

USGS STREAM
FLOW DATA:
SUMMARY OF
RECORDS 1901-1938

EXHIBIT Z



SUMMARY REPORT FOR
DECEMBER 1968

SURFACE-WATER SOURCES

DEPARTMENT OF WATER SUPPLY

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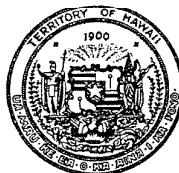
SUMMARY OF RECORDS

DECEMBER, 1939



SURFACE WATER RESOURCES OF THE TERRITORY OF HAWAII

1901-1938



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Kamoolai ditch near Koloa, 1924-..... McBryde Sugar Co.
Hanalei ditch near Kilauea, 1923-..... Kilauea Sugar Plantation Co.
Lumahai Stream near Hanalei, 1934-..... McBryde Sugar Co.
Wainihi Stream near Hanalei, 1927-..... McBryde Sugar Co.

ISLAND OF MAUI

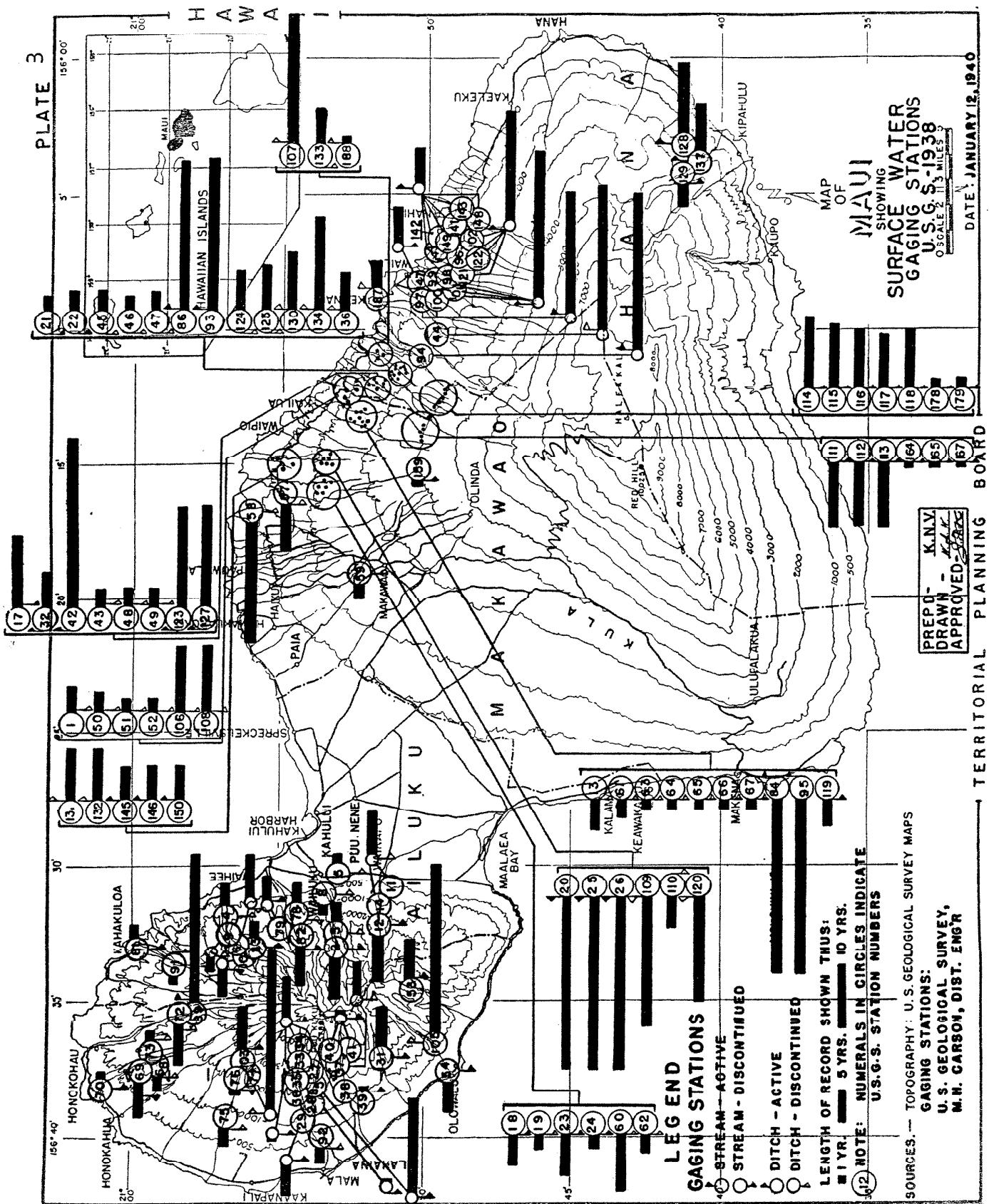
Iao pipe line below intake, near Wailuku, 1933-..... County of Maui
Iao-Waikapu ditch near Wailuku, 1923-..... Wailuku Sugar Co.
Kama ditch below intake, near Wailuku, 1933-..... Wailuku Sugar Co.
Maniania ditch below intake, near Wailuku, 1928-..... Wailuku Sugar Co.
North Waihe'e ditch near Wailuku, 1922-..... Wailuku Sugar Co.
Walhee ditch below intake, near Waihee, 1922-..... Wailuku Sugar Co.
Spreckels ditch below intake, near Waihee, 1931-..... Wailuku Sugar Co.
Everett ditch below intake, near Wailuku, 1935-..... Wailuku Sugar Co.
South Waikapu ditch above first lateral, near Waikapu, 1935-..... Wailuku Sugar Co.
South Waikapu ditch below tunnel sections, near Waikapu,
1923-..... Wailuku Sugar Co.
Waihou Stream in Waihoi Valley, near Hana, 1933-..... East Maui Irrigation Co.
Makapipi Stream near Nahiku, 1920-22-..... East Maui Irrigation Co.
West Makapipi Spring near Nahiku, 1931-32-..... East Maui Irrigation Co.
Makapipi ditch near Nahiku, 1933-..... East Maui Irrigation Co.
Hanawi Stream below government road, near Nahiku, 1927-32-..... East Maui Irrigation Co.
Hanawi Spring, upper high level, near Nahiku, 1933-..... East Maui Irrigation Co.
Hanawi Spring, lower high level, near Nahiku, 1933-..... East Maui Irrigation Co.
Kapaula Stream below government road, near Nahiku 1927-32-..... East Maui Irrigation Co.
Waiaaka Stream near Nahiku, 1927-32-..... East Maui Irrigation Co.
Faakea Stream near Nahiku, 1927-32-..... East Maui Irrigation Co.
Waiohue Stream near Nahiku, 1927-29-..... East Maui Irrigation Co.
East Kopiliula Stream near Nahiku, 1927-29-..... East Maui Irrigation Co.

West Kopiliula Stream near Nahiku, 1927-29-..... East Maui Irrigation Co.
East Wailuaiki Stream near Keanae, 1927-29-..... East Maui Irrigation Co.
West Wailuaiki Stream near Keanae, 1927-29-..... East Maui Irrigation Co.
Wailuaiki Stream near Keanae, 1927-32-..... East Maui Irrigation Co.
Waikamilo Stream near Keanae, 1927-28-..... East Maui Irrigation Co.
Keanae Valley Stream No. 3, near Keanae, 1927-28-..... East Maui Irrigation Co.
Keanae Valley Stream No. 5, near Keanae, 1927-28-..... East Maui Irrigation Co.
Ohia Spring near Keanae, 1933-35-..... East Maui Irrigation Co.
Banana Spring near Keanae, 1933-35-..... East Maui Irrigation Co.
Piinaaua Stream near Ukulele, 1929-..... East Maui Irrigation Co.
Piinaaua Stream near Keanae, 1927-29-..... East Maui Irrigation Co.
Nailua Stream near Keanae, 1927-29-..... East Maui Irrigation Co.
Nuuanu Stream near Keanae, 1927-30-..... East Maui Irrigation Co.
Haipuena Stream near Kailua, 1927-30-..... East Maui Irrigation Co.
Puohokamo Stream near Kailua, 1927-30-..... East Maui Irrigation Co.
East Branch of Puohokamo Stream near Kailua, 1930-33-..... East Maui Irrigation Co.
Wahinepee Stream near Kailua, 1927-28-..... East Maui Irrigation Co.
Waiakamoi Stream near Ukulele, 1929-..... East Maui Irrigation Co.
Waiakamoi Stream near Kailua, 1927-31-..... East Maui Irrigation Co.
West Branch of Waiakamoi Stream at Haiku-uka bound-
ary, near Kailua, 1929-..... East Maui Irrigation Co.
Kolea Stream near Kailua, 1927-28-..... East Maui Irrigation Co.
Punaluu Stream near Kailua, 1927-30-..... East Maui Irrigation Co.
Kaiae Stream near Kailua, 1927-28-..... East Maui Irrigation Co.
Papaea Stream near Kailua, 1927-28-..... East Maui Irrigation Co.

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Upper Hamakua ditch and reservoir No. 3 weir near Hono-
kaa, 1921-..... Hawaiian Irrigation Co.
Lower Hamakua ditch at main weir, near Kukuihaele, 1921-..... Hawaiian Irrigation Co.
Honokaape ditch at Kukuihaele village, 1923-..... Hawaiian Irrigation Co.
Kohala Ditch at Awini weir, near Niulii, 1917-..... Kohala Ditch Co.
Kohala Ditch at Niulii weir, near Niulii, 1917-..... Kohala Ditch Co.
Poloju inlet No. 1, near Niulii, 1929-..... Kohala Ditch Co.
Poloju inlet No. 2, near Niulii, 1929-..... Kohala Ditch Co.
Waiapuka Stream above Kohala Ditch, near Niulii, 1929-..... Kohala Ditch Co.
Waipuhi Stream above Kohala Ditch, near Halawa, 1932-..... Kohala Ditch Co.
Makapala Stream above Kohala Ditch, near Halawa, 1929-..... Kohala Ditch Co.
Waipunalani Stream above Kohala Ditch, near Halawa, 1929-..... Kohala Ditch Co.
Mountain house tunnel near Waiohinu, 1927-..... Hutchinson Sugar Plantation Co.
Plantation Springs tunnel near Naalehu, 1927-..... Hutchinson Sugar Plantation Co.
Shirakura tunnel No. 20 near Pahala, 1929-..... Hawaiian Agricultural Co.
Domestic supply tunnel No. 16 near Pahala, 1926-..... Hawaiian Agricultural Co.
Tanaka tunnel No. 15 near Pahala, 1926-..... Hawaiian Agricultural Co.
Double arch tunnel No. 11 near Pahala, 1926-..... Hawaiian Agricultural Co.
Mud Flow tunnel No. 2 near Pahala, 1926-..... Hawaiian Agricultural Co.
Noguchi tunnel No. 19 near Pahala, 1928-..... Hawaiian Agricultural Co.
Makakupu tunnel No. 13 near Pahala, 1926-..... Hawaiian Agricultural Co.

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SURFACE WATER SUPPLY RECORDS (IS - 1938) — MAUI 215

I A O S T E E A M		near		W A I L U K U , M A U I	
LOCATION. — A quarter of a mile below main forks of the stream, 3 miles West of Wailuku.					
LATITUDE	North 20° 52' 50"	Rate	Year	Month	Time Discharge (M.G.D.)
LONGITUDE	West 156° 32' 50"	Maximum (Daily (24-hours))	1910	Dec. 2	499
ELEVATION (Feet above Mean Sea Level) .....	.....	(Instantaneous)	1914	May 20	650
DRAINAGE AREA (Square Miles) .....	.....	Minimum	1913	Oct. 31	5.0
YEARS OF RECORD.—	4.60	Average			51.2

DURATION-DISCHARGE TABLE											
Calendar Year	Number of Days Record	Number of Days	Having a Discharge,	in Millions	Gallons,	Equal to or Greater than:	Time	Discharge	Year	Month	Day
		300	200	150	100	75	60	50	40	30	25
									20	16	10
									8	6	5
1910	239	2	7	12	32	46	63	76	98	131	156
1911	365	2	5	16	47	59	127	153	213	285	293
1912	366	0	3	10	24	35	50	76	123	176	242
1913	325	2	5	12	24	46	59	61	119	152	179
1914	265	6	18	23	56	66	118	161	170	181	194
1915	120	1	6	7	27	36	48	61	71	87	90
Total Days	1,580	13	41	72	156	327	450	574	929	1,094	1,287
Per Cent	100	.77	2.4	4.5	11.7	20.0	34.2	44.6	56.2	66.1	76.7
Means (4.60 Years)	2.8	6.9	16	43	71	98	125	163	202	238	280
									320	350	358
									362	365	

MONTHLY DISCHARGE TABLE												
Month	D a i l y	Monthly Run-Off	Month	D a i l y	Monthly Run-Off	Month	D a i l y	Monthly Run-Off	Month	D a i l y	Monthly Run-Off	
1910	Max. Min. Mean		1911	Max. Min. Mean		1912	Max. Min. Mean		1913	Max. Min. Mean		
Jan. 7-31	118	15	31.2	782	359	35	82.7	2,560	Jan.	28	13	15.8
Feb.	65	17	34.8	1,040	405	61	32	3,450	Feb.	138	16	47.1
Mar.	89	16	42.8	1,330	92	21	31.2	966	Mar.	152	29	62.4
Apr.	288	19	88.6	2,740	143	19	57.3	1,720	Apr.	195	27	62.8
May	261	16	56.9	1,710	166	35	65.9	2,040	May	46	18	27.9
June	260	10	50.7	1,570	165	26	41.9	1,500	June	32	14	23.1
Sept.	198	14	32.1	961	129	32	57.3	1,780	July	66	14	24.9
Oct.	429	24	82.7	2,560	209	36	82.1	2,480	Aug.	46	13	20.9
Nov.	325	19	55.2	1,710	94	21	37.1	1,180	Sept.	37	12	17.4
Dec.	375	6	40.9	13,500	43	18	25.3	782	Oct.	53	15	24.8
				365 Days	403	18	56.9	21,500	Nov.	105	16	33.1
									Dec.	45	19	28.4
									366 Days	196	12	32.3
												11,800

Source: U. S. Geological Survey.

M A H I A N I A D I T C H near W A I L U K U , M A U I											
LOCATION. — About 2½ miles west of Wailuku and 800 feet below intake.											
LATITUDE											
Longitude											
ELEVATION (Feet above Mean Sea Level)											
YEARS OF RECORD:.....											
2.88											

DURATION-DISCHARGE TABLE											
Calendar Year	Number of Days Record	Number of Days	Having a Discharge,	in Millions	Gallons,	Equal to or Greater than:	Time	Discharge	Year	Month	Day
		21	20	19	18	17	16	15	14	13	12
									11	10	9
									8	6	4
1910	48	1	2	3	4	5	6	13	19	23	36
1911	365	0	3	11	17	75	100	171	205	265	322
1912	366	0	10	24	54	133	177	235	256	321	346
1913	275	2	18	30	65	90	133	142	172	218	228
Total Days	1,052	3	23	46	104	166	346	432	59	678	836
Per Cent	100	.28	2.2	4.4	9.9	15.8	32.9	41.1	56.7	64.4	79.4
Means (2.88 Years)	1.0	8.0	16	36	56	120	150	207	236	290	309

MONTHLY DISCHARGE TABLE												
Month	D a i l y	Monthly Run-Off	Month	D a i l y	Monthly Run-Off	Month	D a i l y	Monthly Run-Off	Month	D a i l y	Monthly Run-Off	
1910	Max. Min. Mean		1911	Max. Min. Mean		1912	Max. Min. Mean		1913	Max. Min. Mean		
Jan. 17	21	10	14.3	243	11	7	13.3	4,870	Jan.	19.4	9.7	13.8
Dec.	16	6	11.8	365	365	7	13.3	4,870	Feb.	19.4	4.2	14.7
									366 Days	19.4	4.2	14.7
										5,370		

TERRITORIAL PLANNING BOARD

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Month	D a i l y			Monthly Run-Off	
	Max.	Min.	Mean		
<u>1913</u>					
Jan.	16	9	12.6	391	
Feb.	17	3	8.7	244	
Mar.	18	10	14.0	433	
Apr.	20	11	15.6	466	
May	19	6	15.4	479	
June	20	14	17.2	615	
July	21	16	17.8	561	
Aug.	21	13	17.1	531	
Sept.	22	11	14.7	443	
	273 Days			4,060	

Source: U. S. Geological Survey (Partly unpublished).

H S O U T H W A I E H U S T R E A M n e a r W A I L U K U , M A U I

LOCATION.- Two hundred feet below intake of South Waiehu ditch, about 3 miles west of Wailuku.				SUMMARY OF DISCHARGE RATES.-			
LATITUDE	North 20° 54' 20"	Rate	Time (M.G.D.)	Year	Month	Day	Discharge
LONGITUDE	West 156° 32' 20"	Maximum (Daily (24-hour))	1916	Jan.	9	100	
ELEVATION (Feet above Mean Sea Level)		(Instantaneous	1916	Jan.	9	150	
DRAINAGE AREA (Square Miles)-		Minimum	1913	July 1, 18, 26	1.5		
YEARS OF RECORD.-		Average				7.05	
		4.82					

I	Calendar Year	Number of Days Record	Number of Days	Having a Discharge,	DURATION-DISCHARGE TABLE																	
					50	50	20	10	12	10	8	7	6	5	4.5	4	3.5	to or	3	2.5	2	1.5
1910	.....	46		0	10	12	15	22	24	24	24	24	24	24	24	24	24	30	34	46		
1911	.....	365	7	17	25	29	31	40	48	62	68	116	144	360	364	365						
1913	.....	288	3	8	11	15	19	22	25	25	26	30	30	33	38	51	63	265	288			
1914	.....	339	8	26	50	68	101	123	183	206	251	269	284	298	321	332	339					
1915	....cc	0	1	+	9	1+	10	31	47	99	200	340	360									
1916	.....	268	3	4	8	8	10	10	17	28	34	218	233	268								
1917	.....	90		0	1	1	1	1	1	1	1	3	29	90								
Total Days	1,760	21	.56	98	130	176	214	315	381	494	926	1,092	1,459	1,470	1,501	1,544	1,737	1,760				
Per Cent	100	1.2	3.2	5.6	7.4	10.0	12.2	17.9	21.7	28.1	52.6	62.0	81.8	85.5	86.3	87.7	98.7	100.0				
Means (4.82 Years)		4.4	12	20	27	36	44	65	79	102	192	226	298	305	311	320	360	366				

Month	D a i l y			Monthly Run-Off	Month	D a i l y			Monthly Run-Off	Month	D a i l y			Monthly Run-Off
	Max.	Min.	Mean			Max.	Min.	Mean			Max.	Min.	Mean	
<u>1910</u>														
					<u>1911</u>					<u>1915</u>				
					Jan.	48	3.4	9.60	300	Mar. 13	Days 5.5	3.5	3.77	49
					Feb.	63	4.3	10.3	290	Apr.	17	3.5	5.64	169
					Mar.	28	4.3	5.97	185	May	32	2.0	5.02	168
					Apr.	30	4.3	6.65	196	June	12	2.0	2.33	70
					May	78	4.3	13.8	427	July	2.5	1.5	1.91	59
					June	39	4.3	6.68	176	Aug.	4.0	1.8	2.27	70
					July	26	4.3	6.24	163	Sept.	18	1.8	2.79	84
					Aug.	22	4.3	6.26	163	Oct.	3.0	2.0	2.15	67
					Sept.	87	4.3	18.3	489	Nov.	26	2.0	4.37	137
					Oct.	6.5	4.3	4.53	140	Dec.	39	2.0	6.42	199
					Nov.	9.1	4.3	5.17	155					
					Dec.	4.7	4.3	4.34	135					
					216	365 Days	87	3.4	7.75	2,820	288 Days			1,060
<u>1914</u>														
					<u>1915</u>					<u>1916</u>				
					Jan.	16	4.5	6.69	183	Jan. 1-17	100	5.0	19.8	3.38
					Feb.	16	4.2	6.40	179					
					Mar.	8.8	4.5	5.43	168	Apr. 25-30	31	5.0	10.0	60
					Apr.	14	4.5	6.89	207	May	21	5.0	6.59	198
					May	12	4.5	6.42	168	June	5.6	5.0	5.74	164
					June	8.8	4.2	5.71	171	July	7.7	5.0	5.28	164
					July	10	4.2	6.37	167	Aug.	8.3	5.0	4.46	169
					Aug.	5.5	4.0	4.55	141	Sept.	7.0	4.5	5.48	164
					Sept.	6.0	4.0	4.75	142	Oct.	9.1	4.0	5.13	159
					Oct.	25	4.5	7.16	222	Nov.	7.7	4.0	4.05	140
					Nov.	30	5.0	7.82	235	Dec.	9.1	4.0	4.88	151
					Dec.	8.8	4.5	6.65	176					
					365 Days	30	4.0	5.91	2,160	268 Days				1,700
<u>1917</u>														
					Jan.	4.5	4.0	4.06	126					
					Feb.	5.0	4.0	4.25	119					
					Mar.	17	4.0	4.01	123					
					90 Days				368					

Source: U. S. Geological Survey.

S O U T H W A I E H U D I T C H				n e a r W A I L U K U , M A U I			
LOCATION.- About 3 miles west of Wailuku and 300 feet above South Waiehu ditch intake.				SUMMARY OF DISCHARGE RATES.-			
LATITUDE				Rate			
LATITUDE				Maximum (Daily (24-hour))	1913	Feb.	6
LONGITUDE				(Instantaneous	Unknown		12.3
ELEVATION (Feet above Mean Sea Level)				Minimum	1913	Sept.	14, 15, 22
YEARS OF RECORD.-				Average		1.6	2.48

TERRITORIAL PLANNING BOARD

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SURFACE WATER SUPPLY RECORDS (190. .938) — MAUI 217

(Continued)
DURATION-DISCHARGE TABLE

Calendar Year	Number of Days Record	Number of Days Having a Discharge, in Millions	10	8	6	5	4	3.6	3	2.5	2	1.6	or Greater than	1.6	1.4
1913	365	2	4	20	25	39	46	61	76	126	329	362	365		
Total Days	365	2	4	20	25	39	46	61	76	126	329	362	365		
Per Cent	100	.55	1.1	5.5	6.8	10.7	12.3	14.0	20.8	34.5	90.2	99.2	100.0		

MONTHLY DISCHARGE TABLE

Month	D a i l y			Monthly Run-Off
	Max.	Min.	Mean	
1913				
Jan.	3.0	1.9	1.99	61.6
Feb.	12.3	1.9	3.43	96.1
Mar.	5.9	1.8	2.20	68.1
Apr.	7.6	1.6	3.18	95.5
May	7.8	1.6	2.54	78.9
June	4.7	1.6	1.95	58.7
July	3.2	1.6	1.98	60.9
Aug.	6.1	1.7	2.29	71.0
Sept.	8.7	1.8	2.30	68.1
Oct.	3.8	1.8	1.94	60.0
Nov.	6.5	1.8	2.80	64.1
Dec.	8.4	1.8	3.33	105
365 Days	12.3	1.6	2.46	907

Source: U. S. Geological Survey.

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NORTH WAIEHU STREAM near WAILUKU, MAUI

LOCATION.— Fifty feet above uppermost diversion, 1 mile above Waiehu canal crossing and about $\frac{1}{2}$ mile northwest of Wailuku.

SUMMARY OF DISCHARGE RATES

Rate	Year	Month	Day	Time Discharge (M.G.D.)
Maximum (Daily (24-hour)).....	1914	Sept.	6	245
Instantaneous		Unknown		
Minimum	1915	Mar.	25-31	1.6

LATITUDE

LONGITUDE

ELEVATION (Feet above Mean Sea Level)

DRAINAGE AREA (Square Miles).....

YEARS OF RECORD..

3.48

3.48

DURATION-DISCHARGE TABLE

Calendar Year	Number of Days Record	Number of Days Having a Discharge, in Millions	50	30	25	20	15	10	8	6	5	4	3.6	3	2.5	2	1.6
1912	176																
1913	365																
1914	365	1	3	4	6	20	125	194	217	267	318	365					
1915	365																
Total Days	1,271	1	3	4	7	23	169	245	317	436	623	873	928	1,254	1,264	1,271	
Per Cent	100	.08	.24	.31	.55	1.6	12.6	19.3	24.9	34.3	49.0	68.7	73.0	96.7	99.4	100.0	
Means (3.48 Years)		.3	.9	1.1	2.0	6.6	46	70	91	125	179	251	267	360	363	365	
Maxima		1	3	4	6	20	125	194	217	267	318	365	365	365	365	365	
Minima		0	0	0	0	1	2	6	14	18	45	98	133	549	558	365	

MONTHLY DISCHARGE TABLE

Month	D a i l y			Monthly Run-Off	Month	D a i l y			Monthly Run-Off	Month	D a i l y			Monthly Run-Off	
	Max.	Min.	Mean			Max.	Min.	Mean			Max.	Min.	Mean		
1912					1913					1914					
					Jan.	8.05	8.7	8.76	80.0	Jan.	7.0	8.9	4.38	153	
					Feb.	6.4	2.7	3.54	93.5	Feb.	4.8	3.9	3.33	110	
					Mar.	7.7	2.7	3.08	95.6	Mar.	8.1	3.9	4.59	142	
					Apr.	7.7	2.5	3.49	106	Apr.	8.1	3.9	6.38	161	
					May	5.6	2.7	2.96	91.9	May	11	4.8	7.05	219	
					June	9.0	2.7	3.50	98.7	June	32	8.1	11.0	328	
					July	3.9	2.5	2.78	86	July	16	9.6	11.1	345	
					Aug.	5.8	2.5	2.85	86	Aug.	15	9.6	11.1	346	
					Sept.	7.0	2.5	2.81	84	Sept.	245	7.1	18.2	547	
					Oct.	4.8	2.5	2.90	90	Oct.	22	5.8	9.81	304	
					Nov.	13	2.5	4.28	128	Nov.	29	5.4	9.26	278	
					Dec.	15	3.9	4.92	152	Dec.	17	7.1	11.0	341	
176 Days					365 Days	15	2.3	3.28	1,200	365 Days	245	3.9	8.96	3,270	
					1915										
					Jan.	10	4.5	6.70	208						
					Feb.	21	4.1	5.93	166						
					Mar.	4.7	1.6	2.81	87						
					Apr.	13	3.1	6.61	195						
					May	18	4.7	8.08	251						
					June	9.5	4.7	5.27	168						
					July	7.5	3.8	5.29	164						
					Aug.	5.5	3.8	3.85	120						
					Sept.	5.5	3.8	4.22	127						
					Oct.	12	3.8	5.81	180						
					Nov.	10	3.8	4.44	185						
					Dec.	16	3.8	5.03	156						
						365 Days	21	1.6	5.35	1,940					

Source: U. S. Geological Survey.

SUMMARY OF DISCHARGE RATES.—			
Rate	Year	Month	Day
Maximum (Daily (24-hour)).....	1916	Dec.	25
Instantaneous	1916	Dec.	25
Minimum	Occasionally		
Average			2.72

TERRITORIAL PLANNING BOARD

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(Continued)																				
Calendar Year	Number of Days Record	DURATION-DISCHARGE TABLE																		
		Number of Days	Having a Discharge, in Millions	of Gallons,	Equal to or Greater than:	6	5.5	5	4	3.5	3	2.5	2.2	2	1.7	1.4	1.2	1	0.5	0.0
1910	31		0	16	18	18	18	18	18	18	18	18	18	18	19	19	31	31	31	
1911	365	1	4	23	125	144	245	245	245	247	247	247	250							
1916	250		0	2	14	175	175	176	176	176	178	178	178	178	179	179	181			
1917	181																			
Total Days	827	1	4	23	127	158	426	452	528	594	613	690	712	768	790	827				
Per Cent	100	.12	.48	2.8	15.3	19.1	51.5	54.7	63.8	71.8	74.1	83.4	86.1	92.6	95.6	100.0				
Means (2.27 Years)		.4	1.8	10	56	70	188	199	233	262	270	304	314	337	348	365				

MONTHLY DISCHARGE TABLE														
Month	D a i l y			Monthly Run-Off	Month	D a i l y			Monthly Run-Off	Month	D a i l y			Monthly Run-Off
	Max.	Min.	Mean			Max.	Min.	Mean			Max.	Min.	Mean	
1910					1911					1916				
					Jan.	1.5	0	0.80	18.6					
					Feb.	1.5	0	0.98	27.0					
					Mar.	3.1	0	0.98	30.3					
					Apr.	2.7	1.1	1.99	59.6	1916				
					May	2.0	1.1	1.45	45.0	Apr. 26-30	4.0	4.0	4.00	20
					June	1.5	1.1	1.23	36.8	May	4.9	4.0	4.17	129
					July	2.0	1.5	1.52	46.9	June	5.4	4.9	5.10	153
					Aug.	2.7	1.5	1.80	55.7	July	5.4	3.6	4.97	154
					Sept.	3.5	2.0	2.40	72.0	Aug.	6.0	3.0	4.13	128
					Oct.	2.3	1.5	1.95	60.3	Sept.	4.2	3.4	3.57	107
					Nov.	2.7	2.3	2.34	70.1	Oct.	3.4	3.4	3.40	105
					Dec.	2.7	2.0	2.33	72.0	Nov.	3.8	3.0	3.33	100
					31 Days	3.6	0	1.63	594	Dec.	11.0	1.9	3.85	119
					365 Days	3.6	0	1.63	594	250 Days				1,020
					1917									
					Jan.	3.4	2.4	0.10	97					
					Feb.	3.8	1.3	3.19	89					
					Mar.	4.2	3.0	3.50	109					
					Apr.	3.4	1.6	3.31	99					
					May	4.2	3.4	3.46	107					
					June	3.4	3.0	3.29	99					
					101 Days				000					

Source: U. S. Geological Survey.

W A I H E E S T R E A M near W A I H E E , M A U I

LOCATION.—		SUMMARY OF DISCHARGE RATES.—											
LATITUDE	Longitude	Rate											
ELEVATION (Feet above Mean Sea Level)		Year Month Day											
DRAINAGE AREA (Square Miles)		Maximum (Daily (24-hours))											
YEARS OF RECORD		1916 Jan. 563											
Minimum (Instantaneous		Unknown											
Average		1913 Aug. 5 21											
		Average											

DURATION-DISCHARGE TABLE																
Calendar Year	Number of Days Record	DURATION-DISCHARGE TABLE														
		300	200	150	100	80	60	50	45	40	35	30	28	26	23	0
1913	275	2	5	9	12	21	39	55	64	88	114	169	227	254	272	275
1914	365	6	20	39	100	200	249	259	265	279	289	336	351	365		
1915	239	0	4	7	27	47	77	118	159	194	214	229	238	239		
1916	335	5	13	20	40	66	133	198	231	295	320	336				
1917	181	0	1	2	5	9	14	33	40	62	100	167	180	181		
Total Days	1,395	13	43	77	184	343	512	663	759	916	1,037	1,236	1,518	1,592	1,595	
Per Cent	100	.95	3.1	5.5	13.2	24.6	36.7	47.5	54.4	65.7	74.3	88.6	94.5	98.4	99.8	100.0
Means (3.62 Years)		3.4	11	20	48	90	134	174	199	240	271	324	345	369	364	366

MONTHLY DISCHARGE TABLE														
Month	D a i l y			Monthly Run-Off	Month	D a i l y			Monthly Run-Off	Month	D a i l y			Monthly Run-Off
	Max.	Min.	Mean			Max.	Min.	Mean			Max.	Min.	Mean	
1913					1914					1915				
					Jan.	185	28	48.5	1,500	Jan.	115	41	49.6	1,540
					Feb.	43	28	30.9	864	Feb.	226	41	77.9	2,180
					Mar.	81	26	30.9	959	Mar.	124	45	58.3	1,810
					Apr.	156	26	61.1	1,830	Apr. 1-19	248	41	75.4	1,430
					May	283	36	88.3	2,740					
					June	318	70	118	3,550					
					July	106	68	66.6	2,590					
					Aug.	124	63	94.7	2,940					
					Sept.	403	90	185	5,550					
					Oct.	318	83	113	3,500					
					Nov.	306	76	115	3,460					
					Dec.	163	50	80.4	1,200					
					275 Days	403	26	88.4	32,300	239 Days	98	34	80.6	14,600
					1916									
					Jan. 24 Days	553	41	116	2,910	Jan.	69	33	41.1	1,270
					Feb. 7 Days	112	40	54.9	384	Feb.	56	30	54.6	969
					Mar. 27 Days	244	36	58.7	1,640	Mar.	134	23	44.3	1,370
					Apr.	183	36	50.8	1,520	Apr.	24	20	40.0	1,160
					May	470	58	13.3	4,110	May	110	33	44.4	1,380
					June	161	58	77.0	2,310	June	95	26	41.7	1,250
					July	95	42	59.5	1,840					
					Aug.	224	42	67.5	2,090				</td	

SURFACE WATER-SUPPLY RECORDS (1901-1938) — MAUI 219

W A I H E E S T R E A M at D A M near W A I H E E , M A U I

LOCATION.— About $\frac{2}{3}$ miles west of Waihee at intake of Waihee canal.

LATITUDE North $20^{\circ} 56' 20''$
 LONGITUDE West $156^{\circ} 52' 40''$
 ELEVATION (Feet above Mean Sea Level) 650
 DRAINAGE AREA (Square Miles) 2.15
 YEARS OF RECORD.—

SUMMARY OF DISCHARGE RATES.—

	Rate	Year	Month	Day	Time	Discharge
Maximum (Daily (24-hour))	1911	Sept.	23	657	(M.G.D.)	
(Instantaneous)					Unknown	
Minimum					Frequently	0
Average						42.0

DURATION-DISCHARGE TABLE

Calendar Year	Number of Days Record	400	200	150	100	80	60	50	40	35	30	25	20	15	10	5	0	
1910	45	0	4	7	9	14	21	23	24	24	25	27	29	29	35	36	45	
1911	365	2	12	20	61	82	152	166	198	199	199	246	246	298	300	339	347	365
1912	366	0	2	7	16	19	27	43	58	62	86	87	113	118	139	172	366	
Total Days	776	2	18	54	76	116	200	232	277	286	286	356	359	440	447	513	555	776
Per Cent 100	.26	2.3	4.4	9.8	14.8	25.7	29.9	35.7	36.7	45.7	46.3	56.7	57.6	66.1	71.5	100.0		
Means (5.13 Years)	.9	95	18	36	54	94	109	130	134	134	167	169	207	210	241	261	366	

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MONTHLY DISCHARGE TABLE

Month	D a i l y Max.	Min.	Mean	Monthly Run-Off	Month	D a i l y Max.	Min.	Mean	Monthly Run-Off	Month	D a i l y Max.	Min.	Mean	Monthly Run-Off
1910					1911	170	18.7	95.7	2,970	1912	7.6	0	0.97	29.8
					Jan.	178	7.8	54.0	1,610	Feb.	98	0	19.0	651
					Feb.	153	14.2	41.4	1,280	Mar.	185	3.0	46.6	1,440
					Apr.	240	14.2	80.8	2,420	May	281	18.7	64.6	1,940
					May	427	23.5	93.1	2,680	June	78	0	14.6	459
					June	128	23.5	87.9	2,040	July	273	0	24.9	772
					July	98	23.5	46.1	1,430	Aug.	46	0	6.72	209
					Aug.	183	23.5	61.0	1,890	Sept.	14.2	0	.95	28.5
					Sept.	637	23.5	106	3,180	Oct.	46	0	9.05	281
					Oct.	185	14.2	33.5	1,040	Nov.	170	0	25.2	756
					Nov.	105	3.0	37.6	1,130	Dec.	126	0	10.9	356
Nov. 17-20	140	0	24.3	358	Dec.	84	0	13.6	420	366 Days	281	0	19.9	7,290
45 Days	249	0	87.9	2,720		365 Days	637	0	60.8					

Source: U. S. Geological Survey.

W A I H E E C A N A L near W A I H E E , M A U I

LOCATION.— About 2 miles west of Waihee and one-half mile below canal intake; $\frac{5}{8}$ miles above Wailuku.

LATITUDE North $20^{\circ} 56' 20''$
 LONGITUDE West $156^{\circ} 52' 40''$
 ELEVATION (Feet above Mean Sea Level) 650
 YEARS OF RECORD

SUMMARY OF DISCHARGE RATES.—

	Rate	Year	Month	Day	Time	Discharge
Maximum (Daily (24-hour))	1911	Apr.	16	72	(M.G.D.)	
(Instantaneous)					Not determined	
Minimum					Frequently	0
Average						39.6

DURATION-DISCHARGE TABLE

Calendar Year	Number of Days Record	70	65	80	55	60	45	40	35	30	25	20	15	5	0		
1910	45				0	1	1	3	16	28	43	43	43	45			
1911	365	1	4	16	24	98	132	148	266	513	329	353	359	361	365		
Total Days	410	1	4	16	24	99	133	151	281	341	372	396	402	404	410		
Per Cent 100	.24	.98	3.9	5.8	24.1	39.4	36.8	68.5	83.2	98.7	98.6	98.0	98.5	100			
Means (1.12 Years)	.9	3.6	14	21	86	119	135	251	304	332	354	359	361	366			

MONTHLY DISCHARGE TABLE

Month	D a i l y Max.	Min.	Mean	Monthly Run-Off	Month	D a i l y Max.	Min.	Mean	Monthly Run-Off	Month	D a i l y Max.	Min.	Mean	Monthly Run-Off		
1910					1911	38	20	31.7	982							
					Jan.	42	20	33.5	934							
					Feb.	38	0	28.1	872							
					Mar.	72	0	26.6	797							
					Apr.	67	28	50.0	1,540							
					May	50	38	40.7	1,220							
					June	63	32	47.6	1,470							
					July	58	32	41.9	1,300							
					Aug.	63	32	54.0	1,620							
					Sept.	64	46	53.3	1,650							
					Oct.	54	38	45.0	1,380							
					Nov.	42	34	37.4	1,160							
Nov. 17-30	42	25	52.5	452	Dec.	42	34	37.4	1,160	366 Days	72	0	40.8	14,900		
45 Days	52	0	51.2	866												

Source: U. S. Geological Survey.

W A I H E E C A N A L at W E I R near W A I L U K U , M A U I

LOCATION.— About half a mile above Wailuku and about 1,000 feet below the inverted siphon crossing Iao Valley.
 LATITUDE North $20^{\circ} 55' 00''$
 LONGITUDE West $156^{\circ} 30' 40''$
 ELEVATION (Feet above Mean Sea Level) 2,000
 YEARS OF RECORD

	Rate	Year	Month	Day	Time	Discharge
Maximum (Daily (24-hour))	1912	Apr.	14	56	(M.G.D.)	
(Instantaneous)					Not determined	
Minimum					Frequently	0
Average						25.3

TERRITORIAL PLANNING BOARD

000042

220 HAWAII — TERRITORIAL PLANNING BOARD

Calendar Year	Number of Days Record	DURATION-DISCHARGE TABLE (Continued)																								
		50	46	40	35	30	25	20	18	16	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
1911	365	0	3	67	190	280	335	360	360	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	351	
1912	365	1	2	5	11	23	45	90	118	157	241	272	315	341	363	365	365	365	365	365	365	365	365	365	365	365
Total Days.....	365	1	5	72	101	303	360	440	468	508	550	592	623	656	692	714	717	724	724	724	724	724	724	724	724	724
Per Cent.....	100	.14	.68	9.9	13.8	41.4	52.1	60.3	64.1	69.6	75.3	81.1	85.3	91.2	94.8	97.6	98.2	99.2	100	100	100	100	100	100	100	100
Means (2.00 Years)		.5	2.6	5.6	50	182	190	220	234	254	275	296	312	333	346	357	368	362	365	365	365	365	365	365	365	365

MONTHLY DISCHARGE TABLE

Month	D a M ax.	a i M in.	l i M e an.	y y R un-Off	Month	D a M ax.	a i M in.	l i M e an.	y y R un-Off					
						Max.	Min.	Mean						
1911					1912									
Jan.	36	21	51.8	967	Jan.	20	9.8	13.4	415					
Feb.	36	0	27.6	769	Feb.	45	9.50	17.0	492					
Mar.	37	0	26.3	815	Mar.	29	13	20.3	629					
Apr.	36	0	24.4	730	Apr.	56	16	28.8	664					
May	42	4	34.4	1,070	May	30	13	17.8	552					
June	41	34	38.3	1,150	June	25	12	15.9	477					
July	42	29	35.2	1,090	July	32	11	16.8	514					
Aug.	42	28	35.2	1,090	Aug. 1-30	21	9.5	15.0	390					
Sept.	43	30	37.2	1,120	Sept.	20	8.5	10.9	328					
Oct.	43	0	35.4	1,090	Oct.	23	10	14.0	433					
Nov.	47	0	40.1	1,210	Nov.	39	8.0	16.2	485					
Dec.	45	36	39.3	1,220	Dec.	36	13	20.1	522					
365 Days	47	0	33.8	12,300	365 Days	56	8.0	17.0	3,600					

Sources: U. S. Geological Survey.

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S P R E C K E L S D I T C H near W A I H E E , M A U I

LOCATION.— About 2 miles west of Waihee and about 500 feet below intake.										SUMMARY OF DISCHARGE RATES.—										
LATITUDE North 21° 45' 30" W. Long. 156° 32' 00"										Time Discharge										
LONGITUDE West 156° 32' 00"										Date	Month	Day	(M.G.D.)							
ELEVATION (Feet above Mean Sea Level) 425										Maximum (Daily (24-hour)) 1911 Sept. 20 96										
YEARS OF RECORD— 1910-1913										Minimum (Instantaneous) Unknown										
Total Days ... 1,049										1911 Dec. 28 0										
Per Cent 100										Minimum 1911 Dec. 28 0										
Means (2.87 Years)										Average 1910-1913 Dec. 28 15.5										

DURATION-DISCHARGE TABLE

Calendar Year	Number of Days Record	DURATION-DISCHARGE TABLE																						
		50	70	60	50	46	40	35	30	25	20	18	16	15	10	8	7	6	5	4	3	2	1	0
1910	45	0	4	6	7	16	26	27	28	31	33	39	45											
1911	365	5	12	15	84	116	119	176	200	220	239	318	359	361	365									
1912	365	0	1	9	19	28	32	55	69	93	124	157	188	188	365									
1913	273	0	0	14	16	21	25	28	63	71	85	101	127	133	365									
Total Days ... 1,049		5	12	15	28	97	156	172	245	306	344	423	542	614	679	1,049								
Per Cent 100	.48	1.1	1.4	2.5	9.2	14.8	16.4	23.4	29.2	32.8	40.3	61.7	58.5	64.7	100									
Means (2.87 Years)	1.7	4.2	5.2	9.1	34	54	60	85	107	120	147	189	214	237	366									

MONTHLY DISCHARGE TABLE

Month	D a M ax.	a i M in.	l i M e an.	y y R un-Off	Month	D a M ax.	a i M in.	l i M e an.	y y R un-Off										
						Max.	Min.	Mean											
1910					1911														
Jan.	14	9	15.4	417	Jan.	9	0	1.45	44.8										
Feb.	73	6	35.9	948	Feb.	41	.6	11.9	545										
Mar.	46	6	17.2	534	Mar.	38	4.7	20.8	630										
Apr.	73	12	29.9	896	Apr.	53	4.7	23.1	593										
May	60	12	25.4	789	May	45	1.2	8.98	278										
June	46	27	30.5	916	June	38	.3	5.84	175										
July	58	9	24.6	762	July	47	.6	10.9	537										
Aug.	52	14	36.6	1,150	Aug.	38	0	6.59	203										
Sept.	96	46	60.0	1,800	Sept.	17	.6	1.87	56.2										
Oct.	61	42	46.1	1,400	Oct.	28	.8	5.92	215										
Nov.	80	1.7	25.8	772	Nov.	43	1.0	12.5	370										
Dec.	14	0	6.55	197	Dec.	43	1.0	8.27	257										
45 Days		1,020		28.9	10,600	365 Days	53	0	9.82	3,600									

1913

LOCATION.— About 1 mile south of Wailuku at point where ditch empties into a reservoir.										SUMMARY OF DISCHARGE RATES.—									
LATITUDE North 20° 52' 10" W. Long. 156° 30' 10"										Time Discharge									
LONGITUDE West 156° 30' 10"										Date	Month	Day	(M.G.D.)						

SURFACE WATER-SUPPLY RECORDS (1910-1938) — MAUI 221

(Continued)
DURATION-DISCHARGE TABLE

Calendar Year	Number of Days Record	Number of Days	Having	a	Discharge, in Millions of Gallons,	Equal to or Greater than:									
		55	50	45	40	35	30	25	22	20	18	16	14	12	6
1910	365	0	7	16	24	41	64	113	159	190	229	274	327	357	365
1911	365	5	15	47	83	109	148	236	295	320	358	349	354	361	365
Total Days	730	5	20	63	107	150	212	349	452	510	568	623	681	718	750
Per Cent 100		.41	2.7	5.6	14.7	20.5	29.0	47.9	61.9	65.9	77.6	86.3	93.3	98.6	100.0
Means (2.00 Years)		1.5	10	32	54	75	106	174	226	255	284	312	340	359	365

MONTHLY DISCHARGE TABLE

Month	D	a	i	1	y	Monthly Run-Off	Month	D	a	i	1	y	Monthly Run-Off	
	Max.	Min.	Mean	Max.	Min.	Mean		Max.	Min.	Mean	Max.	Min.		
1910							1911							
Jan.	24	6	15.8	489	Jan.	34	13	22.4	694					
Feb.	27	11	18.1	508	Feb.	49	18	30.3	847					
Mar.	51	21	30.2	903	Mar.	45	16	25.1	779					
Apr.	50	16	25.7	769	Apr.	47	18	30.5	909					
May	50	14	23.5	727	May	54	24	37.5	1,170					
June	45	13	22.4	671	June	62	26	40.7	1,220					
July	50	15	21.9	678	July	58	19	29.9	929					
Aug.	52	16	29.2	906	Aug.	49	20	31.0	981					
Sept.	52	14	20.8	626	Sept.	56	24	36.1	1,140					
Oct.	53	13	20.3	629	Oct.	49	25	33.0	1,020					
Nov.	52	12	19.1	573	Nov.	60	21	29.8	896					
Dec.	58	18	25.3	782	Dec.	27	10	17.0	538					
	365 Days	55	6	22.6	8,260		365 Days	60	10	30.4	11,100			

Source: U. S. Geological Survey.

KAHAKULOA STREAM at KAHAKULOA near WAIHEE, MAUI

LOCATION.— About 13 miles northwest of Wailuku at trail bridge of Kahakuloa, below all diversions.		SUMMARY OF DISCHARGE RATES.—									
LATITUDE	North 20° 59' 20"	Rate									
LONGITUDE	West 156° 33' 10"	Year Month Day (M.G.D.)									
ELEVATION (Feet above Mean Sea Level)	Maximum (Daily (24-hour)) 1913 Feb. 6 89										
DRAINAGE AREA (Square Miles)	Instantaneous Unknown										
YEARS OF RECORD.—	Minimum 1913 Frequently 1.9										6.38
	Average 0.59										

DURATION-DISCHARGE TABLE																
Calendar Year	Number of Days Record	Number of Days	Having	a	Discharge, in Millions of Gallons,	Equal to or Greater than:										
		50	25	15	10	8	6	5	4	3.5	3	2.5	2	1.5	1.2	1.0
1912	127	1	4	8	16	22	37	46	69	77	115	119	127	127	127	127
1913	90	2	3	6	11	11	18	23	25	35	72	72	74	74	74	90
Total Days	217	5	7	14	27	33	55	69	94	112	187	191	201	201	201	217
Per Cent 100		1.4	3.2	6.4	12.4	16.2	25.3	31.6	43.3	51.0	66.1	66.0	82.6	82.6	92.6	100.0

Month	D	a	i	1	y	Monthly Run-Off	Month	D	a	i	1	y	Monthly Run-Off			
	Max.	Min.	Mean	Max.	Min.	Mean		Max.	Min.	Mean	Max.	Min.				
1912							1913									
Jan.	18.6	1.0	3.98	180	Jan.	18.6	1.0	3.98	180	Jan.	18.6	1.0	3.98	180		
Feb.	89	1.9	10.4	291	Feb.	89	1.9	10.4	291	Feb.	89	1.9	10.4	291		
Mar.	16.2	3.2	4.85	150	Mar.	16.2	3.2	4.85	150	Mar.	16.2	3.2	4.85	150		
Aug.	4.8	3.2	3.93	19.6	Aug.	4.8	3.2	3.93	19.6	Aug.	4.8	3.2	3.93	19.6		
Sept.	11.3	2.6	3.88	117	Sept.	11.3	2.6	3.88	117	Sept.	11.3	2.6	3.88	117		
Oct.	36.5	3.2	7.89	244	Oct.	36.5	3.2	7.89	244	Oct.	36.5	3.2	7.89	244		
Nov.	50	3.0	8.21	246	Nov.	50	3.0	8.21	246	Nov.	50	3.0	8.21	246		
Dec.	33	3.2	6.30	196	Dec.	33	3.2	6.30	196	Dec.	33	3.2	6.30	196		
	127 Days			823		90 Days								561		

Source: U. S. Geological Survey.

KAHAKULOA STREAM near HONOKOHAU, MAUI											
LOCATION.— Three miles above mouth of stream about 12 miles by trail southeast of Honokohau.	SUMMARY OF DISCHARGE RATES.—										
LATITUDE	Rate										
LONGITUDE	Year Month Day (M.G.D.)										
ELEVATION (Feet above Mean Sea Level)	Maximum (Daily (24-hour)) 1914 May 18 92										
DRAINAGE AREA (Square Miles)	Instantaneous 1914 May 18 92										
YEARS OF RECORD.—	Minimum 1913 Jan. 30 .95										
	Average 0.87										

DURATION-DISCHARGE TABLE																
Calendar Year	Number of Days Record	Number of Days	Having	a	Discharge, in Millions of Gallons,	Equal to or Greater than:										
		50	25	15	10	8	6	5	4	3.5	3	2.5	2	1.5	1.2	1.0
1913	186	1	4	11	16	20	31	42	55	64	77	85	123	155	176	186
1914	133	5	14	25	37	53	66	73	81	87	96	108	118	135	133	133
Total Days	519	6	18	36	53	73	97	115	136	151	173	183	241	288	309	319
Per Cent 100		1.9	5.5	11.3	16.6	22.9	30.4	36.1	42.6	47.3	54.2	50.5	75.5	90.3	96.9	100.0

TERRITORIAL PLANNING BOARD

000041

HAWAII

SURFACE WATER SUPPLY RECORDS (1919-1938) — MAUI 241

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(Continued)
MONTHLY DISCHARGE TABLE

Source: U. S. Geological Survey.

W A I K A P U S T R E A M

二〇一〇年

W A I K A P U , M A U I

LOCATION-- Three hundred feet below intake of Paipolo ditch,
 1½ miles west of Waikapu, and 4 miles by road
 southwest of Wailuku.
 LATITUDE-- North 20° 51' 20"
 LONGITUDE-- West 156° 51' 20"
 ELEVATION (Feet above Mean Sea Level)--
 DRAINAGE AREA (Square Miles)--
 YEARS OF RECORD-- 6.29

SUMMARY OF DISCHARGE RATES.

Rate	Year	Time	Discharge
		Month	(M.G.P.H.)
Maximum (Daily 24-hour)	(1916	May	220
(Instantaneous)	1916	Jan.	18 Undetermined
Minimum		Frequently	.1
Average			5.13

YEARS OF RECORD - 6.2

DURATION-DISCHARGE TABLE

MONTHLY DISCHARGE TAB

TERRITORIAL PLANNING BOARD

000045

Source: U. S. Geological Survey (Partly unpublished).

HAWAII

Month	D	a	i	l	y	Monthly	Month	D	a	i	l	y	Monthly	Month	D	a	i	l	y	Monthly	
	Max.	Min.	Mean			Run-off		Max.	Min.	Mean			Run-off		Max.	Min.	Mean		Run-off		
1913							1914							1915							
Jan.	0.2	0.1	0.13	4.0			Jan.	47	0.2	5.95	184			Jan.	17	1.0	3.62	112			
Feb.	32.3	.1	3.04	85			Feb.	.6	.1	.19	5			Feb.	98	1.0	9.62	269			
Mar.	.2	.1	.14	4.2			Mar.	140	.1	4.83	150			Mar.	7.1	1.0	2.41	75			
Apr.	52	.1	5.66	200			Apr.	66	.2	5.86	176			Apr.	66	1.0	7.31	219			
May	117	.1	5.78	176			May	220	.2	17.7	640			May	3.0	.00	1.16	37			
June	17.5	.1	1.03	31			June	49	1.3	8.96	269			June	15	.65	2.01	60			
July	3.8	.1	.36	11			July	40	1.3	14.2	441			July	34	1.0	2.82	87			
Aug.	34	.1	1.95	60			Aug.	94	1.8	16.8	520			Aug.	3.6	.5	.81	25			
Sept.	.5	.1	.12	4			Sept.	56	5.2	16.7	502			Sept.	9.7	.3	1.24	37			
Oct.	.6	.1	.15	5			Oct.	63	3.6	9.73	302			Oct.	40	.5	6.35	197			
Nov.	95	.1	6.01	180			Nov.	94	1.8	10.5	314			Nov.	77	1.0	9.66	300			
Dec.	115	.1	6.86	275			Dec.	31	2.3	6.41	199			Dec.	105	1.0	10.5	326			
	365 Days	117	.1	2.84	1,040			365 Days	220	.1	9.89	3,610				365 Days	105	.3	4.76	1,730	
	1916							1917													
Jan.	1-7	63	1.8	16.0		112		Jan.	4.2	0.9	1.47	46									
Apr. 26-30	56	3.4	25.3	126				Feb.	6.0	.6	1.28	36									
May	170	5.6	22.0	681				Mar.	220	.9	8.87	278									
June	24	4.8	8.40	252				Apr.	44	.9	3.46	104									
July	16	2.0	3.55	110				May	9.0	.4	1.10	34									
Aug.	25	2.0	3.88	120				June	2.5	.4	.73	22									
Sept.	9.0	.9	2.37	71																	
Oct.	3.0	.9	1.08	34																	
Nov.	8.0	.6	1.38	42																	
Dec.	55	.6	7.66	244																	
	257 Days				1,790			181 Days							520						

PALOLO (EVERETT) DITCH near WAIKAPU, MAUI

LOCATION.- Two hundred feet below intake, $\frac{1}{2}$ miles west of Waikapu, and $\frac{5}{8}$ miles by road southwest of Wailuku.	SUMMARY OF DISCHARGE RATES.-
LATITUDE North $20^{\circ} 51' 30''$	Time Discharge (M.G.D.)
LONGITUDE West $156^{\circ} 31' 20''$	Rate Year Month Day
ELEVATION (Feet above Mean Sea Level)	Maximum (Daily (24-hour)) 1913 Dec. 7 4.5
YEARS OF RECORD--	Instantaneous 1913 Dec. 7 4.7
	Minimum Occasionally 0
	Average 2.24

Calendar Year	Number of Days Record	DURATION-DISCHARGE TABLE												
		Number of Days	Raving	a	Discharge,	In Millions	of Gallons,	Equal	to or	Greater than:				
4	3.5	3.0	2.7	2.4	2.2	2.0	1.8	1.6	1.3	1.0	0.5	0.0		
1910	41	1	1	4	9	34	37	38	38	38	39	41		
1911	365	0	6	36	132	186	318	330	362	362	362	365		
1912	366	0	7	30	50	121	269	329	366					
1913	365	2	3	6	11	27	42	66	137	331	359	365		
1914	365	0	5	18	51	141	225	285	350	358	353	365		
1915	365	0	2	123	231	265	301	337	361	363	365			
1916	366	0	5	144	200	208	227	248	261	260	310	366		
1917	181	0	1	1	5	89	139	152	165	166	178	181		
Total Days	2,414	3	29	362	685	962	1,421	1,706	1,945	2,216	2,280	2,342	2,400	2,414
Per Cent	100	.12	1.2	15.0	28.4	39.8	58.9	70.7	80.6	91.8	94.4	97.0	99.4	100.0
Means (6.61 Years)		.5	4.4	55	104	146	215	258	294	335	345	354	363	365
Maxima		2	7	144	231	265	318	337	366	366	366	366	366	366
Minima		0	2	6	11	27	42	56	137	261	286	315	358	366

Month	D	a	i	l	y	Monthly	Month	D	a	i	l	y	Monthly	Month	D	a	i	l	y	Monthly	
	Max.	Min.	Mean			Run-Off		Max.	Min.	Mean			Run-Off		Max.	Min.	Mean		Run-Off		
1910							1911							1912							
Jan.	2.7	0.6	2.21	68			Jan.	2.8	2.3	2.40	74			Jan.	3.0	1.3	1.95	60			
Feb.	3.8	.6	2.91	82			Feb.	3.8	2.5	2.83	82			Feb.	3.6	2.1	2.19	68			
Mar.	3.4	.6	2.74	85			Mar.	3.6	2.2	2.79	86			Mar.	3.0	2.1	2.19	68			
Apr.	3.4	.6	2.58	77			Apr.	3.9	2.3	2.74	82			Apr.	3.3	2.7	2.69	87			
May	3.6	2.3	2.71	84			May	2.9	2.3	2.40	75			May	2.0	2.7	2.00	82			
June	2.8	2.5	2.70	81			June	2.6	2.3	2.38	72			June	3.3	2.3	2.38	74			
July	3.0	2.3	2.51	78			July	3.3	2.3	2.38	74			July	2.5	2.2	2.34	73			
Aug.	3.1	2.1	2.42	75			Aug.	2.5	2.2	2.34	73			Aug.	2.3	2.1	2.11	64			
Sept.	3.5	2.2	2.40	72			Sept.	2.3	2.1	2.11	64			Sept.	2.7	1.9	2.11	66			
Oct.	2.5	2.2	2.25	70			Oct.	2.7	1.9	2.22	67			Oct.	3.8	1.9	2.22	67			
Nov.	2.8	1.9	2.24	67			Nov.	3.0	1.9	2.24	68			Nov.	3.8	1.9	2.22	67			
Dec.	2.8	1.9	2.17	67			Dec.	2.5	1.8	2.00	62			Dec.	3.0	2.2	2.38	74			
	41 Days			94				365 Days	3.8	.6	2.48	906				366 Days	3.9	1.8	2.39	877	
	1913						1914							1915							
Jan.	2.2	1.7	1.87	58			Jan.	3.6	1.6	2.53	78			Jan.	3.0	1.3	1.95	60			
Feb.	2.9	1.6	1.96	55			Feb.	3.6	1.6	2.22	62			Feb.	3.6	2.1	2.88	81			
Mar.	1.8	1.6	1.66	52			Mar.	1.8	.1	1.13	35			Mar.	3.0	2.1	2.19	68			
Apr.	3.1	1.6	1.95	58			Apr.	2.7	.7	1.77	53			Apr.	3.3	2.7	2.69	87			
May	2.3	1.6	1.82	58			May	3.0	.7	1.02	60			May	2.0	2.7	2.00	82			
June	2.5	1.6	1.80	54			June	2.7	1.3	1.89	57			June	3.0	2.1	2.68	86			
July	2.4	1.6	1.74	54			July	2.7	2.4	2.45	76			July	3.0	2.2	2.52	78			
Aug.	3.0	1.3	1.82	56			Aug.	2.7	1.6	2.19	68			Aug.	3.0	2.7	2.64	82			
Sept.	1.8	1.3	1.86	47			Sept.	2.7	1.6	2.29	64			Sept.	3.6	2.4	2.78	83			
Oct.	2.1	1.3	1.55	48			Oct.	2.7	2.1	2.29	71			Oct.	3.3	2.2	2.73	84			
Nov.	3.9	1.6	1.87	56			Nov.	3.0	1.6	2.28	68			Nov.	3.3	1.3	2.47	74			
Dec.	4.5	.5	1.70	53			Dec.	2.4	1.0	1.89	59			Dec.	3.0	2.2	2.38	74			
	365 Days	4.5	.5	1.77	647			365 Days	3.6	.1	2.05	750				366 Days	3.6	1.3	2.60	949	

TERRITORIAL PLANNING BOARD

SURFACE WATER-SUPPLY RECORDS (1901-1938) — MAUI 243

	Month	MONTHLY DISCHARGE TABLE (Continued)			Month				Month											
		D	a	i	l	y	Max.	Min.	Mean	Run-Off	D	a	i	l	y	Max.	Min.	Mean	Run-Off	
	1916										1917									
	Jan.	2.7	0	1.26	39						Jan.	2.2	1.6	1.89	59					
	Feb.	1.5	0.6	1.08	31						Feb.	2.2	1.2	1.62	46					
	Mar.	1.3	.05	.77	24						Mar.	2.0	0	1.81	56					
	Apr.	2.0	.05	1.53	46						Apr.	3.3	1.6	2.19	56					
	May	3.0	.8	1.90	50						May	2.4	1.8	2.17	57					
	June	3.3	3.0	3.19	96						June	2.4	2.0	2.17	65					
	July	3.3	2.7	3.07	95															
	Aug.	3.3	2.4	2.61	87															
	Sept.	3.0	1.2	2.50	75															
	Oct.	3.3	3.0	3.07	95															
	Nov.	3.3	2.4	2.66	86															
	Dec.	3.6	1.2	3.00	93															
	366 Days	3.8	0	2.26	826						181 Days								359	

Source: U. S. Geological Survey (Partly unpublished).

S O U T H S I D E W A I K A P U D I T C H n e a r W A I K A P U , M A U I

LOCATION.—	One mile below intake, $\frac{1}{2}$ miles west of Waikapu, and about $\frac{5}{8}$ miles by road southwest of Wailuku.			SUMMARY OF DISCHARGE RATES.—		
LATITUDE	North $20^{\circ} 51' 00''$			Rate	Year	Time
LONGITUDE	West $156^{\circ} 31' 10''$			(Daily, 24-hour)	1914	Discharge (M.G.P.)
ELEVATION (Feet above Mean Sea Level)	6.61			Maximum (Instantaneous)	Unknown	
YEARS OF RECORD.—				Minimum	Occasionally	0
				Average		4.83

Calendar Year	Number of Days Record	DURATION-DISCHARGE TABLE												Equal to or Greater than:						
		15	12	10	8	5	7	6	5.5	5	4.5	4	3.5	3	2.5	2	1	0		
1910	41									0	2	3	8	11	16	22	32	34	34	41
1911	365									0	1	2	5	78	147	293	306	354	365	
1912	365									16	20	61	66	76	118	183	207	247	246	366
1913	365									2	3	7	19	27	40	60	80	106	189	365
1914	365	4	29	37	78	115	201	234	253	262	274	282	321	336	347	362	365			
1915	365	0	2	8	15	33	82	130	200	230	291	213	320	350	360	362	362	365		
1916	366	0	1	4	13	23	104	179	221	224	281	312	335	342	347	353	366			
1917	181									0	1	3	7	13	20	37	84	139	172	181
Total Days ..	2,414	4	32	52	111	194	439	632	800	947	1,189	1,353	1,693	1,957	2,221	2,293	2,378	2,414		
Per Cent	100	.17	1.3	2.2	4.6	8.0	18.2	28.2	35.1	39.2	49.2	56.0	70.1	81.1	92.0	96.5	100.0			
Means (6.61 Years)		.6	4.8	7.9	17	29	66	96	121	143	180	205	256	296	347	360	365			
Maxima		4	29	37	78	115	201	234	253	262	291	293	320	354	365	365	366			
Minima		0	0	0	0	1	2	5	60	80	106	160	189	266	306	353	365			

Month	D	a	i	l	y	Monthly Run-Off	Month	D	a	i	l	y	Monthly Run-Off	Month	D	a	i	l	y	Monthly Run-Off
1910							1911							1912						
Jan.	5.9	2.9	4.06	128			Jan.	4.5	1.8	2.41	72			Jan.	4.5	1.8	2.41	72		
Feb.	5.3	2.9	4.55	127			Feb.	8.3	1.9	4.24	123			Feb.	8.3	1.9	4.24	123		
Mar.	5.3	4.3	4.44	138			Mar.	8.8	4.1	6.20	132			Mar.	8.8	4.1	6.20	132		
Apr.	5.3	3.0	4.33	120			Apr.	10.1	4.5	6.70	201			Apr.	10.1	4.5	6.70	201		
May	6.5	4.3	4.62	143			May	6.1	3.6	4.27	132			May	6.1	3.6	4.27	132		
June	5.3	4.3	5.05	152			June	5.8	3.5	4.24	127			June	5.8	3.5	4.24	127		
July	5.3	4.3	4.93	153			July	8.1	3.5	4.13	128			July	8.1	3.5	4.13	128		
Aug.	5.3	4.3	4.70	146			Aug.	6.5	2.9	3.79	118			Aug.	6.5	2.9	3.79	118		
Sept.	5.3	4.3	4.83	145			Sept.	3.7	2.7	2.97	89			Sept.	3.7	2.7	2.97	89		
Oct.	5.3	4.3	4.51	140			Oct.	5.4	.6	2.89	90			Oct.	5.4	.6	2.89	90		
Nov.	7.1	3.5	4.12	123			Nov.	6.5	2.5	3.63	109			Nov.	6.5	2.5	3.63	109		
Dec.	5.3	2.9	3.48	108			Dec.	4.5	2.3	2.87	89			Dec.	4.5	2.3	2.87	89		
41 Days				144			365 Days	7.1	2.9	4.47	1,630			365 Days	10.4	.6	4.04	1,480		
1913							1914							1915						
Jan.	2.9	1.8	2.07	64			Jan.	7.0	1.8	3.21	99			Jan.	8.4	4.5	5.66	175		
Feb.	7.1	1.8	3.55	99			Feb.	4.5	1.0	2.72	76			Feb.	11	3.9	6.54	183		
Mar.	5.3	1.9	2.68	83			Mar.	12	2.7	3.78	117			Mar.	7.8	5.2	5.91	183		
Apr.	8.9	2.3	4.57	137			Apr.	14	3.2	5.64	169			Apr.	14	5.2	7.51	225		
May	8.1	3.7	5.03	156			May	16	3.2	7.35	228			May	7.1	3.9	5.39	167		
June	7.2	2.5	4.01	121			June	14	6.4	8.66	260			June	8.4	3.9	5.33	160		
July	5.8	2.7	3.55	110			July	14	7.6	10.3	320			July	11	4.1	5.84	181		
Aug.	7.0	2.3	3.78	117			Aug.	15	7.1	9.44	292			Aug.	7.0	3.4	3.90	121		
Sept.	4.7	2.3	2.91	87			Sept.	14	6.4	8.71	261			Sept.	7.7	2.2	4.11	123		
Oct.	2.7	1.8	1.95	61			Oct.	13	5.4	7.96	247			Oct.	9.2	3.4	5.76	179		
Nov.	11	1.8	5.17	155			Nov.	15	0	6.53	196			Nov.	10	4.1	6.00	180		
Dec.	9.4	1.0	3.03	94			Dec.	9.0	5.2	6.66	203			Dec.	12	0	5.87	182		
365 Days	11	1.0	3.52	1,280			365 Days	16	0	6.76	2,470			365 Days	14	0	5.64	2,060		
1916							1917													
Jan.	11	0	6.20	192			Jan.	5.5	2.5	3.62	112			Jan.						
Feb.	7.7	2.2	7.22	209			Feb.	6.2	2.5	3.10	87			Feb.						
Mar.	8.4	3.4	6.46	200			Mar.	4.8	0	2.55	73			Mar.						