STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

PUBLICATION OF THE
DIVISION OF WATER RESOURCES
EDWARD HYATT, STATE ENGINEER

REPORT ON

WATER MASTER SERVICE

ON

HAT CREEK

SHASTA COUNTY, CALIFORNIA

FOR THE SEASON OF 1956

BY

H. E. von Bergen
Assistant Hydraulic Engineer

Sacramento, California
March, 1938

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STATE OF CALIFORNIA

Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER
CHIEF OF DIVISION

March 15, 1938

Mr. Harold Conkling
Deputy State Engineer
Sacramento, California

Attention: Mr. Gordon Zander
Supervising Hydraulic Engineer

Dear Sir:

There is submitted herewith a report covering water master service on Hat Creek, Shasta County, California, during the period from May 1 to September 30, 1936.

The report describes the methods and practices followed in the distribution of waters of Hat Creek in accordance with the Doyel vs. Massie decree, and presents the results obtained under the distribution.

Respectfully submitted,

H. M. Burgum
Assistant Hydraulic Engineer

ORGANIZATION

Earl Lee Kelly	Director of Public Works
Edward Hyatt	State Engineer
Harold Conkling	Deputy State Engineer

GORDON ZANDER

Supervising Hydraulic Engineer

T. Russel Simpson	Senior Hydraulic Engineer
H. E. von Bergen	Assistant Hydraulic Engineer
G. M. Vickroy	Deputy Water Master

Sacramento, California
March 1958

GENERAL DESCRIPTION OF WORK

Water master service was conducted on Hat Creek during the 1936 season in accordance with the provisions of the decree in the case of Doyel vs. Massie.

Water master service was commenced on May 1, 1936 by T. R. Simpson, Supervising Water Master, and G. M. Vickroy, Deputy Water Master. From July 15 to October 8 the water distribution work was done mainly by H. E. von Bergen as Deputy Water Master.

All diversions from Hat Creek were opened during the 1936 season.

The water supply during the 1936 season was such that an average of about 62 per cent total allotments were delivered.

DISCUSSION OF RESULTS FOR THE SEASON

The precipitation at Hat Creek for the seasonal year October 1, 1935 to September 30, 1936, is shown in Table 1. The precipitation during this season as compared with the 16 year average was about 115 per cent of normal.

Table 2 is a tabulation of the daily discharge of Hat Creek above all diversions during the 1936 season. The record was obtained by combining the measured flow at the United States Geological Survey Gaging Station with that of all diversions above the station.

Table 3 shows the water deliveries on Hat Creek during the 1936 season expressed in cubic feet per second and in per cent of full allotments. The table also shows the average channel losses during each rotation period.

TABLES

TABLE 1
Precipitation Data
Hat Creek, Shasta County - Elevation 3010 Feet
Monthly, Seasonal and Average Amounts of Precipitation in Inches

Season	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Seasonal
10 year Mean 1921-1931	0.91	1.94	1.98	1.86	2.76	1.51	1.46	1.23	0.90	0.04	0.17	0.61	15.37
1931-32	2.56	1.94	5.76	1.69	0.62	1.08	1.51	0.97	0.08	0.19	0.00	0.00	16.40
1932-33	0.65	0.90	2.27	3.01	0.32	2.81	1.25	1.71	0.19	0.06	0.10	0.19	13.46
1933-34	1.42	T	3.37	1.07	2.58	1.28	0.19	2.48	1.43	0.13	0.08	0.18	14.21
1934-35	1.03	3.07	2.21	3.89	2.44	3.00	5.39	1.46	0.05	0.07	0.09	0.02	22.72
1935-36	1.89	0.60	2.74	4.76	4.55	0.78	1.15	0.51	0.66	0.12	0.01	0.61	18.38
1936-37	0.09	0.00	2.19	2.04	5.53	3.22	1.08	0.27	1.21	0.67	0.00	0.01	16.31
16 year Mean 1921-1937	1.05	1.62	2.40	2.19	2.73	1.70	1.57	1.23	0.79	0.10	0.12	0.45	15.95

TABLE 2

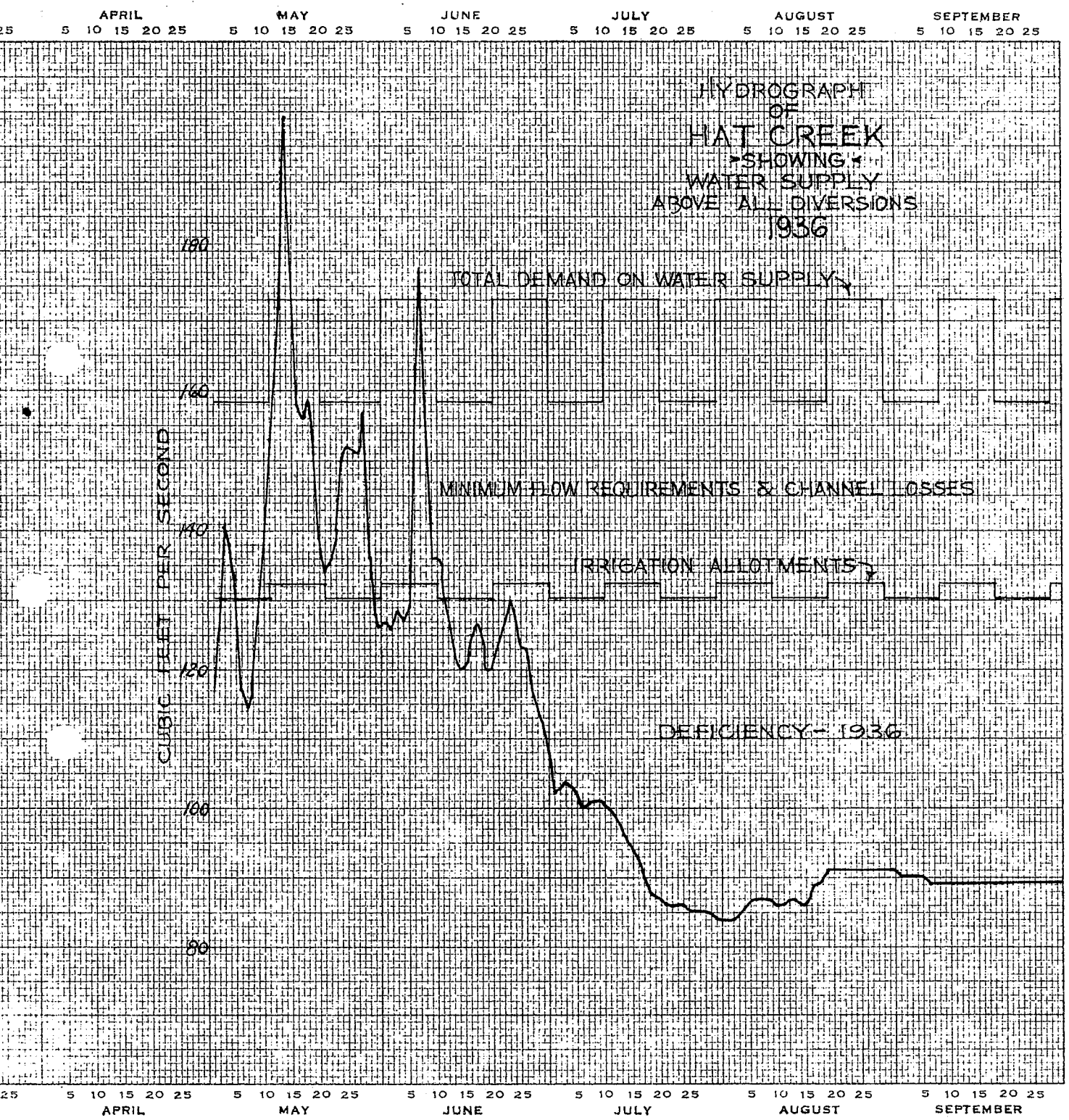
CONTINUOUS RECORDS OF DAILY DISCHARGE IN CUBIC FEET
PER SECOND OF HAT CREEK ABOVE ALL DIVERSIONS
FOR THE PERIOD APRIL 1 TO SEPTEMBER 30, 1936

Day	Apr.	May	June	July	Aug.	Sept.	
1	86.0	117.	127.	102.	84.0	90.0	
2	89.0	126.	126.	103.	84.0	90.0	
3	90.0	141.	129.	104.	85.0	90.0	
4	89.0	136.	127.	103.	86.0	90.0	
5	88.0	133.	129.	102.	87.0	90.0	
6	89.0	117.	147.	100.	87.0	89.0	
7	90.0	114.	177.	100.	87.0	89.0	
8	90.0	118.	150.	101.	87.0	89.0	
9	90.0	126.	136.	101.	87.0	89.0	
10	91.0	136.	136.	100.	86.0	89.0	
11	94.0	153.	135.	100.	86.0	89.0	
12	96.0	161.	129.	99.0	87.0	89.0	
13	100.	172.	126.	97.0	87.0	89.0	
14	104.	199.	120.	95.0	86.0	89.0	
15	109.	171.	121.	94.0	86.0	89.0	
16	118.	158.	123.	93.0	89.0	89.0	
17	117.	156.	127.	91.0	89.0	88.0	
18	109.	158.	126.	88.0	90.0	89.0	
19	107.	153.	120.	87.0	91.0	89.0	
20	111.	159.	120.	87.0	91.0	89.0	
21	115.	134.	124.	86.0	91.0	89.0	
22	135.	136.	126.	86.0	91.0	89.0	
23	136.	140.	130.	86.0	91.0	89.0	
24	127.	151.	126.	86.0	91.0	89.0	
25	124.	152.	123.	85.0	91.0	89.0	
26	129.	151.	123.	85.0	91.0	89.0	
27	132.	151.	118.	85.0	91.0	89.0	
28	132.	157.	114.	85.0	91.0	89.0	
29	123.	136.	112.	85.0	91.0	89.0	
30	112.	128.	107.	84.0	91.0	89.0	
31		126.		84.0	91.0		
Total Sec. Ft. Days	3222.	4446.	3834.	2984.	2745.	2674.	183 Day Period
Mean Sec. Ft.	107.4	143.4	125.7	93.0	88.5	86.3	108.2
Maximum Sec. Ft.	136.	199.	177.	104.	91.0	90.0	199.
Minimum Sec. Ft.	86.0	114.	107.	84.0	84.0	89.0	84.0
Total Acre-Ft.	6390.	8820.	7600.	5720.	5440.	5300.	39,300.

TABLE 5

WATER DELIVERIES ON HAT CREEK - 1936 SEASON

Irrigation period	Dates	Average flow of Hat Cr. above all diversions	Average combined Diversions cu.ft. per Sec.	Channel Loss Cu. Ft. per Sec.		Average Irrigation Delivery Cubic Feet per Second		Average Irrigation Delivery Per cent of Full Allotment	
				Upper Users	Lower Users	Upper Users	Lower Users	Upper Users	Lower Users
1	5/1 - 5/11	126	110	16		98		78	
2	5/11 - 5/21	160	134		26		119		90
3	5/21 - 5/31	154	138	16		126		100	
4	5/31 - 6/10	148	127		21		112		85
5	6/10 - 6/20	140	125	15		112		90	
6	6/20 - 6/30	135	114		21		99		75
7	6/30 - 7/10	105	90	15		78		60	
8	7/10 - 7/20	99	81		18		66		50
9	7/20 - 7/30	86	71	15		59		45	
10	7/30 - 8/9	86	67		19		53		40
11	8/9 - 8/19	86	71	15		59		45	
12	8/19 - 8/29	91	74		17		59		45
13	8/29 - 9/8	90	77	13		65		50	
14	9/8 - 9/18	89	69		20		55		42
15	9/18 - 9/28	89	77	12		65		50	
16	9/28 - 10/8	89	74		15		59		45
Average for Period from May 1 to October 8, 1936		111	94	15	20	83	78	64	59


HYDROGRAPH
OF
HAT CREEK
SHOWING
WATER SUPPLY
ABOVE ALL DIVERSIONS
1936
TOTAL DEMAND ON WATER SUPPLY
MINIMUM FLOW REQUIREMENTS & CHANNEL LOSSES
IRRIGATION ALLOTMENTS
DEFICIENCY - 1936
CUBIC FEET PER SECOND
180
160
140
120
100
80
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25