

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

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REPORT ON
WATERMASTER SERVICE IN
HAT CREEK AND BURNBY CREEK WATERMASTER SERVICE AREAS
SHASTA COUNTY, CALIFORNIA
1956 SEASON

Sacramento, California
March, 1957

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1. Hydrograph of Hat Creek at U.S.G.S. Station

SUBMISSION TO, AND ADOPTION BY
DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

I, William N. Gianelli, Chief, Water Rights Section, Department of Water Resources of the State of California, approve this "Report on Watermaster Service in Hat Creek and Burney Creek Watermaster Service Areas, Shasta County, California, 1956 Season".

/s/ W. N. Gianelli

Chief, Water Rights Section

I, Harvey O. Banks, Director of the Department of Water Resources of the State of California, approve and adopt this "Report on Watermaster Service in Hat Creek and Burney Creek Watermaster Service Areas, Shasta County, California, 1956 Season", as a report of the Department of Water Resources.

Witness my hand and the seal of the Department of Water Resources of the State of California this ____ day of March, 1957.

State of California
Department of Water Resources

/s/ Harvey O. Banks

HARVEY O. BANKS
Director

(SML)

ORGANIZATION

STATE DEPARTMENT OF WATER RESOURCES

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INTRODUCTION

This report presents the results accomplished during the twenty-seventh season of water distribution, in both the Hat Creek Watermaster Service Area and Burney Creek Watermaster Service Area. The report covers the period of water distribution during the 1956 season beginning May 1 and ending October 28.

The Hat Creek Watermaster Service Area was created by order of the Department of Public Works on September 11, 1929. A subsequent order entered March 26, 1942, extended the boundary of the service area to include certain newly determined water rights and to exclude others that are not subject to control by the watermaster.

As presently constituted, the service area includes the water rights established by the decree entered May 14, 1924, in the case of Doyel vs. Massie, No. 5724, Superior Court, Shasta County, except those held in trust by the United States for certain Indians; by the decree entered May 7, 1935, in the case of Doyel vs. Wilcox, No. 7858, Superior Court, Shasta County; and by Licenses 1196 and 2083 issued on Applications 2878 and 4700, respectively.

The Burney Creek Watermaster Service Area was created by order of the Department of Public Works on September 11, 1929, to include all water rights determined in the decree entered January 30, 1926, in the case of Ednah M. Black vs. Martha B. Grinnell, et al., No. 5111, Superior Court, Shasta

County, California. A subsequent order dated March 28, 1942, excluded certain lands whereon need for watermaster service had ceased. Watermaster service has been provided during each irrigation season since the service areas were created and annual reports prepared to show the work accomplished during each season.

This report is presented under four headings as follows: Introduction, Water Supply, Distribution of Water, and Changes in Ownership of Lands and Water Rights. Appendix A contains precipitation data of Hat Creek Power House Number 1, water supply records of Hat Creek at the United States Geological Survey station, and demand on water supply during upper users and lower users periods. Plate one presents a hydrograph of Hat Creek at the United States Geological Survey station.

WATER SUPPLY

Heavy precipitation during the winter months provided an above normal water supply in both Hat Creek and Burney Creek throughout the 1956 irrigation season.

Precipitation

Monthly precipitation at Hat Creek Powerhouse Number 1, as compiled from records of the United States Weather Bureau is presented in Table A-1. The total precipitation for the 1955-1956 season was 27.19 inches, or about 158 per cent of the mean. The elevation of the station is 3,015 feet.

Stream Flow

The United States Geological Survey maintains a stream flow gaging station on Hat Creek, downstream from the Harvey Wilcox, Stevenson, Gray, Hall, and Shearin Ditches. The amount of water passing this gaging station plus the total amount being diverted by the above named ditches comprises the flow available for distribution on Hat Creek.

The record of flow of Hat Creek at the United States Geological Survey station, (which is referred to as Hat Creek near Hat Creek by records of that agency) for 1956 is presented in Table A-2. Daily mean discharges shown were obtained from preliminary records. Flow at this station, irrigation allotments, and total water requirements on the stream are shown graphically on Plate 1.

DISTRIBUTION OF WATER

The distribution of water in the Hat Creek and Burney Creek Service areas was carried out as established by past practices in accordance with the respective decrees and licenses for these creeks.

Hat Creek

Water rights in the Hat Creek Watermaster Service Area are grouped into four divisions by the Doyel vs. Massie decree as follows:

Schedule I	which defines rights to use of water from Hat Creek by the upper users during their nine irrigation periods;
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- Schedule II which defines minimum flow allotments from Hat Creek to upper users ditches during their nine minimum flow periods;
- Schedule III which defines rights to use of water from Hat Creek by the lower users during their nine irrigation periods;
- Schedule IV which defines minimum flow allotments from Hat Creek to lower users ditches during their nine minimum flow periods.

Additional allotments are allowed in this decree for reclaimed mud flow lands. Use of water is also allowed under the Doyel vs. Wilcox decree and under appropriative rights set forth in Licenses 1196 and 2083. Total demands on the water supply of Hat Creek during both upper users periods and lower users periods are shown in Tables A-4 and A-5.

Distribution during the 1956 season followed the methods and practices initiated in past seasons with little or no modification. All the diversions on Hat Creek were operated during the season except the ditches on the Stevenson upper ranch, which were washed out in the winter of 1937 and have not been replaced.

Rotation on Hat Creek commenced on May 1 at the beginning of the first upper users period and was continued throughout the season. Percentages of allotments delivered during each of the 18 irrigation periods were based on the amount of water remaining after deducting minimum flow requirements, fixed demand requirements, and measured channel losses, from the available water supply. The water available for distribution is the

summation of the flow passing the gaging station and measured diversions above that station. A summary of distribution during the season, determined as outlined above, is presented in the following tabulation.

Irrigation period	:	Dates	: Per cent of allotments available	
			: Upper users	: Lower users
1.	Upper	5/1-5/11	Surplus	
2.	Lower	5/11-5/21		Surplus
3.	Upper	5/21-5/31	Surplus	
4.	Lower	5/31-6/10		Surplus
5.	Upper	6/10-6/20	Surplus	
6.	Lower	6/20-6/30		Surplus
7.	Upper	6/30-7/10	Surplus	
8.	Lower	7/10-7/20		Surplus
9.	Upper	7/20-7/30	Surplus	
10.	Lower	7/30-8/9		100
11.	Upper	8/9-8/19	Surplus	
12.	Lower	8/19-8/29		95
13.	Upper	8-29-9/8	100	
14.	Lower	9/8-9/18		90
15.	Upper	9/18-9/28	95	
16.	Lower	9/28-10/8		90
17.	Upper	10/8-10/18	95	
18.	Lower	10/18-10/28		90

Burney Creek

As in past years, the various water users on Burney Creek expressed their preference for a continuous flow, and distribution was carried out on that basis. All the diversions on Burney Creek were in operation throughout the season except the Cayton Ditch which has been abandoned. The water formerly carried in that Ditch is now delivered to the Elling Ranch through the Elling Lower Ditch.

Until about August 1, available flow was sufficient to supply full allotments. Thereafter the flow gradually decreased until August 15, when water was available for about 90 per cent of the first priority allotments. During the remainder of the season the flow remained nearly constant, except for a few days during the latter part of August, when a rainstorm temporarily increased the flow of the Creek.

A summary of distribution of water on Burney Creek during the 1956 season is presented in the following tabulation.

Month	Per cent of allotment available	
	First priority	Second priority
May	Surplus	Surplus
June	Surplus	Surplus
July	100	100
August	92	24
September	90	0

CHANGES IN OWNERSHIP OF LANDS AND WATER RIGHTS

Changes in ownership of lands and water rights which will be included in the "Statement for Hat Creek Watermaster Service Area, County of Shasta, State of California, for 1957" are presented in the tabulation below.

No changes of ownership of lands and water rights occurred in the Burney Creek Watermaster Service Area subsequent to filing the 1956 statement for that area.

Tract number	Name of water right owner appearing in 1956 statement	Name of water right owner to appear in 1957 statement	Amount of water in sec.-feet
2-20	Nichols, Cheever E.	Warner, Lyle and Warner, Eula	0.50
2-21-2	Purdy, R. J.	Smith, Hyrum P. and Smith, Juanita T.	0.06

APPENDIX A

RECORDS OF WATER SUPPLY AND USE OF WATER

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TABLE A-1

PRECIPITATION AT HAT CREEK POWERHOUSE NUMBER 1
SHASTA COUNTY, CALIFORNIA
1955-1956

In Inches

Month	Mean precipitation	1955-1956 precipitation
October	1.30	0.22
November	1.82	3.26
December	2.53	8.32
January	2.45	5.83
February	2.91	2.87
March	1.92	1.19
April	1.55	0.66
May	1.20	2.59
June	0.80	0.33
July	0.16	1.26
August	0.15	0.00
September	0.44	0.66
Totals	17.23	27.19

TABLE A-2

DAILY MEAN DISCHARGE OF NAT CREEK
AT UNITED STATES GEOLOGICAL SURVEY GAGING STATION

May 1 to September 30, 1956

In Cubic Feet Per Second

Day	May	June	July	August	September
1	185	289	241	167	149
2	187	284	230	169	149
3	194	300	226	171	151
4	233	298	220	171	149
5	216	260	216	171	149
6	203	257	213	169	149
7	191	265	216	169	155
8	185	278	216	169	157
9	187	289	216	163	159
10	187	298	213	159	159
11	185	292	208	157	159
12	180	278	206	157	159
13	176	278	203	157	159
14	180	295	199	155	159
15	189	278	196	155	159
16	208	260	194	155	157
17	223	260	194	155	157
18	228	262	191	155	161
19	246	298	189	161	161
20	273	270	187	163	155
21	284	249	185	163	153
22	300	254	182	163	153
23	309	260	180	163	155
24	298	262	180	163	153
25	292	257	177	163	153
26	298	257	177	161	153
27	292	262	174	163	153
28	278	265	169	159	157
29	287	262	167	155	157
30	303	254	167	151	157
31	298	-	167	151	-
Mean	235	272	197	161	155
Runoff, in acre-feet	14,470	16,210	12,100	9,920	9,240

Total for period - 61,940 acre-feet.

TABLE A-3

DEMAND ON WATER SUPPLY OF HAT CREEK
DURING UPPER USERS PERIODS

In Cubic Feet Per Second

Item and authority	First priority	Second priority	Total
DEMAND SUBJECT TO PRORATION			
Irrigation allotments - Schedule I, Doyel vs. Massie decree			103.5000
Irrigation allotment to Sullivan - Par. 30 - Doyel vs. Massie decree			4.600
Irrigation allotment to U. S. Forest Service as allowed by watermaster in agreement with Forest Ranger			2.500
Irrigation allotment for reclaimed mud flow lands Par. 22, Doyel vs. Massie decree			
Harvey W. Wilcox (Herman) 40.0 acres			4.000
Vint Stevenson 80.0			8.000
Carrie K. Hall 5.0			0.500
R. A. Wilcox (Ward Smith) 27.0			2.700
Irrigation allotment for reclaimed mud flow lands allowed by watermaster to Harry M. Wilcox 8.0 acres			0.800
Irrigation allotment to Mrs. N. H. Shearin (Olsted) Par. 5, Doyel vs. Wilcox decree (rotation head)			1.920
Irrigation allotment to Carrie K. Hall (Day) - Application 4700, License 2083			2.50
Subtotals			128.520 2.50
FIXED DEMANDS			
Sawmill use for Carrie K. Hall (Day) - Par. 11, Doyel vs. Massie decree			0.500
Minimum flow allotments to lower users - Schedule IV, Doyel vs. Massie decree			9.125
Minimum flow allotment to Vernon Marsh - Allowed by watermaster			1.000
Minimum flow allotments to Dunwoody & Grant - Par. 6, Doyel vs. Wilcox decree			
Dunwoody			0.250
Grant			0.250
Conveyance loss in Reiger Ditch - Par. 13, Doyel vs. Massie decree. Amount determined by measurements			1.750
Channel loss in Hat Creek. Amount determined by measurements			14.000
Subtotal			26.875
TOTALS			155.395 2.50 157.895

TABLE A-4

DEMAND ON WATER SUPPLY OF HAT CREEK
DURING LOWER USERS PERIODS

In Cubic Feet Per Second

Item and authority	: First : priority:	: Second : priority:	: Total
DEMANDS SUBJECT TO PRIORITATION			
Irrigation allotments - Schedule III, Doyal vs. Massie decrees		129.000	
Irrigation allotments to Grant and Dunwoody - Par. 6, Doyal vs. Wilcox decrees - Grant Dunwoody		1.000 1.000	
Irrigation allotment for reclaimed and flow lands Par. 22, Doyal vs. Massie - R. E. Bidwell		1.200	
Irrigation allotment to W. W. Brown (Startt) Application 2578, License 1196			1.7000
Subtotals		132.200	1.700
FIXED DEMANDS			
Sawmill use for Carrie K. Hall (Day) Par. 11, Doyal 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, Doyal vs. Wilcox decree		0.250	
Minimum flow allotments to Sullivan (Scott Kerns) allowed by watermaster		0.500	
Minimum flow allotment to U. S. Forest Service by agreement with watermaster		1.750	
Allowance for conveyance loss in Reiger Ditch decree, Par. 13 and measurements		1.750	
Channel loss in Hat Creek. Amount determined by measurements.		20.000	
Subtotal		34.875	
TOTAL		167.075	1.700 168.775

