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 1935

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 18, 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, 1935.

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

Respectfully submitted,

H. E. von Berger

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 1935 season in accordance with the provisions of the decree in the case of Doyel vs. Massie.

Water master service was commenced on May 1, 1935, by T. R. Simpson, Supervising Water Master, and G. M. Vickroy, Deputy Water Master. From July 17 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 1935 season.

The water supply during the 1935 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, 1934 to September 30, 1935, is shown in Table 1. The precipitation during this season as compared with the sixteen-year average was about 142 per cent of normal.

Table 2 is a tabulation of the daily discharge of Hat Creek above all diversions during the 1935 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.

Plate 1 graphically shows the water supply that is tabulated in Table 2. The gross demand on the water supply, including irrigation allotments, minimum flow requirements and channel losses, are also shown on Plate 1.

Table 3 shows the water deliveries on Hat Creek during the 1935 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

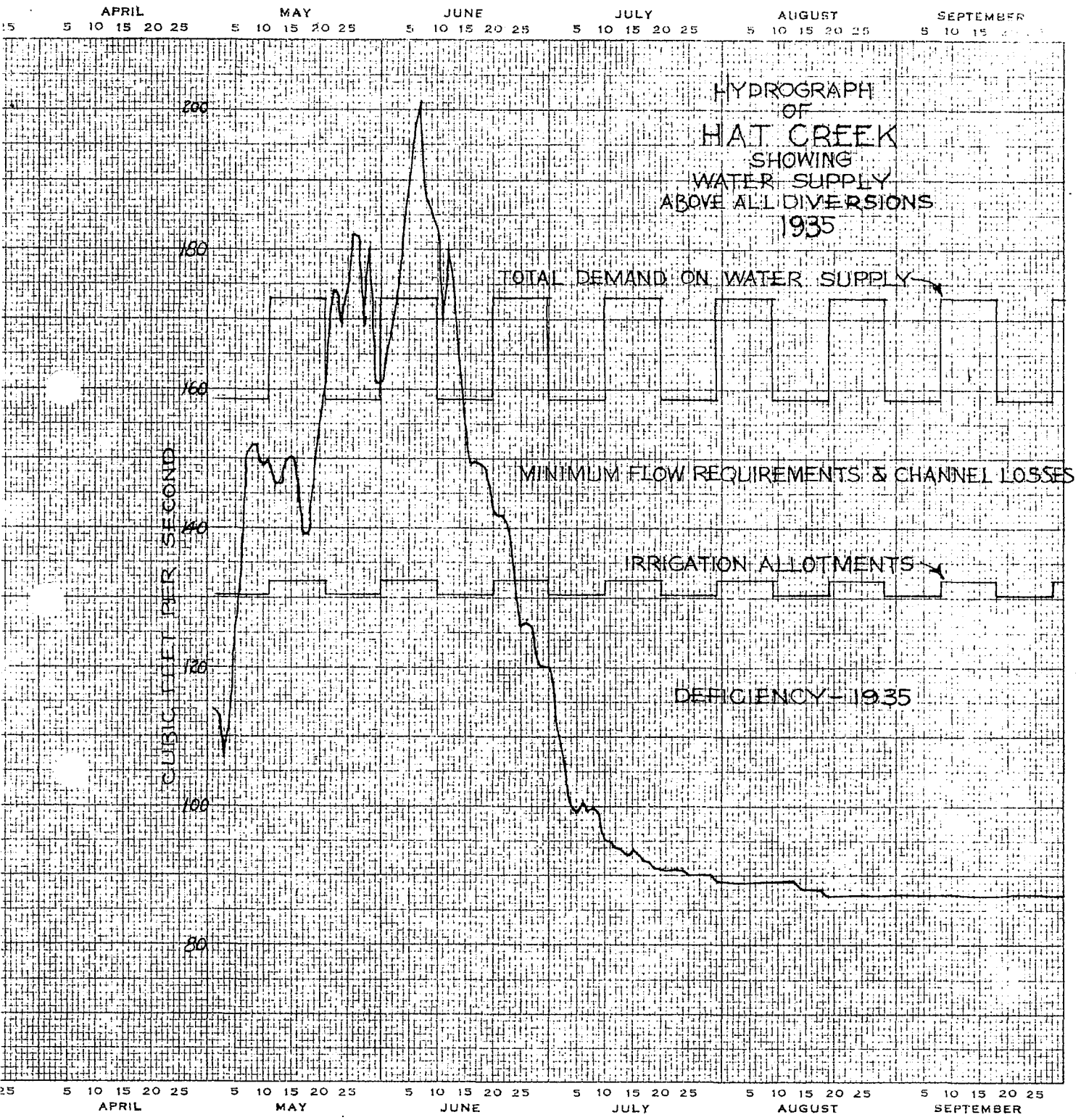
CONTINUOUS RECORDS OF DAILY DISCHARGE IN CUBIC FEET
PER SECOND OF HAT CREEK ABOVE ALL DIVERSIONS
FOR THE PERIOD APRIL 1 to SEPTEMBER 30, 1935.

Day	Apr.	May	June	July	Aug.	Sept.	
1	110.	114.	164.	113.	89.0	87.0	
2	110.	113.	169.	109.	89.0	87.0	
3	110.	107.	174.	106.	89.0	87.0	
4	110.	112.	182.	100.	89.0	87.0	
5	110.	123.	188.	99.0	89.0	87.0	
6	110.	138.	197.	101.	89.0	87.0	
7	110.	150.	201.	99.0	89.0	87.0	
8	110.	152.	188.	100.	89.0	87.0	
9	110.	152.	185.	99.0	89.0	87.0	
10	82.0	149.	183.	95.0	89.0	87.0	
11	84.0	150.	170.	95.0	89.0	87.0	
12	85.0	146.	180.	94.0	89.0	87.0	
13	86.0	147.	173.	94.0	89.0	87.0	
14	90.0	150.	164.	93.0	88.0	87.0	
15	109.	150.	152.	94.0	88.0	87.0	
16	105.	150.	149.	93.0	88.0	87.0	
17	95.0	139.	150.	92.0	88.0	87.0	
18	94.0	139.	149.	92.0	88.0	87.0	
19	99.0	147.	147.	91.0	87.0	87.0	
20	108.	155.	142.	91.0	87.0	87.0	
21	120.	161.	142.	91.0	87.0	87.0	
22	107.	171.	142.	91.0	87.0	87.0	
23	100.	174.	139.	91.0	87.0	87.0	
24	97.0	169.	130.	91.0	87.0	87.0	
25	101.	174.	126.	90.0	87.0	87.0	
26	107.	182.	127.	90.0	87.0	87.0	
27	115.	182.	126.	90.0	87.0	87.0	
28	118.	169.	121.	90.0	87.0	87.0	
29	130.	181.	120.	90.0	87.0	87.0	
30	120.	161.	120.	89.0	87.0	87.0	
31		161.		89.0	87.0		
Total Sec. Ft. Days	3142.	4665.	4700.	2942.	2728.	2610.	183 Day Period
Mean Sec. Ft.	104.7	150.5	156.7	94.9	88.0	87.0	113.6
Maximum Sec. Ft.	130.	182.	201.	113.	89.0	87.0	201.
Minimum Sec. Ft.	82.	107.	120.	89.0	87.0	87.0	82.
Total Acre-Feet	6230.	9250.	9320.	5830.	5410.	5180.	41,200.

TABLE 3

WATER DELIVERIES ON HAT CREEK - 1935 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	131	115	16		103		90	
2	5/11 - 5/21	148	127		21		112		85
3	5/21 - 5/31	172	158	16		130		100	
4	5/31 - 6/10	181	147		24		132		100
5	6/10 - 6/20	162	143	19		130		100	
6	6/20 - 6/30	132	107		25		93		70
7	6/30 - 7/10	104	90	14		78		60	
8	7/10 - 7/20	95	81		14		66		50
9	7/20 - 7/30	90	77	13		65		50	
10	7/30 - 8/9	89	67		22		53		40
11	8/9 - 8/19	88	71	17		59		45	
12	8/19 - 8/29	87	67		20		53		40
13	8/29 - 9/8	87	71	16		59		45	
14	9/8 - 9/18	87	67		20		53		40
15	9/18 - 9/28	87	71	16		59		45	
16	9/28 - 10/8	87	67		20		53		40
Average for Period from May 1 to October 8, 1935		114	95	16	21	85	77	67	58


HYDROGRAPH
OF
HAT CREEK
SHOWING
WATER SUPPLY
ABOVE ALL DIVERSIONS
1935
TOTAL DEMAND ON WATER SUPPLY
MINIMUM FLOW REQUIREMENTS & CHANNEL LOSSES
IRRIGATION ALLOTMENTS
DEFICIENCY - 1935
CUBIC FEET PER SECOND
200
180
160
140
120
100
80
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25