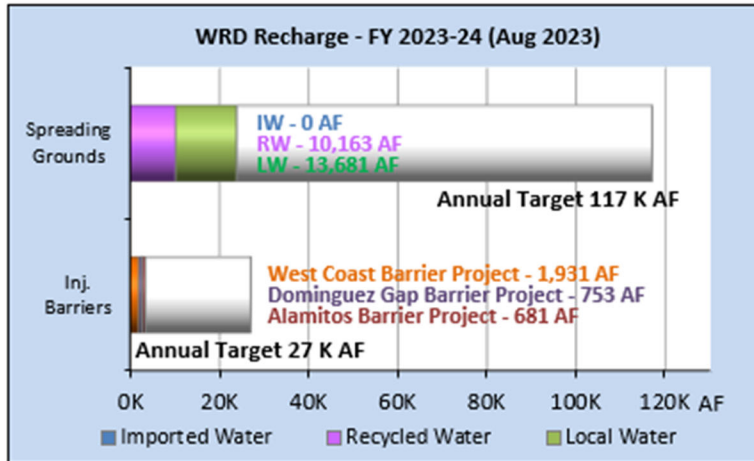
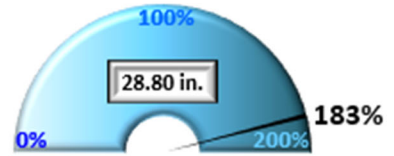


GROUNDWATER BASIN UPDATE FOR OCTOBER 2023

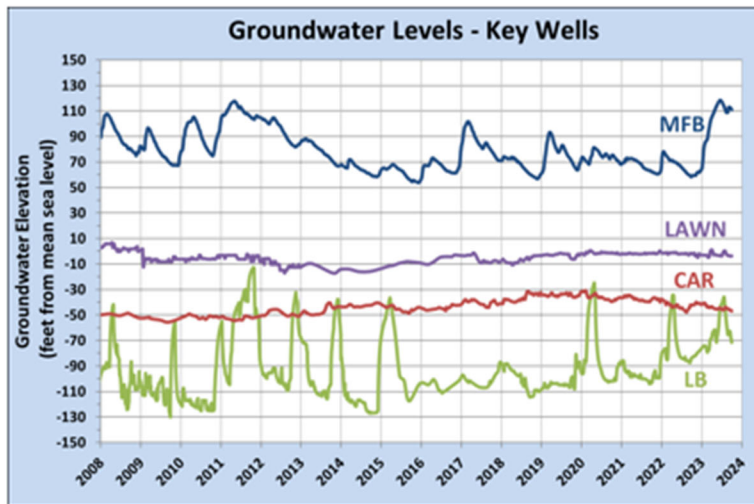
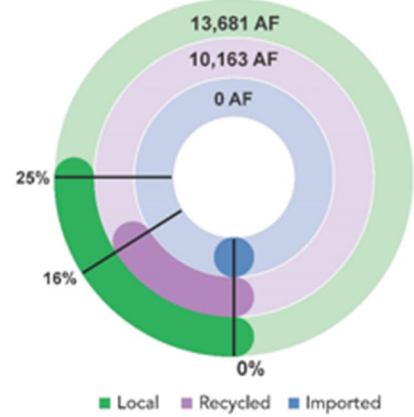
GROUNDWATER BASINS AT A GLANCE*



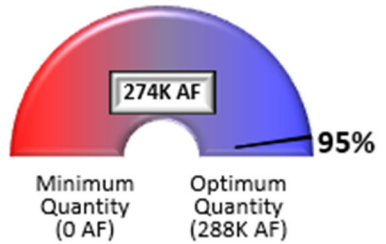
Precipitation % of Normal to Date
Oct 1, 2022 - Sep 30, 2023



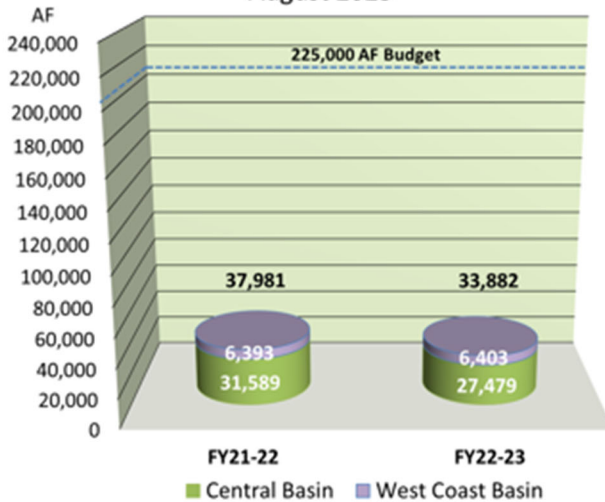
Spreading Grounds Recharge
Jul - Aug 2023



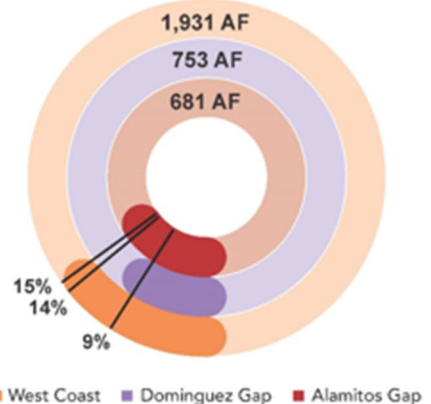
GW Basin Operating Range
October 4, 2023



Basin Pumping (Q)
August 2023



Seawater Barrier Recharge
Jul - Aug 2023



* - Preliminary numbers, subject to change.

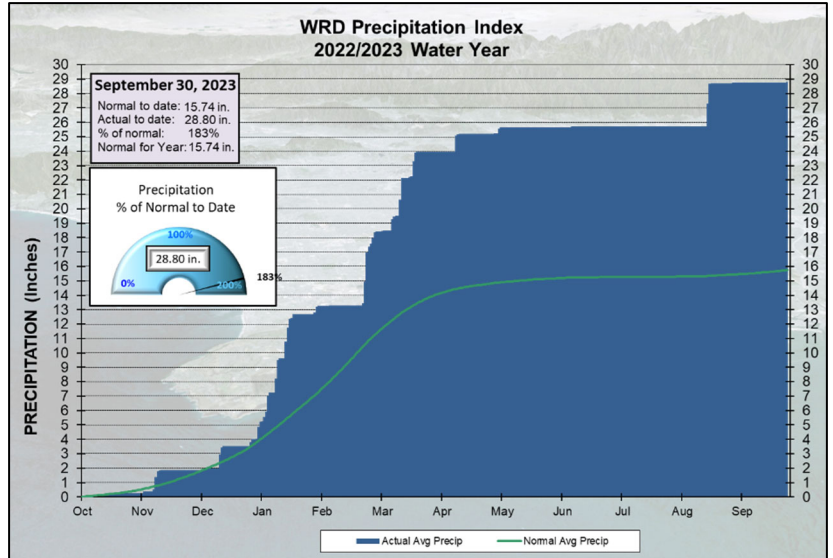
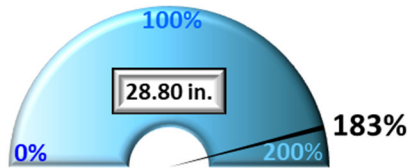
SUMMARY

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

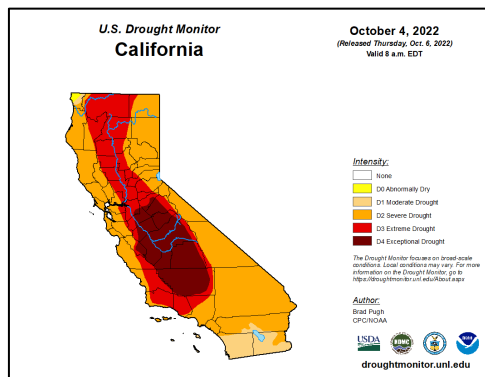
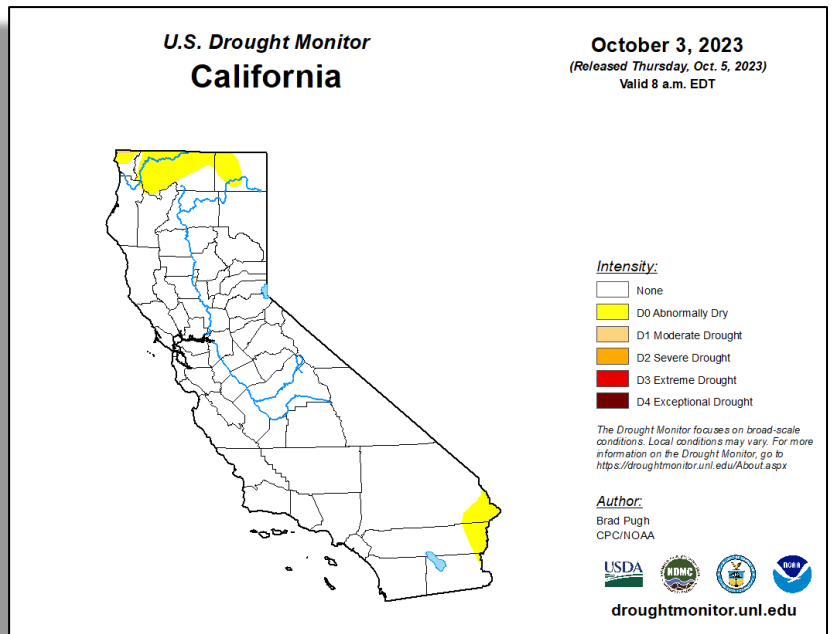
Precipitation (October 1, 2022 – September 30, 2023)

The WRD precipitation index reports that for the 2022-23 Water Year, there has been above average rainfall (28.80 inches) through September 30, 2023. The normal rainfall for this time period is 15.74 inches, so the District is 183% of normal.

Precipitation % of Normal to Date
Oct 1, 2022 - Sep 30, 2023



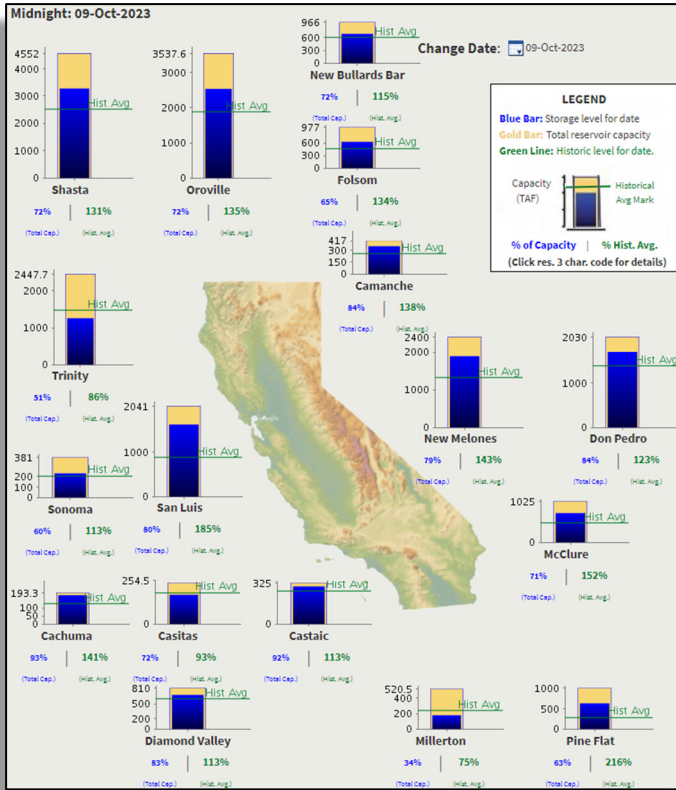
As of October 3, 2023, the U.S. Drought Monitor is reporting 6% of the State is abnormally dry (-1%), 0% under moderate (-1%), 0% under severe (same), 0% under extreme (same), and 0% exceptional (same) drought conditions. According to the U.S. Drought Monitor, Los Angeles County is currently not in a drought.



Drought Monitor - 1 Year Ago

Reservoirs (as of October 9, 2023)

For the 21 reservoirs reported monthly to the committee, water levels have increased in 2 of 21 reservoirs. The largest increase occurred at Lake Mead (0.09 million acre feet, MAF). The smallest increase occurred at Diamond Valley Lake (0.02 MAF). The largest decrease (-0.33 MAF) occurred at Lake Oroville. The smallest decrease (<-0.01 MAF) occurred at Casitas, and Silverwood Lakes.



MWD Reservoirs (SWP) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Trinity Lake (CLE)	2.45	1.26	51%	-0.08
Lake Shasta (SHA)	4.55	3.28	72%	-0.25
Lake Oroville (ORO)	3.54	2.54	72%	-0.33
New Bullards Bar (BUL)	0.97	0.69	72%	-0.04
Folsom Lake (FOL)	0.98	0.63	65%	-0.09
Camanche Lake (CMN)	0.42	0.35	84%	-0.01
New Melones L. (NML)	2.40	1.90	79%	-0.02
Don Pedro Res (DNP)	2.03	1.70	84%	-0.11
Lake McClure (EXC)	1.02	0.73	71%	-0.09
Lake Sonoma (WRS)	0.38	0.23	60%	-0.01
San Luis Res (SNL)	2.04	1.63	80%	-0.14
Millerton Lake (MIL)	0.52	0.18	34%	-0.14
Pine Flat Res. (PNF)	1.00	0.63	63%	-0.19
Cachuma Lake (CCH)	0.19	0.18	93%	-0.01
Castaic Lake (CAS)	0.33	0.30	92%	-0.01
Casitas Lake (CSI)	0.25	0.17	72%	0.00
Perris Lake (PRR)	0.13	0.07	57%	-0.01
L. Silverwood (SLW)	0.08	0.06	82%	0.00

MWD Reservoirs (CRA) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Lake Powell	24.32	8.79	36%	-0.14
Lake Mead	26.12	8.87	34%	0.09
Diamond Valley L (DVL)	0.81	0.67	83%	0.02

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

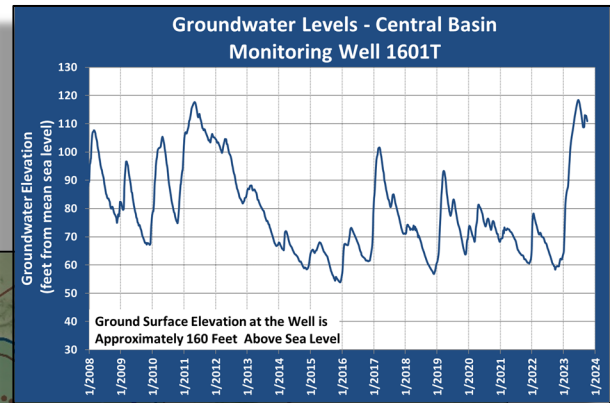
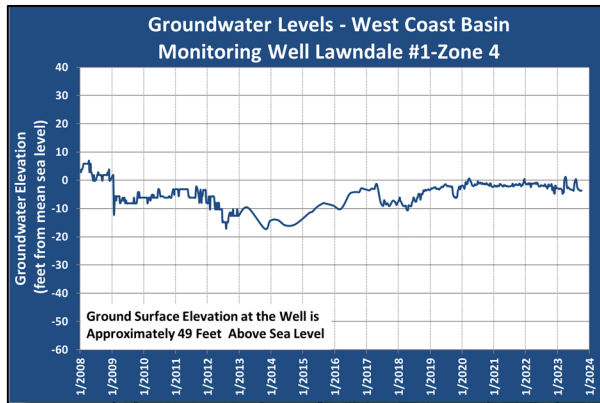
These 21 reservoirs are at 47% capacity (34.86 MAF) which is down 1.57 MAF (-2.1%) from the prior month (-1.53 MAF State Water Project [SWP] and -0.03 MAF Colorado River Aqueduct [CRA]).



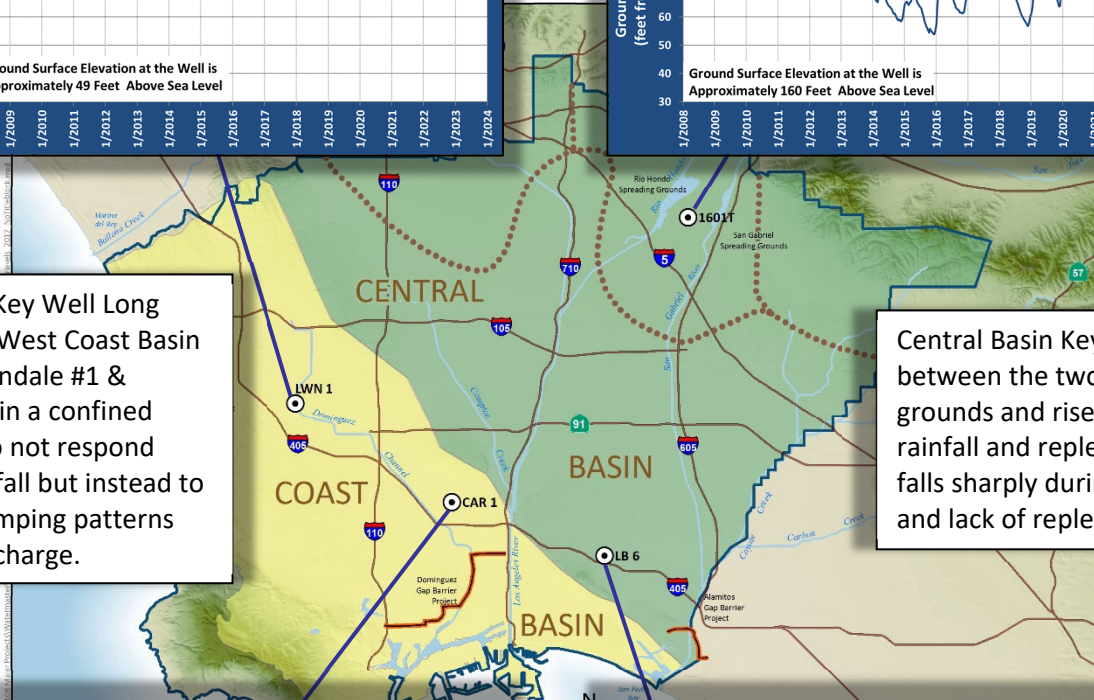
Did you know?
california uses the most groundwater at ~11 billion gallons a day, which is one-third more than the second ranked state, Texas at ~8 billion gallons a day.

Groundwater Levels (through October 4, 2023)

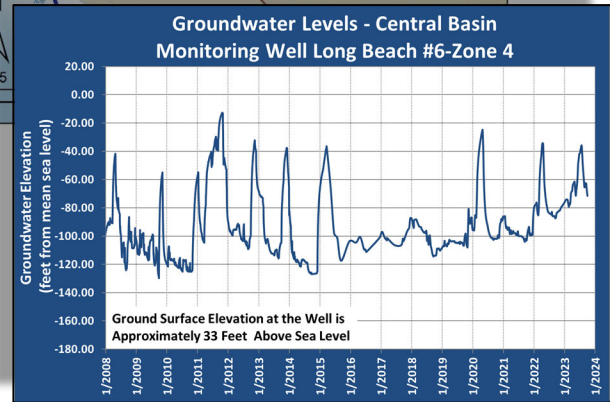
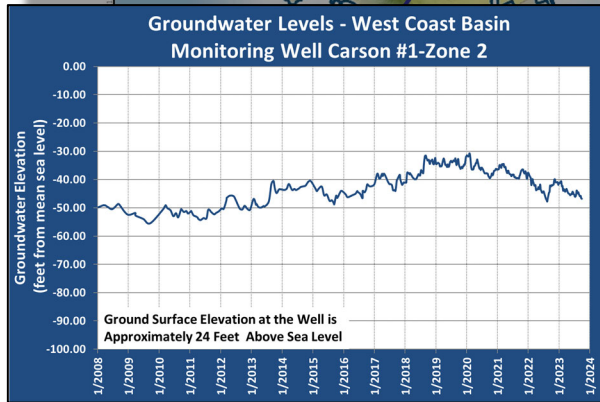
Groundwater levels in key monitoring wells are shown in the hydrographs below.



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 2.0 feet	Increased 51.8 feet
Central Basin Key Well Long Beach #6 4	Decreased 6.0 feet	Increased 11.8 feet
West Coast Basin Key Well Lawndale #1 4	Decreased 0.3 foot	Decreased 1.5 feet
West Coast Basin Key Well Carson #1 2	Decreased 1.6 feet	Decreased 4.5 feet

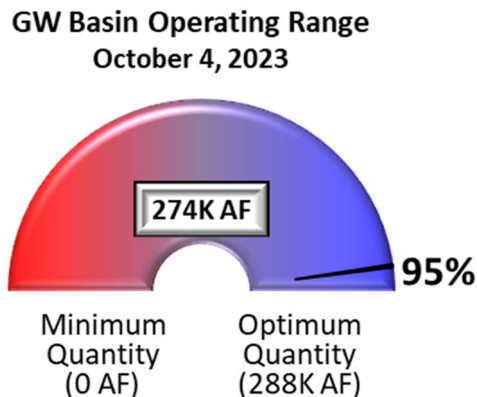
Bold indicates a change in direction (decreasing or increasing) since the last report.

Optimum and Minimum Groundwater Quantity (October 4, 2023)

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 October 4, 2023, has been estimated at 626,213 acre feet (subject to change), which is 273,787 acre feet above the Minimum Quantity and 14,213 acre feet below Optimum Quantity. The Basin is at 95% of Optimum Quantity which is 3% higher than what was reported last month (~8,000 AF higher).



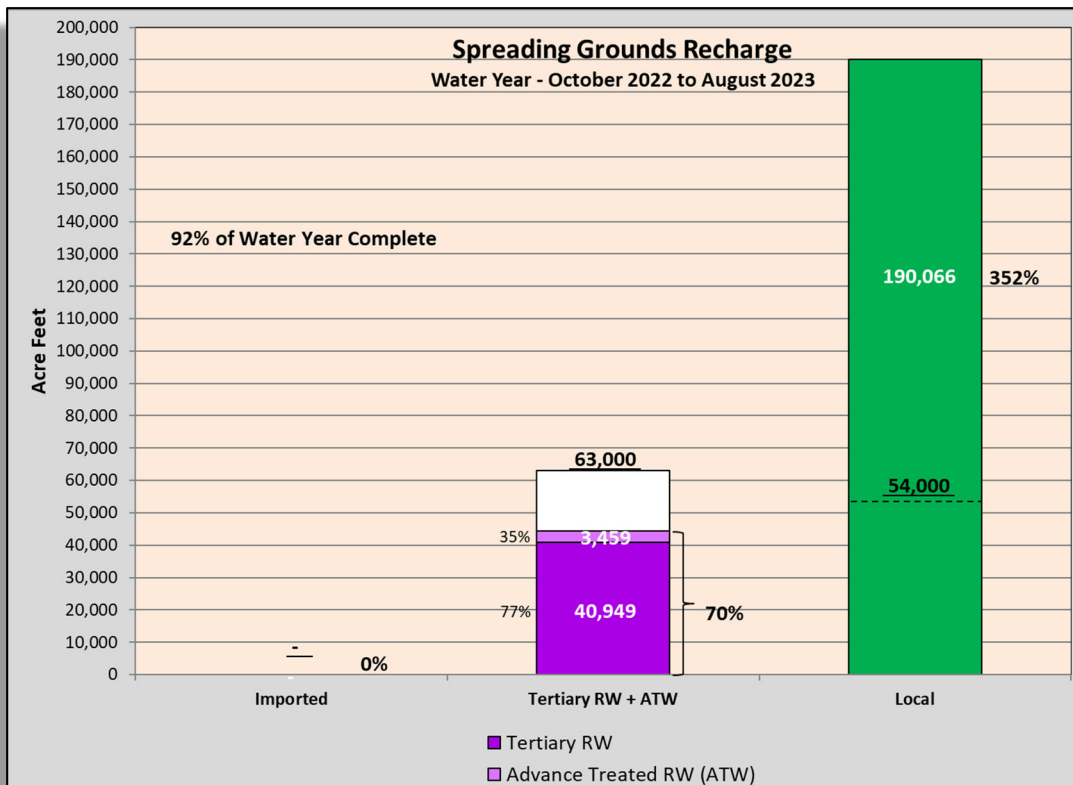
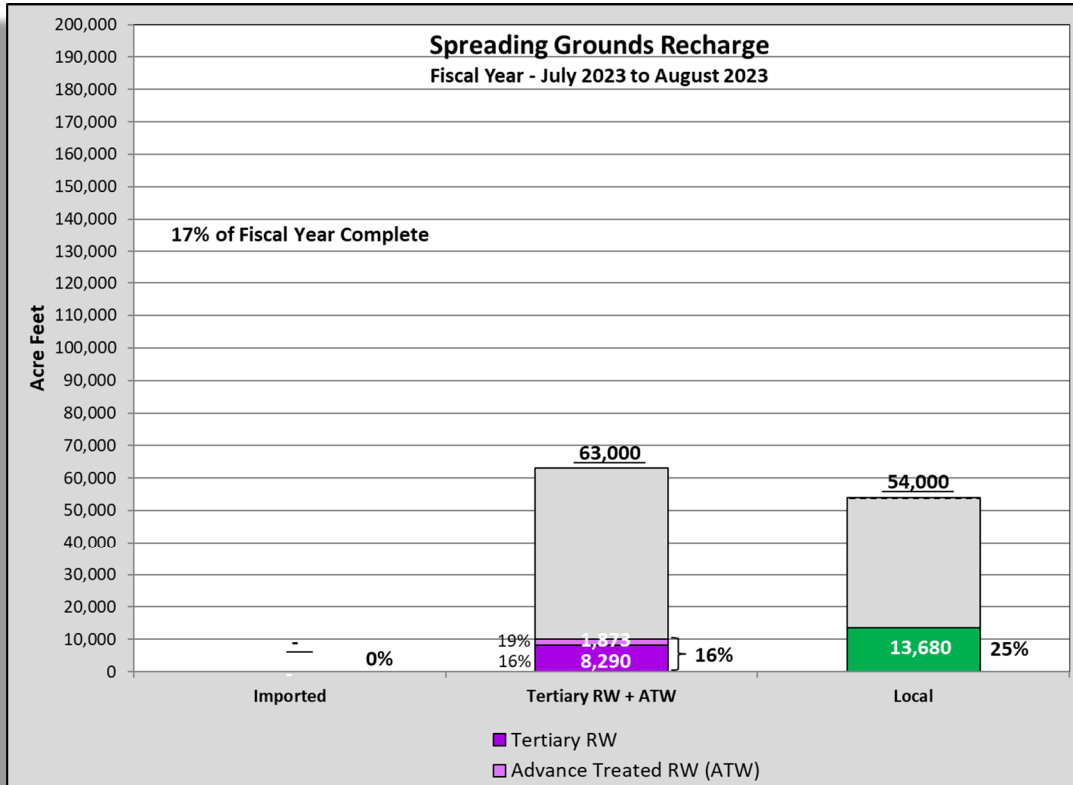
FACT:

About a quarter of all u.s. rainfall becomes groundwater.



Montebello Forebay Spreading Grounds (July 2023 – August 2023)

The following Charts shows the preliminary spreading grounds replenishment water for the current Fiscal Year (2022-23; 2 months) and Water Year (2022-23; 11 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, 13,681 acre foot of local water capture have been reported by the LACPW.

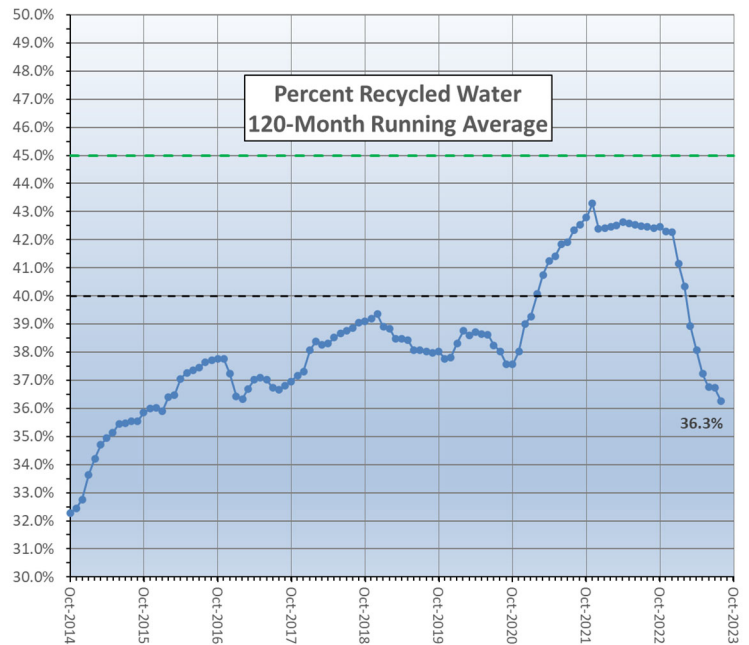
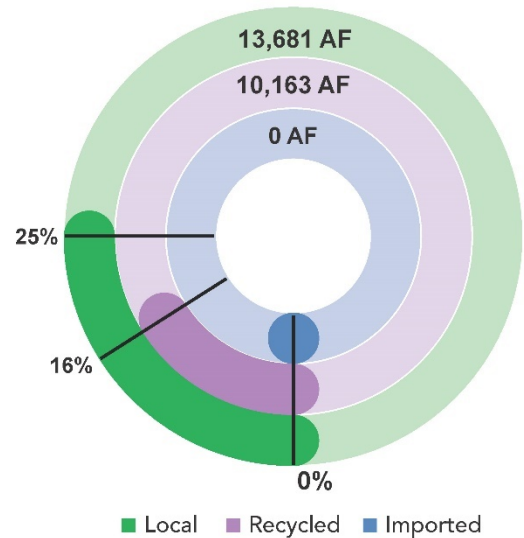
Preliminary numbers for the 2023-24 Fiscal Year show that approximately 10,163 acre feet of recycled water has been recharged with 1,873 acre feet consisting of advanced treat water from the ARC AWTF and 8,290 acre feet of tertiary recycled water. Presuming the advanced treated water as “Null Water”, the 120-month running average of the recycled water contribution in the Montebello Forebay is 36.3% 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.

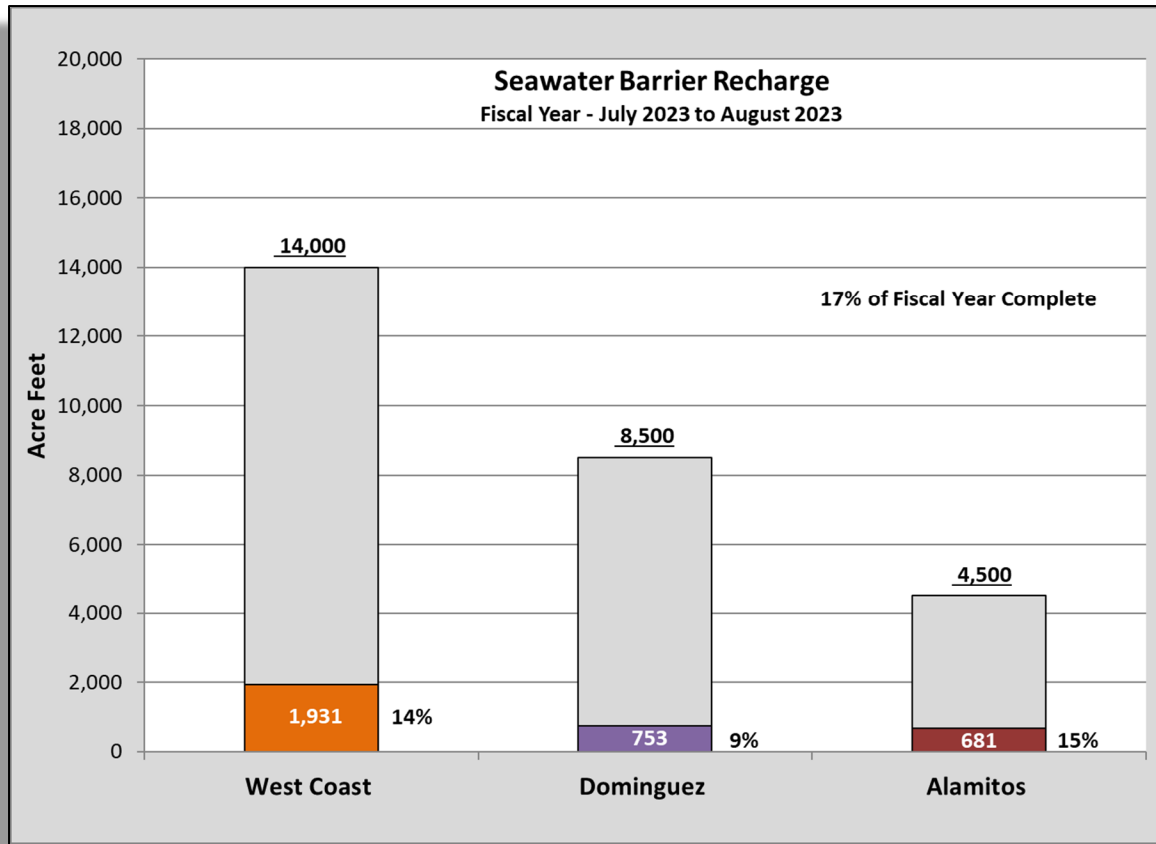
Spreading Grounds Recharge

Jul - Aug 2023

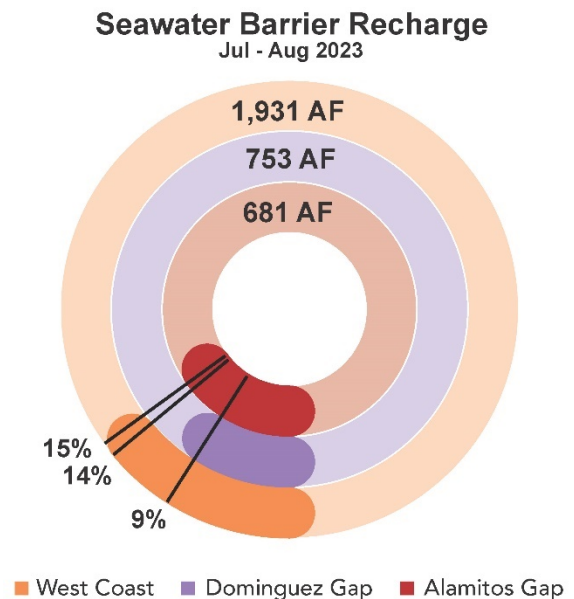


Seawater Barrier Well Injection and Replenishment (July 2023 – August 2023)

The following Chart shows the barrier water injection:

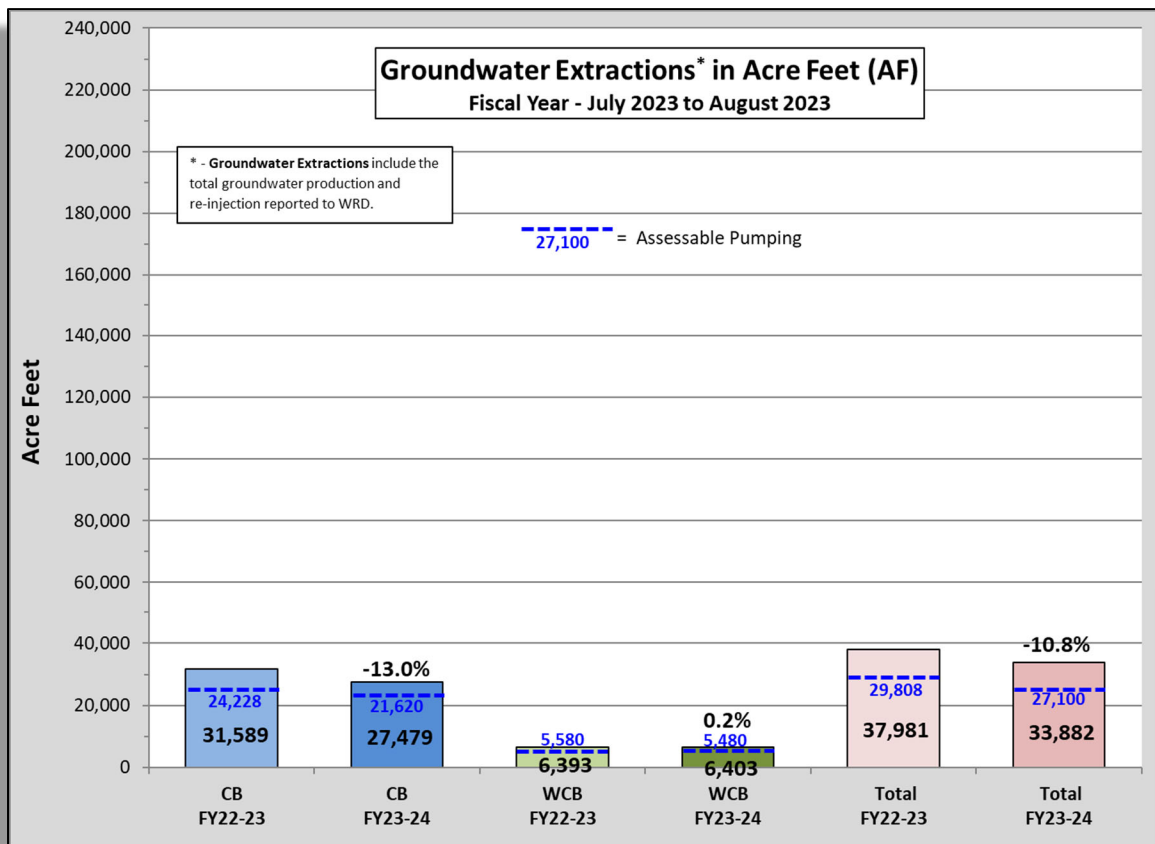


Preliminary numbers for the 2023-24 Fiscal Year show that the West Coast Barrier has used 1,931 acre feet of the total 14,000 acre feet planned for injection, 14% of total for the Fiscal Year. The Dominguez Gap Barrier used 753 acre feet of the total 8,500 acre feet planned for injection, 9% of the total for the Fiscal Year. The Alamitos Barrier, on the WRD side, used 681 acre feet of the total 4,500 acre feet planned for injection, 15% of the total for the Fiscal Year.



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

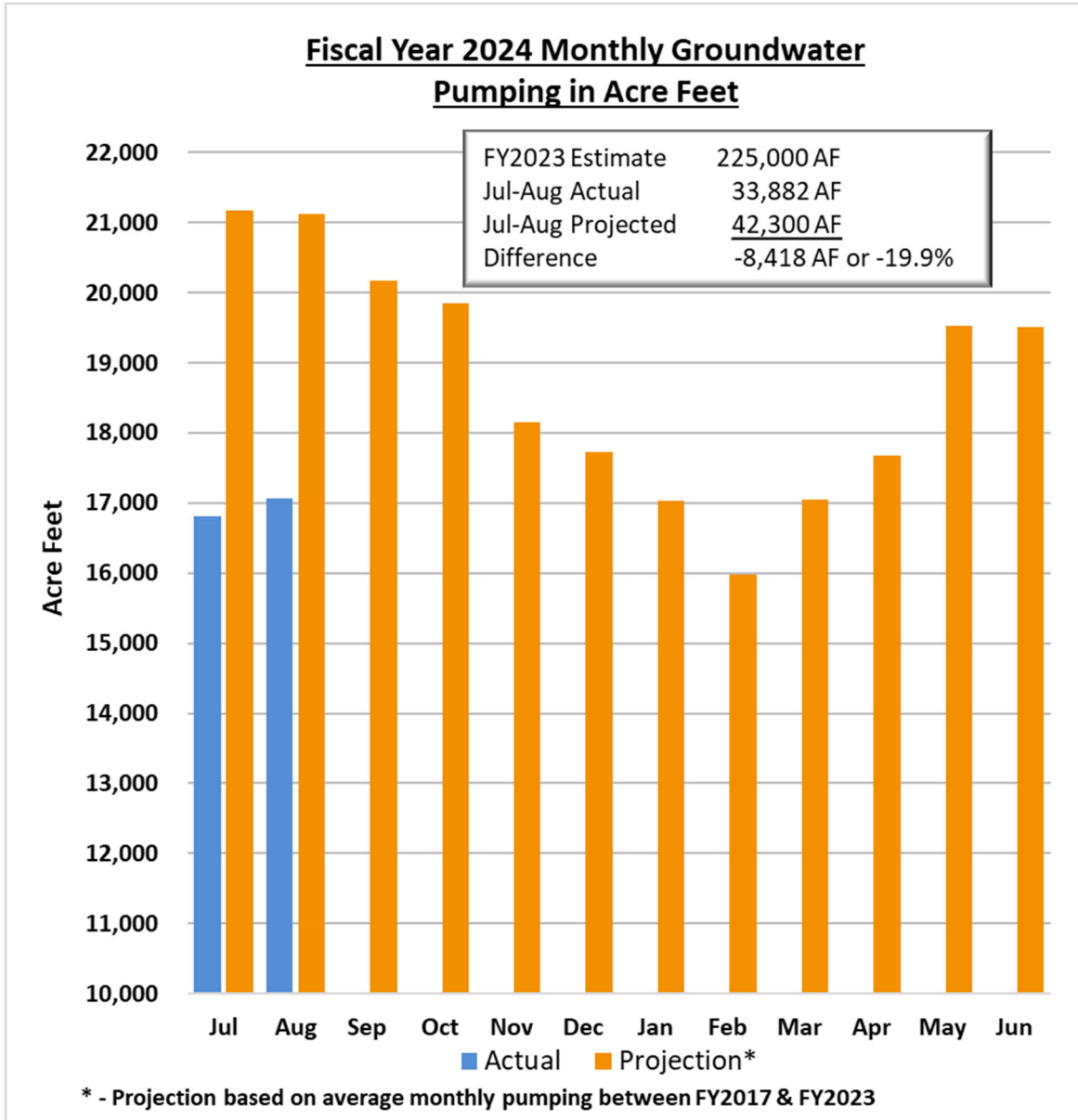
Preliminary numbers for groundwater production in the District for the Fiscal Year 2023-24 (July - August) indicate total pumping in the Central Basin was down 4,109 acre feet from the same time of the previous fiscal year (-13.0%) and the West Coast Basin total pumping was 10 acre feet higher than the previous fiscal year (+0.2%). The total pumping is 33,882 acre feet compared to 37,981 acre feet during the same time the previous year for a decrease of 4,099 acre feet, or -10.8%. The current pumping data do not include three (3) Central Basin pumpers and one (1) West Coast Basin Pumpers who have not yet reported for an estimated 11 additional acre feet.



Interesting...

In most parts of the country, water removed from the ground is constantly replaced, although in some parts of the country such as arid and semiarid regions, a low rate of replenishment is far exceeded by the rate of groundwater pumping, resulting in serious problems of groundwater mining.

Preliminary numbers indicate 33,882 acre feet have been pumped this fiscal year and is 19.9% below the projected fiscal year to date goal of 42,300 acre feet (or -8,418 acre feet). Monthly actual production versus the 7-year average monthly production projections (FY 2017 through 2023) are included in the chart below.



"The solution to our water problems is more rain." - Mark Twain



For the Fiscal Year 2023-24 (July 2023 – August 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. 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 - Aug 2023	Jul 2023 - Aug 2023	Difference	% Change
Cal. Water Service Co. (East LA)	1,555.67	1,800.18	244.51	13.58
Commerce, City	50.77	287.12	236.35	82.32
Cal. American Water Co. Alpha 0679	238.12	392.83	154.71	39.38
San Gabriel Valley Water Co.	456.26	558.66	102.40	18.33
Lynwood, City	767.06	857.98	90.92	10.60
Bottom 5 Producing <u>by Volume</u> (AF)	Jul 2023 - Aug 2023	Jul 2023 - Aug 2023	Difference	% Change
Long Beach, City - CB	5,050.63	3,548.96	-1501.67	-42.31
Los Angeles, City - CB	1,162.90	2.97	-1159.93	-39,054.9
Santa Fe Springs, City	405.93	13.70	-392.23	-2,862.99
Golden State Water Co. - CB	3,444.66	3,163.97	-280.69	-8.87
Whittier, City	912.73	644.32	-268.41	-41.66

Production Trends – West Coast Basin				
Top 5 Producing <u>by Volume</u> (AF)	Jul 2023 - Aug 2023	Jul 2023 - Aug 2023	Difference	% Change
Golden State Water Co. - WB	804.38	1,284.98	480.60	37.40
Cal. Water Service Co. Dominguez - WB	729.00	1,013.07	284.07	28.04
Tesoro Refining	1,633.73	1,728.51	94.78	5.48
Cal. Water Service Co./Hawthorne Lease	85.35	169.85	84.50	49.75
Roman Catholic Archbishop - WB	33.14	62.71	29.57	47.15
Bottom 5 Producing <u>by Volume</u> (AF)	Jul 2023 - Aug 2023	Jul 2023 - Aug 2023	Difference	% Change
Phillips 66 Co. - Alpha 7093	998.81	416.53	-582.28	-139.79
Torrance, City	297.10	0.00	-297.10	-100.00
L.A. County Depart of Parks & Rec - WB	94.11	0.00	-94.11	-100.00
Rolling Hills Country Club	93.00	54.00	-39.00	-72.22
Eco Services Operations	63.44	36.04	-27.40	-76.03

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 - August 2022	July 2023 - August 2023	Difference	%Change
ABC USD	6.63	2.35	-4.28	-182.13
American Text. M.	8.70	10.86	2.16	19.89
Artesia, City	5.33	0.33	-5.00	-1,515.15
Atlas Iron and Metal Co.	0.00	0.00	.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	122.58	0.00	-122.58	-100.00
Bellflower-Somerset MWC	921.63	878.29	-43.34	-4.93
Boeing Co.	0.00	0.00	.00	0.00
Boeing, Compton Site	0.00	0.00	.00	0.00
Cal. American Water Co. Alpha 0679	238.12	392.83	154.71	39.38
Cal. Water Service Co. (East LA)	1,555.67	1,800.18	244.51	13.58
Cal. Water Service Co. Dominguez - CB	185.70	115.82	-69.88	-60.34
Caltrans	0.36	6.82	6.46	94.72
Central Basin MWD	0.00	0.00	.00	0.00
Cerritos, City	1,370.21	1,397.64	27.43	1.96
Coast Packing Co.	22.25	20.52	-1.73	-8.43
Commerce, City	50.77	287.12	236.35	82.32
Compton, City	1,310.12	1,289.10	-21.02	-1.63
Darling-Delaware Co.	0.00	0.00	.00	0.00
Defense Logistic Agency	0.00	0.00	.00	0.00
Demunno Kerdoon	0.00	0.00	.00	0.00
Downey, City	2,686.66	2,605.62	-81.04	-3.11
El Rancho Unified School District	0.00	0.00	.00	0.00
Furr, Nancy J.	0.00	0.00	.00	0.00
Golden State Water Co. - CB	3,444.66	3,163.97	-280.69	-8.87
Huntington Park, City - Alpha 2378	508.72	250.44	-258.28	-103.13
L.A. County Department of Parks & Rec - CB	0.00	0.00	.00	0.00
LA County Rancho Los Amigos	44.84	47.29	2.45	5.18
La Habra Heights County WD	601.56	531.20	-70.36	-13.25
Lakewood - City	1,310.65	1,322.92	12.27	0.93
Liberty Utilities - CB	868.73	804.74	-63.99	-7.95

Central Basin	July 2022 - August 2022	July 2023 - August 2023	Difference	%Change
Lincoln Memorial Park	2.21	0.00	-2.21	-100.00
Little Lake Cemetery District	0.74	0.00	-.74	-100.00
Long Beach, City - CB	5,050.63	3,548.96	-1501.67	-42.31
Los Angeles, City - CB	1,162.90	2.97	-1159.93	-39,054.88
Lunday-Thagard	0.00	0.00	.00	0.00
Lynwood Park Mutual Water Co.	17.80	3.15	-14.65	-465.08
Lynwood, City	767.06	857.98	90.92	10.60
Maywood Mutual No. 1	113.30	114.43	1.13	0.99
Maywood Mutual No. 2	181.92	168.92	-13.00	-7.70
Maywood Mutual No. 3	251.79	262.07	10.28	3.92
Montebello Land and Water Co.	545.37	545.05	-.32	-0.06
Montebello, City	0.00	0.00	.00	0.00
Newark Group, Inc.	28.17	26.35	-1.82	-6.91
Northrop Grumman	0.70	0.00	-.70	-100.00
Norwalk, City	165.37	69.88	-95.49	-136.65
Omega OU1/OU3 LLC	0.00	0.00	.00	0.00
Orchard Dale Water District	381.26	353.78	-27.48	-7.77
PABCO Building Products	0.00	0.00	.00	0.00
Paradise Memorial Park	2.58	3.20	.62	19.38
Paramount USD	1.03	0.32	-.71	-221.88
Paramount, City	450.92	480.76	29.84	6.21
Pico Rivera, City	838.49	798.49	-40.00	-5.01
Pico Water District	504.50	506.48	1.98	0.39
Rockview Dairies	29.72	0.00	-29.72	-100.00
Roman Catholic Archbishop - CB	21.56	57.63	36.07	62.59
Rowland Water District	0.00	0.00	.00	0.00
San Gabriel Valley Water Co.	456.26	558.66	102.40	18.33
Santa Fe Springs, City	405.93	13.70	-392.23	-2,862.99
Sativa Water District	0.55	0.00	-.55	-100.00
Scantlebury, Robert P.	0.00	0.00	.00	0.00
SFPP L.P.	0.00	0.00	.00	0.00
Signal Hill, City	231.70	132.84	-98.86	-74.42
South Gate, City	1,532.95	1,415.13	-117.82	-8.33
South Montebello Irrigation Dist	336.94	304.05	-32.89	-10.82
Southern California Edison Co. - CB	1.42	0.47	-.95	-202.13
St John Bosco School	14.45	0.00	-14.45	-100.00

Central Basin	July 2022 - August 2022	July 2023 - August 2023	Difference	%Change
Suburban Water Systems	177.32	202.67	25.35	12.51
Tract 180 Water Co.	219.75	219.97	.22	0.10
Tract 349 Mutual Water Co.	114.00	107.73	-6.27	-5.82
Tucker, William M.	0.06	0.02	-.04	-200.00
Vernon, City	1,087.52	862.46	-225.06	-26.10
Virginia Country Club	116.63	85.71	-30.92	-36.08
Walnut Park Mutual	193.02	194.74	1.72	0.88
Whittier Union HSD	5.41	8.22	2.81	34.18
Whittier, City	912.73	644.32	-268.41	-41.66
WRD	0.00	0.00	.00	0.00
Yamamoto, Alice	0.07	0.00	-.07	-100.00

West Coast Basin Production Trends

West Basin	July 2022 - August 2022	July 2023 - August 2023	Difference	%Change
ABC Nursery	5.00	0.00	-5.00	-100.00
Cal. Water Service Co. Alpha 7050	167.72	178.81	11.09	6.20
Cal. Water Service Co. Dominguez - WB	729.00	1,013.07	284.07	28.04
Cal. Water Service Co./Hawthorne Lease	85.35	169.85	84.50	49.75
Eco Services Operations	63.44	36.04	-27.40	-76.03
Golden State Water Co. - WB	804.38	1,284.98	480.60	37.40
Hillside Memorial Park	40.63	24.10	-16.53	-68.59
Honeywell International	0.00	0.00	.00	0.00
Inglewood, City	295.22	320.39	25.17	7.86
Kinder Morgan Liquids Terminals	6.65	7.83	1.18	15.07
L.A. County Department of Parks & Rec - WB	94.11	0.00	-94.11	-100.00
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	0.00	.00	0.00
Manhattan Beach, City	71.47	46.13	-25.34	-54.93
Montrose Chemical Corp.	-0.08	0.00	.08	-100.00
Myron Z. Chalavin & Nettie Dresser Trust & JHD Pr.	0.00	0.00	.00	0.00
Pacific Crest Cemetery Co.	12.72	9.78	-2.94	-30.06
Phillips 66 Co. - Alpha 7093	998.81	416.53	-582.28	-139.79
Rolling Hills Country Club	93.00	54.00	-39.00	-72.22
Roman Catholic Archbishop - WB	33.14	62.71	29.57	47.15
Shell Oil Co NCWUP	22.50	9.18	-13.32	-145.10
Southern California Edison Co. - WB	4.42	5.60	1.18	21.07
Tesoro Refining	1,633.73	1,728.51	94.78	5.48
Torrance Refining & Marketing Co.	175.04	199.34	24.30	12.19
Torrance, City	297.10	0.00	-297.10	-100.00
West Basin Brewer Desalter	0.00	0.00	.00	0.00