

**NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT
WATER SUPPLY UPDATE
October 31, 2016**

WATER SOURCE 1: NSJWCD PERMIT 10477

Projected 2016 Supply: None at this time.

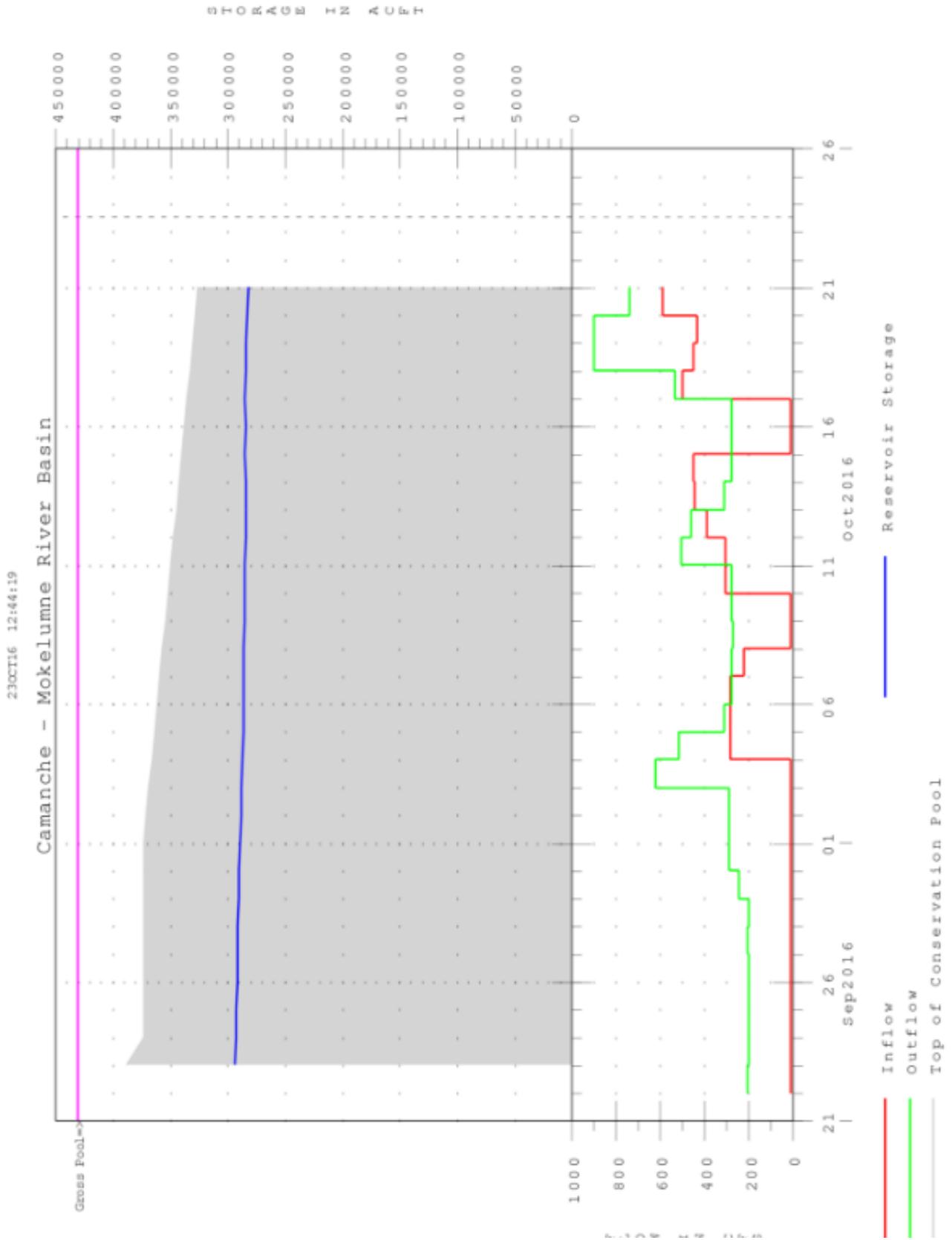
EBMUD has informed NSJWCD that no water is available under Permit 10477 as of current conditions. Water may become available under Permit 10477 during 2016 if EBMUD is required to make releases from storage in order to comply with flood control requirements. Also, NSJWCD's direct diversion right begins December 1, 2016. If wet weather continues, water will likely be available to divert after Dec. 1st under this direct diversion right.

WATER SOURCE 2: 2014 PROTEST DISMISSAL AGREEMENT BETWEEN NSJWCD, EBMUD, ETC.

Projected 2016 Supply: None. If water is not available under Permit 10477, 6,000AF of dry year supply could have been available under the terms of this Agreement, except that the required banking program and export permit was not yet in place. The District must design this project and comply with CEQA before proceeding.

Flood Control Operations

The current reservoir capacity in comparison to mandatory flood storage space at Camanche Reservoir is displayed below. This information is current as of 10/23. Based on the information published on USACE's Water Control Data Site, Camanche and Pardee will reach their maximum combined storage capacity this winter.



Thursday, October 20, 2016

Data as of midnight. Subject to revision.

Report generated on 10/23/2016 2:14:46 PM

RESERVOIR ELEVATION AND STORAGE

| EBMUD | Elevation | | Storage | | % Full | Max. | Max. | Rlse cfs | Spill cfs |
|---------------------|-----------|--------|---------|--------|--------|--------------|------------------|-------------|--------------|
| | Feet | Change | Ac-Ft | Change | | Elev Feet | Storage Ac-Ft | | |
| MOKELUMNE | | | | | | | | | |
| Pardee | 559.96 | -0.49 | 187,100 | -1,040 | 92% | 567.65 | 203,795 | 588 | 0 |
| Camanche | 215.79 | -0.07 | 282,000 | -430 | 68% | 235.50 | 417,120 | 739 | 0 |
| EAST BAY | | | | | | | | | |
| Briones | 572.45 | 0.24 | 56,400 | 170 | 96% | 576.14 | 58,960 | 0 | 0 |
| Chabot | 220.00 | 0.00 | 8,040 | 0 | 78% | 227.25 | 10,350 | 0 | 0 |
| Lafayette | 442.38 | 0.00 | 3,430 | 0 | 81% | 449.16 | 4,250 | 0 | 0 |
| San Pablo | 311.14 | -0.02 | 36,510 | -20 | 95% | 313.68 | 38,600 | 0 | 0 |
| USL | 456.00 | 0.23 | 35,920 | 170 | 92% | 459.98 | 38,905 | 0 | 0 |
| TOTAL EAST BAY RES. | | | 140,300 | 320 | 93% | | 151,065 | | |
| TOTAL EBMUD STORAGE | | | 609,400 | -1,150 | 79% | | 771,980 | | |

| PG&E CO. | Storage | | % Full | Capacity Ac-Ft | |
|--------------------|---------|---------|--------|-------------------|---------|
| | Ac-Ft | Change | | | |
| Old Reservoirs | 11,714 | -136 | 44% | 26,560 | |
| Salt Springs | 77,915 | 52 | 55% | 141,857 | |
| Lower Bear | 21,095 | -302 | 41% | 52,025 | |
| TOTAL PG&E STORAGE | | 110,724 | -386 | 50% | 220,442 |

RIVER FLOWS AND RELEASES

| | |
|--------------------------------------|---------|
| Mokelumne River Natural Flow | 280 Cfs |
| Pardee Reservoir Inflow | 475 Cfs |
| *Pardee Release to JVID | 30 Cfs |
| Pardee Release to Camanche Reservoir | 588 Cfs |
| Camanche Release to Mokelumne River | 739 Cfs |
| Mokelumne River near Elliott Rd | 824 Cfs |
| *WID Diversion | 58 Cfs |
| Mokelumne River below WID | 769 Cfs |

* Diversions:

JVID - Jackson Valley Irrigation District

WID - Woodbridge Irrigation District

The JSA (Joint Settlement Agreement) dictates required fishery flows based on time of year and year-type. The total combined reservoir capacity in Pardee and Camanche is at or near full capacity. **The Current JSA Year Type is NORMAL/ABOVE. THIS CHANGE OCCURRED IN OCTOBER.**

WATER YEAR TYPE DETERMINATION

| Year Type | Normal/Above | Below Normal | Dry | Critically Dry |
|--|-------------------|--------------------------|--------------------|---------------------|
| Oct. - Mar. (1) (Pardee/Camanche Storage) | Max Allowable (2) | Max Allowable to 400 TAF | 399 TAF to 270 TAF | 269 TAF or Less |
| Apr. - Sep. (3) (Unimpaired runoff) | 890 TAF or More | 889 TAF to 500 TAF | 499 TAF to 300 TAF | 299 TAF or Less (4) |

- Notes:
- (1) October through March minimum flows are determined by total Pardee and Camanche storage on November 5th. Year type storage limits are based on the capacities of Pardee and Camanche Reservoirs in 1995.
 - (2) Maximum allowable storage on November 5th, shall be determined in accordance with the Army Corps of Engineer's Water Control Manual for Camanche Dam and Reservoir dated September, 1981.
 - (3) April through September minimum flows are determined by the water year unimpaired runoff into Pardee Reservoir as forecasted by DWR in the April 1st Bulletin 120 Report except when combined Pardee/Camanche Nov. 5 storage is projected to be less than 200 TAF.
 - (4) April through September minimum flows shall be critically dry whenever Nov. 5 combined Pardee/Camanche storage is projected to be 200 TAF or less based on the runoff forecast in DWR bulletin 120, beginning April 1st.

JSA Fishery Flows for ABOVE NORMAL years are set forth below. For An ABOVE normal year type, the total JSA flow releases are expected to be 325 cfs from October 1 to March 30. As a result, the total amount of mandatory releases from Comanche under the JSA is about **117,120 AF between October 1 and March 31.**

Average/Above Average Year Flows

Attachment 1

| Normal and Above Year Flows Mokelumne River Minimum Flow Schedule (1) | | | | Agreed Release From Camanche Dam (cfs) | Expected Flow Below Woodbridge Dam (cfs) |
|--|-------------------|------|--|--|--|
| Life Stage | Period | Days | | | |
| Adult Immigration | 10/1-10/15 (2) | 15 | | 325 | 100 |
| Spawn/Incubation | 10/16-10/31 (2) | 16 | | 325 | 100 |
| | 11/1-11/30 (3) | 30 | | 325 | 100 |
| | 12/1-12/31 (3) | 31 | | 325 | 100 |
| Incubation/Alevin | 1/1-1/31 (3) | 31 | | 325 | 100 |
| | 2/1-2/28 (3) | 28 | | 325 | 100 |
| Fry Rearing | 3/1-3/31 (3) | 31 | | 325 | 100 |
| | 4/1-4/15 (4),(5) | 15 | | 325 | 150 |
| | 4/16-4/30 (4),(5) | 15 | | 325 | 150 |
| Fry Rearing/Juvenile Rearing/ Outmigration | 5/1-5/31 (5) | 31 | | 325 | 300 |
| | 6/1-6/30 (5) | 30 | | 325 | 300 |
| Oversummer | 7/1-9/30 | 92 | | 100 | 25 |
| | Total Days | 365 | | | |

- NOTES:
- (1) Due to changes in water conditions or to optimize fishery conditions, EBMUD may modify the above Flow Standards upon written concurrence of CDF&G and USFWS, provided the total quantity of water released for fishery purposes in Normal and Above year types is not less than the quantity provided by this flow schedule.
 - (2) During October, EBMUD will maintain minimum flows of 325 cfs below Camanche Dam and 100 cfs below WID's dam in Normal and Above year types.
 - (3) During the period when WID dam boards are pulled out and Lodi Lake is empty (approximately Nov. 1 through March 31), EBMUD shall make minimum releases of 325 cfs from Camanche Dam in Normal and Above year types. This release from Camanche dam is expected to provide at least 100 cfs below WID dam during this period. However, EBMUD shall not be obligated to increase releases above 325 cfs during this period in Normal and Above year types.
 - (4) During April, EBMUD will maintain minimum flows of 325 cfs below Camanche Dam and 150 cfs below WID's dam in Normal and Above year types.
 - (5) For the months of April, May, and June during Normal and Above year types, additional release of up to 200 cfs is required depending on combined Pardee and Camanche storage levels relative to the maximum allowable for the end of the prior month as follows:
 Less than 10 TAF below maximum allowable storage (BMAS), additional release is 200 cfs for subsequent month.
 10 TAF <= BMAS < 20 TAF, additional release is 150 cfs for subsequent month.
 20 TAF <= BMAS < 30 TAF, additional release is 100 cfs for subsequent month.
 30 TAF <= BMAS < 40 TAF, additional release is 50 cfs for subsequent month.

CITY OF LODI TRANSFER AGREEMENT

NSJWCD's obligation to transfer up to 1,000 AF to the City of Lodi is contingent on 20,000 AF of water being available under Permit 10477 as of May 1st of each year. The potential transfer period is the following October 15th to March 30th.

We notified the City of Lodi that water may be available this winter. Lodi has requested 600 AF of water between December 2016 and January 2017. We are working to coordinate between Lodi, WID and EBMUD for delivery.

Pardee Journal Entry – 9/29**Journal****Title**

Pardee Journal Entry - September 29, 2016

Date

Thursday, September 29, 2016 12:40

Entered By

Carter, Frank E

Journal Entry

Subject: Camanche Release Rate Increase

(09/29/2016) at (12:00) hours Camanche release was increased (90) cfs from (200) to (290) cfs due to Minimum JSA release requirements. The Added flow was put on both Sluice and Generation.

Current releases are:

| | |
|---------------|----------------|
| Generation | 206 cfs/1.4 MW |
| Fish Hatchery | 12 cfs |
| Sluice | 72 cfs |
| Total Release | (255cfs) |

Pardee Hydro Power Operations/Pardee Area Control Center Ext. 8208

ACTION

Increase the Camanche Reservoir rate of release by 90 cfs, from 200 to 290 cfs, on Thursday, September 29, 2016 at noon.

BACKGROUND

The combined Pardee Reservoir and Camanche Reservoir storage on November 5, 2016 is projected to be above 400 TAF and below maximum allowable storage. Based on the storage levels, the October 2016 through March 2017 Joint Settlement Agreement (JSA) year type is "Below Normal," which requires a minimum Camanche Reservoir release of 250 cfs and an expected flow below Woodbridge Dam of 100 cfs. An additional buffer of 10 cfs is planned below Woodbridge Dam.

The Camanche Reservoir rate of release is currently 200 cfs. The rate of release is being increased to 290 cfs to meet the required minimum JSA release from Camanche Dam and the expected flow below Woodbridge Dam.