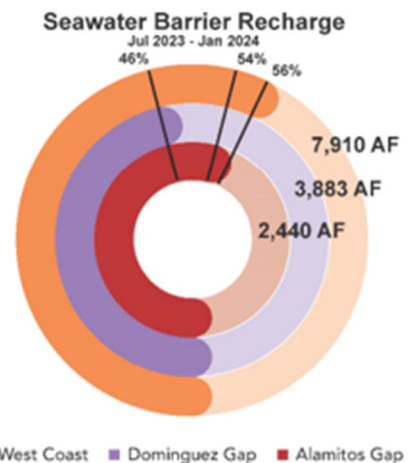
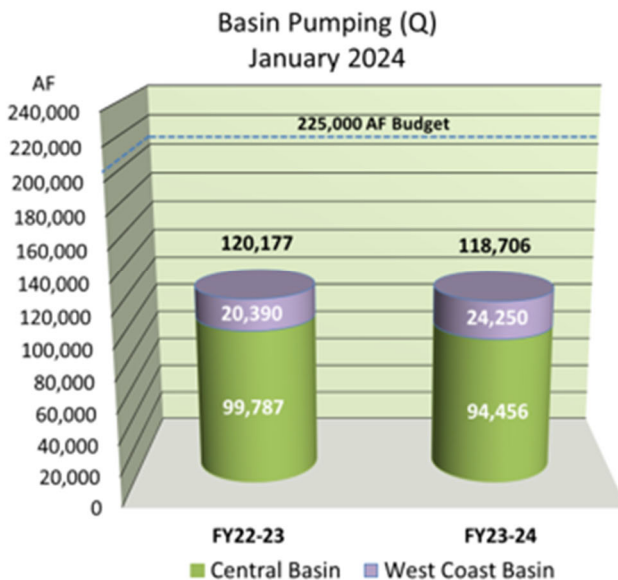
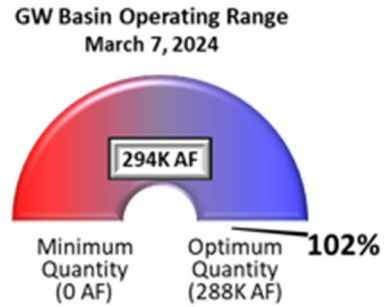
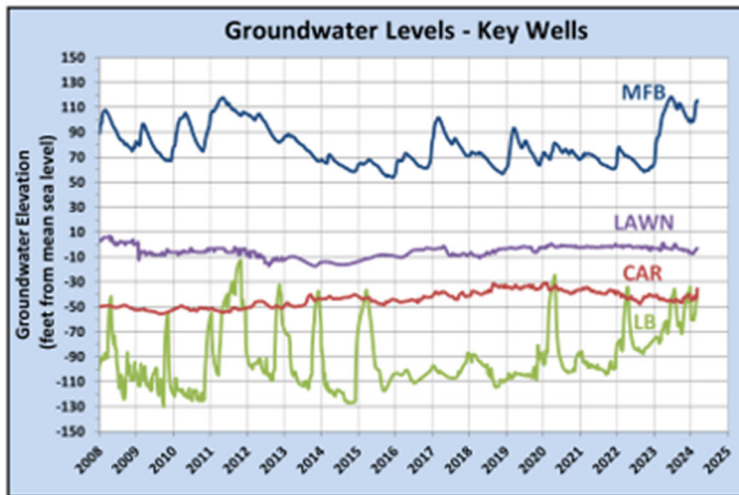
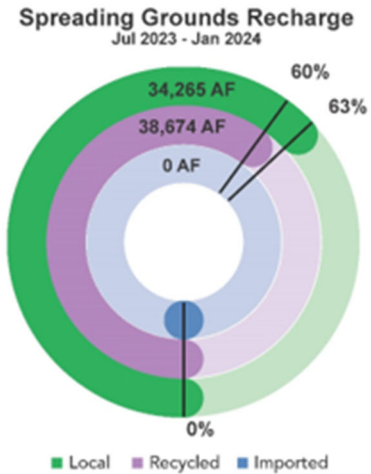
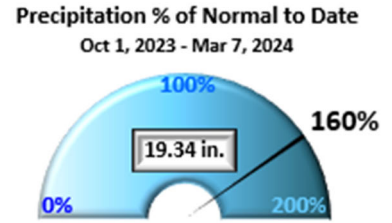
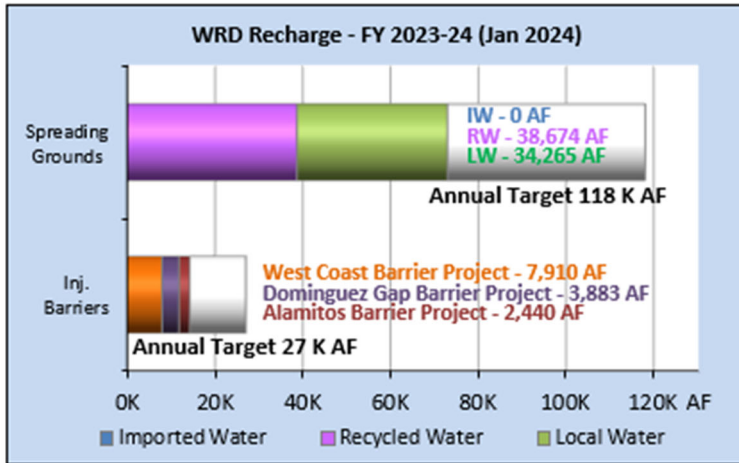


GROUNDWATER BASIN UPDATE FOR MARCH 2024

GROUNDWATER BASINS AT A GLANCE*



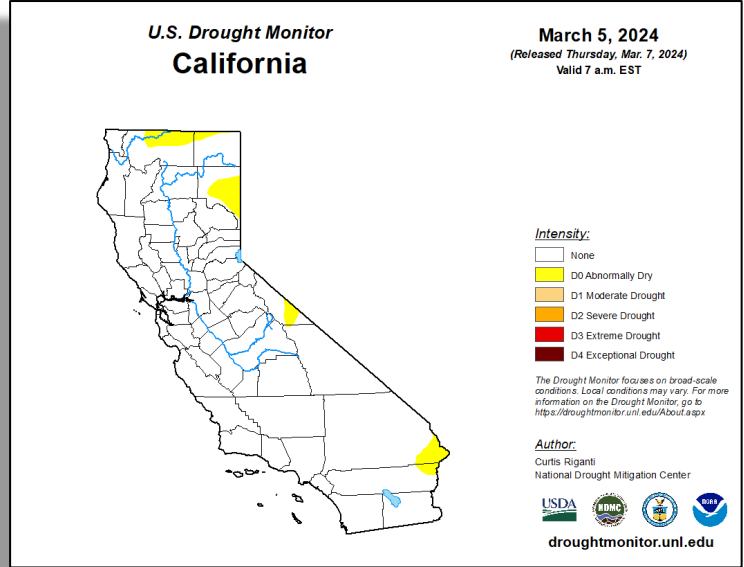
* - Preliminary numbers, subject to change.

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, 2023 – March 7, 2024)

The WRD precipitation index reports that for the 2023-24 Water Year, there has been above average rainfall (19.34 inches) through March 7, 2024. The normal rainfall for this time period is 12.07 inches, so the District is 160% of normal. As of March 5, 2024, the U.S. Drought Monitor is reporting 5% of the State is abnormally dry (-2%), 0% under moderate (same) 0% under severe (same), 0% under extreme (same), and 0% exceptional (same) drought conditions. According to the U.S. Drought Monitor, Los Angeles County is currently not in a drought.



Snowpack (Snow Water Content [SWE] as of March 12, 2024)

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 consists 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: 12-Mar-2024	
Number of Stations Reporting	26
Average snow water equivalent	31.9"
Percent of April 1 Average	112%
Percent of normal for this date	117%

CENTRAL	
Data For: 12-Mar-2024	
Number of Stations Reporting	48
Average snow water equivalent	26.1"
Percent of April 1 Average	96%
Percent of normal for this date	101%

SOUTH	
Data For: 12-Mar-2024	
Number of Stations Reporting	28
Average snow water equivalent	20.1"
Percent of April 1 Average	90%
Percent of normal for this date	94%

STATEWIDE SUMMARY	
Data For: 12-Mar-2024	
Number of Stations Reporting	102
Average snow water equivalent	25.9"
Percent of April 1 Average	99%
Percent of normal for this date	104%

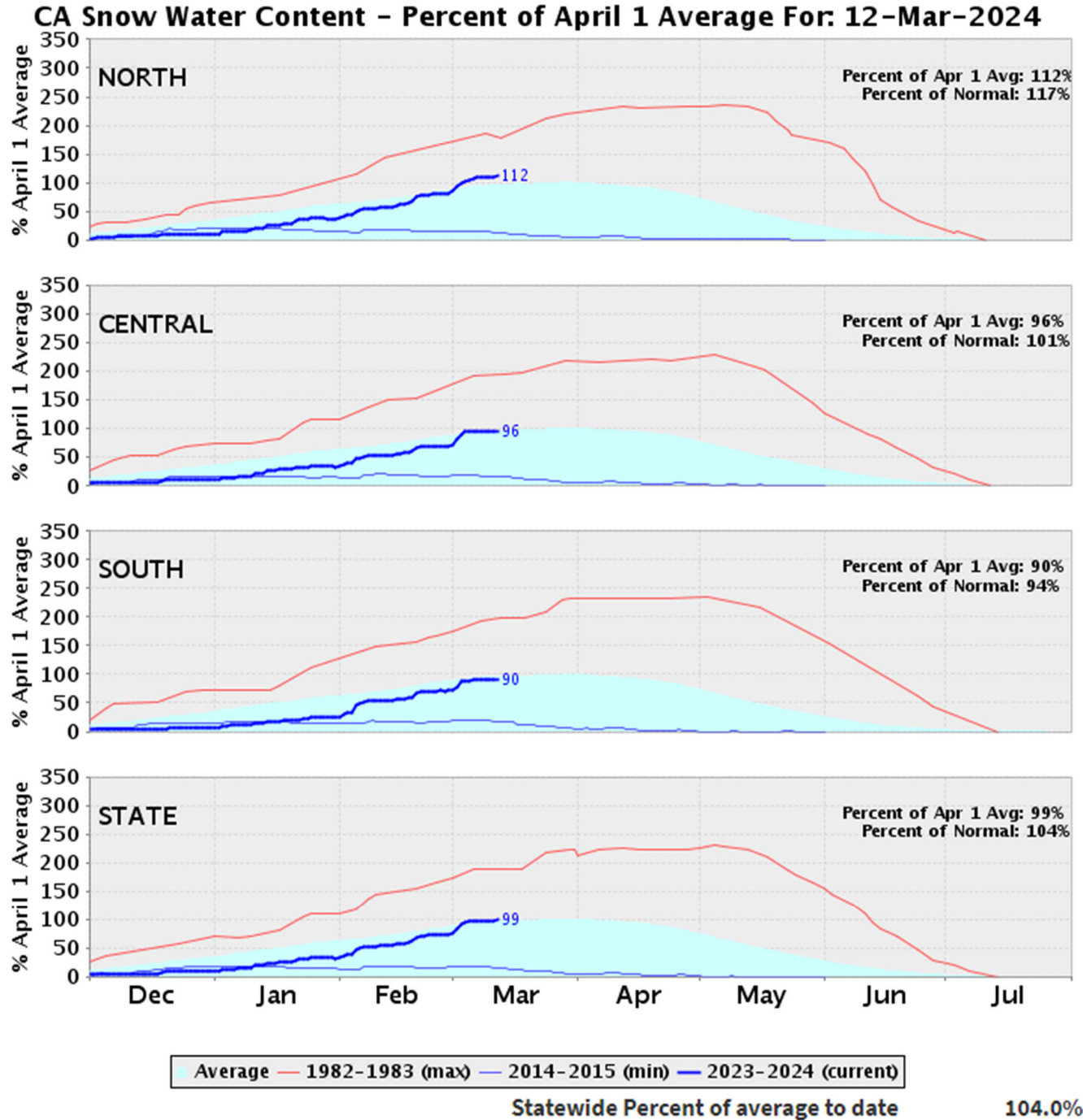
Snow Water Equivalent (SWE):

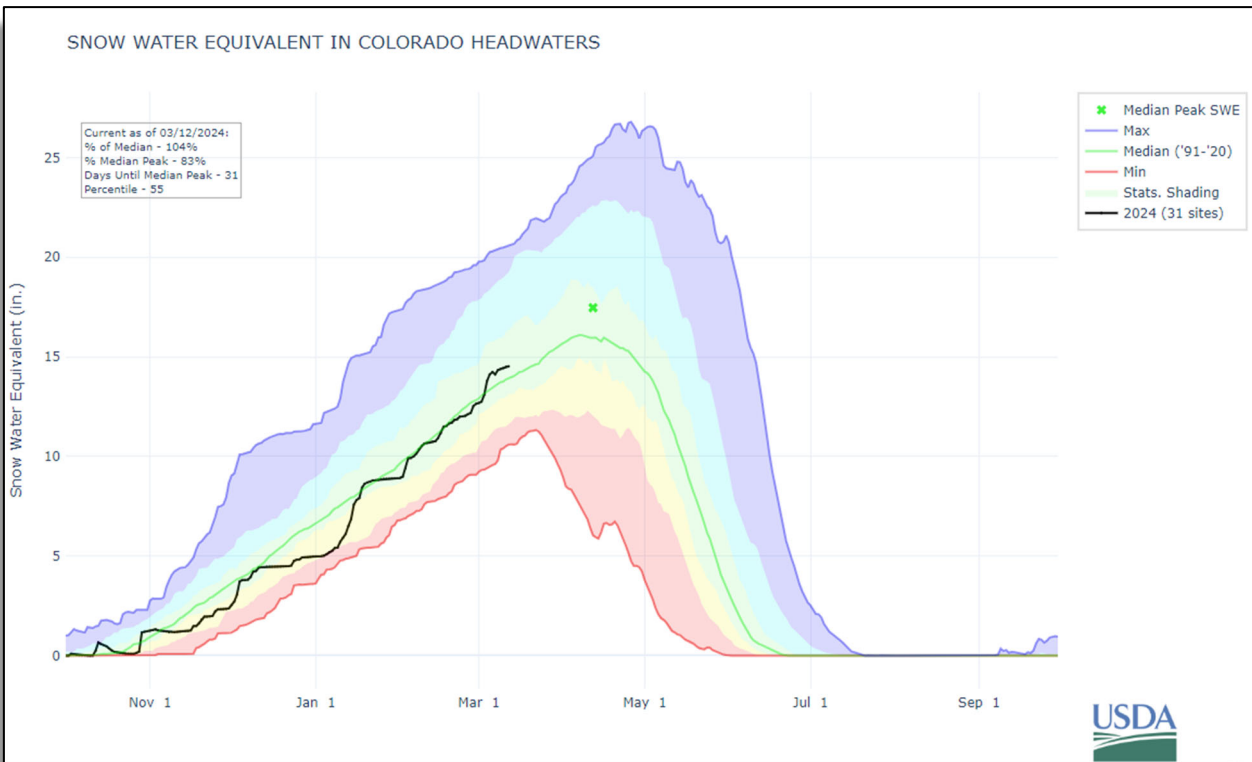
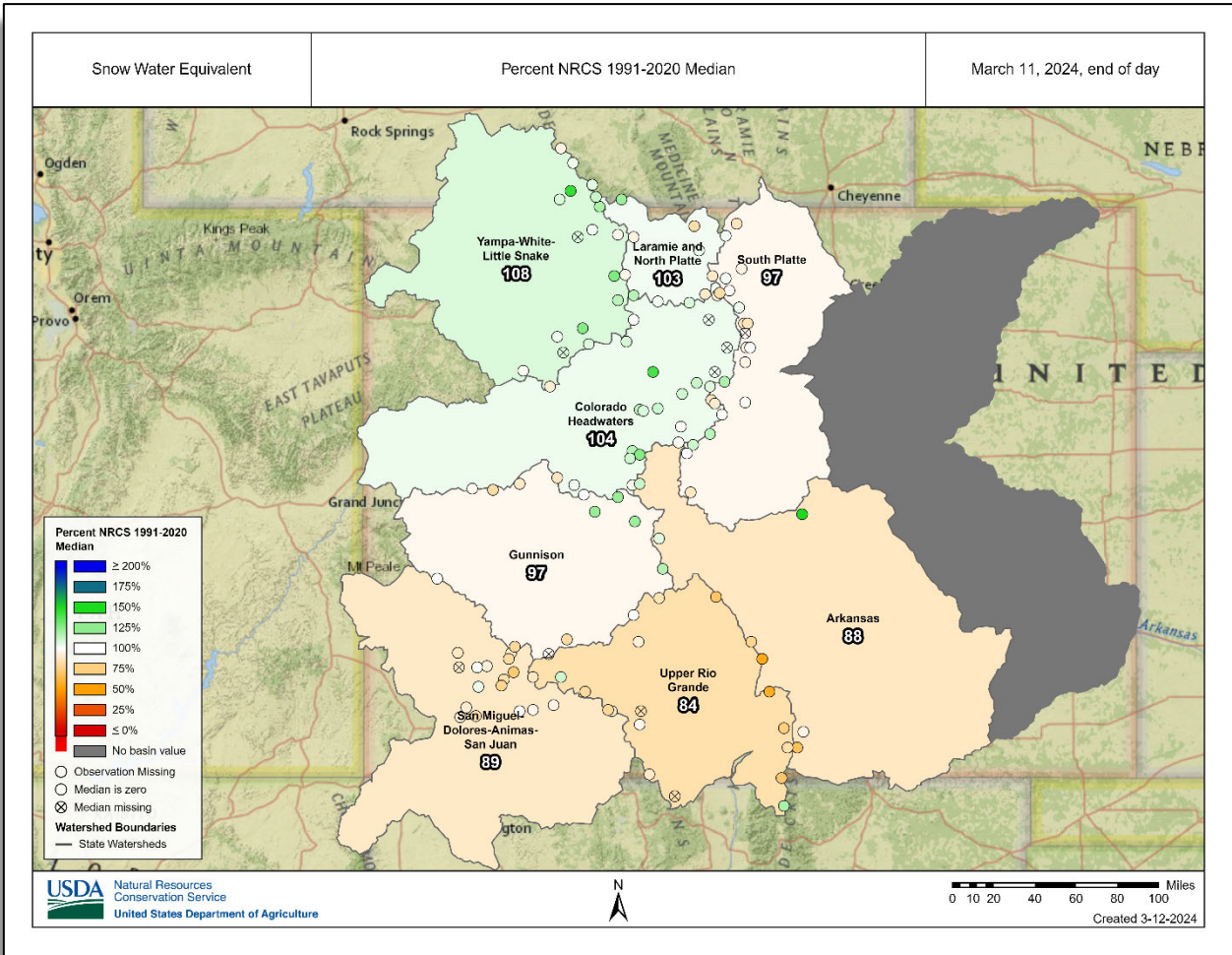
Northern Sierra Nevada – 31.9 in., 112% of April 1st average and 117% of normal to date

Central Sierra Nevada – 26.1 in., 96% of April 1st average and 101% of normal to date

Southern Sierra Nevada – 20.1 in., 90% of April 1st average and 94% of normal to date

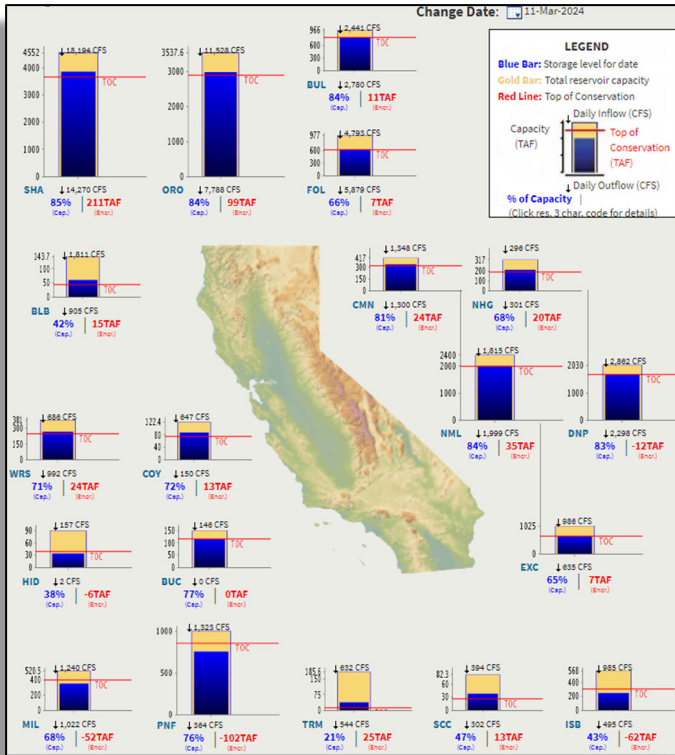
Statewide Summary – 25.9 in., 99% of April 1st average and 104% of normal to date





Reservoirs (as of March 11, 2023)

For the 21 reservoirs reported monthly to the committee, water levels have increased in 15 of 21 reservoirs. The largest increase occurred at Lake Oroville (0.25 million acre feet, MAF). The smallest increase occurred at Lake Cachuma (<0.01 MAF). The largest decrease (-0.26 MAF) occurred at Lake Powell. The smallest decrease (<-0.01 MAF) occurred at Lakes McClure, Castaic, and Silverwood.



MWD Reservoirs (SWP) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Trinity Lake (CLE)	2.45	1.84	75%	0.24
Lake Shasta (SHA)	4.55	3.86	85%	0.07
Lake Oroville (ORO)	3.54	2.99	84%	0.25
New Bullards Bar (BUL)	0.97	0.81	84%	0.07
Folsom Lake (FOL)	0.98	0.64	66%	0.05
Camanche Lake (CMN)	0.42	0.34	81%	0.01
New Melones L. (NML)	2.40	2.01	84%	0.02
Don Pedro Res (DNP)	2.03	1.68	83%	0.01
Lake McClure (EXC)	1.02	0.66	65%	0.00
Lake Sonoma (WRS)	0.38	0.27	71%	-0.02
San Luis Res (SNL)	2.04	1.48	73%	0.22
Millerton Lake (MIL)	0.52	0.35	68%	0.05
Pine Flat Res. (PNF)	1.00	0.76	76%	0.09
Cachuma Lake (CCH)	0.19	0.19	100%	0.00
Castaic Lake (CAS)	0.33	0.25	78%	0.00
Casitas Lake (CSI)	0.25	0.22	91%	0.03
Perris Lake (PRR)	0.13	0.09	71%	0.01
L. Silverwood (SLW)	0.08	0.07	90%	0.00

MWD Reservoirs (CRA) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Lake Powell	24.32	7.86	32%	-0.26
Lake Mead	26.12	9.71	37%	0.23
Diamond Valley L (DVL)	0.81	0.75	93%	-0.01

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 49% capacity (36.82 MAF) which is up 1.08 MAF (+1.4%) from the prior month (+1.11 MAF State Water Project [SWP] and -0.03 MAF Colorado River Aqueduct [CRA]).

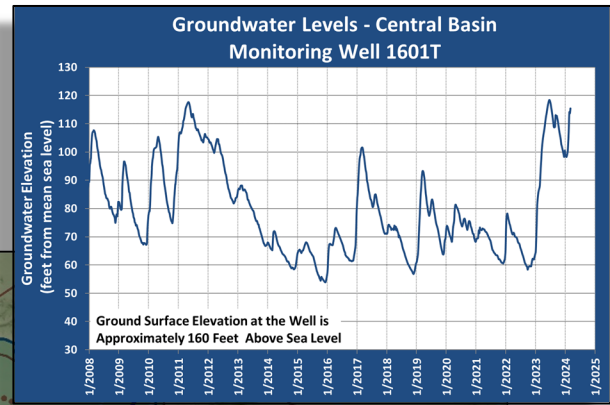
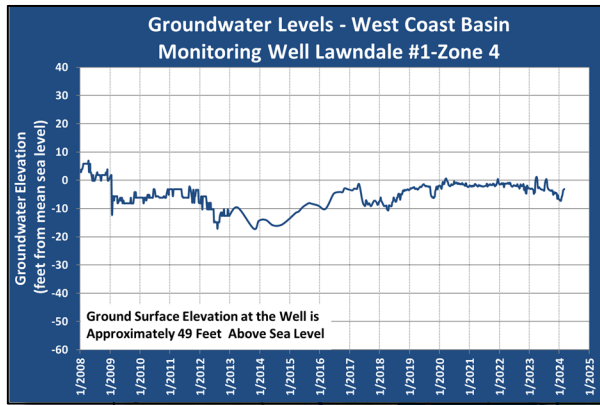


Did you know?

Groundwater is the water found in the cracks and crevices in the sand and rock below the earth's surface in formations called aquifers.

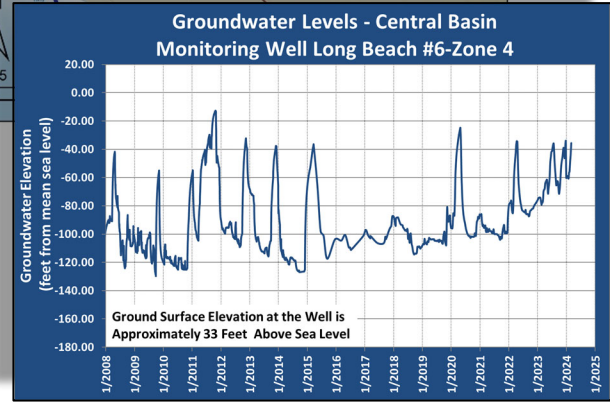
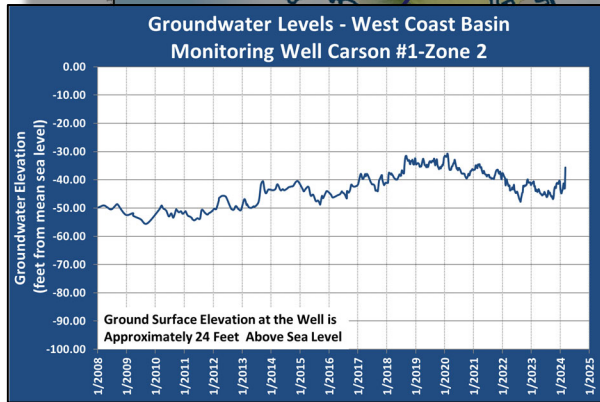
Groundwater Levels (through March 7, 2024)

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 15.2 feet	Increased 21.2 feet
Central Basin Key Well Long Beach #6 4	Increased 25.0 feet	Increased 42.1 feet
West Coast Basin Key Well Lawndale #1 4	Increased 3.2 feet	Increased 1.2 feet
West Coast Basin Key Well Carson #1 2	Increased 7.7 feet	Increased 7.9 feet

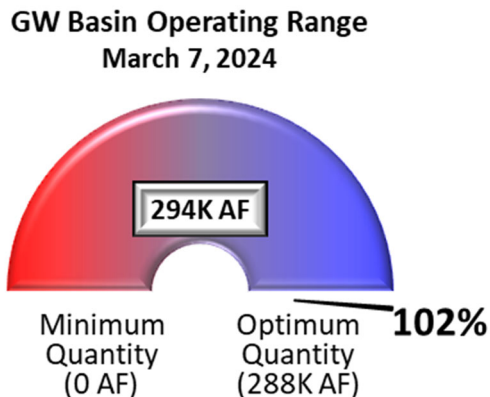
Bold indicates a change in direction (decreasing or increasing) since the last report.

Optimum and Minimum Groundwater Quantity (March 7, 2024)

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 March 7, 2024, has been estimated at 605,754 acre feet (subject to change), which is 294,246 acre feet above the Minimum Quantity and 6,246 acre feet above Optimum Quantity. The Basin is at 102% of Optimum Quantity which is 20% higher than what was reported last month (~58,000 AF higher).



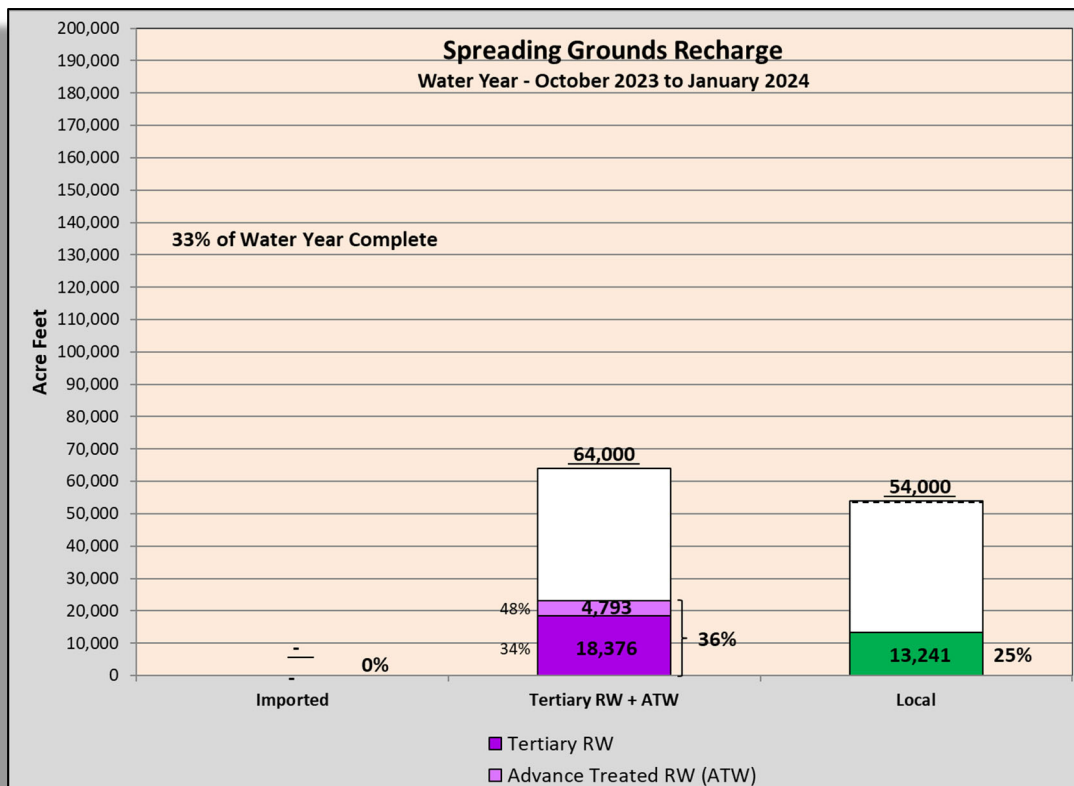
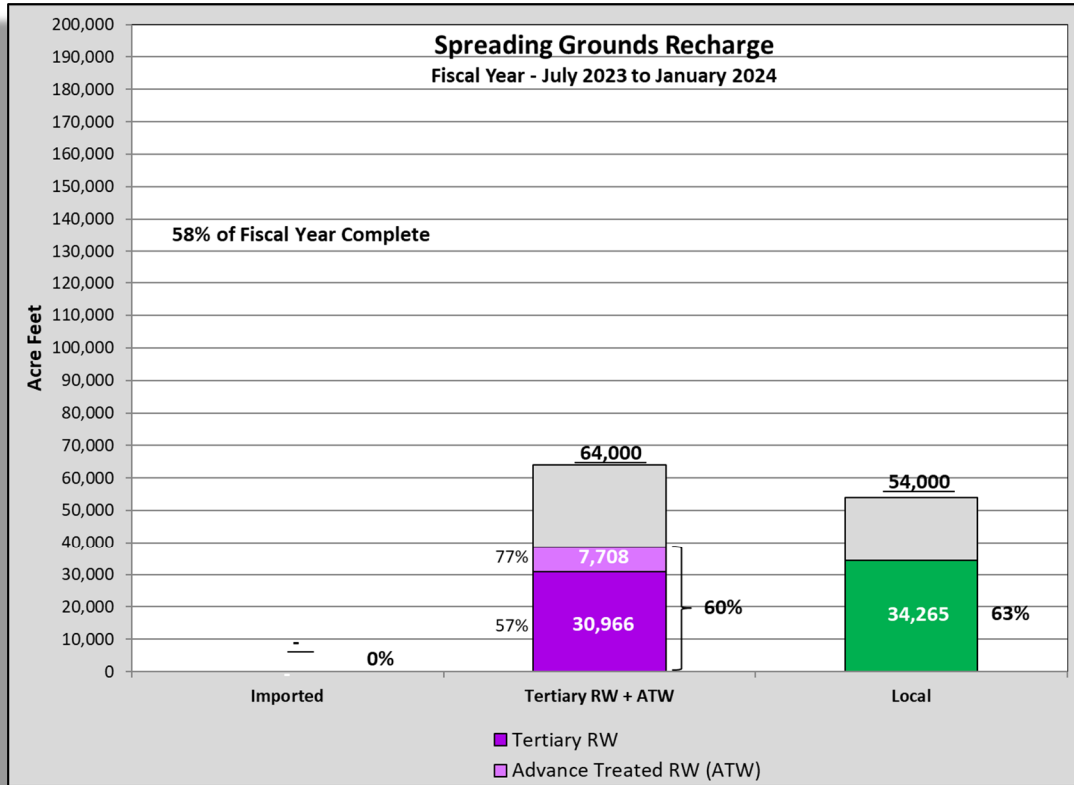
FACT:

Groundwater's age (or time since recharge) in shallow, local systems can vary from less than a day to a few hundred years. In deep, regional systems with long flow paths (tens of miles), the age of groundwater may reach thousands or tens of thousands of years.



Montebello Forebay Spreading Grounds (July 2023 – January 2024)

The following Charts shows the preliminary spreading grounds replenishment water for the current Fiscal Year (2023-24; 7 months) and Water Year (2023-24; 4 months):

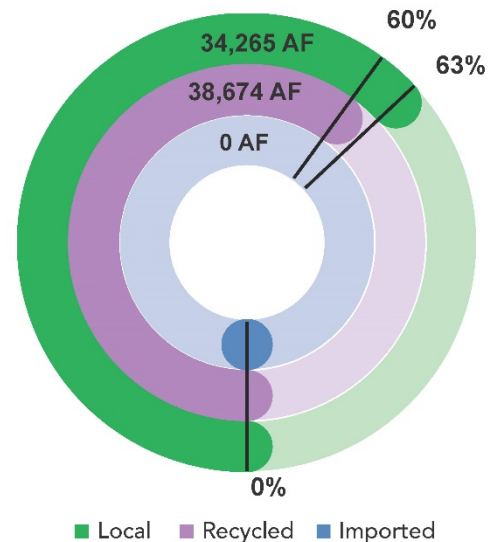


No imported water purchases were planned for Fiscal Year 2023-24.

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 water conserved at the spreading grounds less the imported and recycled water deliveries. For the 2023-24 Fiscal Year, 34,265 acre feet of local water capture have been reported by the LACPW.

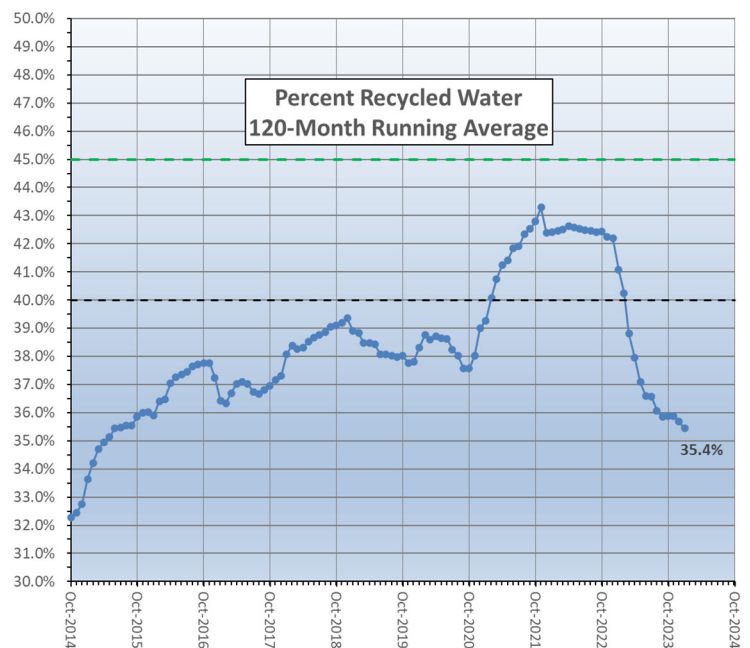
Preliminary numbers for the 2023-24 Fiscal Year show that approximately 38,674 acre feet of recycled water has been recharged with 7,708 acre feet consisting of advanced treat water from the ARC AWTF and 30,966 acre feet of tertiary recycled water. Presuming the advanced treated water as “Null Water”, the 120-month running average of the recycled water contribution in the Montebello Forebay is 35.4% and the regulatory maximum is 45%, with additional monitoring being required once 40% is reached.

Spreading Grounds Recharge
Jul 2023 - Jan 2024



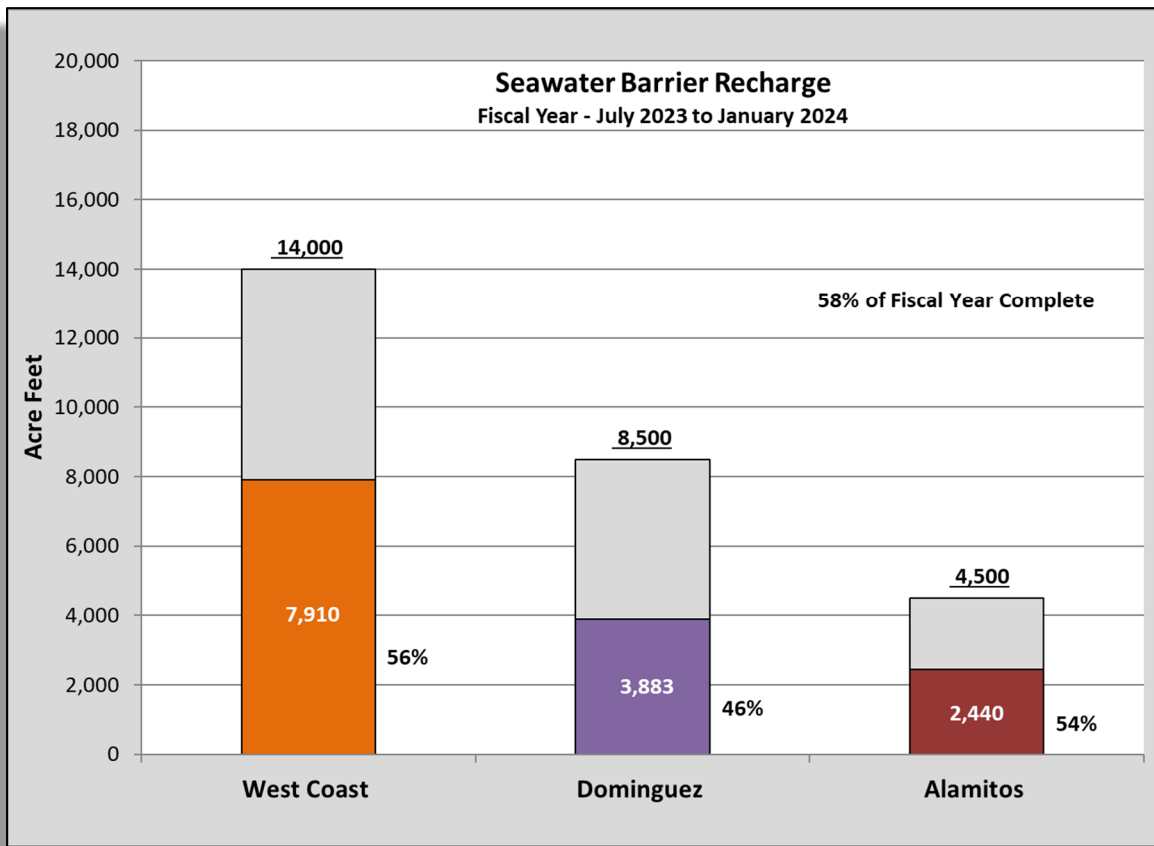
Tertiary Recycle Water Permit Update

The permit is continuing to progress with LACSD and WRD staff working to update pertinent sections of the new Title 22 Engineering Report. Due to the persistent drought conditions over the past few decades and associated 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. LACSD and WRD staff are targeting 2024 to have the new Title 22 Engineering Report submitted, including the requests to increase the recycled water contribution percentage to 50% and reclassify the advanced treated water as diluent.

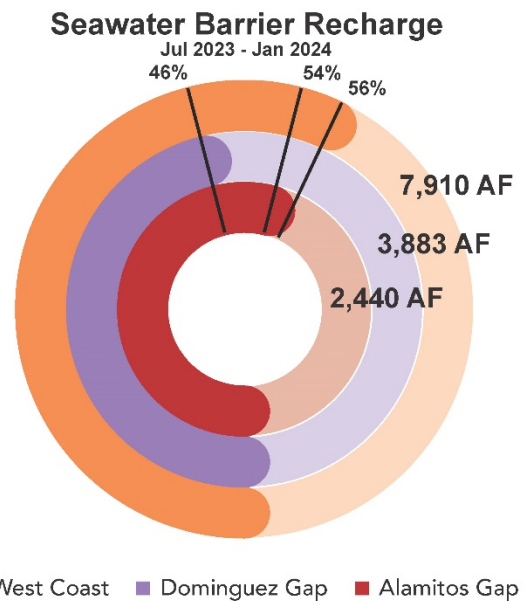


Seawater Barrier Well Injection and Replenishment (July 2023 – January 2024)

The following Chart shows the barrier water injection:

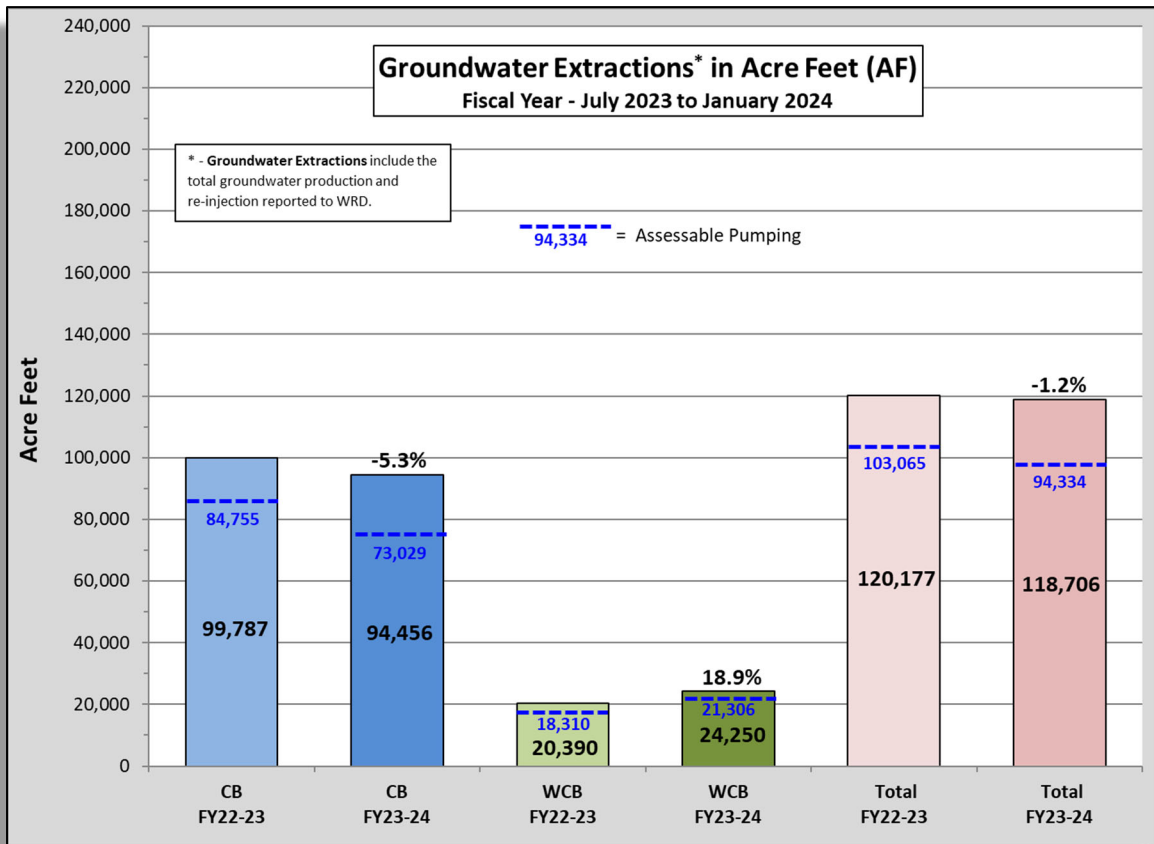


Preliminary numbers for the 2023-24 Fiscal Year show that the West Coast Barrier has used 7,910 acre feet of the total 14,000 acre feet planned for injection, 56% of total for the Fiscal Year. The Dominguez Gap Barrier used 3,883 acre feet of the total 8,500 acre feet planned for injection, 46% of the total for the Fiscal Year. The Alamitos Barrier, on the WRD side, used 2,440 acre feet of the total 4,500 acre feet planned for injection, 54% of the total for the Fiscal Year.



Total Pumping (Fiscal Year 2023-24, July 2023 – January 2024)

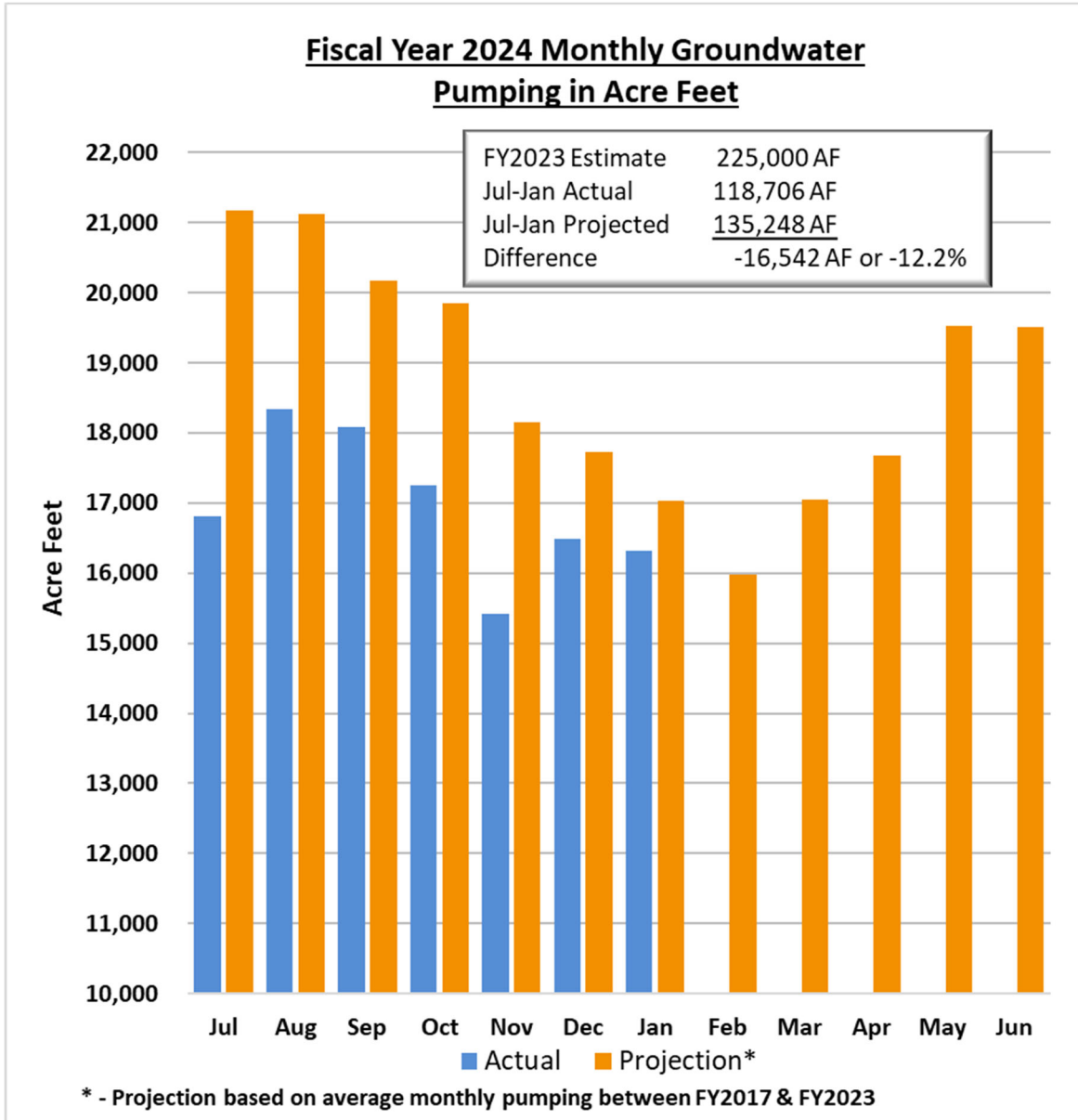
Preliminary numbers for groundwater production in the District for the Fiscal Year 2023-24 (July - January) indicate total pumping in the Central Basin was down 5,331 acre feet from the same time of the previous fiscal year (-5.3%) and the West Coast Basin total pumping was 3,860 acre feet higher than the previous fiscal year (+18.9%). The total pumping is 118,706 acre feet compared to 120,177 acre feet during the same time the previous year for a decrease of 1,471 acre feet, or -1.2%. The current pumping data does not include one (1) Central Basin pumper and two (2) West Coast Basin Pumpers, who have not yet reported, for an estimated 70 additional acre feet.



Interesting...

Private household wells constitute the largest share of all water wells in the United States — more than 13,135 million year-round occupied households have their own well.

Preliminary numbers indicate 118,706 acre feet have been pumped this fiscal year and is 12.2% below the projected fiscal year to date goal of 135,248 acre feet (or -16,542 acre feet). Monthly actual production versus the 7-year average monthly production projections (FY 2017 through 2023) are included in the chart below.



"Drawn wells have the sweetest water."

— Iranian Proverb



For the Fiscal Year 2023-24 (July 2023 – January 2024), 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 data for all the pumpers can be found in the attached Exhibit A (Central Basin) and Exhibit B (West Coast Basin).

Production Trends - Central Basin				
Top 5 Producing <u>by Volume</u> (AF)	Jul 2023 - Jan 2024	Jul 2023 - Jan 2024	Difference	% Change
Whittier, City	2,626.08	4,072.67	1446.59	35.52
Commerce, City	266.54	926.50	659.96	71.23
Cal. American Water Co. Alpha 0679	681.24	1,161.04	479.80	41.33
Suburban Water Systems	658.19	1,065.77	407.58	38.24
Cal. Water Service Co. (East LA)	6,229.15	6,624.62	395.47	5.97
Bottom 5 Producing <u>by Volume</u> (AF)	Jul 2023 - Jan 2024	Jul 2023 - Jan 2024	Difference	% Change
Long Beach, City - CB	17,255.19	13,662.62	-3592.57	-26.29
Los Angeles, City - CB	3,289.48	9.36	-3280.12	-35,044.0
Vernon, City	3,526.44	2,800.24	-726.20	-25.93
Santa Fe Springs, City	1,062.62	540.36	-522.26	-96.65
Golden State Water Co. - CB	11,009.81	10,522.68	-487.13	-4.63

Production Trends – West Coast Basin				
Top 5 Producing <u>by Volume</u> (AF)	Jul 2023 - Jan 2024	Jul 2023 - Jan 2024	Difference	% Change
Cal. Water Service Co. Dominguez - WB	1,694.61	3,918.94	2224.33	56.76
Golden State Water Co. - WB	3,222.61	5,258.17	2035.56	38.71
Eco Services Operations	192.77	365.14	172.37	47.21
Cal. Water Serv. Co./Hawthorne Lease	233.11	396.93	163.82	41.27
Cal. Water Service Co. Alpha 7050	478.45	603.90	125.45	20.77
Bottom 5 Producing <u>by Volume</u> (AF)	Jul 2023 - Jan 2024	Jul 2023 - Jan 2024	Difference	% Change
Tesoro Refining	6,173.71	5,100.40	-1073.31	-21.04
Phillips 66 Co. - Alpha 7093	3,126.78	2,719.06	-407.72	-14.99
Manhattan Beach, City	247.41	104.44	-142.97	-136.89
L.A. County Department of Parks	198.22	96.76	-101.46	-104.86
Inglewood, City	1,095.02	1,036.94	-58.08	-5.60

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.

Central Basin Production Trends

Central Basin	July 2022 - January 2023	July 2023 - January 2024	Difference	%Change
ABC USD	12.31	8.99	-3.32	-36.93
American Text. M.	31.27	35.91	4.64	12.92
Artesia, City	7.22	1.20	-6.02	-501.67
Atlas Iron and Metal Co.	0.18	0.18	.00	0.00
Bell Gardens, City	0.00	0.00	.00	0.00
Bellflower Home Garden	0.00	0.00	.00	0.00
Bellflower, City	231.98	0.00	-231.98	-100.00
Bellflower-Somerset MWC	2,811.90	2,830.25	18.35	0.65
Boeing Co.	12.94	60.62	47.68	78.65
Boeing, Compton Site	22.48	33.23	10.75	32.35
Cal. American Water Co. Alpha 0679	681.24	1,161.04	479.80	41.33
Cal. Water Service Co. (East LA)	6,229.15	6,624.62	395.47	5.97
Cal. Water Service Co. Dominguez - CB	473.12	672.79	199.67	29.68
Caltrans	3.27	9.27	6.00	64.72
Central Basin MWD	0.00	0.00	.00	0.00
Cerritos, City	4,387.42	4,260.06	-127.36	-2.99
Coast Packing Co.	81.32	77.61	-3.71	-4.78
Commerce, City	266.54	926.50	659.96	71.23
Compton, City	4,057.38	3,968.50	-88.88	-2.24
Darling-Delaware Co.	0.00	0.00	.00	0.00
Defense Logistic Agency	1.21	2.32	1.11	47.84
Demunno Kerdoon	0.75	1.19	.44	36.97
Downey, City	8,149.37	8,159.34	9.97	0.12
El Rancho Unified School District	0.00	0.00	.00	0.00
Furr, Nancy J.	0.04	0.00	-.04	-100.00

Central Basin	July 2022 - January 2023	July 2023 - January 2024	Difference	%Change
Golden State Water Co. - CB	11,009.81	10,522.68	-487.13	-4.63
Huntington Park, City - Alpha 2378	1,657.01	1,542.31	-114.70	-7.44
L.A. County Department of Parks	0.00	0.00	.00	0.00
LA County Rancho Los Amigos	117.01	124.94	7.93	6.35
La Habra Heights County WD	1,479.25	1,391.83	-87.42	-6.28
Lakewood - City	3,884.83	4,000.66	115.83	2.90
Liberty Utilities - CB	2,697.17	2,534.98	-162.19	-6.40
Lincoln Memorial Park	6.51	0.00	-6.51	-100.00
Little Lake Cemetery District	1.36	0.00	-1.36	-100.00
Long Beach, City - CB	17,255.19	13,662.62	-3592.57	-26.29
Los Angeles, City - CB	3,289.48	9.36	-3280.12	-35,044.02
Lunday-Thagard	0.00	0.00	.00	0.00
Lynwood Park Mutual Water Co.	46.93	15.42	-31.51	-204.35
Lynwood, City	2,629.32	2,750.98	121.66	4.42
Maywood Mutual No. 1	364.97	374.88	9.91	2.64
Maywood Mutual No. 2	517.96	541.18	23.22	4.29
Maywood Mutual No. 3	828.95	831.66	2.71	0.33
Montebello Land and Water Co.	1,712.95	1,718.77	5.82	0.34
Montebello, City	0.00	0.00	.00	0.00
Newark Group, Inc.	96.77	89.69	-7.08	-7.89
Northrop Grumman	2.09	0.00	-2.09	-100.00
Norwalk, City	325.63	190.15	-135.48	-71.25
Omega OU1/OU3 LLC	0.00	2.88	2.88	100.00
Orchard Dale Water District	1,075.81	1,061.71	-14.10	-1.33
PABCO Building Products	0.00	0.00	.00	0.00
Paradise Memorial Park	5.52	5.80	.28	4.83
Paramount USD	2.11	0.81	-1.30	-160.49
Paramount, City	1,576.94	1,649.47	72.53	4.40

Central Basin	July 2022 - January 2023	July 2023 - January 2024	Difference	%Change
Pico Rivera, City	2,416.71	2,318.47	-98.24	-4.24
Pico Water District	1,541.06	1,530.76	-10.30	-0.67
Rockview Dairies	63.10	1.90	-61.20	-3,221.05
Roman Catholic Archbishop - CB	75.55	152.44	76.89	50.44
Rowland Water District	0.00	0.00	.00	0.00
San Gabriel Valley Water Co.	1,458.00	1,788.23	330.23	18.47
Santa Fe Springs, City	1,062.62	540.36	-522.26	-96.65
Sativa Water District	1.20	0.00	-1.20	-100.00
Scantlebury, Robert P.	0.28	0.18	-.10	-55.56
SFPP L.P.	0.00	0.00	.00	0.00
Signal Hill, City	434.25	761.72	327.47	42.99
South Gate, City	4,895.84	4,614.93	-280.91	-6.09
South Montebello Irrigation Dist	1,010.10	963.43	-46.67	-4.84
Southern California Edison Co. - CB	2.17	0.53	-1.64	-309.43
St. John Bosco School	21.64	7.34	-14.30	-194.82
Suburban Water Systems	658.19	1,065.77	407.58	38.24
Tract 180 Water Co.	725.16	725.16	.00	0.00
Tract 349 Mutual Water Co.	366.81	369.58	2.77	0.75
Tucker, William M.	0.19	0.02	-.17	-850.00
Vernon, City	3,526.44	2,800.24	-726.20	-25.93
Virginia Country Club	221.00	189.39	-31.61	-16.69
Walnut Park Mutual	612.29	622.18	9.89	1.59
Whittier Union HSD	15.79	13.96	-1.83	-13.11
Whittier, City	2,626.08	4,072.67	1446.59	35.52
WRD	7.82	60.74	52.92	87.13
Yamamoto, Alice	0.07	0.00	-.07	-100.00

West Coast Basin Production Trends

West Basin	July 2022 - January 2023	July 2023 - January 2024	Difference	%Change
ABC Nursery	8.00	0.00	-8.00	-100.00
Cal. Water Service Co. Alpha 7050	478.45	603.90	125.45	20.77
Cal. Water Service Co. Dominguez - WB	1,694.61	3,918.94	2224.33	56.76
Cal. Water Service Co./Hawthorne Lease	233.11	396.93	163.82	41.27
Eco Services Operations	192.77	365.14	172.37	47.21
Golden State Water Co. - WB	3,222.61	5,258.17	2035.56	38.71
Hillside Memorial Park	73.31	61.03	-12.28	-20.12
Honeywell International	0.00	0.00	.00	0.00
Inglewood, City	1,095.02	1,036.94	-58.08	-5.60
Kinder Morgan Liquids Terminals	21.14	24.34	3.20	13.15
L.A. County Department of Parks	198.22	96.76	-101.46	-104.86
L.A. County Sanitation Districts-JWPCP	0.00	0.00	.00	0.00
Lomita, City	0.00	0.00	.00	0.00
Long Beach, City - WB	0.00	22.20	22.20	100.00
Manhattan Beach, City	247.41	104.44	-142.97	-136.89
Montrose Chemical Corp.	-0.68	-0.82	-.14	17.07
Myron Z. Chalavin	0.00	0.00	.00	0.00
Pacific Crest Cemetery Co.	25.40	0.00	-25.40	-100.00
Phillips 66 Co. - Alpha 7093	3,126.78	2,719.06	-407.72	-14.99
Rolling Hills Country Club	136.00	137.00	1.00	0.73
Roman Catholic Archbishop - WB	101.49	67.09	-34.40	-51.27
SCI Funeral Services	0.00	19.83	19.83	100.00
Shell Oil Co NCWUP	61.30	16.82	-44.48	-264.45
Southern California Edison Co. - WB	9.91	14.70	4.79	32.59
Tesoro Refining	6,173.71	5,100.40	-1073.31	-21.04

West Basin	July 2022 - January 2023	July 2023 - January 2024	Difference	%Change
Torrance Refining	534.92	595.50	60.58	10.17
Torrance, City	807.30	805.10	-2.20	-0.27
West Basin Brewer Desalter	0.00	0.00	.00	0.00