HAWAII, ISLAND OF OAHU

16303000 PUNALUU STREAM NEAR PUNALUU

LOCATION.--Lat 21°33′33″, long 157°54′06″, Hydrologic Unit 20060000, on left bank at Punaluu ditch diversion dam, 1.4 mi west of Kahana, and 1.8 mi southwest of Punaluu.

DRAINAGE AREA.--2.78 mi^2.

PERIOD OF RECORD.--May 1953 to current year.

REVISED RECORDS.--WSP 1569: Drainage area. WRD Hawaii 1974: 1971-72(P), 1973(M). WDR HI-78-1: 1954(M), 1955-70(P).

GAGE.--Gage destroyed by flood of March 20-21, 1991 was restored and water-stage recorder installed on March 29, 1993. Masonry control and elevation of gage is 212 ft above mean sea level (from topographic map). Prior to March 29, 1993, datum 2.00 ft higher.

REMARKS.--Records computed by Roy Taogoshi. Records fair, except for estimated daily discharges, which are poor. Records do not include flow of Punaluu ditch (see station 16302000).

AVERAGE DISCHARGE.--46 years (water years 1954-99), 16.8 ft^3/s (12,180 acre-ft/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,900 ft^3/s, March 20, 1991, gage height, 10.02 ft, from rating curve extended above 170 ft^3/s on basis of slope-area measurements at gage heights 7.77 ft and 9.60 ft; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 930 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Jan. 7	2345	*1,160	*5.75	No other peaks greater than base discharge.			

Minimum discharge, no flow on several days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	4.4	7.2	10	10	2.5	13	e10	2.0	3.8	1.6	1.7
2	4.0	11	2.3	9.1	4.9	3.8	e36	e10	4.2	4.5	2.7	3.4
3	6.1	15	13	8.7	8.9	2.9	e28	e11	5.4	3.6	3.9	4.9
4	6.5	23	12	8.7	11	3.2	e14	e11	6.3	4.5	2.6	2.5
5	6.7	39	21	8.9	11	4.8	e7.0	e11	6.8	2.6	4.3	.68
6	7.0	18	16	9.3	7.0	8.2	e30	e10	7.4	2.1	4.6	1.2
7	7.0	14	20	55	3.5	13	e15	e10	8.3	2.8	3.1	1.5
8	6.6	16	32	83	7.1	11	e18	e9.0	5.3	3.3	.86	2.3
9	e9.5	13	18	13	8.3	12	e14	e9.3	2.2	2.7	2.4	1.6
10	e8.0	11	7.3	9.1	8.7	5.4	e11	e4.2	4.0	.24	4.4	.17
11	e3.0	10	9.1	5.1	9.4	3.5	e13	2.6	5.2	1.3	5.2	1.1
12	e6.0	4.9	9.4	5.4	12	6.6	e19	4.1	6.6	3.4	3.1	2.4
13	e18	18	9.9	7.1	6.9	9.3	e26	5.4	7.1	2.4	1.0	3.0
14	e11	17	9.9	8.2	2.2	11	e19	6.0	5.5	.44	1.9	3.5
15	7.6	9.6	10	9.9	3.7	14	e3.0	7.9	1.4	1.9	2.9	4.5
16	8.5	4.5	9.7	13	3.7	15	e4.0	24	2.3	4.7	3.4	2.2
17	8.2	12	9.3	12	4.2	14	e6.4	20	2.2	7.4	1.2	.44
18	12	36	9.0	12	9.6	13	e12	20	4.1	5.6	1.1	3.0
19	9.2	12	4.9	13	16	13	e11	10	6.2	5.9	6.9	5.5
20	8.5	7.8	2.1	13	23	14	e24	2.9	7.1	19	5.9	.68
21	3.0	9.3	3.5	8.0	38	4.6	e43	3.5	7.7	6.7	2.4	2.6
22	.24	10	5.5	41	27	7.1	e13	3.7	8.4	5.1	1.2	3.2
23	.65	11	7.8	14	7.2	9.9	e9.0	5.2	3.8	1.6	2.4	3.2
24	1.4	11	4.2	6.1	5.9	11	e7.0	3.6	4.3	2.6	3.5	4.2
25	2.1	11	18	14	5.7	3.9	e3.0	2.8	6.2	5.3	4.5	6.4
26	.80	11	11	26	6.2	3.5	e3.0	5.0	6.8	5.3	2.4	8.2
27	2.0	15	11	16	6.6	11	e1.0	5.8	9.0	7.8	1.2	.37
28	2.7	11	34	15	4.2	13	e5.0	6.6	8.4	8.3	2.4	1.2
29	3.7	14	18	13	---	16	e6.0	7.9	8.7	8.4	3.6	1.9
30	3.8	13	9.5	13	---	13	e8.0	14	8.8	4.1	5.5	2.9
31	4.2	---	24	19	---	13	---	6.0	---	.94	3.0	---
TOTAL	180.69	412.5	378.6	498.6	271.9	286.2	421.4	262.5	171.7	138.32	95.16	80.44
MEAN	5.83	13.8	12.2	16.1	9.71	9.23	14.0	8.47	5.72	4.46	3.07	2.68
MAX	18	39	34	83	38	16	43	24	9.0	19	6.9	8.2
MIN	.24	4.4	2.1	5.1	2.2	2.5	1.0	2.6	1.4	.24	.86	.17
AC-FT	358	818	751	989	539	568	836	521	341	274	189	160

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1999, BY WATER YEAR (WY)

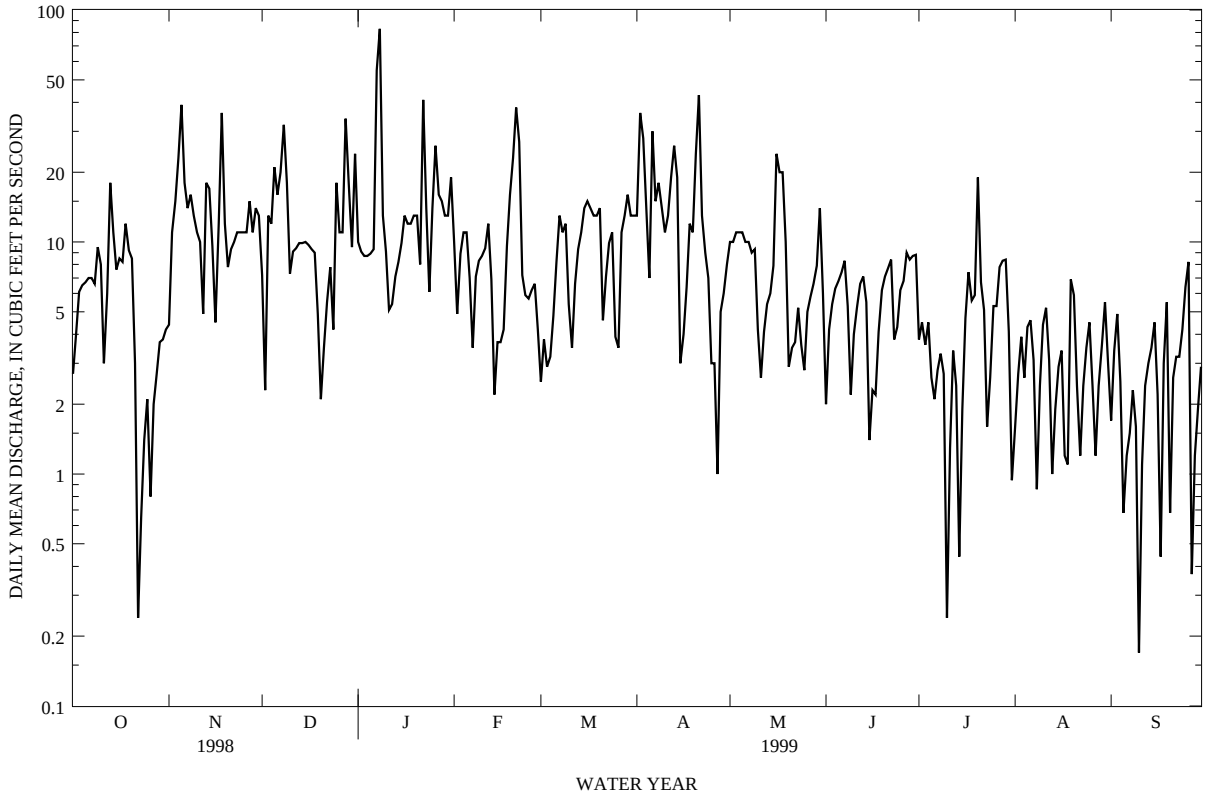
MEAN	13.7	20.2	20.4	20.9	21.1	21.7	21.4	16.9	11.3	12.0	11.2	10.2
MAX	38.7	74.7	64.5	40.9	76.3	73.1	84.6	64.9	35.4	39.0	36.9	30.0
(WY)	1959	1991	1965	1988	1969	1982	1963	1965	1982	1974	1982	1994
MIN	.28	4.58	.23	3.32	.58	3.19	2.37	1.00	.000	.000	.31	.49
(WY)	1958	1960	1960	1960	1964	1993	1954	1961	1953	1953	1961	1961

e Estimated

HAWAII, ISLAND OF OAHU

16303000 PUNALUU STREAM NEAR PUNALUU--Continued

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1953 - 1999	
ANNUAL TOTAL	2948.41		3198.01			
ANNUAL MEAN	8.08		8.76		16.8	
HIGHEST ANNUAL MEAN					35.4	1982
LOWEST ANNUAL MEAN					7.27	1961
HIGHEST DAILY MEAN	188	Jan 1	83	Jan 8	1010	Apr 15 1963
LOWEST DAILY MEAN	.04	Sep 27	.17	Sep 10	.00	Jun 1 1953
ANNUAL SEVEN-DAY MINIMUM	1.4	Oct 22	1.2	Sep 5	.00	Jun 1 1953
ANNUAL RUNOFF (AC-FT)	5850		6340		12180	
10 PERCENT EXCEEDS	14		16		30	
50 PERCENT EXCEEDS	6.6		6.9		12	
90 PERCENT EXCEEDS	2.3		2.1		2.5	



PERIOD OF RECORD.--Water years 1970-86, 1999.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)
JUN									
22...	1220	8.2	107	9.4	123	21.5	6.2	4.9	.7

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)
JUN									
22...	10	37	45	12	<.1	28	1.5	<.02	<.1

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
JUN									
22...	.1	<.05	<.01	.041	.03	.024	90	45	3

DATE	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	PH WATER FILTERED FIELD (STAND-ARD UNITS) (99900)
JUN				
22...	.5	.2	3	8.3