.0	18.0	23	21.5	23.5	21	18.7
11	21	16.0	16.0	14.9	21.5	16.0	15.6	23.5	21.5	23.5	19.1	19.5
12	16.0	16.0	21.5	14.9	21.5	22	17.6	23.5	21	23.5	17.6	22.5
13	16.4	16.0	18.0	14.5	21.5	21.5	15.6	24	23.5	23.5	19.9	18.0
14	14.9	18.0	16.8	15.3	21.5	21.5	16.0	24	22	23.5	19.9	18.0
15	14.9	19.5	16.8	16.8	22	22	17.6	24	19.5	23.5	23.5	18.0
16	14.9	14.5	16.0	16.4	20.5	22	21.5	24.5	19.5	23.5	19.5	18.7
17	16.8	16.8	15.6	20.5	14.9	22	16.4	25	20.5	23.5	20.5	18.4
18	19.5	17.2	16.0	13.8	16.0	22	16.4	25	21	18.7	17.2	18.7
19	14.9	15.6	20.5	15.6	16.8	22	16.0	25	23.5	18.0	17.2	21.5
20	15.6	14.9	14.5	16.8	19.1	16.8	16.0	25	24	18.7	17.6	17.2
21	16.8	16.4	14.5	14.2	19.5	14.9	16.4	25	22.5	18.7	22	17.6
22	16.0	19.5	16.0	16.8	14.2	16.4	17.6	20.5	22	18.0	22.5	17.6
23	15.3	14.2	16.0	14.2	15.3	16.8	21.5	20.5	19.9	18.7	18.7	16.8
24	16.8	14.5	15.6	20.5	15.3	16.4	19.9	20.5	20.5	23.5	18.0	17.2
25	21.5	14.9	16.0	16.0	21	22	19.5	20.5	22	18.0	18.4	18.4
26	15.6	16.0	19.5	15.6	17.2	23	18.0	24	22	18.0	18.0	21.5
27	16.0	16.4	14.5	16.8	16.4	22	15.6	24	23.5	19.5	18.4	18.0
28	18.4	16.0	16.8	14.9	21.5	22	17.6	20.5	23.5	18.7	19.1	16.4
29	21.5	20.5	17.6	14.9	16.4	22.5	23	-	23.5	18.0	22.5	16.4
30	22	14.9	16.0	14.5	14.5	22.5	23	-	23.5	23.5	18.7	16.4
31	22	15.3	-	20.5	-	22.5	22.5	-	23.5	-	18.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	22	14.9	17.1	26.5	531	1,630
August	22	14.2	17.4	26.9	540	1,660
September	22	14.2	17.0	26.3	511	1,570
October	20.5	13.8	16.2	25.1	501	1,540
November	22	14.2	18.6	28.8	557	1,710
December	23	13.8	19.0	29.4	588	1,810
Calendar year 1937	24.5	13.8	18.8	29.1	6,860	21,070
January	23	15.6	18.8	29.1	583	1,790
February	25	20.5	23.2	35.9	648	1,990
March	24	19.5	21.7	33.6	674	2,070
April	23.5	18.0	21.1	32.6	634	1,950
May	23.5	17.2	20.0	30.9	620	1,900
June	23	16.4	19.0	29.4	569	1,750
Fiscal year 1937-38	25	13.8	19.1	29.6	6,960	21,370

Moanalua Stream near Honolulu

Location.- Sharp-crested weir and orifice control, lat. 21°23'30", long. 157°51'10", 5⅛ miles upstream from mouth and 5.6 miles north of Honolulu post office. Concrete weir control was installed Dec. 9. Zero of gage is 339.12 feet above mean sea level.
Drainage area.- 3.2 square miles.
Records available.- June 1926 to June 1938.
Average discharge.- 12 years (1926-38), 2.72 million gallons a day (4.21 second-feet).
Extremes.- Maximum discharge during year, 690 million gallons a day (1,070 second-feet) Apr. 9 (gage height, 6.10 feet), from rating curve extended above 62 million gallons a day based on weir formulas; no flow for several periods during year.
1926-38: 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 in dry weather.
Remarks.- Records good except those for period of missing gage heights, Nov. 19-23 (computed on basis of records for stations on nearby streams), and those for construction period, May 25 to June 11 (computed on basis of several daily readings of staff gage) which are poor. Continuous records of rainfall are obtained at station.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Dec. 8

0	0	0.7	1.06	1.0	5.6
.2	.19	.75	1.12	1.5	24
.4	.52	.8	1.47	2.0	53
.6	.94	.9	3.2	2.5	93

Dec. 9 to June 30

0	0	1.0	6.8
.2	.05	1.2	11.1
.4	.48	1.6	24.5
.6	1.70	2.0	45
.8	3.75	2.5	82

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0.21	0.06	0.08	0.91	0.07	4.8	10.3	0.02	1.21	0	8.8
2	0	13.9	.04	.04	12.8	.04	2.55	45	.01	.42	1.31	14.0
3	0	7.7	.02	.03	.70	.03	1.49	50	.01	.22	1.68	3.9
4	0	1.21	.01	.02	4.4	1.93	.90	4.8	0	.08	2.15	2.4
5	0	.75	0	0	12.6	.41	.58	16.3	0	.03	.45	1.7
6	0	.35	0	0	9.5	.06	.36	3.15	0	34	1.15	.74
7	0	.15	1.27	0	2.6	.03	.48	1.56	3.95	6.6	.59	.53
8	0	.06	2.0	0	3.2	.02	3.35	1.42	9.2	2.55	.06	.48
9	0	.04	.34	0	1.16	.01	1.06	1.21	1.2	63	8.4	.48
10	0	.04	.05	0	.96	.01	.28	21	1.05	46	2.3	1.97
11	0	.03	.36	0	2.1	.32	.13	12.9	.59	15.6	.53	6.6
12	0	.03	1.98	0	.88	59	.05	3.05	.12	5.7	.22	3.3
13	0	.02	.40	0	.30	3.4	.03	12.0	.39	3.8	5.8	.95
14	0	.01	.06	.85	.12	1.56	.02	3.05	6.0	3.0	3.75	3.85
15	0	.95	.03	.24	.06	4.3	.01	2.35	1.7	1.50	1.38	.90
16	0	15.9	.01	.04	.05	1.24	.01	1.21	.69	1.00	.39	.36
17	9.3	12.1	.01	.02	.04	.45	.01	.64	14.4	.58	.13	.16
18	.41	1.12	.01	.01	.02	.34	.01	.42	17.4	.34	.04	.08
19	.02	.57	0	.01	.01	.15	0	.28	15.0	.19	.03	1.31
20	.93	.22	0	0	.01	.05	0	.16	3.2	.13	23.5	.21
21	6.5	.07	0	0	0	.02	0	.09	1.35	.06	87	.03
22	1.19	.04	0	0	0	.02	0	.04	.53	.03	7.0	.02
23	.73	.04	0	0	0	32	0	.03	.28	.01	2.8	.01
24	.25	.03	0	.41	4.6	6.3	1.48	.03	.09	.01	1.7	.01
25	9.0	.02	0	1.00	79	22.5	1.78	.05	.11	.01	3.3	.02
26	1.7	.02	4.4	.04	2.4	23.5	.29	.05	.30	.01	9.3	.01
27	4.9	.01	9.4	.01	1.47	5.8	7.2	.03	35.5	.01	4.2	.01
28	1.56	.48	24.5	.01	.90	2.55	33	.02	11.4	0	1.96	.01
29	4.5	.34	.98	0	.42	51	7.4	-	6.9	0	2.05	0
30	.94	3.8	.36	0	.16	44	8.6	-	8.1	0	3.7	0
31	.38	.51	-	0	-	12.4	2.55	-	3.5	-	1.87	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.3	0	1.36	2.10	42.3	130
August	15.9	.01	1.96	3.03	60.7	186
September	24.5	0	1.54	2.38	46.3	142
October	1.00	0	.091	.141	2.81	8.6
November	79	0	4.71	7.29	141	434
December	59	.01	8.82	13.6	274	839
Calendar year 1937	95	0	4.11	6.36	1,500	4,600
January	33	0	2.53	3.91	78.4	241
February	50	.02	6.83	10.6	191	587
March	35.5	0	4.61	7.13	143	439
April	63	0	6.20	9.59	186	571
May	87	0	5.77	8.93	179	549
June	14.0	0	1.76	2.72	52.8	162
Fiscal year 1937-38	87	0	3.83	5.93	1,400	4,290

220672 O—40—4

Kalihi Stream near Honolulu

Location.- Lat. 21°22'10", long. 157°50'25", at Kioi Pool, three-eights 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 1938.
Average discharge.- 21 years (1916-20, 1921-38), 5.23 million gallons a day (8.09 second-feet).
Extremes.- Maximum discharge during year, 832 million gallons a day (1,290 second-feet) Sept. 28 (gage height, 8.84 feet), from rating curve extended above 220 million gallons a day (2.12 second-feet) July 2.
1913-38: 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. 24, Nov. 27 to Dec. 1, 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.46	3.3	2.2	3.0	5.3	2.3	10.6	24	2.2	5.1	3.0	14.3
2	1.64	25	2.1	2.6	12.0	2.2	8.1	37	2.1	4.3	5.7	28.5
3	1.73	8.7	2.0	2.45	4.0	2.2	6.6	44	2.0	4.0	3.8	7.9
4	6.0	4.9	2.35	4.7	3.4	3.25	5.8	7.8	2.55	3.35	5.5	6.3
5	4.4	4.5	2.0	2.9	8.0	2.2	5.1	19.5	2.1	4.2	3.25	5.3
6	2.45	3.5	2.2	2.35	5.2	2.0	4.5	6.3	16.1	53	6.2	4.8
7	5.0	3.25	5.2	2.1	4.3	1.91	5.9	4.9	8.4	10.0	3.1	4.3
8	2.6	2.85	3.6	5.4	3.8	1.91	8.5	5.8	21	5.4	2.85	4.1
9	2.0	2.85	2.45	2.35	3.5	1.82	4.8	4.6	4.5	82	20.5	4.5
10	1.82	3.05	2.35	2.1	3.3	1.73	3.8	26.5	4.8	42	7.2	8.6
11	1.82	2.45	10.1	2.0	4.2	3.1	3.5	10.6	3.25	15.5	4.3	30.5
12	1.73	3.45	7.4	1.91	3.5	40	3.5	6.1	2.85	12.4	6.8	7.8
13	1.55	3.75	3.5	4.3	3.2	4.0	3.1	19.0	6.4	8.1	13.0	5.1
14	2.3	2.85	2.7	8.1	3.0	4.1	3.0	6.0	9.0	7.2	17.3	13.2
15	1.64	23	2.35	3.65	2.8	7.9	2.7	6.2	6.0	5.8	5.8	5.3
16	1.64	28	2.2	3.0	2.65	3.5	2.6	4.6	3.8	5.1	4.3	4.3
17	21	12.1	2.1	2.7	2.55	3.0	2.7	4.0	16.0	4.5	3.5	3.8
18	3.0	5.3	2.0	3.1	2.45	2.7	2.6	4.0	11.8	4.1	3.1	3.5
19	2.1	4.3	2.0	2.6	2.4	2.35	2.35	3.5	15.3	3.8	3.5	3.35
20	2.85	3.5	1.82	2.35	2.3	2.2	2.45	3.1	5.6	3.35	44	3.0
21	5.1	3.25	1.82	2.25	2.25	2.1	2.35	3.0	4.3	3.25	95	2.85
22	3.1	2.85	1.73	2.2	2.2	2.2	2.2	2.7	3.5	3.0	11.6	2.7
23	2.7	2.7	3.5	2.3	2.2	31	2.15	2.7	3.25	2.85	7.6	2.45
24	2.5	2.6	1.91	3.3	9.0	12.0	4.4	3.6	3.0	2.7	5.8	2.85
25	10.3	3.15	3.45	3.1	64	17.5	2.1	2.85	3.25	2.6	43	2.45
26	4.0	2.45	13.2	2.7	5.8	27	2.9	2.45	2.85	2.85	21.5	2.2
27	9.1	2.35	56	2.5	3.3	10.7	8.0	2.45	36.5	2.35	7.8	2.2
28	4.9	2.6	26.5	2.4	2.7	15.3	24	2.35	15.6	2.2	6.6	2.2
29	9.2	2.35	4.6	2.3	2.4	60	7.9	-	9.1	2.1	7.4	2.1
30	4.3	6.7	3.5	2.5	2.2	53	8.0	-	10.2	2.2	10.2	2.1
31	3.5	2.7	-	2.7	-	20.5	4.6	-	8.0	-	10.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	21	1.46	4.11	6.36	127	391
August	28	2.35	5.95	9.21	184	566
September	56	1.73	5.96	9.22	179	549
October	8.1	1.91	2.96	4.58	91.9	282
November	64	2.2	5.93	9.18	178	546
December	60	1.73	11.2	17.3	346	1,060
Calendar year 1937	121	1.46	7.76	12.0	2,830	8,690
January	24	2.1	5.19	8.03	161	493
February	44	2.35	9.63	14.9	270	827
March	36.5	2.0	7.91	12.2	245	753
April	82	2.1	10.3	15.9	309	949
May	95	2.85	12.7	19.6	394	1,210
June	30.5	2.1	6.42	9.93	193	591
Fiscal year 1937-38	95	1.46	7.34	11.4	2,680	8,220

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 from 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 1938.
Average discharge.- 19 years (1917-20, 1922-38), 5.89 million gallons a day (9.11 second-feet).
Extremes.- Maximum discharge during year, 333 million gallons a day (515 second-feet) Sept. 28 (gage height, 4.70 feet); minimum, 1.88 million gallons a day (2.91 second-feet) Oct. 28, 29.
1913-38: 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; minimum, 0.06 million gallons a day (0.09 second-foot) Sept. 10, 11, 1925.
Remarks.- Records excellent except those for periods of missing gage heights, Nov. 6-24, Mar. 27-29, which were computed on basis of records for stations on all other streams between the Waiomao and the Kalihi and are poor. 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.6	1.65	1.0	3.8	2.0	40
.7	2.1	1.1	4.9	2.5	72
.8	2.6	1.2	6.9		
.9	3.1	1.5	16.0		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.1	4.6	3.05	6.5	5.3	3.2	9.9	8.3	4.8	5.4	6.3	18.4
2	6.3	18.3	3.0	6.6	11.8	3.15	8.8	17.6	4.8	4.4	7.9	51
3	5.7	8.6	2.9	3.0	4.3	3.1	8.3	26.5	4.5	4.6	6.5	14.2
4	6.7	5.4	3.1	3.15	3.9	3.95	7.9	7.0	4.4	4.6	8.8	11.3
5	6.5	5.2	2.95	3.0	8.0	4.6	7.4	15.1	4.2	5.7	6.1	10.2
6	7.1	4.8	3.0	2.6	6.0	3.5	7.2	7.0	8.2	52	6.3	12.9
7	7.8	4.6	3.4	2.1	4.8	2.95	7.6	6.5	10.0	10.1	5.6	12.3
8	6.1	4.5	3.65	2.35	4.2	3.65	8.7	6.8	17.7	6.6	5.6	10.2
9	5.6	4.4	3.0	2.2	3.8	3.1	7.2	6.5	5.6	55	15.2	9.9
10	5.6	3.35	2.9	2.1	3.5	2.65	6.5	13.6	5.2	28.5	7.9	11.5
11	5.6	2.85	5.0	2.05	5.0	2.7	6.5	10.4	4.6	12.9	6.3	36
12	5.6	3.0	5.6	2.6	3.7	12.6	6.3	7.2	4.5	12.4	6.7	30.5
13	5.2	3.1	3.15	4.6	3.4	3.75	6.1	16.8	5.6	9.6	11.1	12.6
14	5.6	3.2	3.0	6.1	3.2	3.6	5.9	7.4	5.6	8.8	10.2	9.4
15	4.8	3.1	2.95	3.4	3.0	5.4	5.7	7.1	4.8	8.3	7.0	9.1
16	5.4	7.9	2.9	3.1	2.9	3.5	5.6	6.5	4.4	8.1	6.3	8.6
17	14.4	10.9	2.8	2.9	2.8	3.4	5.6	6.3	6.6	7.6	6.1	8.1
18	5.9	4.3	2.75	3.15	2.7	3.25	5.6	6.3	6.8	7.6	5.9	7.9
19	5.6	3.95	2.75	2.9	2.6	3.15	5.4	5.9	17.5	7.4	7.2	7.9
20	5.7	3.65	2.9	2.85	2.5	3.15	5.4	5.7	5.4	7.2	21.5	7.2
21	6.7	3.55	3.55	2.85	2.45	3.1	5.2	4.9	4.6	7.0	66	7.9
22	5.9	3.5	3.55	2.8	2.4	3.4	5.0	5.0	4.4	6.7	12.3	7.2
23	5.9	3.55	4.3	2.8	2.35	21.5	5.1	5.6	4.3	6.5	9.9	7.2
24	5.6	3.25	4.1	3.5	9.0	10.1	7.5	5.7	4.2	6.5	9.1	7.2
25	7.3	3.3	6.1	3.3	17.7	7.8	5.2	5.6	4.2	6.5	24	6.5
26	5.7	3.1	6.4	2.8	4.1	27	7.5	4.6	4.0	6.3	28.5	7.2
27	8.1	3.1	7.2	2.7	3.75	8.3	11.7	4.8	30	5.7	10.5	7.0
28	6.3	3.25	39.5	2.5	3.4	12.0	20	4.8	14.0	5.7	9.6	7.4
29	8.2	3.1	6.1	2.2	3.2	33	9.3	-	9.0	5.6	9.4	7.3
30	5.6	5.1	5.7	2.5	3.15	34	8.6	-	6.2	5.9	12.2	5.7
31	4.8	3.3	-	2.7	-	14.0	6.7	-	5.6	-	10.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	14.4	4.8	6.37	9.86	197	606
August	18.3	2.85	4.86	7.52	151	463
September	39.5	2.75	5.04	7.80	151	464
October	6.6	2.05	3.16	4.89	97.9	300
November	17.7	2.35	4.63	7.16	139	426
December	34	2.65	8.15	12.6	253	775
Calendar year 1937	156	2.05	10.8	16.7	3,940	12,090
January	20	5.0	7.40	11.4	229	704
February	26.5	4.6	8.41	13.0	236	723
March	30	4.0	7.27	11.2	226	692
April	55	4.4	11.0	17.0	329	1,010
May	66	5.6	11.8	18.3	366	1,120
June	51	5.7	12.3	19.0	370	1,130
Fiscal year 1937-38	66	2.05	7.52	11.6	2,740	8,410

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 1938. May 1913 to January 1921 at site 200 feet upstream.
Average discharge.- 19 years (1913-20, 1926-38), 2.94 million gallons a day (4.55 second-feet).
Extremes.- Maximum discharge during year, 374 million gallons a day (579 second-feet) Apr. 9 (gage height, 3.91 feet), from rating curve extended above 33 million gallons a day by test on model of station site; minimum, 0.51 million gallons a day (0.79 second-foot) Oct. 12.
1913-21, 1925-38: 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, 1926.
Remarks.- Records good. No diversions above station.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0	0.25	0.6	3.2	1.2	15.8
.2	.62	.8	5.6	1.4	23
.4	1.70	1.0	9.7	1.6	32

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.71	1.92	1.11	0.96	13.3	0.91	4.0	4.6	0.96	1.70	2.25	9.5
2	1.24	22.5	1.06	.91	6.8	.86	3.05	5.4	.86	1.52	3.5	29
3	1.28	7.6	1.01	.86	2.35	.82	2.5	13.9	.82	1.75	2.4	5.8
4	4.6	4.5	3.1	1.73	1.99	1.01	2.15	2.8	.86	1.35	4.9	3.8
5	3.35	4.2	1.29	2.45	3.7	.77	1.92	8.8	1.14	2.4	2.15	2.9
6	4.9	2.7	1.60	.96	2.85	.72	1.7	2.6	3.8	21	2.35	2.5
7	3.35	2.6	6.2	.77	2.25	.72	2.65	2.0	6.0	6.2	1.55	2.3
8	1.70	1.92	4.8	2.2	1.64	.67	3.1	2.8	8.6	2.9	1.11	2.4
9	1.29	2.05	2.25	.82	1.70	.67	1.70	2.15	2.5	29.5	8.2	2.95
10	1.11	4.0	1.52	.72	1.58	.67	1.40	4.4	2.25	20	3.95	10.7
11	1.11	1.85	7.9	.67	2.4	.62	1.29	3.65	1.52	6.3	2.1	20.5
12	1.17	2.45	6.3	.58	1.40	11.4	1.23	1.92	1.80	7.2	5.1	6.2
13	.86	3.0	2.5	10.7	1.17	1.78	1.11	6.3	3.85	4.5	7.8	3.4
14	.86	3.15	1.70	6.3	1.11	3.25	1.01	2.15	4.3	4.6	3.6	3.7
15	.86	7.7	1.52	2.55	1.06	5.3	.96	2.35	3.4	3.0	2.15	2.7
16	1.13	6.7	1.46	1.70	1.01	2.1	.91	1.52	2.4	2.5	1.78	2.2
17	15.3	10.8	1.29	1.40	1.01	1.58	.96	1.35	4.4	2.15	1.64	2.1
18	2.3	2.8	1.11	1.40	1.01	1.35	.96	1.52	5.9	1.85	1.46	2.0
19	1.46	2.15	1.84	1.11	.96	1.06	.82	1.35	8.5	1.70	2.1	1.64
20	2.05	1.92	1.06	1.01	.96	1.01	1.62	1.23	3.5	1.52	9.9	1.46
21	3.3	1.78	.91	1.01	1.01	.91	1.36	1.11	2.5	1.40	28.5	1.35
22	3.2	1.58	1.01	1.01	.82	.98	.91	1.06	2.1	1.35	4.2	1.23
23	2.55	1.46	1.36	1.68	.77	12.5	.77	1.06	2.15	1.40	2.7	1.23
24	1.70	1.40	.91	2.05	8.6	3.1	2.45	1.28	1.64	1.17	2.3	1.40
25	5.4	2.5	1.64	1.37	7.2	2.15	.86	1.29	1.64	1.06	25.5	1.17
26	2.4	1.35	4.1	.91	2.1	18.8	2.85	1.06	1.40	1.58	13.4	1.06
27	3.9	1.29	8.0	.86	1.70	4.2	7.3	1.01	14.8	1.01	4.1	1.06
28	2.2	2.25	2.0	.77	1.23	4.2	10.3	1.01	6.0	.91	4.0	1.35
29	5.9	1.40	1.11	.77	1.06	15.6	4.5	-	3.3	.91	5.7	1.29
30	2.2	2.55	.96	.82	.96	20	3.05	-	2.3	1.11	7.4	1.63
31	1.78	1.35	-	.96	-	7.4	2.55	-	1.92	-	4.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.3	0.71	2.75	4.25	86.2	261
August	22.5	1.29	3.72	5.76	115	354
September	8.0	.91	2.42	3.74	72.6	223
October	10.7	.58	1.68	2.60	52.0	160
November	13.3	.77	2.52	3.90	75.7	232
December	20	.62	4.10	6.34	127	390
Calendar year 1937	40	.58	3.63	5.62	1,320	4,060
January	10.3	.77	2.32	3.59	71.9	221
February	13.9	1.01	2.92	4.52	81.7	251
March	14.8	.82	3.46	5.35	107	329
April	29.5	.91	4.52	6.99	136	416
May	28.5	1.11	5.54	8.57	172	527
June	29	1.06	4.35	6.73	131	401
Fiscal year 1937-38	29.5	.58	3.36	5.20	1,230	3,760

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 1938.
Average discharge.- 19 years (1913-20, 1926-38), 3.10 million gallons a day (4.80 second-feet).
Extremes.- Maximum discharge during year, 281 million gallons a day (435 second-feet) Dec. 23 (gage height, 3.96 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 1.93 million gallons a day (2.99 second-feet) Dec. 10.
1913-21, 1925-38: 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 except those for periods of missing gage heights, July 11-30, Mar. 25, May 21 to June 21, which were computed on basis of records for station on West Branch of Manoa Stream and are poor. 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 1937-38 (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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.15	3.75	3.1	2.65	12.9	2.25	5.4	5.2	2.5	4.5	4.4	12.5
2	3.8	13.1	3.1	2.65	7.5	2.15	4.5	5.8	2.4	3.95	5.4	29
3	3.5	7.1	2.9	2.65	4.0	2.15	4.1	11.S	2.5	3.85	4.4	8.5
4	5.7	5.1	7.0	3.0	3.85	2.15	3.95	3.85	2.55	3.45	6.1	6.0
5	5.0	4.9	3.1	3.7	4.7	2.1	3.65	7.9	2.8	4.6	4.0	5.2
6	4.2	3.95	3.75	2.75	4.5	2.1	3.55	3.65	12.4	22	4.9	4.5
7	4.0	4.4	9.2	2.65	3.55	2.0	4.9	3.2	10.1	6.6	3.75	4.2
8	3.35	3.55	6.5	4.4	3.45	2.0	5.3	3.65	13.1	4.7	3.75	4.3
9	3.1	3.65	3.95	2.75	3.55	2.0	3.75	3.35	4.5	27.5	14.6	5.0
10	3.0	4.6	3.85	2.65	3.2	2.0	3.55	4.5	4.9	21.5	6.2	13.0
11	2.9	3.45	11.1	2.65	3.2	2.0	3.45	4.2	3.65	S.8	4.4	20
12	2.9	4.1	7.0	2.65	2.75	9.5	3.55	3.3	4.5	10.0	7.5	8.0
13	2.9	4.8	4.3	10.1	2.55	2.55	3.45	6.0	5.8	6.6	10.3	6.0
14	2.9	3.8	3.95	7.0	2.4	4.2	3.35	3.45	6.0	6.1	6.0	6.0
15	2.9	9.1	3.75	3.9	2.35	5.7	3.3	3.3	6,1	4.3	4.7	5.5
16	3.5	10.4	3.65	3.2	2.35	2.75	3.2	3.0	5.2	4.1	4.2	5.1
17	15.0	7.3	3.35	3.0	2.25	2.65	3.3	2.85	7.3	4.0	3.95	4.8
18	6.0	4.3	3.3	2.9	2.25	2.55	3.2	3.1	8.8	3.95	3.65	4.5
19	4.0	3.85	3.7	2.75	2.25	2.25	2.85	2.S5	9.2	3.85	4.3	4.3
20	4.5	3.55	*3.35	2.65	2.35	2.35	3.3	2.75	6.2	3.85	*16.8	4.2
21	6.0	3.45	*3.2	2.75	2.5	2.15	2.75	2.65	5.3	3.75	28	4.1
22	5.5	3.2	*3.2	3.2	2.25	2.15	2.55	2.65	5.0	3.75	8.0	4.0
23	4.2	3.2	*3.35	5.4	2.15	10.9	2.5	2.65	4.9	3.85	5.5	4.0
24	4.0	3.45	2.9	5.8	8.1	4.3	3.4	2.75	*4.6	3.55	5.0	4.0
25	7.5	4.2	3.2	4.1	5.6	3.55	2.4	2.65	4.3	3.65	25	3.95
26	4.5	3.2	5.1	2.85	2.65	12.5	3.2	2.5	*4.2	4.0	13.5	3.85
27	5.5	3.0	4.9	2.75	2.65	5.0	4.8	2.5	17.6	3.45	6.0	3.85
28	4.3	4.7	3.7	2.75	2.4	5.5	7.0	2.55	8.1	3.45	5.5	3.95
29	8.0	3.3	2.85	2.65	2.25	16.9	5.8	-	6.9	3.45	S.0	3.95
30	4.5	5.2	2.65	2.65	2.25	19.9	4.4	-	4.8	3.85	10.0	4.1
31	3.95	3.3	-	3.1	-	8.3	3.65	-	4.9	-	6.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.0	2.9	4.65	7.19	144	443
August	13.1	3.0	4.80	7.43	149	457
September	11.1	2.65	4.30	6.65	129	396
October	10.1	2.65	3.50	5.42	109	333
November	12.9	2.15	3.62	5.60	109	334
December	19.9	2.0	4.79	7.41	149	456
Calendar year 1937	30	2.0	4.98	7.71	1,820	5,580
January	7.0	2.4	3.81	5.89	118	362
February	11.8	2.5	3.88	6.00	109	333
March	17.6	2.4	6.16	9.53	191	586
April	27.5	3.45	6.50	10.1	195	598
May	28	3.65	7.86	12.2	244	748
June	29	3.85	6.68	10.3	200	615
Fiscal year 1937-38	29	2.0	5.05	7.81	1,850	5,660

*Partly estimated.

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 northeast 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 June 1938.

Average discharge.- 12 years (1926-38), 0.675 million gallons a day (1.04 second-feet).

Extremes.- Maximum discharge during year, 4.0 million gallons a day (6.2 second-feet) Aug. 2 (gage height, 0.85 feet); minimum, 0.03 million gallons a day (0.05 second-foot) Jan. 16-19.

1915-16, 1918-21, 1925-38: 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.

Remarks.- Records poor. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.11	0.04	0.10	0.06	0.18	0.13	0.15	0.08	0.10	0.04	0.10	0.06
2	.10	.50	.08	.06	.13	.13	.10	.10	.10	.08	.10	.25
3	.10	.20	.08	.06	.06	.13	.05	.22	.08	.11	.10	.08
4	.17	.06	.15	.06	.06	.13	.05	.10	.08	.11	.11	.05
5	.15	.06	.08	.06	.06	.13	.05	.13	.10	.13	.10	.05
6	.13	.05	.08	.06	.06	.13	.05	.10	.21	.38	.11	.05
7	.13	.05	.29	.06	.06	.13	.06	.11	.17	.10	.10	.05
8	.11	.05	.17	.06	.06	.13	.06	.11	.34	.05	.08	.05
9	.11	.05	.08	.06	.06	.11	.05	.10	.08	.37	.22	.05
10	.11	.05	.06	.05	.13	.11	.05	.13	.05	.51	.11	.10
11	.11	.04	.20	.05	.19	.10	.05	.13	.05	.15	.08	.19
12	.10	.04	.13	.05	.19	.33	.05	.11	.05	.17	.12	.10
13	.10	.09	.06	.11	.17	.15	.05	.17	.06	.10	.12	.05
14	.10	.17	.06	.10	.17	.19	.05	.13	.05	.10	.08	.05
15	.08	.34	.13	.06	.17	.27	.05	.13	.05	.08	.05	.05
16	.11	.27	.13	.05	.17	.15	.04	.13	.04	.06	.05	.05
17	.21	.30	.13	.05	.17	.13	.03	.11	.06	.05	.05	.06
18	.06	.19	.13	.06	.17	.15	.03	.13	.08	.05	.05	.05
19	.05	.17	.13	.06	.17	.13	.11	.11	.11	.05	.05	.05
20	.05	.17	.11	.05	.17	.13	.21	.11	.05	.05	.13	.05
21	.06	.17	.11	.06	.19	.11	.19	.11	.04	.05	.60	.05
22	.05	.15	.11	.05	.17	.11	.19	.11	.04	.06	.10	.05
23	.05	.15	.11	.06	.15	.23	.19	.10	.04	.10	.06	.05
24	.05	.13	.10	.06	.39	.10	.19	.10	.04	.10	.05	.05
25	.07	.15	.10	.06	.30	.08	.17	.10	.04	.08	.27	.05
26	.05	.13	.11	.06	.15	.56	.17	.10	.04	.10	.25	.05
27	.06	.11	.10	.06	.15	.17	.19	.10	.14	.08	.06	.05
28	.05	.13	.08	.06	.13	.11	.21	.10	.06	.08	.06	.05
29	.09	.11	.08	.06	.13	.53	.11	-	.06	.08	.05	.05
30	.04	.13	.08	.06	.13	.64	.10	-	.05	.08	.05	.05
31	.04	.11	-	.06	-	.27	.06	-	.04	-	.05	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	0.21	0.04	0.090	0.139	2.80	8.6
August	.34	.04	.141	.218	4.36	13
September	.29	.06	.112	.173	3.36	10
October	.11	.05	.061	.094	1.88	5.8
November	.39	.06	.150	.232	4.49	14
December	.64	.08	.190	.294	5.90	18
Calendar year 1937	1.48	.04	.170	.263	62.0	189
January	.21	.03	.100	.155	3.11	9.5
February	.22	.08	.116	.179	3.26	10
March	.34	.04	.081	.125	2.50	7.7
April	.51	.04	.118	.183	3.55	11
May	.60	.05	.113	.175	3.51	11
June	.25	.05	.066	.102	1.99	6.1
Fiscal year 1937-38	.64	.03	.112	.173	40.7	125

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 1938. April 1912 to September 1913, at site upstream from present site and just downstream from Mahoe Springs.
Average discharge.- 12 years (1926-38), 1.63 million gallons a day (2.52 second-feet).
Extremes.- Maximum discharge during year, 336 million gallons a day (520 second-feet) Apr. 9 (gage height, 4.71 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.24 million gallons a day (0.37 second-foot) Dec. 11.
1912-13, 1926-38: 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 except those for periods of faulty gage heights, Sept. 20-23, Oct. 19 to Nov. 1, June 29, 30, which were computed on basis of records for stations on all other streams between the Waiomao and Kalihi and are poor. A 2-inch pipe diverts water from stream above station.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.08	1.5	2.7	2.2	19.0
1.1	.28	1.6	3.9	2.4	27
1.2	.60	1.7	5.5	2.6	36
1.3	1.10	1.8	7.4	2.8	48
1.4	1.76	2.0	12.5	3.0	60

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.50	0.70	0.57	0.41	5.5	0.38	2.7	1.23	0.60	1.17	0.85	2.7
2	.50	6.8	.57	.41	2.1	.38	1.85	1.56	.57	1.00	1.05	12.1
3	.50	3.45	.57	.41	.75	.34	1.50	11.8	.57	1.05	1.06	2.5
4	.87	1.17	1.54	.41	.57	.31	1.36	1.43	.54	1.00	2.15	1.76
5	1.20	1.82	.57	.51	.57	.28	1.30	12.2	.54	1.62	1.30	1.50
6	.47	.90	.54	.38	.75	.28	1.23	1.85	3.95	34.5	1.16	1.43
7	.76	.90	3.1	.38	.60	.28	1.23	1.30	3.1	5.2	.95	1.36
8	.47	.85	2.8	.44	.60	.26	2.45	1.17	8.5	2.25	.95	1.30
9	.47	.85	1.00	.38	.78	.26	1.17	1.10	1.63	1.00	2.15	1.69
10	.47	.95	.75	.34	.65	.26	1.05	1.23	1.37	18.0	3.95	7.4
11	.47	.80	3.3	.34	.83	.26	.95	1.23	.90	4.4	1.50	13.8
12	.44	.80	2.9	.34	.65	5.5	.90	1.05	.80	5.3	3.95	3.8
13	*.44	.75	1.00	4.3	.65	.57	.85	3.55	1.67	3.45	3.7	1.85
14	*.44	1.01	.85	3.85	.60	.56	.85	1.43	1.23	2.9	2.05	1.63
15	*.44	1.77	.85	.90	.54	2.55	.80	3.55	1.05	1.95	1.36	1.43
16	.44	3.1	.85	.44	.50	.65	.75	1.23	.95	1.69	1.10	1.23
17	3.65	7.4	.85	*.41	.50	.50	.70	1.00	2.3	1.50	1.05	1.23
18	.50	1.17	.85	*.41	.47	.60	.65	.95	3.75	1.43	1.00	1.17
19	.47	.80	*.80	.37	.41	.54	.60	.95	4.3	1.36	1.05	1.10
20	.47	.75	.72	.40	.38	.54	.57	.90	1.69	1.30	11.6	1.05
21	.77	.96	.66	1.00	.38	.50	.57	.85	1.17	1.30	49	1.00
22	.50	.80	.60	2.0	.34	.50	.54	.85	1.05	1.23	5.6	.96
23	.50	.75	.55	4.2	.34	12.2	.54	.80	1.05	1.17	3.05	1.04
24	.47	.75	*.50	3.5	1.21	5.2	1.04	.75	1.05	1.10	2.3	.85
25	.86	1.49	.50	1.70	1.16	1.63	.47	.70	1.00	1.05	17.2	.85
26	.50	.75	.47	.70	.38	19.2	.50	.65	1.00	1.00	10.3	.80
27	4.0	.70	.44	.42	.38	3.2	1.23	.60	15.8	1.00	2.5	.70
28	1.42	.70	.44	.40	.38	1.97	5.7	.60	4.0	.95	2.65	.70
29	3.2	.65	.44	.39	.38	24	3.0	-	2.65	.95	2.7	.72
30	1.05	1.45	.44	.38	.38	24	1.95	-	1.36	.90	2.75	.76
31	.70	.65	-	.80	-	5.7	1.00	-	1.67	-	2.15	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	4.0	0.44	0.901	1.39	27.9	86
August	7.4	.65	1.50	2.32	46.4	142
September	3.3	.44	1.00	1.55	30.0	92
October	4.3	.34	1.01	1.56	31.3	96
November	5.5	.34	.791	1.22	23.7	73
December	24	.26	3.66	5.66	113	348
Calendar year 1937	43	.26	2.31	3.57	841	2,590
January	5.7	.47	1.29	2.00	40.0	123
February	12.2	.60	2.02	3.13	56.5	173
March	15.8	.54	2.32	3.59	71.8	220
April	34.5	.90	4.21	6.51	126	387
May	49	.85	5.08	7.86	158	484
June	13.8	.70	2.35	3.64	70.4	216
Fiscal year 1937-38	49	.26	2.18	3.37	795	2,440

*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 1938. April 1911 to December 1912, at highway bridge downstream from present site.
Average discharge.- 12 years (1926-38), 1.36 million gallons a day (2.10 second-feet).
Extremes.- Maximum discharge during year, 208 million gallons a day (322 second-feet) June 11 (gage height, 4.49 feet), from rating curve extended above 45 million gallons a day by test on model of station site; minimum, 0.07 million gallons a day (0.11 second-foot) Dec. 11.
1911-12, 1926-38: Maximum discharge, 461 million gallons a day (713 second-feet) Apr. 11, 1930 (gage height, 6.27 feet), from rating curve extended above 10 million gallons a day by weir formulas; no flow in extremely dry weather.
Remarks.- Records excellent except those for period of construction, May 11-22, (computed on basis of daily gage readings), which are fair, and those for periods when clock was not running, Dec. 24-27, Jan. 11-21, Feb. 16 to Mar. 27, Mar. 30 to Apr. 7, Apr. 9-28, Apr. 30 to May 9 (computed on basis of records for stations on all streams between the Pukele and the Kalihi), which are poor. Board of Water Supply diverts ground water from tunnels in drainage area.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.0	0.01	1.5	1.83	2.2	15.5
1.1	.10	1.6	2.7	2.4	24
1.2	.30	1.7	3.85	2.6	33.5
1.3	.63	1.8	5.3	2.8	44
1.4	1.15	2.0	9.4	3.0	55

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.10	0.73	0.33	0.10	5.1	0.18	2.1	1.41	0.17	0.70	0.23	1.56
2	.16	4.5	.28	.09	2.9	.16	1.29	1.87	.16	.50	.35	11.2
3	.18	3.1	.24	.09	1.27	.12	.89	12.4	.16	.40	.35	1.84
4	.89	1.10	.99	.14	.84	.42	.60	1.58	.16	.40	1.80	1.05
5	1.33	1.72	.40	.48	.79	.56	.46	14.3	.16	1.60	1.20	.73
6	.59	.73	.40	.22	.73	.16	.37	2.05	3.5	35	.65	.56
7	1.08	.71	2.3	.14	.63	.12	.63	1.10	3.5	5.0	.30	.50
8	.76	.46	3.4	.62	.46	.12	1.74	.94	9.0	*1.68	.30	.46
9	.52	.40	.94	.26	.78	.12	.91	.89	2.0	24	16.0	1.09
10	.28	.75	.68	.14	.46	.09	.43	.79	1.40	24	*3.7	4.9
11	.22	.40	2.7	.10	.79	.08	.35	.89	.50	10.0	1.2	22
12	.20	.55	2.55	.08	.43	11.8	.30	.56	.37	5.0	4.0	3.65
13	.16	.59	.73	3.75	.28	1.58	.25	3.65	1.40	3.5	3.7	1.42
14	.14	.96	.50	3.15	.24	1.34	.21	1.22	1.20	2.2	2.0	1.35
15	.12	1.67	.37	1.42	.20	4.3	.18	*7.2	.50	1.5	.84	.94
16	.18	3.5	.30	.56	.18	1.15	.16	1.3	.40	1.2	.53	.63
17	3.15	6.7	.28	.40	.16	.66	.15	.70	2.3	.90	.46	.53
18	.92	1.19	.22	.37	.14	.88	.14	.50	4.0	.70	.46	.46
19	.40	.68	.28	.28	.12	.46	.13	.42	4.0	.55	.84	.43
20	.33	.50	.24	.34	.10	.40	.10	.36	1.70	.45	10.0	.37
21	.76	1.09	.20	.80	.24	.33	.12	.32	1.00	.38	48	.28
22	.46	.50	.16	1.43	.18	.28	*.12	.29	.70	.33	5.6	.26
23	.30	.40	.18	4.0	.10	17.9	.10	.26	.58	.29	1.92	.43
24	.24	.30	.16	3.85	1.18	5.0	.96	.24	.50	.25	1.35	.28
25	.85	1.33	.16	2.25	1.50	2.0	.24	.22	.44	.22	14.2	.28
26	.53	.43	.37	.84	.50	19.0	.25	.20	.40	.20	8.4	.22
27	6.6	.30	.18	.50	.56	3.5	.73	.19	15.0	.18	1.86	.20
28	2.45	.46	.25	.37	.33	2.2	4.8	.18	*4.2	.17	1.90	.18
29	3.5	.42	.14	.30	.24	23	3.25	-	*3.0	*.16	2.0	.22
30	1.46	1.25	.12	.33	.18	26.5	2.7	-	1.80	.18	1.87	.29
31	.89	.80	-	.52	-	5.3	1.35	-	1.20	-	1.15	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.6	0.10	0.960	1.49	29.8	91
August	6.7	.30	1.23	1.90	38.2	117
September	3.4	.12	.668	1.03	20.0	62
October	4.0	.08	.901	1.39	27.9	86
November	5.1	.10	.720	1.11	21.6	66
December	26.5	.08	4.18	6.47	130	398
Calendar year 1937	63	.08	2.10	3.25	766	2,350
January	4.8	.10	.840	1.30	26.0	80
February	14.3	.18	2.00	3.09	56.0	172
March	15.0	.16	2.11	3.26	65.4	201
April	35	.16	4.06	6.28	122	374
May	48	.23	4.42	6.84	137	421
June	22	.18	1.94	3.00	58.3	179
Fiscal year 1937-38	48	.08	2.01	3.11	732	2,250

*Partly estimated.

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. 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 1938.

Extremes.- Maximum discharge during year, 290 million gallons a day (449 second-feet) Sept. 27 (gage height, 5.47 feet), from rating curve extended above 5 million gallons a day; minimum, 3.85 million gallons a day (5.96 second-feet) Apr. 2-5, 7, 8.
1935-38: Maximum discharge, that of Sept. 27, 1937; 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, Jan. 3-9, May 18-20, 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 table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.3	2.65	0.6	8.0	1.2	24
.4	4.2	.7	10.2		
.5	6.0	.9	15.3		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.7	4.3	4.5	4.2	5.2	4.2	4.3	8.6	4.3	4.0	4.2	5.0
2	4.7	4.7	4.5	4.2	5.0	4.2	4.3	9.3	4.3	3.85	4.5	5.2
3	4.7	4.5	4.5	4.2	4.0	4.3	4.3	10.0	4.3	3.85	4.2	4.7
4	4.7	4.5	4.7	4.2	4.5	4.2	4.3	5.0	4.3	3.85	4.2	4.7
5	4.5	4.5	4.5	4.3	4.3	4.2	4.3	5.6	5.1	3.85	4.2	4.7
6	4.5	4.5	4.5	4.2	5.3	4.2	4.3	4.5	6.3	6.8	4.2	4.7
7	4.7	4.4	4.5	4.2	4.2	4.2	4.3	4.5	5.2	4.0	4.0	4.7
8	4.5	4.4	4.5	4.3	4.2	4.2	4.3	4.5	4.3	3.85	4.0	4.5
9	4.5	4.4	4.5	4.2	4.2	4.2	4.3	4.5	4.0	12.4	4.6	4.5
10	4.5	4.4	4.5	4.2	4.2	4.2	4.3	4.5	4.0	11.9	4.2	5.0
11	4.5	4.4	4.7	4.2	4.2	4.5	4.3	6.4	4.0	4.7	4.0	11.1
12	4.5	4.5	4.9	4.3	4.2	13.1	4.3	5.0	4.0	4.3	4.2	4.9
13	4.4	4.5	4.5	4.5	4.2	4.5	4.5	6.0	4.0	4.3	4.0	4.2
14	4.4	4.5	4.5	4.5	4.2	4.5	4.5	4.5	4.0	4.3	5.8	4.2
15	4.3	4.5	4.4	4.3	4.2	4.5	4.5	4.3	4.0	4.2	4.2	4.2
16	4.3	6.0	4.3	4.3	4.2	4.5	4.5	4.3	4.0	4.2	4.0	4.2
17	9.4	5.7	4.3	4.4	4.2	4.5	4.5	4.3	4.3	4.2	4.0	4.2
18	4.3	4.5	4.3	4.5	4.2	4.5	4.5	4.3	4.6	4.2	4.0	4.2
19	4.2	4.5	4.3	4.3	4.2	4.5	4.5	4.3	4.3	4.2	4.0	4.2
20	4.3	4.5	4.3	4.3	4.2	4.5	4.5	4.3	4.0	4.2	5.0	4.2
21	4.5	4.5	4.3	4.3	4.2	4.5	4.5	4.3	4.0	4.2	15.6	4.2
22	4.3	4.5	4.3	4.5	4.2	4.5	4.5	4.3	4.0	4.2	4.7	4.3
23	4.2	4.5	4.5	4.7	4.2	7.4	4.5	4.3	4.0	4.2	4.5	4.2
24	4.3	4.5	4.2	5.7	4.3	4.7	4.5	4.5	4.0	4.2	4.3	4.7
25	4.5	4.5	4.3	4.5	5.7	4.8	4.5	4.5	4.0	4.2	5.7	4.3
26	4.5	4.5	9.5	4.0	4.2	4.5	4.5	4.3	4.0	4.3	5.0	4.3
27	4.9	4.5	12.1	4.0	4.2	4.2	4.5	4.3	10.0	4.2	4.5	4.3
28	4.5	4.5	9.3	4.0	4.2	4.3	7.1	4.3	6.6	4.2	4.5	4.3
29	4.4	4.5	4.3	4.0	4.2	7.2	4.5	-	4.9	4.2	4.5	4.5
30	4.3	5.7	4.2	4.0	4.2	6.1	4.9	-	5.1	4.2	5.2	4.5
31	4.3	4.5	-	4.0	-	4.9	4.5	-	4.5	-	4.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	9.4	4.2	4.62	7.15	143	440
August	6.0	4.3	4.61	7.13	143	439
September	12.1	4.2	5.02	7.77	151	462
October	5.7	4.0	4.32	6.68	134	411
November	5.7	4.0	4.36	6.75	131	401
December	13.1	4.2	4.95	7.66	153	470
Calendar year 1937	22.5	3.35	4.63	7.16	1,690	5,180
January	7.1	4.3	4.52	6.99	140	430
February	10.0	4.3	5.12	7.92	144	440
March	10.0	4.0	4.59	7.10	142	437
April	12.4	3.85	4.73	7.40	143	440
May	15.6	4.0	4.90	7.58	152	466
June	11.1	4.2	4.70	7.27	141	432
Fiscal year 1937-38	15.6	3.85	4.70	7.27	1,720	5,270

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. Zero of gage is about 193 feet above mean sea level.

Drainage area.- 1.1 square miles.

Records available.- December 1935 to June 1938.

Extremes.- Maximum discharge during year, 279 million gallons a day (432 second-feet) Apr. 9 (gage height, 4.92 feet), from rating curve computed from 20 million to 230 million gallons a day by Parshall flume formula and extended above; minimum, 6.8 million gallons a day (10.5 second-feet) Oct. 4, 6, 7, 9-12.
1935-38: Maximum discharge, that of Apr. 9, 1938; 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, Feb. 1-3, May 9-20, which were computed on basis of records for stations on Kalihi and Kahaluu Streams and are fair. No diversions above station.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.5	6.8	0.9	17.5	1.4	35.5
.6	9.1	1.0	20.5	1.6	44
.7	11.6	1.1	24		
.8	14.5	1.2	27.5		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.6	8.6	7.9	7.2	10.2	7.7	9.1	18	7.7	8.6	7.7	9.6
2	8.6	9.4	7.7	7.2	9.8	7.7	8.4	20	7.7	8.1	7.9	9.7
3	8.6	8.8	7.7	7.0	8.1	7.7	8.1	22	7.7	7.9	7.9	8.1
4	8.6	8.6	8.4	6.8	10.0	7.7	7.9	9.4	7.9	7.9	7.9	8.1
5	8.6	8.6	7.7	7.0	8.8	7.7	7.7	11.1	9.6	7.9	7.9	8.1
6	8.6	8.6	7.4	6.8	9.5	7.7	7.7	8.4	11.6	15.6	8.1	7.9
7	9.6	8.6	7.7	6.8	8.1	7.7	7.9	8.1	12.8	8.1	7.9	7.9
8	8.4	8.6	7.7	7.7	7.9	7.7	7.9	7.9	9.6	7.9	7.9	7.9
9	8.4	8.6	7.4	6.8	7.7	7.7	7.9	7.9	8.6	27.5	9.5	8.4
10	8.4	8.6	7.7	6.8	7.7	7.7	7.9	8.1	8.4	28.5	8.0	9.4
11	8.4	8.6	8.8	6.8	7.9	9.8	7.9	12.3	8.4	9.4	8.0	14.5
12	8.4	8.8	8.4	6.8	7.9	27	7.9	8.4	8.6	8.4	8.2	9.1
13	8.4	8.8	7.9	7.2	7.9	8.4	7.9	10.9	8.6	7.9	8.0	8.1
14	8.4	8.8	7.7	7.4	7.9	7.9	7.9	8.1	8.4	7.9	12	7.9
15	8.4	8.8	7.7	7.0	7.9	7.9	7.9	7.9	8.4	7.7	8.5	7.9
16	8.4	17.8	7.4	7.2	7.7	7.7	7.7	7.7	8.4	7.4	8.0	7.9
17	26	9.6	7.4	7.4	7.7	7.7	7.7	7.7	13.5	7.4	8.0	7.9
18	9.1	8.1	7.4	7.4	7.4	7.7	7.7	7.7	11.7	7.4	8.0	7.9
19	8.4	7.9	7.4	7.4	7.4	7.7	7.7	7.7	8.8	7.4	8.0	7.9
20	8.6	7.9	7.4	7.4	7.4	7.7	7.7	7.7	8.6	7.2	17	7.9
21	9.1	7.7	7.4	7.4	7.4	7.7	7.7	7.7	8.4	7.2	36.5	7.9
22	8.8	7.7	7.4	7.9	7.4	7.7	7.7	7.7	8.4	7.0	9.6	7.9
23	8.4	7.7	8.2	8.6	7.4	13.3	7.7	7.7	8.1	7.0	7.9	7.7
24	8.4	7.7	7.7	11.9	8.4	11.6	7.7	7.7	8.1	7.0	7.7	7.7
25	8.8	7.7	8.6	9.8	9.1	9.4	7.7	7.7	8.1	7.0	11.6	7.7
26	9.4	7.7	16.9	8.8	7.9	9.1	7.7	7.7	8.1	7.4	9.6	7.9
27	10.3	7.7	20.5	8.6	7.9	9.8	8.1	7.7	23	7.2	7.9	7.9
28	9.6	7.9	17.0	8.4	7.9	14.5	15.7	7.9	13.9	7.4	7.7	7.9
29	9.1	7.9	8.1	8.4	7.7	15.1	8.4	-	10.7	7.4	8.1	7.9
30	8.8	9.1	7.4	8.4	7.9	16.8	9.2	-	12.5	7.4	9.1	8.1
31	8.8	7.9	-	8.4	-	10.9	8.7	-	10.2	-	8.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	26	8.4	9.30	14.4	288	885
August	17.8	7.7	8.67	13.4	269	825
September	20.5	7.4	8.80	13.6	264	810
October	11.9	6.8	7.70	11.9	239	733
November	10.2	7.4	8.13	12.6	244	749
December	27	7.7	9.75	15.1	302	928
Calendar year 1937	60	6.2	8.94	13.8	3,260	10,010
January	15.7	7.7	8.22	12.7	255	782
February	22	7.7	9.60	14.9	269	825
March	23	7.7	9.82	15.2	304	934
April	28.5	7.0	9.27	14.3	278	853
May	36.5	7.7	9.63	14.9	298	916
June	14.5	7.7	8.36	12.9	251	769
Fiscal year 1937-38	36.5	6.8	8.94	13.8	3,260	10,010

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 1937 to June 1938

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
Sept.22	Pearl Harbor Springs.	Pacific Ocean....	At 27-inch culvert 300 feet west of Waiau railway station.	4.92	3.18
Oct. 21	....do.....	....do.....	....do.....	3.97	2.57
Nov. 30	....do.....	....do.....	....do.....	5.31	3.43
Jan. 19	....do.....	....do.....	....do.....	7.19	4.65
Feb. 8	....do.....	....do.....	....do.....	6.70	4.33
Mar. 31	....do.....	....do.....	....do.....	5.64	3.65
June 17	....do.....	....do.....	....do.....	5.49	3.55
Sept.22	....do.....	....do.....	At wooden culvert 10 feet west of Waiau railway station.	.595	.385
Oct. 21	....do.....	....do.....	....do.....	.730	.472
Nov. 30	....do.....	....do.....	....do.....	.285	.184
Jan. 19	....do.....	....do.....	....do.....	.570	.368
Feb. 8	....do.....	....do.....	....do.....	.651	.421
Mar. 31	....do.....	....do.....	....do.....	.395	.255
June 17	....do.....	....do.....	....do.....	.713	.461
Sept.22	....do.....	....do.....	At ditch levee 1,000 feet west of Puukapu gaging station.	.940	.608
Oct. 28	....do.....	....do.....	....do.....	1.05	.679
Nov. 29	....do.....	....do.....	....do.....	1.56	1.01
Jan. 19	....do.....	....do.....	....do.....	.700	.452
Feb. 8	....do.....	....do.....	....do.....	.814	.526
Mar. 31	....do.....	....do.....	....do.....	*.46	.30
May 10	....do.....	....do.....	....do.....	1.25	.808
June 18	....do.....	....do.....	....do.....	1.37	.885
Sept.22	....do.....	....do.....	New ditches about 600 feet west of Puukapu gaging station.	2.28	1.47
Oct. 28	....do.....	....do.....	....do.....	1.91	1.23
Nov. 29	....do.....	....do.....	....do.....	3.82	2.47
Jan. 19	....do.....	....do.....	....do.....	3.80	2.46
Feb. 8	....do.....	....do.....	....do.....	1.65	1.07
Mar. 31	....do.....	....do.....	....do.....	4.46	2.88
May 10	....do.....	....do.....	....do.....	1.61	1.04
June 18	....do.....	....do.....	....do.....	2.91	1.88
Sept.22	....do.....	....do.....	At discontinued gaging station at Kaluaoopu.	31.6	20.4
Oct. 21	....do.....	....do.....	....do.....	28.8	18.6
Nov. 30	....do.....	....do.....	....do.....	30.0	19.4
Jan. 19	....do.....	....do.....	....do.....	31.5	20.4
Feb. 8	....do.....	....do.....	....do.....	28.7	18.5
Mar. 31	....do.....	....do.....	....do.....	33.2	21.5
June 17	....do.....	....do.....	....do.....	14.8	9.57
Oct. 21	....do.....	....do.....	At upper end of Oahu Ry. & Land Co.'s railway bridge 15.	7.55	4.88

*Estimated.

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 area.- 4.5 square miles.
Records available.- August 1917 to July 1932, November 1937 to June 1938.
Average discharge.- 14 years (1918-32), 18.1 million gallons a day (28.0 second-feet).
Extremes. Maximum discharge during period, 1,470 million gallons a day (2,270 second-feet) Dec. 24 (gage height, 7.89 feet), from rating curve extended above 100 million gallons a day; minimum, 3.1 million gallons a day (4.8 second-feet) Dec. 9, 12.
1917-32, 1937-38: Maximum discharge recorded, 1,550 million gallons a day (2,400 second-feet) Mar. 31, 1923 (gage height, 11.65 feet), from rating curve extended above 150 million gallons a day; minimum discharge, 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 pip line diverts water about a quarter of a mile above station for domestic use of Halawa village.

Rating table, November 1937 to June 1938 (gage height, in feet, and discharge, in million gallons a day)

1.8	2.2	2.7	35.5	4.5	350
2.0	5.1	3.0	66	5.0	470
2.2	9.3	3.5	145		
2.4	16.0	4.0	245		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1					-	4.6	21.5	15.2	8.4	7.5	9.0	45
2					-	4.5	14.8	63	7.2	8.2	10.4	32
3					-	4.1	11.5	73	66	8.8	20	14.0
4					-	4.5	9.8	14	239	6.2	63	10.9
5					-	5.2	8.8	68	65	6.0	13.2	9.3
6					-	3.8	7.5	14.2	64	295	9.1	8.2
7					-	3.4	42	10.6	16.6	180	9.0	7.9
8					-	3.2	55	12.2	43	29	7.2	34
9					-	4.2	19.4	11.8	30.5	234	114	39.5
10					-	7.4	9.1	8.8	25	141	37	65
11					-	3.5	7.7	43	17.1	60	30.5	21.5
12					-	86	7.2	28.5	10.4	48	71	20.5
13					-	9.0	7.9	52	18.0	23.5	23.5	10.6
14					-	47	6.4	16.4	44	29	17.5	15.5
15					-	48	5.5	9.6	19.0	16.0	43	13.6
16					-	11.3	4.8	8.2	20	19.8	10.6	8.8
17					*5.9	8.3	4.8	7.2	28	15.4	8.6	7.7
18					5.5	11.9	5.9	16.6	39	10.4	18.3	7.7
19					5.1	13.9	5.1	14.3	24	9.1	131	22
20					4.9	13.3	28	8.4	31	8.2	289	8.4
21					32.5	6.2	29	6.4	16.4	7.2	181	6.4
22					14.0	5.1	10.0	5.8	11.5	7.0	79	5.9
23					20	44	6.4	5.1	13.0	9.3	38.5	5.1
24					74	267	119	5.3	9.8	7.7	21.5	5.5
25					33.5	73	10.2	5.2	8.8	6.8	37	4.8
26					9.3	69	17.5	6.0	7.7	6.0	74	4.5
27					7.7	34	30.5	4.3	138	5.3	16.0	4.1
28					6.2	17.5	50	3.8	26.5	4.9	35.5	5.8
29					5.5	390	32	-	11.7	4.8	21	4.5
30					4.9	255	68	-	9.8	4.5	39	5.3
31					-	41	18.3	-	8.2	-	30	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July						
August						
September						
October						
November 17-30	74	4.9	16.4	25.4	229	703
December	390	3.2	48.4	74.9	1,500	4,600
Calendar year						
January	119	4.8	21.7	33.6	674	2,070
February	73	3.8	19.2	29.7	537	1,650
March	239	7.2	34.8	53.8	1,080	3,310
April	295	4.5	40.6	62.8	1,220	3,740
May	289	7.2	48.6	75.2	1,510	4,630
June	65	4.1	15.1	23.4	454	1,390
The period						22,090

*Partly estimated.

Waiakeakua Stream near Wailau

Location.- Concrete 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 1938.

Extremes.- Maximum discharge during period, 263 million gallons a day (407 second-feet) Dec. 24 (gage height, 4.62 feet), from rating curve extended above 140 million gallons a day; minimum, 3.2 million gallons a day (5.0 second-feet) Dec. 11, 12.
1919-29, 1937-38: Maximum discharge, 710 million gallons a day (1,100 second-feet) Mar. 31, 1923 (gage height, 7.15 feet), from rating curve extended above 140 million gallons a day; minimum, 1.3 million gallons a day (2.0 second-feet) Mar. 7, 1920.

Remarks.- Records good. No diversions.

Rating table, September 1937 to June 1938 (gage height, in feet, and discharge, in million gallons a day)

1.5	2.2	2.1	16.0	3.0	75
1.7	5.1	2.3	25	3.5	124
1.9	9.6	2.6	43		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			3.9	4.4	17.9	4.4	10.7	8.9	3.9	5.1	4.6	13.3
2			9.8	6.0	17.1	4.1	8.6	10.9	3.7	4.9	5.3	11.9
3			7.6	4.4	6.4	3.9	7.7	17.6	7.0	4.8	7.7	7.4
4			7.7	7.1	5.7	3.9	6.6	7.4	28	4.2	15.7	6.6
5			5.1	12.1	9.4	3.7	5.9	19.9	14.1	4.2	6.6	5.7
6			7.1	4.8	5.7	3.6	5.5	7.4	14.3	70	5.5	5.1
7			12.9	5.1	6.2	3.4	9.3	6.6	6.8	85	4.9	5.3
8			10.7	6.8	12.0	3.4	10.2	6.6	32.5	16.0	4.9	14.6
9			6.2	4.2	6.8	3.4	6.4	5.7	19.5	56	32	14.8
10			5.5	3.9	11.0	3.3	5.3	5.5	13.4	36	20	14.8
11			15.2	3.9	17.4	3.2	4.8	18.2	8.2	24	13.1	11.0
12			13.4	3.7	7.2	16.1	4.6	11.5	6.8	20.5	16.9	9.1
13			6.8	15.4	5.9	10.2	4.8	9.3	9.8	11.6	9.1	6.8
14			5.7	14.9	5.3	14.1	4.4	6.8	15.1	10.4	7.9	8.4
15			6.8	5.7	4.8	15.5	4.2	5.7	8.4	8.4	6.6	7.0
16			5.7	6.2	4.4	6.8	4.1	5.5	9.6	7.7	5.7	5.7
17			4.8	4.9	4.2	6.3	4.2	5.3	12.9	6.8	5.3	5.3
18			4.4	4.9	4.1	5.7	4.2	7.1	14.0	6.6	4.9	5.5
19			5.7	4.1	3.7	9.0	3.9	5.5	11.4	6.2	6.7	11.8
20			4.4	3.9	3.9	6.7	22.5	4.8	13.5	5.9	25	6.2
21			4.1	4.1	11.5	4.8	11.0	4.6	8.4	5.5	29.5	5.3
22			3.9	4.1	6.3	4.6	5.9	4.6	7.0	5.3	12.6	4.9
23			3.9	7.5	5.3	19.7	5.5	4.4	6.6	5.7	9.8	4.8
24			3.9	7.3	24.5	45	16.1	4.7	5.7	5.3	7.4	4.6
25			3.9	5.6	14.2	21	6.2	5.9	5.5	5.1	19.1	4.4
26			3.9	4.1	6.8	15.9	10.3	4.2	4.9	4.8	24.5	4.2
27			3.7	3.9	5.7	9.9	9.6	4.2	28.5	4.6	8.6	4.2
28			3.4	3.9	4.9	7.7	14.7	3.9	9.8	4.4	9.2	4.2
29			3.4	3.7	4.6	78	15.2	-	6.6	4.4	11.1	3.9
30			3.6	3.4	4.6	66	9.9	-	5.9	4.4	14.5	3.9
31			-	5.5	-	17.4	7.9	-	5.3	-	10.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	15.2	3.4	6.24	9.65	187	574
October	15.4	3.4	5.79	8.96	180	551
November	24.5	3.7	8.25	12.8	248	760
December	78	3.2	13.6	21.0	421	1,290
Calendar year						
January	22.5	3.9	8.07	12.5	250	768
February	19.9	3.9	7.60	11.8	213	653
March	32.5	3.7	11.2	17.3	347	1,070
April	85	4.2	14.8	22.9	444	1,360
May	32	4.6	11.8	18.3	365	1,120
June	14.8	3.9	7.36	11.4	221	677
The period						8,820

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 Wailua, 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 1938.

Extremes.- Maximum discharge during period, 4,330 million gallons a day (6,700 second-feet) Dec. 24 (gage height, 7.91 feet), from rating curve extended above 220 million gallons a day; minimum, 4.6 million gallons a day (7.1 second-feet) Dec. 12.
1919-29, 1937-38: Maximum discharge recorded, that of Dec. 24, 1937; 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. No diversions.

Rating tables, September 1937 to June 1938 (gage height, in feet, and discharge, in million gallons a day)

Sept. 1 to Dec. 12		Dec. 13 to June 30			
0.9	3.5	0.7	9.3	2.0	65
1.1	7.0	.9	13.2	2.5	138
1.3	13.2	1.1	18.3	3.0	265
1.6	28.5	1.5	32.5	3.5	445
2.0	64				
2.5	138				

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			8.9	7.8	50	8.9	33	21	16.1	17.8	11.9	35
2			17.1	11.8	61	6.6	25.5	22	12.8	19.8	16.7	33.5
3			13.2	14.5	20.5	6.4	21.5	50	25	18.8	21	22
4			12.5	15.4	23	7.8	19.3	21	32.5	14.9	26	18.0
5			9.7	21	34	6.0	17.5	59	21.5	14.4	14.6	15.6
6			14.1	10.4	18.5	5.4	16.4	23	19.6	283	11.7	13.9
7			20.5	8.9	25	5.2	25	19.6	14.9	444	10.6	15.6
8			17.1	11.8	42	50	97	18.9	80	68	10.6	26.5
9			10.8	8.6	23.5	10.1	29.5	17.0	46	375	30	30.5
10			9.4	8.1	35.5	6.0	20	18.8	31.5	156	36	30
11			20	8.4	31.5	4.7	17.5	40	24.5	94	28	22
12			20	8.1	20	97	16.1	28	22	77	31.5	17.8
13			11.4	29	14.9	32	15.4	28	35	39.5	23.5	15.4
14			9.7	38	12.8	37	13.9	20	52	29.5	21	24
15			10.0	15.4	11.1	38	13.0	17.5	34	26.5	17.2	21
16			9.2	12.2	10.0	19.6	12.8	15.9	38	22.5	13.9	15.4
17			8.4	11.8	9.4	15.4	13.9	15.1	58	19.6	12.6	14.6
18			8.1	12.8	8.4	13.9	13.7	16.4	70	17.2	11.9	17.8
19			9.7	10.0	7.5	13.5	12.4	14.4	67	15.4	17.7	21.5
20			7.8	9.4	7.0	15.2	28	13.2	49	14.6	51	14.4
21			7.5	21	33.5	10.7	17.1	13.0	31	13.4	60	12.6
22			7.3	13.6	18.5	10.4	13.2	12.8	25.5	13.2	36	11.7
23			7.8	20	16.2	42	12.8	12.6	24.5	14.6	27.5	10.9
24			7.8	21.5	69	319	47	21.5	20.5	12.8	19.9	10.6
25			8.4	15.4	60	105	16.1	25.5	19.3	12.8	32.5	10.0
26			7.5	11.4	15.4	60	27.5	13.7	17.2	11.5	47	10.0
27			7.3	9.2	11.1	33	32	15.2	112	11.9	23	10.2
28			7.5	9.4	9.2	25.5	57	13.0	46	10.9	21	11.9
29			6.8	8.4	8.1	335	46	-	27	10.2	23.5	9.7
30			7.0	8.1	7.8	218	28	-	22	10.4	29	9.7
31			-	11.8	-	52	22.5	-	19.3	-	28.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	20.5	6.8	10.8	16.7	322	990
October	38	7.8	13.7	21.2	423	1,300
November	69	7.0	23.8	36.8	714	2,190
December	335	4.7	50.5	78.1	1,560	4,800
Calendar year						
January	97	12.4	25.2	39.0	781	2,400
February	59	12.6	21.6	33.4	606	1,860
March	112	12.8	35.9	55.5	1,110	3,420
April	444	10.2	63.0	97.5	1,890	5,800
May	60	10.6	24.7	38.2	765	2,350
June	35	9.7	17.7	27.4	532	1,630
The period						26,740

Pelekunu Stream near Pelekunu

Location.- Lat. 21°08'20", long. 156°52'50", three-quarters of a mile upstream fron 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 1938.

Extremes.- Maximum discharge during period, 574 million gallons a day (888 second-feet) Apr. 9 (gage height, 3.74 feet), from rating table extended above 80 million gallons a day; minimum, 3.3 million gallons a day (5.1 second-feet) Oct. 12.
1919-29, 1937-38: 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 except those for period when clock was not running, Apr. 3-14 (computed on basis of records for all stations on Molokai), and those above 120 million gallons a day, which are fair. No diversions.

Rating table, September 1937 to June 1938 (gage height, in feet, and discharge, in million gallons a day)

0.9	3.4	1.6	23.5	3.0	255
1.1	6.0	2.0	57		
1.3	10.6	2.5	133		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			-	3.5	19.3	6.9	22	11.6	11.7	11.6	7.2	27
2			-	4.0	23.5	5.4	15.5	10.3	8.5	12.8	15.3	29
3			-	5.4	10.1	5.4	12.6	31.5	20.5	13	15.3	16.0
4			-	6.6	10.3	7.3	11.6	12.6	21.5	10	15.6	11.9
5			-	8.3	15.8	5.0	10.1	31.5	13.2	10	7.8	10.1
6			-	4.3	9.6	4.5	8.8	14.3	10.9	200	6.4	8.5
7			-	3.8	14.2	4.3	15.9	11.9	9.0	240	5.7	8.3
8			-	4.8	28.5	4.4	22	10.6	43	40	5.7	10.6
9			-	3.7	15.5	12.7	19.9	9.6	40	120	22	11.4
10			-	3.5	19.4	5.2	12.6	17.6	31	86	23	13.6
11			-	3.5	16.2	4.3	10.3	30	21.5	70	18.0	9.3
12			-	3.4	10.6	56	9.0	16.7	16.0	40	18.6	7.2
13			-	11.1	8.3	27	8.3	18.9	24.5	21	13.6	6.6
14			-	15.1	7.0	31	7.6	13.2	36	17	12.7	9.1
15			*5.2	6.5	6.2	27	7.2	10.9	29	15.5	10.6	9.2
16			5.0	4.8	5.7	15.1	6.8	9.8	30	13.2	8.5	6.8
17			4.5	4.3	5.2	11.9	8.3	9.3	46	11.6	7.4	6.4
18			4.4	5.7	5.0	9.8	7.4	9.3	48	10.1	6.6	7.9
19			5.0	4.0	4.5	8.8	6.6	8.3	45	9.0	8.5	8.2
20			4.3	3.8	4.5	8.6	6.4	7.6	35.5	8.3	56	6.2
21			4.1	13.6	24.5	7.0	6.2	7.2	24	7.6	79	5.7
22			4.0	7.3	12.9	7.2	6.0	7.0	17.6	7.2	40	5.1
23			4.3	12.8	9.6	24.5	6.6	6.6	16.4	8.4	26	5.0
24			4.1	18.0	30.5	*54	26	16.7	12.9	6.8	17.2	4.6
25			4.0	12.4	32	35.5	8.5	20.5	11.9	6.8	18.0	4.5
26			3.8	7.4	13.6	35	16.3	8.8	10.3	6.0	28	4.5
27			3.8	5.9	9.8	20	22	11.0	38.5	6.7	15.1	4.6
28			3.7	5.4	7.8	14.7	44	8.9	51	6.0	13.2	5.7
29			3.5	4.6	6.8	*134	31.5	-	27	5.4	13.9	4.4
30			3.4	4.4	6.4	84	19.6	-	16.8	5.4	16.3	4.3
31			-	4.9	-	34	13.6	-	13.2	-	17.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September 15-30	5.2	3.4	4.19	6.48	67.1	206
October	18.0	3.4	6.67	10.3	207	635
November	32	4.5	13.1	20.3	393	1,210
December	134	4.3	22.9	35.4	710	2,180
Calendar year						
January	44	6.0	13.8	21.4	429	1,320
February	51.5	6.6	13.6	21.0	382	1,170
March	51	8.5	25.2	39.0	780	2,390
April	240	5.4	34.2	52.9	1,030	3,150
May	79	5.7	18.3	28.3	569	1,750
June	29	4.3	9.06	14.0	272	854
The period						14,840

*Partly estimated.

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 benchmark.

Drainage area.- 0.8 square mile.

Records available.- December 1919 to September 1929, September 1937 to June 1938.

Extremes.- Maximum discharge recorded during period, 1,090 million gallons a day (1,690 second-feet) Apr. 9 (gage height, 4.74 feet), from rating curve extended above 30 million gallons a day; minimum recorded, 3.6 million gallons a day (5.6 second-feet) Feb. 28.

1919-29, 1937-38: Maximum discharge, 1,250 million gallons a day (1,930 second-feet) Dec. 24, 1920 (gage height, 5.90 feet); minimum, 1.8 million gallons a day (2.8 second-feet) Nov. 10, 11, 1926.

Remarks.- Records good except those for periods of missing gage heights, Dec. 29, Jan. 17-19, 22-24, 26, 27, Feb. 2, 3, 5, 10, 11, 13 (computed on basis of records for all other stations on Molokai), and those for discharges above 50 million gallons a day, which are fair. No diversions.

Rating table, September 1937 to June 1938 (gage height, in feet, and discharge, in million gallons a day)

1.5	3.6	2.2	28	3.0	135
1.7	5.9	2.4	45	3.5	245
2.0	15.0	2.6	67	4.0	375

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			-	4.0	24.5	5.2	9.0	5.4	4.5	5.9	5.4	22.5
2			-	4.8	27	4.5	6.6	5.0	4.1	6.9	9.9	17.3
3			-	4.6	8.0	4.5	5.4	14	20.5	7.0	9.8	9.0
4			-	5.7	7.8	4.5	6.1	5.4	18.1	5.1	9.7	7.4
5			-	12.5	12.6	4.2	5.2	14	7.0	5.2	5.4	6.2
6			-	4.9	7.4	4.1	4.3	5.9	5.7	272	5.1	5.6
7			-	4.3	10.0	4.1	*10.7	5.4	4.9	323	4.8	6.2
8			-	5.1	19.2	4.0	39	5.4	70	29	4.8	11.2
9			-	4.2	10.7	5.2	11.1	4.9	27	179	41	14.0
10			-	4.1	13.8	4.2	6.6	8.0	16.1	58	29	14.5
11			-	4.1	13.5	4.0	5.7	14	9.7	46	19.8	8.0
12			-	4.0	7.6	23	5.1	6.2	9.4	27	20	6.4
13			-	7.7	6.2	20.5	4.9	7.0	16.9	10.4	10.2	5.6
14			-	16.8	5.4	36	4.6	5.4	20.5	7.8	8.2	9.3
15			-	9.3	5.1	23.5	4.5	4.9	14.8	6.6	7.6	8.3
16			*4.8	5.4	4.8	9.0	4.5	4.6	19.5	6.2	5.7	6.0
17			4.8	4.8	4.6	6.4	5.4	5.2	42	5.7	5.1	5.9
18			4.8	4.3	4.5	5.9	4.9	5.6	46	5.4	4.9	7.8
19			5.2	4.2	4.3	5.2	4.5	4.6	35	5.1	13.1	9.2
20			4.5	4.1	4.5	5.2	*4.1	4.3	19.9	4.9	88	6.0
21			4.3	4.1	32	4.6	*4.1	4.2	11.5	4.8	132	5.4
22			4.3	4.5	14.4	4.9	4.0	4.1	10.2	4.6	29.5	4.9
23			4.5	6.0	8.4	20.5	4.4	4.1	10.2	5.1	16.8	4.6
24			4.5	16.9	21.5	66	18	4.1	7.2	4.6	10.0	4.5
25			4.8	21.5	23	35	5.1	4.1	6.4	4.8	15.0	4.3
26			4.3	5.9	7.6	22.5	9.0	3.8	5.7	4.6	27.5	4.3
27			4.1	4.9	6.2	10.0	11	4.0	12.7	4.9	9.7	5.0
28			4.1	4.9	5.6	7.6	*20	3.7	10.5	4.6	6.4	5.9
29			4.0	4.5	5.1	220	10.2	-	8.4	4.3	13.5	4.3
30			4.0	4.2	5.1	156	7.8	-	6.6	4.5	14.8	4.3
31			-	6.2	-	18.8	6.0	-	5.9	-	12.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September 16-30	5.2	4.0	4.45	6.89	66.8	206
October	21.5	4.0	6.53	10.1	202	621
November	32	4.3	11.0	17.0	330	1,010
December	220	4.0	24.2	37.4	749	2,300
Calendar year						
January	39	4.0	8.12	12.6	252	773
February	14	3.7	5.98	9.25	167	513
March	70	4.1	16.7	25.8	516	1,590
April	323	4.3	35.4	54.8	1,060	3,260
May	132	4.8	19.2	29.7	596	1,830
June	22.5	4.3	7.80	12.1	234	718
The period						12,820

*Partly estimated.

Waikolu Stream below pipe-line crossing, near Kalaupapa

Location.- Sharp-crested weirs and 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 1938. June 1919 to November 1930 at site 500 feet upstream.

Extremes.- Maximum discharge during period, 2,510 million gallons a day (3,880 second-feet) Apr. 9 (gage height, 6.01 feet), from rating curve extended above 50 million gallons a day; minimum, 7.7 million gallons a day (11.9 second-feet) Oct. 20. 1919-32, 1937-38: Maximum discharge, that of Apr. 9, 1938; 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, September 1937 to June 1938 (gage height, in feet, and discharge, in million gallons a day)

Sept. 20 to Dec. 12				Dec. 13 to June 30					
2.0	7.2	3.0	43	0.7	7.2	1.7	54	3.5	435
2.2	11.0	3.5	88	.9	12.0	2.0	84	4.0	660
2.4	15.7	4.0	163	1.1	19.0	2.5	155		
2.7	26			1.3	28	3.0	270		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1			-	8.6	17.0	8.3	13.3	10.6	17.2	9.6	12.7	30
2			-	8.5	29.5	8.3	11.5	10.1	12.0	10.6	21	28.5
3			-	8.8	11.2	8.1	10.9	43	59	12.7	17.5	17.5
4			-	8.8	10.8	8.6	11.7	11.7	41	9.8	19.4	16.4
5			-	12.5	14.4	8.8	13.3	50	13.6	9.6	13.0	16.0
6			-	9.0	12.3	8.1	10.4	12.7	12.3	420	11.5	15.7
7			-	8.6	14.0	8.1	31	10.4	11.2	474	11.5	15.7
8			-	8.5	30	8.1	61	10.1	104	48	11.5	17.5
9			-	8.3	13.4	13.8	19.3	9.8	49	231	73	22.5
10			-	8.1	18.0	11.2	10.9	12.1	31	67	44	22.5
11			-	8.1	13.7	8.6	10.4	28	16.8	44	23.5	17.5
12			-	8.1	12.3	130	9.8	12.7	12.0	29	19.2	16.0
13			-	11.2	10.4	91	9.8	15.6	15.7	15.3	16.0	15.7
14			-	15.4	10.2	77	9.6	12.0	27.5	14.0	13.6	16.4
15			-	11.2	10.2	30.5	9.3	10.1	22.5	13.3	16.0	18.3
16			-	8.5	10.0	13.0	9.3	9.8	36.5	13.0	12.3	16.0
17			-	8.3	9.8	10.9	9.6	12.6	54	12.7	11.5	15.7
18			-	7.9	9.6	10.4	11.5	12.3	36	12.7	11.5	17.5
19			-	7.9	9.2	9.8	9.6	9.8	36	12.3	34.5	16.8
20			*9.0	7.9	9.2	9.6	9.6	9.6	22	12.3	181	16.0
21			9.0	22	46	9.3	9.3	9.3	13.3	12.0	179	21.5
22			8.8	14.8	20	9.6	9.1	9.1	12.3	11.7	34	16.0
23			8.8	21.5	11.2	36.5	9.6	9.1	12.7	11.7	29	15.0
24			8.6	23	16.2	47	102	13.1	11.5	11.7	21	14.6
25			8.6	16.0	21.5	17.2	13.0	31	10.9	11.7	21	14.6
26			8.6	10.0	10.2	28	17.0	12.0	10.4	11.7	39	14.3
27			8.6	8.8	9.0	13.0	24.5	12.0	16.4	12.3	19.9	14.3
28			8.6	8.8	8.8	10.9	54	12.0	30.5	12.0	17.9	14.6
29			8.6	8.3	8.6	275	21	-	13.6	11.7	19.4	14.6
30			8.6	8.1	8.5	189	15.7	-	10.4	11.5	22	14.3
31			-	8.5	-	21	12.3	-	9.8	-	21	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September 20-30	9.0	8.6	8.71	13.5	95.8	294
October	23	7.9	10.8	16.7	334	1,030
November	46	8.5	14.5	22.4	435	1,340
December	275	8.1	36.7	56.8	1,140	3,490
Calendar year						
January	102	9.1	18.7	28.9	579	1,780
February	50	9.1	15.0	23.2	421	1,290
March	104	9.8	25.2	39.0	781	2,400
April	474	9.6	53.0	82.0	1,590	4,880
May	181	11.5	32.2	49.8	997	3,060
June	30	14.3	17.4	26.9	522	1,600
The period						21,160

*Partly estimated.

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MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Molokai during fiscal year July 1937 to June 1938

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
Aug. 19	Waiakeakua.....	Pacific Ocean....	At gaging station near Wailau...	12.1	7.82
19	....do.....	....do.....	Weir 10, near Wailau.....	4.11	2.66
19	Pulena.....	....do.....	Weir 12 at altitude 800 feet, near Wailau.	24.2	15.6
Apr. 13	Waikolu.....	....do.....	At pipe-line crossing near Kalaupapa.	24.8	16.0

Honokohau Stream near Honokohau

Location.- Lat. 20°57'45", long. 156°35'20", 1,000 feet upstream from intake of Honokohau 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 1938.

Average discharge.- 20 years (1916-20, 1922-38), 26.2 million gallons a day (40.5 second-feet).

Extremes.- Maximum discharge during year, 1,160 million gallons a day (1,790 second-feet) Apr. 7 (gage height, 6.35 feet), from rating curve extended above 120 million gallons a day; minimum, 12.8 million gallons a day (19.8 second-feet) Dec. 21, 1913-20, 1922-38: 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 excellent except those for period of missing gage heights, Nov. 21-26, which were computed on basis of records for Honokawai ditch near Lahaina and are fair, and those above 200 million gallons a day, which are poor. No diversions.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

2.1	12.4	2.6	37	3.4	130	4.5	398
2.2	16.0	2.8	52	3.8	204	5.0	570
2.4	25	3.0	73	4.2	304		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	23.5	173	19.2	17.6	55	14.9	18.8	18.4	19.6	16.0	28.5	45
2	31.5	263	37	30	76	14.9	17.6	17.2	17.2	21	49	122
3	39	104	40	42	17.6	14.9	19.2	92	32	27	66	30
4	38.5	28	48	49	15.6	14.6	16.4	18.8	113	16.8	89	24.5
5	31	29	22.5	44	22	14.6	18.8	28.5	24	16.0	33.5	24
6	50	29	27.5	17.6	16.4	14.2	16.0	18.0	18.4	239	25.5	23.5
7	42	25	69	34	21.5	13.8	31	17.2	16.8	505	22.5	25.5
8	20	27.5	33	39.5	51	13.8	33	27	154	92	22	50
9	17.6	42	22	17.2	31	14.9	28.5	24	64	328	167	140
10	16.8	78	19.6	16.8	30	15.6	16.0	17.6	57	290	164	140
11	21	36.5	83	17.2	66	14.2	16.0	25.5	25	92	70	35
12	21	41	44	18.6	32.5	58	15.6	18.8	40	154	118	31
13	17.2	55	19.6	75	15.6	28.5	15.3	35.5	74	37	30.5	27
14	18.0	38.5	19.2	34	14.6	114	15.3	21	60	39	25	72
15	32	177	26	20	14.2	78	14.9	17.6	39	27.5	28.5	40
16	19.7	67	24	39	14.2	26.5	14.9	17.2	50	58	23	36.5
17	89	44	18.4	18.4	13.8	15.3	47	19.0	153	28	21.5	26
18	25	22	18.0	40	13.8	14.2	21	33	218	23.5	22	35
19	17.6	19.2	23.5	16.4	13.8	13.5	15.6	18.4	98	23	33.5	34.5
20	61	20.5	18.8	15.6	13.8	13.5	15.3	17.2	41	23.5	130	25
21	96	19.2	18.0	15.3	45	12.8	14.6	16.4	26	22	141	24.5
22	30.5	18.0	18.0	15.3	65	13.1	14.6	16.0	38	22	43	25.5
23	19.2	20.5	24.5	15.6	80	79	13.8	16.0	39.5	35.5	54	23.5
24	26.5	19.6	18.8	27.5	60	49	63	16.0	21.5	23	43	23.5
25	78	29.5	18.0	28.5	35	15.6	26	17.2	21	30	59	23.5
26	29	28	19.2	16.8	18	19.2	201	18.4	18.0	24	133	23
27	31	29	17.6	16.0	16.0	16.4	136	18.0	17.6	39	28	26.5
28	18.4	28.5	18.4	16.4	15.6	27	49	16.8	17.2	30	48	33.5
29	63	29.5	18.8	16.4	19.5	167	22.5	-	16.8	22	139	24
30	20	26	18.4	28	15.6	254	78	-	16.4	21.5	68	24
31	89	20	-	23.5	-	44	24.5	-	16.4	-	47	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	96	16.8	36.5	56.5	1,130	3,470
August	263	18.0	51.2	79.2	1,590	4,870
September	83	17.6	27.4	42.4	822	2,520
October	75	15.3	26.5	41.0	821	2,520
November	80	13.8	30.6	47.3	918	2,820
December	254	12.8	39.3	60.3	1,220	3,740
Calendar year 1937	263	12.8	40.1	62.0	14,610	44,850
January	201	13.8	33.8	52.3	1,050	3,220
February	92	16.0	22.7	35.1	637	1,950
March	218	16.4	50.4	78.0	1,560	4,790
April	505	16.0	77.4	120	2,320	7,130
May	167	21.5	63.6	98.4	1,970	6,050
June	140	23	41.3	63.9	1,240	3,800
Fiscal year 1937-38	505	12.8	41.9	64.8	15,280	46,880

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 1938.

Average discharge.- 19 years (1919-38), 5.89 million gallons a day (9.11 second-feet).

Extremes.- Maximum daily discharge, 26 million gallons a day Aug. 1; minimum, 2.95 million gallons a day Aug. 6.
1912-32: Maximum discharge, 76 million gallons a day (118 second-feet) Aug. 11, 1929 (gage height, 2.17 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records of daily discharge 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.0	26	3.6	3.15	15.2	3.75	4.0	3.7	4.1	3.25	5.1	11.2
2	6.3	19.5	8.0	4.1	13.4	3.75	3.8	3.5	3.45	3.7	12.8	19.4
3	7.3	12.0	7.7	9.5	3.85	3.7	3.8	5.4	4.1	6.1	16.9	4.9
4	6.6	6.1	7.8	8.0	3.6	3.75	3.7	3.4	12.2	3.55	14.1	3.8
5	5.3	5.0	3.65	11.2	4.8	3.7	3.9	3.95	4.1	3.4	5.0	3.65
6	12.3	2.95	5.2	4.0	4.2	3.75	3.65	3.4	3.5	18.0	3.2	3.45
7	10.4	4.6	11.0	3.3	5.2	3.8	7.8	3.25	3.35	9.4	3.2	4.0
8	4.6	6.0	8.1	7.0	11.7	3.8	6.6	3.25	12.1	6.5	3.15	9.4
9	4.1	11.0	4.0	3.45	10.5	4.0	6.0	3.65	8.0	22	9.4	22.5
10	3.9	13.2	3.5	3.25	5.4	4.2	3.75	3.3	9.0	13.6	14.8	16.9
11	4.7	8.0	10.9	3.3	13.3	3.8	3.55	3.25	4.1	7.4	12.6	4.4
12	5.2	8.9	8.4	3.3	4.6	10.7	3.4	3.35	8.1	9.6	15.7	3.9
13	4.4	8.5	3.35	15.7	3.85	5.8	3.4	6.0	15.7	4.5	4.8	3.9
14	4.4	11.3	3.4	8.6	3.65	16.8	3.4	3.7	13.3	3.85	3.55	16.1
15	8.3	18.7	3.45	5.0	3.65	10.3	3.4	3.3	7.4	3.7	4.2	8.5
16	5.1	9.9	3.95	7.4	3.65	5.6	3.4	3.2	12.8	2.95	3.6	6.1
17	15.9	7.5	3.25	4.1	3.7	3.85	9.7	3.15	24	3.9	3.3	4.1
18	5.9	4.3	3.15	12.9	3.8	3.75	4.6	4.0	23	3.75	3.25	6.1
19	4.3	4.2	3.45	4.9	3.8	3.7	3.5	3.4	18.5	3.65	3.35	5.1
20	13.5	4.3	3.55	3.5	3.7	3.65	3.4	3.25	7.7	3.65	16.1	3.95
21	19.5	4.3	3.25	3.55	8.5	3.65	3.4	3.2	5.3	3.55	17.4	3.7
22	9.2	4.0	3.15	3.55	12.1	3.65	3.35	3.15	12.0	3.4	6.2	3.6
23	5.0	4.1	4.1	3.55	14.7	11.4	3.2	3.15	9.5	6.4	6.4	3.55
24	6.8	4.0	3.45	3.7	12.8	6.9	8.4	3.15	4.2	3.3	5.5	3.55
25	11.7	6.6	3.15	4.6	11.7	3.85	3.7	3.15	4.0	4.7	8.1	3.6
26	4.9	6.6	3.15	3.85	4.8	5.3	9.5	3.7	3.5	3.7	19.0	3.65
27	4.8	6.2	3.1	3.8	4.0	4.2	7.2	3.5	3.5	7.2	4.1	4.1
28	4.2	5.7	3.1	3.7	3.9	4.0	7.5	3.4	3.55	5.0	5.5	6.2
29	10.8	4.2	3.1	3.7	4.6	14.2	4.5	-	3.4	3.4	20.5	3.95
30	6.1	4.7	3.1	5.7	3.9	12.9	4.7	-	3.25	3.25	13.6	3.85
31	17.0	3.8	-	5.6	-	6.8	3.85	-	3.25	-	9.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	19.5	3.9	7.66	11.9	238	729
August	26	2.95	7.97	12.3	247	758
September	11.0	3.1	4.74	7.33	142	436
October	15.7	3.15	5.51	8.53	171	525
November	15.2	3.6	6.88	10.6	207	634
December	16.8	3.65	5.90	9.13	183	562
Calendar year 1937	26	2.55	6.19	9.58	2,260	6,930
January	9.7	3.2	4.78	7.40	148	454
February	6.0	3.15	3.56	5.51	99.8	306
March	24	3.25	8.19	12.7	254	779
April	22	2.95	6.01	9.30	180	553
May	20.5	3.15	8.83	13.7	274	840
June	22.5	3.45	6.70	10.4	201	617
Fiscal year 1937-38	26	2.95	6.42	9.93	2,340	7,190

Olowalu ditch near Olowalu

Location.- 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 1938.

Average discharge.- 20 years (1917-20, 1921-38), 4.88 million gallons a day (7.55 second-feet).

Extremes.- Maximum daily discharge, 11.4 million gallons a day May 10; minimum, 3.65 million gallons a day Jan. 23.
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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.5	9.0	6.5	4.3	7.1	4.6	8.0	8.5	6.3	6.5	7.8	10.1
2	4.7	9.0	8.0	5.0	7.7	4.3	8.0	9.0	6.6	6.6	8.9	10.5
3	7.8	9.1	7.7	5.9	5.9	4.2	7.5	10.1	5.7	6.4	9.2	10.4
4	7.5	9.1	9.0	5.5	5.1	4.2	6.7	9.0	8.9	6.0	10.4	10.2
5	7.8	9.2	8.2	7.3	5.0	4.1	6.6	8.8	9.6	5.e	9.4	10.0
6	7.2	9.3	7.8	5.0	4.4	3.95	5.7	7.0	8.6	8.4	8.5	9.3
7	8.0	9.4	8.5	5.0	4.7	3.85	6.4	6.9	7.3	10.8	7.8	9.0
8	6.4	9.2	9.2	3.95	6.8	4.0	6.0	4.2	9.4	9.9	7.2	9.7
9	5.4	9.2	8.6	4.6	6.2	5.0	7.6	4.0	10.5	10.0	8.3	10.6
10	5.0	9.3	7.4	4.5	6.2	4.6	6.6	4.1	10.2	10.7	11.4	10.6
11	4.7	9.3	8.6	4.3	7.2	3.9	5.8	4.4	9.9	9.3	10.9	10.3
12	4.6	9.4	9.1	4.2	7.6	6.1	5.5	5.9	9.6	9.3	11.0	10.1
13	4.4	9.3	8.3	6.9	6.3	7.7	5.1	8.0	9.9	8.6	10.8	9.5
14	4.4	9.4	7.3	5.8	5.4	7.4	4.9	9.1	9.9	8.2	10.5	10.4
15	4.7	9.3	7.2	4.8	4.9	7.8	4.7	7.6	10.0	8.0	10.4	10.3
16	4.5	9.4	7.0	4.5	4.5	7.9	4.5	6.8	10.2	9.1	10.2	10.2
17	5.9	9.5	6.3	4.5	4.3	7.7	5.8	6.4	10.6	9.9	10.1	10.0
18	5.6	9.4	5.8	8.2	4.1	6.8	5.1	6.4	11.0	9.8	9.6	9.8
19	4.8	9.4	6.2	7.1	4.0	5.9	4.5	5.9	8.6	9.7	9.2	9.4
20	7.2	9.4	5.5	6.6	3.85	5.2	4.4	5.4	7.2	9.7	10.3	8.3
21	8.2	9.4	5.3	8.0	4.4	5.0	4.3	5.1	8.0	9.8	10.7	7.7
22	8.7	9.1	5.2	6.7	6.0	4.8	4.0	4.9	8.0	9.7	10.4	7.3
23	6.8	8.8	5.2	6.5	7.8	7.1	3.65	4.8	8.2	9.8	10.3	6.8
24	6.6	8.2	4.8	6.6	7.7	7.4	4.9	4.8	8.1	9.5	10.3	6.6
25	7.5	8.6	4.8	6.8	8.0	6.5	4.4	8.3	8.0	9.5	10.3	6.3
26	8.4	8.8	4.6	5.6	8.0	5.7	6.4	6.8	7.9	9.0	11.0	5.8
27	8.6	8.7	4.5	5.1	7.1	5.2	7.0	6.6	7.9	10.0	10.4	6.5
28	8.6	8.5	4.4	4.9	5.9	5.2	7.1	6.2	7.7	9.5	10.3	6.2
29	8.8	8.0	4.4	4.7	5.6	7.4	7.0	-	7.1	8.7	10.7	5.7
30	8.4	7.8	4.3	5.0	4.8	7.9	7.0	-	6.7	8.5	10.9	5.6
31	8.5	7.2	-	4.8	-	8.0	7.0	-	6.4	-	10.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.8	4.4	6.59	10.2	204	627
August	9.5	7.2	8.99	13.9	279	855
September	9.2	4.3	6.66	10.3	200	613
October	8.2	3.95	5.57	8.62	173	530
November	8.0	3.85	5.88	9.10	177	542
December	8.0	3.85	5.79	8.96	179	551
Calendar year 1937	10.2	3.85	7.38	11.4	2,690	8,260
January	8.0	3.65	5.88	9.10	182	559
February	10.1	4.0	6.61	10.2	185	568
March	11.0	5.6	8.48	13.1	263	807
April	10.8	5.8	8.89	13.8	267	818
May	11.4	7.2	9.93	15.4	308	944
June	10.6	5.6	8.77	13.6	263	808
Fiscal year 1937-38	11.4	3.65	7.34	11.4	2,680	8,220

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 1938.

Extremes.- Maximum discharge recorded during year, 2,920 million gallons a day (4,520 second-feet) Jan. 20 (gage height, 12.40 feet), from rating curve extended above 400 million gallons a day; no flow Nov. 21, 22, Jan. 16, 17.
1927-29, 1931-38: 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. Discharge for Dec. 11-22 and Feb. 12 to May 19 not computed because of insufficient data. Small quantity of water is diverted for domestic supply and livestock.

Rating tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to May 18						May 19 to June 30			
1.1	0	2.0	10.7	5.0	285	1.3	0.06	2.6	31.5
1.2	.02	2.5	29.5	6.0	470	1.5	.76	3.0	58
1.4	.49	3.0	58	7.0	705	1.7	2.85	3.5	98
1.6	2.05	3.5	98			2.0	8.6	4.0	149
1.8	5.3	4.0	149			2.3	18.0	5.0	285

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	43	623	0.12	48	28.5	19.2	4.2	19.8			-	204
2	21	509	5.4	56	11.3	2.15	1.44	75			-	237
3	28	189	2.7	26	.69	.44	.76	61			-	16.4
4	56	33.5	15.8	36	31	13.2	.49	17.3			-	50
5	69	24	8.8	30	83	1.56	.36	42			-	1.95
6	245	9.1	11	3.1	19.4	.54	.26	17.3			-	.90
7	63	9.5	20.5	10.6	57	.29	1.36	17.3			-	16.7
8	62	10.0	19.1	23	142	.21	1.04	17.4			-	29
9	16.8	33.5	1.20	1.16	66	.21	10.8	18.1			-	140
10	4.5	50	.33	.36	29.5	.49	.21	46			-	94
11	21	17.2	20.5	.26	87	-	.08	488			-	26.5
12	19.8	32.5	24	.15	8.4	-	.12	-			-	18.2
13	4.7	13.8	2.0	13.3	1.59	-	.15	-			-	5.9
14	11.8	27.5	.40	45	.59	-	.03	-			-	29.5
15	12.1	151	66	13.8	.36	-	.01	-			-	17.0
16	9.5	187	6.0	18.3	.24	-	0	-			-	17.0
17	64	31.5	.84	69	.13	-	23	-			-	7.4
18	13.2	6.2	.40	42	.07	-	12.8	-			-	10.0
19	2.2	2.4	.26	29.5	.02	-	57	-			-	3.65
20	9.8	2.25	.18	2.4	.01	-	410	-			160	.76
21	200	5.4	.14	9.1	.01	-	192	-			88	.30
22	155	.96	1.22	3.15	5.6	-	19.6	-			6.6	.44
23	39	6.8	92	1.19	76	108	5.8	-			1.30	.18
24	21	1.99	13.5	18.5	524	164	17.0	-			.34	1.65
25	55	9.2	55	6.9	218	132	8.0	-			16.9	.20
26	34.5	6.7	12.2	.49	10.5	398	346	-			42	.14
27	184	9.8	47	.29	2.35	165	504	-			2.7	13.2
28	16.2	9.5	8.9	.21	.96	46	544	-			70	27.5
29	80	1.3	1.32	1.35	2.95	56	31.5	-			48	.61
30	29.5	.24	.44	7.7	27	225	124	-			52	9.9
31	237	.12	-	1.95	-	19.8	23	-			65	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	245	2.2	59.0	91.3	1,830	5,610
August	623	.12	65.0	101	2,010	6,180
September	92	.12	14.6	22.6	437	1,340
October	69	.15	16.7	25.8	519	1,590
November	524	.01	47.8	74.0	1,430	4,400
December	-	-	-	-	-	-
Calendar year						
January	544	0	75.5	117	2,340	7,180
February	-	-	-	-	-	-
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	-	-	-	-	-	-
June	237	.14	31.2	48.3	935	2,870
Fiscal year						

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 4⅔ miles southeast of Keanae post office.

Drainage area.- 5.0 square miles.

Records available.- July 1932 to June 1938. Records at same site obtained by East Maui Irrigation Co. June 1930 to June 1932.

Extremes.- Maximum discharge during year, 1,220 million gallons a day (1,890 second-feet) Apr. 7 (gage height, 5.90 feet), from rating curve extended above 70 million gallons a day by tests on model of station site; minimum, 1.6 million gallons a day (2.5 second-feet) Dec. 13, 14.

1932-38: Maximum discharge, that of Apr. 7, 1938; no flow occasionally during dry weather.

Remarks.- Records good except those for periods of missing gage heights, Jan. 31 to Feb. 3, 12-14, Apr. 27 to May 23, May 28 to June 6, 19-20 (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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.6	0.5	6.7	1.0	45	2.0	166	4.0	590
.3	1.8	.6	10.7	1.2	65	2.5	250	5.0	900
.4	3.8	.8	22.5	1.5	97	3.0	350		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.6	70	6.4	6.1	3.6	2.8	21.5	10	2.8	2.6	8.0	14
2	3.6	70	7.5	5.0	3.4	2.4	13.1	7.0	2.8	2.6	30	18
3	3.6	50	6.7	4.7	3.4	2.2	9.5	6.0	3.0	2.6	20	7.0
4	3.6	22.5	6.7	5.2	3.2	2.2	6.7	4.7	7.1	2.6	13	6.6
5	3.6	15.7	6.7	5.2	3.2	2.0	5.0	4.7	5.0	2.6	11	6.4
6	27.5	11.7	6.7	5.0	3.0	1.8	4.1	4.1	4.4	148	9.0	6.2
7	8.3	8.7	6.7	5.2	3.0	1.7	4.4	3.8	3.6	791	8.5	6.1
8	6.7	6.7	7.1	5.2	4.0	1.7	3.6	3.6	24.5	492	9.0	6.1
9	6.4	6.1	6.7	5.0	3.2	1.7	22	3.4	20.5	228	35	14
10	6.1	11.6	6.7	4.7	3.0	1.7	3.6	3.2	5.2	233	60	20
11	5.5	16.6	7.5	4.4	5.8	1.7	3.4	5.0	4.4	89	35	8.7
12	5.0	9.9	6.7	4.1	4.4	1.6	3.2	25	4.1	93	45	7.5
13	4.7	8.3	6.7	4.4	3.8	1.6	3.0	10	4.7	50	15	6.7
14	4.4	8.3	6.4	4.1	3.6	3.2	2.8	5.5	5.2	72	10	6.7
15	4.1	48	8.5	3.8	3.2	2.4	2.6	4.7	5.0	52	8.0	6.7
16	3.8	34.5	6.7	3.8	3.0	2.2	2.6	4.4	9.0	31	7.5	6.7
17	4.7	18.6	6.4	3.6	2.8	2.2	2.6	4.1	35.5	20.5	7.0	6.4
18	5.0	18.4	6.1	4.1	2.6	2.2	2.8	3.8	60	13.9	7.0	6.1
19	4.7	12.7	6.1	3.6	2.2	2.2	2.8	3.8	50	7.5	35	8.0
20	4.4	10.7	5.8	3.4	2.2	2.2	20	3.8	23	7.1	50	6.2
21	13.9	9.1	5.5	3.2	4.9	2.0	6.2	3.6	17.6	7.1	100	5.8
22	9.9	8.3	5.5	3.2	4.9	2.0	3.8	3.6	13.2	7.1	13	5.8
23	7.5	7.9	5.8	3.0	9.7	15.5	3.4	3.6	13.7	7.5	12	5.5
24	7.9	7.5	5.2	5.2	26.5	15.5	14.5	3.4	9.5	7.9	*16.5	5.2
25	8.7	7.1	5.0	5.8	37	28	3.6	3.4	6.7	8.3	14.5	5.0
26	8.3	7.1	5.0	4.1	12.2	46	52	3.2	5.5	8.3	57	5.0
27	7.9	6.7	5.0	3.8	7.5	20	80	3.2	4.7	10	33	4.4
28	6.4	7.1	4.4	3.4	5.0	17.8	141	3.0	3.8	8.0	20	4.4
29	6.4	6.7	4.7	3.4	4.1	125	40	-	3.2	8.0	21	4.4
30	6.1	7.1	4.7	3.2	3.4	147	20.5	-	3.0	8.0	30	4.4
31	37.5	6.7	-	3.4	-	37	14	-	2.8	-	10	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	37.5	3.6	7.74	12.0	240	736
August	70	6.1	17.4	26.9	540	1,660
September	8.5	4.4	6.19	9.58	186	570
October	6.1	3.0	4.27	6.61	132	406
November	37	2.2	6.06	9.38	182	558
December	147	1.6	16.0	24.8	498	1,530
Calendar year 1937	155	1.6	14.4	22.3	5,270	16,170
January	141	2.6	16.7	25.8	518	1,590
February	25	3.0	5.27	8.15	148	453
March	60	2.8	11.7	18.1	364	1,120
April	791	2.6	80.7	125	2,420	7,430
May	100	7.0	24.2	37.4	750	2,300
June	44	4.4	8.47	13.1	254	779
Fiscal year 1937-38	791	1.6	17.1	26.5	6,230	19,130

*Partly estimated.

West Makapipi Spring near Nahiku

Location.- Parshall flume, lat. 20°48'20", long. 156°06'20", half a mile upstream from highway, 1.7 miles south of Nahiku, and 4¾ miles southeast of Keanae post office.

Records available.- July 1932 to June 1938. Records at same site obtained by East Maui Irrigation Co. June 1931 to June 1932.

Extremes.- Maximum discharge during year, 2.1 million gallons a day (3.25 second-feet) Apr. 6 (gage height, 0.67 foot); minimum, 0.50 million gallons a day (0.77 second-foot) Dec. 1-7.

1932-38: 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, Apr. 14-24, which were computed on basis of records for stations on nearby streams and are fair. No diversions.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.40	0.6	1.75
.4	.79	.7	2.25
.5	1.26		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.26	1.31	1.65	1.41	0.88	0.54	0.88	1.12	1.17	0.88	1.80	1.46
2	1.26	1.31	1.65	1.36	.88	.50	.88	1.07	1.17	.98	1.85	1.50
3	1.21	1.41	1.65	1.36	.84	.50	.88	1.07	1.17	1.02	1.85	1.50
4	1.21	1.36	1.65	1.36	.84	.50	.88	1.02	1.21	1.07	1.85	1.46
5	1.21	1.36	1.60	1.36	.79	.50	.84	1.02	1.17	1.17	1.80	1.46
6	1.26	1.36	1.60	1.31	.79	.50	.79	1.02	1.12	1.41	1.75	1.41
7	1.26	1.36	1.60	1.31	.79	.54	.79	.98	1.12	1.60	1.75	1.41
8	1.26	1.36	1.65	1.31	.79	.54	.79	.98	1.17	1.41	1.70	1.41
9	1.21	1.36	1.60	1.26	.79	.54	.84	.98	1.21	1.50	1.70	1.50
10	1.12	1.41	1.60	1.26	.79	.54	.79	.98	1.12	1.55	1.75	1.50
11	1.07	1.46	1.65	1.21	.84	.58	.75	1.07	1.07	1.46	1.75	1.46
12	1.07	1.46	1.60	1.17	.84	.58	.75	1.12	1.07	1.46	1.75	1.46
13	1.07	1.50	1.60	1.17	.75	.62	.75	1.12	1.02	1.46	1.70	1.46
14	1.02	1.55	1.55	1.17	.71	.71	.79	1.12	1.07	1.55	1.70	1.46
15	.98	1.70	1.60	1.17	.71	.71	.79	1.12	1.07	1.55	1.65	1.46
16	.98	1.70	1.55	1.12	.71	.71	.84	1.17	1.07	1.55	1.60	1.50
17	.98	1.65	1.55	1.07	.66	.71	.88	1.17	1.17	1.55	1.60	1.50
18	.98	1.70	1.55	1.07	.66	.75	.88	1.17	1.17	1.55	1.55	1.50
19	.98	1.70	1.55	1.07	.62	.75	.93	1.17	1.17	1.57	1.55	1.50
20	.93	1.70	1.50	1.02	.62	.75	1.02	1.17	1.07	1.60	1.55	1.50
21	1.02	1.70	1.50	1.02	.58	.79	1.02	1.17	1.02	1.64	1.75	1.50
22	1.07	1.65	1.50	.98	.66	.79	1.02	1.17	.98	1.67	1.65	1.46
23	1.02	1.65	1.50	.98	.75	.93	.98	1.21	.98	1.70	1.55	1.46
24	1.02	1.65	1.46	.98	.79	.98	1.07	1.21	.98	1.74	1.55	1.46
25	1.02	1.65	1.46	1.07	.88	1.02	.98	1.21	.93	1.77	1.55	1.46
26	1.07	1.65	1.46	.98	.75	.98	1.17	1.21	.88	1.80	1.60	1.46
27	1.07	1.65	1.41	.93	.71	.93	1.26	1.17	.84	1.80	1.55	1.46
28	1.07	1.65	1.41	.93	.62	.93	1.31	1.17	.79	1.85	1.50	1.41
29	1.12	1.65	1.36	.88	.54	1.07	1.17	-	.79	1.85	1.50	1.41
30	1.12	1.65	1.36	.88	.54	1.12	1.21	-	.79	1.80	1.50	1.41
31	1.17	1.65	-	.88	--	.98	1.17	-	.84	-	1.50	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.26	0.93	1.10	1.70	34.1	105
August	1.70	1.31	1.55	2.40	47.9	147
September	1.65	1.36	1.55	2.40	46.4	142
October	1.41	.88	1.13	1.75	35.0	108
November	.88	.54	.737	1.14	22.1	68
December	1.12	.50	.729	1.13	22.6	69
Calendar year 1937	2.05	.50	1.37	2.12	500	1,540
January	1.31	.75	.939	1.45	29.1	89
February	1.21	.98	1.11	1.72	31.2	96
March	1.21	.79	1.05	1.62	32.4	99
April	1.85	.88	1.52	2.35	45.5	140
May	1.85	1.50	1.66	2.57	51.4	158
June	1.50	1.41	1.46	2.26	43.9	135
Fiscal year 1937-38	1.85	.50	1.21	1.87	442	1,360

Hanawi Stream near Nahiku

Location.- Lat. 20°48'35", long. 156°06'50", 200 feet upstream from Koolau ditch intake and trail, 1⅝ miles southwest of Nahiku, and 4½ miles southeast of Keanae.

Drainage area.- 0.8 square mile.

Records available.- January 1914 to January 1916, November 1921 to June 1938.

Average discharge.- 16 years (1922-38), 15.1 million gallons a day (20.3 second-feet).

Extremes.- Maximum discharge during year, 944 million gallons a day (1,460 second-feet) Apr. 6 (gage height, 9.47 feet), from rating curve extended above 120 million gallons a day; minimum, 2.8 million gallons a day (4.3 second-feet) Mar. 2, 3.
1914-16, 1921-38: 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, Nov. 14-30, Dec. 1, 17-20, 24 to Jan. 3, Jan. 5-12, Jan. 21 to Feb. 3, Feb. 5-21, Mar. 14 to May 3, May 27 to June 21 (computed on basis of records for Waiohue and Kapaula Streams near Nahiku), and those above 200 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.9	1.0	9.1	2.0	34	3.5	123	5.0	274
.5	3.4	1.3	14.4	2.5	58	4.0	166	6.0	400
.7	5.4	1.6	21	3.0	89	4.5	216		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.2	187	6.6	14.1	13.4	5.6	8.5	9.0	3.0	5.5	17	25
2	8.8	98	7.6	12.1	7.8	5.1	8.5	7.0	3.0	10	45	26
3	14.6	49	9.9	10.9	4.5	4.8	8.5	8.0	4.6	18	25	11
4	38.5	17.6	14.7	9.3	5.0	4.8	6.1	6.6	8.9	5.5	12.4	8.5
5	34.5	12.5	8.2	10.6	9.2	4.7	6.4	20	29	5.0	7.6	7.5
6	81	10.7	7.6	5.8	7.1	4.6	6.0	8.0	4.8	300	6.4	7.0
7	41	9.9	14.6	7.8	32	4.5	17	6.5	3.5	380	5.6	10
8	11.3	13.7	14.6	9.0	67	4.3	16	6.0	88	150	6.2	30
9	7.5	29	8.1	5.4	35.5	4.2	23	5.7	38.5	180	45	120
10	6.0	54	7.0	5.0	17.0	4.0	9.0	5.5	9.2	170	69	40
11	7.8	24	12.3	4.6	26.5	3.9	7.5	9.0	7.2	70	34.5	10
12	19.7	19.9	8.2	4.2	7.6	4.0	6.9	55	11.9	100	56	9.0
13	7.2	13.4	6.5	5.9	5.5	17.4	6.2	25	22.5	17	10.2	8.0
14	14.4	26.9	6.0	4.8	4.8	48	5.8	10	50	35	7.2	17
15	14.5	89	10.4	4.3	4.4	16.9	5.4	6.0	60	15	7.9	15
16	9.3	43	6.8	3.9	4.1	6.7	5.2	5.1	73	11	6.2	16
17	13.2	20	5.8	3.8	3.8	5.0	14.6	5.3	130	9.5	5.5	11
18	10.0	16.6	5.4	4.2	3.5	4.6	7.3	5.5	150	8.5	5.4	13
19	7.8	10.5	5.6	3.8	3.2	4.3	5.3	4.5	100	8.5	8.4	17
20	26	9.4	5.1	3.3	3.0	4.0	44	4.3	35	8.0	34.5	10
21	49	8.7	4.7	3.2	50	3.7	12	4.1	21	7.2	134	8.0
22	30	8.2	4.8	3.4	50	3.6	6.5	3.9	15	6.6	21.5	7.0
23	13.4	15.6	13.9	4.7	45	40	6.0	3.8	22	6.4	36	6.2
24	21	8.6	6.2	18.4	40	33	60	3.7	14	6.2	27.5	5.8
25	17.1	10.4	8.0	10.4	35	30	20	3.5	8.5	7.5	13.0	5.4
26	12.0	14.8	5.2	4.8	6.5	65	150	3.3	7.5	6.2	50	5.1
27	13.0	10.5	4.7	4.1	6.3	25	130	3.2	7.0	25	15	13.1
28	9.3	14.8	4.4	3.9	6.0	20	140	3.1	6.5	18	11	10.8
29	20.5	9.6	5.5	7.0	7.5	170	18	-	6.2	6.8	35	5.8
30	16.1	8.7	4.6	6.6	6.3	130	40	-	5.8	6.2	25	5.3
31	146	7.2	-	6.0	-	25	15	-	5.5	-	14	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	146	6.0	23.5	36.4	728	2,230
August	187	7.2	28.1	43.5	871	2,670
September	14.7	4.4	7.77	12.0	233	715
October	18.4	3.2	6.62	10.2	205	630
November	67	3.0	17.2	26.6	518	1,590
December	170	3.6	22.8	35.3	707	2,170
Calendar year 1937	249	3.0	23.3	36.1	8,510	26,080
January	150	5.2	26.3	40.7	815	2,500
February	55	3.1	8.59	13.3	241	738
March	150	3.0	30.7	47.5	951	2,920
April	380	5.0	53.4	82.6	1,600	4,920
May	134	5.4	25.7	39.8	797	2,450
June	120	5.1	16.1	24.9	484	1,480
Fiscal year 1937-38	380	3.0	22.3	34.5	8,150	25,010

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 1938. Records at same site obtained by East Maui Irrigation Co. January 1927 to June 1932.

Extremes.- Maximum discharge recorded during year, 5,740 million gallons a day (8,880 second-feet) Feb. 12 (gage height, 8.75 feet), from rating curve extended above 28 million gallons a day; minimum recorded, 13.8 million gallons a day (21.4 second-feet) Mar. 3.

1932-38: 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 excellent except those for periods of missing gage heights, Dec. 31, Jan. 1-4, Feb. 2-4, Mar. 29 to June 30, which were computed on basis of records for stations on 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 1937-38 (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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.9	522	16.2	22	17.6	15.7	35	19.5	14.1	14.5	16	35
2	15.3	237	16.2	16.2	15.7	15.7	25	18	14.1	14.5	200	40
3	15.7	115	16.2	15.7	15.3	15.7	20	17	14.5	25	100	19
4	29.5	32.5	16.2	17.0	15.3	15.7	18	16	18.4	15	50	17
5	36	23.5	16.2	17.1	15.7	15.7	16.2	21.5	24.5	14.5	20	16
6	134	19.5	16.2	15.7	15.3	15.7	15.7	16.2	14.5	800	17	16
7	49	17.6	18.6	17.1	41	15.7	22.5	15.7	14.5	500	16	16
8	20.5	17.1	18.7	17.6	94	15.7	32.5	15.7	199	700	16	16
9	18.1	25	16.7	16.7	40	15.7	52	15.7	67	400	150	300
10	17.1	75	16.7	16.2	21	15.7	15.7	15.3	16.7	400	300	150
11	17.1	31.5	17.6	16.2	32.5	15.7	15.7	17.1	15.3	200	150	25
12	19.6	25	17.1	15.7	17.1	15.7	15.3	272	14.5	200	150	17
13	16.7	19.1	16.7	16.2	16.7	20.5	15.3	80	18.0	100	50	16
14	17.9	24.5	16.7	15.7	16.2	65	15.3	19.8	33	150	25	25
15	17.3	208	16.9	15.7	16.2	23.5	15.3	16.7	57	100	19	22
16	16.7	96	17.1	15.7	15.7	16.2	15.3	15.3	74	50	16	24
17	17.6	30	16.7	15.7	15.7	15.7	20.5	15.3	302	30	16	17
18	16.7	32	16.2	16.2	15.7	15.7	15.3	15.3	366	21	16	16
19	16.7	21	16.2	15.7	15.7	15.7	14.9	14.9	253	17	150	23
20	26.5	18.1	16.2	15.7	15.7	15.3	91	14.9	62	16	250	16
21	65	17.6	16.7	15.7	63	14.9	22	14.9	32.5	16	400	16
22	34.5	17.6	15.7	15.7	59	15.3	15.3	14.9	19.5	16	100	15.5
23	18.6	18.4	20	15.7	62	68	17.6	14.5	27.5	16	50	15.5
24	23	16.7	15.7	32	90	64	120	14.5	19.1	16	100	15.5
25	19.5	16.2	16.2	19.2	107	126	33	14.5	15.3	16	90	15.5
26	18.6	17.4	16.2	16.2	21	247	442	14.5	14.5	16	250	15.5
27	18.6	16.7	16.2	15.7	17.6	50	404	14.5	14.5	28	150	18
28	17.6	17.1	16.2	15.3	16.2	33	574	14.1	14.5	17	30	15.5
29	23.5	16.2	15.7	15.7	16.2	507	38	-	14.5	16	40	15
30	18.1	16.2	15.7	16.2	15.7	593	105	-	14.5	16	50	15
31	345	16.2	-	15.3	-	70	25	-	14.5	-	20	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	345	14.9	36.6	56.6	1,130	3,480
August	522	16.2	57.3	88.7	1,780	5,450
September	20	15.7	16.7	25.8	502	1,540
October	32	15.3	16.9	26.1	522	1,600
November	107	15.3	31.2	48.3	936	2,870
December	593	14.9	69.8	108	2,160	6,640
Calendar year 1937	849	12.6	49.3	76.3	17,980	55,190
January	574	14.9	73.6	114	2,280	7,000
February	272	14.1	27.4	42.4	768	2,360
March	366	14.1	57.8	89.4	1,790	5,500
April	1,500	14.5	165	255	4,940	15,160
May	400	16	97.0	150	3,010	9,230
June	300	15	32.8	50.7	983	3,020
Fiscal year 1937-38	1,500	14.1	57.0	88.2	20,800	63,850

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 1938.

Average discharge.- 16 years (1922-38), 11.0 million gallons a day (17.0 second-feet).

Extremes.- Maximum discharge during year, 1,780 million gallons a day (2,750 second-feet) Apr. 6 (gage height, 8.40 feet), from rating curve extended above 140 million gallons a day; minimum, 1.5 million gallons a day (2.3 second-feet) Dec. 11.
1921-38: Maximum discharge, that of Apr. 6, 1938; minimum, 0.2 million gallons a day (0.3 second-foot) Nov. 23-25, 1933.

Remarks.- Records excellent except those above 200 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.5	1.1	1.4	18.6	2.8	106
.6	2.1	1.6	25	3.0	130
.8	4.8	1.8	32	3.5	212
1.0	8.6	2.0	41	4.0	320
1.2	13.3	2.4	68	4.5	448

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.4	144	4.6	12.1	13.7	2.9	5.7	4.4	1.6	3.2	12.6	19.4
2	9.7	65	6.7	13.3	6.5	2.5	4.5	3.4	1.6	6.7	38.5	21.5
3	17.4	34	8.5	11.9	2.9	2.2	5.3	4.1	3.7	14.5	21	7.2
4	34	12.3	14.3	11.1	3.5	2.0	3.3	2.9	10.0	4.6	13.4	4.5
5	30.5	9.5	9.0	10.6	10.4	2.0	4.8	15.1	10.9	3.6	5.9	3.8
6	67	7.2	6.6	4.4	8.0	1.9	3.2	4.6	3.3	232	4.0	3.3
7	36	5.9	12.8	8.3	18.3	1.8	15.3	3.1	2.2	354	3.6	6.5
8	11.3	8.9	16.0	8.1	37	1.8	13.5	2.9	74	120	4.2	16.2
9	6.3	24	7.0	3.6	26.5	1.7	16.7	2.8	30.5	148	44	92
10	4.2	35	5.2	3.1	14.9	1.5	4.0	2.8	8.4	134	52	30
11	6.0	19.0	11.5	2.8	25	1.5	3.1	5.5	6.2	48	28.5	7.0
12	21	14.5	7.4	2.6	8.0	1.6	2.7	44	9.0	77	40	4.6
13	7.2	10.4	4.5	4.4	4.2	12.3	2.5	20	23	13.5	11.4	4.2
14	13.5	17.5	3.8	3.4	3.4	43	2.3	4.8	37.5	33	5.9	13.8
15	13.3	72	10.2	2.8	3.1	15.9	2.3	3.4	47	12.8	6.6	11.8
16	9.4	27.5	6.0	2.5	2.7	5.0	2.1	3.1	53	9.2	4.4	12.7
17	12.5	15.6	3.8	2.1	2.5	2.9	13.2	2.9	100	7.2	3.4	8.3
18	7.4	15.7	3.3	3.0	2.3	2.5	7.1	3.1	118	6.2	3.2	10.6
19	4.4	8.6	3.6	2.3	2.1	2.0	3.2	2.7	80	7.2	7.0	14.3
20	22	7.0	3.1	1.9	2.0	1.9	14.1	2.3	26	6.8	36	6.8
21	38.5	6.1	2.8	1.7	39	1.8	7.6	2.2	17.7	5.9	108	6.7
22	22.5	5.2	2.9	1.8	40	1.7	3.2	2.0	12.7	5.5	15.4	4.5
23	11.3	13.7	13.0	3.1	37.5	39	2.7	1.9	18.2	5.3	28.5	3.3
24	17.4	7.3	5.3	17.2	33.5	31	42	1.9	11.6	4.8	20.5	3.1
25	15.0	9.5	6.4	11.1	31	28.5	12.4	1.8	5.9	6.1	11.6	2.7
26	10.8	13.2	3.3	3.1	5.9	50	120	1.7	4.2	5.0	40	2.6
27	10.3	11.8	2.8	2.5	3.8	20	101	1.7	3.6	19.1	9.6	9.5
28	6.2	14.7	2.6	2.1	3.1	15.0	114	1.6	3.3	13.6	8.4	10.4
29	15.8	9.8	4.3	4.7	4.2	130	12.6	-	3.2	5.5	26	3.6
30	14.2	8.3	3.2	6.4	3.2	102	29	-	3.2	4.5	19.0	2.9
31	112	5.5	-	5.7	-	18.4	8.0	-	3.1	-	11.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	112	4.2	19.8	30.6	614	1,890
August	144	5.2	21.2	32.8	659	2,020
September	16.0	2.6	6.48	10.0	194	597
October	17.2	1.7	5.60	8.66	174	533
November	40	2.0	13.3	20.6	398	1,220
December	130	1.5	17.6	27.2	546	1,680
Calendar year 1937	148	1.5	17.3	26.8	6,320	19,410
January	120	2.1	18.8	29.1	581	1,780
February	44	1.6	5.45	8.43	153	469
March	118	1.6	23.6	36.5	733	2,250
April	354	3.2	43.9	67.9	1,320	4,040
May	108	3.2	20.8	32.2	644	1,980
June	92	2.6	11.6	17.9	348	1,070
Fiscal year 1937-38	354	1.5	17.4	26.9	6,360	19,530

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 1938. Records at same site obtained by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge during year, 960 million gallons a day (1,490 second-feet) Apr. 7 (gage height, 5.00 feet), from rating curve extended above 10 million gallons a day; minimum, 1.3 million gallons a day (2.0 second-feet) Dec. 13.
1932-38: Maximum discharge, that of Apr. 7, 1938; 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, Feb. 3-5, May 17-23, which were computed on basis of records for station on Waiaaka Stream 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.7	0.6	8.0	1.2	39	2.0	123
.3	1.6	.7	11.4	1.4	55	2.5	204
.4	3.2	.8	15.6	1.6	74	3.0	305
.5	5.3	1.0	26	1.8	97		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.6	93	1.6	6.0	6.5	1.8	3.8	2.2	1.4	1.6	3.2	12.7
2	2.9	54	1.6	3.5	2.4	1.5	2.1	1.9	1.4	1.6	28.5	18.0
3	4.2	35	2.5	1.5	1.8	1.4	2.4	1.8	1.6	8.1	18.8	2.6
4	22.5	16.1	4.9	3.6	1.9	1.4	1.9	1.7	5.2	1.8	10.6	2.2
5	19.6	11.0	2.1	3.5	2.7	1.4	1.9	3.5	6.5	1.6	2.1	2.1
6	55	5.4	1.6	1.6	2.1	1.4	1.9	2.2	1.8	171	1.9	1.9
7	28	2.9	5.0	3.4	7.9	1.4	6.9	2.1	1.6	273	1.8	2.6
8	6.4	4.5	9.2	4.8	25	1.4	2.4	1.9	46	77	1.6	8.0
9	2.4	21	1.9	1.5	13.0	1.4	20	1.9	34	140	29	80
10	1.9	35	1.6	1.5	7.6	1.4	1.8	1.9	2.4	133	52	35.5
11	1.8	22	6.0	1.4	20	1.4	1.6	3.0	1.9	57	27	7.3
12	10.4	17.6	2.2	1.3	3.0	1.4	1.5	32.5	2.5	80	37	2.4
13	2.1	9.7	1.6	1.8	2.1	1.3	1.5	16.3	14.6	37.5	6.7	1.9
14	6.1	20	1.6	1.6	1.9	26.5	1.5	2.2	29.5	54	2.4	8.5
15	4.6	64	6.6	1.5	1.8	13.7	1.4	1.9	35.5	41	1.9	7.6
16	2.7	30.5	2.1	1.6	1.8	2.1	1.4	1.9	36	15.0	1.8	8.0
17	7.7	17.0	1.6	1.6	1.8	1.6	5.5	2.1	78	2.6	1.7	2.7
18	3.2	18.1	1.6	1.6	1.6	1.5	1.8	2.2	93	2.6	1.6	4.6
19	1.6	6.2	1.8	1.6	1.6	1.4	1.6	1.9	66	2.2	25	8.5
20	11.7	2.6	1.5	1.5	1.6	1.4	24.5	1.8	26	2.1	60	2.1
21	37.5	2.1	1.5	1.5	23.5	1.4	4.6	1.8	17.5	1.9	100	1.8
22	23.5	1.9	1.6	1.5	25.5	1.5	1.6	1.8	10.8	1.9	12	1.6
23	8.0	6.7	4.8	1.6	31.5	24	1.6	1.8	17.4	1.8	11	1.6
24	15.4	2.4	1.9	11.4	33.5	22	21	1.6	10.6	1.8	11.9	1.6
25	16.0	1.8	1.8	9.0	31	30.5	1.8	1.5	3.0	1.8	5.5	1.5
26	9.0	4.0	1.5	1.9	4.1	36	71	1.5	1.8	1.6	40	1.4
27	7.2	2.7	1.5	1.6	2.4	17.0	85	1.4	1.8	9.5	12.0	3.2
28	2.7	4.9	1.4	1.6	1.9	11.3	104	1.4	1.8	5.5	11.2	2.2
29	12.6	2.7	1.4	1.9	1.9	93	19.0	-	1.8	1.6	14.9	1.6
30	11.8	2.2	1.4	2.9	1.8	129	34	-	1.8	1.6	22	1.5
31	76	1.6	-	1.9	-	20.5	7.3	-	1.6	-	3.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	76	1.6	13.4	20.7	416	1,280
August	93	1.6	16.7	25.8	519	1,590
September	9.2	1.4	2.58	3.99	77.4	238
October	11.4	1.3	2.68	4.15	83.2	255
November	33.5	1.6	8.84	13.7	265	814
December	129	1.3	14.6	22.6	453	1,390
Calendar year 1937	129	1.3	13.5	20.9	4,740	14,540
January	104	1.4	14.1	21.8	438	1,350
February	32.5	1.4	3.56	5.51	99.7	306
March	93	1.4	17.9	27.7	555	1,700
April	273	1.6	37.7	58.3	1,130	3,470
May	100	1.6	18.0	27.9	558	1,710
June	80	1.4	7.91	12.2	237	728
Fiscal year 1937-38	273	1.3	13.2	20.4	4,830	14,830

Koolau ditch at Nahiku weir, near Nahiku

Location.- 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 1938.

Average discharge.- 19 years (1919-38), 21.2 million gallons a day (32.8 second-feet).

Extremes.- Maximum discharge during year, 56 million gallons a day (87 second-feet) Jan. 30 (gage height, 1.62 feet); no flow Apr. 9-16, May 26-28, 30.
1919-38: 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 except those for period of missing gage heights, Feb. 1-4, which were computed on basis of records for station at Haipuaena and stations near Huelo and Keanae and are good. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	21.5	50	26	30.5	38	21	42	29	10.8	27.5	38	48
2	26.5	50	29.5	35.5	26.5	19.2	38	28	10.2	33.5	48	48
3	38	50	33.5	35.5	19.2	18.1	35.5	31	15.3	40	48	35.5
4	48	48	40	33.5	19.9	17.0	29.5	25.5	31	27	45	33.5
5	48	48	31	33.5	31	16.4	30.5	38	40	23.5	38	35.5
6	50	45	29	22	25	15.6	25.5	27	17.0	40	30.5	31
7	48	42	38	29	35.5	15.0	40	24	13.0	38	26	35.5
8	45	45	40	33.5	45	14.6	35.5	23.5	33.5	43	26	45
9	35.5	48	33.5	22	45	14.0	40	22.5	42	11.2	40	52
10	29	50	27.5	20.5	38	13.3	28	22.5	33.5	0	48	50
11	31	48	40	18.8	45	13.0	25	33.5	25.5	0	45	48
12	42	48	33.5	17.0	33.5	13.3	23	38	33.5	0	48	40
13	30	48	26	22.5	25	23.5	21.5	40	45	0	40	35.5
14	38	48	23.5	19.9	21.5	48	20.5	31	48	4.0	27	45
15	40	50	35.5	17.8	19.5	40	18.8	27	48	0	35.5	45
16	35.5	50	27.5	16.4	17.4	26.5	18.1	23.5	48	22	28	45
17	45	48	22	15.3	16.0	21	30	22.5	50	35.5	24.5	42
18	40	48	20.5	16.7	14.6	18.1	25.5	21.5	50	42	23.5	42
19	31	45	21.5	14.6	13.6	16.7	19.9	18.8	48	45	28.5	45
20	45	42	17.8	13.3	13.0	15.3	27.5	17.4	48	42	33.5	38
21	50	38	17.8	12.7	32.5	14.6	31	16.0	48	40	34.5	34.5
22	50	35.5	17.4	13.3	48	14.3	19.9	15.0	45	38	17.0	29.5
23	48	40	33.5	17.0	48	40	13.0	14.3	48	35.5	19.2	25.5
24	48	35.5	22.5	31	50	45	35.5	13.3	45	31	23.5	24
25	48	38	25.5	35.5	48	45	26.5	12.7	42	33.5	32	22
26	48	40	18.4	20.5	40	48	45	11.7	38	29.5	35	21
27	45	38	17.0	17.0	33.5	48	52	11.4	35.5	40	23.5	35.5
28	40	45	15.6	15.6	28	45	52	10.8	33.5	35.5	25	35.5
29	45	38	18.1	20.5	27.5	50	48	-	31	26.5	45	22
30	48	35.5	16.0	24	23	50	45	-	30	24.5	30.5	20.5
31	48	29	-	22.5	-	48	37	-	28.5	-	42	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	50	21.5	41.5	64.2	1,280	3,940
August	50	29	44.0	68.1	1,360	4,180
September	40	15.6	26.6	41.2	798	2,450
October	35.5	12.7	22.5	34.8	697	2,140
November	50	13.0	30.7	47.5	921	2,830
December	50	13.0	27.3	42.2	848	2,600
Calendar year 1937	55	12.7	35.9	55.5	13,090	40,180
January	52	13.0	31.6	48.9	979	3,010
February	40	10.8	23.2	35.9	649	1,990
March	50	10.2	36.0	55.7	1,110	3,420
April	45	0	26.9	41.6	808	2,480
May	48	17.0	33.8	52.3	1,050	3,220
June	52	20.5	37.0	57.2	1,110	3,400
Fiscal year 1937-38	52	0	31.8	49.2	11,610	35,660

Waiaaka Stream near Nahiku

Location.- Concrete control, lat. 20°49'25", long. 156°07'00", 3,000 feet downstream from Government Road, 1½ miles west of Nahiku, and 3⅝ miles southeast of Keanae post office. Altitude, about 650 feet, by barometer.

Drainage area.- 0.1 square mile.

Records available.- July 1932 to June 1938. Records at same site obtained by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge recorded during year, 31.5 million gallons a day (48.7 second-feet) Apr. 7 (gage height, 2.04 feet, present datum), from rating curve extended above 14 million gallons a day by tests on model of station site; minimum discharge, 0.35 million gallons a day (0.54 second-foot) July 1, 2.

1932-38: 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 and November, 1933, and April, May, and June, 1934.

Remarks.- Records good except those for periods when clock was not running, July 26 to Aug. 3, Dec. 29 to Jan. 11, Jan. 29 to Feb. 5, 11-15, Apr. 10-12, June 7-14, which were computed on basis of records for stations on nearby streams and are poor. No diversions.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.24	0.6	2.0	1.0	7.5
.4	.58	.7	3.15		
.5	1.14	.8	4.4		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.38	3.5	0.54	1.10	1.32	0.72	1.2	0.86	0.42	0.58	0.72	1.42
2	.38	2.5	.58	.77	.79	.67	1.0	.78	.42	.54	1.03	1.81
3	.61	1.5	.62	.72	.67	.67	.90	.74	.50	.62	1.21	.95
4	.61	1.14	.58	1.09	.72	.58	.80	.70	1.62	.54	1.02	.83
5	.50	1.02	.58	1.09	.94	.58	.75	.90	.83	.50	.72	.72
6	1.44	.95	.58	.67	.72	.58	.72	.67	.62	5.0	.72	.72
7	.83	.89	.67	1.44	.72	.50	.72	.67	.58	5.8	.62	.72
8	.67	.83	.72	1.02	1.56	.50	2.3	.62	.88	1.37	.62	.90
9	.62	.83	.67	.67	.67	.50	1.0	.58	1.42	5.1	2.7	4.0
10	.58	.92	.58	.67	.83	.50	.70	.58	.83	4.5	1.22	3.0
11	.54	.77	1.04	.62	2.25	.50	.63	.85	.72	4.2	1.44	.80
12	.54	.89	.72	.54	.77	.46	.58	1.8	.72	4.7	1.91	.75
13	.54	.72	.62	.83	.67	.42	.58	1.2	1.04	3.65	1.02	.70
14	.54	.99	.58	.72	.67	.58	.54	.80	.89	4.3	.95	.90
15	.58	3.7	2.05	.62	.62	.72	.54	.72	.77	3.1	.77	.77
16	.62	1.83	.67	.58	.58	.58	.50	.67	.77	1.45	.72	.72
17	.89	.95	.58	.58	.58	.50	.58	.72	1.67	1.08	.67	.62
18	.62	1.28	.58	.62	.54	.46	.54	.83	2.3	.95	.67	.62
19	.58	.89	.67	.54	.54	.46	.54	.62	1.30	.89	1.21	.62
20	.58	.83	.58	.50	.50	.46	1.98	.62	1.14	.77	1.39	.58
21	3.15	.77	.58	.50	1.42	.42	.67	.58	.95	.77	5.3	.62
22	1.12	.72	.58	.50	.95	.46	.54	.58	.95	.67	1.37	.58
23	.77	.67	.94	.50	1.27	1.33	.50	.50	.89	.67	1.30	.58
24	.97	.67	.58	1.44	2.05	1.48	.73	.46	.83	.62	2.25	.58
25	1.52	.62	.74	1.25	2.9	1.87	.54	.46	.77	.62	1.99	.58
26	1.0	.58	.58	.62	1.08	1.10	1.56	.46	.72	.58	3.5	.54
27	.90	.58	.54	.58	.95	1.28	2.45	.46	.67	.72	1.71	.54
28	.80	.92	.50	.58	.89	1.58	3.5	.46	.67	.58	1.89	.58
29	1.8	.76	.50	.74	.83	5.0	1.1	-	.58	.58	1.06	.50
30	.90	.64	.50	.67	.77	3.0	2.0	-	.58	.54	1.81	.50
31	2.0	.58	-	.73	-	2.0	1.0	-	.58	-	.89	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.15	0.38	0.890	1.38	27.6	85
August	3.7	.58	1.11	1.72	34.4	106
September	2.05	.50	.675	1.04	20.2	62
October	1.44	.50	.758	1.17	23.5	72
November	2.9	.50	.992	1.53	29.8	91
December	5.0	.42	.983	1.52	30.5	93
Calendar year 1937	10.3	.38	1.11	1.72	404	1,240
January	3.5	.50	1.02	1.58	31.7	97
February	1.8	.46	.710	1.10	19.9	61
March	2.3	.42	.891	1.38	27.6	85
April	5.8	.50	1.87	2.89	56.0	172
May	5.3	.62	1.43	2.21	44.4	136
June	4.0	.50	.925	1.43	27.8	85
Fiscal year 1937-38	5.8	.38	1.02	1.58	373	1,140

Paakea Stream near Nahiku

Location.- Concrete control, lat. 20°49'25", long. 156°07'05", 3,000 feet downstream from highway, 1½ miles west of Nahiku, and 3¾ miles southeast of Keanae post office. Altitude, 650 feet, by barometer.

Drainage area.- 0.5 square mile.

Records available.- July 1932 to June 1938. Records at same site obtained by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge during year, 220 million gallons a day (340 second-feet) Apr. 7 (gage height, 5.25 feet), from rating curve extended above 20 million gallons a day; minimum, 2.3 million gallons a day (3.6 second-feet) July 1, 2, Oct. 20-23.
1932-38: 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 periods of missing gage heights, Dec. 17-21, Feb. 3-5, May 9-23 (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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.6	0.8	10.9	1.4	30	2.2	60
.5	3.0	.9	14.7	1.6	37	2.5	72
.6	4.9	1.0	18.0	1.8	44		
.7	7.4	1.2	24	2.0	52		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.3	27	2.5	6.4	4.7	3.2	4.1	4.0	2.5	2.8	3.0	4.5
2	2.5	30	2.5	4.1	3.2	3.0	4.0	3.6	2.5	3.0	11.4	9.9
3	3.2	16.2	2.8	3.4	2.8	3.0	3.4	3.4	3.0	4.2	6.5	3.8
4	6.0	4.1	2.8	5.2	2.8	2.8	3.0	3.3	6.4	2.8	4.6	3.4
5	3.2	3.8	2.7	3.6	3.5	2.8	3.0	4.2	5.4	2.8	3.4	3.2
6	13.1	3.6	2.7	3.0	2.8	2.7	2.8	3.4	3.2	46	3.2	3.0
7	3.9	3.4	4.8	5.8	3.1	2.5	3.0	3.2	3.0	68	3.0	2.8
8	3.2	3.4	3.2	4.5	5.2	2.5	7.9	3.2	17.5	23.5	3.2	3.7
9	2.8	4.0	2.8	3.0	3.0	2.5	3.9	3.2	10.8	37.5	10	25.5
10	2.7	14.3	2.7	3.0	3.3	2.5	2.8	3.2	4.0	34.5	20	16.3
11	2.7	3.8	5.2	2.8	10.1	2.5	2.7	4.5	3.6	17.8	10	3.6
12	2.8	4.3	3.0	2.7	3.2	2.5	2.7	19.4	3.4	27.5	15	3.4
13	2.7	3.6	2.7	3.1	3.0	5.0	2.7	8.1	5.5	11.2	7.0	3.2
14	2.9	6.4	2.7	3.0	2.8	9.4	2.5	3.8	4.1	23.5	5.0	4.4
15	2.8	20.5	7.6	2.7	2.7	4.0	2.5	3.2	3.6	12.8	4.4	3.6
16	2.8	9.6	3.0	2.5	2.7	3.0	2.5	3.2	3.4	7.8	4.2	4.3
17	7.2	4.6	2.8	2.5	2.7	2.8	4.0	3.2	17.2	5.4	4.1	3.4
18	3.0	6.1	2.8	2.5	2.7	2.7	2.7	3.4	21.5	3.8	4.0	3.4
19	2.8	3.4	3.0	2.5	2.5	2.6	2.7	3.0	17.8	3.6	10	6.6
20	2.7	3.2	2.7	2.3	2.5	2.5	6.0	2.8	5.6	3.4	12	3.2
21	20	3.0	2.7	2.3	11.0	2.5	4.1	2.8	4.8	3.2	40	2.8
22	9.3	2.8	2.7	2.3	8.6	2.5	2.7	2.8	4.0	3.0	5.2	2.8
23	3.4	3.4	4.6	2.5	10.6	11.0	2.5	2.7	5.7	3.0	5.0	2.7
24	4.1	2.8	3.0	10.8	14.6	10.8	5.2	2.7	3.6	3.0	6.3	2.7
25	5.3	2.8	3.0	3.5	12.9	8.4	3.0	2.7	3.4	2.8	4.5	2.7
26	4.0	3.0	2.7	2.7	4.3	10.8	22.5	2.7	3.2	2.7	21.5	2.5
27	4.0	2.8	2.7	2.7	4.0	7.3	30	2.7	3.0	5.0	6.6	3.9
28	3.2	3.4	2.5	2.7	3.6	17.2	29	2.5	3.0	2.8	5.1	3.2
29	5.7	3.2	2.5	4.2	3.6	48	6.7	-	2.8	2.7	9.0	2.5
30	3.6	3.0	2.5	3.0	3.2	37	11.0	-	2.8	2.7	7.1	2.5
31	18.6	2.5	-	3.4	-	10.2	4.9	-	2.8	-	4.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	20	2.3	5.05	7.81	156	480
August	30	2.5	6.71	10.4	208	638
September	7.6	2.5	3.13	4.84	93.9	288
October	10.8	2.3	3.51	5.43	109	334
November	14.6	2.5	4.86	7.52	146	447
December	48	2.5	7.43	11.5	230	706
Calendar year 1937	48	2.2	5.80	8.97	2,120	6,500
January	30	2.5	6.15	9.52	190	585
February	19.4	2.5	3.96	6.13	111	340
March	21.5	2.5	5.91	9.14	183	562
April	68	2.7	12.4	19.2	373	1,140
May	40	3.0	8.34	12.9	259	794
June	25.5	2.5	4.78	7.40	144	440
Fiscal year 1937-38	68	2.3	6.03	9.33	2,200	6,750

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 1938.

Average discharge.- 16 years (1922-38), 8.42 million gallons a day (13.0 second-feet).

Extremes.- Maximum discharge during year, 760 million gallons a day (1,180 second-feet) Apr. 7 (gage height, 6.24 feet), from rating curve extended above 50 million gallons a day; minimum, 2.85 million gallons a day (4.41 second-feet) Feb. 28, Mar. 1-3.
1921-38: Maximum discharge, that of Apr. 7, 1938; minimum, 1.4 million gallons a day (2.2 second-feet) Nov. 25, 1933.

Remarks.- Records excellent except those for periods when clock was not running, July 31 to Aug. 3, Feb. 2, 3, May 4, 5, May 27 to June 5, June 12 (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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.7	2.85	1.1	8.4	1.8	33.5	3.0	137
.8	3.8	1.2	10.6	2.0	45	3.5	203
.9	5.1	1.4	16.3	2.2	59		
1.0	6.6	1.6	24	2.6	93		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.3	85	5.7	8.0	8.8	5.1	7.1	6.1	2.85	4.6	9.0	15
2	5.3	35	6.8	8.3	5.1	4.7	7.6	5.4	2.85	5.8	20.5	16
3	8.4	20	8.0	8.1	4.1	4.4	7.4	6.0	4.1	8.4	13.3	8.0
4	15.6	11.4	10.0	8.1	4.6	4.3	5.7	5.0	8.7	4.4	8.0	6.5
5	16.5	9.7	6.4	7.2	7.2	4.2	6.0	10.2	7.0	4.1	6.0	6.0
6	31	8.4	6.0	5.0	5.2	3.9	5.1	5.0	3.7	140	5.4	5.7
7	17.7	7.3	9.9	8.4	8.9	3.8	8.9	4.6	3.25	187	5.1	7.3
8	8.3	9.5	10.2	8.5	17.2	3.7	13.0	4.4	38	52	5.4	12.6
9	6.6	15.4	6.3	5.1	12.8	3.6	10.2	4.3	13.2	76	28.5	45
10	6.2	22.5	5.7	5.0	9.1	3.4	4.8	4.3	6.0	71	25	19.2
11	7.0	12.2	10.5	4.8	18.2	3.3	4.4	6.4	4.3	25.5	16.0	*6.6
12	12.4	11.0	6.6	4.4	6.6	3.3	4.3	29	6.1	41	21.5	6.3
13	6.6	8.0	5.6	6.0	5.8	9.0	4.2	10.3	12.1	11.2	7.9	6.2
14	10.1	14.9	5.4	5.1	5.6	22	4.1	5.0	16.9	31	5.8	12.8
15	9.2	42	9.8	4.6	5.4	9.0	3.8	4.4	18.2	11.4	6.0	8.9
16	7.6	16.3	5.7	4.2	5.1	4.8	3.7	4.1	21.5	8.6	5.4	10.4
17	13.4	11.4	5.1	3.9	4.8	3.9	9.3	4.3	43	7.7	5.1	7.5
18	7.5	13.0	4.8	4.6	4.6	3.6	4.8	4.3	52	6.6	5.0	9.0
19	6.3	8.0	5.1	3.8	4.3	3.5	3.9	3.7	36	6.2	9.2	12.8
20	14.2	7.3	4.6	3.6	4.1	3.5	16.2	3.6	16.0	5.7	25.5	6.8
21	24.5	6.6	4.3	3.5	23.5	3.5	5.4	3.5	12.5	5.4	61	6.3
22	12.6	6.2	4.4	3.5	19.4	3.5	3.8	3.4	11.8	5.1	10.6	5.7
23	8.2	10.2	9.2	4.1	21	21.5	3.7	3.3	13.8	5.1	20.5	5.6
24	13.0	6.2	4.7	15.0	24	14.9	19.1	3.25	9.5	4.7	13.6	5.1
25	13.7	7.5	5.2	7.0	16.0	16.8	6.7	3.15	7.0	5.1	11.1	5.0
26	10.2	8.6	4.3	4.1	6.3	26.5	55	3.15	6.2	4.6	28	4.7
27	9.7	7.5	4.1	3.6	6.0	10.6	51	3.05	5.8	12.0	8.0	8.3
28	7.3	9.8	3.9	3.6	5.7	16.0	54	2.95	5.6	6.6	7.5	7.1
29	14.1	7.2	4.6	5.4	6.4	75	9.4	-	5.1	4.3	18	4.7
30	*11.1	7.1	4.1	4.9	5.6	77	27	-	4.8	4.3	14	4.6
31	66	6.2	-	5.8	-	13.0	7.9	-	4.6	-	11	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	66	5.3	13.1	20.3	406	1,240
August	85	6.2	14.6	22.6	451	1,390
September	10.5	3.9	6.23	9.64	187	574
October	15.0	3.5	5.72	8.85	177	544
November	24	4.1	9.38	14.5	281	864
December	77	3.3	12.4	19.2	385	1,180
Calendar year 1937	85	3.3	11.9	18.4	4,350	13,340
January	55	3.7	12.2	18.9	378	1,160
February	29	2.95	5.58	8.63	156	479
March	52	2.85	13.0	20.1	402	1,240
April	187	4.1	25.5	39.5	765	2,350
May	61	5.0	14.1	21.8	437	1,340
June	45	4.6	9.52	14.7	286	877
Fiscal year 1937-38	187	2.85	11.8	18.3	4,310	13,240

*Partly estimated.

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 1938.

Average discharge.- 14 years (1922-34, 1936-38), 20.2 million gallons a day (31.3 second-feet).

Extremes.- Maximum discharge during year, 4,020 million gallons a day (6,220 second-feet) Apr. 6 (gage height, 9.12 feet), from rating curve extended above 75 million gallons a day; minimum, 2.75 million gallons a day (4.25 second-feet) Feb. 28, Mar. 1, 3. 1914-17, 1921-38: Maximum discharge, that of Apr. 6, 1938; minimum, 0.6 million gallons a day (0.9 second-foot) Sept. 15-17, 1917.

Remarks.- Records excellent except those for period of missing gage heights, Apr. 7 to June 20 (computed on basis of records for East Wailuaiki Stream near Keanae), and those above 100 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet and discharge, in million gallons a day)

0.4	1.70	1.0	16.7	1.7	63	3.0	255	5.0	910
.6	4.7	1.2	26	2.0	93	3.5	370		
.8	9.6	1.4	39	2.5	163	4.0	520		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.5	321	7.4	16.4	21.5	5.4	11.2	9.1	2.75	5.4	19	25
2	18.7	163	10.1	19.6	10.3	4.9	10.4	7.4	2.85	10.3	60	30
3	32	73	10.0	21	5.8	4.5	8.8	9.1	7.1	16.3	30	13
4	57	18.8	23.5	15.4	6.9	4.4	6.9	6.9	10.7	5.8	16	10
5	56	14.0	11.6	18.2	16.6	4.2	9.5	31.5	16.3	5.1	8.5	8.5
6	107	11.2	9.9	7.7	14.2	4.2	6.2	10.4	5.4	550	7.5	7.5
7	56	9.1	19.0	11.0	40	4.0	27	7.4	3.7	830	7.0	16
8	18.6	13.2	23	12.1	95	3.85	27	6.7	153	300	8.5	30
9	9.6	31	10.4	6.0	59	3.7	31	6.2	51	300	90	180
10	7.4	49	8.2	5.6	33.5	3.5	8.5	5.8	15.7	300	110	55
11	11.5	24	16.2	5.1	37.5	3.35	7.2	7.4	10.7	95	60	13
12	32.5	19.0	9.6	4.7	13.0	4.4	6.2	30.5	16.4	150	75	10
13	10.2	12.6	6.9	7.1	7.7	22.5	5.6	19.9	33	30	22	9.0
14	21	24	6.7	5.4	6.5	72	4.9	7.7	63	60	14	28
15	19.9	133	15.3	4.4	6.0	27	4.5	6.2	86	30	11	19
16	12.6	38	9.0	4.0	5.4	8.2	4.4	5.8	92	28	8.5	21
17	16.9	22	6.9	3.7	4.9	5.8	19.5	6.0	177	19	7.5	13
18	10.1	18.4	6.2	4.2	4.7	4.9	10.9	5.6	247	13	7.0	20
19	8.0	11.2	6.6	4.8	4.4	4.2	5.6	4.4	149	10	22	30
20	36.5	10.3	5.4	3.7	4.2	3.85	20.5	4.2	45	9.0	80	15
21	46	8.8	4.9	3.5	66	3.7	12.4	3.85	27	8.0	220	10.9
22	30	7.4	5.7	4.0	67	3.85	6.0	3.7	17.6	7.5	36	8.2
23	18.3	23	20	5.5	55	62	5.4	3.5	25.5	7.5	55	6.9
24	29	9.8	7.2	23	39	53	85	3.25	14.5	6.5	45	6.0
25	21	15.9	9.4	19.6	37.5	50	11.1	3.15	9.1	8.5	20	5.6
26	14.1	23.5	5.8	5.8	10.0	97	203	3.00	7.7	7.0	70	4.9
27	15.0	19.5	5.4	4.7	7.7	32	187	2.85	6.9	34	18	15.8
28	9.9	25	4.9	4.7	6.9	26.5	244	2.75	6.5	19	15	11.8
29	21.5	14.0	9.7	8.4	9.2	241	40	-	5.8	7.5	50	6.2
30	18.1	11.6	5.7	9.9	6.0	311	34.5	-	5.6	7.0	33	5.8
31	253	8.5	-	9.3	-	30.5	15.0	-	5.1	-	20	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	253	7.4	33.3	51.5	1,030	3,170
August	321	7.4	38.2	59.1	1,180	3,630
September	23.5	4.9	10.0	15.5	301	923
October	23	3.5	8.98	13.9	278	855
November	95	4.2	23.4	36.2	702	2,150
December	311	3.35	35.8	55.4	1,110	3,400
Calendar year 1937	321	2.85	28.8	44.6	10,520	32,290
January	244	4.4	34.8	53.8	1,080	3,310
February	31.5	2.75	8.01	12.4	224	688
March	247	2.75	42.5	65.8	1,320	4,050
April	830	5.1	96.0	149	2,880	8,840
May	220	7.0	40.2	62.2	1,250	3,820
June	180	4.9	21.2	32.8	635	1,950
Fiscal year 1937-38	830	2.75	32.8	50.7	11,990	36,790

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East Wailuaiki Stream near Keanae

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

Drainage area.- 3.7 square miles.

Records available.- December 1913 to October 1917 and July 1922 to June 1938.

Average discharge.- 16 years (1922-38), 20.5 million gallons a day (31.7 second-feet).

Extremes.- Maximum discharge during year, 3,060 million gallons a day (4,730 second-feet) Apr. 6 (gage height, 9.26 feet), from rating curve extended above 300 million gallons a day; minimum, 2.9 million gallons a day (4.5 second-feet) Feb. 28.
1913-17, 1922-38: Maximum discharge, that of Apr. 6, 1938; 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. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.6	2.8	1.4	12.6	2.8	75	4.5	310	6.5	980
.8	4.3	1.6	16.9	3.2	112	5.0	425		
1.0	6.3	2.0	28.5	3.6	159	5.5	570		
1.2	9.1	2.4	47	4.0	215	6.0	760		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.2	254	8.6	21.5	26.5	5.1	12.6	9.6	3.0	5.5	19.2	26
2	17.2	116	10.7	18.5	11.2	4.8	11.3	7.9	3.2	10.6	58	29.5
3	33.5	66	16.0	21.5	5.4	4.5	10.3	9.1	7.6	19.3	28	12.6
4	66	22	25.5	15.0	6.1	4.3	7.2	7.0	11.2	5.8	16.0	10.1
5	63	15.8	12.6	17.6	14.2	4.2	10.0	31.5	14.8	4.8	9.1	9.0
6	113	12.2	10.8	7.9	9.9	4.1	6.4	10.1	5.5	546	7.9	8.0
7	58	10.5	23	11.6	34.5	3.8	25.5	6.8	3.9	827	7.6	15.6
8	17.6	14.8	26	13.4	88	3.7	25	6.0	153	298	9.0	30
9	10.0	36.5	11.5	6.4	59	3.5	36	5.5	58	304	86	181
10	7.8	69	9.4	6.1	32	3.4	8.4	5.1	16.3	294	112	53
11	10.9	29.5	19.2	5.8	45	3.2	6.7	6.1	10.4	97	60	13.6
12	36	20.5	10.8	5.2	12.4	3.9	6.0	22.5	17.6	151	75	10.1
13	10.0	13.6	8.2	7.5	7.9	36.5	5.2	15.5	37.5	29.5	22.5	9.3
14	21.5	28.5	7.8	5.8	6.6	84	4.8	6.6	66	62	13.6	28.5
15	18.0	144	17.3	5.1	6.0	28	4.6	5.3	88	32	11.2	18.7
16	12.2	38.5	10.5	4.7	5.3	7.9	4.4	4.9	98	28	9.1	21
17	18.7	24.5	7.6	4.5	4.9	5.2	23	5.0	184	18.7	7.8	12.6
18	10.5	21.5	6.8	5.0	4.6	4.6	10.2	5.0	242	12.6	7.5	19.6
19	8.2	13.6	7.2	5.1	4.4	4.1	5.1	4.2	169	10.5	21.5	30.5
20	39.5	11.7	6.1	4.3	4.1	3.8	12.1	4.1	51	9.1	82	15.0
21	57	10.8	5.8	4.1	84	3.6	7.6	3.9	32.5	8.4	219	14.8
22	29.5	9.3	6.6	4.3	77	3.9	4.8	3.7	19.9	7.9	36	10.5
23	17.3	30	22	5.6	66	83	4.6	3.7	29	8.0	55	8.5
24	30	11.2	7.8	35.5	41	48	82	3.5	15.2	7.1	44	7.6
25	21	15.6	8.9	21	38	57	21.5	3.4	9.6	9.0	21	7.2
26	14.9	23.5	6.1	6.0	9.6	89	220	3.2	7.9	7.5	71	6.8
27	13.6	16.9	5.5	4.8	7.5	32	185	3.2	7.1	33.5	18.1	24.5
28	10.5	25.5	5.2	4.8	6.3	29.5	188	3.1	6.4	19.3	14.6	16.4
29	25	14.6	11.6	10.2	9.0	254	38	-	6.0	7.8	52	7.8
30	18.7	12.2	6.4	10.0	5.8	298	44	-	5.6	7.3	33	7.0
31	209	10.0	-	9.8	-	42	16.1	-	5.2	-	21	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	209	7.8	33.4	51.7	1,030	3,170
August	254	9.3	36.8	56.9	1,140	3,510
September	26	5.2	11.4	17.6	342	1,050
October	35.5	4.1	9.95	15.4	309	947
November	88	4.1	24.4	37.8	732	2,250
December	298	3.2	37.5	58.0	1,160	3,570
Calendar year 1937	314	3.2	31.0	48.0	11,320	34,790
January	220	4.4	33.8	52.3	1,050	3,210
February	31.5	3.1	7.34	11.4	206	631
March	242	3.0	44.7	69.2	1,380	4,250
April	827	4.8	96.0	149	2,880	8,840
May	219	7.5	40.2	62.2	1,250	3,830
June	181	6.8	22.2	34.4	665	2,040
Fiscal year 1937-38	827	3.0	33.3	51.5	12,140	37,300

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 1938.

Average discharge.- 16 years (1922-38), 26.2 million gallons a day (40.5 second-feet).

Extremes.- Maximum discharge during year, 3,180 million gallons a day (4,920 second-feet) Apr. 6 (gage height, 11.60 feet), from rating curve extended above 420 million gallons a day; minimum, 2.4 million gallons a day (3.7 second-feet) Feb. 28, Mar. 1.
1914-17, 1921-38: 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, Nov. 16 to Dec. 15, Apr. 13 to June 30 (computed on basis of records for nearby stations), and those above 600 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.5	1.95	2.0	40	6.0	835
.7	3.5	2.5	73	7.0	1,190
1.0	7.2	3.0	121	8.0	1,580
1.3	13.0	4.0	270		
1.6	22	5.0	510		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.5	344	8.7	23	29.5	5.8	15.6	10.8	2.45	5.3	25	27
2	27	133	10.7	21	11.8	5.2	12.2	8.6	2.6	11.5	70	32
3	39.5	88	16.5	24.5	6.3	4.9	11.0	*10.3	6.1	20.5	35	15
4	78	26.5	30	18.6	6.3	4.6	7.9	7.7	12.0	6.4	20	11
5	85	16.8	13.8	22.5	15.3	4.4	10.7	41	13.8	5.3	10	9.5
6	138	12.3	11.0	9.5	11.6	4.3	6.9	11.0	5.8	825	8.0	8.0
7	73	10.2	24	12.6	47	4.2	34.5	7.4	3.7	1,210	7.8	15
8	24	11.3	32.5	12.6	112	4.1	43	6.2	205	*312	9.5	40
9	12.0	39	12.6	6.9	76	3.9	46	5.6	70	*475	100	220
10	8.6	76	9.8	6.3	36.5	3.8	10.0	5.0	17.7	*479	130	60
11	11.4	36	19.4	5.6	55	3.7	7.5	5.3	13.0	*161	70	15
12	44	22.5	11.5	5.1	15.4	6.0	6.3	19.2	18.5	*187	90	11
13	11.6	14.3	8.6	6.8	9.7	40	5.6	12.3	45	40	30	9.5
14	22.5	29	7.7	5.1	7.7	100	5.0	6.4	82	70	15	35
15	20	202	19.7	4.5	*8.8	35	4.7	5.1	113	35	12	20
16	13.4	48	12.0	4.2	6.0	*10	4.4	4.6	126	30	10	23
17	18.9	27.5	7.9	4.0	5.4	6.6	27	4.6	243	23	8.0	13
18	11.4	24.5	6.8	5.8	5.0	5.5	11.0	4.5	366	15	7.6	20
19	8.7	14.0	6.8	4.5	4.8	4.7	5.6	3.8	230	12	25	35
20	48	12.5	5.6	3.8	4.5	4.2	6.9	3.6	66	10	100	17
21	58	12.0	5.1	3.5	95	3.9	5.4	3.3	36.5	9.0	300	16
22	34.5	8.9	6.2	3.9	90	4.1	4.4	3.25	22.5	8.3	50	11
23	21.5	34	23.5	4.7	75	102	4.2	2.95	33.5	8.0	60	9.0
24	39	12.4	8.6	44	45	78	103	2.85	19.0	7.8	50	8.0
25	25	17.6	9.1	18.6	42	55	26	2.8	11.5	9.5	25	7.2
26	16.0	25	6.0	6.3	13.0	108	316	2.7	9.3	8.0	80	6.8
27	15.6	23	5.3	4.9	9.0	38.5	223	2.55	8.0	40	20	30
28	12.2	30	5.0	4.6	7.5	37	225	2.45	7.0	20	15	18
29	25	15.9	13.4	10.1	10.0	344	46	-	6.3	8.0	60	9.0
30	19.6	13.8	7.5	10.5	7.0	419	48	-	5.6	7.5	35	7.0
31	303	10.6	-	10.3	-	47	17.9	-	5.2	-	22	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	303	8.6	41.3	63.9	1,280	3,930
August	344	8.9	44.9	69.5	1,390	4,270
September	32.5	5.0	12.2	18.9	365	1,120
October	44	3.5	10.6	16.4	328	1,010
November	112	4.5	28.9	44.7	866	2,660
December	419	3.7	48.3	74.7	1,500	4,600
Calendar year 1937	419	3.2	36.1	55.9	13,190	40,450
January	316	4.2	42.0	65.0	1,300	3,990
February	41	2.45	7.35	11.4	206	632
March	366	2.45	58.5	90.2	1,810	5,640
April	1,210	5.3	135	209	4,060	12,460
May	300	7.6	48.4	74.9	1,500	4,600
June	220	6.8	25.3	39.1	758	2,330
Fiscal year 1937-38	1,210	2.45	42.1	65.1	15,360	47,140

*Partly estimated.

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 1938. January 1914 to October 1917, at site 500 feet upstream.

Average discharge.- 16 years (1922-38), 5.90 million gallons a day (9.13 second-feet).

Extremes.- Maximum discharge during year, 590 million gallons a day (913 second-feet) Apr. 6 (gage height, 5.45 feet), from rating curve extended above 50 million gallons a day; minimum, 0.98 million gallons a day (1.52 second-feet) Feb. 27 to Mar. 3. 1914-17, 1921-38: Maximum discharge, 1,050 million gallons a day (1,620 second-feet) Feb. 12, 1925 (gage height, 6.96 feet), from rating curve extended above 100 million gallons a day; minimum, 0.1 million gallons a day (0.2 second-foot) Apr. 11, 1926.

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

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.40	0.7	6.3	1.6	52
.4	1.15	1.0	17.0	2.0	83
.5	2.5	1.3	33	2.5	132

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.3	41	2.7	6.0	8.6	2.15	2.0	3.25	0.98	1.75	7.8	10.1
2	4.5	41	3.1	7.2	4.5	2.0	3.95	2.9	.98	4.9	20	14.8
3	7.5	19.0	4.9	7.5	2.7	2.0	4.2	2.8	3.3	4.5	11.4	4.6
4	13.0	7.3	5.2	7.2	2.9	1.88	2.9	2.15	8.4	1.88	7.7	3.45
5	12.8	5.0	3.65	5.7	6.3	1.75	3.2	6.4	5.1	1.62	3.45	3.05
6	24	4.0	3.25	2.9	3.25	1.75	2.3	2.5	1.88	99	2.9	2.5
7	8.0	3.45	7.6	5.2	5.5	1.62	4.1	2.15	1.49	122	2.7	5.1
8	4.2	6.6	6.4	7.0	11.3	1.49	6.8	2.0	35.5	27.5	3.8	8.4
9	3.25	9.1	3.45	2.7	5.4	1.37	6.3	1.88	9.0	40	28	44
10	2.7	27	2.9	2.3	5.8	1.37	2.5	1.75	5.3	61	26.5	18.9
11	3.85	8.2	7.9	2.15	18.2	1.49	2.15	2.15	3.25	18.5	15.2	4.0
12	6.5	7.3	3.75	1.88	4.0	1.62	2.0	9.4	7.3	30.5	14.1	3.25
13	2.9	4.8	2.9	2.95	2.9	11.8	1.88	4.7	13.2	6.0	4.6	2.9
14	7.0	13.4	2.7	2.15	2.5	23	1.75	2.7	10.8	28	3.45	9.4
15	5.4	33	6.4	1.88	2.3	9.1	1.62	2.15	8.9	8.3	3.05	5.4
16	4.4	9.2	3.5	1.75	2.0	3.4	1.49	2.0	17.0	4.4	2.5	8.0
17	11.1	9.6	2.3	1.62	1.88	2.15	7.8	2.15	38	4.0	2.3	4.7
18	4.8	8.4	2.15	2.1	1.75	1.75	2.95	2.15	40	3.05	2.15	8.0
19	3.65	4.4	2.5	1.75	1.62	1.62	1.75	1.75	24.5	2.5	8.7	12.5
20	7.9	3.85	2.0	1.49	1.62	1.49	2.4	1.62	8.6	2.3	24	4.5
21	23.5	3.25	1.88	1.37	14.0	1.37	2.15	1.49	9.0	2.3	48	4.3
22	8.6	2.9	2.0	1.37	14.5	1.49	1.62	1.37	8.4	2.15	7.3	3.05
23	5.4	8.8	5.6	1.75	17.5	22.5	1.37	1.26	10.6	2.15	20	2.7
24	9.0	3.25	2.15	14.9	19.5	10.8	9.6	1.26	5.2	1.75	13.8	2.3
25	9.2	4.2	2.8	5.4	14.8	10.0	4.2	1.25	3.45	2.6	9.0	2.15
26	6.6	4.3	1.88	2.3	3.85	17.1	33.5	1.15	2.9	2.0	27	2.0
27	5.2	3.65	1.75	1.88	3.05	6.8	37	1.06	2.5	9.5	6.1	9.0
28	3.65	6.5	1.62	2.0	2.9	14.3	35.5	.98	2.15	3.4	5.4	5.3
29	10.8	4.2	3.2	5.0	4.1	73	6.9	-	1.88	2.0	20	2.3
30	7.6	4.0	1.88	3.45	2.5	55	17.0	-	1.75	2.0	9.4	2.15
31	27	2.9	-	4.7	-	11.3	5.0	-	1.62	-	7.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	27	2.7	8.33	12.9	258	793
August	41	2.9	10.1	15.6	314	962
September	7.9	1.62	3.47	5.37	104	319
October	14.9	1.37	3.79	5.86	118	361
November	19.5	1.62	6.39	9.89	192	588
December	73	1.37	9.63	14.9	298	916
Calendar year 1937	73	1.37	8.32	12.9	3,040	9,320
January	37	1.37	7.03	10.9	218	669
February	9.4	.98	2.44	3.78	68.4	210
March	40	.98	9.45	14.6	293	899
April	122	1.62	16.7	25.8	502	1,540
May	48	2.15	11.9	18.4	368	1,130
June	44	2.0	7.09	11.0	213	653
Fiscal year 1937-38	122	.98	8.07	12.5	2,950	9,040

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.
Drainage area.- 0.7 square mile.
Records available.- December 1913 to October 1917 and July 1922 to June 1938.
Average discharge.- 16 years (1922-38), 9.64 million gallons a day (14.9 second-feet).
Extremes.- Maximum discharge recorded during year, 430 million gallons a day (665 second-feet) Dec. 30 (gage height, 6.39 feet), from rating curve extended above 18 million gallons a day by broad-crested weir and orifice formulas; minimum discharge, 0.35 million gallons a day (0.54 second-foot) Oct. 22.
1913-17, 1922-38: Maximum discharge, 1,220 million gallons a day (1,890 second-feet) Jan. 14, 1923 (gage height, 7.70 feet), 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 missing gage heights, Mar. 13-20, Mar. 27 to June 30, 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 tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

With gate open				With gate closed			
1.67	0.0	2.4	21.5	2.4	0.00	3.3	45
1.7	.6	2.7	33.5	2.5	1.75	3.6	69
1.8	2.9	3.0	47	2.6	4.6	4.0	107
1.9	5.4	3.5	79	2.8	12.5	4.5	161
2.0	8.1	4.0	123	3.0	23	5.0	225
2.2	14.3	4.5	186				

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.2	100	4.0	7.0	8.2	3.75	16.3	5.7	2.05	3.5	13	15
2	6.6	47	4.3	8.6	3.9	3.45	12.1	4.6	2.6	8.0	30	18
3	9.5	30.5	6.2	8.8	1.58	3.2	10.0	5.0	4.9	10	17	9.0
4	18.8	13.0	7.9	8.4	1.58	3.2	5.0	4.3	10.5	4.0	9.0	7.0
5	24	8.4	5.3	7.1	5.6	2.6	5.3	17.6	5.6	3.0	7.0	5.6
6	37	6.8	4.6	3.75	2.05	2.6	4.0	5.3	2.6	120	5.6	5.0
7	24	6.1	9.2	6.1	10.9	2.3	12.3	4.0	1.75	150	5.0	7.0
8	10.8	8.0	9.6	6.7	45	2.3	6.7	3.45	69	50	6.0	20
9	6.1	13.0	5.3	2.6	26.5	2.05	32.5	3.45	20	60	35	60
10	4.3	25.5	4.6	2.3	18.4	2.05	6.4	4.0	7.9	70	40	30
11	5.3	12.3	9.4	2.05	22	2.05	5.3	5.3	4.6	40	25	8.0
12	9.8	9.6	5.7	1.58	7.9	2.05	4.6	12.6	9.8	50	30	6.0
13	4.6	6.9	4.3	3.45	5.3	11.5	4.0	5.2	20	15	14	5.4
14	8.1	12.2	3.2	2.6	5.0	29	4.0	3.45	16	40	10	17
15	7.2	59	9.3	2.05	4.3	12.3	4.0	3.2	14	28	8.0	12
16	5.7	16.4	6.1	1.58	3.75	4.9	3.2	3.2	30	16	7.0	15
17	11.4	12.9	4.3	1.40	3.45	3.75	11.6	3.75	60	12	6.0	9.0
18	8.3	12.4	4.3	1.69	3.45	3.2	5.5	4.6	70	9.0	5.6	14
19	2.45	7.6	5.0	.88	3.2	2.9	3.45	3.75	50	8.0	10	18
20	7.3	6.4	3.2	.52	3.2	2.9	3.8	3.75	25	7.0	40	10
21	18.6	5.7	2.9	.35	23.5	2.9	3.45	3.45	17	6.6	70	7.0
22	6.4	5.0	2.9	.35	25.5	3.2	2.9	3.45	12	6.0	20	5.4
23	2.55	10.8	7.6	.88	30	26	2.6	4.0	16.6	5.6	30	4.5
24	7.4	5.0	3.2	11.7	19.0	25	28.5	3.2	10	5.6	25	4.0
25	7.1	6.1	4.0	6.6	17.8	22.5	9.4	2.9	6.8	6.2	14	3.8
26	2.8	6.4	2.3	1.22	6.8	31	83	2.6	5.7	5.0	11	3.5
27	1.85	6.4	2.05	1.05	5.7	14.2	79	2.05	5.0	15	9.0	12
28	4.2	9.1	1.75	1.05	4.6	18.3	71	1.75	4.5	8.0	8.0	8.0
29	8.8	6.9	3.7	.65	5.6	97	21.5	-	4.0	5.0	30	4.5
30	3.5	6.1	2.3	2.6	4.0	172	28	-	4.0	4.5	20	4.0
31	94	4.3	-	3.25	-	39	8.7	-	3.5	-	13	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	94	1.85	12.0	18.6	373	1,140
August	100	4.3	15.7	24.3	486	1,490
September	9.6	1.75	4.95	7.66	148	456
October	11.7	.35	3.61	5.59	112	343
November	45	1.58	10.9	16.9	328	1,010
December	172	2.05	17.8	27.5	553	1,700
Calendar year 1937	172	.35	13.4	20.7	4,880	14,990
January	83	2.6	16.1	24.9	498	1,530
February	17.6	1.75	4.63	7.16	130	398
March	70	1.75	16.6	25.7	515	1,580
April	150	3.0	25.7	39.8	771	2,370
May	70	5.0	18.5	28.6	573	1,760
June	60	3.5	11.6	17.9	348	1,070
Fiscal year 1937-38	172	.35	13.2	20.4	4,840	14,850

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 1938.

Extremes.- Maximum discharge during year, 11.6 million gallons a day (17.9 second-feet) Apr. 6 (gage height, 2.04 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) Apr. 7, 8.

1934-38: 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 and Apr. 7, 8, 1938.

Remarks.- Records excellent. Water used in vicinity of Keanae for irrigation of taro.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.55	3.65	2.75	2.75	2.6	2.35	2.0	2.0	2.6	2.6	2.3	2.45
2	2.55	3.5	2.7	2.8	2.45	2.3	1.63	1.96	2.6	2.6	2.65	2.5
3	2.75	3.15	2.75	2.8	2.35	2.3	1.67	1.96	2.6	2.75	2.5	2.35
4	2.9	2.85	2.85	2.8	2.3	2.3	2.0	1.91	2.9	2.6	2.4	2.3
5	2.9	2.8	2.7	2.8	2.5	2.2	2.6	2.25	2.7	2.55	2.35	2.25
6	3.15	2.75	2.65	2.65	2.35	2.15	2.6	1.96	2.5	4.0	2.35	2.25
7	2.75	2.7	2.75	2.7	2.4	2.15	2.65	1.91	2.45	.95	2.3	2.25
8	2.6	2.75	2.8	2.75	2.75	2.15	2.6	1.87	3.2	1.41	2.3	2.4
9	2.6	2.9	2.7	2.6	2.55	2.15	2.65	1.87	3.0	3.0	2.85	3.35
10	2.6	3.25	2.65	2.6	2.5	2.15	2.3	1.87	2.6	1.92	3.25	2.55
11	2.6	2.9	2.85	2.6	2.85	2.15	2.25	1.91	2.55	.33	2.85	2.15
12	2.8	2.75	2.75	2.6	2.45	2.1	2.2	2.0	2.6	1.32	2.85	2.1
13	2.5	2.7	2.7	2.6	2.35	3.6	2.15	2.0	2.95	2.15	2.6	2.1
14	2.7	2.85	2.7	2.55	2.35	3.0	2.1	1.87	2.95	2.85	2.55	2.15
15	2.55	3.15	2.8	2.5	2.3	2.7	2.1	1.82	3.0	2.7	2.55	2.15
16	2.6	2.5	2.75	2.4	2.3	2.5	2.15	1.77	3.25	2.5	2.5	2.1
17	2.75	2.4	2.7	2.35	2.3	2.4	2.35	2.05	3.7	2.5	2.5	2.05
18	2.55	2.45	2.7	2.35	2.35	2.35	2.3	2.85	3.9	2.3	2.45	2.35
19	2.55	2.3	2.65	2.35	2.3	2.3	2.25	2.75	3.6	2.25	2.6	2.65
20	2.8	2.65	2.65	2.3	2.2	2.25	2.45	2.65	3.0	2.25	3.1	2.5
21	3.1	2.8	2.65	2.25	2.9	2.25	2.45	2.65	2.85	2.25	3.6	2.55
22	2.85	2.8	2.65	2.25	3.15	2.2	2.4	2.6	2.75	2.25	2.5	2.5
23	2.65	3.0	2.85	2.2	3.2	2.95	2.35	2.6	2.9	2.2	2.65	2.45
24	2.8	2.8	2.75	2.5	2.95	2.85	2.9	2.55	2.8	2.2	2.7	2.4
25	2.75	2.75	2.75	2.65	2.8	2.8	2.55	2.55	2.8	2.15	2.45	2.4
26	2.7	2.8	2.75	2.4	2.6	3.0	3.6	2.6	2.8	2.2	2.9	2.4
27	2.7	2.75	2.7	2.35	2.5	2.8	3.65	2.6	2.75	2.45	2.4	2.5
28	2.7	2.85	2.65	2.3	2.45	2.75	3.2	2.6	2.7	2.35	2.35	2.45
29	2.8	2.75	2.75	2.35	2.4	3.9	2.3	-	2.65	2.3	2.65	2.35
30	2.75	2.75	2.65	2.45	2.35	3.6	2.45	-	2.65	2.3	2.55	2.35
31	3.4	2.75	-	2.35	-	2.6	2.2	-	2.65	-	2.35	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.4	2.5	2.74	4.24	85.0	261
August	3.65	2.3	2.83	4.38	87.8	269
September	2.85	2.65	2.72	4.21	81.7	251
October	2.8	2.2	2.51	3.88	77.9	239
November	3.2	2.2	2.53	3.91	75.8	233
December	3.9	2.1	2.56	3.96	79.2	243
Calendar year 1937	3.9	.17	2.61	4.04	951	2,920
January	3.65	1.63	2.42	3.74	75.0	230
February	2.85	1.77	2.21	3.42	62.0	190
March	3.9	2.45	2.87	4.44	89.0	273
April	4.0	.33	2.27	3.51	68.2	209
May	3.6	2.3	2.61	4.04	80.9	248
June	3.35	2.05	2.38	3.68	71.3	219
Fiscal year 1937-38	4.0	.33	2.56	3.96	934	2,860

Koolau ditch near Keanae

Location.- Lat. 20°49'55", long. 156°10'30", on west side of Keanae Valley, 2¾ miles southwest of Keanae post office and 5.1 miles southeast of Kailua.

Records available.- January 1910 to December 1912 (staff gage), November 1917 to June 1938.

Average discharge.- 20 years (1918-38), 65.8 million gallons a day (102 second-feet).

Extremes.- Maximum discharge during year, 165 million gallons a day (255 second-feet) Dec. 30 (gage height, 5.78 feet); minimum, 1.6 million gallons a day (2.5 second-feet) Dec. 31.
1910-12, 1917-38: 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 period of missing gage heights, Apr. 3-30, 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	72	157	79	98	122	57	75	97	34.5	68	128	140
2	115	157	94	129	90	53	108	87	34.5	97	141	140
3	137	153	97	133	57	49	108	96	64	125	140	116
4	144	141	133	118	64	47	83	76	115	65	128	92
5	144	137	104	118	112	45	97	125	115	56	92	89
6	148	122	94	76	90	45	68	90	55	130	77	77
7	144	111	122	94	108	43	129	72	41	135	70	108
8	133	118	133	104	144	41	101	68	100	112	75	140
9	104	144	104	68	141	39.5	133	64	137	118	132	134
10	83	148	83	59	138	38	83	62	129	112	138	140
11	94	141	118	55	144	38	72	90	97	90	140	124
12	137	137	104	51	111	39.5	64	94	115	129	140	104
13	97	125	76	76	83	76	57	115	148	79	140	89
14	111	141	72	59	68	144	55	83	153	101	104	140
15	125	148	115	51	59	130	51	68	153	101	100	132
16	111	144	90	47	53	87	49	62	153	101	77	140
17	133	141	68	43	49	59	97	64	157	139	66	124
18	111	141	64	52	47	50	87	62	153	118	62	135
19	87	125	68	47	45	45	55	51	148	101	92	140
20	133	118	55	41	43	43	70	47	148	90	141	116
21	144	108	53	39.5	106	41	83	45	148	81	134	112
22	141	90	59	41	144	43	53	43	141	78	120	85
23	137	90	113	53	144	130	45	41	144	78	141	74
24	141	101	72	101	141	144	121	39.5	133	69	140	66
25	137	122	87	110	144	141	122	38	108	79	124	59
26	133	125	55	59	111	137	144	36	97	64	138	55
27	133	133	51	49	90	144	144	34.5	87	129	128	116
28	111	137	47	49	76	133	144	34.5	79	107	120	116
29	129	122	77	68	90	157	141	-	76	70	141	62
30	137	111	55	79	64	75	141	-	68	66	132	59
31	141	90	-	75	-	1.9	129	-	64	-	140	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	148	72	124	192	3,850	11,810
August	157	90	128	198	3,980	12,210
September	133	47	84.7	131	2,540	7,800
October	133	39.5	72.3	112	2,240	6,880
November	144	43	95.9	148	2,880	8,830
December	157	1.9	74.7	116	2,320	7,110
Calendar year 1937	157	1.9	105	162	38,340	117,600
January	144	45	93.8	145	2,910	8,930
February	125	34.5	67.3	104	1,880	5,780
March	157	34.5	110	170	3,400	10,420
April	139	56	96.3	149	2,890	8,860
May	141	82	117	181	3,640	11,170
June	140	55	107	166	3,220	9,890
Fiscal year 1937-38	157	1.9	97.9	151	35,750	109,700

Honomanu Stream near Keanae

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

Drainage area.- 3.3 square miles.

Records available.- November 1913 to June 1938.

Average discharge.- 22 years (1916-38), 16.0 million gallons a day (24.8 second-feet).

Extremes.- Maximum discharge during year, 1,460 million gallons a day (2,260 second-feet) Apr. 7 (gage height, 8.64 feet), from rating curve extended above 460 million gallons a day; minimum, 0.70 million gallons a day (1.08 second-feet) Mar. 1.
1913-38: Maximum discharge, 1,580 million gallons a day (2,440 second-feet) Feb. 25, 1935 (gage height, 8.98 feet), 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. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.6	0.65	2.6	26	4.0	173
1.8	2.15	2.8	37.5	4.5	269
2.0	5.2	3.0	52	5.0	385
2.2	10.0	3.3	80	6.0	650
2.4	16.8	3.6	114		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	18.1	148	4.3	7.4	15.5	2.55	7.4	5.2	0.75	2.1	10.6	11.4
2	15.4	105	6.8	13.2	6.5	2.15	5.0	6.3	.90	8.6	30	14.6
3	25.5	68	12.4	14.5	3.2	2.05	5.3	12.5	2.15	16.8	16.6	7.7
4	44	14.6	23.5	14.4	3.2	1.85	3.45	5.2	16.0	4.0	10.9	5.4
5	36.5	9.2	8.4	17.4	9.1	1.65	4.8	21.5	7.8	2.65	7.4	4.0
6	58	6.5	5.9	4.8	5.4	1.55	3.2	6.4	4.0	324	13.1	3.2
7	27.5	5.6	17.4	6.1	19.1	1.45	22	3.6	1.75	620	9.0	8.5
8	10.6	8.0	20.5	9.7	64	1.25	22	2.8	92	213	8.0	24
9	5.2	26	7.0	4.3	36.5	1.15	22.5	3.2	34.5	249	53	127
10	4.0	47	5.0	3.45	20	1.15	4.5	2.3	15.7	268	83	41
11	7.3	22	15.9	3.05	41	1.10	3.2	2.05	10.2	70	36	10.2
12	23	13.9	8.2	2.8	9.0	1.10	2.65	2.8	13.6	100	49	5.9
13	5.9	9.0	4.7	3.6	4.5	17.9	2.4	3.8	31.5	21	16.4	5.2
14	12.8	20	4.5	3.2	3.45	56	2.15	4.2	47	29.5	9.0	25.5
15	12.2	117	10.5	2.65	2.95	20	2.05	2.4	56	21.5	7.7	13.8
16	7.9	29	7.7	2.4	2.65	5.9	1.95	2.05	75	41	7.0	11.4
17	15.5	16.4	4.2	2.3	2.4	3.8	14.4	2.05	117	20.5	4.5	7.9
18	11.9	12.9	3.3	2.4	2.15	3.45	6.6	2.3	186	12.9	3.45	14.1
19	5.4	7.4	3.3	4.1	2.05	2.4	2.8	1.45	129	8.7	12.1	13.8
20	36	6.5	3.05	2.15	1.85	1.95	2.15	1.25	32.5	5.9	72	6.7
21	27	6.3	2.65	1.85	42	1.65	1.95	1.10	22	4.8	128	5.2
22	19.4	4.3	2.8	1.75	52	1.92	1.85	1.05	13.2	4.3	25	3.6
23	11.2	22.5	13.3	2.15	38.5	49	1.65	.95	19.2	3.8	36	2.95
24	23.5	7.3	4.2	13.1	17.1	48	49	.90	10.3	3.05	32.5	2.65
25	13.4	11.5	6.0	10.9	19.9	17.0	15.4	.90	6.3	4.1	16.5	2.4
26	9.4	15.8	12.4	3.05	5.4	40	141	.85	4.7	3.2	59	2.15
27	11.3	15.2	5.7	2.15	3.8	21	120	.80	3.8	23.5	11.9	13.9
28	6.3	15.4	3.05	2.15	3.05	14.7	54	.75	3.05	12.1	9.7	11.8
29	16.4	10.4	10.6	7.3	5.9	158	14.7	-	2.55	4.5	33.5	4.2
30	11.8	9.7	4.9	9.8	3.05	246	11.6	-	2.15	3.45	24	2.95
31	139	5.6	-	6.5	-	32	9.3	-	1.95	-	16.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	139	4.0	21.7	33.6	671	2,060
August	148	4.3	26.3	40.7	816	2,500
September	23.5	2.65	8.07	12.5	242	743
October	17.4	1.75	5.95	9.21	185	567
November	64	1.85	14.8	22.9	445	1,370
December	246	1.10	24.5	37.9	760	2,330
Calendar year 1937	246	1.10	19.9	30.8	7,270	22,310
January	141	1.65	18.1	28.0	561	1,720
February	21.5	.75	3.59	5.55	101	309
March	186	.75	31.0	48.0	963	2,950
April	620	2.1	70.2	109	2,110	6,460
May	128	3.45	27.4	42.4	851	2,610
June	127	2.15	13.8	21.4	413	1,270
Fiscal year 1937-38	620	.75	22.2	34.3	8,120	24,890

Haipuaena Stream near Huelo

Location.- Lat. 20°51'05", long. 156°11'30", 200 feet upstream from inflow of Spreckels ditch, 3¾ miles southeast of Kailua, and 4.7 miles southeast of Huelo.

Drainage area.- 1.1 square miles.

Records available.- October 1913 to June 1938.

Average discharge.- 22 years (1916-38), 10.5 million gallons a day (16.2 second-feet).

Extremes.- Maximum discharge during year, 450 million gallons a day (696 second-feet) Apr. 7 (gage height, 5.40 feet), from rating curve extended above 130 million gallons a day; minimum, 0.20 million gallons a day (0.31 second-foot) Dec. 12, Jan. 22.
1913-38: 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, that of Dec. 12, 1937, Jan. 22, 1938.

Remarks.- Records good. Discharge for period of missing gage heights, June 28-30, computed on basis of records for Puohokamoa Stream near Huelo. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.0	0.12	0.6	2.35	1.6	22	3.5	175
.1	.24	.8	4.4	1.9	34.5	4.0	242
.2	.44	1.0	7.3	2.2	51		
.3	.73	1.2	11.1	2.5	71		
.4	1.15	1.4	15.7	3.0	115		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.0	92	0.73	1.57	10.0	0.38	3.35	1.65	0.22	0.36	4.3	9.3
2	11.9	71	1.52	6.1	2.7	.34	1.86	2.05	.26	3.0	24.5	13.5
3	20.5	53	4.7	10.0	.47	.32	2.6	7.1	.88	10.6	14.2	4.8
4	32.5	12.4	11.8	9.2	.47	.30	.77	1.60	12.6	.98	7.4	3.05
5	28	8.2	2.8	11.4	4.5	.28	1.09	11.7	4.1	.53	3.8	2.2
6	43	6.5	1.72	1.48	1.57	.26	.44	2.1	1.60	120	5.6	1.72
7	22.5	5.4	9.2	2.8	10.2	.24	9.6	.81	.40	210	3.8	4.6
8	9.6	8.2	10.4	6.1	35	.24	5.7	.53	50	83	3.95	14.9
9	5.4	22.5	2.15	.89	17.3	.23	16.6	.50	24.5	109	32	83
10	4.4	41	1.15	.53	14.2	.23	1.04	.34	6.5	120	53	34
11	6.0	19.2	9.5	.40	32	.22	.42	.42	4.6	36	26.5	6.0
12	18.1	14.0	3.35	.36	4.7	.22	.30	.80	4.4	63	29	3.5
13	5.3	9.5	1.07	1.21	1.45	11.2	.26	.89	24.5	12.8	7.3	2.6
14	10.3	19.9	.70	.78	.70	40	.23	1.34	31.5	23.5	4.1	18.3
15	9.9	71	2.95	.44	.47	14.0	.22	.42	33	17.3	3.3	8.6
16	7.6	25	1.88	.38	.40	2.15	.22	.34	46	29	3.4	8.4
17	16.0	14.5	.56	.34	.36	.70	7.9	.56	78	12.0	1.93	4.8
18	8.0	12.2	.40	.34	.34	.42	2.8	1.54	99	6.3	1.40	9.5
19	5.2	7.3	.47	.38	.32	.30	.30	.44	71	4.2	8.7	8.4
20	24.5	6.2	.40	.34	.30	.28	.23	.34	17.6	2.8	44	3.75
21	30	5.3	.28	.30	27	.24	.22	.30	14.2	2.15	76	2.55
22	18.2	4.2	.28	.28	31	.26	.20	.28	8.6	1.72	15.4	1.86
23	10.9	17.9	8.0	.30	29.5	30.5	.23	.26	11.9	1.65	27.5	1.45
24	22	6.0	.88	6.6	13.5	27	26.5	.24	6.3	1.15	26	1.25
25	15.0	8.9	1.83	9.2	15.0	10.5	6.7	.24	2.9	1.79	8.9	.98
26	10.3	9.3	3.1	.50	2.3	26	80	.60	1.93	1.25	46	.86
27	10.7	5.9	1.34	.36	1.02	11.7	74	.24	1.40	14.7	7.8	*9.8
28	6.5	6.2	.32	.36	.56	8.3	35.5	.22	1.02	6.6	6.3	8.8
29	17.2	4.1	2.25	1.35	1.82	83	6.6	-	.70	1.72	26.5	1.5
30	12.2	3.8	.96	5.6	.47	99	5.5	-	.50	1.40	19.1	1.0
31	82	1.45	-	.90	-	16.7	4.8	-	.38	-	11.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	82	4.4	17.3	26.8	536	1,640
August	92	1.45	19.1	29.6	592	1,820
September	11.8	.28	2.89	4.47	86.7	266
October	11.4	.28	2.61	4.04	80.8	248
November	35	.30	8.65	13.4	260	797
December	99	.22	12.4	19.2	386	1,180
Calendar year 1937	107	.22	13.8	21.4	5,030	15,430
January	80	.20	9.55	14.8	296	909
February	11.7	.22	1.35	2.09	37.8	116
March	99	.22	18.1	28.0	560	1,720
April	210	.36	30.0	46.4	898	2,760
May	76	1.40	17.8	27.5	553	1,700
June	83	.86	9.17	14.2	275	844
Fiscal year 1937-38	210	.20	12.5	19.3	4,560	14,000

*Partly estimated.

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 to June 1938.

Extremes.- Maximum discharge during period, 11.7 million gallons a day (18.1 second-feet) Apr. 7 (gage height, 1.57 feet); minimum, 0.94 million gallons a day (1.45 second-feet) Mar. 1.

Remarks.- Records excellent. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1									*1.05	2.05	2.9	3.1
2									1.22	2.75	4.5	3.35
3									1.68	3.8	3.5	2.6
4									3.75	2.3	2.9	2.3
5									3.05	2.1	2.4	2.1
6									2.4	5.7	2.7	2.05
7									1.78	8.7	2.4	2.5
8									5.0	7.0	2.7	3.7
9									4.6	7.0	4.4	6.9
10									3.5	7.6	5.9	5.0
11									3.2	5.2	4.5	2.8
12									3.6	6.3	4.4	2.35
13									5.2	3.7	2.9	2.2
14									5.8	4.1	2.4	4.1
15									6.0	4.0	2.35	3.05
16									6.2	4.5	2.4	3.1
17									7.0	3.5	2.05	2.7
18									8.2	2.95	1.85	3.3
19									7.0	2.65	2.55	3.2
20									4.8	2.4	5.1	2.5
21									4.5	2.3	6.5	2.3
22									3.8	2.1	3.6	2.2
23									4.3	2.05	4.4	2.1
24									3.5	1.92	4.5	1.98
25									2.95	2.05	3.3	1.98
26									2.7	1.98	5.5	1.92
27									2.6	3.6	2.9	3.25
28									2.35	2.9	2.7	3.1
29									2.3	2.05	4.6	2.2
30									2.2	1.92	3.85	2.05
31									2.05	-	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	8.2	1.05	3.82	5.91	118	363
April	8.7	1.92	3.71	5.74	111	341
May	6.5	1.85	3.55	5.49	110	337
June	6.9	1.92	2.87	4.44	86	264
The period						1,300

*Partly estimated.

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 1938. February 1930 to October 1935 at site 100 feet upstream.

Average discharge.- 15 years (1922-29, 1930-38), 15.0 million gallons a day (23.2 second-feet).

Extremes.- Maximum discharge during year, 77 million gallons a day (119 second-feet) Apr. 6 (gage height, 2.12 feet); minimum, 0.20 million gallons a day (0.31 second-foot) Dec. 11, 12.

1922-38: 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, Feb. 14 to Mar. 7, Apr. 11-16, which were computed on basis of records for stations on all nearby streams and are poor. Regulated by gates and spillways. Spreckels ditch diverts water from all streams between the Nuaailua and the Kailua, above Koolau ditch east of the Puohokamoa and below Koolau ditch west of the Puohokamoa. About 4 million gallons a day is diverted from Spreckels ditch to East Maui Irrigation Company's hydroelectric plant at Kolea gulch. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	19.5	67	9.0	12.6	25.5	3.8	15.8	9.2	1.00	2.45	19.8	27.5
2	25.5	71	12.5	22.5	14.2	2.95	12.0	10.0	1.00	12.4	39.5	31.5
3	36	50	18.0	26	6.0	2.3	14.5	18.5	4.5	22	29	18.8
4	48	27.5	29	26.5	7.2	1.86	7.6	9.0	40	7.1	22	15.2
5	45	21	17.0	25.5	19.9	1.40	10.4	24.5	15	4.1	14.8	10.0
6	52	17.1	13.7	10.8	11.4	1.01	6.0	10.2	6.0	36.5	15.5	8.0
7	39	12.9	26	15.2	22	.60	24.5	6.5	6.0	23.5	15.5	13.2
8	22.5	22	25.5	19.7	43	.39	16.9	4.9	35	17.2	14.9	29.5
9	12.3	38.5	15.1	9.0	30	.25	27	5.1	34	18.0	36.5	61
10	9.2	57	11.4	6.9	26.5	.25	9.2	2.95	21.5	17.2	54	51
11	14.8	34	24.5	5.8	42	.22	6.2	3.55	17.4	17	44	20
12	33.5	29.5	16.6	4.5	18.3	.22	4.5	6.2	21	30	40	15.6
13	12.6	23.5	9.8	11.9	9.9	11.8	3.55	6.6	41	25	22	12.8
14	22	36.5	9.5	8.2	7.1	49	2.7	6.0	47	22	16.2	32.5
15	24.5	59	17.3	4.7	5.4	29	2.1	5.3	48	23	14.3	24.5
16	19.4	39.5	13.6	3.1	4.1	12.9	1.52	4.8	51	24	13.8	24.5
17	33	29	7.6	2.55	3.25	6.9	18.4	15	65	25	8.5	19.2
18	21	28	5.8	2.6	2.45	5.8	13.5	15	71	18.2	6.7	25
19	13.4	18.8	7.0	5.6	1.98	2.95	4.3	9.0	61	16.4	16.6	25
20	41	16.4	4.9	2.45	1.52	1.86	2.85	6.5	31	12.3	46	17.2
21	51	15.6	3.8	1.30	35.5	1.01	1.98	5.0	28	9.0	65	12.9
22	35	9.5	4.7	1.45	45	1.19	1.20	3.7	23.5	7.8	33	9.5
23	26	30	23	2.9	48	39.5	.60	2.8	27	7.8	44	6.9
24	40	15.9	9.4	16.5	32.5	39.5	25	2.1	21	5.1	44	5.4
25	33	23	13.0	19.6	32.5	24.5	16.1	1.60	14.6	8.4	25	4.1
26	26	23.5	12.5	5.8	13.5	33.5	54	1.40	10.5	5.8	55	3.25
27	26	21.5	9.7	2.95	9.0	27	58	1.20	8.2	27	23.5	22
28	15.7	22.5	5.2	3.0	6.9	25	38	1.10	4.6	18.8	22	23.5
29	33	19.4	10.4	10.5	13.1	70	13.5	-	4.1	7.8	41	8.8
30	27.5	18.9	9.1	16.0	5.8	65	15.4	-	3.25	6.0	35.5	5.8
31	62	12.3	-	8.2	-	32	13.2	-	2.3	-	25.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	62	9.2	29.7	46.0	919	2,820
August	71	9.5	29.4	45.5	910	2,790
September	29	3.8	13.2	20.4	395	1,210
October	26.5	1.30	10.1	15.6	314	965
November	48	1.52	18.1	28.0	544	1,670
December	70	.22	15.9	24.6	494	1,510
Calendar year 1937	71	.22	22.3	34.5	8,120	24,940
January	58	.60	14.2	22.0	440	1,350
February	24.5	1.10	7.06	10.9	198	607
March	71	1.00	24.7	38.2	764	2,350
April	36.5	2.45	15.9	24.6	477	1,460
May	65	6.7	29.1	45.0	903	2,770
June	61	3.25	19.5	30.2	584	1,790
Fiscal year 1937-38	71	.22	19.0	29.4	6,940	21,290

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 Kailua, and 4.7 miles southeast of Huelo.

Records available.- April 1932 to June 1938.

Extremes.- Maximum discharge during year, 194 million gallons a day (300 second-feet) May 11 (gage height, 4.85 feet); minimum, 9.0 million gallons a day (13.9 second-feet) Jan. 1.
1932-38: Maximum discharge, 200 million gallons a day (309 second-feet) Nov. 18, 1935 (gage height, 5.11 feet); no flow at times, when water was shut out of ditch.

Remarks.- Records excellent except those for period when clock was not running, Nov. 20 to Dec. 3, which were computed on basis of records for station on Koolau ditch at Keanae and are good. Flow regulated by flood gates. No diversions. Water used for domestic supply and irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	73	183	80	106	137	65	76	94	34	67	143	162
2	125	183	99	149	103	60	108	89	34	96	176	162
3	169	176	108	155	63	56	113	108	64	131	169	119
4	176	155	162	131	67	52	85	76	125	67	149	99
5	176	137	113	137	120	50	99	137	113	59	103	94
6	176	155	94	80	99	48	72	89	59	140	94	80
7	169	113	137	104	119	46	137	72	42	143	85	108
8	143	125	149	119	176	44	103	67	113	125	86	162
9	103	169	108	72	169	42	149	63	143	137	155	183
10	85	183	89	67	162	41	85	59	143	125	176	176
11	103	162	137	59	169	39	76	85	103	99	176	137
12	162	155	108	55	125	42	67	98	125	149	176	108
13	99	137	80	80	85	96	59	113	176	89	155	94
14	125	162	76	63	76	176	59	85	176	120	113	169
15	137	183	125	55	67	149	55	67	176	119	103	143
16	119	169	94	50	59	89	52	63	176	119	85	155
17	155	162	72	48	55	67	110	63	176	162	76	125
18	113	155	67	52	52	55	92	67	169	125	72	155
19	94	131	72	52	48	50	59	52	155	108	104	162
20	162	119	59	44	45	46	67	50	156	99	169	119
21	176	108	55	42	105	44	85	46	162	89	183	108
22	169	94	59	41	160	46	55	44	162	85	155	94
23	143	143	131	55	160	159	48	42	162	85	169	76
24	169	103	76	96	160	176	134	41	143	76	176	72
25	162	131	89	137	160	149	125	39	108	85	137	67
26	143	143	76	67	125	149	149	35.5	94	72	176	63
27	143	149	55	55	100	162	143	35.5	85	162	143	134
28	113	162	52	50	85	143	143	34	80	125	137	137
29	155	137	91	66	100	183	149	-	76	76	169	72
30	149	125	59	102	75	123	149	-	72	72	155	63
31	169	94	-	69	-	34.5	137	-	67	-	162	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	176	73	140	217	4,360	13,360
August	183	94	145	224	4,500	13,820
September	162	52	92.4	143	2,770	8,510
October	155	41	79.3	123	2,460	7,540
November	176	45	108	167	3,230	9,900
December	183	34.5	86.5	134	2,680	8,230
Calendar year 1937	183	34.5	118	183	42,960	131,800
January	149	48	98.1	152	3,040	9,330
February	137	34	68.4	106	1,910	5,870
March	176	34	118	183	3,670	11,260
April	162	59	107	166	3,210	9,840
May	183	72	140	217	4,330	13,280
June	183	63	120	186	3,600	11,040
Fiscal year 1937-38	183	34	109	169	39,760	122,000

Puohokamoa Stream near Huelo

Location.- Lat. 20°51'20", long. 156°11'25", just upstream from Spreckels ditch inflow and trail crossing, 3 miles southeast of Kailua, and 5.1 miles southeast of Huelo.

Drainage area.- 2.6 square miles.

Records available.- December 1910 to June 1938.

Average discharge.- 21 years (1917-38), 22.0 million gallons a day (34.0 second-feet).

Extremes.- Maximum discharge during year, 1,430 million gallons a day (2,210 second-feet) Apr. 7 (gage height, 7.54 feet), from rating curve extended above 400 million gallons a day; minimum, 2.8 million gallons a day (4.3 second-feet) Feb. 26, 27.
1910-38: Maximum discharge, that of Apr. 7, 1938; minimum, 0.1 million gallons a day (0.2 second-foot) Nov. 17, 1929, former site and datum.

Remarks.- Records good except those for periods of missing gage heights, Feb. 12-15, May 24 to June 3, June 10-25, which were computed on basis of records for stations on nearby streams and are poor. Kula pipe line diverts small amount of water above station, at altitude 4,300 feet for domestic supply.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.8	2.4	1.8	61	4.0	440
.9	4.3	2.1	100	4.5	550
1.0	6.9	2.5	165	5.0	675
1.2	14.4	3.0	252		
1.5	32	3.5	340		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	20.5	220	10.2	9.9	28.5	6.4	15.9	9.5	3.2	5.9	22.5	20
2	23.5	183	11.9	22.5	12.7	5.9	13.6	9.9	3.5	12.3	66	22
3	38	106	19.7	34.5	6.6	5.6	13.6	21.5	6.8	29.5	38	17
4	47	30	34	32	6.6	5.1	9.2	8.9	28	7.2	22	12.3
5	56	21.5	15.9	27.5	19.4	4.8	10.6	28	12.6	5.9	13.6	9.9
6	93	17.5	13.1	11.0	10.2	4.6	7.9	9.2	7.0	297	18.0	6.6
7	42	14.4	29.5	14.5	26	4.3	27.5	6.9	3.9	570	13.6	16.3
8	19.7	22	31	21.5	75	3.9	32	6.4	115	193	13.8	35
9	12.7	48	14.0	9.2	36.5	3.9	30	6.4	57	268	78	212
10	9.9	92	11.5	7.9	29.5	3.9	9.5	5.3	18.0	280	127	90
11	13.7	42	29.5	6.6	78	3.5	7.6	5.3	13.8	95	67	25
12	38.5	30	17.0	6.1	17.8	3.5	6.6	6.4	21.5	164	69	16
13	12.7	21.5	10.6	9.5	11.5	40	6.4	8.0	61	35.5	21	13
14	24.5	42	9.2	7.9	9.2	98	5.9	9.0	66	63	14.0	50
15	22.5	156	13.5	6.1	7.6	36	5.1	5.3	67	52	14.0	28
16	16.9	59	11.9	5.1	6.9	13.1	5.1	4.3	104	66	12.3	25
17	35	30	7.9	5.1	6.1	8.2	28.5	5.4	184	28	8.9	17
18	17.0	26	6.9	4.8	5.6	7.2	12.8	7.3	224	18.5	7.9	30
19	11.9	17.5	7.6	5.6	5.3	5.9	6.4	4.3	165	14.0	26	28
20	44	15.9	6.4	5.1	5.1	5.1	5.6	3.7	40	11.0	109	14
21	67	13.6	5.6	4.3	70	4.6	5.1	3.5	41	9.5	183	11
22	38.5	11.0	6.1	3.9	77	4.6	4.8	3.4	26	8.9	38.5	9.5
23	25	48	25.5	4.1	75	80	4.1	3.2	34	8.6	64	8.5
24	44	15.9	8.6	19.9	40	58	68	3.2	21.5	6.9	60	7.5
25	34	20.5	13.1	20.5	41	27	20	3.0	13.1	8.9	27	6.4
26	22	27	14.6	6.4	13.6	68	195	3.0	10.6	7.2	100	6.1
27	21.5	23.5	10.0	5.1	9.9	33	202	3.2	8.9	39	23	27
28	14.9	23	6.4	5.1	8.6	24	69	3.2	7.6	19.6	20	25
29	40	19.1	15.0	11.2	12.4	230	19.8	-	6.6	8.2	60	8.6
30	28	17.5	8.6	17.5	7.6	227	18.7	-	6.1	7.2	46	6.9
31	171	11.9	-	9.1	-	42	15.5	-	5.6	-	35	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	171	9.9	35.6	55.1	1,100	3,390
August	220	11.0	46.0	71.2	1,430	4,370
September	34	5.6	14.2	22.0	425	1,300
October	34.5	3.9	11.6	17.9	360	1,100
November	78	5.1	25.3	39.1	759	2,330
December	230	3.5	34.4	53.2	1,070	3,270
Calendar year 1937	250	3.5	33.4	51.7	12,180	37,350
January	202	4.1	28.4	43.9	882	2,710
February	28	3.0	7.02	10.9	197	604
March	224	3.2	44.6	69.0	1,380	4,240
April	570	5.9	78.0	121	2,340	7,180
May	183	7.9	45.7	70.7	1,420	4,350
June	212	6.1	26.9	41.6	806	2,470
Fiscal year 1937-38	570	3.0	33.3	51.5	12,170	37,310

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 1938.

Average discharge.- 19 years (1918-24, 1925-38), 6.14 million gallons a day (9.50 second-feet).

Extremes.- Maximum discharge during year, 68 million gallons a day (105 second-feet) Nov. 8 (gage height, 3.11 feet); minimum, 0.50 million gallons a day (0.77 second-foot) Apr. 5, 6.

1917-38: 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 excellent. Ditch is extension of Center ditch and picks up water at altitude of 500 feet from streams between the Kolea and the Waikamoi. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.52	58	1.14	2.8	9.6	1.30	3.9	1.37	0.62	0.73	2.7	6.8
2	2.85	64	1.77	4.3	2.7	1.14	2.5	1.14	.62	1.18	19.0	13.5
3	3.3	30	1.53	8.3	1.37	1.06	3.45	1.73	2.0	5.6	9.2	3.1
4	7.5	5.2	3.65	11.6	1.86	.91	1.60	.91	28	.73	4.9	2.15
5	4.0	3.9	2.55	6.9	4.1	.91	1.77	2.15	9.6	.56	2.25	1.68
6	23	3.1	2.15	1.86	2.05	.85	1.30	.91	1.60	37.5	1.96	1.45
7	5.0	2.4	5.4	7.4	7.5	.79	4.2	.79	1.30	68	1.77	1.68
8	2.5	4.7	6.8	8.4	26	.73	7.1	.79	29.5	60	7.1	8.0
9	1.77	5.5	1.60	2.05	8.5	.73	9.2	.79	25	56	21.5	54
10	1.37	22	1.37	1.68	9.2	.67	1.45	.67	3.45	64	41	27.5
11	1.68	9.1	8.8	1.45	30.5	.56	1.14	1.14	2.6	17.2	22	2.7
12	2.5	5.3	2.6	1.30	4.3	.62	1.06	3.25	4.6	25	14.1	2.3
13	1.45	3.65	1.45	5.5	2.8	10.2	.99	1.53	14.8	2.95	3.45	1.86
14	2.05	8.3	1.30	3.45	2.15	31.5	.91	1.68	11.8	24.5	2.7	9.5
15	2.4	41	3.3	1.60	1.68	11.0	.91	1.60	11.1	11.6	2.15	3.2
16	2.25	12.1	2.4	1.37	1.53	2.8	.85	1.45	18.7	19.4	1.77	3.4
17	7.0	6.0	1.30	1.22	1.45	1.37	8.2	2.8	44	9.5	1.30	2.2
18	2.25	5.4	.99	1.22	1.30	1.14	1.86	3.35	60	2.6	1.14	3.45
19	1.60	3.0	1.37	1.53	1.14	.85	.91	1.37	52	1.86	13.8	3.65
20	6.6	2.4	.91	1.14	1.06	.79	.85	1.22	26.5	1.53	34	2.3
21	15.6	2.05	.79	.99	18.8	.73	.79	1.06	7.5	1.22	59	1.53
22	4.7	1.53	.85	.91	19.9	.79	.79	.91	4.1	1.14	10.6	1.30
23	3.65	5.3	6.5	1.22	22	25.5	.79	.85	3.65	1.14	26	1.14
24	13.3	1.53	1.22	13.2	14.4	18.6	16.4	.79	2.5	.85	18.5	1.06
25	9.9	2.25	1.97	6.0	16.2	8.5	1.58	.73	1.68	1.22	8.5	.91
26	5.2	1.96	1.14	1.30	3.35	18.2	42	.73	1.37	.85	41	.91
27	5.7	2.05	1.30	1.14	2.25	8.4	35.5	.67	1.14	7.6	4.5	2.1
28	3.1	2.4	.73	1.14	1.77	12.0	13.8	.62	1.06	1.86	4.7	3.0
29	7.0	2.9	1.43	3.45	2.5	59	2.3	-	.99	.79	17.0	.91
30	4.5	2.65	.99	3.0	1.45	45	5.0	-	.85	.73	13.2	.79
31	51	1.45	-	1.92	-	10.4	2.15	-	.79	-	4.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	51	1.37	6.65	10.3	206	633
August	64	1.45	10.4	16.1	321	985
September	8.8	.73	2.31	3.57	69.3	213
October	13.2	.91	3.53	5.46	109	336
November	30.5	1.06	7.45	11.5	223	686
December	59	.56	8.94	13.8	277	850
Calendar year 1937	64	.05	7.51	11.6	2,740	8,420
January	42	.79	5.65	8.74	175	538
February	3.35	.62	1.32	2.04	37.0	114
March	60	.62	12.0	18.6	373	1,150
April	68	.56	14.3	22.1	428	1,310
May	59	1.14	13.4	20.7	415	1,270
June	54	.79	5.60	8.66	168	516
Fiscal year 1937-38	68	.56	7.68	11.9	2,800	8,600

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 June 1938.

Extremes.- Maximum discharge during year, 92 million gallons a day (142 second-feet) Apr. 6 (gage height, 3.05 feet); minimum, 0.03 million gallons a day (0.05 second-foot) occasionally.
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 excellent except those for periods when clock was not running, Oct. 29 to Nov. 1, June 8-13, which were computed on basis of records for stations on nearby streams and are poor. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.2	71	0.09	0.09	17	0.13	0.28	0.09	0.03	0.03	2.85	5.6
2	7.3	67	.13	13.1	3.1	.09	.09	.09	.03	3.65	28	20.5
3	27.5	55	12.0	29	.09	.06	3.0	.22	.12	20.5	17.2	.76
4	52	19.6	31.5	13.7	.13	.06	.03	.09	16.0	.06	3.25	.22
5	55	2.1	.22	22.5	12.9	.06	.03	.22	.39	.06	.37	.13
6	59	.22	.13	.06	.17	.06	.03	.22	.06	40	1.10	.13
7	43	.13	18.8	11.8	19.4	.06	18.4	.06	.06	3.6	.28	2.7
8	5.4	10.5	19.3	10.8	51	.09	4.2	.06	34	.37	.54	35
9	.09	47	.13	.09	33	.09	21	.06	25.5	8.2	30.5	65
10	.09	67	.13	.06	34	.06	.03	.06	9.3	5.6	55	35
11	2.2	28.5	22	.06	52	.06	.03	.13	1.32	13.8	36.5	.50
12	33	23.5	.33	.09	7.7	.06	.03	.99	19.8	36	37	.15
13	.13	3.9	.09	.32	.17	21	.03	.17	55	4.5	1.66	.15
14	16.1	36.5	.09	.17	.03	63	.03	.13	63	3.75	.33	*29
15	11.0	67	.17	.09	.06	27	.03	.06	63	3.85	.17	6.8
16	2.4	45	.13	.06	.09	.13	.03	.06	63	12.1	.17	4.4
17	27.5	29.5	.09	.06	.09	.06	24	.09	64	7.7	.09	.76
18	.55	21.5	.09	.06	.06	.06	2.55	.13	17.0	.76	.06	9.5
19	.09	.67	.06	.06	.03	.03	.03	.03	1.89	.33	16.0	6.1
20	35.5	.17	.06	.09	.03	.03	.03	.03	5.7	.13	44	.55
21	65	.13	.06	.06	24.5	.03	.03	.03	34.5	.09	67	.40
22	42	.09	.06	.06	59	.03	.03	.03	20	.06	13.8	.13
23	9.9	33	14.7	.06	63	48	.03	.03	34	.06	37.5	.06
24	41	.24	.03	24	43	45	.26	.03	8.6	.06	41	.06
25	35.5	2.4	1.44	8.4	48	18.1	.09	.03	.13	.06	11.7	.09
26	8.8	13.3	2.65	.06	.76	34	.80	.03	.09	.06	52	.17
27	7.1	6.4	.06	.06	.17	26	1.37	.03	.06	13.1	1.86	10.8
28	.22	9.5	.03	.09	.17	16.7	.64	.03	.06	2.3	2.55	7.4
29	38	3.35	3.85	3.5	.17	67	.22	-	.03	.06	42	.09
30	19.0	2.45	.03	.20	.17	59	.47	-	.03	.06	20.5	.09
31	58	.09	-	.11	-	15.7	.17	-	.03	-	9.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	65	0.09	23.1	35.7	717	2,200
August	71	.09	21.5	33.3	667	2,050
September	31.5	.03	4.28	6.62	128	394
October	29	.06	4.48	6.93	139	426
November	63	.03	15.7	24.3	470	1,440
December	67	.03	14.2	22.0	442	1,360
Calendar year 1937	71	.03	14.2	22.0	5,180	15,910
January	24	.03	2.52	3.90	78.0	239
February	.98	.03	.115	.178	3.22	9.9
March	64	.03	17.3	26.8	537	1,650
April	40	.03	6.03	9.33	181	555
May	67	.06	18.5	28.6	575	1,760
June	65	.06	8.07	12.5	242	743
Fiscal year 1937-38	71	.03	11.4	17.6	4,180	12,830

*Partly estimated.

Waikamoi 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 1938.

Average discharge.- 16 years (1922-38), 16.6 million gallons a day (25.7 second-feet).

Extremes.- Maximum discharge during year, 3,910 million gallons a day (6,050 second-feet) Apr. 7 (gage height, 8.91 feet), from rating curve extended above 370 million gallons a day; minimum, 1.01 million gallons a day (1.56 second-feet) Mar. 1.
1922-38: 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 periods when clock was not running, Jan. 23, 24, Mar. 29 to Apr. 4, Apr. 15-29, June 14-16, which were computed on basis of records for stations on Alo, Kaaiea, and Oopuola Streams. Haleakala ranch and Kula pipe lines divert small quantities of water above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.0	1.12	1.8	14.5	3.2	129	5.0	590
1.2	2.25	2.0	23	3.6	195	6.0	1,070
1.4	4.5	2.4	46	4.0	277	7.0	1,840
1.6	8.7	2.8	80	4.5	410		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	20.5	222	5.4	5.4	19.0	3.4	9.8	6.6	1.12	3.2	10.8	14.9
2	23	149	6.4	12.6	7.0	2.95	7.1	6.0	1.86	4.2	45	23
3	36	84	13.7	21.5	3.55	2.7	7.1	22	2.6	5.5	27	10.6
4	64	17.5	30	21	3.3	2.5	4.7	6.9	22.5	4.0	13.3	6.6
5	57	12.0	11.1	26	10.7	2.25	5.3	30	11.7	3.4	9.8	5.3
6	82	9.5	8.0	7.3	7.1	2.05	3.95	8.5	7.8	506	15.3	4.4
7	38	7.8	21	8.2	28	1.80	30	4.9	3.3	1,180	9.5	8.4
8	15.9	10.9	28	13.3	91	1.60	18.6	3.95	86	275	7.2	29
9	8.5	36	8.5	6.0	45	1.46	35.5	4.1	70	397	49	181
10	6.0	55	6.6	4.4	28	1.66	6.0	3.3	15.6	362	107	61
11	7.6	26	22.5	3.7	64	1.36	4.1	3.15	15.8	78	55	12.0
12	33.5	18.7	11.4	3.15	13.2	1.31	3.4	3.8	13.0	122	65	7.6
13	9.0	12.6	6.4	5.1	7.1	23.5	2.95	4.6	42	27	16.0	6.2
14	15.7	26	5.1	4.2	5.1	82	2.7	7.1	57	33	10.0	25
15	16.9	152	8.0	3.05	4.1	30.5	2.45	4.1	75	30	10.9	14
16	11.5	39	8.2	2.7	3.55	8.0	2.2	2.95	105	50	10.4	18
17	19.7	19.2	5.3	2.45	3.15	4.5	16.2	3.15	195	20	5.3	*10.0
18	10.9	14.5	3.8	2.45	2.9	4.1	9.4	4.4	244	10.0	4.4	16.7
19	6.9	9.0	3.8	2.8	2.6	2.95	3.8	2.7	194	7.5	15.6	14.5
20	48	7.3	3.15	2.6	2.35	2.6	2.8	2.25	45	6.0	80	9.8
21	42	7.3	2.8	1.99	53	2.2	2.35	2.05	27.5	5.2	151	5.8
22	27.5	5.6	2.9	1.80	73	2.1	*2.25	1.86	10.2	4.5	28	4.7
23	15.6	35.5	17.1	1.73	59	58	2.1	1.60	23	5.0	49	3.95
24	34	10.3	6.0	8.3	28.5	50	40	1.50	16.4	4.0	45	3.7
25	22	15.6	7.1	11.8	31	16.8	17.1	1.41	8.2	6.0	21	3.15
26	13.9	21	22	3.3	9.2	56	217	1.41	6.2	5.3	87	3.05
27	13.6	20.5	7.9	2.35	5.8	24.5	179	1.26	5.1	18.0	15.2	13.2
28	9.2	17.8	4.1	2.2	4.5	13.7	58	1.22	4.4	14.0	13.0	14.5
29	26.5	12.0	6.0	4.7	7.0	150	19.3	-	3.9	4.5	57	5.4
30	18.2	10.6	4.9	12.6	4.1	222	11.0	-	3.5	3.95	35	3.7
31	193	6.6	-	4.6	-	29	10.6	-	3.3	-	22	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	193	6.0	30.5	47.2	946	2,900
August	222	5.6	35.2	54.5	1,090	3,350
September	30	2.8	9.90	15.3	297	912
October	26	1.73	6.88	10.6	213	655
November	91	2.35	20.9	32.3	626	1,920
December	222	1.31	26.0	40.2	807	2,480
Calendar year 1937	390	1.31	25.2	39.0	9,200	28,260
January	217	2.1	23.8	36.8	737	2,260
February	30	1.22	5.24	8.11	147	450
March	244	1.12	42.8	66.2	1,330	4,080
April	1,180	3.2	106	164	3,190	9,800
May	151	4.4	35.2	54.5	1,090	3,340
June	181	3.05	18.0	27.9	539	1,650
Fiscal year 1937-38	1,180	1.12	30.2	46.7	11,010	33,800

*Partly estimated.

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 1938.

Average discharge.- 27 years (1911-37), 5.11 million gallons a day (7.91 second-feet).

Extremes.- Maximum discharge during year, 344 million gallons a day (532 second-feet) Apr. 7 (gage height, 3.52 feet), from rating curve extended above 50 millions gallons a day; minimum daily discharge, 0.55 million gallons a day (0.85 second-foot) Feb. 28.
1910-38: 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 period of missing gage heights, Jan. 22 to Mar. 18, which were computed on basis of records for Kaaiea Stream near Huelo and are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.25	1.2	8.0	2.2	76
.6	.73	1.4	15.0	2.5	120
.8	1.80	1.6	25		
1.0	3.5	1.9	46		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.0	34.5	1.62	2.75	7.7	1.26	3.1	2.4	0.60	1.20	5.7	9.8
2	2.9	40	2.4	5.6	3.0	1.11	2.5	3.5	.65	2.6	14.2	16.9
3	6.4	21.5	3.15	10.2	1.50	1.01	4.2	10.5	2.5	6.3	11.2	4.5
4	7.3	5.4	5.0	12.4	1.95	.92	1.80	2.3	10.5	1.38	9.6	3.1
5	7.2	4.0	2.55	6.4	5.7	.87	1.68	7.0	3.5	1.11	3.55	2.5
6	15.8	3.55	2.7	2.25	2.1	.82	1.38	3.0	2.0	61	3.1	2.1
7	7.8	2.85	5.8	7.6	7.4	.78	3.1	2.1	1.40	105	2.4	3.2
8	3.3	6.7	4.9	7.6	16.4	.73	4.3	1.90	30	12.9	3.0	11.2
9	2.4	7.9	2.25	2.1	6.5	.70	5.1	1.70	11.0	38	22	25
10	2.0	20	1.95	1.80	9.1	.67	1.62	1.50	4.5	46	18.7	19.3
11	2.25	8.0	8.8	1.56	24.5	.65	1.38	1.60	3.2	11.9	11.7	3.3
12	3.25	8.8	4.2	1.32	3.65	.65	1.15	2.1	7.0	26	20	3.45
13	1.74	5.2	1.95	5.1	2.55	5.1	1.06	2.6	16.0	6.1	4.5	2.4
14	2.9	9.4	1.66	3.45	2.0	18.6	.98	2.2	12.0	25	2.85	10.0
15	3.85	29	2.6	1.68	1.68	7.6	.87	1.50	9.0	10.6	3.0	4.2
16	3.8	11.6	2.25	1.38	1.44	2.5	.82	1.20	12.0	17.7	2.25	7.5
17	11.2	8.2	1.38	1.15	1.20	1.44	6.8	2.4	25	6.7	1.74	4.1
18	3.3	4.3	1.15	1.11	1.11	1.11	2.15	4.0	46	3.4	1.50	5.8
19	2.4	3.5	1.50	1.06	1.01	.96	1.06	1.80	23	2.65	17.2	7.1
20	4.8	3.0	1.11	1.45	.96	.87	.92	1.30	7.2	2.1	22	4.2
21	26	2.4	.96	1.06	14.8	.82	.87	1.10	9.3	1.80	35	2.55
22	9.2	2.0	1.01	.96	13.2	.82	.84	.95	9.1	1.62	8.4	2.1
23	5.4	5.1	6.1	.96	16.6	19.9	.90	.82	8.4	1.80	19.6	1.74
24	11.9	2.4	1.62	9.7	22	10.3	8.0	.74	4.9	1.32	12.4	1.56
25	13.3	3.3	3.3	6.2	10.4	4.6	3.2	.66	3.2	2.05	7.3	1.38
26	7.4	2.7	1.32	1.56	3.0	9.3	32	.60	2.55	1.38	27.5	1.26
27	6.5	2.9	1.15	1.20	2.2	6.4	54	.56	2.1	6.5	52	4.1
28	3.3	3.75	1.06	1.26	1.74	7.8	14.0	.55	1.80	3.2	7.2	9.3
29	10.0	3.7	1.60	4.2	2.6	60	4.0	-	1.62	1.42	12.0	1.74
30	7.2	3.05	1.11	2.75	1.50	44	6.0	-	1.38	1.26	10.1	1.44
31	22.5	1.88	-	2.15	-	10.0	3.7	-	1.26	-	8.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	26	1.74	7.07	10.9	219	673
August	40	1.88	8.73	13.5	271	830
September	8.8	.96	2.61	4.04	78.2	240
October	12.4	.96	3.55	5.49	110	337
November	24.5	.96	6.32	9.78	189	582
December	60	.65	7.17	11.1	222	682
Calendar year 1937	60	.65	7.20	11.1	2,630	8,060
January	54	.82	5.60	8.66	173	532
February	10.5	.55	2.24	3.47	62.6	192
March	46	.60	8.80	13.6	273	837
April	105	1.11	13.7	21.2	410	1,260
May	52	1.50	12.2	18.9	380	1,170
June	25	1.26	5.89	9.11	177	543
Fiscal year 1937-38	105	.55	7.03	10.9	2,560	7,880

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Kaalea Stream near Huelo

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

Drainage area.- 0.5 square mile.

Records available.- December 1921 to June 1938.

Average discharge.- 16 years (1922-38), 4.96 million gallons a day (7.67 second-feet).

Extremes.- Maximum discharge during year, 401 million gallons a day (620 second-feet) Apr. 7 (gage height, 3.91 feet), from rating curve extended above 130 million gallons a day; minimum, 0.48 million gallons a day (0.74 second-foot) Feb. 28.
1921-38: 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 except those above 200 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.26	0.7	6.1	1.6	49
.3	.60	.8	8.7	2.0	79
.4	1.30	.9	11.5	2.5	126
.5	2.4	1.0	15.2		
.6	4.0	1.3	30.5		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.69	33	1.68	2.15	7.2	1.04	3.0	2.0	0.56	0.95	6.2	8.0
2	2.9	36	2.15	4.8	3.55	.95	2.15	3.0	.65	2.2	15.5	15.1
3	6.5	18.6	3.3	10.4	1.58	.81	3.5	10.3	2.45	5.4	10.9	4.2
4	7.2	4.8	5.6	10.2	1.80	.75	1.58	2.3	10.6	1.20	8.7	2.7
5	6.9	3.3	2.7	7.1	6.0	.75	1.58	7.0	3.35	.88	3.65	2.0
6	15.7	2.75	2.55	2.3	2.2	.70	1.20	2.3	1.39	58	3.3	1.68
7	6.9	2.3	4.9	6.0	7.6	.70	2.6	1.68	1.04	106	2.55	3.1
8	3.3	4.5	4.9	6.0	16.2	.70	4.6	1.68	30	14.0	3.65	9.9
9	2.0	7.2	2.3	2.3	7.0	.65	5.2	1.47	10.9	40	21	27
10	1.68	19.3	2.0	1.80	8.1	.70	1.47	1.30	4.4	49	22	19.0
11	1.82	8.3	8.4	1.58	22	.65	1.20	1.47	2.55	10.6	12.1	3.3
12	3.95	8.6	4.4	1.30	4.0	.65	1.04	2.05	7.2	25.5	19.7	2.8
13	1.47	4.9	2.0	17.4	2.4	5.8	.95	2.55	15.6	5.6	4.6	2.15
14	2.9	9.1	1.68	3.5	1.91	18.0	.81	2.15	12.0	21.5	2.7	10.0
15	2.9	28.5	2.3	1.68	1.47	7.5	.75	1.20	8.9	9.4	3.05	4.5
16	3.8	12.6	2.55	1.39	1.30	2.55	.70	1.04	10.8	15.9	2.15	7.1
17	10.0	7.5	1.47	1.20	1.12	1.47	6.5	2.35	26	6.1	1.58	4.0
18	3.0	6.8	1.20	1.20	1.04	1.12	2.45	3.95	41	3.15	1.39	6.7
19	1.91	3.5	1.47	1.04	.88	.95	.95	1.30	23	2.15	15.4	6.8
20	4.1	2.7	1.20	1.49	.81	.81	.88	.95	6.4	1.80	22.5	3.15
21	25	2.3	1.04	1.12	12.2	.75	.81	.88	8.6	1.47	36	2.3
22	8.4	1.91	1.04	.88	11.7	.81	.75	.81	7.9	1.30	7.2	1.91
23	5.4	6.2	6.5	.88	16.7	19.1	.81	.70	7.7	1.47	18.5	1.58
24	10.0	2.4	1.68	8.6	14.8	10.4	7.8	.65	4.8	1.20	13.0	1.39
25	10.7	3.8	3.7	5.8	13.7	4.3	3.15	.60	2.7	1.95	7.1	1.20
26	5.6	3.15	1.47	1.68	2.7	9.8	32.5	.56	2.0	1.30	26.5	1.12
27	5.6	3.65	1.39	1.30	1.80	6.7	49	.56	1.68	6.6	5.0	4.9
28	2.8	4.2	1.12	1.20	1.47	5.3	14.0	.52	1.47	3.7	6.2	8.9
29	9.6	3.3	1.84	3.9	2.15	54	4.0	-	1.20	1.39	14.6	1.68
30	6.4	3.4	1.30	3.3	1.20	44	5.6	-	1.12	1.30	8.9	1.39
31	23.5	2.0	-	1.92	-	10.3	3.45	-	.95	-	8.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	25	1.47	6.57	10.2	204	625
August	36	1.91	8.41	13.0	261	800
September	8.4	1.04	2.66	4.12	79.8	245
October	17.4	.88	3.72	5.76	115	354
November	22	.81	5.89	9.11	177	542
December	54	.65	6.86	10.6	213	653
Calendar year 1937	54	.65	6.94	10.7	2,530	7,770
January	49	.70	5.32	8.23	165	506
February	10.3	.52	2.05	3.17	57.3	176
March	41	.56	8.35	12.9	259	795
April	106	.88	13.4	20.7	401	1,230
May	36	1.39	10.8	16.7	334	1,030
June	27	1.12	5.65	8.74	170	520
Fiscal year 1937-38	106	.52	6.67	10.3	2,440	7,480

Oopuola Stream near Huelo

Location.- Concrete weir control, lat. 20°52'15", long. 156°12'30", between Kaaiea and Nailiilihaele 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 1938. December 1910 to June 1915, at site half a mile downstream; records not equivalent.
Extremes.- Maximum discharge during year, 212 million gallons a day (328 second-feet) Apr. 6 (gage height, 4.15 feet), from rating curve extended above 20 million gallons a day by tests on model of station site; minimum not determined owing to missing gage record.

1930-38: 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 except those for periods of missing gage heights, Jan. 28 to Mar. 5, Apr. 15-23, 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.6	0.06	2.0	2.6	2.6	18.8
1.7	.28	2.2	5.8	2.8	30
1.8	.76	2.4	11.2	3.0	45

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.55	10.2	0.64	0.86	3.1	0.48	1.43	1.20	0.18	0.19	1.90	3.75
2	1.10	12.1	.95	1.48	1.60	.44	1.02	1.40	.40	.41	5.0	8.0
3	1.71	6.6	1.24	3.7	.82	.44	1.42	3.0	.80	1.32	3.65	2.25
4	1.76	1.90	1.60	4.3	.95	.44	.76	1.30	2.2	.28	3.9	1.43
5	2.35	1.43	1.15	2.35	2.15	.36	.70	4.0	1.20	.19	1.52	1.10
6	4.9	1.28	1.09	.82	.88	.32	.53	1.50	.70	21.5	1.17	.95
7	3.0	1.17	2.2	3.15	3.05	.32	.87	.95	.53	39	.88	1.56
8	1.26	1.95	1.75	3.55	6.0	.32	1.38	.80	8.6	3.0	1.63	6.4
9	.95	3.15	.88	.88	2.8	.32	1.83	.70	4.6	11.7	9.0	11.6
10	.76	6.0	.82	.64	3.15	.32	.64	.62	2.0	12.8	9.5	8.5
11	.76	3.3	6.0	.59	9.0	.35	.48	.64	1.10	1.89	4.9	1.70
12	.95	3.3	1.64	.48	1.90	.35	.44	.72	2.1	4.7	9.9	1.64
13	.70	1.70	.88	2.25	1.02	.64	.44	.85	5.0	.83	2.1	1.10
14	.82	3.4	.70	1.95	.82	6.3	.44	1.00	3.6	6.4	1.26	4.1
15	.88	9.2	.90	.76	.70	3.15	.40	.75	3.15	5.7	1.35	2.2
16	1.18	3.55	.88	.53	.59	1.17	.35	.55	2.85	5.6	1.02	2.8
17	3.2	2.5	.59	.48	.53	.70	2.25	.48	7.5	2.5	.76	1.90
18	1.02	2.6	.48	.48	.44	.59	.97	.70	9.7	1.50	.70	2.7
19	.78	1.35	.64	.44	.40	.53	.40	.50	5.1	1.00	8.4	2.6
20	1.92	1.10	.48	.56	.40	.48	.35	.40	2.05	.80	8.0	1.62
21	8.4	.95	.44	.59	4.5	.44	.35	.35	2.35	.64	14.8	1.17
22	3.5	.76	.40	.40	4.1	.48	.32	.30	2.1	.50	3.2	1.02
23	1.70	1.06	1.69	.35	5.8	8.0	.25	.27	1.70	.56	8.4	.88
24	3.8	.82	.53	4.2	5.8	4.2	2.85	.25	1.17	.48	4.3	.76
25	5.0	1.17	1.31	2.7	6.8	2.0	.86	.23	.64	.71	3.1	.70
26	2.5	.82	.44	.88	1.26	2.95	9.7	.21	.44	.64	10.6	.70
27	2.45	1.02	.40	.70	.82	2.9	15.7	.20	.40	1.74	2.25	1.07
28	1.26	1.64	.32	.59	.71	2.7	9.0	.18	.32	1.39	3.0	3.45
29	2.95	1.11	.32	1.49	1.02	19.4	3.0	-	.32	.53	5.5	.88
30	2.25	1.31	.36	1.42	.64	17.7	2.3	-	.25	.48	3.7	.70
31	5.3	.70	-	.97	-	4.8	1.50	-	.19	-	3.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	8.4	0.55	2.25	3.48	69.7	214
August	12.1	.70	2.88	4.46	89.1	274
September	6.0	.32	1.06	1.64	31.7	97
October	4.3	.36	1.44	2.23	44.6	137
November	9.0	.40	2.39	3.70	71.8	220
December	19.4	.32	2.70	4.18	83.6	256
Calendar year 1937	22	.32	2.59	4.01	945	2,900
January	15.7	.25	2.03	3.14	62.9	193
February	4.0	.18	.859	1.33	24.0	74
March	9.7	.18	2.36	3.65	73.2	225
April	39	.19	4.30	6.65	129	396
May	14.8	.70	4.47	6.92	139	425
June	11.6	.70	2.64	4.08	79.3	243
Fiscal year 1937-38	39	.18	2.46	3.81	898	2,750

Nailiilihaele Stream near Huelo

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

Drainage area.- 2.8 square miles.

Records available.- December 1910 to June 1918, August 1919 to June 1938.

Average discharge.- 17 years (1920-24, 1925-38), 22.9 million gallons a day (35.4 second-feet).

Extremes.- Maximum discharge during year, 3,800 million gallons a day (5,880 second-feet) Apr. 7 (gage height, 8.07 feet), from rating curve extended above 130 million gallons a day; minimum, 3.6 million gallons a day (5.6 second-feet) Feb. 28, Mar. 1. 1910-18, 1919-38: Maximum discharge, that of Apr. 7, 1938; minimum, 0.45 million gallons a day (0.70 second-foot) July 14, 1920.

Remarks.- Records good except those above 150 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.8	1.2	2.8	50	4.5	470
2.0	4.4	3.0	73	5.0	710
2.2	10.0	3.3	120	5.5	1,010
2.4	18.6	3.6	181		
2.6	31	4.0	290		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.3	297	9.7	11.3	32.5	7.8	19.7	11.6	4.0	6.8	38	41
2	18.3	272	12.0	20.5	16.1	7.1	15.3	10.4	4.9	11.9	96	73
3	37	146	17.6	55	8.4	6.6	18.0	71	12.5	30.5	50	21
4	52	30.5	27	54	8.4	6.1	12.0	11.6	44	8.1	33	15.3
5	45	21.5	13.9	30.5	26	5.8	12.7	38.5	14.5	6.6	16.2	12.7
6	108	18.7	12.7	12.0	11.2	5.6	10.0	12.0	7.4	498	18.5	11.2
7	37	15.8	26	25.5	43	5.4	19.0	9.4	5.6	846	13.1	19.0
8	18.2	26.5	23.5	33	107	4.9	62	9.0	226	134	16.5	41
9	12.7	49	12.3	10.8	35.5	4.6	32.5	8.7	60	372	134	232
10	10.8	120	11.2	9.4	34.5	4.6	11.6	7.4	20.5	431	164	128
11	13.8	52	41	8.4	128	4.4	9.7	7.8	13.1	73	68	18.6
12	33.5	40	17.8	7.8	18.8	4.4	9.0	8.4	33	197	115	15.8
13	11.2	23.5	10.8	16.1	13.1	43	8.4	10.7	94	32	22	13.1
14	22	52	9.7	13.1	11.2	133	7.8	9.9	73	112	14.8	63
15	20.5	216	11.2	8.1	9.7	39.5	7.1	6.6	54	46	17.5	25
16	17.8	87	11.2	6.8	8.7	13.9	6.6	6.1	94	135	12.7	34
17	47	33.5	8.4	6.6	7.8	8.4	43	10.2	236	26	10.4	20
18	16.2	28.5	7.4	6.6	7.1	7.4	15.6	15.7	317	17.2	9.4	35
19	12.0	17.7	8.1	6.1	6.6	6.6	8.4	6.6	197	13.5	97	30.5
20	32	15.3	6.8	8.9	6.1	5.8	6.8	5.8	41	11.6	164	15.8
21	141	13.1	6.3	6.6	89	5.4	6.6	5.4	54	10.0	265	12.3
22	43	11.2	6.3	5.6	71	5.6	6.3	5.1	37	9.7	36	10.8
23	27.5	49	29	5.6	95	128	6.1	4.9	42	9.7	95	9.7
24	56	13.9	8.7	34.5	67	59	69	4.6	25.5	8.1	82	8.7
25	52	19.6	15.8	26.5	68	23.5	19.4	4.4	15.8	10.8	36.5	8.1
26	25	21	14.6	8.4	15.3	85	286	4.2	12.7	8.7	176	7.4
27	23.5	21.5	9.4	6.6	11.6	35	405	4.2	11.2	41	24	29
28	15.3	22	7.1	6.3	10.0	21.5	82	3.8	9.7	21	28.5	43
29	59	17.4	11.3	17.4	12.7	374	19.6	-	8.7	9.0	108	10.4
30	34	15.3	8.4	16.4	9.0	371	23.5	-	7.8	8.1	54	8.4
31	212	11.2	-	9.5	-	57	16.4	-	7.1	-	42	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	212	10.8	40.8	63.1	1,260	3,880
August	297	11.2	57.3	88.7	1,780	5,460
September	41	6.3	13.8	21.4	415	1,270
October	55	5.6	15.9	24.6	494	1,520
November	128	6.1	32.9	50.9	988	3,030
December	374	4.4	48.1	74.4	1,490	4,570
Calendar year 1937	435	4.4	43.0	66.5	15,710	48,200
January	405	6.1	41.1	63.6	1,280	3,910
February	71	3.8	11.2	17.3	314	964
March	317	4.0	57.5	89.0	1,780	5,470
April	846	6.6	105	162	3,140	9,650
May	265	9.4	66.0	102	2,050	6,280
June	232	7.4	33.8	52.3	1,010	3,110
Fiscal year 1937-38	846	3.8	43.9	67.9	16,000	49,110

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 1938.

Average discharge.- 19 years (1919-38), 18.9 million gallons a day (29.2 second-feet).

Extremes.- Maximum discharge, 4,580 million gallons a day (7,090 second-feet) Apr. 7 (gage height, 9.10 feet), from rating curve extended above 150 million gallons a day; minimum, 2.35 million gallons a day (3.64 second-feet) Mar. 1.
1910-18, 1919-38: Maximum discharge, that of Apr. 7, 1938; minimum, 0.07 million gallons a day (0.11 second-foot) June 27, 1921.

Remarks.- Records excellent except those for periods of missing gage heights, July 8 to Aug. 11, Dec. 16, May 25 to June 14 (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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.8	2.35	2.7	29	4.5	253
1.9	3.75	3.0	48	5.0	370
2.0	5.5	3.3	76	6.0	750
2.2	10.2	3.6	109	7.0	1,560
2.4	16.5	4.0	163		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.2	230	7.6	5.7	17.1	5.2	13.4	8.4	2.65	4.8	22	33
2	24	200	8.1	9.4	9.0	4.6	9.7	7.2	3.35	6.4	69	50
3	36.5	80	11.6	31.5	5.0	4.1	9.2	48	5.9	23.5	36	20
4	65	20	25	20.5	4.4	3.9	7.0	9.7	40	6.1	18.1	12
5	58	16	10.8	28	13.3	3.75	7.4	36.5	14.5	4.6	10.5	9.5
6	91	13	8.9	7.9	7.6	3.45	5.9	10.7	7.5	537	17.2	8.0
7	38	11	14.7	9.7	32	3.45	23	7.2	4.4	1,140	10.5	15
8	15	22	26.5	15.3	102	3.2	28	6.5	120	268	9.2	30
9	9.0	40	9.7	6.3	48	3.05	35.5	6.1	54	455	53	120
10	7.0	90	7.6	5.5	32.5	3.05	8.1	5.3	18.6	414	117	70
11	9.0	45	23.5	5.0	76	2.9	6.1	5.2	13.4	88	63	15
12	30	24.5	11.9	4.4	16.8	3.05	5.5	5.2	17.3	141	74	13
13	9.0	15.8	7.6	6.1	9.2	30.5	5.0	5.5	58	33	23	10
14	19	35	6.6	5.9	7.0	104	4.3	7.6	67	47	12.8	45
15	17	175	6.8	4.4	5.9	*42	4.1	4.8	76	49	17.2	24.5
16	16	50	7.2	4.1	5.2	8.9	3.75	4.3	136	68	12.6	19.7
17	40	23.5	5.7	3.75	4.8	*6.6	24.5	4.9	214	22	8.1	12.2
18	13	18.5	5.2	4.1	4.4	5.7	12.6	6.8	244	12.8	7.0	21
19	8.0	11.9	5.2	3.6	4.1	4.6	5.2	4.1	176	9.9	33.5	17.5
20	20	10.8	4.6	4.5	3.75	4.1	4.3	3.6	51	8.1	97	8.9
21	120	9.2	4.3	3.75	58	3.75	4.1	3.45	44	7.2	172	7.2
22	30	7.6	4.3	3.35	71	3.75	3.6	3.35	24.5	6.6	36.5	6.1
23	18	47	16.5	3.35	78	69	3.45	3.05	31.5	6.3	59	5.5
24	50	12.5	6.1	8.2	39.5	52	64	3.05	20	5.5	61	5.2
25	45	16.5	8.2	15.9	41	16.2	16.4	2.9	10.8	6.3	30	4.6
26	20	21.5	16.2	5.0	11.1	72	252	2.55	8.6	5.5	150	4.3
27	19	21.5	8.0	3.75	7.6	26	272	2.75	7.4	37	20	16.8
28	11	17.7	5.2	3.45	6.3	14.5	80	2.5	6.3	17.5	25	22.5
29	45	12.5	6.1	4.8	8.1	169	20	-	5.7	6.8	80	6.6
30	30	10.8	5.3	14.1	5.9	272	13.5	-	5.2	5.9	45	5.0
31	150	8.4	-	5.0	-	40	12.2	-	4.6	-	35	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	150	7.0	34.7	53.7	1,070	3,300
August	230	7.6	42.5	65.8	1,320	4,040
September	26.5	4.3	9.83	15.2	295	905
October	31.5	3.35	8.27	12.8	256	787
November	102	3.75	24.5	37.9	735	2,250
December	272	2.9	31.9	49.4	988	3,030
Calendar year 1937	356	2.9	30.6	47.3	11,170	34,300
January	272	3.45	31.1	48.1	964	2,960
February	48	2.5	7.91	12.2	221	679
March	244	2.65	43.1	74.4	1,490	4,580
April	1,140	4.6	115	178	3,440	10,570
May	172	7.0	45.9	71.0	1,420	4,370
June	120	4.3	21.3	33.0	638	1,960
Fiscal year 1937-38	1,140	2.5	35.2	54.5	12,840	39,430

Hoolawalilili Stream near Huelo

Location.- 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 1938.

Average discharge.- 26 years (1911-15, 1916-38), 5.16 million gallons a day (7.98 second-feet).

Extremes.- Maximum discharge during year, 415 million gallons a day (642 second-feet) Apr. 7 (gage height, 4.59 feet), from rating curve extended above 220 million gallons a day; minimum, 1.50 million gallons a day (2.32 second-feet) Feb. 28.
1911-38: Maximum discharge, 657 million gallons a day (1,020 second-feet) Nov. 18, 1930 (gage height, 6.74 feet), from rating curve extended above 220 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) June 8, 1926.

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

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

1.4	1.50	1.8	8.7	2.5	43
1.5	2.7	2.0	15.2	3.0	88
1.6	4.2	2.2	24.5	3.5	157

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.86	25.5	2.7	1.98	4.1	3.15	7.2	4.0	1.86	2.7	3.45	8.0
2	2.15	30.5	3.0	2.45	3.3	3.0	5.6	3.75	1.74	2.85	8.4	13.8
3	2.7	21.5	3.0	5.5	2.6	2.7	5.0	8.7	2.25	3.45	6.2	7.0
4	3.0	9.3	3.15	5.1	2.45	2.6	4.0	3.75	7.4	2.45	6.4	5.6
5	3.95	6.4	2.7	4.6	3.55	2.45	3.6	5.8	3.15	2.35	4.6	4.8
6	8.1	5.6	2.7	3.0	2.7	2.35	3.3	3.75	2.45	34.5	4.0	4.0
7	4.6	4.6	3.45	5.3	4.2	2.35	3.75	3.45	2.2	119	3.6	4.2
8	3.3	4.8	3.3	6.7	7.1	2.2	6.0	3.3	13.2	14.8	3.65	5.5
9	2.85	6.0	2.7	3.3	4.2	2.1	4.7	3.0	8.2	29	13.5	18.4
10	2.7	10.6	2.6	3.0	4.6	2.1	3.15	2.85	5.4	37.5	21	17.2
11	2.7	7.3	5.3	2.85	13.4	1.86	2.85	2.7	3.9	12.0	12.6	6.2
12	2.85	7.0	3.45	2.6	5.2	2.1	2.7	2.7	4.8	17.4	16.7	5.2
13	2.45	5.4	2.85	3.6	4.2	3.2	2.6	2.85	8.6	8.7	7.2	4.4
14	2.6	7.0	2.6	3.45	3.75	8.8	2.45	2.6	8.3	16.2	5.6	7.0
15	2.45	21.5	2.7	2.7	3.45	6.2	2.35	2.35	7.4	9.5	5.8	5.2
16	2.45	13.6	2.6	2.45	3.15	3.45	2.2	2.35	7.8	23.5	4.4	5.2
17	3.15	8.2	2.45	2.35	2.85	2.85	4.4	3.25	18.4	8.2	3.9	4.4
18	2.7	7.1	2.35	2.35	2.7	2.6	3.0	3.4	22	5.8	3.6	5.4
19	2.35	5.6	2.45	2.35	2.6	2.45	2.45	2.45	17.2	4.8	11.3	4.8
20	3.35	5.0	2.2	2.55	2.45	2.35	2.35	2.2	9.5	4.0	12.1	3.75
21	15.2	4.2	2.1	2.35	8.1	2.2	2.2	2.1	8.7	3.75	30	3.45
22	6.7	3.75	1.98	2.1	7.3	2.35	2.2	2.1	8.4	3.3	10.4	3.15
23	4.6	4.4	3.1	2.1	11.8	10.8	2.2	1.98	7.7	3.3	16.2	3.0
24	7.7	3.6	2.2	4.2	12.0	8.6	5.2	1.98	6.4	2.85	13.6	2.85
25	8.9	3.75	2.45	3.8	13.7	4.6	2.85	1.86	5.0	2.85	8.7	2.6
26	5.8	3.6	3.25	2.6	6.0	6.3	16.5	1.74	4.4	2.7	22.5	2.6
27	5.4	3.3	2.35	2.35	5.0	5.5	37.5	1.74	3.75	3.35	8.2	2.85
28	4.4	3.45	2.1	2.35	4.2	5.2	14.8	1.62	3.6	3.3	7.4	4.2
29	6.6	3.15	2.1	2.7	4.0	36	7.0	-	3.15	2.6	12.2	2.6
30	5.4	3.4	1.98	2.85	3.45	39	6.2	-	2.85	2.6	11.0	2.45
31	12.6	2.85	-	2.6	-	13.6	5.0	-	2.7	-	9.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	15.2	1.86	4.70	7.27	146	447
August	30.5	2.85	8.13	12.6	252	773
September	5.3	1.98	2.73	4.22	81.9	251
October	6.7	1.98	3.17	4.90	98.2	301
November	13.7	2.45	5.27	8.15	158	485
December	39	1.86	6.28	9.72	195	598
Calendar year 1937	43	1.74	6.19	9.58	2,260	6,930
January	37.5	2.2	5.65	8.74	175	538
February	8.7	1.62	3.01	4.66	84.3	259
March	22	1.74	6.85	10.5	212	652
April	119	2.35	13.0	20.1	389	1,190
May	30	3.45	9.91	15.3	307	943
June	18.4	2.45	5.66	8.76	170	521
Fiscal year 1937-38	119	1.62	6.22	9.62	2,270	6,960

Hoolawanui Stream near Huelo

Location.- 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 1938.

Average discharge.- 26 years (1911-15, 1916-38), 8.12 million gallons a day (12.6 second-feet).

Extremes.- Maximum discharge during year, 1,790 million gallons a day (2,770 second-feet) Apr. 7 (gage height, 4.80 feet), from rating curve based on weir rating between 100 million and 375 million gallons a day and extended above; minimum, 1.66 million gallons a day (2.57 second-feet) Mar. 3.

1910-38: Maximum discharge, that of Apr. 7, 1938; minimum, 0.15 million gallons a day (0.23 second-foot) Oct. 25, 1917.

Remarks.- Records good except those above 400 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.13	0.9	13.5	2.0	135
.5	2.2	1.0	18.3	2.5	255
.6	3.9	1.2	31	3.0	440
.7	6.3	1.4	48		
.8	9.5	1.7	84		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.2	86	3.75	2.55	5.0	4.4	13.1	7.3	2.1	4.4	7.8	15.0
2	3.4	81	4.4	3.05	3.75	3.9	9.9	6.3	2.1	4.8	21.5	19.3
3	6.4	54	4.4	9.3	2.7	3.75	8.5	20.5	2.6	7.3	13.8	11.5
4	9.2	19.4	5.8	8.7	2.55	3.4	6.6	6.6	12.4	4.1	10.3	9.5
5	9.2	13.1	4.1	9.9	4.0	3.2	6.3	12.0	4.6	3.75	7.6	8.2
6	21	10.7	3.9	3.75	3.05	3.05	5.3	6.9	3.05	130	7.6	7.3
7	10.3	8.5	4.9	5.3	7.3	2.7	6.6	5.8	2.55	431	6.3	7.3
8	7.3	8.4	5.6	6.6	23.5	2.55	13.0	5.6	30.5	69	6.6	9.1
9	5.3	12.0	3.9	3.75	8.2	2.55	10.8	5.1	17.7	134	18.8	41
10	4.6	22	3.55	3.4	8.5	2.55	5.3	4.6	7.9	164	44	33
11	4.4	13.7	7.5	3.2	23.5	2.2	4.9	4.1	5.8	41	22.5	12.3
12	8.3	12.4	4.9	2.9	8.5	2.7	4.1	3.9	7.6	59	30	9.5
13	4.4	9.5	3.75	3.9	6.3	10.1	3.75	4.4	18.2	21.5	13.5	7.9
14	5.7	12.5	3.4	3.55	5.3	25.5	3.55	4.1	18.3	32	10.3	14.9
15	4.9	55	3.2	2.9	4.6	11.8	3.2	3.4	17.3	17.8	11.1	11.0
16	4.1	25.5	3.05	2.55	4.1	5.8	3.05	3.05	29	39.5	8.2	11.1
17	5.6	14.1	2.7	2.55	3.75	4.6	7.5	4.3	67	15.4	6.6	8.9
18	4.1	11.5	2.55	2.35	3.4	3.9	4.8	4.8	75	11.5	6.1	10.7
19	3.4	8.9	2.7	2.2	3.05	3.55	3.2	3.05	62	9.5	19.2	9.5
20	6.8	7.9	2.2	3.15	2.9	3.2	3.05	2.7	24.5	8.2	29	6.9
21	27	6.6	2.2	2.35	15.5	3.05	2.9	2.55	22	7.3	67	6.1
22	11.9	5.9	2.1	2.2	14.3	3.05	2.7	2.35	17.3	6.3	20.5	5.3
23	8.9	12.2	4.3	2.1	22	19.8	2.7	2.2	16.4	6.1	26.5	5.1
24	13.1	6.3	2.35	4.6	16.5	13.7	11.6	2.2	13.1	5.3	28	4.6
25	13.2	6.6	2.85	5.4	19.4	6.3	4.6	2.1	9.9	5.3	16.6	4.1
26	8.9	6.3	5.0	2.7	9.2	20	60	1.99	8.5	4.9	42	3.9
27	7.9	8.3	3.2	2.35	7.3	9.8	136	1.99	7.3	9.4	15.9	6.0
28	6.3	6.3	2.55	2.55	6.1	7.9	36.5	1.88	6.3	6.9	13.1	8.8
29	13.0	5.3	2.35	3.05	5.8	79	14.0	-	5.8	4.9	30	4.6
30	9.9	5.1	2.35	3.65	4.9	110	11.1	-	5.1	4.4	22	3.9
31	50	4.4	-	2.65	-	26	8.9	-	4.9	-	16.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	50	2.2	9.70	15.0	301	923
August	86	4.4	18.0	27.9	557	1,710
September	7.5	2.1	3.65	5.65	110	336
October	9.9	2.1	3.78	5.85	117	360
November	23.5	2.55	8.50	13.2	255	782
December	110	2.2	13.0	20.1	403	1,240
Calendar year 1937	140	1.99	11.5	17.8	4,210	12,930
January	136	2.7	13.5	20.9	418	1,280
February	20.5	1.88	4.85	7.50	136	417
March	75	2.1	17.0	26.3	527	1,620
April	431	3.75	42.3	65.4	1,270	3,890
May	67	6.1	19.3	29.9	599	1,840
June	41	3.9	10.5	16.2	316	971
Fiscal year 1937-38	431	1.88	13.7	21.2	5,010	15,370

Honopou Stream near Huelo

Location.- Lat. 20°53'20", long. 156°15'05", just upstream from Wailoa ditch intake, 2¼ miles southwest of Huelo and 2½ miles west of Kailua. Altitude, about 1,250 feet.

Drainage area.- 1.0 square mile.

Records available.- December 1910 to June 1938.

Average discharge.- 25 years (1911-14, 1916-38), 3.23 million gallons a day (5.00 second-feet).

Extremes.- Maximum discharge during year, 152 million gallons a day (235 second-feet) Apr. 7 (gage height, 3.23 feet), from rating curve extended above 70 million gallons a day; minimum, 0.70 million gallons a day (1.08 second-feet) Sept. 30, Oct. 1, 1910-38: Maximum discharge, 1,220 million gallons a day (1,890 second-feet) Nov. 18, 1930 (gage height, 7.28 feet), from rating curve extended above 70 million gallons a day; minimum, 0.01 million gallons a day (0.02 second-foot) several days in 1933 and 1934.

Remarks.- Records good except those for period of missing gage heights, Aug. 21-25, which were computed on basis of records for stations on nearby streams and are fair, and those above 100 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.5	0.65	0.9	5.4	1.7	25	2.6	80
.6	1.45	1.1	9.2	2.0	37	2.9	110
.7	2.55	1.4	16.5	2.3	54		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.00	25	1.78	0.77	2.5	2.35	6.9	3.75	1.17	2.35	2.55	6.2
2	1.35	27	2.0	1.00	1.56	2.0	5.4	3.2	1.08	2.5	6.9	10.7
3	2.2	22	2.1	3.65	1.08	1.89	5.0	7.3	1.67	3.1	4.2	5.2
4	1.89	10.4	2.1	2.65	1.17	1.78	3.9	3.1	6.8	1.89	4.4	4.5
5	2.8	7.1	1.67	2.15	1.98	1.56	3.5	5.1	2.0	1.78	2.95	3.75
6	5.4	6.1	1.67	1.17	1.25	1.45	2.95	2.95	1.35	20.5	2.8	3.35
7	2.95	4.8	2.35	3.35	2.65	1.25	3.2	2.7	1.17	88	2.45	3.35
8	2.1	4.5	2.0	3.15	4.5	1.35	5.0	2.55	12.0	20.5	2.55	4.7
9	1.89	5.4	1.56	1.56	2.55	1.35	3.5	2.45	6.2	29.5	7.4	14.2
10	1.78	8.1	1.35	1.45	2.6	1.25	2.35	2.2	4.4	41	17.2	13.9
11	1.89	5.9	3.9	1.45	9.6	1.17	2.1	2.1	2.95	16.5	10.5	5.4
12	1.89	5.8	1.78	1.35	3.5	1.56	2.0	2.0	3.6	18.8	13.7	4.5
13	1.56	4.4	1.35	2.2	2.8	3.5	1.89	2.35	6.2	10.6	6.2	3.9
14	1.78	5.7	1.25	2.0	2.55	8.1	1.67	2.0	6.8	16.2	5.0	6.2
15	1.56	19.6	1.25	1.45	2.35	4.4	1.56	1.67	6.1	9.4	5.4	4.0
16	1.45	11.4	1.25	1.25	2.1	2.55	1.45	1.56	6.7	14.3	3.75	3.9
17	2.0	7.3	1.17	1.25	1.89	2.1	3.9	2.65	16.9	7.7	3.2	3.5
18	1.56	6.1	1.00	1.25	1.78	1.89	2.05	3.3	18.1	5.9	2.8	4.4
19	1.35	5.0	1.17	1.17	1.56	1.78	1.45	1.56	16.9	5.0	8.4	3.2
20	2.95	*3.9	.92	1.62	1.45	1.67	1.25	1.45	10.6	4.4	8.4	2.7
21	12.0	3.5	.84	1.17	6.0	1.56	1.35	1.35	9.2	3.75	22.5	2.45
22	4.5	3.2	.84	1.08	4.9	1.56	1.17	1.25	8.6	3.1	9.0	2.2
23	3.2	3.7	1.85	1.00	8.3	9.3	1.25	1.17	6.9	2.8	13.5	2.1
24	5.7	3.1	.92	2.6	7.4	5.3	3.7	1.17	5.9	2.45	10.9	2.0
25	6.3	2.8	1.17	1.85	8.8	2.55	1.56	1.17	4.8	2.35	7.7	1.78
26	3.75	2.55	2.1	1.08	4.4	4.8	14.5	1.08	4.4	2.1	16.5	1.67
27	3.65	2.35	1.00	1.00	3.65	3.7	31	1.08	3.75	2.55	7.1	2.35
28	2.95	2.45	.84	1.08	3.1	3.2	14.7	1.00	3.35	2.55	6.2	3.5
29	4.9	2.1	.77	1.51	2.95	26	6.4	-	3.1	1.78	11.2	1.89
30	3.75	2.1	.77	1.25	2.55	33.5	5.6	-	2.7	1.67	9.0	1.67
31	10.9	1.89	-	1.17	-	12.2	4.5	-	2.45	-	8.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	12.0	1.00	3.32	5.14	103	316
August	27	1.89	7.27	11.2	225	691
September	3.9	.77	1.49	2.31	44.7	137
October	3.65	.77	1.63	2.52	50.7	156
November	9.6	1.08	3.45	5.34	103	318
December	33.5	1.17	4.79	7.41	149	456
Calendar year 1937	41	.77	5.01	7.75	1,830	5,610
January	31	1.17	4.73	7.32	147	450
February	7.3	1.00	2.33	3.61	65.2	200
March	18.1	1.08	6.06	9.38	188	576
April	88	1.67	11.5	17.8	345	1,060
May	22.5	2.45	7.82	12.1	243	744
June	14.2	1.67	4.44	6.87	133	409
Fiscal year 1937-38	88	.77	4.92	7.61	1,800	5,510

*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 1938. Records at same site obtained by East Maui Irrigation Co. April 1930 to June 1932.

Extremes.- Maximum discharge recorded during year, 580 million gallons a day (897 second-feet) Apr. 7 (gage height, 4.20 feet), from rating curve extended above 80 million gallons a day; minimum discharge, 0.08 million gallons a day (0.12 second-foot) July 19.
1932-38: Maximum discharge, 744 million gallons a day (1,150 second-feet), Mar. 21, 1937 (gage height, 4.51 feet), from rating curve extended above 80 million gallons a day; minimum, 0.04 million gallons a day (0.06 second-foot) Oct. 31, 1933.

Remarks.- Records good. Discharge for period of missing gage heights, Jan. 6-9, computed from records of stations on this stream above and below Haiku ditch. 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 1937-38 (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	2.5	158
.5	2.2	1.0	15.2	3.0	253

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.10	15.4	0.14	0.12	0.12	0.23	0.44	0.26	0.16	0.23	0.16	0.51
2	.12	18.5	.14	.12	.12	.23	.44	.23	.16	.23	.72	4.3
3	.12	11.0	.14	.12	.12	.23	.37	6.4	.20	.23	.23	.37
4	.14	.23	.14	.49	.12	.23	.23	.26	2.85	.16	.26	.30
5	.14	.23	.14	.38	.14	.23	.20	1.40	.26	.16	.20	.30
6	.40	.23	.12	.20	.12	.20	.20	.30	.20	13.5	.20	.26
7	.14	.20	.12	2.85	.16	.16	.40	.26	.23	183	.20	.26
8	.14	.16	.16	.52	.96	.16	.60	.26	1.47	9.4	.20	.26
9	.14	.20	.16	.20	.20	.20	.70	.26	2.85	20.5	2.9	8.3
10	.12	.26	.12	.16	.16	.23	.20	.26	.34	72	25.5	10.3
11	.12	.20	.60	.16	1.91	.23	.16	.26	.30	15.5	4.7	.34
12	.12	.23	.14	.16	.20	.23	.16	.26	.30	24	22	.30
13	.12	.16	.14	.16	.16	.16	.16	.30	.44	2.45	.57	.26
14	.12	.14	.12	.16	.16	.91	.14	.26	.79	11.5	.26	.62
15	.14	27	.14	.16	.12	1.70	.14	.23	.30	2.4	1.04	.37
16	.14	6.1	.14	.16	.12	.23	.14	.23	.30	24	.23	.30
17	.12	.37	.14	.14	.12	.20	.14	.61	7.0	1.49	.23	.26
18	.12	.30	.14	.12	.12	.16	.16	1.70	5.1	.34	.23	.34
19	.10	.26	.14	.12	.14	.16	.16	.26	3.0	.30	4.3	.30
20	.10	.20	.12	.12	.14	.16	.14	.26	.34	.30	3.7	.23
21	1.41	.20	.12	.12	.52	.16	.20	.23	.40	.30	28	.23
22	.20	.20	.10	.12	1.68	.16	.20	.20	.34	.30	6.1	.23
23	.16	.20	.10	.12	.53	1.67	.37	.20	.34	.30	2.65	.23
24	.23	.20	.12	.12	2.7	1.83	2.6	.20	.34	.26	1.40	.23
25	.67	.16	.12	.14	8.3	.26	.64	.20	.30	.20	.72	.20
26	.20	.16	.12	.14	.37	2.45	7.7	.20	.30	.16	16.1	.16
27	.16	.16	.12	.14	.34	.51	28	.20	.30	.16	.70	.20
28	.16	.14	.12	.14	.30	.34	18.2	.16	.23	.16	1.10	.16
29	.16	.14	.12	.14	.23	30.5	.37	-	.23	.16	4.6	.16
30	.16	.14	.12	.14	.23	37	.78	-	.23	.16	2.55	.16
31	1.10	.14	-	.14	-	3.0	.33	-	.23	-	.85	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	1.41	0.10	0.238	0.368	7.37	23
August	27	.14	2.68	4.15	83.2	255
September	.60	.10	.145	.224	4.36	13
October	2.85	.12	.261	.404	8.08	25
November	8.3	.12	.687	1.06	20.6	63
December	37	.16	2.71	4.19	84.1	258
Calendar year 1937	52	.10	1.88	2.91	687	2,110
January	28	.14	2.09	3.23	64.7	198
February	6.4	.16	.566	.876	15.8	49
March	7.0	.16	.962	1.49	29.8	92
April	183	.16	12.8	19.8	384	1,180
May	28	.16	4.28	6.62	133	407
June	10.3	.16	1.01	1.56	30.4	93
Fiscal year 1937-38	183	.10	2.37	3.67	865	2,660

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 1938. Records at same site obtained by East Maui Irrigation Co. November 1926 to June 1932.

Extremes.- Maximum discharge during year, 154 million gallons a day (238 second-feet) Apr. 7 (gage height, 2.31 feet), from rating curve extended above 15 million gallons a day; minimum, 0.26 million gallons a day (0.40 second-foot) July 1.

1932-38: 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, Jan. 24, 25, 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 1937-38 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.20	0.6	4.0	1.4	40
.3	.59	.8	8.8	1.6	57
.4	1.29	1.0	16.3	1.8	78
.5	2.4	1.2	27	2.0	104

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.29	16.3	0.40	0.32	0.72	0.54	1.59	0.69	0.54	0.59	0.54	1.79
2	.45	22.5	.49	.36	.64	.49	1.20	.64	.49	.59	1.38	6.1
3	.99	13.0	.40	.60	.36	.49	1.40	6.5	.65	.64	.81	1.29
4	1.24	2.8	1.14	1.73	.36	.49	.88	.69	5.9	.54	.81	1.11
5	1.44	2.0	.48	1.80	.59	.49	.81	2.6	1.01	.49	.64	.95
6	2.6	.95	.40	.59	.36	.44	.75	.75	.69	12.6	.59	.81
7	1.69	.64	.57	4.7	.53	.44	1.22	.69	.64	97	.54	.81
8	1.04	.69	1.31	2.35	2.6	.40	1.7	.69	1.94	10.2	.49	.88
9	.44	2.0	.44	.75	1.49	.44	1.97	.64	4.0	20.5	6.2	10.9
10	.36	2.65	.40	.49	1.20	.44	.64	.59	.88	51	15.7	10.2
11	.32	2.25	1.88	.44	3.7	.40	.59	.64	.75	15.3	6.4	1.05
12	.74	2.25	.69	.40	.91	.44	.59	.73	.75	23	19.1	.88
13	.32	.94	.44	.54	.59	.40	.54	.71	1.39	3.55	1.32	.81
14	.49	2.1	.40	.54	.49	1.98	.49	.64	2.05	10.1	.81	1.50
15	.36	26	.40	.40	.44	4.1	.49	.59	1.29	2.95	1.84	.95
16	.34	7.9	.36	.40	.44	.81	.49	.59	1.39	15.0	.69	.81
17	.60	3.1	.36	.40	.40	.59	.54	.89	8.7	1.69	.69	.75
18	.40	2.95	.36	.36	.40	.54	.75	2.4	7.0	.95	.64	.88
19	.29	1.17	.40	.36	.40	.49	.49	.59	5.0	.81	5.1	.86
20	.57	.75	.32	.36	.40	.44	.44	.59	1.49	.81	3.2	.69
21	3.85	.64	.32	.36	1.27	.44	.44	.54	1.69	.75	28	.64
22	1.69	.59	.32	.36	3.45	.44	.45	.54	1.59	.69	5.0	.64
23	1.20	1.05	.44	.36	2.5	2.6	1.80	.54	1.59	.69	4.6	.59
24	1.55	.76	.36	.40	5.8	4.5	4.0	.54	1.29	.64	2.95	.59
25	2.3	.59	.54	.76	10.7	1.46	1.0	.49	.88	.59	2.2	.54
26	1.16	.58	.40	.44	1.22	5.2	11.6	.49	.81	.59	16.7	.54
27	1.55	1.17	.36	.40	.75	2.7	21	.54	.69	.59	2.0	.54
28	.54	.75	.32	.36	.69	1.6	17.9	.49	.64	.59	2.6	.64
29	1.21	.59	.32	.36	.59	27.5	.92	-	.59	.54	4.8	.54
30	1.79	.54	.32	.36	.59	32.5	1.75	-	.59	.54	3.7	.54
31	2.25	.49	-	.40	-	6.2	.82	-	.59	-	2.25	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	3.85	0.29	1.10	1.70	34.1	105
August	26	.49	3.89	6.02	121	370
September	1.88	.32	.511	.791	15.3	47
October	4.7	.32	.724	1.12	22.4	69
November	10.7	.36	1.49	2.31	44.6	137
December	32.5	.40	3.23	5.00	100	307
Calendar year 1937	41	.26	2.53	3.91	922	2,830
January	21	.44	2.56	3.96	79.2	243
February	6.5	.49	.965	1.49	27.0	83
March	8.7	.49	1.85	2.86	57.5	176
April	97	.49	9.15	14.2	275	842
May	28	.49	4.59	7.10	142	437
June	10.9	.54	1.66	2.57	49.8	153
Fiscal year 1937-38	97	.29	2.65	4.10	968	2,970

Honopou Stream below Haiku ditch, near Huelo

Location.- Concrete weir control, lat. 20°55'05", long. 156°14'50", an eighth of a mile downstream from Government Road, and 1½ miles west of Huelo.

Drainage area.- 2.3 square miles.

Records available.- July 1932 to June 1938. Records at same site obtained by East Maui Irrigation Co. November 1926 to June 1932.

Extremes.- Maximum discharge during year, 278 million gallons a day (430 second-feet) Apr. 7 (gage height, 3.25 feet), from rating curve extended above 39 million gallons a day; minimum, 0.06 million gallons a day (0.09 second-foot) May 6-8.
1932-38: Maximum discharge recorded, 345 million gallons a day (534 second-feet) Dec. 31, 1932 (gage height, 3.43 feet), from rating curve extended above 39 million gallons a day; 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, Aug. 19-23, May 9-16, June 10, 11, which were computed on basis of records for stations on nearby streams and 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 1937-38 (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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.67	38.5	0.86	0.80	3.2	0.37	0.41	0.19	0.36	0.92	0.29	15.0
2	1.18	36.5	.92	1.07	.61	.59	.41	.16	.86	.92	21.5	47
3	2.05	30	.92	9.2	.46	.86	.41	15.4	.92	2.2	13.5	4.4
4	6.1	6.7	1.71	3.4	.56	.86	.37	.16	25	.80	3.2	.44
5	7.9	.46	1.07	11.5	1.24	.86	55	5.7	.76	.80	.08	1.15
6	28	.33	.92	.71	.99	.86	.99	.16	.10	37	.08	1.07
7	7.1	.74	.92	12.5	4.9	.80	1.32	.14	.34	222	.06	1.07
8	1.73	1.41	3.7	12.3	25.5	.86	1.32	.14	17.6	29.5	.49	5.2
9	.67	16.0	.99	.80	4.0	.86	12.5	.14	21.5	62	10	59
10	.56	29.5	.86	.73	9.4	.92	1.07	.12	.22	132	60	58
11	.56	13.4	9.4	.67	31	.86	.99	.12	.22	30	15	1.5
12	1.00	8.2	1.07	.67	2.7	.86	.99	.16	.86	55	50	1.24
13	.61	.67	.86	.67	.61	3.9	.99	.19	34.5	13.9	2.0	1.07
14	.68	4.2	.80	.61	.51	23	.92	.16	36.5	32	1.2	19.5
15	.61	53	.80	.61	.46	21	.92	.51	30.5	15.7	5.0	11.3
16	.51	27.5	.80	.61	.46	.99	.92	.99	30	33	1.1	3.85
17	1.60	7.0	.80	.61	.46	.86	5.9	1.32	44	9.6	.99	1.07
18	.67	10.0	.80	.56	.51	.86	2.8	1.48	27	1.09	.99	10.5
19	.46	2.0	.80	.56	.51	.86	.99	1.32	24.5	1.24	16.9	9.8
20	1.14	1.2	.80	.56	.56	.80	.92	1.24	5.6	1.24	38.5	.99
21	28.5	1.1	.80	.56	12.3	.80	.86	.99	21.5	1.15	78	.80
22	17.0	1.0	.86	.56	23	.80	.86	.99	11.9	1.15	14.2	.80
23	1.71	1.3	1.70	.56	26.5	6.5	1.15	.99	13.5	1.07	37.5	.73
24	18.2	1.15	1.07	7.3	33	6.8	9.5	.99	5.5	1.07	46	.86
25	39.5	.99	.99	6.8	26	1.60	.22	.92	.10	.99	4.7	.80
26	2.2	1.07	.92	.61	.51	6.4	34.5	.92	.59	.92	65	.73
27	2.35	1.32	.80	.51	.46	1.91	65	.92	.92	2.55	9.3	.92
28	1.07	1.15	.80	.51	.41	1.71	52	.86	.92	.37	6.3	3.3
29	8.0	.92	.80	.51	.37	52	1.12	-	.92	.29	37.5	.73
30	5.4	.92	.80	.73	.37	53	9.6	-	.92	.29	28	.80
31	26	.92	-	.56	-	.73	2.4	-	.92	-	27	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	39.5	0.46	6.89	10.7	214	656
August	53	.33	9.65	14.9	299	918
September	9.4	.80	1.31	2.03	39.3	121
October	12.5	.51	2.53	3.91	78.4	240
November	33	.37	7.05	10.9	212	649
December	53	.37	6.26	9.69	194	596
Calendar year 1937	116	.22	7.21	11.2	2,630	8,080
January	65	.22	6.87	10.6	213	653
February	15.4	.12	1.34	2.07	37.4	115
March	44	.10	11.6	17.9	360	1,100
April	222	.29	23.0	35.6	691	2,120
May	78	.06	19.2	29.7	594	1,820
June	59	.44	8.79	13.6	264	809
Fiscal year 1937-38	222	.06	8.75	13.5	3,200	9,800

Wailoa ditch at Honopou, near Huelo

Location.- Lat. 20°53'20", long. 156°15'05", 100 feet downstream from intake from Honopou Stream, half a mile west of Lupi, and 2.2 miles southwest of Huelo.

Records available.- November 1922 to June 1938.

Average discharge.- 15 years (1923-38), 115 million gallons a day (178 second-feet).

Extremes.- Maximum discharge during year, 171 million gallons a day (265 second-feet) Apr. 6 (gage height, 5.62 feet); minimum discharge recorded, 54 million gallons a day (84 second-feet) Mar. 1.

1922-37: 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 period of missing gage heights, May 16 to June 8, which were computed on basis of records for East Maui Irrigation Company'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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	105	170	138	142	162	110	162	162	57	110	146	165
2	162	170	146	162	154	102	166	154	61	142	162	165
3	166	170	154	166	110	94	166	162	85	162	166	160
4	166	170	166	166	118	90	154	150	166	126	166	155
5	166	166	162	162	158	83	158	162	162	106	166	145
6	166	166	158	150	146	79	130	158	118	151	166	135
7	162	166	162	154	146	75	158	134	79	170	162	145
8	158	166	162	162	166	72	158	126	130	166	154	155
9	154	166	158	138	166	68	166	122	166	166	162	162
10	146	170	154	122	166	68	154	106	166	166	166	166
11	142	166	166	110	166	64	130	134	162	166	166	166
12	154	166	162	98	166	68	114	130	162	166	170	166
13	142	166	150	154	162	111	106	158	166	170	170	166
14	154	166	138	130	138	170	98	142	166	166	170	166
15	162	166	158	102	122	166	90	114	166	166	166	166
16	162	166	154	90	110	158	87	98	166	170	165	166
17	162	166	126	83	98	122	130	108	170	170	146	166
18	162	166	114	94	90	106	150	134	170	166	130	166
19	158	166	122	90	87	90	106	90	170	166	160	166
20	166	162	106	90	79	83	102	83	166	166	160	166
21	170	162	94	75	139	75	122	79	170	162	165	166
22	166	158	98	72	166	79	90	72	166	158	165	162
23	166	154	154	87	170	162	79	68	166	150	165	154
24	166	158	134	126	170	166	151	68	166	138	165	142
25	166	158	146	160	166	166	162	64	166	138	165	130
26	166	158	126	114	166	166	166	61	166	134	165	118
27	166	154	122	90	162	166	166	61	154	146	165	122
28	166	154	94	90	142	166	166	57	142	162	165	142
29	166	158	114	118	158	166	166	-	130	146	165	142
30	166	154	114	142	126	166	166	-	122	126	165	122
31	170	150	-	114	-	166	166	-	110	-	165	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	170	105	160	248	4,950	15,190
August	170	150	163	252	5,050	15,510
September	166	94	138	214	4,150	12,740
October	166	72	121	187	3,750	11,520
November	170	79	142	220	4,280	13,120
December	170	64	117	181	3,620	11,120
Calendar year 1937	170	64	148	229	54,090	166,000
January	166	79	138	214	4,280	13,150
February	162	57	113	175	3,160	9,690
March	170	57	146	226	4,510	13,850
April	170	106	153	237	4,600	14,110
May	170	130	162	251	5,030	15,450
June	166	118	154	238	4,610	14,160
Fiscal year 1937-38	170	57	142	220	51,990	159,600

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 1938.

Average discharge.- 20 years (1918-38), 29.2 million gallons a day (45.2 second-feet).

Extremes.- Maximum discharge during year, 119 million gallons a day (184 second-feet) Apr. 7 (gage height, 5.78 feet); minimum, 0.55 million gallons a day (0.85 second-foot) Jan. 22.

1918-38: Maximum discharge, 143 million gallons a day (221 second-feet) Feb. 27, 1932 (gage height, 5.90 feet); no flow at times, when water was shut out of ditch.

Remarks.- Records good except those for period of missing gage heights, Mar. 2-11, which were computed on basis of records for stations on nearby streams and ditches and are poor. Ditch diverts water from streams between the Waikamoi 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	12.6	106	1.52	23	71	1.78	34.5	27	0.87	1.38	63	99
2	69	106	18.6	69	43	1.65	35	16.7	.87	6.7	99	101
3	87	106	24.5	91	1.45	1.31	50	74	6.0	68	95	87
4	91	102	89	83	1.45	1.13	3.35	13.4	90	1.65	91	42
5	91	97	52	80	51	1.18	13.3	71	5.0	.92	54	19.8
6	99	76	20.5	7.8	24.5	1.02	2.0	30	1.20	68	32	3.15
7	91	54	58	26.5	44	1.02	63	4.2	1.00	109	25.5	21.5
8	80	59	85	65	97	.97	24.5	4.2	100	104	9.8	89
9	33.5	97	35	2.15	89	.92	85	4.6	95	106	91	104
10	2.2	101	5.9	1.65	89	.92	8.4	4.1	10.0	106	102	102
11	13.3	97	69	1.52	99	.82	1.52	5.2	2.5	102	101	87
12	87	97	64	1.31	76	.87	1.38	19.6	49	104	101	54
13	26.5	91	3.2	25	14.2	28	1.25	35	99	99	95	19.8
14	43	95	1.52	12.5	2.0	101	1.13	16.2	97	93	64	89
15	69	106	35.5	1.65	1.72	89	1.08	2.65	97	99	57	89
16	52	102	26	1.38	1.58	27.5	1.08	2.25	99	91	35	89
17	85	99	1.38	1.31	1.45	1.38	32.5	6.8	104	97	2.35	80
18	64	95	1.18	1.25	1.31	1.13	40	28.5	104	83	2.0	89
19	8.4	83	1.58	1.13	1.18	1.02	1.25	2.5	104	50	25.5	87
20	76	57	1.25	1.08	1.08	.92	1.13	2.1	101	22	99	57
21	102	37.5	1.08	1.02	53	.87	1.55	1.93	101	4.3	104	31
22	93	9.0	1.02	.92	97	.87	.97	1.85	99	2.75	101	9.0
23	89	62	57	.92	102	73	1.08	1.31	97	3.6	102	1.72
24	95	47	4.5	24.5	101	95	66	1.08	89	1.93	102	1.58
25	97	80	28	66	99	83	59	1.02	47	9.8	85	1.45
26	89	71	19.7	1.65	62	71	99	.97	17.4	1.72	104	1.31
27	89	89	8.8	1.25	12.0	91	104	.92	5.1	66	99	45
28	54	89	1.02	1.18	2.5	78	104	.82	3.05	68	95	78
29	85	71	16.3	6.1	24	106	91	-	1.85	1.78	101	7.6
30	91	69	10.5	41	2.0	106	74	-	1.65	1.18	101	3.3
31	97	12.9	-	4.2	-	47	74	-	1.52	-	101	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	102	2.2	69.7	108	2,160	6,630
August	106	9.0	79.5	123	2,460	7,560
September	89	1.02	24.8	38.4	743	2,280
October	91	.92	20.8	32.2	646	1,980
November	102	1.08	42.2	65.3	1,270	3,880
December	106	.82	32.8	50.7	1,020	3,120
Calendar year 1937	106	.82	63.3	82.5	19,460	59,710
January	104	.97	34.7	53.7	1,080	3,300
February	74	.82	13.6	21.0	380	1,170
March	104	.87	52.6	81.4	1,630	5,000
April	109	.92	52.4	81.1	1,570	4,830
May	104	2.0	75.5	117	2,340	7,180
June	104	1.31	53.0	82.0	1,590	4,880
Fiscal year 1937-38	109	.82	46.2	71.5	16,890	51,810

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 1938.

Extremes.- Maximum discharge recorded during fiscal year 1936-37, 38.4 million gallons a day (59.4 second-feet) Mar. 6 (gage height, 2.77 feet); minimum discharge undetermined owing to faulty gage-height record.

Maximum discharge during fiscal year 1937-38, 51 million gallons a day (79 second-feet) Apr. 7 (gage height 3.32 feet); minimum undetermined owing to plugged intake.

1918-22, 1936-38: Maximum discharge, 58 million gallons a day (90 second-feet) Jan. 16, 1921 (gage height, 3.25 feet, former site and datum); no flow for short periods.

Remarks.- Records good except those for periods of missing gage heights, Nov. 27-30, Dec. 1, 16-22, 29-31, 1936; Mar. 9, 10, 17-31, Apr. 1-26, July 12-15, Nov. 12-18, 1937, which were computed on basis of records of stations for 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 a day, 1936-38

1936-37

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1					0.05	0.04	10.4	0.16	0.14	0.04	0.05	0.03
2					.04	.04	7.3	.07	.16	.04	12.0	.03
3					.04	.04	3.2	.05	.09	.04	.06	.04
4					.05	.25	.25	.07	.09	.04	.04	.06
5					.52	.09	.13	.06	2.8	.04	1.84	.08
6					.33	.07	.12	.05	13.5	.04	28	.12
7					.14	.13	.07	6.0	16.2	.04	3.25	1.25
8					.16	.17	.06	.07	4.5	.04	.24	1.49
9					.16	*.41	5.8	.05	6.0	.04	.13	2.0
10					.33	.3	4.7	.04	4.0	.04	.09	1.74
11					.24	.3	.05	.05	2.25	.04	.05	.05
12					.10	.3	.10	.38	10.8	.03	.04	.05
13					.09	.3	5.2	.56	.40	.03	.04	.05
14					.09	.3	2.4	2.6	.09	.03	.05	.04
15					.95	2.0	6.4	2.4	.16	.03	.14	.04
16					.20	2.0	19.2	16.4	.09	.03	3.8	.04
17					8.6	2.0	15.1	11.0	.5	.03	.07	.03
18					4.0	2.0	20.5	22.5	5.0	.03	.05	.03
19					.16	2.0	7.6	8.7	10	.03	3.8	.03
20					.13	2.0	9.8	.53	15	.03	19.7	.02
21					.09	10	.28	.07	15	.03	7.0	.02
22					.06	10	4.7	2.55	4.0	6.0	.16	.02
23					.05	*18.4	2.85	19.0	4.0	6.0	.47	.02
24					.05	9.4	.17	.60	1.0	6.0	.16	.02
25					.05	14.9	.13	1.33	.10	2.0	.09	.02
26					.04	2.25	.12	.05	.10	.5	.09	.03
27					.04	11.8	.12	6.0	.08	.15	.06	.06
28					.04	7.9	.12	4.6	.06	.05	.16	.04
29					.04	30	2.35	-	.04	.05	.17	.04
30					.04	15	3.2	-	.04	.10	.04	.04
31					-	15	10.2	-	.04	-	.04	-

*Discharge partly estimated.

Discharge, in million gallons a day, of Old Hamakua ditch at Honopou, near Huelo, Maui, 1936-38--Continued

1937-38

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.03	30.5	.04	0.04	0.18	0.05	0.17	0.04	0.04	0.05	0.06	0.98
2	.05	32.5	.04	.05	.13	.05	.13	.03	.03	.04	6.0	9.2
3	.14	23.5	.04	.40	.05	.04	.13	.06	.03	.05	.30	.28
4	.19	2.6	.14	.48	.04	.04	.10	.03	3.4	.05	.25	.17
5	.17	.30	.07	.25	.10	.04	.07	.04	.16	.04	.13	.15
6	3.6	.13	.05	.06	.05	.04	.05	.04	.06	25	.07	.04
7	.12	.12	.10	.83	.15	.04	.12	.05	.05	39.5	.06	.13
8	.09	.13	.17	1.20	2.3	.04	2.5	.05	12.6	22.5	.05	.24
9	.05	.53	.06	.05	.05	.03	2.2	.05	5.6	26.5	6.5	20.5
10	.04	6.5	.05	.05	.05	.03	.07	.05	.17	13.0	11.3	15.4
11	.04	1.54	.79	.04	7.6	.03	.05	.05	.10	3.75	6.3	.17
12	.05	.81	.13	.04	.60	.04	.05	.05	.09	4.2	.47	.09
13	.06	.17	.05	.06	.20	.49	.04	.05	1.00	1.90	.20	.07
14	.07	2.9	.05	.06	.10	8.3	.04	.05	1.67	1.91	.14	.73
15	.07	19.5	.04	.05	.04	1.99	.04	.05	.17	1.18	.17	.26
16	.07	6.2	.04	.04	.03	.09	.04	.05	5.5	.94	.10	.16
17	.13	.54	.04	.04	.02	.05	.17	.05	28.5	.49	.07	.13
18	.09	.28	.04	.04	.02	.04	.11	.07	30	.12	.06	.56
19	.04	.14	.04	.03	.02	.04	.05	.06	26	.07	8.0	.17
20	.16	.09	.04	.03	.02	.03	.04	.06	3.85	.05	11.2	.09
21	11.7	.07	.04	.04	4.5	.03	.03	.05	2.2	.05	23	.06
22	.25	.05	.04	.03	1.13	.03	.03	.05	.46	.04	.73	.06
23	.13	.44	.06	.03	6.0	7.9	.03	.05	.23	.04	18.2	.05
24	1.84	.10	.05	.05	3.55	3.45	1.29	.05	.19	.04	12.4	.05
25	1.36	.12	.05	.17	6.5	.13	.07	.04	.12	.03	1.46	.05
26	.17	.10	.06	.05	.13	3.8	18.8	.04	.09	.03	24	.05
27	.16	.19	.06	.04	.06	.30	20	.04	.09	.05	.36	.05
28	.10	.19	.04	.04	.05	.18	.10	.04	.07	.06	.35	.13
29	.25	.12	.04	.04	.05	29.5	.04	-	.06	.04	10.7	.07
30	.19	.09	.03	.06	.05	32	.04	-	.05	.03	6.7	.06
31	17.3	.05	-	.05	-	9.1	.04	-	.05	-	1.65	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
November 1936	8.6	0.04	0.563	0.871	16.9	52
December	30	.04	5.14	7.95	159	489
Calendar year						
January 1937	20.5	.05	4.60	7.12	143	438
February	22.5	.04	3.78	5.85	106	325
March	16.2	.04	3.75	5.80	116	357
April	6.0	.03	.720	1.11	21.6	66
May	28	.04	2.64	4.08	81.9	251
June	2.0	.02	.251	.388	7.53	23
The period						2,000
July 1937	17.3	0.03	1.25	1.93	38.7	119
August	32.5	.05	4.21	6.51	130	400
September	.79	.03	.083	.128	2.49	7.6
October	1.20	.03	.143	.221	4.44	14
November	7.6	.02	1.13	1.75	33.8	104
December	32	.03	3.16	4.89	97.9	301
Calendar year 1937	32.5	.02	2.15	3.33	783	2,410
January 1938	20	.03	1.50	2.32	46.6	143
February	.07	.03	.048	.074	1.34	4.1
March	30	.03	3.96	6.13	123	376
April	39.5	.03	4.72	7.30	142	435
May	24	.05	4.87	7.54	151	463
June	20.5	.04	1.67	2.58	50.2	154
Fiscal year 1937-38	39.5	.02	2.25	3.48	821	2,520

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, 1.6 miles west of Huelo.

Records available.- February 1930 to June 1938. January 1910 to March 1927 at site 1½ miles downstream.

Average discharge.- 24 years (1910-26, 1930-38), 34.5 million gallons a day (53.4 second-feet).

Extremes.- Maximum discharge during year, 76 million gallons a day (118 second-feet) Apr. 7, 10 (gage height, 5.27 feet); no flow Jan. 25.
1930-38: 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, July 1 to Aug. 8, Jan. 25-25, May 13 to June 15, which were computed on basis of records for stations on nearby streams 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	20	64	11.5	13.6	51	16.2	51	7.1	9.1	13.8	32.5	55
2	40	64	14.9	35	38.5	14.9	38	6.4	9.1	14.5	56	51
3	52	63	15.1	48	12.3	13.9	51	18.9	13.3	40	56	47
4	55	61	57	54	12.8	13.1	46	7.1	53	38	56	39
5	56	56	43	57	43	12.3	23	19.2	43	16.8	38	33
6	56	43	27	39.5	17.5	11.5	46	6.0	16.8	39.5	40	29
7	54	30	27.5	27.5	33.5	11.0	42	4.9	14.5	61	25	29
8	50	53	57	51	57	10.4	46	5.4	43	38	13.8	57
9	35	57	41	41	57	9.7	48	5.0	53	46	49	58
10	20	60	13.1	24	54	9.7	43	5.5	43	52	58	58
11	45	60	44	15.4	54	8.9	21.5	6.0	38	33	58	51
12	50	60	48	13.6	51	9.3	13.6	6.3	32	43	58	31
13	40	41	31	29.5	43	12.8	12.8	7.3	56	32	53	29
14	30	60	13.6	26.5	25	57	11.8	6.8	56	28	42	56
15	40	66	18.8	14.6	16.2	54	11.3	6.0	56	35.5	28	54
16	47	60	15.9	13.6	15.2	41	10.8	5.6	56	38.5	23	53
17	54	60	11.8	12.3	13.9	25	22	8.2	58	46	19	40
18	40	60	10.6	11.8	9.5	11.0	51	23	58	46	15	50
19	20	48	16.2	11.8	8.9	10.2	28	14.8	58	38	47	*53
20	54	43	11.3	11.3	8.9	9.5	11.3	13.0	56	43	58	24
21	60	32.5	10.0	10.8	33.5	9.1	10.4	12.5	56	32	58	43
22	55	18.8	10.8	10.2	57	8.9	9.5	12.0	56	20.5	58	25.5
23	40	38.5	34.5	10.4	60	42	9.2	25.5	56	20.5	58	15.2
24	60	43	35	18.7	60	58	30	23	53	18.0	58	10.8
25	55	41	25	54	60	48	15	15.0	35.5	16.8	52	10.0
26	50	32.5	17.1	31	51	43	23.5	10.0	28	15.5	58	12.2
27	45	54	17.7	11.5	46	57	29	9.6	20.5	37	56	20
28	40	51	10.0	*11.0	31	51	8.7	8.9	38	46	55	53
29	55	31	11.4	15.4	23	63	5.4	-	23	33	58	35.5
30	45	38	14.4	43	18.8	63	6.5	-	15.5	14.0	58	16.0
31	62	14.4	-	15.4	-	60	7.2	-	14.5	-	57	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	62	20	46.0	71.2	1,420	4,370
August	66	14.4	48.5	75.0	1,500	4,610
September	57	10.0	23.8	36.8	714	2,190
October	57	10.2	25.2	39.0	782	2,400
November	60	8.9	35.4	54.8	1,060	3,260
December	63	8.9	27.9	43.2	864	2,650
Calendar year 1937	66	6.6	35.5	54.9	12,940	39,760
January	51	5.4	25.2	39.0	782	2,400
February	25.5	4.9	10.7	16.6	299	918
March	58	9.1	39.3	60.8	1,220	3,740
April	61	13.8	33.2	51.4	996	3,060
May	58	13.8	46.8	72.4	1,450	4,450
June	58	10.0	37.9	58.6	1,140	3,490
Fiscal year 1937-38	66	4.9	33.5	51.8	12,230	37,540

*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 (revised) northwest of Kailua.

Records available.- February 1930 to June 1938. 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.- 26 years (1910-28, 1930-38) 27.5 million gallons a day (42.5 second-feet).

Extremes.- Maximum discharge during year, 171 million gallons a day (265 second-feet) Aug. 1 (gage height, 5.72 feet); minimum, 0.22 million gallons a day (0.34 second-foot) Feb. 19.

1910-28, 1930-38: 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 periods when clock was not running, Oct. 28 to Nov. 9, Dec. 18-30 (computed on basis of records for stations on nearby streams), 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.60	115	0.90	0.85	25	2.1	7.7	23	1.10	1.50	10.0	73
2	18.6	108	1.20	5.3	8.0	1.70	5.6	21.5	1.10	1.50	72	90
3	36.5	110	.95	37.5	2.0	1.30	8.5	72	1.71	25	74	34.5
4	75	85	33	15.8	4.0	1.20	4.3	21.5	71	1.90	52	5.2
5	83	25	3.4	58	14	1.10	3.55	69	17.5	1.50	7.9	3.75
6	95	6.0	1.83	5.0	14	1.00	2.6	27.5	3.2	38.5	6.8	3.4
7	73	3.4	2.95	20.5	35	1.00	11.7	19.0	2.5	64	4.5	3.1
8	27.5	2.6	43	47	80	.95	8.4	19.0	49	58	1.50	39.5
9	2.0	74	2.6	5.0	65	1.00	47	17.7	79	62	38	106
10	.85	100	.85	2.0	65	1.00	2.85	17.7	13.6	67	88	91
11	.80	68	39.5	1.80	82	.95	2.25	21.5	12.3	66	91	41
12	29.5	58	7.2	1.60	35.5	1.10	2.0	28	12.3	65	87	11.3
13	2.85	10.5	1.85	2.0	5.6	11.3	1.80	23	87	66	28.5	6.8
14	8.0	64	.95	2.1	1.90	91	1.70	18.2	91	57	8.6	63
15	3.95	108	.85	1.50	1.70	68	1.50	1.50	88	48	5.1	49
16	2.35	100	.85	1.30	1.60	3.75	1.40	.78	90	39.5	2.35	38
17	27	65	.85	1.30	1.50	.94	22	.74	100	65	2.0	7.4
18	6.7	59	.85	1.20	4.5	.90	22	2.85	87	19.9	1.90	34.5
19	1.41	5.9	1.00	1.20	1.65	.87	2.7	.28	88	4.8	12.4	36.5
20	22	2.6	.85	1.10	3.95	.85	1.60	.80	83	3.9	78	8.4
21	102	2.0	.80	1.10	35	.82	1.20	2.5	78	2.85	112	3.2
22	91	1.80	.80	1.00	91	.80	1.03	1.80	78	2.6	81	2.7
23	32	39	18.4	1.00	100	70	9.5	1.80	80	2.35	99	2.35
24	60	7.2	3.2	16.7	104	70	57	1.50	48	2.1	108	7.4
25	80	2.1	2.35	44	99	40	32	1.40	4.1	2.0	49	6.2
26	29.5	6.0	1.00	3.4	10.1	60	67	1.20	2.85	1.90	125	2.5
27	35	11.9	1.00	1.30	4.9	48	135	1.20	2.1	31	70	15.9
28	2.6	5.0	.85	1.30	2.7	40	100	1.00	2.0	16.9	64	46
29	58	1.30	.80	8.5	2.35	100	56	-	1.80	3.9	66	2.35
30	66	1.76	.75	8.5	2.1	90	52	-	1.70	2.25	89	6.0
31	82	1.00	-	2.0	-	*27.5	48	-	1.60	-	75	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	102	0.60	37.2	57.6	1,150	3,540
August	115	1.00	40.3	62.4	1,250	3,830
September	43	.75	5.85	9.05	175	538
October	58	.85	9.70	15.0	301	923
November	104	1.50	30.1	46.6	903	2,770
December	100	.80	23.8	36.8	739	2,270
Calendar year 1937	130	.48	31.2	48.3	11,390	34,950
January	135	1.03	23.2	35.9	720	2,210
February	72	.28	14.9	23.1	418	1,280
March	100	1.10	41.2	63.7	1,280	3,920
April	67	1.50	27.5	42.5	824	2,530
May	125	1.50	51.9	80.3	1,610	4,940
June	106	2.35	28.0	43.3	840	2,580
Fiscal year 1937-38	135	.28	28.0	43.3	10,210	31,330

*Partly estimated.

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Waiakea Stream at middle flume house, near Mountain View

Location.- Parshall flume and concrete dam control, lat. 19°38'25", long. 155°10'35", at middle flume house, 800 feet upstream from Olaa Sugar Co.'s main flume and 7½ miles northwest of Mountain View. Datum raised 0.23 feet Jan. 21, 1938.

Records available.- September 1930 to June 1938.

Extremes.- Maximum discharge during year, 140 million gallons a day (217 second-feet) Aug. 2 (gage height, 4.65 feet), from rating curve based on weir formulas; minimum, 1.96 million gallons a day (3.03 second-feet) Dec. 22, 23.
1930-38: 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 dry up.

Remarks.- Records excellent except those for period when clock was not running, and Aug. 15-23, and period of construction, Dec. 28 to Jan. 20, 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 tables, fiscal year 1937-38 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Jan. 20						Jan. 21 to June 30			
0.8	1.58	2.2	8.1	3.0	21.5	0.6	2.25	2.0	14.6
1.2	3.15	2.4	9.9	3.2	26.5	.7	2.85	2.5	23.5
1.6	4.9	2.5	11.5	3.5	35.5	.9	4.1	3.0	39
2.0	6.8	2.6	13.2	4.0	58	1.2	6.4	3.5	65
2.1	7.4	2.8	17.1	4.5	115	1.6	9.9		

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.85	23.5	4.4	4.2	3.55	12.4	11	25	3.95	8.6	9.3	14.6
2	3.8	53	4.2	6.0	3.55	10.7	10	18.6	3.7	8.1	12.4	*18.6
3	3.35	82	4.0	7.0	3.35	9.4	9.0	16.0	3.45	7.2	13.6	15.3
4	3.35	67	4.0	7.8	3.15	8.9	8.0	13.3	3.15	6.8	14.6	14.6
5	4.9	55	3.8	9.9	3.35	8.1	7.0	10.9	3.15	6.8	14.6	13.3
6	12.7	39	3.55	9.9	4.0	7.4	6.4	9.9	2.85	6.6	15.3	12.1
7	11.8	24	3.85	10.7	5.4	6.8	6.0	8.6	2.6	15.6	14.0	11.5
8	10.7	18.2	4.8	10.7	7.8	6.3	5.6	7.6	3.2	38.5	12.1	10.4
9	11.5	14.2	4.2	10.7	8.2	5.9	5.4	7.2	4.4	32	10.9	9.4
10	11.5	13.2	4.0	9.9	8.1	5.4	5.2	6.4	3.05	35.5	12.2	9.0
11	12.4	12.4	4.7	9.9	8.2	4.9	5.2	10.4	2.95	34	12.5	8.1
12	13.2	10.7	4.2	9.4	7.8	4.2	5.4	10.9	2.8	30.5	9.9	7.6
13	11.5	8.5	4.2	8.5	7.8	4.0	5.0	19.3	3.1	25	9.4	7.2
14	11.5	7.4	4.4	7.8	7.8	4.0	5.0	16.0	5.2	23.5	9.3	6.8
15	11.5	9.0	4.4	6.8	7.4	3.35	5.4	16.8	6.5	20.5	9.4	6.8
16	10.7	8.4	4.0	6.3	7.2	3.15	6.0	16.8	11.9	22.5	9.0	7.2
17	10.7	8.0	4.0	5.9	6.8	2.95	8.0	15.3	20	19.5	8.6	7.6
18	9.9	7.6	3.8	5.4	6.3	2.75	10	13.3	23	16.8	8.1	8.1
19	9.9	7.4	3.55	4.9	5.9	2.55	12	11.5	37.5	16.5	7.2	7.6
20	9.9	7.0	3.35	4.4	5.4	2.35	13	9.9	35.5	14.0	7.2	7.6
21	9.9	6.4	3.15	4.0	5.4	2.2	*11	9.0	35.5	12.1	10.2	7.2
22	9.4	6.0	3.05	3.8	11.3	2.05	8.6	8.1	35.5	10.4	9.8	8.0
23	9.4	7.2	3.15	3.55	14.4	2.4	8.1	7.2	32	9.4	9.0	7.2
24	9.9	6.8	3.15	3.55	19.0	2.4	8.1	6.4	27.5	8.6	11.5	7.2
25	9.4	6.3	2.95	3.9	39.5	2.2	11.5	6.0	23.5	7.6	9.9	7.2
26	11.6	6.3	2.7	3.15	34	2.8	24.5	5.4	19.5	8.6	12.1	7.2
27	13.1	5.9	4.2	2.95	31	*7.8	22.5	4.8	16.8	8.6	11.3	7.8
28	11.5	5.9	3.55	2.95	24	14	37	4.3	14.0	8.1	12.1	7.2
29	12.4	5.6	3.35	6.1	18.2	18	44	-	11.5	8.1	13.3	6.8
30	12.4	5.2	3.35	4.0	15.1	15	37	-	10.4	8.1	15.3	6.8
31	24	4.9	-	3.8	-	13	34	-	9.4	-	14.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	24	2.85	10.3	15.9	321	984
August	82	4.9	17.5	27.1	542	1,660
September	4.8	2.7	3.80	5.88	114	350
October	10.7	2.95	6.38	9.87	198	607
November	39.5	3.15	11.1	17.2	333	1,020
December	18	2.05	6.37	9.86	197	606
Calendar year 1937	82	2.05	12.0	18.6	4,370	13,420
January	44	5.0	12.7	19.6	395	1,210
February	25	4.3	11.2	17.3	315	966
March	37.5	2.6	13.5	20.9	418	1,280
April	38.5	6.6	15.9	24.6	478	1,470
May	15.3	7.2	11.2	17.3	349	1,070
June	18.6	6.8	9.20	14.2	276	847
Fiscal year 1937-38	82	2.05	10.8	16.7	3,940	12,070

*Partly estimated.

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.
Drainage area.- 97.2 square miles.
Records available.- April 1923 to June 1928, July 1929 to March 1937, January to June 1938.
Extremes.- Maximum discharge during period, 4,900 million gallons a day (7,580 second-feet) Jan. 28 (gage height, 13.00 feet), from rating curve extended above 2,000 million gallons a day; minimum, 4.3 million gallons a day (6.6 second-feet) Mar. 12.
1923-28, 1929-38: Maximum discharge, 8,980 million gallons a day (revised) (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.
Revisions.- Revised figures of maximum discharge for the fiscal years 1929-30 to 1936-37, superseding those published in previous water-supply papers, are given herein.
Remarks.- Records good except those for period when clock was not running, June 6-15 (computed on basis of records for station above Hilo Boarding School ditch), which are fair, and those for high stages, which are poor. Hilo Water Works diverts water for domestic supply from pool at control. Flow regulated by this diversion.

Revision of figures of maximum discharge, fiscal years 1929-30 to 1936-37

Fiscal year	Date	Gage-height (feet)	Discharge	
			Million gallons a day	Second-feet
1929-30	Nov. 18	10.50	2,850	4,410
1930-31*	-	-	-	-
1931-32	July 21	14.95	6,750	10,400
1932-33	Dec. 2	13.90	5,710	8,830
1933-34	Jan. 23	9.18	1,990	3,080
1934-35	Jan. 8	10.50	2,850	4,410
1935-36	July 25	10.20	2,640	4,080
1936-37	Feb. 17	16.9	8,980	13,900

*Gage-height record missing, maximum discharge not known.

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

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

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1							-	72	4.6	16.2	39.5	85
2							-	51	4.6	25.5	113	155
3							-	39.5	6.1	49	164	150
4							-	33	10.2	24.5	134	60
5							-	26	26.5	21	75	41
6							-	22	24	33.5	53	35
7							-	18.5	8.4	96	41	36
8							-	16.8	6.6	982	31.5	37
9							-	22.5	21	1,800	26	35
10							-	17.4	8.9	413	38.5	52
11							-	106	7.6	276	53	58
12							-	213	6.9	178	27.5	28
13							-	786	11.8	157	31	25
14							-	214	60	89	20.5	22
15							-	68	72	122	16.8	35
16							-	32.5	143	292	16.8	44
17							-	27	639	160	14.5	81
18							-	21	443	79	13.3	77
19							-	16.8	1,150	54	17.3	37.5
20							-	13.9	340	62	27	31.5
21							-	11.2	238	37.5	83	32.5
22							-	9.4	320	31.5	58	50
23							-	8.0	212	27	27.5	27
24							-	6.9	204	22.5	74	21
25							34.5	6.1	86	19.8	41	18.5
26							647	5.7	53	24.5	172	21
27							353	5.4	36.5	103	66	25.5
28							1,660	5.0	29	122	96	62
29							859	-	25.5	77	87	25.5
30							213	-	20.5	48	169	18.5
31							107	-	17.9	-	110	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
January 25-31	1,660	34.5	553	856	3,870	11,890
February	786	5.0	67.0	104	1,870	5,750
March	1,150	4.6	137	212	4,240	13,000
April	1,800	16.2	181	280	5,440	16,700
May	172	13.3	62.5	96.7	1,940	5,940
June	155	18.5	47.6	73.6	1,430	4,380
The period						57,660

Peak discharge.- Jan. 28 (11:30 a.m.) 4,900 m.g.d. (7,580 sec.-ft.); Mar. 19 (9:45 a.m.) 2,650 m.g.d. (4,100 sec.-ft.); Apr. 9 (2:45 a.m.) 3,840 m.g.d. (5,940 sec.-ft.).

Wailuku River above Hilo Boarding School ditch intake, near Hilo

Location.- Lat. 19°42'55", long. 155°09'10", 1,000 feet above 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 1938.
Extremes.- Maximum discharge during year, 17,750 million gallons a day (27,460 second-feet) Aug. 2 (gage height, 21.70 feet), from rating curve extended above 3,400 million gallons a day; minimum, 8.8 million gallons a day (13.6 second-feet) Jan. 16 or 17.
1928-38: 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.
Revisions.- Revised figures of maximum discharge for the fiscal years 1928-29 to 1935-36, superseding those published in previous water-supply papers, are given below.
Remarks.- Records good except those for periods when clock was not running, Sept. 7-9, 18-20, Sept. 26 to Nov. 14, Dec. 12 to Jan. 19, Feb. 21 to Mar. 17, Mar. 22 to Apr. 11, Apr. 16 to May 15, May 21-25 (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.

Fiscal year	Date	Gage-height (feet)	Discharge		Fiscal Year	Date	Gage-height (feet)	Discharge	
			Million gallons a day	Second-feet				Million gallons a day	Second-feet
1928-29	Feb. 15	17.5	9,100	14,100	1932-33	Dec. 2	19.35	12,500	19,300
1929-30	Nov. 18	15.07	5,640	8,730	1933-34	Jan. 23	15.50	6,160	9,530
1930-31*	-	-	-		1934-35	Apr. 17	16.78	7,950	12,300
1931-32	July 21	†20.1	*14,000	*22,000	1935-36	July 25	15.44	6,090	9,420

*Gage-height record missing; maximum discharge not known.
†Estimated.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	29	7,590	31.5	160	35	116	75	210	15	40	100	252
2	121	9,860	31.5	220	28	80	40	149	15	60	370	458
3	80	3,280	31.5	160	24	62	30	112	20	130	470	396
4	44	1,090	41	100	20	53	30	88	30	58	420	189
5	45	618	29	160	35	44	28	66	60	50	180	130
6	524	400	24	100	75	39	26	53	55	90	130	96
7	488	284	24	100	160	34	24	42	25	330	100	100
8	476	221	75	220	270	30.5	22	36.5	20	1,900	82	104
9	199	199	35	100	170	26	20	50	60	4,300	72	96
10	121	291	24	75	300	23	18	36.5	25	1,500	110	134
11	140	830	80	75	200	24	16	319	23	800	130	151
12	221	297	69	50	160	25	15	527	21	534	74	76
13	139	210	47	40	110	25	13	1,850	35	448	80	66
14	179	199	47	35	75	45	12	508	110	284	64	56
15	127	344	53	30	53	30	11	245	180	341	52	96
16	96	287	34	25	47	21	10	159	500	700	50	121
17	88	189	29	50	36.5	18	9	108	1,500	450	44	223
18	96	149	23	40	30.5	15	40	80	1,170	240	42	220
19	104	121	20	30	27	12	100	62	3,350	150	*49	121
20	92	100	19	25	23	10	466	50	917	180	*51	96
21	120	80	*18	23	22.5	10	339	40	689	92	250	88
22	134	62	18.7	20	202	15	197	30	800	82	180	129
23	130	96	52	17	1,360	15	88	26	600	74	75	70
24	112	86	35	25	778	50	59	22	550	66	220	56
25	138	59	22.5	75	1,280	50	112	21	270	60	100	50
26	223	53	18	40	386	100	1,800	19	150	70	458	56
27	518	50	35	25	233	600	834	18	110	320	199	68
28	189	50	75	18	179	500	3,800	17	80	350	268	146
29	169	44	50	160	169	220	1,820	-	60	210	248	62
30	116	36.5	75	75	130	150	514	-	50	120	464	50
31	2,580	34	-	50	-	100	297	-	45	-	322	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	2,580	29	253	391	7,840	24,050
August	9,860	34	878	1,360	27,210	83,500
September	80	18	38.9	60.2	1,170	3,580
October	220	17	74.9	116	2,320	7,130
November	1,360	20	221	342	6,620	20,310
December	600	10	82.0	127	2,540	7,800
Calendar year 1937	9,860	10	331	512	120,600	370,300
January	3,800	9	350	542	10,860	33,340
February	1,850	17	177	274	4,940	15,170
March	3,350	15	372	576	11,540	35,400
April	4,300	40	468	724	14,030	43,050
May	470	42	176	272	5,450	16,740
June	458	50	132	204	3,960	12,140
Fiscal year 1937-38	9,860	9	270	418	98,480	302,200

Peak discharge.- Aug. 1 (11:15 a.m.) 17,500 m.g.d. (27,100 sec.-ft.); Aug. 2 (9 a.m.) 17,750 m.g.d. (27,460 sec.-ft.); Jan. 28 (12 m.) 9,780 m.g.d. (15,100 sec.-ft.).
*Partly estimated.

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 1938.

Extremes.- Maximum gage height during year, 8.35 feet (discharge greater than 21.5 million gallons a day, or 33.3 second-feet) Aug. 2; minimum discharge, 6.6 million gallons a day (10.2 second-feet) Jan. 16, 17.
1931-38: 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. Above gage height 2.5 feet control is drowned by overflow from Wailuku River. Water used by Hilo Electric Light Co. for power.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.2	*21.5+	8.7	10.7	8.7	10.7	9.7	10.7	7.3	9.7	10.2	11.2
2	10.2	*21.5+	8.7	11.2	8.2	10.2	9.2	10.7	7.3	9.7	11.2	11.8
3	10.2	†20+	8.7	10.7	8.2	9.7	8.7	10.2	7.8	10.2	11.8	11.8
4	9.7	14.0	8.7	10.2	8.2	9.7	8.7	9.7	8.7	9.7	11.8	11.2
5	9.7	12.9	8.7	10.7	8.7	9.2	8.2	9.7	9.2	9.7	11.2	10.7
6	12.3	12.3	8.2	10.2	9.7	9.2	8.2	9.2	9.2	9.7	10.7	10.2
7	11.8	11.8	8.2	10.2	10.7	9.2	8.2	9.2	8.2	10.7	10.7	10.2
8	12.3	11.2	9.7	11.2	11.2	8.7	8.2	8.7	7.8	†17.6+	10.2	10.2
9	11.2	11.2	8.7	10.2	10.7	8.7	8.2	9.2	9.2	†20+	10.2	10.2
10	10.7	11.2	8.2	9.7	11.2	8.7	7.8	8.7	8.2	13.4	10.2	10.7
11	10.7	13.4	9.2	9.7	11.2	8.7	7.8	10.7	7.8	12.9	10.7	10.7
12	11.2	11.8	10.2	9.2	10.7	8.2	7.3	11.8	7.8	12.3	10.2	10.2
13	10.7	11.2	9.2	8.7	10.2	8.2	7.3	†16.4+	8.7	12.3	9.7	9.7
14	10.7	10.7	8.7	8.7	9.7	8.7	7.3	12.3	10.2	11.8	9.7	9.7
15	10.2	11.2	9.2	8.7	9.7	8.2	6.9	11.2	10.7	11.8	9.7	10.2
16	10.2	11.2	8.7	8.7	9.2	7.8	6.9	10.7	11.2	12.3	9.2	10.7
17	10.2	10.7	8.2	9.2	8.7	7.8	6.9	10.2	†16.4+	11.8	9.2	11.2
18	10.2	10.2	8.2	8.7	8.7	7.8	6.9	9.7	14.0	11.2	9.2	11.2
19	10.2	10.2	8.2	8.7	8.7	7.8	7.3	9.2	†18.8+	10.7	9.2	10.2
20	10.2	10.2	8.2	8.2	8.2	7.3	†11.8+	8.7	13.4	10.7	9.7	10.2
21	10.2	9.7	8.2	8.2	8.2	7.3	11.8	8.2	12.9	10.7	11.2	10.2
22	10.2	9.2	7.8	8.2	10.7	7.8	11.2	8.2	13.4	10.2	10.7	10.2
23	10.2	9.2	8.7	7.8	15.1	7.8	10.2	7.8	12.9	9.7	10.2	9.7
24	10.2	9.7	8.7	8.2	12.9	9.2	9.7	7.8	12.3	9.7	11.2	9.2
25	10.2	9.2	8.2	9.7	†15.1+	9.2	10.2	7.8	11.8	9.2	10.7	9.2
26	11.2	8.7	8.2	8.7	11.8	9.7	†15.1+	7.8	11.2	9.7	12.3	9.7
27	11.8	8.7	8.7	8.2	11.2	†12.3+	13.4	7.3	10.7	11.2	11.2	9.7
28	10.7	9.2	9.7	7.8	11.2	12.3	†18.8+	7.3	10.2	11.2	11.2	10.7
29	10.7	8.7	9.2	10.7	10.7	11.2	†17.6+	-	10.2	11.2	11.2	9.7
30	10.7	8.7	9.7	9.7	10.7	10.7	12.3	-	9.7	10.7	11.8	9.2
31	†16.4+	8.7	-	9.2	-	10.2	11.2	-	9.7	-	11.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	16.4+	9.2	10.8	16.7	334	1,030
August	21.5+	8.7	11.6	17.9	358	1,100
September	10.2	7.8	8.72	13.5	262	803
October	11.2	7.8	9.35	14.5	290	890
November	15.1+	8.2	10.3	15.9	308	946
December	12.3+	7.3	9.10	14.1	282	866
Calendar year 1937	21.5+	6.9	10.2	15.8	3,740	11,490
January	18.8+	6.9	9.77	15.1	303	930
February	16.4+	7.3	9.61	14.9	269	826
March	18.8+	7.3	10.5	16.2	327	1,000
April	20+	9.2	11.4	17.6	342	1,050
May	12.3	9.2	10.6	16.4	328	1,010
June	11.8	9.2	10.3	15.9	310	950
Fiscal year 1937-38	21.5+	6.9	10.2	15.8	3,710	11,400

*Control drowned by overflow from Wailuku River for entire day.
†Control drowned by overflow from Wailuku River for part of day.

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 to June 1938.

Extremes.- Maximum discharge during period, 10.4 million gallons a day (16.1 second-feet) Apr. 9 (gage height, 2.38 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Mar. 30.

Remarks.- Records excellent except those for periods when clock was not running, May 13-16, June 25-30, which were computed on basis of records for stations on nearby streams and are fair. Water used to supplement the municipal supply of Hilo during dry periods.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1									-	2.5	2.5	2.7
2									-	2.5	2.65	2.9
3									-	2.6	2.85	2.7
4									-	2.5	2.6	2.6
5									-	2.5	2.5	2.5
6									-	2.5	2.5	2.5
7									-	2.75	2.45	2.5
8									-	3.9	2.4	3.2
9									-	6.5	2.65	3.75
10									-	4.3	2.95	3.5
11									-	4.3	2.9	3.0
12									-	3.75	2.85	3.0
13									-	3.5	2.9	3.0
14									1.04	2.05	2.9	3.0
15									2.15	1.14	2.9	3.0
16									2.6	1.23	2.95	3.0
17									3.5	.83	3.05	3.25
18									3.15	1.52	3.5	3.25
19									5.9	.61	3.5	3.0
20									3.25	1.07	3.5	3.0
21									2.85	2.65	3.25	3.0
22									3.5	2.65	2.85	2.95
23									2.9	2.65	2.85	2.9
24									2.75	2.65	2.9	2.9
25									2.6	2.6	2.85	2.7
26									2.5	2.6	3.0	2.7
27									2.4	2.65	2.8	3.1
28									1.41	2.6	2.75	2.8
29									.04	2.55	2.85	2.7
30									1.00	2.5	2.9	2.7
31									2.5	-	2.8	-

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 14-31	5.9	0.04	2.56	3.96	46.0	141
April	6.5	.61	2.62	4.05	78.6	241
May	3.5	2.4	2.86	4.43	88.8	273
June	3.75	2.5	2.93	4.53	87.8	269
The period						924

Awini ditch at East Honokaneiki Gulch, near Niulii

Location.- Lat. 20°09'55", long. 155°43'10", at flume across East Honokaneiki Gulch, 4½ miles southeast of Niulii.

Records available.- October 1927 to June 1938.

Average discharge.- 10 years (1928-38), 11.8 million gallons a day (18.3 second-feet).

Extremes.- Maximum discharge during year not determined owing to faulty gage-height record; no flow at times.
1927-38: Maximum discharge, 34 million gallons a day (53 second-feet) Jan. 9, 1935 (gage height, 3.76 feet); no flow at times when ditch was dry or water was turned out.

Remarks.- Records poor. Discharge for periods of faulty gage heights, Jan. 11 to Feb. 8, 10, 11, Apr. 14, 15, 28, 29, May 5, 6, May 29 to June 30, computed on basis of records for stations on all nearby streams. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.2	29	13.9	2.9	1.61	0	7.2	17	0.15	7.0	14.3	13
2	16.7	29	16.9	3.0	1.21	0	5.3	12	.08	13.2	16.9	12
3	18.9	29	19.2	6.1	.84	0	4.1	19	.62	20	3.9	11
4	22	27	19.6	7.0	.40	0	4.1	14	7.0	21	3.2	9.6
5	21	25	13.2	11.3	.22	0	13.4	17	6.0	15.4	3.1	8.7
6	21	25	13.9	4.3	.22	1.24	9.0	11	1.97	18.4	3.0	8.0
7	24	25	22	14.2	.17	1.25	16.6	10	.69	24	*5.9	9.0
8	17.6	27	20	11.2	1.13	1.16	*11.2	11	2.7	13.2	11.8	15
9	11.8	31	18.4	*11.2	6.2	.98	8.2	*19	10.0	13.2	11.2	14
10	10.6	33	13.6	8.7	7.2	.90	*6.6	14	7.3	14.6	20.5	12
11	11.2	31	23.5	6.9	8.7	.83	6.0	12	7.5	20	25	11
12	24.5	29	17.6	6.0	4.5	.69	6.0	*9.3	5.8	23.5	18.4	9.5
13	21	*31	16.2	5.7	1.14	.69	5.0	10.6	4.2	22	*16.2	9.5
14	16.9	*31	13.0	5.7	.32	12.8	4.5	11.2	5.0	17.6	*11.2	16
15	21	27	16.9	5.4	.35	6.6	3.9	8.2	7.6	17.5	9.3	18
16	15.4	23.5	9.9	4.5	.26	12.2	3.7	21.5	9.3	*15.0	7.6	16
17	11.8	22	8.2	4.6	.15	7.0	3.7	23.5	9.3	13.5	7.0	14
18	14.6	18.4	7.4	4.3	.10	5.4	4.1	22	8.7	13.2	6.5	13
19	16.2	15.4	23.5	3.65	.07	2.95	3.8	7.3	10.1	13.2	6.0	11
20	*23.5	5.6	14.6	3.3	.06	2.2	3.7	2.1	28	13.9	8.7	9.2
21	*15.4	3.35	13.2	3.0	3.2	1.87	3.7	.86	11.0	13.0	20	8.8
22	11.2	2.9	7.9	2.75	16.2	8.4	4.5	.46	5.0	20	17.6	8.6
23	11.2	3.0	6.0	2.55	16.2	6.1	4.0	.30	5.5	20	20	8.4
24	12.5	2.55	6.0	2.6	6.8	10.6	18	.22	3.35	15.4	22	8.0
25	15.4	2.1	5.2	2.75	.04	9.3	16	.19	2.7	16.0	18.4	7.8
26	15.4	2.45	5.2	1.54	0	8.2	17	.10	1.66	17.0	18.4	7.6
27	13.9	14.6	5.2	.28	0	5.6	16	.06	1.66	21	17.6	8.0
28	11.8	21	5.1	4.5	0	11.5	18	.12	1.50	20	*16.9	15
29	9.9	20	5.4	11.2	0	21.5	15	-	7.1	21	17	13
30	9.9	16.9	4.5	6.4	0	16.2	12	-	8.2	*15	18	8.0
31	23	14.6	-	2.9	-	11.8	13	-	7.6	-	15	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	24.5	9.9	16.1	24.9	500	1,540
August	33	2.1	19.9	30.8	617	1,890
September	23.5	4.5	12.8	19.8	385	1,180
October	14.2	.28	5.50	8.51	170	523
November	16.2	0	2.58	3.99	77.3	237
December	21.5	0	5.42	8.39	168	515
Calendar year 1937	33	0	10.8	16.7	3,950	12,120
January	18	3.7	8.62	13.3	267	820
February	23.5	.06	9.79	15.1	274	841
March	28	.08	6.04	9.35	187	575
April	24	7.0	16.9	26.1	508	1,560
May	25	3.0	13.2	20.4	411	1,260
June	18	7.6	11.1	17.2	333	1,020
Fiscal year 1937-38	33	0	10.7	16.6	3,900	11,960

*Partly estimated.

East Honokaneiki intake to Awini ditch at East Honokaneiki Gulch, near Niulii

Location.- Sharp-crested weir, lat. 20°09'55", long. 155°43'15", on intake tunnel delivering water from East Honokaneiki Gulch to Awini ditch, on west side of gulch, 4½ miles southeast of Niulii.

Records available.- October 1927 to June 1938.

Extremes.- Not determined owing to faulty gage-height record.
1927-38: Maximum discharge, 10.8 million gallons a day (16.7 second-feet) Mar. 27, Apr. 2, 1930 (gage height, 1.35 feet); no flow occasionally.

Remarks.- Records poor. Discharge for periods of missing and faulty gage heights, July 1, 2, July 21 to Aug. 31, Sept. 20 to Oct. 17, 23, Nov. 9-12, Nov. 15 to Dec. 6, Dec. 9 to Jan. 18, Jan. 27 to Feb. 8, 12, 23-25, 28, Mar. 1, Mar. 12 to Apr. 22, May 3 to June 30, computed on basis of records for station on Awini ditch at East Honokaneiki Gulch. Intake diverts water from East Honokaneiki Gulch to Awini ditch for irrigation in vicinity of Kohala. Flow regulated by headgates.

Discharge, in million gallons, fiscal year July 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.20	5.6	0.09	0.17	0.41	0.35	2.5	2.4	0.25	2.8	1.46	1.5
2	2.0	5.0	0	.35	.48	.30	.90	.70	*.51	5.0	4.0	1.0
3	1.38	4.4	.34	.25	.41	.20	.13	3.0	.95	7.0	3.2	.70
4	.83	3.9	2.45	1.2	.22	.15	.13	1.3	1.38	7.5	2.3	.50
5	2.35	3.2	1.85	6.0	.18	.10	4.0	1.4	.66	6.0	.30	.30
6	3.15	3.2	1.60	1.5	.12	.20	3.0	.50	.38	6.5	.27	.25
7	4.0	3.4	1.90	5.5	.10	.29	5.4	.25	.20	8.0	.25	1.0
8	1.86	3.7	2.7	5.0	*.10	.18	2.2	.20	1.06	6.0	.40	2.5
9	.58	4.8	3.1	1.1	2.2	.17	1.4	1.56	2.95	3.0	.50	3.2
10	.48	6.0	3.4	.80	2.5	.17	1.0	1.38	3.85	3.3	2.0	2.5
11	.48	5.0	5.0	.58	3.0	.14	.90	1.33	2.9	3.2	7.0	.80
12	4.7	3.1	4.4	.41	1.7	.17	.90	.70	3.1	3.1	5.0	.50
13	2.3	4.8	3.6	.50	.08	.50	.50	1.51	1.0	3.1	3.5	.50
14	2.1	6.4	3.0	.80	.08	1.4	.35	1.56	1.2	4.5	2.0	4.0
15	2.2	6.0	1.24	.56	.10	3.5	.10	1.46	3.2	4.5	2.0	5.0
16	.95	3.4	.41	.35	.10	1.7	.10	.83	3.6	3.5	1.4	4.0
17	.75	3.0	.32	.35	.16	3.0	.40	1.60	3.6	3.1	.90	3.0
18	.95	2.5	.32	.26	.10	.90	1.3	1.03	3.4	3.1	.70	2.0
19	1.24	2.1	3.8	.18	.12	.40	*.32	1.28	3.8	3.1	.50	1.3
20	2.9	1.9	1.0	.16	.06	.20	.35	1.24	8.0	3.2	.35	.90
21	2.2	1.8	.66	.14	.15	.13	.38	.95	1.2	3.0	6.0	.80
22	1.2	1.8	.45	.12	5.0	2.5	.38	.75	.80	4.5	7.0	.70
23	1.3	1.8	.35	.12	5.2	1.4	.35	.18	.80	2.95	6.0	.60
24	1.5	1.8	.35	.41	2.0	3.2	2.8	.10	.50	1.72	7.0	.50
25	3.0	1.8	.25	.44	1.5	2.8	3.85	.18	.40	.83	5.0	.40
26	3.0	1.7	.20	.44	.90	2.5	2.25	*.41	.35	2.05	5.0	.35
27	2.4	1.8	.20	.41	.90	1.0	1.7	*.26	.35	5.6	4.0	1.0
28	2.8	2.5	.19	.99	.80	3.5	3.5	.80	.30	4.0	3.5	3.2
29	3.4	2.6	.22	3.4	.90	8.0	1.5	-	2.8	2.8	3.7	1.5
30	3.0	2.2	.17	.44	.60	6.0	1.1	-	3.2	2.1	3.9	.80
31	6.0	1.7	-	.29	-	4.5	1.2	-	3.0	-	2.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	6.0	0.20	2.10	3.25	65.2	200
August	6.4	1.7	3.32	5.14	103	316
September	5.0	0	1.45	2.24	43.6	134
October	6.0	.12	1.07	1.66	33.2	102
November	5.2	.06	.883	1.37	26.5	81
December	8.0	.10	1.60	2.48	49.6	152
Calendar year						
January	5.4	.10	1.45	2.24	44.9	138
February	3.0	.10	1.03	1.59	28.9	89
March	8.0	.20	1.93	2.99	59.7	183
April	8.0	.83	3.97	6.14	119	365
May	7.0	.25	2.94	4.55	91.1	280
June	5.0	.25	1.51	2.34	45.3	139
Fiscal year 1937-38	8.0	0	1.94	3.00	710	2,180

*Partly estimated.

Kohala ditch at Pololu, near Niulii

Location.- Lat. 20°10'20", long. 155°44'15", on open section of ditch in Pololu Valley just downstream from boundary between land of Honokane and land of Pololu, 2⅝ miles upstream from mouth of Pololu Stream, and 4 miles south of Niulii.

Records available.- August 1927 to June 1938.

Extremes.- Maximum discharge recorded during year, 69 million gallons a day (107 second-feet) Nov. 23 (gage height, 4.03 feet); no flow several days, when water was shut out of ditch.

1927-38: Maximum discharge, 76 million gallons a day (118 second-feet) Dec. 2, 1932 (gage height, 4.33 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good except those for period of lost record, May 28 to June 30, which were computed on basis of records for stations on all nearby ditches and streams and are poor. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	30	39	23	23	23	16.5	23	26	21	22	27	30
2	43	36.5	24	22	21	13.8	20	25	19.2	26	34.5	29
3	36	29	29	26	19.2	13.0	20	24	23	36.5	29	26
4	32.5	32.5	39	25	18.3	13.0	20	26	34.5	34.5	24	23
5	43	34.5	30	39	17.4	13.0	31	30	31	32.5	15.6	21
6	43	34.5	27	27	17.4	15.6	27.5	27	23	29	14.1	20
7	43	34.5	32.5	34.5	17.4	18.3	43	23	21	41	13.8	22
8	41	36.5	36.5	41	18.3	18.3	28	24	25	30	19.2	34
9	31	41	34.5	28	30	17.4	39	32.5	36.5	21.5	23	33
10	27	43	29	23	34.5	17.4	28	25	36.5	24.5	34.5	30
11	27	33	36.5	21	39	16.5	25	22	34.5	24	46	27
12	43	32	32.5	20	32.5	17.4	25	21	34.5	23.5	36.5	23
13	41	53	30	20	22	17.4	22	20	31	23.5	32.5	23
14	34.5	41	28	20	18.3	48	20	23	34.5	27	27	40
15	*41	31	30	19.2	17.4	30	19.2	20	39	27	27	42
16	*34.5	41	24	18.3	16.5	41	18.3	21	36.5	25	24	42
17	28	29	22	18.3	16.5	30	18.3	27	36.5	23	22	40
18	30	29	22	18.3	15.6	26	20	28	39	25	21	36
19	31	30	32.5	17.4	15.6	22	19.2	28	32.5	25	20	29
20	43	21	28	16.5	15.6	20	18.3	23	*34.5	27	19.2	24
21	43	16.5	26	16.5	18.1	19.2	17.4	22	34.5	24	39	23
22	34.5	15.6	24	16.5	58	31	18.3	20	36.5	29	46	22
23	34.5	25	22	15.6	60	27	14.2	19.2	32.5	31	43	21
24	39	21	21	16.5	47	32.5	25	18.3	30	27	48	20
25	43	18.3	20	30	19.2	27	8.6	18.3	19.2	28	41	19.5
26	43	21	20	25	15.6	21	33	22	16.5	30	43	19.0
27	41	29	19.2	19.2	15.6	22	18.2	22	13.8	34.5	39	25
28	36.5	32.5	19.2	18.3	19.2	28	32.5	24	13.0	32.5	36	35
29	43	27	22	53	20	41	29	-	19.2	34.5	36	28
30	43	26	23	36.5	18.3	36.5	27	-	23	28	37	20
31	46	25	-	26	-	29	26	-	22	-	34	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	46	27	37.7	58.3	1,170	3,590
August	53	15.6	30.9	47.8	958	2,940
September	39	19.2	26.9	41.6	806	2,470
October	53	15.6	24.2	37.4	751	2,300
November	60	15.6	23.9	37.0	716	2,200
December	48	13.0	23.8	36.8	739	2,270
Calendar year 1937	60	1.4	28.0	43.3	10,230	31,370
January	43	8.6	23.7	36.7	734	2,250
February	32.5	18.3	23.6	36.5	661	2,030
March	39	13.0	28.5	44.1	883	2,710
April	41	21.5	28.2	43.6	846	2,600
May	48	13.8	30.7	47.5	952	2,920
June	42	19.0	27.6	42.7	826	2,540
Fiscal year 1937-38	60	8.6	27.5	42.5	10,040	30,820

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, 8⅔ miles southeast of Kohala.

Records available.- December 1917 to November 1919, April 1928 to June 1938.

Extremes.- Maximum discharge during year, 43 million gallons a day (66 second-feet) Jan. 26 (gage height, 1.15 feet); no flow occasionally, when water was shut out of ditch. 1917-19, 1928-38: 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. Discharge for periods of missing gage heights, Oct. 20, 21, Dec. 5-7, computed on basis of records for stations on all nearby ditches and streams. 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 1937 to June 1938

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.3	7.1	1.12	0.30	2.45	0.61	1.90	11.7	10.8	0.84	8.6	5.6
2	21	5.6	3.25	.72	2.1	.02	1.12	4.1	4.1	6.7	17.9	5.2
3	11.1	3.45	5.8	.52	1.26	0	.72	18.6	4.3	21	16.8	3.05
4	10.3	7.4	17.8	2.6	.84	.27	.61	7.0	18.4	13.8	13.2	1.73
5	20	4.9	5.0	16.2	.61	.31	2.85	7.3	9.6	5.0	5.9	1.12
6	24.5	4.1	3.25	3.3	.84	.35	6.1	3.7	3.25	4.0	3.45	.84
7	23	5.6	10.0	8.6	.61	.40	17.1	2.1	2.25	27.5	2.45	1.41
8	15.4	15.3	18.7	16.9	1.27	.40	3.45	1.73	5.6	17.8	1.73	9.1
9	3.7	18.2	10.7	3.1	8.6	.40	18.4	4.7	25.5	13.5	1.57	8.6
10	2.25	7.0	4.4	1.41	14.7	2.4	3.3	2.45	23	13.2	13.9	5.2
11	10.0	5.1	15.2	1.12	19.1	.98	1.73	1.57	22.5	13.2	16.2	3.6
12	28.5	4.9	6.3	.84	8.7	1.08	1.57	1.12	11.4	13.2	9.0	1.57
13	13.1	5.1	4.4	.61	2.25	1.94	.98	1.12	6.8	12.1	7.5	1.54
14	3.75	5.4	5.4	1.41	1.12	23.5	.72	1.73	12.8	5.4	2.45	23.5
15	14.2	5.4	8.7	.98	.72	6.2	.50	1.41	27.5	4.4	4.8	27.5
16	7.8	5.4	2.25	.61	.50	13.1	.40	1.12	31.5	3.25	2.1	27
17	4.4	5.9	1.12	.61	.30	4.2	1.12	9.5	24	2.1	1.26	22.5
18	6.2	3.45	.84	.40	.20	2.1	2.25	6.7	12.5	1.57	.84	13.2
19	5.1	2.25	7.4	.30	.10	1.26	1.57	3.3	8.9	1.26	.72	4.9
20	24	1.41	1.20	*.14	0	.84	.98	1.41	8.3	1.12	.61	2.65
21	13.6	.10	.72	*.36	4.2	.61	.72	.84	11.4	1.12	8.6	1.73
22	4.9	0	1.12	.84	32	5.8	.72	.72	15.3	7.2	15.4	1.73
23	6.0	0	.98	.61	33	5.5	.61	.50	15.3	16.6	15.0	1.12
24	15.2	1.74	.98	2.0	23.5	9.2	16.6	.40	14.6	9.5	27	.98
25	16.6	1.73	.28	6.9	9.8	3.7	30	.50	3.7	4.9	7.9	.72
26	11.4	6.0	.25	2.25	4.2	1.90	23.5	13.4	2.65	15.7	1.12	.61
27	8.6	8.9	.40	.98	0	1.73	16.8	11.5	2.25	34.5	9.4	2.25
28	4.8	5.6	.40	1.40	2.05	4.9	21.5	15.8	1.73	32	12.8	11.2
29	19.4	3.45	.40	28.5	2.85	21	13.5	-	1.26	18.4	13.2	2.65
30	17.0	2.25	.30	9.2	1.90	9.9	5.6	-	.98	9.2	14.6	1.57
31	12.6	1.41	-	2.85	-	3.9	5.3	-	.84	-	10.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	28.5	2.25	12.3	19.0	381	1,170
August	18.2	0	4.97	7.69	154	473
September	18.7	.25	4.62	7.15	139	426
October	28.5	.14	3.76	5.82	117	358
November	33	0	5.99	9.27	180	552
December	23.5	0	4.15	6.42	128	394
Calendar year 1937	33	0	6.32	9.78	2,310	7,090
January	30	.40	6.52	10.1	202	621
February	18.6	.40	4.86	7.52	136	417
March	31.5	.84	11.1	17.2	343	1,050
April	34.5	.84	11.0	17.0	330	1,010
May	27	.61	8.59	13.3	266	817
June	27.5	.61	6.48	10.0	194	596
Fiscal year 1937-38	34.5	0	7.04	10.9	2,570	7,880

*Partly estimated.

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 1937 to June 1938

Date	Stream	Tributary to	Locality	Discharge	
				Second-feet	Million gallons a day
Sept.19	Awini ditch.....	Kohala ditch.....	At upper end of new ditch lining near Niulii.	8.65	5.59
19	....do.....	....do.....	At lower end of new ditch lining near Niulii.	7.55	5.01
Mar. 14	....do.....	....do.....	At Honokane weir near Niulii.	45.2	29.2
May 19	Waiakea flume...	Canefield.....	At divide below gaging station, near Mountain View.	18.8	12.2

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