

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

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REPORT ON
WATERMASTER SERVICE
IN
HAT CREEK WATERMASTER SERVICE AREA
SHASTA COUNTY, CALIFORNIA
1953 SEASON

Sacramento, California
December, 1954

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SUBMISSION TO, AND ADOPTION BY
DEPARTMENT OF PUBLIC WORKS

I, L. C. Jopson, Principal Hydraulic Engineer, Division of Water Resources, Department of Public Works of the State of California, submit this "Report on Watermaster Service in Hat Creek Watermaster Service Area, Shasta County, California, 1953 Season".

/s/ L. C. JOPSON
Principal Hydraulic Engineer

I, Harvey O. Banks, Assistant State Engineer, Division of Water Resources, Department of Public Works of the State of California, approve this "Report on Watermaster Service in Hat Creek Watermaster Service Area, Shasta County, California, 1953 Season".

/s/ HARVEY O. BANKS
Assistant State Engineer

I, A. D. Edmonston, State Engineer and Chief of the Division of Water Resources, Department of Public Works of the State of California, approve and adopt this "Report on Watermaster Service in Hat Creek Watermaster Service Area, Shasta County, California, 1953 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 20th day of January, 1955.

DEPARTMENT OF PUBLIC WORKS
STATE OF CALIFORNIA

(SEAL)

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

ORGANIZATION

STATE DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

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INTRODUCTION

This is the twenty-fourth annual report on watermaster service in the Hat Creek Watermaster Service Area and covers the period of water distribution in 1953 beginning May 1 and terminating October 28.

The service area was created by order of the Division of Water Resources on September 11, 1929. A subsequent order entered March 26, 1942, changed the boundary of the service area to include certain newly determined water rights and to exclude others 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. Watermaster service has been provided during each irrigation season since the service area was created, and annual reports have been prepared to show the work accomplished during each season.

The report is presented herein under four headings as follows: Introduction, Water Supply, Distribution of Water, and Changes in Ownership of Lands and Water Rights. Following the text are tables presenting precipitation data at Hat Creek Power House No. 1, water supply records of Hat Creek at the United States Geological Survey Station, demand on water supply during upper users and lower users period, and a plate showing a hydrograph of Hat Creek at the United States Geological Survey Station.

WATER SUPPLY

Precipitation

Data on precipitation at Hat Creek Power House No. 1, as compiled from records of the United States Weather Bureau, for the period October 1, 1952, to September 30, 1953, are shown in Table 1. The precipitation for the period was 18.53 inches which is equivalent to 107 per cent of normal for this station. The elevation of this station is 3,015 feet.

Stream Flow

The United States Geological Survey maintains a stream flow measuring station on Hat Creek located below Old Station and downstream from the Harvey Wilcox, Stevenson, Gray, Hall, and Shearin ditches. Flow passing this 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.

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 this agency) for 1953 is presented in Table 2 of this report. The daily mean discharges shown were taken from preliminary records of the United States Geological Survey. Flow at this station, irrigation allotments, and total water requirements on the stream are shown graphically on Plate 1.

DISTRIBUTION OF WATER

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

Schedule I which defines the rights to the use of water from Hat Creek by the upper users during their nine irrigation periods.

Schedule II which defines the minimum flow allotments from Hat Creek to the upper users ditches during their nine minimum flow periods.

Schedule III which defines the rights to the use of water from Hat Creek by the lower users during their nine irrigation periods.

Schedule IV which defines the minimum flow allotments from Hat Creek to the 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 Table 3 and Table 4.

Distribution during the 1953 season followed the methods and practices initiated in past seasons with little or no modification. All the diversions 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 was commenced on May 1 at the beginning of the first upper users period and was continued throughout the season. Percentages of full 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 the distribution during the season, determined as outlined above, is shown in the following tabulation:

Irrigation period :	Dates :	Percentage of full allotments	
		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		92
11. Upper	8/9-8/19	94	
12. Lower	8/19-8/29		88
13. Upper	8/29-9/8	87	
14. Lower	9/8-9/18		82
15. Upper	9/18-9/28	84	
16. Lower	9/28-10/8		79
17. Upper	10/8-10/18	84	
18. Lower	10/18-10/28		80

CHANGES IN OWNERSHIP OF LANDS AND WATER RIGHTS

Changes in ownership of lands and water rights which have occurred subsequent to filing "Statement for Hat Creek Watermaster Service Area, County of Shasta, State of California, for 1953", and which were included in the 1954 statement for the service area, are listed in the following tabulation:

Tract no.	Name of water right owner appearing in 1953 statement	Name of water right owner appearing in 1954 statement	Amount of water, cubic feet per second
2-9	Crowe, Linnie K. and Crowe, Estate of Francis T.	Crowe, Trust, F. T.	11.96
2-21	Greve, Robert E. and Greve Frances M.	Meeker, John D. and Meeker, Myrna I.	0.06
2-17	Haun, Al C.	Sites, J. Bryan and Sites, Floyd L.	0.50

TABLE 1

PRECIPITATION AT HAT CREEK POWER HOUSE NUMBER 1,
SHASTA COUNTY, CALIFORNIA
1952-1953

In Inches

Month	Normal precipitation	Precipitation 1952-1953
October	1.24	0.15
November	1.86	1.81
December	2.62	6.06
January	2.45	2.59
February	2.91	0.26
March	1.92	2.63
April	1.55	1.32
May	1.20	2.75
June	0.80	0.81
July	0.16	0
August	0.15	0.15
September	0.44	0
TOTALS	17.30	18.53

TABLE 2

DAILY MEAN DISCHARGE OF HAT CREEK AT UNITED STATES
GEOLOGICAL SURVEY STATION

May 1 to September 30, 1953

In Cubic Feet per Second

Day	May	June	July	August	September
1	172	195	202	157	132
2	170	192	207	157	130
3	170	199	209	155	128
4	176	207	209	153	128
5	185	207	207	149	126
6	190	220	202	149	126
7	187	260	199	149	126
8	181	250	197	153	130
9	172	250	195	151	134
10	170	245	195	145	137
11	172	245	192	141	139
12	176	245	197	141	139
13	181	245	195	139	137
14	190	245	192	139	137
15	181	245	192	139	137
16	185	240	190	139	137
17	187	240	185	141	135
18	197	240	183	137	134
19	232	240	181	143	128
20	222	240	178	145	126
21	207	240	172	145	124
22	190	240	170	145	124
23	187	237	167	145	124
24	181	234	163	145	124
25	176	226	159	143	124
26	174	226	157	143	124
27	172	226	155	143	126
28	172	224	153	143	130
29	176	216	155	141	132
30	185	209	157	135	132
31	197		157	134	
Mean	184	231	183	145	130
Runoff, in acre-feet	11,330	13,740	11,250	8,890	7,760

Total for period - 52,970 acre-feet

TABLE 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
DEMANDS SUBJECT TO PRORATION			
Irrigation allotments - Schedule 1, Doyel vs. Massie decree	103.500		
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 allotments for reclaimed and mud flow lands Par. 22, Doyel vs. Massie			
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. M. H. Shearin (Olmsted) 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 March - 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	11.000		
Subtotals	26.875		
TOTALS	155.395	2.50	157.895

TABLE 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 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		
Dunwood	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	
Subtotals	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 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		
TOTALS	167.075	0.850	167.925

