DEPARTMENT OF PUBLIC WORKS

STATE OF CALIFORNIA

REPORTS OF THE

DIVISION OF WATER RESOURCES

EDWARD HYATT, State Engineer

# REPORT ON

# WATER MASTER SERVICE

# ON

# DAVIS CREEK

MODOC COUNTY, CALIFORNIA
DURING SEASON OF 1930

By Leslie C. Jopson, Modoc County Water Master

Sacramento, California
February 1931

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Hydrographs of Davis Creek Showing Water Supply in 1928, 1929 and 1930.

STATE OF CALIFORNIA

# Department of Public Works

SACRAMENTO

VISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER
CHIEF OF DIVISION

February 20, 1931

Mr. Harold Conkling
Deputy State Engineer
Sacramento, California

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

A report covering the water master service on Davis Creek, in Modoc County, California, during the season of 1930, is submitted herewith.

This report includes a description of the regulation and distribution of the waters of Davis Creek in accordance with the provisions of the stipulation for consent judgment entered into by all except three of the parties in the case of Lake Shore Co. et al. vs. J. D. Mulkey, et al., on March 18, 1930.

Run-off records and other pertinent hydraulic data are included, together with a financial statement showing the cost of water master service in northern California and the sources from which such cost was met.

Respectfully submitted,

Leslie C. Johnson
Modoc County Water Master

## ORGANIZATION

| | |
|---|---|
| Walter E. Garrison | Director of Public Works |
| Edward Hyatt | State Engineer |

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| | |
|---|---|
| Harold Conkling | Deputy State Engineer |

GORDON ZANDER
In Supervising Charge

| | |
|---|---|
| T. Russel Simpson | Supervising Water Master |
| Leslie C. Jopson | Modoc County Water Master |

## GENERAL DESCRIPTION OF WORK

Water master service was conducted on Davis Creek during the 1930 season in accordance with the provisions of the stipulation for consent judgment dated March 18, 1930 in the case of Lake Shore Cattle Co. et al., vs. J. D. Mulkey, et al.

The stipulation for consent judgment mentioned above was signed by all of the parties involved in the litigation on Davis Creek at the conference on March 18, 1930, except Harry and May Bailey, Harry and Lula Barker, John and Irene Briles, C. A. Brown and R. E. and Nellie Henderson. Harry E. and Lula Barker and R. E. and Nellie Henderson signed the stipulation subsequent to the conference.

Water master service was commenced on April 1, 1930 and was terminated for the season on September 9, 1930. Mr. L. C. Jopson acted as water master throughout the 1930 season with occasional assistance from Mr. T. R. Simpson, Supervising water master.

All diversions on Davis Creek except two small ditches on the Harry and May Bailey Ranch were opened in 1930. These ditches had no crops under them which required water early in the season and shortage of water prevented later use.

Several ranches did not divert their full allotment of water in 1930 due to their land lying fallow.

A deficiency in water supply was present throughout the 1930 season. There was at no time sufficient water to fill the allotment of all priority classes. The shortage was not serious until the latter part of May, when the combination of warm weather and inadequate water

supply made the complete maturation of a considerable part of the field crops impractical. As a result the majority of the meadow hay crops were very short and had to be cut early to prevent complete loss. The grain crop in a few cases was fair but far below what it would have been with an irrigation early in June. At its highest stage in 1930 the creek produced only enough water, over a ten day period, to fill 56 percent of the total allotments while during the last ten days in June there was only sufficient water to fill about 19 per cent of the total allotments.

The dry weather flow in Davis Creek in 1930 was inadequate to fully supply the domestic allotments but was sufficient to permit continuous delivery to all of the water users.

## DISCUSSION OF RESULTS FOR THE SEASON

The monthly and seasonal precipitation at Lakeview, Oregon, for the period of water master service on Davis Creek is tabulated in Table 1. The mean precipitation for the station from 1884 to 1930 is also shown as well as a tabulation of the precipitation in 1929-30 in percent of the total mean precipitation. The seasonal precipitation in 1929-30 was about 73.5 per cent of the average mean precipitation. It will be noted that there was a marked deficiency in precipitation during 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 20.0 per cent of the total mean, whereas in 1930 it was only 12.9 per cent of the total mean.

Table 2 is a tabulation in cubic feet per second of the daily discharge of Davis Creek below the Forks at the register station.

Table 3 is a tabulation in cubic feet per second of the total daily discharge of Davis Creek above all diversion. This table is a summation of the daily discharge given in Table 2 and of the daily diversions of the Mulkey-Heryford and the Roberts ditches which divert water from the stream above the register station. Plate 1 graphically shows the water supply as given in this table. The water supplies in 1928 and 1929 are also given for comparative purposes.

Table 4 is a tabulation of the per cent of allotments delivered to each priority class during 10 day periods throughout the season. The table also includes a tabulation of the total deliveries, per cent

of total allotments delivered, total water supply and per cent channel loss or accretion for each of the indicated periods.

Table 5 is a tabulation of the daily diversion in cubic feet per second of Harry and May Bailey from the North Branch of Davis Creek.

Table 6 is a tabulation of the daily diversion in cubic feet per second of Harry and May Bailey from the South Branch of Davis Creek.

Table 7 is a tabulation of the daily diversion in cubic feet per secondof John and Irene Briles from the North Branch of Davis Creek.

Table 8 is a tabulation of the estimated crop yields on typical lands irrigated from Davis Creek in 1930. The effect of the inadequate water supply may readily be seen by observing the crop yields as shown on this table.

A number of Parshall Measuring Flumes, headgates and diversion boxes were installed in 1930. A list of the structures and places of installation is given below:

6 inch Parshall Measuring Flume - Roberts Ditch

9 inch Parshall Measuring Flume - Graveyard Ditch

9 inch Parshall Measuring Flume - Mulkey-Leonard Ditch

9 inch Parshall Measuring Flume - Sherlock Ditch

6 inch Parshall Measuring Flume - Watkins Ditch

9 inch Parshall Measuring Flume - Ramer Ditch

9 inch Parshall Measuring Flume - Mill Ditch

9 inch Parshall Measuring Flume - Offset Ditch

Eight headgates of varying widths were installed - one above each of the Parshall Measuring Flumes listed above.

Five division boxes of varying widths were installed in the Ramer Ditch.

Three division boxes of varying widths were installed in the Mill Ditch.

The headgates in the Graveyard, Mulkey-Leonard and Sherlock

ditches were not fully installed due to proposed changes at the heads of those ditches. The Parshall Measuring Flume for the Graveyard Ditch was also only partly installed due to proposed changes in the head of the ditch.

## CONTROVERSIES

Two of the claimants to water from Davis Creek, Harry and May Bailey and John and Irene Briles, did not sign the stipulation for consent judgment which was presented to the water users on March 18, 1930. They refused the water master permission to regulate their diversions in accordance with the plan of distribution contained in the stipulation. When it became apparent that there was going to be an acute shortage of irrigation water in June, the plaintiffs in the proceedings caused the above named parties to be cited to appear and show why they were not in contempt of court on the grounds of interfering with the operation of the Division of Water Resources as referee in the case of the Lake Shore Cattle Co. et al. vs. J. D. Mulkey, et al. The parties appeared in court on June 10th where an agreement was reached whereby the defendants agreed to submit to the regulation of their diversions by the water master. No further controversy arising, the action was dismissed.

Considerable difficulty has occurred on the Remer Ditch during the entire period that water master service has been in operation on Davis Creek. The users on the ditch had a decree dividing the water in the ditch among the various parties therein. This decree has now been superseded by the stipulation for consent judgment in the proceedings. Whenever the water master reduced the water at the head of the ditch to the allotted amount the lower users have complained of a shortage. They have complained every year to the water master of interference by the upper parties in the ditch, but no authority was vested

in the water master beyond regulating the diversion from the creek. In 1930 dividing boxes were placed in the ditch to keep the partners informed of the correct division of the water. One of the lower users claimed upon investigation to have found the division box on the R. E. Henderson place tampered with. The lower users on the ditch thereupon petitioned the Superior Court to cite him for contempt of court for knowingly violating the decree on the ditch. Upon completion of the hearing in the matter the charge was dismissed for lack of evidence. However, the judge vested the water master on Davis Creek with authority to regulate the taps on the ditch. Thereafter, a register was installed on the ditch between the upper and lower users and although the lower users continued to complain about their water being short, no interference of consequence was noted.

The users on the Mill Ditch, four in number, have the same difficulty as the users on the Ramer Ditch but have no decree between themselves. The two lower users, Mr. Briles and Mr. Webb, frequently complained of mutual interference and interference by the other partners in the ditch. A number of attempts were made to settle their differences but seemingly to no avail. Division boxes were installed in the ditch in 1930 which it is hoped will help to remedy the situation in the future.

R. T. Renner has filed a suit for damages against Harry and May Bailey and John and Irene Briles, alleging that illegal diversions of water by these parties during May and the first nine days of June caused him to suffer an acute shortage of water and a consequent failure in his crops.

## RECOMMENDATIONS

Although a number of measuring devices, headgates and division boxes were installed in 1930 more are needed and should be installed in 1931 if possible. A partial list follows:

Headgate and measuring device on Bailey Upper Ditch

Headgate and measuring device on Bailey-Webb Ditch

Headgate and measuring device on Blurton Ditch

Headgate and measuring device on Briles West Ditch

Division structure to divide the water into the North and the South Branches of the North Branch.

Division structure in the South Branch of the North Branch at the head of the Brown-Renner Ditch.

A measuring device at the head of the Brown-Renner Ditch.

Division structures where necessary on the North Branch of the North Branch.

An effort should be made to clear out the creek channels in a number of places where willows and sandbars have restricted their capacity.

## FINANCIAL STATEMENT

The finances for conducting investigations and water master service on all streams in Northern California, except in water districts operating under the procedure of Sections 37 to 37f of the Water Commission Act, during the 1930 season were combined into one fund. This was done because a portion of the work on the various streams was related and because of convenience in bookkeeping. The streams included under the fund were Emerson, Davis and Mill Creeks in Modoc County, Clover, North Cow, and Oak Run Creeks in Shasta County, Little Shasta and Lower Shasta Rivers in Siskiyou County, and Pit River in Big Valley.

The work was financed partly by subscription from the water users and partly by contribution by the Division of Water Resources. No segregation was made in the expense of conducting the work on the nine stream systems during the 1930 season. The total unit cost of the work was about twenty-four cents per acre of irrigated land, of which about half was borne by the state.

A financial statement in which receipts and disbursements are itemized follows.

FINANCIAL STATEMENT

NORTHERN CALIFORNIA WATER DISTRIBUTION

1930 SEASON

Receipts

| | |
|---|---|
| Contributed by Emerson Creek Water Users - - - - - | $290.10 |
| Contributed by Davis Creek Water Users - - - - - - | 389.20 |
| Contributed by Mill Creek Water Users - - - - - - - | 500.00 |
| Contributed by Clover Creek Water Users - - - - - | 372.00 |
| Contributed by North Cow Creek Water Users - - - - | 442.87 |
| Contributed by Oak Run Creek Water Users - - - - - | 94.48 |
| Contributed by Little Shasta River Water Users - - | 926.02 |
| Contributed by Lower Shasta River Water Users - - - | 200.00 |
| Contributed by Pit River - - - - - - - - - - - - - - | 450.00 |
| Contributed by Division of Water Resources - - - - | 3950.00 |
| | $ 7614.67 |

Disbursements

| | |
|---|---|
| Salaries and Wages - - - - - - - - - - - - - - - - - | $4987.18 |
| Travel and Field Expenses - - - - - - - - - - - - | 2550.92 |
| Printing and Blueprinting - - - - - - - - - - - - | 43.42 |
| Miscellaneous - - - - - - - - - - - - - - - - - - - | 33.15 |
| | $ 7614.67 |

# 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 | 0.11 | 0.39 | 1.21 | 0.64 | 1.00 | 0.50 | 0.69 | 2.04 | 0.02 | 1.31 | 0.00 | 0.02 | 7.93 |
| 1929 - 30 | 0.16 | 0.45 | T | 3.22 | 1.69 | 1.18 | 1.05 | 0.90 | 1.11 | 0.21 | T | 0.51 | 10.48 |
| Mean 1884 - 1930 | 0.68 | 0.86 | 1.75 | 1.79 | 1.95 | 1.84 | 1.42 | 1.12 | 1.27 | 0.94 | 0.36 | 0.28 | 14.26 |
| 1929 - 1930 in per centof Total Mean | 1.1 | 3.1 | 0.0 | 22.6 | 11.8 | 8.3 | 7.4 | 6.3 | 7.8 | 1.5 | 0.0 | 3.6 | 73.5 |

Note: Per cent of Total Mean from May 1st to August 31st of
Average Year - 20.0% of 1930 - 12.9%

TABLE 4

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

| Period | Per cent of allotment Delv. 1st Priority | 2nd Priority | 3rd Priority | Total Deliveries c.f.s. | Per Cent of Total Allotment Delivered | Continuous Flow above all Diversion c.f.s. | Per Cent Channel Accretion or Loss |
|---|---|---|---|---|---|---|---|
| 4/1 to 4/10 | 90 | 25 | 57 | 21.0 | 40 | 16.8 | + 24 |
| 4/11 to 4/20 | 90 | 35 | 37 | 21.1 | 40 | 16.9 | + 25 |
| 4/21 to 4/30 | 90 | 45 | 45 | 25.5 | 49 | 20.2 | + 26 |
| 5/1 to 5/10 | 90 | 45 | 29 | 23.1 | 44 | 18.6 | + 24 |
| 5/11 to 5/20 | 90 | 60 | 36 | 29.0 | 56 | 24.2 | + 20 |
| 5/21 to 5/30 | 92 | 60 | 34 | 28.8 | 55 | 24.4 | + 18 |
| 5/31 to 6/9 | 92 | 40 | 19 | 20.1 | 38 | 17.7 | + 14 |
| 6/10 to 6/19 | 95 | 27 | 0 | 13.2 | 25 | 13.2 | 0 |
| 6/20 to 6/29 | 100 | 16 | 0 | 10.1 | 19 | 10.6 | - 5 |
| 6/30 to 7/9 | 100 | 7 | 0 | 7.30 | 14 | 8.11 | - 10 |
| 7/10 to 7/19 | 100 | 3 | 0 | 5.89 | 11 | 6.54 | - 10 |
| 7/20 to 7/29 | 95 | 0 | 0 | 4.75 | 9 | 5.28 | - 10 |
| 7/30 to 8/8 | 86 | 0 | 0 | 4.32 | 8 | 4.80 | - 10 |
| 8/9 to 8/18 | 82 | 0 | 0 | 4.12 | 8 | 4.58 | - 10 |
| 8/19 to 8/28 | 74 | 0 | 0 | 3.71 | 7 | 4.12 | - 10 |
| 8/29 to 9/7 | 71 | 0 | 0 | 3.57 | 7 | 3.97 | - 10 |

Note: 1st Priority Allotment = * 4.60 cubic feet per second.

2nd Priority Allotment = 32.21 cubic feet per second.

3rd Priority Allotment = 15.44 cubic feet per second.

Total Allotments = 52.25 cubic feet per second.

* 1st Priority increased to 5.00 cubic feet per second on June 16th.

TABLE 8

ESTIMATED CROP YIELDS ON TYPICAL LANDS IRRIGATED
FROM DAVIS CREEK - 1930

| Owner | Crop | Acres | Total Yield | | Yield per Acre | |
|---|---|---|---|---|---|---|
| | | | Sacks | Tons | Sacks | Tons |
| W. E. Barker | Orchard | 10.0 | | 16 | | 1.6 |
| | Garden | 2.3 | | | Fair | |
| John Briles | Meadow Hay | 52.9 | | 65 | | 1.2 |
| | Barley | 35.6 | 470 | | 13.2 | |
| | Orchard | 12.1 | | 22 | | 1.8 |
| | Garden | 0.6 | | | Good | |
| R. J., R.J.Jr.and | Alfalfa Hay | 100.0 | | 125 | | 1.2 |
| C. A. Graham | Meadow Hay | 10.0 | | 10 | | 1.0 |
| | Oats | 5.0 | 50 | | 10 | |
| | Orchard | 18.5 | | | No Crop | |
| | Garden | 0.3 | | | Good | |
| | Potatoes | 5.0 | 350 | | 70 | |
| | Pasture | 9.6 | (9 cattle - 7 horses) | | | |
| Tom Karas | Meadow Hay | 77.3 | | No Crop | | |
| | Wheat | 68.1 | 350 | | 5 | |
| | Garden and | | | | Fair | |
| | Orchard | 5.1 | | | Fair | |
| Sadie Keaton | Meadow Hay | 20.2 | | 18 | | 0.9 |
| | Pasture | 32.7 | (13 cattle - 2 horses) | | | |
| A. T. Mulkey | Meadow Hay | 12.9 | | 12 | | 0.9 |
| | Pasture | 7.9 | ( 5 cattle - 4 horses -40 sheep- 3 hogs) | | | |
| | Garden | 1.0 | | | Fair | |
| | Orchard | 2.0 | | | Fair | |
| J. D. Mulkey | Meadow Hay | 101.6 | | 140 | | 1.4 |
| | Alfalfa Hay | 7.2 | | 5 | | 0.7 |
| | Barley | 19.0 | 75 | | 3.9 | |
| | Wheat | 7.0 | 15 | | 2.1 | |
| | Orchard | 15.6 | | 24 | | 1.5 |
| | Garden | 1.3 | | | Fair | |
| Wm. Mulkey | Garden | 2.0 | | | Poor | |
| Mrs. S. A.Ramer | Alfalfa and Grain Hay | 5.4 | | 10 | | 1.9 |
| | Orchard | 0.5 | | | Good | |
| | Garden | 2.8 | | | Good | |

TABLE 8 (Continued)

| Owner | Crop | Acres | Total Yield | | Yield per Acre | |
|---|---|---|---|---|---|---|
| | | | Sacks | Tons | Sacks | Tons |
| Mary A. Crowder and Louisa Shedd | Meadow Hay | 41.6 | | 20 | | 0.5 |
| | Pasture | 6.1 | (8 cattle - 6 hogs) | | | |
| | Orchard | 3.7 | | | Poor | |
| | Garden | 1.0 | | | Fair | |
| H. M. Taylor | Meadow Hay | 79.1 | | 60 | | 0.8 |
| | Alfalfa Hay | 15.0 | | 25 | | 1.7 |

PLATES

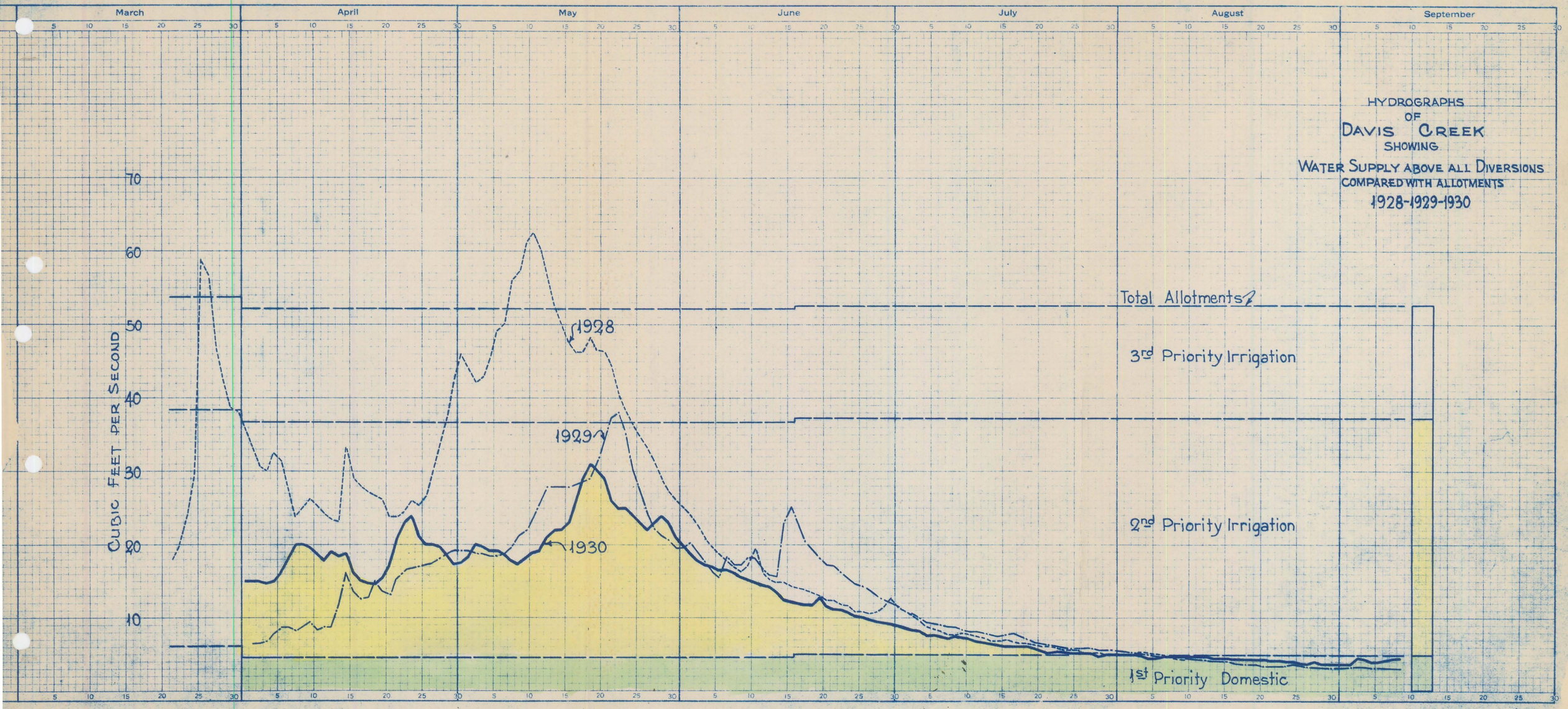
HYDROGRAPHS
OF
DAVIS CREEK
SHOWING
WATER SUPPLY ABOVE ALL DIVERSIONS
COMPARED WITH ALLOTMENTS
1928-1929-1930
March
April
May
June
July
August
September
CUBIC FEET PER SECOND
70
60
50
40
30
20
10
Total Allotments
3rd Priority Irrigation
2nd Priority Irrigation
1st Priority Domestic
1928
1929
1930

PLATE 1