STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

O

EARL WARREN, Governor

C. H. PURCELL, Director of Public Works

A. D. EDMONSTON, State Engineer

REPORT ON WATERMASTER SERVICE

IN

HAT CREEK WATERMASTER SERVICE AREA

Shasta County, California

1949 SEASON

Sacramento, California

March, 1951

SUBMISSION TO, AND ADOPTION BY
DEPARTMENT OF PUBLIC WORKS

I, L. C. Jopson, Supervising Hydraulic Engineer, Division of Water Resources, Department of Public Works of the State of California, hereby submit the within contained report entitled "Report on Watermaster Service in Hat Creek Watermaster Service Area, Shasta County, California, 1949 Season".

/s/ L. C. JOPSON
Supervising Hydraulic Engineer

I, Gordon Zander, Principal Hydraulic Engineer, Division of Water Resources, Department of Public Works of the State of California, hereby approve the within contained "Report on Watermaster Service in Hat Creek Watermaster Service Area, Shasta County, California, 1949 Season".

/s/ GORDON ZANDER
Principal Hydraulic Engineer

I, A. D. Edmonston, State Engineer and Chief of the Division of Water Resources, Department of Public Works of the State of California, hereby approve and adopt the within contained report entitled "Report on Watermaster Service in Hat Creek Watermaster Service Area, Shasta County, California, 1949 Season", as a report of the Department of Public Works.

WITNESS my hand and the seal of the Department of Public Works of the State of California, this 10th day of August 1951.

DEPARTMENT OF PUBLIC WORKS

By /s/ A. D. EDMONSTON
A. D. Edmonston
State Engineer

SEAL

ORGANIZATION

C. H. Purcell . . . . . Director of Public Works

A. D. Edmonston . . . . . State Engineer

P. H. Van Etten . . . . . Assistant State Engineer

Gordon Zander . . . . Principal Hydraulic Engineer

This report was prepared under the direction of

L. C. JOPSON
Supervising Hydraulic Engineer

By

G. M. Vickroy
Assistant Hydraulic Engineer

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1. Hydrograph of Hat Creek, 1949.

INTRODUCTION

The Hat Creek Watermaster Service Area was created by order of the Division of Water Resources entered September 11, 1929. By order dated March 26, 1942, the boundaries of the service area were changed by excluding certain lands and water rights and by including others not defined at the time of the original order.

As presently constituted the service area includes the water rights on Hat Creek established by the decree entered May 14, 1924, in the case of Doyel vs. Massie, No. 5724, Superior Court, Shasta County, California, excepting the Indian Lands and Water Rights appurtenant thereto; by the decree entered May 7, 1935, in the case of Doyel vs. Wilcox, No. 7558, Superior Court, Shasta County, California; and by Licenses 1196 and 2083 on Applications 2878 and 4700, respectively, issued by the Division of Water Resources subsequent to entry of the said Doyel vs. Massie decree.

Watermaster service in the Hat Creek Watermaster Service Area was carried on throughout the 1949 season in accordance with Part 4 of Division 2 of the Water Code.

The distribution of water in the service area extended over the period from May 1 to October 18, 1949. G. M. Vickroy and W. S. Hudson, Deputy Watermasters, administered the distribution of water during the 1949 season under the supervision of L. C. Jopson, Supervising Hydraulic Engineer.

WATER SUPPLY

Precipitation

Data on precipitation at Hat Creek Power House No. 1, as compiled from records of the U. S. Weather Bureau are presented in Table 1.

The data indicate that the precipitation for the 1948-1949 season was 11.54 inches, or about 66 per cent of the normal precipitation.

Stream Flow

The U. S. Geological Survey maintains a stream flow measuring station on Hat Creek with its location designated as near Hat Creek. This station is located below Old Station and is downstream from the Harvey Wilcox, Stevenson, Gray, Hall and Shearin ditches.

The flow at the measuring station plus the total amount being diverted by the above named ditches gives the flow available to meet the distribution requirements on Hat Creek.

The record of flow of Hat Creek for 1949, as compiled from unpublished records of the U. S. Geological Survey, is submitted in Table 2 of this report.

A comparison of the total available water supply and the water requirements on the stream including minimum flows, irrigation allotments and channel losses, is shown graphically on Plate 1.

DISTRIBUTION OF WATER

Distribution of water during the 1949 season followed the practices initiated in past seasons with little or no modification. All the diversions were operated during the season, excepting the ditches on the Stevenson Upper ranch which were washed out in the winter of 1937 and have not been replaced.

Rotation was commenced on May 1 at the beginning of the 1st Upper Users period. Rotation was continued throughout the season up to October 18, when watermaster service was discontinued for the 1949 season; no controversies were had with or among the water users over the distribution during the 1949 season,

Tabulations of the amounts of water required to satisfy the demands on the available water supply during the Upper Users and the Lower User's periods are presented in Tables 3 and 4, respectively.

Table 5 shows a summary of the distribution of water on Hat Creek during the 1949 irrigation season.

CHANGES IN OWNERSHIP OF LANDS AND WATER RIGHTS

Changes in ownership of lands and water rights which occurred subsequent to filing "Statement for Hat Creek Watermaster Service Area, County of Shasta, State of California for 1949" and which have been included in the 1950 statement for said watermaster service area, are listed in the following tabulation:

Tract No.	Name of Water Right Owner Appearing in 1949 Statement	Name of Water Right Owner as Changed in 1950 Statement	Amount of Water c.f.s.
Part of 2-8	S. E. Kerns and Maida E. Kerns	Hector H. Fulton and Helen L. Fulton	0.15

TABLE 1

PRECIPITATION - HAT CREEK POWER HOUSE NO. 1
SHASTA COUNTY, CALIFORNIA

Elevation 3,015 feet

Month	Normal Precipitation Inches	Precipitation 1948-1949 Inches	Per cent of Normal
October	1.24	1.76	142
November	1.88	0.79	42
December	2.62	3.01	115
January	2.56	0.53	21
February	3.11	1.42	46
March	1.83	1.86	101
April	1.55	0.61	39
May	1.22	0.93	76
June	0.77	0.08	10
July	0.13	0.00	0
August	0.12	0.16	133
September	0.40	0.39	97
Total	17.43	11.54	66

Compiled from records of U. S. Weather Bureau.

TABLE 2

DAILY DISCHARGE IN CUBIC FEET PER SECOND
HAT CREEK AT U.S.G.S. STATION NEAR HAT CREEK, CALIFORNIA
October 1,1948 to September 30, 1949

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.'
1	120	146	117	109	115	112	112	140	148	107	107	103
2	118	142	120	109	115	112	112	157	146	107	107	100
3	117	136	115	107	115	112	112	153	144	109	107	100
4	117	125	109	107	115	112	112	148	146	109	107	101
5	118	124	109	110	112	112	115	148	151	109	107	103
6	118	124	107	110	114	112	115	146	151	109	107	101
7	118	120	110	110	112	110	115	148	148	109	107	101
8	118	118	112	110	112	110	115	151	142	109	107	103
9	118	120	114	110	112	110	117	148	142	107	104	106
10	117	120	112	110	114	110	118	155	142	109	104	107
11	118	120	112	110	114	112	120	177	140	110	100	107
12	120	120	114	110	110	110	122	182	136	112	100	107
13	118	118	112	110	110	110	122	194	134	110	98	107
14	120	120	110	110	112	110	124	187	129	110	97	106
15	120	122	107	110	112	114	125	182	125	109	98	104
16	120	120	106	110	112	114	127	180	122	109	98	104
17	120	118	106	110	112	114	129	180	120	109	98	104
18	118	118	106	110	112	115	131	159	120	109	98	104
19	117	120	104	110	112	115	136	153	120	109	103	104
20	117	118	106	110	109	115	136	153	124	109	106	104
21	117	117	112	110	106	114	138	151	122	106	107	106
22	117	120	112	110	110	114	144	151	120	103	107	104
23	117	120	107	110	115	112	153	153	120	98	109	98
24	117	118	104	110	114	112	153	159	117	101	109	98
25	117	117	104	110	112	112	146	168	115	104	109	98
26	117	115	106	110	112	112	144	164	114	104	109	98
27	117	114	106	110	112	114	146	157	114	104	109	100
28	118	115	106	114	112	112	146	153	114	104	110	100
29	117	114	107	114	—	112	142	151	114	104	109	100
30	120	117	107	114	—	112	138	153	110	106	107	100
31	124	—	107	114	—	112	—	155	—	107	104	—
Total	3,665	3,636	3,386	3,418	3,144	3,479	3,865	4,956	3,890	3,321	3,249	3,078
Mean	118	121	109	110	112	112	129	160	130	107	105	103
Ac. Ft	7,270	7,210	6,720	6,780	6,240	6,900	7,670	9,830	7,720	6,590	6,440	6,110

Total Runoff in Acre-Feet - 85,480

"Unpublished Records subject to Revision"

TABLE 3

Demand on Water Supply

UPPER USERS PERIODS

Item and Authority		Amount of Water c. f. s. First Priority	Second Priority	Total
DEMANDS SUBJECT TO PRORATION				
Irrigation allotments - Schedule I, Doyel vs. Massie decree		103.50		
Irrigation allotment to Sullivan - Par. 30 - Doyel vs. Massie decree		4.60		
Irrigation allotment to U. S. Forest Service as allowed by water master in agreement with Forest Ranger		2.50		
Irrigation allotments for reclaimed and mud low lands - Par. 22, Doyel vs. Massie				
Harvey W. Wilcox (Herman)	40.0 acres	4.00		
Vint Stevenson	80.0	8.00		
Carrie K. Hall	5.0	.50		
R. A. Wilcox (Ward Smith)	27.0	2.70		
Irrigation allotment for reclaimed mud flow lands allowed by water master to Harry M. Wilcox 8.0 ac.		.80		
Irrigation allotment to Mrs. M. H. Shearin (Olmsted) Par. 5, Doyel vs. Wilcox decree (rotation head)		1.92		
Irrigation allotment to Carrie K. Hall (Day) - Application 4700, License 2083			2.50	
Total		128.52	2.50	
FIXED DEMANDS				
Sawmill use for Carrie K. Hall (Day) - Par. 11, Doyel vs. Massie decree		.50		
Minimum flow allotments to Lower Users - Schedule IV Doyel vs. Massie decree		9.125		
Minimum flow allotment to Vernon March - Allowed by water master		1.00		
Minimum flow allotments to Dunwoody & Grant - Par. 6, Doyel vs. Wilcox decree				
Dunwoody		.25		
Grant		.25		
Conveyance loss in Reiger Ditch - Par. 13, Doyel vs. Massie decree. Amount determined by measurements		1.75		
Channel loss in Hat Creek. Amount determined by Measurements.		14.00		
Total		26.875		
Grand Total		155.395	2.50	157.895

TABLE 4

Demand on Water Supply

LOWER USERS PERIODS

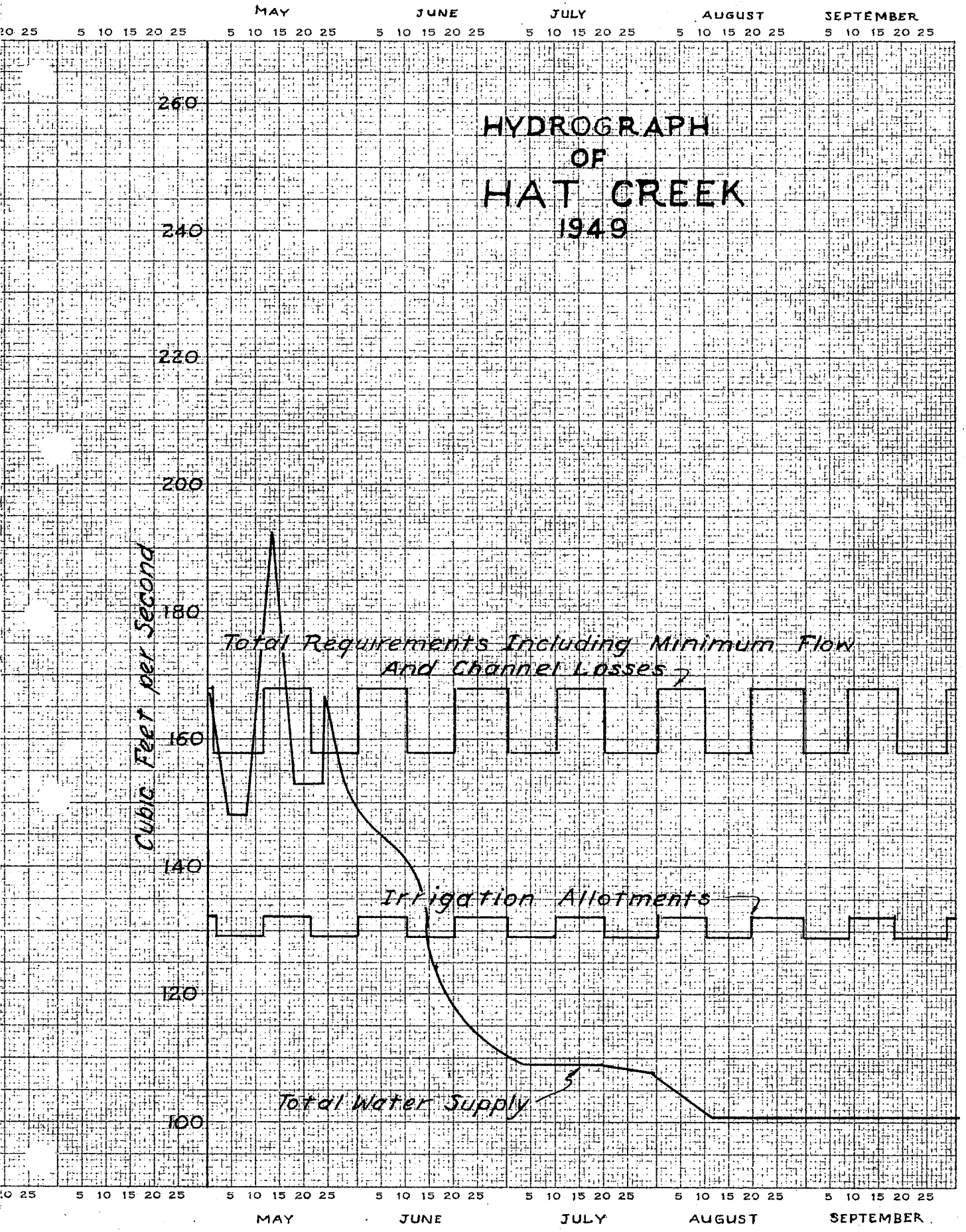
Item and Authority	Amount of Water c.f.s.		
	First Priority	Second Priority	Total
DEMANDS SUBJECT TO PRORATION			
Irrigation allotments - Schedule III Doyel vs. Massie decree	129.000		
Irrigation allotments to Grant and Dunwoody - Par. 6: Doyel vs. Wilcox decree			
Grant	1.000		
Dunwoody	1.000		
Irrigation allotment for reclaimed mud flow lands Par. 22, Doyel vs. Massie			
R. E. Bidwell	1.200		
Irrigation allotment to W. W. Brown (Startt) Application 2878, License 1196		0.850	
Total	132.200	0.850	
FIXED DEMANDS			
Sawmill use for Carrie K. Hall (Day) Par. 11, Doyel vs. Massie decree	0.500		
Minimum flow allotments to Upper Users - Schedule II	10.125		
Minimum flow allotments to Mrs. M. H. Shearin, Olmsted) - Par. 6, Doyel vs. Wilcox decree	0.250		
Minimum flow allotments to Sullivan (Scott Kerns) allowed by water master	0.500		
Minimum flow allotment to U. S. Forest Service by agreement with water master	1.750		
Allowance for conveyance loss in Reiger Ditch Decree, Par. 13 and measurements	1.750		
Channel loss in Hat Creek, measurements	20.000		
Total	34.875		
Grand Total	167.075	0.850	167.925

TABLE 5

SUMMARY OF DISTRIBTUION ON HAT CREEK - 1949 SEASON

Irrigation Period	Dates	Average Flow of Hat Creek Above All Diversions	Average Combined Diversions in Cu. Ft. per Second	Channel Losses Cu. Ft. per Second: Upper Users	Channel Losses Cu. Ft. per Second: Lower Users	Cu. Ft. per Second: Upper Users	Cu. Ft. per Second: Lower Users	Per Cent of Full Allotment: Upper Users	Per Cent of Full Allotment: Lower Users
1	5/1 - 5/11	173							Surplus
2	5/11 -5/21	175							Surplus
3	5/21 - 5/31	189							Surplus
4	5/31 - 6/10	170							Surplus
5	6/10 - 6/20	170							Surplus
6	6/20 - 6/30	130	110		20		95		71
7	6/30 - 7/10	123	110	14		97		75	
8	7/10 - 7/20	118	98		20		83		63
9	7/20 - 7/30	116	102	14		89		69	
10	7/30 - 8/9	113	93		20		78		59
11	8/9 - 8/19	110	96	14		83		65	
12	8/19 - 8/29	110	90		20		75		56
13	8/29 - 9/8	110	96	14		83		65	
14	9/8 - 9/18	110	90		20		75		56
15	9/18 - 9/28	110	96	14		83		65	
16	9/28 - 10/8	110	90		20		75		56
17	10/8 -10/18	110	96	14		83		65	
18	10/18 -10/28	110	90		20		75		56

PLATE I


HYDROGRAPH
OF
HAT CREEK
1949
MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25
260
240
220
200
180
160
140
120
100
Cubic Feet per Second
Total Requirements Including Minimum Flow And Channel Losses
Irrigation Allotments
Total Water Supply