

MEMORANDUM

TO: Board of Directors
From: Michael L. Flood, General Manager
RE: FY 2023-2024 Casitas Water Supply and Demand Assessment
Date: April 7, 2023

RECOMMENDATION

Discuss water supply and demand assessment and adopt a resolution declaring a Stage 1 Condition.

1. BACKGROUND

In accordance with the direction provided in the Water Efficiency and Allocation Program, adopted May 12, 2021 and revised on March 22, 2023, the Board of Directors are to receive an annual assessment of local water supplies, water demands, and current effectiveness of water demand reduction measures. The information in the assessment may necessitate the consideration and direction from the Board of Directors for further actions to preserve water supply for the future.

2. ANNUAL EVENT SUMMARY

The annual event summary is to provide insight to unusual events that have occurred within the boundaries of the Casitas Municipal Water District. The key events are as follows:

- a) Rainfall totals in the watershed reached levels not seen in two decades with some areas reaching totals of over 60" for the season. This has added more than 93,000 Acre-Feet of water supply to Lake Casitas bringing the reservoir to nearly 70% of full capacity.
- b) With the abundant amount of rainfall, large amounts of debris impacted the Robles Fish Passage and Diversion facility. Most significantly, the Robles Forebay is completely filled with boulders, rocks, and sediment which will require a cleanout in order to prevent operational impacts to the facility.
- c) Under the California Water Action Plan, the State Water Resources Control Board (SWRCB) and California Department of Fish and Wildlife (CDFW) are working to identify potential actions that may be taken to enhance and establish instream flow for anadromous fish in five priority streams, including the Ventura River. The State's potential actions to establish instream flows could have a significant impact to available water supplies within the Ventura River watershed. Casitas has been carefully monitoring and reviewing the State's work and providing technical comments throughout the process. There will likely be no impact on water supply for the next twelve months resulting from these studies.

- d) The Casitas Municipal Water District has continued to cope with the demands of the acquisition of the Ojai Water System. The acquisition transferred to Casitas the operations and maintenance of the Ojai Water System including six groundwater wells in the Ojai Groundwater Basin which have an ongoing goal of maximizing the use of groundwater for that system through both maintenance and planning for future improvements.
- e) A groundwater adjudication commenced in the Ojai Valley area through an amended cross complaint filed with the California Superior Court on September 21, 2018. This action included not only Casitas but also many public and private water users in the Ojai Valley. This is of special significance to the District due to its operation of groundwater wells within the basins under question in addition to its right to divert water from the Ventura River. There will likely be no impact on water supply for the next twelve months as a result of this action.

3. ASSESSMENTS

The assessments are to be considered in the implementation of a Water Shortage Condition Stage and the demand reduction measures for Fiscal Year 2023-2024.

WEATHER CONDITIONS.

Long-term average rainfall at Matilija Dam and Casitas Dam are 28.23 and 23.31 inches, respectively, based on records dating back to the 1957-1958 Water Year. During the period of 2012 through 2022, the Ventura River watershed was in an extreme to moderate drought condition with less than average rainfall amounts (Table 1) that were insufficient to cause the restoration of local water resources to previous levels. Rainfall totals during the 2023 winter season were far above the long-term average rainfall for Matilija and Casitas Dam locations and have had a positive impact to District water supplies in the early months of 2023.

Table 1 – Rainfall Totals for Matilija Dam and Casitas Dam (inches)

Water Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Avg.
Matilija Dam	14.21	11.85	14.76	17.57	13.35	31.98	16.75	37.54	16.46	6.42	19.68	63.33	21.83
Casitas Dam	15.11	10.99	9.90	11.65	11.07	30.75	9.89	24.77	13.93	6.39	15.22	45.91	17.13

The winter storms of 2022-2023 provided more than 93,000 Acre-Feet of water supply to Lake Casitas. The annual rainfall total during the period of October 1, 2022 to March 31, 2023, at Matilija Dam and Casitas Dam are 63.33 and 45.91 inches respectively.

Wet conditions have also affected the State of California as a whole with Ventura County classified as being in a ‘None’ condition by the United States Drought Monitor as of April 4, 2023 (See Attachment #1).

WATER RESOURCES

The primary water resources that provide water to Casitas MWD are collectively the groundwater basins of the Upper Ventura River and Ojai; and surface water storage at Lake Casitas.

Groundwater Basins

The winter of 2022-23 brought extensive recovery to the local groundwater basins within Casitas' district boundaries. The rainfall events caused significant flows with large amounts of debris and silt from the watershed.

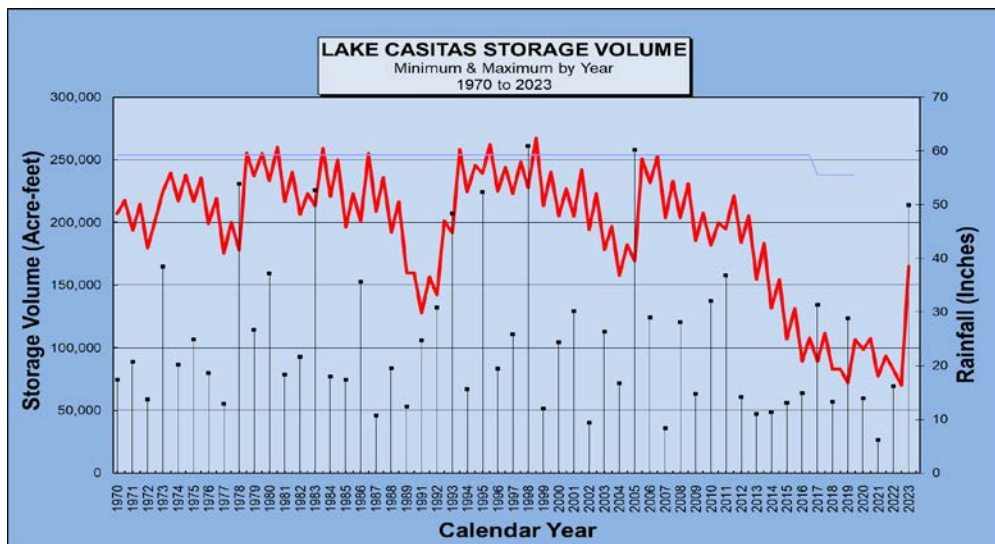
The Upper Ventura River groundwater levels have seen a recovery during the last twelve months. The recent data presented by the Ventura River Water District illustrates that groundwater levels are 21.0 feet above the April 1st static water level average (see April, 2023 VRWD Ground Water Level Chart – Attachment #2). The storage in the Upper Ventura River Basin will continue to allow groundwater pumpers in this basin to minimize their use of Lake Casitas supply over the next twelve months.

The Ojai groundwater basin is a primary water source for the Ojai Valley's urban and agricultural water demands. The basin's groundwater storage increased an approximate 109.62 feet in water elevation recorded at a key well in the basin since November 4, 2022. The Ojai basin Groundwater Management Agency has reported that the Ojai basin has an estimated storage of 77,600 acre-feet (97% capacity) at this same time (See OBGMA Summary Sheet – Attachment #3). This supply should allow groundwater pumpers in this basin to minimize their use of Lake Casitas supply during the next twelve months.

Surface Water Storage

Lake Casitas is the primary source of water supply for the Casitas Municipal Water District. Its construction in the 1950's was as a supplemental supply to local groundwater and as a primary source for areas that do not have groundwater. Figure 1 presents the annual high-low water storage fluctuations that Lake Casitas has experienced since 1970. Lake Casitas storage was last at full storage capacity in May 2006 and has since been in a declining storage trend due to drought conditions, evaporation, environmental conditions, and water use. This year has shown a sharp reversal of that trend.

Figure 1 – Lake Casitas Storage Volume and Annual Rainfall Trend (1970 to April 2023)



On January 1, 2018, Casitas officially changed the storage table based on a bathymetric survey conducted at Lake Casitas. The volume stored at each designated percentage specified in the Water Efficiency and Allocation Program (WEAP) is changed to reflect the data provided by the bathymetric survey as follows:

Table 2 – WEAP Stages and Lake Casitas Volumes

Stage	<u>Stage 1</u>	<u>Stage 2</u>	<u>Stage 3</u>	<u>Stage 4</u>	<u>Stage 5</u>
Percent Storage	100%	50%	40%	30%	25%
Volume (Acre-feet)	237,975	118,988	95,190	71,393	59,494

WATER DEMAND

In FY 2013-14, the Casitas water demands from Lake Casitas reached 20,417 acre-feet, while Lake Casitas was still in a Stage 1 condition. In April 2014, the State’s Drought Emergency Declaration raised the public awareness to the on-going drought throughout California, the severe conditions in the State Water Project, and the growing scarcity of water for agriculture and communities statewide.

In April 2015, Lake Casitas storage declined to fifty percent of its storage capacity and the Casitas Board of Directors declared that a Stage 2 condition existed for the Lake Casitas supply. In doing so, the Board of Directors initiated Stage 2 mandatory water demand reduction requirements with the further adoption of a revised Water Efficiency and Allocation Plan (WEAP). A key element of the WEAP was the assignment of individual water allocations for residential, commercial and agricultural beneficial water uses, and the assignment of a conservation penalty for water use that was in exceedance of the assigned water allocation.

In June 2016, the Casitas Board of Directors declared that a Stage 3 condition existed as Lake Casitas continued to decline to 100,000 acre-feet of water in storage. The Stage 3 declaration implemented a conservation penalty of \$5.00 per unit and limited the supply available for new water use to 10 acre-feet per fiscal year.

In April 2017, the Casitas Board of Directors continued the Stage 3 declaration, pending possible further decline of Lake Casitas storage to a Stage 4 level.

From December 2018 through February 2019, the Casitas Board of Directors considered the possibility of a Stage 4 declaration but decided to forego the declaration based on the strong conservation response from the community (near a Stage 5 level) combined with rainfall that added significant supply volume to Lake Casitas in early 2019.

Early April 2020 saw a moderate set of storms allowing Lake Casitas storage levels to remain above 105,000 Acre-Feet, however a Stage 3 declaration was left in place for the 2021 Fiscal Year.

The 2021 Fiscal Year water demands were 13,404 Acre-Feet, an increase of 3,604 Acre-Feet over the Fiscal Year 2020 demand coupled with the lowest local rainfall amounts in more than fifty years. The Stage 3 declaration was left in place for the 2022 Fiscal Year.

During the 2022 Fiscal Year, water demands were 12,067 Acre-Feet, a decrease of 1,337 Acre-Feet. The water year had started out promising with significant rainfall in December 2022 but led to a dry winter/spring. The Stage 3 declaration was left in place for the 2023 Fiscal Year.

At this time, Fiscal Year 2023 demands are down by 2,295 Acre-Feet as compared to the same time in Fiscal Year 2022 with demands expected to reach only 9,700 Acre-Feet by June 30, 2023.

Water Demand Response

A critical function of the WEAP is to manage water supplies in such a manner that prevents Lake Casitas from reaching a minimum pool condition through the implementation of water demand response measures – the assignment of individual water allocations and the implementation of a conservation penalty for water use in excess of the allocation.

Since FY 2013-14, the demand on the Lake Casitas supply continued to decline through the 2020 Fiscal Year (Table 3) in response to the WEAP, water resource changes by large customers, and the heightened customer awareness of water resource conditions. The dry Fiscal Years 2020-2021 and 2021-2022 saw a significant increase in demands. Estimates for Fiscal Year 2022-2023 indicate a continuation of efforts to reduce water use from Lake Casitas which will be, at least partially, attributable to abundant rainfall in the December 2022 through April 2023 period. (Note that the amounts in Table 3 are registered at the Marion Walker Treatment Plant and will differ from amounts reported on the District’s Monthly Consumption Reports).

Table 3 – Water Deliveries from the Lake Casitas Supply

Fiscal Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23 (Est.)
Lake Casitas Water Deliveries (AF)	20,417	17,339	15,662	13,200	12,322	9,340	8,802	12,460	11,301	9,000
% below 2013-14 Delivery	0	15	23	35	40	55	57	39	45	56
Declared Stage	1	1	2	3	3	3	3	3	3	3

Since Fiscal Year 2016, Lake Casitas water demand has remained below the current Stage 3 demand reduction target of 16,736 Acre-Feet. The targeted goals for each WEAP Stage are listed in Table 4.

Table 4 – WEAP Targeted Demand Reduction Goals per Stage (Based of FY 1989-1990 Lake Casitas Demand of 23,909 Acre-Feet)

	Stage 1 20% Voluntary	Stage 2 20% Mandatory	Stage 3 30% Mandatory	Stage 4 40% Mandatory	Stage 5 50% Mandatory
Demand Reduction Goal (in Acre-Feet)	19,127	19,127	16,736	14,345	11,955

Supply and Demand Analysis

In consideration of an April 2023 start point of approximately 165,000 Acre-feet of storage in Lake Casitas, applying 2013 evaporation, no runoff additions to storage, and comparing three rates of water demands, Figure 2 illustrates the time for Lake Casitas to reach a particular level for the following estimated water demands:

1. A demand of **9,000 Acre-Feet/Year** reflects the estimated 2023 Fiscal Year Lake Casitas demand (middle line).
2. A demand of **8,100 Acre-Feet/Year** reflects a 10% reduction in the estimated 2023 Fiscal Year Lake Casitas demand (top line).
3. A demand of **9,900 Acre-Feet/Year** reflects a 10% increase in the estimated 2023 Fiscal Year Lake Casitas demand (bottom line).

Figure 2 illustrates that with the given demand rates, 2013 evaporation, with no additional rainfall and runoff, Lake Casitas would reach Stage 2 levels in 26 to 30 months, and Stage 3 levels in 42 to 48 months.

Given the conditions noted above, Figure 2 illustrates that Lake Casitas could decline to approximately a 150,000 Acre-Foot capacity by December of 2023.

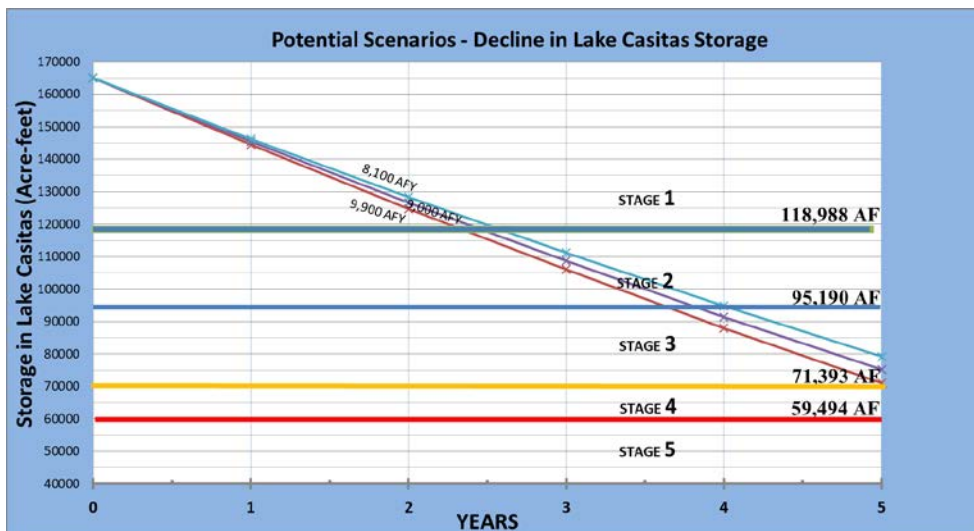


Figure 2 – Hypothetical Decline in Lake Casitas Storage with No Rainfall or Runoff; 2013 Evaporation Rate Every Year; Starting Storage at 165,000 Acre-Feet.

Conservation Penalty

The District has implemented a conservation penalty for water use in excess of the individual customer's Staged allocation. The funds resulting from the conservation penalty are to be applied toward new water supply projects and the water conservation efforts of the District.

In September 2015, and for the remainder of FY 2015-16, the residential water used in excess of the monthly allocation was billed as a conservation penalty at the rate of \$1.00 per unit. Effective July 1, 2016, and continued until the present, the conservation penalty was increased to \$5.00 per unit.

Growth

The service area of the District is experiencing extremely slow growth. Most requests that Casitas receives are related to expansions of residential housing construction. The slow growth rate is indicative of the information illustrated in Table 5. During the past eleven years, Casitas has installed 32 meters and issued 36.07 acre-feet of water allocation. On the average, three meters have been installed per year and new or additional allocation assignments have averaged 3.28 acre-feet per year.

Table 5 – Water Service and Allocation Assignments by Casitas (CY 2012-2022)

Calendar Year	No. of Meters Issued	Allocation Issued (AF)
2012	3	2.22
2013	1	1.88
2014	6	9.85
2015	1	1.27
2016	3	2.08
2017	3	5.54
2018	0	0
2019	6	6.92
2020	3	1.49
2021	4	3.77
2022	2	1.05
Total	32	36.07
Average	3	3.28

4. WATER MANAGEMENT POLICY AND PROGRAMS CURRENTLY IN PLACE

Management Priorities of Casitas Municipal Water District (Resolution No. 93-12)

On March 10th, 1993, the Casitas Board of Directors resolved by Resolution No. 93-12 (1) that Casitas shall manage Lake Casitas and its water supplies so that it can provide back up to other water systems and meet its direct customer demands during droughts.

Water Conservation Program - 1992

Since 1992, Casitas has actively assisted water customers throughout the district with fixture retrofits, irrigation surveys, residential and institutional water use surveys, provision of water conservation materials to local schools, public workshops and presentations on a wide variety of water conservation topics, public messaging, and financing assistance for water well improvements. The Water Conservation Program has partnered with other Ventura County agencies to obtain grants for additional water conservation measures. The Water Conservation Department has also adjusted staffing levels as needed during drought to provide increased customer assistance with meeting conservation targets.

Water Waste Prohibition Ordinance (Ordinance 22-01)

This Ordinance established water waste prohibitions and identified actions against violations of the Ordinance. Casitas staff has been actively engaged with the public reports of water waste.

Water Efficiency and Allocation Program (WEAP)

The WEAP is the key water management tool for long-term drought response and water demand. The WEAP was originally adopted by the Board of Directors in January 1992 and most-recently revised in March 2023. A critical element of the WEAP implementation is to cause water demands to be commensurate to the declared Water Shortage Stage of Lake Casitas.

State of California Drought and Conservation Measures

On April 7, 2017, Governor Brown lifted the January 17, 2014 drought declaration, leaving in place water waste prohibitions and requirements for continuing development of urban and agricultural water use standards to promote continued water conservation (Executive Order B-40-17).

In spring 2021, Governor Newsom proclaimed a drought emergency existed in portions of the State; and by October 2021 expanded the drought proclamation to include all 58 counties in California. In response, the SWRCB developed emergency water use regulations prohibiting wasteful water uses that took effect in January 2022. While most of the SWRCB emergency prohibitions were already adopted and implemented in Casitas' existing waste of water ordinance, Casitas adopted an updated Ordinance 22-01 to reflect all of the SWRCB recent water use prohibitions.

In March 2022, Governor Newsom released Executive Order N-7-22 directing the SWRCB to develop regulations for urban water suppliers to enact, at a minimum, Level 2 of their Water Shortage Contingency Plans and to define "non-functional" turf and ban the irrigation of non-functional turf for commercial, industrial and institutional sectors.

On March 24, 2023, in response to improved Statewide water supply conditions, Governor Newsom released Executive Order N-5-23 ending the requirement that local water agencies implement Level 2 of their Water Shortage Contingency Plans, but maintained that the SWRCB consider a ban of irrigation of non-functional turf for commercial, industrial and institutional sectors. The recent executive order preserves current emergency orders focused on groundwater supply where effects of the multi-year drought are still experienced and retains a state of emergency in all 58 counties to allow for drought response and recovery efforts to continue.

In response to the Governor's directives last year (Executive Order N-7-22), the SWRCB adopted regulations banning use of potable water for irrigation of non-functional turf for commercial, industrial,

and institutional sectors. To maintain consistency with State conservation regulations, Casitas MWD adopted Resolution 2022-30 which is set to expire on June 10, 2023 unless the SWRCB determines it is no longer necessary or the SWRCB renews the regulation. Staff will monitor the SWRCB regulations and return to the Board after the SWRCB decides on whether to terminate or renew the regulation banning irrigation of non-functional turf for commercial, industrial and institutional sectors.

Water Security Projects

The Casitas Municipal Water District is committed to investigating and implementing opportunities to further secure its water supply.

State Water Interties – The Casitas Municipal Water District is monitoring the development of the infrastructure needed for the direct and exchange drought-protection use of the State Water Project water supplies of Casitas, Calleguas MWD, the City of Ventura, and United WCD. This is an opportunity for regional collaboration to address common water supply reliability needs of the entirety of Ventura County. Participation in this project will require future decisions by the Casitas Board of Directors.

Additionally, Casitas and Carpinteria Valley Water District are pursuing State loan/grant funding to increase the size of a current intertie connection as well as build pump stations to provide the ability to move Casitas' State Water Project water supplies directly into Casitas' system.

The preliminary schedule for final completion of these projects is four to eight years.

Ojai Well Field Rehabilitation – This project restored production of the Ojai Well Field wells and included one replacement well. The replacement well has been drilled and equipped and the well began production during the 2023 Fiscal Year.

Comprehensive Water Resources Plan - In 2019, Casitas hired a consultant to analyze current water resources and develop supply options that will support the continued planning efforts of the District. Casitas' stakeholder input was also collected and the draft plan was released to the public in June 2020.

The Casitas Board of Directors continue to review planned water supplies and in 2022, adopted an important planning milestone by declaring a Casitas System Operational Yield of 15,010 Acre Feet per Year and a Planned Demand of 14,525 Acre-Feet per Year.

5. RECOMMENDED WEAP ACTIONS

The following are the staff recommendations for WEAP actions to be considered for adoption by the Board of Directors at the April 12, 2023 Board Meeting:

Customer Demand Reduction Measures

1. **Adopt a Stage 1 Condition**. The level of Lake Casitas has increased greatly in the first three months of 2023 with the addition of over 93,000 Acre-Feet of water supply. Water demands have also decreased over the last twelve months and are expected to remain far below the

WEAP Stage 2 demand target of approximately 19,127 Acre-Feet per Year. While these two factors bode well for next year's water supply, the District should remain cautious until the local weather pattern plays out over the next twelve months.

2. **Enact Stage 1 voluntary water allocations effective June 1, 2023.** If voluntary demand management by customers results in water use that exceeds Casitas' planned water demands during the course of FY 2023-24, the Board should consider additional demand management measures to ensure goals are met by customers.

The system for allocation assignment and billing should continue until such time that the Board makes a different determination. The Board reviews consumption and hydrology information monthly thus it can respond quickly to changes in customer conservation behavior or water supply conditions.

Penalties and Rates

1. **Effective June 1, 2023, discontinue the Conservation Penalty for water use in excess of allocation.**
2. **Continue planned rates for revenue stabilization and cost of service.** The Board adopted water rates to achieve revenue stabilization and cost of service that became effective July 1, 2017 and continued for the following four Fiscal Years with the final approved adjustment being made in July 2021. In early 2022, the Board has initiated a new cost of service study in order to understand the District's current revenue needs and adjustments to water rates. This study is expected to be completed later in the 2023 calendar year.

Issuance of Additional Allocations

1. **Discontinue an annual allocation limit for new or existing water service connections.**

Communications

1. **Communicate the Stage 1 Condition.** Stage 1 is identified as a "Water Conservation" reflecting voluntary conservation measures. Communications should include:
 - a. While water supply conditions have improved, next winter's hydrology is uncertain and ongoing customer efforts to use water efficiently and preserve water supplies remain important in the event of future dry conditions.
 - b. The public is strongly encouraged to continue efforts to save water, in particular continuing efficient landscape water use and taking advantage of the water conservation opportunities offered by the Casitas.
 - c. Extraordinary conservation actions previously taken on the part of the public to reduce water use in response to drought are encouraged but not mandatory.
 - d. Mandatory water use restrictions may be necessary in future years, should climate conditions return to dry conditions that result in a decline in Lake Casitas water levels;

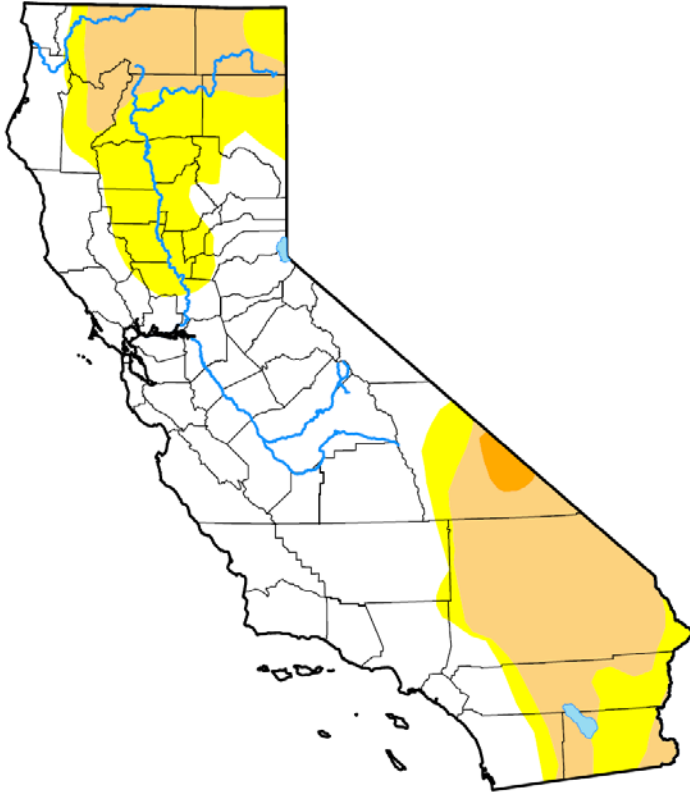
- e. Casitas will continue to enforce its established ordinance prohibiting water waste (Ordinance 22-01).
 - f. The State regulation banning use of potable water for irrigation of non-functional turf for commercial, industrial, and institutional sectors remains in effect.
2. **Continue the public information campaign.** Casitas needs to continue the messaging of local water supply reliability, water security project status, and responsible water use. This can be done through newsletters, website and social media posts, and public workshops.
 3. **Provide regular briefings, publish monthly consumption report.** The billing system provides each customer a monthly status on their water use and the application of conservation penalties. A monthly consumption report is provided to the Board.

ATTACHMENT #1







US Drought Monitor - California

**U.S. Drought Monitor
California**

April 4, 2023
(Released Thursday, Apr. 6, 2023)
Valid 8 a.m. EDT



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:

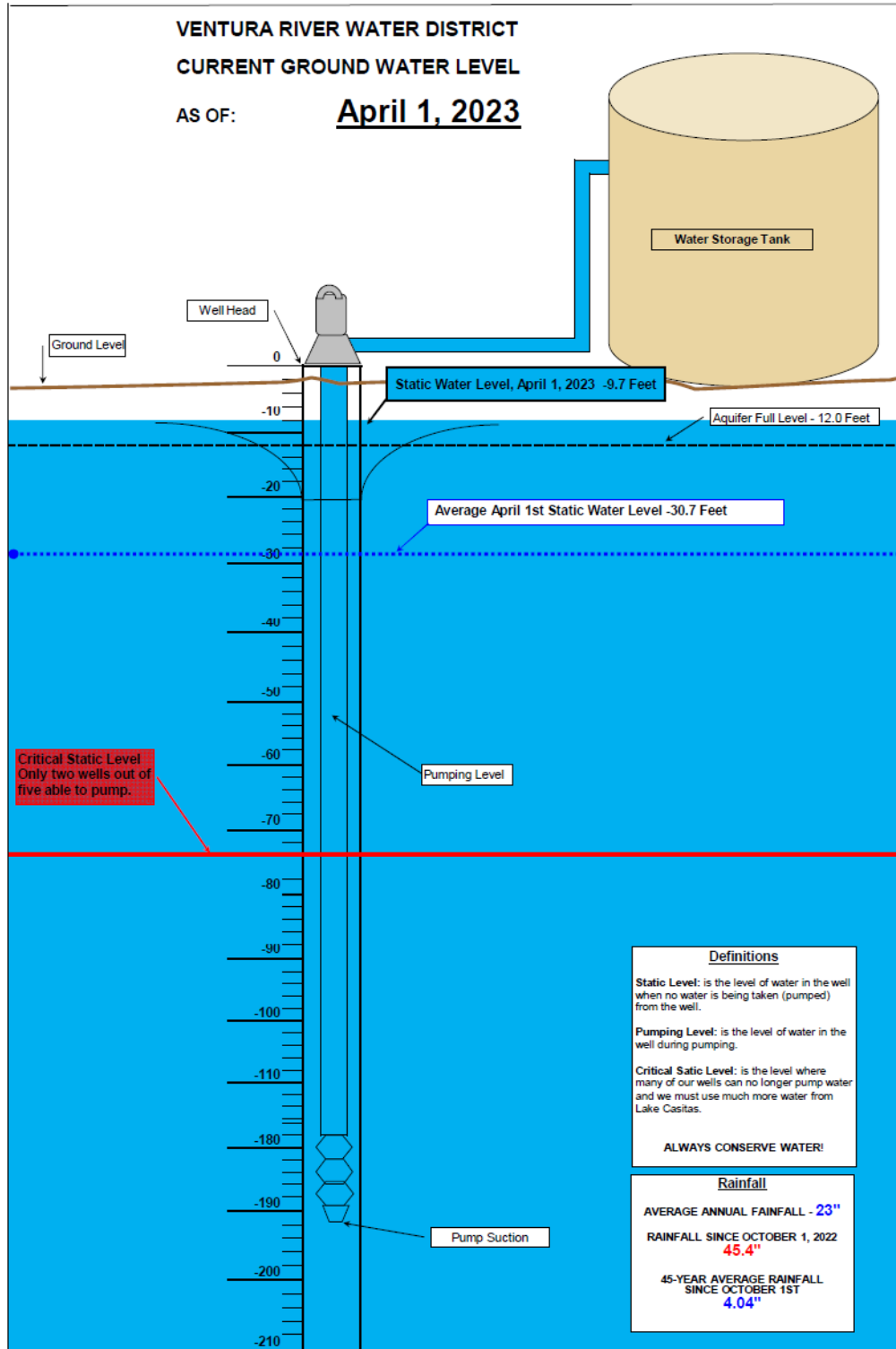
David Simeral
Western Regional Climate Center



droughtmonitor.unl.edu

ATTACHMENT #2

Ventura River Water District April 1, 2023 "Current Groundwater Level" Graphic



ATTACHMENT #3

**OBGMA March 2023 Summary of Ojai Groundwater Basin Conditions
(from the Basin Status Report of the March 27, 2023 OBGMA Board Meeting)**

Key Well Level (March 2023): 48.13' above mean sea level

Key Well Level (November 2022): 195.97' above mean sea level

Current Basin Volume: 77,600 Acre-Feet; 97% of capacity