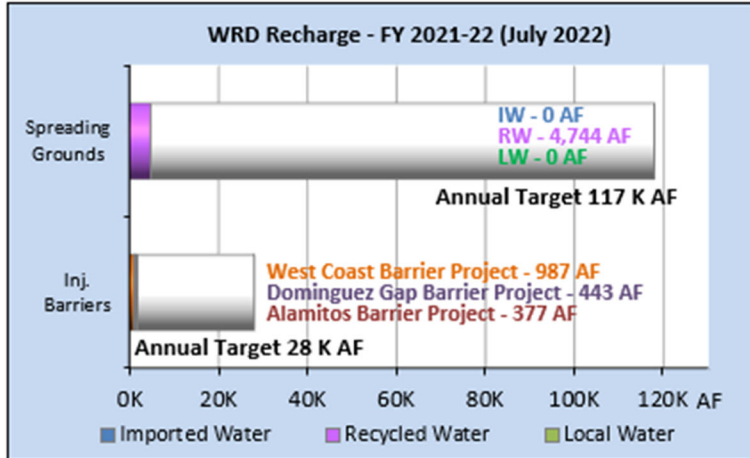
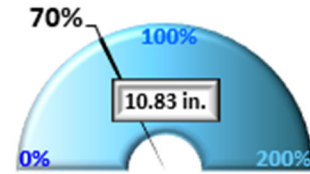


# GROUNDWATER BASIN UPDATE FOR SEPTEMBER 2022

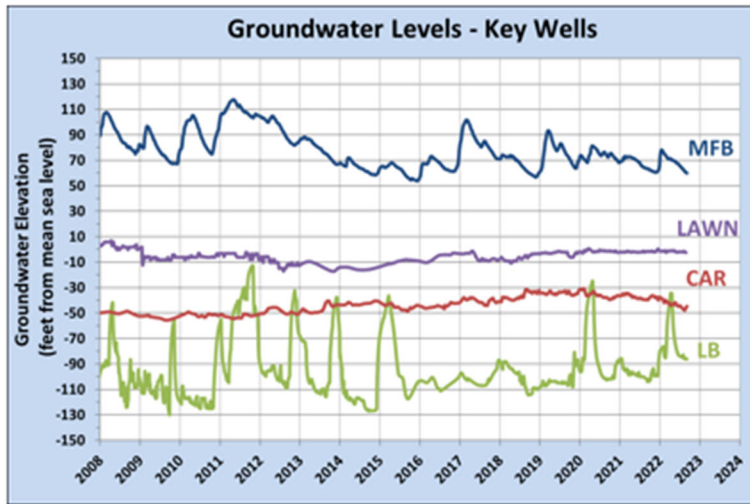
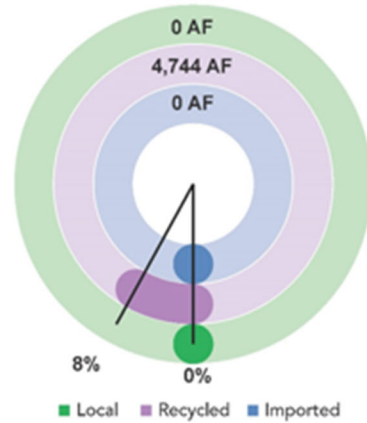
## GROUNDWATER BASINS AT A GLANCE\*



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



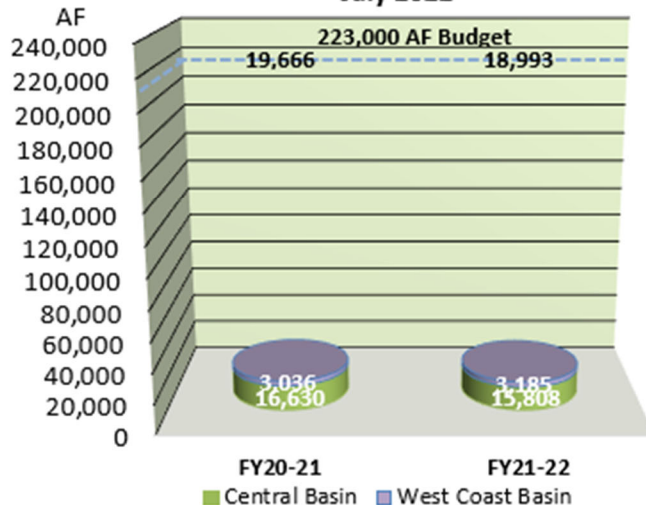
Spreading Grounds Recharge  
Jul 2022



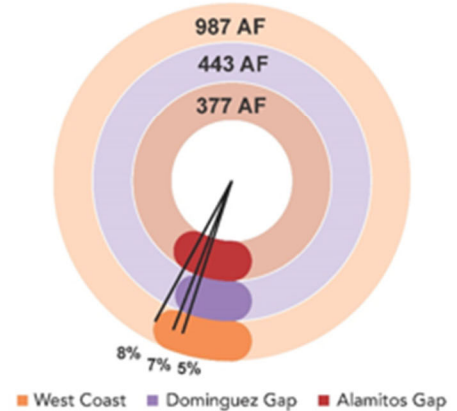
GW Basin Operating Range  
August



Basin Pumping (Q)  
July 2022



Seawater Barrier Recharge  
Jul 2022



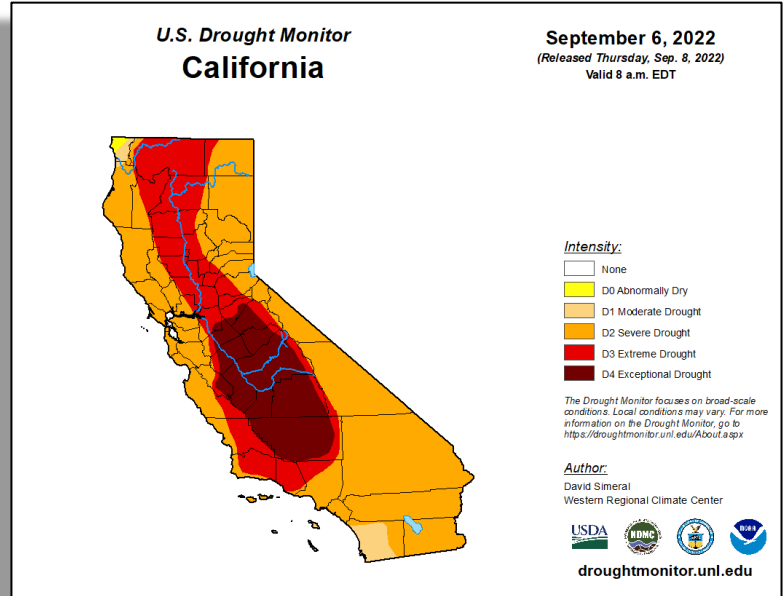
\* - Preliminary numbers, subject to change.

## SUMMARY

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

### Precipitation (Oct. 1, 2021 – September 6, 2022)

The WRD precipitation index reports that for the 2021-22 Water Year, there has been below average rainfall (10.83 inches) through September 6, 2022. The normal rainfall for this time period is 15.46 inches, so the District is 70% of normal. As of September 6, 2022, the U.S. Drought Monitor is reporting 100% of the State is abnormally dry, 100% under moderate, 98% under severe (same), 40% under extreme (-20%), and 17% exceptional (same) drought conditions.



Current drought conditions are expected to persist and La Nina conditions will likely continue through the end of 2022 resulting in a rare third consecutive La Niña year.



### Did you know?

There are different types of water depending on where it located. Rain and snow are called Meteoric Water; surface water is what makes up oceans, lakes, and rivers; groundwater is the subsurface water; Connate water is the water trapped in sedimentary rocks and doesn't flow like groundwater does; and Juvenile water (also known as Magmatic water) is the water dissolved in magma deep in the earth's crust and is released during volcanic eruptions.

## Reservoirs (as of September 7, 2022)

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 (0.19 million acre feet, MAF). The smallest increase occurred at Castaic and Silverwood Lakes (<0.01 MAF). The largest decrease (-0.21 MAF) occurred at Lake Powell. The smallest decrease (<0.0 MAF) occurred at Camanche, Millerton, Casitas, and Perris Lakes.

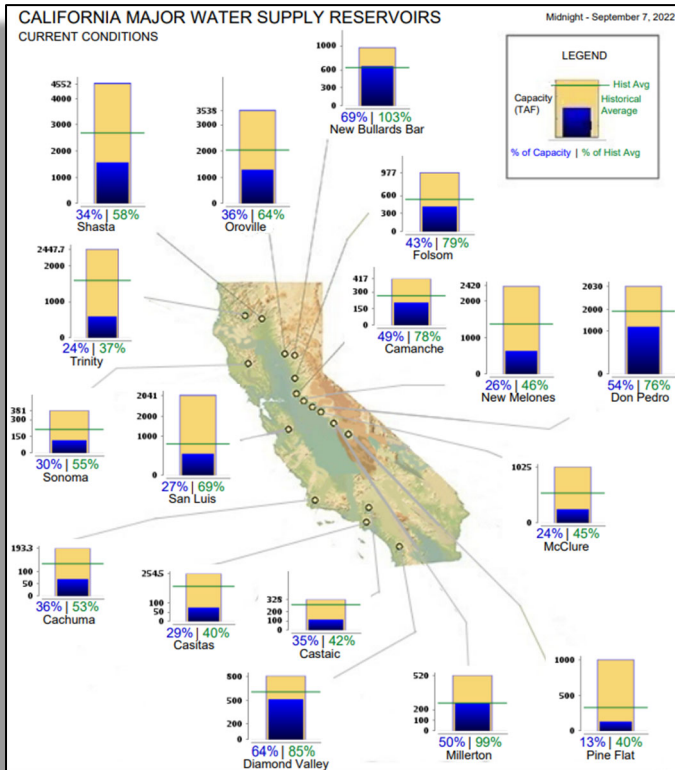
### MWD Reservoirs (SWP) Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Trinity Lake (CLE)	2.45	0.59	24%	-0.06
Lake Shasta (SHA)	4.55	1.57	34%	-0.09
Lake Oroville (ORO)	3.54	1.29	36%	-0.11
New Bullards Bar (BUL)	0.97	0.66	69%	-0.07
Folsom Lake (FOL)	0.98	0.42	43%	-0.12
Camanche Lake (CMN)	0.42	0.21	49%	0.00
New Melones L. (NML)	2.40	0.63	26%	-0.05
Don Pedro Res (DNP)	2.03	1.10	54%	-0.08
Lake McClure (EXC)	1.02	0.25	24%	-0.05
Lake Sonoma (WRS)	0.38	0.12	30%	-0.01
San Luis Res (SNL)	2.04	0.55	27%	-0.06
Millerton Lake (MIL)	0.52	0.26	50%	0.00
Pine Flat Res. (PNF)	1.00	0.13	13%	-0.05
Cachuma Lake (CCH)	0.19	0.07	36%	-0.01
Castaic Lake (CAS)	0.33	0.11	35%	0.00
Casitas Lake (CSI)	0.25	0.07	29%	0.00
Perris Lake (PRR)	0.13	0.10	73%	0.00
L. Silverwood (SLW)	0.08	0.07	88%	0.00

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

Reservoir	Capacity	Storage	% Full	Change
Lake Powell	24.32	5.90	24%	-0.21
Lake Mead	26.12	7.27	28%	0.19
Diamond Valley L (DVL)	0.81	0.52	64%	-0.01

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



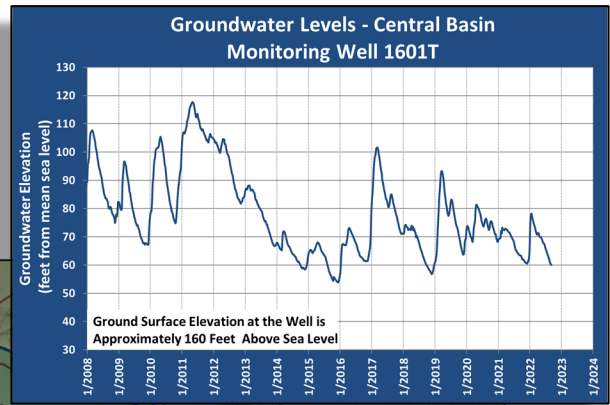
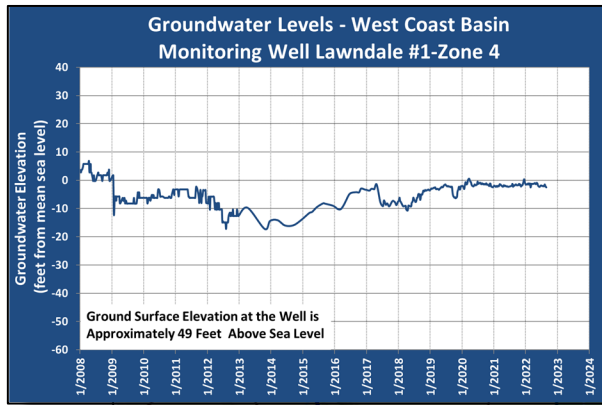
These 21 reservoirs are at 29% capacity (21.89 MAF) which is down 0.80 MAF from the prior month (-0.77 MAF State Water Project [SWP] and -0.03 MAF Colorado River Aqueduct [CRA]).

"Individually, we are one drop. Together, we are an ocean." - Ryunosuke Satoro



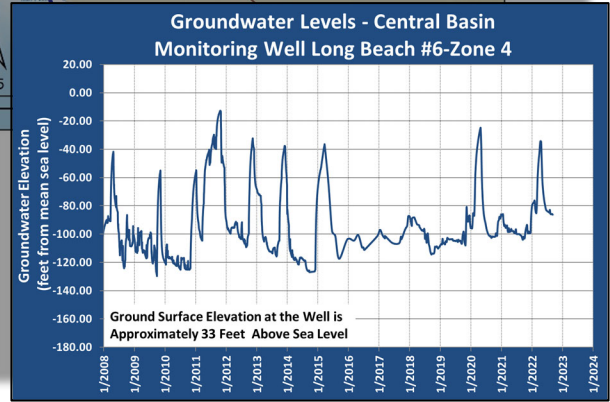
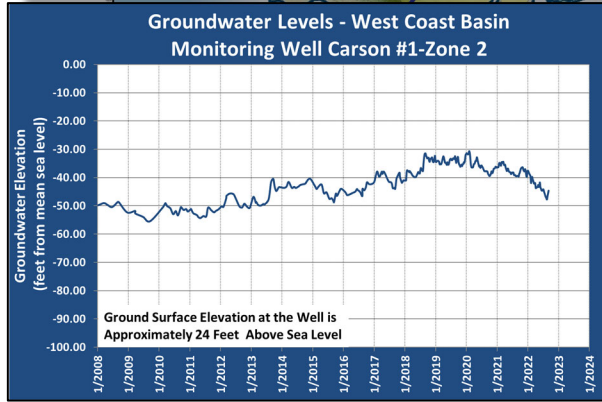
Groundwater Levels (through September 8, 2022)

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 2.9 feet	Decreased 3.4 feet
Central Basin Key Well Long Beach #6 4	<b>Decreased 3.4 feet</b>	Increased 16.8 feet
West Coast Basin Key Well Lawndale #1 4	<b>Increased 2.1 feet</b>	<b>Increased 1.5 feet</b>
West Coast Basin Key Well Carson #1 2	<b>Increased 2.2 feet</b>	Decreased 5.2 feet

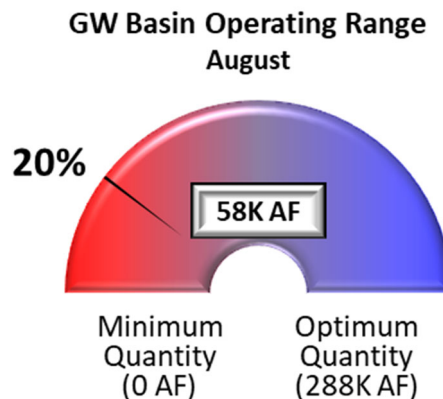
**Bold** indicates a change in direction (decreasing or increasing) since the last report.

## Optimum and Minimum Groundwater Quantity

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 September 8, 2022, has been estimated at 841,723 acre feet (subject to change), which is 58,277 acre feet above the Minimum Quantity and 229,723 acre feet below the Optimum Quantity. The Basin is at 20% of Optimum Quantity which is 4% lower than what was reported last month (~12,000 AF lower).



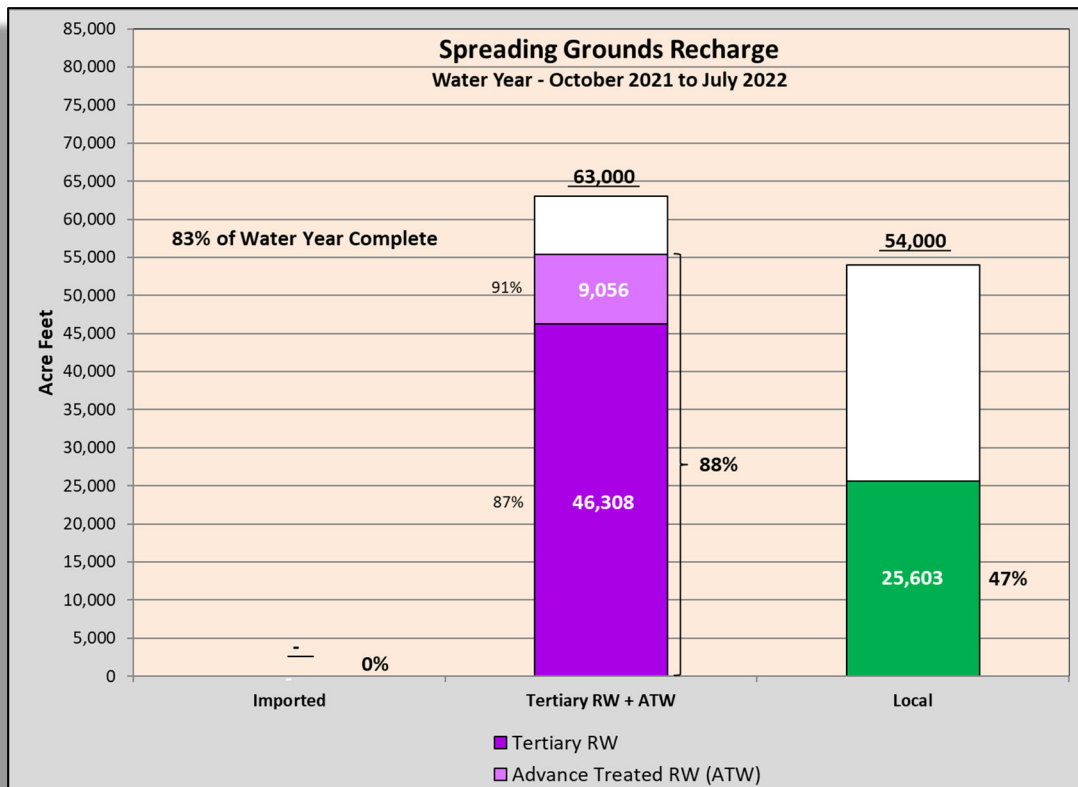
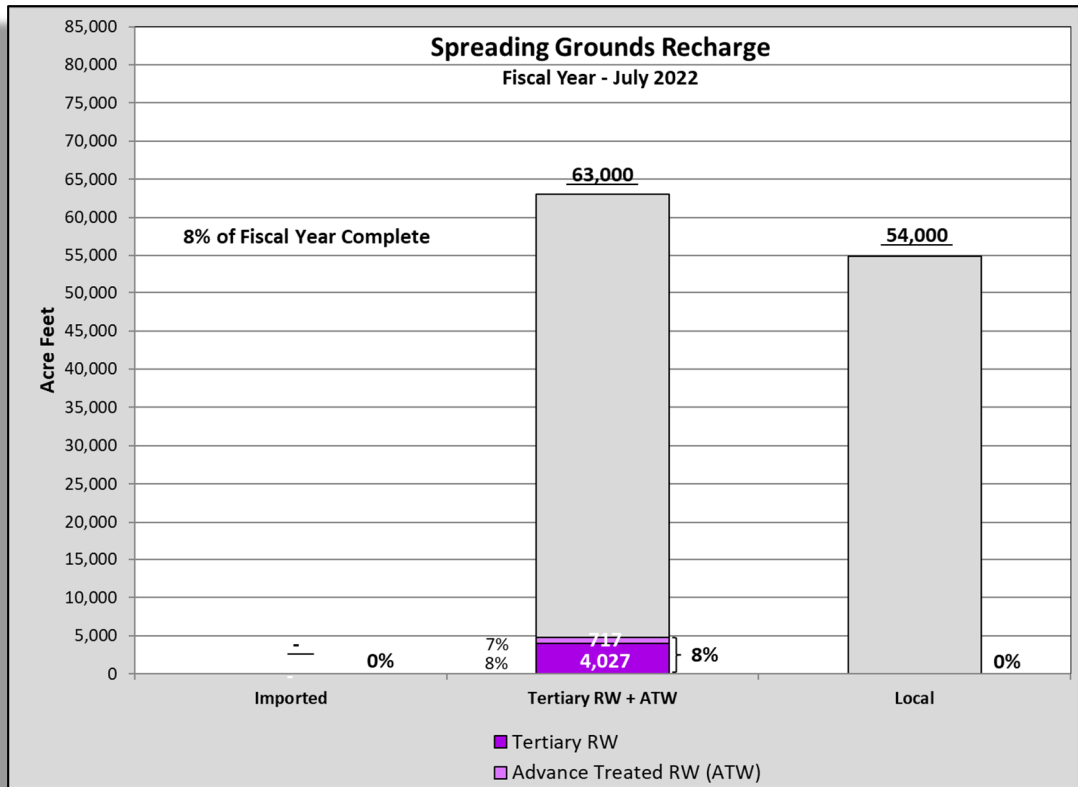
### FACT:

*Groundwater is the world's most extracted raw material with withdrawal rates currently in the estimated range of 796.1 million acre feet per year.*



## Montebello Forebay Spreading Grounds (July 2022)

The following Charts shows the preliminary spreading grounds replenishment water for the current Fiscal Year (2022-23; 1 month) and Water Year (2021-22; 10 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, no local water capture has been reported by the LACPW.

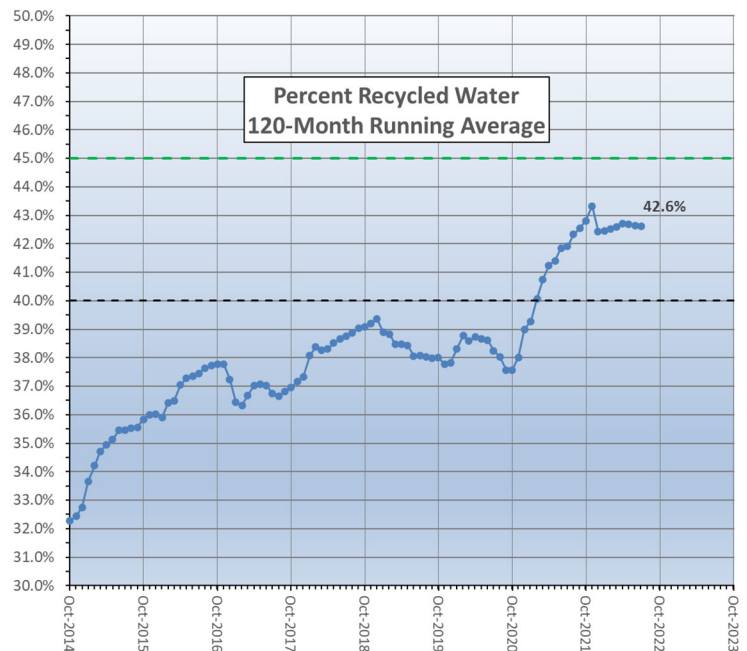
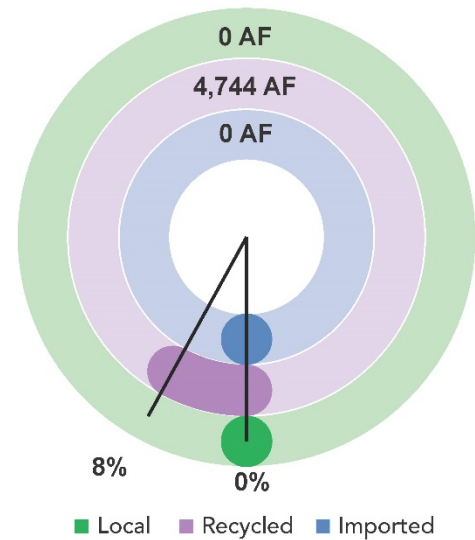
Preliminary numbers for the 2022-23 Fiscal Year show that approximately 4,744 acre feet of recycled water has been recharged with 717 acre feet consisting of advanced treat water from the ARC AWTF and 4,027 acre feet of tertiary recycled water. Presuming the advanced treated water as “Null Water”, the 120-month running average of the recycled water contribution in the Montebello Forebay is 42.6% 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.

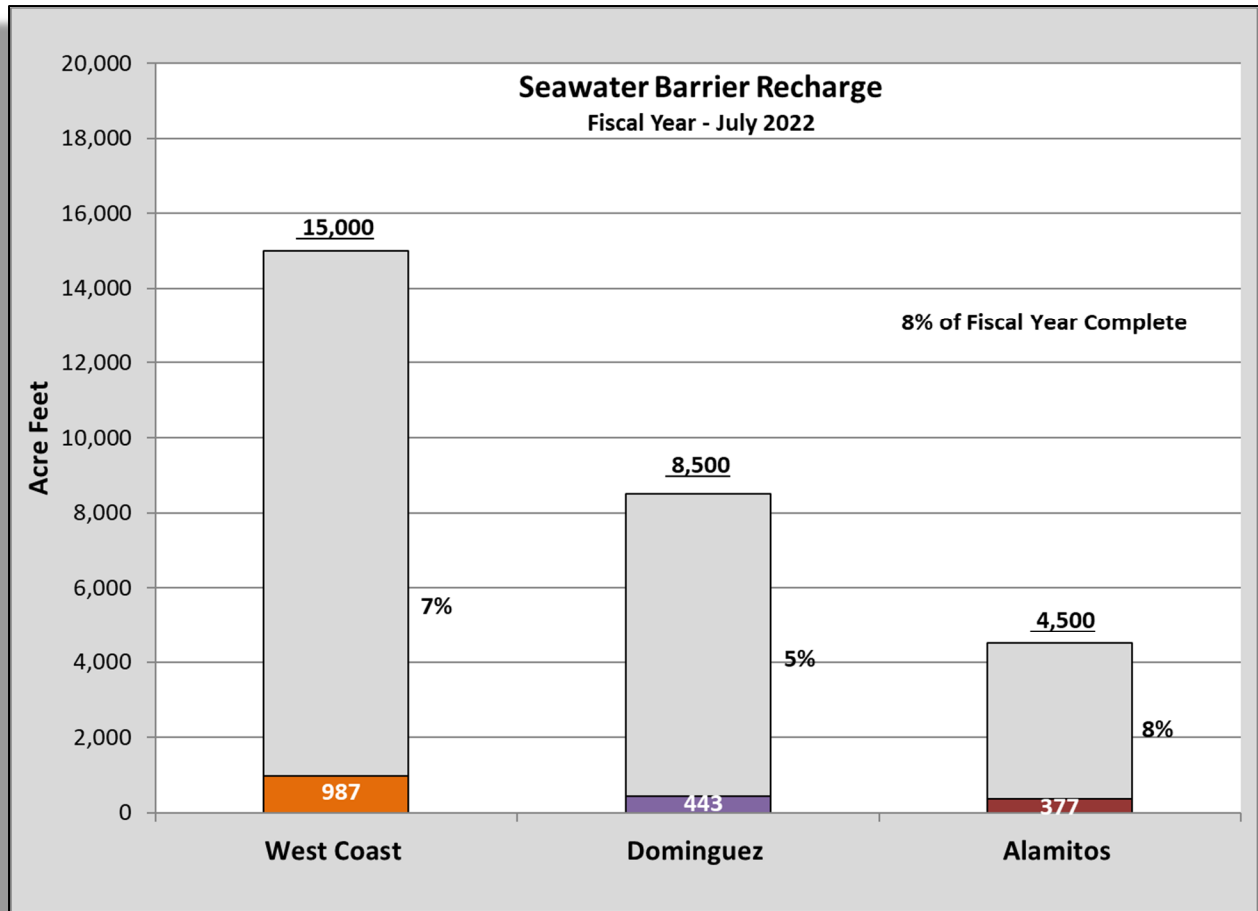
Due to the continued mega drought and recent emergency drought proclamation by Governor Newsom, LACSD and WRD submitted a request to modify the recycled water contribution percentage to 50% and the advanced treated water classification to diluent in a letter to the LARWQCB and CA-DDW dated July 8, 2022.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

**Spreading Grounds Recharge**  
Jul 2022

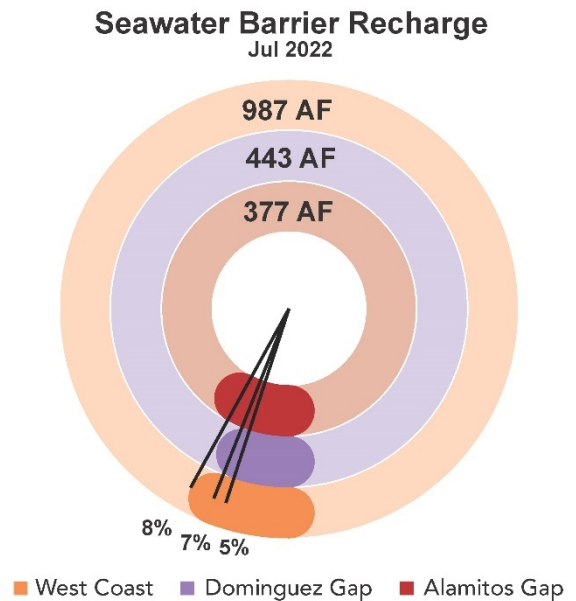


Seawater Barrier Well Injection and Replenishment (July 2022)

The following Chart shows the barrier water injection:



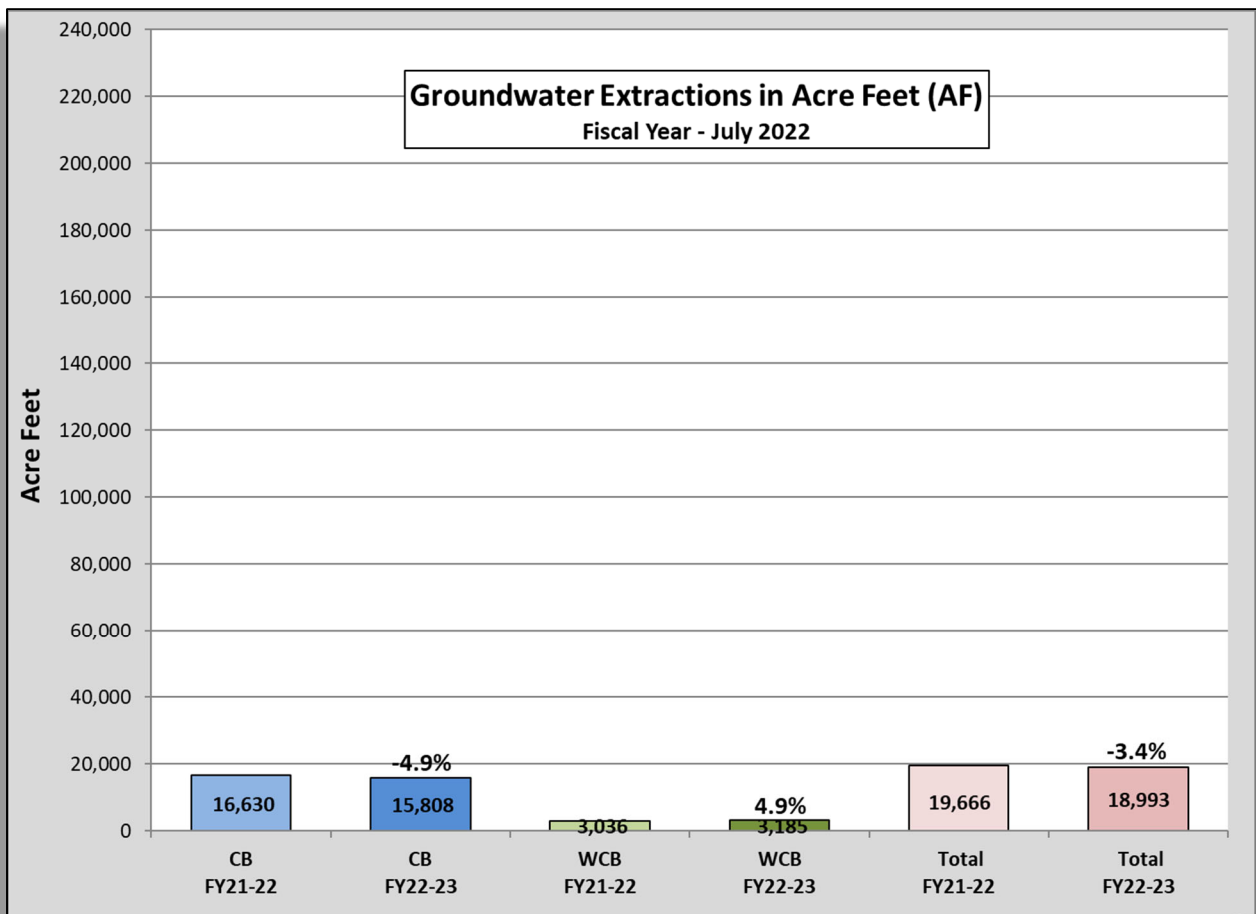
Preliminary numbers for the 2022-23 Fiscal Year show that the West Coast Barrier has used 987 acre feet of the total 15,000 acre feet planned for injection, 7% of total for the Fiscal Year. The Dominguez Gap Barrier used 443 acre feet of the total 8,500 acre feet planned for injection, 5% of the total for the Fiscal Year. The Alamitos Barrier, on the WRD side, used 377 acre feet of the total 4,500 acre feet planned for injection, 8% of the total for the Fiscal Year.





## Total Pumping (Fiscal Year 2022-23, July 2022)

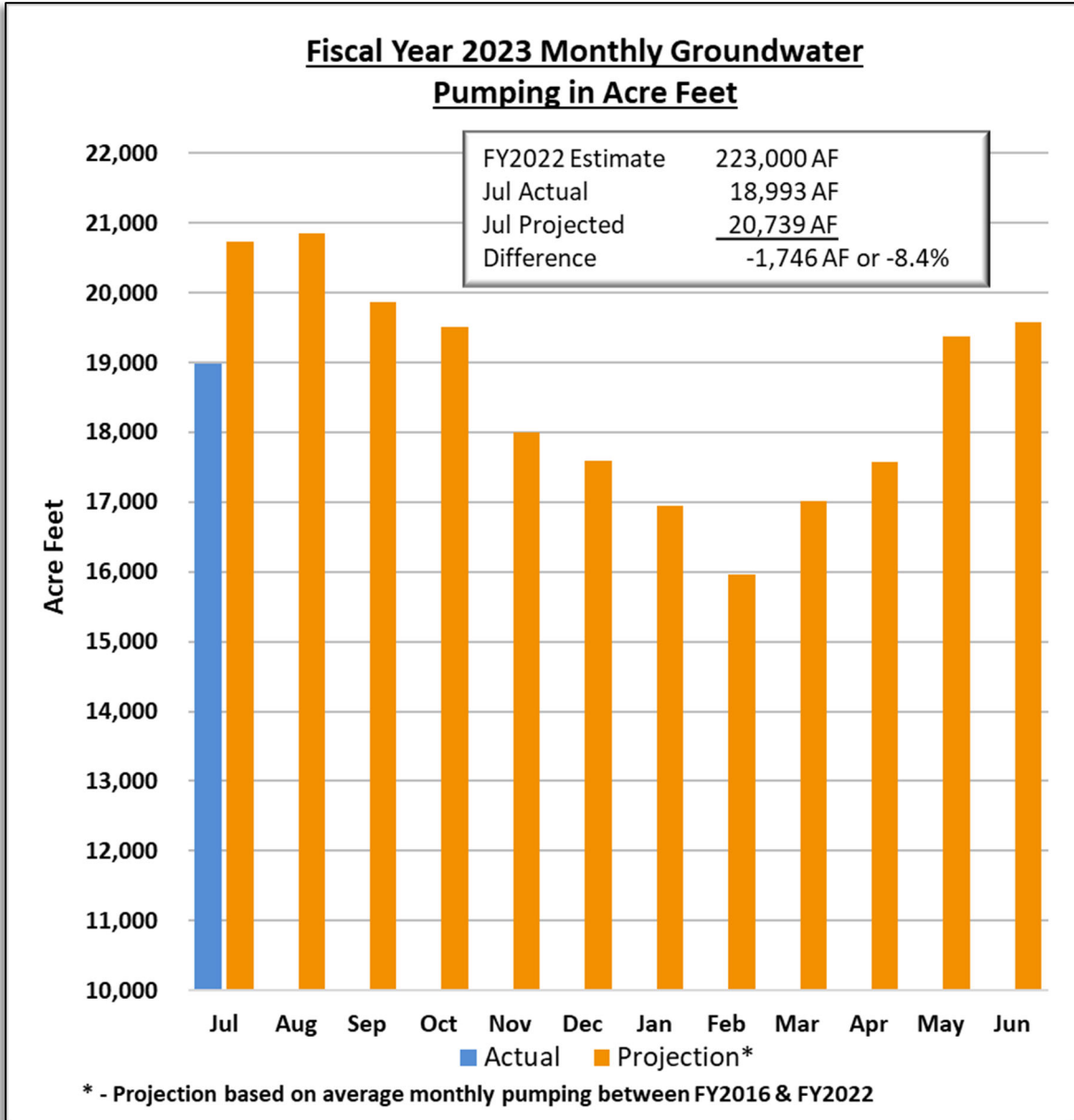
Preliminary numbers for groundwater production in the District for the Fiscal Year 2022-23 (July) indicate total pumping in the Central Basin was down 822 acre feet from the same time of the previous fiscal year (-4.9%) and the West Coast Basin total pumping was 149 acre feet higher than the previous fiscal year (+4.9%). The total pumping is 18,993 acre feet compared to 19,666 acre feet during the same time the previous year for a decrease of 673 acre feet, or -3.4%. The current pumping data do not include two (2) Central Basin pumpers who have not yet reported for an estimated 7 additional acre feet.



### Interesting...

Renewable resources are resources that replenish at reasonable rates so that humans won't run out of them. Water is renewable because it is recycled in reasonably short periods of time.

Preliminary numbers indicate 18,993 acre feet have been pumped this fiscal year and is 8.4% below the projected goal of 20,739 acre feet (or -1,746 acre feet). Monthly actual production versus the 7-year average monthly production projections (FY 2016 through 2022) are included in the chart below.



For the Fiscal Year 2021-22 (July 2021 - June 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.

<b>Production Trends - Central Basin</b>				
<b>Top 5 Producing by Volume (AF)</b>	Jul 2020- Jun 2021	Jul 2021- Jun 2022	Difference	% Change
Los Angeles, City - CB	0.00	586.19	586.19	100.00
Golden State Water Co. - CB	1,658.42	1,786.12	127.70	7.15
Commerce, City	0.00	47.31	47.31	100.00
Signal Hill, City	83.54	114.02	30.48	26.73
San Gabriel Valley Water Co.	213.19	229.47	16.28	7.09
<b>Bottom 5 Producing by Volume (AF)</b>	Jul 2020- Jun 2021	Jul 2021- Jun 2022	Difference	% Change
Long Beach, City - CB	2,859.49	2,544.76	-314.73	-12.37
Lynwood, City	494.41	323.53	-170.88	-52.82
Lakewood - City	778.45	648.58	-129.87	-20.02
Downey, City	1,497.24	1,375.80	-121.44	-8.83
Bell Gardens, City	95.05	0.00	-95.05	-100.00

<b>Production Trends – West Coast Basin</b>				
<b>Top 5 Producing by Volume (AF)</b>	Jul 2020- Jun 2021	Jul 2021- Jun 2022	Difference	% Change
Cal. Water Service Co. Dominguez - WB	155.83	285.85	130.02	45.49
Golden State Water Co. - WB	420.75	462.94	42.19	9.11
Rolling Hills Country Club	45.00	64.00	19.00	29.69
Roman Catholic Archbishop - WB	0.00	13.59	13.59	100.00
Torrance, City	156.17	169.12	12.95	7.66
<b>Bottom 5 Producing by Volume (AF)</b>	Jul 2020- Jun 2021	Jul 2021- Jun 2022	Difference	% Change
Cal. Water Service Co. Alpha 7050	182.05	90.41	-91.64	-101.36
Phillips 66 Co. - Alpha 7093	554.05	489.53	-64.52	-13.18
Tesoro Refining	807.38	752.75	-54.63	-7.26
Inglewood, City	176.10	143.99	-32.11	-22.30
Shell Oil Co NCWUP	17.77	12.22	-5.55	-45.42

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@wrdd.org](mailto:eferguson@wrdd.org).