

DEPARTMENT OF PUBLIC WORKS

STATE OF CALIFORNIA

REPORTS OF THE
DIVISION OF WATER RESOURCES
Edward Hyatt, State Engineer

REPORT ON
WATER MASTER SERVICE
ON
BURNLEY CREEK
SHASTA COUNTY, CALIFORNIA
1931 SEASON

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Sacramento, California
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PLATE:

1. Hydrograph of Burney Creek showing Water Supply
Above all Diversions in 1931.

ORGANIZATION

Walter E. Garrison

Director of Public Works

Edward Hyatt

State Engineer

Harold Conkling

Deputy State Engineer

Gordon Zander
Supervising Hydraulic Engineer

T. Russel Simpson

Senior Hydraulic Engineer

G. M. Vickroy

Water Master

GENERAL DESCRIPTION OF WORK

Water master service was conducted on Burney Creek during the 1931 season in accordance with the provisions of the decree in the case of Ednah M. Black vs. Martha B. Grinnell, et al., under the water master district procedure of Sections 37 to 37f, inclusive, of the Water Commission Act of California.

G. M. Vickroy replaced Robert Startt as water master for the Burney Creek Water Master District. Water master service was commenced in the district on May 5, 1931, and was terminated for the season on October 1, 1931. Collection of stream flow records on Burney Creek was commenced on May 1, 1931.

All of the diversions from Burney Creek, except the Braden Ditch, were opened during the 1931 season. Ray Vedder was receiving some water through his lower ditch at the time of commencement of water master service, but due to the shortage of water rotation was immediately commenced and no water was allowed to flow down Burney Creek past the State Highway after May 5th.

Some pooling of allotments was resorted to in August in order to complete the last irrigation of potatoes.

Approximately 0.15 cubic foot per second was allowed to pass the Greer-Cornaz Dam at all times in order to maintain the water level in the wells in the town of Burney.

There was a shortage of water at all times during the period of water master service in 1931. The water supply on May 5th was almost equal to combined allotments but the average for the 10 day period following May 5th was 80 per cent of allotments. The

water supply gradually decreased to about 1/7th of allotments during the second week in August. The flow increased slightly during the latter part of the season due to cooler weather and rains.

DISCUSSION OF RESULTS FOR SEASON

The precipitation at Hat Creek for the seasonal year commencing on October 1, 1930, and terminating on September 30, 1931, has been compared with the precipitation for other years during which investigations and water master service have been conducted on Burney Creek and have been tabulated in Table 1 of this report. The precipitation during 1923 and 1927 was considered nearly normal, whereas the other eight years of record were subnormal. The precipitation in 1931 was comparable with that in 1924, being about 40 per cent of normal.

Table 2 is a tabulation of the daily discharge of Burney Creek above all diversions during the 1931 season. 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 and channel losses, is also shown on Plate 1.

Table 3 shows the water deliveries on Burney Creek during the 1931 season, expressed both in cubic feet per second and in per cent of full allotments. The minimum flow allotments and channel losses on Burney Creek are small.

Table 4 shows crop yields from typical lands irrigated from Burney Creek in 1931. The crop returns for the 1931 season were subnormal due to lack of irrigation water. The small yield of potatoes was partly due to a killing frost on June 30th. The gardens were also injured by the frost.

CONTROVERSIES

No controversy developed over the administration of the waters of Burney Creek during the 1931 season.

RECOMMENDATIONS

All of the measuring devices in the ditches diverting from Burney Creek are in poor condition. These should be replaced with Parshall Measuring Flumes as fast as they become unserviceable.

FINANCIAL STATEMENT

Under the provisions of Section 37f of the Water Commission Act all funds collected in a water master district are kept separate and placed in a fund to the credit of that district.

There is submitted on the following page a statement of the funds collected and expenditures during the period from January 1, 1931, to March 1, 1932, for the Burney Creek Water Master District.

FINANCIAL STATEMENT

BURNEY CREEK WATER DISTRICT FUND

MARCH 1, 1932

RECEIPTS

Balance on December 31, 1930	\$156.29	
Contributed by State in 1931	250.00	
Contributed by Taxpayers (Jan. 1/31 to Mar. 1/32)	252.14	
		<u>\$658.43</u>

DISBURSEMENTS

(Jan. 1/31 to Mar. 1/32)

Water Master Compensation	\$302.65	
Water Master Travel Expense	104.94	
Cost of Publication of Financial Statement	25.00	
		<u>432.59</u>

BALANCE \$225.84

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
:1921-22	0.30	0.47	3.82	0.85	6.41	2.13	0.38	1.91	1.40	0	0.60	0	18.27
:1922-23	1.58	2.26	4.85	2.36	0.32	0.03	2.04	1.18	3.29	0.17	0.30	1.70	20.08
:1923-24	1.16	0.37	1.46	1.30	1.31	1.04	0.73	T	T	0	0.34	0.10	7.81
:1924-25	2.28	1.40	1.99	1.01	4.12	1.12	1.37	1.93	1.49	0.09	0.18	1.86	18.89
:1925-26	0.58	2.26	0.48	2.57	2.45	0.75	2.39	1.03	0	0.04	0.10	0.01	12.69
:1926-27	1.18	4.41	0.88	1.63	4.70	1.77	2.89	2.01	0.63	T	T	0.29	20.39
:1927-28	0.87	4.84	0.36	1.33	1.36	4.87	1.05	1.73	0.08	0.14	0.14	0.16	16.96
:1928-29	0.50	2.69	2.64	0.92	1.65	1.17	1.85	0.05	1.52	0	0	0.10	13.09
:1929-30	0.40	0	3.02	4.36	3.64	1.12	1.61	1.40	0.13	0	0	1.78	17.46
:1930-31	0.26	0.73	0.31	2.24	1.59	1.13	0.26	0.93	0.44	0	0	0.09	8.03
:Mean	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

TABLE 2

CONTINUOUS RECORD OF DAILY DISCHARGE IN CUBIC FEET PER SECOND
OF
BURNEY CREEK ABOVE ALL DIVERSIONS FOR THE PERIOD
MAY 1 TO SEPTEMBER 30, 1931

Day	May	June	July	August	September	
1	31.0	12.5	10.0	7.80	7.50	
2	30.0	12.5	9.50	7.50	7.50	
3	29.0	12.0	9.50	7.50	7.50	
4	28.0	12.0	9.00	7.50	7.50	
5	27.0	11.8	9.00	7.50	7.50	
6	26.0	11.8	9.00	7.50	7.50	
7	25.0	11.8	9.00	7.50	7.50	
8	24.0	11.5	9.00	7.50	7.50	
9	23.0	11.5	9.00	7.50	7.50	
10	22.0	11.5	9.00	7.50	7.50	
11	20.5	11.5	8.50	7.50	7.50	
12	19.0	11.0	8.50	7.50	7.80	
13	18.0	11.0	8.00	7.00	7.80	
14	17.0	11.0	8.00	7.00	7.80	
15	16.0	17.0	8.00	7.00	7.80	
16	15.5	16.0	8.00	7.00	7.80	
17	15.0	15.0	8.00	7.00	7.80	
18	14.5	14.0	8.00	7.00	7.80	
19	14.0	13.5	8.00	7.00	7.80	
20	14.0	13.0	8.00	7.00	7.80	
21	14.0	12.5	7.80	7.00	7.80	
22	14.0	12.0	7.80	7.00	8.00	
23	14.0	11.0	7.80	7.00	8.00	
24	15.0	10.5	7.80	7.00	8.00	
25	16.0	10.5	7.80	7.00	8.00	
26	15.5	10.5	7.80	7.00	8.00	
27	15.5	10.5	7.80	7.00	8.00	
28	15.0	10.0	7.80	7.00	8.00	
29	14.0	10.0	7.80	7.50	8.00	
30	13.5	10.0	7.80	7.50	8.00	
31	13.0		7.80	7.50		
Total Sec.:					153 day	
Ft. Days	588.0	358.4	258.80	224.80	232.50	period
Mean						
Sec. Ft.	19.0	11.9	8.35	7.25	7.75	10.9
Max.						
Sec. Ft.	31.0	17.0	10.0	7.80	8.00	31.0
Min.						
Sec. Ft.	13.0	10.0	7.80	7.00	7.50	7.00
Total						
Ac. Ft.	1167	711	513	446	462	3300

TABLE 3

WATER DELIVERIES ON BURNEY CREEK -- 1931 SEASON

Irrigation Period	Dates	Average Flow of Burney Creek : Above all Diversions: : Cu. Ft. per Sec.	Average Irrigation Delivery			
			Cubic Feet per Second		Per Cent of Allotments	
			West Side : Users	East Side : Users	West Side : Users	East Side : Users
1	May 5 to May 15	22.1	21.0		80	
2	May 15 to May 25	14.6		13.3		50
3	May 25 to June 4	14.0	12.8		45	
4	June 4 to June 14	11.5		10.8		35
5	June 14 to June 24	13.5	12.5		40	
6	June 24 to July 4	10.1		9.00		33
7	July 4 to July 14	8.80	8.10		30	
8	July 14 to July 24	7.94		6.40		22
9	July 24 to August 3	7.77	6.00		20	
10	August 3 to Aug. 13	7.50		5.00		17
11	Aug. 13 to Aug. 23	7.00	4.50		15	
12	Aug. 23 to Sept. 2	7.20		4.70		15
13	Sept. 2 to Sept. 12	7.50	4.80		16	
14	Sept. 12 to Sept. 22	7.80		5.50		20
15	Sept. 22 to Oct. 2	8.00	6.00		20	

TABLE 4

CROP PRODUCTION ON TYPICAL LANDS IRRIGATED FROM BURNEY CREEK
1931 SEASON

Owner	Crop	Acres	Total Yield		Yield per Acre	
			Sacks	Tons	Sacks	Tons
Ednah M. Black	: Alfalfa	: 23	:	: 25	:	: 1.1
	: Grain Hay	: 25	:	: 20	:	: 0.8
	: Oats	: 57	: 327	:	: 6	:
	: Wheat	: 50	: 144	:	: 3	:
	: Pasture	: 473	:(100 cattle-1 month)(462 sheep-6 months)			
Salve Bue	: Alfalfa	: 40	:	: 50	:	: 1.2
	: Grain Hay	: 40	:	: 60	:	: 1.5
	: Meadow Hay	: 160	:	: 200	:	: 1.2
	: Barley	: 40	: 100	:	: 2.5	:
	: Oats	: 40	: 225	:	: 5.6	:
	: Wheat	: 160	: 1200	:	: 7.5	:
	: Potatoes	: 20	: 1200	:	: 60	:
: Pasture	: 200	:(200 Cattle-7½ months)(60 sheep-5 months)				
Fred Greer	: Alfalfa	: 10	:	: 25	:	: 2.5
	: Potatoes	: 11	: 400	:	: 36	:
	: Carrots	: ½	:	: 4	:	: 8
	: Pasture	: 60	:(26 sheep, 25 hogs and 4 mules - 6 months)			
A. R. Haynes	: Grain Hay	: 10	:	: 10	:	: 1.0
	: Meadow Hay	: 10	:	: 10	:	: 1.0
	: Pasture	: 40	:(8 cattle and 8 horses - 6 months)			
Richard W. Haynes	: Alfalfa	: 15	:	: 20	:	: 1.3
	: Meadow Hay	: 355	:	: 300	:	: 0.8
	: Garden	: 1	:	: 2½	:	: 2.5
	: Potatoes	: 2	:	:	:	:
	: Pasture	: 9	:(12 cattle and 12 hogs - 6 months)			
Ray P. Vedder	: Grain Hay	: 25	:	: 15	:	: 0.6
	: Meadow Hay	: 160	:	: 100	:	: 0.6
	: Pasture	: —	:(30 cattle, 4 horses and 25 hogs-6 months)			

HYDROGRAPH
OF
BURNEY CREEK
SHOWING
WATER SUPPLY
ABOVE ALL DIVERSIONS
1931

