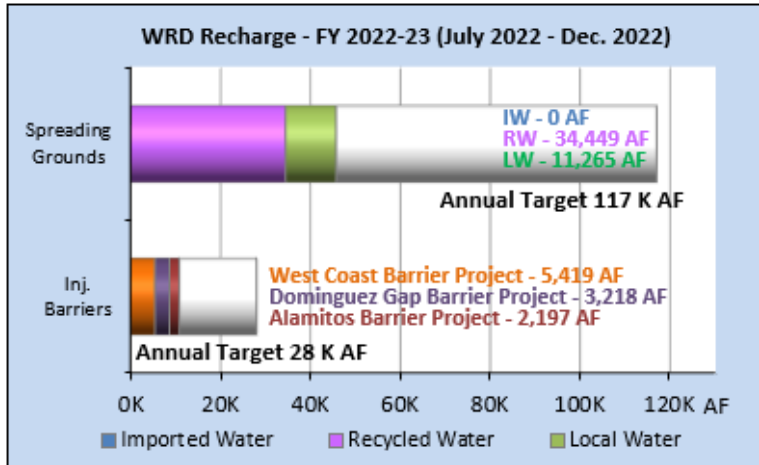


GROUNDWATER BASIN UPDATE FOR FEBRUARY 2023

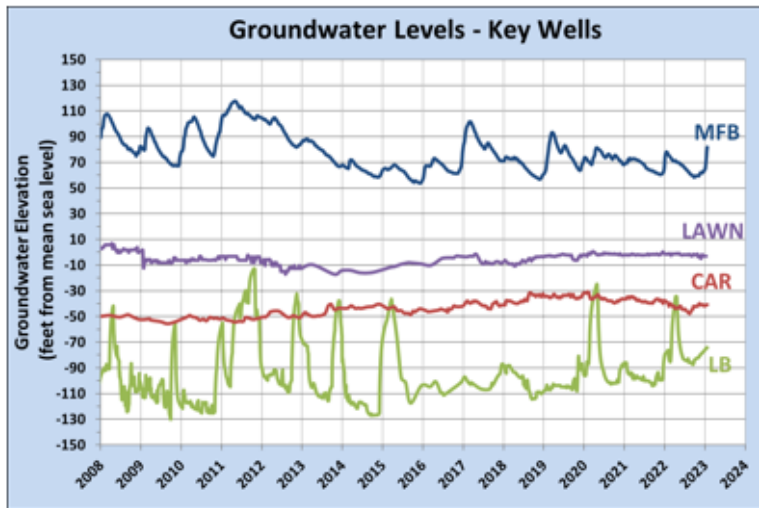
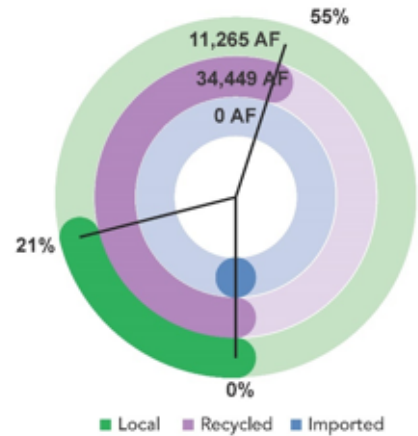
GROUNDWATER BASINS AT A GLANCE*



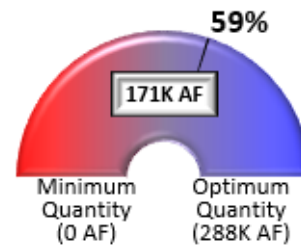
Precipitation % of Normal to Date
Oct. 1 - Feb. 6



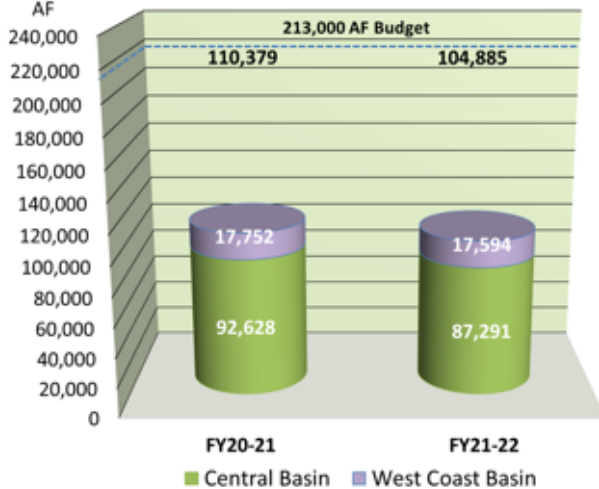
Spreading Grounds Recharge
Jul 2022 - Dec 2022



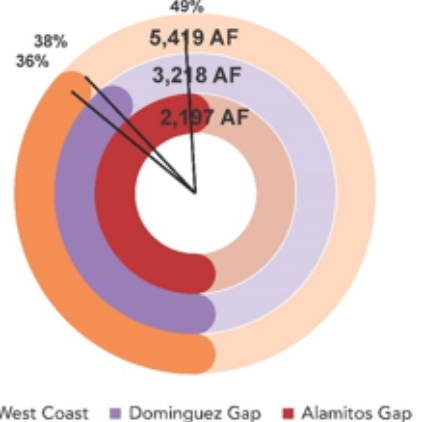
GW Basin Operating Range
December



Basin Pumping (Q)
July 2022 - December 2022



Seawater Barrier Recharge
Jul 2022 - Dec 2022



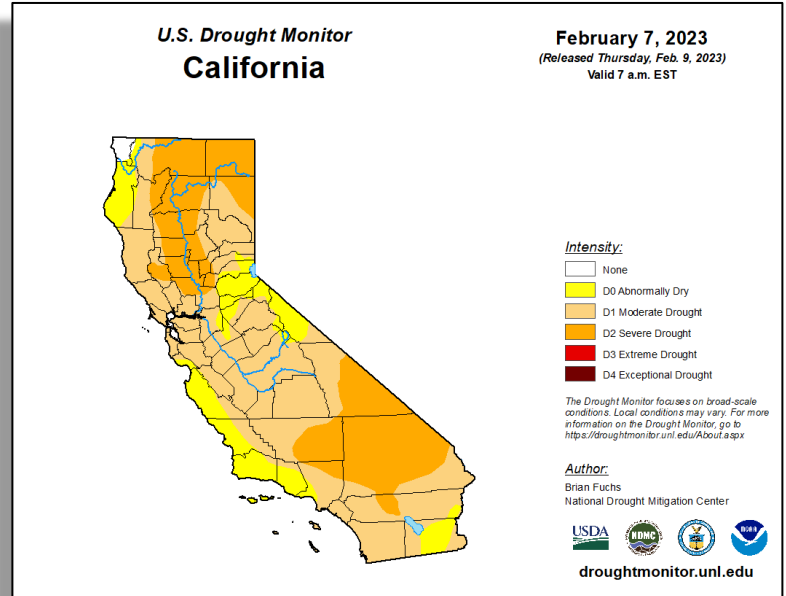
* - Preliminary numbers, subject to change.

SUMMARY

Staff monitors groundwater conditions in the District’s service area throughout the year. A summary of the latest information is presented below.

Precipitation (October 1, 2022 – February 6, 2023)

The WRD precipitation index reports that for the 2022-23 Water Year, there has been above average rainfall (13.26 inches) through February 6, 2023. The normal rainfall for this time period is 8.06 inches, so the District is 165% of normal. As of February 7, 2023, the U.S. Drought Monitor is reporting 99% of the State is abnormally dry (-1%), 85% under moderate (-10%), 33% under severe (-13%), 0% under extreme (same), and 0% exceptional (same) drought conditions.



Snowpack (Snow Water Content [SWE] as of February 10, 2023)

In 1929, the State established the California Cooperative Snow Surveys Program with the California Department of Water Resources as the coordinator. Today, over 50 state, national, and private agencies collaborate in collecting snow data from over 300 snow courses with more than 60 of the courses being the original courses established in the early 1900’s. The average snow course is 1,000 feet long and consist of about 10 sample points. Anywhere from two to six courses are measured per day depending on weather and access method.

The snow survey is completed using a snow sampling tube equipped with a cutter on the end that is driven through the snow measuring the depth and obtaining a snow core. The snow core is then weighed and the snow water content (or snow water equivalent) calculated. The surveys are completed throughout the winter by returning to the same sample points throughout the season to observe the changing conditions. From February through May the data is used by the State to forecast snow melt runoff. Many snow courses are only measured on or around April 1st, and since it is presumed that the snow accumulates up to April 1st and melts thereafter, April 1st is the benchmark for historic data comparisons.

NORTH	
Data For: 10-Feb-2023	
Number of Stations Reporting	31
Average snow water equivalent	32.7"
Percent of April 1 Average	113%
Percent of normal for this date	165%

CENTRAL	
Data For: 10-Feb-2023	
Number of Stations Reporting	49
Average snow water equivalent	37.2"
Percent of April 1 Average	138%
Percent of normal for this date	197%

SOUTH	
Data For: 10-Feb-2023	
Number of Stations Reporting	31
Average snow water equivalent	36.5"
Percent of April 1 Average	159%
Percent of normal for this date	230%

STATEWIDE SUMMARY	
Data For: 10-Feb-2023	
Number of Stations Reporting	111
Average snow water equivalent	35.8"
Percent of April 1 Average	135%
Percent of normal for this date	195%

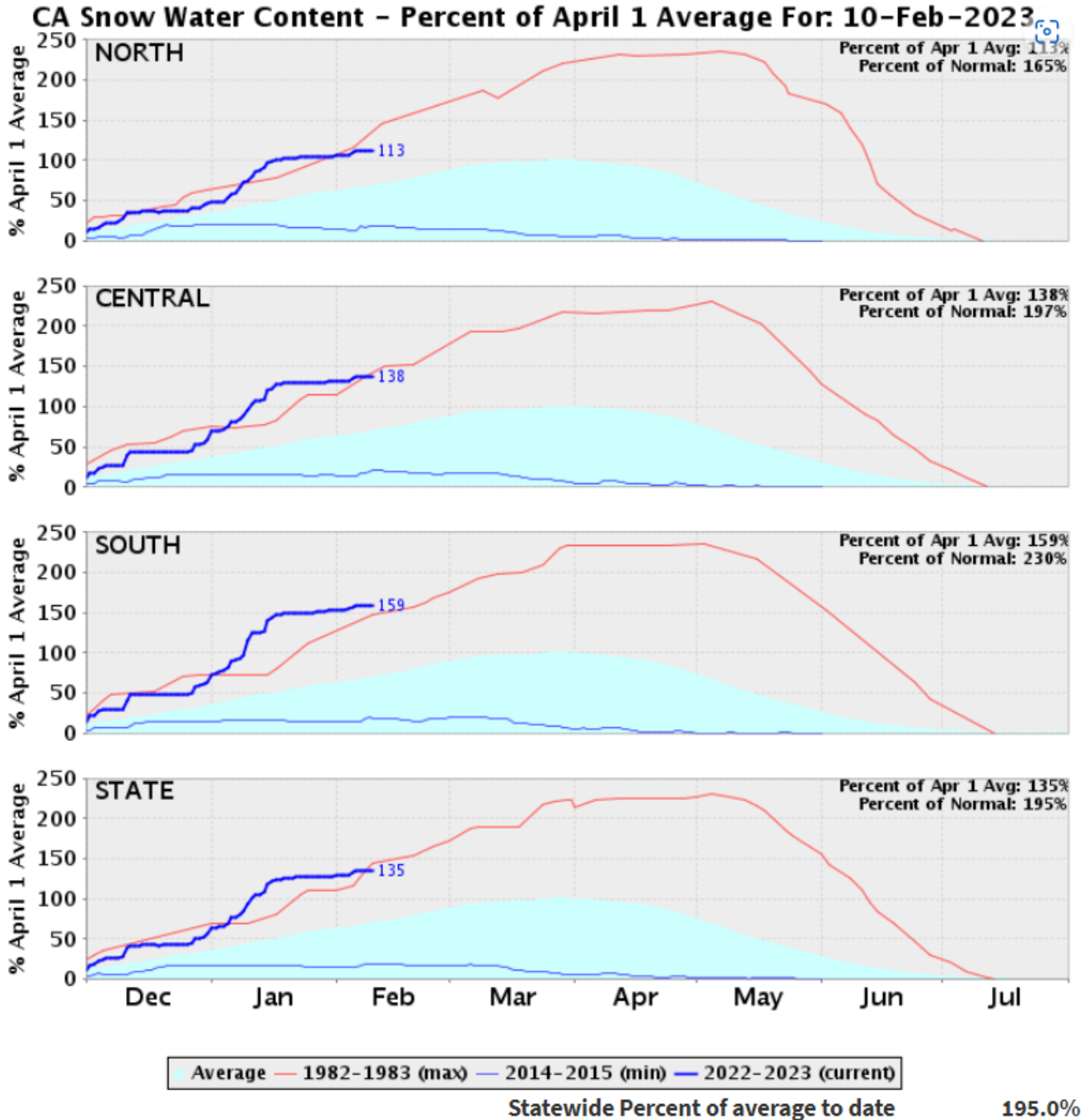
Snow Water Equivalent (SWE):

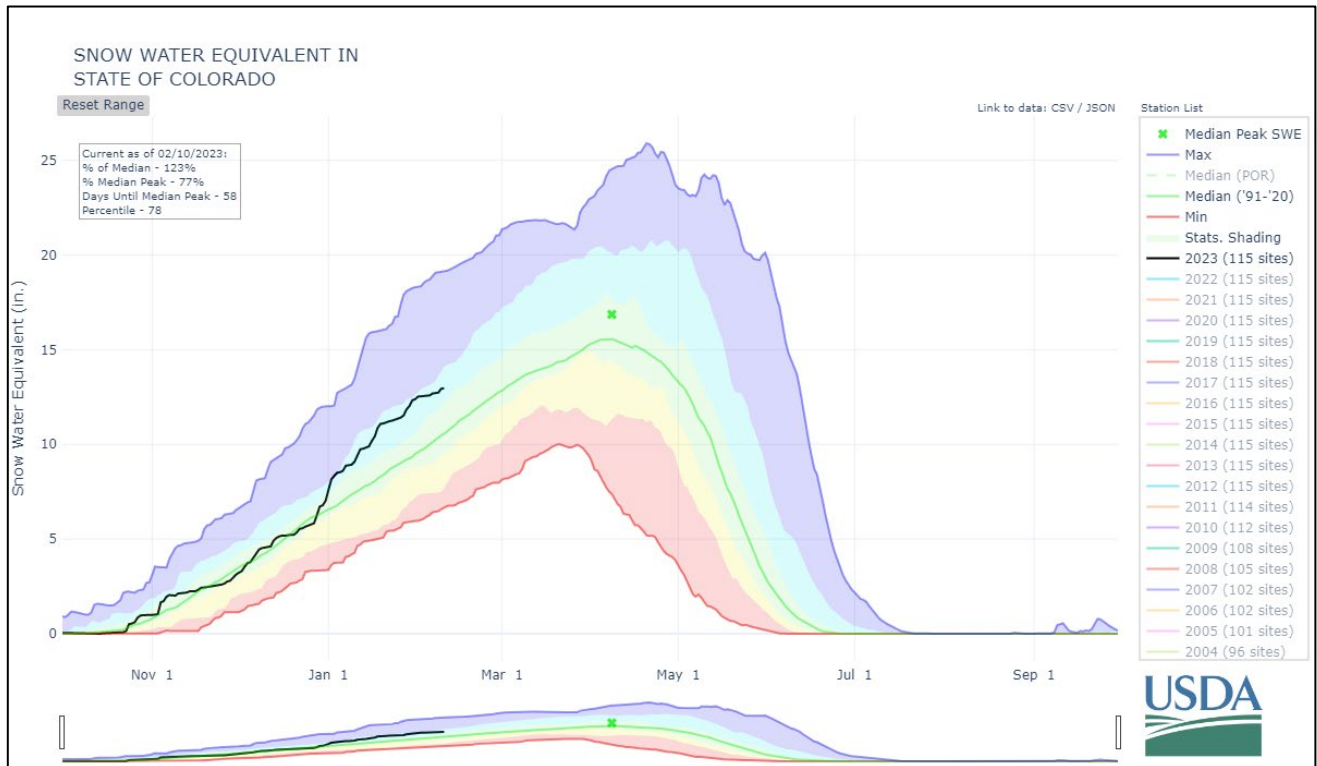
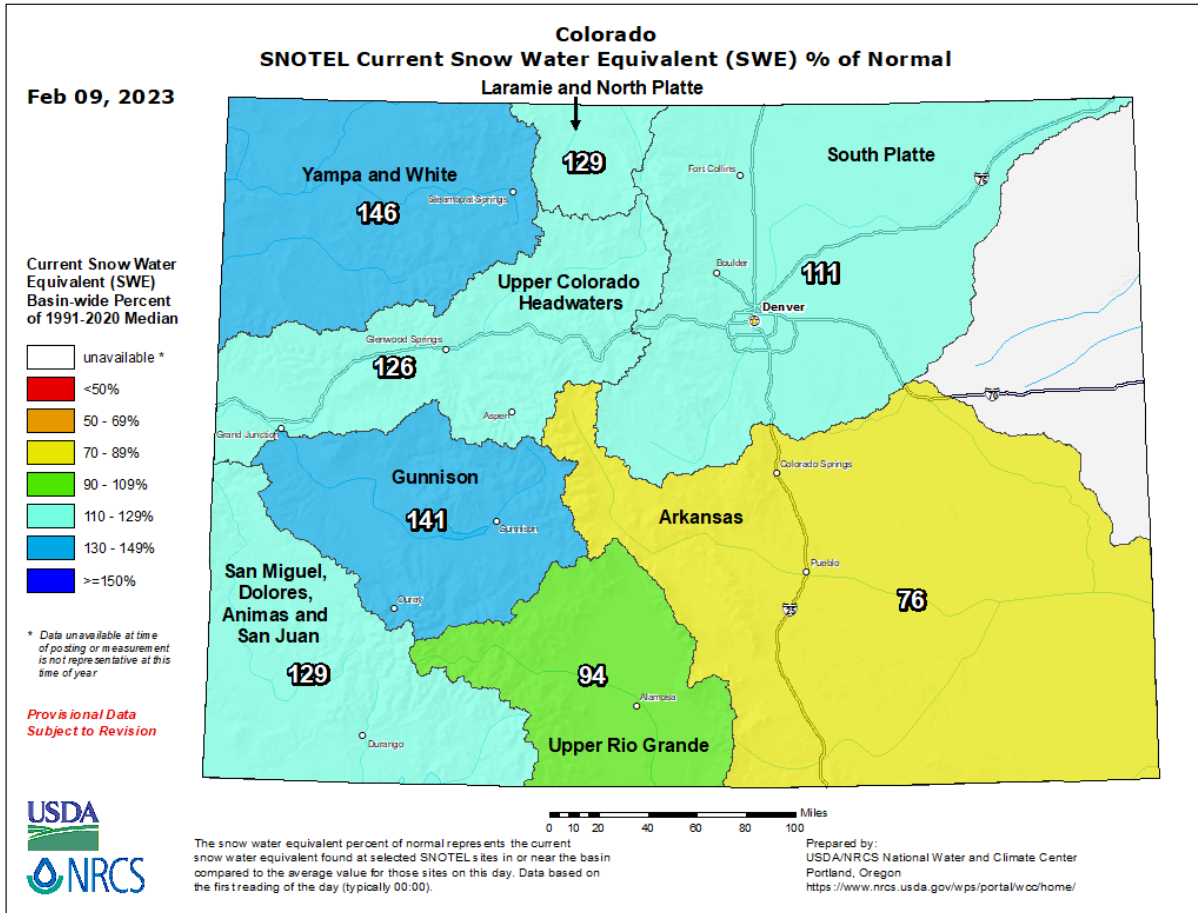
Northern Sierra Nevada – 32.7 in., 113% of April 1st average and 165% of normal to date

Central Sierra Nevada – 37.2 in., 138% of April 1st average and 197% of normal to date

Southern Sierra Nevada – 36.5 in., 159% of April 1st average and 230% of normal to date

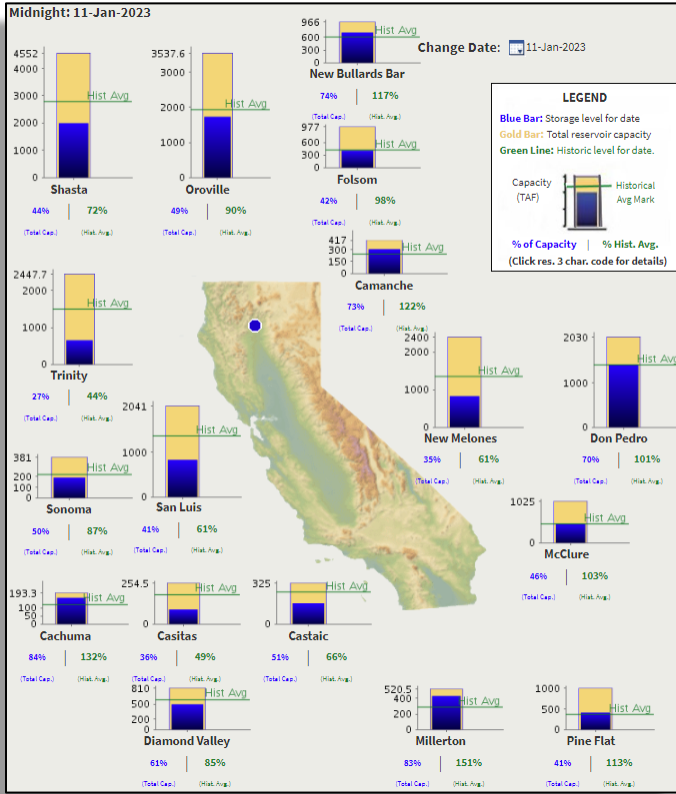
Statewide Summary – 35.38 in., 135% of April 1st average and 195% of normal to date





Reservoirs (as of February 6, 2023)

For the 21 reservoirs reported monthly to the committee, water levels have increased in 16 of 21 reservoirs. The largest increase occurred at Perris Lake (0.82 million acre feet, MAF). The smallest increase occurred at Casitas Lake (0.01 MAF). The largest decrease (-0.10 MAF) occurred at San Luis Reservoir. The smallest decrease (<0.01 MAF) occurred at Silverwood and Diamond Valley Lakes.



MWD Reservoirs (SWP) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Trinity Lake (CLE)	2.45	0.77	32%	0.12
Lake Shasta (SHA)	4.55	2.60	57%	0.61
Lake Oroville (ORO)	3.54	2.35	67%	0.62
New Bullards Bar (BUL)	0.97	0.79	81%	0.07
Folsom Lake (FOL)	0.98	0.50	51%	0.09
Camanche Lake (CMN)	0.42	0.28	68%	-0.02
New Melones L. (NML)	2.40	1.01	42%	0.18
Don Pedro Res (DNP)	2.03	1.50	74%	0.09
Lake McClure (EXC)	1.02	0.63	62%	0.16
Lake Sonoma (WRS)	0.38	0.24	63%	0.05
San Luis Res (SNL)	2.04	1.04	51%	0.20
Millerton Lake (MIL)	0.52	0.33	64%	-0.10
Pine Flat Res. (PNF)	1.00	0.53	53%	0.13
Cachuma Lake (CCH)	0.19	0.19	99%	0.06
Castaic Lake (CAS)	0.33	0.18	56%	0.02
Casitas Lake (CSI)	0.25	0.10	41%	0.01
Perris Lake (PRR)	0.13	0.92	698%	0.82
L. Silverwood (SLW)	0.08	0.07	84%	0.00

MWD Reservoirs (CRA) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Lake Powell	24.32	5.47	22%	-0.06
Lake Mead	26.12	7.45	29%	0.12
Diamond Valley L (DVL)	0.81	0.49	61%	0.00

Black Text - Decrease or no change in storage since the last report.
Green Text - Increase in storage since the last report.

These 21 reservoirs are at 37% capacity (27.45 MAF) which is up 3.17 MAF from the prior month (+3.12 MAF State Water Project [SWP] and +0.05 MAF Colorado River Aqueduct [CRA]).

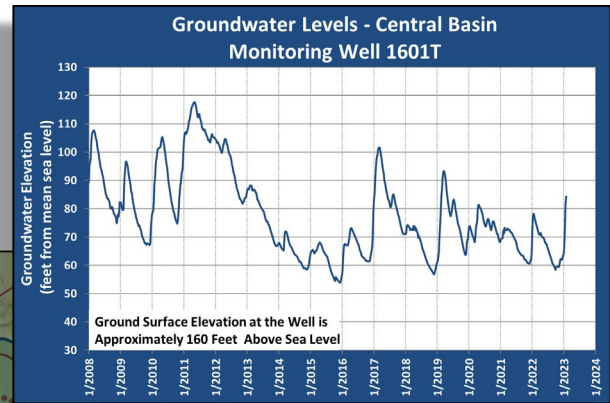
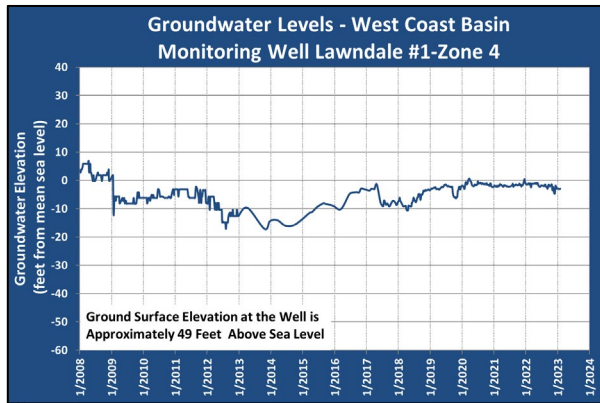


Did you know?

Water is part of a deeply interconnected system. What we pour on the ground ends up in our water, and what we spew into the sky ends up in our water.

Groundwater Levels (through February 1, 2023)

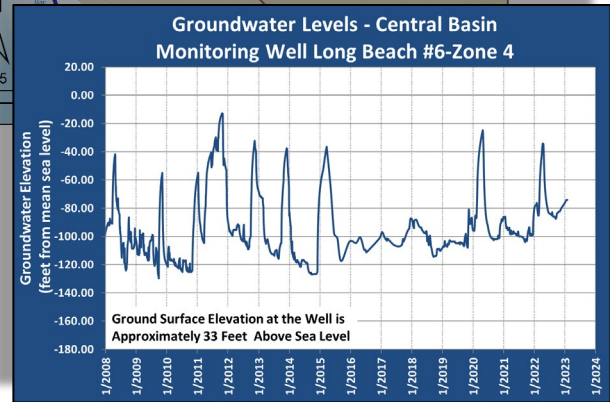
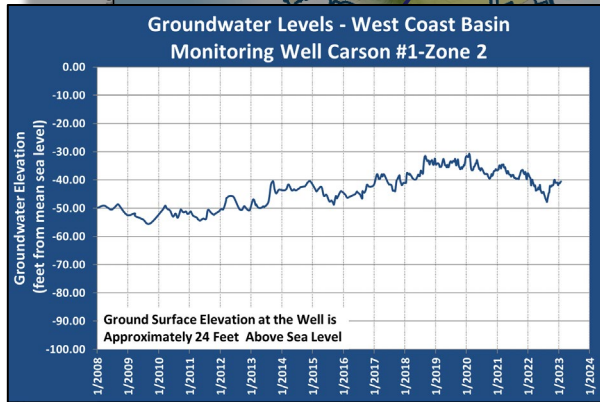
Groundwater levels in key monitoring wells are shown in the hydrographs below.



Central Basin Key Well Long Beach #6 and West Coast Basin Key Wells Lawndale #1 & Carson #1 are in a confined aquifer and do not respond readily to rainfall but instead to changes in pumping patterns and barrier recharge.



Central Basin Key Well 1601T is between the two spreading grounds and rises rapidly with rainfall and replenishment but falls sharply during dry spells and lack of replenishment.



Groundwater Level Changes in Key Wells

Well Name	Since Last Report	Since Same Time the Previous Year
Central Basin Key Well 1601T	Increased 19.4 feet	Increased 8.0 feet
Central Basin Key Well Long Beach #6 4	Increased 1.2 feet	Increased 2.3 feet
West Coast Basin Key Well Lawndale #1 4	Decreased 0.1 feet	Decreased 1.9 feet
West Coast Basin Key Well Carson #1 2	Increased 0.6 foot	Decreased 1.1 feet

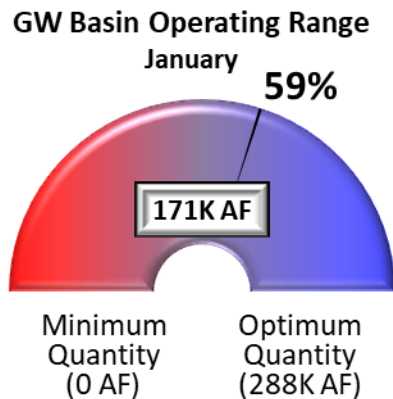
Bold indicates a change in direction (decreasing or increasing) since the last report.

Optimum and Minimum Groundwater Quantity (February 1, 2023)

In response to a 2002 State audit of the District’s activities, the Board of Directors adopted an Optimum and Minimum Quantity for groundwater in the District to define an appropriate operating range that would sustain adjudicated pumping rights, leave room for future storage projects, and identify a lower limit. The amounts are based on the accumulated overdraft concept, which the District tracks year by year based on changes in groundwater storage.

After an extensive review of over 70 years of water level fluctuations and discussions with the Board and pumping community, Water Year 1999/2000 was recognized as a representative year for the Optimum Quantity, which equated to an accumulated overdraft of approximately 612,000 acre feet. The Minimum Quantity was defined as an accumulated overdraft of 900,000 acre feet, which allowed an operating range from 0 acre feet (minimum) to 288,000 acre feet (optimum). The Board also adopted a policy to make-up the groundwater deficit should the accumulated overdraft fall too far below the Optimum Quantity.

The Accumulated Overdraft as of February 1, 2023, has been estimated at 729,141 acre feet (subject to change), which is 170,859 acre feet above the Minimum Quantity and 117,141 acre feet below the Optimum Quantity. The Basin is at 59% of Optimum Quantity which is 32% higher than what was reported last month (~94,000 AF higher).

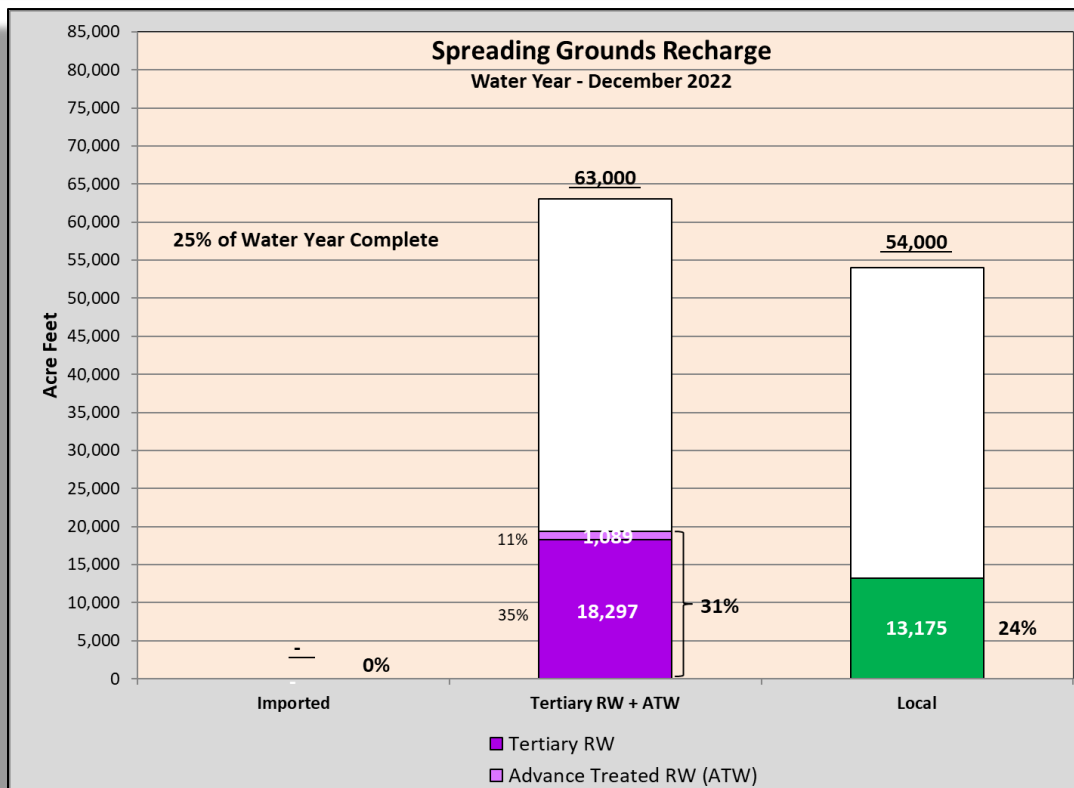
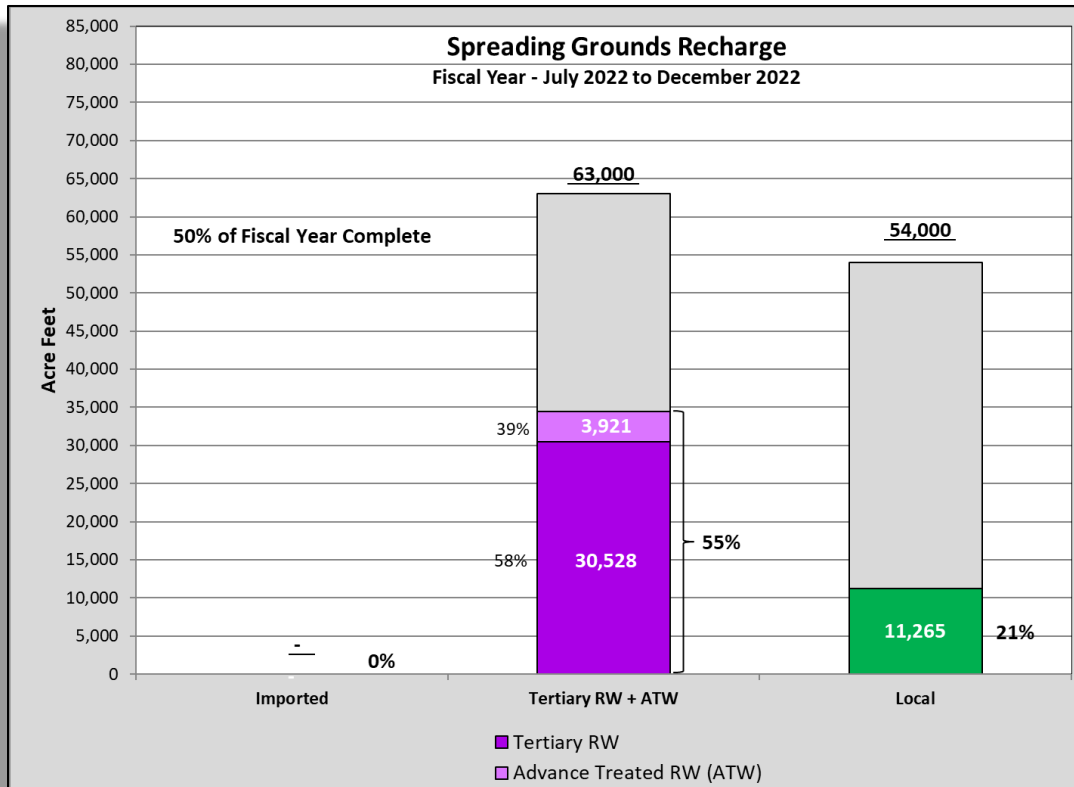


FACT:
The most commonly found pollutants in groundwater are nitrates, metals, volatile and semi-volatile organic compounds, and pesticides.



Montebello Forebay Spreading Grounds (July 2022 – December 2022)

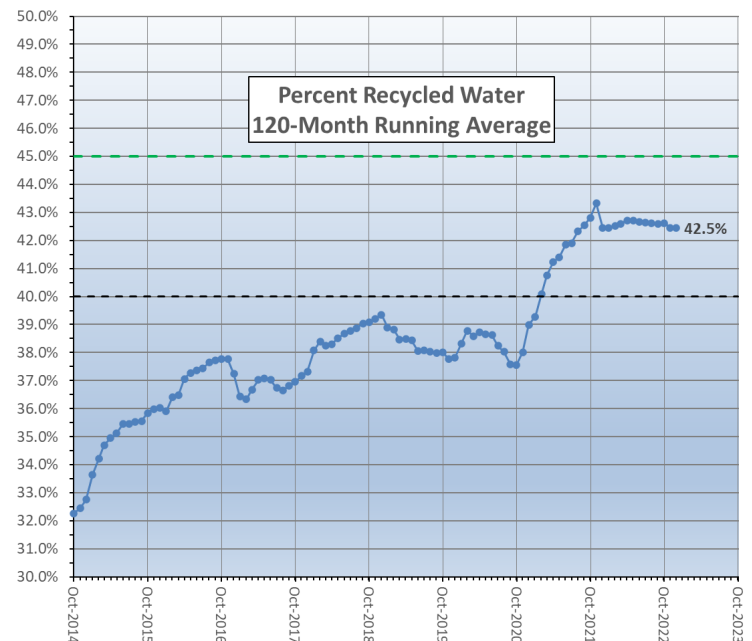
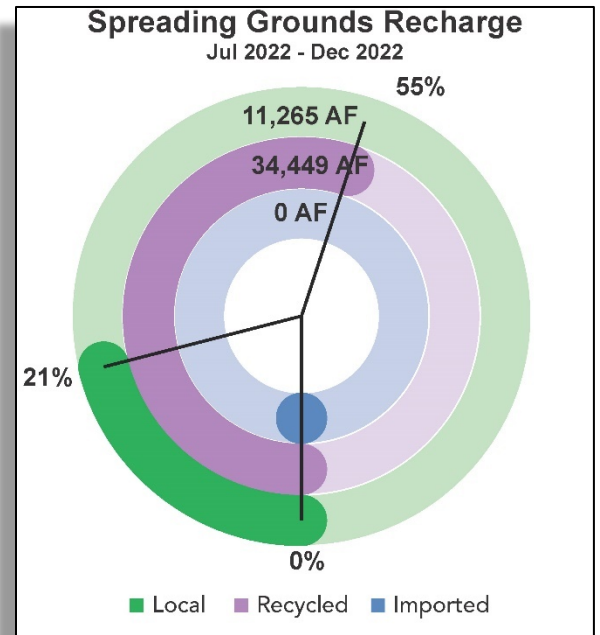
The following Charts shows the preliminary spreading grounds replenishment water for the current Fiscal Year (2022-23; 6 months) and Water Year (2022-23; 3 months):



No imported water purchases are planned for Fiscal Year 2022-23.

Local water (stormwater plus dry weather urban runoff) is captured by the Los Angeles County Department of Public Works (LACPW) at the spreading grounds for recharge. Local water amounts are determined as the sum of the total waters conserved at the spreading grounds less the imported and recycled water deliveries. For the 2022-23 Fiscal Year, 11,265 acre feet of local water capture has been reported by the LACPW.

Preliminary numbers for the 2022-23 Fiscal Year show that approximately 34,449 acre feet of recycled water has been recharged with 3,921 acre feet consisting of advanced treat water from the ARC AWWTF and 30,528 acre feet of tertiary recycled water. Presuming the advanced treated water as “Null Water”, the 120-month running average of the recycled water contribution in the Montebello Forebay is 42.5% and the regulatory maximum is 45%, with additional monitoring being required once 40% is reached. WRD and LACSD submitted the additional monitoring plan on May 26, 2021. Implementation of the plan will commence upon acceptance by the RWQCB.



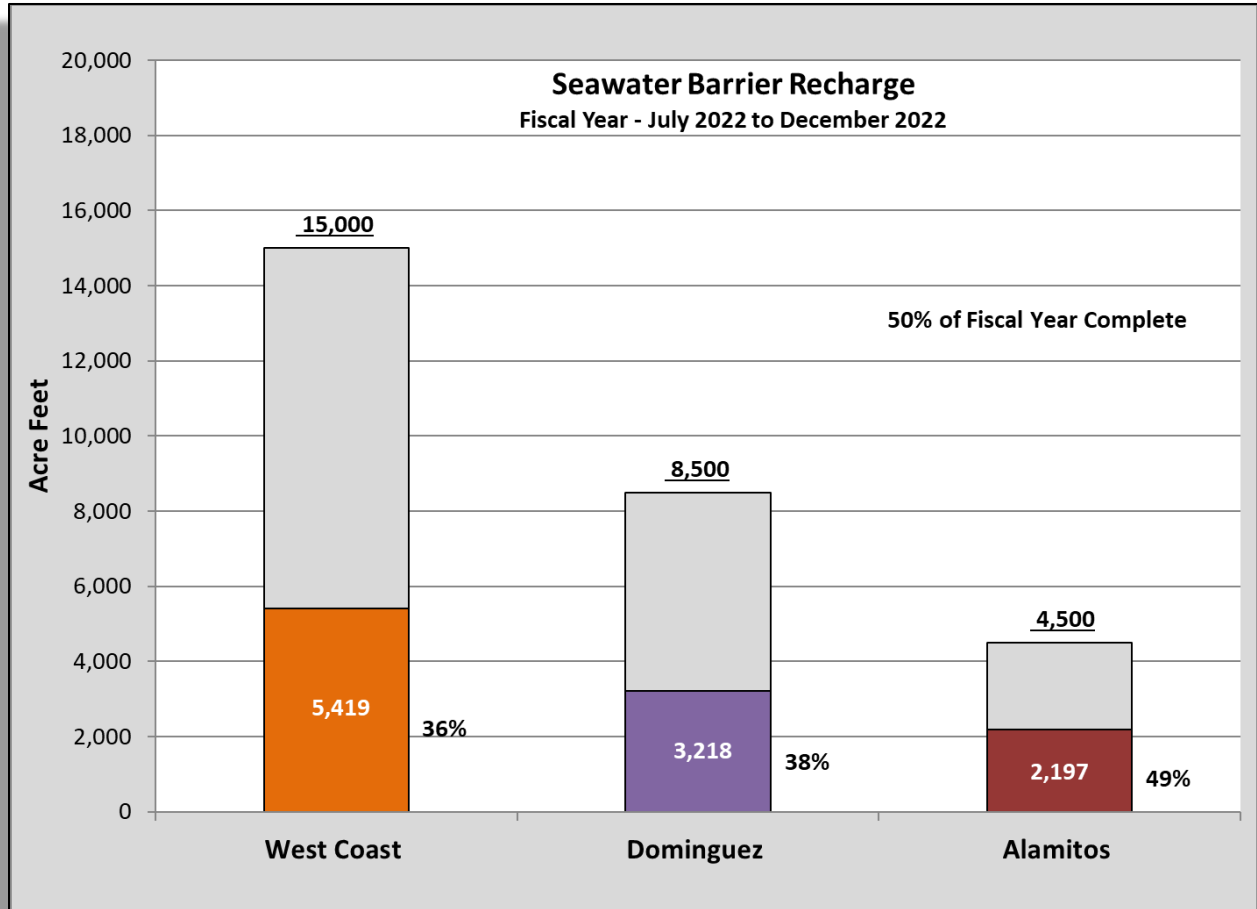
Tertiary Recycle Water Permit Update

The permit is progressing with LACSD and WRD staff working with both LARWQCB and CA-DDW regulators to respond the questions and update pertinent sections of the new Title 22 Engineering Report. LACSD continues to work on two major studies needed for the new Title 22 Engineering Report – Biodegradable Dissolve Organic Carbon (BDOC) Study and Virus Logarithmic Reduction Value (LRV) Study.

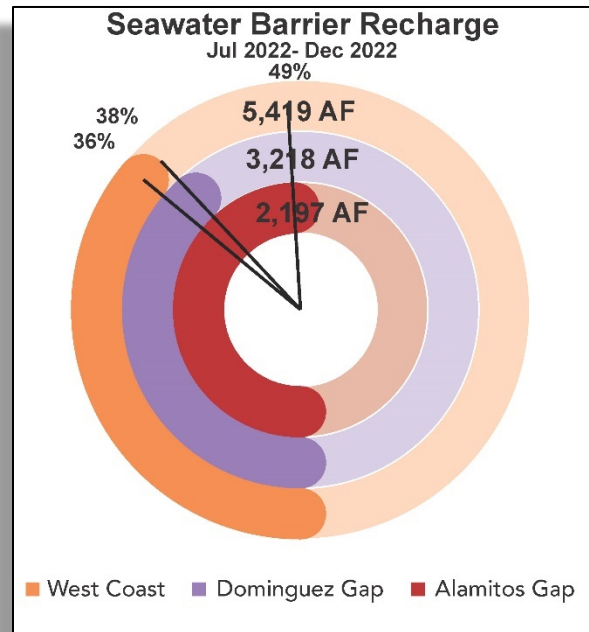
Due to the continued mega drought and recent emergency drought proclamation by Governor Newsom, LACSD and WRD submitted a request to modify the recycled water contribution percentage to 50% and the advanced treated water classification to diluent in a letter to the LARWQCB and CA-DDW dated July 8, 2022.

Seawater Barrier Well Injection and Replenishment (July 2022 – December 2022)

The following Chart shows the barrier water injection:

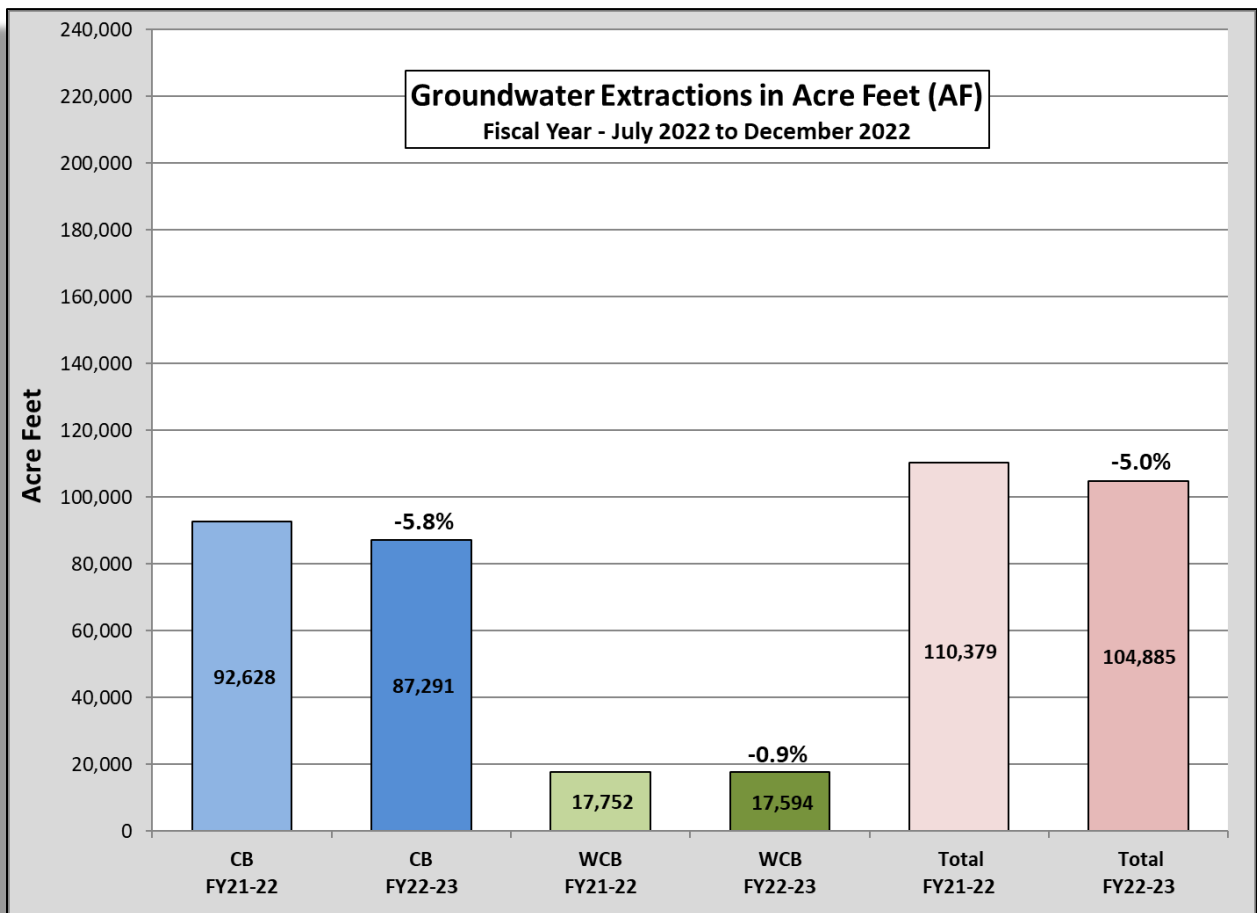


Preliminary numbers for the 2022-23 Fiscal Year show that the West Coast Barrier has used 5,419 acre feet of the total 15,000 acre feet planned for injection, 36% of total for the Fiscal Year. The Dominguez Gap Barrier used 3,218 acre feet of the total 8,500 acre feet planned for injection, 38% of the total for the Fiscal Year. The Alamitos Barrier, on the WRD side, used 2,197 acre feet of the total 4,500 acre feet planned for injection, 49% of the total for the Fiscal Year.



Total Pumping (Fiscal Year 2022-23, July 2022 – December 2022)

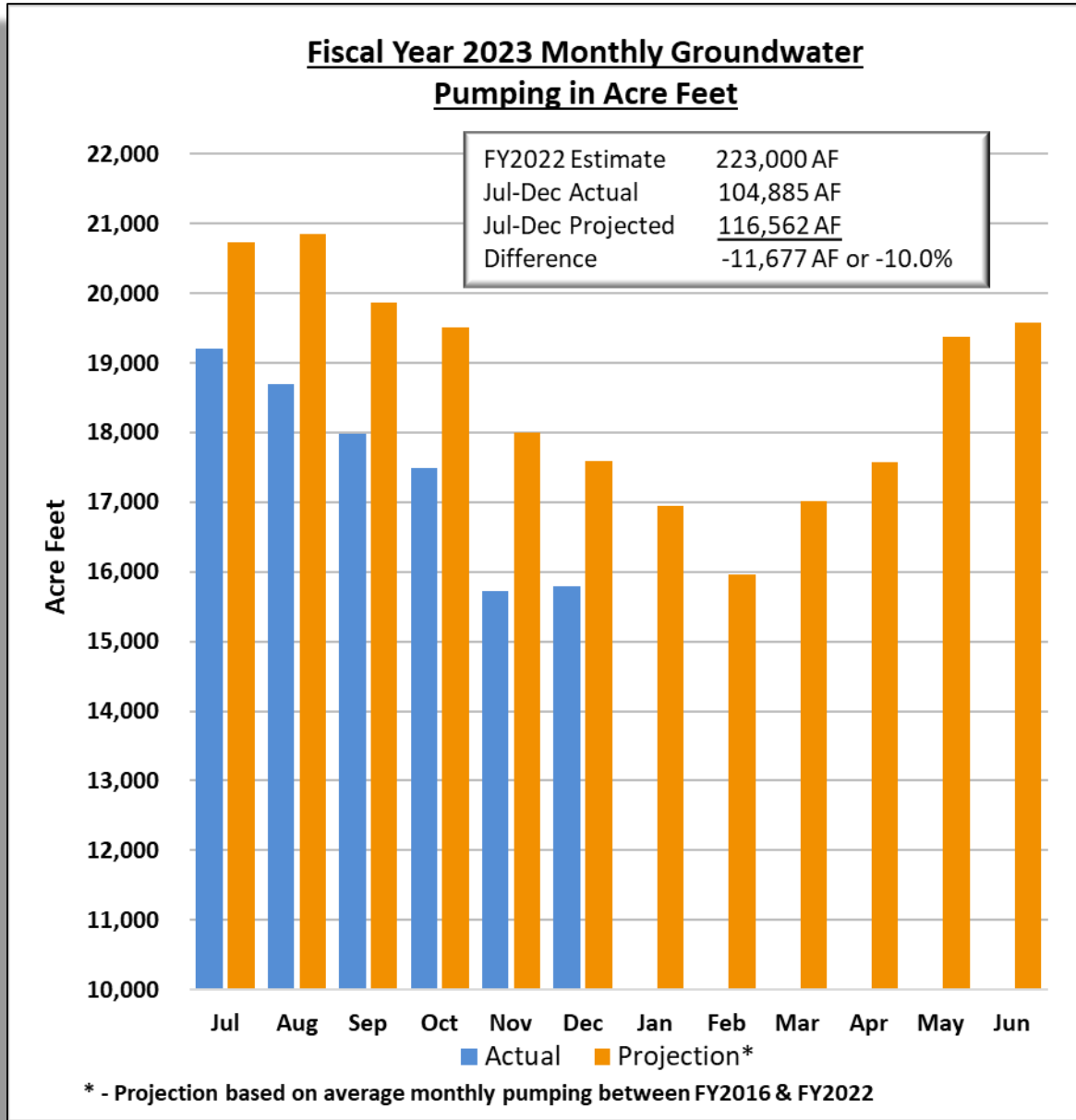
Preliminary numbers for groundwater production in the District for the Fiscal Year 2022-23 (July-December) indicate total pumping in the Central Basin was down 5,337 acre feet from the same time of the previous fiscal year (-5.8%) and the West Coast Basin total pumping was 157.3 acre feet lower than the previous fiscal year (-0.9%). The total pumping is 104,885 acre feet compared to 110,379 acre feet during the same time the previous year for a decrease of 5,494 acre feet, or -5.0%. The current pumping data do not include nine (9) Central Basin pumpers and three (3) West Coast Basin pumpers who have not yet reported for an estimated 14 additional acre feet.



Interesting...

Wellhead protection is a pollution prevention and management strategy used to protect groundwater used for drinking water.

Preliminary numbers indicate 104,885 acre feet have been pumped this fiscal year and is 10.0% below the projected fiscal year to date goal of 116,562 acre feet (or -11,677 acre feet). Monthly actual production versus the 7-year average monthly production projections (FY 2016 through 2022) are included in the chart below.



“Cleaning up groundwater contamination can be both time consuming and costly. That’s why it makes more sense to not contaminate it in the first place.” - *Author Unknown*



For the Fiscal Year 2022-23 (July 2022 - December 2022), staff has tracked the production trends of the top five (5) producing pumpers and the bottom five (5) producing pumpers in each basin. These pumpers are identified in the following tables and are based on the change in volume (in acre feet) compared to the same time period for the previous Fiscal Year.

Production Trends - Central Basin				
Top 5 Producing by Volume (AF)	Jul 2021- Nov 2021	Jul 2022- Nov 2022	Difference	% Change
Los Angeles, City - CB	1,862.49	3,183.42	1320.93	41.49
Cal. Water Service Co. (East LA)	4,872.19	5,310.49	438.30	8.25
South Gate, City	4,230.18	4,253.43	23.25	0.55
Boeing, Compton Site	0.00	22.48	22.48	100.00
American Text. M.	0.00	22.03	22.03	100.00
Bottom 5 Producing by Volume (AF)	Jul 2021- Nov 2021	Jul 2022- Nov 2022	Difference	% Change
Long Beach, City - CB	16,181.74	14,866.24	-1315.50	-8.85
Santa Fe Springs, City	1,208.06	666.79	-541.27	-81.18
Whittier, City	2,977.85	2,465.18	-512.67	-20.80
Cal. American Water Co. Alpha 0679	1,031.12	581.26	-449.86	-77.39
Lakewood - City	3,820.85	3,484.84	-336.01	-9.64

Production Trends – West Coast Basin				
Top 5 Producing by Volume (AF)	Jul 2021- Nov 2021	Jul 2022- Nov 2022	Difference	% Change
Tesoro Refining	4,710.14	5,290.40	580.26	10.97
Cal. Water Service Co. Dominguez - WB	1,010.82	1,515.08	504.26	33.28
Cal. Water Service Co./Hawthorne Lease	14.61	233.11	218.50	93.73
Golden State Water Co. - WB	2,387.11	2,550.57	163.46	6.41
Manhattan Beach, City	79.48	232.27	152.79	65.78
Bottom 5 Producing by Volume (AF)	Jul 2021- Nov 2021	Jul 2022- Nov 2022	Difference	% Change
Phillips 66 Co. - Alpha 7093	3,150.29	2,677.95	-472.34	-17.64
Cal. Water Service Co. Alpha 7050	805.63	392.06	-413.57	-105.49
Inglewood, City	1,095.92	926.83	-169.09	-18.24
Torrance, City	870.34	807.30	-63.04	-7.81
Roman Catholic Archbishop - WB	130.56	94.69	-35.87	-37.88

Water Replenishment District (WRD) publishes the Groundwater Basin Update (GWBU) monthly. All information contained herein is preliminary and is meant to be a snapshot the status of the basins at the time of publication and should not constitute an official WRD report. All the information presented in the GWBU utilizes the best available data at the time of publication. Data provided herein is a compilation of WRD data and publicly available information from several of our partners including, by not limited to, the Los Angeles County Department of Public Works - Stormwater Engineering Division, Metropolitan Water District of Southern California, California Department of Water Resources, US Bureau of Reclamation, University of Nebraska - Lincoln, and the US Department of Agriculture - Natural Resources Conservation Service. The GWBU is prepared by Senior Hydrogeologist, Everett Ferguson, who can be contacted directly with questions at eferguson@wrd.org.