STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

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

REPORT ON WATER MASTER SERVICE ON KEY PINE CREEK MODOC COUNTY, CALIFORNIA FOR THE SEASON OF 1932

By

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Modoc County Water Master

Sacramento, California
March 1933

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LETTER OF TRANSMITTAL

March 13, 1933

Mr. Harold Conkling
Deputy State Engineer
Sacramento, California

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

There is submitted herewith a report covering the water master service on New Pine Creek in Modoc County, California for the 1932 season.

Run-off records, precipitation records and other pertinent data are included in this report. There is also included a chapter dealing with the cost of the distribution and the sources from which such cost was met.

Respectfully submitted,

Modoc County Water Master.

ORGANIZATION

Earl Lee Kelly	Director of Public Works
Edward Hyatt	State Engineer
Harold Conkling	Deputy State Engineer

GORDON ZANDER
Supervising Hydraulic Engineer

T. Russel Simpson	Senior Hydraulic Engineer
Leslie C. Jopson	Assistant Hydraulic Engineer
J. W. McPartland	Hydrographer

GENERAL DESCRIPTION OF WORK

Water master service on New Pine Creek, during the 1932 season, was conducted in accordance with the "Stipulation for Judgment" in the case of Edward Keller, et. al. vs. Anna Jensen, et. al. This stipulation was signed on March 16, 1932 and included a provision for water master service by the Division of Water Resources until such time as a decree was entered. The decree in the case was signed on June 14, 1932.

Water master service was commenced on April 4th and continued through the irrigation season until September 30th. This work was conducted by the writer during April and from July 1st to the close of the season in September. During June and July, Mr. J. W. McFartland acted as water master.

The water supply of New Pine Creek, prior to the beginning of July was more than sufficient to supply all the requirements. After haying the water supply was short but there was enough for the first priorities on all the ditches except on the California Ditch, where a shortage was experienced during the last 10 days in September.

The records of run-off on New Pine Creek are of insufficient length to establish a normal on the stream so no comparison of the 1932 run-off with normal can be made. The precipitation records of the Lakeview Station indicate a deficiency of rainfall of about 13 per cent for the season. The run-off records on Davis Creek indicate a supply in 1932 that appeared to be somewhat below normal. It is probable, therefore, that the flow of New Pine Creek was also below normal.

DISCUSSION OF RESULTS

In Table 1 is presented a monthly and seasonal record of the precipitation at Lakeview, Oregon. The mean for the period 1884 to 1932 is shown along with a tabulation of the 1931-32 per cent of the mean. The season was 86.7 per cent of the 1884-1932 mean.

Table 2 is a record of the flow in cubic feet per second of New Pine Creek at the register station below the Schroeder Ranch.

Table 3 is a tabulation of the estimated flow, in cubic feet per second, of New Pine Creek above all diversions. This table is a summation of the daily discharge in Table 2 and the estimated diversions of the Schroeder Ranch. Plate 1 is a graphical illustration of the water supply given in this table.

Table 4 is a tabulation of the per cent of allotments delivered to each priority class during the periods indicated. The per cent of total allotments delivered and surplus over deliveries are also shown in the table. The larger part of the surplus water found its way directly down the creek channel into Goose Lake. Considerable water also drained from the irrigated land into the lake due to the excessive diversions. During the period of high flow in May and June, 150 per cent of the allotment was diverted in order to facilitate the irrigation on the ranches.

In Table 4 the special uses on the Cook and Butler Ranches were not considered. According to the decree Walter Butler is allowed 0.40 cubic foot per second for six days in each of the periods April 1st to May 20th and May 20th to June 20th. C. J. Cook is allowed 0.72 cubic foot per second under the same conditions. Both users customarily divert at the same time and rotate in the use of the water but owing to the

excess water during their second period of use they were permitted to divert as much water as they found convenient.

Table 5 is a tabulation of crop yields on typical ranches irrigated from New Pine Creek. The data from which this table is compiled was furnished by the various water users.

During the period of low water some difficulty was experienced with the division of the water between Reid and Green in the Green Lower Ditch. Due to the nature of the headgate structure in the Reid lateral and the presence of a high spot in the Green ditch below the Reid takeout, the headgate must be operated as a submerged orifice. At times trash would collect against this headgate cutting off the flow to the Reid Ranch.

The channel control structure at the mill wasteway is used to hold the creek level up to permit the diversion of a part of the water by the Green Lower Ditch. Some difficulty was experienced in regulating the water at this point during the period of low flow in 1932 because of the fluctuation in flow caused by the power plant and the flour mill. Future regulation of the water in the Green ditch can be greatly facilitated by extending the channel control structure to include the ditch so that it can be used as a division box. The difficulty in 1932 was largely due to the tampering of disinterested parties.

The mill commenced operation about the 1st of September. In the latter part of the month during the low flow periods of the day there was insufficient water to operate the mill in a satisfactory manner and operation was somewhat curtailed.

Until about the 1st of September there was sufficient water to supply the entire length of the California Ditch with stock and garden

water on a continuous flow basis. During the early part of the month the daily peak flows were large enough to deliver water the entire length of the ditch but later, even with the Taylor water turned into the ditch, no water passed the Lawson ranch. No water was delivered directly to the California Ditch the last ten days of September, the entire flow being diverted by the Mill, Taylor and Schroeder Ditches.

A rotation schedule was used to divide the irrigation water in the California Ditch during part of June and during July and August. The schedules used permitted stock water use by all parties continuously. The excess flow in the ditch over the stock water requirements was rotated on six, seven or eight day periods according to the seasonal needs.

A two-foot Parshall Flume and headgate were installed in the California Ditch on June 4th. This flume proved too small and it was widened to three feet in September.

A two-foot Parshall Flume was installed in the Mill Ditch on May 11th.

A headgate and 18 inch weir were installed in the Butler Ditch on June 1st.

RECOMMENDATIONS

It is recommended that the following structures be installed.

Headgate and Parshall Flume in the Green Upper Ditch.

Headgate and Parshall Flume in the Green Lower Ditch.

Headgate and Parshall Flume in the Robnett-Heryford Ditch.

These structure would facilitate the reg lation of the respective diversions and simplify the distribution on the creek accordingly. A number of division and outlet structures are also needed on the California Ditch.

FINANCIAL STATEMENT

The finances for conducting investigations and water master service on all streams in Northern California, except in Water Master Districts operating under the procedure of Sections 37 to 37f of the Water Commission Act, during 1932 were combined into one fund due to the more or less related work on the various streams.

The water users on New Pine Creek subscribed a total of $350.00 as their share. An equal amount was credited to the fund by the State to match the subscribed funds.

TABLES

TABLE 1

PRECIPITATION DATA
Lakeview, Oregon

Season	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Seasonal
1927 - 28	0.61	0.98	4.04	0.71	1.14	1.06	2.22	0.95	0.21	0.34	T	0.10	12.36
1928 - 29	.11	.39	1.21	.64	1.00	.50	.69	2.04	.02	1.31	0.00	.02	7.93
1929 - 30	.16	.45	T	3.22	1.69	1.18	1.05	.90	1.11	.21	T	.51	10.48
1930 - 31	.85	.29	1.02	.07	.38	1.10	1.39	.22	.19	.89	T	T	6.40
1931 - 32	.26	1.32	.96	1.60	1.26	.39	1.89	2.33	1.17	.98	T	.02	12.18
Mean 1884 - 1932	.66	.86	1.72	1.75	1.90	1.79	1.43	1.13	1.25	.94	.35	.27	14.05
1931 - 1932 in per cent of total mean	1.9	9.4	6.8	11.4	9.0	2.8	13.4	16.6	8.3	7.0	0	.1	86.7

TABLE 4

AVERAGE WATER DELIVERIES ON NEW PINE CREEK
COMPARED WITH ALLOTMENTS - 1932 SEASON

Period	Per Cent of Allotment Delivered					Average Flow Above Diversions c.f.s.	Surplus
	1st Priority	2nd Priority	3rd Priority	4th Priority	Total		
4/4 to 4/13	69				69	15.28	0
4/14 to 4/23	96				96	21.22	0
4/24 to 5/3	122				122	27.09	0
5/4 to 5/13	150				150	58.80	25.53
5/14 to 5/23	150				150	73.30	40.03
5/24 to 6/2	150				150	51.60	18.33
6/3 to 6/12	150				150	55.30	22.03
6/13 to 6/22	150				150	53.80	20.53
6/23 to 6/30	150				150	35.62	2.35
7/1 to 7/12	100	100	100	98	99	21.97	0
7/13 to 7/22	100	100	100	11	68	14.98	0
7/23 to 8/1	100	100	69	0	48	10.74	0
8/2 to 8/11	100	100	16	0	35	7.67	0
8/12 to 8/21	100	67	0	0	25	5.49	0
8/22 to 8/31	100	52	0	0	22	4.91	0
9/1 to 9/10	100	20	0	0	17	3.69	0
9/11 to 9/20	100	15	0	0	16	3.48	0
9/21 to 9/30	64	37	0	0	15	3.26	0

NOTE: A discussion of special rights will be found in the Chapter "Discussion of Results."

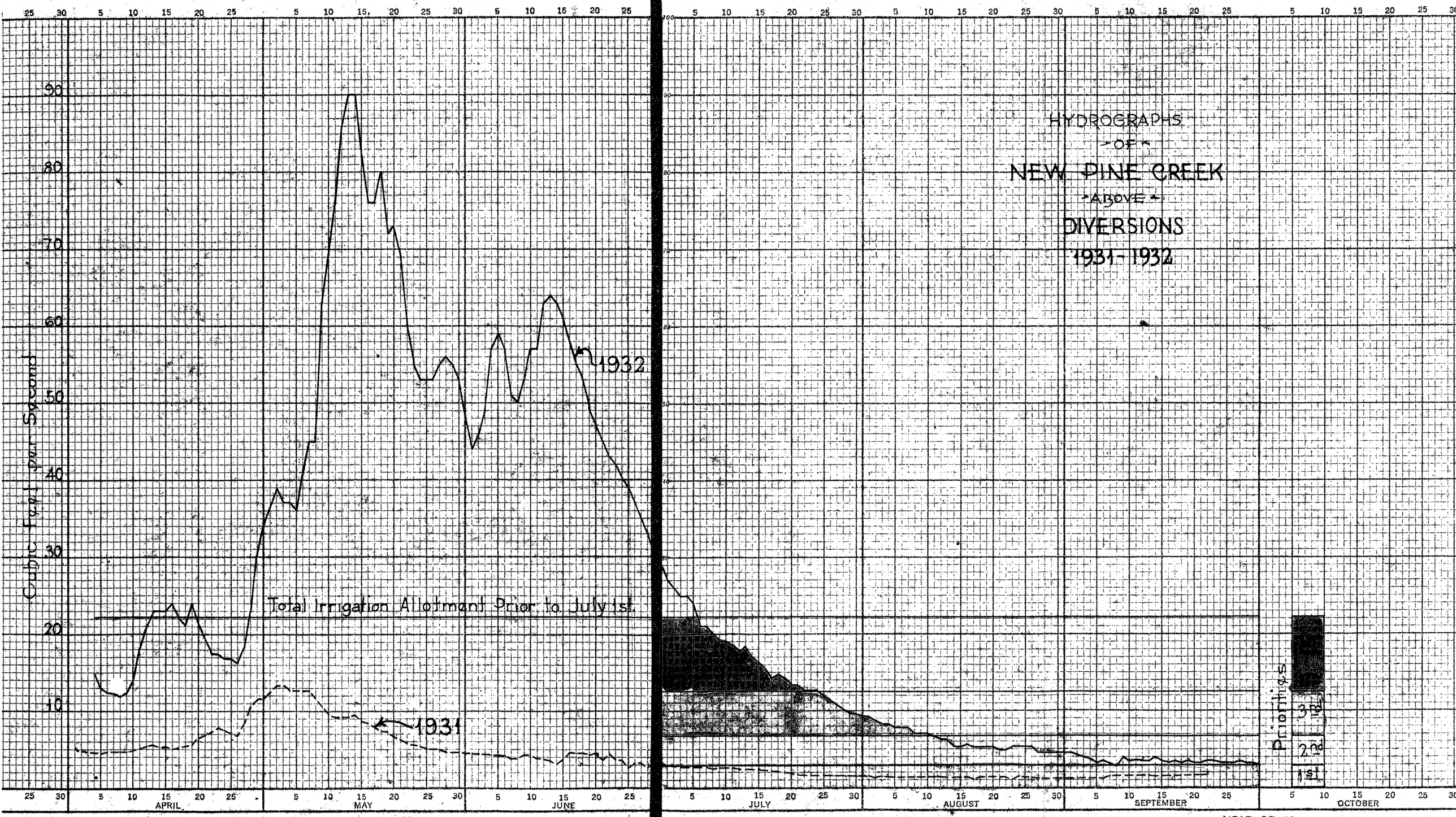
PRIORITIES:

April 1st to June 30th	- 1st	22.15 c.f.s.
July 1st to September 30th	- 1st	2.92 c.f.s.
	- 2nd	3.81 c.f.s.
	- 3rd	5.84 c.f.s.
	- 4th	9.61 c.f.s.

TABLE 5

ESTIMATED CROP YIELDS ON TYPICAL LANDS
IRRIGATED FROM NEW PIPE CREEK - 1932

Owner	Crop	Acres	Total Yield		Yield per Acre	
			Tons	Sacks	Tons	Sacks
Walter Butler	Alfalfa	9.5	23		2.4	
Delbert Cloud	Alfalfa	50.0	150		3.0	
	Meadow Hay	50.0	100		2.0	
	Wheat	25.0		440		17.6
	Orchard	0.5	Fair			
	Garden	0.5	Good			
George M. Converse	Alfalfa	8.5	20		2.4	
	Orchard	4.5	Poor			
	Garden	1.0	Fair			
C. J. Cook	Alfalfa	18.0	41		2.3	
	Garden	1.75	Good			
F. M. Green	Alfalfa	200.0	450		2.2	
Clay Lawson	Alfalfa	13.75	35		2.5	
	Garden	1.25	Poor			
George W. Perkins	Alfalfa	25.0	85		3.4	
	Alfalfa Seed	20.0	25 (cut for Hay)		1.2	
	Orchard	4.75	Fair			
	Garden	0.7	Good			
A. C. Robnett	Meadow Hay	73.0	200		2.7	
Ernest Robnett	Alfalfa	38.0	60		1.6	
	Meadow Hay	30.0	40		1.3	
Anna Schroeder	Meadow Hay	9.2	8		0.9	
	Rye	1.1	3		2.7	
Pearl Steward	Alfalfa	13.5	40.5		3.0	
	Grain Hay	3.0	10		3.3	
	Meadow Hay	4.5	9		2.0	
	Garden	1.5	Fair		1.0	
	Wheat	12.0	20			
Clara Vernon	Alfalfa	26.8		62		5.2


HYDROGRAPHS
OF
NEW PINE CREEK
ABOVE
DIVERSIONS
1931-1932
Cubic Feet per Second
90
80
70
60
50
40
30
20
10
1932
1931
Total Irrigation Allotment Prior to July 1st.
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
Priorities
3rd
2nd
1st
YEAR OF 19
YEAR OF 19