

DEPARTMENT OF PUBLIC WORKS

STATE OF CALIFORNIA

REPORTS OF THE  
DIVISION OF WATER RESOURCES  
EDWARD HYATT, State Engineer

REPORT ON  
WATER MASTER SERVICE  
ON  
SOLDIER CREEK  
MODOC COUNTY, CALIFORNIA  
FOR SEASON OF 1930

oOo

By Leslie C. Jopson, Modoc County Water Master

oOo

Sacramento, California  
February 1931

TABLE OF CONTENTS

	Page
<u>LETTER OF TRANSMITTAL</u>	
<u>ORGANIZATION</u>	
<u>GENERAL DESCRIPTION OF WORK</u>	1
<u>DISCUSSION OF RESULTS FOR SEASON</u>	3
<u>CONTROVERSIES</u>	6
<u>RECOMMENDATIONS</u>	8
<u>FINANCIAL STATEMENT</u>	9

TABLES

1. Precipitation Data
2. Continuous Records of Daily Discharge in Cubic Feet per Second of Soldier Creek above all Diversions For The Period March 19 to August 21, 1930
3. Estimated net available Water Supply on Soldier Creek and Tributaries for the Period March 19 to August 21, 1930.
4. Water Deliveries on Soldier Creek compared with allotments - 1930 Season
5. Crop production on Typical Lands Irrigated from Soldier Creek - 1930 Season.

PLATES:

1. Hydrographs of Soldier Creek Showing Water Supply 1927 and 1930.

STATE OF CALIFORNIA  
Department of Public Works  
SACRAMENTO

DIVISION OF WATER RESOURCES  
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER  
CHIEF OF DIVISION

February 16, 1931

Mr. Harold Conkling  
Deputy State Engineer  
Sacramento, California

Dear Sir: Attention: Mr. Gordon Zander, Hydraulic Engineer

There is transmitted herewith a report covering water master service on Soldier Creek, Modoc County, California, during the period from March 19 to August 21, 1930.

The report describes the methods and practices followed in the distribution of the waters of Soldier Creek in accordance with the provisions of the decree in the case of San Francisco Cattle Loan Company, et al., vs. C. M. Crampton, et al. and presents the results obtained under this distribution.

Respectfully submitted,

Leslie C. Jopson  
Modoc County Water Master

ORGANIZATION

Walter E. Garrison

Director of Public Works

Edward Hyatt

State Engineer

---

Harold Conkling

Deputy State Engineer

Gordon Zander  
In Supervising Charge

T. Russel Simpson

Supervising Water Master

Leslie C. Jopson

Modoc County Water Master

John Franklin

Water Master

### GENERAL DESCRIPTION OF WORK

Water master service was conducted on Soldier Creek and its tributaries during the 1930 season in accordance with the provisions of the decree in the case of the San Francisco Cattle Loan Company, et al., vs. C. M. Crampton, et al.

The Water Commission Act provides that whenever the rights to water on a stream system have been determined a water district may be created by the state to facilitate the handling of water master service on the stream. This procedure was followed on Soldier Creek and an order was entered by the Department of Public Works on September 11, 1929 creating the Soldier Creek Water District.

Shortly after the creation of the water district a petition signed by practically all of the water users on Soldier Creek was received by the Division of Water Resources requesting them to appoint a water master to distribute the water in the district. Acting upon the above petition the Division of Water Resources on March 15, 1930, appointed Mr. Leslie C. Jopson to act as water master for the Soldier Creek Water District. Supplementary appointments were made to Mr. T. R. Simpson, Supervising Water Master, and to John Franklin.

Water master service was commenced in the field on March 19, 1930 and was terminated for the season on August 21, 1930.

All except three diversions were opened on Soldier Creek in 1930. The unopened diversions were those of Enoch Reynolds, Norman Jones and E. E. Cole. The non-use under these ditches was due to insufficient water supply to enable their priority class to divert.

A deficiency in water supply was present throughout the 1930 season, there being at no time sufficient water to fill all priority classes. The shortage was least pronounced during the fore part of the irrigation season up to April 15th. Thereafter an increasing shortage occurred ranging from about 50 per cent on April 15 to about 82 per cent during the final rotation period.

In 1929 the creek reached its minimum stage about the middle of July which resulted in a serious shortage in domestic water during the remainder of the season. Ordinarily the minimum stage does not occur until about the middle of August after which date there is very little domestic water required except for stock use.

Mr. E. E. Cole has abandoned his right to appropriate by virtue of an application and permit from Soldier Creek.

### DISCUSSION OF RESULTS FOR SEASON

The precipitation at Cedarville for the seasonal year, commencing September 1, 1929, and terminating August 31, 1930, has been compared with the normal precipitation in Table 1 of this report. The seasonal precipitation in 1929-30 was about 81.3 per cent of the average mean precipitation. It will be noted that there was a marked deficiency in precipitation during practically every month of the seasonal year except December, January and February. During the summer months from May 1st to August 31st the normal precipitation is 18.2 per cent of the total mean, whereas in 1930 it was only 5.5 per cent of the total mean.

Table 2 is a tabulation of the daily discharge of Soldier Creek above all diversions for the 1930 season.

Table 3 is a tabulation of the net available water supply of Soldier Creek and tributaries during the 1930 season. Plate 1 graphically shows the water supply as tabulated in Table 3. The water supply for the 1927 season is also shown on the plate along with allotment lines to indicate the demand for water. As the 1927 run-off was approximately normal it is shown to give an indication of the deficiency in 1930.

Table 4 is a tabulation of the per cent of allotments delivered to each priority class during each rotation period and during the dry weather season in 1930. The table also gives the per cent of total allotments delivered during each of the indicated periods.

Table 5 is a tabulation of crop yields from typical lands on Soldier Creek and tributaries in 1930. The crop returns for the 1930

season were, for the most part, subnormal. The deficient water supply and the early run-off of what water there was tended to produce the subnormal condition. Cold weather during May also acted as a deterrent to plant growth.

One 24 inch wooden Parshall Measuring Flume was installed on Soldier Creek in 1930 on the Crampton Lower Ditch.

Four new wooden headgates were installed, one on the Crampton Lower Ditch, one on the Company Ditch, one on the Atkinson Ditch and one on the Crampton Upper Ditch.

A channel control was built at the head of the Atkinson and Crampton Upper Ditches to facilitate the division of the water at that point during the times that the upper users are entitled to all of the water. The control consists of a 10" x 10" timber embedded in concrete with the Atkinson headgate at one end and the Crampton headgate at the other end. Flash boards are to be used to raise the water level at the control.

Two new dams and headgates were put in by water users for use under their permits. The parties building them were C. E. Atkinson and Enoch Reynolds. The diversions have not been used to capacity as yet so no particular attention was given to their construction by the water master.

The register station was moved about two hundred feet upstream from the location it has occupied for the past three years to secure a more permanent control.

During the sixth rotation period Oliver Crampton made arrange-

ments with Mr. Sharp to use part of the Sharp water. Accordingly about 3.0 cubic feet per second were transferred from the Company Ditch to the Crampton Upper Ditch for the final four days of the period.

CONTROVERSIES

No very serious controversies occurred on Soldier Creek in 1930 although there were several occasions when irregularities occurred during the absence of the water master. These irregularities are described in detail below:

On April 1, 1930 Oliver Crampton turned his water from his upper ditch down the creek channel for use through his lower ditch. In so doing a break was made in his diversion dam which washed out and created such a current past the head of the C. E. Atkinson Ditch that practically all of the water was carried past the Atkinson headgate. Mr. Atkinson reported the matter to the water master as soon as possible and requested that arrangements be made to prevent further damage of this sort.

On June 3 during the lower users' period the creek was low with all the water going down the East Fork. Very little water was getting through so some of the lower users followed the creek channel up to its head to see if there were any illegal diversions. They discovered about 0.30 cubic foot per second of water being diverted onto some of Oliver Crampton's land with unmistakable signs of efforts to spread it thereon. The open diversion was a small, rarely used one which was rather obscured unless it was sought out purposely.

George M. Warrens complained several times during the season that his water was being interfered with at night but all efforts to check up on any interference were unsuccessful.

Some discussion arose on the West Fork of Soldier Creek during the season as to the division of the water. The Brown ranch owned by Simon Bennett, has the first right to water therefrom, but carelessness

in keeping the creek channel open in past years has made it necessary for him to get his water across the meadows, belonging to George and Mervin Toney, which lie immediately above him. When the water supply is small it is sometimes very difficult for Mr. Bennett to get his water through.

RECOMMENDATIONS

An effort should be made during the 1931 season to have the channel of the East Fork cleaned from its head through the Oliver Crampton Ranch.

A permanent control for a register station should be secured if possible. Such a control apparently would have to be an artificial one as due to the precipitous nature of the stream the loose rock channel is constantly shifting.

FINANCIAL STATEMENT

Under the provisions of Section 37f of the Water Commission Act all funds collected in a water district must be kept separate from other funds and applied only to the cost of water master service in the district for which the fund was created. Accordingly there is submitted below a statement of the funds collected and expended during the Season of 1930 for the Soldier Creek Water District.

As the purpose of this report is to provide a permanent record for this office of the data collected and of the results obtained in the distribution of the water on Soldier Creek, the cost of preparing it has been defrayed from funds allotted to adjudication support.

FINANCIAL STATEMENT  
 SOLDIER CREEK WATER DISTRICT FUND  
 CALENDAR YEAR 1930

RECEIPTS

Contributed by State	\$300.00	
Contributed by Taxpayers	314.90	
	_____	\$614.90

DISBURSEMENTS

Water Master Compensation	\$180.60	
Water Master Travel Expense	114.63	
Cost of Publication of Financial Statement	42.70	
Contingencies	7.05	
	_____	\$344.98
<u>BALANCE</u> . . . . .		\$269.92

T A B L E S

TABLE 1

PRECIPITATION DATA  
Cedarville, California

Season	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Seasonal
1924 - 25	0.25	2.06	1.86	1.66	1.08	1.34	0.61	0.65	1.59	0.49	0.29	0.30	12.18
1925 - 26	1.34	1.57	1.31	1.25	1.06	1.18	0.13	1.26	1.07	T	0.09	0.09	10.35
1926 - 27	0.15	0.53	2.73	1.16	1.82	2.02	1.73	0.81	0.95	0.35	T	T	12.25
1927 - 28	0.32	0.86	2.87	0.86	0.92	0.75	2.93	0.81	T	0.55	0.00	0.00	10.87
1928 - 29	0.40	0.15	1.43	0.42	2.08	0.59	1.20	1.85	0.29	1.98	0.00	T	10.39
1929 - 30	0.07	0.19	0.00	3.02	3.39	1.53	0.83	0.51	0.67	T	0.02	T	10.23
Mean													
1894 - 1930	0.25	1.01	1.59	1.61	1.81	1.64	1.49	0.89	1.12	0.68	0.28	0.21	12.58
1929 - 30 in:													
per cent of													
Total Mean	0.6	1.5	0.0	24.0	26.9	12.2	6.6	4.0	5.3	0.0	0.2	0.0	81.3

Note: Per cent of total mean from May 1st to August 31st of  
Average Year is 18.2 per cent, whereas in 1930 it was 5.5 per cent.

TABLE 2

CONTINUOUS RECORD OF DAILY DISCHARGE IN CUBIC FEET  
PER SECOND OF SOLDIER CREEK ABOVE DIVERSIONS FOR  
THE PERIOD MARCH 19 TO AUGUST 21, 1930

Day	March	April	May	June	July	August
1		15.2	12.0	6.3	1.95	0.75
2		14.7	14.2	5.7	1.95	0.75
3		14.3	14.7	5.4	1.85	0.75
4		15.2	12.5	5.7	1.70	0.70
5		19.2	12.0	5.7	1.60	0.70
6		22	10.5	5.4	1.50	0.70
7		27	10.5	5.2	1.50	0.70
8	NO	26	9.4	5.0	1.40	0.75
9		22	8.2	4.7	1.40	0.70
10	RECORD	17.7	9.4	4.4	1.40	0.70
11		15.2	9.7	4.0	1.30	0.70
12		15.2	10.8	4.0	1.20	0.75
13		14.3	10.8	3.8	1.10	0.85
14		11.3	10.5	3.6	1.10	0.75
15		10.8	9.4	3.4	1.00	0.75
16		10.5	9.7	3.2	1.00	0.75
17		11.7	9.7	3.2	0.95	0.75
18		10.9	9.7	3.0	0.95	0.75
19	7.8	12.9	10.0	3.0	0.95	0.75
20	7.8	15.7	10.0	3.0	0.95	0.75
21	8.7	16.6	9.7	3.0	0.85	0.70
22	9.1	18.1	7.9	2.9	0.85	
23	9.1	17.6	7.9	2.8	0.95	
24	11.9	14.3	7.5	2.6	0.85	NO
25	13.5	11.3	7.5	2.3	0.85	
26	17.1	10.5	7.2	2.3	0.85	RECORD
27	15.7	10.8	7.2	2.2	0.85	
28	18.5	10.0	6.9	2.2	0.75	
29	24	10.5	6.6	2.1	0.75	
30	17.8	11.3	7.2	2.1	0.75	
31	14.6		6.3		0.75	
Total Sec.:						156 Day
Feet Days:	175.6	452.8	295.6	112.2	35.8	15.45; Period
Mean						
Sec. Feet:	13.5	15.1	9.54	3.74	1.15	0.74; 6.97
Maximum						
Sec. Feet:	24	27	14.7	6.3	1.95	0.85; 27
Minimum						
Sec. Feet:	7.8	10.0	6.3	2.1	0.75	0.70; 0.70
Total						
Acre Feet:	348	898	586	222	71	31; 2160

Note: Gage heights from automatic water stage recorder.

TABLE 3

ESTIMATED NET AVAILABLE WATER SUPPLY ON SOLDIER CREEK  
AND TRIBUTARIES FOR THE PERIOD MARCH 19 TO AUGUST 21, 1930.

Day	March	April	May	June	July	August	
1		15.8	11.2	4.6	2.1	0.85	
2		15.3	13.4	4.0	2.1	0.85	
3		14.9	13.9	5.4	1.95	0.85	
4		15.8	11.8	5.7	1.80	0.80	
5		19.8	10.3	5.7	1.70	0.80	
6		23	8.8	5.4	1.60	0.80	
7		28	8.8	5.2	1.60	0.80	
8		27	7.7	3.3	1.50	0.85	
9		23	6.5	4.9	1.50	0.80	
10		18.3	7.7	4.6	1.50	0.80	
11		13.8	8.0	4.2	1.40	0.80	
12		13.8	9.1	4.2	1.30	0.85	
13		12.8	9.1	4.0	1.20	0.95	
14	NO	9.8	8.8	3.8	1.20	0.85	
15		9.3	7.7	3.6	1.10	0.85	
16		9.0	8.0	3.3	1.10	0.85	
17	RECORD	10.2	9.9	3.3	1.05	0.85	
18		9.3	9.9	3.1	1.05	0.85	
19	6.4	11.3	10.2	3.1	1.05	0.85	
20	6.4	14.1	10.2	3.1	1.05	0.85	
21	7.3	15.0	9.9	3.1	0.95	0.80	
22	7.7	16.5	8.1	3.0	0.95		
23	7.7	16.0	7.1	2.9	1.05	NO	
24	10.6	14.6	7.7	2.7	0.95		
25	12.2	11.6	7.7	2.4	0.95		
26	17.8	10.8	7.4	2.4	0.95		
27	16.4	11.1	5.5	2.3	0.95	RECORD	
28	19.2	10.3	5.3	2.3	0.85		
29	25	10.8	4.9	2.2	0.85		
30	18.6	11.5	5.5	2.2	0.85		
31	15.4		4.6		0.85		
Total Sec. Feet Days	170.7	442.5	264.7	110.0	39.00	17.55	156 Day Period
Mean Sec. Feet	13.1	14.7	8.54	3.67	1.26	0.84	6.70
Maximum Sec. Feet	25	28	13.9	5.7	2.1	0.95	28
Minimum Sec. Feet	6.4	9.0	4.6	2.2	0.85	0.80	0.80
Total Acre Feet	338	877	525	218	77	35	2070

Note: Includes water from Simpson's and Daniels' Canyons and from Springs in the West Branch.

TABLE 4

AVERAGE WATER DELIVERIES ON SOLDIER CREEK COMPARED WITH ALLOTMENTS - 1930 SEASON

Priority	Rotation Period										Dry-Weather Season	
	Lower Users 3/19-3/31	Upper Users 4/1-4/10	Lower Users 4/11-4/23	Upper Users 4/24-5/3	Lower Users 5/4-5/16	Upper Users 5/17-5/26	Lower Users 5/27-6/8	Upper Users 6/9-6/18	Lower Users 6/19-7/15	Upper Users 7/16-8/15	Continuous Flow	
	Per Cent											
1	73	100	100	100	100	100	100	100	100	100	93	41
2	61	100	100	100	95	90	60	30	0	0	0	0
3	20	100	100	100	80	90	50	0	0	0	0	0
4	54	100	48	45	25	18	0	0	0	0	0	0
5	95	85	35	5	10	0	0	0	0	0	0	0
6	0	70	0	0	0	0	0	0	0	0	0	0
7	0	55	0	0	0	0	0	0	0	0	0	0
8	20	40	0	0	0	0	0	0	0	0	0	0
9	0	10	0	0	0	0	0	0	0	-	-	-
10	0	10	0	0	0	0	0	0	0	-	-	-
11	0	0	0	0	0	0	0	0	0	-	-	-
12	0	0	0	0	0	0	0	0	0	-	-	-
13	0	0	0	0	0	0	0	0	0	-	-	-
Total Deliveries	13.1	20.1	12.4	11.9	8.64	8.81	5.01	3.90	2.05	0.90		
Allotments	* 25.52	* 27.22	* 25.52	* 27.22	* 25.52	* 27.22	** 22.22	21.85	** 11.75	*** 11.75		
Per Cent of Allotments Delv.	48	74	49	44	34	32	23	18	17	8		
Combined Flow above all Diversions	14.2	20.0	14.4	12.3	10.6	9.01	5.33	3.98	2.16	1.00		
Channel Loss	1.1	0.1	2.0	0.4	2.0	0.20	1.32	0.08	0.11	0.10		

\* Includes 5.37 cubic feet per second from permits.

\*\* Includes permits for 5 days

\*\*\* Water allotted to upper users.

TABLE 5

CROP PRODUCTION ON TYPICAL LANDS IRRIGATED FROM  
SOLDIER CREEK AND TRIBUTARIES - 1930 SEASON

Owner	Crop	Acres	Total Yield		Yield per acre	
			Sacks	Tons	Sacks	Tons
G. R. McMullen	Alfalfa Seed	93.8	20,300 lbs		216 lbs	
G. W. Toney	Alfalfa Hay	42.5		115		2.7
	Meadow Hay	35.0		65		1.9
	Barley	9.0	128		14.2	
	Wheat	19.0	370		19.5	
	Orchard	Small				Fair
	Garden	Small				Fair
	Pasture	32.5	(16 cattle and 6 horses - 4 months)			
			(18 sheep - 7 months)			
G. M. Warrens	Alfalfa Chaff	165.6		100		0.6
	Alfalfa Seed		30,500		184 lbs	
	Orchard	3.3			Poor	
	Garden	1.2			Good	
	Pasture	4.1	(2 cattle - 2 months)			

PLATES

