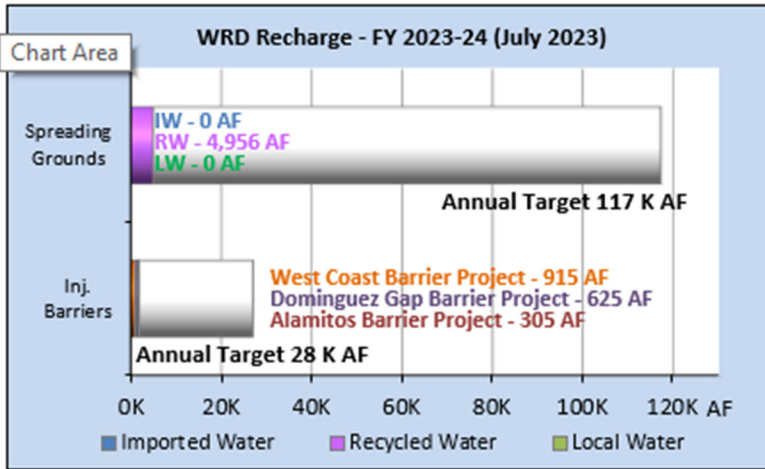
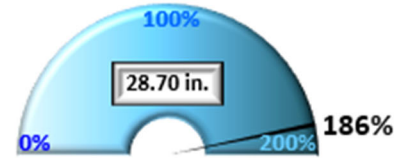


# GROUNDWATER BASIN UPDATE FOR SEPTEMBER 2023

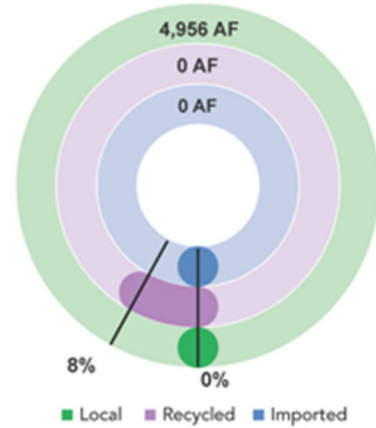
## GROUNDWATER BASINS AT A GLANCE\*



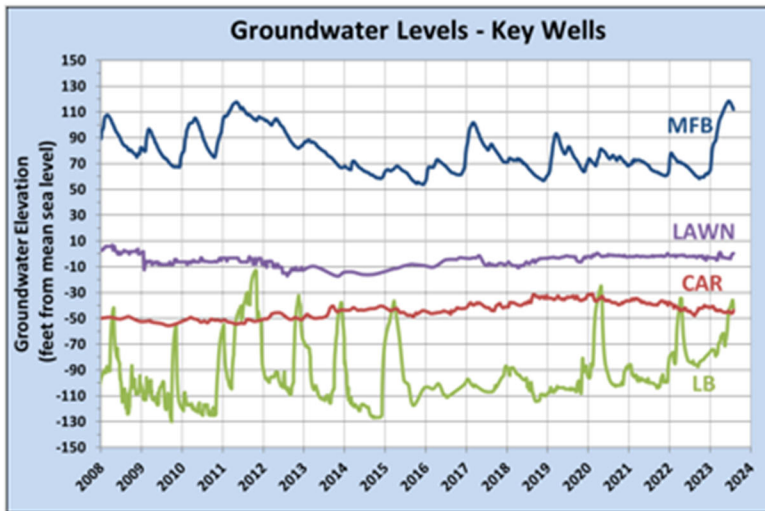
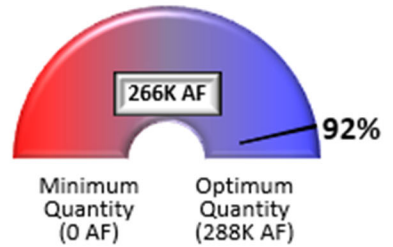
Precipitation % of Normal to Date  
Oct 1, 2022 - Aug 31, 2023



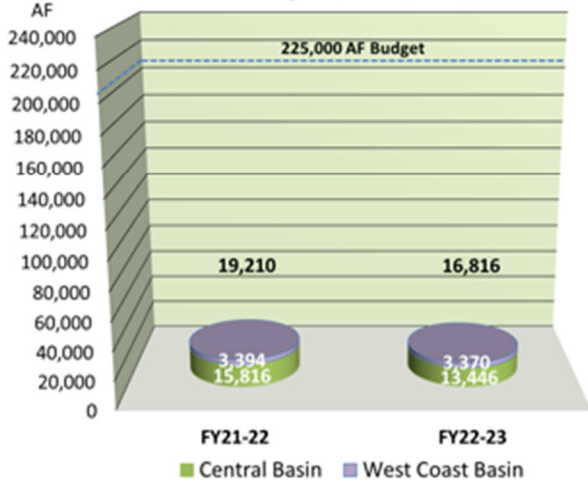
Spreading Grounds Recharge  
Jul 2023



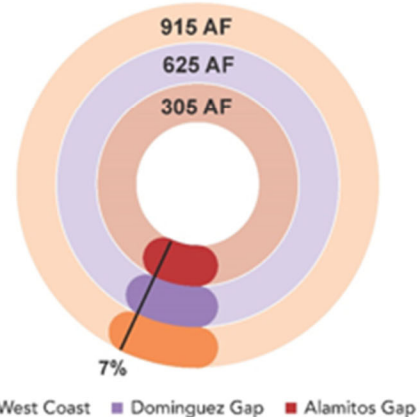
GW Basin Operating Range  
August 30, 2023



Basin Pumping (Q)  
July 2023



Seawater Barrier Recharge  
Jul 2023



\* - Preliminary numbers, subject to change.

## SUMMARY

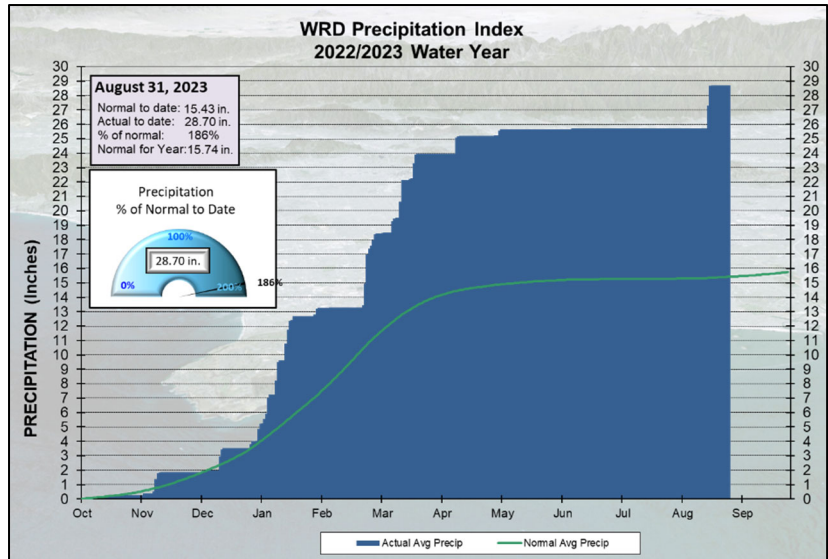
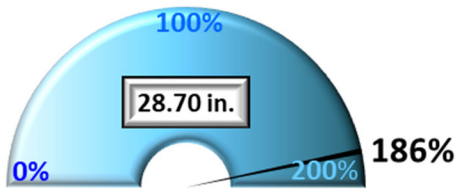
Staff monitors groundwater conditions in the District’s service area throughout the year. A summary of the latest information is presented below.

### Precipitation (October 1, 2022 – August 31, 2023)

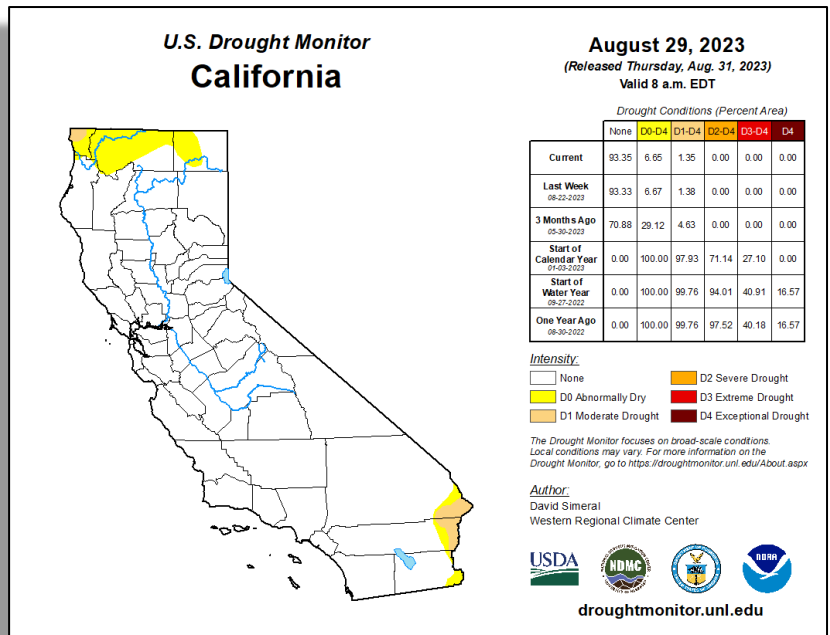
The WRD precipitation index reports that for the 2022-23 Water Year, there has been above average rainfall (28.70 inches) through August 31, 2023. The normal rainfall for this time period is 15.43 inches, so the District is 186% of normal.

#### Precipitation % of Normal to Date

Oct 1, 2022 - Aug 31, 2023

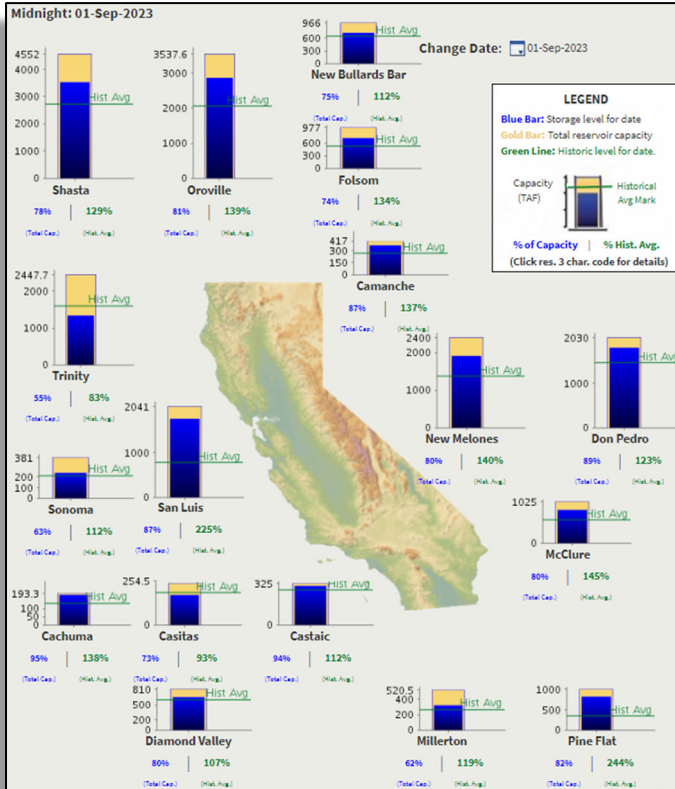


As of August 29, 2023, the U.S. Drought Monitor is reporting 7% of the State is abnormally dry (-18%), 1% under moderate (-6%), 0% under severe (same), 0% under extreme (same), and 0% exceptional (same) drought conditions. According to the U.S. Drought Monitor, Los Angeles County is currently not in a drought.



## Reservoirs (as of September 1, 2023)

For the 21 reservoirs reported monthly to the committee, water levels have increased in 3 of 21 reservoirs. The largest increase occurred at Lake Mead (0.23 million acre feet, MAF). The smallest increase occurred at Castaic Lake (<0.01 MAF). The largest decrease (-0.29 MAF) occurred at Lake Powell. The smallest decrease (<-0.01 MAF) occurred at Camanche, Cachuma, Casitas, and Silverwood Lakes.



### MWD Reservoirs (SWP) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Trinity Lake (CLE)	2.45	1.34	55%	-0.05
Lake Shasta (SHA)	4.55	3.53	78%	-0.24
Lake Oroville (ORO)	3.54	2.86	81%	-0.24
New Bullards Bar (BUL)	0.97	0.73	75%	-0.07
Folsom Lake (FOL)	0.98	0.72	74%	-0.09
Camanche Lake (CMN)	0.42	0.36	87%	0.00
New Melones L. (NML)	2.40	1.92	80%	-0.08
Don Pedro Res (DNP)	2.03	1.80	89%	-0.12
Lake McClure (EXC)	1.02	0.82	80%	-0.08
Lake Sonoma (WRS)	0.38	0.24	63%	-0.01
San Luis Res (SNL)	2.04	1.77	87%	-0.04
Millerton Lake (MIL)	0.52	0.32	62%	-0.13
Pine Flat Res. (PNF)	1.00	0.82	82%	-0.09
Cachuma Lake (CCH)	0.19	0.18	95%	0.00
Castaic Lake (CAS)	0.33	0.31	94%	0.00
Casitas Lake (CSI)	0.25	0.17	73%	0.00
Perris Lake (PRR)	0.13	0.09	66%	-0.01
L. Silverwood (SLW)	0.08	0.07	87%	0.00

### MWD Reservoirs (CRA) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Lake Powell	24.32	8.93	37%	-0.29
Lake Mead	26.12	8.79	34%	0.23
Diamond Valley L (DVL)	0.81	0.65	80%	0.02

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

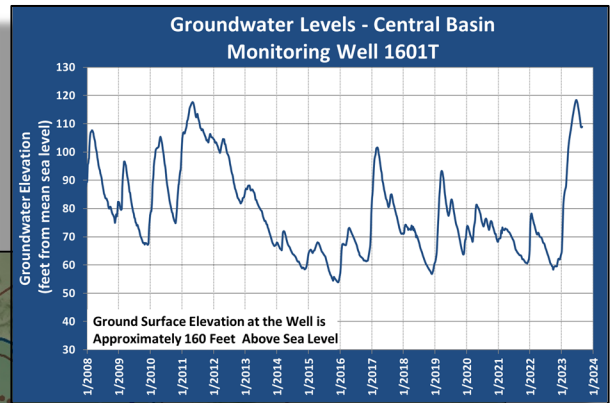
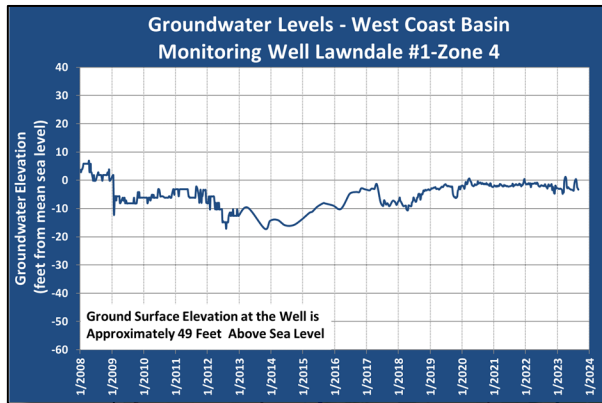
These 21 reservoirs are at 49% capacity (36.42 MAF) which is down 1.32 MAF (-1.8%) from the prior month (-1.27 MAF State Water Project [SWP] and -0.04 MAF Colorado River Aqueduct [CRA]).



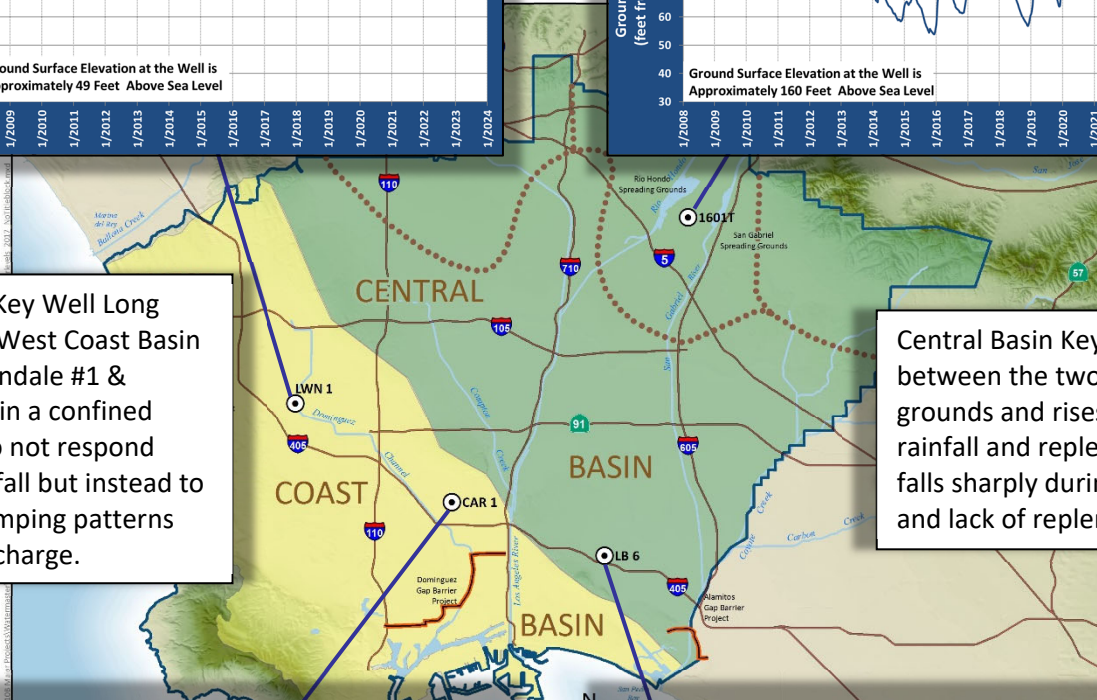
**Did you know?**  
At any given moment, groundwater is 20 to 30 times greater than the amount in all the lakes, streams, and rivers of the United States.

Groundwater Levels (through August 30, 2023)

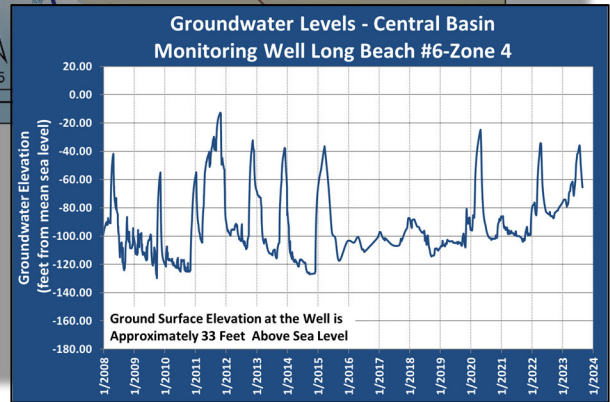
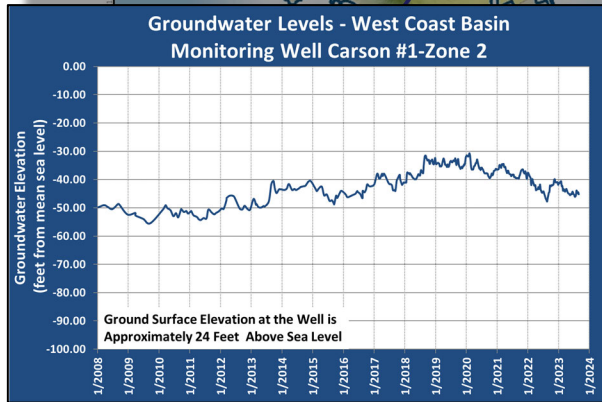
Groundwater levels in key monitoring wells are shown in the hydrographs below.



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	Decreased 3.1 feet	Increased 48.6 feet
Central Basin Key Well Long Beach #6 4	Decreased 23.7 feet	Increased 20.3 feet
West Coast Basin Key Well Lawndale #1 4	<b>Decreased 3.7 feet</b>	<b>Decreased 0.9 foot</b>
West Coast Basin Key Well Carson #1 2	<b>Decreased 1.3 feet</b>	Increased 0.5 foot

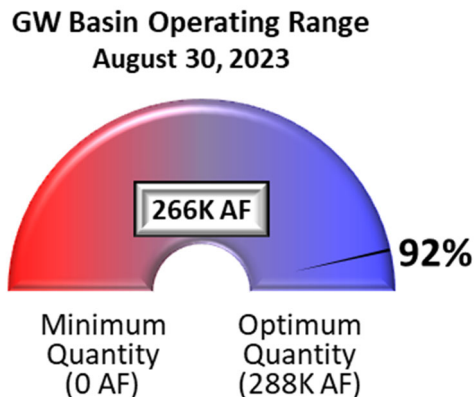
**Bold** indicates a change in direction (decreasing or increasing) since the last report.

## Optimum and Minimum Groundwater Quantity (August 30, 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 August 30, 2023, has been estimated at 633,884 acre feet (subject to change), which is 266,116 acre feet above the Minimum Quantity and 21,884 acre feet below Optimum Quantity. The Basin is at 92% of Optimum Quantity which is 5% lower than what was reported last month (~12,000 AF lower).



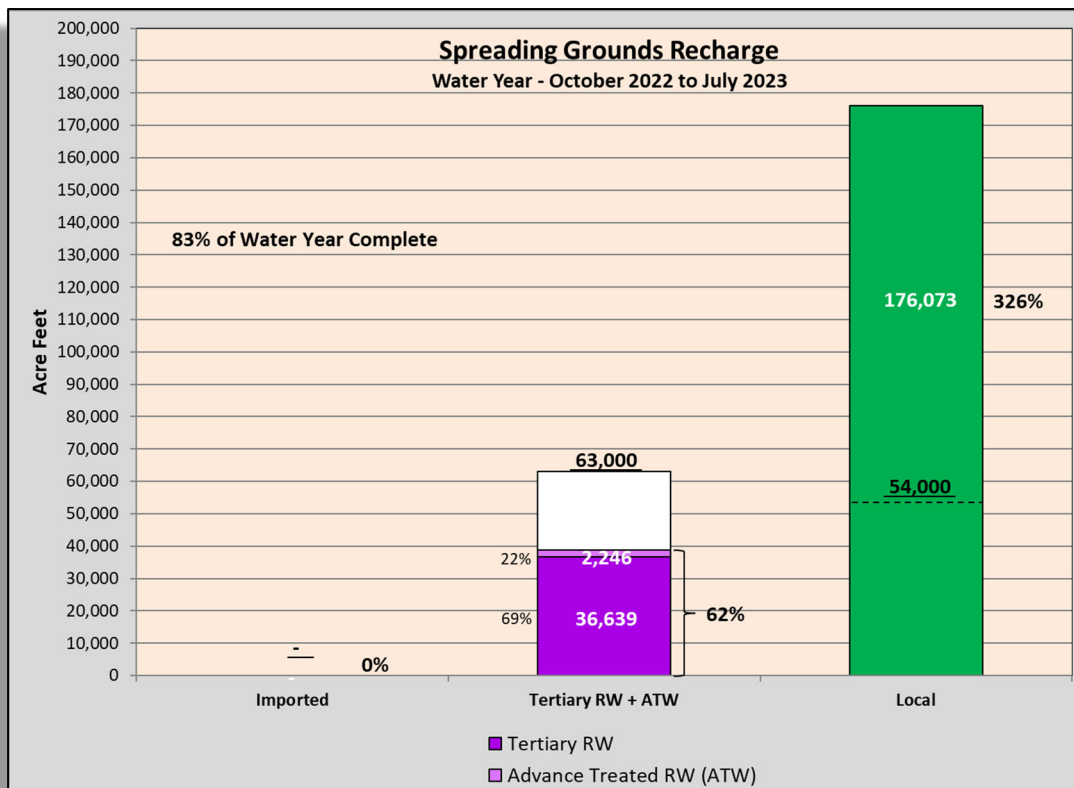
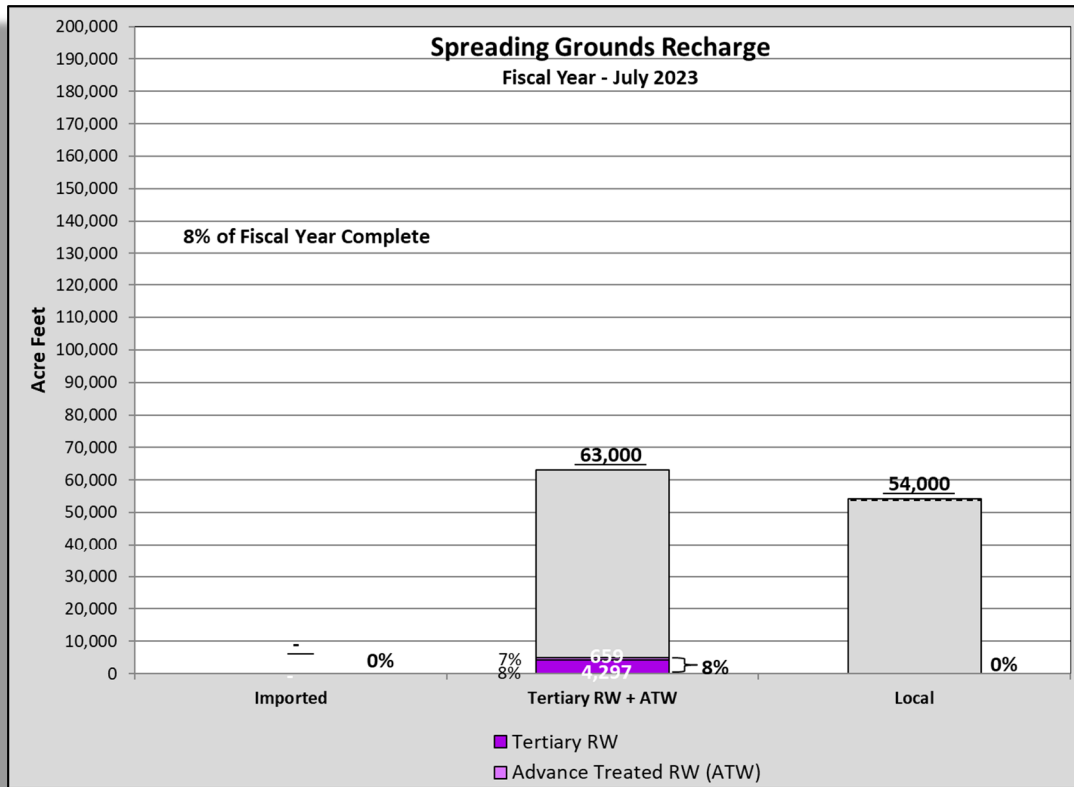
### FACT:

*According to the National Geographic Society, hydrologists estimate U.S. groundwater reserves to be at least 33,000 trillion gallons — equal to the amount discharged into the Gulf of Mexico by the Mississippi River in the past 200 years.*



## Montebello Forebay Spreading Grounds (July 2023)

The following Charts shows the preliminary spreading grounds replenishment water for the current Fiscal Year (2022-23; 1 month) and Water Year (2022-23; 10 months):



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

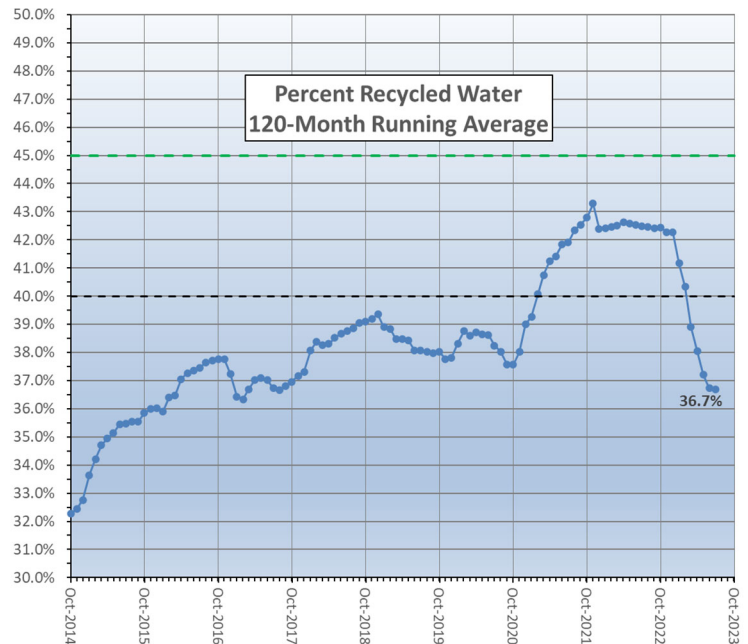
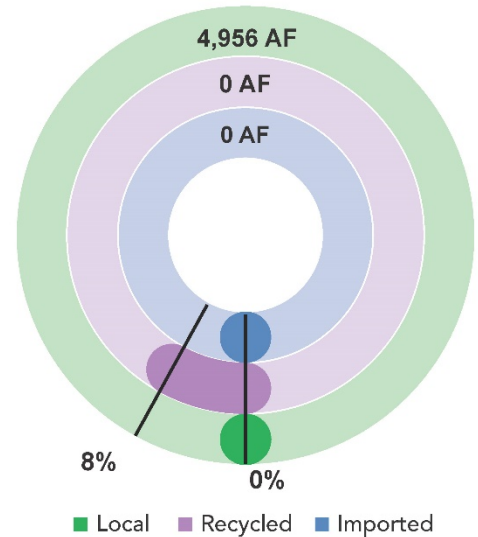
Local water (stormwater plus dry weather urban runoff) is captured by the Los Angeles County Department of Public Works (LACPW) at the spreading grounds for recharge. Local water amounts are determined as the sum of the total waters conserved at the spreading grounds less the imported and recycled water deliveries. For the 2023-24 Fiscal Year, 0 acre foot of local water capture have been reported by the LACPW.

Preliminary numbers for the 2023-24 Fiscal Year show that approximately 4,956 acre feet of recycled water has been recharged with 659 acre feet consisting of advanced treat water from the ARC AWWTF and 4,297 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 36.7% and the regulatory maximum is 45%, with additional monitoring being required once 40% is reached.

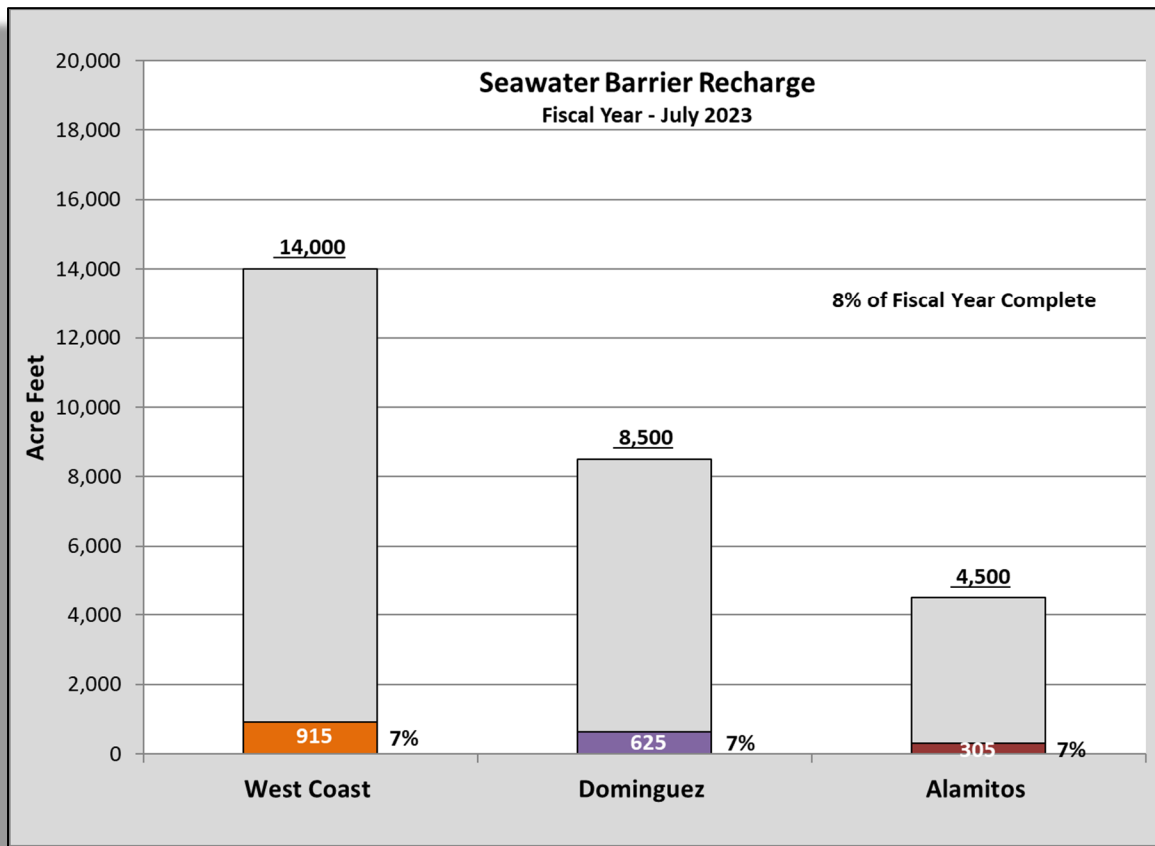
Tertiary Recycle Water Permit Update

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 the end of 2023 to have the new Title 22 Engineering Report submitted, including the requests the increase the recycled water contribution percentage to 50% and reclassify the advanced treated water as diluent.

**Spreading Grounds Recharge**  
Jul 2023

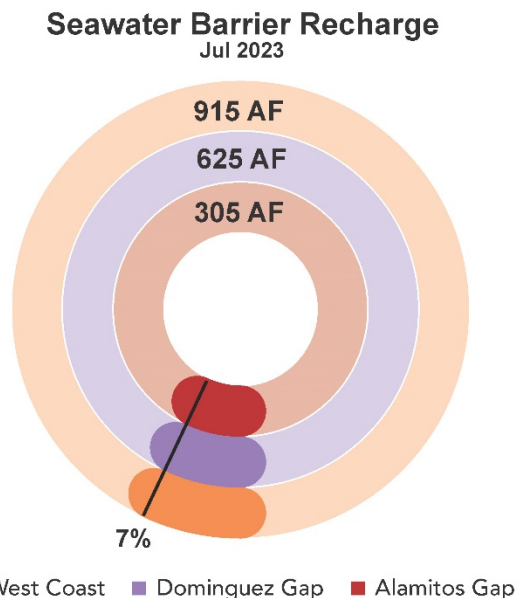


Seawater Barrier Well Injection and Replenishment (July 2023)



The following Chart shows the barrier water injection:

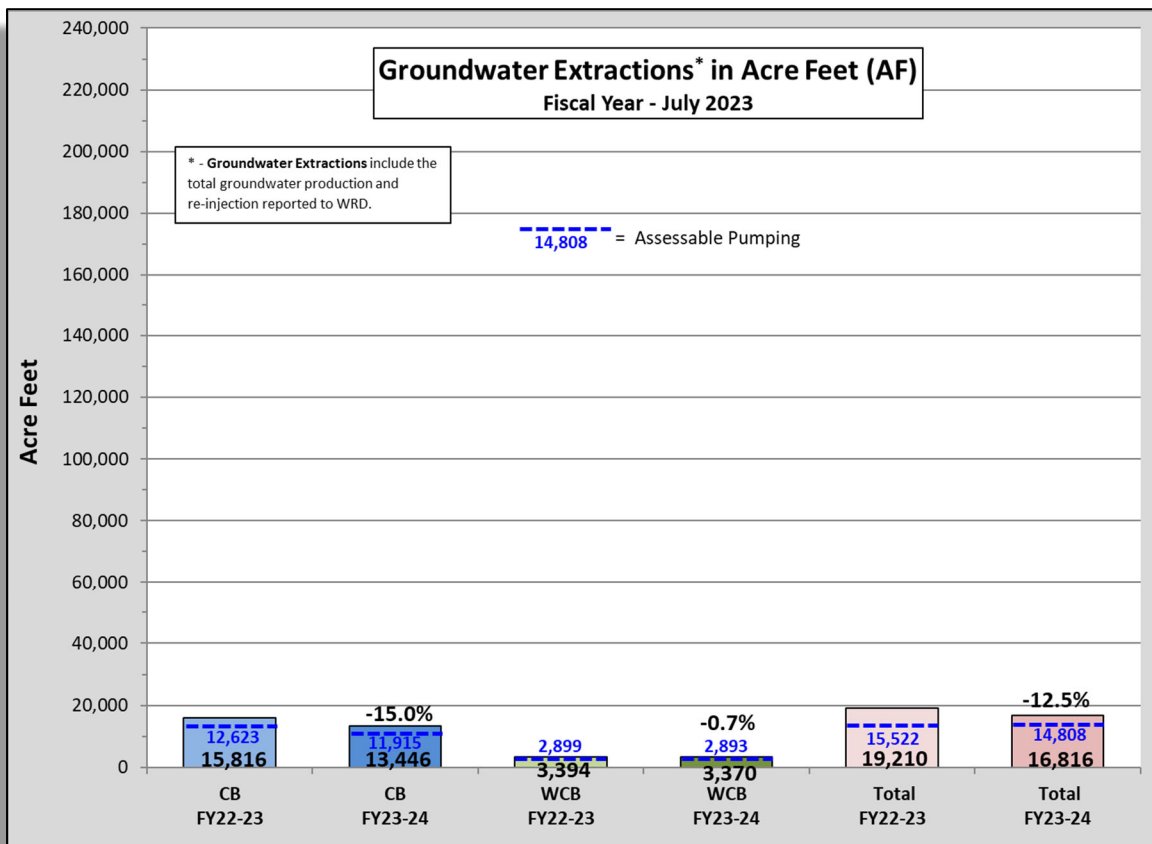
Preliminary numbers for the 2023-24 Fiscal Year show that the West Coast Barrier has used 915 acre feet of the total 14,000 acre feet planned for injection, 7% of total for the Fiscal Year. The Dominguez Gap Barrier used 625 acre feet of the total 8,500 acre feet planned for injection, 7% of the total for the Fiscal Year. The Alamitos Barrier, on the WRD side, used 305 acre feet of the total 4,500 acre feet planned for injection, 7% of the total for the Fiscal Year.





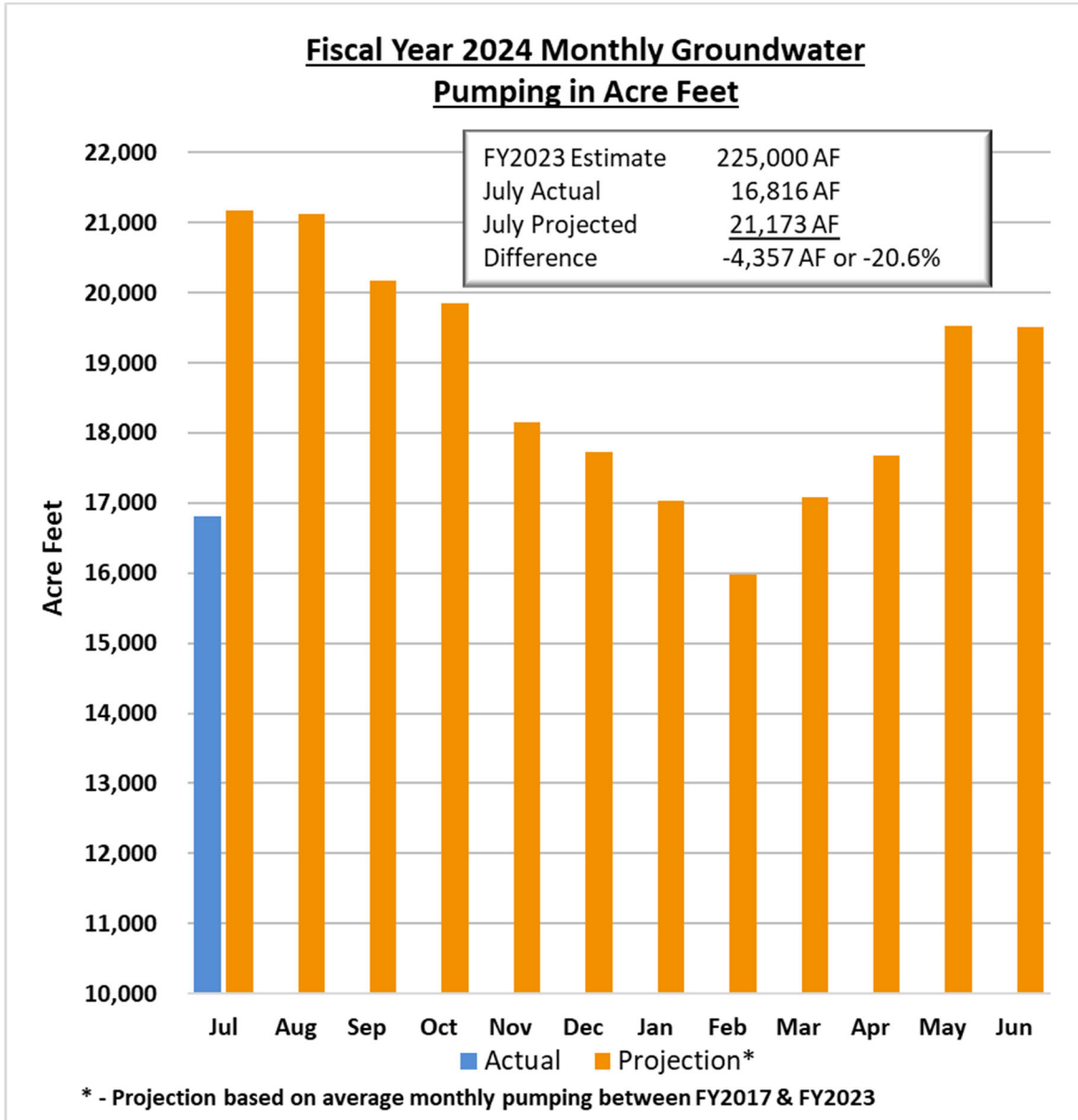
Total Pumping (Fiscal Year 2023-24, July 2023)

Preliminary numbers for groundwater production in the District for the Fiscal Year 2023-24 (July) indicate total pumping in the Central Basin was down 2,370 acre feet from the same time of the previous fiscal year (-15.0%) and the West Coast Basin total pumping was 24 acre feet lower than the previous fiscal year (-0.7%). The total pumping is 16,816 acre feet compared to 19,210 acre feet during the same time the previous year for a decrease of 2,394 acre feet, or -12.5%. The current pumping data do not include five (5) Central Basin pumpers and one (1) West Coast Basin Pumpers who have not yet reported for an estimated 8 additional acre feet.



Interesting...  
 Groundwater is tapped through wells placed in water-bearing soils and rocks beneath the surface of the earth.

Preliminary numbers indicate 16,816 acre feet have been pumped this fiscal year and is 20.6% below the projected fiscal year to date goal of 21,173 acre feet (or -4,357 acre feet). Monthly actual production versus the 7-year average monthly production projections (FY 2017 through 2023) are included in the chart below.



“Dripping water hollows out stone, not through force but through persistence.” - *Ovid*



For the Fiscal Year 2023-24 (July 2023), 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.

<b>Production Trends - Central Basin</b>				
<b>Top 5 Producing <u>by Volume</u> (AF)</b>	Jul 2022	Jul 2023	Difference	% Change
Cal. Water Service Co. (East LA)	11,040.57	11,614.24	573.67	4.94
Lynwood, City	4,750.80	4,853.73	102.93	2.12
Commerce, City	576.26	665.43	89.17	13.40
Boeing, Compton Site	0.00	50.09	50.09	100.00
American Text. M.	29.22	62.16	32.94	52.99
<b>Bottom 5 Producing <u>by Volume</u> (AF)</b>	Jul 2022	Jul 2023	Difference	% Change
Los Angeles, City - CB	5,147.90	3,299.88	-1848.02	-56.00
Santa Fe Springs, City	2,523.42	1,180.24	-1343.18	-113.81
Downey, City	15,831.58	14,560.57	-1271.01	-8.73
Vernon, City	7,048.32	5,896.80	-1151.52	-19.53
La Habra Heights County WD	3,207.39	2,481.59	-725.80	-29.25

<b>Production Trends – West Coast Basin</b>				
<b>Top 5 Producing <u>by Volume</u> (AF)</b>	Jul 2022	Jul 2023	Difference	% Change
Cal. Water Service Co. Dominguez - WB	2,750.73	4,487.29	1736.56	38.70
Golden State Water Co. - WB	5,072.86	6,800.31	1727.45	25.40
Tesoro Refining	10,274.71	11,497.11	1222.40	10.63
Cal. Water Service Co./Hawthorne Lease	89.68	434.94	345.26	79.38
Manhattan Beach, City	284.90	533.36	248.46	46.58
<b>Bottom 5 Producing <u>by Volume</u> (AF)</b>	Jul 2022	Jul 2023	Difference	% Change
Phillips 66 Co. - Alpha 7093	6,868.64	5,382.02	-1486.62	-27.62
Torrance, City	1,994.42	961.16	-1033.26	-107.50
Cal. Water Service Co. Alpha 7050	1,348.67	978.56	-370.11	-37.82
L.A. County Depart. of Parks & Rec - WB	416.08	207.78	-208.30	-100.25
Rolling Hills Country Club	397.00	231.00	-166.00	-71.86

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](mailto:eferguson@wrd.org).