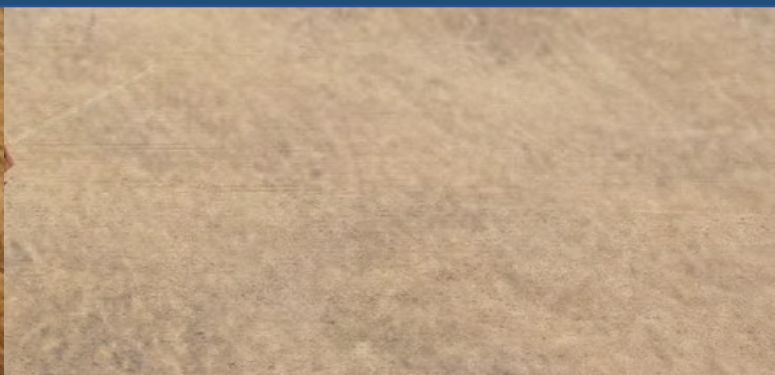


**Fiscal Year 2023
Water Supply Projections Report
Calaveras County Water District
Prepared June 2022**



Calaveras County Water District FY 2023 Water Supply Projections Report

The 2022 Calaveras County Water District (CCWD) Water Supply Projections Report (Projections Report) for Fiscal Year 2023, covering the period July 1, 2022, through June 30, 2023 (FY 2023), provides an overview of hydrologic conditions and the available water supplies and projected demands for CCWD's six water service areas spread throughout Calaveras County (County). This Projections Report complements the annual Water Supply and Demand Assessments (WSDAs) developed by CCWD per the requirements of the California Water Code (CWC) §10632 *et seq.* and the guidelines provided by the California Department of Water Resources (DWR). It also provides CCWD a snapshot of local and state-wide water conditions, and a reference point for future assessments and projections analyses. Projections Report contents include a review of County hydrologic conditions, service area water supply conditions, and overview of recommended shortage response actions, if required.

Projections Report Key Points:

- *California is in the third year of ongoing drought conditions* which started with Water Year 2020. Around 60% of the state remains in either “Extreme” or “Exceptional” drought conditions, the two worst classifications of drought conditions according to the U.S. Drought Monitor.
- *CCWD continues to rely on its reservoir storage systems and contract water supplies*, for instance New Spicer Meadow Reservoir for Ebbetts Pass or Copper Cove Service Areas, or New Hogan Reservoir for Jenny Lind. Although stored water is being depleted, the available supplies and contractual rights remain adequate for CCWD to meet its water service demands in the current and in subsequent years.
 - CCWD will need to continue relying on “previously stored water” from its reservoirs, owing to water rights curtailment actions by the State Water Resources Control Board (SWRCB) impacting CCWD's ability to divert under its water storage and diversion rights. These SWRCB curtailments started August 2021 through the end of 2021 and recommenced in June 2022.
 - CCWD's most vulnerable service areas include Sheep Ranch and West Point. Sheep Ranch Service Area is reliant on water stored in White Pines Lake which, although adequate from volume available, may have issues with release(s) to diversion facilities downstream if San Antonio Creek is dry. West Point Service Area will likely be solely reliant on supplemental water supply purchases for most of the year given Bear Creek conditions and/or SWRCB curtailments. CCWD staff will continue to monitor these conditions.
- *CCWD entered “Stage 2” of its Water Shortage Contingency Plan (WSCP) on June 8, 2022* (resolution provided in Attachment A2), owing to Governor Newsom's Executive Order N-7-22 (Executive Order) requirements. Although not required due to water supply shortage conditions, this *action should help CCWD achieve necessary water conservation to stretch its stored water supplies throughout 2022.*

01 Planning Overview

CCWD's water supplies, particularly its surface water supplies, are largely dictated by changes in the volume, nature, and timing of precipitation in its watersheds; primarily the Calaveras, Stanislaus, and Mokelumne Rivers. Accordingly, the high variability of year-to-year hydrologic conditions in these watersheds, along with storage levels in CCWD's key reservoirs, dictate whether CCWD has the available water supplies to meet its water service demands. CCWD's rights to divert and use surface water have historically been adequate for meeting demands, however, CCWD must also prepare for water shortage conditions and drought periods where demand restrictions are required to ensure public health and safety. Table 1 lists CCWD's water service areas and corresponding water supply sources and reservoir storage facilities.

The most recent information regarding potential water shortage conditions and response actions developed by CCWD is contained in its latest 2020 WSCP Update, adopted by CCWD in June 2021. The WSCP addresses how CCWD determines a water shortage and establishes six stages of shortage response actions, designed to respond to increasingly severe conditions. The stages each contain several end user restrictions and prohibitions, both voluntary and mandatory, which CCWD plans to enact to achieve needed demand reductions. Per the WSCP, only the CCWD Board of Directors (Board) can trigger the shortage stages. Using the Projections Report and WSDAs, CCWD analyzes service area water supply availability and recommends staged responses based on current hydrologic conditions consistent with WSCP-defined methodologies. A copy of the WSCP water shortage stages and WSDA development methodology are included in Attachments B and C of this Projections Report, respectively.

02 Hydrologic Conditions

Drought conditions across much of California continued to worsen during Water Year 2021, with much of the State reaching 126-year precipitation lows and several reservoirs left at critical storage levels. Besides some early precipitation events in October and December 2021, these drought conditions continued into record-breaking dry months for early 2022. As a result, water supplies across the state have been vulnerably low and many water suppliers have been implementing various water shortage declarations and conservation response actions. According to the latest information from the U.S. Drought Monitor (Drought Monitor), a majority the state is in either "Extreme" or "Exceptional" drought, their two worst classifications of drought conditions. Table 2 provides an overview of Drought Monitor conditions in Calaveras County and in California over the last year, and Table 3 provides an overview of key reservoir storage levels.

Table 1. CCWD Water Service Areas Overview

Service Area Name	Key Water Supply Source(s)	Basis for Supply	Reservoir Storage Facilities
Copper Cove	Highland Creek, North Fork Stanislaus River (via Stanislaus River)	CCWD Diversion & Storage Rights	New Spicer Meadow Reservoir ¹ , McKays Point Reservoir ¹
Ebbetts Pass	Highland Creek, North Fork Stanislaus River	CCWD Diversion & Storage Rights	
Jenny Lind	Calaveras River	Water Supply Contract with Bureau of Reclamation	New Hogan Reservoir
Sheep Ranch	Big Trees Creek (via San Antonio Creek)	CCWD Diversion & Storage Rights	White Pines Lake
Wallace	Eastern San Joaquin GW Subbasin	Groundwater Pumping	N/A
West Point	Bear Creek (Middle Fork Mokelumne River)	CCWD Diversion & Storage Rights, Supplemental Water Supply Contract ¹	Bummerville Regulating Reservoir, Schaad's Reservoir ²

¹ Facilities also used to support North Fork Stanislaus Hydroelectric Project generation (e.g., Collierville Powerhouse).
² Supplemental water supply contract to purchase Middle Fork Mokelumne River water from Calaveras Public Utility District (CPUD) from their Schaad's Reservoir facility.

Table 2. US Drought Monitor Conditions Overview

Week	Date	Extreme/Exceptional Drought Cond ¹ (%)	
		Calaveras	Statewide
Current	6/7/2022	93%	60%
3 Months Ago	3/8/2022	0%	13%
Start of 2022	1/1/2022	36%	33%
Start of WY 2022	10/1/2021	100%	88%
Start of FY 2022	7/1/2021	100%	85%

¹ Combined percentage of D3 (Extreme) and D4 (Exceptional) drought conditions according to U.S. Drought Monitor.

Table 3. California Reservoir Levels Overview (as of 6/7/2022)

Reservoir	Current Water Storage (AF)	% of Capacity	% of Avg. for Date
Folsom Lake	865,108	89%	110%
Lake Oroville	1,882,413	53%	68%
Lake Shasta	1,811,104	40%	49%
New Hogan Reservoir	116,656 ¹	37%	69%
New Melones Reservoir	837,600	35%	54%
New Spicer Meadow Reservoir	128,709 ¹	68%	81%
San Luis Reservoir	889,128	43%	67%
White Pines Lake	151 ¹	96%	104%

¹ Not all water held in storage is available for CCWD’s consumptive use, pursuant to various water rights conditions, contracts, etc.

An overview of accumulated precipitation since the beginning of the water year, for the watersheds in and around the County, is shown in Figure 1. The CCWD Calaveras County Public Water Resources Data Packet (Data Packet) indicates most local watersheds have received around 70 to 85 percent of their average precipitation conditions, and that most reservoirs are below their average storage volume for this time. However, CCWD’s available stored water supplies remain at or above levels that can adequately meet service area demands – largely due to the precipitation from late 2021. The latest Data Packet, updated daily and including Drought Monitor information, continues to be available online at <https://ccwd.org/water-resources/public-data-packet/>

Projected Hydrologic Conditions

Assuming no major precipitation events occur during summer and early autumn of 2022, consistent with regular wet and dry season cycles, then Water Year 2023 would likely end as “dry” or “below normal” per the San Joaquin Valley Hydrologic Classification Indices¹. Figure 4 shows the percentages of Water Year occurrences following these indices. Note there is no reason to expect future conditions to follow these trends, but these data provide some insights into what has happened historically with watershed conditions.

¹ Classifications available at California Data Exchange Center (CDEC) website from California Cooperative Snow Surveys “Water Year Hydrologic Classification Indices”.

Figure 1. Calaveras County Water Year Accumulated Precipitation Data (through 6/8/2022)

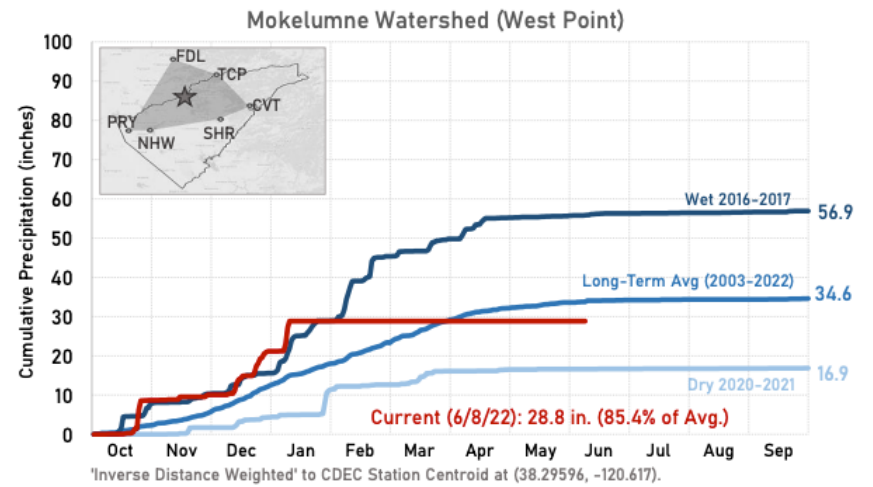
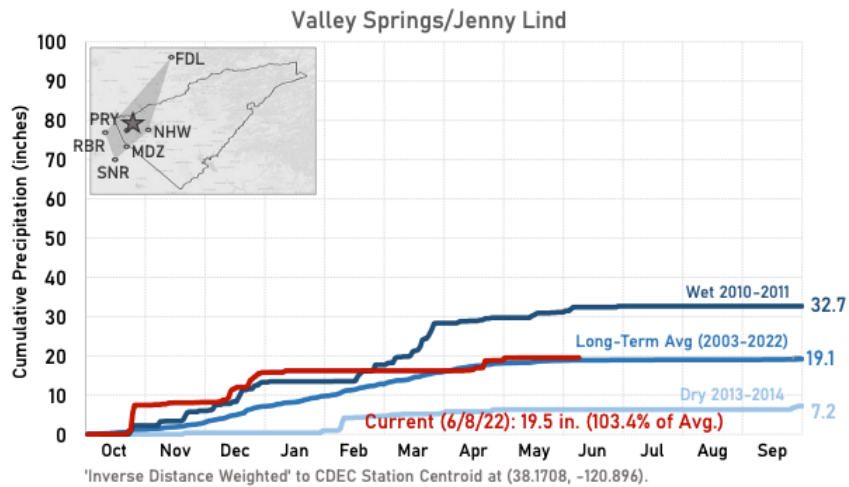
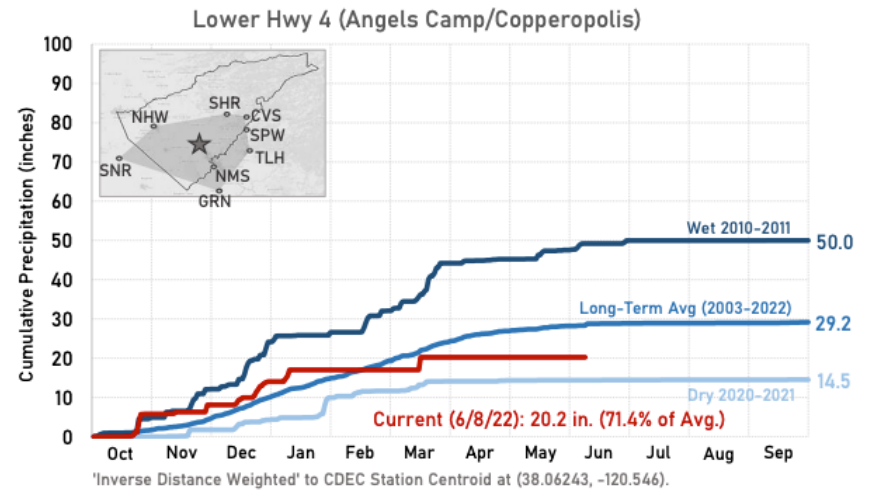
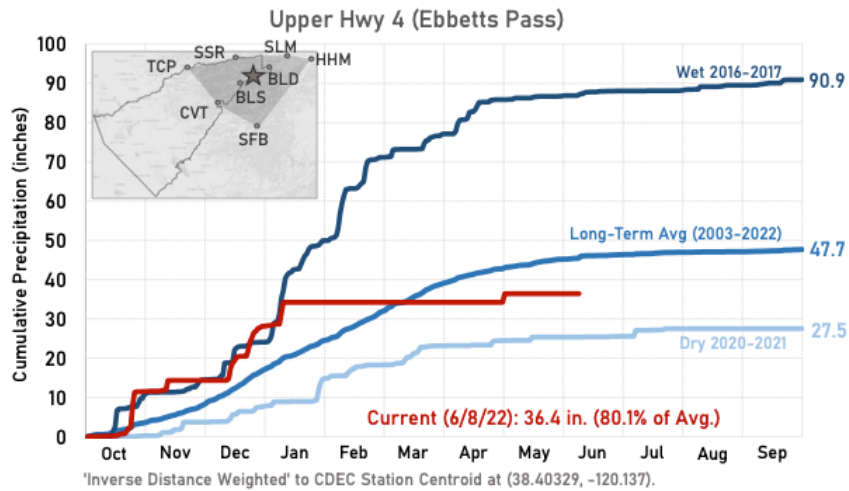
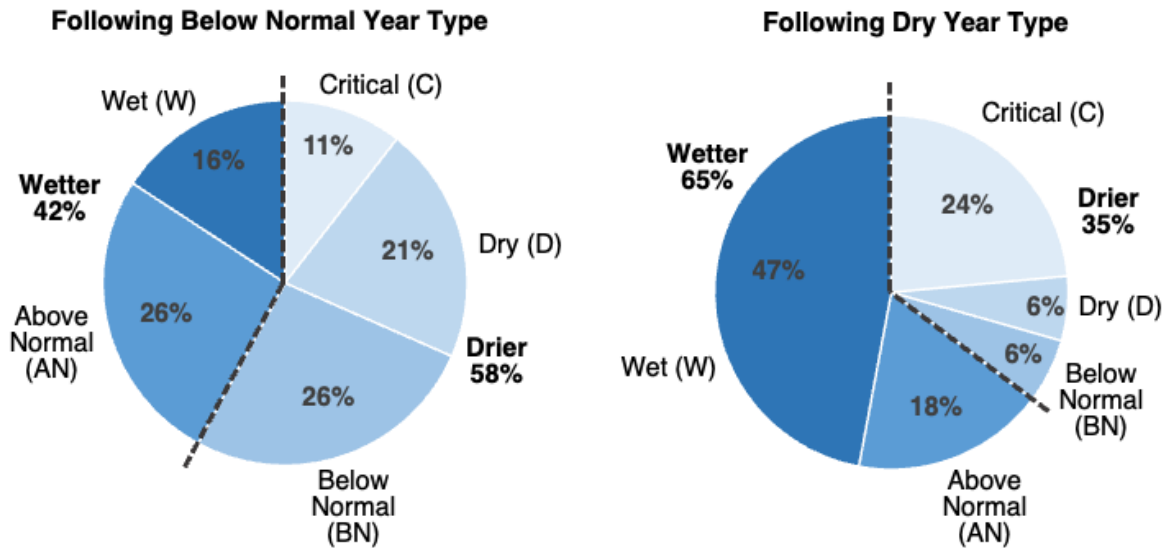
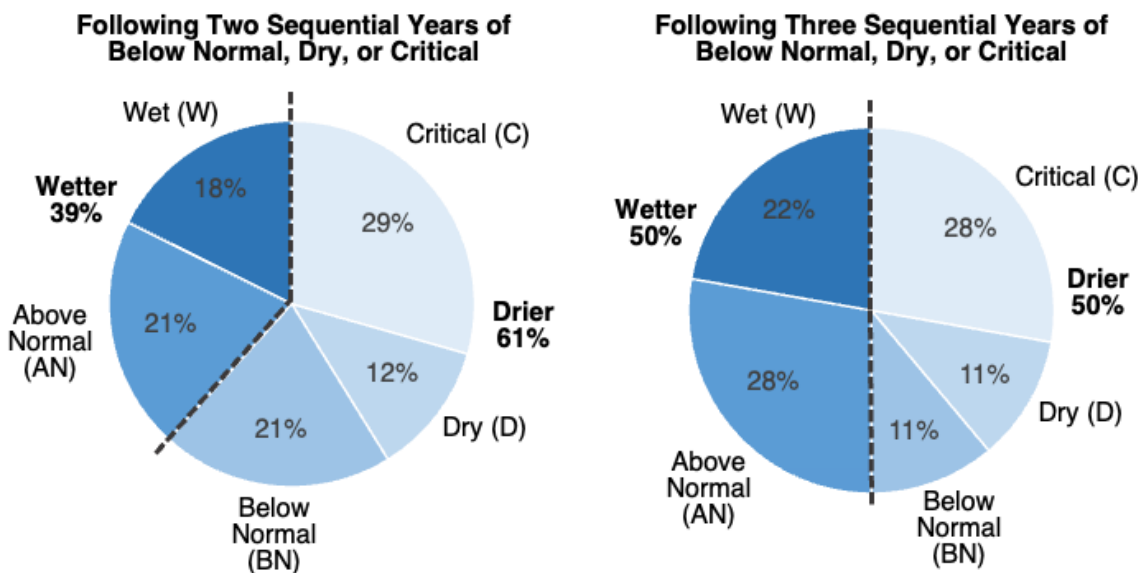


Figure 4. Historical San Joaquin Valley Hydrologic Classification Indices following “Dry” or “Below Normal” Year Types (Data WY 1901 to Present)



Historical data suggests the occurrence of drier year types following either of these types above is around one-third to half of the time, while wet or above normal conditions generally follow dry years more frequently than below normal years. As shown in Figure 5, this trend holds when following two or three sequential years of the drier year types.

Figure 5. Historical San Joaquin Valley Hydrologic Classification Indices following Two and Three Sequential Drier Years (Data WY 1901 to Present)



These data are not meant to suggest the current drought will come to an end with the next water year, but rather illustrate that continued drought conditions are also not a certainty given the high variability of hydrologic conditions from year to year. As seen in the past, drier conditions, or even multi-year sustained drier (drought) conditions, may be followed by relatively wetter year types. That said, it is generally understood that factors

such as climate change, water supply exports, and regulatory changes continue to shift effective hydrologic conditions towards drier year types. As such and given the nearly 50-50 chance of dry conditions in the future according to the historical data, CCWD continues to plan for extended dry conditions following Water Year 2022.

Regulatory Actions

The following bullets outline some of the major regulatory changes and events over the last year which have impacted CCWD, County, and state-wide drought planning efforts:

- CCWD adopted its latest WSCP on June 23, 2021, per CWC and DWR requirements. This adoption codified the six “stages” of water shortage response, from least to most severe, based on water supply conditions in CCWD’s service areas and provides corresponding “Shortage Response Actions” (Actions). An overview of these WSCP-defined stages is provided in Attachment B.
- On July 8, 2021, Governor Gavin Newsom (Governor) expanded a drought emergency declaration to include most California counties, including Calaveras County. As a result, CCWD enacted Stage 1 of its WSCP on July 14, 2021 (see Attachment A1), which remains in effect and includes mostly voluntary Actions aimed at encouraging County residents to increase their water conservation.
- On August 3, 2021, the SWRCB passed Emergency Resolution No. 2021-0028 granting it the ability to make “water unavailability” determinations and to start curtailing water diversion and storage rights in response to drought conditions. Following this action, SWRCB curtailed CCWD’s water rights in late August through the end of 2021. Given ongoing dry conditions in early 2022, the curtailment orders recommenced in June 2022. As a result, CCWD could not make additional direct diversions and/or diversions to storage under its consumptive water rights and became reliant on “previously stored water” in its reservoirs (or from contract allocations) when the curtailments were active.
- As a result of persistent and ongoing drought conditions, on March 28, 2022, the Governor issued the Executive Order, continuing the drought emergency declaration and defining certain new requirements for water suppliers. These requirements were further defined in the SWRCB’s later-adopted emergency regulations. Per the Executive Order and SWRCB regulations, CCWD implemented Stage 2 of its WSCP, corresponding with a 20 percent decrease in consumptive uses across CCWD’s service areas (see Attachment A2).
- As of this Projections Report, the CCWD WSCP Stage 1 and Stage 2 actions are in effect for its water service areas, and SWRCB curtailment orders are in effect for CCWD’s consumptive water rights. CCWD does not anticipate changes to either of these actions in 2022 unless the current drought conditions subside.

03 Water Supply Conditions

Attachment D provides the analysis of water supply and demand conditions by service area, to assess adequacy for the upcoming FY 2023. The WSDA development methodology (Attachment C) defines how these analyses are performed and the

underlying data used to project available supplies and assumed demands. The following assumptions were made in performing these analyses:

- Each service area continues to be reliant on a sole raw water inflow (from one or more intake sources), to the area’s water treatment plant (WTP), used to supply that service area’s customer demands and wholesale customers, if applicable.
- Service area supplies are well defined (albeit complex) under existing CCWD diversion and storage water rights and/or contractual agreements. Considering the SWRCB curtailment orders, all CCWD water rights are assumed curtailed from June through October, consistent with historical curtailment periods. Diversions during the non-curtailed period are based on data of flows made available for diversion during dry or critical year types in the applicable watersheds.
- All CCWD customer end-use is metered (volumetric use) and read by qualified CCWD staff in accordance with District policy. For the purposes of this analysis, long-term average from 2008, as well as two- and four-year trending data (“2/4 year trends”) were utilized to project FY 2023 monthly demands by service area.
- All water supplied, authorized consumption, and other data remain consistent with the WSDA development methodology but are presented in a manner consistent with the individual water supply sources/rights available to the CCWD service areas. Distribution systems loss factors, based on prior CCWD Urban Water Loss Audits, and other info were compiled into the “Projected Supplied” data, as noted.
- Although CCWD entered Stage 2 of its WSCP, and the action is expected to help CCWD achieve water conservation in its service areas, the corresponding decreases in demand were not factored into these projections. As such, they provide a relatively conservative outlook of water supplies and demands.

Table 4 shows the “Supply Buffer” for each CCWD service area, based on estimated available water rights, contractual supplies, and/or water available from storage.

Table 4. CCWD Service Areas’ Water Supply Buffer

Service Area	Min. Water Supply Buffer (AF)	FY2023 Demand Mult¹	No. FY Months Below 5% Buffer
Copper Cove	4,315.9	2.56	0
Ebbetts Pass	5,931.2	3.30	0
Jenny Lind	181.9 ²	3.13	0
Sheep Ranch	37.9	2.05	0
Wallace	6.5	N/A ³	0
West Point	6.0	0.78⁴	5

¹ Minimum supply buffer multiplier versus total projected supply.

² Based on FY 2023 scheduled use of New Hogan Reservoir. Actual CCWD portion is 7,700 AF/year firm based on contract allocation.

³ Not applicable for groundwater well pumping for Wallace.

⁴ Supply buffer added to 200 AF/yr made available under CPUD agreement; assumes no other water supply made available to West Point.

The key conclusions of this analyses are as follows:

1. Most of CCWD's service areas have adequate availability of stored water supplies to meet water demands. The primary water supply risks to these areas mostly arise from facilities outages or failures that limit operational ability to release supplies and intake to WTPs when needed.
2. The only area with Supply Buffer within 5 percent of projected total demand is the West Point Service Area, owing to system reliance on Bear Creek diversions which may be unavailable due to curtailments or dry conditions, and facilities capacity restrictions on water purchased from CPUD. As such, this is the only area without adequate access to future supplies if drought conditions worsen and no additional water supplies are made available to meet demands (i.e., multiplier < 1.0). CCWD staff will continue to monitor West Point and Bear Creek conditions², and may seek supplemental water supply options to meet projected demands, if needed.
3. Although adequate supplies are available via stored water for Sheep Ranch, there is also concern given historical issues with the San Antonio Creek diversion facilities located downstream of White Pines Lake (White Pines). Available data and notes have suggested that releases from White Pines have periodically been inadequate to ensure water is flowing at the downstream point of diversion at a level adequate for intake from existing facilities. As such, CCWD has had to release excess water from White Pines at certain times. This operational concern was factored into the calculations of White Pines releases to meet Sheep Ranch demands and would ultimately lead to less water available as carryover storage for use in future years. More analyses are needed to study White Pines and in-stream losses (e.g., evaporation, vegetation demands) and to assess changes to the point of diversion to facilitate more reliable water supply conditions.
4. Groundwater remains available for Wallace area pumping. Consumption volumes and local monitoring wells are regularly tracked per the requirements of the Sustainable Groundwater Management Act (SGMA) in the Eastern San Joaquin Groundwater Subbasin (Subbasin). CCWD will continue to engage in and monitor SGMA regulations where it may impact Wallace water supply availability.

04 Shortage Overview

No water shortage conditions were calculated for any of CCWD's service areas based on analysis of projected water supplies and demands for FY 2023. As such, no mandatory WSCP shortage actions are being recommended by this Projections Report or from the WSDAs. However, given the details projected for the West Point Service Area, CCWD staff still recommend the WSCP Stage 1 voluntary conservation actions for that area, to reduce customer demands and to help improve the Supply Buffer estimates. Given the ongoing drought conditions statewide, there remains value in promoting efficient water use practices by CCWD's customers and working alongside in-

² Diversions from this facility are not curtailed as of this Projections Report owing to a pre-1914 water rights claim to diversions held by CCWD that was not impacted by the latest SWRCB curtailment order.

County water suppliers in the “Calaveras Conserves” program. CCWD continues to prohibit “water waste” at all times, regardless of local water supply conditions, and manages for the actions contemplated in its WSCP.

Per the Executive Order and SWRCB regulations, CCWD implemented Stage 2 of its WSCP on June 8, 2022. Stage 2 corresponds with a 20 percent reduction in water demands across the CCWD service areas, using a mix of voluntary and mandatory actions aimed at enhancing water conservation practices and limiting inefficient water uses. Regardless of its water supply conditions, CCWD will continue with Stage 2 implementation until notified by these governing authorities. The conservation savings and decreased consumption figures associated with Stage 2 were not factored into the supply-demand projections provided herein, to provide conservative estimates of CCWD conditions for planning purposes. CCWD staff will continue to monitor statewide, County, and local service area conditions as the drought continues (or subsides) and may update the projections as needed. Comparison of these projections will also be provided in subsequent FY Projection Report(s).

Attachments:

- A1 CCWD Board WSCP “Stage 1” Resolution on July 14, 2021
- A2 CCWD Board WSCP “Stage 2” Resolution on June 8, 2022
- B Overview of CCWD WSCP Water Shortage Stages
- C CCWD WSDA Development Methodology
- D CCWD Service Areas Water Supply & Demand Assessments

Attachment A1
CCWD Board WSCP
“Stage 1” Resolution on July 14, 2021

RESOLUTION NO. 2021-54

**A RESOLUTION OF THE BOARD OF
DIRECTORS OF THE CALAVERAS COUNTY
WATER DISTRICT**

**STAGE 1 WATER SHORTAGE RESPONSE TO ADDRESS WATER SUPPLY
CONDITIONS PER THE WATER SHORTAGE CONTINGENCY PLAN**

WHEREAS, On July 8, 2021 Governor Newsom expanded his drought emergency declaration to include 50 of California's 58 counties, including Calaveras County; and

WHEREAS, the State has experienced the driest rainy season on record, reaching 126-year lows across the state; and

WHEREAS, extremely dry conditions have persisted and may continue beyond this year and more regularly into the future, based on scientific projections regarding the impact of climate change on snowpack; and

WHEREAS, California is in a statewide drought and it is critical that all residents do what they can to use water wisely to maximize supplies and protect water reserves to prepare for the potential scenario of an extended, multi-year drought; and

WHEREAS, Calaveras County Water District has and continues to make significant investment in infrastructure and repairs to reduce water loss and improve efficiency of the water deliveries to our customers; and

WHEREAS, The Urban Water Management Planning Act requires that each water supplier provide a Water Shortage Contingency Plan (WSCP) that outlines how the supplier will prepare for and respond to water shortages. Stage 1, the Advisory Stage, per the Department of Water Resources, is a voluntary conservation response; and

WHEREAS, CCWD's 2020 Urban Water Management Plan (UWMP) includes the newest (WSCP) and defines how CCWD will implement conservation measures, provide water use notices and engage with the public during drought conditions, and

WHEREAS, Calaveras County Water District encourages residents adopt voluntary conservation practices provided within Stage 1 of the Water Shortage Contingency Plan.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the CALAVERAS COUNTY WATER DISTRICT adopts this resolution to enter Stage 1 of the Water Shortage Contingency Plan to encourage customer to use water wisely and

comply with state official recommendations to aim for voluntary water use reductions of 15 percent.

PASSED AND ADOPTED this 14th of July, 2021 by the following vote:

AYES: Directors Ratterman, Secada, Underhill, Thomas, and Davidson
NOES: None
ABSTAIN: None
ABSENT: None

CALAVERAS COUNTY WATER DISTRICT



Jeff Davidson, President
Board of Directors

ATTEST:



Rebecca Hitchcock
Clerk to the Board

Attachment A2
CCWD Board WSCP
“Stage 2” Resolution on June 8, 2022

[Not included in 6/22/2022 BOD Agenda Item version]

RESOLUTION NO. 2022-59

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE CALAVERAS COUNTY WATER DISTRICT
ENACT STAGE 2 OF WATER SHORTAGE CONTINGENCY PLAN
PER STATE WATER RESOURCES CONTROL BOARD REQUIREMENTS
AND GOVERNOR'S EXECUTIVE ORDER N-7-22**

WHEREAS, the Calaveras County Water District (CCWD) adopted its latest 2020 Water Shortage Contingency Plan (WSCP) on June 23, 2021, per California Water Code (CWC) and California Department of Water Resources (DWR) requirements; and

WHEREAS, the WSCP defines six "Stages" of water shortage response, from least to most severe, based on water supply conditions in CCWD's service areas and provides corresponding "Shortage Response Actions" (Actions); and

WHEREAS, on July 8, 2021, Governor Gavin Newsom (Governor) expanded a drought emergency declaration to include most California counties, including Calaveras County (County). As a result, CCWD enacted Stage 1 of its WSCP on July 14, 2021, which remains in effect and includes mostly voluntary Actions aimed at encouraging County residents to increase their water conservation practices; and

WHEREAS, besides some early precipitation events in October and December 2021, drought conditions from 2021 continued into record-breaking dry months for early 2022, leading to additional impacts to vulnerable water supplies statewide. On March 28, 2022, the Governor issued Executive Order N-7-22 (Exec Order) continuing the drought emergency declaration and defining certain new requirements for water suppliers; and

WHEREAS, on May 25, 2022, the State Water Resources Control Board (SWRCB) adopted emergency regulations into the CWC as a result of the Exec Order requirements for water suppliers. Per §996(d) of these regulations, CCWD will need to implement Stage 2 of its WSCP, at a minimum, by June 10, 2022, regardless of the water supply conditions in CCWD's service areas.

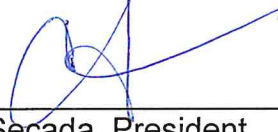
NOW, THEREFORE, BE IT RESOLVED by the Board of Directors (Board) of CALAVERAS COUNTY WATER DISTRICT that WSCP Stage 2 "Alert Conditions" and corresponding Actions be enacted for CCWD's water service areas, corresponding with a shortage level of ten to twenty percent as required by the Exec Order and SWRCB emergency regulations.

BE IT FURTHER RESOLVED by the Board that CCWD staff continue its service area and County-wide outreach and engagement efforts aimed at encouraging the public to use water wisely, and work with other in-County water suppliers to increase water use efficiency given the ongoing drought conditions.

PASSED AND ADOPTED this 8th day of June, 2022 by the following vote:

AYES: Directors Ratterman, Davidson, Thomas, and Secada
NOES: None
ABSENT: Director Underhill
ABSTAIN: None

CALAVERAS COUNTY WATER DISTRICT



Cindy Secada, President
Board of Directors

ATTEST:



Rebecca Hitchcock
Clerk to the Board

Attachment B
Overview of CCWD WSCP
Water Shortage Stages

Calaveras County Water District
Water Shortage Stages and Response Actions (Overview)

Per the Calaveras County Water District (CCWD) Water Shortage Contingency Plan¹ (WSCP), CCWD established six numbered Shortage Stages of response based on water supply conditions within CCWD’s service areas. The Shortage Stages are designed to respond to increasingly severe supply shortages, with higher numbered indicating more extensive restrictions on water uses, consistent with CWC §10608. The Shortage Stages and corresponding Response Actions which regulate and restrict the delivery and use of water from CCWD are outlined in the following sub-sections.

WSCP Stage	Corresponding Demand Reduction (%)	Stage Name
0	<i>Always Active</i>	<i>Non-Staged/Ongoing</i>
1	Up to 10%	Advisory Condition
2	Up to 20%	Alert Condition
3	Up to 30%	Moderate Condition
4	Up to 40%	Significant Condition
5	Up to 50%	Critical Condition
6	More than 50%	Emergency Condition

01 Non-Staged/Ongoing

Certain demand reduction actions and water conservation practices shall be continually promoted by CCWD regardless of enacted Shortage Stage. These ongoing efforts shall be voluntary in nature and may include, but are not limited to, the following actions:

- (1) Discouraging landscape irrigation within 48 hours after measurable rainfall.
- (2) Encouraging customers to inspect their irrigation systems, and to repair leaks or adjust spray heads to provide optimum coverage and to eliminate avoidable overspray.
- (3) Encourage customers purchase covers for any new outdoor pools and spas.
- (4) Encourage customers to implement recirculating pumps for their pools, spas, and other recreational or decorative outdoor water features, and that these features be maintained leak free.
- (5) Encourage customers install automatic shut-off hoses.
- (6) New water connections prohibited from having single-pass cooling systems.
- (7) Encourage conveyor car wash and commercial laundry businesses to install recirculating washing systems.
- (8) Prohibit any use of potable water that results in excessive runoff from a customers’ property (for example gutter flooding).

¹ CCWD 2020 WSCP Update adopted June 23, 2021 by CCWD BOD per RES 2021-49.

(9) CCWD may also implement the following actions:

- a. Extend public information campaigns related to water conservation and water use efficiency topics.
- b. Provide customers with a wide variety of free water conservation supplies.
- c. Provide rebates on plumbing fixtures and devices, offer other incentives and water conservation tools and insights.

02 Shortage Stage 1 (Advisory Condition)

A water shortage determined by CCWD to correspond with a 10 percent supply reduction may trigger Shortage Stage 1. Under Shortage Stage 1, no demand reductions, curtailments, or other restrictions will be required by CCWD, and all Response Actions shall be voluntary in nature. Shortage Stage 1 restrictions may include, but are not limited to, the following Response Actions implemented by CCWD:

- (1) Landscape watering should be avoided during hottest portion of the day.
- (2) Customers should take responsive action to establish appropriate run-times for landscape irrigation to eliminate water runoff extending beyond their properties.
- (3) Use of water for cleaning driveways, walkways, parking lots, and streets is discouraged, except to alleviate immediate safety or sanitation hazards.
- (4) CCWD will initiate coordination with other water suppliers in-County and provide info from coordinated water use efficiency programs.
- (5) CCWD may expand its public information campaign to encourage customer water use conservation through public outreach, such as in local media, social media websites, billing statements, direct mailings, etc.

03 Shortage Stage 2 (Alert Condition)

A water shortage determined by CCWD to correspond with supply reduction between 10 and 20 percent may trigger Shortage Stage 2. Under Shortage Stage 2, certain demand reductions, curtailments, or other restrictions may be required by CCWD. All preceding Shortage Stage 1 Response Actions would remain in effect. Shortage Stage 2 restrictions may include, but are not limited to, the additional following Response Actions implemented by CCWD:

- (1) Customers must repair controllable water leaks, correct overspray, and cease excessive landscape watering.
- (2) Customers must take actions to establish appropriate run-times for landscape irrigation to eliminate water runoff extending beyond their properties
- (3) Landscape irrigation is prohibited between the hours of 10:00 am and 6:00 pm.
- (4) Use of water for cleaning driveways, walkways, parking lots, and streets is prohibited, except to alleviate immediate safety or sanitation hazards.
- (5) All leaks, breaks, or other malfunctions shall be repaired within 72 hours of being notified by the CCWD.

- (6) Use of potable water for construction or dust control is prohibited.
- (7) Lodging establishments must provide patrons the option of not having towels and linens laundered daily by displaying notices prominently in each guestroom.
- (8) Dining establishments may only serve water upon request.

04 Shortage Stage 3 (Moderate Condition)

A water shortage determined by CCWD to correspond with supply reduction between 20 and 30 percent may trigger Shortage Stage 3. Under Shortage Stage 3, certain additional demand reductions, curtailments, or other restrictions may be required by CCWD. All preceding Shortage Stage 1 and 2 Response Actions would remain in effect. Shortage Stage 3 restrictions may include, but are not limited to, the additional following Response Actions implemented by CCWD:

- (1) Landscape irrigation limited to three days per week.
- (2) Golf course irrigation restricted to greens and trees if raw water is sole source.
- (3) Local fire departments will be asked to limit training exercises that use potable water and to cease fire hydrant testing.
- (4) Filling of new or existing pools using CCWD water supplies is prohibited.
- (5) Operation of water displays or features such as decorative water fountains and recreational ponds using CCWD water supplies is prohibited.
- (6) CCWD will discontinue non-essential flushing of supply mains and fire hydrants.
- (7) CCWD may implement or modify a drought rate structure or surcharge.

05 Shortage Stage 4 (Significant Condition)

A water shortage determined by CCWD to correspond with supply reduction between 30 and 40 percent may trigger Shortage Stage 4. Under Shortage Stage 4, certain additional demand reductions, curtailments, or other restrictions may be required by CCWD. All preceding Shortage Stage 1, 2, and 3 Response Actions would remain in effect. Shortage Stage 4 restrictions may include, but are not limited to, the additional following Response Actions implemented by CCWD:

- (1) Landscape irrigation restrictions to be implemented as follows:
 - a. Premises having odd-numbered street addresses may irrigate only on Wednesdays and Sundays.
 - b. Premises having even-numbered street addresses may irrigate only on Tuesdays and Saturdays.
 - c. No landscape watering will be allowed by any addresses on Mondays, Thursdays, and Fridays.

06 Shortage Stage 5 (Critical Condition)

A water shortage determined by CCWD to correspond with supply reduction between 40 and 50 percent may trigger Shortage Stage 5. Under Shortage Stage 5, certain additional demand reductions, curtailments, or other restrictions may be required by CCWD. All

preceding Shortage Stage 1, 2, 3, and 4 Response Actions would remain in effect. Shortage Stage 5 restrictions may include, but are not limited to, the additional following Response Actions implemented by CCWD:

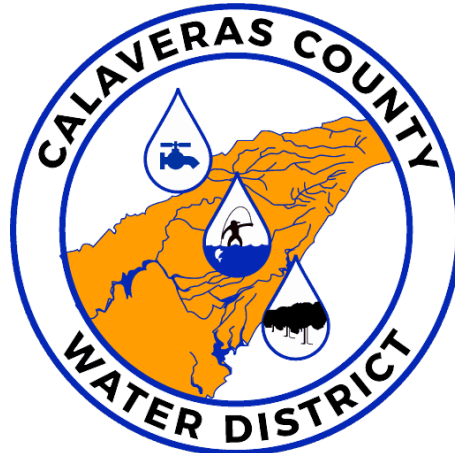
- (1) Landscape irrigation restrictions to be implemented as follows:
 - a. Premises having odd-numbered street addresses may irrigate only on Sundays.
 - b. Premises having even-numbered street addresses may irrigate only on Saturdays.
 - c. No landscape watering will be allowed by any addresses on Mondays through Fridays.
- (2) New water service applications will be granted only on the condition that water shall be used exclusively for interior purposes and landscape watering shall be delayed until CCWD determines that Shortage Stage 5 is no longer in effect.
- (3) CCWD will discontinue flushing of supply mains and fire hydrants.

07 Shortage Stage 6 (Emergency Condition)

A water shortage determined by CCWD to correspond with supply reduction greater than 50 percent will trigger Shortage Stage 6. This represents a catastrophic water supply interruption to CCWD. Under Shortage Stage 6, certain additional demand reductions, curtailments, or other restrictions may be required by CCWD. All preceding Shortage Stage 1, 2, 3, 4, and 5 Response Actions would remain in effect. Shortage Stage 6 restrictions will include, but are not limited to, the additional following Response Actions implemented by CCWD:

- (1) Outdoor watering by hose or irrigation system will be prohibited.
- (2) Golf courses will be limited to the use of treated effluent or well water sources for irrigation.
- (3) CCWD will coordinate with appropriate County and State Offices of Emergency Services to determine additional Response Actions needed to ensure continued water service.
- (4) Landscape irrigation restrictions to be implemented as follows:
 - a. Premises having odd-numbered street addresses may irrigate only on Sundays.
 - b. Premises having even-numbered street addresses may irrigate only on Saturdays.
 - c. No landscape watering will be allowed by any addresses on Mondays through Fridays.
- (5) New water service applications will be granted only on the condition that water shall be used exclusively for interior purposes and landscape watering shall be delayed until CCWD determines that Shortage Stage 5 is no longer in effect.
- (6) CCWD will discontinue flushing of supply mains and fire hydrants.

Attachment C
CCWD WSDA Development
Methodology



WATER SUPPLY AND DEMAND ASSESSMENT (WSDA) PROCEDURES

**Guidance of Annual WSDA Submissions for
Compliance with Water Code §10632**

Released June 2021

Calaveras County Water District
120 Toma Court, San Andreas, CA 95249

1 Introduction

Calaveras County Water District (CCWD, District) frequently performs assessments, evaluations, and reporting of its available water resources, aimed at ensuring adequate supplies are reliably available for its service areas' demands across Calaveras County (County). The District's Urban Water Management Plan (UWMP) provides information related to these concepts, reviewing different planning and forecast scenarios which may impact CCWD's key water sources. The Urban Water Management Planning Act (Act) requires the UWMP be updated every five-years, in order to ensure consistency with the California Water Code (Water Code) and state legislative priorities. For the latest 2020 update cycle, a component of the UWMP includes the Water Shortage Contingency Plan (WSCP), a separately adopted "sub-plan" which outlines specific actions for how CCWD will prepare for and respond to water shortage conditions. Adoption of the WSCP by the CCWD Board of Directors (Board) grants the District the authority to implement specific shortage actions, as outlined in the WSCP (e.g., more aggressive water conservation measures, water use restrictions), when specific "water shortage stages" (Shortage Stages) are activated. While the WSCP defines the methodology for determining appropriate preparatory and responsive actions by the District for the Shortage Stages, a critical component of those efforts remains the ongoing monitoring and assessment of water supply conditions to accurately identify and activate those stages.

To address these considerations, the amended Act, as defined under Water Code §10632.1, establishes a Water Supply and Demand Assessment (WSDA) component of the WSCP. The WSDA is intended to provide a standardized methodology by which to assess annual water supplies and demands, and a formulaic approach to ensure consistent data inputs are utilized. Following the 2020 UWMP Update (hereinafter referred to as the "UWMP", unless otherwise specified), urban water suppliers, including CCWD, will be required to submit annual WSDA data to the California Department of Water Resources (DWR), by June 1 of each year starting in 2022. This appendix to the WSCP defines CCWD's WSDA methodology and approach to fulfill the annual submission requirement; and may be amended outside of the UWMP and/or WSCP process in order to reflect new CCWD data collection procedures, infrastructure, or changing Water Code requirements, as defined under **Section 7. Figure 1** illustrates the general approach and connection to the UWMP and WSCP contents.

1.1 WSDA Objectives

The WSDA is intended to achieve the following objectives:

1. Improve water supply reliability in the urban sector;
2. Assist in drought water supply planning for urban water suppliers, and
3. Support coordination and consistency between urban stakeholders via WSDA guidance supported by DWR.

Water supply reliability and drought preparedness are directly supported by consistent monitoring of County-wide conditions. The methodology defined in this document also provides other urban stakeholders and DWR the information to directly compare their planning and monitoring processes with CCWD, thereby facilitating a broader understanding of regional and

state-wide conditions. Specific Shortage Actions planned by CCWD shall remain defined by the latest District-adopted WSCP.

These objectives are consistent with the Water Code and DWR’s “Urban Water Management Plan Guidebook 2020” (Guidebook), used to assist urban water suppliers with the preparation of compliant UWMP and WSCP materials, as shown in **Table 1** below:

Table 1. WSDA Content Requirements

Water Code Section	Guidebook Location	Summary
10632(a)(2)(A)	Section 8.2	Provide the written decision-making process and other methods that the supplier will use each year to determine its water supply reliability.
10632(a)(2)(B)	Section 8.2	Provide data and methodology to evaluate the supplier’s water reliability for the current year and one dry year pursuant to factors in the Water Code.

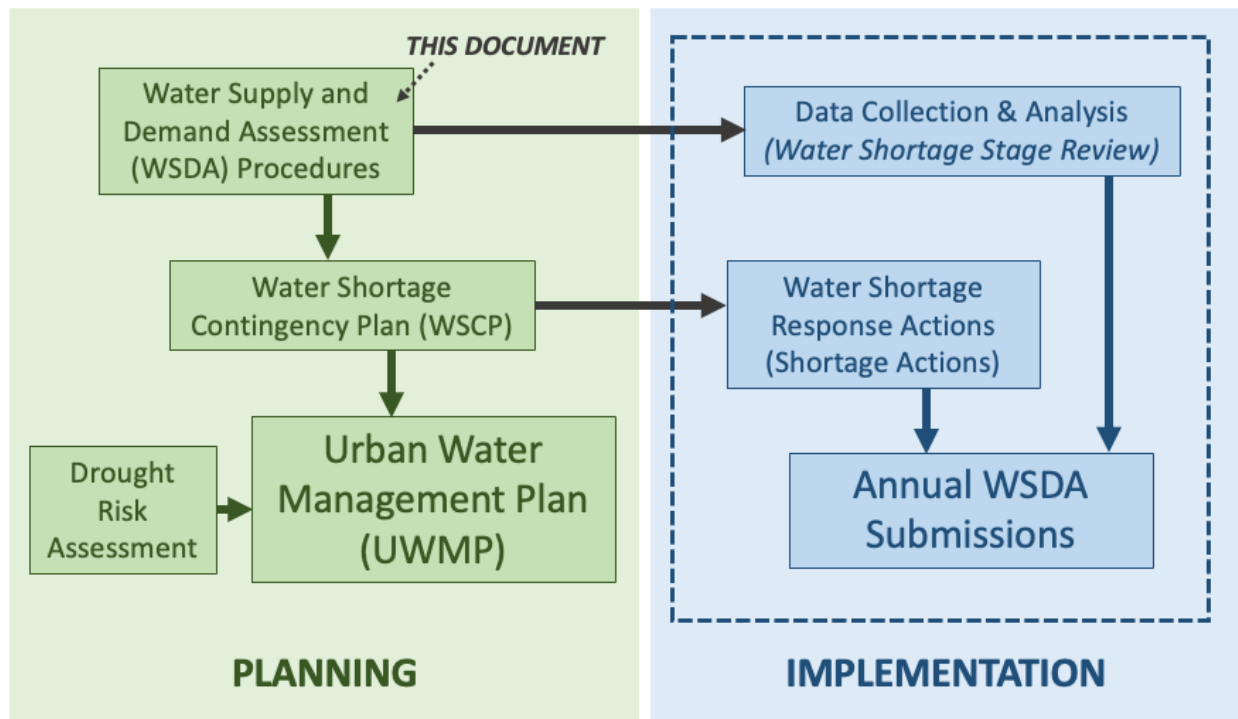


Figure 1. UWMP, WSPC, and WSDAs Components of UWMP Process

1.2 Water Supply Reliability

For the purposes of the District WSDAs, water supply reliability is defined as follows:

The measure of consistency by which available water supply resources will be greater than or equal to the demands for those water supplies over defined time periods.

The measure of consistency of fulfilling system demands, over a selected time period, can be defined in terms of the fraction of CCWD's demands satisfied by the available supplies. In this WSDA, units are expressed as volumetric supply and demand figures over a year, in terms of acre-feet per year (AFY). Unless otherwise specified, all data reported in the WSDAs are on a District 'Fiscal Year' (FY) basis, following the District's FY calendar which starts July 1 and ends on the following June 30. Factors which adversely impact the consistency of a water supply system's capability of fulfilling its demands includes decreases in the amount of available water supply resources, described in **Chapter 7** of the UWMP, and/or failures of that system's physical components. In this case water shortage conditions generally correspond with FYs where available supplies and stored water are inadequate to fulfill demands or are below a defined percentage of demands below what certain Shortage Actions may reasonably achieve, thereby requiring more-advanced Shortage Actions. As such, the constant monitoring and assessment of both District water supplies and demands over multiple FYs is critical towards assessing water supply reliability and defining potential water shortage conditions.

2 Decision-Making Process

This section describes the functional steps to formally approve the annual WSDA analysis and determination of water supply reliability. WSDAs will likely be developed by the District's Water Resources Program Manager for review and submission (see CCWD Organizational Chart in **Figure 3-1** of the UWMP). WSDA contents will follow the format outlined in this document.

2.1 Board Review

The annual WSDAs are standalone documents which shall be reviewed by the CCWD Board of Directors (Board) and approved by the District's General Manager (GM) prior to submission to DWR. Given the July 1 deadline for submission, the District anticipates Board review will occur during a Regular Board Meeting in the preceding month of May. WSDA meeting contents and notices will be provided to the public in compliance with the Brown Act contained in §54950 et seq. of the California Government Code. The Board need not formally adopt a WSDA but shall provide direction regarding GM approval of a WSDA.

Notice(s) of water shortage conditions may be recommended to the Board based on review of WSDA contents. Approval of a WSDA with such recommendations does not automatically trigger any WSDA-recommended Shortage Actions. The Board holds the authority to implement any Shortage Actions for CCWD's service areas, as outlined in the WSCP, and must adopt those actions separate of WSDA review and approval procedures.

2.2 WSDA Submission

Following GM approval, the WSDA will be submitted to DWR by July 1 or as specified in an amended Water Code. As of this time there are no submission instructions or standardized submission forms/tables. An example WSDA submission form which includes the concepts outlined in this document is provided in **Appendix A**. CCWD plans to adhere with all WSDA

submission guidelines and may amend its WSDA contents over time to adhere with changing or clarified guidelines, as required. Such changes will be noted in the following WSDA submission.

3 System and Supplies Overview

Chapter 3 of the UWMP details the District's currently six hydrologically disconnected water service areas, including:

- 1) *Jenny Lind System* (Jenny Lind): obtains water supplies from the Calaveras River Watershed via New Hogan Reservoir (New Hogan) via contractual agreement with the U.S. Bureau of Reclamation (Reclamation) and Stockton East Water District (SEWD). Raw water supply intake for this system occurs only at the Jenny Lind Water Treatment Plant, used in parts of Valley Springs and surrounding communities for municipal purposes. The local La Contenta Golf Course (La Contena) also diverts some raw water from New Hogan for its landscape irrigation, under contract with CCWD, but mostly relies on recycled water supplies made available from the District's La Contenta Wastewater Treatment Plant. This service area is part of Sub-Region A (Calaveras River Watershed supplied) in UWMP analyses.
- 2) *Sheep Ranch Improvement District* (Sheep Ranch): obtains water supplies from diversion on San Antonio Creek, a tributary of the Calaveras River, via District water rights to the upstream Big Trees Creek flowing through CCWD's White Pines Lake (White Pines). Raw water supply intake for this system occurs at the Sheep Ranch Water Treatment Plant, for relatively small municipal uses (mostly residential customers). Some raw water is also diverted under the District's rights for the local Right of Passage youth facility. This service area is part of Sub-Region A (Calaveras River Watershed supplied) in UWMP analyses.
- 3) *Ebbetts Pass Service Area* (Ebbetts Pass): obtains water supplies from diversion off the Collierville Tunnel (via so-called "Tunnel Tap"), a diversion from the North Fork Stanislaus River at McKays Point Reservoir (McKays), generally used to support hydropower operations on the North Fork Stanislaus Hydroelectric Project (North Fork Project, FERC Project No. 2409). These water supplies originate from several District diversion and storage water rights, and complex water supply agreements (detailed in **Chapter 6** of the UWMP), centered around CCWD's New Spicer Meadow Reservoir (New Spicer) upstream. Tunnel Tap raw water intakes supply the Hunters Water Treatment Plant, for municipal uses in the Arnold and Dorrington/Camp Connell areas, and for two wholesale treated water agreements with homeowner's association communities in the area. This service area is part of Sub-Region B (Stanislaus River Watershed supplied) in UWMP analyses.
- 4) *Copper Cove/Copperopolis Service Areas* (Copper Cove/Copperopolis): the result of the consolidation of two former service areas, this area obtains water supplies from the District's North Fork Stanislaus River water rights and New Spicer storage diverted at Lake Tulloch (Tulloch) downstream of Reclamation's New Melones Reservoir (New Melones). Raw water supply intake for this system occurs only at the Copper Cove Water Treatment Plant, used in parts of Copperopolis and the surrounding Tulloch area for municipal purposes. The Saddle Creek Golf Course (Saddle Creek) also diverts some raw water from Tulloch for its landscape irrigation, under contract with CCWD, but mostly relies on

recycled water supplies made available from the District's Copper Cove Wastewater Treatment Plant. This service area is part of Sub-Region B (Stanislaus River Watershed supplied) in UWMP analyses.

- 5) *West Point Improvement District (West Point)*: obtains water supplies from diversion on Bear Creek, a tributary of the Mokelumne River, via District water rights to use and store supplies in the Bummerville Regulating Reservoir (Bummerville Reservoir). CCWD also maintains a water purchase agreement with the Calaveras Public Utilities District (CPUD) for supplemental raw water supplies from Schaads Reservoir on the Middle Fork Mokelumne River via pumping plant intake. Raw water supplies from either Bear Creek or CPUD, which may both be routed through the Bummerville Reservoir, enter the system at the West Point Water Treatment Plant for local municipal uses. This service area is part of Sub-Region C (Mokelumne River Watershed supplied) in UWMP analyses.
- 6) *Wallace Service Area (Wallace)*: the only District service area reliant on groundwater supplies – the sole source of water for Wallace. This area overlies the 'critically over-drafted' Eastern San Joaquin Groundwater Subbasin (Subbasin) leading to several groundwater management changes and new regulations under the Sustainable Groundwater Management Act (SGMA). Groundwater supply intake for this system occurs only at the Wallace Water Treatment Plant, used relatively small municipal uses (mostly residential customers) in this northwestern part of the County. This service area is part of Sub-Region D (groundwater supplied via Subbasin) in UWMP analyses.

There are several common features among these service areas:

- Each service area has a sole raw water inflow (from one or more intake sources) to the area's water treatment plant (WTP), used to supply that area's customer demands and wholesale customers, if applicable.
- Service area supplies are well defined (albeit complex) under existing CCWD permitted water rights, maintained diversion and use claims, and/or contractual agreements. For Wallace, groundwater consumption volumes and local monitoring wells are regularly tracked per the requirements of SGMA for the Subbasin.
- No service area has return flows to original raw water sources owing to a combination of private septic tank systems and District wastewater treatment facilities with effluent applied to spray and leach fields per Waste Discharge Requirements.
- All CCWD customer end-use is metered (volumetric use) and manually read by qualified CCWD staff roughly every 60 days in accordance with the District's bimonthly billing schedule (see **Section 9.1.2** of the UWMP). Additionally, the District requires that all new connections be metered. Note that the District is also in the process of implementing an advanced, fixed network, Advanced Metering Infrastructure (AMI) system to replace all existing customer meters, which will allow the District to monitor real-time water usage; anticipated for completion by end of 2022.

These features mean that each service area is in effect a “closed system” consisting of a single WTP *input* and aggregated customer usage *output*. **Figure 2** illustrates this concept using the following defined terms, consistent with American Water Works Association (AWWA) terminology.

- *Water Supplied*: Total water made available for customer demands from the WTP (outflow), resulting from raw water intake minus process flows exiting the WTP during treatment (e.g., backwash and flushing procedures). Available raw water supplies will dictate the amount of treated water made available to customers by the WTP.
- *Authorized Consumption*: Total customer metered and known un-metered consumption in the District’s service areas. This includes estimates of any operational flows, such as mid-system flushing, and un-metered municipal uses (e.g., firefighting and training, street cleaning, water use in municipal gardens and fountains).
- *Unauthorized Consumption*: Consumption in the District’s service areas attributed to water illegally withdrawn from fire hydrants, illegal connections, bypass to customer consumption meters, and/or tampering with metering or meter reading equipment. Generally assumed as a fixed percentage of Water Supplied.
- *Calculated Loss*: Difference between Water Supplied and Authorized Consumption indicating the potential infrastructure system leaks and inefficiencies (i.e., amount of water lost during conveyance of treated water to customers).
- *Distribution Capacity*: The effective maximum amount of water supplies a service area conveyance system is capable of making available for customer demands (e.g., infrastructure limitations and capital projects which could limit treated water supply).

For WSDA purposes, each service area is assessed separately since each is dependent on a different water supply source. This is consistent with similar FY analyses performed by the District to comply with state ‘Water Loss Audit’ annual requirements (per SB 555, see **Section 9.1.5** of UWMP). The WSDA will combine current FY tracked Water Supplied, Authorized Consumption, and Calculated Loss data, will make appropriate adjustments to account for remaining and next FY projected values, and may also provide appropriate climate and hydrologic data used to recommend appropriate Shortage Actions. The notification and extent of how Shortage Actions are applied, and the District’s enforcement protocols, are defined in the WSCP.

3.1 Climate/Hydrologic Data

Section 3.3 of the UWMP provides an overview of County climate and watershed conditions, including a review of potential climate change impacts. Providing details of hydrologic conditions and climate change progression in CCWD’s service areas is beyond the scope of the WSDAs. However, the District does track ‘water year’ (October 1 through following September 30 generally coinciding with start of California’s expected precipitation season) local precipitation and reservoir storage data in its ‘Calaveras County Public Water Resources Data Packet’ (Data Packet), a public informational tool updated daily using data collection software to compile information from the California Data Exchange Center (CDEC). Where practicable, CCWD may

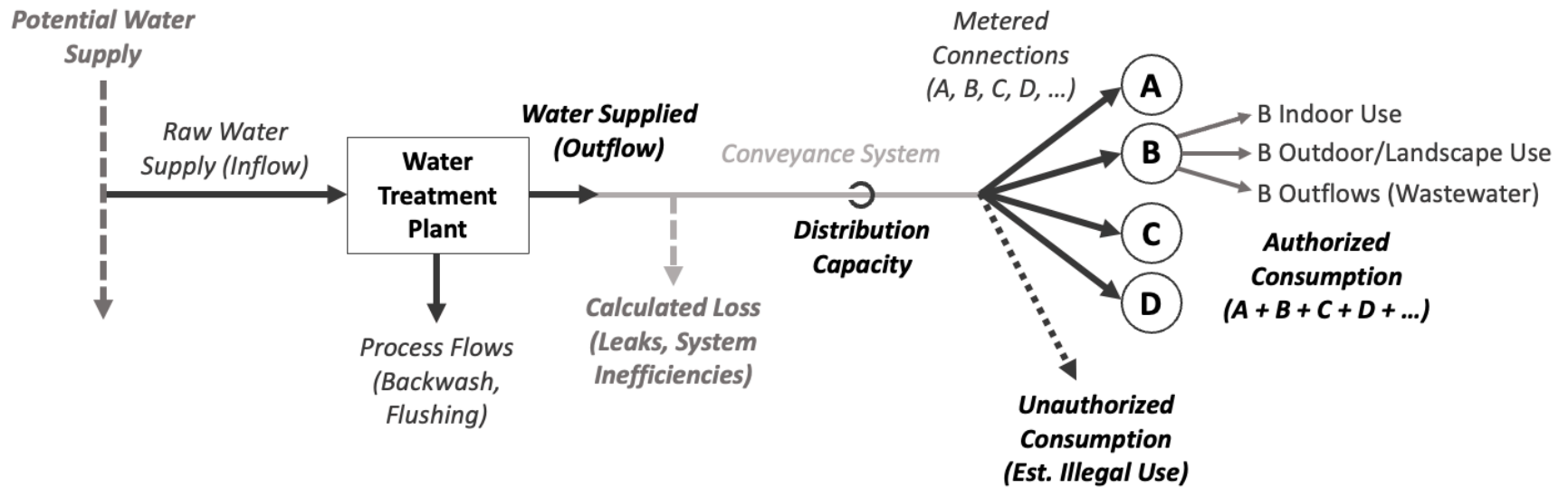


Figure 2. Water System Generalized Schematic

incorporate Data Packet and statewide CDEC information into its WSDAs to assist with the review of potential water supply conditions and recommended Shortage Actions. Other informative sources of current water resources conditions include:

- U.S. Drought Monitor, a regularly updated map of current drought conditions and historic data (available specific to California). Produced via partnership between the National Drought Mitigation Center, University of Nebraska-Lincoln, U.S. Department of Agriculture, and National Oceanic and Atmospheric Administration. The Drought Monitor is available at: <https://droughtmonitor.unl.edu>.
- U.S. Geologic Survey (USGS) Current Water Data for California, a regularly updated map of California streamflow data compared with historic flows, based on statistical percentile analysis. The USGS data are available at: <https://waterdata.usgs.gov/ca/nwis/rt>.

4 Water Supply Projection

This section describes the water supply data inputs and methodology used to develop the District's WSDAs. This corresponds with the *Water Supplied* term defined above.

4.1 Data Inputs

To calculate the Water Supplied by the WTP to a particular service area, the following data are required, as shown in Figure 3:

1. Pertinent river flow data and/or reservoir storage data for service area, if made available to CCWD, as follows:
 - New Hogan reservoir storage data for Jenny Lind (CDEC Sta. NHG, Sensor 15, Data Available: 10/1/1963 to present).
 - Big Trees Creek flow data for Sheep Ranch, obtained regularly from Western Hydrologics on behalf of monitoring organization.
 - New Spicer reservoir storage data (CDEC Sta. SPM, Sensor 15, Data Available: 5/31/1992 to present) and New Melones reservoir inflow data¹ (CDEC Sta. NML, Sensor 76, Data Available: 1/1/1994 to present) for Ebbetts Pass and Copper Cove/Copperopolis.
 - Bear Creek Diversion flow data for West Point, obtained from CCWD-owned Picovale gaging station (15-min increment data collection).
2. WTP raw water intake from appropriate source(s).
3. WTP process flows necessary for the treatment of raw water supplies, as outflows from the WTP (e.g., backwash and flushing procedures).
4. WTP produced (treated) water made available for distribution and customer demands.

¹ Sometimes used as proxy for Stanislaus River flow data through Collierville Tunnel/North Fork Project made available to downstream Copper Cove/Copperopolis.

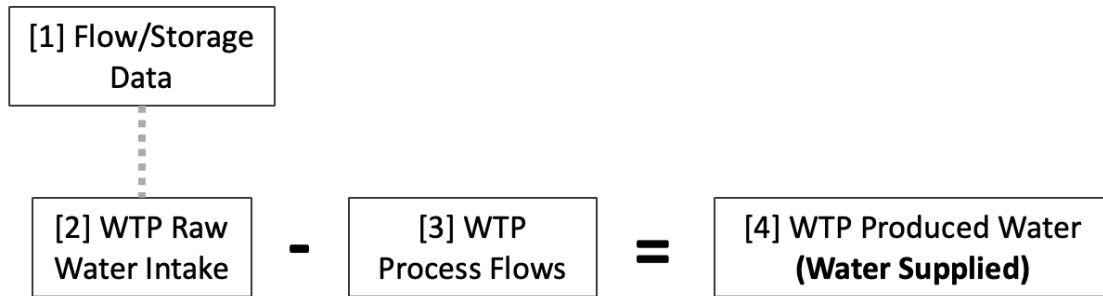


Figure 3. Water Supply Data Inputs

River flow and reservoir storage data are generally publicly available from CDEC or CCWD web resources or are accessible by request of the monitoring agency. The frequency of data collection from these sources varies by sensor and given any infrastructure issues or constraints; the District is generally interested in monthly volumetric data used to review water supply availability (e.g., New Spicer storage can be indicative of water intake from the Tunnel Tap at Ebbetts Pass). The District will continue to use these data to help guide WSDA development, but that remains subject to change with changes to data availability.

Remaining WTP intake and production data are collected daily by District operations staff per WTP Drinking Water Regulations, required by both the U.S. Environmental Protection Agency (EPA) and State Water Resources Control Board (SWRCB). These data are readily available to District staff starting from calendar year 2008 and are available prior with additional data review and manual verification. CCWD intends to match these data with corresponding water year type and the water supply projections defined in **Chapter 7** of the **UWMP**.

4.2 Methodology

To assess water supply availability, CCWD will review monthly WTP intake data from preceding FYs with applicable water resources and hydrologic conditions to select an appropriate historically representative FY. The following months' WTP intake data from that representative FY will be used in conjunction with UWMP water supply projections to ensure the representative intake values could be supported by projected supplies – in most cases, the District has plentiful water supplies well above its demands. To the extent feasible, projections will be reviewed in the context of reservoir and river flow data given District water rights and contractual arrangements as verification. These data will be aggregated by month and total FY water supply volumes.

If water supplies are adequate for representative intakes, those intake values will be utilized in the WSDA analysis. If not, they will be reduced as deemed appropriate. Average (2008 to present) monthly volumes of process flows will be subtracted from raw water intake volumes to estimate WTP produced (treated) water made available. The WSDAs will provide a tabular view of current and projected remaining and next FY Water Supplied data (by FY month and year).

5 Water Use Analysis

This section describes the unconstrained demand (water use) data inputs and methodology used to develop the District's WSDAs. This corresponds with the *Authorized and Unauthorized Consumption* terms defined above.

5.1 Data Inputs

To calculate the *Authorized Consumption* for a particular service area, the following data are required:

1. Data from individual customer consumption meters; customer-level data are aggregated into service area-level consumption data.

These data are manually read bi-monthly by District operations staff consistent with the District's monitoring and billing procedures (will be automatic real-time readings with District conversion to AMI system by end of 2022). These data are readily available to District staff, but generally require review and manual verification. CCWD intends to match these data with corresponding water year type and the water demand projections defined in **Chapter 7** of the UWMP.

5.2 Current Year

Some current FY monthly data will likely be available as CCWD is developing the WSDA (starting from preceding July). Remaining current FY monthly demands will be estimated from the greater of demand volumes calculated using the following methods:

- *Method A:* Average demand volumes of subsequent months based on historic consumption data.
- *Method B:* Demand volumes for subsequent months from a representative FY with closest preceding demand pattern (based on lowest average volume difference between actual preceding months and corresponding representative FY months), with percent factor applied to calibrate representative FY to match current FY pattern, applied to subsequent representative FY months.

These methods may be revised, or new methods may be added by the District to account for weather, growth, or other influencing factors to more accurately project FY demands, as needed. Such changes will be noted in the following WSDA submission.

5.3 Subsequent Dry Year

Section 7.3 of the UWMP provides a service area demand breakdown by hydrologic year type, exploring the changes to District demands with various sequencing of dry year conditions (i.e., single dry year versus up to five sequential dry years). Current FY data will be used to determine the appropriate selection of a subsequent dry year for WSDA purposes. For instance, if current FY is dry then subsequent dry year would actually correspond with second sequential dry year data. To incorporate appropriate service area demand trends, monthly demand volumes will be

averaged with the prior two years' corresponding month demand data for each service area, as shown in **Figure 4** below.

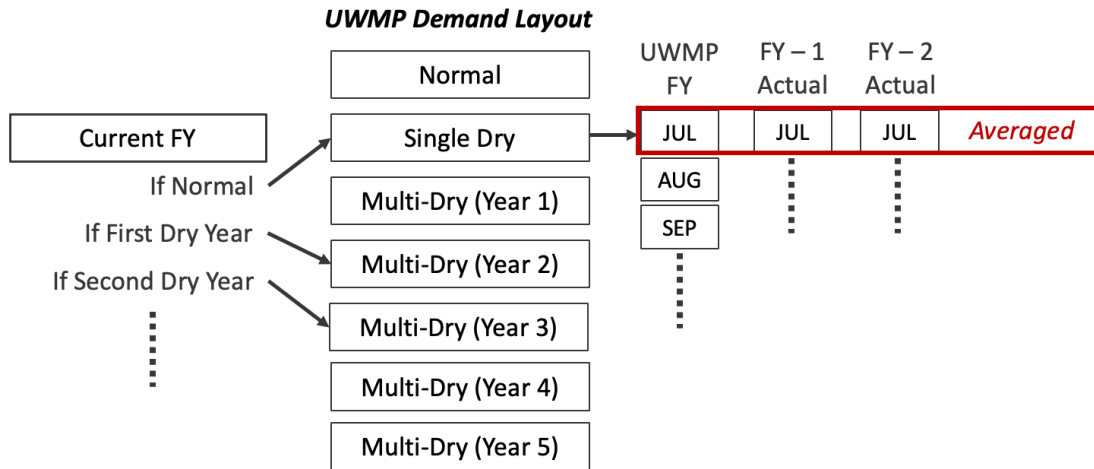


Figure 4. Subsequent Dry Year Data Analysis

This method of assessing a subsequent dry year may be revised by the District to more accurately project FY demands, as needed. Such changes will be noted in the following WSDA submission.

5.4 Methodology

The methods for assessing remaining FY and following FY service areas' *Authorized Consumption* are provided above. The WSDA will clearly state which of the current FY methods (A or B) were selected and shall define the appropriate subsequent FY conditions contemplated, providing monthly and FY total data. WSDA submissions may not contain the background data used to make selections, but CCWD shall make this data available upon request.

Unauthorized Consumption figures are generally more difficult to approximate accurately. District operations staff generally monitors system infrastructure to catch common illegal diversions as part of their manual customer meter reads (e.g., looks for illegal meter bypasses or fire hydrant uses). However, given the nature of CCWD's remote water supply sources and rural communities is it likely that there may be unauthorized water diversions and uses currently unknown by the District. **Chapter 3** of the UWMP defines some of the procedures and regulations the District relies on to prohibit and punish illegal diverters. For the purposes of the WSDA, the District assumes an AWWA standard of 0.25 percent of *Water Supplied* as a potential volume of illegal use. If information becomes available, the District may revise this percentage to more accurately account for service area *Unauthorized Consumption* as noted in the WSDAs.

Individual customer consumptive data shall remain private and will be provided only with request and approval by the customer in question or given appropriate legal orders. The WSDAs will represent aggregated consumption totals for each service area which are not representative of the water consumption of any individual customers.

6 Infrastructure Considerations

This section describes the infrastructure conditions data inputs and methodology used to develop the District's WSDAs. This corresponds with the *Calculated Loss* and *Distribution Capacity* terms defined above. Conveyance systems losses represent the most potential for adversely impacting the District's immediate ability to meet service area demands with available supplies (i.e., more difficult to meet demands during water shortage if extra water supplies are needed to deal with high conveyance losses). However, existing infrastructure capabilities and plausible constraints are also monitored in the WSDA to the extent these considerations influence CCWD's ability to deliver water supplies to customers.

6.1 Data Inputs

Calculated Loss is an estimated value based on *Water Supplied*, *Authorized Consumption*, and *Unauthorized Consumption* data, as shown in **Figure 5**. This is consistent with the approximation of system losses made in CCWD's annual Water Loss Audits. Where documented by CCWD operations staff during the current FY, conveyance infrastructure improvements, operational flows, or known non-metered consumption will be noted with the WSDA *Calculated Loss* estimate.



Figure 5. Calculated Loss Formulation

6.2 Methodology

Without improvements made to District water conveyance infrastructure, water system losses are anticipated to remain fairly stable or worsen slightly in the short term (current and next FY). Given monthly breakdowns of *Water Supplied* and *Authorized Consumption* during preceding FY months, the maximum of *Calculated Losses* from those months will be applied to the remaining FY months and subsequent FY. For the purposes of the WSDA, service area *Calculated Losses* will be added to projected *Authorized Consumption* data when comparing to available water supplies. The District recognizes from the Water Loss Audits that its service area system losses are generally fairly high, around 20 to 30 percent of treated water supplied for FY 2020 analysis. CCWD will re-evaluate average and trending system water losses once the conversion to AMI customer meters is completed, which should provide for more accurate estimations.

Since the District's service areas are closed systems, the WSDAs will approximate *Distribution Capacity* as the maximum volume of treated water production (*Water Supplied*) during any given month from the actual current FY data. For reference, and to review data trends, corresponding data from the prior FY and the long-term FY maximum will also be displayed. This assumes the District's WTPs are generally operated to the maximum extent possible to meet service area demands. Monthly data are provided to account for seasonal water supply and demand patterns,

and because annual aggregated trends could be more influenced by changes customer water use efficiency – though this can be reviewed from *Authorized Consumption* data trends. This approximation provides a quantitative evaluation of existing infrastructure capabilities which affect the District’s ability to deliver supplies to meet demands, which will be used to verify water supply projections in the WSDAs. The WSDAs will also include a qualitative description of plausible constraints, and list of anticipated capital projects which could influence system capabilities (e.g., planned treatment plant upgrades) or new projects that may add capacity (e.g., a new groundwater well or system intertie) over the following FY.

7 Amendments and Revisions

The California Government Code and Water Code requires certain notices, public hearings, and outreach steps be made related to adoption of a District UWMP or WSCP update. Given this WSDA procedures document has been developed in parallel with the WSCP and 2020 UWMP, the initial adoption, submittal, and implementation procedures will follow along with those planning efforts. Should CCWD need to amend or revise the WSDA methods outlined in this document, to more accurately reflect future data availability or conditions, or to better adhere with DWR submission requirements, the District does not anticipate needing to re-initiate those procedures to amend this document.

Any amendments to this document, beyond simple administrative revisions or updates to the CCWD contact information below, shall be brought to the Board for review and approval. Such amendments will be provided to the public in compliance with the Brown Act contained in §54950 et seq. of the California Government Code. The amendments shall also be noted in the following WSDA submission.

7.1 CCWD Contact Information

For more information on the WSDA procedures outlined in this document, or regarding development of the annual WSDA submissions, please use the following CCWD contact information:

<i>Name</i>	Brad J. Arnold, PE
<i>Title</i>	Water Resources Program Manager
<i>Address</i>	Calaveras County Water District 120 Toma Court, San Andreas, CA 95249
<i>Phone</i>	(209) 754-3094
<i>E-mail</i>	brada@ccwd.org

Appendix A

Calaveras County Water District (CCWD) Water Supply and Demand Assessment (WSDA)

Fiscal Year (FY) _____
Service Area _____
Prepared By _____

Actual Data Thru (Month) _____
PWSID _____
Prepared Date _____

Part 1: Climate and Hydrology

Print and attach the latest CCWD Public Water Resources Data Packet (Data Packet) to this WSDA submission, verify the following pages are included:

- Page 2, Precipitation Data: Sub-Region Indices
- Page 3, Precipitation Data: Sub-Region Historic/Potential Data
- Page 4, Reservoir Storage Data
- Page 6, Latest U.S. Drought Monitor Map for California w/Calaveras County Highlighted

Provide a general description of Calaveras County climate and hydrologic conditions below, considering from the start of current water year (preceding October 1st) to the current date. If Data Packet is unavailable, please note and provide other reference information.

Current Average Accumulated Precipitation to Date for Applicable Sub-Region _____ % of Avg.
(see Data Packet Indices)

Precipitation Historical/Potential Data EOY 9/30 for Applicable Sub-Region
(see Data Packet Historical/Potential Data)

- Above Typical Range
- Within Typical Range (Top-Half)
- Within Typical Range (Bottom-Half)
- Below Typical Range

Current Calaveras County Drought Intensity Status (see Drought Monitor)

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

Potential Hydrologic Conditions _____
(Approximate, Subject to Change)

Select Appropriate Statement if Trending Dry or Dry Conditions:

- Not Trending Dry or Dry Conditions
- Single Dry Year (Past FY Not Dry)
- Multi-Dry Year (Second, Prior FY Dry)
- Multi-Dry Year (Third, Prior Two FYs Dry)
- Multi-Year Drought, Number Year: _____

Appendix A

Part 2: Water Supply Projections

Fill out water supply projection tables and provide info below (instructions provided in WSDA Procedures Document).

Source River/Reservoir Name

Data Source and Type

	Month	Available Source (acre-ft)	Actual WTP Intake (acre-ft)	Actual WTP Supplied (acre-ft)	Representative FY Supplied ¹ (acre-ft)	UWMP Year Type Supply ² (acre-ft)	Water Supplied (acre-ft)
Current FY	Jul						
	Aug						
	Sep						
	Oct						
	Nov						
	Dec						
	Jan						
	Feb						
	Mar						
	Apr						
	May						
	Jun						
	Total FY						
	Following FY	Jul					
Aug							
Sep							
Oct							
Nov							
Dec							
Jan							
Feb							
Mar							
Apr							
May							
Jun							
Total FY							

(1) Representative FY selected and any adjustments to monthly data set defined below.

(2) Subsequent FY dry year based on corresponding UWMP data for sequence defined in first page (see *Trending Dry or Dry Year Statement Selection*).

Representative FY Selected

% Adjustment to Rep FY Data

Provide any additional context or information related to the WSDA water supply analysis below.

Appendix A

Part 4: Infrastructure Considerations

Fill out infrastructure and system loss tables and provide info below (instructions provided in WSDA Procedures Document).

	Month	Calculated Loss (acre-ft)	Maximum FY Dist. Capacity (acre-ft)	Prior FY Dist. Capacity (acre-ft)	Current Dist. Capacity ¹ (acre-ft)
Current FY	Jul				
	Aug				
	Sep				
	Oct				
	Nov				
	Dec				
	Jan				
	Feb				
	Mar				
	Apr				
	May				
	Jun				
	Total FY				
	Following FY	Jul			
Aug					
Sep					
Oct					
Nov					
Dec					
Jan					
Feb					
Mar					
Apr					
May					
Jun					
Total FY					

(1) Based on actual treated water production volumes for current FY.

Maximum Est. Capacity (acre-ft/month)

Provide any information on infrastructure improvements or alterations made during current and preceding FY for the service area. Provide any additional context or information related to the WSDA system losses and plausible system constrains below.

Please list anticipated capital projects in the following FY which could influence future system capabilities. This should be limited to CCWD Board of Directors-approved projects or those included in the District's Capital Improvement Program (CIP).

Appendix A

Part 5: Data Compilation

	Month	Water Supplied (acre-ft)	Authorized Consumption (acre-ft)	Unauthorized Consumption (acre-ft)	Calculated Losses (acre-ft)	Difference (acre-ft)	Highlight ¹
Current FY	Jul						
	Aug						
	Sep						
	Oct						
	Nov						
	Dec						
	Jan						
	Feb						
	Mar						
	Apr						
	May						
	Jun						
	Total FY						
	Following FY	Jul					
Aug							
Sep							
Oct							
Nov							
Dec							
Jan							
Feb							
Mar							
Apr							
May							
Jun							
Total FY							

(1) Highlighted with "X" for months/FY with negative supply-demand difference.

Based on the above table, provide a description of the current FY and following FY water supply and demand conditions. If there final column contains highlighted rows, describe general CCWD response to deal with periods of inadequate water supply or clarify if WSDA analysis is erroneous.

Calculated Water Supply Shortage % of Avg.

Recommended Shortage Stage
(see Water Shortage Contingency Plan)

- None
- Stage 1 (Up to 10% Shortage)
- Stage 2 (Up to 20% Shortage)
- Stage 3 (Up to 30% Shortage)
- Stage 4 (Up to 40% Shortage)
- Stage 5 (Up to 50% Shortage)
- Stage 6 (More than 50% Shortage)

Each Shortage Stage contains several recommended Demand Reduction Actions (DRAs), as defined by CCWD's Water Shortage Contingency Plan. If a Shortage Stage was selected, describe the DRAs planned for current and following FY, as needed. Describe plans for introducing additional DRAs or increasing Shortage Stage intensity, if needed.

Appendix A

Part 6: Review/Approvals

Provide a description of any amendments or changes to the WSDA process or analysis since the last submission.

Reviewed by CCWD Board of Directors _____ (Date)
(Regular Meeting Date)

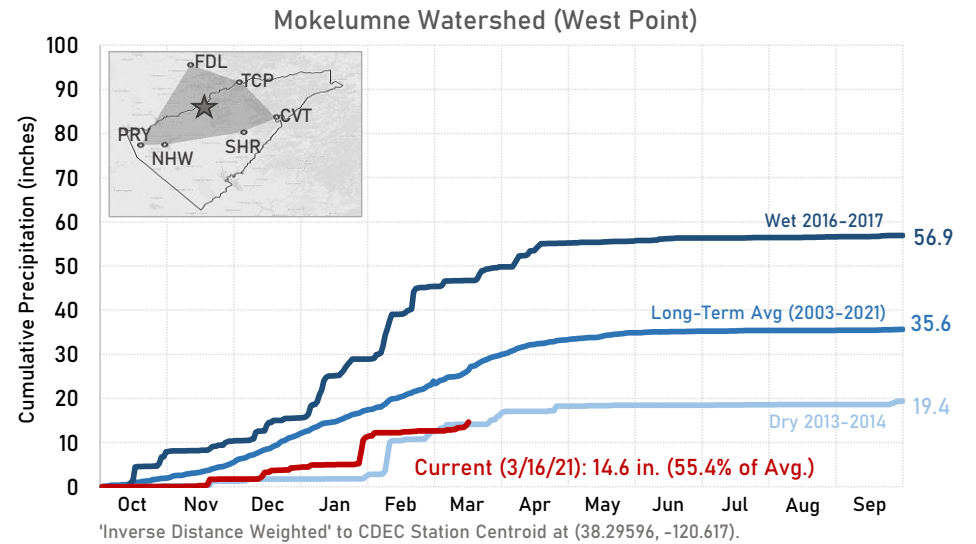
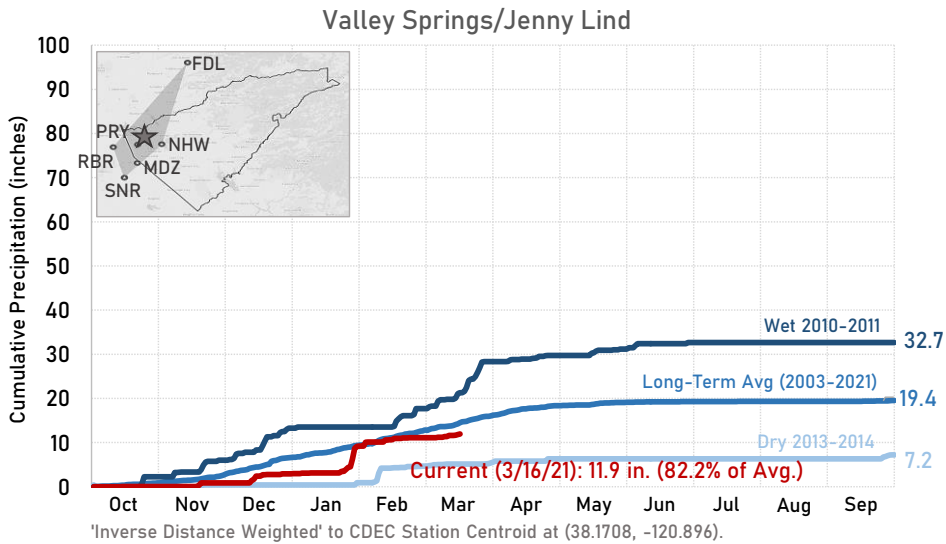
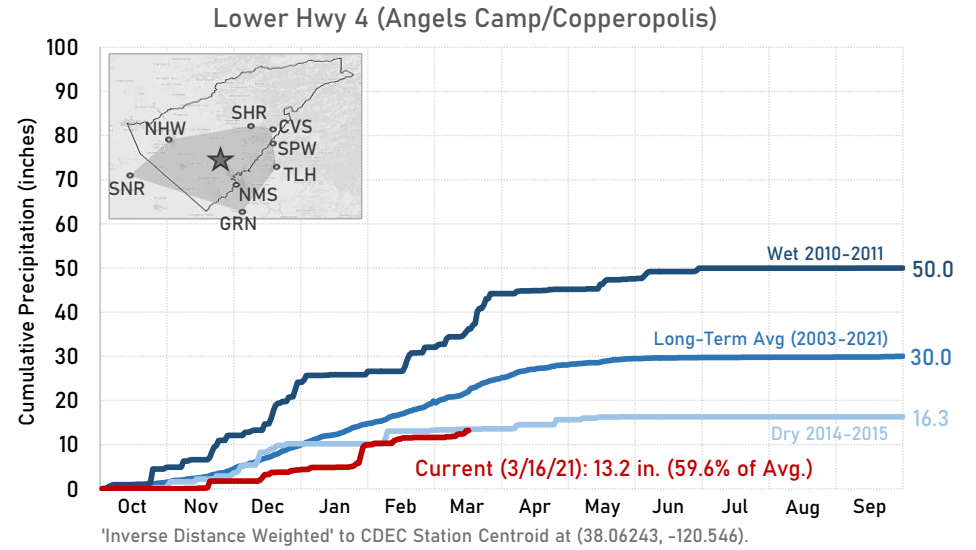
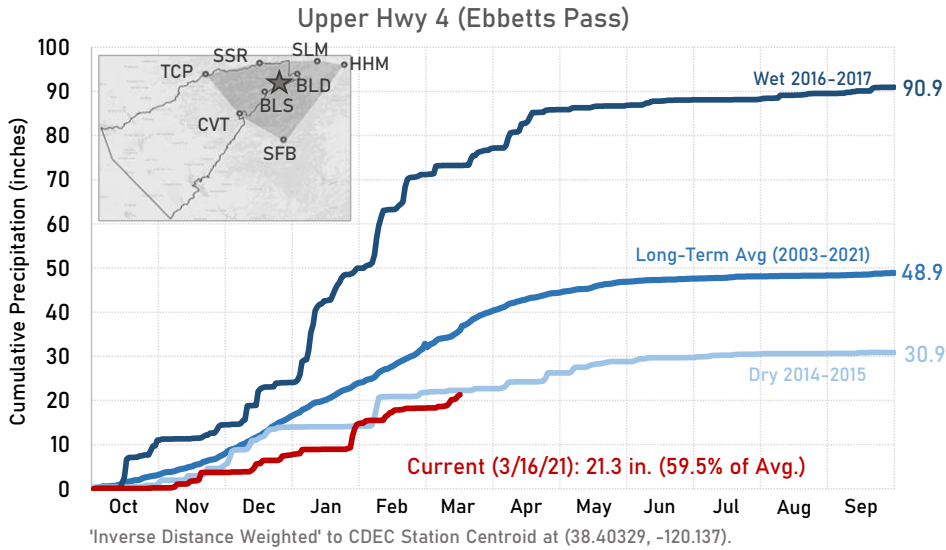
WSDA Prepared By _____ (Signature)
_____ (Name)
_____ (Title)
_____ (Date)
_____ (E-mail Address)
_____ (Phone Number)

Approved for Form and Sufficiency _____ (Signature)
_____ (Name)
General Manager _____ (Title)
_____ (Date)

Appendix A

Calaveras County Precipitation Data: Sub-Region Indices (thru March 16, 2021)

Provided by Calaveras County Water District, using data from CA Dept. of Water Resources 'California Data Exchange Center' (CDEC).



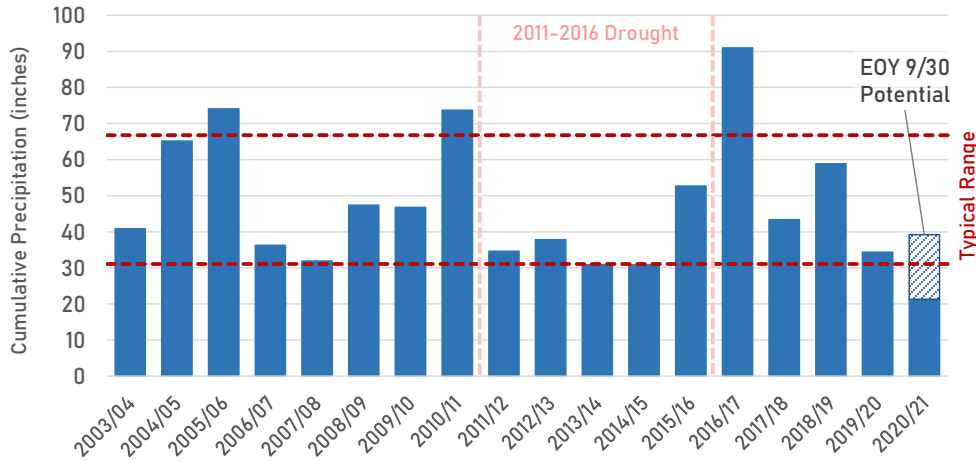
Note: Graphs illustrate accumulated (total) precipitation in four parts of Calaveras County since last October 1st.

Appendix A

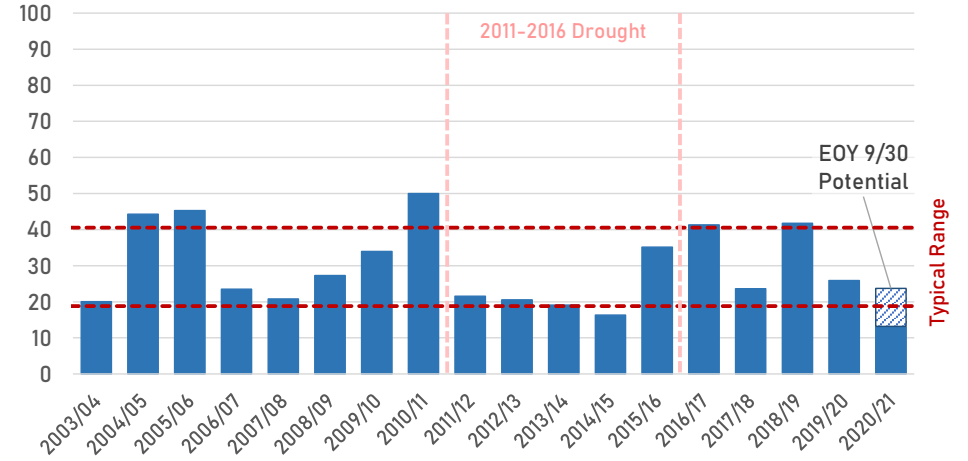
Calaveras County Precipitation Data: Sub-Region Historical/Potential Data

Provided by Calaveras County Water District, using data from CA Dept. of Water Resources 'California Data Exchange Center' (CDEC).

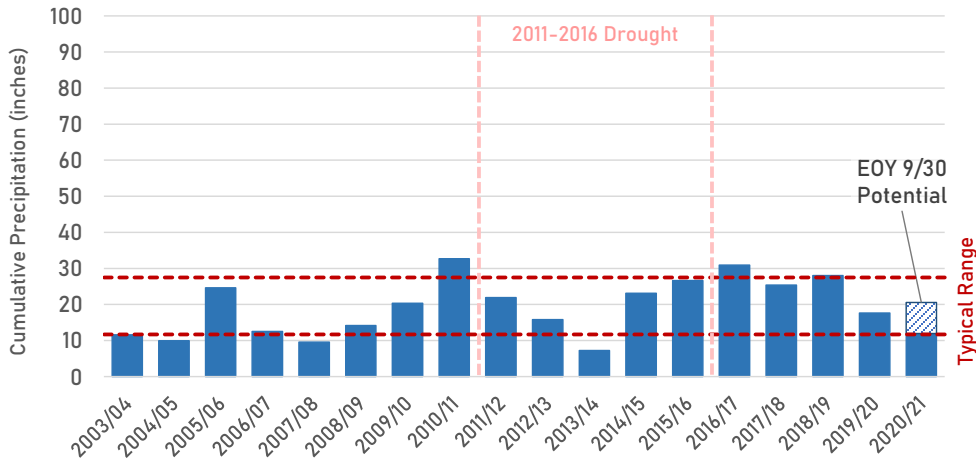
Upper Hwy 4 (Ebbetts Pass)



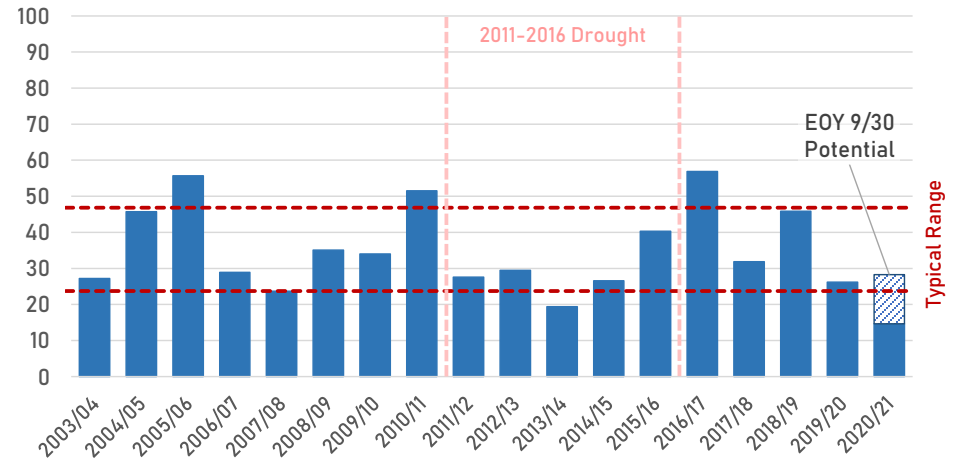
Lower Hwy 4 (Angels Camp/Copperopolis)



Valley Springs/Jenny Lind



Mokelumne Watershed (West Point)



Note: Graphs illustrate total annual (Oct 1 to Sept 30) precipitation since 2003, with potential current end of year (EOY) value based on historic data trends - *does not indicate predicted precipitation or year type.*

Appendix A

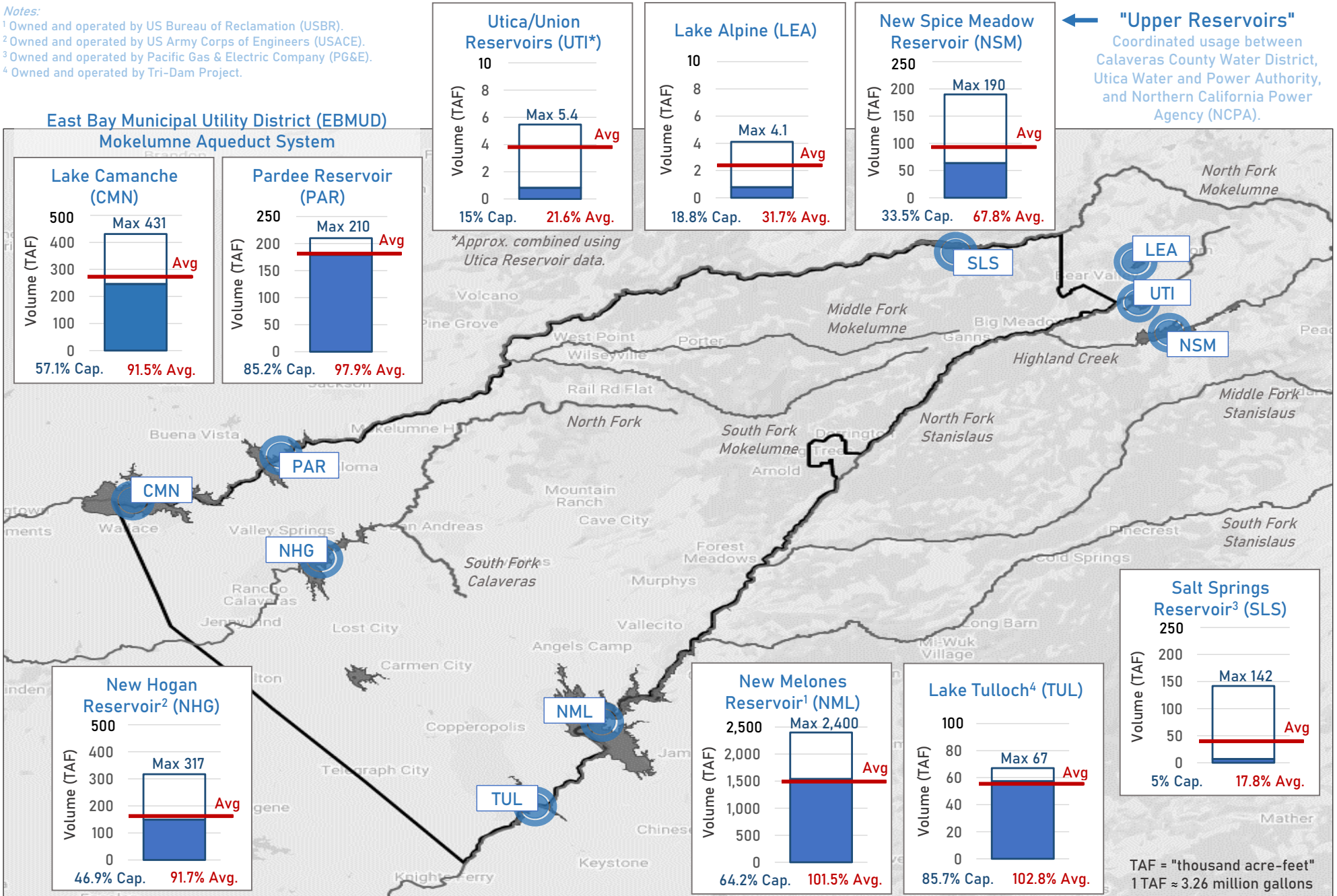
Calaveras County Reservoir Storage Data (thru March 16, 2021)

Provided by Calaveras County Water District, using data from CA Dept. of Water Resources 'California Data Exchange Center' (CDEC).

Notes:

- ¹ Owned and operated by US Bureau of Reclamation (USBR).
- ² Owned and operated by US Army Corps of Engineers (USACE).
- ³ Owned and operated by Pacific Gas & Electric Company (PG&E).
- ⁴ Owned and operated by Tri-Dam Project.

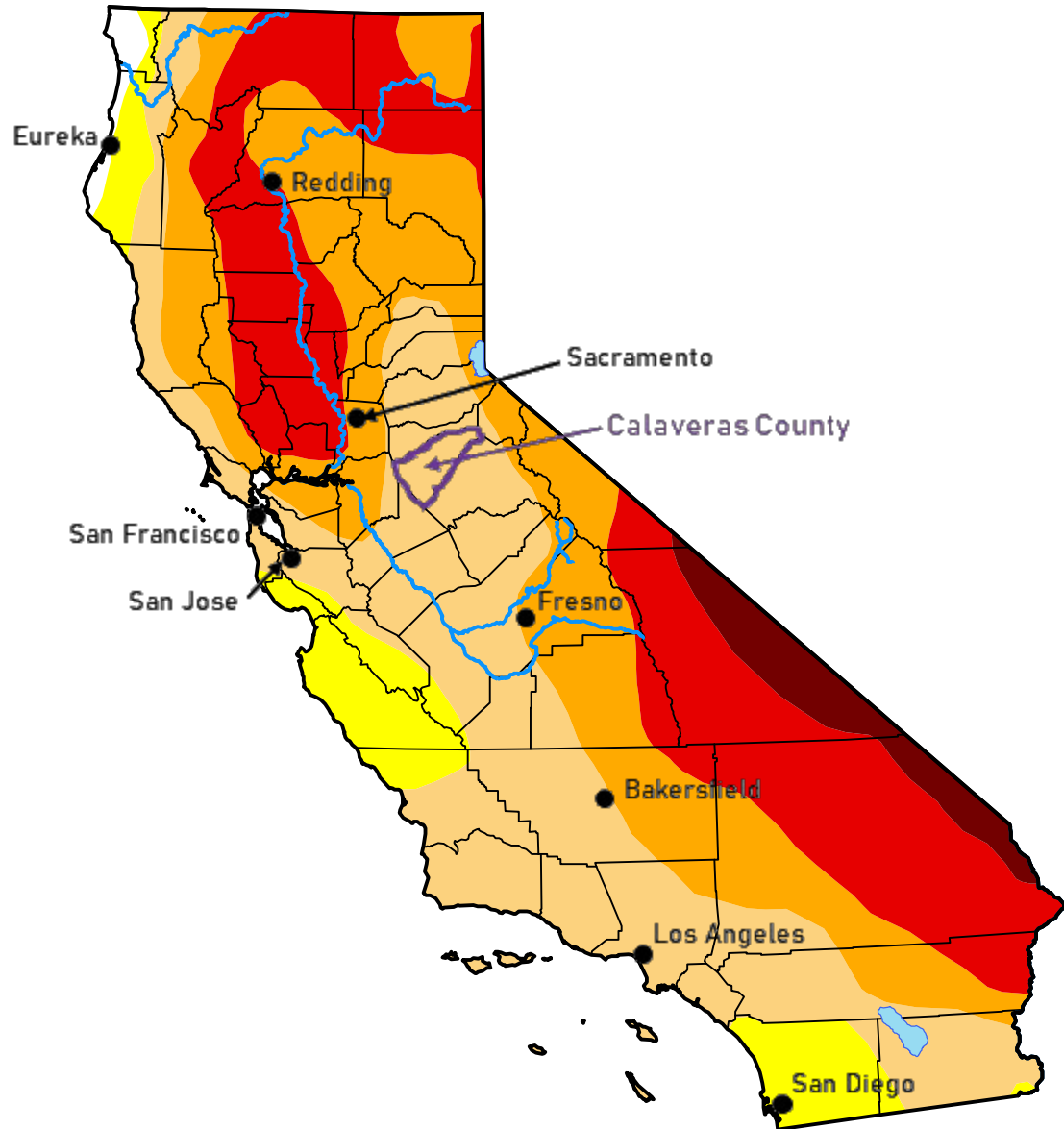
← **"Upper Reservoirs"**
 Coordinated usage between
 Calaveras County Water District,
 Utica Water and Power Authority,
 and Northern California Power
 Agency (NCPA).









Note: Figures illustrate major reservoir and lake levels in Calaveras County compared to capacities (cap) and long-term averages (avg).

Appendix A U.S. Drought Monitor California

March 9, 2021
(Released Thursday, Mar. 11, 2021)
Valid 7 a.m. EST



Intensity:

-  None
-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Brian Fuchs
National Drought Mitigation Center



droughtmonitor.unl.edu

Attachment D
CCWD Service Areas Water Supply &
Demand Assessments

Calaveras County Water District
 Copper Cove Service Area
 FY 2023 Water Supply & Demand Assessment

May 2022

Carryover Storage (as of May 1, 2022):

New Spicer Meadow Reservoir (NSM) 107,216 AF¹
 McKays Point Reservoir (McKays) 1,360 AF¹

Month	FY 2022	FY 2023	Water Supply Sources				Supply Buffer ⁹ (AF)
	Current/Prior Supplied (AF)	Projected Supplied ⁴ (AF)	NF Stanislaus Diversion ⁵ (AF)	NSM Reservoir Release ⁶ (AF)	McKays Res. Release ⁶ (AF)	Total (AF)	
Jul	224.9	225.2	0.0	225.2	0.0	225.2	5,774.8
Aug	208.5	208.5	0.0	208.5	0.0	208.5	5,566.3
Sept	198.3	198.3	0.0	198.3	0.0	198.3	5,368.0
Oct	170.4	170.4	0.0	170.4	0.0	170.4	5,197.6
Nov	83.6	83.6	1.1	82.5	0.0	83.6	5,114.0
Dec	75.6	75.6	1.0	74.6	0.0	75.6	5,038.4
Jan	76.5	76.5	7.6	68.9	0.0	76.5	4,961.9
Feb	86.3	89.0	20.8	68.2	0.0	89.0	4,872.9
Mar	112.6	116.8	27.3	89.6	0.0	116.8	4,756.0
Apr	113.8	113.8	26.6	87.3	0.0	113.8	4,642.1
May	176.7 ³	135.0	23.3	111.6	0.0	135.0	4,507.2
Jun	201.2 ³	191.3	0.0	191.3	0.0	191.3	4,315.9
Total	1,728.4³	1,684.1	107.7	1,576.4	0.0	1,684.1	4,315.9
%UWMP²		74.8%	6.3% Supply	93.7% Supply	0% Supply	OK	(Min Value)
Max Avail			107.7⁵	5,892.3⁸			(Value)

¹ Carryover available for Copper Cove and/or Ebbetts Pass Service Area uses, and/or for North Fork Hydroelectric Project (non-consumptive) use.

² Percentage of service area demand figures stated in latest Urban Water Management Plan (UWMP) Update long-term average.

³ Based on FY 2021 data with 2022 not yet available, includes conveyance water losses assessed by Water Loss Audit(s).

⁴ Average of 2/4 year trends and long-term data.

⁵ Direct diversions per CCWD water rights in North Fork Stanislaus River Watershed; **assumed curtailed June through October.**

⁶ Stored water releases from NSM and/or McKays reservoirs, limited by carryover storage and prior diversion data from reservoir.

⁷ Diversion to storage (storage refill) season per CCWD water rights.

⁸ Combined total available from diversion and stored water for Copper Cove is 6,000 AF/year per water rights permits Condition 30. Quantity backed up by carryover storage made available in NSM and/or McKays, minus amount directly diverted from North Fork Stanislaus River.

⁹ **Highlighted if less than 5% of projected total demand available as supply in single month (i.e., the “supply buffer”).**

Calaveras County Water District
 Ebbetts Pass Service Area
 FY 2023 Water Supply & Demand Assessment

May 2022

Carryover Storage (as of May 1, 2022):

New Spicer Meadow Reservoir (NSM) 107,216 AF¹
 McKays Point Reservoir (McKays) 1,360 AF¹

Month	FY 2022	FY 2023	Water Supply Sources				Supply Buffer ⁹ (AF)
	Current/Prior Supplied (AF)	Projected Supplied ⁴ (AF)	NF Stanislaus Diversion ⁵ (AF)	NSM Reservoir Release ⁶ (AF)	McKays Res. Release ⁶ (AF)	Total (AF)	
Jul	230.8	233.3	0.0	233.3	0.0	233.3	7,766.7
Aug	214.1	214.1	0.0	214.1	0.0	214.1	7,552.6
Sept	209.9	210.5	0.0	210.5	0.0	210.5	7,342.1
Oct	147.4	147.4	0.0	147.4	0.0	147.4	7,194.7
Nov	111.4	111.4	2.2	109.2	0.0	111.4	7,081.1
Dec	116.3	119.8	2.4	117.5	0.0	119.8	6,958.9
Jan	125.0	130.1	36.9	93.1	0.0	130.1	6,791.9
Feb	110.7	112.1	68.1	44.0	0.0	112.1	6,611.7
Mar	112.9	115.9	70.4	45.5	0.0	115.9	6,425.4
Apr	113.4	113.4	68.8	44.5	0.0	113.4	6,243.2
May	158.6 ³	126.0	26.1	99.8	0.0	126.0	6,091.1
Jun	186.5 ³	159.9	0.0	159.9	0.0	159.9	5,931.2
Total	1,837.0³	1,793.7	274.9	1,518.8	0.0	1,793.7	5,931.2
%UWMP²		73.4%	15.3% Supply	84.7% Supply	0% Supply	OK	(Min Value)
Max Avail			274.9⁵	7,725.1⁸			(Value)

¹ Carryover available for Copper Cove and/or Ebbetts Pass Service Area uses, and/or for North Fork Hydroelectric Project (non-consumptive) use.

² Percentage of service area demand figures stated in latest Urban Water Management Plan (UWMP) Update long-term average.

³ Based on FY 2021 data with 2022 not yet available, includes conveyance water losses assessed by Water Loss Audit(s).

⁴ Average of 2/4 year trends and long-term data.

⁵ Direct diversions per CCWD water rights in North Fork Stanislaus River Watershed; **assumed curtailed June through October.**

⁶ Stored water releases from NSM and/or McKays reservoirs, limited by carryover storage and prior diversion data from reservoir.

⁷ Diversion to storage (storage refill) season per CCWD water rights.

⁸ Combined total available from diversion and stored water for Ebbetts Pass is 8,000 AF/year per water rights permits Condition 29. Quantity backed up by carryover storage made available in NSM and/or McKays, minus amount directly diverted from North Fork Stanislaus River.

⁹ **Highlighted if less than 5% of projected total demand available as supply in single month (i.e., the “supply buffer”).**

Calaveras County Water District
 Jenny Lind Service Area
 FY 2023 Water Supply & Demand Assessment

May 2022

Carryover Storage (as of April 1, 2022):

New Hogan Reservoir, CCWD Portion **31,279 AF (4,680 AF scheduled¹)**

Month	FY 2022	FY 2023	Water Supply Sources		Supply Buffer ^{6,7} (AF)
	Current/Prior Supplied (AF)	Projected Supplied ⁴ (AF)	New Hogan Res. Release ¹ (AF)	Total (AF)	
Jul	336.5	336.5	336.5	336.5	244.0
Aug	313.1	313.1	313.1	313.1	244.0
Sept	275.5	275.5	275.5	275.5	244.0
Oct	205.3	205.3	205.3	205.3	244.0
Nov	127.5	127.5	127.5	127.5	236.3
Dec	127.6	127.6	127.6	127.6	228.7
Jan	134.0	135.5	135.5	135.5	219.2
Feb	138.6	144.2	144.2	144.2	205.3
Mar	173.5	179.4	179.4	179.4	181.9
Apr	172.2	172.2	172.2	172.2	181.9
May	270.1 ³	182.8	182.8	182.8	181.9
Jun	303.2 ³	256.5	256.5	256.5	181.9
Total	2,576.9³	2,456.0	2,456.0	2,456.0	181.9
%UWMP²		65.9%	100% Supply	OK	(Min Value)
Max Avail			4,680.0^{1,5}		

¹ CCWD holds 43.5 percent share of “conservation pool” water storage in New Hogan Reservoir, per contracts with Reclamation and Stockton East Water District (SEWD). CCWD’s total water available is 31,665 AF/year (upper limit), while 7,700 AF/year is firm minimum available to CCWD in all year types. CCWD submits schedule to reservoir operators based on projected demand, including Calaveras River water uses, for April through March Contract Year period. Per contract, SEWD is entitled to use CCWD Portion of stored water not scheduled/used by CCWD.

² Percentage of service area demand figures stated in latest Urban Water Management Plan (UWMP) Update long-term average.

³ Based on FY 2021 data with 2022 not yet available, includes conveyance water losses assessed by Water Loss Audit(s).

⁴ Average of 2/4 year trends and long-term data.

⁵ Scheduled quantity includes other in-County uses under CCWD Portion (e.g., La Contenta Golf Course, Calaveras River agricultural users); total of 1,980 AF estimated for these demands between April 2022 and March 2023.

⁶ **Highlighted if less than 5% of projected total demand available as supply in single month (i.e., the “supply buffer”).**

⁷ Minimum supply buffer based on schedule submitted by CCWD. CCWD may request additional supply within CCWD Portion limit, if needed.

Calaveras County Water District
 Sheep Ranch Service Area
 FY 2023 Water Supply & Demand Assessment

May 2022

Carryover Storage (as of May 1, 2022):

White Pines Lake **51.1 AF (estimated¹)**

Month	FY 2022	FY 2023	Water Supply Sources			Supply Buffer ⁸ (AF)
	Current/Prior Supplied (AF)	Projected Supplied ⁴ (AF)	Big Trees Creek via Fricot Ditch ⁵ (AF)	White Pines Release ⁶ (AF)	Total (AF)	
Jul	2.5	2.5	0.0	2.5	2.5	48.6
Aug	2.5	2.5	0.0	2.5	2.5	46.1
Sept	2.4	2.4	0.0	2.4	2.4	43.7
Oct	1.2	1.2	0.0	1.2	1.2	42.5
Nov	1.0	1.0	0.9	0.1	1.0	42.4
Dec	0.8	0.8	0.6	0.2	0.8	42.2
Jan	0.9	0.9	0.6	0.3	0.9	41.9
Feb	0.8	0.8	0.6	0.1	0.8	41.8
Mar	0.9	0.9	0.6	0.3	0.9	41.5
Apr	2.2	2.4	0.9	1.5	2.4	40.0
May	1.3 ³	1.1	1.1	0.1	1.1	39.9
Jun	3.1 ³	2.0	0.0	2.0	2.0	37.9
Total	19.5³	18.4	5.2	13.2	18.4	37.9 (Min Value)
%UWMP²		53.1%	28.2% Supply	71.8% Supply	OK	
Max Avail			5.2⁵	51.1⁷		

¹ Actual may be less due to reservoir sediment build-up and decreased capacity. Additional studies needed to assess gauge accuracy and capability of San Antonio Creek to reliably convey water downstream to Fricot Ditch diversion and Sheep Ranch Service Area. Additional water supplies stored in White Pines Lake from San Antonio Creek, not available to CCWD under its water rights claims.

² Percentage of service area demand figures stated in latest Urban Water Management Plan (UWMP) Update long-term average.

³ Based on FY 2021 data with 2022 not yet available, includes conveyance water losses assessed by Water Loss Audit(s).

⁴ Average of 2/4 year trends and long-term data.

⁵ Direct diversions per CCWD pre-1914 water right to Big Trees Creek, used for direct diversion to Sheep Ranch Service Area at Fricot Ditch diversion; **assumed curtailed June through October.**

⁶ Stored water releases from White Pines Lake; typically unregulated and based on San Antonio and Big Trees Creeks inflows.

⁷ Limited by carryover storage and prior diversion data from reservoir.

⁸ **Highlighted if less than 5% of projected total demand available as supply in single month (i.e., the “supply buffer”).**

Calaveras County Water District
Wallace Service Area
FY 2023 Water Supply & Demand Assessment

May 2022

Carryover Storage (as of May 1, 2022):

None

Month	FY 2022	FY 2023	Water Supply Sources		Supply Buffer ⁵ (AF)
	Current/Prior Supplied (AF)	Projected Supplied ³ (AF)	Eastern San Joaquin SB GW Well Pumping ⁴ (AF)	Total (AF)	
Jul	11.2	11.3	11.3	11.3	6.5
Aug	11.1	11.2	11.2	11.2	6.6
Sept	10.5	10.8	10.8	10.8	7.0
Oct	7.7	7.7	7.7	7.7	10.1
Nov	3.8	3.8	3.8	3.8	14.0
Dec	3.2	3.2	3.2	3.2	14.6
Jan	3.9	3.9	3.9	3.9	13.9
Feb	4.3	4.5	4.5	4.5	13.3
Mar	5.2	5.5	5.5	5.5	12.3
Apr	5.6	5.6	5.6	5.6	12.2
May	8.5 ²	5.7	5.7	5.7	12.1
Jun	9.6 ²	8.0	8.0	8.0	9.8
Total	84.6²	81.2	81.2	81.2	6.5 (Min Value)
%UWMP¹		78.4%	100% Supply	OK	
Max Avail			213.6⁴		

¹ Percentage of service area demand figures stated in latest Urban Water Management Plan (UWMP) Update long-term average.

² Based on FY 2021 data with 2022 not yet available, includes conveyance water losses assessed by Water Loss Audit(s).

³ Average of 2/4 year trends and long-term data.

⁴ Limited by service area groundwater well capacities; estimated 133 gpm or 17.8 AF/mo approx.

Eastern San Joaquin Subbasin (SB) is “critically overdrafted” and subject to Sustainable Groundwater Management Act (SGMA) regulations.

⁵ **Highlighted if less than 5% of projected total demand available as supply in single month (i.e., the “supply buffer”).**

Calaveras County Water District
 West Point Service Area
 FY 2023 Water Supply & Demand Assessment

May 2022

Carryover Storage (as of May 1, 2022):

Bummerville Regulating Reservoir **25.4 AF (estimated¹)**

Month	FY 2022	FY 2023	Water Supply Sources				Supply Buffer ¹¹ (AF)
	Current/Prior Supplied (AF)	Projected Supplied ⁴ (AF)	Bear Creek Diversion ⁵ (AF)	Bummerville Reg. Res Release ⁶ (AF)	CPUD Schaad's Purchase (AF)	Total (AF)	
Jul	33.1	34.6	0.0	8.6	26.0	34.6	6.0
Aug	32.0	32.8	0.0	6.7	26.1	32.7	6.1
Sept	27.1	27.2	0.0	4.1	23.0	27.2	9.0
Oct	20.0	20.0	0.0	0.0	20.0	20.0	12.0
Nov	16.5	16.8	8.6	0.0	8.2	16.8	23.8
Dec	16.7	17.4	7.7	0.0 ¹⁰	9.7	17.4	22.3
Jan	17.5	18.9	11.2	0.0 ¹⁰	7.7	18.9	24.3
Feb	16.8	18.1	9.6	0.0 ¹⁰	8.4	18.1	23.6
Mar	21.2	23.3	8.6	0.0 ¹⁰	14.8	23.3	17.2
Apr	17.0	17.7	12.0	0.0 ¹⁰	5.6	17.7	26.4
May	21.7 ³	14.6	14.6	0.0 ¹⁰	0.0	14.6	32.0
Jun	26.5 ³	21.6	0.0	0.0	21.6	21.6	10.4
Total	265.9³	262.9	72.2	19.4	171.3	262.9	6.0 (Min Value)
%UWMP²		100.9%	27.4% Supply	7.3% Supply	65.3% Supply	OK	
Max Avail			72.2⁵	25.4⁷	200.0⁹		

¹ Actual may be less due to reservoir sediment build-up and decreased capacity. Additional studies needed to assess gauge accuracy.

² Percentage of service area demand figures stated in latest Urban Water Management Plan (UWMP) Update long-term average.

³ Based on FY 2021 data with 2022 not yet available, includes conveyance water losses assessed by Water Loss Audit(s).

⁴ Average of 2/4 year trends and long-term data.

⁵ Direct diversions per CCWD pre-1914 water right to Bear Creek; **assumed curtailed June through October.**

⁶ Stored water releases from regulating reservoir; typically used to smoothen intake to West Point Water Treatment Plant.

⁷ Limited by carryover storage and prior diversion data from reservoir.

⁸ Limited by Middle Fork Pumping Plant (MFPP) intake capacity to facilitate water purchase; at 250 gpm or 33.6 AF/mo approx.

⁹ Total available per CCWD-CPUD Agreement for water purchase from Schaad's Reservoir, current agreement expires 7/11/2022.

¹⁰ Diversion to storage (storage refill) season per CCWD water rights.

¹¹ **Highlighted if less than 5% of projected total demand available as supply in single month (i.e., the "supply buffer").**