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HAROLD L. ICKES, Secretary

GEOLOGICAL SURVEY

W. C. MENDENHALL, Director

Water-Supply Paper 905

SURFACE WATER SUPPLY *of* HAWAII

JULY 1, 1939, to JUNE 30, 1940

Prepared under the direction of
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In cooperation with the
TERRITORY OF HAWAII



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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, 1940. Since the beginning of stream-gaging work in Hawaii, in 1910, records of flow of streams and ditches have been obtained at about 489 stations for periods ranging from a few months to 29 years. In addition, hundreds of miscellaneous measurements have been made, and rather extensive studies of ground water have been made in the Kau district, island of Hawaii,¹ and on the islands of Oahu,² Maui, Molokai, Lanai,³ and Kahoolawe.³

In this volume are given the records of daily flow obtained at stations that were operated during the year ending June 30, 1940, 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-foot" is an abbreviation for "cubic feet per second." A second-foot is the rate of discharge of water flowing in a channel having a cross-sectional area of 1 square foot and an average velocity of 1 foot a second.

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

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

The following convenient approximate relations exist between second-foot, million gallons a day, and acre-foot: 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

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

² Stearns, H. T., and Vaksvik, K. N., Geology and ground-water resources of Oahu, Hawaii: T. H. Division of Hydrography Bull. 1, 1935. Stearns, H. T., Geologic map and guide of Oahu, Hawaii: T. H. Division of Hydrography Bull. 2, 1939. Stearns, N. D., Annotated bibliography and index of geology and water supply of the island of Oahu, Hawaii: T. H. Division of Hydrography Bull. 3, 1935. Stearns, H. T., and Vaksvik, K. N., Records of the drilled wells on the island of Oahu, Hawaii: T. H. Division of Hydrography Bull. 4, 1938. Stearns, H. T., Supplement to Geology and ground-water resources of Oahu, Hawaii: T. H. Division of Hydrography Bull. 5, 1940.

³ Stearns, H. T., Geology and ground-water resources of Lanai and Kahoolawe, Hawaii: T. H. Division of Hydrography Bull. 6, 1940.

water-stage recorders that give continuous records of the fluctuations. Measurements of discharge are usually made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. Rating tables giving the discharge for any stage are prepared from the discharge measurements. The application of the daily gage heights to these rating tables gives the discharge from which the daily, monthly, and yearly discharges are determined. Occasionally discharge is determined from a weir or a rating flume, using standard formulas, and for several stations the high-water discharge has been determined by the use of models.

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

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

The table of daily discharge gives, in general, the discharge corresponding to the mean daily gage heights. But when, owing to sudden or rapid diurnal fluctuation, the discharge obtained from the rating table by applying the mean daily gage height would not be within 2 percent of the true mean, the mean has been obtained by averaging discharges for intervals during the day or by use of the discharge or graphic integrators.

In the table of monthly discharge the column headed "Maximum" gives the flow for the day when the total discharge was greatest. This does not correspond to the rate of flow at the crest of the flood. The maximum rate of flow is given in the station description under the heading "Extremes", and the corresponding stage is always taken from the water-stage recorder graph unless otherwise noted. Likewise, in the column headed "Minimum" the quantity given is the flow for the day when the total discharge was least. The columns headed "Mean" give the average flow in million gallons a day and cubic feet a second during the month. The "total 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 percent, respectively.

It should be borne in mind that the observations in each succeeding year may be expected to throw new light on data previously published.

Computations are carried to not more than three significant figures, except that monthly and yearly total 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 1940, 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, 1903-40

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

* 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 for the area covered by this report at which records of discharge were collected during the fiscal year July 1939 to June 1940 by agencies other than the Geological Survey. 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.	1925-40	East Kauai Water Co.
East Lawai ditch.....	Near Government Road near Kalaeheo.	1924-40	McBryde Sugar Co.
Eleele ditch.....	Near Government Road near Kalaeheo.	1924-40	Do.
Hanalei ditch.....	Above Kaliahiwai Reservoir, near Kilauea.	1923-40	Kilauea Sugar Plantation Co.
Hanamaulu ditch.....	Below intake, near Hanamaulu...	1925-40	Lihue Plantation Co.
Hanapepe ditch.....	At Makaweli Plantation boundary near Makaweli.	1926-40	Hawaiian Sugar Co.
Hanapepe Field ditch....	Below Hanapepe River intake near Eleele.	1924-40	McBryde Sugar Co.
Hanapepe Stream.....	At tide-water near Eleele.....	1924-40	Do.
Kamooloa ditch.....	Near Koloa boundary, near Koloa	1924-40	Do.
Kapaia River diversion to field 8 reservoir.	Near Hanamaulu.....	1928-40	Lihue Plantation Co.
Kapaia River diversion to field 29.	Near Lihue.....	1927-40	Do.
East Lawai Stream.....	$\frac{1}{2}$ mile above cannery near Kalaeheo.	1924-40	McBryde Sugar Co.
Lihue lower ditch.....	Below intake, near Lihue.....	1925-40	Lihue Plantation Co.
Lihue upper ditch.....	do.....	1925-40	Do.
Old Tunnel ditch.....	Above confluence with main Koloa ditch, near Koloa.	1925-40	Koloa Sugar Co.
Olokele ditch.....	At powerhouse near Makaweli....	1926-40	Hawaiian Sugar Co.
Storm ditch.....	Above Kalaeheo-Lihue main highway near Koloa.	1926-40	Koloa Sugar Co.
Wahiawa Stream.....	Above Alexander Reservoir, near Kalaeheo.	1924-40	McBryde Sugar Co.
Wahiawa Stream, East Branch.	do.....	1929-40	Do.
Wailua ditch.....	Near flume 4, near Kapaa.....	1922-40	East Kauai Water Co.
Wainiha Stream.....	Near Hanalei, at altitude about 950 feet.	1927-40	McBryde Sugar Co.
West Lawai ditch.....	Near camp 12, near Kalaeheo.....	1924-40	Do.

ISLAND OF OAHU

Alawa Heights Spring....	Below reservoir 3.....	1932-40*	Board of Water Supply City and County of Honolulu.
Booth Springs.....	In Pauao Valley, at altitude 655 feet.	1929-40*	Do.
Helemano ditch.....	About 3 miles below Upper Helemano Reservoir.	1933-40	Waialua Agricultural Co.

* Published in Biennial Reports of Honolulu Sewer & Water Commission and of Honolulu Board of Water Supply.

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

ISLAND OF OAHU--Continued

Stream	Location	Period	Operated by
Hering Springs.....	In Makiki Valley, at altitude 970 feet.	1925-40*	Board of Water Supply City and County of Honolulu.
Kahuawai Springs.....	In Pauao Valley, at altitude 618 feet.	1925-40*	Do.
Kalihi tunnels.....	At diversion, at altitude 650 feet.	1926-40*	Do.
Kamananui ditch.....	In Kawaioa Gulch about 500 yards above third siphon from Government Road.	1934-40	Waialua Agricultural Co.
Kipapa Stream.....	At altitude 375 feet.....	1917-40	Waialua Water Co.
Makiki Springs.....	In Makiki Valley, at altitude 350 feet.	1926-40*	Board of Water Supply City and County of Honolulu.
Manoa tunnels.....	Upper Manoa Valley.....	1925-40*	Do.
Nuuanu tunnels.....	At Lower Luakaha.....	1926-40*	Do.
Nuuanu tunnel 3.....	At overflow, in upper Nuuanu Valley.	1931-40*	Do.
Palolo tunnel.....	Upper Palolo Valley.....	1926-40*	Do.
Waialua Reservoir outlet	About 1,200 feet below dam.....	1912-40*	Waialua Water Co.
Waialua Stream.....	At altitude 250 feet.....	1919-40	Do.
Waialua tunnel.....	At adit 8.....	1916-40	Waialua Water Co.
Waialua Stream.....	At altitude 750 feet.....	1917-40	Do.
Waikakalo Stream.....	do.....	1917-40	Do.

* Published in Biennial Reports of Honolulu Sewer & Water Commission and of Honolulu Board of Water Supply.

ISLAND OF MAUI (West Maui)

Everett ditch.....	Below intake, near Wailuku....	1935-40	Wailuku Sugar Co.
Iao-Waikapu ditch.....	At lower end of tunnels, near Wailuku.	1923-40	Do.
Kama ditch.....	Below intake, near Wailuku....	1933-40	Do.
Manania ditch.....	do.....	1923-40	Do.
North Waiehu.....	Near end of Waiehu Camp road, near Wailuku.	1922-40	Do.
South Waikapu ditch.....	Above first lateral, near Waikapu.	1935-40	Do.
Do.....	Below tunnel sections, near Waikapu.	1923-40	Do.
Spreckels ditch.....	Below intake, near Waihee.....	1931-40	Do.
Waihee ditch.....	do.....	1922-40	Do.
Honokohau tunnel.....	At outlet of tunnel, at Mahinahina Camp.	1917-40	Pioneer Mill Co., Ltd.
Kahoma tunnel.....	Upstream 2,000 feet from outlet above Lahaina.	1920-40	Do.
Kanaha ditch.....	At intake, above Lahainaluna School.	1921-40	Do.
Kauaula tunnel.....	At outlet, above Lahaina.....	1920-40	Do.
Launipoko ditch.....	do.....	1921-40	Do.
Ukumehame ditch.....	At outlet, near Olowalu.....	1931-40	Do.

ISLAND OF MAUI (East Maui)

Banana Spring.....	Near east wall of Keanae Valley, at altitude 700 feet.	1933-40	East Maui Irrigation Co.
Hanawi Spring upper high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 675 feet.	1932-40	Do.
Hanawi Spring lower high-level.	On east side of pali in Hanawi Gulch near Nahiku, at altitude 575 feet.	1932-40	Do.
Makapipi ditch.....	At west edge of Makapipi Gulch near Nahiku, at altitude 1,300 feet.	1933-40	Do.

ISLAND OF HAWAII

Kohala ditch.....	At Awini weir in Honokane, near Niulii.	1917-40†	Kohala Ditch Co.
Do.....	At Niulii weir, near Niulii....	1917-40†	Do.
Pololu Inlet 1.....	At Pololu, near Niulii.....	1929-40	Do.
Pololu Inlet 2.....	In Waikalae Gulch at Pololu, near Niulii.	1929-40	Do.
Pololu Inlet 3.....	In Opaepilau Gulch, above Kohala ditch, near Niulii.	1937-40	Do.
Waipuka Stream.....	Above Kohala ditch, near Niulii	1929-40	Do.
Pololu Inlet 5.....	In Niulii Gulch, above Kohala ditch, near Niulii.	1937-40	Do.
Pololu Inlet 6.....	In Waikane Gulch, above Kohala ditch, near Niulii.	1937-40	Do.
Waipuni Stream.....	Above Kohala ditch, near Halawa	1933-40	Do.
Makapala ditch.....	do.....	1929-40	Do.
Waipunalau Stream.....	do.....	1929-40	Do.
Puwaiolo Stream.....	do.....	1937-40	Do.
Mountain House tunnel.....	6.0 miles north of Waiohinu....	1927-40	Hutchinson Sugar Plantation Co.
Plantation Springs tunnel.	8.7 miles north of Naalehu....	1927-40	Do.
Shirakura tunnel 20.....	In Moaula Gulch, at altitude 4,650 feet, 6.5 miles from Pahala.	1929-40	Hawaiian Agricultural Co.
Domestic supply tunnel 16.	3.8 miles from Pahala, at altitude 2,800 feet.	1926-40	Do.
Tanaka tunnel 15.....	In Higonama Gulch, at altitude 3,000 feet, 3.4 miles from Pahala.	1926-40	Do.

† 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
Double Arch tunnel 11...	In Piikea Gulch, at altitude 4,150 feet, 5.35 miles from Pahala.	1926-40	Hawaiian Agricultural Co.
Mud Flow tunnel 2.....	In Piikea Gulch, at altitude 3,750 feet, 4.8 miles from Pahala.	1926-40	Do.
Noguchi tunnel 19.....	5.3 miles from Pahala, at altitude 3,500 feet.	1928-40	Do.
Makakupu tunnel 13.....	In Waialealoe Gulch, at altitude 3,750 feet, 6.1 miles from Pahala.	1926-40	Do.
Upper Hamakua ditch and Reservoir 3 weir.	At base of Puu Lala, near Honokaa.	1907-12, 1921-40†	Hawaiian Irrigation Co.
Lower Hamakua ditch.....	At main weir, near Kukuihaele..	1921-40†	Do.
Honokaape ditch.....	At Kukuihaele Village.....	1923-40	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, 1940, was done under cooperative agreement with the Territory of Hawaii through the commissioner of public lands. Assistance in collecting records was rendered also on the island of Kauai by the Kekaha Sugar Co. Ltd., the McBryde Sugar Co. Ltd., the East Kauai Water Co. Ltd., the Kilauea Sugar Co. Ltd., and the Lihue Plantation Co. Ltd.; on the island of Oahu by the Wahiawa Water Co. Ltd.; on the island of Maui by the Pioneer Mill Co. Ltd., and the East Maui Irrigation Co. Ltd.; and on the island of Hawaii by the City of Hilo Water Works, the Kohala Ditch Co. Ltd., and the Olaa Sugar Co. Ltd.

Acknowledgment of records collected by individuals or corporations is made in connection with the description of each station for which such records were furnished.

DIVISION OF WORK

The data were collected and prepared for publication under the direction of M. H. Carson, district engineer, Honolulu, Hawaii.

GAGING-STATION RECORDS

ISLAND OF KAUAI

Waimea River below Kekaha ditch intake, near Waimea

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

Drainage area.- 45.0 square miles.

Records available.- July 1921 to June 1940.

Average discharge.- 15 years (1925-40), 40.8 million gallons a day (63.1 second-foot).

Extremes.- Maximum discharge during year, 5,670 million gallons a day (8,770 second-foot) Jan. 7 (gage height, 15.12 feet), from rating curve extended above 500 million gallons a day; minimum, 0.09 million gallons a day (0.14 second-foot) Apr. 7, 8, 13, 14, 1921-40: Maximum discharge, 10,700 million gallons a day (16,600 second-foot) Dec. 24, 1927 (gage height, 20.40 feet), from rating curve extended above 500 million gallons a day; no flow occasionally, owing to regulation.

Remarks.- Records fair except those for period of faulty gage-height record, 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 table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

4.3	0.06	4.7	0.76	5.4	13.6	7.0	180
4.4	.12	4.8	1.32	5.7	24	8.0	460
4.5	.23	5.0	3.7	6.0	40	10.0	1,300
4.6	.43	5.2	8.1	6.5	88	11.0	1,690

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.15	0.12	0.15	0.12	0.23	0.67	13.3	0.51	0.14	0.11	74	0.16
2	2.0	.12	.12	.12	.12	.15	.15	.27	.15	.11	287	.15
3	100	.12	.12	.12	.43	.12	34	.25	.12	.11	28.5	.16
4	30	.12	120	.11	4.6	46	156	1.30	.12	.11	1.55	.16
5	15	.12	25	.11	16.5	8.0	174	.38	.12	.11	.14	.16
6	24	5.0	.5	.12	33	2.66	41	1.44	.12	.10	.12	.16
7	20	.15	.25	11.4	18.7	.18	1,460	8.8	.11	.09	3.55	.15
8	.5	.12	.15	69	101	.13	506	1.07	.20	.09	9.9	.15
9	2	.12	.15	7.1	21	.15	144	.19	101	.10	13.4	.15
10	.15	.12	.12	.19	24	.62	67	.16	9.5	.10	66	.14
11	.15	.12	.12	11.0	33	.13	46	.79	.14	.10	400	.14
12	.2	.12	.12	.16	.90	.12	38	.15	.12	.10	58	.15
13	1.0	.12	.12	.12	25	.11	24.5	.12	.11	.09	23.5	.14
14	3.0	35	.12	24	.36	.11	32.5	.12	.11	.09	21.5	.14
15	.5	5.0	.13	34.5	.16	.11	29	.12	.11	.10	.42	.14
16	.3	.5	.13	9.4	.16	1.18	14.6	5.0	.11	.65	.29	.14
17	.2	.15	.16	2.75	.15	15.9	11.4	2.1	.11	.92	.22	.15
18	.15	.15	.15	.27	.15	69	10.8	.15	.12	162	.18	.15
19	.16	.15	.13	.15	.14	37	10.5	.12	.12	292	.16	.15
20	1.5	.12	.13	.18	.12	21	18.0	.12	.12	58	.15	.14
21	4.0	.12	.12	.15	.12	12.3	12.5	.13	.12	15.8	.15	.16
22	.15	.15	.12	7.4	.12	.22	11.0	.16	4.7	3.75	.15	.16
23	.15	.15	.12	114	21.5	.21	377	.14	.13	.18	50	.20
24	.15	.12	.12	96	28.5	.20	100	.14	.12	.12	4.1	.21
25	.15	.12	.12	146	1.71	.15	34.5	.13	.12	.12	.22	14.1
26	.15	.12	.12	25	.16	.12	22.5	.35	.12	.11	.86	7.4
27	.15	.12	.12	1.90	228	.11	20.5	.15	.12	.14	5.0	.23
28	.15	.12	.12	.20	334	321	17.9	.12	.12	.12	1.38	.20
29	.15	1.0	.12	.60	12.7	595	15.6	.12	.12	.12	33.5	.19
30	.15	15	.12	.21	2.3	86	8.5	-	.12	.11	.38	.19
31	.12	2.0	-	1.10	-	25.5	4.0	-	.12	-	.18	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-foot
July.....	100	0.12	6.60	10.2	205	628
August.....	35	.12	2.15	3.53	66.6	204
September.....	120	.12	4.97	7.69	149	457
October.....	145	.11	15.2	28.2	563	1,730
November.....	334	.12	30.5	46.9	910	2,790
December.....	595	.11	40.1	62.0	1,240	3,820
Calendar year 1939	1,000	.11	34.6	53.5	12,620	38,760
January.....	1,460	4.0	115	178	3,560	10,920
February.....	318	.12	3.841	1.30	24.4	75
March.....	101	.11	3.83	5.93	119	364
April.....	292	.09	23.0	35.6	691	2,120
May.....	400	.12	34.1	52.8	1,060	3,240
June.....	14.1	.14	.867	1.34	26.0	80
Fiscal year 1939-40	1,460	.09	23.5	36.4	8,610	26,430

Peak discharge.- Jan. 7 (11 a.m.) 5,670 m.g.d. (8,770 sec.-ft.).

Note.- Discharge for period of faulty gage-height record, July 1 to Sept. 10, computed on basis of records for stations on all nearby streams.

Kawaikoi Stream near Waimea

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

Drainage area.- 4.1 square miles.

Records available.- April 1909 to June 1940. July 1917 to July 1919 (unpublished).

Average discharge.- 21 years (1919-40), 21.6 million gallons a day (33.4 second-feet).

Extremes.- Maximum discharge during year, 3,540 million gallons a day (5,480 second-feet) Nov. 27 (gage height, 10.17 feet), from rating curve extended above 180 million gallons a day; minimum, 1.6 million gallons a day (2.5 second-feet) Oct. 4, 1909-40; Maximum discharge, 4,670 million gallons a day (7,230 second-feet) Dec. 23, 1937 (gage height, 11.20 feet), from rating curve extended above 180 million gallons a day; minimum, 1.3 million gallons a day (2.0 second-feet) Sept. 15, 1921. Highest stage known, 15.2 feet, Dec. 18, 1916.

Remarks.- Records excellent.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.6	1.2	2.2	5.1	3.0	30.5	4.5	241
1.9	1.8	2.4	8.9	3.5	70	5.0	355
2.0	2.7	2.6	14.4	4.0	141	5.5	500

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.9	3.8	2.9	1.8	4.8	14.4	13.5	5.6	4.4	3.4	152	8.7
2	as 0	5.4	2.7	1.7	4.1	9.5	35.5	5.4	4.1	3.4	131	18.0
3	as 7	17.3	2.6	1.7	3.8	8.3	12.9	5.3	3.6	3.5	28.5	10.4
4	61	10.7	100	1.6	4.4	108	65	6.8	3.4	3.4	13.2	8.1
5	30	17.8	14.6	1.6	7.5	15.7	39	7.2	3.1	3.4	9.4	7.2
6	14.7	16.8	6.3	4.5	19.7	9.4	13.8	6.3	3.0	3.4	7.8	6.3
7	36.5	7.2	3.1	8.0	25	7.8	332	5.8	2.9	2.8	46	8.9
8	19.9	4.3	4.1	20.5	55	7.4	81	5.0	46	7	69	6.0
9	9.2	3.7	3.4	6.6	21	25	23	6.8	66	3.0	74	5.1
10	6.3	4.1	3.0	3.4	13.6	10.4	17.7	19.1	11.6	3.8	37	5.0
11	5.3	12.3	2.7	2.5	8.9	7.2	13.8	9.2	6.0	3.7	96	6.0
12	7.0	7.0	2.5	2.3	35.5	8.1	11.7	6.3	4.6	3.0	26.5	7.5
13	13.8	4.3	2.4	7.8	21	8.1	9.9	4.8	5.3	2.6	50	5.3
14	24.5	13.2	2.9	7.6	7.8	6.1	15.0	4.3	6.3	2.6	23.5	5.3
15	17.2	11.9	4.7	24.5	9.2	5.3	21	20	4.6	2.9	12.0	5.0
16	8.1	5.6	3.5	19.5	6.6	4.8	9.9	35.5	3.9	121	9.4	4.6
17	6.8	4.7	2.9	13.8	5.4	4.6	8.1	10.7	11.4	76	8.3	7.2
18	6.1	as 1	2.6	5.8	4.6	112	7.6	6.0	6.3	174	7.2	6.3
19	6.0	3.7	2.2	4.1	4.1	20	7.6	4.8	4.2	267	6.6	5.1
20	33.5	3.5	2.2	4.1	4.1	8.3	16.0	4.7	3.5	76	6.3	4.4
21	8.7	3.2	2.0	4.6	4.1	6.3	8.5	22	13.0	31.5	17.2	4.2
22	6.1	6.0	1.9	6.8	10.3	5.3	8.2	12.6	28.5	32	10.9	7.4
23	13.2	4.6	1.9	22	63	5.3	62	5.6	7.6	21.5	112	16.0
24	10.2	3.6	2.4	18.3	36.5	15.2	16.8	4.6	4.8	18.1	31.5	14.2
25	5.0	3.0	2.2	35.5	11.8	6.6	9.6	4.2	4.2	10.9	16.3	6.5
26	5.0	2.8	2.0	13.4	9.8	5.1	8.5	16.3	3.7	8.7	23	5.3
27	7.0	2.7	1.9	6.3	372	5.4	8.5	7.2	3.5	7.8	37	4.4
28	6.8	2.7	2.0	10.4	203	60	8.3	4.7	6.2	6.6	29.5	4.1
29	5.8	2.8	2.1	10.6	22.5	101	7.8	4.3	12.4	5.8	68	4.1
30	4.3	4.7	1.9	17.2	22.5	27.5	6.5	-	5.1	5.4	14.7	6.7
31	3.8	3.5	-	8.1	-	21	6.0	-	3.9	-	10.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	61	3.8	13.8	21.4	429	1,320
August.....	17.8	2.7	6.48	10.0	201	617
September.....	19	1.9	6.55	10.1	197	603
October.....	35.5	1.6	9.57	14.6	297	910
November.....	372	3.8	34.1	52.8	1,020	3,140
December.....	112	4.6	21.3	33.0	659	2,020
Calendar year 1939	372	1.6	17.2	26.6	6,260	19,240
January.....	332	6.0	29.3	45.3	906	2,790
February.....	35.5	4.2	9.00	13.9	261	801
March.....	55	2.9	9.55	14.6	297	912
April.....	287	2.6	31.1	48.1	932	2,860
May.....	152	6.3	36.2	59.1	1,180	3,630
June.....	18.0	4.1	7.11	11.0	213	655
Fiscal year 1939-40	372	1.6	18.0	27.9	6,590	20,240

a Faulty gage-height record; discharge computed on basis of records for stations on nearby streams.

c Partly estimated.

Moihihi Stream at altitude 3,500 feet, near Waimea

Location.- Boulder-concrete control, lat. 22°07'05", long. 159°36'15", at altitude 3,500 feet, at upper trail crossing, 3.8 miles northeast of confluence of Waiahulu and Poamau 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 1940. April 1909 to December 1912 at site 2 miles downstream (fragmentary).

Extremes.- Maximum discharge during year, 228 million gallons a day (353 second-feet) Jan. 7 (gage height, 4.32 feet), from rating curve extended above 21 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Oct. 4, 5.
1920-26, 1936-40: 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 discharge, 0.2 million gallons a day (0.3 second-foot) July 16, 1921, Sept. 14, 15, 1921, Aug. 7, 8, 1922, May 16, 1926, Oct. 4, 5, 1939.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.9	0.2	1.6	5.0	3.0	53
1.0	.5	1.8	8.2	3.6	96
1.2	1.4	2.0	12.4		
1.4	2.8	2.6	27		

Discharge, in million gallons, fiscal year July 1939 to June 1940.

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.8	0.7	0.7	0.3	1.5	3.3	3.0	1.4	1.0	0.5	14.3	1.4
2	1.3	.7	.6	.7	1.0	2.1	11.6	1.3	.9	.6	23.6	1.6
3	10.8	1.2	.4	.2	.9	1.6	4.4	.3	.8	.7	7.6	1.6
4	6.9	1.2	15.1	.2	.9	9.4	12.0	1.5	.8	.6	3.9	1.3
5	3.6	1.2	6.2	.2	1.1	4.1	16.0	1.6	.7	.6	1.8	1.2
6	5.4	1.7	1.6	.4	4.6	2.0	4.4	1.5	.7	.4	1.2	1.0
7	5.0	1.1	1.2	1.7	5.2	1.6	70	1.9	.6	.4	1.2	1.0
8	2.7	.8	.9	6.8	13.6	1.4	28.5	1.5	.8	.4	1.2	.9
9	1.5	.7	.7	2.0	6.3	3.6	9.1	1.3	14.6	.6	4.6	.8
10	1.2	.7	.6	.8	4.9	2.8	5.4	1.4	4.0	.7	9.4	.8
11	1.0	1.2	.5	.8	2.8	1.6	4.0	1.8	1.6	.7	23.5	1.2
12	1.0	1.1	.5	.7	4.7	1.4	3.4	1.4	1.0	.5	7.7	1.4
13	1.2	.8	.4	.5	7.6	1.6	2.6	1.2	.9	.4	5.2	1.0
14	2.0	5.5	.4	4.3	2.3	1.3	4.9	1.0	.9	.4	5.5	1.0
15	2.9	3.8	.5	6.7	1.6	1.4	6.3	1.0	.8	.6	2.4	.9
16	1.7	1.5	.5	5.2	1.5	1.0	2.9	2.2	.8	4.5	1.7	.9
17	1.2	1.0	.5	3.1	1.2	1.0	2.2	1.9	1.0	12.3	1.4	1.0
18	1.1	.8	.5	1.6	1.0	3.4	1.9	1.2	1.1	19.7	1.2	1.0
19	1.0	.7	.4	.9	1.0	4.5	1.9	1.0	.8	24.5	1.1	1.0
20	1.4	.7	.4	.7	.9	1.8	3.9	.9	.7	11.4	1.0	.6
21	2.2	.6	.4	.8	.9	1.2	2.4	1.0	.9	7.7	1.4	.8
22	1.7	.7	.3	1.9	.8	1.0	2.0	1.2	2.7	4.0	1.5	.9
23	2.0	.7	.3	14.8	10.7	.9	24	1.0	1.5	2.4	7.6	2.0
24	1.6	.6	.3	9.6	11.3	1.2	7.6	.9	1.0	1.9	5.4	1.9
25	1.0	.6	.3	14.6	3.3	1.3	3.4	.8	.7	1.6	3.6	2.0
26	.8	.5	.3	4.5	1.9	1.0	2.6	3.4	.6	1.4	4.6	1.6
27	.8	.4	.3	2.0	13.0	1.2	2.6	1.9	.6	1.5	4.2	1.0
28	1.0	.6	.4	1.4	37	30	2.3	1.1	.6	1.2	2.0	.9
29	1.0	.6	.5	2.0	6.3	35	2.2	.9	.6	1.0	7.6	.8
30	.8	3.2	.4	4.1	5.6	9.6	1.8	.8	.6	.9	2.7	.9
31	.7	1.2	-	2.4	-	4.2	1.5	-	.6	-	1.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	10.8	0.7	2.17	3.56	67.2	206
August.....	5.5	.4	1.18	1.83	36.6	112
September.....	15.1	.3	1.17	1.61	35.0	107
October.....	14.8	.2	3.08	4.77	95.6	293
November.....	37	.8	5.19	6.03	166	478
December.....	36	.9	4.43	6.56	137	422
Calendar year 1939	65	.2	3.94	6.10	1,440	4,420
January.....	70	1.5	6.06	12.5	250	767
February.....	3.4	.8	1.40	2.17	40.5	124
March.....	14.5	.5	1.46	2.28	45.3	139
April.....	24.6	.4	5.47	5.37	104	319
May.....	25.6	1.0	6.17	6.00	160	492
June.....	2.0	.8	1.16	1.79	34.8	107
Fiscal year 1939-40	70	.2	3.18	4.92	1,160	3,570

Kokee ditch near Waimea

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

Records available.- September 1926 to June 1940.

Average discharge.- 13 years (1927-40), 18.3 million gallons a day (28.3 second-feet).

Extremes.- Maximum discharge during year, 64 million gallons a day (99 second-feet) Dec. 29 (gage height, 2.47 feet); no flow occasionally, when water was shut out of ditch.

1926-40: Maximum discharge, 76 million gallons a day (118 second-feet) Mar. 26, 1938 (gage height, 2.69 feet); no flow occasionally, when water was shut out of ditch.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.6	5.8	3.95	2.4	7.4	21	24.5	15.8	10.4	7.3	41	15.8
2	28.5	7.1	3.5	2.3	5.3	14.4	19.6	14.6	9.2	7.1	54	23
3	44	20.5	3.4	2.2	4.8	11.9	a17	14.1	8.3	7.3	39	17.0
4	35.5	10.4	3.0	2.1	5.5	38.5	a25	17.0	7.8	6.9	21	13.9
5	23.5	21	22.5	2.0	5.0	16.5	a15	17.0	7.6	6.9	14.6	12.5
6	27.5	15.6	8.5	2.3	19.5	.35	a1.0	15.8	7.3	6.8	12.5	11.5
7	30	8.0	10.9	10.4	20.5	2.45	a5.0	14.4	7.1	6.3	15.9	13.9
8	14.6	6.1	6.3	21	46	10.2	11.1	13.0	8.4	6.0	39.5	10.6
9	10.0	5.3	5.0	12.4	25	28	14.6	12.5	54	6.6	34	9.6
10	6.3	6.5	4.6	5.2	19.4	15.8	14.1	25	23.5	6.0	39.5	9.2
11	7.6	12.3	4.1	3.8	11.7	10.4	13.7	18.2	13.0	7.8	39.5	10.4
12	10.4	8.3	3.8	3.4	22.5	10.0	13.4	13.9	10.0	6.4	32.5	11.7
13	14.3	7.4	3.5	6.2	29	11.0	20.5	11.9	9.4	5.8	34	9.4
14	23.5	16.0	3.5	44	11.0	8.3	18.3	10.8	12.3	5.6	13.8	9.1
15	21	11.9	6.0	32	10.1	7.4	21	12.0	9.4	5.6	19.5	8.9
16	11.5	7.6	4.8	25	8.7	6.8	21	42	8.5	27	15.8	8.1
17	9.4	6.4	3.95	18.7	6.9	6.4	21	19.4	16.5	50	13.9	10.0
18	8.3	5.5	3.55	8.9	6.0	31	18.2	12.8	13.7	54	12.8	9.8
19	6.0	4.7	3.25	5.8	5.3	29	19.5	10.8	9.2	58	11.9	8.7
20	14.2	4.4	3.0	5.2	5.2	12.1	16.3	10.4	7.8	56	11.0	7.8
21	11.2	4.2	2.9	5.6	5.3	9.1	16.2	21	12.2	43	20.5	7.4
22	8.9	7.6	2.8	5.2	4.7	7.8	17.0	22.5	42	37	15.8	8.0
23	10.1	5.6	2.65	22	43	7.4	15.1	12.1	17.0	26.5	45	16.2
24	17.1	4.6	3.0	32	42	21	12.2	10.0	11.0	23	42	19.4
25	8.1	3.95	3.0	38	16.6	10.2	20	9.4	9.2	17.0	26	10.6
26	6.6	3.65	2.65	21.5	10.1	8.0	21	23.5	8.5	13.2	29	9.4
27	9.1	3.5	2.55	10.4	22	7.8	17.0	14.6	6.0	12.3	35.5	7.8
28	8.3	3.4	2.65	9.8	33.5	43	18.1	10.4	8.5	10.6	30.5	7.3
29	8.1	3.5	3.0	13.0	33.5	56	16.2	9.4	18.2	9.8	34	7.1
30	6.3	5.2	2.65	19.9	30.5	42	16.2	-	10.0	9.1	23	5.6
31	5.5	5.2	-	11.0	-	35	17.0	-	6.0	-	17.0	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	44	5.5	14.7	22.7	456	1,400
August.....	21	3.4	7.79	12.1	241	741
September.....	22.5	2.55	4.64	7.18	139	427
October.....	44	2.0	13.1	20.5	405	1,240
November.....	46	4.7	17.2	26.6	516	1,580
December.....	56	.35	17.4	26.9	539	1,650
Calendar year 1939	56	.35	14.8	22.9	5,400	16,560
January.....	25	1.0	16.8	26.0	520	1,600
February.....	42	9.4	15.7	24.3	454	1,390
March.....	54	7.1	13.1	20.3	407	1,250
April.....	58	5.8	16.2	26.2	547	1,680
May.....	54	11.0	26.8	41.5	552	2,550
June.....	25	7.1	11.2	17.3	355	1,030
Fiscal year 1939-40	58	.35	14.7	22.7	5,390	16,540

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

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 Koale Stream and 6½ miles north of Waimea. Altitude of gage, 890 feet (by barometer).

Drainage area.- 20.0 square miles.

Records available.- February to October 1916, October 1917 to June 1918, May 1925 to June 1940. July 1918 to November 1920 at same site (fragmentary and unreliable; unpublished).

Average discharge.- 15 years (1925-40), 28.8 million gallons a day (44.6 second-feet).

Extremes.- Maximum discharge during year, 1,370 million gallons a day (2,120 second-feet) Jan. 7 (gage height, 6.82 feet), from rating curve extended above 400 million gallons a day; minimum, 8.3 million gallons a day (12.8 second-feet) Oct. 3-6, Nov. 22.

1916, 1917-18, 1925-40: 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. Kokee ditch diverts water above station for irrigation near Kekaha.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.8	7.7	1.4	33	3.0	232
.9	9.7	1.6	48	4.0	455
1.0	12.7	2.0	55	5.0	750
1.2	21.5	2.5	148		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.7	9.3	9.3	8.5	9.7	11.8	17.7	13.1	10.6	8.7	114	10.3
2	17.6	9.3	9.1	8.5	9.1	10.0	58	12.7	10.0	8.7	187	10.9
3	46	9.5	8.9	8.5	8.9	9.3	24	12.4	9.5	a9.0	27	11.2
4	27.5	10.3	95	8.3	8.7	97	111	15.8	9.5	a8.8	13.1	10.6
5	14.7	10.0	19.6	8.3	8.7	21.5	130	13.9	9.5	a8.6	10.6	10.3
6	14.6	11.2	10.6	8.3	11.2	26	27	12.7	9.3	a8.6	9.5	10.3
7	21.5	10.3	9.5	9.1	13.9	20	591	12.7	9.3	a8.6	24	10.0
8	15.1	9.5	9.1	14.9	51	9.7	353	12.1	9.5	a8.6	47	9.7
9	11.2	9.3	8.9	12.2	17.0	10.0	115	11.5	114	a8.5	42	9.7
10	10.3	9.3	8.7	9.3	14.7	11.5	70	11.2	17.2	a8.7	61	9.7
11	10.0	9.5	8.7	8.9	11.2	9.5	50	11.8	11.2	a9.0	158	10.0
12	9.7	9.7	8.7	8.9	12.7	9.1	42	11.2	10.0	a8.4	41	10.6
13	10.0	9.5	8.5	8.7	27.5	9.1	25.5	10.6	9.5	a8.3	33	10.0
14	10.3	12.1	8.5	40	10.6	9.1	27	10.6	9.5	a8.3	28.5	9.7
15	12.7	14.7	8.5	29	9.5	8.9	27	10.3	9.3	a8.3	13.1	9.7
16	11.2	10.6	8.7	13.9	9.1	8.7	17.7	22.5	9.3	a90	11.2	10.0
17	10.3	9.7	8.7	11.8	8.9	8.7	14.7	12.4	10.3	a50	10.3	9.7
18	10.0	9.3	8.7	10.3	8.7	98	14.7	10.9	10.0	a120	10.0	9.7
19	9.7	9.3	8.7	9.1	8.7	20.5	15.5	10.3	9.3	a200	10.0	9.7
20	9.7	9.1	8.7	8.7	8.7	10.3	22	10.3	9.1	a100	9.7	9.3
21	11.2	9.1	8.7	8.7	8.5	9.1	16.7	11.1	9.3	a70	10.0	9.3
22	11.2	9.1	8.7	14.7	8.5	9.1	15.9	12.4	35	a30	10.9	9.3
23	10.6	9.3	8.7	25.5	8.7	178	10.3	10.3	11.5	a15	107	10.3
24	11.2	9.1	8.7	43	35.5	8.9	51	9.7	9.7	a11	20.5	10.6
25	9.7	9.1	8.7	74	12.0	9.1	31	10.0	9.3	9.7	15.1	10.6
26	9.5	9.1	8.7	22	10.0	8.7	22	12.7	9.1	9.5	14.5	10.6
27	9.5	8.9	8.7	12.4	216	9.1	19.1	12.1	8.9	9.3	30.5	9.5
28	9.5	8.9	8.7	10.3	310	132	19.6	10.3	9.1	9.1	19.1	9.3
29	9.5	9.1	8.7	10.3	22	278	16.7	10.0	9.1	8.9	98	9.1
30	9.3	10.6	8.7	11.9	13.9	67	14.7		9.3	8.9	14.1	9.1
31	9.3	10.3	-	10.9	-	25	13.5	-	8.9	-	11.2	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	46	9.3	12.9	20.0	400	1,230
August.....	14.7	8.9	9.81	15.2	304	933
September.....	95	8.5	12.1	18.7	352	1,110
October.....	74	8.3	15.8	24.4	489	1,500
November.....	310	8.5	31.5	48.7	944	2,900
December.....	278	8.7	31.7	49.0	953	3,020
Calendar year 1939.....	495	8.3	24.4	37.8	8,930	27,880
January.....	591	13.5	69.4	107	2,150	6,600
February.....	22.5	9.7	12.0	18.6	348	1,070
March.....	114	8.9	14.0	21.7	433	1,330
April.....	200	8.3	29.4	45.5	680	2,700
May.....	187	9.5	35.1	55.9	1,180	3,620
June.....	11.2	9.1	9.66	15.4	289	917
Fiscal year 1939-40.....	591	8.3	24.0	37.1	8,770	26,930

Peak discharge.- Jan. 7 (10 a.m.) 1,370 m.g.d. (2,120 sec.-ft.); Jan. 8 (3 a.m.) 534 m.g.d. (825 sec.-ft.).

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

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 6½ miles northeast of Waimea. Altitude of gage, 520 feet (by barometer).

Records available.- November 1907 to June 1940.

Average discharge.- 21 years (1918-24, 1925-40), 37.2 million gallons a day (57.6 second-feet).

Extremes.- Maximum discharge during year, 65 million gallons a day (101 second-feet) May 29 (gage height, 3.76 feet); minimum, 3.4 million gallons a day (5.3 second-feet) Dec. 21.

1907-40: Maximum discharge, 71 million gallons a day (110 second-feet) Apr. 25, 1928 (gage height, 4.33 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good except those for periods of no gage-height record, which are poor. Ditch diverts water from Waiahulu Stream and Koale 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 Waialeale River. Flow regulated by head gates. Water used for irrigation in vicinity of Kekaha.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	30	26	30	23	35	43	41	41	36	24.5	36.5	31
2	40	26	28	23	30	35	41	43	34	24.5	53	34
3	46	28	26	23	24	40	41	38.5	31	28.5	53	38.5
4	46	30	36.5	23	27	45	43	41	28.5	26.5	48	34
5	46	32	48	23	30	45	38.5	41	28.5	25.5	36	32
6	48	37	37	23	45	40	38.5	45	26.5	24.5	29.5	35.5
7	48	45	31	42	47	35	43	43	26.5	23.5	29	29.5
8	46	35	29	46	50	29	36	41	28.5	23.5	45	26.5
9	38	28	28	46	48	34	36	41	45	26.5	41	26.5
10	33	28	27	37	45	38	36	41	43	29.5	53	26.5
11	32	32	26	36.5	40	31	36	41	38.5	28.5	38	28.5
12	31	34	26	39.5	45	29	36	36	32	25.5	32	31
13	40	29	25	29	48	29	36	34	29.5	24.5	44	26.5
14	41	43	25	33.5	45	28	36	34	29.5	26.5	41	25.5
15	46	48	26	48	40	27	36	32	28.5	32	38.5	25.5
16	39	37	27	48	35	9.1	32	42	27.5	46	35.5	26.5
17	32	31	30	46	35	1.6	29.5	41	29.5	55	35	27.5
18	31	29	29	43	35	1.7	32	36	29.5	53	32	26.5
19	30	27	26	35	35	1.7	29.5	32	26.5	52	28.5	25.5
20	36	27	25	30	35	1.7	34	32	25.5	53	28.5	26.5
21	46	27	24	33	35	10.9	32	31	26.5	53	28.5	29.5
22	43	32	24	41	35	25.5	31	34	46	50	32	25.5
23	38	31	24	45	40	24.5	32	31	29.5	41	44	38.5
24	34	28	24	47	45	26.5	32	28.5	26.5	32	53	36
25	30	26	24	47	40	26.5	32	28.5	25.5	31	48	46
26	28	25	24	45	45	25.5	32	46	24.5	30	41	53
27	28	25	23	40	50	30	32	38.5	24.5	40	53	36
28	29	25	24	31	52	43	32	31	24.5	32	41	28.5
29	29	37	25	40	50	41	32	29.5	25.5	28.5	54	25.5
30	28	48	24	45	45	38.5	39.5	-	25.5	25.5	46	25.5
31	27	38	-	40	-	38.5	40	-	24.5	-	32	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	45	27	36.7	56.8	1,140	3,500
August.....	46	25	32.0	49.5	1,092	3,040
September.....	48	23	27.5	42.5	826	2,530
October.....	48	23	37.1	57.4	1,150	3,530
November.....	52	24	40.3	62.4	1,210	3,710
December.....	45	1.6	28.2	43.6	874	2,680
Calendar year 1939	52	1.6	34.8	53.8	12,690	38,950
January.....	43	29.5	35.1	54.3	1,090	3,340
February.....	46	28.5	36.9	57.1	1,070	3,290
March.....	46	24.5	29.9	46.3	927	2,640
April.....	55	23.5	33.9	52.5	1,020	3,120
May.....	54	28.5	40.3	62.4	1,250	3,830
June.....	53	25.5	30.8	47.7	924	2,640
Fiscal year 1939-40	55	1.6	34.1	52.8	12,470	36,250

Note.- Discharge for periods of no gage-height record, Oct. 19, 20, Oct. 23 to Dec. 7, computed on basis of records for stations on all nearby streams.

Hanapepe River at Koula, near Eleele

Location.-- Lat. 21°57'20", long. 159°33'15", just downstream from confluence with Manuahi Stream and 4 miles northeast of Eleele. Altitude of gage, 150 feet (by barometer).

Drainage area.-- 18.8 square miles.

Records available.-- May 1917 to January 1921 and December 1926 to June 1940. August 1910 to December 1916 at site half a mile upstream; records not equivalent.

Average discharge.-- 16 years (1917-20, 1927-40), 55.8 million gallons a day (86.3 second-feet).

Extremes.-- Maximum discharge during year, 3,130 million gallons a day (4,840 second-feet) Jan. 7 (gage height, 6.30 feet), from rating curve extended above 2,400 million gallons a day by tests on model of station site; minimum, 6.2 million gallons a day (9.6 second-feet) Oct. 4, 5.

1910-21, 1926-40: Maximum discharge, 5,550 million gallons a day (8,590 second-feet) Mar. 19, 1937 (gage height, 8.59 feet), from rating curve extended above 2,400 million gallons a day by tests on model of station site; minimum, that of Oct. 4, 5, 1939.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.2	7.0	1.3	98
.3	10.2	1.6	148
.6	25.5	2.0	258
1.5	41	2.5	395
1.0	60	3.0	605

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	23.5	11.4	15.3	6.8	16.8	11.4	20.5	9.6	14.6	6.8	29.5	10.2
2	92	9.6	11.8	7.0	26.5	11.0	92	9.6	169	218	21.5	15.9
3	211	27.5	10.2	6.8	62	10.2	25.5	9.6	9.6	15.3	56	15.9
4	103	11.4	19.1	6.5	32	11.0	70	9.2	8.0	8.6	19.4	56
5	40	25.5	55	6.5	129	9.2	50	9.6	8.0	7.6	12.2	32
6	171	17.0	18.8	58	155	8.6	20	44	8.0	7.0	9.2	16.3
7	129	64	36	77	68	8.6	476	47	7.6	7.0	8.0	9.9
8	55	11.4	23.5	246	238	9.2	182	45	45	7.0	8.3	8.6
9	39.5	8.9	15.3	66	121	9.2	56	14.3	58	7.6	51	8.6
10	27.5	13.5	10.6	21.5	320	8.6	29.5	17.9	16.6	7.6	144	11.2
11	26	14.3	9.2	74	155	8.6	24.5	11.4	9.6	7.0	251	11.4
12	52	9.6	9.2	17.4	68	8.9	25.5	17.4	8.6	6.8	48	8.6
13	35	8.6	8.6	29.5	42	13.4	16.3	9.6	8.3	15.4	209	9.3
14	74	149	10.6	50	29	9.2	21	8.6	34	13.1	46	10.6
15	55	30	9.6	42	23	8.9	14.8	8.6	10.6	27	21	9.6
16	39	17.9	9.2	45	18.9	8.6	12.2	15.2	8.0	20.5	13.9	10.2
17	52	12.7	31.5	31.5	16.3	8.3	11.4	19.8	7.6	17.2	11.4	12.2
18	28.5	11.8	8.6	17.4	14.8	21.5	12.7	8.9	7.3	37	9.2	9.2
19	23	20.5	7.6	22	15.3	30.5	11.0	8.6	7.0	268	9.6	8.0
20	79	15.3	7.6	17.9	18.9	9.2	12.2	24	7.0	69	9.2	26
21	113	22	7.3	23	13.1	8.0	9.9	10.2	7.6	30.5	16.0	8.6
22	140	22.5	7.0	44	11.4	8.0	9.9	8.6	7.6	14.8	8.9	14.6
23	47	11.8	7.3	328	15.3	8.0	196	8.0	7.0	9.9	25	11.0
24	29.5	9.2	16.8	289	18.1	8.0	42	8.0	7.0	10.2	13.1	8.9
25	22.5	8.6	7.6	183	11.0	8.0	17.9	8.0	7.0	9.2	19.7	62
26	18.9	8.6	7.0	94	52	8.3	14.3	18.7	7.0	29.5	16.1	42
27	17.9	8.0	7.0	40	18.0	11.1	13.9	8.3	7.0	13.5	14.3	13.5
28	16.3	81	8.0	72	15.6	265	15.8	8.0	7.6	9.9	13.9	10.2
29	13.9	88	8.0	45	47	288	11.8	8.3	7.6	8.9	24.5	10.6
30	13.1	69	6.8	22.5	15.3	53	9.9	-	6.8	8.0	8.6	11.0
31	11.8	23.5	-	35.5	-	32.5	9.6	-	7.0	-	9.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	211	11.8	58.4	90.4	1,810	5,550
August.....	149	8.0	27.1	41.9	842	2,590
September.....	55	6.8	13.7	21.2	410	1,260
October.....	328	6.5	65.3	101	2,020	6,210
November.....	320	11.0	59.6	92.2	1,790	5,480
December.....	288	8.0	29.7	46.0	922	2,830
Calendar year 1939	656	6.5	62.2	96.2	22,710	69,690
January.....	476	9.6	49.5	76.6	1,530	4,710
February.....	47	8.0	15.0	23.2	434	1,350
March.....	58	6.8	12.0	18.6	370	1,140
April.....	268	6.8	23.9	44.7	867	2,660
May.....	251	8.0	43.7	67.6	1,350	4,150
June.....	62	8.0	16.5	25.5	495	1,520
Fiscal year 1939-40	476	6.5	35.1	54.3	12,840	39,480

Peak discharge.-- Oct. 23 (4 p.m.) 1,040 m.g.d. (1,610 sec.-ft.); Jan. 7 (11 p.m.) 3,130 m.g.d. (4,840 sec.-ft.).

Hanapepe ditch at Koula, near Eleele

Location.- Lat. 21°57'10", long. 159°33'00", at Koula at first flume downstream from siphon, 3 miles downstream from intake and 4 miles north of Eleele. Altitude of gage, 490 feet (by barometer).

Records available.- January 1910 to June 1921, March 1927 to June 1940.

Average discharge.- 23 years (1910-20, 1927-40), 25.9 million gallons a day (40.1 second-feet).

Extremes.- Maximum discharge during year, 34 million gallons a day (53 second-feet) May II (gage height, 3.09 feet); minimum, 2.5 million gallons a day (3.9 second-feet) Sept. 24.
1910-21, 1927-40: Maximum discharge, 38.5 million gallons a day (59.6 second-feet) Mar. 19, 1937 (gage height, 3.18 feet); no flow occasionally, when head gates are closed.

Remarks.- Records excellent. Ditch diverts water from Hanapepe River 3 miles above station for irrigation in vicinity of Makaweli.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	31.5	31.5	31.5	23	29	29	22.5	25	27	20	27	27
2	31.5	31.5	31.5	23	29	29	27	25	21	26.5	31.5	31.5
3	31.5	17.2	31.5	23	29	27	27	25	21.5	29	31.5	29
4	31.5	31.5	31.5	23	29	29	29	25	23	25	31.5	31.5
5	31.5	31.5	31.5	23	29	27	29	25	23	23	29	31.5
6	31.5	31.5	31.5	27	29	27	29	31.5	23	21.5	27	29
7	31.5	31.5	31.5	29	29	27	29	31.5	23	21.5	27	27
8	31.5	31.5	31.5	29	29	27	27	31.5	27	21.5	25	27
9	31.5	31.5	31.5	26.5	31.5	27	25.5	29	31.5	21.5	26	25
10	31.5	31.5	31.5	26.5	31.5	25	29	29	29	21.5	31.5	25
11	31.5	31.5	31.5	29	29	25	29	29	27	20	31.5	27
12	31.5	31.5	31.5	29	29	27	29	29	23	20	31.5	23
13	31.5	31.5	29	29	29	27	29	29	25	25.5	31.5	23
14	31.5	31.5	31.5	29	29	25	29	27	29	27	31.5	25
15	31.5	31.5	31.5	29	29	25	27	25	27	25	31.5	25
16	31.5	31.5	31.5	29	29	25	27	27	25	27	29	25
17	31.5	31.5	31.5	29	29	23	27	29	23	29	29	25
18	31.5	31.5	29	29	29	26.5	27	25	23	31.5	27	23
19	31.5	31.5	29	29	29	29	27	25	23	31.5	27	21.5
20	31.5	31.5	29	29	29	27	27	29	21.5	31.5	27	29
21	31.5	31.5	27	29	29	25	25	27	23	31.5	29	25
22	31.5	31.5	27	29	29	25	27	25	21.5	29	25	27
23	29	31.5	27	29	31.5	23	29	25	21.5	27	29	27
24	31.5	31.5	20.5	29	29	25	27	25	21.5	29	29	27
25	31.5	31.5	25	29	29	23	29	23	21.5	27	29	31.5
26	31.5	31.5	23	27	29	23	29	29	21.5	29	29	31.5
27	31.5	31.5	23	27	29	25	27	23	21.5	29	29	29
28	31.5	31.5	25	27	29	29	29	23	23	27	29	27
29	31.5	31.5	23	21	29	29	27	25	21.5	27	31.5	27
30	31.5	31.5	23	27	29	22.5	25	-	21.5	23	27	27
31	31.5	31.5	-	29	-	16.9	25	-	20	-	27	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	31.5	29	31.4	48.6	974	2,990
August.....	31.5	17.2	31.0	48.0	962	2,950
September.....	31.5	20.5	28.8	44.6	864	2,550
October.....	29	21	27.3	42.2	846	2,600
November.....	31.5	29	29.2	45.2	878	2,690
December.....	29	16.9	25.8	59.9	800	2,450
Calendar year 1939	31.5	0	28.2	43.6	10,290	31,570
January.....	29	22.5	27.5	42.5	851	2,510
February.....	31.5	22	26.7	41.5	774	2,370
March.....	31.5	20	23.7	36.7	734	2,250
April.....	31.5	20	26.0	40.2	790	2,390
May.....	31.5	25	28.9	44.7	897	2,750
June.....	31.5	21.5	27.0	41.8	809	2,480
Fiscal year 1939-40	31.5	16.9	27.8	45.0	10,170	31,180

ISLAND OF KAUAI

Kuia Stream near Koloa

Location.- Lat. 21°58'55", long. 159°29'10" } 5.6 miles north of Koloa and 7.3 miles west of Lihue. Altitude of gage, 1,050 feet (by barometer).

Drainage area.- 0.4 square mile.

Records available.- November 1939 to June 1940.

Extremes.- Maximum discharge during period, 126 million gallons a day (195 second-feet) May 13 (gage height, 2.33 feet), from rating curve extended above 7.5 million gallons a day; minimum, 0.67 million gallons a day (1.04 second-feet) Apr. 11.

Remarks.- Records good. No diversions.

Rating tables, Nov. 12, 1939, to June 30, 1940 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used May 3 to June 30)

Nov. 12 to Jan. 7		Jan. 8 to June 30	
0.8	0.68	0.8	0.49
.9	1.34	.9	1.10
1.0	2.4	1.0	2.1
1.1	3.95	1.1	3.75
1.2	6.1	1.2	6.1
1.3	9.0	1.3	9.0
1.4	12.9	1.4	12.9
		1.5	17.8

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1					-	1.21	1.34	0.98	1.20	0.73	3.35	0.92
2					-	1.21	3.45	.98	1.10	1.91	5.7	1.30
3					-	1.21	1.66	.98	1.04	.86	2.1	1.10
4					-	1.14	2.06	1.04	1.04	.86	1.80	1.80
5					-	1.14	1.55	1.10	.98	.80	1.40	1.40
6					-	1.08	1.34	1.40	.98	.80	.98	.98
7					-	1.08	10.9	1.80	.92	.80	.92	.92
8					-	1.14	4.2	3.2	5.0	.80	.92	.86
9					-	1.08	1.57	1.30	2.55	.92	4.2	.92
10					-	1.01	1.20	1.50	1.20	.86	5.2	1.30
11					-	1.08	1.20	1.10	1.04	.80	5.9	1.10
12					2.2	1.08	1.10	2.3	.98	.80	1.90	.92
13					1.66	1.08	.98	1.20	1.31	.86	13.4	.92
14					1.34	1.14	1.21	1.20	1.92	.98	2.6	.92
15					1.27	1.08	.98	1.10	1.40	1.78	1.50	.92
16					1.21	1.08	.92	2.15	.98	2.2	1.10	.98
17					1.21	1.08	.92	1.50	.92	2.5	1.10	.98
18					1.14	2.1	.98	1.20	.86	3.45	1.04	.92
19					1.21	1.94	.98	1.24	.86	10.4	.98	.92
20					1.21	1.14	.92	2.05	.86	3.55	.98	1.20
21					1.14	1.08	.92	1.30	.86	1.80	1.04	.98
22					1.14	1.08	1.80	1.20	.86	1.40	.92	1.30
23					1.21	1.08	6.1	1.20	.86	1.10	1.30	.92
24					1.21	1.08	1.40	1.10	.86	1.44	1.17	.98
25					1.14	1.01	1.04	1.23	.86	1.20	1.70	2.0
26					2.75	1.08	1.04	1.64	.80	1.81	2.45	1.04
27					1.55	2.2	1.04	1.04	.80	1.20	1.40	.86
28					2.75	11.8	1.21	1.04	.98	1.04	1.04	.80
29					2.15	7.2	1.04	1.87	.80	1.04	1.20	.80
30					1.27	1.78	.98	-	.80	.98	.92	.86
31					-	1.34	.98	-	.73	-	.92	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	-	-	-	-	-	-
August.....	-	-	-	-	-	-
September.....	-	-	-	-	-	-
October.....	-	-	-	-	-	-
November 12-30.....	2.75	1.14	1.51	2.34	28.8	98
December.....	11.8	1.01	1.77	2.74	54.8	188
Calendar year.....	-	-	-	-	-	-
January.....	10.9	.92	1.84	2.85	57.0	175
February.....	3.2	.98	1.41	2.18	40.9	126
March.....	5.0	.73	1.17	1.81	36.4	112
April.....	10.4	.73	1.66	2.57	49.7	152
May.....	13.4	.92	2.39	3.70	74.1	227
June.....	2.0	.80	1.06	1.64	31.8	98
The period.....	-	-	-	-	-	1,150

Kamooloa Stream near Koloa

Location.- Lat. 21°59'40", long. 159°28'40", 6.3 miles north of Koloa and 7 miles west of Lihue. Altitude of gage, 1,050 feet (by barometer).

Drainage area.- 1.3 square miles.

Records available.- November 1939 to June 1940.

Extremes.- Maximum discharge during period, 600 million gallons a day (928 second-feet) Jan. 7 (gage height, 4.80 feet), from rating curve extended above 8.8 million gallons a day; minimum, 1.42 million gallons a day (2.20 second-feet) Apr. 1, 11-13.

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

Rating tables, Nov. 18, 1939, to June 30, 1940 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used Nov. 17-26)

Nov. 18 to Apr. 19, May 10 to June 30

Apr. 20 to May 9

0.9	1.42	1.5	12.6	0.9	1.50	1.6	15.3
.9	2.1	1.7	19.7	1.0	2.3	1.8	24
1.0	2.95	2.0	34	1.1	3.4	2.1	40
1.1	4.1	2.3	55	1.2	4.9	2.4	64
1.3	7.5	2.6	83	1.4	9.0		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1					-	2.8	2.85	1.96	2.85	1.56	9.0	2.7
2					-	2.9	13.5	1.96	2.05	9.1	37	5.0
3					-	2.6	3.9	1.90	1.83	2.15	8.9	3.8
4					-	2.45	7.0	1.90	1.83	1.76	6.2	9.4
5					-	2.35	3.8	2.05	1.83	1.62	3.55	5.7
6					-	2.25	2.8	4.9	1.76	1.56	2.65	a4.0
7					-	2.2	52	7.3	1.69	1.56	2.3	a3.0
8					-	2.4	13.5	14.2	18.6	1.56	2.15	a2.4
9					-	2.1	4.3	3.2	10.1	1.62	23	a3.0
10					-	2.05	3.4	3.65	3.1	1.56	22.5	a4.5
11					-	2.1	3.55	2.6	2.35	1.42	29.5	a3.0
12					-	2.2	3.2	4.9	2.1	1.42	6.6	2.6
13					-	2.8	2.7	2.5	4.7	1.97	82	2.45
14					-	2.2	3.1	2.1	7.9	2.45	8.1	2.5
15					-	2.1	2.5	2.05	2.95	4.5	5.1	2.7
16					-	1.90	2.45	6.0	2.35	8.1	4.1	2.5
17					-	1.90	2.35	3.6	2.05	8.3	3.65	2.85
18					2.6	7.4	2.25	2.25	1.96	10.1	3.3	2.35
19					3.05	5.3	2.25	2.1	1.90	53	3.05	2.25
20					2.95	2.25	2.25	4.1	1.90	8.5	2.95	5.2
21					2.45	2.1	2.1	2.25	1.96	3.95	3.4	2.7
22					2.35	2.05	3.55	2.05	1.83	3.1	2.7	3.3
23					2.5	1.96	27	1.96	1.76	2.15	4.6	2.8
24					2.45	1.96	3.5	1.90	1.69	2.55	4.5	2.45
25					2.2	1.90	2.6	1.83	1.62	2.05	6.4	6.6
26					9.9	1.90	2.5	4.6	1.62	2.95	6.1	6.0
27					3.45	3.9	2.35	1.90	1.62	2.55	4.1	3.2
28					7.1	46	2.5	1.76	2.25	1.90	3.3	2.6
29					9.9	32.5	2.1	4.1	1.69	1.95	3.85	2.7
30					3.3	4.5	2.05	-	1.62	1.56	2.7	2.85
31					-	3.3	1.96	-	1.56	-	2.95	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	-	-	-	-	-	-
August.....	-	-	-	-	-	-
September.....	-	-	-	-	-	-
October.....	-	-	-	-	-	-
November 18-30.....	9.9	2.2	4.16	6.44	54.1	166
December.....	46	1.90	5.04	7.80	156	479
Calendar year.....	-	-	-	-	-	-
January.....	52	1.96	6.00	9.28	186	570
February.....	14.2	1.76	3.36	5.20	97.6	299
March.....	13.6	1.56	3.07	4.75	95.0	292
April.....	9.9	1.42	4.95	7.66	149	456
May.....	82	2.15	10.0	15.5	310	952
June.....	9.4	2.25	3.57	6.52	107	329
The period.....	-	-	-	-	-	3,540

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

ISLAND OF KAUAI

South Fork of Waialua River near Lihue

Location.- Lat. 22°02'10", long. 159°22'55", a third of a mile upstream from Waialua Falls and 5 miles north of Lihue. Altitude of gage, 230 feet (by barometer).

Drainage area.- 22.4 square miles.

Records available.- December 1911 to June 1940. December 1911 to November 1918, at site a third of a mile upstream.

Average discharge.- 18 years (1921-24, 1925-40), 70.3 million gallons a day (109 second-feet).

Extremes.- Maximum discharge during year, 16,800 million gallons a day (26,000 second-feet) May 13 (gage height, 9.27 feet), from rating curve extended above 9,000 million gallons a day; minimum, 2.7 million gallons a day (4.2 second-feet) Apr. 30, June 1, 1911-40: 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 Hanalei ditches divert water above station, at altitudes of 600 and 500 feet, respectively, for irrigation in the vicinity of Lihue.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.9	2.8	2.2	61	4.5	1,010
1.0	3.8	2.6	120	5.0	1,560
1.2	6.6	3.0	215	6.5	2,430
1.5	14.5	3.5	400	6.0	3,560
1.8	29	4.0	655		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.2	4.8	3.6	2.8	74	60	34	3.7	3.1	3.3	3.0	11.2
2	51	4.5	3.8	2.9	87	51	27.5	3.5	5.5	168	88	27
3	62	4.8	5.6	2.9	135	44	6.3	3.4	3.1	7.8	47	14.0
4	75	4.5	4.4	2.9	96	23	3.9	3.5	3.1	3.4	36	
5	14.9	5.0	54	2.8	160	39	27	3.7	3.1	3.1	39	11.6
6	102	4.8	4.9	27	231	36	4.0	19.9	3.0	3.0	5.5	7.6
7	78	48	12.3	29.5	123	31	575	4.8	2.9	3.0	3.3	6.1
8	27	4.5	4.8	448	329	26.5	226	51	52	3.0	3.2	5.6
9	37	3.6	4.5	19.6	198	35.5	92	8.3	154	3.1	122	5.0
10	19.8	4.0	3.7	4.8	463	30	61	4.0	14.1	3.65	227	5.8
11	6.1	3.9	3.9	9.4	162	7.7	27.5	7.8	6.0	3.2	352	5.8
12	9.2	3.8	3.6	4.2	127	5.0	37.5	19.9	4.5	3.0	195	5.8
13	17.6	3.7	3.6	3.6	83	4.9	34	10.4	5.3	3.2	3,140	5.2
14	23	184	3.5	5.2	91	4.6	39.5	3.5	101	16.8	441	5.3
15	37.5	7.2	3.5	28.5	83	4.0	12.7	3.2	46	5.7	177	5.2
16	44	4.4	3.5	46	73	3.9	6.0	6.7	33	23	111	5.0
17	87	4.4	19.1	5.5	64	3.9	3.9	24.5	29	22	94	5.6
18	31	4.6	3.9	4.3	49	4.3	3.7	4.4	18.1	78	76	6.6
19	12.9	4.3	3.2	3.7	29.5	26.5	3.7	4.3	17.9	370	65	5.0
20	41	4.5	3.1	4.3	28.5	9.2	3.8	4.0	5.4	156	60	6.1
21	126	4.5	3.0	23	24.5	4.7	3.9	3.9	3.9	82	62	6.1
22	284	4.3	3.0	57	6.9	3.8	4.0	3.5	3.5	33.5	44	5.2
23	85	4.0	3.1	649	5.6	3.8	40	3.2	3.7	11.5	39	6.0
24	36	3.6	3.2	558	5.2	3.5	5.9	3.1	3.5	7.4	49	5.6
25	7.7	3.7	3.2	344	4.9	3.5	4.2	2.9	3.4	6.1	68	8.7
26	5.5	3.6	3.2	211	62	3.5	3.7	2.9	3.2	4.4	50	7.5
27	5.2	3.7	3.0	120	45	3.6	3.6	2.8	3.1	4.3	45	5.0
28	5.2	24.5	3.4	134	69	75	3.6	2.8	3.1	3.5	26	4.0
29	5.3	8.7	3.6	114	122	280	3.5	2.8	3.3	4.2	42	3.8
30	4.6	7.4	3.1	82	86	79	5.5	-	3.3	2.9	26.5	3.9
31	4.9	4.2	-	102	-	46	3.6	-	3.3	-	25	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	284	4.6	43.9	67.9	1,360	4,180
August.....	184	3.6	12.4	19.2	396	1,180
September.....	54	3.0	6.07	9.39	162	559
October.....	649	2.8	65.4	152	3,050	9,370
November.....	463	4.9	104	161	5,110	9,660
December.....	280	3.5	30.8	47.7	953	2,930
Calendar year 1939.....	1,210	2.8	83.4	129	30,460	93,470
January.....	575	3.5	42.2	65.3	1,310	4,010
February.....	51	2.8	7.66	11.9	222	682
March.....	134	2.9	17.0	26.3	526	1,610
April.....	370	2.9	54.4	53.2	1,030	3,160
May.....	3,140	3.0	186	288	5,760	17,660
June.....	32	3.8	7.94	12.3	238	731
Fiscal year 1939-40.....	3,140	2.8	49.5	76.6	18,130	55,620

Peak discharge.- Oct. 23 (6 p.m.) 2,020 m.g.d. (3,130 sec.-ft.); Oct. 24 (6 a.m.) 1,030 m.g.d. (1,590 sec.-ft.); Jan. 7 (1 p.m.) 3,150 m.g.d. (4,870 sec.-ft.); May 13 (4 p.m.) 16,800 m.g.d. (26,000 sec.-ft.).

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

Location.— Lat. 22°03'50", long. 159°26'20", 1½ miles upstream from intake of Kanaha ditch and 7½ miles northwest of Lihue. Altitude of gage, 650 feet (from topographic map).

Drainage area.— 6.6 square miles.

Records available.— August 1910 to June 1940. December 1910 to September 1914, at site 300 feet downstream from confluence of main and east branches; records not equivalent.

Average discharge.— 19 years (1921-40), 52.6 million gallons a day (81.4 second-feet).

Extremes.— Maximum discharge during year, 2,000 million gallons a day (3,090 second-feet) Jan. 7 (gage height, 6.57 feet), from rating curve extended above 600 million gallons a day and on basis of slope-area determination of 2,250 million gallons a day; minimum, 1.20 million gallons a day (1.36 second-feet) Feb. 1. 1910-40: Maximum discharge, 3,720 million gallons a day (5,760 second-feet) Mar. 19, 1937 (gage height, 8.87 feet); minimum, 0.75 million gallons a day (1.16 second-feet) Sept. 3.

Remarks.— Records good. Since 1925 flow of Hanalei tunnel has been discharged into river, and North Wailua and Stable Storm ditches have diverted water above station for irrigation in vicinity of Lihue.

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Aug. 14				Aug. 15 to June 30			
-0.2	S.8	1.0	64	-0.8	1.20	0	16.5
0	13.7	1.5	117	-.7	1.90	.3	28.5
.3	24	2.0	195	-.6	3.0	.6	44
.4	28			-.4	6.1	1.0	72
				-.2	10.7	1.5	126

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	34.5	29	22.5	9.2	41	57	30	3.8	4.7	2.3	66	32
2	65	23.5	16.2	9.1	62	48	43	4.0	3.7	167	122	50
3	111	26.5	16.2	9.0	65	44	28	3.7	3.55	37.5	59	39.5
4	70	12.4	74	9.0	44	70	49	4.3	3.55	10.2	56	94
5	43	25.5	77	9.0	96	44	35	25	3.55	1.76	41	58
6	95	19.1	49	61	106	36.5	26	53	3.4	1.55	36	36.5
7	101	63	78	67	76	38.5	365	37.5	3.4	1.48	33.5	29.5
8	52	27.5	45	261	195	38.5	102	73	146	1.41	33	27.5
9	45	16.7	38.5	91	151	41	50	35.5	111	1.41	164	28
10	40	18.1	33.5	49	251	33.5	33.5	35.5	52	1.48	219	18.0
11	38	19.3	33.5	71	140	33.5	33.5	28	36	1.41	181	14.7
12	69	13.4	21	38.5	108	41	32	42	32	1.48	91	10.2
13	40	12.7	15.6	50	77	61	30	26.5	60	9.0	415	4.2
14	89	120	17.6	64	60	36	32	25	79	24	115	2.8
15	49	42	15.6	76	54	33	28	38	38.5	46	72	2.45
16	60	29.5	22	70	47	31.5	27	94	32.5	115	57	6.4
17	88	20	30	55	44	30	26	48	29.6	124	47	8.7
18	46	18.6	14.1	41	41	63	26	29	27.5	180	41	2.9
19	38	38	13.2	41	41	51	16.6	26.5	26.5	226	33.5	2.45
20	87	36	12.7	38.5	44	31.5	9.0	53	26	111	32.5	6.4
21	a106	56	12.4	54	36	28.5	10.9	32	26	76	40	2.45
22	a153	44	12.1	45	44	27.5	6.9	27.5	30	54	31	10.9
23	a92	32	12.1	213	77	26.5	54	25.5	25	41	47	4.4
24	a54	19.8	13.5	208	50	29	14.2	24	24	35.5	43	5.7
25	a46	14.1	10.7	165	38.5	26	8.2	23.5	23	36	55	44
26	a43	15.3	9.4	99	111	22.5	9.3	25	23	75	49	49
27	a40	20	9.4	68	185	15.7	7.8	16.8	23	44	42	31
28	a37.5	84	12.2	58	145	74	6.9	4.9	15.6	36	37	28.5
29	a36	68	9.7	64	73	125	5.9	5.9	40	32	49	28
30	a35	51	9.4	54	76	41	5.2	-	3.1	30	30	14.0
31	a33	36	-	71	-	32.5	5.1	-	3.7	-	30.5	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	153	33	62.2	96.2	1,930	5,920
August	120	12.4	34.0	52.6	1,050	3,230
September	78	9.4	25.1	38.8	754	2,310
October	261	9.0	72.2	112	2,240	6,870
November	261	36	96.2	133	2,560	7,930
December	125	15.7	42.3	65.4	1,310	4,030
Calendar year 1939	418	9.0	62.9	97.3	22,990	70,510
January	365	5.1	37.4	57.9	1,160	3,560
February	54	3.7	30.0	46.4	869	2,670
March	226	3.1	30.9	47.8	958	2,940
April	226	1.41	50.9	75.8	1,530	4,630
May	415	30	77.5	120	2,400	7,370
June	94	2.45	22.8	35.3	684	2,100
Fiscal year 1939-40	415	1.41	47.7	75.8	17,480	53,610

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

Hanalei tunnel outlet near Lihue

Location.-- Weir control, lat. 22°05'10", long. 159°28'15", at end of Hanalei tunnel, 24 miles downstream from intake on Kaapoko Stream and 94 miles northwest of Lihue. Altitude of gage, 1,210 feet (by Lihue Plantation levels).

Records available.-- July 1932 to June 1940.

Extremes.-- Maximum discharge during year, 68 million gallons a day (105 second-feet) May 13 (gage height, 1.67 feet); minimum, 0.36 million gallons a day (0.57 second-foot) Feb. 1.

1932-40: Maximum discharge, 78 million gallons a day (121 second-feet) Mar. 19, 1937, Apr. 27, 1939 (gage height, 1.83 feet); no flow occasionally, when water was diverted around station.

Remarks.-- Records excellent. 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	26	22	22	18.0	24	27.5	20.5	12.3	17.6	16.6	42	20.5
2	39	21	21	18.0	31	25.5	22.5	16.0	16.8	49	53	27.5
3	50	26.5	21.5	18.0	33.5	23.5	16.7	16.4	16.8	26.5	47	24
4	39	21.5	44	18.0	25.5	35.5	26.5	17.8	16.8	21.5	32	38
5	28.5	33	37	18.0	40	24	20.5	30	16.8	20.5	25.5	27
6	46	26.5	33.5	35	44	22.5	18.7	39	16.4	18.7	23	21
7	44	31.5	36	34.5	37	21.5	50	34.5	15.8	18.0	22	19.1
8	30.5	22	29	55	48	25	39.5	41	35	17.8	21.5	18.0
9	27	21.5	24	42	45	26.5	26.5	23.5	50	17.6	34.5	18.4
10	27.5	26	23	29	50	21.5	23	26.5	33	18.0	54	19.1
11	27	27	22.5	35	43	21.5	21.5	21	23.5	17.2	52	19.9
12	35	21.5	21.5	24	43	26	20.5	27	20.5	17.8	39.5	17.6
13	26.5	20.5	21.5	31	33	30	19.9	31	29	50	50	17.0
14	46	43	23	39	27.5	22	21.5	19.1	35.5	39	37.5	18.4
15	30.5	27.5	21.5	43	25.5	20.5	19.7	28	23	25	27	17.2
16	34	26.5	26.5	41	23.5	19.9	19.1	44	20.5	50	23.5	23.5
17	42	23.5	26	33.5	22.5	19.9	18.4	28.5	19.5	53	21	23
18	26	22.5	20.5	25.5	21.5	33	18.0	21	18.7	58	19.9	17.8
19	26	30.5	19.5	27	22.5	28.5	18.4	19.9	18.4	58	19.5	16.8
20	43	26	19.5	24.5	23.5	21	18.4	32.5	18.0	52	18.9	22
21	48	35	19.1	30	20.5	19.7	18.0	23	18.7	38	24	17.2
22	50	27	18.7	25.5	22	19.1	20	19.9	21	33	18.4	24
23	40	22	19.1	46	33	19.1	30	18.7	17.6	26.5	26	21.5
24	31.5	21	20.5	46	28	20.5	18.7	18.0	17.2	24.5	26	23.5
25	27	20.5	19.5	45	23.5	18.7	17.8	18.0	17.2	23.5	27	39
26	25.5	21	18.7	38.5	41	18.4	18.4	18.8	16.8	36.5	27	29
27	26	23.5	18.4	28.5	39	19.5	18.0	17.6	16.4	27	25	20.5
28	24	42	19.1	36.5	48	34.5	17.8	17.6	23.5	23.5	23.5	19.7
29	23	39	18.4	29	36	42	17.6	17.6	19.5	21	29.5	19.7
30	23	30.5	18.0	28.5	35.5	23	17.2	-	17.6	20.5	19.5	21
31	23.5	24	-	34.5	-	20.5	17.2	-	17.6	-	19.9	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	50	23	33.5	51.8	1,040	3,180
August.....	43	20.5	26.6	41.2	826	2,530
September.....	44	18.0	23.4	36.2	703	2,160
October.....	55	18.0	32.2	49.8	997	3,060
November.....	50	20.5	33.2	51.4	995	3,060
December.....	42	18.4	24.2	37.4	750	2,300
Calendar year 1939	58	.36	29.1	45.0	10,620	32,550
January.....	50	17.2	21.7	33.6	672	2,060
February.....	44	12.3	23.7	36.7	667	2,110
March.....	50	15.8	21.5	33.3	667	2,060
April.....	58	16.6	29.9	46.3	897	2,750
May.....	54	18.4	30.0	46.4	929	2,850
June.....	39	16.8	22.0	34.0	661	2,030
Fiscal year 1939-40	58	12.3	26.8	41.5	9,820	30,130

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. Datum of gage is 1,105.45 feet above mean sea level (Lihue Plantation Co. levels).

Records available.-- July 1932 to June 1940. Records from 1926 to June 1932 collected by Lihue Plantation Co.

Extremes.-- Maximum discharge during year, 54 million gallons a day (84 second-feet) Apr. 16 (gage height, 1.68 feet); no flow Jan. 23, when water was shut out of ditch. 1932-40: 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	14.0	13.6	14.9	11.3	14.8	12.1	12.6	11.0	13.6	10.7	20	15.2
2	17.5	13.3	13.8	11.5	17.4	12.0	13.5	11.0	11.4	24	24	16.2
3	14.2	16.3	14.0	11.4	16.1	11.8	13.0	11.0	11.0	17.1	25	15.5
4	10.4	13.6	23.5	11.4	16.3	12.7	14.6	11.5	11.0	14.3	23	14.8
5	11.8	16.8	20	11.5	19.0	11.8	12.7	16.2	10.9	12.8	13.6	14.6
6	12.1	15.6	18.9	23	19.6	11.7	13.3	25	10.6	12.1	15.7	14.6
7	11.5	18.6	22.5	28	18.0	11.7	14.0	20.5	10.6	11.8	15.2	14.3
8	11.2	14.0	19.8	25	20	11.7	12.0	21.5	17.6	11.5	15.8	13.2
9	11.8	13.3	15.7	20	18.8	11.5	12.1	17.0	22.5	13.0	13.3	13.3
10	12.1	14.7	14.5	17.7	18.4	11.5	14.3	17.8	15.2	11.8	24.5	14.2
11	12.0	15.5	14.3	19.6	14.5	11.5	14.4	14.0	13.0	11.0	16.3	14.8
12	11.8	13.0	13.6	15.5	13.8	12.0	13.6	16.2	12.2	12.7	12.0	12.9
13	12.4	12.7	13.3	17.1	12.9	12.6	12.9	13.3	14.8	23.5	11.4	12.3
14	13.3	16.1	16.9	21	12.6	11.5	14.9	12.4	13.5	28	10.0	14.2
15	11.8	15.2	13.8	21.5	12.5	11.6	12.4	13.6	12.4	16.1	9.6	12.9
16	12.7	15.5	18.2	21	12.5	11.4	12.1	26	12.9	27.5	10.2	17.2
17	13.3	14.8	17.7	18.6	12.4	11.4	12.0	19.3	12.6	14.8	12.1	15.3
18	12.1	14.2	13.0	15.5	12.7	15.8	12.0	14.8	12.1	13.0	14.0	13.3
19	12.1	17.7	12.6	17.3	14.3	16.2	12.4	13.5	11.8	9.9	14.2	12.5
20	12.1	16.5	12.1	16.7	14.6	13.2	12.4	20	11.5	14.3	13.8	15.0
21	11.5	19.3	12.1	18.0	13.2	12.5	11.5	14.0	11.5	14.9	14.9	12.3
22	11.5	16.2	11.8	14.0	13.6	12.3	12.5	12.9	11.5	19.1	13.0	20
23	11.3	14.0	12.3	9.8	16.3	12.1	10.6	12.3	11.2	16.8	14.0	15.4
24	12.0	13.3	14.8	8.8	14.9	11.9	12.2	12.0	11.0	16.1	17.3	17.1
25	12.1	13.3	12.6	9.1	14.3	11.6	11.8	11.8	11.0	15.4	15.8	26
26	12.6	14.3	11.8	8.8	16.8	11.4	12.4	14.9	11.0	16.7	13.5	20
27	15.5	14.2	11.5	9.2	16.3	14.7	11.3	11.5	10.7	16.4	14.9	15.5
28	14.9	23.5	11.8	9.1	16.5	20.5	12.4	11.4	12.4	16.5	15.4	14.3
29	14.2	22	11.5	7.5	14.9	13.0	11.5	13.2	11.4	15.5	15.7	14.9
30	14.2	20.5	11.5	14.4	11.3	11.8	11.3	-	11.2	13.5	13.5	15.6
31	15.2	16.7	-	16.8	-	12.4	11.0	-	11.2	-	14.0	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	17.5	10.4	12.7	19.6	395	1,210
August.....	23.5	12.7	15.8	24.4	490	1,500
September.....	23.5	11.5	14.8	22.9	445	1,370
October.....	23	7.6	15.5	24.0	480	1,470
November.....	20	11.3	15.4	23.8	461	1,420
December.....	20.5	11.4	12.6	19.5	390	1,200
Calendar year 1939	28	4.9	13.3	20.6	4,660	14,910
January.....	14.9	10.6	12.6	19.5	390	1,200
February.....	26	11.0	15.2	23.5	440	1,350
March.....	22.5	10.6	12.4	19.2	385	1,190
April.....	27.5	9.9	15.7	24.3	470	1,440
May.....	25	9.6	15.7	24.3	486	1,490
June.....	26	12.3	15.3	23.7	460	1,410
Fiscal year 1939-40	28	7.5	14.5	22.4	5,290	16,240

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 1940. Records for April 1931 to December 1936 collected by Lihue Plantation Co. from staff gage at site 1 mile downstream.

Extremes.- Maximum discharge during year, 66 million gallons a day (102 second-feet) Apr. 2 (gage height, 2.13 feet); no flow at times, when water was shut out of ditch.
1936-40: Maximum discharge, that of Apr. 2, 1940; no flow at times, when water was shut out of ditch.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0	10.4	14.4	0.02	0.07	0.07	13.5	19.6	19.6	0.07	0
2	0	5.0	14.2	14.2	.07	.07	.12	16.7	18.2	11.9	.12	0
3	.07	13.9	14.2	14.4	.07	.07	.12	16.7	17.9	.02	.12	0
4	.07	16.7	11.5	14.2	.02	.07	.12	17.3	17.6	20	.12	.02
5	.07	19.9	.22	14.2	.07	.07	.12	19.9	17.6	26	.12	.02
6	.07	18.8	.22	10.9	.07	.07	.12	17.1	17.3	22	.12	.02
7	.07	5.3	.18	.02	.07	.07	.18	15.6	17.0	22	.12	0
8	.07	.12	.04	.02	.07	.07	.02	7.3	9.6	20.5	.12	0
9	.36	11.9	0	.02	.02	.07	.02	.69	.12	20.5	13.2	0
10	.12	15.6	0	1.09	.07	.07	.02	.07	.07	22	4.1	11.6
11	.07	15.5	.02	.02	.07	.07	.02	.07	.02	20	.31	14.7
12	.12	13.9	10.4	0	.07	.07	0	.07	0	20.5	.18	15.3
13	.07	13.7	14.7	0	.02	.12	0	.07	0	30.5	1.28	19.9
14	.07	4.9	15.0	0	.02	.12	0	.02	0	34	.22	22
15	.02	2.95	14.7	0	.02	.07	0	0	0	28	.18	20.5
16	.07	10.1	15.3	0	.02	.03	0	0	0	6.8	.12	25
17	0	13.9	15.9	0	.02	0	0	0	0	.07	.12	25
18	0	13.7	14.4	.02	.02	.33	0	0	0	.07	.12	22
19	0	14.4	14.2	.02	.02	.07	8.9	0	0	.07	2.85	20.5
20	0	4.9	13.9	.02	.02	.01	16.2	0	0	.02	1.70	23.5
21	0	.18	13.7	.02	.02	0	17.3	0	0	.02	.18	20
22	0	.18	13.7	.02	.02	0	17.3	0	0	.02	.07	25
23	0	.18	13.7	.12	.02	.15	15.5	0	0	.02	.12	25.5
24	0	10.8	13.9	.12	.02	0	13.7	0	0	.02	.12	25
25	0	14.7	15.0	.12	.02	0	15.6	0	0	.07	.07	15.8
26	0	14.7	14.7	.07	.07	3.05	17.6	0	0	.07	.07	.12
27	0	14.9	14.7	.02	.18	11.7	17.3	5.9	0	.07	.07	.12
28	0	9.1	15.6	.02	.07	5.4	16.7	17.3	15.8	.02	.02	.12
29	0	.12	14.7	.02	.02	.12	17.0	18.8	22	.02	.02	8.6
30	0	.07	14.7	.02	.02	.07	17.0	-	19.6	.02	0	15.0
31	0	.02	-	.02	-	.07	16.7	-	19.9	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	0.35	0	0.042	0.065	1.31	4.0
August.....	19.9	0	9.03	14.0	280	869
September.....	15.9	0	10.8	16.7	324	993
October.....	14.4	0	2.71	4.19	84.1	258
November.....	.18	.02	.044	.068	1.31	4.0
December.....	11.7	0	.715	1.11	22.2	68
Calendar year 1939	19.9	0	1.98	3.06	722	2,210
January.....	18.5	0	6.80	10.5	211	647
February.....	19.9	0	5.76	8.91	167	513
March.....	22	0	6.35	10.6	212	652
April.....	34	.02	10.8	16.7	324	994
May.....	13.2	0	.840	1.30	26.0	80
June.....	26	0	11.8	18.3	353	1,080
Fiscal year 1939-40	34	0	5.48	8.48	2,010	6,160

Kanahe ditch near Lihue

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

Records available.- August 1910 to June 1940.

Average discharge.- 20 years (1916-22, 1926-40), 7.56 million gallons a day (11.7 second-feet).

Extremes.- Maximum discharge during year, 10.9 million gallons a day (16.9 second-feet)

June 25 (gage height, 0.47 foot); no flow Aug. 8, when intake gate was closed.

1910-40: Maximum discharge recorded, 45 million gallons a day (70 second-feet)

Dec. 24, 1927 (gage height, 3.22 feet, site and datum then in use); no flow occasionally, when water was shut out of ditch.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.16	a0.55	5.9	5.3	0.94	2.4	1.98	3.0	2.8	1.40	5.3	5.3
2	2.5	a.96	5.6	5.1	1.78	1.78	1.98	3.05	1.59	5.1	5.1	5.3
3	3.7	a2.0	5.6	5.6	2.2	1.59	1.98	2.8	1.58	6.2	5.3	5.3
4	3.3	a1.5	5.6	5.6	1.98	1.40	1.78	3.3	1.58	2.35	5.3	5.6
5	1.98	a2.0	5.6	5.6	2.2	1.40	2.2	4.0	1.58	1.09	5.1	5.6
6	3.65	a2.0	5.6	6.2	1.98	1.40	2.8	5.9	1.58	.9	5.3	5.9
7	4.3	a.60	5.9	6.2	1.58	1.78	2.6	5.9	1.58	1.09	5.1	5.9
8	2.6	a0	5.6	6.2	1.58	2.6	2.9	5.9	3.2	1.09	5.3	5.9
9	1.98	a1.08	5.9	5.9	1.40	1.78	6.2	5.6	2.2	1.09	5.1	6.2
10	1.78	a1.97	6.2	5.9	1.40	3.05	6.1	4.3	3.3	1.09	5.1	6.2
11	1.78	2.8	5.9	6.5	1.40	6.5	6.2	4.0	3.3	.80	3.4	6.2
12	3.05	2.6	5.9	6.2	1.24	6.5	6.5	4.8	3.3	.80	3.8	6.2
13	1.98	4.8	5.9	6.2	1.24	6.2	6.5	6.2	2.4	1.98	2.2	3.66
14	3.65	5.9	6.2	6.2	1.09	6.2	6.5	6.2	1.24	3.45	.94	2.6
15	2.4	6.2	5.9	6.2	1.78	6.5	6.5	6.5	1.98	2.5	1.58	1.98
16	2.5	6.2	6.2	5.9	2.2	6.5	6.5	6.5	1.98	2.4	1.58	3.3
17	3.5	5.6	6.2	5.6	1.98	6.5	6.2	6.2	1.78	1.58	1.58	3.5
18	1.98	5.3	6.2	5.9	1.58	6.5	6.2	6.2	1.40	1.58	1.40	1.98
19	1.58	4.8	6.2	6.2	2.6	5.9	5.3	6.5	1.40	1.78	1.24	1.58
20	3.5	4.5	6.2	6.2	5.6	6.2	5.1	6.5	3.0	1.58	1.24	2.85
21	4.3	4.8	5.9	2.7	3.55	6.2	5.1	6.5	6.2	1.58	1.24	1.58
22	4.0	4.5	6.2	2.6	2.2	6.5	5.3	6.2	6.2	1.58	1.24	3.4
23	2.8	5.1	6.2	2.1	2.4	6.5	6.2	5.9	6.2	1.98	3.85	2.3
24	2.6	5.3	6.2	1.24	2.4	5.9	5.9	6.2	6.2	2.2	1.58	3.7
25	2.4	5.3	5.3	1.58	2.2	6.5	5.6	6.2	6.2	1.98	1.58	6.5
26	1.78	5.3	5.6	1.58	2.85	6.5	5.9	6.2	6.2	1.78	1.58	5.6
27	1.58	4.8	5.8	1.98	6.2	5.6	5.9	5.6	6.0	1.58	1.58	5.6
28	1.24	5.3	5.9	2.4	4.8	5.3	5.6	3.05	6.1	1.58	1.40	5.6
29	.80	5.3	5.6	2.2	2.4	2.4	4.8	2.2	2.6	1.4	1.40	5.6
30	.80	5.3	5.3	1.78	2.4	2.2	4.3	-	1.98	4.6	1.58	5.6
31	.80	5.3	-	1.58	-	2.2	4.0	-	2.4	-	2.75	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	4.3	0.80	2.45	3.79	76.0	233
August.....	6.2	0	3.80	5.88	118	361
September.....	6.2	5.3	5.88	9.10	176	541
October.....	6.5	1.24	4.53	7.01	140	431
November.....	6.2	.94	2.30	3.56	69.0	212
December.....	6.5	1.40	4.47	6.92	158	425
Calendar year 1939	6.5	0	3.32	5.14	1,210	3,720
January.....	6.5	1.78	4.86	7.52	151	462
February.....	6.5	2.2	5.22	8.08	151	466
March.....	6.2	1.24	3.16	4.89	98.0	301
April.....	6.2	.80	2.04	3.16	61.2	188
May.....	5.3	.94	2.95	4.53	90.7	278
June.....	6.5	1.58	4.59	7.09	137	421
Fiscal year 1939-40	6.5	0	3.64	5.94	1,410	4,320

a Faulty gage-height record; discharge computed on basis of knowledge of ditch regulations.

Wailua ditch near Kapaa

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

Records available.- November 1936 to June 1940. 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, 45 million gallons a day (70 second-feet) Feb. 6 (gage height, 3.72 feet); no flow May 15 to June 4, 1936-40: Maximum discharge, 46 million gallons a day (71 second-feet) Oct. 6, 1938 (gage height, 3.96 feet); no flow May 15 to June 4.

Remarks.- Records excellent. Ditch diverts water from North Fork of Wailua River to reservoir 2,000 feet above station and thence to fields for irrigation of sugarcane. Flow regulated by gates at reservoir.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	33.5	36	37.5	12.8	0.1	5.3	8.0	33	30.5	16.3	13.3	0
2	30.5	36	36	12.8	.1	5.3	19.6	34.5	17.5	21	13.0	0
3	25.5	36	33.5	12.2	.2	5.3	25	25	8.0	21	13.0	0
4	11.0	34.5	33.5	12.2	.2	5.2	25	17.2	17.5	21	9.1	2.4
5	21	26	34.5	12.2	.3	5.2	29	24.5	29	21	7.8	10.2
6	25.5	13.9	33.5	15.8	4.6	5.2	25	34.5	31.5	15.8	13.0	10.2
7	34.5	25.5	34.5	26	4.1	5.2	8.8	34.5	30.5	10.2	13.6	10.2
8	26	33.5	37.5	25.5	2.0	5.5	5.5	25	19.1	17.6	13.6	10.2
9	19.8	33.5	29	36.5	2.0	5.4	8.0	14.2	8.6	22.5	13.6	10.2
10	36	26.5	19.9	26	2.0	5.4	7.5	14.5	5.6	21	13.6	24.5
11	36	30.5	34.5	20	1.9	10.8	7.5	14.2	5.6	21	9.6	31.5
12	36	29	36	25	2.0	10.8	7.5	22	9.6	15.3	6.9	18.0
13	36	24	33.5	24.5	1.9	10.8	7.5	25.5	10.2	9.1	6.7	11.3
14	36	36	30.5	8.8	1.9	10.8	10.2	30.5	9.6	9.6	.2	11.3
15	25.5	36	32	13.0	5.4	22.5	16.0	36.5	9.6	21	0	13.6
16	12.6	36	25	18.9	4.3	21	24.5	22	7.5	23.5	0	18.5
17	33.5	32	20	13.4	4.0	10.8	29	9.1	7.0	17.2	0	17.2
18	34.5	30.5	33.5	19.5	11.3	16.1	29	14.3	7.0	16.0	0	21
19	32	21.5	32	23	5.8	23.5	29	27.5	7.5	13.0	0	22.5
20	27.5	12.0	33.5	14.6	31.5	23.5	25	27.5	7.5	9.1	0	21
21	29	33.5	33.5	12.1	21	23.5	18.5	27.5	7.5	5.6	0	20
22	16.5	36	32	9.2	17.2	23.5	25	30.5	7.5	7.4	0	18.5
23	9.1	36	27.5	8.2	17.2	14.7	29	31.5	8.6	6.3	0	14.0
24	15.0	36	26.5	7.1	23.5	10.8	29	23.5	9.6	6.3	0	21
25	32	34.5	24	7.1	19.7	10.8	29	10.2	9.6	6.3	0	15.4
26	32	33.5	15.7	5.9	11.3	18.5	27.5	14.8	14.7	6.3	0	13.0
27	34.5	32	15.1	5.9	14.5	14.2	19.1	22.5	22.5	6.3	0	18.0
28	34.5	33.5	13.9	6.0	8.0	7.5	10.2	26.5	16.4	7.8	0	17.2
29	25.5	36	14.5	6.0	5.3	6.4	21	31.5	10.8	13.0	0	17.2
30	14.3	34.5	13.4	1.6	5.4	6.4	25	-	10.8	13.6	0	17.2
31	34.5	37.5	-	.7	-	6.3	27	-	7.5	-	0	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	36	9.1	27.3	42.2	846	2,600
August.....	37.5	12.0	31.4	48.6	972	2,980
September.....	37.5	13.4	28.6	44.3	859	2,540
October.....	36.5	.1	14.2	22.0	441	1,350
November.....	37.5	.1	7.76	12.0	233	714
December.....	23.5	5.2	11.5	17.8	357	1,100
Calendar year 1939	37.5	.1	16.9	26.1	6,160	18,900
January.....	29	5.5	19.6	30.3	607	1,860
February.....	35.5	9.1	24.4	37.8	708	2,170
March.....	31.5	7.0	15.2	20.4	430	1,260
April.....	25.5	6.3	14.1	21.6	424	1,300
May.....	13.6	0	4.74	7.33	147	451
June.....	31.5	0	14.4	22.3	433	1,330
Fiscal year 1939-40	38.5	0	17.6	27.2	6,440	19,760

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 of gage, 500 feet (by barometer).

Drainage area.- 6.2 square miles.

Records available.- July 1912 to June 1940.

Average discharge.- 20 years (1920-40), 31.3 million gallons a day (48.4 second-feet).

Extremes.- Maximum discharge during year, 1,120 million gallons a day (1,730 second-feet) May 13 (gage height, 7.30 feet), from rating curve extended above 270 million gallons a day; minimum, 8.4 million gallons a day (13.0 second-feet) Mar. 7, 1912-40; 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, 1928.

Remarks.- Records good. No diversions above station.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used May 13 to June 30)

1.0	8.0	1.6	29	2.6	112
1.1	10.2	1.8	41	3.0	153
1.2	13.0	2.0	55	3.5	215
1.4	20	2.3	82	4.5	351

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.5	15.0	11.1	9.0	18.5	35.5	10.8	9.6	9.8	10.2	32.6	17.3
2	21	14.0	11.3	8.9	19.6	29.5	10.8	9.7	9.5	24.5	69	23
3	35	17.9	11.3	9.0	20.5	26.5	11.0	9.5	9.5	12.2	53	18.9
4	23	14.0	39	9.0	17.5	37	10.8	9.7	9.1	11.0	28	28.6
5	18.6	17.1	26.5	8.9	37.5	24	10.9	10.5	9.0	10.8	20	22
6	34	17.9	14.7	30	37.5	21.5	10.5	12.7	8.9	10.2	17.5	18.2
7	30	18.2	17.4	25.5	29.5	19.6	130	11.0	8.7	10.0	16.1	16.4
8	21.5	13.3	14.7	43	97	18.9	37.5	26	122	9.8	15.5	15.4
9	18.6	12.7	13.3	19.8	72	18.3	20	15.0	136	9.5	28.5	15.0
10	18.6	14.4	12.2	15.3	69	16.4	16.8	14.0	30.5	9.5	46	16.4
11	16.8	14.7	11.9	18.7	61	15.7	15.4	11.5	20.5	9.3	64	16.1
12	29.5	12.4	11.3	12.2	52	17.1	14.4	12.4	17.3	9.1	35.5	14.4
13	19.6	11.9	10.9	12.8	38	18.9	13.7	10.8	21.5	10.5	348	13.7
14	35.5	31.5	11.0	19.2	30	15.7	13.3	10.0	35	19.8	109	14.4
15	24	14.7	10.8	24	27	14.7	12.4	10.7	20	11.9	55	13.3
16	24.5	13.3	11.0	27.5	23.5	13.9	12.2	23.5	16.4	45	41	14.4
17	30.5	12.4	14.0	21.5	22	13.3	11.9	15.4	14.7	42	34	16.1
18	21.5	12.4	10.8	14.7	19.8	23	11.6	11.3	13.7	78	29	13.7
19	18.9	18.5	10.2	13.8	19.3	24	11.0	10.5	13.0	97	26	12.7
20	26.5	14.7	10.0	15.0	19.6	15.0	10.9	19.8	12.7	49	24	14.4
21	34	15.2	9.7	15.0	17.5	13.7	11.0	12.7	12.3	36	23	12.7
22	60	15.7	9.7	14.8	16.8	12.7	11.0	11.9	13.7	27	20.5	16.1
23	27.5	12.2	9.5	107	36	12.4	11.3	10.8	11.9	21.5	24.5	15.4
24	22.5	11.6	10.2	64	28	13.0	11.0	10.5	11.6	19.3	21.5	17.5
25	19.3	11.3	9.7	73	18.0	11.9	10.8	10.0	11.3	17.1	25	19.6
26	16.2	11.3	9.5	37.5	67	11.6	10.5	9.8	11.0	22	26	15.7
27	18.2	11.0	9.3	27	168	11.3	10.5	9.5	10.8	17.1	21.5	13.7
28	17.1	19.0	9.7	29.5	175	11.4	10.2	9.5	11.9	15.4	19.6	13.3
29	15.7	17.1	9.7	24.5	66	15.0	10.2	9.5	11.6	14.4	26.5	13.3
30	15.4	12.7	9.1	22	55	11.9	10.0	10.8	13.7	15.7	18.2	13.0
31	15.0	11.3	-	25	-	11.0	9.8	-	10.5	-	17.1	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	60	15.0	24.1	37.3	747	2,290
August.....	31.5	11.0	14.8	22.9	459	1,410
September.....	39	9.1	12.6	19.5	380	1,180
October.....	107	8.9	25.6	39.6	795	2,430
November.....	175	16.8	45.9	71.0	1,390	4,230
December.....	37	11.0	17.9	27.7	554	1,700
Calendar year 1939.....	184	8.9	28.3	43.8	10,330	31,670
January.....	130	9.8	16.5	25.5	512	1,570
February.....	26	9.5	12.3	19.0	358	1,000
March.....	136	8.7	21.5	33.3	665	2,040
April.....	97	9.1	23.1	35.7	693	2,080
May.....	348	15.5	42.5	66.2	1,330	4,080
June.....	28.5	12.7	16.2	25.1	485	1,490
Fiscal year 1939-40.....	348	8.7	22.8	35.3	8,360	25,630

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 of gage, 385 feet (by barometer).

Drainage area.- 3.3 square miles.

Records available.- December 1936 to June 1940. July 1910 to May 1915 at site half a mile upstream, published as Kapaa River at Kapaa, June 1915 to April 1920 at site three-quarters of a mile upstream, published as Kapaa River near Kealia.

Extremes.- Maximum discharge during year, 1,840 million gallons a day (2,850 second-feet) May 13 (gage height, 3.50 feet), from rating curve extended above 330 million gallons a day; no flow at times, when low flow is diverted into Kapahi ditch.

1936-40: Maximum discharge, 3,390 million gallons a day (5,250 second-feet)

Mar. 19, 1937 (gage height, 4.50 feet), from rating curve extended above 330 million gallons a day; no flow at times, when low flow is diverted into Kapahi ditch.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

-0.05	0	0.4	15.2	1.3	166
.0	.2	.5	21	1.6	274
.1	.9	.7	42	2.0	470
.2	3.2	.9	70	2.5	810
.3	7.2	1.1	111		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0	0	0	0	10.8	18.7	3.2	0	0	0	2.2	9.2
2	.4	0	0	0	13.2	14.8	1.0	0	0	2.4	54	16.5
3	1.2	3.0	0	0	16.3	13.2	0	0	0	1.0	36	8.6
4	3.2	0	10.9	0	12.0	31	.5	0	0	2.2	26	14.5
5	.4	5.4	6.2	0	30.5	14.0	1.4	.1	0	2.5	15.6	5.5
6	1.2	5.6	.2	2.9	22	12.5	1.6	.7	0	2.7	6.3	.4
7	0	.7	1.5	0	15.5	11.4	89	1.6	0	2.5	3.5	0
8	0	0	1.1	0	57	11.4	17.1	12.2	209	.2	2.7	0
9	0	0	.2	0	37.5	11.4	10.6	1.7	197	0	38	0
10	0	.2	0	0	35	8.4	9.6	1.8	19.4	.8	28	6.5
11	0	0	0	3.0	26.5	2.9	9.6	3.0	12.0	.9	33	4.0
12	9.4	0	0	0	29.5	4.4	9.0	3.5	9.6	.9	18.7	1.4
13	.5	0	0	.5	19.4	3.1	4.3	1.0	24	4.4	723	.2
14	8.1	10.2	0	8.2	14.8	.4	.2	.2	28	2.9	78	0
15	0	0	0	8.2	13.2	.2	0	5.9	17.1	0	24	0
16	5.2	0	0	7.8	3.2	1.2	0	26	12.0	49	17.9	0
17	14.7	0	0	4.9	.3	4.0	0	5.8	10.2	48	14.8	1.0
18	8.0	0	0	.2	3.7	13.2	0	2.5	9.6	88	13.2	0
19	3.6	3.6	0	0	7.8	7.8	0	.8	9.6	85	7.8	0
20	5.6	0	0	0	6.6	2.5	.4	6.4	9.0	33	6.4	.5
21	9.3	.2	0	.2	9.0	.4	1.4	.1	6.4	24.3	7.8	0
22	11.2	0	0	1.7	2.9	0	.2	0	11.4	17.1	6.0	3.3
23	8.0	0	0	120	14.0	0	0	.7	9.0	13.2	14.8	3.6
24	1.4	0	0	44	1.1	0	0	1.2	3.9	12.8	10.8	.2
25	0	0	0	64	1.1	0	0	1.8	2.0	5.0	17.8	1.0
26	0	0	0	23	59	0	0	2.0	.3	18.5	19.0	.2
27	0	0	0	16.3	156	1.3	0	.2	2.0	10.2	9.6	0
28	0	.1	0	25	166	4.0	0	0	3.7	10.8	12.7	0
29	0	0	0	17.1	31.5	4.0	0	0	1.3	3.6	13.2	0
30	0	0	0	15.5	36.5	4.0	0	-	.3	0	5.4	0
31	0	0	-	17.1	-5	3.6	0	-	0	-	.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	14.7	0	2.85	4.41	88.4	271
August.....	10.2	0	.94	1.45	29.0	89
September.....	10.9	0	.66	1.02	19.9	61
October.....	120	0	12.2	18.9	380	1,160
November.....	186	.3	29.1	45.0	872	2,680
December.....	31	0	6.57	10.2	204	625
Calendar year 1939	186	0	12.2	18.9	4,450	13,660
January.....	89	0	5.14	7.95	159	489
February.....	26	0	2.72	4.21	79.0	242
March.....	209	0	19.5	30.3	609	1,870
April.....	88	0	14.7	22.7	442	1,360
May.....	723	.9	41.5	64.2	1,290	3,950
June.....	16.5	0	2.55	3.95	76.6	235
Fiscal year 1939-40	723	0	11.6	17.9	4,250	13,030

Kapahi ditch near Kealia

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

Records available.- April 1909 to May 1914, May 1915 to June 1940.

Average discharge.- 22 years (1917-20, 1921-40), 6.53 million gallons a day (10.1 second-feet).

Extremes.- Maximum discharge during year, 71 million gallons a day (110 second-feet).

Oct. 6 (gage height, 3.41 feet); no flow May 14-19.

1909-14, 1915-40: 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.4	3.55	4.7	2.1	1.82	0.13	0.23	2.15	1.82	2.85	4.5	3.55
2	5.4	3.9	3.9	1.97	1.46	.13	2.1	2.15	1.82	3.8	5.2	3.45
3	6.6	5.4	2.55	2.1	.86	.13	2.6	2.15	1.82	1.84	7.3	7.0
4	1.4	4.7	14.0	1.99	.54	.13	2.15	2.15	1.82	1.63	4.0	9.3
5	3.6	5.7	5.3	1.90	.16	.13	1.64	2.2	2.25	.64	.31	7.2
6	12.7	.62	3.35	17.2	4.7	.13	1.30	4.1	2.55	.27	5.6	4.2
7	6.0	3.25	3.7	9.7	2.35	.13	.29	2.1	2.55	.27	2.6	3.7
8	5.0	3.15	3.6	11.6	.50	.13	.30	1.10	2.05	2.3	2.7	3.35
9	4.0	3.7	3.25	3.45	.13	.13	.66	2.4	.91	2.35	5.0	3.25
10	6.2	5.6	2.55	2.55	.13	1.47	.74	2.2	.23	1.57	4.7	2.25
11	5.9	4.8	2.55	5.5	.13	6.7	.74	.10	.19	1.46	2.1	2.35
12	4.8	4.1	2.55	2.55	.16	10.5	.74	1.49	.16	1.46	.31	2.1
13	5.2	2.65	3.7	3.15	.13	7.6	4.1	1.42	.19	.31	1.62	2.95
14	7.7	9.5	4.6	1.34	.13	4.2	7.8	2.0	.19	3.5	.05	3.35
15	6.0	3.7	4.8	.40	.13	4.0	7.3	1.42	.19	2.75	0	3.25
16	6.7	3.05	4.9	1.96	7.8	2.4	5.3	2.0	.16	1.93	0	3.15
17	7.2	3.6	3.8	3.6	9.3	.35	2.45	1.77	.13	3.35	0	4.4
18	4.5	3.6	3.8	3.15	5.4	2.7	2.25	.77	.10	1.81	0	3.35
19	1.90	5.3	3.6	3.05	3.15	2.35	2.45	1.57	.10	1.82	4.1	2.95
20	3.25	3.8	2.85	2.75	6.5	2.1	1.82	3.1	.10	1.81	5.1	3.6
21	5.8	5.1	3.05	3.05	.53	3.3	1.07	3.05	.07	.40	5.0	2.55
22	5.1	3.45	4.2	1.36	7.5	3.35	2.2	2.55	.07	1.72	4.9	1.72
23	2.6	3.95	4.1	.96	12.6	3.25	2.25	1.52	.04	.35	5.1	.27
24	5.1	3.95	2.25	.07	8.1	3.45	2.15	.93	3.95	.35	4.3	3.9
25	4.4	3.9	3.65	.31	3.45	3.15	2.1	.16	5.1	6.3	2.15	2.75
26	5.0	3.15	3.5	.19	.67	3.05	1.99	.19	5.0	1.28	3.3	3.55
27	4.2	2.55	3.05	.16	5.0	2.0	2.15	1.77	2.4	2.75	3.75	3.6
28	3.7	6.5	2.15	.16	.54	.23	2.25	1.52	3.05	.19	1.63	3.25
29	3.15	5.9	2.1	.16	.19	.23	2.25	1.52	1.75	5.8	5.5	4.1
30	3.05	4.3	2.1	.13	.23	.23	2.15	-	2.25	6.5	3.9	2.45
31	3.05	3.9	-	.66	-	.23	2.15	-	2.45	-	4.5	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	12.7	1.4	4.95	7.66	154	471
August.....	9.5	.62	4.20	6.50	130	399
September.....	14.0	2.1	3.83	5.93	115	353
October.....	17.2	.07	2.90	4.49	89.8	275
November.....	12.6	.13	2.80	4.33	84.1	258
December.....	10.5	.13	2.19	3.39	65.0	209
Calendar year 1939.....	17.2	.07	3.68	5.69	1,340	4,120
January.....	7.8	.23	2.25	3.48	69.9	214
February.....	4.1	.10	1.76	2.72	51.2	157
March.....	5.1	.04	1.47	2.27	45.5	140
April.....	6.5	.27	2.11	3.26	63.4	195
May.....	7.3	0	3.23	5.00	100	307
June.....	9.3	.27	3.56	5.51	107	328
Fiscal year 1939-40.....	17.2	0	2.94	4.55	1,080	3,310

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 1940. Equivalent records for July 1925 to November 1936, at site 150 feet downstream, collected by East Kauai Water Co.

Extremes.— Maximum discharge during year, 22.5 million gallons a day (34.8 second-feet) Mar. 9, May 13 (gage height, 2.66 feet); minimum, 0.04 million gallons a day (0.06 second-foot) Dec. 17, 18, 20-22.

1936-40: Maximum discharge, 23.6 million gallons a day (36.5 second-feet) Feb. 1, 1936 (gage height, 2.66 feet); minimum, 0.03 million gallons a day (0.05 second-foot) on several days in November and December 1936 and January 1937 and February 19, 20, 1938.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.0	7.4	4.2	4.5	0.12	0.07	5.0	4.4	4.9	4.7	6.8	0.19
2	9.0	4.6	4.6	4.6	.08	.07	4.8	4.4	4.7	8.0	4.2	.19
3	10.0	6.9	5.9	4.8	.08	.07	4.8	4.4	4.5	5.9	.30	.19
4	10.2	5.4	10.9	4.7	.06	.07	4.8	4.4	4.5	7.5	.34	.19
5	7.7	8.7	11.2	4.7	.10	.07	4.8	6.1	4.1	6.5	.50	5.2
6	12.9	8.7	7.7	6.6	.14	.07	4.6	9.7	3.8	5.0	.28	7.2
7	11.0	7.7	9.7	10.7	.10	.07	12.2	9.2	3.7	4.9	4.2	6.1
8	9.2	6.4	9.6	10.7	.10	.06	5.6	10.7	8.4	4.8	6.4	5.4
9	6.7	5.4	8.2	8.2	.08	.06	.11	9.2	7.1	4.7	6.8	5.9
10	6.1	6.0	6.5	6.4	.08	.06	.10	9.2	.11	4.7	7.0	6.8
11	5.4	6.6	6.4	9.2	.08	.06	.10	6.4	.08	4.6	4.5	8.2
12	9.6	5.0	5.4	6.4	.08	.06	.08	8.5	.07	4.4	.74	6.4
13	6.7	5.9	4.4	6.5	.08	5.7	.08	5.9	.07	7.4	6.1	5.9
14	11.3	9.9	3.4	9.2	.07	6.8	.08	5.4	.08	8.2	.96	7.2
15	10.7	6.2	3.35	6.7	.07	6.4	.21	6.9	.11	5.9	.10	5.9
16	10.1	7.7	3.9	8.7	.06	5.9	2.15	12.4	.08	11.2	.07	7.6
17	6.4	6.4	8.5	8.7	.06	5.4	4.6	9.7	.07	10.6	.07	8.7
18	5.9	6.8	4.3	6.8	.05	9.6	4.6	4.6	.07	4.8	.07	6.4
19	7.2	10.2	4.0	7.7	.05	10.7	4.7	5.4	.05	5.2	.07	5.4
20	11.7	9.7	4.4	6.4	.05	7.2	4.7	10.2	.05	3.3	.07	8.3
21	12.4	9.7	4.2	8.2	.05	5.9	4.6	7.2	.05	.78	.08	5.9
22	12.9	8.7	5.0	6.8	.05	5.4	4.7	6.4	.06	.62	.08	10.0
23	11.8	5.4	2.8	10.0	3.45	5.4	4.8	8.5	.06	.51	.08	8.2
24	10.2	4.8	5.9	2.5	5.9	7.2	4.8	5.0	.06	.40	.07	8.7
25	7.7	4.6	3.65	2.3	5.6	5.4	4.5	4.8	.06	.37	.07	8.7
26	5.9	5.4	3.6	1.06	6.4	5.0	4.4	4.7	2.1	.44	.06	7.2
27	7.4	5.9	3.45	.52	11.3	4.9	4.4	4.6	2.75	.28	.06	5.0
28	7.7	11.2	4.7	.54	8.7	5.0	4.4	4.5	4.7	.26	.07	5.7
29	6.4	10.7	4.7	.28	.11	6.6	4.4	4.5	6.1	.28	.07	5.2
30	6.4	5.9	4.6	.23	.10	5.4	4.4	-	4.9	2.05	2.2	6.4
31	7.2	5.0	-	.17	-	5.0	4.4	-	5.4	-	4.7	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	12.9	5.0	8.80	13.6	273	837
August.....	11.2	4.6	7.13	11.0	221	678
September.....	11.2	2.8	5.68	9.63	167	513
October.....	10.7	.17	5.70	8.82	177	543
November.....	11.5	.05	1.88	2.14	41.5	127
December.....	10.7	.06	3.86	5.97	120	367
Calendar year 1939	12.9	.05	4.75	7.35	1,730	5,320
January.....	12.2	.08	3.80	5.88	118	362
February.....	12.4	4.4	6.78	10.5	196	601
March.....	9.4	.05	2.55	3.64	72.8	223
April.....	11.2	.28	4.87	6.61	123	338
May.....	7.0	.06	1.84	2.85	56.9	175
June.....	10.0	.19	5.95	9.21	178	547
Fiscal year 1939-40	12.9	.05	4.78	7.40	1,760	5,370

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 of gage, 220 feet (by barometer).

Drainage area.- 5.5 square miles.

Records available.- August to November 1910, December 1912 to June 1940.

Average discharge.- 21 years (1919-40), 13.7 million gallons a day (21.2 second-feet).

Extremes.- Maximum discharge during year, 2,850 million gallons a day (4,410 second-feet)

May 13 (gage height, 7.05 feet), from rating curve extended above 230 million gallons a day; minimum, 2.15 million gallons a day (3.33 second-feet) Oct. 5, 6.

1910, 1912-40: 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 230 million gallons a day; minimum, 1.4 million gallons a day (2.2 second-feet) Sept. 12, 13, 1923.

Remarks.- Records good except those for days of no gage-height record and those above 400 million gallons a day, which are poor. Anahola ditch diverts water 3 miles above station for irrigation in vicinity of Kealia.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

(Shifting-control method used Jan. 7 to Mar. 9, May 13 to June 24)

0.8	1.80	1.6	6.6	2.6	95	5.0	1,000
.9	2.35	1.6	11.5	3.0	182	5.5	1,580
1.0	3.0	1.8	22	3.5	292		
1.2	4.4	2.0	34.5	4.0	456		
1.4	6.6	2.3	59	4.5	692		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.2	3.75	2.8	2.3	6.5	15.7	3.7	3.5	3.3	5.9	29	7.8
2	4.4	3.4	2.8	2.3	6.2	12.5	3.55	3.4	3.05	10.7	66	8.0
3	6.0	5.6	2.85	2.25	6.8	11.2	3.4	3.4	2.95	5.8	29.5	7.6
4	5.3	3.85	2.2	2.2	5.6	17.8	3.35	3.5	2.95	5.1	18.5	9.1
5	5.3	15.5	8.3	2.2	16.9	10.0	3.3	5.6	3.05	5.8	18.5	8.6
6	7.6	6.9	5.5	5.8	10.5	8.6	3.15	5.2	2.85	4.9	10.3	7.2
7	7.2	4.9	4.5	5.5	7.0	7.6	11.4	3.75	2.85	4.6	10.0	6.7
8	4.8	3.85	4.0	4.9	14.7	8.8	22	12.4	249	4.4	58	6.6
9	4.3	3.7	3.5	3.05	22.5	8.6	11.2	7.1	433	4.3	58	6.6
10	6.1	3.85	3.2	2.8	23.5	6.8	9.1	4.9	40	4.3	45	6.4
11	7.4	4.0	3.0	4.5	12.0	6.6	7.8	4.0	18.7	4.0	57	6.6
12	6.8	3.85	2.7	2.3	14.2	15.2	6.8	4.3	13.0	3.9	28.5	6.0
13	5.9	3.5	2.7	10.3	12.7	6.2	3.7	50	4.0	1,130	6.0	6.0
14	8.2	23	2.7	4.8	7.8	5.4	6.1	3.5	87	4.4	170	6.1
15	5.6	4.6	2.7	9.2	7.0	5.4	5.4	3.55	37.5	4.0	38	5.8
16	4.9	3.85	2.7	11.2	6.6	4.8	5.1	16.8	21.5	20.5	26	6.2
17	6.4	3.65	2.7	5.2	6.0	4.5	4.9	7.3	16.5	40	19.2	6.8
18	5.0	3.55	2.6	3.55	5.6	16.4	4.8	4.2	13.0	127	18.0	5.9
19	4.4	5.0	2.6	3.05	6.0	12.2	4.7	3.75	10.9	164	14.0	5.2
20	7.0	4.3	2.6	3.05	5.6	6.1	4.5	9.2	9.7	53	12.0	5.2
21	6.6	3.7	2.55	4.7	5.0	5.0	4.3	4.6	9.7	20.5	11.2	4.9
22	8.9	3.55	2.5	3.4	4.8	4.7	4.3	3.9	26	17.6	10.3	5.7
23	6.2	3.4	2.5	5.4	6.1	4.6	4.3	3.5	9.1	12.5	13.6	5.8
24	5.4	3.2	2.5	2.4	6.0	8.1	4.1	3.35	7.8	10.6	10.3	5.8
25	4.4	3.15	2.4	5.4	4.6	4.7	4.0	3.3	7.2	9.4	10.9	4.1
26	4.1	3.2	2.35	15.5	26	4.3	3.9	3.4	6.8	11.4	41	3.7
27	4.0	3.0	2.35	9.4	90	4.1	3.75	3.15	6.4	8.6	10.6	3.7
28	4.0	3.2	2.35	11.2	225	4.3	3.7	3.05	22.5	7.6	10.0	3.7
29	3.85	3.65	2.35	9.7	28	4.1	3.65	3.2	9.4	7.2	10.0	3.55
30	3.75	3.15	2.3	9.4	29.5	3.85	3.65	-	6.8	6.7	8.6	3.55
31	3.85	2.85	-	9.1	-	3.85	3.55	-	6.2	-	8.4	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	8.9	3.75	5.54	8.57	178	527
August.....	23	2.85	4.85	7.50	150	451
September.....	22	2.3	3.69	5.71	111	359
October.....	54	2.2	9.27	14.3	287	882
November.....	225	4.6	20.9	32.3	626	1,920
December.....	17.8	3.65	8.02	12.4	248	763
Calendar year 1939	225	2.2	12.6	19.5	4,610	14,160
January.....	114	3.15	8.91	13.8	276	848
February.....	16.8	3.05	4.98	7.71	144	443
March.....	433	2.85	36.1	55.9	1,120	3,450
April.....	164	3.9	19.8	30.6	593	1,890
May.....	1,130	8.4	64.1	99.2	1,990	6,100
June.....	9.1	3.55	5.96	9.22	179	549
Fiscal year 1939-40	1,130	2.2	16.1	24.9	5,900	18,090

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

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 of gage, 831 feet (by levels from Lihue Plantation bench marks).

Records available.- May 1915 to June 1940.

Average discharge.- 17 years (1921-25, 1927-40), 3.30 million gallons a day (5.11 second-foot).

Extremes.- Maximum discharge during year, 66 million gallons a day (102 second-foot) Jan. 7 (gage height, 3.25 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Jan. 1-3.

1915-40: Maximum discharge recorded, 130 million gallons a day (201 second-foot) Jan. 16, 1921 (gage height, 6.25 feet, site and datum then in use); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good except those for period of no gage-height record, which are poor. 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.5	2.5	1.83	1.04	0.06	0.06	0.01	0.97	1.41	2.3	6.4	4.8
2	3.7	1.92	1.65	1.04	.06	.06	.01	.97	1.25	10.9	.19	6.6
3	5.8	5.4	3.35	1.04	.06	.06	.89	.97	1.25	.08	.16	4.4
4	6.8	2.2	19.1	1.04	.06	.06	1.25	1.04	1.25	2.8	.13	9.4
5	4.1	10.6	7.9	.97	.06	.06	1.25	8.1	1.11	4.2	.13	4.3
6	8.2	5.2	3.45	6.5	.06	.06	1.18	5.5	1.04	2.8	2.4	1.60
7	a5.0	4.2	5.4	7.0	.06	.06	9.9	2.1	1.04	2.5	5.0	3.56
8	a3.5	2.4	4.5	7.8	.11	.06	.13	11.7	6.9	2.3	9.4	3.05
9	a2.6	2.2	3.35	3.7	.06	.06	.08	8.3	2.1	2.1	11.6	2.95
10	a7.0	4.1	2.6	1.92	.06	.06	.06	5.2	.04	2.1	3.7	3.6
11	a6.0	3.3	2.2	4.5	.06	.06	.04	2.8	.04	2.0	.13	3.7
12	a4.5	2.1	1.65	.06	.04	.04	.04	4.5	.02	1.74	.08	2.7
13	a4.0	1.92	1.92	2.4	.06	.04	.04	2.2	.08	3.2	4.5	2.5
14	a7.0	10.9	2.0	9.4	.04	.04	.04	1.83	.06	6.6	.14	2.65
15	4.6	3.15	1.74	15.5	.04	.04	.04	4.5	.06	3.9	.06	2.3
16	4.6	2.5	1.65	15.2	.04	.04	1.08	19.9	.04	25	.06	3.6
17	8.3	2.2	2.2	7.8	.04	.04	1.41	6.4	.04	8.7	.04	5.5
18	4.4	2.5	1.57	3.35	.04	.04	1.41	3.05	.04	.55	.04	2.8
19	3.7	7.8	1.49	4.3	.04	.02	1.83	2.5	.04	.16	.04	2.2
20	9.3	3.9	1.41	2.9	.04	.02	1.85	11.6	.04	.08	.06	2.5
21	9.1	3.05	1.33	4.5	.04	.02	1.25	4.8	.04	.08	1.98	2.1
22	6.6	3.05	1.25	2.6	.04	.02	1.18	5.3	.06	.08	3.9	4.2
23	5.5	2.5	1.18	8.1	.04	.02	1.18	2.3	.06	.08	10.0	3.8
24	5.3	2.0	1.33	.10	.04	.02	1.18	2.0	.06	3.85	7.1	4.4
25	3.6	1.83	1.25	.17	.04	.02	1.11	1.95	1.06	6.7	3.7	2.8
26	3.15	1.92	1.18	.06	.06	.02	1.11	1.83	2.4	3.1	.16	2.5
27	2.95	1.83	1.11	.06	.22	.02	1.04	1.67	2.2	.10	.10	2.5
28	3.06	5.0	1.11	.06	.97	.02	1.04	1.49	1.06	.10	.10	2.2
29	2.3	3.35	1.11	.06	.08	.02	.97	1.49	1.03	3.25	.10	2.5
30	2.2	2.3	1.04	.06	.10	.02	.97	-	3.05	3.7	1.72	2.6
31	2.3	2.0	-	.06	-	.02	.97	-	3.15	-	4.4	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	9.3	2.2	4.96	7.67	154	472
August.....	10.9	1.83	3.54	5.48	110	337
September.....	19.1	1.04	2.77	4.29	83.2	255
October.....	16.5	.06	3.71	5.74	115	353
November.....	.97	.04	.093	1.44	2.80	8.6
December.....	.06	.02	.041	.063	1.28	3.9
Calendar year 1939	19.1	.01	2.08	3.22	758	2,320
January.....	9.9	.01	1.08	1.67	33.4	103
February.....	19.9	.97	4.29	6.54	125	382
March.....	5.9	.02	1.00	1.55	31.0	96
April.....	25	.08	3.43	5.81	103	316
May.....	11.6	.04	2.80	3.87	77.5	238
June.....	9.4	1.60	3.48	5.35	104	319
Fiscal year 1939-40	25	.01	2.57	3.98	940	2,880

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

Anahola ditch wasteway near Kealia

Location.- Sharp-crested weir, lat. 22°08'10", long. 159°22'30", 300 feet downstream from wasteway gates on Anahola ditch, 500 feet upstream from Kaneha Reservoir, 3.8 miles west of Anahola, and 4.9 miles northwest of Kealia.

Records available.- December 1938 to June 1940.

Extremes.- Maximum discharge during year, 92 million gallons a day (142 second-feet) May 13 (gage height, 2.85 feet); no flow at times, when water was turned out of ditch.
1938-40: Maximum discharge, 88 million gallons a day (138 second-feet) Feb. 2, 1938 (gage height, 2.60 feet); no flow at times, when water was turned out of ditch.

Remarks.- Records good. Water that passes station is returned to Anahola River.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.19			0	5.8	66.4	2.0	0.28	0	0.32	6.1	0.19
2	.19			0	4.2	5.1	2.0	.19	0	1.33	18.6	.26
3	.13			0	5.2	4.7	.80	.19	0	3.4	15.6	.26
4	.06			0	3.4	15.7	.26	.26	0	.90	11.7	.26
5	.06			0	15.1	5.1	.32	.26	0	.26	7.3	2.05
6	.06			0	8.7	3.95	.32	.13	0	.26	3.45	2.65
7	.13			0	7.5	3.8	10.6	0	0	.26	.19	.19
8	0			0	15.4	6.0	c2.6	.12	15.4	.26	.19	.26
9	0			0	19.7	5.1	c2.45	0	c20.5	.19	.13	.26
10	0			0	17.2	3.1	c2.3	0	a6.6	.26	14.4	.26
11	0			0	9.2	2.95	c2.3	0	a3.65	.26	17.4	.26
12	0			0	13.7	6.0	2.3	0	a2.8	.19	12.0	.26
13	0			0	7.1	4.5	2.15	0	c7.2	.19	43	.26
14	.06			0	4.7	3.1	2.15	0	c4.9	.19	21	.26
15	0			0	3.95	3.4	1.85	0	c8.6	.19	13.1	.26
16	0			0	3.4	2.8	.71	.09	5.7	.19	8.9	.26
17	0			0	3.25	2.45	.26	0	4.7	23	7.1	.26
18	0			0	2.95	14.8	.32	0	3.8	35	6.0	.19
19	0			0	3.1	9.0	.26	0	3.25	35.5	5.3	.13
20	0			0	3.25	3.6	.26	0	2.95	29.5	4.7	.13
21	0			0	2.6	2.95	.26	0	5.7	15.3	3.25	0
22	0			0	2.9	2.8	.26	0	14.7	14.7	.32	.11
23	0			a6.2	9.2	2.7	.26	0	3.95	9.2	.26	.13
24	0			a4.6	5.3	8.3	.26	0	3.25	4.1	.19	.19
25	0			a11.3	3.1	2.8	.26	0	1.85	.19	5.2	.13
26	0			a5.6	15.3	2.45	.26	0	.26	7.8	13.4	0
27	0			c4.7	17.4	2.3	.26	0	1.32	5.5	6.4	0
28	.06			8.2	25	2.15	.26	0	11.3	4.7	6.8	0
29	0			5.5	5.9	2.25	.26	0	4.3	1.26	8.7	0
30	0			6.0	c8.4	2.15	.26	-	.32	.19	3.15	0
31	0			9.2	-	2.15	.26	-	.26	-	.19	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	0.19	0	0.030	0.046	0.94	2.9
August.....	0	0	0	0	0	0
September.....	0	0	0	0	0	0
October.....	11.3	0	2.01	3.11	62.3	191
November.....	25	2.6	8.33	12.9	250	767
December.....	15.7	2.15	4.62	7.15	143	440
Calendar year 1939.....	25	0	4.10	6.34	1,500	4,600
January.....	10.6	.26	1.26	1.95	39.1	120
February.....	20.5	0	.052	1.080	1.50	4.6
March.....	35	.19	4.40	8.51	136	418
April.....	43	.13	6.42	9.93	193	581
May.....	43	.13	8.52	13.2	264	810
June.....	2.85	0	.316	.489	9.47	29
Fiscal year 1939-40.....	43	0	3.00	4.64	1,100	3,370

a Intake plugged; discharge computed on basis of actual knowledge of ditch regulations.
c Partly estimated.

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

Records available.— December 1936 to June 1940. 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, 9.4 million gallons a day (14.5 second-feet) Mar. 8 (gage height, 1.47 feet); no flow at times, when water was turned out of ditch. 1936-40: Maximum discharge, 16.5 million gallons a day (25.5 second-feet) Apr. 19, 1937 (gage height, 2.11 feet); no flow at times, when water was turned out of ditch.

Remarks.— Records excellent. Ditch diverts water from Anahola River for irrigation of sugarcane. Flow regulated by spillways and gates.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.5	3.5	2.4	1.71	0		0	4.1	3.6	0	0	0
2	4.6	3.1	2.3	1.76	0		0	3.95	3.4	0	0	0
3	5.0	3.1	2.3	1.87	0		3.35	3.9	3.25	0	0	0
4	5.2	2.9	4.0	1.87	0		4.5	3.8	3.25	0	0	0
5	5.0	2.7	5.0	1.76	0		4.5	4.6	3.4	0	0	0
6	5.2	2.9	4.5	2.5	0		4.4	5.1	3.25	0	0	0
7	5.6	4.2	4.4	4.5	0		3.5	4.2	3.15	0	0	0
8	4.8	3.75	3.65	3.8	0		.01	4.5	4.6	2.55	0	1.1
9	4.5	3.5	3.5	2.85	0		0	5.1	.04	2.95	0	3.05
10	4.5	3.6	3.05	2.55	0		0	4.9	0	0	0	4.2
11	5.2	3.65	2.85	3.5	0		0	4.2	0	0	0	1.44
12	5.1	3.45	2.6	2.65	0		0	4.5	0	0	0	0
13	5.2	2.55	2.55	2.55	0		0	4.2	0	0	.04	0
14	5.2	4.3	2.45	3.1	0		0	4.2	0	0	0	0
15	5.1	4.3	2.4	4.3	0		0	3.9	0	0	0	0
16	4.7	3.6	2.3	4.8	0		0	5.9	0	0	0	0
17	6.0	3.4	2.3	4.2	0		0	3.65	0	0	0	0
18	5.0	3.25	2.2	3.1	0		1.38	2.15	0	0	0	0
19	4.5	3.9	2.2	2.65	0		2.2	4.2	0	0	0	0
20	6.0	3.95	2.15	2.65	3.9		3.75	5.6	0	0	0	0
21	6.0	3.8	2.1	3.6	4.8		5.1	3.55	0	0	0	1.17
22	5.2	3.45	2.05	3.25	4.8		5.0	3.3	0	0	0	1.95
23	5.2	3.15	1.99	2.25	5.2		5.1	3.9	0	0	0	0
24	5.6	3.1	2.1	0	5.6		4.9	3.75	0	0	0	2.45
25	4.5	2.9	2.1	0	5.4		4.6	3.5	0	0	0	2.25
26	4.2	2.85	1.99	0	6.9		4.5	3.75	0	0	0	4.2
27	4.0	2.5	1.89	0	7.4		4.5	3.6	0	0	0	5.2
28	3.95	2.65	1.93	0	1.71		4.3	3.4	0	0	0	5.2
29	3.8	3.1	1.93	0	0		4.2	3.4	0	0	0	5.1
30	3.5	2.8	1.82	0	0		4.2	-	0	0	0	4.8
31	3.5	2.55	-	0	-		4.2	-	0	-	0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	6.0	3.5	4.85	7.50	150	452
August.....	4.5	2.55	3.51	5.15	103	315
September.....	5.0	1.82	2.64	4.05	79.1	243
October.....	4.8	0	2.18	3.37	67.6	207
November.....	7.4	0	1.56	2.41	46.7	143
December.....	0	0	0	0	0	0
Calendar year 1939.....	8.7	0	2.93	4.53	1,070	3,280
January.....	5.1	0	2.52	3.90	75.2	240
February.....	5.9	2.15	4.10	6.34	119	365
March.....	4.6	0	.901	1.39	27.9	86
April.....	2.95	0	.183	.283	5.50	17
May.....	.04	0	.001	.002	.04	.1
June.....	5.2	0	1.40	2.17	42.1	129
Fiscal year 1939-40.....	7.4	0	1.96	3.05	719	2,210

Ka Loko ditch near Kilauea

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

Records available.- August 1932 to June 1940.

Extremes.- Maximum discharge during year, 95 million gallons a day (147 second-feet) Mar. 9 (gage height, 4.07 feet); minimum, 0.75 million gallons a day (1.16 second-feet) Sept. 30.
1932-40: 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 of no gage-height record, which are poor. Ditch diverts water from Molooa 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.89	1.63	1.16	0.81	2.05	5.0	1.89	1.23	1.23	2.25	c5.8	3.45
2	2.25	1.47	1.09	.81	2.25	4.4	1.80	1.23	1.16	6.1	14.6	3.9
3	2.95	2.6	1.16	.81	2.45	5.1	1.71	1.16	1.16	2.55	3.0	3.65
4	2.65	1.54	6.0	.81	1.98	5.5	1.64	1.23	1.23	2.25	6.6	5.4
5	2.15	3.9	3.45	.75	5.3	3.45	1.54	2.05	.95	2.95	5.2	4.1
6	4.2	2.3	1.89	2.3	4.6	3.15	1.54	2.5	.88	1.98	4.5	3.35
7	3.45	1.98	2.55	2.95	2.85	2.85	21	1.39	.81	1.71	4.7	3.05
8	2.35	1.54	1.80	2.35	5.9	3.95	5.6	3.55	27.5	1.63	22	2.75
9	2.25	1.39	1.71	1.25	5.7	3.25	2.85	4.4	1.54	1.54	10.3	2.55
10	3.1	1.64	1.25	1.09	8.0	2.65	2.35	1.80	10.4	1.80	9.4	2.55
11	3.0	1.98	1.09	2.5	4.0	2.55	2.05	1.47	5.5	1.54	16.1	2.65
12	3.4	1.47	1.09	1.16	4.9	3.05	1.98	1.98	5.4	1.47	7.9	2.35
13	2.45	1.39	1.09	1.09	3.55	3.15	1.98	1.47	16.1	1.63	31	2.45
14	4.3	5.0	1.16	2.5	2.95	2.75	2.05	1.31	16.1	1.71	11.9	2.55
15	2.55	1.89	1.16	4.0	2.75	2.75	1.80	1.31	7.0	a1.6	4.4	2.35
16	3.05	1.54	1.09	3.7	2.65	2.45	1.80	8.2	4.9	a2.0	3.05	2.75
17	3.5	1.47	1.09	2.25	2.45	2.25	1.71	4.3	4.1	5.8	2.45	3.5
18	2.25	1.47	1.02	1.39	2.25	9.9	1.71	1.80	3.55	a2.0	3.5	2.55
19	1.98	2.55	1.02	1.47	2.35	6.1	1.63	1.54	3.15	a2.5	6.3	2.25
20	3.65	1.80	1.02	1.54	2.25	2.95	1.54	3.9	2.85	a2.0	4.7	2.25
21	3.7	1.63	1.02	3.15	2.05	2.45	1.54	1.98	3.95	a4.5	5.2	2.05
22	5.7	1.47	1.02	1.54	2.05	2.25	1.54	1.54	5.6	a10	4.9	2.25
23	2.65	1.47	1.02	11.8	2.45	2.25	1.54	1.39	2.85	a5.0	5.6	2.15
24	2.45	1.39	1.02	5.4	2.15	3.95	1.47	1.31	2.55	a3.0	4.9	2.65
25	2.05	1.31	.95	14.7	1.98	2.25	1.39	1.23	2.25	a2.3	4.9	2.15
26	1.98	1.39	.95	4.1	8.4	2.05	1.39	1.39	2.35	a2.1	8.7	1.89
27	1.89	1.25	.88	2.45	10.7	1.89	1.39	1.25	2.25	a2.0	6.6	1.80
28	1.80	1.31	.88	3.55	32.5	1.98	1.31	1.16	5.0	a1.9	5.0	1.80
29	1.71	1.54	.88	2.95	8.3	1.98	1.31	1.16	2.95	a1.8	4.6	1.98
30	1.71	1.39	.81	3.45	9.0	1.69	1.31	-	2.25	a1.8	3.8	1.80
31	1.80	1.31	-	3.15	-	1.89	1.31	-	2.25	-	3.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	5.7	1.71	2.74	4.24	84.8	260
August.....	5.0	1.23	1.80	2.79	55.9	172
September.....	6.0	.81	1.41	2.18	42.3	130
October.....	14.7	.76	2.96	4.58	91.8	282
November.....	32.5	1.98	5.03	7.78	151	465
December.....	9.9	1.89	3.29	5.09	102	313
Calendar year 1939.....	32.5	.75	3.69	5.71	1,350	4,140
January.....	21	1.31	2.44	3.78	75.6	232
February.....	8.2	1.16	2.01	3.11	55.2	178
March.....	44	.81	6.20	9.59	192	590
April.....	10	1.47	2.81	4.35	84.4	259
May.....	31	2.45	7.75	12.0	240	738
June.....	5.4	1.80	2.70	4.18	80.9	248
Fiscal year 1939-40.....	44	.75	3.44	5.32	1,260	3,860

a No gage-height record; discharge computed on basis of records for stations on nearby ditches.
c 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 of gage, 430 feet (by barometer).

Records available.- August 1932 to June 1940.

Extremes.- Maximum discharge during year, 29.2 million gallons a day (45.2 second-feet) Mar. 9 (gage height, 1.93 feet); no flow during several periods in year.
1932-40: Maximum discharge, 32.5 million gallons a day (50.3 second-feet) Mar. 7, 1938 (gage height, 2.06 feet); no flow occasionally, when water was shut out of ditch.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.75	2.65	2.05	1.63	3.55	4.7	2.35	1.71	1.71	2.75	5.2	2.75
2	3.45	2.55	1.98	1.63	3.55	5.4	2.25	1.63	1.63	8.1	6.9	2.75
3	4.6	3.25	2.45	1.63	3.8	4.9	2.05	1.64	1.71	3.05	7.6	2.75
4	3.45	2.65	9.6	1.64	3.55	5.8	2.05	1.65	1.65	2.95	.65	3.15
5	2.85	4.6	5.6	1.47	6.5	4.4	2.05	1.95	1.63	4.4	1.84	3.05
6	5.0	3.15	3.55	3.15	6.3	4.1	1.98	2.85	1.47	1.85	4.7	2.65
7	4.4	2.95	4.6	4.8	4.6	3.9	9.4	1.89	1.47	1.38	5.1	2.45
8	4.0	2.55	3.45	4.5	7.3	4.6	6.6	3.8	9.1	2.45	11.5	2.35
9	4.5	2.55	2.95	2.15	6.6	4.4	3.9	2.25	10.0	2.35	10.9	2.35
10	3.55	2.55	2.65	2.1	9.5	3.55	3.25	2.05	0	2.65	6.4	2.35
11	4.1	3.05	2.65	4.7	6.2	3.45	3.05	1.80	0	2.35	.90	2.35
12	4.6	2.55	2.45	2.15	6.4	3.7	2.85	2.45	4.1	2.25	3.5	2.15
13	3.8	2.45	2.35	1.98	5.4	4.0	2.75	1.80	4.5	2.75	6.3	2.15
14	5.0	5.8	2.35	2.0	4.6	3.55	2.95	1.71	1.00	2.15	.19	2.15
15	3.7	2.75	2.35	4.1	4.1	3.45	2.65	1.80	2.9	2.25	0	2.05
16	4.6	2.65	2.35	4.1	3.55	3.25	2.35	7.1	0	2.95	0	2.05
17	5.5	2.45	2.35	2.75	.75	2.95	2.35	4.7	0	8.3	0	2.25
18	3.8	2.65	2.15	2.25	0	2.35	2.25	2.35	0	6.8	0	1.80
19	3.35	3.95	2.15	2.75	0	.11	2.25	2.15	0	1.06	0	1.71
20	4.4	2.95	2.05	2.85	0	1.21	2.15	4.6	2.15	0	0	1.71
21	5.2	2.75	1.98	6.0	0	3.35	2.05	2.95	3.5	0	0	1.63
22	6.9	2.65	1.98	2.85	0	3.15	2.05	2.35	2.3	0	0	1.80
23	4.5	2.45	1.98	5.0	0	3.05	2.05	2.15	1.02	0	0	1.80
24	3.9	2.35	1.98	5.5	0	2.85	1.98	2.05	2.95	0	0	2.05
25	3.35	2.45	1.89	9.6	0	0	1.89	1.95	2.75	0	1.60	2.35
26	3.15	2.75	1.80	5.6	0	0	1.80	2.05	2.65	0	4.6	1.98
27	3.05	2.35	1.71	4.0	5.0	1.74	1.80	1.80	2.55	1.50	3.45	1.98
28	2.95	2.95	1.80	4.4	2.65	2.55	1.80	1.71	4.0	3.55	3.05	1.89
29	3.05	2.95	1.71	4.0	.27	2.55	1.80	1.71	2.95	3.55	2.95	2.15
30	2.95	2.35	1.63	5.1	.27	2.45	1.71	-	2.55	3.15	2.75	1.89
31	2.85	2.25	-	5.5	-	2.45	1.71	-	2.85	-	2.75	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	6.9	2.75	3.98	6.16	123	378
August.....	5.8	2.25	2.88	4.46	89.2	274
September.....	9.6	1.63	2.68	4.15	80.3	247
October.....	9.6	1.47	3.73	5.77	116	355
November.....	9.5	0	3.14	4.86	84.5	259
December.....	5.8	0	5.16	4.89	87.9	300
Calendar year 1939	9.6	0	3.12	4.83	1,140	3,490
January.....	9.4	1.71	2.65	4.10	82.1	252
February.....	7.1	1.54	2.43	3.78	70.5	216
March.....	10.0	0	2.42	3.74	75.1	230
April.....	8.3	0	2.48	3.84	74.5	229
May.....	11.5	0	2.99	4.63	92.7	285
June.....	3.15	1.63	2.22	3.43	66.5	204
Fiscal year 1939-40	11.5	0	2.90	4.49	1,060	3,260

Kalihiiwai ditch near Kilauea

Location.- Parshall flume, lat. 22°10'55", long. 159°25'55", 0.1 mile upstream from Kalihiiwai Reservoir and 2.4 miles southwest of Kilauea. Altitude of gage, 410 feet (by barometer).

Records available.- June 1934 to June 1940.

Extremes.- Maximum discharge during year, 62 million gallons a day (96 second-foot) Mar. 9 (gage height, 3.10 feet); minimum, 0.16 million gallons a day (0.25 second-foot) Nov. 21, 22.

1934-40.- Maximum discharge, 64 million gallons a day (99 second-foot) Mar. 7, 1938 (gage height, 3.17 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Nov. 28, Dec. 4, 1934.

Remarks.- Records good. Ditch diverts low flow from most branches of Pohakuhonu Stream at intakes, about 1 mile south of station. Diversion of flow to Kahiliilo Stream, 0.1 mile above station, regulated by gates. Water discharges into Kalihiiwai Reservoir, where it is stored for irrigation in vicinity of Kilauea.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.75	2.45	2.45	1.80	2.95	0.41	2.05	1.47	1.54	3.35	0.75	4.6
2	3.85	2.55	2.35	1.80	2.95	.32	1.98	1.47	1.54	5.0	1.23	4.7
3	6.6	2.65	2.65	1.80	2.95	.32	1.98	1.47	1.47	.81	.95	4.6
4	4.7	2.35	17.3	1.80	2.65	.27	1.89	1.47	1.47	.75	.75	5.4
5	3.45	7.2	5.2	1.80	6.9	.27	1.89	2.15	1.39	.68	.68	4.6
6	5.2	3.35	3.9	3.95	5.0	.27	1.98	2.25	1.39	.63	3.55	4.0
7	5.1	3.15	3.55	9.5	4.6	.27	4.5	1.80	1.31	.63	6.3	3.8
8	3.5	2.55	3.05	5.8	5.0	.27	1.39	3.35	24	1.95	3.7	3.45
9	5.8	2.45	2.95	4.0	3.95	.27	2.1	2.75	19.0	3.05	.95	3.55
10	4.9	2.55	2.65	2.85	1.39	.23	2.45	2.65	.62	3.05	.95	3.8
11	5.4	3.45	2.55	4.1	.68	.19	2.25	2.05	.41	2.85	1.02	3.55
12	7.1	2.55	2.55	2.35	.46	.23	2.15	2.15	.32	2.65	.95	3.25
13	4.9	2.35	2.45	2.15	.36	1.64	2.05	1.80	.41	2.95	2.85	3.15
14	5.1	9.1	2.75	3.4	.32	2.65	2.15	1.71	.62	4.7	.57	3.15
15	3.35	3.55	2.15	5.2	.27	2.55	2.05	1.51	.41	1.23	.41	2.95
16	4.3	3.05	2.15	5.2	.27	2.75	1.95	11.3	.36	3.15	4.1	2.95
17	4.5	2.75	2.25	3.55	.23	2.45	1.95	4.1	.32	3.85	6.3	3.15
18	3.55	2.55	2.05	2.65	.23	1.84	1.89	2.45	.27	1.23	3.95	2.95
19	3.35	4.0	2.15	2.75	.19	.63	1.80	2.25	.23	1.71	.81	2.75
20	6.3	3.15	2.05	2.65	.19	.41	1.71	4.5	1.73	1.51	4.1	2.75
21	8.6	2.95	2.05	3.7	.16	2.1	1.71	2.75	4.1	4.0	5.2	2.65
22	10.3	3.45	1.95	2.55	1.81	2.65	1.63	2.25	2.8	7.5	4.7	2.85
23	4.6	2.75	1.95	3.95	2.95	2.7	1.63	1.98	.88	4.6	5.1	2.75
24	3.9	2.55	1.80	3.55	2.85	3.85	1.63	1.89	.75	2.85	.68	3.45
25	3.35	2.45	1.89	4.9	2.55	2.65	1.54	1.80	1.64	1.02	.63	3.25
26	3.25	2.35	1.98	4.4	3.45	2.45	1.54	1.71	2.55	.95	1.02	2.95
27	2.95	2.45	1.98	2.95	4.4	2.55	1.54	1.71	2.45	.88	2.45	2.85
28	2.85	4.4	1.98	3.55	4.8	2.25	1.54	1.63	7.7	.88	4.7	2.65
29	2.75	5.0	1.89	3.15	.81	2.25	1.54	1.63	4.0	.75	4.0	2.65
30	2.65	3.15	1.89	3.85	.57	2.15	1.47	-	2.05	.75	3.85	2.65
31	2.55	2.65	-	4.5	-	2.15	1.47	-	2.75	-	4.7	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	10.3	2.55	4.57	7.07	142	435
August.....	9.1	2.35	3.28	5.07	102	312
September.....	17.3	1.80	3.05	4.72	91.6	281
October.....	9.5	1.80	3.65	4.55	113	347
November.....	5.0	.16	2.40	3.71	71.9	221
December.....	3.85	.19	1.49	2.31	46.3	142
Calendar year 1939.....	17.3	.16	2.61	4.04	954	2,930
January.....	4.5	1.47	1.92	2.97	59.5	182
February.....	11.3	1.47	2.49	3.55	72.3	222
March.....	24	.23	2.94	4.55	91.3	280
April.....	7.5	.63	2.32	3.59	69.7	214
May.....	6.3	.41	2.64	4.08	81.9	251
June.....	5.4	2.65	3.59	5.25	102	312
Fiscal year 1939-40.....	24	.16	2.85	4.41	1,040	3,200

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 6 1/2 miles southeast of Hanalei. Altitude of gage, 625 feet (from topographic map).

Drainage area.- 7.4 square miles.

Records available.- January 1914 to June 1940.

Average discharge.- 22 years (1918-40), 48.4 million gallons a day (74.9 second-feet).

Extremes.- Maximum discharge during year, 3,490 million gallons a day (5,400 second-feet) Nov. 27 (gage height, 7.07 feet), from rating curve extended above 200 million gallons a day; minimum not determined, owing to faulty gage-height record.

1914-40: Maximum discharge, 13,500 million gallons a day (20,900 second-feet) Apr. 27, 1939 (gage height, 11.12 feet), from rating curve extended above 200 million gallons a day; minimum, 5.8 million gallons a day (9.0 second-feet) Apr. 28, May 1-3, 1926.

Remarks.- Records good except those for periods of faulty gage-height record, which are poor. Since 1925 Hanalei tunnel has been diverting an average of about 20 million gallons 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 1939-40 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used May 15 to June 30)

0.2	7.0	1.0	37	2.5	188
.3	9.3	1.3	56	3.0	298
.5	15.1	1.6	80	3.5	451
.7	22.7	2.0	120		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a14.2	a14.2	a14.2	12.6	17.9	31.5	a9.8	11.8	8.6	9.1	42	17.9
2	c30	a14.2	a14.2	12.6	21	27	a9.8	8.4	7.9	135	82	23.5
3	c56	a14.2	a14.2	12.6	21	25	a9.6	8.2	7.7	15.9	55	20
4	c23	a14.2	c121	12.6	16.8	49	c11.5	8.2	7.5	12.9	28.5	40
5	a17.2	c22.5	c59	12.6	54	24	c10.1	11.4	7.5	11.5	21.5	23.5
6	c43	c18.6	c28.5	48	45	20.5	a9.1	25	7.2	10.4	19.0	18.6
7	c44	c28.5	c31.5	25	34	18.2	27	15.8	7.2	9.6	17.2	16.8
8	a18.6	a14.5	a14.8	183	115	18.2	42	23.5	271	9.6	16.2	15.8
9	a14.5	a14.5	14.2	44	80	17.9	17.9	11.2	137	9.3	127	c19.0
10	a17.6	a14.5	14.2	16.2	93	15.8	14.5	13.1	31	9.3	225	20
11	a14.5	a14.5	14.2	28.5	75	15.8	12.6	9.1	20	e.8	147	18.2
12	c25.5	a14.5	13.9	13.9	55	19.0	11.7	10.9	16.2	8.8	52	15.4
13	a16.5	a14.5	13.9	21	35	21.5	a11.5	8.6	36	11.2	309	c15.8
14	c37	c57	15.9	29.5	26	15.3	a10.9	7.9	49	42	65	c14.8
15	c21.5	a14.8	13.6	50	22	a13.6	a10.6	18.9	18.6	14.8	43	13.9
16	c23	a14.5	14.2	43	19.8	c12.3	a10.4	31	15.4	153	33.5	19.7
17	c25.5	a14.5	14.8	29	17.9	12.6	a10.1	15.6	14.2	85	29	c16.8
18	a14.8	a14.2	13.6	19.0	16.2	30	a9.8	9.8	12.9	192	25.5	a14.8
19	a14.5	c21.5	13.6	17.2	16.2	25.5	a9.6	9.1	12.0	205	25	c12.9
20	c37	a14.5	13.6	15.4	16.2	12.6	a9.3	21	11.7	76	21.5	15.8
21	50	a19.0	13.6	23	14.5	c11.7	a9.3	18.1	11.5	42	22.5	13.2
22	85	a16.8	13.6	16.2	16.7	a11.5	a9.1	12.3	13.2	34	19.4	20
23	50	a15.8	13.6	86	39.5	a10.9	a9.1	9.8	10.9	26	25.5	17.6
24	a21.5	a14.5	13.2	87	27	a10.6	a8.8	9.1	10.4	24	24	21.5
25	a16.2	a14.2	12.9	73	17.6	a10.1	a8.6	8.8	10.1	20	27.5	35
26	a14.5	a14.2	12.9	36	72	a9.8	a8.4	8.8	9.8	28.5	26.5	22
27	a14.5	a14.2	12.9	24	398	a9.6	a8.2	8.2	9.6	18.6	21.5	17.2
28	a14.5	c29.5	12.9	32	236	c14.4	a8.2	7.9	16.1	16.5	24.5	16.8
29	a14.2	33.5	12.6	22.5	52	31.5	a7.9	8.2	12.9	15.4	35.5	16.2
30	a14.2	c20	12.6	21.5	55	a10.6	a7.7	-	10.1	14.5	19.8	15.4
31	a14.2	a14.2	-	33	-	a10.4	c7.5	-	9.8	-	18.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	85	14.2	26.3	40.7	817	2,510
August.....	57	14.2	18.4	28.5	570	1,760
September.....	121	12.6	19.9	30.8	596	1,330
October.....	183	12.6	35.5	54.9	1,100	3,380
November.....	398	14.5	57.5	89.0	1,730	5,290
December.....	49	9.6	18.2	28.2	565	1,730
Calendar year 1939	518	9.6	36.5	56.5	13,320	40,880
January.....	257	7.5	19.1	29.6	581	1,810
February.....	31	7.9	12.7	19.6	370	1,130
March.....	271	7.2	26.5	41.0	823	2,530
April.....	205	8.8	42.4	65.6	1,270	3,900
May.....	309	16.2	53.1	82.2	1,650	5,050
June.....	40	12.9	18.9	29.2	568	1,740
Fiscal year 1939-40	398	7.2	29.1	45.0	10,650	32,650

a Faulty gage-height record; discharge computed on basis of records for stations on nearby streams.

c Partly estimated.

Hanakapiai Stream near Hanalei

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

Drainage area.- 2.6 square miles.

Records available.- December 1931 to June 1940.

Extremes.- Maximum discharge during year, 1,680 million gallons a day (2,600 second-feet) Nov. 27 (gage height, 7.00 feet, from floodmarks), from rating curve extended above 60 million gallons a day; minimum, 2.4 million gallons a day (3.7 second-feet) June 21, 22, 28, 29.

1931-40: Maximum discharge, 2,680 million gallons a day (4,150 second-feet) Dec. 23, 1937 (gage height, 8.41 feet), from rating curve extended above 60 million gallons a day; minimum, that of June 21, 22, 28, 29, 1940.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.2	1.90	0.8	9.2	1.8	42	3.0	158
.3	2.65	1.0	13.4	2.1	62	3.5	248
.4	3.55	1.2	18.5	2.4	87		
.6	6.0	1.5	28.5	2.7	118		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.1	3.1	2.9	2.85	4.5	8.0	13	3.3	3.3	3.0	50	4.3
2	20.5	3.3	2.85	2.85	4.0	6.0	20	3.2	3.2	3.2	60	5.1
3	23.5	9.0	16.5	2.75	3.9	5.0	9.0	3.1	3.1	3.0	15	4.1
4	13.8	4.5	88	2.85	3.8	52	14	7.1	3.0	7.4	6.3	3.55
5	7.7	34	12.3	2.85	8.6	9.0	13	7.3	2.9	20.5	4.2	3.1
6	11.8	9.0	8.1	3.35	13.8	5.6	8.0	4.6	2.9	4.9	3.35	3.0
7	10.6	5.1	7.7	11.2	13.0	4.5	35	3.65	2.9	3.55	31	3.3
8	5.8	4.1	5.6	8.8	19.6	7.9	10	3.45	50	3.2	31.5	2.85
9	4.2	3.65	5.1	10.2	14.1	11.6	6.0	4.9	60	3.3	60	2.75
10	3.65	4.6	4.5	4.1	9.2	5.1	4.5	10.8	16.4	10.5	17.0	2.85
11	3.55	6.0	4.1	3.8	7.7	3.9	4.1	6.0	6.6	4.6	36	2.9
12	17.3	4.1	4.0	3.35	14.8	6.4	3.9	4.6	5.0	3.35	13.7	2.85
13	7.9	4.3	3.9	7.0	9.4	4.5	3.6	3.8	9.8	3.1	52	2.85
14	13.2	16.2	4.0	33	5.9	3.55	12	3.35	7.1	3.1	13.7	2.9
15	8.0	63	4.7	17.7	6.2	3.3	6.0	16.1	4.5	5.0	6.0	2.65
16	5.6	5.0	4.1	13.2	4.7	3.1	5.4	31	3.7	60	4.2	2.75
17	4.3	4.2	3.9	8.9	64.4	3.0	4.7	5.9	19.9	25	3.65	3.3
18	4.2	3.65	3.65	5.7	4.3	45	4.3	5.0	5.7	80	3.35	3.2
19	3.9	3.55	3.45	5.6	3.9	12.7	4.1	4.7	3.8	160	3.1	2.75
20	8.0	3.35	3.35	5.2	3.8	5.4	3.9	4.5	3.2	60	3.1	2.6
21	4.7	3.95	3.3	5.1	3.5	4.1	3.65	16.7	25.5	20	5.8	2.4
22	3.9	5.0	3.2	5.0	8.0	3.55	3.35	7.6	23.5	10	3.35	2.9
23	7.7	3.45	3.3	6.2	20	7.4	14.2	4.2	5.6	7.0	87	4.5
24	6.0	3.2	3.3	6.2	11	21	6.0	3.55	3.8	5.4	23.5	5.6
25	3.9	3.1	3.2	12.1	8.0	5.1	3.9	3.45	3.35	4.5	8.5	2.9
26	3.55	3.0	3.1	8.3	10	4.5	3.85	9.4	3.1	4.0	17.6	2.6
27	3.9	2.9	3.0	5.1	200	4.1	3.9	4.1	3.0	3.7	19.7	2.5
28	3.65	3.0	3.1	8.6	100	8.0	4.2	3.55	19.2	3.5	10.4	2.4
29	3.45	3.2	3.0	6.5	20	35	3.8	3.3	7.6	3.3	17.3	2.5
30	3.3	3.3	2.9	8.6	14	20	3.35	-	4.1	3.2	5.5	6.3
31	3.1	3.0	-	7.4	-	25	3.3	-	3.35	-	4.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	23.5	3.1	7.36	11.4	228	700
August.....	63	2.9	7.45	11.5	231	708
September.....	88	2.85	7.47	11.6	224	688
October.....	33	2.75	7.56	11.7	234	719
November.....	200	3.5	18.5	28.6	554	1,700
December.....	52	3.0	11.1	17.2	343	1,050
Calendar year 1939	200	2.65	9.55	14.8	3,490	10,700
January.....	35	3.3	7.68	11.9	238	730
February.....	31	3.1	6.73	10.4	195	599
March.....	60	2.9	10.3	15.9	320	981
April.....	160	3.0	17.7	27.4	531	1,630
May.....	67	3.1	19.4	30.0	600	1,840
June.....	6.3	2.4	3.28	5.07	98.2	302
Fiscal year 1939-40	200	2.4	10.4	16.1	3,800	11,650

c Partly estimated.

Note.- No gage-height record Nov. 18 to Dec. 3, Dec. 26 to Jan. 20, Apr. 16 to May 3; discharge computed on basis of records for stations on nearby streams.

ISLAND OF KAUAI

Hanakoa Stream near Hanalei

Location.- Lat. 22°11'00", long. 159°37'35", three-quarters of a mile upstream from mouth and 7½ miles west of Hanalei. Altitude of gage, 470 feet (by barometer).

Drainage area.- 1.1 square miles.

Records available.- December 1931 to June 1940.

Extremes.- Maximum discharge during year, 525 million gallons a day (812 second-feet) Nov. 27 (gage height, 5.32 feet), from rating curve extended above 30 million gallons a day; minimum, 0.33 million gallons a day (0.51 second-foot) Oct. 1-5.
1931-40: Maximum discharge, 569 million gallons a day (880 second-feet) June 10, 1938 (gage height, 5.51 feet), from rating curve extended above 30 million gallons a day; minimum, 0.17 million gallons a day (0.26 second-foot) Mar. 21, 22, 1934.

Remarks.- Records good. No diversions.

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Nov. 27						Nov. 28 to June 30					
0.90	0.10	1.2	2.2	2.0	24	1.0	0.47	1.5	8.2		
1.0	.43	1.3	3.65	2.2	34.5	1.05	.79	1.7	14.2		
1.05	.56	1.4	5.4	2.4	47	1.1	1.20	2.0	26.5		
1.1	1.01	1.6	9.3	2.7	71	1.2	2.35	2.3	43		
1.15	1.57	1.8	15.5	3.0	101	1.3	5.9	2.6	53		
						1.4	5.8	3.0	101		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.47	0.56	0.40	0.33	0.69	2.8	2.5	0.87	0.72	0.72	26	1.50
2	5.3	.63	.36	.33	.58	1.96	7.4	.79	.65	.72	28.5	1.50
3	6.4	1.97	2.05	.33	.58	1.60	2.1	.79	.59	.65	4.9	1.20
4	3.35	.69	30.5	.33	.54	21	5.4	3.1	.59	1.14	2.5	1.11
5	1.57	7.4	2.2	.33	1.02	3.1	4.2	1.71	.59	6.6	1.83	.94
6	2.6	1.69	1.33	1.01	2.2	1.96	1.71	1.02	.53	.79	1.50	.94
7	2.5	.75	1.01	.92	2.5	1.60	50	.79	.47	.87	15.4	.94
8	1.22	.58	.69	6.4	5.7	2.9	13.9	.79	18.7	.79	10.0	.79
9	.75	.50	.54	1.16	2.8	4.4	3.45	.94	24.5	.79	26	.79
10	.63	.58	.50	.50	1.81	1.83	2.35	1.96	4.7	4.4	7.4	.79
11	.54	.75	.50	.43	1.33	1.40	1.83	1.20	1.96	1.40	19.3	.79
12	2.8	.54	.47	.40	3.8	1.60	.94	1.40	.87	.87	5.0	.72
13	1.33	.54	.43	.71	2.35	1.20	1.40	.72	1.83	.79	14.1	.72
14	2.65	3.0	.50	11.1	1.11	1.02	9.4	.65	1.40	.72	4.6	.72
15	1.81	.81	.54	3.9	1.01	.94	1.96	4.2	1.02	1.72	2.35	.65
16	.90	.58	.43	2.5	.81	.87	1.40	5.4	.87	28.5	1.83	.72
17	.75	.54	.43	1.57	.69	.87	1.20	1.60	8.3	17.2	1.50	.87
18	.63	.50	.40	.81	.63	17.4	1.11	1.11	1.60	.47	1.40	.72
19	.58	.50	.40	.59	.58	3.3	1.11	1.02	1.02	.92	1.20	.65
20	1.33	.47	.36	.63	.68	1.60	1.71	.94	.87	29.5	1.11	.65
21	.69	.50	.36	.63	.54	1.20	.94	8.2	7.9	5.1	2.15	.59
22	.63	.63	.36	.81	1.46	1.02	.87	2.25	7.4	6.4	1.20	.72
23	2.75	.47	.36	1.33	9.6	5.6	6.1	1.20	1.71	3.75	26	1.02
24	1.46	.43	.40	1.22	5.9	6.6	1.96	.94	1.20	4.2	6.6	1.46
25	.63	.43	.36	3.0	1.93	1.60	1.20	.87	.94	2.5	2.55	.65
26	.58	.40	.36	1.57	2.3	1.20	1.20	2.5	.87	2.1	5.4	.53
27	.63	.40	.36	.81	.99	1.11	1.02	1.02	.79	1.60	4.0	.47
28	.63	.40	.36	1.42	.44	3.5	1.20	.79	5.0	1.40	2.95	.47
29	.54	.43	.36	1.22	5.4	8.8	1.02	.72	1.83	1.30	6.2	.53
30	.50	.43	.36	1.81	4.3	4.3	.94	-	1.02	1.40	1.96	1.22
31	.50	.40	-	1.22	-	6.3	.94	-	.79	-	1.60	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	6.4	0.47	1.54	2.38	47.6	146
August.....	7.4	.40	.920	1.42	28.5	88
September.....	30.5	.36	1.59	2.46	47.7	146
October.....	11.1	.33	1.59	2.46	49.4	152
November.....	99	.54	6.86	10.6	206	631
December.....	21	.87	3.70	5.72	115	352
Calendar year 1939	99	.33	2.68	4.15	980	3,000
January.....	50	.87	4.29	6.64	133	409
February.....	8.2	.65	1.69	2.61	49.0	150
March.....	24.5	.47	3.28	5.07	102	312
April.....	92	.65	9.00	13.9	270	828
May.....	28.5	1.11	7.65	11.8	237	728
June.....	1.50	.47	.846	1.31	26.4	78
Fiscal year 1939-40	99	.33	3.58	5.54	1,310	4,020

Kalalau Stream near Hanalei

Location.- Lat. 22°09'50", long. 159°38'15", 2 miles upstream from mouth and 9 miles southwest of Hanalei. Altitude of gage, 960 feet (by barometer).

Drainage area.- 1.6 square miles.

Records available.- November 1931 to June 1940.

Extremes.- Maximum discharge during year, 338 million gallons a day (523 second-feet) Nov. 27 (gage height, 3.76 feet), from rating curve extended above 18 million gallons a day; minimum, 2.4 million gallons a day (3.7 second-feet) Nov. 1-6, 18-22.
1931-40: Maximum discharge, that of Nov. 27, 1939; minimum, 1.9 million gallons a day (2.9 second-feet) Dec. 10, 11, 1933.

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

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day) (Shifting-control method used July 1 to Jan. 22)

July 1 to Jan. 22

Jan. 23 to June 30

0.9	2.25	1.6	17.0	1.0	2.15	1.5	12.7
1.0	3.15	1.8	26.6	1.1	3.2	1.7	20.5
1.1	4.4	2.0	37	1.2	4.9	1.9	31
1.2	6.1	2.3		1.3	7.1	2.1	44
1.4	10.5	2.6	93	1.4	9.8	2.3	61

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.76	2.65	2.55	2.5	2.4	3.85	6.9	2.9	3.05	3.05	7.3	3.75
2	3.4	2.65	2.55	2.5	2.4	3.55	9.4	2.9	3.05	3.05	11.6	3.6
3	3.75	2.75	2.5	2.5	2.4	3.15	6.3	2.9	2.9	3.05	6.2	3.6
4	3.5	2.66	3.85	2.55	2.4	9.4	7.2	4.1	2.9	3.2	4.9	3.6
5	2.95	2.95	2.65	2.55	2.4	5.4	8.8	3.45	2.9	4.1	4.5	3.6
6	3.05	2.75	2.5	2.5	2.4	4.1	5.9	3.2	2.9	3.45	4.1	3.6
7	3.05	2.75	2.5	2.5	2.5	3.6	c71 3.05	2.9	3.2	3.2	5.6	3.6
8	2.95	2.75	2.5	3.15	2.85	4.1	a6.0	3.05	5.0	3.2	6.0	3.6
9	2.95	2.75	2.5	2.65	2.65	4.6	a4.5	2.9	14.7	3.3	7.2	3.45
10	2.95	2.75	2.55	2.55	2.55	3.85	a4.0	3.05	10.1	4.7	7.9	3.45
11	3.05	2.75	2.55	2.55	2.55	3.5	a3.7	3.05	6.4	3.75	16.3	3.45
12	3.05	2.75	2.5	2.55	2.65	3.25	a3.6	2.9	5.1	3.45	10.4	3.45
13	3.05	2.75	2.55	2.55	2.65	3.05	a3.5	2.9	4.3	3.5	7.8	3.45
14	3.15	2.85	2.55	3.65	2.65	3.05	a5.0	2.9	3.95	5.2	6.2	3.45
15	2.75	2.75	2.55	2.85	2.55	2.95	a4.5	3.2	3.75	3.6	6.1	3.3
16	2.75	2.75	2.5	2.55	2.5	2.95	a4.3	3.2	3.3	5.2	4.3	3.3
17	2.75	2.75	2.5	2.5	2.5	2.85	a3.8	2.9	4.8	8.8	4.1	3.3
18	2.75	2.75	2.5	2.5	2.5	6.2	a3.6	2.9	3.75	14.9	3.95	3.3
19	2.75	2.75	2.5	2.5	2.4	4.9	a5.5	2.9	3.45	55	3.75	3.3
20	2.75	2.75	2.5	2.4	2.4	3.55	a5.5	2.9	3.2	17.0	3.6	3.3
21	2.75	2.75	2.5	2.4	2.4	3.6	a3.3	4.6	4.5	8.7	3.75	3.3
22	2.75	2.75	2.5	2.5	2.5	3.35	a3.1	3.6	6.6	6.4	3.6	3.3
23	2.75	2.75	2.5	2.5	3.05	4.5	a7.0	3.2	4.1	6.1	7.1	3.45
24	2.75	2.75	2.5	2.75	3.15	7.6	5.3	3.2	3.6	4.5	4.7	3.45
25	2.65	2.65	2.5	3.55	2.55	4.9	3.75	3.05	3.45	3.95	4.1	3.45
26	2.65	2.65	2.5	2.75	2.55	4.1	3.6	3.6	3.3	3.75	4.3	3.45
27	2.65	2.65	2.5	2.55	72	4.0	3.45	3.2	3.2	3.6	4.1	3.3
28	2.65	2.65	2.5	2.5	42	6.0	3.3	3.05	3.6	3.6	3.95	3.2
29	2.65	2.65	2.5	2.5	8.0	10.2	3.2	3.05	3.3	3.45	4.3	3.2
30	2.65	2.65	2.5	2.5	5.1	10.0	3.05	-	3.2	3.45	3.75	-
31	2.65	2.65	-	2.5	-	8.7	3.05	-	3.2	-	3.75	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	3.75	2.65	2.89	4.47	89.6	275
August.....	2.95	2.55	2.71	4.19	84.0	258
September.....	3.85	2.5	2.56	3.98	76.8	236
October.....	3.65	2.4	2.63	4.07	81.6	250
November.....	72	2.4	6.45	9.98	194	594
December.....	10.2	2.85	4.81	7.44	149	457
Calendar year 1939	72	2.25	3.48	6.38	1,270	3,890
January.....	71	3.05	6.81	10.5	211	648
February.....	4.6	2.9	3.17	4.90	91.8	282
March.....	14.7	2.9	4.54	6.71	134	413
April.....	53	3.05	6.67	10.3	200	614
May.....	16.3	3.6	5.75	8.90	178	547
June.....	3.75	3.2	3.42	5.29	103	315
Fiscal year 1939-40	72	2.4	4.35	6.73	1,590	4,890

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

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Kauai during fiscal year July 1939 to June 1940

Date	Stream	Tributary to-	Locality	Discharge	
				Second-foot	Million gallons a day
Nov. 13	East Branch of Hanapepe River.	Hanapepe River...	At altitude 1,625 feet, near Eleele.	7.56	4.89
13	do.....	do.....	At altitude 1,575 feet, near Eleele.	13.5	8.75
Feb. 13	do.....	do.....	do.....	7.74	5.00
Mar. 27	do.....	do.....	do.....	4.47	2.69
Feb. 13	do.....	do.....	At altitude 950 feet, near Eleele.	9.41	6.08
15	do.....	do.....	At Hanapepe Falls, near Eleele.	12.5	7.95
Mar. 27	do.....	do.....	do.....	10.5	6.76
Nov. 13	Fourth left fork of East Branch of Hanapepe River.	do.....	At altitude 1,625 feet near Eleele	5.40	3.49
Feb. 13	Kahili Stream....	do.....	300 feet above Kahili Falls, near Eleele.	3.18	2.06
Mar. 27	do.....	do.....	do.....	2.04	1.32
Feb. 13	First left fork of East Branch of Hanapepe River.	do.....	At altitude 1,500 feet, near Eleele.	.354	.229
Mar. 27	do.....	do.....	do.....	.963	.622
Sept. 18	Papapahalahola Spring.	Cane field.....	300 feet northwest of Papapahalahola Peak and half a mile above reservoir near Homestead.	.047	.030
19	do.....	do.....	do.....	.047	.030
Oct. 10	do.....	do.....	do.....	.032	.021
Dec. 8	do.....	do.....	do.....	.313	.202
Mar. 15	do.....	do.....	do.....	.313	.202
Sept. 18	First Right Branch of Lawai Stream.	Lawai Stream....	At altitude 750 feet, near Homestead.	.099	.064
19	do.....	do.....	do.....	.099	.064
Dec. 8	do.....	do.....	do.....	.176	.114
Mar. 15	do.....	do.....	do.....	.151	.098
Sept. 12	Six branches of Lawai Stream.	Pacific Ocean....	At altitude 1,030 feet, near Lawai.	1.07	.692
19	do.....	do.....	do.....	.995	.643
28	do.....	do.....	do.....	.957	.619
Oct. 27	do.....	do.....	do.....	7.38	4.77
Feb. 14	do.....	do.....	do.....	1.18	.763
21	do.....	do.....	do.....	1.25	.808
26	do.....	do.....	do.....	1.83	1.18
Mar. 21	do.....	do.....	do.....	.799	.510
Apr. 30	do.....	do.....	do.....	.833	.538
Aug. 18	Four branches of Lawai Stream.	do.....	do.....	.738	.477
Sept. 1	do.....	do.....	do.....	.381	.246
Aug. 17	Two branches of Lawai Stream.	do.....	do.....	.546	.353
Sept. 27	do.....	do.....	do.....	.464	.300
Mar. 21	Lawai Stream....	do.....	At altitude 900 feet, near Lawai.	.177	.114
Aug. 9	East Lawai Storm ditch.	Cane field.....	At altitude 500 feet, $\frac{1}{2}$ mile below intake on Lawai Stream, near Lawai.	1.72	1.11
10	do.....	do.....	do.....	2.48	1.60
14	do.....	do.....	do.....	29.8	19.3
15	do.....	do.....	do.....	1.29	.834
29	do.....	do.....	do.....	2.38	1.54
Sept. 18	do.....	do.....	do.....	1.38	.892
27	do.....	do.....	do.....	1.09	.702
Nov. 2	do.....	do.....	do.....	4.24	2.74
Feb. 21	do.....	do.....	do.....	1.05	.679
26	do.....	do.....	do.....	1.61	1.04
Mar. 21	do.....	do.....	do.....	.858	.555
Apr. 30	do.....	do.....	do.....	.956	.618
Aug. 9	Lawai Stream....	Pacific Ocean....	At altitude 492 feet, near Lawai.	.169	.109
10	do.....	do.....	do.....	.376	.243
14	do.....	do.....	do.....	6.34	4.10
15	do.....	do.....	do.....	.380	.246
29	do.....	do.....	do.....	.303	.196
Sept. 18	do.....	do.....	do.....	.140	.090
Feb. 21	do.....	do.....	do.....	.216	.140
26	do.....	do.....	do.....	.163	.105
Mar. 21	do.....	do.....	do.....	.163	.105
Apr. 30	do.....	do.....	do.....	.157	.101
Aug. 17	Omac Stream....	do.....	At altitude 550 feet, near Lawai.	.313	.202
29	do.....	do.....	do.....	.313	.202
Sept. 2	do.....	do.....	do.....	.360	.233
15	do.....	do.....	do.....	.231	.149
Dec. 18	do.....	do.....	do.....	.246	.159
4	do.....	do.....	do.....	.296	.191
8	do.....	do.....	do.....	.296	.191
Jan. 17	do.....	do.....	do.....	.313	.202
26	do.....	do.....	do.....	.465	.294

MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements on Kauai during fiscal year July 1939 to June 1940--Continued

Date	Stream	Tributary to-	Locality	Discharge	
				Second-foot	Million gallons a day
Feb. 26	Omao Stream....	Pacific Ocean....	At altitude 550 feet, near Lawai...	0.216	0.140
Mar. 15	do.....	do.....	do.....	.231	.149
Aug. 9	do.....	do.....	At altitude 530 feet, near Lawai...	.573	.370
Sept. 2	do.....	do.....	do.....	.209	.135
15	do.....	do.....	do.....	.390	.252
18	do.....	do.....	do.....	.380	.245
Dec. 4	do.....	do.....	do.....	.490	.317
8	do.....	do.....	do.....	.513	.332
Jan. 17	do.....	do.....	do.....	.512	.331
26	do.....	do.....	do.....	.279	.180
Feb. 26	do.....	do.....	do.....	.351	.227
Mar. 15	do.....	do.....	do.....	.370	.239
Dec. 11	Huleia River (local name, Hii Stream).	do.....	At altitude 850 feet, near Koloa...	.260	.168
Jan. 10	do.....	do.....	do.....	1.14	.737
17	do.....	do.....	do.....	.377	.244
Feb. 27	do.....	do.....	do.....	.138	.087
Mar. 20	do.....	do.....	do.....	.064	.041
Feb. 27	Second left branch of Huleia River above confluence with Kamooloa Stream and two tributary gullies.	Huleia River....	At altitude 700 feet, near Koloa...	.092	.060
Mar. 20	do.....	do.....	do.....	.189	.122
Oct. 4	Kamooloa ditch..	Cane field.....	2,700 feet below intake on Paohia Stream near Koloa.	7.94	5.13
Feb. 28	do.....	do.....	At McBryde Sugar Co. gaging station 1/2 mile below intake on Paohia Stream, near Koloa.	6.57	4.25
28	do.....	do.....	50 feet above Omao Stream syphon near Lawai.	5.60	3.62
5	Pepesaula Stream (local name).	Huleia River....	At altitude 900 feet, on first right branch of first left branch of Huleia River above confluence with Kamooloa Stream.	1.43	.924
Mar. 11	do.....	do.....	do.....	1.13	.730
June 23	do.....	do.....	do.....	1.02	.659
Oct. 3	Right branch of Kua Stream.	do.....	25 feet above mouth of second right branch of first left branch of Huleia River above confluence with Kamooloa Stream, near Koloa.	.698	.451
Nov. 14	do.....	do.....	do.....	.707	.457
27	do.....	do.....	do.....	.587	.379
Dec. 9	do.....	do.....	25 feet above mouth of second right branch of first left branch of Huleia River above confluence with Kamooloa Stream, near Koloa.	.789	.510
Jan. 10	do.....	do.....	do.....	.718	.464
Feb. 5	do.....	do.....	do.....	.628	.406
Mar. 11	do.....	do.....	do.....	.622	.402
Apr. 7	do.....	do.....	do.....	.605	.391
29	do.....	do.....	do.....	.583	.377
June 17	do.....	do.....	do.....	.681	.440
Dec. 22	Paohia Stream..	do.....	At altitude 1,300 feet, near Koloa.	1.34	.866
Oct. 4	do.....	do.....	At altitude 1,050 feet, near Koloa.	1.34	.866
Jan. 9	do.....	do.....	do.....	2.36	1.53
Feb. 10	do.....	do.....	do.....	6.87	4.44
Mar. 12	do.....	do.....	do.....	1.26	.814
Apr. 6	do.....	do.....	do.....	.951	.615
29	do.....	do.....	do.....	1.42	.918
June 23	do.....	do.....	do.....	1.43	.924
Oct. 3	Kamooloa Stream.	do.....	At altitude 1,050 feet, near Koloa.	2.50	1.62
July 27	do.....	do.....	At altitude 800 feet, near Koloa...	4.70	3.04
Apr. 4	Koloa ditch....	Cane field.....	100 feet below intake on Waiahi Stream, near Lihue.	10.9	7.04
4	do.....	do.....	3 1/2 miles below intake on Waiahi Stream, near Koloa.	12.5	8.08
June 22	Opaekaa Stream..	Wailua River....	Half a mile above confluence with Kalamu Stream, near Kapaa.	3.68	2.38
22	do.....	do.....	200 feet above Opaekaa Falls, near Kapaa.	7.45	4.82

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 of gage, 1,200 feet (from topographic map).

Drainage area.- 1.2 square miles.

Records available.- May 1913 to January 1933, February 1934 to June 1940.

Average discharge.- 21 years (1915-24, 1926-32, 1934-40), 7.89 million gallons a day (12.2 second-feet).

Extremes.- Maximum discharge during year, 706 million gallons a day (1,090 second-feet) May 11 (gage height, 7.08 feet), from rating curve extended above 40 million gallons a day by test on model of station site; minimum, 0.16 million gallons a day (0.25 second-foot) Apr. 11, 12.
1913-40: Maximum discharge, 1,370 million gallons a day (2,120 second-feet) Mar. 2, 1939 (gage height, 9.00 feet), from rating curve extended above 40 million gallons a day by test on model of station site; minimum, 0.09 million gallons a day (0.15 second-foot) Mar. 22, 1926.

Remarks.- Records good. No diversions above station.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

2.5	0.10	2.9	2.45	3.7	29.5
2.6	.30	3.0	3.9	4.0	49
2.7	.75	3.2	8.3	4.5	88
2.8	1.35	3.4	15.1		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.5	3.55	3.2	1.05	3.9	3.9	0.99	0.44	0.52	0.44	1.41	1.90
2	6.0	1.90	2.9	1.05	5.7	4.8	1.76	.44	.52	.61	43	7.8
3	13.5	1.35	12.1	.99	8.4	6.1	1.11	.39	.48	.44	15.5	17.6
4	7.5	1.54	.75	.93	3.9	10.1	.93	.39	.44	.28	5.6	7.1
5	4.1	8.9	17.5	.93	11.5	6.4	.99	33.5	.44	.24	4.8	4.7
6	3.6	7.9	5.8	8.1	8.6	3.75	.87	8.6	.39	.24	2.75	10.4
7	4.1	3.1	4.7	28.5	5.0	3.05	10.9	16.8	.39	.24	3.05	3.2
8	3.05	1.69	3.9	15.7	49	2.6	11.3	8.5	.39	.24	2.0	2.9
9	2.6	1.69	3.3	5.6	2.5	2.35	1.57	2.0	.62	.22	7.4	4.0
10	2.35	2.4	3.05	11.9	20	2.25	1.11	1.57	.48	.18	9.0	2.35
11	2.45	7.1	2.9	8.8	7.6	2.1	.99	1.35	.34	.16	10.3	2.0
12	4.2	1.57	3.05	2.9	6.3	7.6	.87	15.2	.30	.16	6.0	1.79
13	2.0	1.89	2.6	2.6	4.8	13.0	.87	2.0	.30	6.6	67	1.68
14	2.25	9.3	2.9	7.9	4.5	10.9	.87	1.29	.64	3.55	19.8	1.57
15	3.2	2.75	9.2	15.8	3.75	4.7	.75	1.11	2.8	.62	5.6	1.68
16	4.7	9.4	26.5	11.1	3.3	2.9	.70	1.05	1.47	.28	3.9	1.46
17	2.45	15.5	4.6	3.6	3.05	2.35	.66	.93	.62	12.8	3.2	1.29
18	1.79	9.5	2.9	2.75	2.9	2.45	.66	.81	.48	5.2	3.05	1.35
19	2.45	14.8	2.75	5.0	4.5	2.26	.75	15.6	.34	14.0	2.6	1.17
20	5.6	3.6	2.25	22.5	2.45	2.0	.70	9.6	.28	6.4	2.25	1.57
21	8.1	9.5	1.90	21	2.25	1.90	.62	1.57	.26	3.0	2.0	1.05
22	7.2	4.7	1.90	41	2.1	1.68	.57	1.35	.26	1.46	1.68	.87
23	3.9	3.45	2.6	49	22.5	1.57	.87	1.05	.26	1.11	2.45	.81
24	3.45	2.75	3.05	16.8	7.1	1.46	.99	.87	.26	.87	10.8	1.25
25	2.25	5.7	2.25	8.2	3.6	1.35	.66	.81	.26	.61	3.9	7.1
26	2.45	2.6	1.57	5.8	66	1.23	.57	.75	.24	7.6	2.0	1.57
27	2.25	11.8	1.35	10.3	6.0	1.17	.62	.66	.24	1.48	1.57	.99
28	2.25	8.5	1.29	25	4.7	1.29	.52	.62	.24	1.05	1.46	.87
29	1.90	20	1.29	6.3	4.8	1.68	.48	.57	.33	2.15	19.0	3.6
30	2.0	5.0	1.17	8.5	16.3	1.23	.48	-	.39	.87	2.9	6.2
31	3.6	3.45	-	5.2	-	1.11	.44	-	.46	-	2.35	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	13.5	1.79	3.93	6.08	122	374
August.....	20	1.35	6.06	9.35	138	577
September.....	8.9	1.17	6.93	10.8	209	645
October.....	49	.93	11.4	17.6	355	1,090
November.....	66	2.1	10.6	16.4	318	976
December.....	13.0	1.11	3.59	5.55	111	341
Calendar year 1939	139	.93	8.73	13.5	3,190	9,780
January.....	11.3	.44	1.49	2.31	46.1	141
February.....	33.5	.39	4.37	6.76	127	389
March.....	2.8	.24	.498	.771	15.4	47
April.....	14.0	.16	2.44	3.78	73.1	224
May.....	67	1.41	6.65	13.4	268	823
June.....	17.6	.61	3.39	5.25	102	312
Fiscal year 1939-40	75	.16	5.29	8.18	1,930	5,940

Left Branch of North Fork of Kaukonahua Stream near Wahiawa

Location.- Columbus control, 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 of gage, 1,200 feet (from topographic map).

Drainage area.- 1.5 square miles.

Records available.- May 1913 to June 1940.

Average discharge.- 23 years (1915-24, 1926-40), 11.5 million gallons a day (17.8 second-foot).

Extremes.- Maximum discharge during year, 1,120 million gallons a day (1,730 second-foot) May 13 (gage height, 6.88 feet), from rating curve extended above 40 million gallons a day; minimum, 0.12 million gallons a day (0.19 second-foot) Apr. 11, 12, 1913-40; Maximum discharge, 5,400 million gallons a day (8,360 second-foot) 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. No diversions above station.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.3	0.07	1.8	1.24	2.7	20.5
1.4	.14	1.9	1.84	3.0	42
1.5	.27	2.0	2.7	3.3	74
1.6	.48	2.2	5.1	3.6	115
1.7	.79	2.4	9.1	4.0	185

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.0	9.0	6.5	2.2	5.7	5.8	1.42	0.38	0.51	0.49	1.66	2.7
2	31	3.5	5.8	2.0	7.2	8.8	2.5	.35	.44	.30	97	20.5
3	51	2.7	22.5	1.95	16.2	7.5	1.45	.35	.42	.39	45	41
4	25.5	3.55	94	1.75	6.5	14.0	1.24	.31	.38	.19	8.7	13.5
5	8.2	12.5	21	1.72	18.7	8.3	1.66	55	.35	.17	9.1	6.8
6	6.7	24.5	9.0	18.3	12.0	4.8	1.15	6.5	.31	.17	4.2	9.7
7	8.1	7.2	8.1	39.5	8.6	4.0	19.0	21	.29	.17	4.5	4.3
8	5.8	3.1	6.8	11.7	104	3.65	16.2	a6.0	.31	.14	3.1	3.75
9	5.0	3.25	5.5	5.3	48	3.45	2.0	a2.5	.44	.17	16.9	5.1
10	4.4	5.1	5.1	11.0	29.5	3.1	1.54	a2.0	.40	.14	12.9	3.45
11	4.7	8.4	5.1	7.6	11.5	2.9	1.30	a1.7	.27	.13	10.9	2.8
12	14.2	2.8	6.0	3.0	10.6	18.6	1.20	a21	.26	.13	18.1	2.35
13	4.3	4.0	4.8	3.0	7.1	18.4	1.10	2.6	.23	.131	124	2.2
14	5.5	15.5	5.7	13.7	10.9	13.8	1.24	1.72	1.48	1.82	18.4	2.1
15	11.6	4.0	32	25.5	5.8	7.0	1.02	1.36	5.0	.58	6.9	2.8
16	19.9	42	42	13.2	5.1	3.9	.88	1.36	2.2	.22	5.0	2.6
17	8.9	63	7.9	4.5	4.7	5.2	.86	1.15	.67	16.4	4.3	1.93
18	4.8	25.5	5.1	3.45	4.3	4.3	.79	.97	.42	12.7	4.4	1.78
19	5.8	24	5.2	6.4	6.2	3.1	.92	21	.27	29	3.8	1.75
20	19.1	7.6	4.2	26	4.0	2.95	.92	9.4	.23	8.9	3.55	3.5
21	28.5	32	3.55	21.5	3.55	2.9	.73	1.72	.20	4.9	3.0	1.72
22	32	15.9	3.45	65	3.35	2.45	.67	1.65	.20	2.75	2.55	1.36
23	8.2	7.4	12.7	67	32	2.2	1.28	1.10	.19	1.81	10.7	1.80
24	6.2	6.4	7.3	19.2	14.2	2.1	1.31	.92	.19	1.20	15.6	1.92
25	4.8	19.8	4.1	9.2	6.0	1.93	.73	.83	.18	1.10	7.0	7.7
26	4.7	7.6	5.2	6.7	63	1.78	.60	.79	.42	29.5	3.45	3.25
27	4.4	41	2.8	10.0	7.1	1.72	.54	.70	.31	3.15	2.6	1.60
28	4.2	27.5	2.6	34.5	5.8	1.93	.51	.60	.20	1.78	2.45	1.36
29	3.45	28	2.55	7.0	6.4	3.05	.46	.54	.19	1.66	26.5	7.0
30	3.55	9.8	2.35	8.9	36.5	1.78	.44	.17	.19	1.24	4.5	14.1
31	7.2	7.3	-	6.4	-	1.54	.42	-	1.11	-	3.85	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	32	3.45	10.9	16.9	338	1,040
August.....	63	2.55	15.2	23.5	473	1,450
September.....	94	2.35	11.6	17.9	347	1,060
October.....	67	1.72	14.7	22.7	457	1,400
November.....	104	3.35	16.8	26.0	504	1,550
December.....	18.6	1.54	5.33	8.26	165	507
Calendar year 1939	311	1.54	14.5	22.4	5,300	16,250
January.....	19.0	.42	2.13	3.30	66.1	203
February.....	55	.31	5.71	8.83	165	508
March.....	50.0	.17	.588	.910	18.2	56
April.....	29.5	.13	4.09	6.33	123	376
May.....	124	1.66	15.6	24.1	485	1,490
June.....	41	1.20	5.86	9.07	176	540
Fiscal year 1939-40	124	.13	9.06	14.0	3,320	10,180

a No gage-height record; discharge computed on basis of records for station on Right Branch.

Puhawai Stream at Lualualei, near Waianae

Location.- Parshall flumes, lat. 21°28'10", long. 158°08'00", in Lualualei Valley, 5 miles northeast of Waianae. Altitude of gage, 600 feet (from topographic map).

Drainage area.- 0.6 square mile.

Records available.- September 1930 to June 1940.

Extremes.- Maximum discharge during year, 862 million gallons a day (1,330 second-feet) Oct. 22 (gage height, 2.83 feet for 6-inch flume and 6.54 feet for 4-foot flume), from rating curves extended above 3.2 and 1.0 million gallons a day, respectively, by test on model of station site; minimum, 0.01 million gallons a day (0.02 second-foot) Oct. 5, 11-13.
1930-40: Maximum discharge, that of Oct. 22, 1939; minimum, 0.01 million gallons a day (0.02 second-foot) several times during period of record.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.09	0.08	0.07	0.04	0.21	a0.16	0.20	0.19	0.10	0.10	0.11	0.12
2	.15	.08	.07	.04	.19	a.15	.80	.18	.10	.10	.24	.12
3	.10	.08	.07	.05	.18	a.15	.40	.15	.10	.10	.20	.18
4	.11	.08	.28	.02	.18	a.13	.28	.15	.10	.10	.14	.15
5	.10	.16	.10	.02	.18	a.13	.23	.16	.10	.16	.13	.14
6	.10	.10	.09	.03	.15	.13	.20	.15	.10	.14	.12	.14
7	.10	.08	.08	.03	.13	.12	.27	.15	.10	.12	.12	.11
8	.09	.08	.08	.06	.39	.12	2.45	.15	.15	.10	.13	.10
9	.09	.08	.08	.05	.26	.13	.76	.14	.13	.25	.18	.11
10	.09	.08	.08	.02	.19	.12	.46	.14	.11	.19	.18	.12
11	.09	.08	.08	.02	.15	.12	.35	.13	.11	.15	.21	.11
12	.08	.08	.08	.02	.14	.13	.28	.12	.11	.13	.22	.10
13	.07	.08	.08	.02	.12	.12	.24	.12	.11	.12	.20	.09
14	.07	.10	.06	.03	.12	.12	.33	.11	.33	.11	.18	.09
15	.07	.09	.04	.04	.11	.12	.26	.11	.98	.12	.15	.09
16	.07	.08	.04	.04	.10	.11	.21	.10	1.50	.11	.13	.09
17	.07	.07	.04	.05	.11	.12	.20	.10	.57	.31	.12	.09
18	.08	.07	.04	.04	.11	.11	.13	.10	.35	.24	.10	.09
19	.08	.07	.04	.05	.12	.11	.25	.35	.22	.18	.11	.09
20	.08	.06	.04	.06	.11	.11	.44	.20	.18	.14	.10	.09
21	.08	.07	.04	.07	.10	.11	.28	.18	.16	.13	.10	.09
22	.08	.07	.04	103	.10	.11	.23	.19	.16	.12	.10	.08
23	.08	.07	.04	61	.13	.11	1.37	.14	.14	.12	.10	.08
24	.08	.07	.04	8.4	.15	.11	1.43	.12	.15	.12	.14	.08
25	.08	.07	.03	2.45	.10	.10	.58	.12	.13	.12	.13	.08
26	.08	.07	.03	1.12	.13	.11	.40	.16	.14	.13	.13	.08
27	.08	.07	.04	.56	.14	.12	.32	.12	.13	.13	.12	.08
28	.08	.07	.05	.40	.20	.25	.28	.11	.12	.11	.11	.08
29	.08	.07	.04	.32	.16	.35	.22	.11	.11	.10	.24	.08
30	.08	.07	.04	.28	e.18	.27	.20	.10	.10	.10	.16	.10
31	.08	.07	-	.27	-	.21	.19	-	.10	-	.13	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	0.15	0.07	0.086	0.133	2.66	8.2
August.....	.16	.06	.079	.122	2.45	7.5
September.....	.28	.03	.064	.099	1.93	5.9
October.....	103	.02	5.76	8.91	179	548
November.....	.39	.10	.154	.238	4.62	14
December.....	.55	.10	.141	.218	4.56	15
Calendar year 1939	103	.02	.644	.996	235	720
January.....	2.45	.13	.459	.710	14.2	44
February.....	.55	.10	.147	.227	4.25	13
March.....	1.50	.10	.225	.348	6.97	21
April.....	.31	.10	.158	.214	4.15	13
May.....	.24	.10	.146	.226	4.53	14
June.....	.18	.08	.102	.158	3.05	9.4
Fiscal year 1939-40	103	.02	.633	.979	232	711

a No gage-height record; discharge computed on basis of records for stations on North and South Forks of Kaukonahua Stream.
c Partly estimated.

Pearl Harbor Springs at Waiawa, near Pearl City

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

Records available.- March 1931 to June 1934, July 1937 to June 1940.

Extremes.- Maximum daily discharge during year, 15.3 million gallons a day (23.7 second-feet) several days in December, January and February; minimum daily, 7.9 million gallons a day (12.2 second-feet) Sept. 1, 2.

1931-34, 1937-40: Maximum daily discharge, 17 million gallons a day (26 second-feet) Mar. 15-17, 1932, Mar. 3, 4, 8, 1933; minimum daily, that of Sept. 1, 2, 1939.

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 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.9	7.3
2.0	10.3
2.1	15.6
2.2	17.1

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.2	9.3	7.9	12.9	13.9	14.9	14.6	15.3	14.6	14.6	12.9	13.6
2	13.2	9.3	7.9	12.9	13.9	15.3	14.6	15.3	14.6	14.6	12.9	13.6
3	13.2	9.3	11.9	12.9	13.9	15.3	14.6	15.3	14.6	14.6	12.9	13.6
4	13.2	9.3	12.9	12.9	13.9	a15.3	14.6	15.3	14.6	14.6	13.2	13.6
5	13.2	10.0	12.2	12.9	14.2	a15.3	14.6	15.3	14.6	14.6	13.2	13.6
6	13.2	10.3	12.9	12.9	14.2	a15.3	14.6	15.3	14.6	14.6	13.2	13.6
7	13.2	10.0	13.2	12.9	14.2	15.3	14.6	15.3	14.6	14.2	13.2	13.6
8	12.9	10.0	13.2	12.9	14.2	15.3	14.6	15.3	14.6	14.2	13.9	13.6
9	12.9	10.0	13.2	a12.9	14.2	15.3	14.6	14.9	14.6	14.2	13.9	13.6
10	12.9	10.3	13.2	a12.9	14.2	15.3	14.6	14.9	14.6	14.2	13.9	11.5
11	12.9	10.3	13.2	a12.9	14.2	15.3	14.9	14.9	14.6	14.2	13.9	11.2
12	12.9	10.0	12.9	a12.9	14.2	15.3	15.3	14.9	14.6	13.9	13.9	11.5
13	12.9	10.0	12.9	a12.9	14.2	14.9	15.3	14.9	14.6	13.6	13.6	10.3
14	12.9	9.0	12.9	12.9	14.2	14.9	15.3	14.9	14.6	13.6	13.6	9.0
15	12.5	8.7	12.9	13.2	14.2	14.9	15.3	14.6	14.6	13.6	13.6	10.6
16	12.5	8.7	12.9	13.2	14.2	14.9	15.3	14.6	14.9	13.6	13.6	13.6
17	12.5	8.7	12.9	12.9	14.2	14.9	15.3	14.6	14.9	13.6	13.9	10.3
18	10.3	11.2	12.9	12.9	14.2	14.9	15.3	14.6	14.6	13.2	13.9	9.3
19	9.6	13.6	12.9	12.9	14.2	14.9	15.3	14.6	14.6	13.2	13.9	9.0
20	9.6	13.2	12.9	12.9	14.2	14.6	15.3	14.6	14.9	13.2	13.9	8.7
21	9.6	9.6	12.9	12.9	14.2	14.6	15.3	14.6	14.9	13.2	13.9	8.7
22	9.6	8.7	12.9	12.9	14.2	14.6	15.3	14.6	14.9	13.2	13.9	9.0
23	10.6	8.6	12.9	13.2	14.2	14.6	15.3	14.6	14.6	13.2	13.6	9.3
24	10.3	8.5	12.9	13.6	14.2	14.6	15.3	14.6	14.9	13.2	13.6	9.6
25	9.6	10.3	12.9	13.6	14.2	14.6	15.3	14.6	14.9	13.2	13.6	9.6
26	9.6	12.5	12.9	13.6	14.6	14.6	15.3	14.6	14.6	13.2	13.9	9.6
27	9.3	12.5	12.9	13.6	14.9	14.2	15.3	14.6	14.6	12.9	13.9	9.3
28	9.3	9.0	12.9	13.9	14.9	14.2	15.3	14.6	14.6	12.9	13.9	9.3
29	9.6	8.7	12.9	13.9	14.9	14.2	15.3	14.6	14.6	12.9	13.9	9.3
30	10.3	9.5	12.9	13.9	14.9	14.2	15.3	-	14.6	12.9	13.6	12.2
31	9.6	8.1	-	13.9	-	14.6	15.3	-	14.6	-	13.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	13.2	9.3	11.5	17.8	357	1,100
August.....	13.6	8.1	9.87	15.3	306	939
September.....	13.2	7.9	12.6	19.5	377	1,160
October.....	13.9	12.9	13.1	20.3	408	1,250
November.....	14.9	13.9	14.3	22.1	428	1,310
December.....	15.3	14.2	14.9	23.1	461	1,420
Calendar year 1939	15.3	7.9	13.3	20.6	4,850	14,890
January.....	15.3	14.6	15.1	23.4	467	1,430
February.....	15.3	14.6	14.9	23.1	431	1,320
March.....	14.9	14.6	14.7	22.7	455	1,400
April.....	14.6	12.9	13.7	21.2	411	1,260
May.....	13.9	12.9	13.6	21.0	422	1,300
June.....	13.6	8.7	11.1	17.2	333	1,020
Fiscal year 1939-40	15.3	7.9	13.3	20.6	4,860	14,910

a No gage-height record; discharge interpolated.

Pearl Harbor Springs at Pukapu, near Pearl City

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

Records available.- July 1931 to June 1940.

Extremes.- Maximum daily discharge during year, 4.1 million gallons a day (6.3 second-feet) Jan. 19 to Feb. 6; minimum daily, 3.2 million gallons a day (5.0 second-feet) Aug. 15 to Sept. 3.

1931-40: Maximum daily discharge, 6.0 million gallons a day (9.3 second-feet) June 4, 1932, Mar. 4, 1933; minimum daily, 1.55 million gallons a day (2.40 second-feet) July 22, 1931.

Remarks.- Records good. About a million gallons a day is occasionally diverted from stream. Surface run-off from floods not included in figures of discharge given below.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

2.0 3.1
2.1 4.0
2.2 5.0

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.45	3.55	3.2	3.55	3.65	3.9	3.9	4.1	3.9	3.8	3.55	3.45
2	3.45	3.55	3.2	3.45	3.65	3.9	3.9	4.1	3.9	3.8	3.55	3.45
3	3.45	3.55	3.2	3.55	3.75	4.0	3.9	4.1	3.9	3.8	3.55	3.45
4	3.45	3.55	3.3	3.55	3.75	4.0	3.9	4.1	3.8	3.75	3.55	3.45
5	3.35	3.35	3.35	3.55	3.75	3.9	3.9	4.1	3.8	3.75	3.55	3.45
6	3.35	3.35	3.55	3.55	3.75	3.8	4.0	4.1	3.8	3.75	3.55	3.45
7	3.35	3.35	3.45	3.55	3.75	3.9	4.0	4.0	3.8	3.75	3.55	3.45
8	3.35	3.35	3.55	3.55	3.8	3.9	4.0	4.0	3.8	3.75	3.55	3.45
9	3.35	3.35	3.65	3.55	3.9	3.9	4.0	4.0	3.8	3.75	3.55	3.45
10	3.35	3.3	3.65	3.55	3.8	3.9	3.9	4.0	3.8	3.75	3.55	3.45
11	3.35	3.3	3.65	3.55	3.8	3.9	4.0	4.0	3.8	3.75	3.55	3.45
12	3.35	3.3	3.55	3.55	3.8	3.9	4.0	4.0	3.8	3.65	3.55	3.45
13	3.35	3.3	3.55	3.55	3.8	3.8	4.0	4.0	3.8	3.65	3.55	3.45
14	3.35	3.3	3.55	3.55	3.8	3.8	4.0	4.0	3.9	3.65	3.55	3.45
15	3.35	3.2	3.55	3.55	3.8	3.8	4.0	4.0	4.0	3.65	3.55	3.45
16	3.35	3.2	3.55	3.55	3.8	3.9	4.0	4.0	4.0	3.65	3.55	3.45
17	3.35	3.2	3.55	3.55	3.9	3.9	4.0	4.0	4.0	3.65	3.55	3.45
18	3.35	3.2	3.55	3.55	3.9	3.9	4.0	4.0	4.0	3.65	3.55	3.45
19	3.35	3.2	3.55	3.55	3.9	3.9	4.1	4.0	4.0	3.65	3.55	3.45
20	3.35	3.2	3.55	3.55	3.9	3.9	4.1	4.0	4.0	3.65	3.55	3.45
21	3.35	3.2	3.55	3.55	3.9	3.8	4.1	4.0	4.0	3.65	3.55	3.45
22	3.35	3.2	3.55	3.55	3.9	3.8	4.1	4.0	4.0	3.65	3.55	3.45
23	3.45	3.2	3.55	3.55	3.9	3.8	4.1	4.0	4.0	3.65	3.55	3.45
24	3.45	3.2	3.55	3.55	3.9	3.8	4.1	4.0	4.0	3.65	3.55	3.45
25	3.35	3.2	3.55	3.55	3.9	3.8	4.1	4.0	4.0	3.65	3.55	3.45
26	3.35	3.2	3.55	3.55	3.9	3.8	4.1	3.9	3.9	3.55	3.55	3.45
27	3.35	3.2	3.55	3.55	4.0	3.8	4.1	3.9	3.9	3.55	3.55	3.45
28	3.35	3.2	3.55	3.55	4.0	3.8	4.1	3.9	3.8	3.55	3.45	3.45
29	3.35	3.2	3.55	3.55	3.9	3.8	4.1	3.9	3.8	3.55	3.45	3.45
30	3.35	3.2	3.45	3.65	3.9	3.8	4.1	-	3.8	3.55	3.45	3.45
31	3.35	3.2	-	3.65	-	3.8	4.1	-	3.8	-	3.45	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	3.45	3.35	3.37	5.21	104	321
August.....	3.55	3.2	3.26	5.04	101	310
September.....	3.65	3.2	3.38	5.25	101	311
October.....	3.65	3.55	3.44	5.32	107	327
November.....	4.0	3.65	3.84	5.94	115	355
December.....	4.0	3.8	3.86	5.97	120	367
Calendar year 1939	4.0	3.2	3.66	5.86	1,340	4,100
January.....	4.1	3.9	4.02	6.22	125	382
February.....	4.1	3.9	4.01	6.20	118	357
March.....	4.0	3.8	3.89	6.02	121	370
April.....	3.8	3.55	3.68	5.69	110	338
May.....	3.65	3.45	3.57	5.52	111	340
June.....	3.45	3.35	3.41	5.28	102	314
Fiscal year 1939-40	4.1	3.2	3.64	5.63	1,350	4,090

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

c Partly estimated.

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 east of Pearl City, and 8.8 miles northwest of Honolulu. Datum of gage is 0.80 foot below mean sea level.

Records available.- June 1931 to June 1940.

Extremes.- Maximum daily discharge during year, 2.6 million gallons a day (4.0 second-feet) Feb. 10-12; minimum daily, 2.05 million gallons a day (3.17 second-feet) Aug. 19-30.

1931-40: Maximum daily discharge recorded, 4.0 million gallons a day (6.2 second-feet) Mar. 21, 22, Mar. 31 to Apr. 3, 1932; minimum daily, 2.05 million gallons a day (3.17 second-feet) Aug. 13, 1936, Aug. 19-30, 1939.

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

Rating table, fiscal year 1939-40 (gage height, in feet,
and discharge, in million gallons a day)

2.1	1.75
2.2	2.55

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.3	2.3	2.4	2.3	2.4	2.3	2.4	2.45	2.45	2.45	2.2	2.15
2	2.4	2.3	2.45	2.3	2.4	2.3	2.4	2.45	2.45	2.45	2.2	2.15
3	2.4	2.3	2.55	2.3	2.4	2.3	2.4	2.55	2.55	2.45	2.15	2.2
4	2.4	2.2	2.45	2.3	2.4	2.3	2.45	2.55	2.55	2.45	2.15	2.2
5	2.4	2.2	2.4	2.2	2.4	2.3	2.45	2.55	2.45	2.45	2.15	2.2
6	2.4	2.2	2.4	2.15	2.4	2.3	2.45	2.55	2.4	2.45	2.15	2.2
7	2.4	2.2	2.4	2.15	2.4	2.3	2.45	2.55	2.4	2.4	2.15	2.2
8	2.3	2.15	2.4	2.2	2.4	2.4	2.45	2.55	2.4	2.4	2.2	2.2
9	2.3	2.15	2.45	2.2	2.4	2.4	2.45	2.55	2.4	2.4	2.2	2.2
10	2.3	2.15	2.45	2.2	2.3	2.4	2.4	2.6	2.4	2.4	2.2	2.2
11	2.3	2.15	2.45	2.15	2.3	2.4	2.4	2.6	2.4	2.4	2.15	2.2
12	2.3	2.15	2.45	2.15	2.3	2.4	2.4	2.6	2.4	2.4	2.15	2.2
13	2.3	2.15	2.4	2.2	2.3	2.4	2.4	2.45	2.4	2.3	2.15	2.2
14	2.3	2.15	2.4	2.2	2.3	2.4	2.4	2.4	2.4	2.3	2.15	2.2
15	2.3	2.15	2.4	2.2	2.4	2.4	2.4	2.4	2.45	2.3	2.15	2.2
16	2.4	2.15	2.4	2.3	2.4	2.4	2.4	2.4	2.45	2.3	2.15	2.2
17	2.4	2.15	2.4	2.3	2.4	2.4	2.4	2.4	2.45	2.3	2.2	2.2
18	2.4	2.15	2.3	2.3	2.4	2.4	2.4	2.55	2.45	2.3	2.2	2.2
19	2.4	2.05	2.3	2.4	2.4	2.4	2.4	2.45	2.45	2.3	2.2	2.2
20	2.4	2.05	2.3	2.45	2.4	2.4	2.4	2.45	2.45	2.3	2.2	2.2
21	2.4	2.05	2.3	2.4	2.4	2.4	2.45	2.45	2.45	2.3	2.2	2.3
22	2.4	2.05	2.3	2.45	2.4	2.4	2.45	2.55	2.55	2.3	2.2	2.3
23	2.4	2.05	2.3	2.45	2.4	2.3	2.45	2.55	2.45	2.3	2.2	2.3
24	2.45	2.05	2.3	2.55	2.4	2.3	2.4	2.55	2.45	2.3	2.2	2.3
25	2.45	2.05	2.3	2.45	2.4	2.3	2.4	2.55	2.45	2.3	2.2	2.3
26	2.4	2.05	2.3	2.4	2.4	2.3	2.4	2.55	2.45	2.4	2.2	2.2
27	2.3	2.05	2.3	2.4	2.4	2.3	2.45	2.55	2.45	2.3	2.2	2.2
28	2.3	2.05	2.3	2.4	2.3	2.3	2.45	2.45	2.45	2.3	2.2	2.2
29	2.3	2.05	2.3	2.4	2.3	2.3	2.55	2.45	2.45	2.3	2.15	2.2
30	2.3	2.05	2.3	2.4	2.3	2.3	2.55	-	2.45	2.3	2.15	2.2
31	2.3	2.2	-	2.4	-	2.3	2.45	-	2.45	-	2.15	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	2.45	2.3	2.36	3.65	73.1	224
August.....	2.3	2.05	2.15	3.30	66.2	203
September.....	2.55	2.3	2.37	3.87	71.2	215
October.....	2.55	2.15	2.31	3.57	71.6	220
November.....	2.4	2.3	2.37	3.67	71.2	219
December.....	2.4	2.3	2.35	3.64	72.8	223
Calendar year 1939	2.7	2.05	2.36	3.65	862	2,650
January.....	2.55	2.4	2.44	3.78	75.5	232
February.....	2.6	2.4	2.51	3.88	72.7	223
March.....	2.55	2.4	2.45	3.79	75.8	233
April.....	2.45	2.3	2.35	3.64	70.6	217
May.....	2.2	2.15	2.18	3.37	67.5	207
June.....	2.3	2.15	2.21	3.42	66.4	204
Fiscal year 1939-40	2.6	2.05	2.33	3.61	855	2,620

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 west of Aiea, and 7.6 miles northwest of Honolulu. Datum of gage is 1.10 feet below mean sea level.

Records available.— March 1931 to June 1940.

Extremes.— Maximum daily discharge during year, 22 million gallons a day (34 second-feet) Nov. 21 to Dec. 11, Jan. 27-29, Feb. 6; minimum daily, 13.4 million gallons a day (20.7 second-feet) Sept. 27.

1931-40: Maximum daily discharge, 25 million gallons a day (39 second-feet) Feb. 17-26, 1938; minimum daily, 8.7 million gallons a day (13.5 second-feet) Aug. 23, 1934.

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

Rating table, fiscal year 1939-40 (gage height, in feet,
and discharge, in million gallons a day)

2.0	11.5
2.2	18.7
2.5	28

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.2	14.5	14.2	18.7	20.5	22	20.5	17.2	20.5	16.4	16.4	19.9
2	19.9	14.5	15.6	14.5	20.5	22	16.8	17.2	20.5	16.0	19.1	19.9
3	19.9	14.9	16.8	14.5	20.5	22	16.4	17.2	20.5	18.0	19.5	17.6
4	19.9	18.7	18.7	14.5	20.5	22	16.4	21	16.4	18.0	19.5	16.8
5	19.9	16.0	18.0	13.8	20.5	22	20.5	21.5	16.4	16.8	19.5	19.5
6	19.9	18.7	19.1	18.0	20.5	22	20.5	22	19.5	19.5	17.2	17.2
7	16.8	17.2	19.1	14.9	20.5	22	21	21.5	17.2	19.9	18.0	17.2
8	16.8	14.2	19.1	18.7	20.5	22	21	17.2	16.8	19.9	18.0	17.2
9	19.5	18.4	19.1	14.9	21	22	21.5	21	19.5	20.5	16.8	17.6
10	17.6	14.2	19.1	15.3	21	22	21.5	20.5	20.5	18.7	17.2	17.6
11	16.8	14.5	16.4	14.5	21	22	21.5	21	16.8	17.6	18.7	19.1
12	17.2	14.9	15.3	14.9	21	21.5	21.5	17.2	16.8	17.6	20.5	15.6
13	17.2	18.7	18.7	18.7	21	21.5	21.5	18.7	16.8	17.6	19.9	15.6
14	16.8	14.5	14.5	16.4	21	21.5	21.5	16.4	17.6	19.9	19.9	15.3
15	16.8	14.9	14.9	19.1	21	21.5	21.5	18.0	20.5	17.2	19.9	14.9
16	17.6	14.5	14.9	14.9	21	21.5	21.5	18.0	20.5	16.0	19.9	18.7
17	16.0	18.7	18.7	14.9	21	21	19.1	19.5	20.5	16.0	19.9	15.3
18	16.0	14.5	14.9	14.9	21	18.4	18.7	20.5	20.5	15.6	19.9	15.3
19	19.1	16.0	14.5	14.5	21.5	19.1	21.5	17.2	20.5	15.3	19.9	16.4
20	16.0	18.7	14.5	18.7	21.5	18.4	21.5	21	20.5	16.4	16.4	15.3
21	15.6	14.9	14.9	18.4	22	16.4	21.5	18.0	20.5	19.1	18.0	14.9
22	16.0	16.0	18.4	19.1	22	16.4	17.6	21	20.5	16.4	18.4	15.6
23	19.1	16.0	14.5	19.5	22	17.2	17.2	17.2	20.5	16.8	18.0	18.7
24	16.4	14.2	18.7	19.9	22	20.5	17.6	21	20.5	18.0	17.6	16.0
25	15.6	18.4	14.5	19.9	22	21	19.9	21	16.4	19.1	19.9	14.9
26	15.3	14.2	18.0	19.9	22	16.4	21.5	17.2	16.0	19.1	20.5	14.9
27	15.3	18.4	15.4	19.9	22	16.0	22	18.0	15.3	19.1	16.8	14.9
28	18.7	14.9	14.2	19.9	22	16.0	22	20.5	16.0	19.1	16.4	15.6
29	15.3	14.2	18.0	20.5	22	17.2	22	20.5	15.6	19.1	16.4	17.2
30	18.7	18.0	14.2	20.5	22	20.5	17.6	-	16.4	16.4	19.9	16.4
31	14.9	14.2	-	20.5	-	21	16.8	-	19.9	-	17.2	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July	19.9	14.9	17.3	26.8	538	1,650
August	18.7	14.2	16.0	24.8	495	1,520
September	19.1	13.4	16.5	25.5	495	1,520
October	20.5	13.8	17.3	26.8	537	1,650
November	22	20.5	21.2	32.0	637	1,950
December	22	16.0	20.2	31.3	625	1,920
Calendar year 1939	22	13.4	18.7	28.9	6,830	20,960
January	22	16.4	20.1	31.1	622	1,910
February	22	17.2	19.3	29.9	560	1,720
March	20.5	15.3	18.7	28.9	578	1,780
April	20.5	15.3	17.8	27.5	555	1,640
May	20.5	16.4	18.6	28.8	575	1,770
June	19.9	14.9	16.8	26.0	503	1,540
Fiscal year 1939-40	22	13.4	18.3	28.3	6,700	20,570

Moanalua Stream near Honolulu

Location (revised).- Concrete weir control, lat. 21°22'50", long. 157°52'20", 5 miles upstream from mouth and 5 miles north of Honolulu post office. Datum of gage is 339.12 feet above mean sea level.

Drainage area.- 2.8 square miles (revised).

Records available.- June 1926 to June 1940.

Average discharge.- 14 years (1926-40), 2.70 million gallons a day (4.18 second-feet).

Extremes.- Maximum discharge during year, 738 million gallons a day (1,140 second-feet) Nov. 8 (gage height, 6.26 feet), from rating curve extended above 71 million gallons a day based on data for similar weirs; no flow for several periods during year.
1926-40: Maximum discharge, 2,370 million gallons a day (3,670 second-feet) Nov. 18, 1930 (gage height, 11.58 feet), from rating curve extended above 40 million gallons a day based on weir formulas; no flow during dry weather.

Remarks.- Records good except those for period of no gage-height record and those above 100 million gallons a day, which are poor. Continuous records of rainfall are obtained at station.

Rating table, fiscal year 1939-40 (gage height, in feet,
and discharge, in million gallons a day)

0	0	0.8	3.75	2.0	45
.2	.05	1.0	6.8	2.5	82
.4	.48	1.2	11.1	3.0	128
.6	1.70	1.6	24.5		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.13	0	0	0	0.54	1.49	0	0	0	0	0	0.34
2	3.25	0	0	0	.19	.79	0	0	0	0	28.5	.84
3	2.45	0	5.6	0	.16	1.16	0	0	0	0	21	4.3
4	1.14	0	51	0	1.54	2.8	0	0	0	0	a5.0	.09
5	.48	2.1	12.7	0	3.5	3.6	0	39.5	0	0	a.5	1.07
6	.19	.23	.96	0	1.19	1.28	0	3.9	0	0	a.09	3.4
7	.11	.01	.22	.12	1.27	.58	2.4	.52	0	0	a.02	.79
8	.05	0	.03	15.2	.72	.25	9.3	.72	0	0	a.01	.34
9	.04	0	.01	1.18	10.9	.11	.51	.12	0	0	a5.0	.19
10	.03	0	.01	.22	9.1	.04	.05	.01	0	0	a1.5	.57
11	.03	0	0	.05	2.6	.03	.02	.01	0	0	a.5	.12
12	.02	0	0	.01	1.42	.18	.01	0	0	0	a20	.03
13	.01	0	0	.01	.74	.84	.01	0	0	0	a30	.02
14	0	0	0	.01	.58	1.57	0	0	0	0	a7.0	.01
15	0	0	0	.73	.51	.30	0	0	0	0	1.59	.01
16	0	0	4.4	3.15	.15	.05	0	0	.67	0	.74	.01
17	0	0	.12	.23	.05	.02	0	0	.04	0	.31	0
18	0	0	0	.03	.03	.01	0	0	.04	0	.16	0
19	0	.38	0	.02	.02	.01	.09	4.2	.01	0	.09	0
20	0	0	0	1.57	.02	.01	.01	.93	0	.22	.04	0
21	0	0	0	19.9	.01	0	0	.01	0	.14	.02	0
22	0	0	0	.78	.01	0	0	0	0	0	.01	0
23	0	0	.05	101	2.95	0	.09	0	0	0	1.79	0
24	0	0	0	27.5	2.3	0	.81	0	0	0	3.45	0
25	0	0	0	6.4	.94	0	.02	0	0	0	1.35	0
26	0	0	0	2.7	16.0	0	.01	0	0	2.65	.36	0
27	0	0	0	1.49	2.85	0	.01	0	0	.58	.09	0
28	0	0	0	4.5	3.0	0	0	0	0	.03	.03	0
29	0	0	0	1.50	2.2	0	0	0	0	0	8.6	0
30	0	0	0	.95	3.85	0	0	-	0	0	2.1	0
31	0	0	-	.64	-	0	0	-	0	-	.79	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	3.25	0	0.256	0.396	7.93	24
August.....	2.1	0	.088	.136	2.72	8.3
September.....	51	0	2.50	3.87	75.1	230
October.....	101	0	8.55	13.2	265	814
November.....	72	.01	4.66	7.21	140	429
December.....	3.6	0	.488	.755	15.1	46
Calendar year 1939	149	0	4.00	6.19	1,460	4,480
January.....	9.3	0	.430	.665	13.3	41
February.....	39.5	0	1.72	2.66	49.9	153
March.....	.67	0	.025	.039	.76	2.3
April.....	2.65	0	.121	.187	3.62	11
May.....	30	0	4.84	7.02	141	432
June.....	4.3	0	.404	.625	12.1	37
Fiscal year 1939-40	101	0	1.98	3.06	727	2,230

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

Kalihi Stream near Honolulu

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

Drainage area.- 2.7 square miles.

Records available.- September 1913 to June 1940.

Average discharge.- 23 years (1916-20, 1921-40), 5.21 million gallons a day (8.06 second-feet).

Extremes.- Maximum discharge during year, 504 million gallons a day (780 second-feet) Nov. 8 (gage height, 7.57 feet), from rating curve extended above 220 million gallons a day by test on model of station site; minimum, 0.84 million gallons a day (1.30 second-feet) Mar. 23, 24, 27, 28, Apr. 4, 5, 11, 12.
1913-40: Maximum discharge, 10,900 million gallons a day (16,900 second-feet) Nov. 18, 1930 (gage height, 13.81 feet), from rating curve extended above 220 million gallons a day by test on model of station site; minimum, 0.06 million gallons a day (0.09 second-foot) Oct. 22, 1933.

Remarks.- Records good. Water for domestic use diverted from stream above station.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.80	1.4	8.7	2.3	30.5	3.5	74
1.0	2.2	1.7	14.8	2.6	40	4.0	98
1.2	5.1	2.0	22	3.0	54		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.0	2.0	1.28	1.13	4.1	4.1	1.64	1.28	1.21	0.97	1.82	5.2
2	4.7	1.55	1.28	1.05	3.5	4.0	1.28	1.13	1.21	.83	7.0	
3	4.1	1.37	c15.6	1.05	3.85	3.8	1.82	1.28	1.13	.97	17.8	9.3
4	3.35	1.37	.42	1.05	3.7	9.8	1.64	1.28	1.13	.90	7.4	7.4
5	2.85	4.2	12.4	1.05	7.5	6.8	1.64	.44	1.05	1.01	7.5	5.3
6	2.7	2.3	4.0	1.67	4.1	4.5	1.46	6.8	1.05	1.28	5.1	5.4
7	2.45	1.91	2.85	6.7	4.3	3.65	8.4	4.3	1.05	1.05	4.1	4.1
8	2.35	1.64	2.45	19.0	66	3.25	10.8	4.1	.97	1.05	3.35	3.35
9	2.2	1.73	2.1	3.0	10.4	3.0	2.85	3.0	1.05	1.05	14.4	c3.4
10	2.1	2.1	2.0	2.2	8.2	2.7	2.35	2.6	.97	1.05	15.7	2.8
11	2.1	1.64	1.91	1.82	6.0	2.6	2.0	2.35	.97	.90	12.1	2.45
12	2.35	1.46	1.82	1.55	4.6	4.5	1.91	3.05	.90	1.05	22.5	2.2
13	2.0	1.55	1.73	1.46	3.8	5.2	1.82	2.1	.90	1.52	33	2.0
14	2.0	2.1	1.46	1.64	3.5	4.2	1.82	1.91	1.21	1.37	10.8	c2.1
15	1.91	1.55	1.64	5.9	3.25	3.1	1.73	1.82	2.4	1.05	6.8	c2.0
16	2.0	1.55	5.1	4.9	3.0	2.6	1.64	1.73	2.1	1.21	5.4	c1.91
17	1.91	1.37	2.2	2.2	2.7	2.45	1.55	1.64	1.73	6.9	4.6	1.91
18	1.73	1.28	1.73	2.0	3.45	2.35	1.55	1.55	1.28	3.7	4.1	1.62
19	2.3	2.6	1.55	1.91	3.1	2.2	2.8	7.5	1.13	6.1	3.65	1.82
20	4.6	1.46	1.46	9.0	2.6	2.1	2.0	3.25	1.05	6.4	3.35	1.73
21	2.35	1.73	1.37	25	2.45	2.0	1.55	2.5	.97	3.35	3.1	1.55
22	2.95	1.37	2.0	99	2.35	1.91	1.55	2.6	.97	2.45	2.85	1.46
23	2.1	1.21	2.3	95	6.8	1.82	6.3	1.82	.90	2.0	4.2	1.46
24	1.82	1.21	1.64	21.5	4.8	1.82	3.1	1.64	.90	1.91	5.5	1.55
25	1.73	1.21	1.46	10.0	3.1	1.73	1.91	1.46	1.05	1.91	6.5	1.82
26	1.73	1.13	1.37	6.8	22.5	1.73	1.73	1.37	.90	7.9	3.8	1.46
27	1.73	1.66	1.28	5.6	5.3	1.73	1.64	1.28	.90	3.5	3.1	1.37
28	1.64	1.46	1.36	9.4	7.4	2.2	1.55	1.28	.90	2.6	2.7	1.28
29	1.55	2.15	1.37	5.3	5.8	1.96	1.46	1.21	1.60	2.1	7.8	1.55
30	1.55	1.46	1.13	5.4	6.1	1.82	1.37	-	.97	1.91	4.7	2.4
31	2.0	1.21	-	4.6	-	1.64	1.37	-	.97	-	6.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	4.7	1.55	2.38	3.68	73.8	227
August.....	4.2	1.13	1.69	2.61	52.5	161
September.....	42	1.13	4.16	6.44	125	383
October.....	95	1.05	11.2	17.3	348	1,070
November.....	66	2.35	7.27	11.2	218	669
December.....	9.8	1.64	3.14	4.86	97.3	298
Calendar year 1939.....	98	1.05	6.30	9.75	2,300	7,060
January.....	10.8	1.37	2.65	3.95	79.0	242
February.....	44	1.21	5.96	5.97	112	344
March.....	2.4	.90	1.14	1.76	35.4	109
April.....	7.9	.90	2.35	3.64	70.4	216
May.....	63	1.82	9.58	14.8	297	912
June.....	9.3	1.28	2.97	4.60	89.1	273
Fiscal year 1939-40.....	95	.90	4.56	6.75	1,600	4,900

c Partly estimated.

Nuuanu Stream below reservoir 2 wasteway, near Honolulu

Location.- Sharp-crested weirs, lat. 21°20'55", long. 157°49'40", on Pali road in upper Nuuanu Valley, a quarter of a mile downstream from reservoir 2 wasteway and 3.5 miles northeast of Honolulu post office. Datum of gage is 631.71 feet above mean sea level.

Drainage area.- 3.4 square miles.

Records available.- October 1913 to June 1940.

Average discharge.- 21 years (1917-20, 1922-40), 5.84 million gallons a day (9.04 second-foot).

Extremes.- Maximum discharge during year, 270 million gallons a day (4.8 second-foot) Oct. 22 (gage height, 4.47 feet), from rating curve extended above 300 million gallons a day on basis of weir formulas and test on model of station site; minimum, 0.69 million gallons a day (1.07 second-foot) Aug. 25.

1913-40: Maximum discharge, 1,600 million gallons a day (2,480 second-foot) Jan. 16, 1921 (gage height, 8.74 feet, from floodmarks), from rating curve extended above 300 million gallons a day on basis of weir formulas and test on model of station site; minimum, 0.06 million gallons a day (0.09 second-foot) Sept. 10, 11, 1925.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.90	0.7	2.1	1.0	3.65	1.5	14.9
.5	1.25	.9	2.6	1.1	4.6	2.0	37.5
.6	1.65	.9	3.1	1.2	6.5	2.5	68

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.0	2.9	1.95	1.74	5.4	5.6	3.0	2.25	2.45	1.65	1.61	3.65
2	7.0	2.7	1.85	1.65	5.2	5.4	4.0	2.2	2.30	1.70	23	3.95
3	5.2	2.55	7.5	1.61	5.2	5.2	3.0	2.2	2.2	1.49	23	5.4
4	5.0	2.55	20.5	1.61	5.0	7.5	2.95	2.2	2.05	1.45	3.4	4.4
5	5.0	3.2	5.6	1.79	6.1	7.2	2.9	9.3	1.92	1.49	3.85	4.2
6	4.3	2.65	2.75	2.4	5.2	5.4	2.75	3.45	1.96	1.45	2.7	4.7
7	4.1	2.55	2.45	4.2	5.0	5.0	5.2	4.9	1.96	1.41	2.5	3.95
8	3.85	2.45	2.35	9.4	30	5.0	7.1	3.2	1.96	1.37	2.3	3.6
9	3.95	2.45	2.2	5.3	9.9	5.0	3.5	2.85	1.96	1.41	3.4	3.65
10	3.6	2.75	2.2	3.2	11.5	4.6	3.05	2.8	1.96	1.37	5.1	3.45
11	3.6	2.35	2.2	3.0	7.2	4.6	3.0	2.7	1.61	1.33	6.3	3.3
12	4.3	2.2	2.2	2.85	6.3	4.6	2.9	3.05	1.08	1.33	17.4	3.2
13	3.5	2.25	2.1	1.98	5.9	5.2	2.85	2.65	1.08	1.78	10.9	3.15
14	3.6	2.35	2.05	1.78	5.7	4.8	2.8	2.55	1.33	1.61	5.6	3.2
15	3.4	2.2	2.1	2.6	5.6	4.4	2.7	2.45	2.6	1.53	5.0	3.1
16	3.4	2.25	5.0	2.9	5.6	4.2	2.6	2.45	2.3	1.45	4.6	3.15
17	3.25	2.15	2.25	2.15	5.6	4.2	2.6	2.35	2.0	4.9	4.5	3.05
18	3.2	2.25	2.05	2.05	5.7	4.1	2.55	2.35	1.92	2.3	4.4	3.0
19	3.45	3.0	2.05	2.0	5.6	3.75	3.05	3.5	1.83	2.6	4.2	2.95
20	4.5	2.1	1.96	3.25	5.2	3.6	2.95	3.45	1.78	2.65	4.1	3.0
21	3.5	2.75	1.92	8.9	5.0	3.55	2.65	2.8	1.70	1.78	3.95	2.95
22	3.25	2.15	1.92	46	5.0	3.45	2.45	2.75	1.65	1.61	5.85	2.75
23	3.1	4.2	1.96	59	8.1	3.3	6.1	2.85	1.65	1.83	5.0	2.7
24	2.95	4.0	1.88	17.0	6.1	3.25	3.75	2.9	1.70	1.49	5.3	17.4
25	2.9	1.03	1.83	8.6	5.0	3.2	2.7	2.85	1.70	1.49	5.5	43
26	2.9	.90	1.78	7.0	20	3.2	2.6	2.85	1.65	6.3	4.2	40
27	2.85	1.24	1.78	6.3	6.6	3.15	2.5	2.75	1.61	2.35	3.85	37.5
28	2.8	2.0	1.68	8.3	10.4	3.7	2.45	2.65	1.70	1.83	3.65	27
29	2.75	2.0	1.83	6.1	6.5	3.3	2.4	2.65	1.92	1.66	5.2	17.6
30	2.75	1.83	1.78	5.9	6.1	3.1	2.35	1.61	1.67	3.85	9.9	
31	2.55	1.78	-	5.6	-	3.0	2.3	-	1.57	-	4.4	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	7.0	2.75	3.73	5.77	116	354
August.....	4.2	.90	2.38	3.68	73.8	226
September.....	20.5	1.78	3.06	4.73	91.6	281
October.....	59	1.61	7.55	11.7	254	719
November.....	30	5.0	7.49	11.6	225	689
December.....	7.6	3.0	4.53	6.78	136	416
Calendar year 1939.....	52	.90	6.33	9.79	2,510	7,090
January.....	7.1	2.3	3.15	4.87	97.6	300
February.....	9.3	2.2	3.20	4.95	92.8	285
March.....	2.6	1.08	1.83	2.83	56.7	174
April.....	6.3	1.33	1.92	2.97	67.6	177
May.....	25	1.61	5.61	6.63	171	525
June.....	45	2.7	9.10	14.1	273	837
Fiscal year 1939-40.....	59	.90	4.44	6.87	1,830	4,980

West Branch of Manoa Stream near Honolulu

Location.- Combination Parshall flume and concrete weir control, lat. 21°19'50", long. 157°45'15", 75 feet upstream from lower highway and 4 miles northeast of Honolulu post office. Datum of gage is 290.84 feet above mean sea level (Board of Water Supply bench mark).

Drainage area.- 1.1 square miles.

Records available.- August 1925 to June 1940. May 1913 to January 1921 at site 200 feet upstream.

Average discharge.- 21 years (1913-20, 1926-40), 2.92 million gallons a day (4.52 second-foot).

Extremes.- Maximum discharge during year, 290 million gallons a day (449 second-foot) Oct. 22 (gage height, 3.60 feet), from rating curve extended above 33 million gallons a day by test on model of station site; minimum, 0.22 million gallons a day (0.34 second-foot) Apr. 11, 12.
1913-21, 1925-40: Maximum gage height, 10.4 feet, Jan. 16, 1921, from floodmarks, site and datum then in use, (discharge, 2,100 million gallons a day or 3,250 second-foot, estimated from rating curve extended above 40 million gallons a day); minimum discharge, about 0.05 million gallons a day (0.08 second-foot) Mar. 16, 22, 1926.

Remarks.- Records good. No diversions above station.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.3	1.11	0.8	6.8	1.4	27
.1	.25	.4	1.78	1.0	11.6	1.7	44
.2	.62	.6	3.8	1.2	18.6		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.44	1.97	1.18	0.67	3.0	2.35	0.62	0.44	0.47	0.51	0.47	1.96
2	4.8	1.01	1.01	.62	2.25	2.4	2.2	.44	.44	.65	25.5	3.2
3	2.6	.82	14.3	.62	2.85	2.5	.77	.44	.44	.29	12.8	8.4
4	2.4	.72	23	.88	2.25	6.1	.62	1.40	.44	.26	4.4	5.1
5	1.71	2.4	5.7	.62	4.8	5.3	.62	8.4	.44	.44	3.85	3.35
6	1.88	1.72	2.15	2.6	2.6	2.6	.58	1.31	.44	.36	1.87	3.5
7	1.38	1.11	1.65	3.15	2.35	1.96	3.65	6.4	.40	.29	1.51	2.25
8	1.31	.86	1.58	6.6	20	1.78	3.8	4.3	1.35	.25	1.44	1.78
9	1.24	1.31	1.38	2.05	6.1	1.58	1.24	1.71	.58	.25	3.7	1.96
10	1.18	2.05	1.24	1.44	16.8	1.31	.86	1.24	.44	.25	5.3	1.44
11	1.38	1.31	1.71	1.01	4.1	1.24	1.01	1.01	.36	.22	4.7	1.24
12	2.35	.91	1.38	.86	3.05	2.55	.77	3.15	.36	.44	19.0	1.11
13	1.24	.91	1.65	.96	2.35	3.8	.62	1.31	.32	.51	11.8	1.01
14	1.38	1.31	1.18	1.58	2.25	2.45	.58	.96	.68	.36	4.1	1.01
15	1.18	.96	2.6	7.3	1.78	1.71	.55	.82	1.00	.29	2.6	.96
16	1.51	2.85	12.7	4.1	1.51	1.31	.51	.77	.77	.44	1.96	.91
17	1.51	1.71	2.35	1.87	1.38	1.11	.51	.72	.32	3.25	1.71	.91
18	1.44	1.58	1.58	1.38	2.6	1.36	.47	.62	.40	.62	1.58	.82
19	3.15	4.9	1.31	1.38	1.96	1.11	1.57	6.6	.36	1.01	1.44	.77
20	5.5	1.71	1.11	3.7	1.38	1.01	1.33	1.87	.36	.77	1.38	.72
21	2.15	5.1	1.01	4.9	1.24	.91	.62	1.31	.32	.55	1.24	1.09
22	2.85	1.58	.96	32.5	1.11	.86	.51	1.11	.29	.47	1.11	.67
23	1.71	1.18	1.96	39	7.8	.88	5.1	.77	.29	.40	3.85	.62
24	1.24	.96	1.11	12.9	6.6	.82	1.78	.72	.25	.47	2.15	.85
25	1.06	1.24	.96	5.6	3.0	.77	.91	.62	.29	.51	4.5	1.60
26	1.24	.96	.82	3.95	15.7	.77	.67	.67	.25	8.0	1.71	.82
27	1.06	3.95	.77	3.15	3.8	.72	.62	.55	.25	2.15	1.38	.72
28	1.01	3.1	.77	6.3	9.6	1.51	.55	.51	.60	1.01	1.31	.72
29	.86	1.71	.82	3.25	3.25	.66	.55	.51	.93	.72	4.7	1.01
30	.91	1.24	.72	3.15	4.1	.77	.47	-	.32	.58	2.05	2.45
31	1.18	1.01	-	3.35	-	.62	.44	-	.44	-	4.5	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	5.5	0.86	1.79	2.77	55.6	170
August.....	5.1	.72	1.75	2.71	54.1	165
September.....	23	.72	3.02	4.67	90.7	278
October.....	39	.58	5.20	8.05	161	495
November.....	20	1.11	4.73	7.32	142	435
December.....	6.1	.62	1.77	2.74	54.8	168
Calendar year 1939	78	.58	3.72	5.76	1,360	4,170
January.....	5.1	.44	1.12	1.73	34.7	107
February.....	8.4	.40	1.71	2.65	49.7	152
March.....	1.35	.25	.471	.729	14.6	45
April.....	8.0	.22	.684	1.37	26.5	81
May.....	25.5	.47	4.50	6.96	140	428
June.....	8.4	.62	1.76	2.72	53.0	162
Fiscal year 1939-40	39	.22	2.39	3.70	877	2,690

East Branch of Manoa Stream near Honolulu

Location.- Combined Parshall flume and concrete weir control, lat. 21°19'50", long. 157°45'10", just downstream from highway bridge, 400 feet upstream from confluence with West Branch, and 4 miles northeast of Honolulu post office. Datum of gage is 294.50 feet above mean sea level (Board of Water Supply bench mark).

Drainage area.- 1.0 square mile.

Records available.- May 1913 to January 1921, August 1925 to June 1940.

Average discharge.- 21 years (1913-20, 1926-40), 3.19 million gallons a day (4.94 second-foot).

Extremes.- Maximum discharge during year, 241 million gallons a day (373 second-foot) May 12 (gage height, 3.78 feet), from rating curve extended above 21.5 million gallons a day by test on model of station site; minimum discharge not determined, owing to faulty record.

1913-21, 1925-40: Maximum gage height, 10.4 feet, Jan. 16, 1921, from floodmarks, site and datum then in use, (discharge, 2,000 million gallons a day or 3,090 second-feet, estimated from rating curve extended above 37 million gallons a day; minimum discharge, 0.4 million gallons a day (0.6 second-foot) June 7, 8, 1926.

Remarks.- Records good except those for period of no gage-height record, which are fair. East Manoa ditch diverts water from stream about 1,500 feet above station. Board of Water Supply, at times, diverts a small amount of ground water from tunnels in drainage area.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.3	1.15	0.8	5.6	1.4	14.8
.4	1.85	1.0	8.1	1.6	19.5
.6	3.55	1.2	10.9	1.8	26

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.35	3.9	3.1	2.75	3.1	4.0	2.75	2.4	2.15	1.98	2.2	3.45
2	6.0	3.1	3.25	2.65	2.65	3.95	3.95	2.35	2.15	2.2	20	4.9
3	3.95	2.9	11.5	2.65	3.0	4.2	2.75	2.35	2.1	1.85	8.0	9.2
4	4.2	2.85	15.7	2.5	2.65	7.9	2.65	2.25	2.1	1.85	4.5	5.2
5	3.65	5.1	7.0	2.5	3.85	6.7	2.65	15.2	2.1	2.1	3.5	4.7
6	3.45	3.9	3.75	4.3	3.1	4.2	2.65	3.7	2.0	2.1	3.2	4.6
7	3.35	3.3	3.45	4.8	2.9	3.85	5.1	4.6	2.0	2.0	3.0	3.75
8	3.35	2.9	3.35	7.5	10.1	3.65	5.0	6.2	3.45	1.9	3.0	3.35
9	3.2	3.85	3.2	3.9	3.55	3.0	3.0	3.45	2.35	1.9	4.5	3.75
10	3.1	4.1	3.2	2.9	11.1	3.35	2.75	3.2	2.15	1.9	7.0	3.2
11	3.0	3.2	3.55	2.75	4.0	3.3	2.75	2.9	2.1	1.8	6.3	3.0
12	3.2	2.85	3.2	2.65	3.8	4.5	2.65	4.3	2.0	1.9	22	2.9
13	2.9	2.85	3.3	2.75	3.35	6.2	2.55	3.1	2.0	2.2	8.7	2.85
14	3.1	3.1	2.9	3.25	3.95	4.2	2.55	2.85	2.75	2.0	4.4	2.9
15	2.75	2.85	3.6	8.8	3.3	4.1	2.55	2.75	2.85	1.9	3.65	2.75
16	3.1	3.7	8.4	4.8	3.1	3.35	2.5	2.75	2.5	2.0	3.2	2.85
17	3.3	3.1	3.45	3.0	3.0	3.3	2.5	2.65	2.5	4.0	3.0	2.85
18	3.2	3.0	3.1	2.85	4.3	3.45	2.5	2.65	2.15	2.8	3.0	2.55
19	3.9	4.8	2.9	2.9	3.45	3.1	4.2	7.0	2.1	3.1	2.9	2.55
20	6.3	3.3	2.85	6.6	3.0	3.1	3.5	3.35	2.1	2.5	2.9	2.55
21	3.45	4.4	2.85	5.2	3.0	3.0	2.65	3.15	2.0	2.3	2.9	2.9
22	4.1	3.2	2.9	23	2.9	2.9	2.55	3.0	2.0	2.2	2.9	2.5
23	3.35	3.1	4.5	25.5	9.9	2.9	5.2	2.65	2.0	2.1	4.8	2.5
24	3.1	3.0	3.3	8.9	6.6	2.9	3.4	2.5	2.0	2.2	4.8	2.95
25	3.0	3.35	3.0	4.2	3.85	2.85	2.65	2.4	2.0	2.5	6.5	3.85
26	3.1	3.0	2.85	2.9	10.4	2.85	2.55	2.5	1.95	8.0	3.45	2.55
27	3.0	4.8	2.85	2.1	4.1	2.85	2.5	2.35	1.95	3.5	3.2	2.5
28	3.1	4.0	2.9	4.5	8.8	3.3	2.5	2.35	2.45	2.6	3.1	2.5
29	3.1	3.2	2.9	3.2	4.6	2.9	2.4	2.35	3.2	2.4	7.6	2.55
30	3.1	3.1	2.75	3.3	5.4	2.85	2.4	-	1.95	2.3	3.75	3.75
31	3.9	2.9	-	3.35	-	2.85	2.4	-	2.1	-	5.0	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	6.3	2.75	3.50	5.42	109	333
August.....	5.1	2.85	3.45	5.31	106	327
September.....	15.7	2.75	4.18	6.47	125	385
October.....	25.5	2.1	5.22	6.06	162	497
November.....	11.1	2.65	4.70	5.27	141	433
December.....	7.9	2.85	3.75	5.80	116	356
Calendar year 1939	28.5	2.1	4.40	6.81	1,600	4,930
January.....	5.2	2.4	2.99	4.63	92.7	284
February.....	15.2	2.25	5.66	5.61	105	317
March.....	3.45	1.95	2.75	3.45	69.2	212
April.....	8.0	1.8	2.47	3.82	74.1	227
May.....	22	2.5	5.39	8.34	167	512
June.....	9.2	2.2	3.41	6.88	102	314
Fiscal year 1939-40	25.5	1.8	3.74	5.79	1,370	4,200

Note.- No gage-height record Apr. 7 to May 10; discharge computed on basis of records for stations on nearby streams.

Pukele Stream near Honolulu

Location.— Concrete weir control, lat. 21°19'15", long. 157°47'10", 200 feet upstream from bridge on Palolo Belt Road, five-eighths of a mile upstream from confluence with Waiohale Stream, and 4½ miles east of Honolulu post office. Datum of gage is 344.78 feet above mean sea level (Board of Water Supply bench mark).

Drainage area.— 1.2 square miles.

Records available.— June 1926 to June 1940. April 1912 to September 1913, above present site and just below Mahoe Springs.

Average discharge.— 14 years (1926-40), 1.50 million gallons a day (2.32 second-foot).

Extremes.— Maximum discharge during year, 309 million gallons a day (478 second-foot).

Oct. 22 (gage height, 4.55 feet), from rating curve extended above 15 million gallons a day by test on model of station site; minimum, 0.18 million gallons a day (0.28 second-foot) Apr. 7-17.

1912-13, 1926-40: Maximum discharge, 1,680 million gallons a day (2,600 second-foot) Apr. 11, 1930 (gage height, 7.75 feet, from floodmarks), from rating curve extended above 14 million gallons a day by test on model of station site; minimum, 0.09 million gallons a day (0.14 second-foot) Dec. 7-13, 20, 21, 1933.

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

Rating table, fiscal year 1939-40 (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		
1.4	1.76	2.0	12.5		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.05	0.44	0.28	0.28	1.10	1.30	0.60	0.44	0.28	0.22	0.26	0.80
2	1.63	.44	.28	.28	1.05	1.42	1.24	.41	.28	.22	12.2	.92
3	1.36	.44	2.15	.28	1.00	1.66	.60	.38	.28	.22	6.4	1.98
4	1.30	.38	7.7	.28	.95	4.5	.60	.38	.28	.20	1.45	.95
5	1.17	.38	1.27	.28	1.05	3.3	.47	7.4	.28	.20	1.78	1.12
6	1.05	.34	.38	.28	.90	1.63	.47	.70	.26	.20	.85	1.87
7	c.95	.41	.38	.41	.90	1.30	.50	.50	.26	.18	.75	.80
8	c.70	.34	.38	3.45	5.6	c1.17	1.95	1.33	.64	.18	.80	.70
9	c.57	.34	.41	.41	1.30	c1.17	c.75	.60	.34	.18	4.0	.80
10	.54	.64	.41	.31	8.6	c1.10	c.70	.60	.28	.18	2.6	.75
11	c.54	.31	.41	.31	1.63	1.10	c.70	.54	.26	.18	1.56	.70
12	c.54	.34	.41	.31	1.23	1.30	c.70	.70	.26	.18	30	.65
13	c.54	.34	.41	.34	c1.23	2.05	c.70	.57	.26	.18	c10.6	.60
14	c.57	.34	.38	.34	c1.36	1.60	c.70	.60	.26	.18	1.63	.60
15	.60	.34	.38	2.3	c1.43	1.23	c.65	.65	.26	.18	1.00	.54
16	.60	.34	.84	.80	c1.43	1.23	c.65	.60	.34	.18	.95	.50
17	.60	.34	.34	.44	c1.36	1.30	c.60	.54	.31	.43	.90	.47
18	.60	.34	.34	.44	c1.36	1.05	c.57	.28	.28	.31	.85	.44
19	.60	.83	.31	.41	c1.36	c.95	c1.05	2.25	.28	.34	.85	.41
20	2.45	.34	.31	1.85	1.63	c.90	1.02	.47	.28	.24	.75	.38
21	.57	.38	.31	1.10	1.85	c.90	.60	.53	.28	.24	.70	.38
22	.54	.34	.56	28.5	1.85	c.95	.70	.59	.28	.24	.65	.38
23	.54	.34	.56	35.5	4.4	.95	2.5	.41	.28	.24	.94	.34
24	.57	.34	.31	8.4	2.7	1.00	1.15	.38	.28	.24	.87	.34
25	.60	.34	.28	2.4	1.36	c.90	.57	.38	.28	.24	2.4	.55
26	.57	.34	.28	1.60	8.0	.80	.57	.38	.28	1.16	.75	.34
27	.54	.38	.28	1.17	1.56	.85	c.57	.34	.28	.28	.60	.31
28	.54	.41	.28	1.98	7.7	.85	c.54	.34	.26	.26	.60	.31
29	.54	.31	.31	1.36	1.77	c.85	c.60	.31	.51	.24	1.45	.31
30	.47	.31	.31	1.60	1.56	c.80	c.60	—	.24	.24	.70	.31
31	.38	.28	—	1.23	—	c.60	c.47	—	.22	—	1.10	—

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	2.45	0.38	0.768	1.19	25.8	75
August.....	.83	.28	.377	.583	11.7	36
September.....	7.7	.28	.708	1.10	21.2	65
October.....	35.5	.28	3.18	4.92	98.4	302
November.....	8.6	.90	2.31	3.61	69.2	212
December.....	4.5	.60	1.31	2.03	40.5	124
Calendar year 1939.....	35.5	.28	1.66	2.57	606	1,860
January.....	2.3	.47	.784	1.21	24.3	75
February.....	7.4	.31	.812	1.26	23.6	72
March.....	.64	.22	.295	.456	9.16	28
April.....	1.16	.18	.859	.401	7.76	24
May.....	30	.26	2.92	4.52	90.6	278
June.....	1.98	.31	.645	.998	19.4	59
Fiscal year 1939-40.....	35.5	.18	1.20	1.86	440	1,350

c Partly estimated.

Waiaho Stream above Pukele Stream, near Honolulu

Location.— Concrete weir control, lat. 21°19'10", long. 157°46'45", 300 feet west of Road, 1 mile upstream from confluence with Pukele Stream, and 5 miles east of Honolulu post office. Datum of gage is 373.49 feet above mean sea level (Board of Water Supply bench mark).

Drainage area.— 1.0 square mile.

Records available.— June 1926 to June 1940. April 1911 to December 1912 at highway bridge below present site.

Average discharge.— 14 years (1926-40), 1.34 million gallons a day (2.07 second-feet).

Extremes.— Maximum discharge during year, 198 million gallons a day (306 second-feet).

Oct. 22 (gage height, 4.45 feet), from rating curve extended above 45 million gallons a day by test on model of station site; minimum, 0.01 million gallons a day (0.02 second-foot) Mar. 8.

1911-12, 1926-40: Maximum discharge, 602 million gallons a day (931 second-feet)

Oct. 15, 1938 (gage height, 5.43 feet), from rating curve extended above 45 million gallons a day by test on model of station site; no flow in extremely dry weather.

Remarks.— Records excellent except those for period of no gage-height record, which are fair. Board of Water Supply diverts ground water from tunnels in drainage area.

Rating table, fiscal year 1939-40 (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	35.6
1.3	.63	1.8	5.3	2.8	44
1.4	1.15	2.0	9.4		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.28	0.44	0.14	0.12	0.89	1.15	0.16	0.09	0.07	0.20	0.20	0.5
2	.96	.30	.12	.10	.53	1.00	1.29	.08	.06	.18	15.9	1.2
3	.87	.18	2.35	.02	.50	1.73	.50	.07	.06	.19	5.5	3.0
4	.88	.12	5.9	.07	.43	4.5	.26	.06	.06	.10	1.65	cl.29
5	.55	.58	2.5	.07	1.00	4.2	.24	13.2	.04	.67	2.65	1.35
6	.40	.30	.63	.42	.72	1.63	.16	2.05	.03	1.14	.99	1.83
7	.28	.30	.40	.92	.63	.94	1.40	1.42	.02	.37	.84	.63
8	.22	.20	.30	5.1	4.4	.84	2.95	2.15	1.25	.40	.53	.43
9	.20	.29	.28	.80	1.10	1.10	.58	.73	.65	.30	8.0	1.17
10	.19	.77	.24	.50	4.1	.56	.37	.46	.46	.26	4.3	.74
11	.16	.37	.37	.30	1.05	.43	.24	.30	.24	.18	cl.83	.37
12	.22	.22	.24	.24	.60	.63	.20	.96	.16	.15	15	.28
13	.14	.20	.24	.24	.40	2.0	.16	.46	.10	.76	8.0	.22
14	.14	.24	.20	.28	.40	1.44	.14	.28	.64	.64	2.5	.24
15	.14	.20	.20	3.1	.33	1.01	.12	.22	.96	.33	1.1	.18
16	.16	.28	.98	1.60	.26	.53	.09	.18	.98	.26	.8	.20
17	.24	.22	.43	.53	.22	.40	.12	.16	.85	1.35	.6	.18
18	.20	.20	.28	.37	.28	.37	.09	.14	.43	1.29	.4	.14
19	.20	1.17	.22	.24	.37	.30	1.23	1.43	.26	1.15	.3	.12
20	1.47	.40	.20	2.45	.22	.26	1.50	.92	.20	.60	.25	.10
21	.43	.58	.16	2.2	.18	.24	.37	.74	.16	.37	.22	.33
22	.37	.33	1.98	.25	.20	.20	.22	1.05	.20	.33	.20	.12
23	.26	.49	1.49	35.5	4.1	.18	2.4	.33	.14	.28	.45	.09
24	.24	.18	.50	10.7	2.8	.20	1.84	.22	.10	.40	.15	.14
25	.16	.20	.28	3.0	.94	.16	.46	.18	.20	.26	3.5	.31
26	.20	.16	.22	1.42	4.7	.16	.28	.14	.12	2.35	.7	.12
27	.16	.52	.18	.89	1.49	.14	.24	.12	.09	.84	.6	.09
28	.18	.46	.18	2.15	6.9	.61	.20	.08	.31	.40	.4	.08
29	.14	.24	.26	1.40	1.76	.30	.13	.08	1.52	.28	2.0	.06
30	.14	.18	.16	1.60	1.56	.24	.14	—	.40	.20	.8	.26
31	.20	.14	—	1.07	—	.18	.10	—	.24	—	1.7	—

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	1.47	0.14	0.334	0.517	10.4	32
August.....	1.17	.12	.329	.509	10.2	31
September.....	8.9	.12	.820	1.27	24.6	75
October.....	35.5	.07	3.31	5.12	102	314
November.....	6.9	.19	1.44	2.23	45.1	132
December.....	4.5	.14	.931	1.38	27.6	85
Calendar year 1939.....	35.5	.07	1.43	2.21	520	1,600
January.....	2.95	.09	.591	.914	15.3	56
February.....	13.2	.06	.977	1.51	28.3	87
March.....	1.52	.02	.354	.548	11.0	34
April.....	2.55	.10	.858	.832	16.1	50
May.....	15.9	.15	2.84	4.08	81.9	251
June.....	3.0	.08	.526	.814	15.8	48
Fiscal year 1939-40.....	35.5	.02	1.06	1.64	389	1,200

c Partly estimated.

Note.— No gage-height record May 12 to June 3; discharge computed on basis of records for stations on nearby streams.

Haiku Stream near Heeia

Location.- Lat. 21°24'40", long. 157°49'40", on left bank of stream, 1.7 miles west from Kaneohe post office, and 1.8 miles southwest of Heeia. Datum of gage is 271.9 feet above mean sea level (Honolulu City and County levels).

Drainage area.- 1.0 square mile.

Records available.- January 1914 to October 1919, July 1939 to June 1940.

Extremes.- Maximum discharge during year, 1,180 million gallons a day (1,830 second-feet) May 9 (gage height, 3.82 feet), from rating curve extended above 13 million gallons a day by logarithmic plotting; minimum, 1.51 million gallons a day (2.34 second-feet) Aug. 24.
1914-19, 1939-40: Maximum discharge, that of May 9, 1940; minimum daily, 1.2 million gallons a day (1.9 second-feet) Sept. 12, 13, 1919.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.2	1.36	1.6	6.5	2.0	25.5
1.3	2.1	1.7	9.6	2.1	35.5
1.4	3.05	1.8	13.7	2.2	49
1.5	4.4	1.9	18.8		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.195	2.36	1.88	1.95	2.3	2.3	1.88	1.88	2.1	2.15	1.95	2.3
2	2.55	2.2	1.88	1.95	2.2	2.35	2.8	1.88	2.1	2.45	11.7	2.5
3	2.1	2.1	6.5	1.95	2.3	2.3	2.05	1.88	2.1	2.05	4.8	4.3
4	2.1	2.1	2.6	1.95	2.3	2.3	1.88	2.25	2.1	1.95	2.6	2.6
5	2.05	4.4	4.6	1.95	2.7	2.2	2.05	4.4	2.1	2.2	2.55	2.4
6	2.05	2.3	2.3	2.05	2.4	2.1	1.88	13.6	2.05	2.2	2.4	3.3
7	2.05	2.1	2.05	2.05	2.3	2.05	6.1	2.75	2.05	2.3	2.2	2.4
8	2.05	1.95	1.95	2.65	4.1	2.1	6.1	2.6	2.05	2.2	2.1	2.3
9	2.1	1.95	1.95	2.05	3.25	1.95	2.2	2.5	2.1	2.05	4.5	3.0
10	2.1	1.95	1.95	1.95	2.5	1.95	1.95	2.4	2.05	1.95	7.9	2.4
11	2.1	1.95	1.95	1.95	2.4	1.95	1.95	2.3	2.05	1.95	4.5	2.2
12	2.25	1.95	1.95	1.88	2.2	2.4	1.95	2.5	2.05	1.95	20	2.1
13	2.05	1.95	2.05	1.95	2.1	2.5	1.88	2.3	2.05	2.05	a3.0	2.1
14	2.05	2.05	2.1	1.95	2.1	2.6	1.95	2.3	2.3	1.95	a5.0	2.4
15	2.1	1.95	2.3	2.3	2.1	2.05	1.88	2.3	3.55	1.95	a3.5	2.1
16	2.2	1.95	2.85	2.3	2.1	1.95	1.80	2.3	3.1	1.95	c3.05	2.1
17	2.1	1.95	2.4	1.95	2.1	1.95	1.88	2.3	2.4	2.5	2.75	2.1
18	2.1	1.95	2.4	1.95	2.2	2.1	1.80	2.4	2.2	2.6	2.65	2.1
19	2.1	2.3	2.4	1.95	2.1	1.95	3.35	2.85	2.1	2.5	2.6	2.1
20	2.55	1.95	2.4	2.6	2.1	1.95	2.05	2.6	2.1	2.55	2.55	2.1
21	2.2	1.95	2.4	3.2	2.1	1.95	1.88	2.8	2.1	2.2	2.6	2.1
22	2.7	1.95	2.6	37.5	2.2	1.88	1.88	2.5	2.2	2.05	2.6	2.1
23	2.2	1.95	2.75	39.5	2.5	1.88	3.25	2.4	2.1	2.05	3.4	2.1
24	2.1	1.88	2.3	7.5	2.1	1.88	2.3	2.3	2.05	2.05	3.7	2.2
25	2.05	2.1	2.2	3.9	2.1	1.88	1.95	2.3	1.95	2.05	2.95	2.1
26	2.1	1.95	2.1	2.95	3.2	1.88	1.95	2.3	1.95	2.3	2.5	2.1
27	2.05	2.25	2.1	2.65	2.2	1.95	1.95	2.2	1.95	2.1	2.2	2.1
28	2.1	2.05	2.4	2.75	2.2	2.35	1.95	2.2	2.05	2.05	2.1	2.1
29	2.05	1.95	2.3	2.5	2.65	2.05	1.88	2.2	2.5	1.95	5.9	2.1
30	2.1	1.95	2.05	2.4	3.4	1.95	1.88	-	2.05	1.95	2.6	2.3
31	2.4	1.88	-	2.4	-	1.95	1.95	-	2.35	-	2.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	2.7	1.95	2.15	3.33	66.8	205
August.....	4.4	1.88	2.10	3.25	65.2	200
September.....	2.6	1.88	3.20	4.95	96.1	295
October.....	39.5	1.88	4.79	7.41	149	456
November.....	4.1	2.1	3.64	5.53	109	335
December.....	2.6	1.88	2.08	3.22	64.6	198
Calendar year	-	-	-	-	-	-
January.....	6.1	1.80	2.30	3.55	71.2	219
February.....	4.4	1.88	4.15	6.47	121	372
March.....	3.55	1.95	2.19	3.39	66.0	209
April.....	2.6	1.95	2.14	3.31	64.2	197
May.....	4.5	1.95	6.23	9.64	193	593
June.....	4.3	2.1	2.34	3.62	70.2	215
Fiscal year 1939-40	45	1.80	3.11	4.61	1,140	3,490

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

c Partly estimated.

Iolekaa Stream mauka near Heeia

Location.- Columbus type concrete control, lat. 21°26'30", long. 157°49'50", 0.7 mile upstream from confluence with Haiku Stream, 1.5 miles southwest of Heeia, and 1.8 miles west of Kaneohe post office. Datum of gage is 320 feet $\pm$ 1.0 foot above mean sea level.

Drainage area.- 0.3 square mile.

Records available.- March to June 1940.

Extremes.- Maximum discharge during period, 17.1 million gallons a day (26.5 second-feet) May 9 (gage height, 1.63 feet), from rating curve extended above 1.0 million gallons a day by rating for Columbus-type control; minimum recorded, 0.82 million gallons a day (1.27 second-feet) May 7, 8.

Remarks.- Records good. No diversions.

Rating table, Mar. 1 to June 30, 1940 (gage height, in feet, and discharge, in million gallons a day)

0.8	0.89
.9	1.43
1.0	2.2
1.1	3.25

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1									c0.89	c1.00	0.94	0.94
2									.89	1.00	2.75	.94
3									.89	.94	1.30	c1.57
4									.89	.94	.89	al.21
5									.89	1.07	1.05	al.11
6									.89	1.16	.86	c1.16
7									.89	1.14	.82	1.00
8									.89	1.05	.92	.94
9									.94	1.05	c1.55	1.04
10									.94	1.00	al.2	.94
11									.94	1.00	al.1	.89
12									1.00	.94	a2.5	.89
13									1.00	.94	a3.5	.89
14									1.11	.89	al.7	.89
15									1.71	.89	al.3	.94
16									1.43	.89	al.1	.94
17									1.16	1.05	c1.05	.94
18									1.05	1.05	al.00	.94
19									1.05	1.11	a.94	.94
20									1.05	1.05	c.94	.94
21									1.05	1.00	.89	.94
22									1.05	1.00	.89	.89
23									1.05	1.00	1.09	.89
24									1.05	1.00	1.20	.94
25									1.05	1.00	1.11	.94
26									1.05	1.00	.94	.94
27									1.05	1.00	.94	.94
28									1.05	1.00	.89	.94
29									1.24	.94	1.54	.94
30									al.1	.94	1.05	.94
31									al.3	-	1.05	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....						
August.....						
September.....						
October.....						
November.....						
December.....						
Calendar year						
January.....	-	-	-	-	-	-
February.....	-	-	-	-	-	-
March.....	1.71	0.89	1.05	1.62	32.5	100
April.....	1.16	.89	1.00	1.55	30.0	92
May.....	3.5	.82	1.25	1.93	38.9	119
June.....	1.57	.89	.978	1.51	29.4	90
Fiscal year 1939-40.....	-	-	-	-	-	401

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

c 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 Keneohe (revised). Datum 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 1940.

Extremes.— Maximum discharge during year, 125 million gallons a day (193 second-feet) Nov. 8 (gage height, 4.21 feet), from rating curve extended above 4 million gallons a day by test on model of station site; minimum, 3.2 million gallons a day (5.0 second-feet) several days during year.

1935-40: Maximum discharge, 290 million gallons a day (449 second-feet) Sept. 27, 1937 (gage height, 5.47 feet, control then in use), from rating curve computed from 11 to 240 million gallons a day by Parshall flume formula and extended above; minimum, 2.35 million gallons a day (3.64 second-feet) Sept. 3-5, 1938.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.6	2.7	1.0	7.5
.7	3.75	1.2	10.7
.8	4.8	1.4	14.5
.9	6.0	1.7	21.5

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.65	3.65	3.55	3.45	3.45	3.55	3.55	3.45	3.55	3.45	3.2	3.2
2	3.65	3.65	3.55	3.45	3.45	3.55	3.55	3.45	3.55	3.45	4.6	3.35
3	3.65	3.65	4.2	3.45	3.45	3.75	3.55	3.45	3.55	3.55	3.65	3.4
4	3.65	3.65	13.0	3.45	3.45	3.55	3.55	3.55	3.55	3.2	3.85	3.55
5	3.65	5.0	4.2	3.45	3.45	3.55	3.55	16.4	3.55	3.2	3.75	3.55
6	3.65	3.75	3.65	3.45	3.55	3.55	3.55	3.85	3.45	3.35	3.35	3.55
7	3.65	3.65	3.55	3.45	3.55	3.55	3.95	3.45	3.45	3.35	3.35	3.35
8	3.65	3.65	3.55	4.5	12.6	3.55	4.6	3.45	3.45	3.35	3.2	3.35
9	3.65	3.65	3.55	3.45	3.55	3.55	3.55	3.35	3.45	3.35	5.5	3.45
10	3.65	3.65	3.55	3.45	3.55	3.55	3.55	3.55	3.45	3.35	4.2	3.55
11	3.65	3.65	3.55	3.45	3.55	3.55	3.55	3.45	3.45	3.35	3.75	3.2
12	3.65	3.65	3.55	3.45	3.55	3.55	3.55	3.55	3.35	3.35	6.5	3.2
13	3.65	3.65	3.55	3.45	3.55	3.35	3.55	3.45	3.35	3.35	11.1	3.2
14	3.65	3.65	3.55	3.45	3.55	3.75	3.55	3.45	3.6	3.35	3.85	3.2
15	3.65	3.65	3.55	3.85	3.55	3.55	3.55	3.45	4.5	3.35	3.35	3.2
16	3.65	3.55	3.65	3.75	3.45	3.55	3.55	3.45	3.85	3.35	3.2	3.2
17	3.65	3.55	3.55	3.55	3.45	3.55	3.55	3.45	3.55	3.45	3.2	3.2
18	3.65	3.55	3.55	3.45	3.45	3.55	3.55	3.55	3.45	3.45	3.2	3.2
19	3.65	3.55	3.55	3.45	3.45	3.55	4.2	4.3	3.45	3.45	3.2	3.2
20	3.65	3.55	3.55	3.55	13.45	3.55	3.55	3.75	3.45	3.45	3.2	3.2
21	3.65	3.55	3.55	3.95	13.5	3.55	3.55	3.55	3.45	3.35	3.2	3.2
22	3.65	3.55	3.55	10.8	13.5	3.45	3.55	3.55	3.45	3.35	3.2	3.2
23	3.65	3.55	3.75	13.3	13.5	3.45	3.95	3.65	3.45	3.35	3.2	3.2
24	3.55	3.55	3.55	4.7	13.5	3.45	3.65	3.65	3.45	3.35	3.2	3.2
25	3.55	3.55	3.55	3.65	13.5	3.45	3.45	3.55	3.45	3.35	3.2	3.2
26	3.55	3.55	3.55	3.55	14.0	3.45	3.45	3.65	3.45	3.35	3.2	3.2
27	3.55	4.0	3.55	3.45	15.7	3.45	3.45	3.65	3.45	3.35	3.2	3.2
28	3.55	3.55	3.55	3.45	3.55	3.95	3.45	3.55	3.45	3.2	3.2	3.2
29	3.55	3.55	3.45	3.45	3.75	3.55	3.45	3.55	3.45	3.2	3.2	3.2
30	3.55	3.55	3.45	3.45	3.55	3.55	3.45	3.55	3.45	3.2	3.35	3.2
31	3.55	3.55	-	3.45	-	3.65	3.45	-	3.65	-	3.35	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	3.85	3.55	3.63	5.62	113	346
August.....	5.0	3.55	3.66	5.66	114	348
September.....	13.0	3.45	3.95	6.08	116	362
October.....	13.3	3.45	4.18	6.39	123	393
November.....	12.6	3.45	3.85	5.96	116	355
December.....	3.95	3.45	3.56	5.61	110	339
Calendar year 1939.....	13.3	3.35	3.92	6.07	1,430	4,390
January.....	4.6	3.45	3.61	5.59	112	344
February.....	16.4	3.35	4.01	6.20	118	356
March.....	4.5	3.35	3.62	5.45	109	335
April.....	3.45	3.2	3.34	5.17	100	306
May.....	11.1	3.2	3.91	6.06	121	372
June.....	3.55	3.2	3.28	5.07	95.2	302
Fiscal year 1939-40.....	16.4	3.2	3.70	5.72	1,370	4,160

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

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 Kaneohe (revised). Datum of gage is about 193 feet above mean sea level.

Drainage area.-- 1.1 square miles.

Records available.-- December 1935 to June 1940.

Extremes.-- Maximum discharge during year, 310 million gallons a day (480 second-feet) May 9, 13 (gage height, 5.22 feet), from rating curve extended above 50 million gallons a day by test on model of station site; minimum, 5.7 million gallons a day (8.8 second-feet) May 1.

1935-40: Maximum discharge, 485 million gallons a day (719 second-feet) Feb. 28, 1939 (gage height, 5.47 feet), from rating curve computed from 20 to 230 million gallons a day by Parshall flume formula and extended above; minimum, 4.9 million gallons a day (7.6 second-feet) Jan. 24, 25, 1938.

Remarks.-- Records good. No diversions above station.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.8	4.6	1.4	15.1
9	6.0	1.7	22.5
1.0	7.8	2.0	32
1.2	11.0	2.5	51

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a5.4	6.6	a6.2	6.2	6.4	6.3	6.4	6.2	6.8	6.8	6.7	6.4
2	a5.4	6.4	6.3	6.2	6.4	6.9	7.4	6.2	6.8	6.6	6.3	6.8
3	a5.4	6.4	c7.3	6.0	6.4	6.2	6.4	6.2	6.6	6.3	6.8	6.7
4	a5.4	6.4	27	6.0	6.4	6.8	6.3	7.1	6.6	6.2	6.2	6.9
5	a5.4	a6.9	9.1	6.0	6.6	6.6	6.3	32.5	6.6	6.2	6.6	6.6
6	a5.4	a6.8	7.2	6.2	6.3	6.4	6.3	8.8	6.3	6.2	6.0	6.9
7	a5.4	6.6	6.8	6.2	6.3	6.3	7.9	7.5	6.2	6.3	6.0	6.4
8	a5.4	6.6	6.8	9.6	54	6.3	9.3	7.0	6.2	6.2	6.9	6.4
9	a5.4	6.4	6.4	6.2	7.6	6.3	6.8	6.6	6.2	6.2	15.4	6.6
10	a5.4	6.4	6.4	6.0	7.7	6.3	6.6	6.6	6.2	6.2	9.4	6.4
11	a5.4	6.3	6.3	6.0	6.9	6.3	6.4	6.6	6.2	6.0	8.6	6.3
12	a5.4	6.5	6.4	5.9	6.6	6.6	6.3	7.0	6.2	6.5	28.5	6.3
13	a5.4	6.4	6.3	6.9	6.4	6.9	6.3	6.6	6.2	6.2	49	6.2
14	a5.4	6.4	6.3	6.0	6.6	6.9	6.4	6.6	6.3	6.2	11.6	6.2
15	a5.4	6.3	6.4	6.9	6.4	6.8	6.3	6.4	6.4	6.0	6.8	6.2
16	6.4	6.3	6.8	6.4	6.3	6.4	6.3	6.4	7.2	6.0	7.6	6.2
17	6.4	6.3	6.4	6.0	6.3	6.4	6.3	6.4	6.6	7.2	7.4	6.3
18	6.4	6.3	6.4	6.0	6.3	6.4	6.3	6.4	6.4	6.3	7.0	6.3
19	6.4	6.3	6.4	6.2	6.3	6.3	7.3	13.0	6.4	6.9	6.0	6.3
20	6.4	6.3	6.3	8.2	6.3	6.3	6.4	7.2	6.4	6.6	6.8	6.3
21	6.4	6.3	6.3	10.8	6.3	6.3	6.3	6.8	6.4	6.2	6.6	6.3
22	6.4	6.3	9.1	28	6.3	6.3	6.3	6.8	6.4	6.0	6.6	6.3
23	6.4	6.3	6.9	42	6.3	6.3	8.0	6.8	6.3	6.0	7.0	6.4
24	6.4	6.3	6.4	12.5	6.2	6.4	6.8	6.8	6.3	6.0	7.0	6.4
25	6.4	6.3	6.3	8.4	6.2	6.4	6.4	6.8	6.3	6.0	7.5	6.4
26	6.4	6.3	6.3	7.5	6.6	6.4	6.4	6.8	6.3	6.0	6.8	6.4
27	6.4	a7.2	6.3	7.0	6.6	6.3	6.3	6.8	6.2	6.0	6.6	6.4
28	6.4	a6.5	6.3	7.0	6.4	6.4	6.3	6.8	6.2	6.0	6.6	6.4
29	6.4	6.2	6.2	6.6	6.9	6.8	6.3	6.8	6.2	5.9	7.4	6.4
30	6.4	a6.2	6.2	6.8	6.6	6.4	6.3	-	6.0	5.7	6.6	6.4
31	6.4	a6.2	-	6.8	-	6.4	6.3	-	7.8	-	6.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	6.4	6.4	6.40	9.90	198	609
August.....	6.9	6.2	6.49	10.0	201	617
September.....	27	6.2	7.32	11.5	220	674
October.....	42	6.9	9.75	13.5	271	833
November.....	34	6.2	7.50	11.6	265	820
December.....	8.4	6.3	6.68	10.2	204	626
Calendar year 1939	44	5.9	7.46	11.5	2,720	8,360
January.....	9.3	6.3	6.64	10.3	206	631
February.....	32.6	6.2	7.88	12.2	228	701
March.....	8.4	6.0	6.51	10.1	202	619
April.....	7.2	5.7	6.22	9.62	197	573
May.....	49	6.7	9.44	14.6	293	898
June.....	8.7	6.2	6.49	10.0	195	596
Fiscal year 1939-40	49	6.7	7.18	11.1	2,630	8,070

c Partly estimated.

Note.-- No gage-height record July 1-16; discharge interpolated.

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 1939 to June 1940

Date	Stream	Tributary to or diverting from	Locality	Discharge	
				Second- feet	Million gallons a day
July 27	Pearl Harbor Springs.	Pacific Ocean...	At ditch levee, 1,000 feet west of Puukapu gaging station.	3.58	2.31
Sept. 16	do.....	do.....	do.....	1.83	1.18
Nov. 1	do.....	do.....	do.....	4.08	2.64
Dec. 7	do.....	do.....	do.....	3.75	2.41
Jan. 12	do.....	do.....	do.....	2.96	1.91
Oct. 12	do.....	do.....	At Kalaocapu, near Pearl City (total flow over wooden dam).	19.4	12.5
16	do.....	do.....	do.....	7.98	5.14
Mar. 25	do.....	do.....	do.....	19.9	12.9
July 31	do.....	do.....	At 27-inch culvert 300 feet west of Waiasu railway station	4.63	2.99
Sept. 16	do.....	do.....	do.....	5.08	3.28
Nov. 1	do.....	do.....	do.....	4.59	2.96
Dec. 6	do.....	do.....	do.....	5.47	3.54
Jan. 12	do.....	do.....	do.....	9.15	5.91
Feb. 7	do.....	do.....	do.....	11.4	7.37
Mar. 14	do.....	do.....	do.....	5.15	3.33
Apr. 12	do.....	do.....	do.....	9.42	6.09
May 9	do.....	do.....	do.....	8.80	5.69
June 8	do.....	do.....	do.....	4.26	2.75
July 31	do.....	do.....	At wooden culvert 10 feet west of Waiasu railway station.	.91	.59
Sept. 16	do.....	do.....	do.....	.98	.63
Nov. 1	do.....	do.....	do.....	.914	.591
Dec. 6	do.....	do.....	do.....	1.28	.827
Jan. 12	do.....	do.....	do.....	.78	.50
Feb. 7	do.....	do.....	do.....	1.00	.66
Mar. 14	do.....	do.....	do.....	1.07	.692
Apr. 12	do.....	do.....	do.....	.965	.617
May 9	do.....	do.....	do.....	.930	.601
June 8	do.....	do.....	do.....	.570	.368
July 31	do.....	do.....	At discontinued gaging station at Waiasu, near Pearl City.	10.5	6.79
Oct. 18	do.....	do.....	do.....	11.9	7.69
Dec. 7	do.....	do.....	do.....	14.5	9.37
Jan. 10	do.....	do.....	do.....	14.0	9.05
Feb. 5	do.....	do.....	do.....	15.1	9.76
Mar. 9	do.....	do.....	do.....	11.5	7.43
28	do.....	do.....	do.....	13.0	8.40
Apr. 12	do.....	do.....	do.....	11.4	7.37
27	do.....	do.....	do.....	11.4	7.37
27	do.....	do.....	do.....	13.1	8.47
27	do.....	do.....	do.....	11.4	7.37
May 30	do.....	do.....	do.....	12.0	7.76
1	do.....	do.....	do.....	9.90	6.33
2	do.....	do.....	do.....	12.2	7.89
10	do.....	do.....	do.....	11.4	7.37
24	do.....	do.....	do.....	11.6	7.50
24	do.....	do.....	do.....	10.8	6.98
June 3	do.....	do.....	do.....	7.38	4.77
8	do.....	do.....	do.....	9.65	6.35
26	do.....	do.....	do.....	3.24	2.09
26	do.....	do.....	do.....	9.31	6.02
Nov. 27	Haiku.....	To Heeia Stream..	At forest-reserve boundary near Heeia.	2.84	1.84
21	Reservoir ditch.	From Haiku Stream	At intake, near Heeia.....	2.25	1.45
21	do.....	do.....	Below Tenney ditch intake near Heeia.	1.84	1.19
21	Tenney ditch..	From reservoir ditch.	Near intake from reservoir ditch, near Heeia.	.134	.087
21	Waipio ditch..	From Haiku Stream	Just below intake, near Heeia..	2.22	1.43
Feb. 25	do.....	do.....	do.....	2.27	1.47
Nov. 21	Haiku.....	To Heeia Stream..	200 feet above confluence with Iolekua Stream, near Heeia.	2.22	1.43
28	do.....	do.....	do.....	2.52	1.63
21	Ikeole ditch..	From Heeia Stream	At intake, near Heeia.....	.46	.30
21	Heeia.....	To Pacific Ocean.	Below Ikeole ditch intake, near Heeia.	3.75	2.44
22	do.....	do.....	Above Wing Wo Tai ditch, near Heeia.	5.54	3.58
22	Ikeole ditch.	From Heeia Stream	Above confluence with Wing Wo Tai ditch, near Heeia.	.83	.54
22	Wing Wo Tai ditch.	From Heeia Stream and Ikeole ditch.	At intake, near Heeia.....	1.70	1.10
22	Hop Tuck ditch	From Heeia Stream	Just below intake near Heeia...	.862	.557
22	Heeia.....	To Pacific Ocean	Below Hop Tuck ditch, near Heeia	3.59	2.32
27	Left Branch Iolekua Stream.	To Iolekua Stream	At altitude 460 feet near Heeia	.689	.445
21	Iolekua Stream.	To Heeia Stream	200 feet above confluence with Haiku Stream, near Heeia.	1.96	1.27
28	do.....	do.....	do.....	1.76	1.14
Feb. 27	Right Branch Iolekua Stream.	To Iolekua Stream	At altitude 460 feet near Heeia.	.573	.370
Nov. 22	Hanaweke ditch.	To Heeia Stream..	Above ditch intake near Heeia..	.214	.138

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, 1½ miles west of Halawa, and 6 miles northeast of Pukoo.

Drainage area.- 4.5 square miles.

Records available.- August 1917 to July 1932, November 1937 to June 1940.

Average discharge.- 16 years (1918-32, 1938-40) 18.6 million gallons a day (28.8 second-feet).

Extremes.- Maximum discharge during year, 2,430 million gallons a day (3,760 second-feet) Oct. 23 (gage height, 9.86 feet), from rating curve extended above 100 million gallons a day; minimum, 2.2 million gallons a day (3.4 second-feet) Feb. 4.
1917-32, 1937-40: Maximum discharge, that of Oct. 23, 1939; minimum, 0.8 million gallons a day (1.2 second-feet) Oct. 13-15, 19, 1917.
A greater discharge may have occurred Jan. 20, 1929.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.8	2.3	2.4	17.2	4.0	223
1.9	3.7	2.7	35	4.5	345
2.0	5.4	3.0	61	5.0	470
2.2	9.9	3.5	126		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.5	7.7	14.9	4.7	12.9	20	4.9	2.6	3.3	23.5	5.1	9.9
2	13.2	5.8	12.9	4.2	9.2	11.1	4.6	2.4	3.1	9.9	80	12.7
3	19.0	4.7	98	3.7	8.9	20.5	4.4	2.3	3.4	7.1	104	34.5
4	40	4.2	106	3.6	9.4	97	4.2	11.0	3.3	5.8	107	20.5
5	12.0	3.9	48	3.4	41	68	4.6	60	2.9	4.9	63	17.6
6	8.5	6.6	45	46	13.8	30.5	19.1	6.9	5.6	5.4	61	8.7
7	7.1	15.5	15.5	19.7	28	14.6	23	12.8	3.4	6.2	22	35
8	11.7	14.9	12.0	11.2	109	73	143	11.6	2.6	4.2	18.8	18.4
9	11.6	8.0	12.3	6.4	43	70	13.0	13.8	20	3.7	34	75
10	14.1	17.0	9.2	9.7	26.5	20.5	8.0	13.1	26	3.9	24.5	11.1
11	8.2	10.6	17.4	11.8	12.9	49	6.9	10.5	5.1	9.1	44	8.7
12	11.1	5.8	8.7	12.8	11.1	70	5.8	12.3	3.6	19.9	135	7.5
13	6.9	6.2	8.0	16.8	9.4	42	5.2	8.9	3.0	17.7	43	6.4
14	6.2	78	17.6	22.5	76	60	4.7	6.0	6.2	6.7	15.0	6.2
15	7.1	14.2	17.2	104	19.7	28	4.4	4.4	43	21.5	11.4	5.4
16	12.7	21.5	56	19.3	12.0	17.2	4.0	3.7	8.6	7.3	9.4	5.1
17	7.1	30.5	11.7	24.5	9.9	16.6	3.9	3.4	51	5.1	7.7	4.9
18	5.4	25	9.2	9.4	47	11.1	3.9	3.3	15.4	4.9	7.3	4.4
19	6.2	30.5	8.0	14.4	13.8	10.8	60	5.8	8.0	5.1	11.0	4.2
20	26.5	13.6	6.9	16.2	9.7	10.5	11.1	5.2	5.2	11.2	8.7	4.0
21	23	19.3	5.8	13.6	8.7	8.5	6.0	41	4.4	14.4	7.3	8.4
22	19.9	11.1	22.5	8.0	19.2	7.3	4.6	75	41	6.0	8.9	4.9
23	9.7	12.0	51	357	142	6.7	4.9	8.7	10.5	4.2	27.5	4.0
24	7.1	8.5	25.5	56	43	34.5	8.2	6.2	6.7	8.5	17.6	3.9
25	5.8	8.5	10.8	16.3	19.2	16.1	4.6	5.1	63	6.8	10.8	3.7
26	13.0	7.7	8.0	12.9	57	9.7	3.6	6.0	62	35.5	18.7	3.4
27	11.8	21	6.9	10.5	17.6	7.1	3.3	4.9	9.9	11.4	8.0	3.6
28	6.9	24	5.8	42	11.1	7.1	3.1	3.9	6.9	7.1	8.7	6.0
29	5.6	36	6.2	16.8	10.8	5.8	3.0	3.6	5.0	6.4	21	6.0
30	7.5	16.8	5.6	20.5	54	6.2	2.7	-	15.2	5.1	10.6	8.7
31	11.1	12.9	-	13.3	-	5.8	2.7	-	46	-	29.5	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	40	5.4	11.8	18.3	366	1,120
August.....	78	3.9	16.2	25.1	502	1,540
September.....	106	5.6	23.8	36.8	713	2,190
October.....	357	3.4	30.0	46.4	931	2,860
November.....	142	8.7	30.2	46.7	905	2,730
December.....	97	5.8	27.6	42.7	855	2,620
Calendar year 1939.....	357	3.4	24.7	38.2	9,030	27,690
January.....	143	2.7	12.4	19.2	385	1,180
February.....	75	2.3	12.2	18.9	354	1,090
March.....	81	2.6	17.0	26.3	526	1,620
April.....	35.5	3.7	9.62	14.9	291	886
May.....	135	5.1	31.5	48.7	976	2,990
June.....	73	3.4	11.7	18.1	351	1,060
Fiscal year 1939-40.....	357	2.3	19.5	30.2	7,150	21,960

Waiakeakua Stream near Wailau

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

Drainage area.— 1.4 square miles.

Records available.— October 1919 to September 1929, September 1937 to June 1940.

Average discharge.— 11 years (1920-29, 1938-40) 7.98 million gallons a day (12.3 second-feet).

Extremes.— Maximum discharge during year, 229 million gallons a day (354 second-feet) May 12 (gage height, 4.37 feet), from rating curve extended above 140 million gallons a day; minimum, 2.65 million gallons a day (4.1 second-feet) Mar. 9, 13, Apr. 19.
1919-29, 1937-40: Maximum discharge, 951 million gallons a day (1,470 second-feet) Aug. 24, 1938 (gage height, 8.26 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, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.7	2.5	2.0	8.3	2.7	45
1.8	4.0	2.2	14.8	3.0	74
1.9	5.9	2.4	24	3.5	124

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.7	4.2	5.9	4.2	5.9	8.2	4.4	3.85	3.1	4.6	3.4	5.5
2	8.6	3.7	6.1	4.0	5.0	7.1	5.5	3.7	3.1	4.0	21.5	6.6
3	9.3	3.55	30.5	4.0	5.0	6.6	4.6	3.7	3.1	3.7	27	8.1
4	12.9	3.25	20.5	3.85	5.0	18.1	4.4	3.85	3.1	3.7	22.5	5.9
5	7.1	3.25	11.7	4.0	14.7	13.8	4.2	3.7	3.2	3.55	13.4	5.9
6	5.9	3.5	12.6	13.4	8.2	8.3	4.0	3.55	3.8	3.4	12.7	5.0
7	5.5	6.2	7.1	6.2	8.8	6.9	4.4	4.2	2.95	3.25	7.3	14.1
8	5.5	4.9	7.3	6.3	47	7.3	26.5	3.7	2.8	3.1	5.9	7.2
9	6.5	4.6	6.1	4.2	16.0	10.2	5.7	4.6	4.3	3.1	14.1	8.6
10	5.3	8.6	5.7	5.1	15.4	6.8	5.0	5.3	4.2	3.25	8.4	5.5
11	5.1	5.0	6.6	5.0	7.1	7.2	4.8	4.2	2.95	3.1	12.1	8.1
12	5.8	3.85	5.5	4.9	6.1	15.7	4.6	4.4	2.8	3.25	31	4.3
13	4.6	4.0	5.1	4.8	5.3	13.7	4.4	3.85	2.8	3.4	10.2	4.6
14	4.6	13.9	6.0	5.0	8.0	12.9	4.4	3.4	3.1	3.9	7.1	4.4
15	4.6	5.8	7.2	26.5	6.3	8.6	4.2	3.25	8.2	6.1	5.9	4.2
16	5.4	6.2	16.0	9.8	4.8	7.1	4.0	3.25	3.85	3.1	5.5	4.0
17	4.4	7.7	6.4	8.3	4.6	6.4	4.0	3.1	13.7	2.95	8.0	3.85
18	4.2	10.3	5.7	5.9	10.8	5.9	3.85	3.1	4.8	2.95	4.8	3.7
19	5.4	6.6	5.3	6.2	16.4	6.4	31.5	3.1	4.0	2.8	5.1	3.7
20	8.0	7.4	5.0	6.1	15.5	5.5	7.7	2.95	3.7	5.8	4.6	4.2
21	8.0	7.7	4.6	5.7	5.5	5.3	5.3	19.6	3.4	4.4	5.0	4.5
22	6.4	6.4	8.1	4.8	9.4	5.0	5.0	9.0	5.7	3.1	5.2	3.55
23	5.0	5.9	28	76	57	4.8	9.9	4.2	3.7	2.95	10.5	3.55
24	4.6	5.1	9.3	13.8	33	6.8	7.0	3.85	3.4	3.55	6.6	3.25
25	4.4	5.0	5.9	7.1	18.8	6.6	5.7	11.7	11.7	2.95	7.0	3.55
26	6.8	5.0	5.3	6.1	25.5	5.0	4.8	3.55	14.1	9.6	5.9	5.25
27	5.0	9.6	5.0	5.3	11.6	5.2	4.6	3.4	5.0	3.85	5.3	3.25
28	4.4	10.6	4.8	18.4	8.9	5.0	4.4	3.25	4.8	3.7	5.1	3.85
29	4.0	10.5	5.0	7.1	7.8	5.1	4.2	3.25	6.3	3.25	8.5	3.7
30	4.4	7.8	4.8	6.4	18.9	5.6	4.0	-	6.1	3.25	8.5	5.5
31	4.4	6.1	-	6.1	-	4.6	4.0	-	6.6	-	9.2	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-foot
July.....	12.9	4.0	6.86	9.07	192	558
August.....	13.9	3.25	6.40	9.90	198	606
September.....	30.5	4.6	8.77	13.6	283	807
October.....	76	3.85	9.60	14.9	298	915
November.....	57	4.6	13.0	20.1	391	1,200
December.....	18.1	4.6	7.76	12.0	241	738
Calendar year 1939	76	3.25	9.68	15.0	3,550	10,850
January.....	31.5	3.85	6.47	10.0	200	615
February.....	19.6	2.95	4.43	6.85	129	395
March.....	14.1	2.8	4.92	7.61	155	468
April.....	9.6	2.8	3.79	5.86	114	349
May.....	31	3.4	9.72	15.0	301	925
June.....	14.1	3.25	6.09	7.88	155	468
Fiscal year 1939-40	76	2.8	7.16	11.1	2,620	8,040

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

c Partly estimated.

Pulena Stream near Wailau

Location.- Lat. 21°07'40", long. 156°49'50", half a mile upstream from confluence with Waiakeakua Stream, 3 miles south of Wailau, and 4 miles northwest of Pukoo. Datum of gage is 546 feet above mean sea level (hand levels from Reclamation Service bench mark).

Drainage area.- 4.4 square miles.

Records available.- October 1919 to December 1928, September 1937 to June 1940.

Average discharge.- 10 years (1920-28, 1938-40) 21.2 million gallons a day (32.8 second-feet).

Extremes.- Maximum discharge during year, 3,120 million gallons a day (4,830 second-feet) May 12 (gage height, 6.97 feet), from rating curve extended above 220 million gallons a day; minimum, 5.0 million gallons a day (7.7 second-feet) June 24.

1919-28, 1937-40: Maximum discharge recorded, 4,820 million gallons a day (7,460 second-feet) Aug. 19, 1938 (gage height, 8.25 feet), from rating curve extended above 220 million gallons a day; minimum discharge, 3.0 million gallons a day (4.6 second-feet) June 28, July 14, 1920.

Flood of Jan. 20, 1929, reached a stage of at least 22 feet.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.0	5.0	1.7	35	3.0	215
1.1	7.0	2.0	59	3.5	385
1.3	13.2	2.3	90		
1.5	22.5	2.6	133		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a10	7.8	14.9	7.5	21	26.5	14.5	10.4	7.0	14.1	8.8	12.5
2	a15	7.0	16.1	7.0	16.2	22.5	40	9.7	6.8	11.4	61	14.0
3	a18	6.6	89	6.6	17.6	21.5	18.5	9.2	6.8	9.7	83	16.4
4	a25	6.2	95	6.6	16.2	49	14.9	9.7	6.4	8.9	47	12.5
5	a13	6.0	36	9.6	49	38	13.6	8.6	6.2	8.4	41	12.5
6	a11	8.5	26.5	41	38	25	11.1	8.4	7.8	8.1	35.5	9.7
7	a10	15.4	19.0	22	39.5	20	18.5	9.4	6.6	7.3	21.5	22
8	a10	11.2	18.2	22.5	175	21.5	120	8.1	5.6	7.0	16.6	14.0
9	a12	14.2	15.8	12.2	58	44	30	11.3	24.5	8.1	28	12.5
10	a11	23.5	14.1	13.1	45	22.5	19.0	19.0	17.1	15.8	23.5	9.7
11	a10	10.4	23.5	11.6	30	19.0	15.8	12.8	7.3	13.6	75	8.6
12	a11	7.5	18.8	11.4	28	27.5	13.6	21.5	6.4	8.6	332	7.8
13	a10	7.6	15.4	12.8	22.5	28.5	11.8	10.4	6.0	11.4	37	7.3
14	a10	25	17.3	28	37	26	12.7	8.1	11.8	7.8	23.5	7.3
15	9.7	11.5	22.5	65	25	20	10.4	7.5	67	7.3	18.0	6.8
16	11.8	14.2	39.5	32	19.0	16.6	9.2	7.0	16.9	6.2	15.4	6.6
17	8.9	24	20	24.5	17.1	15.4	10.2	6.6	102	6.7	13.2	6.4
18	9.4	23.5	15.4	16.6	19.0	13.6	10.2	6.4	23	7.5	12.2	6.0
19	22.5	21	15.1	16.6	18.0	14.5	381	6.4	15.4	6.0	13.6	6.2
20	28.5	15.0	11.8	14.9	14.5	12.5	71	6.0	11.8	15.7	12.5	7.8
21	17.5	23.5	10.4	14.1	14.1	11.1	29	204	10.0	11.2	13.6	8.6
22	13.2	16.2	11.1	10.8	17.3	10.4	21.5	53	37.5	6.6	12.7	6.6
23	10.4	14.5	22	383	91	9.7	110	17.1	15.8	6.2	25	5.6
24	9.2	10.8	16.8	73	144	22	71	12.5	12.2	8.9	17.5	5.8
25	8.9	10.0	10.8	36.5	58	15.4	28.5	10.8	16.1	6.4	13.2	6.4
26	15.6	9.7	8.9	27	81	12.8	24	11.3	25.5	31	11.1	6.2
27	12.2	21.5	8.4	21	44	21.5	20.5	8.9	12.5	9.4	10.0	6.6
28	9.2	26	8.1	51	31	21	16.6	8.1	11.3	8.4	9.7	11.0
29	7.5	30	11.2	26	27	14.7	14.5	7.5	30.5	7.0	24	8.4
30	8.1	24	8.6	22.5	40	41	12.5	-	18.5	7.0	13.6	18.5
31	7.5	16.6	-	22	-	23	11.4	-	18.0	-	21.5	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	28.5	7.5	12.5	19.3	386	1,180
August.....	30	6.0	15.1	23.4	469	1,440
September.....	95	8.1	22.0	34.0	659	2,020
October.....	383	6.6	34.5	53.4	1,070	3,280
November.....	175	14.1	41.8	64.7	1,250	3,850
December.....	49	9.7	22.2	34.3	687	2,110
Calendar year 1939	383	6.0	30.0	46.4	10,930	33,580
January.....	381	9.2	38.9	60.2	1,210	3,700
February.....	204	6.0	18.3	28.3	530	1,630
March.....	102	5.6	18.4	28.5	570	1,750
April.....	31	6.0	9.72	15.0	292	895
May.....	232	8.8	31.9	49.4	990	3,040
June.....	22	5.6	9.69	15.0	291	892
Fiscal year 1939-40	383	5.6	23.0	35.6	8,400	25,790

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

Pelekunu Stream near Pelekunu

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

Drainage area.- 2.4 square miles.

Records available.- December 1919 to January 1929, September 1937 to June 1940.

Average discharge.- 10 years (1920-28, 1938-40) 11.2 million gallons a day (17.3 second-feet).

Extremes.- Maximum discharge during year, 738 million gallons a day (1,140 second-feet) May 12 (gage height, 4.02 feet), from rating curve extended above 80 million gallons a day; minimum, 3.05 million gallons a day (4.72 second-feet) Oct. 3, 4.
1919-29, 1937-40: Maximum discharge, 1,330 million gallons a day (2,060 second-feet) Jan. 20, 1929 (gage height, 11.5 feet, estimated from floodmarks), from rating curve extended above 20 million gallons a day; minimum, 1.8 million gallons a day (2.8 second-feet) Mar. 7, July 13, 1920.

Remarks.- Records excellent. No diversions.

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Oct. 23, May 13 to June 30					Oct. 24 to May 12				
0.4	0.20	1.0	3.9	2.0	57	0.8	2.6	1.6	25.5
.5	.60	1.2	6.7	2.3	97	.9	3.4	1.9	46
.6	1.20	1.4	11.5	2.6	164	1.0	4.5	2.2	82
.7	1.80	1.6	19.5			1.2	8.0	2.5	133
.8	2.4	1.8	34			1.4	13.9	3.0	255

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.4	3.9	5.5	3.35	7.6	9.8	9.6	6.8	3.7	5.7	4.4	5.0
2	33	3.75	5.8	3.2	6.0	8.8	27	6.4	3.6	5.2	18.3	5.3
3	27	3.6	36.5	3.1	7.1	6.6	11.2	8.8	3.6	4.8	26.5	5.8
4	21.6	3.5	35.5	3.1	6.9	21	8.8	6.0	3.5	4.4	15.4	4.7
5	12.9	3.5	11.4	4.5	23	15.1	6.0	5.6	3.4	4.3	23.5	4.4
6	9.2	3.95	8.0	15.7	11.8	10.1	6.6	5.6	3.5	4.2	16.0	4.3
7	7.8	5.0	6.2	7.0	13.6	8.0	13.6	5.6	3.4	4.0	12.2	5.5
8	7.1	4.4	5.7	6.8	54	12.7	90	5.0	3.2	3.8	8.8	4.6
9	7.1	5.5	5.3	4.3	23.5	30	23.5	5.4	13.1	5.1	9.6	4.3
10	6.4	7.0	4.7	4.4	18.2	12.9	13.6	7.4	10.6	10.5	8.8	3.9
11	6.2	4.2	5.7	4.0	11.9	10.1	10.6	5.8	4.3	9.6	31.5	3.75
12	8.2	3.6	6.5	3.9	10.3	10.6	8.8	12.5	3.8	5.0	86	3.68
13	5.3	3.65	5.4	4.4	9.0	10.6	7.8	5.7	3.6	6.6	17.2	3.6
14	5.2	7.4	6.7	8.7	14.8	9.3	8.0	4.6	4.8	4.3	10.7	3.6
15	4.9	4.7	7.8	16.5	11.7	7.6	6.8	4.4	39	4.0	8.5	3.5
16	5.3	5.6	11.1	8.3	8.3	6.6	6.0	4.2	9.9	3.7	7.1	3.5
17	4.7	7.5	6.2	7.1	7.2	6.2	6.9	4.0	44	3.7	6.2	3.4
18	4.4	6.0	5.0	5.2	10.6	5.8	6.9	4.0	14.7	3.7	5.7	3.35
19	8.7	6.4	4.7	5.6	7.4	5.8	153	3.8	9.3	3.5	5.8	3.35
20	9.1	5.5	4.3	4.6	6.2	5.6	53	3.7	7.4	10.1	5.5	3.75
21	5.5	9.7	3.9	4.3	6.0	5.0	20	20.5	6.2	6.8	5.7	3.75
22	4.8	6.2	3.75	3.9	10.1	4.6	13.9	17.0	17.4	4.3	5.5	3.5
23	4.3	5.2	4.6	137	43	4.6	71	5.8	5.9	4.0	7.4	3.35
24	4.1	4.4	4.4	40	62	11.1	71	4.8	7.0	5.1	6.5	3.35
25	4.0	4.2	3.75	16.2	26.5	5.6	23	4.4	6.6	4.1	4.9	3.35
26	5.4	4.1	3.5	11.3	31	7.4	16.8	5.6	7.0	13.2	4.6	3.4
27	4.9	6.0	3.35	10.3	16.8	13.3	13.8	4.3	5.6	5.7	4.2	3.4
28	4.1	7.1	3.35	18.1	12.2	12.0	10.9	4.0	5.2	4.6	4.1	4.4
29	3.8	12.2	4.6	9.3	10.6	6.6	9.3	3.8	18.8	4.2	11.5	3.9
30	3.9	8.2	3.8	3.3	11.5	32.5	8.0	-	8.0	4.0	6.1	7.4
31	3.8	6.7	-	7.6	-	17.2	7.4	-	6.4	-	7.4	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	33	3.6	8.06	12.5	250	767
August.....	12.2	3.5	5.56	8.60	172	529
September.....	38.5	3.35	7.63	11.8	229	702
October.....	137	3.1	12.6	19.5	390	1,200
November.....	62	6.0	16.7	26.5	501	1,540
December.....	32.5	4.6	10.8	16.7	336	1,030
Calendar year 1939	137	3.1	12.6	19.5	4,600	14,110
January.....	153	6.0	24.0	37.1	745	2,290
February.....	20.5	3.7	6.30	9.75	183	561
March.....	44	3.2	9.34	14.5	289	888
April.....	13.2	3.5	5.41	8.37	162	498
May.....	88	4.1	12.9	20.0	400	1,230
June.....	7.4	3.35	4.10	6.34	123	378
Fiscal year 1939-40	153	3.1	10.3	15.9	3,780	11,610

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. Datum of gage is 418 feet (hand levels from Geological Survey bench mark).

Drainage area.- 0.8 square mile.

Records available.- December 1910 to September 1929, September 1937 to June 1940.

Average discharge.- 11 years (1920-29, 1938-40) 10.1 million gallons a day (15.6 second-feet).

Extremes.- Maximum discharge during year, 843 million gallons a day (1,300 second-feet) Feb. 21 (gage height, 4.37 feet), from rating curve extended above 35 million gallons a day; minimum, 2.55 million gallons a day (3.95 second-feet) Apr. 16, 1919-29, 1937-40: Maximum discharge, 1,390 million gallons a day (2,150 second-feet) Oct. 15, 1938 (gage height, 5.15 feet), from rating curve extended above 35 million gallons a day; minimum, 1.66 million gallons a day (2.57 second-feet) Oct. 4, 1938.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.4	2.5	0.8	10.2	1.6	45
.5	3.5	1.0	16.1	2.0	51
.6	5.2	1.3	27.5		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.7	4.4	5.4	3.4	5.9	7.3	4.0	3.5	2.9	3.85	5.8	4.5
2	21.5	4.0	5.2	3.4	4.9	6.4	4.0	3.5	2.9	3.5	21	4.4
3	19.2	3.85	5.9	3.25	5.4	6.8	3.85	3.4	2.9	3.25	23.5	5.2
4	16.5	3.65	27	3.25	5.2	25	3.65	3.4	2.9	3.15	15.2	4.2
5	10.2	3.5	10.2	4.5	19.6	13.8	3.65	3.5	2.9	3.15	23	4.2
6	6.8	4.5	7.3	16.6	9.1	7.8	3.65	3.5	2.9	3.15	20	3.65
7	5.9	6.7	5.9	8.6	10.5	6.4	5.4	3.85	2.9	2.9	8.8	6.1
8	5.2	5.3	5.9	9.0	44	12.6	35	3.4	2.8	2.9	5.9	4.4
9	6.4	5.8	5.0	4.9	14.0	19.9	6.1	4.4	16.5	3.0	5.0	4.2
10	5.2	5.1	5.0	4.9	8.6	8.3	5.0	5.2	6.7	3.25	5.9	3.4
11	4.9	5.6	8.4	4.4	6.4	6.6	4.5	4.7	3.5	3.9	13.2	3.15
12	6.3	4.4	7.0	4.4	6.6	14.3	4.4	9.1	3.25	3.0	29.5	3.0
13	4.4	4.9	5.9	5.4	5.9	9.2	4.2	4.0	3.15	4.4	6.8	2.9
14	4.4	10.5	7.4	11.4	20	7.3	4.2	3.5	3.4	3.0	5.2	2.9
15	4.8	5.9	8.3	22.5	10.2	6.1	4.0	3.25	6.0	2.8	4.5	2.8
16	5.2	6.4	12.9	9.1	6.6	5.7	3.85	3.15	4.0	2.65	4.2	2.8
17	4.4	3.8	6.4	8.3	6.3	5.2	3.65	3.15	15.2	3.6	3.85	2.8
18	4.4	6.6	5.4	5.7	12.2	4.9	3.65	3.0	5.2	4.0	3.65	2.65
19	5.3	6.8	4.9	5.4	6.4	5.0	24	3.15	4.5	3.0	4.0	2.65
20	10.2	5.2	4.5	5.4	5.4	4.7	9.1	2.9	3.85	8.2	3.85	3.0
21	6.6	7.8	4.4	4.9	5.2	4.4	5.2	60	3.75	5.4	4.0	3.0
22	5.2	5.9	4.0	4.4	10.8	4.4	4.7	15.2	9.8	3.5	4.2	2.9
23	4.7	5.2	5.2	9.0	72	4.2	5.2	4.7	4.9	3.25	6.2	2.8
24	4.4	4.5	5.0	16.6	72	10.8	6.4	4.0	4.2	4.0	6.2	3.0
25	4.4	4.4	4.2	7.5	19.0	4.9	4.7	3.65	4.2	3.25	4.4	2.9
26	6.1	4.4	3.85	6.4	18.5	4.5	4.4	3.65	4.5	10.5	3.65	3.5
27	5.0	6.4	3.5	5.4	9.4	4.7	4.2	3.25	3.65	4.5	3.4	3.25
28	4.5	5.9	3.5	10.8	7.3	4.5	4.0	3.15	3.5	3.85	3.4	4.6
29	4.2	12.1	4.0	6.6	7.0	4.0	3.85	3.0	6.7	3.4	11.0	3.85
30	4.2	7.3	3.5	5.9	9.8	4.7	3.85	-	5.2	3.25	4.9	7.9
31	4.5	5.4	-	5.9	-	4.4	3.5	-	4.4	-	7.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	21.5	4.2	6.89	10.7	214	656
August.....	12.1	3.5	5.94	9.19	184	565
September.....	59	3.5	8.20	12.7	246	755
October.....	22.5	3.25	7.33	11.3	227	697
November.....	72	4.9	14.8	22.9	444	1,360
December.....	25	4.0	7.64	11.8	237	727
Calendar year 1939	72	3.25	9.14	14.1	3,340	10,240
January.....	35	3.5	6.12	9.47	190	582
February.....	60	2.9	6.14	9.50	178	547
March.....	16.5	2.8	5.00	7.74	155	476
April.....	10.5	2.65	3.85	5.96	116	355
May.....	29.5	3.4	8.85	13.7	274	841
June.....	7.9	2.65	3.69	5.71	111	339
Fiscal year 1939-40	72	2.65	7.04	10.9	2,580	7,900

Waikolu Stream below pipe-line crossing, near Kalaupapa

Location.- Concrete and stone dam, lat. 21°09'50", long. 156°56'00", three-quarters of a mile upstream from mouth and 3.9 miles southeast of Kalaupapa post office. Datum of gage, 253 feet (hand levels from Reclamation Service bench mark).

Drainage area.- 4.0 square miles.

Records available.- August 1931 to July 1932, September 1937 to June 1940. June 1919 to November 1930 at site 500 feet upstream.

Extremes.- Maximum discharge during year, 1,030 million gallons a day (1,590 second-feet) Oct. 23 (gage height, 4.86 feet), from rating curve extended above 50 million gallons a day; minimum, 6.1 million gallons a day (9.4 second-feet) June 23. 1919-32, 1937-40: Maximum discharge, 2,510 million gallons a day (3,880 second-feet) Apr. 9, 1938 (gage height, 8.01 feet), from rating curve extended above 50 million gallons a day; minimum, 1.3 million gallons a day (2.0 second-feet) Nov. 1, 2, 1925, June 5, 1926.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.3	5.8	1.6	16.7	2.3	80
1.4	8.6	1.8	28.5	2.6	129
1.5	12.2	2.0	45	3.0	217

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.7	8.0	8.6	8.0	8.3	19.0	10.4	9.0	8.0	8.3	20.5	10.0
2	19.4	7.5	8.0	7.8	7.6	10.0	25.5	8.6	6.0	8.0	41	6.0
3	24.5	7.5	65	7.5	7.8	13.6	13.6	8.6	8.0	8.0	36	8.3
4	19.0	7.5	38	7.5	8.6	62	9.7	9.9	6.0	8.0	21.5	8.0
5	14.0	7.8	12.6	7.8	17.9	20.5	10.0	12.0	6.0	8.0	34	7.5
6	9.7	7.8	9.0	25.5	9.0	11.1	9.3	9.0	6.0	6.0	31	7.5
7	8.6	7.8	8.0	11.6	12.9	9.3	24.5	9.0	8.0	7.8	14.0	8.0
8	8.3	8.3	8.0	9.3	38	36	112	9.0	8.0	7.8	10.4	9.7
9	8.3	8.6	7.8	8.0	12.9	56	13.6	9.0	40	7.8	10.0	8.6
10	8.3	10.4	7.8	7.8	12.2	13.0	10.0	10.0	21.5	9.3	12.0	8.6
11	9.0	8.3	7.8	7.8	8.3	9.7	9.3	10.8	9.3	17.2	17.2	8.0
12	8.3	7.8	8.6	7.8	7.8	30	9.0	13.3	8.3	9.0	75	8.0
13	8.3	8.0	9.7	8.0	8.0	14.5	8.6	9.7	8.0	9.7	11.1	8.0
14	8.0	10.1	11.4	17.3	18.8	10.4	10.4	9.0	8.3	8.6	9.3	8.0
15	8.0	9.7	12.2	34	14.3	9.7	11.0	8.6	49	8.0	8.6	7.5
16	8.0	9.7	12.4	12.2	9.3	9.0	9.0	8.6	13.6	7.8	8.6	6.6
17	9.0	10.4	9.0	10.4	8.0	8.0	9.0	8.3	95	25	8.6	6.6
18	8.0	9.3	8.0	8.3	14.0	8.6	10.4	8.3	14.9	16.9	8.3	6.9
19	9.2	9.7	7.8	7.8	8.6	8.6	139	8.3	10.0	9.3	6.3	7.2
20	12.8	9.7	7.8	7.8	7.8	8.3	44	8.3	9.0	12.0	8.3	c7.2
21	9.0	15.0	7.8	7.5	7.5	8.3	11.1	38.5	8.6	13.3	8.3	a6.6
22	8.3	10.0	7.8	7.5	13.0	8.3	9.7	41	18.5	8.6	8.6	a6.6
23	6.0	8.6	7.8	201	130	8.3	6.0	9.7	11.8	8.0	10.4	c6.9
24	8.0	8.0	8.0	33	115	24.5	67	8.6	9.0	8.0	11.8	6.6
25	7.8	7.8	7.8	10.0	19.2	10.6	11.5	8.6	8.6	8.0	10.4	6.6
26	8.6	7.2	7.5	8.6	19.9	14.6	9.7	9.0	8.6	12.6	8.6	6.6
27	10.0	7.5	7.5	8.3	10.4	21.5	11.1	9.0	8.6	9.0	8.3	6.6
28	8.3	9.0	7.5	11.9	9.0	22	9.3	8.3	8.3	8.0	8.0	6.6
29	8.0	13.5	8.8	9.0	9.0	10.0	9.3	8.3	20.5	8.0	27.5	6.6
30	7.8	10.0	8.6	8.6	9.7	9.9	37	9.0	-	9.7	8.0	13.9
31	8.0	10.0	-	-	-	18.0	9.0	-	8.6	-	12.7	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	24.5	7.8	9.94	15.4	308	946
August.....	15.0	7.2	9.05	14.0	290	861
September.....	65	7.5	11.6	17.9	347	1,060
October.....	201	7.5	17.3	26.8	536	1,640
November.....	130	7.5	19.4	30.0	583	1,790
December.....	62	8.3	17.8	27.5	551	1,690
Calendar year 1939	201	7.2	14.7	22.7	5,370	16,470
January.....	139	8.6	23.3	36.1	721	2,210
February.....	41	8.3	11.3	17.5	328	1,010
March.....	95	8.0	15.2	23.5	472	1,460
April.....	25	7.8	9.87	15.3	286	908
May.....	75	8.0	16.3	26.0	522	1,600
June.....	10.0	6.6	7.59	11.7	228	699
Fiscal year 1939-40	201	6.6	14.1	21.8	5,170	15,860

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

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 1939 to June 1940

Date	Stream	Tributary to-	Locality	Discharge	
				Second-feet	Million gallons a day
Feb. 6	Makaeleele Stream	Pacific Ocean....	At gaging station near Kaunakakai.	0.315	0.204
6	Kapuna Stream....	do.....	do.....	.113	.073
6	Waiialala Springs.	do.....	do.....	.029	.019
7	Keolewa Stream...	do.....	do.....	.244	.158

Left Branch of Makamakaole Stream near Waihee

Location.- Combined orifice and concrete control, lat. 20°57'40", long. 156°33'45", at intake to Marshall Ranch diversion ditch on left branch, a quarter of a mile upstream from confluence with main stream, 2 miles northeast of Waihee, and 2½ miles south of Kahakuloa village. Altitude of gage, 1,500 feet (by barometer).

Drainage area.- 0.4 square mile.

Records available.- July 1939 to June 1940.

Extremes.- Maximum discharge during year, 88 million gallons a day (136 second-feet) May 12 (gage height, 3.10 feet); minimum, 0.63 million gallons a day (0.98 second-foot) Mar. 21.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.3	0.60	1.7	3.0	2.1	14.3
1.4	.72	1.8	4.5	2.2	19.5
1.5	1.09	1.9	6.8		
1.6	1.9	2.0	10.0		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.72	1.90	1.03	1.15	1.37	2.75	1.09	0.75	0.75	1.03	0.71	1.22
2	1.24	1.33	1.03	1.03	.94	1.90	.98	.72	.72	.94	1.07	1.22
3	.98	.75	.47	.98	.90	1.88	.98	.72	.72	.86	4.8	2.8
4	2.06	.72	3.35	.94	.94	0.8	.94	.72	.71	.62	6.3	1.37
5	1.15	.75	2.65	.98	1.22	5.5	1.03	9.9	.71	.80	13.5	1.09
6	.77	.60	1.62	4.7	1.29	3.4	1.33	2.95	.69	.77	3.8	1.03
7	1.75	1.37	1.29	1.37	2.05	2.25	1.44	1.62	.68	.75	2.45	4.5
8	1.46	1.26	1.22	1.09	1.53	3.4	17.5	2.7	.67	.72	1.98	2.3
9	2.7	1.26	1.15	1.03	1.29	6.7	2.2	1.87	.77	.71	2.5	2.35
10	1.48	1.31	1.22	1.09	1.03	2.8	1.62	1.45	1.65	.69	1.60	1.29
11	.98	1.48	1.29	.98	.94	2.1	1.45	1.94	.75	1.16	1.45	1.09
12	.82	.86	1.03	1.03	1.46	4.6	1.29	1.37	.68	1.85	10.2	.98
13	.80	1.49	.98	2.4	1.66	2.35	1.22	1.22	.68	1.88	2.9	.94
14	1.16	1.37	2.15	1.03	1.69	2.55	1.09	.95	.97	.56	2.1	.90
15	1.29	.98	2.1	2.7	1.90	2.1	1.09	.94	.71	.77	1.71	.86
16	1.37	1.22	5.3	1.59	1.62	1.80	1.03	.86	.67	.72	1.53	.95
17	.90	3.8	1.45	1.22	2.1	1.62	.98	.86	1.21	.71	1.45	.82
18	.82	1.38	1.22	1.03	4.4	1.53	.94	1.14	.98	1.61	1.29	.80
19	1.49	1.71	1.03	.98	1.71	1.45	2.55	1.90	.68	.77	1.22	.80
20	2.15	1.22	.98	1.38	1.53	1.37	2.4	1.29	.67	.98	1.15	.77
21	2.65	1.37	1.21	1.24	1.90	1.29	1.15	2.2	.64	1.23	1.15	.77
22	2.35	1.15	1.20	.90	2.1	1.22	1.03	6.2	2.8	.75	1.09	.77
23	1.22	1.22	6.9	8.4	8.9	1.15	.98	1.29	2.6	.71	2.45	.75
24	1.03	1.09	3.0	2.1	4.8	4.6	3.25	1.03	5.0	.69	2.45	.92
25	.98	.98	1.62	1.37	2.45	2.0	1.22	.94	3.55	.68	1.37	.72
26	.98	.90	1.29	1.22	2.1	1.45	.98	.86	2.3	1.38	1.15	.69
27	.94	1.68	1.15	1.09	1.71	1.37	.94	.62	1.29	.75	.98	.69
28	.82	3.25	1.03	1.03	1.63	1.62	.86	.80	1.09	.69	.94	.75
29	.77	1.71	3.3	1.25	1.62	1.15	.80	.77	1.77	.69	2.4	.69
30	.75	1.37	1.60	1.37	4.3	1.15	.77	-	3.4	.72	1.34	.98
31	1.97	1.03	-	1.15	-	1.22	.77	-	1.53	-	2.45	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	2.7	0.72	1.28	1.98	39.5	121
August.....	3.8	.72	1.39	2.15	43.1	132
September.....	6.9	.98	2.04	3.16	61.1	187
October.....	5.4	.90	1.61	2.49	49.8	153
November.....	8.9	.90	2.10	3.25	63.0	193
December.....	8.8	1.15	2.55	3.95	79.1	243
Calendar year.....	-	-	-	-	-	-
January.....	17.8	.77	1.81	2.80	56.2	172
February.....	9.9	.72	1.75	2.71	50.8	156
March.....	5.0	.64	1.36	2.10	42.2	130
April.....	1.88	.68	.920	1.42	27.6	85
May.....	13.5	.71	2.63	4.07	81.7	251
June.....	4.5	.69	1.19	1.84	35.8	110
Fiscal year 1939-40.....	17.8	.64	1.72	2.66	630	1,930

Kahakuloa Stream near Honokohau

Location.- Concrete control, lat. 20°58'50", long. 156°33'25", just downstream from confluence with lowest tributary, 1.3 miles south of Kahakuloa, and 2 miles west of Puu Makawanna.

Drainage area.- 3.4 square miles.

Records available.- July 1939 to June 1940.

Extremes.- Maximum discharge during period, 364 million gallons a day (563 second-feet) May 12 (gage height, 2.75 feet), from rating curve extended above 55 million gallons a day by test on model of station site; minimum, 3.15 million gallons a day (4.87 second-feet) Mar. 21.

Remarks.- Records good. No diversions.

Rating tables, July 27, 1939 to June 30, 1940 (gage height, in feet, and discharge, in million gallons a day)

July 27 to Sept. 16, Jan. 9 to June 7				Sept. 17 to Jan. 8, June 8 to June 30			
0.5	2.2	1.0	16.2	0.6	4.3	1.0	19.7
.6	3.3	1.2	27.6	.7	6.8	1.2	31
.7	5.9	1.4	42	.8	10.0	1.4	47
.8	8.6	1.7	72	.9	14.0		
.9	12.0						

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	-	5.5	4.8	5.0	10.0	15.6	5.0	3.8	3.65	4.6	3.8	5.0
2	-	5.3	5.5	4.6	5.3	10.1	4.8	3.8	3.65	4.2	7.2	5.5
3	-	4.0	22.5	4.3	4.6	8.3	4.6	3.8	3.65	3.8	37	21
4	-	3.8	20.5	4.3	5.0	34.5	4.6	3.8	4.2	3.65	37.5	6.7
5	-	4.0	10.1	4.6	8.2	31	5.3	38	3.5	3.5	57	5.5
6	-	6.5	5.7	24	9.1	15.3	5.0	18.1	3.5	3.5	15.9	4.6
7	-	15.7	4.8	6.0	14.5	8.1	5.6	18.1	3.5	3.5	10.3	36.5
8	-	9.3	4.4	5.3	10.3	10.6	36.5	24.5	3.3	3.5	6.7	21.5
9	-	8.0	4.8	4.6	8.5	40	8.6	13.5	3.3	3.3	10.4	15.6
10	-	8.3	5.4	4.8	5.6	13.8	5.9	9.9	8.8	3.3	7.6	6.0
11	-	13.5	7.6	4.6	5.0	8.1	5.3	14.0	4.2	5.7	5.5	5.0
12	-	6.5	4.8	4.3	19.0	27.5	4.8	9.7	3.5	15.2	54	4.6
13	-	12.4	4.4	14.2	18.4	14.7	4.6	7.0	3.5	15.4	13.3	4.3
14	-	8.3	9.6	5.0	33.5	14.4	4.6	5.3	4.0	5.4	6.4	4.3
15	-	5.7	15.3	21.5	10.3	9.4	4.6	4.6	3.65	3.8	4.8	3.95
16	-	10.6	35.5	8.1	8.1	7.4	4.4	4.4	3.3	3.5	4.4	3.95
17	-	23	9.1	5.8	13.6	6.5	4.2	4.2	5.4	3.5	4.2	3.95
18	-	10.8	6.3	4.8	31.5	6.0	4.2	4.4	6.2	12.6	4.2	3.95
19	-	11.0	5.3	4.6	6.1	5.6	21	15.7	3.5	4.2	3.8	3.75
20	-	5.9	5.0	10.2	7.4	5.6	15.8	10.0	3.3	4.8	3.8	3.75
21	-	9.1	5.9	6.9	13.8	5.3	5.5	9.2	3.3	7.4	3.8	3.75
22	-	5.5	5.3	4.3	13.2	5.0	4.6	24.5	8.8	4.0	3.85	4.6
23	-	7.7	36	29.5	38	5.0	4.6	5.9	7.1	3.5	16.0	4.1
24	-	5.5	17.6	10.1	41	13.4	22	4.6	26	3.5	14.6	6.8
25	-	4.8	6.3	5.8	12.8	9.1	5.9	4.2	16.1	3.5	5.5	4.1
26	-	4.2	5.3	5.0	10.4	6.0	4.8	4.0	14.5	10.0	4.2	3.75
27	-	9.0	4.8	4.8	7.1	5.6	4.6	4.0	4.8	4.2	3.8	3.75
28	4.6	19.2	4.6	4.8	6.3	9.7	4.2	3.8	4.2	4.4	3.5	4.8
29	4.0	7.5	16.8	7.6	6.6	5.3	4.2	3.65	12.6	3.65	12.4	4.1
30	4.0	7.0	6.8	8.6	17.1	5.0	4.0	-	30	3.65	6.3	8.1
31	10.3	5.3	-	7.9	-	6.0	3.8	-	7.3	-	12.4	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	-	-	-	-	-	-
August.....	23	3.8	8.48	13.1	263	807
September.....	36	4.4	9.99	15.5	300	919
October.....	29.5	4.3	7.93	12.3	245	755
November.....	41	4.6	13.4	20.7	492	1,240
December.....	40	5.0	12.0	18.6	373	1,160
Calendar year.....	-	-	-	-	-	-
January.....	36.5	3.8	7.34	11.4	228	698
February.....	38	3.65	9.67	15.0	280	861
March.....	30	3.3	6.98	10.8	218	664
April.....	15.4	3.3	5.29	8.18	159	487
May.....	57	3.5	11.8	18.3	366	1,120
June.....	36.5	3.75	7.24	11.2	217	666
The period.....	-	-	-	-	-	9,370

Honokohau Stream near Honokohau

Location.- Masonry dam control, lat. 20°57'45", long. 156°35'20", 1,000 feet upstream from Intake of Honokohau ditch and about 5 miles southeast of Honokohau. Altitude of gage, about 950 feet (by barometer).

Drainage area.- 4.2 square miles.

Records available.- March 1913 to September 1920, May 1922 to June 1940.

Average discharge.- 22 years (1916-20, 1922-40), 26.2 million gallons a day (40.5 second-feet).

Extremes.- Maximum discharge during year, 748 million gallons a day (1,160 second-feet) May 12 (gage height, 5.47 feet), from rating curve extended above 120 million gallons a day; minimum, 9.5 million gallons a day (14.7 second-feet) Apr. 24, 1913-20, 1922-40: Maximum discharge, 2,200 million gallons a day (3,400 second-feet), Feb. 13, 1924 (gage height, 7.92 feet), from rating curve extended above 100 million gallons a day; minimum, 6.2 million gallons a day (9.6 second-feet) June 30, 1926.

Remarks.- Records good except those for period of no gage-height record and those above 200 million gallons a day, which are poor. No diversions.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

2.0	8.7	2.5	29	3.3	114
2.1	11.5	2.7	42	3.6	165
2.3	16.9	3.0	73	4.0	250

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.9	18.3	15.7	12.5	22.5	40	13.2	10.9	10.9	11.8	12.2	13
2	87	14.9	14.9	12.2	12.5	21	13.5	10.9	10.9	10.9	38.5	40
3	42	12.9	73	11.8	12.9	16.3	13.2	10.9	11.2	10.7	108	35
4	60	12.2	35.5	11.8	14.6	51	13.0	10.9	11.2	10.1	59	30
5	59	12.2	16.6	16.1	42	44	17.0	72	10.9	10.1	88	14
6	14.6	57	13.2	58	50	16.5	12.9	38	10.7	10.1	25.5	45
7	13.2	50	12.5	38.5	28	13.9	16.8	25.5	10.7	10.1	17.4	14
8	14.6	21	14.4	16.0	39	14.5	130	42	10.4	9.8	11.8	45
9	61	19.9	15.5	12.9	49	57	14.2	28	10.9	9.8	30.5	13
10	23.5	37	27	18.2	14.9	20.5	12.9	29.5	13.5	16.8	29	11
11	16.5	85	21.5	13.5	28.5	14.0	12.5	36	11.2	15.7	13.3	10.7
12	15.6	21	15.6	12.5	90	46	12.2	74	10.7	49	83	10.4
13	13.9	43	16.5	24	34	20.5	11.8	16.1	10.7	38	12.5	10.4
14	30	41	18.2	24	35	16.7	11.8	12.9	11.2	14.1	10.7	10.4
15	26.5	28.5	42	58	17.5	13.9	11.5	12.2	11.2	10.7	10.4	10.1
16	46	45	128	16.9	16.1	13.5	11.5	11.8	11.2	10.1	10.1	10.1
17	14.9	61	16.5	16.3	27.5	13.2	11.5	11.5	19.9	14.2	9.8	10.1
18	13.5	34	14.6	13.2	54	12.9	11.5	11.5	13.8	31	10.9	10.1
19	37	36.5	13.2	12.5	14.6	12.9	105	15.8	10.9	11.8	11	10.1
20	29	17.3	12.9	27.5	13.5	12.9	32	14.9	10.7	41	10	10.9
21	65	28.5	12.5	14.7	23	12.9	13.2	32	10.4	18.4	10	12.0
22	24	17.7	12.2	11.8	28.5	12.5	12.2	59	12.2	11.2	10	22
23	15.3	16.5	17.9	69	154	12.5	16.9	12.5	11.2	9.8	80	14.1
24	13.2	14.6	24	15.7	172	21.5	88	11.8	24.5	14.4	60	38.5
25	12.9	13.9	13.9	11.8	40	14.6	13.5	11.5	22.5	10.9	14	15.5
26	25.5	13.5	12.5	11.2	20	13.5	12.2	11.2	16.9	39	13	9.8
27	22.5	25.5	11.8	11.2	14.2	33.5	11.8	11.2	11.2	12.3	12	10.1
28	14.9	47	11.8	16.1	13.5	18.0	11.2	11.2	10.4	25.5	11	15.2
29	12.9	19.8	35.5	19.9	14.9	13.5	11.2	10.9	36	11.5	45	11.8
30	12.5	25.5	19.0	17.8	40	18.8	11.2	-	78	11.6	15	31
31	32.5	14.9	-	28	-	16.8	11.2	-	13.2	-	35	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	67	12.5	27.8	43.0	863	2,650
August.....	85	12.2	29.3	45.3	907	2,780
September.....	120	11.8	23.5	36.4	704	2,160
October.....	69	11.2	21.1	32.6	653	2,000
November.....	172	12.5	37.9	58.6	1,140	3,490
December.....	57	12.5	21.2	32.8	658	2,080
Calendar year 1939	218	9.8	29.4	45.5	10,750	32,950
January.....	130	11.2	22.6	35.0	701	2,150
February.....	74	10.9	23.0	35.6	687	2,050
March.....	78	10.4	15.5	24.0	479	1,470
April.....	49	9.8	17.0	26.3	510	1,570
May.....	108	9.8	20.2	45.2	908	2,750
June.....	45	9.8	18.1	28.0	545	1,570
Fiscal year 1939-40	172	9.8	23.8	36.8	8,730	26,790

Note.- No gage-height record May 19 to June 11; discharge computed on basis of records for Honokawa and Olowalu ditches.

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 north-east of Lahaina. Altitude of gage, about 1,900 feet (from topographic map).

Records available.- July 1912 to June 1940.

Average discharge.- 21 years (1919-40), 5.83 million gallons a day (9.02 second-feet).

Extremes.- Maximum daily discharge, 25 million gallons a day (39 second-feet) Nov. 24; minimum, 2.65 million gallons a day (4.10 second-feet) June 11-21.
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 good. Ditch diverts water for power and irrigation from Honokawai Stream just above station. Flow regulated by head gates at intake.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.5	4.3	3.9	3.7	5.3	9.1	3.3	3.0	3.0	2.95	3.15	3.2
2	12.2	3.8	3.8	3.5	3.4	4.4	3.4	3.0	3.0	2.85	10.1	3.65
3	12.3	3.5	14.1	3.5	3.45	3.6	3.5	3.0	2.95	2.85	18.9	9.5
4	12.5	3.4	7.0	3.45	4.0	6.8	3.15	3.0	2.85	2.85	10.4	5.6
5	12.8	3.4	4.2	4.1	11.4	6.8	4.5	6.0	2.85	2.85	11.8	5.1
6	3.65	10.6	3.65	15.2	11.7	3.5	3.25	6.4	2.85	2.85	4.5	3.4
7	3.4	7.5	3.6	9.8	7.0	3.3	3.1	4.2	2.8	2.85	3.85	7.4
8	3.35	5.0	3.7	4.2	12.1	3.5	11.9	4.5	2.8	2.85	3.0	5.4
9	8.8	4.1	4.3	6.6	10.3	8.6	4.0	5.2	2.9	2.85	4.6	2.95
10	4.9	7.9	6.7	4.2	4.1	3.95	3.25	8.4	2.95	4.5	6.2	2.85
11	3.9	14.4	5.4	3.9	4.5	3.2	3.1	8.4	2.95	3.7	3.0	2.65
12	4.1	3.75	4.2	3.6	13.8	5.2	3.1	10.0	2.95	8.5	12.5	2.65
13	3.45	9.1	4.5	6.5	5.6	4.0	3.05	3.6	2.95	8.8	3.2	2.65
14	6.1	12.4	4.3	7.9	5.2	3.5	2.85	5.1	2.95	3.4	2.9	2.65
15	4.8	5.4	8.8	11.8	3.8	3.15	3.0	3.0	2.95	2.9	2.8	2.65
16	9.0	14.1	15.7	4.5	3.9	3.15	2.95	2.9	2.9	2.8	2.8	2.65
17	3.7	10.6	4.3	4.1	4.9	3.1	3.0	2.85	4.2	2.8	2.9	2.65
18	3.45	6.0	3.8	3.55	10.1	3.0	3.05	2.85	3.6	4.8	2.8	2.65
19	9.0	8.1	3.65	3.6	3.7	3.0	15.0	2.95	3.05	3.25	2.8	2.65
20	7.9	4.7	3.55	4.5	3.4	3.0	7.7	3.0	2.95	9.3	2.8	2.65
21	13.6	7.7	3.55	3.95	4.6	3.05	3.55	3.55	2.95	4.3	2.8	2.65
22	5.3	4.5	3.5	3.7	5.9	3.1	3.1	9.6	2.95	3.05	2.75	3.9
23	4.1	3.9	3.5	11.4	16.2	3.1	4.9	3.25	2.9	2.95	10.2	3.0
24	3.45	3.75	3.85	4.3	25	3.15	9.9	3.05	2.85	3.25	7.3	11.8
25	3.35	3.55	3.95	3.5	11.5	3.3	3.5	3.0	3.2	3.2	3.45	5.1
26	5.8	3.55	3.65	3.4	4.5	3.15	3.15	3.0	3.1	11.4	3.2	2.9
27	5.8	4.2	3.55	3.4	3.55	3.15	3.0	3.0	3.0	3.15	2.9	2.85
28	3.55	10.0	3.55	3.25	3.4	3.3	3.1	2.95	2.95	8.9	2.85	3.6
29	3.4	5.2	8.9	3.8	3.55	3.35	3.0	2.95	6.2	3.4	7.4	3.2
30	3.4	6.7	6.0	4.2	3.5	4.9	3.0	-	14.2	3.0	3.9	8.3
31	6.8	4.1	-	6.6	-	4.8	3.0	-	3.3	-	6.0	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	13.6	3.35	6.17	9.55	191	557
August.....	14.4	3.4	6.42	9.95	199	611
September.....	15.7	3.5	6.25	9.12	157	483
October.....	13.2	3.25	6.11	7.91	159	497
November.....	25	3.4	7.11	11.0	213	655
December.....	9.1	3.0	4.30	6.65	133	409
Calendar year 1939	25	2.65	5.73	8.87	2,090	6,420
January.....	15.0	2.95	4.30	6.65	135	409
February.....	10.0	2.85	4.27	6.61	124	380
March.....	14.2	2.8	3.48	5.38	108	331
April.....	11.4	2.8	4.24	6.56	127	390
May.....	18.9	2.75	5.41	8.37	168	514
June.....	11.8	2.65	4.03	6.24	121	371
Fiscal year 1939-40	25	2.65	5.01	7.75	1,830	5,630

Olowalu ditch near Olowalu

Location.- Parshall flume control, lat. 20°49'40", long. 156°36'40", 114 feet upstream from intake of pipe line to hydroelectric plant, 1½ miles northeast of Olowalu, and 7 miles east of Lahaina.

Records available.- August 1911 to June 1940.

Average discharge.- 22 years (1917-20, 1921-40), 4.99 million gallons a day (7.72 second-foot).

Extremes.- Maximum daily discharge, 10.2 million gallons a day (15.8 second-foot) Jan. 20; minimum, 2.75 million gallons a day (4.25 second-foot) June 21.
1911-32: Maximum discharge, 18 million gallons a day (28 second-foot) Dec. 25, 1920 (gage height, 1.53 feet, site and datum then in use); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good. Ditch diverts from Olowalu Stream at altitude of about 450 feet. Water used for power and irrigation. Regulated by head gates.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

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

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	8.6	4.7	6.67	10.3	207	635
August.....	9.1	4.2	6.40	9.90	198	609
September.....	8.8	3.65	5.55	8.59	166	511
October.....	8.7	3.4	4.67	7.23	145	444
November.....	9.6	3.65	7.06	10.9	212	650
December.....	9.3	3.85	6.14	9.50	190	584
Calendar year 1939	10.9	3.0	6.90	10.7	2,520	7,740
January.....	10.2	5.2	8.07	12.5	250	768
February.....	9.8	4.6	7.23	11.2	210	643
March.....	8.6	3.35	4.23	6.54	131	402
April.....	8.1	3.25	4.36	6.75	131	401
May.....	9.4	3.5	5.91	9.14	183	562
June.....	6.9	2.75	4.16	6.44	126	383
Fiscal year 1939-40	10.2	2.75	5.87	9.08	2,150	6,590

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 1940.

Extremes.- Maximum discharge during period, 1,600 million gallons a day (2,480 second-foot) Sept. 3 (gage height, 9.76 feet), from rating curve extended above 400 million gallons a day; minimum, 0.05 million gallons a day (0.08 second-foot) Apr. 24. 1927-29, 1931-40: Maximum discharge, 8,190 million gallons a day (9,580 second-foot) 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. Small quantity of water is diverted for domestic supply and livestock.

Rating table, August 1939 to June 1940 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.04	0.6	1.79	2.0	51
.2	.14	.8	4.0	2.5	93
.3	.33	1.0	7.5	3.0	145
.4	.63	1.3	15.3	4.0	270
.5	1.08	1.6	27.5	5.0	435

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	-	-	4.4	0.31	11.6	13.5	0.07	0.07	0.08	50	5.3	0.32
2	-	-	1.16	.24	2.5	3.45	.06	.07	.08	4.3	19.8	.10
3	-	-	161	.16	10.8	1.04	.07	.07	.08	14.1	163	2.85
4	-	-	153	.18	25.5	.42	.07	.07	.32	2.05	107	.13
5	-	-	6.9	5.9	179	3.05	.19	.06	.33	.68	52	1.95
6	-	-	39	129	155	.44	.09	.06	11.7	.39	5.5	.28
7	-	-	3.0	97	75	.24	1.37	.06	33.5	.25	2.55	50
8	-	-	1.15	91	368	.16	86	.06	.93	.16	5.3	5.5
9	-	-	1.68	5.3	41	.13	2.25	10.3	.23	.16	4.7	37.5
10	-	-	3.35	21	72	.13	.29	17.3	.07	.42	33	1.33
11	-	-	9.0	6.3	21	.13	.16	16.1	.07	.20	4.9	.48
12	-	-	0.76	7.3	2.55	.54	.12	.11	.52	.06	.49	.29
13	-	-	.14	9.3	.54	41	2.35	.08	10.2	.07	.15	2.4
14	-	-	51	7.5	.48	28	13.0	.06	.50	.22	.11	.63
15	-	-	14.7	50	37.5	3.35	2.75	.06	.24	.26	.45	.09
16	-	-	54	202	4.6	1.22	4.8	.06	.11	.11	.10	.31
17	-	-	143	17.4	.54	.81	45	.06	.08	137	.06	.22
18	-	-	24	4.6	.48	1.40	2.35	.07	.08	5.6	.06	.47
19	-	-	27.5	1.26	.44	.60	.86	.43	.12	.94	.06	2.15
20	-	-	17.4	.63	1.82	.39	3.15	2.75	.11	.48	.07	.29
21	-	-	30	3.05	.44	.31	.82	.71	.08	.29	.07	.24
22	-	-	21.5	3.5	17.0	.24	.33	.56	.07	.27	.07	.32
23	-	-	6.9	100	87	18.0	.29	.25	.07	.29	.07	.37
24	-	-	1.44	21	2.75	162	.20	25	.07	.20	.93	17.3
25	-	-	.60	3.9	.63	112	.14	1.16	.07	.22	1.18	2.95
26	-	-	.54	1.22	.74	136	.12	.60	.08	.27	48	1.28
27	-	-	83	.72	.36	7.0	.08	.33	.08	.18	5.8	.39
28	-	-	74	.54	.63	1.58	.08	.22	.08	.09	66	.24
29	-	-	66	.81	15.6	.99	.09	.14	.08	.07	11.3	.16
30	-	-	96	.48	10.8	11.6	.10	.09	-	.97	2.6	.14
31	-	-	30	-	15.8	-	.15	.08	-	145	-	.88

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	-	-	-	-	-	-
August 12-31.....	143	0.14	37.1	57.4	742	2,280
September.....	202	.48	26.6	41.2	799	2,450
October.....	129	.16	18.0	27.9	557	1,710
November.....	368	.24	51.4	79.5	1,540	4,730
December.....	45	.08	3.21	4.97	99.5	305
Calendar year	-	-	-	-	-	-
January.....	86	.06	5.35	8.28	166	509
February.....	82	.06	3.74	5.79	108	332
March.....	137	.06	11.0	17.0	340	1,040
April.....	66	.06	7.00	10.8	210	644
May.....	163	.14	16.8	26.0	520	1,600
June.....	50	.07	5.05	7.81	152	465
The period.....	-	-	-	-	-	16,060

Note.- Discharge for July 1 to Aug. 11 not computed because of insufficient data.

Right Branch of Kahalawe Stream near Kipahulu

Location.- Columbus control, lat. 20°41'05", long. 156°03'00", at old ditch intake and 2 miles north of Kipahulu. Columbus control installed and datum raised 8 feet Apr. 21, 1938 (not lowered, as previously reported). Altitude of gage, 1,100 feet.

Drainage area.- 0.1 square mile.

Records available.- February 1927 to June 1940.

Average discharge.- 10 years (1927-34, 1935-36, 1938-40), 3.70 million gallons a day (5.72 second-foot).

Extremes.- Maximum discharge during year, 380 million gallons a day (588 second-foot)

Mar. 17 (gage height, 3.76 feet), from rating curve extended above 12 million gallons a day; minimum, 0.35 million gallons a day (0.54 second-foot) Feb. 28, 29, Mar. 1.

1927-40: Maximum discharge, 1,940 million gallons a day (3,000 second-foot) Apr. 29, 1937 (gage height, 15.74 feet, datum then in use), from rating curve extended

above 22 million gallons a day; minimum, 0.15 million gallons a day (0.23 second-foot) Dec. 18, 1929.

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

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

July 1 to July 17

July 18 to June 30

1.0	1.06	0.8	0.28	1.3	3.25
1.2	2.5	.9	.48	1.4	4.7
1.4	5.1	1.0	.84	1.6	9.3
1.7	12.4	1.1	1.38	1.8	16.2
		1.2	2.15	2.0	26

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.35	1.01	2.0	1.17	2.6	3.15	0.84	0.57	1.00	6.1	2.95	1.24
2	6.4	.96	1.3	1.11	1.45	2.05	.79	.54	.52	1.38	1.82	1.46
3	4.8	.88	20	1.01	1.96	1.97	.74	.51	.51	3.25	12.0	2.75
4	6.9	.88	4.2	1.01	2.15	1.90	.74	.54	2.15	1.17	14.8	1.17
5	5.9	.79	3.0	1.17	6.0	4.3	1.24	.48	1.60	.92	5.6	1.24
6	3.5	2.4	2.7	6.0	7.8	1.89	1.90	.51	2.05	.79	1.97	1.11
7	2.4	3.0	2.5	4.3	4.2	1.52	5.4	.67	1.38	.70	2.4	13.0
8	2.0	2.0	2.4	2.65	21.5	1.31	9.9	.88	4.3	.63	6.1	2.25
9	5.0	2.4	2.35	1.73	3.95	1.24	1.59	7.4	1.12	.84	3.15	3.15
10	2.0	5.2	2.65	1.85	4.7	1.17	1.17	3.25	.67	1.37	5.7	1.52
11	1.6	4.6	3.2	1.45	3.95	2.25	.92	2.5	.57	.79	1.97	1.24
12	3.0	1.69	3.15	1.52	6.1	2.25	.79	2.4	.48	.84	2.05	1.06
13	2.0	1.24	1.97	1.24	3.7	4.4	.74	1.97	.42	.88	1.59	.96
14	1.4	3.9	1.59	1.11	6.8	7.4	.67	1.11	1.45	.74	1.38	.92
15	2.0	2.15	5.6	3.9	2.35	2.85	.67	1.19	1.35	.92	1.24	.88
16	2.5	4.3	11.5	1.66	1.66	5.3	.63	.70	.60	.74	1.06	1.06
17	1.69	7.0	2.9	1.6	1.66	9.6	.80	.60	20	.67	.96	.84
18	1.31	3.1	2.35	1.5	2.5	2.45	.60	.63	2.0	.63	1.17	.84
19	2.3	6.7	1.61	1.3	1.81	1.81	18.6	2.15	1.17	.68	2.15	.84
20	6.4	3.75	1.52	1.1	1.52	2.05	1.69	.70	.96	.91	1.11	.79
21	7.5	3.75	1.61	1.0	1.69	1.73	1.24	.70	.74	.88	1.01	1.11
22	4.7	2.65	7.6	4.0	1.38	1.52	1.01	.79	.74	.67	1.24	2.4
23	2.45	2.65	17.6	2.0	7.3	1.38	.92	.54	.88	.62	6.0	1.17
24	1.61	1.97	4.8	1.24	9.8	1.17	9.2	.51	1.11	1.19	2.4	1.17
25	1.62	1.69	2.55	1.31	5.0	1.24	1.11	.45	.96	.74	1.59	1.52
26	1.62	1.3	1.69	1.17	5.9	1.11	.96	.45	1.32	3.0	2.7	1.68
27	1.69	1.1	1.59	1.01	2.25	1.06	.84	.39	.92	1.01	1.31	1.62
28	1.66	1.0	1.45	3.65	1.81	1.01	.74	.37	.70	4.4	1.06	2.12
29	1.31	1.2	1.52	3.35	1.59	.96	.67	.35	1.15	1.84	1.06	1.31
30	1.17	7.0	1.24	2.15	7.2	1.10	.63	-	1.98	1.68	.96	1.35
31	1.17	3.5	-	4.0	-	.96	.60	-	8.9	-	2.6	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	7.5	1.17	2.97	4.60	92.0	282
August.....	7.0	.79	2.76	4.27	85.6	263
September.....	20	1.24	4.01	6.20	120	370
October.....	6.0	1.0	2.04	3.16	63.3	194
November.....	21.5	1.36	4.41	6.82	132	406
December.....	9.5	.96	2.39	3.70	74.0	227
Calendar year 1939	46	.58	4.38	6.78	1,600	4,910
January.....	16.6	.60	2.14	3.31	86.3	264
February.....	7.4	.35	1.17	1.81	33.8	104
March.....	20	.42	2.05	3.17	63.7	195
April.....	6.1	.62	1.35	2.10	40.9	126
May.....	14.8	.96	3.00	4.64	93.1	286
June.....	15.0	.79	1.79	2.77	53.7	165
Fiscal year 1939-40	21.5	.35	2.51	3.88	918	2,820

Notes.- Discharge for period when control was under repair, July 6-16, and for periods of no gage-height record, Aug. 26 to Sept. 8, Oct. 17-23, computed on basis of records for stations on nearby streams.

Kaeleku flume near Kaeleku

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

Records available.- February to June 1940.

Extremes.- Maximum discharge during period, 4.5 million gallons a day (7.0 second-feet) May 10 (gage height, 1.67 feet); no flow during several periods.

Remarks.- Records good except those for periods of plugged intake, which are poor. Water used for fluming cane and for domestic water supply near Kaeleku.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1								-	0.3	0.52	0.73	1.00
2								-	.06	.10	1.75	1.17
3								-	0	.12	1.78	1.55
4								-	0	.04	.62	.38
5								-	.01	.02	.77	.34
6								-	.51	.01	1.36	.65
7								-	1.34	0	2.55	3.35
8								-	.32	0	1.34	1.77
9								-	.36	.01	1.35	2.6
10								-	1.26	.05	1.33	.79
11								-	.51	.3	.18	.18
12								-	.16	.70	.44	.04
13								-	.02	.07	.91	.01
14								-	.28	.06	.21	0
15								-	.11	.11	0	0
16								0.02	0	.02	0	0
17								0	1.30	0	0	0
18								.29	.27	.01	0	0
19								.93	.06	0	.01	0
20								.16	.06	.69	.01	0
21								.02	.01	1.19	.10	1.30
22								1.24	.99	.15	.23	.76
23								.18	1.48	.06	2.05	.42
24								.03	.69	.17	2.2	.96
25								.01	1.37	.01	1.84	1.59
26								0	1.24	1.03	1.06	1.42
27								0	.12	1.62	.27	1.27
28								0	0	1.84	.16	1.49
29								0	1.41	.82	.40	1.07
30								-	1.07	.43	.12	1.42
31								-	1.71	-	1.60	-

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 16-29.....	1.24	0	0.206	0.319	2.38	3.8
March.....	1.71	0	.549	.249	17.0	52
April.....	1.84	0	.338	.523	10.2	31
May.....	2.55	0	.835	1.29	25.9	79
June.....	3.35	0	.851	1.32	25.5	78
The period.....	-	-	-	-	-	249

Note.- Intake plugged Feb. 27 to Mar. 4, Apr. 5-11, June 12-20; discharge computed on basis of records for station of Hana flume near Hana.

Makapipi Stream near Nahiku

Location.- Concrete control, lat. 20°48'35", long. 156°05'55", 100 feet upstream from highway crossing, 1½ miles south of Nahiku, and 4½ miles southeast of Keanae post office.

Drainage area.- 5.0 square miles.

Records available.- July 1932 to June 1940. Records at same site collected by East Maui Irrigation Co. June 1930 to June 1932.

Extremes.- Maximum discharge during year, 117 million gallons a day (181 second-feet) Nov. 23 (gage height, 1.66 feet), from rating curve extended above 70 million gallons a day by tests on model of station site; no flow during periods of dry weather.
1932-40: Maximum discharge, 1,220 million gallons a day (1,890 second-feet) Apr. 7, 1938 (gage height, 5.90 feet), from rating curve extended above 70 million gallons a day by tests on model of station site; no flow occasionally during dry weather.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0	0	0.3	2.3	0.6	12.0
.1	.2	.4	4.6	.8	23.5
.2	.9	.5	7.8	1.0	45

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.2	2.0	1.7	0.9	0.7	2.8	0.8	0.1	0		0	
2	3.4	1.9	1.7	.9	.7	1.9	.8	.1	0		0	
3	3.4	1.9	5.0	.8	.6	1.6	.8	.1	0		2.4	
4	4.0	1.9	4.0	.8	.6	5.7	.8	0	0		7.4	
5	11.2	1.9	3.2	.8	.7	4.4	.8	0	0		21	
6	4.6	1.7	2.8	.8	2.9	2.5	.8	0	0		5.6	
7	4.1	1.7	2.5	.8	1.6	1.9	.8	0	0		2.8	
8	4.1	1.7	2.2	.8	4.5	1.8	8.7	0	0		1.7	
9	4.6	1.7	2.0	.8	2.3	2.0	1.6	0	0		1.3	
10	4.4	1.9	2.0	.8	1.9	1.7	1.3	0	.3		.8	
11	4.1	4.0	1.9	.8	1.7	1.6	1.0	0	0		.4	
12	3.9	3.0	1.6	.8	8.8	2.3	1.0	0	0		0	
13	3.4	2.5	1.6	.8	9.6	1.7	.9	0	0		0	
14	3.2	3.5	1.6	.8	29	1.7	.9	0	0		0	
15	3.4	2.5	1.6	.8	6.5	1.6	.8	0	0		0	
16	3.7	4.7	2.6	.8	4.4	1.3	.8	0	0		0	
17	3.7	6.7	2.2	.8	3.4	1.3	.8	0	0		0	
18	3.4	1.8	1.9	.8	3.0	.7	0	0	0		0	
19	3.2	6.0	1.7	.8	2.5	1.0	0	0	0		0	
20	3.4	4.0	1.6	.7	2.0	.9	.6	0	0		0	
21	3.9	3.0	1.5	.7	1.9	.9	.6	.1	0		0	
22	3.7	2.3	2.1	4.1	1.6	.9	.5	10.7	0		0	
23	3.4	2.0	2.2	2.0	21	.9	.5	.9	0		0	
24	3.2	1.8	1.9	1.3	41	1.2	.5	.5	0		0	
25	3.0	1.7	1.7	1.2	11.7	1.0	.5	.2	0		0	
26	2.8	1.7	1.6	.9	6.5	.9	.4	.1	0		0	
27	2.5	1.7	1.5	.9	4.9	.9	.3	0	0		0	
28	2.3	1.7	1.3	.8	3.9	.9	.3	0	0		0	
29	2.2	1.7	1.2	.8	3.2	.9	.2	0	0		0	
30	2.2	1.7	1.0	.8	3.8	.9	.2	-	0		0	
31	2.0	1.7	-	.7	-	.8	.2	-	0		0	

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	11.2	2.0	3.66	5.66	114	349
August.....	6.7	1.7	2.52	3.90	78.0	239
September.....	5.0	1.0	2.05	3.17	61.4	188
October.....	4.1	.7	.98	1.52	30.3	93
November.....	41	.6	6.23	9.64	187	574
December.....	5.7	.8	1.65	2.55	51.1	157
Calendar year 1939	84	.6	6.03	9.33	2,200	6,750
January.....	8.7	.2	.95	1.47	29.6	91
February.....	10.7	0	.44	.68	12.8	39
March.....	.3	0	.01	.02	.3	.9
April.....	0	0	0	0	0	0
May.....	21	0	1.40	2.17	43.4	133
June.....	0	0	0	0	0	0
Fiscal year 1939-40	41	0	1.66	2.57	608	1,860

Note.- No gage-height record Aug. 10-15, Aug. 18 to Sept. 4; discharge computed on basis of records for stations on nearby streams.

West Makapipi Spring near Nahiku

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

Records available.- July 1932 to June 1940. Records at same site collected by East Maui Irrigation Co. June 1931 to June 1932.

Extremes.- Maximum discharge during year, 1.12 million gallons a day (1.73 second-feet) July 1, 2, 4-6 (gage height, 0.47 foot); no flow Mar. 1 to June 30.
1932-40: 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 formulae; no flow in dry weather.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1939-40 (gage height, in feet,
and discharge, in million gallons a day)

0	0	0.3	0.40
.1	.05	.4	.79
.2	.17	.5	1.26

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.12	0.79	0.66	0.38	0.27	0.21	0.50	0.30				
2	1.12	.79	.62	.35	.27	.21	.50	.27				
3	1.07	.79	.66	.35	.27	.19	.54	.27				
4	1.07	.79	.66	.35	.27	.23	.54	.25				
5	1.12	.79	.62	.35	.27	.27	.54	.23				
6	1.12	.79	.58	.35	.30	.23	.54	.23				
7	1.07	.79	.58	.35	.27	.21	.54	.21				
8	1.07	.79	.58	.35	.32	.21	.62	.21				
9	1.07	.75	.54	.35	.30	.23	.54	.19				
10	1.02	.79	.50	.35	.27	.25	.50	.17				
11	1.02	.84	.50	.35	.27	.25	.50	.17				
12	1.02	.75	.50	.35	.30	.30	.50	.19				
13	.98	.75	.50	.35	.32	.30	.50	.17				
14	.98	.79	.50	.35	.44	.30	.50	.16				
15	.98	.75	.47	.35	.35	.32	.50	.14				
16	.98	.75	.50	.35	.30	.32	.47	.13				
17	.93	.75	.50	.35	.27	.35	.47	.13				
18	.93	.75	.47	.35	.25	.35	.44	.11				
19	.93	.75	.47	.35	.25	.38	.44	.10				
20	.93	.75	.44	.35	.23	.40	.44	.10				
21	.93	.75	.44	.35	.23	.40	.40	.10				
22	.93	.75	.44	.38	.23	.40	.40	.19				
23	.88	.71	.44	.38	.25	.40	.40	.11				
24	.88	.66	.40	.32	.38	.44	.38	.09				
25	.84	.66	.40	.32	.30	.44	.38	.08				
26	.84	.66	.40	.32	.30	.44	.38	.06				
27	.84	.62	.40	.32	.25	.50	.35	.04				
28	.84	.62	.38	.32	.23	.50	.35	.03				
29	.79	.62	.38	.30	.21	.50	.32	.02				
30	.79	.66	.38	.30	.21	.50	.30	-				
31	.79	.66	-	.30	-	.50	.30	-				

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	1.12	0.79	0.964	1.49	29.9	92
August.....	.84	.62	.737	1.14	22.9	70
September.....	.66	.38	.497	.769	14.9	46
October.....	.38	.30	.343	.531	10.6	33
November.....	.44	.21	.279	.432	8.38	26
December.....	.50	.19	.340	.526	10.5	32
Calendar year 1939	1.55	.19	.874	1.35	319	978
January.....	.62	.30	.454	.702	14.1	43
February.....	.30	.02	.153	.237	4.45	14
March.....	0	0	0	0	0	0
April.....	0	0	0	0	0	0
May.....	0	0	0	0	0	0
June.....	0	0	0	0	0	0
Fiscal year 1939-40	1.12	0	.316	.489	116	356

Hanawi Stream near Nahiku

Location.- Lat. 20°48'35", long. 156°06'50", 200 feet upstream from Koolau ditch intake and trail, 1½ 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 1940.

Average discharge.- 18 years (1922-40), 12.8 million gallons a day (19.8 second-feet).

Extremes.- Maximum discharge during year, 503 million gallons a day (778 second-feet) Sept. 3 (gage height, 6.75 feet), from rating curve extended above 120 million gallons a day; minimum, 1.3 million gallons a day (2.0 second-feet) Mar. 20-22.
1914-16, 1921-40: Maximum gage height, about 20 feet during flood of Jan. 18, 1916, from floodmarks; minimum discharge, 1.2 million gallons a day (1.9 second-feet) Feb. 13, 1936.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.2	1.3	1.0	9.1	2.5	58
.3	1.9	1.3	14.4	3.0	89
.5	3.4	1.6	21	3.5	123
.7	5.4	2.0	34		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.5	4.0	6.5	2.8	3.0	8.3	2.4	1.5	1.8	3.6	3.2	3.2
2	31	3.8	5.3	2.7	2.4	6.4	2.4	1.5	1.8	2.5	3.6	2.4
3	26.5	3.5	53	2.6	2.5	5.6	2.3	1.5	1.7	2.2	71	4.3
4	31	3.3	37.5	2.5	4.7	13.4	2.2	1.5	1.7	2.0	62	2.6
5	47	3.2	5.9	4.8	16.3	12.0	2.2	2.2	1.6	1.9	71	2.5
6	7.8	3.3	4.8	37	36	6.7	2.2	2.2	1.5	1.8	22.5	2.2
7	6.2	4.6	4.2	6.7	14.2	6.0	2.3	1.8	1.5	1.7	7.9	3.6
8	5.3	4.1	4.0	3.8	44	5.8	39	1.6	1.4	1.6	4.5	3.4
9	17.4	5.0	3.9	3.1	9.2	13.3	3.5	4.5	3.0	1.5	3.3	3.2
10	7.4	19.2	8.4	3.7	6.1	7.3	2.6	13.3	3.6	1.5	4.6	2.5
11	6.1	27.5	6.2	3.3	6.1	5.9	2.4	13.8	1.8	1.5	3.0	2.2
12	8.8	5.3	6.5	3.8	40	7.9	2.3	16.0	1.7	2.9	2.4	2.1
13	8.1	5.0	6.5	3.9	37	6.2	2.2	3.7	1.6	3.9	2.4	2.0
14	8.4	11.2	4.5	4.5	35.5	5.4	2.1	2.7	1.7	1.8	2.0	1.8
15	11.8	10.9	5.8	7.2	8.7	5.0	2.1	2.3	1.7	1.5	1.9	1.8
16	9.2	16.5	20	4.2	9.3	4.5	2.1	2.2	1.5	1.4	1.9	1.8
17	6.2	15.3	6.2	4.0	8.1	4.2	2.0	2.0	1.9	2.0	1.8	1.7
18	5.6	8.7	5.0	3.4	10.1	3.9	2.0	3.0	1.5	1.7	1.8	1.7
19	8.1	8.2	4.1	3.2	5.3	3.8	1.9	5.4	1.4	1.5	1.8	1.7
20	12.2	7.1	3.8	3.2	4.5	3.5	1.8	3.6	1.4	1.9	1.7	1.6
21	14.9	6.7	3.5	2.9	6.2	3.3	1.8	10.4	1.4	3.7	1.7	1.6
22	8.3	7.0	5.0	3.0	4.6	3.2	1.8	26	2.4	1.8	1.7	4.3
23	6.2	5.0	5.9	3.3	52	3.0	1.7	3.8	2.8	1.6	4.4	2.2
24	5.4	4.3	5.4	2.8	110	4.2	1.7	2.9	4.6	2.0	6.7	1.9
25	5.0	4.1	3.8	2.6	34	3.6	1.7	2.5	2.4	1.8	3.4	2.2
26	5.2	3.9	3.4	2.5	10.4	3.1	1.7	2.3	2.0	3.4	6.8	2.6
27	7.0	6.6	3.2	2.3	7.2	2.8	1.6	2.1	1.8	2.2	2.4	2.8
28	4.8	6.8	3.1	2.5	6.1	2.7	1.6	2.0	1.7	2.2	2.1	2.8
29	4.1	8.7	3.3	2.6	5.5	2.6	1.6	1.9	12.4	1.8	2.1	2.2
30	3.9	13.9	3.0	2.5	11.4	2.6	1.5	-	23	1.7	2.5	3.2
31	4.6	8.6	-	2.6	-	2.6	1.5	-	4.8	-	2.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	47	3.9	10.9	16.9	339	1,040
August.....	27.5	3.2	7.91	12.2	245	753
September.....	53	3.0	8.05	12.5	242	742
October.....	37	2.3	6.52	6.99	140	430
November.....	110	2.4	18.3	28.3	550	1,690
December.....	13.4	2.6	5.45	8.43	169	518
Calendar year 1939	265	2.3	15.5	24.0	5,640	17,320
January.....	39	1.5	3.23	5.00	100	308
February.....	26	1.5	4.35	7.47	140	430
March.....	23	1.4	3.07	4.75	95.1	292
April.....	3.9	1.4	2.09	3.23	62.6	192
May.....	71	1.7	10.0	15.5	311	954
June.....	4.3	1.6	2.47	3.82	74.1	227
Fiscal year 1939-40	110	1.4	6.74	10.4	2,470	7,580

Hanawi Stream below Government Road, near Nahiku

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

Drainage area.- 1.6 square miles.

Records available.- July 1932 to June 1940. Records at same site obtained by East Maui Irrigation Co. January 1927 to June 1932.

Extremes.- Maximum discharge during year, 2,730 million gallons a day (4,220 second-feet) Sept. 3 (gage height, 6.60 feet), from rating curve extended above 28 million gallons a day; minimum, 10.2 million gallons a day (15.8 second-feet) June 24-30.

1932-40: 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 good except those for period of backwater, which 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 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.8	8.6	1.6	59	2.5	198
1.0	15.7	1.8	80	3.0	322
1.2	26.5	2.0	106		
1.4	40	2.2	140		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	16.7	17.1	17.6	17.1	16.7	18.1	15.7	14.9	14.5	14.5	11.5	10.8
2	29.5	17.1	17.6	17.1	16.2	17.1	15.7	14.5	14.5	13.4	11.5	10.8
3	22.5	17.1	18.4	17.1	16.2	17.1	15.7	14.5	14.1	13.4	147	10.8
4	27.5	16.7	52	17.1	16.2	23.5	15.3	14.1	14.1	13.0	93	11.2
5	50	16.7	18.6	17.1	18.8	23.5	15.3	14.1	14.1	12.6	176	10.8
6	18.6	16.7	18.1	25	44	19.1	15.7	14.5	14.1	12.6	37	10.8
7	18.1	16.7	17.6	17.1	19.5	18.1	15.7	14.5	14.5	12.6	15.3	11.2
8	18.1	16.7	17.1	17.1	46	18.1	76	14.1	14.1	12.2	11.5	10.8
9	20	16.7	17.1	16.7	19.1	19.1	17.6	14.1	14.9	12.2	11.5	11.2
10	18.1	19.1	17.1	16.7	18.6	18.1	17.1	14.9	16.2	12.2	11.2	10.8
11	17.1	51	17.1	16.7	18.1	17.6	16.7	16.7	14.1	12.2	11.2	10.8
12	17.1	17.6	16.7	16.7	64	19.1	16.2	28	14.1	12.2	11.2	10.8
13	16.7	17.6	16.7	16.7	44	18.1	16.2	17.1	13.8	12.2	10.8	10.5
14	17.1	18.6	16.7	16.7	64	17.6	15.7	14.9	13.8	11.8	11.2	10.5
15	18.1	17.6	17.1	17.1	21	17.1	15.7	14.9	14.5	11.8	10.8	10.5
16	18.1	18.6	22.5	16.7	19.1	17.1	15.7	14.9	15.4	11.5	10.8	10.5
17	17.6	22	17.6	16.7	18.1	17.1	15.7	14.9	15.4	11.5	10.5	10.5
18	17.1	18.1	17.6	16.7	18.6	16.7	15.7	14.5	13.0	11.5	10.5	10.8
19	17.1	18.6	18.1	16.7	17.6	16.7	15.3	14.6	13.0	11.5	10.5	10.8
20	17.6	18.1	17.6	16.7	17.1	16.7	15.3	14.5	13.0	11.5	11.2	10.5
21	19.1	18.1	17.6	16.7	17.1	16.7	15.3	16.6	13.0	11.8	11.2	10.5
22	18.1	18.1	18.1	19.4	16.7	16.2	15.3	90	13.4	11.5	11.2	10.5
23	18.1	18.1	18.6	18.6	111	16.2	15.3	16.7	13.4	11.5	11.2	10.5
24	17.6	18.1	18.1	17.1	212	17.1	14.9	15.7	14.5	11.5	10.8	10.5
25	17.1	17.6	17.6	17.1	40	16.7	14.9	15.3	13.8	11.2	10.8	10.2
26	17.1	17.6	17.6	17.1	21	16.2	14.9	14.9	13.4	11.5	10.8	10.2
27	17.1	17.6	17.1	16.7	18.6	15.7	14.9	14.5	13.4	11.5	10.8	10.2
28	17.1	17.6	17.1	17.1	17.6	15.7	14.9	14.5	13.4	11.5	10.8	10.2
29	17.1	17.6	17.1	17.1	17.1	15.7	14.9	14.6	15.3	11.5	10.8	10.2
30	17.1	17.6	17.1	17.1	20.5	15.7	14.9	-	34.5	11.5	10.8	10.2
31	17.1	17.6	-	17.1	-	16.2	14.9	-	14.1	-	10.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	80	16.7	20.5	31.7	635	1,950
August.....	51	16.7	16.8	29.1	594	1,790
September.....	184	16.7	24.4	37.5	730	2,240
October.....	25	16.7	17.3	26.8	537	1,650
November.....	212	16.2	34.2	52.9	1,020	3,140
December.....	23.5	15.7	17.5	27.1	544	1,670
Calendar year 1939.....	1,280	14.9	35.5	54.9	12,950	39,780
January.....	76	14.9	17.5	27.1	543	1,670
February.....	90	14.1	18.0	27.9	522	1,600
March.....	34.5	13.0	14.6	22.6	453	1,390
April.....	14.5	11.2	12.0	18.6	361	1,110
May.....	176	10.5	24.3	37.6	754	2,310
June.....	11.2	10.2	10.6	16.4	318	975
Fiscal year 1939-40.....	212	10.2	19.1	29.6	7,000	21,500

Note.- Backwater caused by gravel in weir basin and intake channel, Feb. 25 to June 30; discharge computed on basis of records for stations on nearby streams.

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

Drainage area.- 0.2 square mile.

Records available.- November 1921 to June 1940.

Average discharge.- 18 years (1922-40), 10.7 million gallons a day (16.6 second-feet).

Extremes.- Maximum discharge during year, 552 million gallons a day (854 second-feet) Sept. 3 (gage height, 4.86 feet), from rating curve extended above 140 million gallons a day; minimum, 0.91 million gallons a day (1.41 second-feet) Feb. 4, 5.
1921-40: Maximum discharge, 1,780 million gallons a day (2,750 second-feet) Apr. 6, 1938 (gage height, 8.40 feet), from rating curve extended above 140 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Nov. 23-25, 1933, Oct. 2-5, 1938.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.6	2.7	5.1	1.78	2.45	8.6	1.68	0.98	1.26	3.55	4.2	2.6
2	27	2.45	3.8	1.68	1.78	4.7	1.59	.91	1.19	2.05	11.2	2.25
3	24.5	2.15	48	1.68	1.78	3.25	1.59	.91	1.12	1.68	91	4.2
4	21.5	2.05	17.6	1.68	3.85	12.4	1.50	.91	1.05	1.40	29	2.15
5	41	1.97	5.2	6.4	14.1	11.0	1.40	1.58	1.05	1.33	76	2.05
6	6.2	2.05	3.65	32	26.5	3.8	1.40	2.15	1.05	1.25	11.4	1.68
7	3.95	3.2	2.9	7.4	15.1	2.9	1.59	1.60	1.12	1.19	5.7	3.25
8	3.25	3.15	2.7	3.25	27	2.8	35.6	1.19	1.05	1.12	3.25	2.95
9	14.0	2.9	2.7	2.35	8.2	11.6	3.6	3.4	3.55	1.12	3.45	2.7
10	8.1	14.5	7.8	2.85	4.8	6.9	2.05	12.1	4.9	1.05	4.3	1.78
11	4.8	30	6.7	2.35	5.2	3.4	1.68	13.6	1.78	1.19	2.6	1.59
12	7.4	3.8	5.9	2.8	40	6.6	1.59	16.4	1.35	2.55	2.35	1.40
13	6.8	3.8	6.1	2.7	28	3.95	1.59	3.45	1.19	5.0	3.0	1.25
14	6.6	9.8	3.5	3.5	26.5	2.9	1.40	1.97	1.25	1.68	1.88	1.25
15	9.7	8.7	5.0	6.4	7.6	2.6	1.40	1.59	1.59	1.33	1.68	1.19
16	9.7	15.9	18.0	3.25	8.0	2.35	1.33	1.50	1.19	1.19	1.59	1.19
17	4.2	15.9	5.5	3.15	7.2	2.15	1.25	1.40	1.78	1.58	1.40	1.05
18	5.4	8.2	3.5	2.35	9.1	2.05	1.25	2.15	1.33	1.50	1.50	1.05
19	6.5	7.3	2.8	2.15	3.8	2.05	1.25	5.5	1.12	1.25	1.40	1.05
20	12.1	5.2	2.45	2.05	3.05	2.05	1.25	3.45	1.05	1.80	1.33	1.05
21	14.7	5.0	2.15	1.85	5.2	1.97	1.19	6.8	.98	4.9	1.33	1.05
22	7.2	5.5	5.5	2.15	3.25	1.88	1.19	30.5	2.8	1.97	1.25	3.6
23	3.95	3.25	5.7	2.35	40	1.78	1.19	2.9	3.4	1.50	6.7	1.68
24	3.15	2.7	4.4	1.97	86	2.85	1.12	2.05	6.0	2.05	6.9	1.68
25	2.9	2.6	2.7	1.68	28	2.6	1.12	1.68	2.35	2.15	4.9	1.68
26	2.9	2.7	2.15	1.59	8.6	2.15	1.05	1.59	1.59	3.95	2.9	1.97
27	5.5	5.0	1.97	1.40	4.1	1.88	1.05	1.40	1.33	2.35	1.88	2.35
28	3.15	6.3	1.88	1.59	3.25	1.68	1.05	1.33	1.12	2.25	1.59	2.6
29	2.7	8.8	2.15	1.88	3.05	1.68	1.05	1.25	15.9	1.78	1.88	1.97
30	2.35	12.5	1.88	1.78	7.9	1.68	.98	-	20.5	1.87	2.35	3.05
31	3.05	9.2	-	1.97	-	1.68	.98	-	6.4	-	2.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	41	2.35	8.95	13.9	276	853
August.....	30	1.97	6.59	10.4	207	636
September.....	48	1.88	6.28	9.72	188	578
October.....	32	1.40	3.61	5.59	112	344
November.....	86	1.78	14.4	22.3	433	1,330
December.....	12.4	1.68	3.87	5.99	120	368
Calendar year 1939	270	1.40	11.6	17.9	4,220	12,940
January.....	36.5	.98	2.54	3.93	78.8	242
February.....	30.5	.91	4.35	6.73	128	387
March.....	20.5	.98	3.01	4.66	93.4	287
April.....	5.0	1.05	1.99	3.08	59.6	183
May.....	91	1.25	9.45	14.6	293	899
June.....	4.2	1.05	1.98	3.06	59.3	182
Fiscal year 1939-40	91	.91	5.60	8.66	2,050	6,090

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 of gage, 620 feet (by barometer).

Drainage area.- 0.5 square mile.

Records available.- July 1932 to June 1940. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge during year, 397 million gallons a day (614 second-feet) Sept. 3 (gage height, 3.37 feet), from rating curve extended above 10 million gallons a day; minimum, 1.06 million gallons a day (1.64 second-feet) Apr. 22.

1932-40: Maximum discharge, 960 million gallons a day (1,490 second-feet) Apr. 7, 1938 (gage height, 5.00 feet), from rating curve extended above 10 million gallons a day; minimum, 1.1 million gallons a day (1.7 second-feet) several days in August 1934 and January 1935.

Remarks.- Records good. Koolau ditch diverts water 4,000 feet above station, at 1,300 feet altitude, for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.5	1.4	1.6	1.3	1.4	2.5	1.4	1.2	1.3	1.9	1.3	1.2
2	15.2	1.3	1.5	1.3	1.3	1.8	1.3	1.2	1.2	1.8	1.3	1.2
3	17.1	1.3	47	1.3	1.3	2.2	1.3	1.2	1.2	1.6	47	1.4
4	11.5	1.3	16.8	1.4	1.48	10.6	1.2	1.2	1.2	1.4	18.9	1.3
5	36	1.3	1.9	4.2	6.6	8.9	1.2	1.3	1.2	1.4	42	1.2
6	2.85	1.3	1.8	19.8	22	2.2	1.2	1.4	1.2	1.4	3.8	1.2
7	1.9	1.4	1.6	2.65	4.8	1.9	1.2	1.3	1.3	1.3	2.55	1.4
8	1.9	1.4	1.5	2.1	25.5	2.1	28	1.2	1.2	1.3	1.9	1.3
9	9.4	1.4	1.5	2.1	3.5	6.0	5.0	1.3	2.35	1.3	1.8	1.4
10	4.1	6.6	1.5	1.6	1.9	3.1	1.5	2.5	2.3	1.3	1.6	1.3
11	1.9	18.0	1.6	1.3	2.5	1.9	1.4	4.0	1.4	1.3	1.5	1.3
12	1.9	1.8	1.5	1.3	27	2.75	1.3	8.2	1.3	1.3	1.4	1.2
13	1.8	1.9	1.5	1.3	25.6	2.1	1.3	1.8	1.3	1.3	2.1	1.2
14	1.9	3.6	1.4	1.3	30	1.9	1.3	1.4	1.3	1.2	1.5	1.2
15	4.9	2.15	1.9	1.5	3.8	1.6	1.3	1.3	1.75	1.2	1.4	1.2
16	3.8	6.4	12.1	1.4	2.1	1.6	1.3	1.2	1.5	1.2	1.4	1.2
17	1.8	11.3	2.1	1.4	2.5	1.6	1.3	1.2	1.6	1.2	1.4	1.2
18	1.6	2.2	1.5	1.3	2.6	1.5	1.3	1.2	1.3	1.2	1.4	1.2
19	1.6	2.1	1.6	1.3	1.6	1.4	1.3	1.2	1.5	1.2	1.4	1.2
20	3.8	2.1	1.4	1.3	1.6	1.4	1.3	1.2	1.3	1.2	1.3	1.2
21	9.0	1.8	1.4	1.3	1.6	1.4	1.3	1.4	1.2	1.2	1.3	1.2
22	2.6	1.6	2.85	2.7	1.6	1.3	1.3	29	1.6	1.2	1.3	1.3
23	1.8	1.6	2.65	1.8	31	1.3	1.3	1.8	1.5	1.2	1.4	1.2
24	1.6	1.6	1.8	1.4	70	1.8	1.3	1.4	2.9	1.3	1.4	1.2
25	1.5	1.6	1.5	1.4	28.6	1.5	1.2	1.4	1.9	1.2	1.3	1.2
26	1.6	1.6	1.4	1.3	8.7	1.4	1.2	1.3	1.6	1.3	1.2	1.2
27	1.5	1.6	1.4	1.3	2.1	1.4	1.2	1.3	1.5	1.3	1.2	1.2
28	1.5	1.6	1.4	1.4	1.9	1.4	1.2	1.3	1.4	1.3	1.2	1.2
29	1.4	1.8	1.4	1.4	1.6	1.3	1.2	1.3	4.8	1.2	1.3	1.2
30	1.4	3.2	1.4	1.4	7.2	1.3	1.2	-	10.1	1.2	1.3	1.2
31	1.6	3.8	-	1.4	-	1.3	1.2	-	2.2	-	1.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	36	1.4	4.83	7.47	150	460
August.....	15.0	1.3	2.97	4.50	92.0	262
September.....	47	1.4	4.02	6.22	120	370
October.....	19.8	1.3	2.19	3.59	68.0	209
November.....	70	1.3	10.7	16.6	321	966
December.....	10.6	1.3	2.40	3.71	74.4	228
Calendar year 1939.....	165	1.3	7.86	12.2	2,870	8,800
January.....	28	1.2	2.26	3.50	70.0	215
February.....	29	1.2	2.64	4.08	76.7	235
March.....	10.1	1.2	1.91	2.96	59.2	182
April.....	1.9	1.2	1.31	2.03	39.3	121
May.....	47	1.2	4.88	7.55	181	464
June.....	1.4	1.2	1.24	1.92	37.1	114
Fiscal year 1939-40.....	70	1.2	3.44	5.32	1,260	3,870

ISLAND OF MAUI

Koolau ditch at Nahiku weir, near Nahiku

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

Records available.- February 1919 to June 1940.

Average discharge.- 21 years (1919-40), 21.3 million gallons a day (33.0 second-feet).

Extremes.- Maximum discharge during year, 55 million gallons a day (85 second-feet) Nov. 14 (gage height, 1.60 feet); minimum, 5.3 million gallons a day (8.2 second-feet) Feb. 3-5.

1919-40: 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 no gage-height record, which are fair. 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	17.8	16.4	30	11.4	12.0	33.5	9.6	5.7	8.0	15.0	12.3	10.2
2	45	16.3	25	10.8	10.2	25.5	9.0	5.7	7.7	11.7	21	10.5
3	45	14.0	40	10.5	10.2	22	9.0	5.5	7.4	10.5	42	14.3
4	42	13.6	45	10.2	15.1	41	8.7	5.3	7.2	9.3	29	10.6
5	50	13.0	35	17.2	31.5	42	8.5	6.9	6.7	8.5	38	9.6
6	38	12.7	25	48	33.5	27.5	8.5	9.0	6.4	8.2	28	9.0
7	29.5	16.7	19	23	42	23.5	8.7	7.2	6.7	7.7	38	14.3
8	25.5	16.0	17	15.6	50	22	35	6.2	6.4	7.2	26.5	13.0
9	40	16.9	16	13.0	35.5	40	13.0	11.8	12.3	6.9	22	13.6
10	33.5	33.5	40	15.0	27	33.5	11.1	27	15.1	6.7	22	10.5
11	26	35.5	23	13.6	26	23.5	9.9	30	8.7	6.9	16.7	9.6
12	30	22	25	14.6	48	33.5	9.3	36	7.4	11.1	15.0	9.0
13	30.5	21.5	28	14.6	50	26	8.5	16.7	6.9	14.6	17.0	8.5
14	33.5	35.5	17	16.7	52	22	8.5	11.4	7.2	8.2	13.0	8.2
15	35.5	33.5	26	23	45	19.9	8.0	9.9	8.0	7.2	11.7	7.7
16	40	40	45	15.4	40	18.4	8.0	9.0	6.7	6.9	11.1	7.7
17	27.5	45	28	15.3	35.5	17.0	7.7	8.2	8.0	7.7	10.5	7.2
18	23.5	40	22	13.3	38	16.0	7.7	10.5	6.7	7.7	9.9	6.9
19	29	40	18.8	12.7	25.5	15.3	7.4	16.9	6.2	6.9	9.6	6.7
20	40	33.5	16.7	12.0	22	14.3	7.2	13.6	6.0	7.7	9.0	6.7
21	45	31	15.3	11.4	26	13.3	6.9	12.4	6.0	13.3	8.5	6.7
22	35.5	30.5	22	15.6	20.5	13.0	9.7	32	10.0	8.2	9.5	11.9
23	25.5	24	25.5	14.6	31	12.3	6.7	17.4	10.9	7.2	19.5	8.0
24	23	17	22	12.0	52	16.0	6.4	13.6	19.9	8.5	19.2	7.4
25	21	19	16.7	11.1	50	14.3	6.4	11.7	10.8	8.2	16.6	8.0
26	20.5	16	15.0	10.5	48	12.7	6.4	10.5	8.7	11.7	11.1	8.2
27	25	26	13.6	9.9	38	11.4	6.2	9.6	7.7	9.3	9.0	9.0
28	19.5	22	13.0	10.2	29.5	10.8	6.0	9.0	7.2	9.5	9.5	9.6
29	17.4	35	13.5	10.8	25.5	10.5	8.0	8.5	25	8.2	9.6	8.0
30	16.4	45	12.0	10.5	28.5	10.2	5.7	-	29.5	8.5	9.3	9.9
31	15.1	35	-	11.1	-	9.9	5.7	-	23	-	11.7	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	50	16.4	30.7	47.5	953	2,920
August.....	45	12.7	26.3	40.7	814	2,500
September.....	45	12.0	23.7	36.7	711	2,180
October.....	48	9.9	14.6	22.6	455	1,390
November.....	52	10.2	13.3	31.5	998	3,060
December.....	42	9.9	21.0	32.5	651	2,000
Calendar year 1939.....	52	9.9	29.5	45.6	10,760	33,000
January.....	35	5.7	8.79	13.5	272	836
February.....	36	5.3	13.0	20.1	377	1,160
March.....	29.5	6.0	10.2	15.3	317	974
April.....	42	6.7	8.99	13.9	270	827
May.....	42	8.5	17.2	26.6	534	1,640
June.....	14.3	6.7	9.34	14.5	280	860
Fiscal year 1939-40.....	52	5.3	18.1	28.0	6,530	20,350

Note.- No gage-height record, Aug. 24 to Sept. 15; discharge computed on basis of records for stations at Keanae, Haipuaena, and Waioa ditch at Honopou.

Waiaka 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 3¼ miles southeast of Keanae post office. Altitude of gage, about 650 feet (by barometer).

Drainage area.- 0.1 square mile.

Records available.- July 1932 to June 1940. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.- Maximum discharge during year, 24 million gallons a day (37 second-feet) Oct. 22 (gage height, 1.79 feet), from rating curve extended above 14 million gallons a day by tests on model of station site; minimum, 0.34 million gallons a day (0.53 second-foot) for several periods during year.

1932-40: Maximum discharge, 73 million gallons a day (113 second-feet) Mar. 6, 1933 (gage height, 1.87 feet, then in use), from rating curve extended above 1 million gallons a day by formula for V-notch weirs; minimum, 0.30 million gallons a day (0.46 second-foot) several days in October, November, 1933, and April, May, and June, 1934.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million

0.3	0.23	0.5	1.72
.4	.53	.7	2.7
.5	1.01		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.46	0.46	0.53	0.43	0.46	0.70	0.43	0.34	0.43	0.65	0.37	0.40
2	.61	.46	.53	.43	.43	.57	.40	.34	.40	.57	.37	.40
3	.65	.46	2.4	.43	.43	.84	.43	.34	.40	.57	1.16	.40
4	.65	.46	.81	.43	.43	2.5	.43	.34	.37	.53	.87	.37
5	.61	.49	.57	.53	.76	.97	.43	.37	.37	.49	1.66	.37
6	.53	.46	.53	.70	.93	.70	.40	.40	.37	.49	.85	.37
7	.49	.46	.53	.53	.81	.65	.43	.40	.40	.46	.75	.43
8	.49	.49	.53	.57	1.26	.89	2.5	.34	.37	.46	.70	.40
9	.99	.46	.53	.46	.65	1.07	.53	.40	.69	.43	.65	.48
10	.57	.79	.53	.53	.65	.75	.46	.37	.72	.43	.61	.40
11	.49	.57	.53	.46	.57	.65	.43	.43	.46	.43	.61	.40
12	.61	.43	.53	.46	1.31	1.18	.43	.57	.43	.43	.57	.40
13	.49	.62	.53	.46	.75	.75	.40	.46	.43	.43	.40	.40
14	.49	.99	.49	.49	2.05	.65	.40	.43	.43	.43	.57	.40
15	.76	.59	.84	.60	.75	.61	.40	.43	.75	.40	.57	.37
16	.70	.70	1.20	.49	.65	.57	.37	.40	.53	.40	.53	.37
17	.53	.87	.61	.49	.62	.57	.37	.40	.63	.40	.49	.37
18	.53	.61	.57	.46	.72	.53	.37	.40	.49	.37	.49	.37
19	.53	.70	.53	.46	.57	.49	.37	.40	.49	.37	.46	.37
20	.52	.65	.49	.43	.57	.53	.37	.40	.46	.37	.46	.37
21	1.06	.65	.49	.43	.57	.49	.37	1.26	.46	.40	.43	.37
22	.80	.61	1.10	1.38	.53	.46	.37	1.37	.57	.37	.43	.40
23	.65	.57	.87	.63	.96	.46	.37	.53	.53	.34	.49	.40
24	.61	.57	.61	.49	.90	.73	.37	.49	1.00	.37	.53	.37
25	.57	.53	.57	.46	1.02	.53	.37	.46	.65	.37	.46	.37
26	.53	.49	.49	.46	.85	.46	.34	.46	.53	.37	.43	.34
27	.53	.53	.49	.46	.65	.46	.34	.43	.53	.37	.43	.34
28	.49	.57	.46	.46	.57	.43	.34	.43	.53	.37	.43	.34
29	.49	.61	.49	.46	.53	.43	.34	.43	.57	.37	.43	.34
30	.49	.70	.46	.46	1.20	.43	.34	-	.70	.37	.40	.34
31	.49	.61	-	.46	-	.43	.34	-	.70	-	.40	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	1.06	0.46	0.604	0.935	18.7	57
August.....	.99	.43	.586	.907	18.2	56
September.....	2.4	.46	.661	1.02	19.8	61
October.....	1.38	.43	.516	.798	16.0	49
November.....	2.05	.43	.775	1.20	23.2	71
December.....	2.5	.43	.693	1.07	21.5	66
Calendar year 1939.....	9.5	.43	.826	1.28	301	926
January.....	2.5	.34	.459	.710	14.2	44
February.....	1.37	.34	.477	.738	13.6	42
March.....	1.00	.37	.529	.818	16.4	50
April.....	.65	.34	.427	.661	12.8	39
May.....	1.66	.37	.696	.921	18.4	57
June.....	.48	.34	.382	.591	11.4	35
Fiscal year 1939-40.....	2.5	.34	.559	.865	204	627

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 ¾ miles southeast of Keanae post office.
Altitude of gage, 650 feet (by barometer).

Drainage area.— 0.5 square mile.

Records available.— July 1932 to June 1940. Records at same site collected by East Maui Irrigation Co. March 1927 to June 1932.

Extremes.— Maximum discharge during year, 131 million gallons a day (203 second-feet) Feb. 21 (gage height, 3.72 feet), from rating curve extended above 20 million gallons a day; minimum, 2.2 million gallons a day (3.4 second-feet) Jan. 25 to Feb. 5, June 17-22.

1932-40: 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. Koolau ditch diverts all low flow at altitude of about 1,200 feet for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.6	0.7	7.4	1.0	18.0
.5	3.0	.8	10.9	1.2	24
.6	4.9	.9	14.7		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.8	2.7	3.0	2.7	2.8	3.8	2.5	2.2	2.5	3.6	2.7	2.5
2	3.8	2.7	3.0	2.7	2.8	3.4	2.5	2.2	2.5	3.2	3.45	2.5
3	5.9	2.7	16.4	2.7	2.7	4.8	2.5	2.2	2.5	3.0	23	2.7
4	6.0	2.7	4.3	2.5	2.8	10.5	2.5	2.2	2.5	2.8	8.1	2.3
5	10.1	2.7	3.6	2.7	6.5	4.3	2.5	2.3	2.3	2.8	23	2.3
6	3.2	2.7	3.2	5.4	9.3	3.6	2.3	2.7	2.3	2.7	5.0	2.3
7	2.8	2.9	3.0	3.2	4.0	3.4	2.5	2.7	2.5	2.7	3.6	2.8
8	2.8	2.8	3.0	3.0	7.4	3.5	15.0	2.5	2.3	2.7	3.2	2.7
9	5.7	2.7	3.0	2.8	4.3	6.3	3.2	2.7	4.7	2.5	2.8	3.0
10	3.2	8.2	3.4	2.8	3.4	3.6	2.8	2.8	4.6	2.5	2.8	2.7
11	3.0	7.8	3.0	2.7	3.9	3.4	2.7	3.7	2.8	2.5	2.7	2.5
12	3.2	2.8	3.0	2.7	12.4	4.3	2.7	9.6	2.5	2.8	2.7	2.5
13	2.8	3.3	3.0	2.7	10.7	3.5	2.7	3.0	2.5	3.0	4.3	2.5
14	2.9	5.4	2.8	2.8	13.9	3.4	2.5	2.8	2.5	2.5	2.7	2.5
15	5.0	4.0	3.6	3.2	3.8	3.0	2.5	2.7	3.25	2.5	2.7	2.3
16	3.6	6.1	9.1	2.8	3.6	3.0	2.3	2.7	3.0	2.5	2.5	2.3
17	3.0	5.2	3.4	2.8	4.0	2.7	2.3	2.5	3.3	2.3	2.5	2.2
18	2.8	3.8	3.0	2.7	4.0	2.5	2.3	2.5	2.8	2.3	2.5	2.2
19	2.8	3.8	3.0	2.7	3.2	2.5	2.3	3.6	2.5	2.3	2.5	2.2
20	4.0	3.6	2.8	2.7	3.0	2.5	2.3	2.8	2.7	2.3	2.5	2.2
21	6.6	3.6	2.8	2.7	3.4	2.5	2.3	4.9	2.7	3.2	2.5	2.2
22	3.6	3.4	5.4	3.2	3.2	2.5	2.3	17.3	3.4	2.5	2.5	2.5
23	3.2	3.4	4.0	3.2	16.1	2.5	2.3	3.4	3.25	2.3	3.2	2.5
24	3.0	3.2	3.2	2.8	20	3.2	2.3	3.0	5.0	2.5	3.4	2.5
25	2.8	3.0	3.0	2.8	6.9	2.8	2.2	3.0	3.4	2.5	3.25	2.5
26	2.8	3.0	2.7	2.7	4.1	2.5	2.2	2.8	3.2	2.5	2.7	2.3
27	2.8	3.0	2.7	2.7	3.6	2.5	2.2	2.5	3.0	2.5	2.5	2.3
28	2.8	3.2	2.7	2.7	3.4	2.5	2.2	2.5	3.0	2.7	2.5	2.3
29	2.7	3.4	2.8	2.5	3.4	2.5	2.2	2.5	4.3	2.7	2.5	2.3
30	2.7	4.1	2.7	2.8	7.2	2.5	2.2	-	9.5	2.7	2.5	2.3
31	2.8	3.6	-	2.8	-	2.5	2.2	-	4.9	-	2.5	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	10.1	2.7	3.71	5.74	115	353
August.....	8.2	2.7	3.72	5.76	115	354
September.....	16.4	2.7	3.82	5.91	115	352
October.....	5.4	2.5	2.89	4.47	89.5	275
November.....	20	2.7	5.99	9.27	180	552
December.....	10.5	2.5	3.44	5.32	107	327
Calendar year 1939	40	2.3	4.51	6.98	1,650	5,050
January.....	15.0	2.2	2.92	4.36	87.5	269
February.....	17.3	2.2	3.53	5.46	102	314
March.....	9.5	2.3	3.31	5.12	102	315
April.....	3.6	2.3	2.65	4.10	79.6	244
May.....	23	2.5	4.36	6.75	135	415
June.....	3.0	2.2	2.43	3.76	72.9	224
Fiscal year 1939-40	23	2.2	3.55	5.49	1,300	3,990

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, 2½ miles southwest of Nahiku, and 3½ miles southeast of Keanae.

Drainage area.- 1.5 square miles.

Records available.- October 1921 to June 1940.

Average discharge.- 18 years (1922-40), 8.23 million gallons a day (12.7 second-feet).

Extremes.- Maximum discharge during year, 271 million gallons a day (419 second-feet)

Sept. 3 (gage height, 3.94 feet), from rating curve extended above 50 million gallons a day; minimum, 1.69 million gallons a day (2.61 second-feet) Feb. 5.

1921-40: Maximum discharge, 760 million gallons a day (1,180 second-feet) Apr. 7, 1938 (gage height, 6.24 feet), from rating curve extended above 50 million gallons a day; minimum, 1.4 million gallons a day (2.2 second-feet) Nov. 25, 1933.

Remarks.- Records good except those for period of no gage-height record and those above 100 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.5	1.45	0.9	5.1	1.4	16.3
.6	2.05	1.0	6.6	1.6	24
.7	2.85	1.1	8.4	1.8	35.5
.8	3.8	1.2	10.6	2.0	45

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.95	4.2	4.7	3.05	3.5	6.8	2.75	1.81	2.3	3.4	3.3	3.25
2	12.1	3.8	4.6	2.95	2.85	5.6	2.7	1.75	2.2	2.7	5.4	3.55
3	12.8	3.7	3.3	2.85	3.05	5.1	2.7	1.75	2.2	2.45	4.2	4.2
4	11.3	3.6	8.8	2.85	3.8	13.9	2.55	1.75	2.1	2.3	14.6	3.15
5	18.8	3.5	5.1	4.9	7.5	8.3	2.45	2.25	2.05	2.2	39	3.05
6	5.1	3.4	4.6	15.7	13.1	5.1	2.45	2.7	2.05	2.15	6.3	2.75
7	4.5	4.3	4.4	6.8	4.7	2.7	2.15	1.99	2.05	4.5	5.2	
8	5.0	4.3	4.3	3.6	11.7	4.6	2.2	1.93	1.93	2.05	4.1	4.4
9	11.5	4.6	4.2	3.15	6.4	10.7	3.3	3.9	5.0	1.99	4.3	3.95
10	6.2	11.5	6.6	3.9	4.4	5.7	2.75	5.1	5.9	1.93	4.8	3.15
11	5.2	14.9	5.2	3.4	5.6	4.7	2.6	6.0	2.6	2.05	4.1	2.85
12	5.6	4.6	5.0	3.5	23.5	7.2	2.45	7.0	2.2	3.95	3.95	2.7
13	5.8	5.4	5.2	5.5	18.2	5.2	2.55	4.0	2.05	4.0	4.8	2.7
14	7.0	8.2	4.3	4.2	18.1	4.6	2.5	3.1	2.3	2.3	3.6	2.6
15	9.2	6.7	5.6	5.1	6.0	4.5	2.3	2.6	2.4	2.15	3.5	2.45
16	7.5	9.2	15.7	3.95	6.3	4.2	2.3	2.4	1.99	2.05	3.3	2.55
17	5.2	9.7	4.8	3.7	8.4	3.8	2.2	2.2	2.85	2.9	3.25	2.35
18	4.8	8.1	4.4	3.4	7.7	3.8	2.15	4.0	2.05	2.55	3.15	2.3
19	5.8	7.5	3.95	3.4	5.4	3.7	2.15	7.0	1.93	2.05	3.05	2.3
20	8.8	6.0	3.8	3.3	5.1	3.6	2.05	4.0	1.87	2.45	2.85	2.2
21	11.3	6.2	3.7	3.05	6.9	3.4	2.05	8.0	1.81	4.1	2.85	2.2
22	6.3	6.6	6.6	3.15	5.2	3.3	2.05	17	3.5	2.55	2.75	3.15
23	5.1	5.0	6.2	3.6	27	3.25	2.05	5.0	3.45	2.3	4.6	2.55
24	4.8	4.4	4.7	3.05	40	4.5	2.05	4.0	6.2	2.7	4.8	2.85
25	4.7	4.4	3.95	2.85	15.8	3.6	1.99	3.5	3.05	2.35	3.5	2.7
26	5.0	4.2	3.6	2.75	7.1	3.25	1.93	3.0	2.35	3.3	3.15	2.45
27	5.1	5.3	3.4	2.7	5.8	3.05	1.93	2.7	2.15	2.75	2.85	2.6
28	4.4	5.4	3.3	2.85	5.6	2.95	1.87	2.6	2.05	3.05	2.7	2.7
29	4.1	7.5	3.7	3.15	5.4	2.85	1.87	2.5	7.9	2.45	3.3	2.45
30	4.1	9.3	3.25	3.05	9.1	2.85	1.81	-	10.0	2.85	2.95	3.0
31	4.8	6.2	-	3.25	-	2.85	1.81	-	5.9	-	3.4	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	18.8	3.95	6.97	10.8	218	653
August.....	14.9	3.4	6.20	9.99	192	590
September.....	33	3.25	5.95	9.21	179	548
October.....	13.7	2.7	3.75	5.80	116	357
November.....	40	2.85	9.85	15.2	295	907
December.....	13.9	2.85	4.89	7.57	151	465
Calendar year 1939	192	2.7	8.55	13.2	3,120	9,570
January.....	22	1.81	2.92	4.52	90.6	278
February.....	17	1.75	3.99	6.17	116	355
March.....	10.0	1.81	3.17	4.90	98.3	302
April.....	4.1	1.93	2.60	4.02	77.9	239
May.....	42	2.7	6.48	10.0	201	617
June.....	5.2	2.2	2.94	4.55	88.3	271
Fiscal year 1939-40	42	1.75	4.98	7.71	1,820	5,590

Note.- No gage-height record, Feb. 11 to Mar. 4; discharge computed on basis of records for nearby streams.

c 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 1940.

Average discharge.- 16 years (1922-34, 1936-40), 19.1 million gallons a day (29.6 second-foot).

Extremes.- Maximum discharge during year, 1,010 million gallons a day (1,560 second-foot) Sept. 3 (gage height, 5.02 feet), from rating curve extended above 75 million gallons a day; minimum, 0.98 million gallons a day (1.52 second-foot) Mar. 21, 22.

1914-17, 1921-40: Maximum discharge, 4,020 million gallons a day (6,220 second-foot) Apr. 6, 1938 (gage height, 9.12 feet), from rating curve extended above 75 million gallons a day; minimum, 0.6 million gallons a day (0.9 second-foot) Sept. 15-17, 1917.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.81	0.6	4.2	1.2	23.5	2.0	92
.4	1.65	.8	8.4	1.4	38	2.5	165
.5	2.75	1.0	14.6	1.7	59		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.3	3.35	6.7	2.55	2.95	11.6	1.98	1.06	1.40	4.4	5.7	3.55
2	34.5	3.2	5.4	2.3	1.98	7.5	1.87	1.06	1.40	2.55	15.7	3.2
3	28	2.9	88	2.2	2.3	5.7	1.87	1.06	1.31	2.2	145	5.2
4	24.5	3.5	30	2.3	4.9	14.3	1.76	1.06	1.31	1.87	43	2.65
5	53	2.55	8.0	11.2	14.7	11.4	1.76	1.51	1.23	1.65	133	2.65
6	8.6	2.75	5.7	49	35	6.1	1.98	3.5	1.23	1.65	15.1	2.2
7	5.7	5.2	4.6	8.6	19.7	5.5	1.16	1.48	1.23	1.48	8.2	4.9
8	5.0	3.75	4.1	4.2	31.5	5.3	68	1.40	1.15	1.40	5.7	3.7
9	19.5	4.4	3.9	3.35	10.4	5.2	5.0	4.8	3.2	1.31	4.9	2.95
10	8.4	15.1	10.2	3.75	5.5	5.2	2.9	17.1	4.8	1.23	6.2	2.1
11	6.1	37	6.6	3.2	6.9	5.2	2.3	15.2	1.57	1.57	3.2	1.98
12	8.7	4.6	7.4	3.65	50	5.2	2.1	16.3	1.31	4.1	2.75	1.87
13	8.9	4.3	7.6	3.75	37.5	4.8	1.98	3.2	1.15	5.4	3.3	1.76
14	9.7	11.6	4.8	4.6	27	3.9	1.87	2.4	1.57	1.57	2.4	1.65
15	11.7	10.0	5.9	7.8	10.1	3.6	1.65	2.1	1.65	1.40	2.2	1.57
16	8.7	14.4	18.3	3.9	11.4	3.35	1.76	1.87	1.23	1.31	2.1	1.65
17	5.3	14.5	5.7	3.5	10.1	3.05	1.65	1.65	3.0	2.95	2.1	1.48
18	4.8	8.0	4.8	2.75	10.5	3.05	1.57	3.6	1.48	1.87	2.2	1.48
19	10	7.9	3.75	2.75	5.5	2.9	1.40	7.5	1.15	1.40	1.98	1.48
20	14.2	6.1	3.35	2.55	4.6	2.75	1.40	5.6	1.06	3.7	1.98	1.65
21	15.3	5.7	3.2	2.4	7.1	2.55	1.40	6.0	.98	8.0	1.98	1.87
22	7.7	6.2	10.6	2.3	3.9	2.4	1.40	41	4.4	2.1	1.98	5.9
23	5.3	3.9	7.8	2.95	68	2.4	1.40	3.05	4.1	1.76	10.9	2.3
24	4.6	3.35	6.7	2.3	140	5.0	1.31	2.4	6.6	3.3	8.8	2.35
25	4.1	3.8	4.1	1.98	32	3.95	1.23	2.1	2.1	2.6	7.5	1.87
26	5.2	3.2	3.5	1.98	9.5	2.75	1.23	1.87	1.57	5.2	3.5	2.5
27	7.4	7.1	3.2	1.76	6.8	2.2	1.23	1.65	1.40	2.55	2.65	2.55
28	3.9	6.8	2.9	1.87	5.9	2.2	1.23	1.65	1.31	2.4	2.3	2.75
29	3.5	9.6	3.5	2.2	5.2	2.1	1.15	1.48	21.5	1.87	3.95	2.2
30	3.35	14.7	2.75	2.1	10.0	2.1	1.15	-	23.5	2.15	3.45	3.95
31	4.6	9.2	-	2.2	-	2.1	1.06	-	7.8	-	4.2	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	53	3.55	11.1	17.2	345	1,060
August.....	37	2.65	7.73	12.0	240	735
September.....	88	2.75	9.44	14.6	283	869
October.....	49	1.76	4.90	7.58	152	466
November.....	140	1.98	19.6	30.3	589	1,610
December.....	14.3	2.1	4.69	7.25	145	446
Calendar year 1939	507	1.76	16.7	25.8	6,090	18,660
January.....	68	1.06	3.86	5.97	120	367
February.....	41	1.06	5.26	8.14	153	468
March.....	23.5	.98	3.61	5.43	109	334
April.....	8.0	1.23	2.56	3.96	75.9	236
May.....	148	1.98	14.9	23.1	461	1,410
June.....	5.9	1.48	2.59	4.01	77.6	238
Fiscal year 1939-40	148	.98	7.61	11.6	2,750	8,440

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 1940.

Average discharge.- 18 years (1922-40), 19.8 million gallons a day (30.6 second-feet).

Extremes.- Maximum discharge during year, 540 million gallons a day (836 second-feet).

Feb. 21 (gauge height, 5.40 feet), from rating curve extended above 300 million gallons a day; minimum, 1.68 million gallons a day (2.60 second-feet) Feb. 3, 4.

1913-17, 1922-40, Maximum discharge, 3,060 million gallons a day (4,730 second-feet) Apr. 6, 1938 (gauge height, 9.26 feet), from rating curve extended above 300 million gallons a day; minimum, 1.0 million gallons a day (1.6 second-feet) Oct. 22,

23, 1917, Aug. 1, 2, 1922.

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

Remarks.- Records good except those for periods of no gauge-height record, which are fair.

No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gauge height, in feet, and discharge, in million gallons a day)

0.4	1.50	1.0	6.0	2.0	28	3.6	151
.6	2.7	1.2	5.5	2.4	46	4.0	213
.8	4.1	1.4	11.5	2.5	72		
.8	4.1	1.6	16.0	3.2	105		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.0	5.2	7.6	3.4	4.2	15.0	2.7	1.86	2.3	6.5	8.4	4.4
2	50	4.7	6.2	3.3	2.7	7.6	2.6	1.80	2.2	3.5	26.5	4.1
3	40	4.3	68	2.85	3.2	5.5	2.5	1.74	2.15	2.9	189	6.4
4	35	4.1	46	3.3	7.5	19.5	2.45	1.74	2.1	2.65	66	3.35
5	80	3.9	11.2	17.6	24	15.0	2.45	2.7	2.05	2.5	175	3.2
6	15	4.0	7.0	65	48	5.7	2.6	4	1.98	2.35	24	2.9
7	9.0	6.9	5.6	9.6	24.5	4.8	2.6	2.2	1.98	2.3	10.3	6.6
8	8.0	5.8	5.2	4.8	36	4.6	82	1.98	1.86	2.2	7.5	5.3
9	35	6.7	5.1	3.9	14.1	24.5	6.2	10.2	4.0	2.05	6.7	4.2
10	15	28	14.7	4.4	6.2	9.8	3.5	30	7.5	1.98	9.2	3.1
11	9.0	56	3.2	4.2	8.9	5.4	2.9	22	2.7	2.5	4.4	2.85
12	11	6.9	9.6	4.4	63	8.9	2.65	25	2.1	5.5	4.1	2.7
13	13	7.9	9.3	4.9	63	5.8	2.5	6.0	2.05	8.7	4.3	2.65
14	15	16.8	6.0	6.1	45	4.8	2.4	4.5	2.65	2.5	3.35	2.6
15	16	15.1	7.7	9.3	10.8	4.5	2.4	3.4	2.6	2.2	3.15	2.5
16	13	24	31	4.9	12.7	4.2	2.35	2.7	2.05	2.1	3.0	2.5
17	8.0	25	7.4	4.4	13.0	4.0	2.3	2.35	4.7	5.7	2.9	2.35
18	7.0	12.6	6.0	3.7	13.8	3.8	2.2	6.2	2.6	3.2	3.1	2.3
19	13	10.0	5.1	3.65	6.2	3.8	2.3	13.1	2.05	2.2	2.75	2.35
20	22	8.1	4.6	3.5	5.3	3.65	2.2	5.8	1.92	5.9	2.65	2.85
21	24	8.0	4.4	3.2	8.7	3.35	2.05	16.8	1.80	13.4	2.7	3.15
22	12	8.9	14.9	3.15	5.2	3.2	1.98	63	6.9	3.3	2.9	9.2
23	9.0	5.8	9.0	3.9	69	3.15	1.98	4.6	5.7	2.6	15.0	3.5
24	7.0	5.2	7.4	3.15	184	6.6	1.98	3.35	9.4	4.5	12.1	3.8
25	6.0	6.1	4.8	2.9	48	5.5	1.98	3.0	3.3	3.6	10.4	2.9
26	7.0	4.9	4.2	2.75	11.0	3.65	1.92	2.75	2.5	6.8	3.95	3.6
27	10	10.0	4.0	2.65	7.1	3.1	1.92	2.6	2.3	3.7	3.1	4.0
28	6.0	9.0	3.7	2.85	5.9	2.95	1.92	2.5	3.06	3.3	2.75	4.1
29	5.2	13.0	4.9	3.15	15.3	2.85	1.92	2.4	32	2.85	5.1	3.1
30	4.9	22	3.7	3.0	13.3	2.55	1.86	-	41	3.0	4.1	5.6
31	6.0	13.0	-	3.45	-	2.85	1.86	-	12.7	-	5.3	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	80	4.9	16.6	25.7	516	1,680
August.....	56	3.9	11.7	18.1	362	1,110
September.....	68	3.7	11.1	17.2	332	1,020
October.....	65	2.65	6.50	10.1	201	618
November.....	184	2.7	25.7	39.8	770	2,560
December.....	24.5	2.85	6.48	10.0	201	617
Calendar year 1939	403	2.65	20.2	31.3	7,360	22,680
January.....	82	1.86	5.01	7.75	155	476
February.....	63	1.74	8.71	13.5	253	775
March.....	41	1.80	5.62	8.70	174	534
April.....	13.4	1.98	3.88	6.00	116	357
May.....	189	2.65	20.1	31.1	624	1,910
June.....	9.2	2.3	3.74	5.79	112	344
Fiscal year 1939-40	189	1.74	10.4	16.1	3,820	11,700

Notes.- Discharge for period of no gauge-height record, July 1 to Aug. 2, Feb. 10-16, computed on basis of records for West Wailuaiki Stream near Keanae.

c Partly estimated.

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 2½ miles south of Keanae post office.

Drainage area.- 3.6 square miles.

Records available.- January 1914 to October 1917, November 1921 to June 1940.

Average discharge.- 18 years (1922-40), 25.3 million gallons a day (39.1 second-feet).

Extremes.- Maximum discharge during year, 768 million gallons a day (1,190 second-feet) May 3 (gage height, 5.81 feet), from rating curve extended above 420 million gallons a day; minimum, 1.50 million gallons a day (2.32 second-feet) Mar. 9, 21, 22. 1914-17, 1921-40: 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 excellent. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.4	1.45	1.3	13.0	3.0	121
.5	1.95	1.6	22	4.0	270
.7	3.5	2.0	40		
1.0	7.2	2.5	75		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	6.2	4.7	9.1	3.4	3.7	19.8	2.55	1.65	2.35	12.4	9.4	5.6
2	59	4.3	7.1	3.15	2.45	9.6	2.35	1.65	2.2	5.5	37	4.6
3	44	3.8	c95	2.95	2.85	6.8	2.2	1.60	2.15	4.2	250	7.0
4	41	3.5	51	3.05	7.9	23	2.15	1.60	2.0	3.5	81	4.1
5	95	3.4	13.5	24	24	17.0	2.2	2.05	1.90	3.05	230	3.8
6	14.0	3.5	8.2	79	60	7.4	2.45	6.2	1.75	2.85	36.5	3.3
7	9.3	5.8	6.4	12.8	32	6.0	2.35	1.90	1.65	3.05	15.6	6.6
8	7.5	4.9	5.6	6.3	38.5	5.3	141	1.80	1.60	2.6	11.9	5.7
9	38	5.3	5.3	4.9	15.7	28	8.6	9.0	3.1	2.35	11.4	4.8
10	14.8	25.5	15.5	4.7	8.0	14.7	4.4	34	6.2	2.15	11.5	3.7
11	9.1	70	9.2	4.5	9.0	7.5	3.5	26.5	2.8	2.9	6.6	3.3
12	11.0	8.3	10.0	4.9	76	10.4	3.05	29	1.95	6.0	6.4	2.95
13	12.7	8.2	10.5	5.1	72	7.4	2.7	5.7	1.75	7.5	5.7	2.8
14	14.4	16.4	6.8	6.3	54	6.2	2.45	3.9	2.55	2.8	4.5	2.6
15	16.5	15.0	8.2	9.6	16.7	5.7	2.35	3.4	2.9	2.3	4.1	2.45
16	13.2	24.5	31	5.6	17.0	5.0	2.3	2.95	1.95	2.0	3.8	2.45
17	8.0	25.5	8.8	5.0	15.5	4.5	2.3	2.55	5.5	5.0	3.6	2.2
18	6.8	13.1	6.8	4.1	16.7	4.2	2.15	7.6	3.5	3.0	3.9	2.1
19	12.9	10.6	5.6	3.9	8.4	4.0	2.15	13.4	2.2	2.15	3.4	2.15
20	24	8.4	5.0	3.6	6.9	3.7	2.1	8.5	1.85	7.7	3.15	2.9
21	24.5	7.9	4.5	3.25	9.0	3.4	2.1	15.0	1.65	17.9	3.3	3.4
22	11.5	8.5	17.3	3.15	5.8	3.25	1.95	93	6.0	4.7	3.6	8.8
23	8.2	5.7	10.0	3.85	c88	3.05	1.95	7.6	6.5	3.5	19.3	3.85
24	6.8	5.0	9.4	3.25	261	6.2	1.90	5.0	9.4	6.0	17.3	3.8
25	6.0	5.7	5.6	2.85	62	6.2	1.75	4.0	3.9	5.2	12.3	2.85
26	6.8	4.6	4.6	2.55	15.3	4.2	1.75	3.5	2.7	8.3	5.6	3.65
27	10.2	9.1	4.3	2.4	9.7	3.25	1.70	3.05	2.3	4.6	4.3	4.4
28	5.7	9.4	3.9	2.55	7.5	2.85	1.70	2.8	2.0	3.9	3.6	4.4
29	4.7	12.1	4.8	2.8	6.6	2.7	1.70	2.55	43	3.25	6.6	3.3
30	4.5	22	3.9	2.6	15.3	2.6	1.70	-	46	3.4	5.8	5.8
31	5.9	15.9	-	2.7	-	2.6	1.65	-	22	-	6.0	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	95	4.5	17.8	27.5	552	1,690
August.....	70	3.4	12.0	18.6	371	1,140
September.....	95	3.9	12.9	20.0	387	1,190
October.....	79	2.4	7.38	11.4	229	702
November.....	261	2.45	32.2	49.8	968	2,970
December.....	28	2.6	7.63	11.8	236	726
Calendar year 1939	675	2.4	24.6	38.1	8,980	27,580
January.....	141	1.65	6.94	10.7	215	660
February.....	93	1.60	10.4	16.1	301	925
March.....	46	1.60	6.36	9.84	197	605
April.....	17.9	2.0	4.79	7.41	144	441
May.....	250	3.15	26.7	41.3	827	2,540
June.....	8.8	2.1	3.98	6.16	119	366
Fiscal year 1939-40	261	1.60	12.4	19.2	4,550	13,960

c Partly estimated.

Wailuanui Stream near Keanae

Location.— Concrete weir control, lat. 20°50'20", long. 156°08'30", 500 feet downstream from highway, 1.6 miles southeast of Keanae post office, and 3 miles northwest of Nahiku. Altitude of gage, 620 feet (by barometer).

Drainage area.— 1.8 square miles.

Records available.— July 1932 to March 1936, November 1938 to June 1940. March 1927 to June 1932, furnished by East Maui Irrigation Co.

Extremes.— Maximum discharge during year, 479 million gallons a day (741 second-feet)

May 3 (gage height, 5.13 feet), from rating curve based on standard Hofmann weir curve from 10 to 100 million gallons a day and extended above; minimum, 0.20 million gallons a day (0.31 second-foot) Feb. 4, 5.

1932-33, 1938-40: Maximum discharge, 1,010 million gallons a day (1,560 second-feet) Mar. 4, 1933 (gage height, 7.03 feet), from rating curve based on standard Hofmann weir curve from 10 to 100 million gallons a day and extended above; minimum, 0.12 million gallons a day (0.19 second-foot) Oct. 10-12, 1933, former datum.

Remarks.— Records good except those for period of no gage-height record, and those above 100 million gallons a day, which are poor. Koolau ditch diverts all low flow, at altitude of about 1,200 feet, for irrigation in central Maui.

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Mar. 29

Mar. 30 to June 30

0.2	0.11	0.6	2.3	1.2	16.0	3.0	130	0.4	0.28	0.9	7.1	2.5	84
.3	.30	.7	3.65	1.5	28	3.5	190	.5	.69	1.1	12.7	3.0	130
.4	.70	.8	5.2	2.0	51			.6	1.45	1.3	20	3.5	190
.5	1.37	1.0	9.7	2.5	84			.7	2.75	1.6	32		
								.8	4.8	2.0	51		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.75	0.81	1.07	0.70	0.81	3.85	0.39	0.24	0.51	1.74	0.49	0.59
2	22.5	.65	.93	.70	.51	1.28	.39	.24	.51	1.09	7.9	.54
3	26	.65	.65	.65	.51	1.39	.43	.22	.55	.87	153	1.01
4	22	.65	27.5	.65	3.05	28	.39	.20	.47	.81	66	.59
5	59	.61	1.66	10.6	13.5	11.3	.36	.24	.43	.69	167	.54
6	1.29	.65	1.00	.65	.42	1.80	.39	.84	.43	.69	17.5	.54
7	1.00	.87	.87	1.21	14.9	1.37	.43	.39	.51	.69	2.55	1.20
8	.87	.81	.81	.81	21.5	1.52	79	.30	.43	.64	1.45	.69
9	25	.65	.75	.65	6.8	21.5	1.00	.43	2.55	.69	1.09	.87
10	3.05	18.1	2.8	.87	1.37	3.3	.70	4.5	4.8	.59	4.7	.64
11	1.00	30.5	.81	.70	3.0	1.37	.60	7.5	.87	.75	.87	.54
12	1.37	.70	.70	.65	.65	5.9	.55	33	.65	.75	.87	.49
13	2.10	2.1	.70	.75	72	1.61	.47	.60	.65	2.0	6.8	.45
14	3.2	9.7	.70	.93	38	1.29	.47	.36	.65	.59	1.01	.45
15	9.0	6.9	1.82	55.0	2.4	1.13	.43	.30	2.2	.54	.87	.41
16	3.3	17.7	27	51.2	1.94	1.00	.43	.30	1.32	.49	.81	.41
17	1.13	16.5	1.21	51.0	9.2	.93	.39	.30	1.52	.84	.81	.38
18	1.13	4.2	1.07	5.8	8.4	.81	.36	7.0	.81	.59	.81	.38
19	1.23	1.61	.93	5.7	1.13	.75	.36	7.0	.70	.41	.89	.38
20	11.2	1.45	.81	5.6	1.00	.75	.33	.43	1.80	.45	.59	.38
21	17.1	1.61	.75	.51	1.96	.65	.33	8.1	1.61	4.1	.54	.38
22	2.0	1.29	9.6	.55	1.00	.60	.30	66	3.75	.41	.54	.59
23	1.37	1.07	2.35	.81	.55	.60	.30	1.53	3.2	.38	4.5	.45
24	1.13	.93	1.45	.60	182	1.35	.28	1.07	11.6	.41	2.4	.49
25	1.07	.87	1.13	.51	44	.87	.26	.87	3.55	.41	3.8	.49
26	1.07	.81	1.00	.47	3.6	.60	.26	.75	2.9	.54	.64	.49
27	1.07	2.05	.93	.47	1.61	.55	.24	.70	2.55	.49	.54	.49
28	.87	1.34	.87	.60	1.37	.51	.24	.65	2.3	.69	.49	.64
29	.75	2.65	.93	.75	1.21	.47	.24	.55	24	.45	.63	.45
30	.70	11.7	.81	.75	11.0	.47	.24	-	43	.38	.63	.64
31	.87	4.3	-	.60	-	.43	.24	-	14.2	-	.59	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	59	0.70	7.23	11.2	224	688
August.....	30.5	.51	4.65	7.19	144	442
September.....	65	.70	5.27	8.15	158	485
October.....	36.5	.47	2.33	3.61	72.3	222
November.....	182	.51	20.3	31.4	608	1,870
December.....	28	.43	3.10	4.80	96.0	294
Calendar year 1939	288	.43	13.1	20.3	4,780	14,690
January.....	79	.24	2.93	4.53	90.8	279
February.....	66	.20	4.99	7.72	145	444
March.....	43	.43	4.35	6.73	135	414
April.....	4.1	.38	.792	1.23	23.8	73
May.....	167	.49	14.2	22.0	441	1,350
June.....	1.20	.58	.553	.856	16.6	51
Fiscal year 1939-40	182	.20	5.89	9.11	2,150	6,610

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

East Wailuanui Stream near Keanae

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

Drainage area.- 0.6 square mile.

Records available.- November 1921 to June 1940. January 1914 to October 1917 at site 500 feet upstream.

Average discharge.- 18 years (1922-40), 5.81 million gallons a day (8.99 second-foot).

Extremes.- Maximum discharge during year, 294 million gallons a day (455 second-foot).

May 3 (gage height, 3.78 feet), from rating curve extended above 50 million gallons a day; minimum, 0.50 million gallons a day (0.77 second-foot) Jan. 27, 28, Feb. 4, 5.

1914-17, 1921-40: Maximum discharge, 1,050 million gallons a day (1,620 second-foot) Feb. 12, 1925 (gage height, 6.96 feet), from rating curve extended above 100 million gallons a day; minimum, 0.1 million gallons a day (0.2 second-foot) Apr. 11, 1926.

Remarks.- Records good except those for days of no gage-height record, which are fair. No diversions. Water used for irrigation in central Maui.

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Nov. 23					Nov. 24 to June 30				
0.4	1.15	1.0	17.0		0.3	0.35	0.6	4.4	1.1 22
.5	2.5	1.3	33		.4	1.00	.7	6.3	1.3 33
.7	6.3				.5	2.5	.9	12.5	1.6 52

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.0	2.3	3.85	1.49	2.5	5.3	1.00	0.55	1.10	3.45	4.5	2.5
2	11.7	2.15	3.0	1.37	1.49	3.05	.91	.85	1.00	1.94	7.7	2.05
3	13.9	1.88	24	1.26	1.62	2.7	.91	.55	.91	1.76	44	4.0
4	14.6	1.37	6.3	1.26	3.8	13.2	.91	.50	.91	1.45	18.5	2.1
5	22.5	1.37	3.25	4.4	9.5	6.6	.82	.98	.91	1.21	38.5	1.76
6	4.0	1.49	2.5	12.9	16.2	3.25	.82	2.45	.74	1.21	8.4	1.60
7	3.25	2.9	2.5	3.2	8.1	2.5	.96	.66	.66	1.10	4.4	3.75
8	2.9	2.45	2.3	1.89	10.5	2.9	19.7	.66	.60	1.00	3.05	3.7
9	14.1	3.0	2.15	1.75	7.8	14.5	1.94	5.5	1.84	.91	2.5	3.05
10	4.6	15.8	7.4	1.88	3.65	4.4	1.45	6.9	4.7	.91	23.0	2.1
11	3.25	12.9	3.65	1.88	5.8	3.05	1.21	8.1	1.32	1.21	c2.3	1.76
12	3.8	3.75	4.1	2.3	26	6.1	1.10	19.6	.91	3.6	a2.1	1.60
13	5.2	5.6	3.85	2.25	28	3.65	1.00	2.5	.82	5.0	c2.7	1.60
14	6.8	9.7	2.5	3.1	19.4	2.7	1.00	1.60	1.21	1.32	c1.94	1.45
15	8.5	8.4	3.65	5.0	5.4	2.3	.91	1.45	1.21	1.00	c1.76	1.32
16	5.6	12.7	15.8	2.5	4.7	2.1	.91	1.32	.82	.91	c1.60	1.21
17	3.45	11.6	3.45	2.5	7.3	1.94	.82	1.21	2.8	4.2	c1.45	1.00
18	3.05	7.8	2.7	2.0	6.3	1.76	.74	6.9	1.10	1.85	c1.60	1.00
19	5.2	6.1	2.3	1.88	3.25	1.76	.74	9.1	.82	1.10	a1.4	1.00
20	8.4	4.2	2.15	1.75	2.7	1.60	.74	3.5	.74	4.3	c1.21	1.32
21	11.3	4.2	2.0	1.75	4.8	1.32	.66	4.3	.74	5.3	c1.32	1.60
22	4.6	5.4	3.5	1.62	2.9	1.32	.66	28.5	3.35	1.60	c1.45	4.7
23	3.45	3.25	3.25	2.15	25	1.21	.66	2.9	2.45	1.45	6.8	1.76
24	2.9	2.7	2.9	1.75	41	3.0	.66	2.1	6.5	2.55	5.7	2.1
25	2.7	3.05	2.0	1.49	15.8	2.3	.60	1.60	2.3	1.94	6.1	1.60
26	3.05	2.5	1.75	1.49	4.8	1.32	.60	1.45	1.45	3.7	2.3	2.1
27	4.8	3.8	1.75	1.37	3.45	1.21	.60	1.52	1.21	1.94	1.76	2.3
28	2.5	4.2	1.62	1.37	2.9	1.21	.65	1.21	1.21	1.94	1.60	1.94
29	2.15	6.1	1.98	1.62	2.7	1.10	.65	1.21	19.3	1.45	3.8	1.60
30	2.15	10.7	1.62	1.62	6.6	1.10	.55	-	18.2	1.71	2.1	3.0
31	3.3	5.5	-	1.62	-	1.10	.55	-	8.5	-	2.5	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	22.5	2.15	6.15	9.52	191	585
August.....	15.8	1.37	5.45	8.43	169	518
September.....	24	1.62	4.12	6.37	124	380
October.....	12.9	1.26	2.49	3.71	74.4	228
November.....	41	1.49	9.47	14.7	284	871
December.....	14.5	1.10	3.28	5.07	102	312
Calendar year 1939	102	1.10	6.53	10.1	2,590	7,520
January.....	19.7	.50	1.46	2.26	45.1	138
February.....	28.5	.50	4.11	6.36	119	366
March.....	19.2	.60	2.62	4.05	81.3	250
April.....	5.3	.91	2.10	3.25	63.0	195
May.....	44	1.21	6.07	9.39	138	577
June.....	4.7	1.00	2.09	3.23	62.6	192
Fiscal year 1939-40	44	.50	4.10	6.34	1,600	4,610

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

West Wailuanui Stream near Keanae

Location.- Columbus-type control, lat. 20°49'40", long. 156°08'55", 150 feet upstream from Koolau ditch crossing and intake and 2½ miles south of Keanae post office.

Drainage area.- 0.7 square mile.

Records available.- December 1913 to October 1917 and July 1922 to June 1940.

Average discharge.- 18 years (1922-40), 9.31 million gallons a day (14.4 second-foot).

Extremes.- Maximum discharge during year, 192 million gallons a day (297 second-foot).

May 3 (gage height, 3.51 feet), from rating curve extended above 19 million gallons a day; minimum, 0.47 million gallons a day (0.73 second-foot) Feb. 3-5.

1913-17, 1922-40: Maximum discharge, 1,220 million gallons a day (1,890 second-foot) Jan. 14, 1923 (gage height, 7.70 feet, datum then in use), from rating curve extended above 82 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) July 18-21, 1922.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.7	0.47	1.0	2.0	1.7	17.5
.8	.80	1.2	4.2	2.0	32
.9	1.30	1.4	8.0	2.5	69

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.9	2.2	4.1	1.51	2.2	8.2	1.10	.54	1.10	8.4	4.5	2.65
2	16.1	1.93	3.45	1.44	1.25	4.3	1.05	.50	1.05	2.55	9.0	2.05
3	14.8	1.72	28	1.30	1.53	3.2	1.00	.50	1.00	1.93	62	4.0
4	14.3	1.58	23	1.37	3.85	12.6	1.00	.47	.95	1.72	29.5	1.86
5	27	1.51	7.2	5.7	8.9	8.4	.95	.99	.90	1.51	65	1.72
6	6.2	1.58	3.8	22	17.2	3.6	1.10	2.7	.80	1.37	15.6	1.51
7	4.4	3.15	2.95	4.6	12.2	2.95	1.24	.80	.80	1.30	7.2	4.0
8	3.7	2.55	2.65	2.65	12.1	2.8	37.5	.70	.77	1.20	5.2	3.45
9	14.9	3.0	2.5	2.1	8.0	13.8	3.95	5.7	2.9	1.10	5.3	2.6
10	5.8	14.2	8.0	2.25	4.0	5.2	2.0	7.7	5.4	1.05	5.8	1.72
11	3.95	14.7	4.1	2.15	5.2	3.3	1.65	8.6	1.55	1.71	2.95	1.58
12	4.5	4.9	4.6	2.4	24.5	6.8	1.37	15.3	1.00	4.9	2.75	1.44
13	5.6	5.9	4.3	2.65	30.5	3.7	1.25	2.25	.95	3.6	4.5	1.37
14	6.9	10.0	2.75	3.5	21	3.1	1.20	1.58	1.29	1.30	2.3	1.30
15	8.5	8.5	4.4	5.5	7.6	2.75	1.10	1.44	1.50	1.20	2.0	1.20
16	5.7	12.4	14.7	2.65	6.4	2.4	1.05	1.25	1.00	1.05	1.86	1.25
17	3.45	11.6	3.8	2.8	8.1	2.2	1.00	1.10	2.95	4.3	1.72	1.10
18	2.95	8.0	3.1	2.0	8.2	2.0	1.00	6.5	1.23	1.72	1.86	1.15
19	6.0	6.2	2.55	1.91	3.95	1.93	1.00	8.0	.95	1.20	1.65	1.15
20	9.2	4.7	2.3	1.72	3.3	1.86	.95	3.2	.85	4.6	1.51	1.38
21	11.2	4.7	2.1	1.58	5.6	1.65	.80	6.9	.77	5.2	1.58	1.79
22	4.7	5.5	5.1	1.51	3.1	1.58	.77	18.8	2.35	1.79	1.68	5.2
23	3.45	3.6	4.2	2.05	21	1.51	.77	2.75	3.55	1.51	7.7	1.69
24	2.65	2.95	3.6	1.58	68	3.65	.79	2.0	7.2	2.7	6.8	2.3
25	2.65	3.5	2.4	1.30	22	2.85	.70	1.72	2.3	1.82	6.0	1.65
26	2.95	2.55	1.93	1.25	7.6	1.65	.67	1.51	1.51	3.45	2.3	2.45
27	5.0	5.7	1.86	1.20	5.0	1.44	.60	1.37	1.25	1.93	1.86	2.2
28	2.4	4.5	1.72	1.25	3.95	1.37	.60	1.25	1.10	1.79	1.58	2.1
29	2.1	5.8	1.93	1.62	3.45	1.25	.80	1.20	7.5	1.44	4.0	1.65
30	2.0	11.6	1.65	1.51	6.2	1.25	.57	-	16.8	1.88	2.35	2.9
31	3.15	5.6	-	1.56	-	1.20	.54	-	65.0	-	2.8	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	27	2.0	6.75	10.4	209	642
August.....	14.7	1.51	5.72	8.85	177	544
September.....	28	1.65	5.29	8.18	159	497
October.....	22	1.20	2.66	4.43	68.6	272
November.....	68	1.25	11.2	17.5	356	1,050
December.....	18.8	1.20	3.69	5.71	114	351
Calendar year 1939.....	120	1.20	8.91	13.8	3,250	9,980
January.....	37.5	.54	2.25	3.48	69.9	214
February.....	18.8	.47	3.77	5.83	109	335
March.....	18.8	.77	2.68	3.99	80.1	246
April.....	8.4	1.05	2.37	3.67	71.2	219
May.....	65	1.51	8.70	13.5	270	828
June.....	5.2	1.10	2.08	3.22	62.4	192
Fiscal year 1939-40.....	68	.47	4.77	7.38	1,750	5,360

c Partly estimated.

Taro Patch feeder ditch at Keanae

Location.- Parshall flume, lat. 20°51'40", long. 156°09'00", 100 feet southeast of highway bridge over Piinaua Stream at Keanae, 4½ miles northwest of Nahiku, and 4½ miles southeast of Kailua.

Records available.- September 1934 to June 1940.

Extremes.- Maximum discharge during year, 8.5 million gallons a day (13.2 second-feet) May 3 (gage height, 1.66 feet), from rating curve extended above 5 million gallons a day by Parshall-flume formula; minimum, 1.42 million gallons a day (2.20 second-feet) Aug. 3.

1934-40: 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 5 to 18.0 million gallons a day by Parshall-flume formula and extended above; minimum, 0.05 million gallons a day (0.08 second-foot) Feb. 28, 1935, Apr. 7, 8, 1938, Mar. 5, 6, 1939.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	a2.0	1.67	2.4	2.05	2.05	2.5	2.15	2.25	2.2	2.35	2.05	2.15
2	a3.0	1.63	2.35	2.05	2.0	2.35	2.15	2.25	2.2	2.1	2.4	2.1
3	a2.9	2.05	2.95	2.3	2.0	a2.4	2.15	2.2	2.2	2.05	4.5	2.1
4	a2.75	2.35	2.6	2.45	2.0	a2.9	2.1	2.2	2.2	2.05	3.3	2.1
5	3.25	2.3	2.4	2.55	2.45	2.25	2.1	2.25	2.15	2.05	4.2	2.1
6	2.45	2.35	2.3	3.15	2.55	2.0	2.1	2.2	2.15	2.05	2.7	2.05
7	2.35	2.35	2.3	2.45	2.5	1.95	2.05	2.2	2.2	2.05	2.45	2.1
8	2.3	2.35	2.3	2.3	2.55	1.95	3.0	2.15	2.2	2.05	2.3	2.1
9	2.7	2.3	2.3	2.2	2.4	2.2	2.15	2.3	2.2	2.05	2.25	2.1
10	2.4	2.65	2.45	2.15	2.25	2.0	2.1	2.45	2.35	2.05	2.5	2.05
11	2.25	3.0	2.4	2.1	2.15	2.1	2.05	2.3	2.25	2.1	2.25	2.05
12	2.25	2.35	2.35	2.1	2.95	2.55	2.0	2.65	2.2	2.1	2.25	2.05
13	2.25	2.4	2.35	2.1	3.0	2.45	2.0	2.1	2.15	2.05	2.55	2.05
14	2.4	2.6	2.35	2.1	2.95	2.4	2.0	a2.1	2.2	2.05	2.3	2.05
15	2.4	2.4	2.45	2.25	2.45	2.3	2.1	a2.1	2.25	2.05	2.25	2.05
16	2.45	2.5	2.8	2.1	2.4	2.25	2.4	a2.1	2.3	2.05	2.25	2.05
17	2.35	2.7	2.45	2.1	2.45	2.2	2.4	2.05	2.35	2.05	2.25	2.05
18	2.35	2.55	2.4	2.1	2.55	2.15	2.4	2.25	2.25	2.1	2.25	2.1
19	2.35	2.55	2.4	2.05	2.4	2.15	2.35	2.45	2.2	2.05	2.25	2.1
20	2.45	2.5	2.35	2.05	2.35	2.15	2.35	2.15	2.15	2.25	2.25	2.1
21	2.45	2.5	2.3	2.05	2.4	2.15	2.35	2.25	2.15	2.25	2.25	2.1
22	2.2	2.5	2.45	2.05	2.3	2.15	2.3	3.05	2.25	2.05	2.25	2.1
23	2.15	2.45	2.45	2.05	2.75	2.15	2.3	2.1	2.25	2.05	2.45	2.1
24	2.15	2.4	2.35	2.05	3.85	2.25	2.3	2.25	2.6	2.05	2.25	2.1
25	2.05	2.6	2.25	2.0	2.85	2.2	2.3	2.15	2.3	2.0	2.3	2.1
26	2.05	2.3	2.25	2.0	2.5	2.15	2.3	2.05	2.25	2.0	2.2	2.1
27	2.0	2.35	2.2	2.0	2.4	2.15	2.3	2.05	2.25	2.0	2.15	2.1
28	1.96	2.45	2.15	2.0	2.35	2.15	2.3	2.1	2.2	2.0	2.15	2.1
29	1.91	2.4	2.1	2.0	2.35	2.15	2.3	2.2	2.9	2.0	2.2	2.05
30	1.87	2.55	2.05	2.0	2.45	2.15	2.25	-	3.0	2.0	2.2	2.05
31	1.72	2.5	-	2.0	-	2.15	2.25	-	2.55	-	2.15	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	3.25	1.72	2.33	3.61	72.1	221
August.....	3.0	1.63	2.40	3.71	74.6	229
September.....	2.95	2.05	2.37	3.67	71.2	219
October.....	3.15	2.0	2.16	3.34	66.9	205
November.....	3.85	2.0	2.49	3.85	74.6	229
December.....	2.9	1.96	2.25	3.45	69.0	212
Calendar year 1939	4.5	.05	2.36	3.65	863	2,550
January.....	3.0	2.0	2.24	3.47	69.4	213
February.....	3.05	2.05	2.24	3.47	64.9	199
March.....	3.0	2.15	2.29	3.54	71.0	218
April.....	2.35	2.0	2.07	3.20	62.1	191
May.....	4.5	2.05	2.45	3.79	76.0	235
June.....	2.15	2.05	2.08	3.22	62.5	192
Fiscal year 1939-40	4.5	1.63	2.28	3.53	854	2,560

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

Koolau ditch near Keanae

Location.- Concrete-dam control, lat. 20°49'55", long. 156°10'30", on west side of Keanae Valley, 2½ 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 1940.

Average discharge.- 22 years (1918-40), 66.4 million gallons a day (103 second-feet).

Extremes.- Maximum discharge during year, 168 million gallons a day (260 second-feet) May 3 (gage height, 5.84 feet); minimum, 15.5 million gallons a day (24.0 second-feet) Feb. 4, 5.

1910-12, 1917-40: 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. 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	56	50	81	33	44	138	25	16.2	23	73	70	46
2	141	44	67	31	29.5	87	26	16.2	23	39	95	38
3	140	59	132	31	31	66	26	16.2	21.5	33	157	66
4	141	37	140	31	59	132	24.5	16.2	21.5	29.5	157	35
5	140	35	101	66	102	122	24.5	18.8	20	28	161	33
6	116	37	70	140	94	77	26	47	20	26	148	29.5
7	85	63	59	89	141	62	27.5	23	20	24.5	122	67
8	70	53	55	50	141	59	125	20	18.7	23	87	53
9	113	56	52	41	114	137	55	74	34	21.5	73	50
10	107	117	121	46	81	106	35	123	39	21.5	87	33
11	81	125	85	42	81	70	31	122	29	26	53	29.5
12	97	74	90	48	141	113	28	126	23	48	48	28
13	95	83	92	48	138	77	26	48	21.5	76	57	26
14	117	130	59	63	120	62	24.5	33	28	26	39	26
15	112	112	85	96	132	55	24.5	29.5	30.5	25	35	24.5
16	118	136	141	52	132	52	24.5	26	23	21.5	33	24.5
17	77	140	85	50	104	46	23	24.5	47	45	31	23
18	66	124	66	41	120	44	21.5	48	24.5	30.5	33	21.5
19	110	124	55	39	77	42	23	82	20	23	29.5	21.5
20	132	96	48	37	66	41	21.5	61	18.7	54	28	26
21	140	96	44	33	94	37	20	33	18.7	34	28	26
22	108	100	78	35	62	35	20	132	54	31	29.5	66
23	74	66	99	46	94	33	20	55	49	26	110	33
24	62	55	80	35	117	67	20	39	101	43	102	32
25	59	60	52	31	140	59	18.7	33	37	34.5	75	29
26	64	52	44	29.5	132	39	18.7	31	28	60	42	35
27	95	86	41	28	101	33	17.4	28	24.5	35	33	37
28	55	94	59	29.5	81	31	17.4	26	21.5	35	29.5	37
29	48	114	45	33	70	29.5	17.4	24.5	97	28	51	28
30	46	140	37	33	79	29.5	17.4	-	124	31	41	47
31	64	108	-	33	-	29.5	16.2	-	84	-	49	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	141	46	94.4	146	2,930	8,980
August.....	140	35	85.4	132	2,650	8,120
September.....	141	37	74.8	116	2,240	6,990
October.....	140	28	46.5	71.9	1,440	4,420
November.....	141	29.5	57.2	56.6	1,920	5,970
December.....	137	29.5	64.5	99.8	2,000	6,140
Calendar year 1939	141	28	88.4	137	32,280	99,010
January.....	125	16.2	27.4	42.4	848	2,600
February.....	132	16.2	47.3	73.2	1,370	4,210
March.....	124	18.7	36.2	59.1	1,180	3,640
April.....	84	21.5	36.6	56.6	1,100	3,370
May.....	161	28	68.8	106	2,130	6,550
June.....	69	21.5	35.8	55.4	1,070	3,500
Fiscal year 1939-40	161	16.2	59.8	92.5	21,880	67,170

Honomanu Stream near Keanae

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

Drainage area.- 3.3 square miles.

Records available.- November 1913 to June 1940.

Average discharge.- 24 years (1916-40), 15.6 million gallons a day (24.1 second-feet).

Extremes.- Maximum discharge during year, 497 million gallons a day (769 second-feet) Sept. 3 (gage height, 4.47 feet), from rating curve extended above 460 million gallons a day; minimum, 0.36 million gallons a day (0.56 second-foot) Feb. 3, 4.
1913-40: Maximum discharge, 1,580 million gallons a day (2,440 second-feet) Feb. 25, 1935 (gage height, 8.98, datum then in use), 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 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.6	0.32	1.2	3.95	2.3	70
.7	.53	1.4	7.9	2.6	104
.8	.86	1.6	15.0	3.0	162
.9	1.35	1.8	26	3.5	260
1.0	2.0	2.0	41		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.3	3.05	5.6	1.61	2.1	22.5	1.25	0.42	0.91	2.65	15.1	5.6
2	69	2.55	4.6	1.43	1.30	6.5	1.15	.33	.83	2.5	57	2.8
3	42	1.94	62	1.42	1.35	3.9	1.10	.38	.76	2.0	206	11.0
4	48	1.65	58	1.48	4.6	21	1.01	.39	.73	1.61	72	4.9
5	96	1.54	10.4	35.5	24.5	15.5	.96	1.47	.66	1.30	160	2.9
6	10.0	1.61	4.3	73	61	3.7	1.10	5.8	.63	1.20	24.5	2.15
7	5.1	3.35	3.05	7.9	30	2.8	1.20	1.30	.56	1.10	14.6	11.2
8	3.85	3.9	2.55	2.9	28	2.55	103	3.2	.51	.91	7.6	26
9	57	2.8	2.55	2.25	15.0	30	5.7	21.5	.53	12.9	5.0	
10	11.6	25	18.1	2.1	4.4	13.2	2.0	36	3.25	.76	10.1	3.05
11	5.4	77	7.4	2.1	3.5	3.7	1.54	24.5	1.30	1.75	3.6	2.25
12	6.5	5.5	8.2	2.55	5.7	7.7	1.35	24	.76	6.4	3.05	1.94
13	11.6	15.0	10.1	2.55	53	8.8	1.20	3.6	.63	5.0	2.9	1.61
14	16.7	32	3.7	3.1	34	5.9	1.10	2.1	2.95	1.74	2.8	1.48
15	19.8	15.8	5.4	7.9	13.1	4.2	1.01	1.80	3.3	1.15	2.15	1.25
16	12.5	21	31.5	3.8	14.5	2.9	.96	1.54	1.18	.96	1.80	1.20
17	4.3	22	6.0	2.8	14.4	2.5	.96	1.20	13.3	10.3	1.61	1.06
18	3.4	9.0	3.5	2.0	15.1	2.25	.83	2.6	3.45	3.85	1.80	.96
19	14.6	6.5	3.25	1.80	3.95	2.1	.83	10.5	1.25	1.74	1.48	.96
20	29	5.0	2.55	1.61	3.25	1.94	.86	5.5	.86	34	1.35	1.90
21	24	4.8	8.1	1.42	9.9	1.80	.76	25	.70	29	1.42	2.1
22	12.5	4.9	5.3	1.45	2.8	1.68	.66	50	1.08	3.1	3.1	7.5
23	6.7	3.15	6.9	2.6	77	1.54	.63	3.7	4.6	2.15	37	3.45
24	3.35	2.65	8.3	2.4	160	6.0	.66	2.3	6.1	6.2	22.5	3.35
25	2.8	4.8	3.3	1.61	33	5.3	.66	1.80	2.75	4.1	16.4	1.68
26	3.1	3.1	2.4	1.30	8.1	2.4	.60	1.48	2.15	7.0	5.1	2.8
27	9.6	10.6	2.15	1.15	4.2	1.94	.51	1.30	1.48	2.65	2.55	4.6
28	3.1	10.7	1.94	1.10	3.25	1.68	.49	1.10	1.30	2.15	2.15	3.8
29	2.4	8.7	1.94	1.54	2.9	1.48	.47	1.01	2.6	1.87	10.6	2.5
30	2.1	24.5	1.80	2.1	10.4	1.48	.45	-	7.0	2.95	a9.0	18.3
31	3.2	12.6	-	1.68	-	1.42	.42	-	3.4	-	a5.0	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	96	2.1	17.7	27.4	548	1,680
August.....	77	1.54	11.2	17.3	347	1,060
September.....	62	1.80	9.83	15.2	295	905
October.....	73	1.10	6.75	6.90	178	547
November.....	160	1.30	21.5	33.3	644	1,960
December.....	30	1.42	6.14	9.50	190	584
Calendar year 1939	266	1.10	15.5	24.0	5,660	17,350
January.....	103	.42	4.37	6.76	135	416
February.....	50	.38	8.13	12.6	236	724
March.....	13.3	.51	2.51	3.57	71.7	220
April.....	34	.76	4.76	7.36	143	439
May.....	206	1.35	23.1	35.7	717	2,200
June.....	26	.96	4.74	7.33	142	437
Fiscal year 1939-40	206	.38	9.97	15.4	3,650	11,190

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

Haipuaena Stream near Huelo

Location.— Lat. 20°51'05", long. 156°11'30", 200 feet upstream from inflow of Spreckels ditch, 3.3 miles southeast of Kailua, and 4.7 miles southeast of Huelo.

Drainage area.— 1.1 square miles.

Records available.— October 1913 to June 1940.

Average discharge.— 24 years (1916-40), 10.2 million gallons a day (15.8 second-feet).

Extremes.— Maximum discharge during year, 267 million gallons a day (413 second-feet) May 3 (gage height, 4.18 feet), from rating curve extended above 150 million gallons a day; minimum, 0.10 million gallons a day (0.16 second-foot) June 18.

1913-40: 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 June 18, 1940.

Remarks.— Records good except those for periods of no gage-height record, which are poor. No diversions. Water used for irrigation in central Maui.

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Sept. 3					Sept. 4 to June 30				
0.2	0.4	1.2	10.7		0.1	0.10	0.8	3.5	3.0 114
.3	.7	1.4	15.7		.2	.20	1.0	6.2	3.5 175
.4	1.0	1.6	22		.3	.40	1.3	10.5	
.6	2.2	1.9	34.5		.4	.72	1.6	17.9	
.8	4.0	2.2	51		.5	1.22	2.0	32	
1.0	6.9	2.5	71		.6	1.90	2.5	63	

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.85	1.40	3.2	0.26	1.21	9.3	0.8	0.32	0.28	4.9	4.8	2.2
2	30.5	1.00	2.1	.22	.32	2.9	.8	.30	.26	1.63	23.5	1.09
3	21.5	.80	37	.20	.34	2.3	.52	.28	.26	.92	114	5.0
4	22.6	.60	14	.20	2.9	14.3	.50	.28	.24	.56	43	2.1
5	52	.50	6.0	12.6	12.8	7.6	.50	.57	.24	.38	87	1.07
6	4.9	.60	3.5	31	31	2.3	.6	2.85	.24	.32	13.1	.59
7	2.8	1.68	2.0	3.2	11.6	1.49	.7	.46	.24	.32	7.8	6.0
8	2.2	1.95	1.1	1.12	11.9	1.35	25	.66	.24	.30	4.6	11.3
9	26.5	1.22	1.0	.59	9.3	15.0	1.0	7.4	1.19	.28	5.8	4.6
10	6.0	14.1	11	.83	2.9	5.7	1.7	13.6	3.2	.28	6.6	1.36
11	2.8	38.5	3.0	.59	2.75	1.90	.53	12.4	.43	.94	1.98	.82
12	3.3	4.7	3.5	.94	38.5	5.5	.45	20	.34	3.65	1.70	.66
13	c5.4	6.8	4.0	1.08	33.5	4.0	.40	1.98	.32	4.6	2.1	.34
14	c7.8	17.7	1.83	1.87	19.0	3.45	.40	.72	.81	.62	.97	.26
15	c18	10.7	3.9	4.8	6.4	2.5	.35	.53	1.04	.36	.66	.19
16	c7.9	17.8	17.0	1.70	6.6	1.5	.35	.46	.50	.30	.46	.17
17	c2.6	14.6	3.26	1.35	8.1	1.2	.35	.34	5.0	1.66	.36	.13
18	c2.1	8.4	1.90	.62	9.2	1.0	.32	1.08	1.26	1.46	.55	.12
19	c6.9	5.5	1.29	.50	2.66	.9	.30	5.1	.50	.32	.30	.14
20	c14.4	3.8	.87	.40	1.98	.8	.35	2.85	.26	12.9	.22	.31
21	c13.0	3.8	5.1	.28	4.2	.6	.32	9.0	.26	10.9	.24	.50
22	c6.3	4.0	2.8	.29	1.83	.45	.25	36.5	1.66	1.09	.38	3.6
23	c3.5	2.2	3.2	1.30	50	.40	.22	2.15	1.86	.46	13.7	1.01
24	2.1	1.50	3.6	.69	88	3.0	.20	.97	5.5	2.0	8.7	1.29
25	1.70	2.05	1.22	.32	17.1	2.8	.20	.66	1.61	1.62	4.3	.38
26	1.95	1.50	.72	.24	4.8	2.3	.20	.43	.70	3.05	2.15	1.53
27	4.5	4.9	.53	.22	2.75	2.0	.30	.34	.40	1.07	.69	1.56
28	1.5	5.5	.40	.24	1.83	1.6	.40	.32	.36	.87	.50	1.70
29	1.1	5.6	.43	.85	1.70	1.3	.40	1.30	19.6	.46	2.65	.82
30	.90	14.9	.34	.82	5.7	1.1	.40	-	29	.42	3.3	2.8
31	2.05	6.2	-	.46	-	1.0	.35	-	15.8	-	1.97	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	52	0.90	9.05	14.0	281	861
August.....	38.5	0.50	6.50	10.2	205	628
September.....	37	.34	4.66	7.21	140	429
October.....	31	.20	2.24	3.47	69.6	214
November.....	98	.32	13.0	20.1	391	1,200
December.....	15.0	.40	3.28	5.07	102	312
Calendar year 1939	139	.20	8.54	13.7	3,230	9,900
January.....	25	.20	1.22	1.59	39.0	116
February.....	36.5	.28	4.24	6.56	123	377
March.....	29	.24	3.01	4.66	93.2	286
April.....	12.9	.28	1.95	3.02	58.6	180
May.....	114	.22	11.5	17.5	358	1,100
June.....	11.3	.12	1.78	2.75	53.5	164
Fiscal year 1939-40	114	.12	5.22	8.08	1,910	5,870

c Partly estimated.

Note.— Discharge for periods of no gage-height record, July 27-29, Sept. 4-11, Dec. 15 to Feb. 1, computed on basis of records for Puhokamoa and Honomahu Streams.

Haipuaena diversion ditch at Kolea Gulch, near Keanae

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

Records available.— March 1938 to June 1940.

Extremes.— Maximum discharge during year, 15.3 million gallons a day (23.7 second-feet) Sept. 3 (gage height, 1.82 feet); minimum, 0.42 million gallons a day (0.65 second-foot) Feb. 5.

1938-40: Maximum discharge, 17.0 million gallons a day (26.5 second-feet) Oct. 15, 1939 (gage height, 1.98 feet); minimum, that of Oct. 3, 1939.

Remarks.— Records excellent. Ditch diverts water from Haipuaena Stream for East Maui Irrigation Co.'s hydroelectric plant about 1 mile downstream.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.5	1.92	2.5	1.68	1.85	3.85	1.25	0.48	1.01	2.6	2.4	2.2
2	5.8	1.78	2.3	1.51	1.45	2.6	1.19	.48	.95	1.98	3.6	1.98
3	4.7	1.58	4.9	1.38	1.51	2.2	1.13	.48	.90	1.85	7.6	2.65
4	4.8	1.45	4.8	1.51	2.4	4.0	1.07	.45	.85	1.72	5.2	2.1
5	6.4	1.38	2.7	3.4	3.9	3.45	1.01	.51	.80	1.61	6.6	1.92
6	2.7	1.51	2.3	6.2	4.9	2.35	1.13	1.98	.75	1.45	3.5	1.78
7	2.2	1.92	2.1	2.6	4.1	2.1	1.19	1.02	.75	1.31	3.05	2.8
8	2.05	1.98	2.05	2.05	4.0	2.05	5.4	1.51	.70	1.19	2.6	3.3
9	4.7	1.78	1.98	1.85	3.35	4.4	2.1	2.95	.91	1.07	2.6	2.5
10	2.65	3.65	2.95	1.55	2.5	3.1	1.65	4.0	2.2	1.01	2.8	1.92
11	2.2	5.4	2.65	1.85	2.35	2.35	1.35	3.8	1.19	1.65	2.05	1.78
12	2.3	2.4	2.65	1.92	5.9	2.95	1.25	4.4	.90	2.3	1.98	1.65
13	2.65	3.0	2.8	2.35	5.7	2.8	1.13	2.05	.75	2.4	1.92	1.65
14	2.95	4.2	2.3	2.1	4.9	2.65	1.07	1.72	1.50	1.65	1.85	1.51
15	3.35	3.4	2.7	2.8	3.2	2.4	1.01	1.58	1.78	1.39	1.78	1.45
16	2.8	4.0	4.7	2.2	3.3	2.2	.90	1.45	.75	1.19	1.72	1.38
17	2.2	4.1	2.65	2.05	3.3	2.05	.90	1.19	2.25	1.57	1.65	1.25
18	2.05	3.2	2.35	1.85	3.6	1.98	.80	1.39	1.92	1.92	1.72	1.13
19	2.95	2.8	2.2	1.72	2.4	1.92	.85	2.5	1.13	1.38	1.58	1.19
20	3.9	2.5	2.05	1.65	2.3	1.85	.90	2.2	.90	2.9	1.51	1.38
21	4.0	2.4	2.7	1.58	2.6	1.78	.80	2.25	.80	2.95	1.58	1.65
22	2.95	2.6	2.55	1.51	2.2	1.72	.75	5.0	1.59	1.72	1.78	2.3
23	2.35	2.2	2.6	1.92	4.7	1.65	.70	2.1	2.1	1.61	3.65	1.72
24	2.05	2.05	2.65	1.85	8.7	2.4	.80	1.85	2.6	1.92	3.2	1.85
25	1.92	2.2	2.1	1.58	4.8	2.4	.75	1.65	1.92	1.85	2.6	1.51
26	1.98	2.05	1.98	1.38	2.8	1.85	.65	1.51	1.72	2.1	2.1	1.85
27	2.85	2.6	1.85	1.25	2.4	1.72	.60	1.31	1.31	1.72	1.85	1.98
28	1.92	2.9	1.78	1.25	2.2	1.65	.66	1.19	1.07	1.68	1.72	1.98
29	1.85	2.8	1.78	1.72	2.1	1.51	.56	1.07	3.7	1.45	2.2	1.78
30	1.78	4.1	1.72	1.78	2.55	1.45	.52	-	4.2	1.51	2.25	2.15
31	1.98	3.2	-	1.65	-	1.38	.52	-	3.45	-	2.1	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	6.4	1.78	2.98	4.61	92.3	283
August.....	5.4	1.38	2.68	4.15	83.0	255
September.....	4.9	1.72	2.57	3.98	77.1	237
October.....	6.2	1.25	2.00	3.09	61.9	190
November.....	8.7	1.45	3.40	5.26	102	313
December.....	4.4	1.38	2.35	3.64	72.8	223
Calendar year 1939	8.7	1.25	2.84	4.39	1,040	3,180
January.....	5.4	.52	1.11	1.72	34.5	106
February.....	5.0	.45	1.86	2.88	54.1	166
March.....	4.2	.70	1.53	2.37	47.4	145
April.....	2.95	1.01	1.74	2.69	52.3	161
May.....	7.6	1.51	2.67	4.13	82.6	254
June.....	3.3	1.13	1.88	2.91	56.3	173
Fiscal year 1939-40	8.7	.45	2.23	3.45	816	2,510

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 1940. February 1930 to October 1935 at site 100 feet upstream.

Average discharge.— 17 years (1922-29, 1930-40), 14.7 million gallons a day (22.7 second-feet).

Extremes.— Maximum discharge during year, 66 million gallons a day (102 second-feet) Feb. 22 (gage height, 1.91 feet); no flow Jan. 3, 4.

1922-40: 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 no gage-height record, which are poor. Regulated by gates and spillways. Spreckels ditch diverts water from all streams between the Nuua'ilua and the Kailua, above Koolau ditch east of the Puohokamoa and below Koolau ditch west of the Puohokamoa. About 4 million gallons a day is diverted from Spreckels ditch to East Maui Irrigation Co.'s hydroelectric plant at Kolea Gulch. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.0	6.0	11.4	0.43	6.1	26	0.16	0.12	0.16	16.6	17.2	10.4
2	30	3.6	7.9	.27	.26	12.7	.16	.12	.16	6.2	26	6.6
3	25	1.47	23.5	.23	1.23	8.3	1.44	.12	.16	3.6	67	18.0
4	28	.76	31	.23	12.3	33	4.1	.12	.16	1.36	46	8.5
5	35	.39	15.6	16.4	27	21.5	.16	.89	.16	.97	54	5.4
6	15	.80	7.8	45	31	8.8	.19	9.3	.14	.55	31	2.95
7	9.0	7.5	5.2	14.0	29	5.2	.27	2.0	.14	.43	24.6	19.8
8	8.0	7.5	4.1	4.3	29	5.1	33.6	4.8	.12	.19	17.6	23.5
9	30	5.8	3.75	1.80	23	33	7.1	22.6	3.8	.16	12.7	14.7
10	15	25	18.2	3.6	11.1	18.0	.97	30.5	14.3	.15	18.6	5.8
11	12	33	14.0	2.26	12.3	7.6	.31	31	1.06	5.2	8.5	5.2
12	16	12.3	14.8	5.0	42	19.7	.19	37	.23	13.6	6.9	2.15
13	12	16.6	16.4	5.7	43	16.3	.16	10.0	.40	14.5	9.6	1.36
14	18	29.6	8.6	9.0	37	13.4	.16	4.7	4.7	2.15	5.0	.97
15	26	23	17.6	18.9	22	8.2	.14	2.6	4.0	.51	3.3	.56
16	20	30	36	3.1	22	5.2	.15	.97	.73	.19	2.0	.47
17	10	26.5	13.2	6.8	22	3.46	.15	.27	12.6	5.3	1.47	.19
18	9.0	21	9.5	2.5	25	2.35	.14	4.6	4.4	6.3	2.65	.16
19	12	18.0	6.2	1.80	10.6	1.47	.14	15.2	.23	.97	1.11	.16
20	23	14.2	4.1	1.11	8.2	1.18	.14	11.4	.16	19.1	.56	1.68
21	30	13.7	13.3	.43	16.5	.47	.14	5.3	.15	23	.65	2.65
22	16	16.4	13.1	.54	7.3	.39	.14	35	6.5	5.0	1.91	14.0
23	9.0	3.2	12.3	8.1	28	.27	.14	7.8	9.6	2.15	27.5	5.6
24	6.0	5.6	14.4	2.95	57	10.8	.14	3.6	19.6	8.8	23	7.6
25	5.2	7.4	5.8	.66	38.5	13.6	.12	1.69	6.8	6.5	15.6	3.15
26	7.6	5.6	3.3	.27	18.4	2.65	.12	.69	2.65	12.6	9.8	7.9
27	13.9	13.9	2.15	.23	10.0	.83	.12	.27	.47	5.2	3.75	8.0
28	5.8	17.6	1.66	.31	7.1	.35	.12	.19	.23	4.3	2.35	8.8
29	3.3	18.4	1.91	4.4	6.2	.23	.12	.16	28	1.98	6.8	5.0
30	2.65	27	.97	3.65	12.4	.19	.12	-	34	2.95	11.0	12.4
31	8.4	18.8	-	2.25	-	.19	.12	-	27.8	-	9.8	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	35	2.65	14.9	23.1	462	1,420
August.....	33	.39	14.1	21.8	436	1,340
September.....	36	.97	11.2	17.3	337	1,030
October.....	45	.23	5.52	8.54	171	525
November.....	57	.26	20.5	31.7	615	1,890
December.....	33	.19	9.08	14.0	281	864
Calendar year 1939.....	57	.19	15.4	23.8	5,640	17,310
January.....	33.5	.12	1.65	2.55	51.1	157
February.....	37	.12	8.39	13.0	243	747
March.....	34	.12	5.92	9.16	184	563
April.....	23	.15	5.68	8.79	170	523
May.....	57	.55	14.7	22.7	457	1,400
June.....	23.5	.16	6.78	10.5	204	626
Fiscal year 1939-40.....	57	.12	9.87	15.3	3,610	11,080

c Partly estimated.

Note.— No gage-height record July 1-24; discharge computed on basis of records for station on nearby streams.

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 1940.

Extremes.- Maximum discharge during year, 194 million gallons a day (300 second-feet) Nov. 9 (gauge height, 4.86 feet); minimum, 16.1 million gallons a day (24.9 second-feet) Feb. 4, 1932-40: Maximum discharge, 203 million gallons a day (314 second-feet) Apr. 5, 1939 (gauge height, 4.98 feet); no flow when water was shut out of ditch.

Remarks.- Records excellent except those for periods of no gage-height record, which 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	60	55	85	38	50	142	34	18.1	26.5	82	79	52
2	176	50	68	37	34	92	31	16.8	26.5	46	108	43
3	176	46	137	37	37	67	31	16.8	25	39	183	68
4	162	44	169	37	66	152	29.5	16.8	23.5	34	176	40
5	169	41	110	80	121	132	28	19.9	22	31	183	37
6	113	42	76	176	120	80	29.5	59	22	31	162	35
7	85	67	63	95	162	67	29.5	28.5	21.5	29.5	131	70
8	76	61	59	59	162	63	151	23.5	20.5	26.5	105	62
9	137	59	59	46	123	160	65	96	35	25	84	58
10	113	133	121	52	85	113	44	141	90	23.5	95	39
11	85	146	87	48	84	72	37	143	34	30	58	35.5
12	94	95	52	52	176	126	34	148	25	58	54	34
13	102	96	98	52	176	85	31	52	22	88	60	32.5
14	125	160	63	67	159	67	29.5	37	32	31	44	31
15	121	125	89	99	143	63	28	34	35	25	40	29.5
16	126	159	162	59	137	59	28	32.5	26.5	25	37	29.5
17	80	120	88	55	117	52	26.5	29.5	59	53	35	28
18	72	132	72	46	133	50	26.5	57	31	37.5	37	26.5
19	113	125	59	46	80	48	25	102	23.5	26.5	34	26.5
20	156	99	55	42	67	48	25	71	22	86	31	31
21	159	94	62	40	102	44	23.5	43	20.5	104	31	32.5
22	116	103	85	42	48	42	23.5	150	58	37	34	76
23	80	72	102	52	111	39	22	63	54	31	120	37
24	67	59	58	42	183	72	22	48	114	47	110	39
25	44	65	59	37.5	169	67	22	41	44	41	80	36
26	67	59	52	34	131	46	20.5	37	32.5	64	50	39.5
27	99	92	48	32.5	99	41	19.4	34	28	41	40	42
28	59	98	44	34	85	37	19.4	31	25	41	37	42
29	55	117	52	41	76	35.5	19.4	29.5	121	32.5	58	34
30	52	163	44	41	87	34	18.1	-	142	34.5	47	54
31	66	118	-	41	-	34	18.1	-	104	-	56	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	176	44	103	159	3,200	9,840
August.....	163	41	93.1	144	2,980	8,850
September.....	169	44	81.7	126	2,450	7,520
October.....	176	32.5	53.5	82.8	1,660	5,090
November.....	183	34	111	172	3,320	10,200
December.....	160	34	71.9	111	2,230	6,840
Calendar year 1939	183	32.5	99.9	155	36,430	111,800
January.....	151	18.1	32.0	49.5	991	3,040
February.....	150	16.8	55.8	86.3	1,620	4,960
March.....	142	20.5	44.0	68.1	1,370	4,190
April.....	104	23.5	43.4	67.1	1,300	3,990
May.....	183	31	77.4	120	2,400	7,360
June.....	76	26.5	41.3	63.9	1,240	3,810
Fiscal year 1939-40	183	16.8	67.4	104	24,660	75,690

Note.- No gage-height record Oct. 1-5, 21, 22, May 8 to June 8; discharge computed on basis of records for station at Keanae.

Puohokamoa Stream near Huelo

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

Drainage area.- 2.6 square miles.

Records available.- December 1910 to June 1940.

Average discharge.- 23 years (1917-40), 21.7 million gallons a day (33.6 second-feet).

Extremes.- Maximum discharge during year, 1,110 million gallons a day (1,720 second-feet)

Sept. 3 (gage height, 6.47 feet), from rating curve extended above 400 million gallons a day; minimum, 1.6 million gallons a day (2.5 second-feet) Jan. 26.

1910-40: Maximum discharge, 1,430 million gallons a day (2,210 second-feet) Apr.

7, 1938 (gage height, 7.54 feet), from rating curve extended above 400 million gallons a day; minimum, 0.1 million gallons a day (0.2 second-foot) Nov. 17, 1929, site then in use.

Remarks.- Records good. Kula pipe line diverts small amount of water above station, at altitude 4,300 feet, for domestic supply.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.7	1.5	1.2	15.5	2.5	165
.8	2.6	1.5	36	3.0	252
.9	4.6	1.8	63	3.5	340
1.0	7.5	2.1	100		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	9.2	7.2	12.0	4.0	6.6	34	3.2	2.2	2.4	14.7	13.3	9.3
2	74	6.3	9.3	3.6	3.6	13.0	3.0	2.0	2.3	6.3	49	6.7
3	51	4.9	113	3.4	3.6	10.0	2.8	1.9	2.2	4.6	214	16.9
4	57	4.4	39	3.6	10.9	39.5	2.6	1.9	2.0	3.8	93	8.2
5	125	4.2	14.6	29.5	36	27	2.6	2.3	2.0	3.2	170	6.0
6	18.2	4.2	9.7	79	69	10.7	2.6	9.4	1.9	3.0	35	4.6
7	12.4	7.9	7.9	12.6	31.5	8.2	3.2	2.9	1.9	2.8	23.5	18.3
8	10.0	8.5	6.9	8.6	32	7.5	64	4.4	1.8	2.5	14.2	27.5
9	61	6.0	86.4	5.2	28	42	6.7	17.3	3.8	2.4	21	14.2
10	19.4	37	827	5.8	12.0	20.5	4.0	34.5	11.4	2.3	21	6.6
11	11.5	88	814	5.0	10.3	9.3	3.4	30	3.0	4.9	8.9	5.2
12	12.4	15.8	15.2	6.2	63	18.0	3.0	54	2.3	11.0	7.9	4.4
13	17.4	19.2	15.7	6.8	72	14.4	2.8	7.4	2.0	15.6	5.5	4.0
14	24.5	42	8.9	8.3	55	13.3	2.6	4.2	4.2	3.8	5.8	3.8
15	27.5	30.5	14.8	17.4	21	10.0	2.4	3.8	4.3	2.8	4.9	3.6
16	21.5	46	52	8.6	20.5	7.5	2.3	3.4	2.4	2.5	4.4	3.4
17	10.7	40	12.9	7.4	23.5	6.6	2.3	2.6	11.6	4.8	4.2	3.0
18	8.9	26.5	8.6	5.2	28.5	6.0	2.2	2.9	5.0	5.5	4.4	2.5
19	20.5	18.8	7.2	4.6	11.5	5.5	2.2	10.8	2.5	2.6	3.8	3.0
20	38	14.2	6.0	4.4	9.7	5.2	2.3	7.6	2.2	23	3.6	4.1
21	44	14.3	13.0	3.6	14.5	4.6	2.2	10.5	1.9	26	3.8	4.4
22	19.4	14.2	9.4	3.6	8.6	4.4	1.9	89	6.4	5.3	4.6	13.9
23	12.4	9.3	10.7	6.9	85	4.2	1.8	7.5	7.2	3.6	33	6.3
24	8.9	7.5	12.5	6.2	208	12.1	1.9	4.9	15.5	7.8	25	7.0
25	7.9	9.2	6.6	3.6	59	11.1	1.8	4.0	5.9	7.1	13.0	4.0
26	8.6	7.5	5.2	3.2	19.4	5.5	1.8	3.4	4.4	10.8	8.3	7.2
27	17.0	17.4	4.6	2.8	12.9	4.6	2.3	3.0	3.0	6.2	5.2	7.6
28	7.9	18.0	4.6	3.0	10.4	4.2	2.4	2.6	2.4	4.6	4.4	7.5
29	6.3	19.6	4.6	5.7	9.3	3.8	2.3	2.5	39.5	3.6	11.4	5.2
30	5.8	41	4.2	5.8	15.6	3.6	2.3	-	73	4.1	10.6	10.7
31	8.6	21.5	-	4.2	-	3.4	2.2	-	29.5	-	8.5	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	125	5.8	25.1	38.8	777	2,380
August.....	88	4.2	19.7	30.5	611	1,880
September.....	113	4.2	15.9	24.6	476	1,460
October.....	79	2.8	8.86	15.7	276	843
November.....	208	3.6	35.7	52.1	1,010	3,100
December.....	42	3.4	11.9	18.4	370	1,130
Calendar year 1939	324	2.8	24.5	37.9	8,950	27,450
January.....	64	1.8	4.62	7.15	143	440
February.....	89	1.9	11.5	17.8	333	1,020
March.....	73	1.8	8.38	15.0	260	798
April.....	26	2.3	6.67	10.3	200	614
May.....	214	3.6	27.0	41.8	838	2,570
June.....	27.5	2.8	7.61	11.8	228	701
Fiscal year 1939-40	214	1.8	15.1	23.4	5,520	16,940

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

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 1940.

Average discharge.- 21 years (1918-24, 1925-40), 5.98 million gallons a day (9.25 second-feet).

Extremes.- Maximum discharge during year, 82 million gallons a day (127 second-feet) Feb. 21, 22 (gage height, 3.43 feet); no flow Oct. 2-5.
1917-40: 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, Oct. 2-5, 1939.

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

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.08	1.14	2.06	0.16	1.91	64.4	0.56	0.26	0.62	3.15	0.99	0.73
2	16.1	.65	1.30	.03	.73	1.77	.80	.26	.56	1.63	16.2	1.14
3	11.8	.67	22	0	.62	1.50	.50	.26	.56	1.45	64	2.5
4	16.9	.62	17.6	0	1.37	16.6	.44	.26	.56	1.14	34.5	.79
5	35.6	.62	3.7	2.2	12.1	13.5	.44	.57	.44	.99	62	.79
6	2.9	.67	2.15	33	19.3	2.6	.44	1.47	.38	.85	6.4	.62
7	1.60	2.1	1.63	1.60	8.0	1.96	.50	.79	.38	.79	3.5	2.5
8	1.30	1.85	1.37	1.14	5.4	2.2	32.5	.56	.38	.67	1.96	4.9
9	19.5	1.11	1.50	.85	3.75	13.5	1.14	2.55	1.45	.62	3.05	1.42
10	3.5	6.7	2.05	1.06	1.96	2.6	.79	5.7	3.95	.56	3.55	.73
11	2.15	25	1.96	.79	1.61	1.77	.67	6.8	.67	1.14	1.14	.67
12	3.8	1.72	1.30	.99	18.1	4.3	.62	19.8	.50	1.67	1.06	.62
13	2.05	3.0	1.53	.91	29.5	2.4	.56	.91	.51	1.80	6.3	.56
14	4.0	8.5	1.53	1.34	22	2.25	.50	.67	.68	.62	1.68	.56
15	7.6	4.7	4.1	3.0	2.8	1.53	.44	.67	.50	.50	1.37	.56
16	5.3	9.4	17.5	1.22	2.25	1.37	.44	.79	.38	.50	1.14	.56
17	1.96	12.2	1.77	1.14	5.2	1.22	.44	.50	1.40	.58	1.06	.50
18	1.68	4.1	1.45	.79	6.8	.99	.44	1.07	.56	.67	.99	.50
19	3.95	4.1	1.14	.79	1.60	.55	.38	6.8	.38	.44	.79	.50
20	10.7	3.05	.99	.73	1.37	.79	.38	2.1	.32	4.6	.79	.56
21	13.8	3.65	3.4	.62	2.35	.56	.32	7.4	.32	4.8	.73	.56
22	4.7	3.75	4.5	.56	1.60	.38	.32	27.5	1.69	.50	.67	1.52
23	2.7	1.77	3.25	1.92	17.6	.29	.32	2.7	1.30	.38	8.4	.79
24	1.68	1.30	2.05	.99	59	1.89	.32	1.68	7.2	.72	3.2	.94
25	1.45	1.37	1.06	.62	23	1.68	.32	1.30	1.77	.56	1.37	.91
26	1.45	1.14	.85	.56	3.1	.85	.32	1.06	1.30	1.07	.85	.85
27	3.0	2.45	.73	.50	2.05	.73	.29	.91	.56	.50	.62	.62
28	1.30	3.9	.62	.56	1.68	.67	.29	.79	.73	.67	.56	.73
29	.91	3.7	.50	.85	1.77	.67	.26	.73	20	.50	1.71	.56
30	.85	5.9	.29	1.14	5.5	.67	.26	-	24	.44	1.25	1.29
31	1.33	3.6	-	.85	-	.62	.26	-	20	-	1.08	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	35.5	0.85	6.04	9.35	187	574
August.....	26	.62	4.02	6.22	125	382
September.....	22	.29	3.52	5.45	106	324
October.....	33	0	1.96	3.05	60.9	197
November.....	16	.62	8.30	15.6	264	810
December.....	16.6	.29	2.92	4.56	87.4	268
Calendar year 1939.....	59	0	5.92	9.16	2,160	6,630
January.....	32.5	.26	1.48	2.29	46.0	141
February.....	27.5	.26	3.27	5.06	95.0	261
March.....	24	.32	3.04	4.70	94.3	289
April.....	4.8	.38	1.15	1.78	34.6	106
May.....	64	.56	7.55	11.7	235	721
June.....	4.9	.50	1.02	1.58	30.5	94
Fiscal year 1939-40.....	64	0	3.73	5.77	1,370	4,190

c Partly estimated.

Waiakeamoi 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 south-east of Huelo.

Drainage area.- 4.4 square miles.

Records available.- January 1922 to June 1940.

Average discharge.- 18 years (1922-40), 16.2 million gallons a day (25.1 second-feet).

Extremes.- Maximum discharge during year, 915 million gallons a day (1,420 second-feet) Sept. 3 (gage height, 5.73 feet), from rating curve extended above 370 million gallons a day; minimum, 0.32 million gallons a day (0.50 second-foot) Feb. 3, 4.

1922-40: Maximum discharge, 4,660 million gallons a day (7,210 second-feet) Oct. 16, 1924 (gage height, 10.45 feet), from rating curve extended above 370 million gallons a day; minimum, 0.4 million gallons a day (0.6 second-foot) Nov. 16, 1929.

Remarks.- Records excellent except those for period of no gage-height record, which are fair. Haleakala Ranch and Kula pipe lines divert small quantities of water above station. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.7	0.28	1.3	2.9	2.6	61
.8	.49	1.5	6.1	3.0	102
.9	.76	1.7	11.2	3.5	177
1.0	1.07	2.0	23	4.0	277
1.1	1.45	2.3	39		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.4	3.6	6.1	1.45	7.0	24	1.15	0.33	0.98	9.0	5.2	6.6
2	66	3.2	4.3	1.34	3.0	8.6	.92	.36	.92	3.75	44	4.1
3	40	2.3	53	1.18	2.5	6.3	.98	.34	.85	2.4	204	8.0
4	42	1.93	47	1.22	7.0	23.5	.92	.34	.79	1.87	78	5.4
5	104	1.69	11.8	11.4	20	19.4	.88	.63	.73	1.51	144	4.5
6	11.2	1.98	5.6	75	35	5.7	.98	4.4	.62	1.30	26	2.9
7	6.6	3.35	4.0	10.4	25	4.0	1.07	1.45	.54	1.15	14.0	10.2
8	5.0	4.4	3.45	4.0	15	3.55	102	2.55	.49	.98	9.0	18.4
9	51	2.85	3.2	2.65	9.0	29	9.6	8.6	.85	.88	6.6	9.6
10	12.4	17.0	7.7	2.65	7.0	16.3	2.3	26.5	4.9	.85	12.9	4.0
11	6.3	88	7.2	2.2	10	5.0	1.57	23	1.48	2.35	4.8	2.75
12	7.0	7.9	6.5	2.75	60	7.8	1.30	28	.82	5.0	4.3	2.5
13	8.0	3.7	10.6	4.0	100	8.5	1.18	5.2	.62	7.9	6.0	1.99
14	14.9	34	5.0	7.0	33	7.5	1.07	2.65	1.53	2.2	3.2	1.97
15	16.8	16.4	7.5	17	13.8	4.5	.98	2.05	3.15	1.34	2.65	1.87
16	14.3	24	35	5.0	15.3	4.0	.95	1.97	1.14	1.01	2.2	1.41
17	5.7	24.5	8.4	4.5	14.2	3.2	.92	1.37	9.7	1.28	1.99	1.26
18	4.7	12.9	4.8	3.0	20.5	2.75	.85	1.35	4.2	2.55	2.2	1.07
19	15.3	9.0	3.9	2.2	6.6	2.55	.85	2.9	1.40	1.22	1.87	1.15
20	29.5	7.0	3.2	2.5	5.0	2.4	.95	3.4	.88	17.0	1.63	1.87
21	27	6.6	4.6	1.5	6.6	2.05	.92	3.5	.71	22.5	1.75	2.15
22	12.8	6.3	4.2	1.5	4.2	1.93	.73	68	2.55	4.0	2.2	6.0
23	7.9	4.3	3.9	1.5	58	1.69	.65	5.2	4.6	1.99	28	3.2
24	4.8	3.45	6.1	8.0	182	5.1	.76	2.8	6.8	4.3	18.9	3.9
25	3.9	3.4	3.3	3.5	41	6.2	.95	2.15	3.45	4.6	7.7	2.2
26	4.2	3.6	2.5	2.5	11.4	2.65	.71	1.75	3.2	6.6	5.6	2.95
27	9.6	7.2	2.15	1.3	6.6	2.15	.52	1.45	1.81	3.2	2.9	4.2
28	4.7	11.2	1.93	1.3	4.8	1.69	.49	1.22	1.15	2.65	2.4	4.5
29	3.2	10.2	2.05	3.0	4.5	1.45	.45	1.11	26.5	1.93	6.0	2.8
30	2.75	23.5	1.69	6.0	6.4	1.37	.41	-	3.7	1.98	6.7	4.5
31	3.7	16.2	-	5.0	-	1.26	.38	-	14.1	-	5.2	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	104	2.75	17.7	27.4	548	1,680
August.....	68	1.69	12.6	13.6	371	1,140
September.....	93	1.69	10.0	15.5	301	923
October.....	75	1.18	6.78	10.5	210	645
November.....	182	2.5	24.5	37.9	735	2,260
December.....	29	1.26	6.98	10.8	216	664
Calendar year 1939.....	313	1.18	18.4	28.5	6,690	20,560
January.....	102	.38	4.47	6.92	139	425
February.....	68	.34	7.05	10.9	205	628
March.....	26.5	.49	3.39	5.25	105	322
April.....	22.5	.85	3.98	6.16	119	366
May.....	204	1.63	21.5	33.3	666	2,040
June.....	18.4	1.07	4.23	6.54	127	399
Fiscal year 1939-40.....	204	.34	10.2	15.8	3,740	11,480

Notes.- No gage-height record Oct. 13 to Nov. 13; discharge computed on basis of records for stations on all nearby streams.

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 1940.

Average discharge.- 29 years (1911-40), 5.04 million gallons a day (7.80 second-feet).

Extremes.- Maximum discharge during year, 250 million gallons a day (387 second-feet) Feb. 22 (gage height, 3.16 feet), from rating curve extended above 50 million gallons a day; minimum, 0.30 million gallons a day (0.48 second-foot) Feb. 1-3.
1910-40: Maximum discharge, 1,600 million gallons a day (2,480 second-feet) Nov. 18, 1930 (gage height, 6.90 feet), from rating curve extended above 15 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) Nov. 22, 23, 1932.

Remarks.- Records good except those for periods of no gage-height record, which are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.20	1.2	7.4
.5	.35	1.4	13.8
.6	.60	1.6	24
.8	1.55	1.9	46
1.0	3.5		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.4	e1.33	2.2	0.72	3.2	5.0	0.64	0.32	0.60	5.5	2.15	1.06
2	8.0	1.06	1.90	.68	.96	2.35	.58	.50	.55	2.05	1.95	2.2
3	11	.88	30.5	.60	1.00	3.85	.55	.30	.52	1.50	26.5	4.7
4	13	.84	7.2	.60	5.9	17.5	.55	.50	.50	1.16	15.1	1.13
5	15	.72	3.1	5.0	8.3	6.6	.52	1.29	.50	1.00	23	1.21
6	2.5	1.22	1.92	16.4	11.9	2.65	.55	2.5	.48	.88	9.4	.88
7	1.7	2.5	1.50	2.3	6.8	1.92	.58	1.70	.45	.84	5.4	6.5
8	1.5	2.0	1.33	1.33	7.9	2.75	13.6	1.12	.42	.76	2.9	5.5
9	9.0	1.62	1.28	.92	5.2	14.6	1.15	6.8	3.35	.68	2.4	2.6
10	3.0	9.9	2.45	2.3	2.8	3.3	.76	2.95	6.2	.64	3.0	1.33
11	2.0	6.8	2.5	1.30	5.2	2.0	.68	10.2	.84	2.65	1.55	1.11
12	3.5	6.4	2.3	1.58	22	7.9	.60	15.3	.60	5.8	1.63	.92
13	2.5	5.4	2.3	2.2	30	4.0	.55	2.1	.52	4.6	.49	.84
14	4.0	8.7	2.4	2.9	15.3	3.75	.55	1.22	1.18	1.11	1.38	.80
15	7.0	7.1	6.9	5.6	4.4	2.3	.52	1.06	.68	.84	1.15	.72
16	5.0	16.9	19.3	2.1	3.85	1.92	.50	1.00	.52	.72	.96	.68
17	2.0	11.4	2.8	2.1	11.0	1.44	.48	.84	2.8	.68	.88	.60
18	1.8	8.3	2.15	1.16	7.9	1.33	.45	1.45	.32	.30	1.00	.58
19	4.0	5.9	1.50	1.16	2.65	2.2	.45	7.1	.58	.64	.80	.68
20	9.0	4.2	1.22	1.06	2.35	1.22	.45	2.2	.32	2.05	.72	.68
21	13	4.6	3.2	.84	7.3	.96	.42	15.2	.50	1.97	.72	.60
22	4.0	5.0	4.2	1.14	2.55	.88	.40	19.0	3.75	.80	.84	3.1
23	2.0	2.65	3.9	3.95	2.80	.40	2.0	2.2	.64	6.0	1.78	1.35
24	1.7	1.92	2.45	1.37	29.5	12.9	.40	1.38	9.8	1.35	4.2	1.78
25	1.3	1.55	1.33	.88	14.2	4.3	.38	1.06	2.7	1.01	1.28	1.55
26	2.0	1.44	1.11	.76	4.3	1.28	.35	.92	1.48	2.7	.92	2.25
27	4.0	4.3	1.00	.72	2.8	.92	.34	.84	.92	1.06	.80	1.00
28	1.5	4.7	.92	.84	2.15	.84	.34	.72	.84	1.69	.72	1.51
29	1.0	5.9	.96	2.15	2.35	.80	.32	.68	6.8	.92	3.0	.92
30	1.0	9.3	.90	1.75	5.8	.72	.32	-	17.0	1.21	1.23	3.45
31	8.0	3.9	-	1.65	-	.68	.32	-	16.5	-	1.60	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million Gallons	Acres-feet
July.....	15	1.0	4.72	7.30	146	449
August.....	16.9	.72	4.79	7.41	148	456
September.....	30.5	.80	3.35	5.96	116	355
October.....	16.4	.60	2.20	3.40	68.1	209
November.....	30	.96	8.62	13.5	259	795
December.....	17.5	.68	3.67	5.68	114	349
Calendar year 1939	43	.60	5.13	8.01	1,890	5,800
January.....	13.6	.32	.926	1.43	28.7	88
February.....	19.0	.30	3.53	5.46	102	314
March.....	17.0	.32	2.74	4.24	84.9	261
April.....	5.6	.64	1.60	2.48	48.0	147
May.....	26.5	.72	4.13	6.39	128	393
June.....	6.5	.58	1.73	2.68	52.0	160
Fiscal year 1939-40	30.5	.30	3.54	5.48	1,290	3,970

c Partly estimated.

Note.- No gage-height record, July 1-31, Aug. 7, 8; discharge computed on basis of records for Kaalea Stream.

Kaaiea Stream near Huelo

Location.- Concrete weir control, lat. 20°52'05", long. 156°12'15", 700 feet upstream from Hamakua ditch trail crossing, 2 miles southeast of Kailua, and 3½ miles south-east of Huelo.

Drainage area.- 0.5 square mile.

Records available.- December 1921 to June 1940.

Average discharge.- 18 years (1922-40), 4.84 million gallons a day (7.49 second-feet).

Extremes.- Maximum discharge during year, 184 million gallons a day (285 second-feet) May 3 (gage height, 2.98 feet), from rating curve extended above 130 million gallons a day; minimum, 0.26 million gallons a day (0.40 second-foot) Feb. 4, 1921-40: Maximum discharge, 2,300 million gallons a day (3,560 second-feet) Nov. 18, 1930 (gage height, 7.93 feet, site and datum then in use), from rating curve extended above 50 million gallons a day; minimum, that of Feb. 4, 1940.

Remarks.- Records good except those for period of no gage-height record, which are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.26	0.6	4.0	1.0	15.2
.3	.60	.7	6.1	1.3	30.5
.4	1.30	.8	8.7	1.6	49
.5	2.4	.9	11.5		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.51	1.58	2.0	0.70	2.85	5.7	0.70	0.30	0.75	4.6	2.3	1.20
2	8.6	1.12	1.8	.70	1.04	2.4	.60	.30	.70	1.80	2.95	1.95
3	10.3	.88	30	.65	1.04	2.45	.60	.30	.70	1.39	26.5	4.7
4	12.9	.75	8.0	.65	4.6	15.0	.60	.28	.60	1.12	14.8	1.20
5	15.9	.70	3.0	5.2	8.5	7.6	.56	.62	.60	.88	22.5	1.20
6	2.7	.92	1.8	16.1	12.4	2.7	.56	2.45	.52	.61	8.6	.88
7	1.91	2.65	1.4	2.5	6.6	1.91	.60	1.51	.48	.75	5.0	5.8
8	1.58	2.1	1.3	1.47	7.6	1.86	11.7	1.65	.48	.70	2.55	5.5
9	8.7*	1.49	1.2	1.04	6.8	13.5	1.30	6.2	2.1	.65	2.75	2.6
10	3.05	9.7	2.5	2.1	2.55	3.75	.81	4.0	6.6	.60	3.3	1.20
11	2.15	8.4	2.5	1.35	4.1	2.0	.70	8.4	1.04	2.35	1.58	1.04
12	3.45	18.9	2.3	1.92	19.7	7.0	.60	19.7	.75	5.6	1.58	.95
13	2.6	5.6	2.2	2.2	22	3.65	.60	2.4	.65	4.9	3.2	.81
14	3.95	9.0	2.4	2.5	16.7	4.0	.52	1.39	1.14	1.20	1.30	.75
15	6.9	7.0	7.0	5.4	4.6	2.55	.52	1.20	.81	.88	1.04	.70
16	5.0	17	18	1.91	3.8	2.0	.52	1.20	.56	.75	.98	.65
17	2.15	11	2.8	2.1	7.5	1.68	.48	.88	3.1	.95	.91	.60
18	1.91	8.0	2.15	1.20	7.8	1.39	.48	1.41	.95	1.04	.95	.56
19	3.65	5.6	1.58	1.12	2.7	1.20	.48	4.7	.65	.70	.75	.60
20	8.9	4.0	1.30	1.04	2.15	1.20	.48	2.55	.66	3.2	.70	.66
21	13.5	4.5	3.05	.81	6.7	.95	.40	8.2	.52	2.45	.75	.65
22	4.0	5.0	2.15	.80	2.4	.88	.40	20.5	3.25	.95	.88	3.6
23	2.3	2.5	2.95	3.7	26.5	.75	.37	2.4	2.15	.75	5.6	1.11
24	1.68	1.8	2.5	1.47	35	5.1	.37	1.68	7.5	1.43	4.0	1.90
25	1.39	1.6	1.30	.88	14.1	3.6	.33	1.30	2.4	1.20	1.39	1.55
26	1.80	1.4	1.04	.75	4.2	1.30	.30	1.12	1.47	2.95	.95	2.4
27	3.95	4.5	.95	.70	2.55	.95	.30	1.04	.85	1.20	.81	1.12
28	1.39	5.0	.88	.75	2.0	.88	.30	.88	.81	1.58	.70	1.39
29	1.04	6.0	1.04	2.1	2.15	.75	.30	.81	8.7	.95	1.97	1.04
30	1.04	9.0	.81	1.80	4.7	.75	.30	-	18.3	1.24	1.40	3.6
31	8.2	4.0	-	1.39	-	.75	.30	-	12.0	-	1.52	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	15.9	1.04	4.77	7.58	148	454
August.....	18.9	.70	5.22	8.08	162	496
September.....	18.3	.61	3.73	5.77	112	343
October.....	16.1	.65	2.16	3.34	67.0	206
November.....	35	1.04	8.18	12.7	245	763
December.....	15.0	.75	3.23	5.00	100	307
Calendar year 1939	51	.65	5.10	7.89	1,860	5,710
January.....	11.7	.30	.874	1.55	27.1	83
February.....	20.5	.28	3.45	5.31	99.4	304
March.....	12.3	.88	2.64	4.08	81.8	251
April.....	5.6	.60	1.65	2.55	49.6	152
May.....	26.5	.70	4.00	6.19	124	381
June.....	5.8	.56	1.73	2.68	51.8	159
Fiscal year 1939-40	35	.28	3.46	5.35	1,270	3,890

Note.- No gage-height record Aug. 14 to Sept. 16; discharge computed on basis of records for Alo Stream.

Oopuola Stream near Huelo

Location.- Concrete-weir control, lat. 20°52'15", long. 156°12'30", between Kaaiea and Maifilihaale Streams, 100 feet upstream from Walloa 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 1940. December 1910 to June 1915, at site half a mile downstream; records not equivalent.

Extremes.- Maximum discharge during year, 125 million gallons a day (193 second-feet) Sept. 3, Feb. 21 (gage height, 3.68 feet), from rating curve extended above 20 million gallons a day by tests on model of station site; minimum, 0.12 million gallons a day (0.19 second-foot) Feb. 1-3, 1930-40: Maximum discharge, 324 million gallons a day (501 second-feet) Jan. 18, 1932 (gage height, 5.12 feet), from rating curve extended above 20 million gallons a day by tests on model of station site; minimum, 0.09 million gallons a day (0.14 second-foot) Feb. 18, 19, 1936.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.6	0.06	2.1	4.0
1.7	.28	2.2	5.8
1.8	.76	2.4	11.2
1.9	1.52	2.6	18.8
2.0	2.6		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.58	0.48	0.76	0.40	1.23	1.80	0.35	0.14	0.28	2.55	1.06	0.44
2	2.3	.40	.70	.40	.48	.95	.35	.12	.22	1.10	.76	.80
3	3.7	.28	15.0	.35	.44	1.79	.32	.12	.22	.76	7.0	1.94
4	4.7	.25	2.8	.35	1.53	7.3	.32	.14	.22	.59	4.7	.53
5	3.65	.25	1.48	1.63	3.5	3.05	.28	.58	.22	.53	7.7	.44
6	1.02	.36	.95	5.6	5.8	1.26	.32	3.05	.19	.44	3.8	.40
7	.70	1.22	.22	1.10	3.45	.32	.35	1.36	.19	.40	2.15	2.25
8	.64	.70	.70	.70	3.3	.35	5.1	1.25	.16	.35	1.02	1.37
9	2.9	.57	.64	.48	1.52	5.2	.64	2.9	.93	.35	.82	1.22
10	1.26	3.0	.64	.96	1.10	1.35	.40	1.35	3.1	.32	.76	.53
11	.95	1.86	1.17	.53	1.52	.82	.35	3.7	.40	1.13	.64	.40
12	1.95	.87	.76	.59	7.0	2.95	.35	4.8	.28	1.59	.59	.32
13	1.76	1.22	1.02	.64	6.5	1.62	.32	.96	.22	1.90	3.5	.28
14	1.53	2.0	1.34	1.19	6.9	2.05	.28	.59	.44	.53	.82	.28
15	3.1	1.35	3.35	2.6	1.70	1.17	.28	.44	.32	.40	.59	.25
16	2.35	3.60	7.4	.82	1.43	.88	.28	.40	.22	.35	.48	.22
17	.95	3.50	1.26	.76	3.3	.76	.25	.35	1.84	.35	.44	.19
18	.82	1.59	1.10	.59	3.25	.64	.25	.46	.64	.35	.44	.19
19	2.0	1.43	.76	.48	1.02	.59	.22	1.20	.40	.35	.40	.22
20	4.1	.94	.64	.53	.88	.64	.22	.76	.35	1.10	.35	.28
21	4.6	1.26	1.47	.40	2.35	.48	.22	6.6	.28	.95	.35	.28
22	1.70	1.80	1.75	.40	1.10	.48	.22	8.3	1.76	.53	.35	1.24
23	.95	.70	1.68	2.3	8.3	.40	.19	.88	1.43	.40	2.9	.40
24	.64	.48	1.24	.76	7.6	2.8	.19	.59	4.2	.70	1.80	.64
25	.59	.44	.70	.44	5.0	1.90	.19	.44	1.52	.64	.59	.65
26	.59	.44	.64	.40	1.80	.70	.16	.40	1.17	1.28	.40	.44
27	.88	1.04	.59	.35	1.02	.53	.14	.35	.64	.64	.35	.40
28	.53	1.70	.48	.35	.82	.48	.14	.28	.53	.95	.32	.40
29	.40	1.98	.59	.66	.95	.44	.14	.28	3.25	.64	.59	.28
30	.40	3.1	.44	.88	1.81	.40	.14	-	5.5	.54	.53	.90
31	.77	1.36	-	.76	-	.35	.14	-	7.0	-	.64	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	4.7	0.40	1.68	2.60	52.0	160
August.....	5.6	.25	1.30	2.01	40.2	125
September.....	18.0	.44	1.75	2.72	52.4	152
October.....	6.6	.35	.955	1.48	29.6	91
November.....	8.3	.44	2.89	4.47	86.6	266
December.....	7.3	.35	1.47	2.27	45.5	140
Calendar year 1939.....	24.5	.25	1.99	3.08	728	2,230
January.....	5.1	.14	.423	.654	13.1	40
February.....	9.3	.12	1.45	2.29	42.8	131
March.....	7.0	.16	1.23	1.90	38.1	117
April.....	2.55	.32	.757	1.17	22.7	70
May.....	7.7	.32	1.51	2.34	46.8	144
June.....	2.25	.19	.606	9.38	18.2	56
Fiscal year 1939-40.....	15.0	.12	1.33	2.06	498	1,500

Nailiilihale Stream near Huelo

Location.- Masonry dam control, lat. 20°52'30", long. 156°13'03", 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 and August 1919 to June 1940.

Average discharge.- 19 years (1920-24, 1925-40), 23.3 million gallons a day (26.1 second-foot).

Extremes.- Maximum discharge during year, 1,590 million gallons a day (2,460 second-foot) Sept. 3 (gauge height, 6.23 feet), from rating curve extended above 130 million gallons a day; minimum, 2.4 million gallons a day (3.7 second-foot) Feb. 3, 4, 1910-18, 1919-40: Maximum discharge, 3,800 million gallons a day (5,880 second-foot) Apr. 7, 1938 (gauge height, 8.07 feet), from rating curve extended above 130 million gallons a day; minimum, 0.45 million gallons a day (0.70 second-foot) July 14, 1920.

Remarks.- Records good except those for period of no gauge-height record, which are fair and those above 200 million gallons a day, which are poor. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gauge height, in feet, and discharge, in million gallons a day)

1.8	1.70	2.4	20.5	3.6	179
1.9	3.1	2.7	41	4.0	290
2.0	5.2	3.0	73	4.5	470
2.2	11.4	3.3	119		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.5	10.0	14.6	6.0	12.8	42	5.2	2.7	5.0	18.1	14.7	9.4
2	79	8.3	11.9	5.8	6.3	16.4	5.0	2.7	4.8	10.0	29.5	8.1
3	84	6.9	170	5.2	5.0	16.7	4.8	2.7	4.6	8.3	238	26
4	76	6.6	29	5.0	19.0	73	4.8	2.7	4.6	7.2	127	as.0
5	159	6.0	14.6	41	56	35.5	4.6	4.7	4.2	6.6	163	as.0
6	17.4	6.7	11.8	111	96	14.2	4.6	14.0	4.2	5.8	41	a7.0
7	13.0	11.8	10.4	14.2	31.5	12.2	4.8	8.7	3.95	5.2	27.5	a15
8	11.4	11.3	9.4	9.0	36.5	11.2	72	9.7	3.75	5.0	16.9	a19
9	62	8.8	9.0	7.2	53	66	6.5	27	8.8	4.8	17.2	a17
10	20	54	18.5	10.4	16.4	21.5	5.8	31	23.5	4.8	31	a10
11	12.6	84	14.7	7.8	17.4	12.6	5.0	47	5.5	10.6	11.8	as.0
12	16.8	36	16.3	9.6	112	27.5	4.6	119	4.2	23	10.7	7.4
13	17.6	25.5	16.6	11.4	121	18.3	4.4	12.2	3.75	24	16.9	6.9
14	24	46	13.9	13.4	75	21.5	4.2	8.7	5.6	7.2	9.4	6.6
15	33	41	28	25.5	25.5	13.4	4.2	7.7	4.6	5.5	8.3	6.0
16	22.5	90	106	11.2	21.5	11.4	3.95	7.4	3.5	5.0	7.7	5.8
17	19.2	55	15.4	11.4	35.6	10.0	4.75	6.3	15.5	7.9	7.2	5.2
18	11.1	37.5	12.6	8.0	40	9.0	3.75	6.3	6.8	8.0	7.4	5.0
19	23	27	10.7	7.4	15.0	8.7	3.75	13.1	4.2	5.0	6.6	5.2
20	45	18.9	9.7	7.2	13.4	8.7	3.75	11.0	3.6	21.5	6.0	5.5
21	75	20.5	14.0	6.3	27	7.7	3.5	56	3.3	18.6	6.3	6.6
22	19.7	22	12.5	6.0	13.8	7.2	3.5	139	14.4	7.6	7.2	18.2
23	13.4	13.8	12.4	17.1	206	6.6	3.1	11.1	10.4	6.3	29	8.3
24	11.1	11.4	12.7	9.7	304	25.5	3.5	5.7	26	9.4	23	10.0
25	10.0	11.2	8.3	6.6	71	17.4	3.1	7.4	10.4	8.7	11.4	8.2
26	10.9	10.0	7.4	5.8	23	8.3	2.8	6.6	5.0	16.0	8.3	11.1
27	21.5	19.1	7.2	5.2	15.9	7.2	2.8	6.0	5.5	8.7	6.9	8.0
28	9.7	22	6.9	5.5	13.4	6.3	2.7	5.5	4.8	9.0	6.3	8.3
29	8.5	29	7.4	10.5	14.0	6.0	2.7	5.2	46	7.2	11.0	7.2
30	8.0	55	6.6	10.2	21.5	5.8	2.7	-	138	6.9	12.2	16.7
31	12.1	21.5	-	9.0	-	5.5	2.7	-	34	-	10.2	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-foot
July.....	159	5.0	30.0	46.4	930	2,850
August.....	90	6.0	26.7	41.3	827	2,540
September.....	170	6.6	21.3	33.0	638	1,960
October.....	111	5.0	13.5	20.9	418	1,280
November.....	304	5.0	50.6	78.3	1,520	4,660
December.....	78	5.5	18.0	27.9	558	1,710
Calendar year 1939.....	447	5.0	32.8	50.7	11,970	36,750
January.....	72	2.7	6.27	9.70	194	596
February.....	139	2.7	20.3	31.4	590	1,810
March.....	138	3.3	13.7	21.2	425	1,310
April.....	24	4.8	9.73	15.1	292	896
May.....	238	6.0	30.0	46.4	930	2,850
June.....	26	5.0	9.76	15.1	293	898
Fiscal year 1939-40.....	304	2.7	20.8	32.2	7,620	23,360

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

Kailua Stream near Huelo

Location.- Lat. 20°52'35", long. 156°13'25", just upstream from Wailoa ditch intake, 1½ miles southwest of Kailua, and 2½ miles south of Huelo.

Drainage area.- 3.0 square miles.

Records available.- December 1910 to June 1918, July 1919 to June 1940.

Average discharge.- 21 years (1919-40), 18.6 million gallons a day (28.8 second-foot).

Extremes.- Maximum discharge during year, 1,210 million gallons a day (1,870 second-foot) Sept. 3 (gage height, 6.81 feet), from rating curve extended above 150 million gallons a day; minimum, 1.27 million gallons a day (1.96 second-foot) Feb. 2-4, 1910-18, 1919-40; Maximum discharge, 4,580 million gallons a day (7,090 second-foot) Apr. 7, 1938 (gage height, 9.10 feet), from rating curve extended above 150 million gallons a day; minimum, 0.07 million gallons a day (0.11 second-foot) June 27, 1921.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.6	0.64	2.2	9.6	3.6	109
1.7	1.34	2.4	16.2	4.0	163
2.8	2.3	2.7	27.5	4.5	253
1.9	3.6	3.0	47		
2.0	5.2	3.3	74		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	5.8	5.0	7.8	2.8	4.4	33	2.55	1.34	2.2	8.4	8.2	6.0
2	98	4.6	6.3	2.7	2.8	10.8	2.3	1.34	2.1	4.6	36	4.7
3	52	3.75	72	2.55	2.7	7.7	2.5	1.34	2.1	5.6	225	9.9
4	44	3.6	42	2.45	5.7	36.5	2.2	1.27	2.0	3.1	97	5.0
5	125	3.35	11.8	19.9	33	26	2.1	1.63	1.92	2.8	148	4.2
6	15.1	3.45	7.1	82	56	8.6	2.1	6.2	1.82	2.55	35	3.6
7	9.1	4.3	6.0	10.1	28	6.5	2.2	2.95	1.72	2.3	16.1	8.3
8	7.4	5.0	5.2	5.0	29.5	5.8	65	4.4	1.63	2.2	10.1	10.9
9	52	3.9	4.9	3.9	29.5	41	7.9	8.7	1.82	2.1	7.6	10.0
10	15.6	21.5	9.3	4.1	9.5	19.4	3.75	28.5	6.2	2.0	21	4.7
11	7.8	89	7.8	3.45	6.5	7.6	2.95	29	2.8	3.6	6.7	3.75
12	8.4	13.1	9.0	4.1	43	10.7	2.55	60	2.1	6.7	5.8	3.35
13	9.7	13.2	10.7	3.85	51	10.1	2.45	7.4	1.72	14.4	6.5	3.2
14	16.5	35.5	6.3	5.1	38.5	10.4	2.2	4.2	2.0	3.6	4.7	2.95
15	14.8	23	10.4	8.8	15.3	6.5	2.1	3.6	2.45	2.7	4.2	2.8
16	14.5	33	47	5.0	14.0	5.8	2.0	3.35	2.1	2.3	3.75	2.7
17	7.1	29	9.4	4.7	16.3	5.0	1.92	2.9	11.3	2.8	3.6	2.45
18	6.2	16.8	6.3	3.6	25	4.6	1.92	2.55	5.9	3.9	3.6	2.3
19	13.1	12.5	5.2	3.35	8.1	4.2	1.92	2.8	2.7	2.3	3.2	2.3
20	32	8.8	4.7	3.1	6.5	4.1	1.92	3.2	2.1	15.4	3.1	2.3
21	37.5	8.8	5.6	2.8	9.1	3.75	1.82	9.9	1.82	22	2.95	2.8
22	12.3	9.1	5.4	2.7	6.2	3.45	1.82	93	4.9	4.9	3.35	6.0
23	7.8	6.3	4.6	5.4	72	3.35	1.72	6.9	6.2	3.35	19.1	3.75
24	6.5	5.4	4.9	4.6	239	7.8	1.92	4.4	7.4	4.6	17.4	4.1
25	5.8	5.2	3.9	3.2	59	8.5	2.2	3.45	4.4	5.2	7.9	3.2
26	5.8	5.2	3.45	2.8	15.2	4.1	1.92	2.95	3.9	7.2	5.6	4.1
27	11.6	7.6	3.35	2.7	9.6	3.45	1.72	2.8	2.8	4.6	4.1	4.2
28	5.8	11.7	3.2	2.7	7.6	3.2	1.53	2.55	2.45	3.9	3.6	4.6
29	4.9	13.8	3.45	3.2	7.1	2.8	1.44	2.3	32	3.35	6.1	3.6
30	4.4	34.8	3.1	3.9	7.7	2.8	1.44	-	63	3.2	8.2	6.9
31	5.2	17.6	-	3.1	-	2.7	1.44	-	12.3	-	5.2	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	125	4.4	21.0	32.5	652	2,000
August.....	89	3.35	14.8	22.9	453	1,400
September.....	72	3.1	11.0	17.0	330	1,010
October.....	62	2.45	7.02	10.9	218	668
November.....	239	2.7	25.6	44.3	558	2,630
December.....	41	2.7	10.0	15.6	310	952
Calendar year 1939	342	2.45	21.7	33.6	7,910	24,270
January.....	65	1.44	4.30	6.65	133	409
February.....	93	1.27	10.5	16.2	305	935
March.....	63	1.63	6.45	9.98	200	613
April.....	22	2.0	5.12	7.92	154	472
May.....	225	2.95	23.6	36.5	733	2,250
June.....	10.9	2.3	4.82	7.15	139	426
Fiscal year 1939-40	239	1.27	12.3	19.0	4,490	13,760

c Partly estimated.

Hoolawali1111 Stream near Huelo

Location.- Concrete weir control, lat. 20°53'15", long. 156°14'35", just upstream from Wailoa ditch intake, 2 miles west of Kailua, and 2 miles southwest of Huelo.

Records available.- April 1911 to June 1940.

Average discharge.- 28 years (1911-15, 1916-40), 5.07 million gallons a day (7.84 second-foot).

Extremes.- Maximum discharge during year, 98 million gallons a day (152 second-foot) Nov. 23 (gage height, 3.08 feet); minimum, 1.08 million gallons a day (1.67 second-foot) Feb. 3, 4.
1911-40: Maximum discharge, 787 million gallons a day (1,220 second-foot) Feb. 7, 1939 (gage height, 5.42 feet), from rating curve extended above 220 million gallons a day; minimum, 0.2 million gallons a day (0.3 second-foot) June 8, 1926.

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

Rating table, fiscal year 1939-40 (gage height, in feet,
and discharge, in million gallons a day)

1.3	0.75	1.8	5.7
1.4	1.50	2.0	15.2
1.5	2.7	2.2	24.5
1.6	4.2		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.2	2.35	3.3	1.86	2.2	4.4	1.86	1.15	1.98	2.95	1.74	1.98
2	4.4	2.2	3.15	1.86	1.74	3.6	1.74	1.15	1.98	2.1	1.74	2.1
3	4.9	1.98	12.9	1.74	1.74	4.0	1.74	1.15	1.86	2.1	7.8	2.7
4	6.1	1.86	5.7	1.74	2.65	10.7	1.62	1.08	1.86	2.1	7.1	1.98
5	10.5	1.86	3.9	2.2	6.5	7.5	1.62	1.58	1.74	2.1	10.4	1.86
6	4.0	1.86	3.3	5.4	8.5	4.6	1.62	2.1	1.62	2.1	6.4	1.86
7	3.45	2.2	3.15	2.45	5.2	3.9	1.62	1.98	1.62	2.1	4.6	2.6
8	3.15	2.1	2.85	2.1	5.4	3.9	9.0	4.4	1.50	2.1	3.6	2.9
9	4.6	1.86	2.6	1.98	4.8	9.0	2.45	2.7	1.85	2.1	3.3	2.7
10	3.6	2.6	2.7	2.35	3.45	4.8	2.1	2.2	3.0	2.2	3.15	1.98
11	3.0	4.9	2.7	1.98	3.45	3.9	1.98	3.7	1.74	3.7	2.85	1.98
12	3.6	2.8	2.6	1.98	8.7	5.0	1.86	9.9	1.62	2.7	2.85	1.86
13	2.65	4.4	2.7	2.1	11.8	4.2	1.86	3.15	1.50	3.75	3.9	1.74
14	3.15	4.0	3.15	2.2	11.2	4.6	1.74	2.6	1.74	2.35	2.6	1.62
15	3.15	3.75	4.8	2.6	6.0	3.9	1.62	2.45	1.50	2.2	2.45	1.62
16	3.45	6.8	12.5	2.35	5.0	3.6	1.62	2.2	1.40	2.1	2.35	1.62
17	3.0	9.8	3.9	2.1	7.3	3.15	1.62	2.1	2.6	1.98	2.2	1.62
18	2.7	5.2	3.3	1.98	7.4	3.0	1.62	2.1	1.86	2.1	2.2	1.50
19	3.3	4.8	3.0	1.98	4.6	2.85	1.62	2.1	1.62	1.86	2.1	1.62
20	5.9	3.9	2.85	1.98	4.0	2.7	1.62	2.1	1.50	2.1	1.98	1.62
21	7.9	3.9	2.7	1.86	4.8	2.6	1.50	6.3	1.40	1.98	1.98	1.62
22	4.2	4.6	2.7	1.86	3.9	2.45	1.50	15.0	2.95	1.86	1.98	1.98
23	3.45	3.75	2.6	2.7	22	2.35	1.40	3.6	2.2	1.74	2.7	1.74
24	3.15	3.15	2.45	2.1	14.3	3.65	1.50	3.0	3.15	1.98	2.85	1.92
25	3.0	3.0	2.2	1.98	13.1	3.0	1.50	2.7	2.6	1.74	2.1	1.86
26	3.0	2.7	2.1	1.86	7.2	2.45	1.31	2.6	2.45	2.1	1.86	1.74
27	3.0	2.85	2.1	1.74	5.6	2.2	1.31	2.35	1.98	1.86	1.86	1.74
28	2.6	3.45	1.98	1.86	4.6	2.1	1.23	2.2	1.86	1.86	1.86	1.62
29	2.45	3.6	2.35	1.86	4.4	1.98	1.15	2.1	3.95	1.74	2.45	1.62
30	2.35	6.0	1.86	1.86	4.0	1.98	1.23	-	alo	1.74	2.1	2.35
31	2.6	3.9	-	1.86	-	1.86	1.15	-	44.5	-	2.1	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	10.5	2.2	3.83	5.93	119	364
August.....	9.8	1.86	3.62	5.80	112	344
September.....	12.9	1.86	3.60	5.57	108	332
October.....	10.4	1.74	2.14	3.31	66.5	204
November.....	22	1.74	6.52	10.1	195	600
December.....	10.7	1.86	3.87	5.99	120	368
Calendar year 1939	51	1.74	4.79	7.41	1,750	5,360
January.....	9.0	1.15	1.85	2.86	57.3	175
February.....	15.0	1.08	3.16	4.89	91.7	282
March.....	10	1.40	2.36	3.65	73.1	224
April.....	3.75	1.74	2.18	3.37	65.4	201
May.....	10.4	1.74	3.20	4.95	99.2	304
June.....	2.9	1.50	1.92	2.97	57.6	177
Fiscal year 1939-40	22	1.08	3.18	4.92	1,170	3,580

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

Hoolawau Stream near Huelo

Location.— Concrete weir control, lat. 20°53'15", long. 156°14'55", just upstream from intake of Wailoa ditch, 2 miles west of Kailua, and 2 miles southwest of Huelo.

Altitude of gage, 1,240 feet.

Records available.— December 1910 to June 1940.

Average discharge.— 28 years (1911-15, 1916-40), 8.03 million gallons a day (12.4 second-foot).

Extremes.— Maximum discharge during year, 286 million gallons a day (412 second-foot) Nov. 23 (gage height, 2.52 feet), from rating curve based on weir rating between 100 and 375 million gallons a day; minimum, 0.83 million gallons a day (1.28 second-foot) Feb. 3, 4, 1910-40: Maximum discharge, 2,980 million gallons a day (4,610 second-foot) Feb. 7, 1939 (gage height, 5.72 feet), from rating curve based on weir rating between 100 and 375 million gallons a day and extended above; minimum, 0.15 million gallons a day (0.23 second-foot) Oct. 25, 1917.

Remarks.— Records good except those for period of no gage-height record, which are fair. No diversions. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.48	1.0	16.6
.4	1.13	1.2	28.5
.6	2.16	1.4	45
.8	3.6	1.7	80
.8	8.5	2.0	131

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	3.45	3.45	5.0	2.25	2.25	10.0	2.15	0.97	1.90	4.2	2.0	2.15
2	18.6	2.95	4.4	2.15	1.68	6.3	1.90	.90	1.68	3.1	3.4	2.25
3	14.1	2.8	20.5	2.0	1.68	5.7	1.90	.90	1.68	2.8	32.5	3.8
4	14.7	2.55	9.7	1.90	2.85	15.5	1.79	.90	1.68	2.55	25.5	2.25
5	33.5	2.4	5.4	5.0	9.0	11.1	1.79	1.34	1.58	2.4	34	2.0
6	9.6	2.4	4.8	17.2	14.9	6.5	1.68	2.35	1.48	2.25	13.4	1.79
7	7.0	2.65	4.2	3.8	7.9	5.4	1.68	1.68	1.38	2.15	8.5	2.95
8	5.9	2.65	4.0	2.95	9.2	5.4	16.6	3.2	1.38	2.0	6.5	3.3
9	11.7	2.55	3.6	2.55	11.4	15.2	2.95	2.15	1.91	1.90	5.2	3.25
10	7.0	5.3	4.6	2.95	5.0	7.9	2.25	2.9	3.6	1.80	7.0	2.15
11	5.4	17.0	4.2	2.55	4.6	5.9	2.0	6.0	1.68	4.3	4.6	1.90
12	5.6	6.0	4.2	2.55	13.1	7.6	1.90	25	1.48	3.0	4.4	1.79
13	5.0	6.3	4.6	2.55	17.2	6.2	1.79	3.6	1.38	5.1	4.7	1.68
14	5.9	8.0	4.6	2.8	17.8	6.5	1.68	2.65	1.58	2.4	3.6	1.58
15	5.9	8.5	5.9	3.25	8.9	5.0	1.68	2.4	1.28	2.15	3.25	1.48
16	5.9	13.9	18.7	2.65	7.6	4.8	1.68	2.25	1.28	2.0	3.1	1.38
17	4.2	a15	5.6	2.65	9.4	4.2	1.48	2.0	3.3	1.90	2.8	1.38
18	4.2	a8.0	4.8	2.15	10.8	4.0	1.48	1.90	1.68	2.0	2.95	1.28
19	5.6	a7.0	4.2	2.15	6.2	3.8	1.48	2.0	1.38	1.79	2.65	1.28
20	8.9	a5.2	3.6	2.0	5.6	3.45	1.48	1.90	1.28	2.25	2.4	1.38
21	13.2	a5.2	4.0	1.79	7.0	3.25	1.38	5.4	1.22	3.1	2.4	1.38
22	6.5	a6.0	3.8	2.0	5.2	3.95	1.28	29.5	2.7	1.90	2.25	1.90
23	5.2	a5.2	3.45	3.25	42	2.8	1.22	3.8	2.0	1.68	3.8	1.38
24	4.6	a9.4	3.25	2.25	86	4.9	1.48	3.1	2.95	2.0	4.4	1.75
25	4.4	a4.0	2.95	1.90	28	4.2	1.22	2.65	2.15	1.79	2.65	1.68
26	4.4	a3.5	2.8	1.68	13.0	2.95	1.13	2.55	2.0	2.65	2.4	1.79
27	5.2	a3.7	2.65	1.68	9.8	2.65	1.05	2.25	1.58	1.90	2.15	1.48
28	4.0	a4.2	2.4	1.79	7.9	2.55	.97	2.15	1.68	1.90	2.0	1.38
29	3.6	a4.5	3.25	1.90	7.0	2.4	.97	2.0	5.3	1.68	2.8	1.28
30	3.45	a9.0	2.4	2.0	6.8	2.4	.97	-	23	1.58	2.4	2.5
31	3.8	7.0	-	1.90	-	2.25	.97	-	5.5	-	2.25	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	33.5	3.45	7.76	12.0	240	738
August.....	17.0	2.25	6.01	9.30	186	572
September.....	20.5	2.4	5.25	8.12	158	484
October.....	17.2	1.68	2.91	4.50	90.2	277
November.....	8.5	1.68	12.6	19.5	379	1,160
December.....	15.5	2.25	5.60	8.66	174	533
Calendar year 1939.....	137	1.68	9.64	14.9	3,520	10,800
January.....	16.6	.97	2.06	3.19	63.8	195
February.....	29.5	.90	4.15	6.42	120	369
March.....	1.22	2.72	4.21	4.21	84.5	259
April.....	5.1	1.68	2.41	3.73	72.3	222
May.....	34	2.0	6.51	10.1	202	620
June.....	3.8	1.28	1.91	2.96	57.4	176
Fiscal year 1939-40.....	86	.90	4.99	7.72	1,830	5,600

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

Honopou Stream near Huelo

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

Drainage area.- 1.0 square mile.

Records available.- December 1910 to June 1940.

Average discharge.- 27 years (1911-14, 1916-40), 3.18 million gallons a day (4.92 second-foot).

Extremes.- Maximum discharge during year, 93 million gallons a day (144 second-foot) Feb. 21 (gage height, 2.73 feet), from rating curve extended above 70 million gallons a day; minimum, 0.30 million gallons a day (0.46 second-foot) Feb. 2-5, 1910-40: Maximum discharge, 1,220 million gallons a day (1,890 second-foot) Nov. 18, 1930 (gage height, 7.28 feet), from rating curve extended above 70 million gallons a day; minimum, 0.01 million gallons a day (0.02 second-foot) several days in 1933 and 1934.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.4	0.09	0.7	2.4	1.0	7.1	1.7	25
.5	.56	.3	3.7	1.2	11.5	2.0	37
.6	1.33	.9	5.3	1.4	16.5		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.15	1.24	1.97	a1.0	1.08	3.7	0.91	0.40	0.98	1.97	0.63	0.70
2	3.7	1.15	1.97	a1.0	c.70	2.8	.91	.35	.91	1.44	.70	.74
3	3.45	1.08	8.7	a1.0	c.70	2.85	.91	.35	.84	1.24	5.6	1.58
4	4.5	.98	3.3	a1.0	1.75	8.4	.84	.30	.84	1.15	5.3	.70
5	7.1	.91	2.3	.98	4.3	4.6	.84	.63	.84	1.08	7.4	.63
6	2.8	.91	2.1	4.3	5.8	3.05	.77	1.14	.77	1.06	3.9	.63
7	2.3	1.21	1.86	1.24	3.0	2.55	.77	1.10	.77	.91	2.4	1.12
8	2.1	1.15	1.76	.98	3.2	2.85	9.3	3.3	.70	.91	1.66	1.50
9	3.6	.98	1.65	.91	2.8	8.4	1.24	1.24	.87	.91	1.65	1.26
10	2.2	1.81	1.76	1.30	1.97	3.45	.98	.84	1.78	1.04	1.54	.70
11	1.86	2.65	1.76	.91	1.97	2.8	.91	3.25	.77	4.2	1.44	.63
12	2.2	2.25	1.76	.91	6.3	4.1	.91	8.2	.63	1.52	1.33	.63
13	1.65	2.5	1.76	.91	8.3	3.05	.84	1.44	.63	2.6	1.70	.56
14	1.88	2.7	2.3	.98	7.9	3.2	.77	1.06	.77	1.15	1.33	.56
15	1.97	2.45	3.8	1.42	4.0	2.4	.77	.98	.63	.98	1.15	.56
16	1.86	6.4	9.4	.91	3.45	2.2	.77	.91	.63	.91	1.06	.56
17	1.54	5.2	2.3	.91	5.3	1.97	.77	.91	1.98	.91	1.06	.56
18	1.65	3.5	2.1	.77	5.2	1.86	.77	.84	.84	.84	1.06	.56
19	2.5	3.05	1.86	.77	3.05	1.76	.70	.84	.70	.77	.98	.56
20	3.9	2.55	1.65	.77	2.8	1.65	.70	.84	.63	.84	.91	.56
21	5.4	2.55	1.65	.70	3.8	1.54	.63	7.3	.63	.84	.91	.56
22	2.4	2.95	a1.6	.63	2.65	1.44	.56	9.5	2.35	.63	.91	.63
23	2.1	2.1	a1.6	1.61	18.0	1.33	.56	1.86	.91	.56	1.54	.56
24	1.97	1.86	a1.5	.91	27.5	2.9	.63	1.54	1.69	.84	1.86	.89
25	1.86	1.65	a1.4	.70	14.0	2.1	.56	1.33	1.24	.63	.91	.72
26	1.86	1.65	a1.3	.63	7.1	1.33	.50	1.33	.91	.98	.84	.63
27	1.97	1.32	a1.3	.56	5.3	1.15	.50	1.15	.70	.63	.77	.63
28	1.54	2.15	a1.2	.63	4.3	1.15	.45	1.15	.56	.70	.77	.63
29	1.44	2.55	a1.3	.70	3.9	1.06	.45	.98	3.9	.70	1.36	.50
30	1.53	4.5	a1.1	.77	3.6	1.08	.40	-	7.2	.63	.84	1.18
31	1.54	2.45	-	.77	-	.98	.40	-	5.4	-	.84	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	7.1	1.15	2.50	3.87	77.4	236
August.....	6.4	.91	2.27	3.51	70.4	216
September.....	9.4	1.1	2.33	3.61	70.0	215
October.....	4.3	.56	1.02	1.58	31.6	97
November.....	27.5	.70	5.47	8.46	164	504
December.....	8.4	.98	2.70	4.18	85.7	257
Calendar year 1939	27.5	.56	3.52	5.45	1,290	3,950
January.....	9.3	.40	1.00	1.65	31.0	95
February.....	9.5	.30	1.90	2.94	55.1	169
March.....	7.2	.56	1.32	2.04	40.8	125
April.....	4.2	.56	1.12	1.73	33.6	103
May.....	7.4	.63	1.76	2.72	54.5	167
June.....	1.58	.50	.784	1.14	22.0	68
Fiscal year 1939-40	27.5	.30	2.01	3.11	734	2,250

a No gage-height record; discharge computed on basis of records for stations on nearby streams.
c 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 1940. Records at same site collected by East Maui Irrigation Co. April 1930 to June 1932.

Extremes.- Maximum discharge during year, 110 million gallons a day (170 second-feet) May 13 (gage height, 2.18 feet); minimum, 0.07 million gallons a day (0.11 second-foot) June 18.

1932-40: Maximum discharge, 766 million gallons a day (1,190 second-feet) Feb. 7, 1939 (gage height, 4.69 feet), from rating curve extended above 80 million gallons a day; minimum, 0.04 million gallons a day (0.06 second-foot) Oct. 31, 1933.

Remarks.- Records good. Wailoa, New Hamakua, and Old Hamakua ditches divert most of flow above this station. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.6	3.75
.2	.16	.7	5.8
.3	.51	.8	8.6
.4	1.15	.9	11.6
.5	2.2	1.0	15.2

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.16	0.16	0.16	0.12	0.10	0.16	0.20	0.12	0.12	0.29	0.10	0.12
2	.20	.16	.14	.12	.10	.16	.16	.12	.12	.16	.10	.12
3	.23	.16	9.2	.10	.10	.16	.12	.12	.12	.16	1.02	.12
4	.23	.16	1.01	.10	.10	6.4	.12	.10	.10	.16	.95	.12
5	.69	.16	.23	.10	.30	1.49	.12	.67	.10	.16	2.2	.12
6	.20	.16	.20	.16	2.7	.26	.12	.20	.10	.16	.24	.12
7	.16	.12	.20	.12	.37	.23	.12	.12	.10	.16	.23	.10
8	.16	.12	.20	.12	1.75	.29	5.5	.12	.10	.16	.20	.10
9	.16	.12	.16	.10	.23	3.25	.16	.12	.10	.12	.16	.10
10	.14	.12	.16	.10	.23	.30	.14	.12	.12	.12	.16	.10
11	.14	.14	.16	.10	.16	.26	.14	.14	.10	.16	.16	.10
12	.14	.14	.16	.10	.86	.26	.14	1.77	.10	.16	.23	.10
13	.14	.14	.14	.10	.89	.30	.14	.20	.10	.16	10.6	.10
14	.14	.14	.16	.10	2.1	.65	.14	.16	.12	.16	.16	.10
15	.14	.14	7.7	.10	.26	.30	.14	.14	.12	.14	.14	.10
16	.14	.14	3.9	.10	.23	.23	.12	.14	.12	.12	.14	.10
17	.14	.34	.23	.10	.23	.26	.12	.14	.12	.12	.14	.10
18	.14	.16	.16	.10	.43	.23	.12	.14	.12	.14	.14	.10
19	.14	.16	.16	.10	.23	.20	.12	.12	.10	.14	.14	.10
20	.23	.16	.14	.12	.16	.20	.12	.12	.10	.14	.14	.10
21	2.8	.16	.14	.12	.16	.20	.12	.12	.12	.12	.14	.10
22	.20	.14	.14	.12	.16	.20	.12	9.6	.12	.12	.14	.10
23	.20	.16	.14	.25	7.1	.16	.12	.16	.14	.10	.14	.10
24	.20	.14	.14	.14	11.9	.35	.12	.14	.26	.10	.20	.10
25	.20	.16	.14	.12	.68	.26	.12	.12	.14	.10	.14	.10
26	.20	.16	.12	.12	.23	.23	.12	.12	.16	.12	.12	.10
27	.20	.16	.12	.12	.20	.23	.12	.12	.14	.12	.12	.10
28	.20	.16	.12	.12	.16	.23	.12	.12	.14	.12	.12	.10
29	.20	.20	.16	.12	.16	.23	.12	.12	.14	.10	.12	.10
30	.20	.23	.14	.12	.16	.20	.12	-	2.1	.10	.12	.10
31	.16	.20	-	.12	-	.20	.12	-	1.64	-	.12	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	2.8	0.14	0.277	0.429	8.58	26
August.....	.34	.12	.160	.248	4.97	15
September.....	9.2	.12	.864	1.54	25.9	80
October.....	.25	.10	.117	.161	3.63	11
November.....	11.9	.10	1.08	.167	32.4	100
December.....	6.4	.16	.583	.902	18.1	55
Calendar year 1939	77	.10	2.63	4.07	960	2,950
January.....	5.5	.12	.303	.469	9.38	29
February.....	9.6	.10	.534	.626	15.5	45
March.....	2.1	.10	.235	.364	7.28	22
April.....	.29	.10	.140	.217	4.19	13
May.....	10.6	.10	.607	.939	18.8	58
June.....	.12	.10	.104	.161	3.12	9.6
Fiscal year 1939-40	11.9	.10	.415	.642	152	467

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 1940. Records at same site obtained by East Maui Irrigation Co. November 1926 to June 1932.

Extremes.- Maximum discharge during year, 101 million gallons a day (156 second-feet) May 13 (gage height, 1.98 feet), from rating curve extended above 15 million gallons a day; minimum, 0.23 million gallons a day (0.36 second-foot) June 24-30.
1932-40: Maximum discharge, 250 million gallons a day (397 second-feet) Dec. 29, 1936 (gage height, 2.76 feet); minimum, 0.06 million gallons a day (0.12 second-foot) Dec. 1, 2, 1938.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Waialoa, New Hamakua, and Old Hamakua ditches divert most of flow above this station. Water used for irrigation in central Maui.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.2	0.29	0.6	4.0
.3	.59	.8	8.8
.4	1.29	1.0	16.3
.5	2.4		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.32	0.36	0.49	0.36	0.35	0.95	0.40	0.29	0.29	1.49	0.36	0.36
2	.80	.36	.44	.32	.32	.77	.40	.29	.26	.59	.32	.40
3	1.29	.36	9.7	.32	.32	.49	.40	.29	.26	.54	1.54	.52
4	1.29	.32	3.3	.29	.32	8.4	.36	.29	c.24	.49	2.6	.36
5	2.25	.32	1.24	.32	1.3	3.65	.36	1.39	.26	.44	4.9	.36
6	.77	.36	.59	1.08	6.0	.64	.26	.68	.26	.44	1.79	.36
7	.54	.36	.54	.65	2.35	.59	.36	.40	.26	.40	1.11	.40
8	.44	.36	.49	.40	5.1	.66	8.4	.36	.26	.36	.64	.32
9	.64	.36	.49	.32	1.26	5.4	.70	.40	.26	.36	.54	.36
10	.75	.44	.44	.32	.68	1.27	.44	.40	.36	.36	.64	.29
11	.40	1.05	.44	.32	.49	.75	.40	.40	.26	.54	.54	.29
12	.40	.40	.40	.29	2.4	.90	.44	2.75	.26	.36	.78	.29
13	.32	.65	.40	.29	3.05	.69	.40	.54	.26	.49	8.5	.29
14	.36	1.05	.40	.29	4.7	1.24	.44	.44	.26	.36	.64	.29
15	.36	.78	1.60	.36	1.26	.69	.40	.40	.26	c.32	.54	.29
16	.54	1.38	5.7	.29	.94	.64	.40	.36	.26	.28	.49	.26
17	.44	1.97	.62	.26	.59	.59	.40	.36	.36	.24	.44	.26
18	.36	.81	.49	.26	2.2	.54	.40	.36	.26	.32	.44	.26
19	.32	.81	.49	.26	.64	.54	.36	.32	.26	.30	.36	.26
20	1.98	.59	.44	.29	.54	.54	.32	.36	.26	.40	.36	.29
21	2.8	.49	.44	.29	.74	.49	.32	.36	.26	.56	.40	.26
22	1.22	.44	.44	.29	.49	.49	.32	10.8	.36	.33	.36	.29
23	c.54	.49	.56	.64	7.7	.49	.32	.40	.32	.32	.44	.29
24	c.49	.40	.40	.36	13.4	.86	.32	.36	.91	.36	.88	.26
25	.49	.36	.40	.32	2.95	.92	.32	.29	.40	.34	.44	.26
26	.49	.36	.40	.29	1.22	.49	.32	.29	.44	.40	.40	.26
27	.44	.36	.40	.29	.54	.49	.29	.29	.36	.32	.36	.26
28	.44	.54	.36	.32	.49	.44	.29	.29	.32	.32	.36	.26
29	.44	.59	.48	.32	.49	.44	.29	.29	.44	.32	.40	.26
30	.44	1.20	.40	.32	.57	.44	.29	-	2.65	.32	.36	.26
31	.40	1.05	-	.32	-	.44	.29	-	3.0	-	.40	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	2.8	0.32	0.730	1.13	22.6	69
August.....	1.97	.32	.625	.967	19.4	59
September.....	9.7	.36	1.10	1.70	35.0	101
October.....	13.08	.32	.366	.551	11.0	36.1
November.....	8.4	.32	2.11	3.26	63.4	195
December.....	8.4	.44	1.17	1.81	36.1	111
Calendar year 1939	38	.26	2.94	4.55	1,070	3,330
January.....	8.4	.29	.629	.973	19.5	60
February.....	10.8	.29	.942	1.35	24.4	75
March.....	3.0	.24	.480	.743	14.9	46
April.....	1.49	.24	.422	.653	12.7	39
May.....	8.5	.32	1.04	1.61	32.3	99
June.....	.52	.26	3.06	4.73	9.17	28
Fiscal year 1939-40	13.4	.24	.816	1.26	298	916

Note.- No gage-height record Oct. 30 to Nov. 6, Feb. 29 to Mar. 3, Apr. 16-22; discharge computed on basis of records for stations on nearby streams.
c Partly estimated.

Honopou Stream below Haiku ditch, near Huelo

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

Drainage area.— 2.3 square miles.

Records available.— July 1932 to June 1940. Records at same site collected by East Maui Irrigation Co. November 1928 to June 1932.

Extremes.— Maximum discharge during year, 132 million gallons a day (204 second-feet) May 13 (gage height, 2.45 feet), from rating curve extended above 39 million gallons a day; minimum, 0.04 million gallons a day (0.06 second-foot) Nov. 16.
1932-40: Maximum discharge recorded, 2,200 million gallons a day (3,400 second-feet) Feb. 7, 1939 (gage height, 6.50 feet), from rating curve extended above 39 million gallons a day; minimum discharge, 0.02 million gallons a day (0.03 second-foot) Nov. 27, 1932.

Remarks.— Records good except those for periods of no gage-height record, which are poor. Waioa, 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 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.02	0.5	2.55	0.9	11.6
.2	.22	.6	4.1	1.0	15.1
.3	.67	.7	6.1	1.5	45
.4	1.41	.8	8.6	2.0	80

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.73	0.80	0.73	0.86	0.80	3.65	0.67	0.67	0.67	8.1	0.80	0.80
2	23	.90	.67	.73	.73	.90	.61	.67	.67	.67	.80	.80
3	27.5	.80	24.5	.67	.73	.67	.67	.67	.67	.61	16.1	.99
4	21.5	.73	16.8	.67	.73	29	.67	.67	.67	.61	24	.86
5	45	.73	2.55	.73	12.3	24	.67	1.02	.67	.56	28	.86
6	1.06	.73	.92	a1.0	18.8	.12	.67	.92	.67	.51	7.9	.86
7	.73	.73	.92	a.66	13.8	.34	.56	.80	.67	.51	1.74	.86
8	.73	.73	.86	a.78	25.5	.80	14.6	.80	.67	.51	.92	.86
9	15.6	.73	.86	a.74	4.8	29	.08	.80	.67	.51	.86	1.88
10	4.5	.83	.86	.73	.46	8.3	.35	3.35	.86	.51	1.31	.80
11	.80	21	.86	.86	.37	.73	.86	5.8	.73	.67	.92	.80
12	.73	.60	.86	.80	15.3	.86	.86	29	.73	.56	.99	.73
13	.73	2.9	.86	.80	22.5	.86	.80	.92	.73	.94	10.6	.73
14	.86	8.5	.80	.73	32	.80	.80	.86	.73	.46	.67	.80
15	.80	3.0	.99	.80	.08	.73	.73	.80	.73	.46	.67	.80
16	3.55	20	29.5	a.72	.57	.67	.73	.80	.73	.46	.61	.73
17	.73	22.5	.08	a.70	4.6	.67	.73	.80	.73	.51	.61	.73
18	.73	2.77	.60	a.70	16.3	.61	.80	.80	.73	.80	.61	.73
19	.73	1.41	.80	a.70	.92	.61	.80	.96	.73	.73	.61	.73
20	24	.61	.80	a.80	.86	.61	.80	.99	.73	1.38	.56	.86
21	27	.41	.86	a.80	1.07	.73	.80	.99	.67	4.1	.61	1.07
22	.99	.61	.92	a.80	.99	.73	.80	36.5	.80	.80	.73	1.15
23	.80	.86	.99	a1.0	23	.73	.80	.73	.80	.80	1.59	1.15
24	.73	.86	.80	.80	59	.80	.80	.67	1.14	.80	1.60	1.07
25	.80	.80	.80	.80	24.5	.80	.80	.61	.86	.80	1.71	.99
26	.80	.86	.80	.80	.37	.73	.80	.55	.86	.80	1.60	.80
27	.80	.86	.80	.80	.86	.67	.80	.61	.80	.80	.73	.80
28	.80	1.07	.80	.80	.86	.73	.80	.56	.80	.80	.73	.73
29	.80	1.00	.86	.80	.86	.80	.73	.67	3.05	.73	.73	.73
30	.80	8.0	.86	.73	.92	.73	.67	-	23	.73	.73	.73
31	.80	8.3	-	.73	-	.67	.67	-	15.0	-	.80	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	45	0.73	6.75	10.4	209	642
August.....	22.5	.41	3.69	5.71	114	351
September.....	29.5	.08	3.14	4.86	94.3	289
October.....	1.0	.67	.782	1.21	24.2	74
November.....	59	.08	9.49	14.7	285	873
December.....	29	.12	3.61	5.59	112	344
Calendar year 1939	270	.06	14.1	21.8	5,140	15,750
January.....	14.6	.08	1.16	1.79	35.9	110
February.....	36.5	.61	3.23	5.00	93.8	288
March.....	23	.67	2.00	3.09	62.0	190
April.....	8.1	.46	1.04	1.61	31.2	96
May.....	28	.56	3.58	5.54	111	340
June.....	1.88	.73	.881	1.36	26.4	81
Fiscal year 1939-40	59	.08	3.28	5.07	1,200	3,680

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

Wailoa ditch at Honopou, near Huelo

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

Records available.- November 1922 to June 1940.

Average discharge.- 17 years (1923-40), 115 million gallons a day (178 second-feet).

Extremes.- Maximum discharge during year, 182 million gallons a day (282 second-feet) Mar. 30 (gage height, 5.90 feet); minimum, 26.5 million gallons a day (41.0 second-feet) Feb. 3, 4.

1922-40: Maximum discharge, that of Mar. 30, 1940; minimum, 11 million gallons a day (17 second-feet) Feb. 12, 1932.

Remarks.- Records excellent. Wailoa ditch receives the water from Koolau ditch at Alo Stream and from all streams from the Alo west to the Halehaku at altitude of about 1,200 feet. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	114	110	152	72	115	166	61	29	47	152	140	111
2	166	94	130	68	68	161	57	27.5	44	102	147	90
3	166	79	166	61	68	144	54	27.5	44	95	178	145
4	166	75	166	64	128	166	50	26	41	68	178	94
5	166	72	162	106	163	166	50	38	41	61	178	83
6	166	73	158	170	155	163	54	105	38	57	178	68
7	168	103	122	152	166	138	54	64	36.5	54	170	155
8	146	114	110	110	166	128	146	80	35	60	170	134
9	154	101	106	87	166	170	121	140	54	47	147	138
10	162	162	166	109	160	166	79	162	146	44	162	87
11	154	166	158	88	144	150	64	166	61	98	122	72
12	158	139	142	106	166	161	57	164	44	116	110	64
13	145	151	154	102	166	166	54	114	41	138	128	61
14	162	166	158	132	170	162	54	79	60	68	98	57
15	162	162	162	162	166	146	50	68	63	54	83	54
16	162	166	166	120	166	126	47	61	44	47	75	54
17	147	166	158	115	166	114	47	54	100	73	72	47
18	138	166	142	90	166	102	44	77	72	82	75	44
19	163	166	118	83	162	98	44	123	44	50	64	47
20	166	162	102	79	146	94	45	110	38	98	61	54
21	166	162	116	70	162	87	41	79	36.5	150	61	61
22	162	162	127	72	143	79	41	170	125	79	69	128
23	158	146	146	132	156	75	38	126	105	61	163	77
24	134	122	142	90	170	128	41	90	142	94	166	84
25	122	118	106	72	170	140	38	75	102	90	138	76
26	126	114	94	64	166	94	35	68	75	130	104	87
27	158	142	67	61	166	79	32	61	57	102	75	87
28	118	162	83	61	162	72	32	54	47	81	64	90
29	98	158	91	85	154	68	30.5	50	135	64	97	68
30	94	166	79	91	144	64	30.5	-	174	61	112	122
31	123	162	-	79	-	64	29	-	162	-	106	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	166	94	148	229	4,580	14,060
August.....	166	72	136	210	4,210	12,910
September.....	166	79	131	203	3,940	12,090
October.....	170	61	95.3	147	2,950	9,060
November.....	170	68	152	235	4,570	14,010
December.....	170	64	124	192	3,840	11,780
Calendar year 1939	170	61	140	217	50,990	156,500
January.....	146	29	52.3	80.9	1,620	4,970
February.....	170	26	85.8	133	2,490	7,640
March.....	174	35	72.7	112	2,250	6,920
April.....	152	44	81.8	127	2,450	7,530
May.....	178	61	119	184	3,690	11,330
June.....	155	44	84.7	131	2,540	7,800
Fiscal year 1939-40	178	26	107	166	39,130	120,100

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 1940.

Average discharge.- 22 years (1918-40), 29.0 million gallons a day (44.9 second-feet).

Extremes.- Maximum discharge during year, 109 million gallons a day (189 second-feet) Sept. 3 (gage height, 5.16 feet); minimum, 0.24 million gallons a day (0.37 second-foot) Feb. 2-5.
1918-40: Maximum discharge, 143 million gallons a day (221 second-feet) Feb. 27, 1932 (gage height, 5.90 feet); no flow at times, when water was shut out of ditch.

Remarks.- Records excellent. Ditch diverts water from streams between the Waiakamoi and the Halehaku above Center and Lowrie ditches. Flow regulated by gates and spillways. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.08	1.27	15.6	0.71	2.5	91	0.82	0.28	0.62	40	18.1	0.82
2	91	.87	1.73	.66	.71	37.5	.71	.26	.58	2.15	17.2	.71
3	99	.82	80	.66	.58	5.4	.66	.26	.58	1.72	99	32.5
4	99	.76	99	.62	2.0	102	.62	.26	.51	1.45	101	.87
5	102	.66	54	13.4	70	91	.62	.36	.51	1.18	102	.66
6	70	.66	7.6	101	42	12.6	.62	20.5	.47	1.08	101	.62
7	13.2	8.6	1.65	39	99	2.1	.66	1.02	.43	.97	91	.41
8	2.35	14.7	1.52	.97	99	1.99	80	12.2	.39	.87	34.5	17.0
9	56	.99	1.51	.71	64	100	14.8	42	1.03	.82	1.78	27.5
10	64	58	42	.92	27.5	71	.92	74	53	.82	44	.71
11	7.8	90	25.5	.71	13.4	2.6	.82	86	.71	5.7	1.38	.62
12	35.5	13.9	22.5	.56	99	65	.66	94	.47	7.2	1.18	.68
13	18.2	33.5	53	1.51	102	39.5	.62	5.9	.39	50	23.5	.55
14	80	95	2.5	7.1	102	32.5	.58	.87	.43	1.08	1.85	.55
15	60	66	62	51	95	5.2	.58	.66	.43	.76	1.38	.51
16	79	97	94	3.5	93	2.1	.58	.62	.72	.66	1.18	.47
17	4.3	101	37.5	1.05	41	2.0	.58	.56	35	6.2	1.08	.43
18	1.31	74	1.78	.66	88	1.65	.56	5.2	.94	5.1	1.02	.43
19	56	87	1.45	.62	12.0	1.45	.55	19.1	.43	.66	.92	.43
20	97	42	1.25	.62	1.93	1.45	.51	19.5	.36	23	.87	.43
21	97	42	15.6	.55	46	1.18	.47	9.1	.32	57	.82	.55
22	78	54	19.3	.55	2.0	1.13	.43	93	26	.82	.76	24.5
23	14.5	3.25	32	8.4	41	1.08	.39	3.6	13.2	.62	71	.76
24	1.72	1.43	31.5	1.36	106	37.5	.39	1.25	71	1.14	67	.66
25	1.45	3.2	4.0	.66	104	26.5	.36	1.02	1.72	1.35	17.3	.71
26	1.38	3.6	2.7	.58	93	1.52	.32	.87	1.58	14.8	2.55	.51
27	46	21.5	.92	.55	32.5	1.13	.32	.76	.82	.82	.71	.51
28	1.58	68	1.82	.55	5.4	1.08	.32	.71	.66	.62	.66	.58
29	1.09	58	1.08	.56	2.4	.97	.28	.66	50	.58	7.0	.43
30	1.02	99	.82	.82	13.5	.92	.28	-	91	.51	18.3	9.9
31	9.0	69	-	.62	-	.87	.28	-	39.5	-	1.02	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	102	1.02	41.6	64.4	1,290	3,960
August.....	101	.66	39.2	60.7	1,210	3,730
September.....	99	.92	23.8	36.8	715	2,190
October.....	101	.55	7.78	12.0	241	741
November.....	106	.68	50.0	77.4	1,500	4,600
December.....	102	.87	23.9	37.0	742	2,280
Calendar year 1939.....	106	.55	37.5	58.0	13,680	42,000
January.....	80	.28	3.56	55.1	110	338
February.....	94	.26	17.1	26.5	495	1,520
March.....	91	.32	12.7	19.6	393	1,210
April.....	57	.51	7.66	11.9	230	708
May.....	102	.66	26.8	41.5	851	2,550
June.....	32.5	.41	4.20	6.50	126	386
Fiscal year 1939-40.....	106	.26	21.5	33.3	7,880	24,210

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 Waioa 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 1940.

Extremes.— Maximum discharge during year, 42 million gallons a day (65 second-feet) Sept. 3 (gage height, 2.95 feet); no flow many days during year.
1918-22, 1936-40: Maximum discharge, 58 million gallons a day (90 second-feet) Jan. 16, 1921 and Feb. 7, 1939 (gage heights, 3.25 and 3.55 feet, respectively, different sites); no flow for short periods.

Remarks.— Records good except those for periods of no gage-height record, which are poor. Waioa and New Hamakua ditches divert most of flow above this station. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.09	0.04	0.06	0.03	0.02	2.15	0.04	0	0.01	0.88	0.01	0.02
2	6.5	.04	.05	.03	.01	.45	.04	0	.01	.04	.02	.02
3	4.9	.04	10.9	.02	.01	.05	.04	0	.01	.02	10.5	.05
4	6.5	.04	4.3	.02	.02	13.9	.04	0	.01	.02	9.6	.03
5	15.7	.04	.43	.29	6.2	5.7	.04	0	0	.02	21	.02
6	.77	.04	.05	8.7	9.2	.09	.04	.02	0	.02	2.5	.02
7	.04	.04	.04	.2	4.3	.05	.03	.02	0	.01	.47	.04
8	.04	.04	.04	.04	5.2	.06	12.7	.02	0	.01	.05	.19
9	1.72	.04	.04	.03	3.8	11.9	.47	.05	0	.01	.03	.27
10	.88	.42	.05	.02	.22	1.71	.04	.12	.04	.01	.05	.03
11	.05	6.8	.06	.02	.04	.05	.03	1.00	.02	.12	.03	.02
12	.05	1.15	.05	.02	7.5	1.45	.03	15.7	.01	.03	.02	.02
13	.07	.98	.10	.02	12.9	.27	.02	.05	0	.34	1.15	.02
14	.57	1.05	.08	.02	13.8	.16	.02	.03	0	.03	.04	.02
15	.24	.65	.5	.07	1.41	.09	.02	.02	0	.02	.03	.02
16	.60	5.0	11.7	.04	1.28	.06	.02	.01	0	.02	.02	.02
17	.04	7.3	.15	a.02	4.4	.06	.01	.01	2.05	.02	.02	.02
18	.03	.73	.04	a.01	7.2	.06	.02	.01	.03	.02	.02	.01
19	.17	.60	.03	a.01	.05	.06	.02	0	0	.02	.02	.01
20	2.75	.13	.03	a.01	.04	.05	.02	.04	0	.02	.02	0
21	5.9	.07	.03	c.01	.58	.04	.01	1.59	0	.07	.02	0
22	.64	.17	.03	.02	.05	.04	.01	14.1	1.00	.03	.02	0
23	.05	.11	.05	.04	12.5	.04	.01	.05	.76	.02	.07	.02
24	.04	.05	.05	.02	35	.45	.01	.03	5.7	.02	.29	.01
25	.03	.05	.04	.02	24.5	.13	0	.02	.04	.01	.04	0
26	.03	.05	.04	.02	4.4	.05	0	.02	.03	.02	.03	0
27	.08	.06	.04	.01	.09	.04	0	.02	.01	.02	.02	0
28	.04	.24	.04	.01	.05	.04	0	.02	.01	.02	.01	0
29	.04	.32	.04	.01	.05	.04	0	.02	.33	.01	.06	0
30	.04	2.55	.04	.01	.06	.04	0	-	10.0	.01	.04	.01
31	.04	.91	-	.02	-	.04	0	-	1.46	-	.03	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	15.7	0.03	1.57	2.43	48.6	149
August.....	7.3	.04	.960	1.49	29.8	91
September.....	11.7	.03	.970	1.50	29.1	89
October.....	8.7	.01	.316	.489	9.81	30
November.....	35	.01	5.18	8.01	155	477
December.....	13.9	.04	1.27	1.96	39.3	121
Calendar year 1939.....	35	.01	1.84	2.95	672	2,060
January.....	12.7	0	.443	.685	13.7	42
February.....	15.7	0	1.14	1.76	33.0	101
March.....	10.0	0	.695	1.08	21.5	66
April.....	.88	.01	.064	.099	1.91	5.9
May.....	21	.01	1.49	2.31	46.2	142
June.....	.27	0	.030	.046	.89	2.7
Fiscal year 1939-40.....	35	0	1.17	1.81	429	1,320

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

Lowrie ditch at Honopou Gulch, near Huelo

Location.- Concrete control, lat. 20°54'55", long. 156°15'05", a quarter of a mile downstream from siphon across Honopou Stream and 1.6 miles west of Huelo.

Records available.- February 1930 to June 1940. January 1910 to March 1927 at site 1½ miles downstream.

Average discharge.- 26 years (1910-26, 1930-40), 33.6 million gallons a day (52.0 second-feet).

Extremes.- Maximum discharge during year, 64 million gallons a day (99 second-feet) Sept. 3 (gage height, 4.85 feet); minimum, 1.54 million gallons a day (2.36 second-feet) June 22.

1930-40: Maximum discharge, 68 million gallons a day (136 second-feet) Mar. 21, 1937 (gage height, 5.44 feet); no flow at times.

Remarks.- Records excellent except those for periods of no gage-height record, which are 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	10.0	10.0	32	8.5	10.6	53	6.0	4.6	6.4	53	7.1	8.0
2	46	8.7	12.5	8.0	6.8	46	6.0	4.5	6.1	31.5	9.4	7.8
3	56	7.7	45	7.5	6.0	16.0	5.9	4.4	6.1	15.2	50	28
4	58	7.5	58	7.0	7.3	56	5.7	4.2	5.8	13.0	55	8.0
5	58	7.1	53	20	42	53	5.6	12.5	5.5	11.5	56	7.3
6	50	7.3	41	53	43	46	5.9	19.5	5.4	10.5	53	6.6
7	31	10.2	16.8	25	53	27	5.2	7.7	5.2	9.6	50	14.8
8	12.5	12.8	15.0	15	56	16.8	46	6.9	4.9	8.7	40	13.0
9	33	7.8	13.8	12	48	56	28	25	4.9	8.2	24	32.5
10	53	23	24	10	39	43	11.2	36	29	8.0	36.5	7.7
11	30.5	53	18	9.0	29	43	9.8	50	6.6	23.5	12.8	6.8
12	22	35	16	9.0	48	40	9.1	53	5.4	11.8	12.8	6.2
13	14.2	46	35	7.0	53	33	8.7	27	4.9	39.5	36.5	6.0
14	43	53	15	10	53	33	8.0	23	5.8	11.2	24	5.8
15	28.5	48	40	23	50	20.5	7.8	9.6	5.2	8.0	13.8	5.6
16	53	53	55	10.8	50	16.8	7.5	6.4	4.6	7.7	12.2	5.5
17	26.5	56	25	8.7	35.5	16.8	8.5	6.0	16.5	7.3	11.0	5.2
18	12.5	48	15	7.3	50	14.5	26.5	5.6	8.0	8.9	10.8	5.0
19	20.5	53	14	7.3	38	13.5	12.8	12.7	5.2	7.1	9.8	5.5
20	53	30.5	12	6.9	20.5	13.2	6.6	17.5	4.8	7.4	9.1	3.15
21	56	20.5	15	6.4	33	9.3	6.2	7.0	4.5	48	8.9	1.94
22	53	28	18	6.1	11.3	8.6	6.0	53	16.6	16.6	8.7	2.0
23	39	16.8	35	17.7	30.5	8.4	5.8	29	16.4	6.8	37	2.0
24	14.5	11.2	30	9.4	56	31	5.6	18.0	39	7.7	48	2.1
25	13.0	10.0	14	6.8	53	27	5.4	9.6	15.5	7.3	14.2	3.7
26	13.0	10.0	12	6.1	48	10.0	5.4	19.2	33	10.6	10.0	5.5
27	18.0	14.0	10	5.8	40	10.0	5.2	9.2	11.8	7.3	8.2	5.5
28	11.8	40	9.0	6.6	30.5	7.5	5.2	7.3	8.0	6.9	7.8	6.0
29	9.8	52.5	10	6.4	16.8	7.2	5.0	6.2	29.5	6.8	10.2	5.4
30	9.4	56	9.0	7.5	18.4	4.8	4.8	-	61	5.8	17.4	7.4
31	11.2	53	-	6.8	-	8.4	4.6	-	41	-	9.4	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	58	9.4	30.9	47.8	958	2,940
August.....	56	7.1	26.1	43.5	875	2,680
September.....	58	9.0	23.9	37.0	718	2,200
October.....	53	5.8	11.3	17.5	350	1,070
November.....	56	6.0	35.8	55.4	1,080	3,300
December.....	56	7.2	25.6	39.6	794	2,440
Calendar year 1939	58	5.8	29.3	45.3	10,680	32,780
January.....	46	4.6	9.51	14.7	295	905
February.....	53	4.2	17.1	26.5	495	1,520
March.....	51	4.5	13.3	20.6	412	1,260
April.....	53	5.6	14.1	21.8	424	1,300
May.....	56	7.1	23.0	35.6	712	2,190
June.....	32.5	1.94	7.57	11.7	227	697
Fiscal year 1939-40	58	1.94	20.0	30.9	7,340	22,490

Note.- No gage-height record Sept. 10 to Oct. 14, Jan. 23-29; discharge computed on basis of records for stations on all nearby streams.

Haiku ditch at Kapalalaea Gulch, near Huelo

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

Records available.- February 1930 to February 1940 (discontinued). January 1910 to October 1914, at site at Peahi weir on Old Haiku ditch. October 1914 to December 1928, at site at Manawai Gulch, 2 miles downstream.

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

Extremes.- Maximum discharge during period, 112 million gallons a day (173 second-foot) July 5 (gage height, 5.51 feet); minimum, 0.45 million gallons a day (0.70 second-foot) Oct. 28, 27.

1910-28, 1930-40: Maximum discharge, 195 million gallons a day (302 second-foot) Mar. 23, 1937 (gage height, 5.80 feet); no flow occasionally.

Remarks.- Records good except those for period of no gage-height record 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.11	0.75	1.40	0.65	0.60	32.5	2.0	0.85				
2	.53	.70	1.00	.60	.50	12.3	3.55	.85				
3	.68	.70	.20	.60	.50	1.90	3.55	.80				
4	.65	.65	.52	.60	.65	.49	3.45	.75				
5	.83	.65	.22	1.60	.34	.46	3.3	5.7				
6	9.2	.70	2.35	.73	22.5	4.6	2.85	3.85				
7	1.60	.75	1.70	12.6	.65	3.1	1.80	1.70				
8	1.30	.70	1.40	1.10	.69	2.25	21	1.30				
9	34.5	.65	1.20	.70	.25	.62	5.9	1.90				
10	25	5.0	1.20	.65	5.3	30	2.6	9.9				
11	1.60	.60	1.60	1.40	2.1	5.2	1.90	38				
12	1.40	.15	1.10	.60	.41	8.4	1.80	47				
13	1.00	.12	.90	.55	.63	9.5	1.60	2.25				
14	11.0	.20	1.10	.60	.75	6.0	1.50	1.30				
15	3.65	9.0	7.3	1.00	16.5	3.55	1.40	1.10				
16	35.5	.50	.54	.65	6.4	2.95	1.30	.95				
17	1.60	.60	5.5	.55	7.9	2.95	1.30	.95				
18	.90	.10	1.60	.50	.44	2.35	1.30	.90				
19	1.00	7.0	.95	.55	2.95	2.25	1.20	1.20				
20	54	2.0	.85	.55	1.60	2.1	1.00	-				
21	.55	1.3	1.84	.50	7.7	4.9	1.00	-				
22	10.7	2.5	3.4	.50	5.5	4.6	1.00	-				
23	2.25	1.5	4.2	1.30	22	4.4	.95	-				
24	1.10	1.0	.95	.65	70	8.2	.95	-				
25	.85	.7	.85	.50	77	6.5	.90	-				
26	.85	.7	.75	.50	17.3	5.1	.85	-				
27	.85	.6	.75	.48	1.40	2.6	.80	-				
28	.75	3.5	.70	.50	1.20	4.8	.80	-				
29	.75	4.5	1.08	.50	1.20	4.5	.85	-				
30	.70	30	.65	.55	1.90	3.85	.90	-				
31	.80	10	-	.55	-	2.0	.85	-				

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	83	0.11	16.9	26.1	525	1,610
August.....	60	.6	10.1	15.6	313	959
September.....	54	.65	6.48	10.0	194	596
October.....	73	.48	3.41	5.28	106	324
November.....	77	.50	23.0	35.6	699	2,110
December.....	62	1.90	10.9	16.9	339	1,040
Calendar year 1939	108	.11	15.9	24.6	5,780	17,750
January.....	21	.80	2.39	3.70	74.2	228
February 1-19.....	47	.75	6.58	9.87	121	372
March.....	-	-	-	-	-	-
April.....	-	-	-	-	-	-
May.....	-	-	-	-	-	-
June.....	-	-	-	-	-	-
The period.....	-	-	-	-	-	7,240

Note.- No gage-height record, Aug. 10-31; discharge computed on basis of records for stations on all nearby streams.

ISLAND OF MAUI

Haiku ditch at Honopou Gulch, near Kailua

Location.- Concrete restriction in ditch, lat. 20°55'05", long. 156°14'55", on right side of Haiku ditch and west side of Honopou Gulch, 300 feet below Government Road, 2.5 miles northeast of Kailua, and 5 miles east of Haiku.

Records available.- February to June 1940. January 1910 to October 1914, at site at Peahi weir on Old Haiku ditch. October 1914 to December 1928, at site in Manawai Gulch, 2.9 miles downstream. February 1930 to February 1940, at site in Kapalalaea Gulch, 0.9 mile downstream.

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

Extremes.- Maximum discharge during period, 78 million gallons a day (121 second-feet) May 5 (gage height, 3.25 feet); minimum not determined due to faulty gage-height record.

Remarks.- Records excellent except those for periods of faulty gage-height record, which are poor. Haiku ditch diverts water at elevation 250 feet from all streams between the Kailua Stream and the Maliko Gulch. Flow regulated by gates. Water used for irrigation in central Maui.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1									0.54	27	a0.30	1.01
2									.51	3.2	c3.8	.83
3									.51	2.5	51	4.5
4									.48	2.2	c65	1.07
5									.48	1.95	74	.89
6									.44	1.81	62	.83
7									.40	1.87	28	1.58
8									.40	1.60	2.65	2.85
9									.40	1.46	2.05	15.3
10									2.55	1.32	14.9	.89
11									.65	4.4	1.60	.77
12									.54	1.46	1.84	.71
13									.51	16.3	14.3	.71
14									.62	1.72	2.0	.71
15									.54	1.25	.75	.71
16									.51	1.19	1.25	.71
17									.88	.89	.95	.62
18									.62	.99	.85	.58
19									.44	c5.4	.95	.65
20									.40	c5.4	c.77	2.0
21									.37	22.5	a.62	4.4
22									1.22	1.24	c.44	7.4
23									1.22	.77	c11.5	6.0
24									10.7	.89	c14.9	5.7
25									1.52	.71	.92	4.2
26									1.58	1.27	.62	.71
27									.95	.65	.89	.62
28									.77	c.51	.89	.65
29									22	a.44	1.39	.58
30									53	a.37	1.32	.58
31									20.5	-	1.19	-

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.....	53	0.37	4.07	6.30	126	387
April.....	27	.37	3.61	5.59	108	332
May.....	74	.30	11.7	18.1	364	1,120
June.....	15.3	.58	2.29	3.54	68.8	211
The period	-	-	-	-	-	2,050

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

c Partly estimated.

MISCELLANEOUS DISCHARGE MEASUREMENTS

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

Miscellaneous discharge measurements on Maui during fiscal year July 1939 to June 1940

Date	Stream	Tributary to--	Locality	Discharge	
				Second-foot	Million gallons a day
Aug. 16	Manawainui Stream	Pacific Ocean....	At altitude 1,600 feet, near Kaupo.	3.97	2.57
16	do.....	do.....	At altitude 1,200 feet, near Kaupo.	4.16	2.69
16	do.....	do.....	At altitude 950 feet, near Kaupo.	3.08	1.99
16	Old Kaupo intake	Manawainui Stream	At altitude 1,050 feet, near Kaupo.	.166	.107
July 17	Marshall ditch...	Canefield.....	Just below intake, near Waihee...	1.07	.692
31	do.....	do.....	do.....	1.13	.730
Mar. 8	Kahakuloa Stream.	Pacific Ocean....	At altitude 1,980 feet, near Kahakuloa.	.818	.529
8	do.....	do.....	At altitude 1,620 feet, near Kahakuloa.	1.24	.801
8	do.....	do.....	At altitude 1,300 feet, near Kahakuloa.	.608	.393
July 3	do.....	do.....	30 feet below gaging station, near Honokohau.	8.55	5.53
8	do.....	do.....	do.....	6.95	4.49
11	do.....	do.....	do.....	9.04	5.84
Mar. 6	Left Branch of Kahakuloa Stream.	Kahakuloa Stream.	At altitude 2,540 feet, near Kahakuloa.	.143	.092
6	Right Branch of Kahakuloa Stream.	do.....	At altitude 2,500 feet, near Kahakuloa.	.108	.070
2	Kahakuloa ditch..	Canefield.....	Below intake 3,000 feet below Kahakuloa gaging station, near Honokohau.	1.49	.963
Apr. 27	do.....	do.....	do.....	1.38	.892

Waiakea Stream at middle flume house, near Mountain View

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

Records available.- September 1930 to June 1940.

Extremes.- Maximum discharge during year unknown due to faulty gage-height record; minimum, 0.11 million gallons a day (0.17 second-foot) Jan. 26 to Feb. 8.
1930-40: Maximum discharge, 149 million gallons a day (231 second-feet) July 21, 1931 (gage height, 4.70 feet), from rating curve based on weir formulas; no flow at times, when tunnels and stream cease flowing during very dry periods.

Remarks.- Records good. No diversions. Large part of flow comes from three tunnels. Water is used for fluming sugarcane.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.0	0.00	0.5	1.70	1.6	9.9
.1	.18	.6	2.25	2.0	14.6
.2	.42	.7	2.85	2.5	23.5
.3	.78	.9	4.1		
.4	1.21	1.2	6.4		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	7.2	3.95	6.4	5.0	3.65	12.0	1.12	0.11	0.16	3.75	1.55	1.21
2	7.2	3.8	6.4	4.7	3.4	10.4	1.04	.11	.14	2.75	1.41	1.21
3	7.9	3.5	6.4	4.5	3.25	9.4	.95	.11	.14	2.15	5.4	1.12
4	8.2	3.25	6.0	4.5	3.4	8.6	.91	.11	.14	1.70	4.2	1.08
5	15.7	3.05	6.0	6.2	3.35	7.6	.82	.11	.14	1.41	5.8	1.04
6	14.0	3.1	6.0	6.2	3.6	7.2	.74	.11	.14	1.17	3.45	1.00
7	15.0	2.9	5.5	5.7	4.1	6.4	.67	.11	.14	1.08	3.2	1.17
8	16.8	2.65	5.2	6.1	7.6	6.0	.64	.13	.14	1.00	5.1	1.04
9	16.6	2.65	4.8	5.5	7.5	5.4	.66	.14	.63	1.00	2.95	1.00
10	14.6	3.3	4.6	5.6	7.2	5.0	.46	.28	.28	.95	2.85	.95
11	13.3	5.6	4.3	6.2	7.6	4.4	.40	.28	.23	.91	2.85	.91
12	13.5	3.8	4.0	6.0	7.5	4.1	.37	.28	.23	1.00	2.75	.82
13	14.5	3.6	3.95	6.7	14.0	3.95	.50	.20	.94	1.00	2.55	.75
14	16.0	3.7	3.65	8.0	10.9	3.8	.28	.16	1.04	.87	2.45	.74
15	16.0	4.2	3.6	7.9	10.9	3.5	.25	.16	.44	.78	2.25	.71
16	16.0	8.1	10.7	7.6	10.9	3.25	.23	.63	.28	.74	2.15	.71
17	14.6	7.6	7.2	7.6	10.4	3.15	.20	1.88	.58	.71	1.98	.60
18	14.0	7.2	7.2	7.2	9.9	2.9	.18	.82	.37	.67	1.86	.56
19	12.1	6.8	6.4	7.2	9.0	2.75	.16	.32	.30	.60	1.86	.53
20	10.9	6.4	6.4	6.8	8.1	2.55	.16	.30	.28	.56	1.65	.65
21	9.9	6.8	6.4	6.4	7.2	2.35	.14	.23	.25	.74	1.72	1.53
22	9.0	7.2	6.4	6.4	6.8	2.2	.13	.20	.23	.78	1.86	1.51
23	8.6	6.8	6.8	6.0	6.0	2.1	.13	.18	.34	.91	1.81	1.43
24	7.6	6.8	6.4	5.6	13.0	1.98	.13	.16	.50	1.17	1.61	4.1
25	7.2	6.4	6.0	5.2	13.3	1.86	.13	.16	.30	1.21	1.60	4.2
26	6.8	6.4	6.0	4.7	12.7	1.70	.11	.16	.25	1.17	1.60	3.65
27	6.4	6.3	5.6	4.4	14.0	1.60	.11	.16	.23	1.12	1.55	3.35
28	5.6	6.4	5.6	4.4	14.6	1.55	.11	.16	.20	1.21	1.46	3.35
29	5.2	6.0	5.4	4.4	14.0	1.41	.11	.16	.23	1.26	1.46	3.1
30	4.7	6.4	5.3	4.0	13.0	1.31	.11	-	.38	1.36	1.41	2.95
31	4.3	7.2	-	3.85	-	1.21	.11	-	.57	-	1.31	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	16.8	4.3	11.0	17.0	340	1,040
August.....	8.1	2.65	5.22	8.98	162	497
September.....	10.7	3.6	5.82	9.00	175	536
October.....	8.0	3.85	5.85	9.02	181	554
November.....	14.6	3.25	8.70	13.5	261	801
December.....	12.0	1.21	4.25	6.58	132	404
Calendar year 1939.....	48	1.21	9.55	14.8	3,490	10,690
January.....	1.12	.11	.379	.586	11.8	36
February.....	1.88	.11	.274	.424	7.94	24
March.....	1.04	.14	.330	.511	10.2	31
April.....	3.75	.56	1.19	1.84	35.7	110
May.....	5.4	1.31	2.32	3.59	71.8	220
June.....	4.2	.53	1.57	2.43	47.0	144
Fiscal year 1939-40.....	16.8	.11	3.92	6.07	1,440	4,400

c 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 $\frac{1}{4}$ miles west of Hilo. Altitude of gage, 1,280 feet (by barometer).

Drainage area.- 97.2 square miles.

Records available.- April 1923 to June 1928, July 1929 to May 1940 (destroyed by flood of August 1940).

Extremes.- Maximum discharge during period, 920 million gallons a day (1,420 second-feet) July 5 (gage height, 7.05 feet); no flow during several periods.
1923-28, 1929-40: Maximum discharge, 8,980 million gallons a day (13,900 second-feet) Feb. 17, 1937 (gage height, 16.9 feet, from floodmarks), from rating curve extended above 2,000 million gallons a day; no flow at times when all water was diverted.

Remarks.- Records good. Hilo Water Works diverts water for domestic supply from pool at control. Flow regulated by this diversion.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

2.4	0.00	2.9	2.25	3.8	64	6.0	540
2.5	.20	3.0	4.6	4.0	99	6.5	705
2.6	.40	3.2	13.3	4.5	169		
2.7	.70	3.4	26	5.0	270		
2.8	1.25	3.6	43	5.5	395		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	13.9	9.4	31	7.6	15.6	120	1.06	0	0	15.0	6.9	
2	22	8.9	19.8	8.4	12.3	36	.85	.05	0	26	5.4	
3	37.5	7.6	14.5	8.9	12.3	26	.67	0	0	9.2	14.2	
4	39	7.3	11.3	9.4	20.5	20.5	.73	0	0	5.4	19.9	
5	521	5.4	10.4	15.3	21	16.8	1.06	0	0	3.45	10.8	
6	196	5.4	21.5	21	40	14.5	1.00	.09	0	2.75	7.3	
7	85	7.6	9.9	20.5	73	12.8	.80	.46	0	2.4	5.7	
8	63	5.7	9.4	16.2	166	11.8	.85	.40	0	2.25	5.4	
9	131	4.0	8.4	12.3	100	10.8	.95	.32	5.1	1.95	4.0	
10	45	11.4	8.4	11.8	66	11.8	.80	1.04	4.6	1.65	4.0	
11	42	69	8.4	21	47	10.8	.58	1.45	1.75	1.35	3.7	
12	72	12.8	7.3	27	41	9.9	.32	1.75	.85	2.25	2.55	
13	145	6.5	12.8	23.5	217	10.8	.02	1.45	.90	4.0	1.85	
14	165	26	7.6	74	72	11.3	0	.68	3.15	2.55	1.12	
15	123	46	7.3	43	41	9.9	0	.02	5.0	2.15	1.32	
16	100	96	307	36	30	8.4	0	6.3	2.2	2.25	1.18	
17	55	80	106	27.5	24.5	9.9	0	8.3	.90	1.95	1.35	
18	40	34	31.5	17.9	21	8.4	0	6.7	.95	1.95	1.65	
19	37.5	28	19.8	15.6	17.4	6.1	0	2.15	.70	1.65	1.65	
20	33	20.5	15.0	15.0	14.5	6.1	0	4.0	.10	1.00	1.55	
21	26.5	16.8	17.4	12.8	13.9	5.7	0	2.05	.07	1.71	1.95	
22	30	21	19.9	11.8	12.3	3.7	0	1.55	.02	2.55	4.0	
23	22.5	15.0	43	81	11.3	1.95	0	1.18	0	3.2	5.7	
24	19.8	11.8	29.5	49	137	1.20	0	.67	0	3.7	4.6	
25	16.2	11.8	16.2	20.5	320	.64	0	.15	0	5.7	-	
26	14.5	11.8	11.8	16.2	140	.49	0	0	0	5.0	-	
27	14.5	15.0	9.9	16.6	54	.63	0	0	0	3.7	-	
28	12.3	32.5	8.9	14.5	36.5	1.55	0	0	0	4.6	-	
29	11.3	24	7.6	22.5	31	1.45	0	0	0	7.6	-	
30	10.4	17.9	5.0	20.5	28	1.45	0	-	.60	7.3	-	
31	9.9	80	-	22.5	-	1.18	0	-	5.0	-	-	

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	521	9.9	69.4	107	2,150	6,600
August.....	96	4.0	24.1	37.3	745	2,220
September.....	307	7.3	28.0	43.3	840	2,580
October.....	81	7.6	23.1	35.7	717	2,200
November.....	320	11.3	61.2	94.7	1,840	5,630
December.....	120	.49	12.7	19.6	393	1,210
Calendar year 1939	1,620	.49	79.1	122	28,880	88,640
January.....	1.06	0	.313	.484	9.69	30
February.....	8.3	0	1.41	2.18	40.8	125
March.....	5.1	0	1.03	1.59	31.9	98
April.....	26	1.00	4.54	7.02	136	418
May 1-24.....	19.9	1.12	4.91	7.60	118	361
June.....	-	-	-	-	-	-
The period.....	-	-	-	-	-	21,540

Peak discharge.- July 5 (11 a.m.) 920 m.g.d. (1,420 sec.-ft.).

Wailuku River above Hilo Boarding School ditch intake, near Hilo

Location.- Lat. 19°42'55", long. 155°09'10", 1,000 feet upstream from intake of Hilo Boarding School ditch, three-quarters of a mile west of reservoir 1, and 4 miles west of Hilo. Altitude of gage, 1,060 feet (by barometer).

Drainage area.- 124.5 square miles.

Records available.- July 1928 to June 1940.

Average discharge.- 11 years (1929-40), 184 million gallons a day (285 second-feet).

Extremes.- Maximum discharge during year, 2,840 million gallons a day (4,390 second-feet) Sept. 16 (gage height, 12.19 feet), from rating curve extended above 3,400 million gallons a day; minimum, 0.64 million gallons a day (0.99 second-foot) Mar. 28.

1928-40: 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, that of Mar. 26, 1940.

Remarks.- Records good except those for periods of no gage-height record, which are fair. Flow regulated by head gates. Hilo Water Works divert about 1 million gallons a day for domestic supply from pool at Pukamau, three-quarters of a mile upstream, and water passing station is used for power by Hilo Electric Light Co.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

1.3	0.50	2.3	19.4	5.0	233
1.4	1.20	2.5	27	6.0	370
1.5	1.90	2.7	36.5	7.0	534
1.6	2.85	3.0	53	8.0	774
1.7	4.0	3.5	88	9.0	1,110
1.9	7.5	4.0	130	10.0	1,490
2.1	12.8	4.5	179		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	42	18.4	88	26	39	283	6.2	1.20	1.20	60	25.5	5.6
2	66	16.7	62	21	31.5	92	5.6	1.20	1.06	73	19.8	7.8
3	104	15.0	47	18.4	28	70	5.3	1.06	.92	29	58	6.7
4	116	13.1	36.5	18.4	51	53	5.3	1.06	.85	18.7	70	11.1
5	1,170	11.7	37.5	29	59	44	5.4	1.06	.78	12.2	36.5	8.8
6	510	12.5	86	59	83	36.5	5.1	.99	1.13	9.0	24	6.4
7	284	17.0	39	39	166	31.5	4.8	1.20	.92	7.1	20	11.7
8	a180	13.8	30	39	408	29.5	4.8	1.34	1.69	6.2	19.8	14.4
9	a300	12.5	26	26.5	260	26	5.0	1.34	8.0	6.0	15.4	10.3
10	a170	36	24.5	27	195	27	4.5	2.65	9.5	4.8	16.7	7.8
11	a160	178	24	52	149	25	4.3	4.2	4.6	4.3	14.1	6.2
12	a220	42	26.5	56	130	21.5	4.0	5.0	3.1	8.0	11.4	5.3
13	a350	30.5	44	70	599	24	3.9	4.3	3.1	13.4	10.3	4.2
14	a400	93	29	183	233	24	3.65	3.3	9.4	9.5	8.2	3.9
15	a300	134	29	159	159	21.5	3.2	2.3	16.5	9.8	7.8	3.55
16	a200	283	870	96	96	18.7	3.3	12.8	6.7	10.0	6.2	3.55
17	149	251	238	76	76	23	3.1	32	4.0	7.3	5.8	3.2
18	116	130	112	50	62	17.4	3.1	24	3.9	7.3	6.0	2.75
19	104	96	73	42	50	14.7	2.65	8.0	3.55	6.2	6.0	2.45
20	80	73	59	39	42	15.7	2.2	12.8	2.55	4.6	5.6	3.2
21	a50	59	59	30.5	39	12.8	1.90	7.5	1.69	6.6	6.7	32.5
22	a60	70	80	27	31.5	11.4	1.76	5.8	1.20	10.6	12.8	29.5
23	a45	50	130	216	27	10.0	1.55	5.3	1.20	13.1	19.8	30
24	a41	39	88	112	390	8.8	1.34	3.9	1.48	16.3	17.0	44
25	c59	36.5	56	53	734	7.3	1.20	3.1	.78	21.5	10.0	106
26	34	36.5	42	42	358	7.3	1.13	2.75	.71	17.0	8.0	62
27	34	53	36.5	39	189	7.1	1.13	2.2	.78	13.1	7.3	39
28	29.5	100	31.5	56.5	121	6.6	1.13	2.0	.78	27.5	5.0	34
29	25.5	53	27	59	96	6.6	1.13	1.41	1.20	33.5	7.1	27.5
30	22.5	56	28	50	80	6.6	1.06	-	2.85	25.5	16.3	20.5
31	19.8	214	-	53	-	6.4	1.06	-	13.8	-	10.0	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	1,170	19.8	175	271	5,420	16,640
August.....	283	11.7	72.4	112	2,240	6,890
September.....	870	24	85.3	132	2,560	7,850
October.....	216	18.4	58.8	91.0	1,820	5,600
November.....	734	27	165	255	4,980	15,230
December.....	283	6.4	31.9	49.4	989	3,030
Calendar year 1939	3,640	6.4	198	306	72,440	222,300
January.....	6.2	1.06	3.22	4.98	99.8	306
February.....	32	.99	5.37	8.31	156	478
March.....	16.5	.71	3.55	5.49	110	337
April.....	73	4.3	16.4	25.4	491	1,510
May.....	70	5.6	16.5	25.5	510	1,570
June.....	106	2.45	18.6	28.8	557	1,710
Fiscal year 1939-40	1,170	.71	54.4	84.2	19,910	61,150

Peak discharge.- July 5 (10 a.m.) 2,040 m.g.d. (3,160 sec.-ft.); Sept. 16 (4:30 p.m.) 2,840 m.g.d. (4,390 sec.-ft.).

a No gage-height record; discharge computed on basis of records for station at Pukamau.

c Partly estimated.

Hilo Boarding School ditch at intake, near Hilo

Location.— Parshall flume, lat. 19°43'00", long. 156°08'55", 200 feet downstream from intake diversion dam on Wailuku River and $\frac{3}{4}$ miles northwest of Hilo.

Records available.— October 1931 to August 1940 (destroyed by flood of August 1940).

Extremes.— Maximum discharge during period, 240 million gallons a day (31 second-feet) Sept. 16 (gage height, 2.41 feet); minimum, 1.16 million gallons a day (1.79 second-feet) Mar. 23.

1931-40: 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 the control is drowned by overflow from Wailuku River. Water is used by Hilo Electric Light Co. for power.

Discharge, in million gallons, 1939-40
1939-40

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	8.7	7.8	9.7	8.2	8.7	10.7	5.7	1.60	1.50	10.2	9.7	7.3
2	9.2	7.8	9.2	7.8	8.2	9.7	5.3	1.71	1.40	10.7	9.2	6.9
3	9.7	7.8	8.7	7.8	8.2	9.2	5.0	1.55	1.25	9.7	10.2	6.4
4	10.2	7.3	8.7	7.8	8.7	9.2	5.0	1.50	1.25	9.2	10.4	7.3
5	14.0	7.3	8.7	8.2	8.7	8.7	5.1	1.45	1.25	8.7	9.7	6.9
6	11.8	7.3	9.7	9.2	8.7	8.7	4.8	1.45	1.55	7.8	9.2	6.4
7	11.2	7.8	8.7	8.2	9.7	8.7	4.4	1.55	1.40	7.3	9.2	7.8
8	10.7	7.3	8.2	8.7	10.7	8.2	4.2	1.76	1.97	6.9	9.2	a8.0
9	11.2	7.3	8.2	8.2	10.2	8.2	4.5	1.76	4.0	6.9	8.7	a7.2
10	10.2	7.8	8.2	8.2	10.2	8.2	4.1	2.8	8.2	5.7	8.7	a6.6
11	10.2	10.2	8.2	8.7	10.2	8.2	4.2	4.5	5.2	5.0	8.7	a5.8
12	11.2	9.7	8.2	8.7	10.2	7.8	3.8	5.3	3.25	7.3	9.2	a5.2
13	11.2	8.2	8.7	8.7	11.8	7.8	3.5	4.7	3.25	9.2	7.8	4.5
14	11.8	9.7	8.7	9.7	10.7	7.8	3.1	3.6	5.5	8.2	7.3	3.65
15	11.2	10.2	8.2	9.7	10.2	7.8	2.7	2.55	9.2	8.2	6.9	3.4
16	11.2	10.7	12.9	9.7	9.7	7.8	2.65	6.9	7.3	8.7	6.0	3.45
17	10.7	10.7	10.7	9.2	9.7	7.8	2.55	7.8	4.5	7.3	6.0	2.95
18	10.2	10.2	10.2	8.7	9.2	7.3	2.55	7.8	4.2	7.3	5.8	2.55
19	10.2	10.2	9.7	8.7	9.2	7.3	2.15	6.4	4.0	6.4	5.7	2.4
20	9.7	9.7	9.2	8.7	8.7	7.3	1.87	7.3	2.9	5.0	5.4	3.2
21	9.7	9.2	9.2	8.2	8.7	7.3	1.76	6.4	2.2	6.4	6.0	8.2
22	9.7	9.7	9.2	8.2	8.7	6.9	1.60	5.6	1.66	8.7	7.8	6.4
23	9.2	9.2	10.2	9.2	8.2	6.9	1.55	5.5	1.66	9.2	8.7	6.9
24	9.2	8.7	9.7	9.7	10.7	6.4	1.55	4.3	1.93	9.2	8.2	6.4
25	8.7	8.7	9.2	8.7	12.3	6.9	1.55	3.15	1.40	9.7	7.8	6.9
26	8.7	8.7	8.7	8.7	11.2	5.9	1.55	2.95	1.25	9.7	7.3	6.9
27	8.7	9.2	8.7	8.7	10.2	5.7	1.45	2.35	1.25	9.3	6.9	6.9
28	8.7	9.7	8.2	8.2	9.7	5.3	1.45	2.15	1.25	9.7	7.3	6.9
29	8.2	9.2	8.2	8.7	9.7	5.6	1.45	1.76	1.45	9.7	6.9	6.9
30	8.2	9.2	8.2	8.7	9.2	6.0	1.45	-	2.95	9.7	8.2	6.4
31	7.8	10.7	-	8.7	-	6.0	1.45	-	8.5	-	7.8	-

1940

Day	July	Aug.	Day	July	Aug.	Day	July	Aug.
1	6.4	11.8	11	8.2	-	21	7.8	-
2	6.4	10.7	12	8.2	-	22	8.2	-
3	6.4	10.7	13	7.8	-	23	9.7	-
4	6.9	10.2	14	7.8	-	24	10.2	-
5	6.9	10.2	15	7.8	-	25	10.2	-
6	7.9	10.2	16	7.8	-	26	10.2	-
7	7.8	10.7	17	7.8	-	27	9.7	-
8	8.2	11.2	18	7.8	-	28	9.7	-
9	8.2	11.2	19	7.8	-	29	9.7	-
10	8.2	-	20	7.3	-	30	9.2	-
						31	10.2	-

Monthly discharge, in million gallons, 1939-40

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July 1939.....	14.0	7.8	10.0	15.5	311	955
August.....	10.7	7.3	8.91	13.8	276	848
September.....	12.9	8.2	9.07	14.0	272	835
October.....	9.7	7.8	8.66	13.4	268	824
November.....	12.3	8.2	9.67	15.0	290	891
December.....	10.7	5.3	7.56	11.7	234	719
Calendar year 1939	c18.8+	5.3	9.73	15.1	3,550	10,900
January 1940.....	5.7	1.45	3.03	4.69	94.0	288
February.....	7.8	1.45	3.73	5.77	108	332
March.....	9.2	1.25	3.18	4.92	98.5	302
April.....	10.7	5.0	8.23	12.7	247	768
May.....	10.4	5.4	7.80	12.2	245	752
June.....	8.2	2.4	5.89	9.11	177	542
Fiscal year 1939-40	14.0	1.25	7.16	11.1	2,620	8,060
July 1940.....	10.2	6.4	8.27	12.8	256	787
August 1-9.....	11.8	10.2	10.8	16.7	96.9	297
The period.....	-	-	-	-	-	1,080

a No gage-height record; discharge computed on basis of records for Wailuku River above Hilo Boarding School ditch intake.

c 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 Pihoonua, and 6 miles west of Hilo.

Records available.— March 1938 to June 1940.

Extremes.— Maximum discharge during year, 3.2 million gallons a day (5.0 second-feet) Feb. 17 (gage height, 1.36 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Dec. 20, 21.

1938-40: Maximum discharge, 28 million gallons a day (43 second-feet) Jan. 31, 1939 (gage height, 3.51 feet); minimum, 0.01 million gallons a day (0.02 second-foot) Mar. 30, 1938, May 29 to June 2, Dec. 20, 21, 1939.

Remarks.— Records excellent except those for periods of no gage-height record, which are poor. Water used to supplement municipal supply of Hilo during dry periods.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.03	0.06	0.26	0.15	0.12	1.96	2.0	0.93	0.70	2.05	1.64	1.76
2	.03	.06	.26	.15	.13	1.96	1.92	.93	.68	2.0	1.64	1.68
3	.03	.10	.25	.14	.12	1.96	1.88	.93	.64	1.98	1.72	1.60
4	.15	.12	.20	.14	.14	1.92	1.84	.91	.64	1.76	1.68	1.68
5	.30	.17	.18	.14	.13	1.88	1.80	.86	.62	1.60	1.68	1.60
6	.20	.17	.14	.14	.12	1.84	1.76	.86	.68	1.46	1.6	1.49
7	.15	.17	.13	.13	.13	1.84	1.72	.88	.68	1.36	1.5	1.84
8	.11	.17	.11	.13	.18	1.84	1.72	.86	1.12	1.32	1.5	1.42
9	.08	.17	.09	.13	.72	1.80	1.76	.86	1.20	1.19	1.5	1.29
10	.05	.17	.07	.13	1.10	1.76	1.68	.96	1.22	1.05	1.4	1.46
11	.04	.18	.07	.15	1.50	1.68	1.60	1.52	.91	.96	1.4	1.42
12	.04	.16	.06	.14	1.68	1.68	1.60	1.72	.77	1.43	1.3	1.32
13	.02	.17	.07	.17	1.64	1.64	1.56	1.49	.72	1.64	1.3	1.22
14	.02	.18	.07	.20	1.42	1.60	1.46	1.25	1.18	1.49	1.3	1.16
15	.03	.18	.07	.19	1.59	1.56	1.42	1.10	1.49	1.49	1.3	1.16
16	.03	.25	.27	.18	1.59	1.53	1.42	1.84	1.02	1.42	1.2	1.16
17	.04	.28	.25	.17	1.42	1.53	1.39	1.92	.84	1.16	1.2	1.13
18	.05	.28	.24	.16	1.42	1.53	1.36	1.46	.84	1.25	1.2	1.08
19	.04	.30	.23	.15	1.59	1.49	1.32	1.42	.84	1.13	1.2	1.05
20	.04	.31	.22	.15	1.39	.61	1.29	1.96	.75	.99	1.2	1.29
21	.04	.30	.21	.14	1.59	.03	1.25	1.46	.68	1.27	1.2	1.72
22	.03	.28	.22	.14	1.59	.01	1.22	1.56	.82	1.29	1.5	1.64
23	.06	.28	.20	.15	1.13	.01	1.19	1.36	.80	1.32	1.6	1.53
24	.09	.27	.22	.14	1.05	.01	1.16	1.08	.66	1.42	1.5	1.33
25	.09	.26	.20	.13	.96	.01	1.13	.93	.72	1.42	1.5	1.60
26	.09	.26	.20	.14	.93	.01	1.10	.66	.70	1.42	1.42	1.56
27	.07	.26	.20	.14	.93	.03	1.08	.82	.64	1.39	1.36	1.56
28	.05	.26	.18	.12	.91	.04	1.05	.77	.59	1.56	1.32	1.56
29	.04	.25	.17	.12	.91	1.25	1.02	.75	.64	1.60	1.42	1.53
30	.04	.26	.15	.12	1.59	2.1	.99	-	1.29	1.60	1.88	1.46
31	.05	.28	-	.12	-	2.05	.96	-	1.84	-	1.72	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	0.30	0.02	0.069	0.107	2.13	6.5
August.....	.31	.06	.213	.330	6.61	20
September.....	.27	.06	.172	.266	5.17	16
October.....	.20	.12	.145	.224	4.50	14
November.....	1.68	.12	.957	1.45	29.7	83
December.....	2.1	.01	1.26	1.95	39.1	120
Calendar year 1939	4.6	.01	.777	1.20	284	870
January.....	2.0	.96	1.44	2.23	44.6	137
February.....	1.96	.75	1.18	1.83	34.2	105
March.....	1.84	.59	.855	1.32	26.5	81
April.....	2.05	.96	1.43	2.41	49.9	132
May.....	1.88	1.2	1.45	2.24	44.9	138
June.....	1.88	1.05	1.46	2.26	45.7	134
Fiscal year 1939-40	2.1	.01	.883	1.37	323	992

c Partly estimated.

Note.— No gage-height record July 1-10, Jan. 26, May 6-25; discharge computed on basis of records for stations on nearby ditches and streams.

Waimanuliiiiii Stream near Waimanu

Location.- Lat. 20°07'40", long. 155°39'55", 30 feet upstream from Waimanu trail bridge, 1.7 miles upstream from confluence with Waimanu Stream, 1.9 miles southeast of the head of Awini ditch, and 2.2 miles southwest of Waimanu. Altitude of gage, 2,740 feet (by barometer).

Drainage area.- 0.4 square mile.

Records available.- March 1939 to June 1940.

Extremes.- Maximum discharge during period ending June 30, 1939, 156 million gallons a day (241 second-feet) Apr. 24 (gage height, 3.34 feet), from rating curve extended above 4.2 million gallons a day by test on model of station site; minimum, 0.52 million gallons a day (0.80 second-foot) May 15.
Maximum discharge during year ending June 30, 1940, 210 million gallons a day (325 second-feet) Nov. 30 (gage height, 3.70 feet), from rating curve extended above 4.2 million gallons a day by test on model of station site; minimum, 0.19 million gallons a day (0.29 second-foot) Feb. 4.

Remarks.- Records fair. No diversions above station.

Rating table, Mar. 22, 1939, to June 30, 1940 (gage height, in feet, and discharge, in million gallons a day)

0.3	0.10	0.8	3.2	2.0	47
.4	.30	1.0	6.3	2.3	66
.5	.69	1.2	10.7	2.6	87
.6	1.28	1.4	16.8	3.0	120
.7	2.1	1.7	30		

Discharge, in million gallons, 1939-40

1939

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1									-	1.58	25	3.6
2									-	1.35	7.4	4.4
3									-	.96	7.9	35
4									-	1.17	26	16.1
5									-	22	5.3	4.0
6									-	14.2	2.3	6.9
7									-	5.8	1.66	10.4
8									-	4.2	1.35	1.75
9									-	3.3	1.15	2.75
10									-	12.9	1.02	2.6
11									-	3.25	.91	3.0
12									-	2.55	.85	23
13									-	8.3	.65	21.5
14									-	3.1	.60	6.7
15									-	11.2	.56	10.2
16												
17									-	16.1	17.4	10.4
18									-	26	5.4	4.7
19									-	58	1.50	7.2
20									-	18.2	1.21	4.2
21									-	11.4	10.9	2.1
22									-			
23									-	18.8	3.5	2.6
24									-	4.9	22.5	2.7
25									-	1.93	22.5	1.50
26									-	1.28	44	.96
27									-	.91	4.4	2.9
28									-			4.6
29									-	1.02	2.2	2.5
30									-	9.5	1.63	1.02
31									-	21.5	2.0	.74
									-	21.5	7.1	.65
									-	6.8	14.6	11.0
									-	2.0	-	6.0

Discharge, in million gallons, of Waimanulii Stream near Waimanu, Hawaii, 1939-40--Continued

1939-40

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	2.65	6.0	3.1	0.44	7.0	15.9	0.60	0.25	0.41	1.35	3.6	11.0
2	7.0	3.75	2.1	.41	1.83	14.0	.52	.23	.37	1.02	2.5	4.2
3	13.7	3.4	1.75	.37	6.7	3.9	.48	.21	.37	.96	55	3.8
4	37.5	2.1	1.28	.37	25.5	2.2	.48	.21	.37	.74	10.0	11.2
5	77	1.77	1.44	.41	5.3	5.2	.52	.23	.30	.56	4.6	4.4
6	10.3	11.3	2.45	5.1	3.9	1.93	.74	.48	.30	.48	7.1	1.43
7	9.2	8.4	1.66	5.3	3.6	1.59	.65	.30	.28	.41	1.83	3.0
8	8.5	9.8	5.5	1.89	2.85	1.28	13.0	6.7	.25	.37	1.28	2.5
9	22.5	9.3	2.0	.85	2.3	31.5	2.35	6.5	.25	.33	1.35	2.4
10	6.8	16.7	5.5	.74	2.1	16.6	.93	15.3	6.8	.30	1.28	.91
11	3.0	6.8	7.6	8.5	5.4	2.75	.69	18.4	2.4	21	.91	.65
12	22.5	2.1	8.3	5.3	8.4	1.83	.52	3.1	.91	.42	.69	.56
13	27	2.8	5.0	13.3	32.5	6.5	.48	8.2	1.72	29.5	1.23	.60
14	12.0	19.4	1.66	17.6	15.8	3.15	.44	1.64	5.4	2.2	.91	1.52
15	38	25.5	1.43	19.5	10.2	2.0	.41	2.0	2.6	1.28	.60	.96
16	32.5	16.0	20	5.5	15.8	1.83	.37	.54	.85	.96	.52	.96
17	4.1	6.6	2.9	6.8	5.3	1.35	.37	8.0	.69	.74	.48	.74
18	2.2	11.2	1.35	1.93	5.1	1.08	.33	3.55	3.35	.65	.80	.48
19	5.9	16.8	1.08	2.0	2.0	.96	.33	1.58	.80	.60	2.1	.41
20	6.7	17.7	.91	3.05	14.4	.91	.85	2.55	.52	8.2	.80	5.8
21	6.2	9.1	.85	1.58	21	.85	.69	1.08	.37	12.9	1.56	14.0
22	11.2	5.5	1.08	.96	9.7	2.9	.44	35.5	3.7	1.58	2.25	26.5
23	3.3	2.0	1.83	.91	3.65	1.66	.37	2.95	9.6	1.35	8.7	3.8
24	1.75	1.50	1.43	1.09	99	8.0	1.78	1.35	41	3.5	5.6	19.0
25	1.43	3.05	.96	1.93	53	10.7	1.04	.91	4.3	2.55	5.3	3.5
26	12.9	5.6	.74	1.15	4.7	1.50	.69	.69	1.43	1.15	2.2	1.28
27	16.7	5.3	.69	.74	2.45	1.02	1.21	.65	.91	10.1	2.55	1.08
28	3.6	3.7	.56	.69	1.75	.85	.69	.82	.69	6.2	5.2	2.7
29	2.1	1.66	.52	9.6	1.50	.74	.44	.74	7.0	2.75	3.85	1.43
30	3.0	2.85	.48	4.0	37	.65	.30	-	22.5	2.05	4.4	2.55
31	13.0	17.7	-	5.1	-	.60	.25	-	3.65	-	10.5	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
March 22-31, 1939.....	21.5	0.91	7.13	11.0	71.3	218
April.....	58	.96	12.1	18.7	364	1,120
May.....	26	.56	4.92	7.61	153	468
June.....	35	1.43	7.20	11.1	216	663
The period.....	-	-	-	-	-	2,470
July 1939.....	77	1.43	13.7	21.2	424	1,300
August.....	25.5	1.50	8.30	12.8	257	790
September.....	20	.48	2.87	4.44	86.2	265
October.....	19.5	.37	4.10	6.34	127	390
November.....	99	1.50	13.7	21.2	410	1,280
December.....	31.5	.60	4.70	7.27	146	448
Calendar year	-	-	-	-	-	-
January 1940.....	13.0	.25	1.06	1.64	33.0	101
February.....	35.5	.21	4.45	6.89	129	396
March.....	41	.25	4.00	6.19	124	381
April.....	42	.30	5.26	8.14	158	484
May.....	55	.48	4.83	7.47	150	459
June.....	26.5	.41	4.45	6.89	133	409
Fiscal year 1939-40	99	.21	5.95	9.21	2,180	6,680

Kaimu Stream near Waimanu

Location.- Lat. 20°08'30", long. 155°39'40", 300 feet upstream from Waimanu trail, 1.3 miles southeast from head of Awini ditch, 1.4 miles upstream from mouth, and 1.5 miles west of Waimanu. Altitude of gage, 1,980 feet (by barometer).

Drainage area.- 0.5 square mile.

Records available.- March 1939 to June 1940.

Extremes.- Maximum discharge during year, 743 million gallons a day (1,150 second-feet) Feb. 22 (gage height, 4.21 feet), from rating curve extended above 7 million gallons a day by test on model of station site; minimum, 0.21 million gallons a day (0.32 second-foot) Feb. 5.

1939-40: Maximum discharge, that of Feb. 23, 1940; minimum, that of Feb. 5, 1940.

Remarks.- Records good. No diversions.

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

July 1 to Feb. 22						Feb. 23 to June 30					
0.2	0.10	0.7	3.25	1.7	28.5	0.3	0.26	0.8	3.15	1.9	36
.3	.31	.8	4.5	2.0	43	.4	.54	1.0	5.5	2.1	48
.4	.70	1.0	7.3	2.3	69	.5	.95	1.2	8.8	2.3	69
.5	1.28	1.2	12.0	2.4	100	.6	1.50	1.4	13.5		
.6	2.15	1.4	17.0	2.5	150	.7	2.2	1.6	20		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.62	5.7	2.7	0.45	5.7	10.4	0.65	0.28	0.46	1.39	2.05	6.0
2	5.9	3.5	1.96	.45	1.86	10.7	.61	.25	.43	1.00	1.15	2.45
3	6.9	3.05	1.77	.41	4.1	4.3	.57	.25	.43	.91	.54	2.85
4	27.5	2.25	1.09	.45	15.5	2.8	.55	.23	.45	.74	5.7	5.5
5	82	1.77	1.23	.45	5.1	5.1	.61	.23	.40	.58	2.65	3.15
6	8.7	6.6	2.35	2.45	2.85	2.5	.80	.49	.37	.54	4.6	1.23
7	7.0	6.6	1.44	2.95	3.25	1.77	.70	.34	.34	.51	1.50	2.25
8	7.8	7.7	4.4	1.43	2.8	1.44	9.1	3.85	.32	.46	1.17	1.96
9	16.3	6.5	1.86	.75	2.5	21	2.25	3.85	.32	.45	1.28	1.63
10	6.6	11.1	4.6	.80	2.25	12.0	.91	9.9	4.8	.40	1.17	.87
11	3.25	5.9	5.6	4.6	4.7	3.25	.65	10.5	1.74	12.0	.87	.74
12	10.8	2.5	5.4	4.8	6.2	2.35	.57	3.05	.82	22.5	1.24	.62
13	19.2	2.8	4.8	8.4	23.5	6.4	.55	5.6	1.74	27.5	2.0	.58
14	8.8	9.3	1.60	11.4	12.4	3.55	.49	1.54	4.0	2.1	1.00	4.7
15	28.5	12.4	1.35	13.8	8.4	2.35	.45	2.8	1.86	1.28	.70	.83
16		11.0	12.4	4.5	11.8	2.15	.45	5.3	.70	.95	.58	.83
17	4.8	5.5	2.85	6.1	5.1	1.52	.41	14.4	.62	.83	.54	.74
18	2.9	8.3	1.35	1.86	5.0	1.21	.41	4.0	2.1	.74	.78	.54
19	4.8	12.3	1.09	1.86	2.5	1.09	.41	2.5	.66	.62	1.80	.48
20	5.5	10.7	.85	2.7	10.9	.97	.75	2.75	.48	4.3	.79	2.5
21	5.2	7.5	.80	1.60	14.5	.97	.65	1.21	.40	5.9	1.18	7.4
22	7.8	5.3	1.03	.97	8.2	3.0	.45	71	3.45	1.22	1.51	13.2
23	3.15	2.35	1.86	.85	3.6	1.85	.37	2.4	6.8	.85	5.4	3.05
24	1.86	1.77	1.21	1.09	106	4.8	1.24	1.25	.27	1.78	3.7	23
25	1.44	2.6	.85	2.05	44	9.0	.85	.91	3.3	1.76	3.5	2.65
26	8.2	3.75	.70	1.15	5.9	1.68	.57	.74	1.39	.87	1.94	1.23
27	10.0	4.3	.61	.75	3.5	1.15	.97	.66	.95	4.5	1.62	1.00
28	3.4	3.5	.57	.75	2.6	.97	.57	.54	.74	3.5	5.3	1.87
29	2.15	1.60	.53	8.0	2.15	.85	.37	.51	4.9	1.79	1.53	1.17
30	2.5	2.0	.49	3.7	60	.80	.51	-	14.0	1.23	2.75	1.72
31	10.2	11.2	-	5.2	-	.75	.28	-	2.95	-	5.3	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	82	1.44	10.8	16.7	535	1,030
August.....	12.4	1.60	5.86	9.07	182	557
September.....	12.4	.49	2.31	3.57	69.3	213
October.....	13.8	.41	3.12	4.83	96.7	297
November.....	105	1.86	12.9	20.0	386	1,180
December.....	21	.75	3.96	6.13	123	376
Calendar year	-	-	-	-	-	-
January.....	9.1	.28	.919	1.42	28.5	87
February.....	71	.23	5.22	8.08	151	465
March.....	27	.32	2.87	4.44	88.9	273
April.....	27.5	.40	3.44	5.32	103	317
May.....	54	.54	3.78	5.85	117	350
June.....	23	.48	3.23	5.00	96.8	297
Fiscal year 1939-40	105	.23	4.86	7.52	1,780	5,450

Punalulu Stream near Waimanu

Location.- Lat. 20°08'50", long. 155°39'40", 200 feet upstream from Waimanu trail. 1.0 mile southeast from head of Awini ditch, 1.5 miles upstream from mouth, and 1.5 miles west of Waimanu. Altitude of gage, 1,870 feet (by barometer).

Drainage area.- 1.4 square miles.

Records available.- March 1939 to June 1940.

Extremes.- Maximum discharge during year, 442 million gallons a day (684 second-feet) Feb. 22 (gage height, 4.44 feet), from rating curve extended above 4 million gallons a day by test on model of station site; minimum, 0.10 gallons a day (0.16 second-foot) Oct. 3-5.

1939-40: Maximum discharge, that of Feb. 22, 1940; minimum, that of Oct. 3-5, 1940.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used July 5 to Oct. 10, Jan. 8 to Feb. 9)

0.1	0.04	0.6	1.93	1.4	13.7
.2	.11	.7	2.65	1.7	21.5
.3	.29	.8	4.0	2.0	30
.4	.68	1.0	6.6	2.5	54
.5	1.22	1.2	9.9	3.0	86

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.28	3.25	1.35	0.12	4.5	7	0.35	0.17	0.24	1.28	1.50	5.8
2	4.7	1.48	1.04	.11	.7	9	.27	.16	.22	.88	.73	2.1
3	5.5	1.16	.88	.10	3	3	.24	.14	.19	.73	42	2.55
4	25	.88	.59	.10	12	1.70	.22	.13	.19	.69	6.0	6.1
5	58	.69	.69	.10	3	3.0	.33	.13	.16	.42	2.3	2.8
6	5.6	4.6	1.04	6.1	1.3	1.35	.42	.24	.14	.36	4.1	1.10
7	4.4	3.75	.68	1.16	.8	1.04	.29	.24	.14	.29	1.35	1.86
8	4.7	4.7	2.35	.67	.7	.83	9.5	3.25	.14	.24	.99	1.72
9	13.7	4.1	.93	.24	1.0	22.5	1.80	2.85	.13	.22	.99	1.38
10	3.6	8.5	2.6	.29	.8	10.1	.78	6.5	4.6	.19	.93	.68
11	1.28	3.65	3.25	3.5	3.5	2.0	.54	9.0	1.44	16.9	.63	.50
12	7.6	1.22	3.15	3.7	5	1.35	.42	1.82	.65	26.5	1.24	.42
13	15.0	1.28	3.15	6	17	4.2	.39	4.1	1.65	20.5	1.58	.39
14	5.6	6.1	.99	9	10	2.35	.33	.93	3.7	2.0	.78	.73
15	21.5	6.0	.83	11	6	1.41	.29	2.15	1.54	1.16	.46	.59
16	17.5	7.9	10.5	3	9	1.55	.29	3.4	.50	.83	.39	.59
17	2.6	2.9	1.70	3.5	4	.93	.27	5.7	.39	.65	.36	.50
18	1.22	5.8	.73	1.2	3.5	.73	.22	2.45	1.73	.59	.58	.33
19	2.05	5.9	.50	1.2	1.6	.65	.22	1.83	.42	.46	1.51	.27
20	2.9	7.8	.42	1.7	8	.59	.29	1.81	.24	4.7	.59	3.15
21	2.55	4.8	.36	.7	10	.54	.36	.68	.17	5.1	1.08	7.6
22	4.9	2.8	.39	.45	4	1.84	.29	45	3.75	1.02	1.61	7.5
23	1.28	.99	.68	.3	1.5	1.11	.27	2.3	7.3	.78	5.1	2.6
24	.73	.68	.46	.7	70	4.4	.58	1.10	29	1.39	3.25	14.5
25	.54	3.35	.33	1.4	35	7.4	.64	.73	3.25	1.38	2.95	2.5
26	5.2	1.65	.24	.8	3.5	.99	.36	.54	1.22	.63	1.61	1.04
27	7.0	2.05	.19	.56	2.7	.65	.50	.46	.78	4.6	1.24	.78
28	1.35	1.60	.17	.5	2.2	.50	.42	.36	.54	2.9	2.65	1.42
29	.83	.63	.16	6	1.8	.42	.27	.29	4.9	1.40	1.22	1.95
30	.90	.73	.13	3	40	.36	.19	-	17.7	.68	2.25	1.40
31	7.5	9.2	-	4	-	.33	.19	-	3.0	-	4.9	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	58	0.54	7.60	11.8	236	723
August.....	9.2	.63	3.71	5.74	115	353
September.....	10.5	.13	1.35	2.09	40.4	124
October.....	70	-	2.50	3.77	71.2	219
November.....	11	.7	8.87	13.7	266	816
December.....	22.5	.33	2.98	4.61	92.4	284
Calendar year						
January.....	9.5	.19	.694	1.07	21.5	66
February.....	45	.13	3.40	5.26	98.5	302
March.....	23	.13	2.90	4.49	89.9	276
April.....	26.5	.19	3.32	5.14	99.5	305
May.....	42	.36	3.12	4.63	96.9	297
June.....	14.5	.27	2.46	3.81	73.8	227
Fiscal year 1939-40	70	.10	3.55	5.49	1,300	3,990

Note.- No gage-height record Oct. 11 to Dec. 3; discharge computed on basis of records for stations on nearby streams.

Waiaalala Stream near Waimanu

Location.- Lat. 20°09'05", long. 155°39'55", 0.7 mile east from head of Awini ditch, 1.3 miles upstream from mouth, and 1.8 miles west of Waimanu. Altitude of gage, 1,880 feet (by barometer).

Drainage area.- 0.2 square mile.

Records available.- March 1939 to June 1940.

Extremes.- Maximum discharge during year, 67 million gallons a day (104 second-feet) Feb. 22 (gage height, 3.83 feet), from rating curve extended above 0.7 million gallons a day by test on model of station site; minimum, 0.14 million gallons a day (0.22 second-foot) Mar. 22.

1939-40: Maximum discharge, that of Feb. 22, 1940; minimum, that of Mar. 22, 1940.

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

Rating tables, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)
(Shifting-control method used Feb. 22 to May 3)

July 1 to May 3					May 4 to June 30				
0.2	0.15	0.5	1.15	0.8	4.3	0.2	0.18	0.35	0.55
.3	.53	.6	1.89	1.0	8.2	.26	.27	.4	.72
.4	.64	.7	2.9	1.2	13.4	.3	.39	.5	1.17

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.25	0.53	0.39	0.25	0.31	1.27	0.31	0.19	0.19	0.29	0.18	0.41
2	.32	.44	.36	.23	.25	.97	.29	.18	.18	.23	.16	.29
3	.79	.41	.56	.25	.25	.64	.29	.18	.18	.23	5.0	.29
4	2.45	.41	.35	.23	.42	.57	.27	.18	.18	.19	1.19	.31
5	6.0	.38	.56	.23	.29	.53	.33	.18	.18	.19	.65	.27
6	.86	.60	.35	.23	.32	.50	.33	.18	.16	.18	.55	.25
7	.89	.47	.33	.21	.27	.47	.29	.18	.16	.18	.43	.27
8	.65	.50	.36	.21	.23	.44	.33	.18	.15	.18	.45	.29
9	1.80	.62	.32	.21	.25	4.1	.93	.18	.15	.18	.45	.27
10	.64	1.11	.56	.23	.23	1.42	.29	.19	.66	.18	.42	.23
11	.50	.57	.45	.23	.29	.72	.27	.31	.25	3.4	.42	.23
12	.45	.66	.43	.23	.41	.60	.27	.18	.23	2.2	.70	.23
13	.83	.56	.36	.70	2.05	.90	.27	.18	.25	1.73	.42	.23
14	.57	.47	.31	.83	1.36	.57	.25	.16	.36	.60	.39	.23
15	3.1	.47	.29	.92	.76	.50	.25	.48	.21	.38	.37	.21
16	2.15	.66	.86	.31	.73	.50	.25	.27	.19	.33	.34	.21
17	.77	.44	.30	.33	.47	.47	.25	.25	.19	.29	.34	.21
18	.87	.90	.30	.27	.41	.44	.21	.19	.16	.27	.37	.21
19	.53	1.0	.30	.25	.38	.41	.21	.57	.16	.26	.34	.19
20	.50	.66	.28	.23	.91	.41	.21	.25	.15	.36	.31	.28
21	.80	.60	.28	.23	1.05	.41	.19	.19	.15	.31	.31	.42
22	.87	.52	.28	.23	.64	.41	.19	8.3	.76	.23	.34	1.07
23	.47	.44	.29	.23	.47	.38	.19	.50	.72	.23	.42	.29
24	.44	.42	.27	.29	8.9	.62	.21	.36	3.06	.21	.31	.29
25	.41	.46	.26	.29	5.7	.96	.19	.29	.38	.19	.41	.27
26	.67	.43	0.25	.23	1.15	.38	.18	.25	.27	.19	.31	.23
27	.72	.40	.25	.21	.72	.36	.18	.23	.21	.21	.29	.23
28	.44	.40	.23	.23	.60	.36	.18	.21	.18	.21	.28	.23
29	.41	.38	.23	.66	.53	.33	.19	.19	.49	.18	.27	.23
30	.41	.46	.23	.29	4.4	.33	.19	-	2.5	.18	.27	.23
31	1.00	.90	-	.50	-	.31	.19	-	.41	-	.31	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	6.0	0.25	1.01	1.56	31.3	96
August.....	1.11	.38	.557	.862	17.3	53
September.....	.86	.23	.332	.614	9.97	31
October.....	.92	.21	.320	.495	9.93	30
November.....	8.9	.23	1.16	1.79	34.8	107
December.....	4.1	.31	.693	1.07	21.6	66
Calendar year	-	-	-	-	-	-
January.....	.93	.18	.264	.408	8.18	25
February.....	8.3	.16	.523	.809	15.2	47
March.....	3.06	.15	.434	.671	13.5	41
April.....	3.8	.18	.465	.716	13.9	43
May.....	5.0	.16	.550	.851	17.0	52
June.....	1.07	.19	.287	.444	8.60	26
Fiscal year 1939-40	8.9	.15	.549	.849	202	617

c Partly estimated.

Note.- No gage-height record, Aug. 19 to Sept. 13, Sept. 17-25; discharge computed on basis of records for stations on all nearby streams.

Paopao Stream near Waimanu

Location.- Lat. 20°09'05", long. 155°40'05", 150 feet upstream from Waimanu trail, 0.6 miles east of intake to Awini ditch, 1.9 miles west of Waimanu. Altitude of gage, 1,910 feet (by barometer).

Drainage area.- 0.55 square mile.

Records available.- February 1939 to June 1940.

Extremes.- Maximum discharge during year, 264 million gallons a day (408 second-feet) Feb. 22 (gage height, 4.53 feet), from rating curve extended above 8 million gallons a day by test on model of station site; minimum, 0.14 million gallons a day (0.22 second-foot) Feb. 8.

1939-40: Maximum discharge, that of Feb. 22, 1940; minimum, that of Feb. 8, 1940.

Remarks.- Records good. No diversions.

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.05	0.5	1.46	1.2	13.1
.2	.20	.6	2.4	1.4	18.4
.25	.34	.7	3.65	1.7	28.5
.3	.49	.8	5.1	2.0	41
.4	.69	1.0	8.7		

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.66	2.3	0.76	0.34	1.50	4.0	0.37	0.20	0.26	0.84	0.37	1.88
2	1.90	1.10	.64	.34	.53	5.8	.34	.18	.23	.60	.31	.53
3	3.45	.60	.60	.31	.92	1.48	.34	.18	.23	.46	19.7	.34
4	9.8	.80	.53	.31	5.1	.94	.34	.18	.23	.40	2.9	2.35
5	a50	.72	.49	.31	1.50	1.59	.40	.18	.20	.34	.94	.65
6	a3.2	2.45	.60	.40	.73	.80	.49	.18	.20	.31	1.22	.40
7	a2.5	2.05	.49	.37	.68	.65	.40	.18	.20	.23	.60	.68
8	a2.6	3.0	.81	.34	.64	.64	4.5	.53	.18	.23	.49	.63
9	a7.0	2.6	.55	.31	.89	14.3	.72	.46	.18	.26	.57	.59
10	a2.6	5.4	.90	.43	.71	5.6	.37	1.73	3.0	.23	.60	.34
11	a1.3	2.25	1.60	1.55	1.29	1.27	.31	3.25	.87	11.6	.43	.29
12	a1.1	1.03	1.58	1.07	2.1	.94	.31	.68	.65	12.7	1.09	.26
13	a5.0	1.59	1.06	4.4	12.3	2.8	.28	.84	1.03	7.7	1.90	.23
14	a1.5	2.55	.53	5.5	5.8	1.34	.26	.31	2.2	1.10	.57	.26
15	a14	2.6	.49	5.4	3.6	.89	.26	2.45	.66	.72	.40	.23
16	a12	4.2	5.2	1.40	4.2	.84	.26	1.48	.31	.57	.34	.23
17	a2.5	1.58	.80	1.95	1.44	.68	.23	4.3	.28	.49	.34	.20
18	a1.1	4.8	.53	.53	1.31	.60	.23	1.10	.37	.46	.49	.20
19	a.9	5.1	.49	.46	.80	.53	.23	2.05	.23	.40	.81	.20
20	a1.7	3.55	.46	.46	5.3	.49	.23	.94	.20	2.2	.37	1.25
21	1.46	2.75	.43	.43	6.4	.53	.23	.40	.18	1.99	.31	2.9
22	2.7	1.89	.46	.34	2.8	1.11	.23	29.5	3.2	.49	.31	7.5
23	.94	.84	.68	.34	1.04	.88	.23	1.24	5.2	.40	1.92	.89
24	.76	.76	.53	.37	3.7	3.75	.26	.68	14.2	.37	1.03	5.5
25	.68	1.18	.43	.90	20	3.55	.23	.49	1.49	.43	1.56	.75
26	3.1	.97	.40	.46	2.5	.68	.23	.40	.72	.34	.68	.40
27	3.45	.96	.37	.34	1.41	.53	.20	.34	.49	1.47	.49	.37
28	1.10	.94	.37	.31	1.04	.46	.20	.31	.40	.79	.64	.43
29	.60	.64	.34	3.5	.89	.43	.20	.28	4.0	.46	.40	.34
30	.76	.77	.34	.92	16.9	.43	.20	-	11.9	.34	.56	.46
31	5.6	4.6	-	1.69	-	.40	.20	-	1.67	-	1.75	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	30	0.66	4.07	6.30	126	337
August.....	5.4	.64	2.16	3.34	66.9	205
September.....	5.2	.34	.781	1.21	23.4	72
October.....	5.5	.31	1.16	1.79	35.9	110
November.....	37	.53	4.71	7.29	141	433
December.....	14.3	.40	1.83	2.83	56.8	174
Calendar year	-	-	-	-	-	-
January.....	4.5	.20	.428	.662	13.3	41
February.....	29.5	.18	1.90	2.94	55.0	169
March.....	14.2	.18	1.78	2.75	55.2	169
April.....	12.7	.23	1.63	2.52	49.0	150
May.....	19.7	.31	1.42	2.20	44.1	135
June.....	7.5	.20	1.07	1.66	32.0	98
Fiscal year 1939-40.....	37	.18	1.91	2.96	699	2,140

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

Kukui Stream near Waimanu

Location.- Lat. 20°09'10", long. 155°40'10", 300 feet upstream from Waimanu trail crossing, 0.4 mile east from head of Awini ditch, and 2.1 miles west of Waimanu. Altitude of gage, about 1,940 feet (by barometer).

Drainage area.- 0.4 square mile.

Records available.- February 1939 to June 1940.

Extremes.- Maximum discharge during year, 89 million gallons a day (138 second-feet) Feb. 22 (gage height, 3.71 feet), from rating curve extended above 10 million gallons a day by test on model of station site; minimum, 0.15 million gallons a day (0.23 second-foot) Jan. 25, 26, Feb. 6, 7.
1939-40: Maximum discharge, that of Feb. 22, 1940; minimum, that of Jan. 25, 26, Feb. 6, 7.

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

Rating table, fiscal year 1939-40 (gage height, in feet, and discharge, in million gallons a day)

0.1	0.04	0.5	1.10	1.2	6.0
.2	.16	.6	1.60	1.4	8.1
.3	.40	.8	2.8	1.7	12.2
.4	.70	1.0	4.3	2.0	16.9

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	0.54	1.11	0.52	0.26	0.69	2.05	0.38	0.16	0.23	0.67	0.30	0.87
2	.68	.70	.46	.23	.38	1.83	.35	.16	.23	.58	.26	.38
3	1.73	.58	.46	.23	.35	1.03	.35	.16	.23	.49	8.2	.46
4	5.2	.58	.43	.23	1.52	.82	.35	.16	.21	.43	1.99	.84
5	9.7	.52	.43	.23	.75	.86	.52	.15	.21	.38	.70	.46
6	1.69	1.09	.43	.28	.49	.67	.43	.16	.21	.35	.58	.33
7	1.73	.94	.40	.23	.40	.64	.35	.15	.18	.33	.49	.46
8	1.29	1.11	.46	.21	.40	.58	1.76	.23	.16	.30	.43	.40
9	3.15	1.23	.38	.21	.47	6.5	.49	.23	.16	.28	.43	.40
10	cl.15	2.05	.46	.28	.40	2.75	.35	.33	1.10	.28	.43	.30
11	a.9	1.07	.74	.47	.57	1.02	.30	1.07	.49	6.4	.35	.28
12	a.8	.84	.69	.50	.89	.78	.30	.30	.44	5.1	.35	.26
13	al.5	.92	.57	1.58	4.5	1.38	.30	.28	.59	3.6	1.40	.26
14	al.1	1.04	.40	2.05	2.7	.86	.28	.16	.94	.94	.40	.26
15	a6.6	1.01	.38	2.15	1.63	.67	.28	1.02	.40	.64	.35	.23
16	a4.0	1.58	1.95	.63	1.82	.64	.26	.60	.23	.58	.30	.23
17	al.3	.82	.52	.79	.86	.58	.26	1.10	.26	.52	.30	.21
18	a.9	1.77	.40	.40	.74	.52	.23	.43	.23	.46	.33	.21
19	a.7	1.99	.38	.33	.55	.49	.23	1.09	.21	.40	.43	.21
20	al.1	1.25	.35	.33	2.05	.49	.23	.46	.15	.91	.30	.43
21	1.05	1.16	.35	.30	2.4	.46	.21	.28	.16	.92	.28	1.15
22	1.58	.94	.35	.28	1.35	.58	.21	12.1	1.30	.43	.30	2.75
23	.70	.61	.38	.28	.74	.49	.23	.85	2.1	.38	.82	.58
24	.61	.58	.33	.52	14.6	1.42	.21	.55	6.6	.35	.46	1.70
25	.58	.69	.30	.52	9.0	1.73	.15	.40	1.06	.33	.71	.49
26	1.33	.61	.28	.30	1.78	.52	.15	.35	.61	.30	.46	.35
27	1.53	.55	.28	.26	1.10	.46	.16	.33	.46	.60	.35	.30
28	.70	.55	.28	.26	.86	.46	.16	.28	.38	.46	.35	.33
29	.58	.49	.26	1.39	.74	.40	.16	.26	1.66	.33	.33	.30
30	.58	.64	.26	.52	6.9	.40	.16	-	5.6	.28	.35	.33
31	2.05	1.70	-	.69	-	.40	.16	-	1.12	-	.58	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acres-feet
July.....	9.7	0.54	1.84	2.85	57.0	175
August.....	2.05	.49	.991	1.53	30.7	94
September.....	1.95	.26	.463	.716	13.9	43
October.....	2.15	.21	.546	.845	16.9	52
November.....	14.6	.35	2.06	3.19	61.7	189
December.....	6.5	.40	1.05	1.62	32.5	100
Calendar year	-	-	-	-	-	-
January.....	1.76	.15	.321	.497	9.96	31
February.....	12.1	.15	.822	1.27	23.8	73
March.....	6.6	.16	.901	1.39	27.9	86
April.....	6.4	.28	.934	1.45	28.0	86
May.....	8.2	.26	.785	1.17	25.4	72
June.....	2.75	.21	.525	.512	15.8	48
Fiscal year 1939-40	14.6	.15	.934	1.45	342	1,050

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

Awini ditch at East Honokaneiki Gulch, near Niuli1

Location.- Lat. 20°09'55", long. 155°43'10", at flume across East Honokaneiki Gulch, 4½ miles southeast of Niuli1.

Records available.- October 1927 to June 1940.

Average discharge.- 11 years (1928-38, 1939-40) 11.7 million gallons a day (18.1 second-foot).

Extremes.- Maximum discharge during year, 30.5 million gallons a day (47.2 second-foot) July 4, 5, 9, Aug. 3 (gage height, 3.58 feet); minimum, 0.18 million gallons a day (0.28 second-foot) Mar. 5.

1927-40: Maximum discharge, 34 million gallons a day (53 second-foot) Jan. 9, 1935 (gage height, 3.76 feet); no flow when ditch was dry or water was turned out.

Remarks.- Records good except those for periods of no gage-height record, which are poor. AWINI ditch diverts water at altitude 2,000 feet from all streams between the Waikaloa and the Honokane. Flow regulated by head gates and spillways. Water used for irrigation in vicinity of Kohala.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	11.2	24	12.9	2.4	20	24	4.8	1.92	2.55	12.2	11.6	20
2	21	17	11.0	2.25	11	22	4.5	1.68	2.25	8.6	8.0	12.2
3	17.7	15	8.0	2.15	15	21	4.2	1.64	2.15	6.9	22.5	14.3
4	25	12.9	6.4	2.0	21	16.8	3.9	1.44	2.15	5.8	22	9.6
5	29	11.6	5.6	2.0	15	18.2	4.3	1.35	1.09	4.9	15.0	18.0
6	24	10.8	7.4	6.0	12	14.3	5.6	1.64	1.86	4.3	17.4	10.3
7	22	22	6.4	5.4	13	11.0	4.5	1.39	2.5	3.85	11.6	10.3
8	23	22	9.8	4.5	14	9.7	12.4	5.2	2.35	3.6	6.6	10.3
9	25	19.9	8.0	4.0	10	11.6	9.7	11.4	2.2	3.2	7.4	9.7
10	23	23	10.9	4.2	6.0	25	5.7	18.2	10.3	3.05	8.0	5.9
11	19.0	23	14.2	7.0	7.0	18.2	4.5	21	11.3	19.3	6.0	4.5
12	20	15.0	14.3	20	10	14.3	3.8	16.6	9.1	27	5.7	3.6
13	23	18.2	16.8	18	15	16.8	3.4	18.0	18.0	24	11.6	3.15
14	21	22	8.0	20	9.0	18.2	c3.15	10.4	18.1	16.6	6.9	3.56
15	19	24	6.9	22	8.0	13.6	c2.95	9.2	14.6	11.6	5.0	4.5
16	20	24	22.5	11	14	12.2	2.8	18.6	6.9	8.6	4.2	3.55
17	19	22	16.0	12	13	9.7	2.6	12.8	6.2	6.9	3.8	3.6
18	17	18.2	9.1	9.0	13	8.6	2.5	14.5	14.0	6.4	3.85	2.85
19	19	25	6.9	7.0	12	7.4	2.4	8.8	6.4	5.6	6.9	2.4
20	21	24	5.8	6.0	14	6.9	4.1	9.7	4.2	6.2	5.0	4.7
21	19	25	5.0	5.0	18	6.4	4.3	5.7	3.2	18.2	4.2	22
22	20	21	4.7	4.5	13	9.7	3.1	20.5	8.2	11.0	5.8	24
23	16	16.8	4.6	4.0	12	10.3	2.6	11.3	23	8.0	19.3	17.3
24	13	11.6	4.4	3.5	20	10.0	4.5	7.4	27	8.0	14.1	16.1
25	11	9.7	4.0	4.5	23	21	5.6	6.0	21	11.6	12.3	18.6
26	15	15.8	3.5	4.0	17	11.6	4.2	4.6	11.6	7.4	10.8	11.0
27	25	15.8	3.15	3.5	13	8.6	c5.7	3.85	8.0	9.9	8.0	8.0
28	18	17.4	2.95	3.1	12	6.9	4.6	3.15	5.9	18.2	8.6	12.8
29	13	10.3	2.8	5.0	11	6.0	c3.1	2.8	8.9	13.6	7.5	9.7
30	12	8.0	2.6	10	17	5.5	2.35	-	27	8.0	12.3	11.6
31	26	22.5	-	11	-	5.1	2.05	-	20	-	15.3	-

Month	Million gallons a day			Second-foot (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	29	11	19.6	30.3	607	1,860
August.....	25	8.0	15.3	28.3	566	1,740
September.....	22.5	2.6	8.15	12.6	246	751
October.....	22	2.0	7.25	11.2	225	690
November.....	23	6.0	13.6	21.0	408	1,250
December.....	25	5.1	12.9	20.0	399	1,230
Calendar year 1939	29	1.44	13.9	21.5	5,060	15,500
January.....	12.4	2.05	4.32	6.68	134	411
February.....	21	1.35	8.56	13.6	243	762
March.....	27	1.09	9.74	16.1	302	927
April.....	27	3.05	10.1	16.6	304	934
May.....	22.5	3.8	9.92	16.3	307	944
June.....	24	2.4	10.3	16.9	308	945
Fiscal year 1939-40	29	1.09	11.1	17.2	4,050	12,440

Note.- No gage-height record July 13 to Aug. 3, Oct. 4 to Dec. 2, Jan. 28; discharge computed on basis of records for stations on nearby streams.

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

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

Records available.- October 1927 to June 1938, July 1939 to June 1940.

Average discharge.- 10 years (1928-36, 1937-38, 1939-40), 1.22 million gallons a day (1.89 second-feet).

Extremes.- Maximum discharge during year, 7.8 million gallons a day (12.1 second-feet)

Aug. 31 (gage height, 1.38 feet); no flow Feb. 4-8.

1927-38, 1939-40: 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 good except those for periods of no gage-height record, which are poor. Intake diverts water from East Honokaneiki Gulch to Awini ditch for irrigation in vicinity of Kohala. Flow regulated by head gates.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	1.0	2.95	0.71	0.05	1.8	1.2	0.08	0.02	0.12	1.0	0.58	2.5
2	2.5	1.11	.62	.05	.9	.6	.08	.01	.10	.6	.26	.60
3	2.0	.68	.35	.02	1.3	.20	.06	.01	.08	.4	4.5	.64
4	3.0	.44	.25	.02	2.0	.14	.06	.01	.08	.3	2.05	1.86
5	4.5	.35	.20	.02	1.3	.20	.10	0	.06	0.20	1.06	1.84
6	2.5	.77	.17	.58	.8	.14	.20	.01	.04	.14	1.30	.52
7	1.0	1.87	.17	.29	1.0	.12	.12	0	.04	.12	.60	.35
8	.9	2.2	.29	.12	1.3	.28	.85	.58	.03	.10	.35	.32
9	3.5	2.2	.26	.06	.7	4.2	.52	.52	.03	.06	.26	.25
10	1.5	2.5	.60	.06	.35	2.9	.32	.64	2.45	.08	.26	.12
11	.9	2.5	1.24	.19	.5	.92	.17	.68	1.25	2.9	.25	.08
12	2.0	.60	1.26	2.05	.9	.92	.12	1.00	.92	3.15	.27	.06
13	3.5	1.10	1.68	.41	1.5	.97	.08	2.85	4.7	2.6	.26	.04
14	3.0	3.05	.55	1.4	.7	.97	.06	.68	2.45	1.50	.20	.04
15	2.5	4.4	.26	1.5	.4	.64	.06	1.16	1.19	.79	.12	.04
16	3.0	4.2	5.0	.5	1.2	.48	.04	1.55	.58	.52	.10	.05
17	1.0	1.88	1.50	.6	.6	.38	.04	.60	.47	.38	.06	.05
18	.7	1.24	.58	.5	.4	.52	.05	.52	1.40	.52	.10	.02
19	2.0	3.7	.25	.85	.2	.26	.05	.25	.29	.26	.12	.02
20	3.5	3.55	.17	.15	.5	.23	.14	.17	.2	.75	.08	.78
21	2.0	3.1	.12	.09	1.5	.20	.20	.12	.15	1.75	.06	5.65
22	3.0	1.5	.12	.06	.6	.26	.10	.55	.08	.60	.10	4.0
23	.87	.64	.10	.05	.4	.26	.04	.86	2.0	.32	2.2	1.5
24	.52	.60	.08	.04	1.0	.78	.50	.79	5.5	.35	.9	.7
25	.41	.56	.08	.04	2.5	2.4	.58	.48	1.5	.48	.6	.9
26	1.77	.85	.06	.05	.9	.52	.26	.52	.9	.25	.45	.5
27	4.5	.85	.06	.05	.4	.26	.35	.26	.5	.65	.5	.35
28	1.06	.92	.04	.02	.25	.17	.20	.20	.25	1.55	.17	1.5
29	.56	.41	.04	.07	.15	.12	.08	.14	.8	.80	.62	.8
30	.87	.69	.04	.15	.9	.12	.05	-	3.0	.26	1.0	1.3
31	4.0	4.0	-	.2	-	.10	.05	-	2.0	-	2.1	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	4.5	0.41	2.05	3.17	65.7	195
August.....	4.4	.35	1.77	2.74	55.0	169
September.....	5.0	.04	.544	.842	18.3	59
October.....	2.05	.02	.295	.456	9.16	28
November.....	2.5	.15	.888	1.37	26.5	82
December.....	4.2	.10	.686	1.06	21.5	65
Calendar year 1939.....	-	-	-	-	-	-
January.....	.85	.03	1.65	.255	5.15	16
February.....	2.85	0	.508	.786	14.7	45
March.....	4.7	.03	.997	1.54	30.9	95
April.....	3.15	.08	.765	1.19	22.9	70
May.....	4.5	.06	.696	1.08	21.6	66
June.....	4.0	.02	.837	1.30	25.1	77
Fiscal year 1939-40.....	5.0	0	.654	1.52	312	958

c. Partly estimated.

Note.- No gage-height record July 1-21, Oct. 14 to Dec. 2, Mar. 20 to Apr. 4, May 24-27, June 24-27, June 22-30; discharge computed on basis of records for stations on all nearby streams.

Kohala ditch at Pololu, near Niuli

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, 2½ miles upstream from mouth of Pololu Stream, and 4 miles south of Niuli.

Records available.- August 1927 to June 1940.

Average discharge.- 11 years (1928-38, 1939-40) 25.6 million gallons a day (39.6 second-feet).

Extremes.- Maximum discharge during year, 70 million gallons a day (108 second-feet) July 5 (gage height, 4.08 feet); no flow Apr. 13, 14, 20, 21.
1927-40: Maximum discharge, 76 million gallons a day (118 second-feet) Dec. 2, 1932 (gage height, 4.33 feet); no flow occasionally, when water was shut out of ditch.

Remarks.- Records good except those for period of no gage-height record, which are poor. Flow regulated by head gates. Kohala ditch receives flow of Awini ditch and diverts water at altitude of about 1,200 feet from all streams west of the Honokane. Water is used for irrigation in vicinity of Kohala.

Discharge, in million gallons, fiscal year July 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	28	43	35	13.5	30	41	15.6	13.0	13.0	24	23	34.5
2	46	36.5	27	13.8	22	34.5	16.5	12.2	13.0	19.2	19.2	26
3	39	32.5	22	13.8	22	32.5	16.5	12.2	13.0	17.4	36.5	26
4	53	29	21	13.0	46	29	15.6	11.4	15.0	15.6	39	27.5
5	53	25	20	13.8	31	30	25.5	11.4	11.4	15.6	29	39
6	43	25	19	19.2	29	29	19.2	11.4	12.2	14.7	30	23
7	39	36.5	19	19.2	29	26	15.6	11.2	13.0	14.7	25	21
8	39	39	26	16.5	29	24	20	13.0	12.2	13.8	21	21
9	46	39	24	14.7	26	39	21	24	12.2	13.8	19.2	20
10	39	34	30	14.7	25	36.5	13.0	31	25.5	13.0	19.2	15.6
11	34.5	41	33	16.5	24	34.5	11.4	39	30	26	17.4	13.0
12	39	29	33	29	27	29	11.1	36.5	21.5	29	16.5	12.2
13	48	32.5	36.5	24	43	30	10.8	32.5	38	7.0	22	12.2
14	46	39	23	43	36.5	31	10.6	24	31	6.7	17.4	12.2
15	43	46	21	48	36.5	28	10.6	20	32.5	24	14.7	13.0
16	41	50	43	31	41	27	10.4	29	19.2	20	14.7	12.2
17	39	45	36.5	32.5	32.5	24	10.3	23	17.4	17.4	13.8	11.4
18	34.5	40	24	24	32.5	22	10.3	25	28	16.5	13.8	11.1
19	36.5	45	21	23	26	21	14.9	20	16.3	15.6	16.5	11.1
20	41	44	19.2	22	32.5	20	25	22	14.7	2.3	14.7	13.0
21	39	43	18.3	20	41	19.2	14.7	17.4	14.7	18.0	13.0	34.5
22	41	37	17.4	17.4	34.5	22	11.4	42	17.4	24	15.6	41
23	32.5	32	17.4	16.5	31	23	10.9	29	29	19.2	29	32.5
24	26	30	16.5	16.5	43	23	18.9	23	31	20	26	29
25	26	28	16.5	18.3	39	34.5	13.0	20	26	23	24	27
26	32.5	30	15.6	17.4	32.5	24	12.2	17.4	23	18.3	22	13.8
27	50	30	15.6	15.6	34.5	21	22	16.5	19.2	18.3	16.5	13.0
28	36.5	32	14.7	14.7	29	20	15.6	14.7	16.5	29	20	22
29	30	25	13.8	20	28	18.3	13.8	14.7	14.7	26	15.3	16.2
30	26	35	14.7	25	32.5	16.5	13.8	-	17.4	19.2	24	14.7
31	43	45	-	25	-	16.5	13.0	-	25	-	30	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	53	26	39.2	60.7	1,220	3,730
August.....	50	25	36.1	55.9	1,120	3,430
September.....	43	13.8	23.1	35.7	694	2,130
October.....	48	13.0	21.0	32.5	652	2,000
November.....	46	22	32.2	49.8	966	2,960
December.....	41	16.5	26.6	41.2	626	2,530
Calendar year 1939.....	53	13.0	30.0	46.4	10,950	33,590
January.....	25.5	10.3	14.9	23.1	463	1,420
February.....	42	11.2	21.3	33.0	616	1,890
March.....	28	11.4	20.1	31.1	623	1,910
April.....	29	2.3	16.1	28.0	548	1,670
May.....	39	13.0	21.3	33.0	660	2,030
June.....	41	11.1	20.6	31.9	619	1,900
Fiscal year 1939-40.....	53	2.3	24.6	38.1	9,000	27,600

Note.- No gage-height record Aug. 17 to Sept. 12; discharge computed on basis of records for stations on nearby streams.

Kehena ditch near Kohala

Location.— Three sharp-crested weirs, lat. 20°07'25", long. 155°45'05", at old Honokane weir, near head of West Branch of Honokanenui Gulch, and 8½ miles southeast of Kohala.

Records available.— December 1917 to November 1919, April 1928 to June 1940.

Average discharge.— 12 years (1928-40) 7.58 million gallons a day (11.7 second-feet).

Extremes.— Maximum discharge during year, 41 million gallons a day (63 second-feet) Jan. 24 (gage height, 1.12 feet); no flow June 19, 20.

1917-19, 1928-40: Maximum discharge, 86 million gallons a day (133 second-feet) Jan. 27, 1918 (gage height, 2.16 feet, datum then in use); no flow during dry periods.

Remarks.— Records fair. 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 1939 to June 1940

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1	4.0	9.8	5.9	0.20	12.6	19.6	4.0	a0.5	0.40	2.1	4.6	13.9
2	19.0	4.9	4.0	.10	4.4	15.3	3.7	a.45	.40	1.26	3.25	4.6
3	14.1	4.6	2.45	.10	9.0	6.4	1.90	a.4	.40	.84	32	3.9
4	21.5	2.25	1.57	.10	30.5	3.25	1.26	.40	.40	.61	19.9	10.4
5	35.5	1.57	1.26	.10	16.1	5.5	19.6	.40	.50	.40	6.2	12.8
6	17.2	7.0	1.73	7.4	6.1	2.85	6.3	.40	.30	.30	10.4	2.85
7	7.4	6.8	1.41	5.3	7.7	1.73	2.25	.40	.20	.20	3.7	2.25
8	6.5	9.7	3.25	1.90	10.7	1.26	23	.30	.20	.20	2.1	2.65
9	18.8	10.0	2.25	1.12	6.0	25.5	13.9	.40	.20	.20	1.26	1.57
10	11.0	12.1	6.5	.72	3.25	19.9	3.6	6.3	.61	.20	.98	.84
11	5.4	10.9	9.1	1.49	3.75	3.9	1.90	20	.84	15.8	.84	.50
12	17.2	2.65	8.6	9.0	6.2	2.1	1.26	17.2	6.5	25.5	.72	.40
13	28	1.90	13.1	5.2	19.9	1.90	.98	12.5	11.3	23	.72	.30
14	21	10.5	3.05	17.4	9.6	1.90	.72	4.0	18.5	5.4	.61	.50
15	20.5	25	2.45	21.5	9.5	1.41	.98	2.25	8.8	3.7	.40	.72
16	25.5	25.5	22.5	8.0	19.0	1.26	.84	3.7	3.45	1.73	.30	.98
17	8.0	12.3	8.1	9.7	7.3	.98	.72	2.45	7.6	.98	.20	.40
18	3.25	4.6	2.45	3.45	6.8	.72	.61	1.57	19.3	.61	.20	.10
19	8.0	12.3	1.57	2.65	3.05	.72	8.6	1.12	3.5	.40	.20	0
20	13.4	19.7	1.12	2.45	6.3	.61	32.5	.98	1.57	1.90	.10	1.36
21	8.0	16.2	.98	1.73	19.4	.61	10.0	.84	.98	20.5	.10	18.5
22	12.5	6.5	.84	1.12	10.5	.61	2.45	23	1.24	4.1	.40	21.5
23	4.9	3.05	.84	.98	6.0	.61	1.73	5.7	2.85	2.85	9.7	10.9
24	2.25	1.90	.72	.84	21	.72	15.6	2.1	20.5	7.4	4.9	3.7
25	1.57	1.41	.72	.72	34.5	5.9	6.1	1.26	9.3	8.1	3.05	4.4
26	7.7	1.41	.61	.72	11.0	2.1	a3.0	.84	2.85	3.05	1.41	2.1
27	24	2.65	.50	.61	4.4	1.12	a7.0	.72	1.57	2.45	.84	1.73
28	6.0	3.9	.50	.50	2.85	1.26	a3.5	.72	.98	9.6	2.65	8.5
29	2.85	2.85	.30	1.33	2.1	1.57	a2.0	.61	1.16	7.4	1.41	4.6
30	2.25	9.7	.30	3.7	12.6	1.26	a1.2	-	11.7	3.25	3.6	6.8
31	7.8	21.5	-	4.0	-	5.9	a.6	-	4.8	-	9.6	-

Month	Million gallons a day			Second-feet (mean)	Total run-off	
	Maximum	Minimum	Mean		Million gallons	Acre-feet
July.....	33.5	1.57	12.4	19.2	383	1,180
August.....	25.5	1.41	8.55	13.2	265	814
September.....	22.5	.30	3.62	5.60	109	334
October.....	21.5	.10	3.68	5.69	114	350
November.....	34.5	2.1	10.7	16.6	322	988
December.....	25.5	.61	4.47	6.92	138	425
Calendar year 1939	34.5	.10	8.49	13.1	3,100	9,510
January.....	32.5	.6	5.96	9.22	185	567
February.....	23	.30	3.91	6.05	114	348
March.....	20.5	.20	4.60	7.12	143	436
April.....	25.5	.20	5.13	7.94	154	473
May.....	32	.10	4.08	6.51	127	388
June.....	21.5	0	4.79	7.41	144	441
Fiscal year 1939-40	34.5	0	6.00	9.28	2,200	6,740

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

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 1939 to June 1940

Date	Stream	Tributary to--	Locality	Discharge	
				Second-foot	Million gallons a day
Feb. 4	Kepehu ditch....	Wailuku River....	Just above confluence with Wailuku River, near Hilo.	1.47	0.950
4	Wailuku River....	Pacific Ocean....	Just above inflow from Kepehu ditch, near Hilo.	2.18	1.41
Oct. 5	Third Branch of Waimanu Stream.	Waimanu Stream....	At altitude of 2,750 feet, near Waimanu.	.422	.273
Dec. 6	do.....	do.....	do.....	2.66	1.72
Jan. 31	do.....	do.....	do.....	.283	.183
Apr. 3	do.....	do.....	do.....	1.53	.959
May 29	do.....	do.....	do.....	2.42	1.56
July 19	First Branch of Waimanu Stream.	do.....	At altitude of 2,930 feet, near Waimanu.	5.92	3.83
Sept. 14	do.....	do.....	do.....	1.09	.704
Dec. 6	do.....	do.....	do.....	1.18	.763
Jan. 31	do.....	do.....	do.....	.138	.089
Apr. 3	do.....	do.....	do.....	.563	.364
May 29	do.....	do.....	do.....	.936	.605
July 20	Waimalee Stream.	Pacific Ocean....	At trail crossing near Waimanu..	.707	.457

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