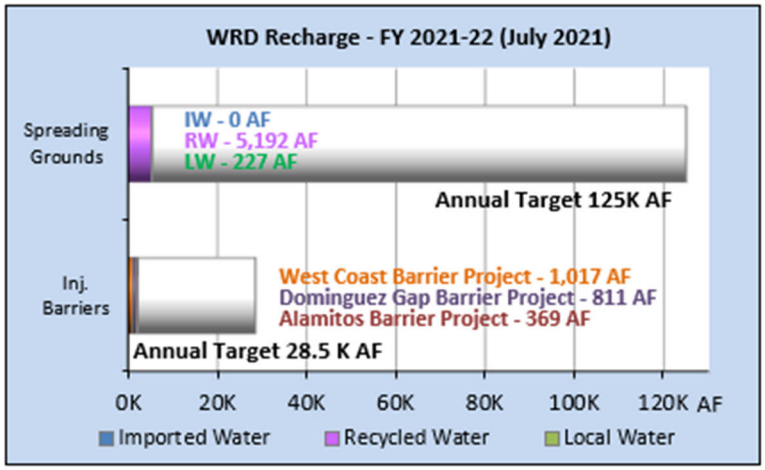
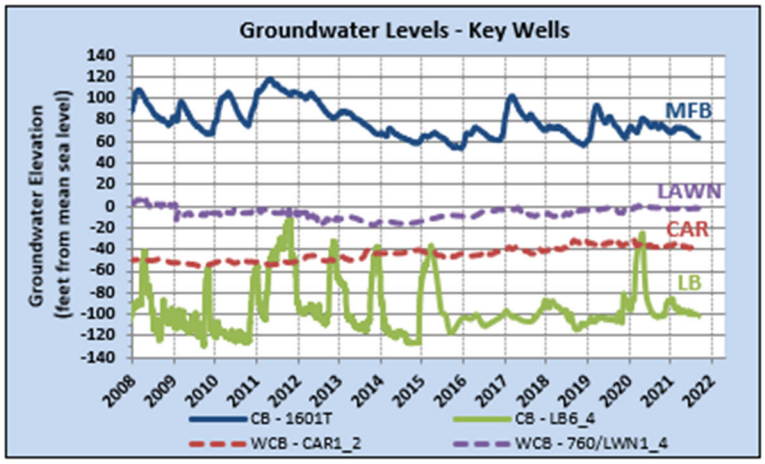
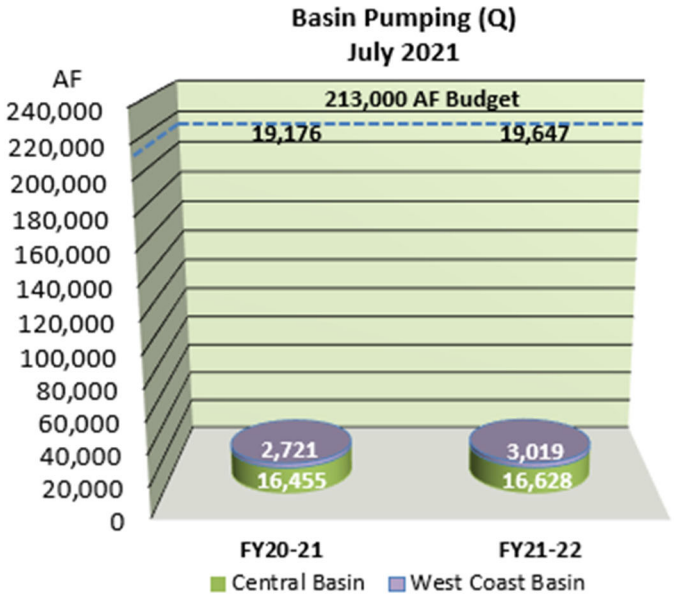
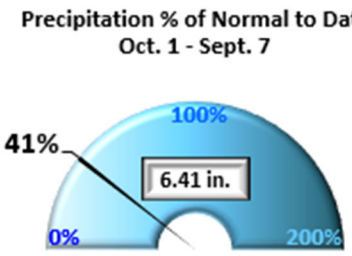
GROUNDWATER BASIN UPDATE
FOR SEPTEMBER 2021

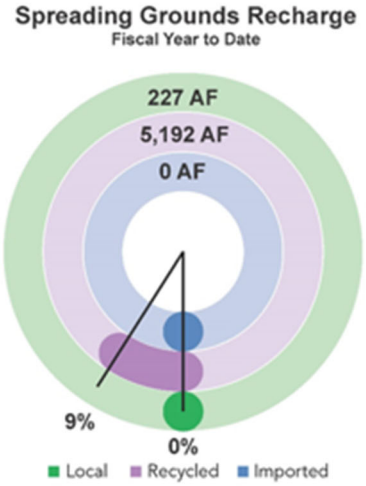
GROUNDWATER BASINS *AT A GLANCE**

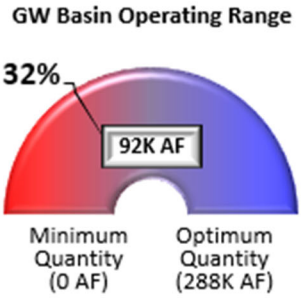


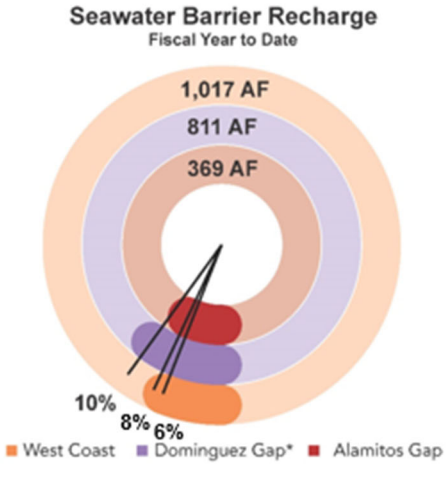








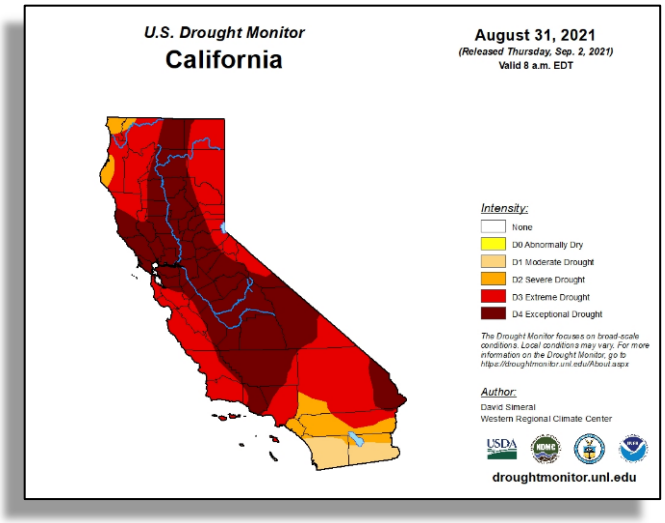




* - Preliminary numbers, subject to change.

SUMMARY

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

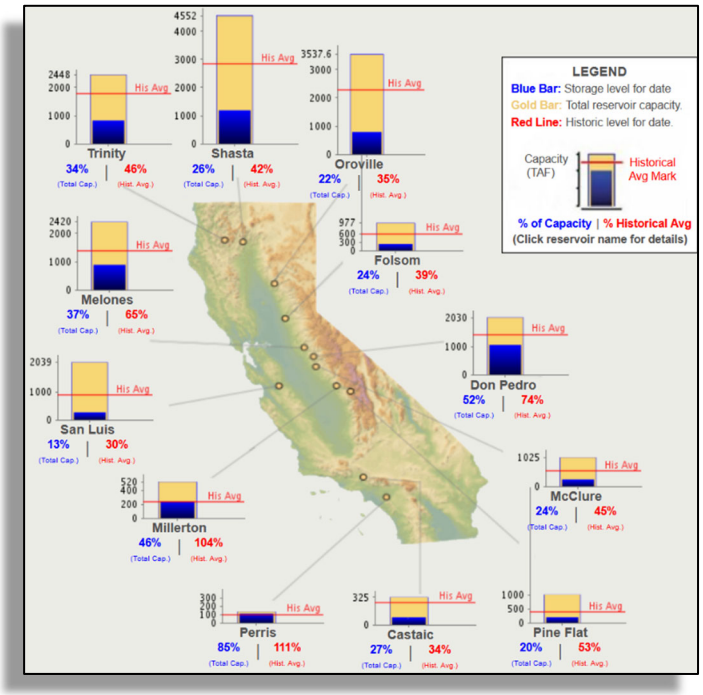


Precipitation (Oct. 1, 2020 – Sept. 7, 2021)

The WRD precipitation index reports that for the 2020-21 Water Year, there has been below average rainfall (6.41 inches) through September 7, 2021. The normal rainfall for this time period is 15.47 inches, so the District is 41% of normal. As of August 31, 2021, the U.S. Drought Monitor is reporting 100% of the State is under moderate, 96% under severe, 88% under extreme, and 47% exceptional drought conditions.

Reservoirs (as of September 6, 2021)

For the 16 reservoirs reported monthly to the committee, water levels have decreased in 14 of 16 reservoirs. The largest decrease (-0.31 million acre feet, MAF) occurred at Lake Powell. The smallest decrease (<0.0 MAF) occurred at Lakes Folsom, Perris, and Silverwood. Increases occurred at Lakes Millerton (0.02 MAF) and Mead (0.01 MAF).



MWD Reservoirs (SWP)
Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Trinity Lake	2.45	0.82	34%	-0.16
Lake Shasta	4.55	1.19	26%	-0.23
Lake Oroville	3.54	0.79	22%	-0.07
Folsom Lake	0.98	0.24	24%	0.00
New Melones L.	2.40	0.89	37%	-0.12
Don Pedro Res	2.03	1.06	52%	-0.08
Lake McClure	1.02	0.24	24%	-0.06
San Luis Res	2.04	0.26	13%	-0.13
Millerton Lake	**0.52**	**0.24**	**46%**	**0.02**
Pine Flat	1.00	0.20	20%	-0.01
Castaic Lake	0.33	0.09	27%	-0.03
Lake Perris	0.13	0.11	85%	0.00
L. Silverwood	0.08	0.07	84%	0.00

MWD Reservoirs (CRA)
Storage in Million Acre Feet

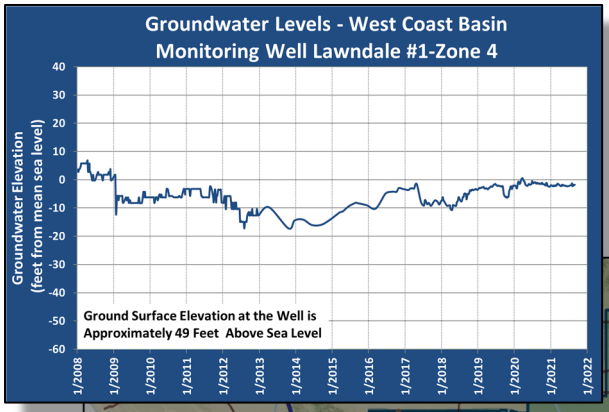
Reservoir	Capacity	Storage	% Full	Change
Powell	24.32	7.55	31%	-0.31
Mead	**26.12**	**9.04**	**35%**	**0.01**
DVL	0.81	0.63	78%	-0.01

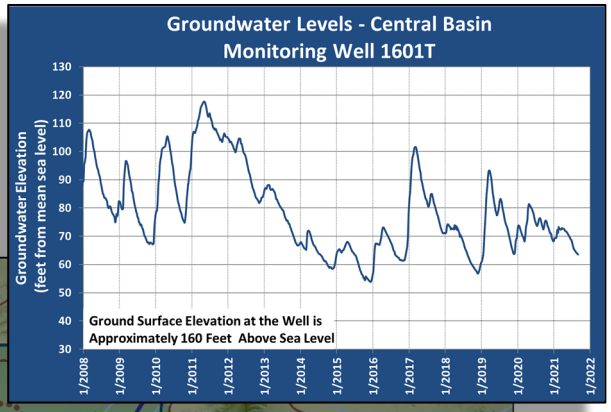
Black Text - Decrease or no change in storage since the last report.
Green Text - Increase in storage since the last report.

These 16 reservoirs are at 32% capacity (23.41 MAF) which is down 1.19 MAF from the prior month (-0.88 MAF State Water Project [SWP] and -0.31 MAF Colorado River Aqueduct [CRA]).

Groundwater Levels (through September 3, 2021)

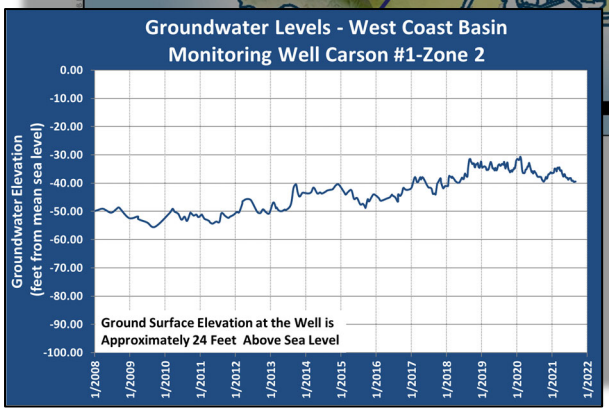
Groundwater levels in key monitoring wells are shown in the hydrographs below.

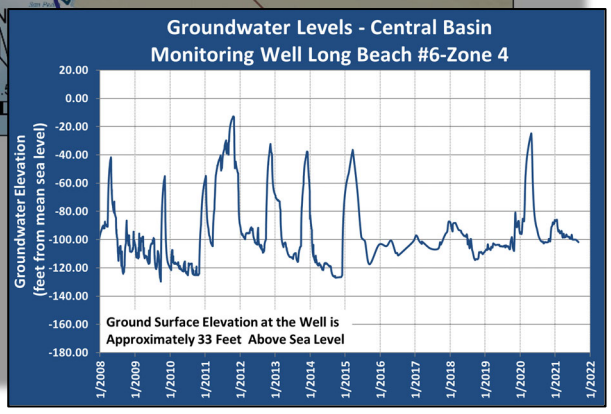




Central Basin Key Well Long Beach #6 and West Coast Basin Key Wells Lawndale #1 & Carson #1 are in a confined aquifer and do not respond readily to rainfall but instead to changes in pumping patterns and barrier recharge.

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 1.6 feet	Decreased 10.4 feet
Central Basin Key Well Long Beach #6_4	Decreased 1.8 feet	Increased 0.8 foot
West Coast Basin Key Well Lawndale #1_4	Increased 0.1 foot	Decreased 0.4 foot
West Coast Basin Key Well Carson #1_2	Decreased 0.2 foot	Decreased 1.6 feet

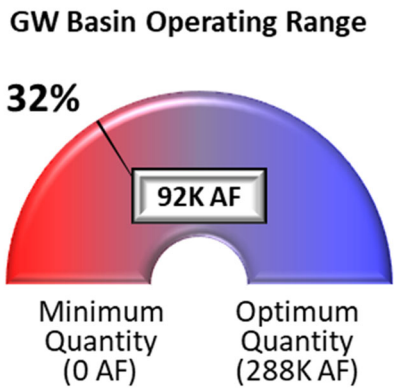
Bold indicates a change in direction (decreasing or increasing) since the last report.

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 3, 2021, has been estimated at 808,402 acre feet (subject to change), which is 91,598 acre feet above the Minimum Groundwater Quantity and 196,402 acre feet below the Optimum Quantity. The Basin is at 32% of Optimum Quantity which is 2% lower than what was reported last month (~6,000 AF lower).

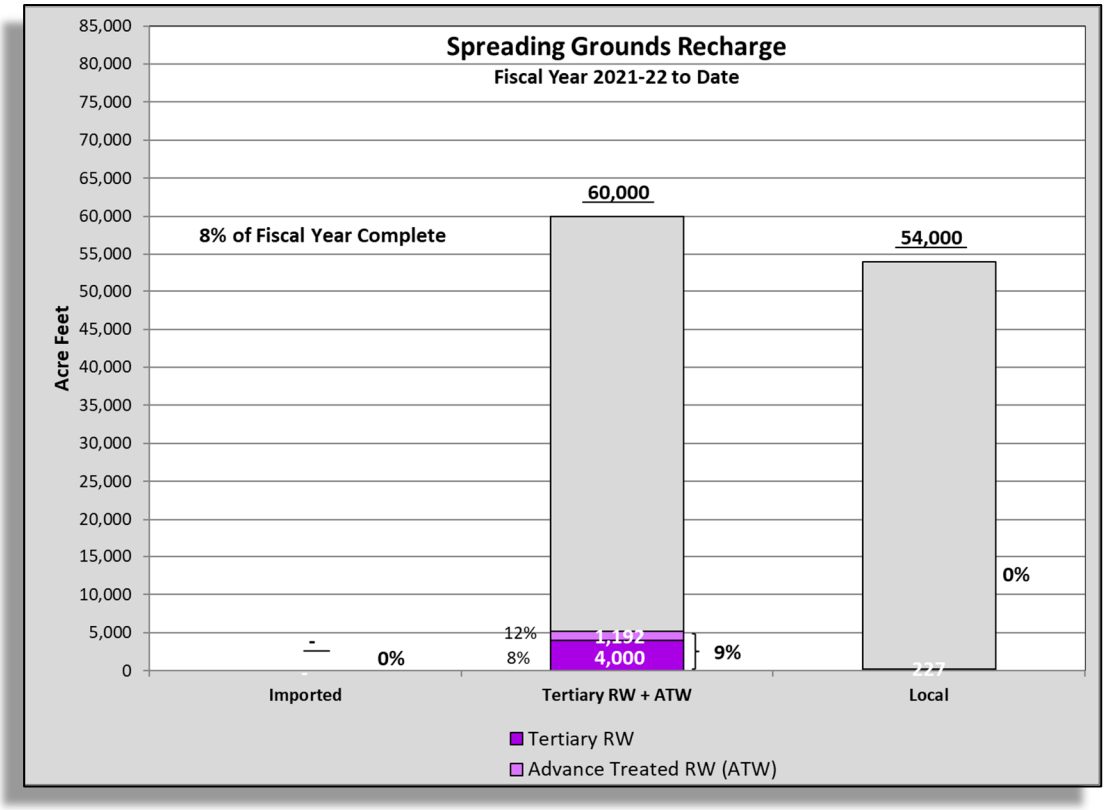


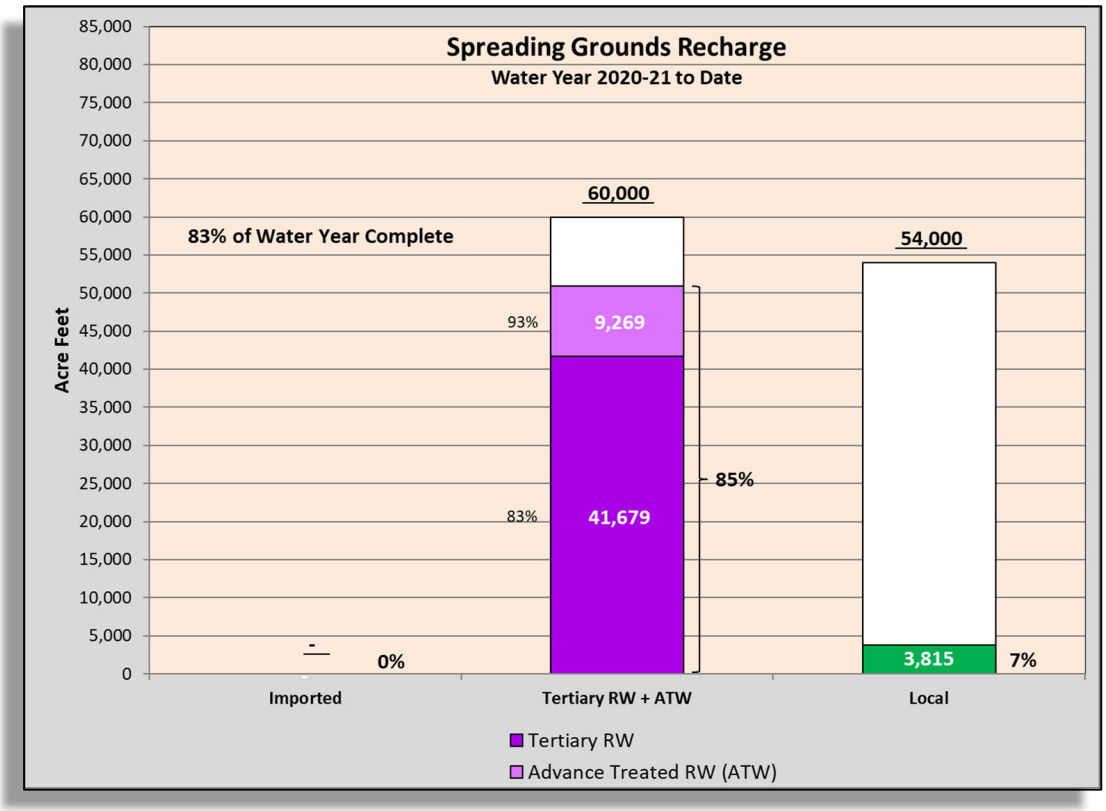
FACT:

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

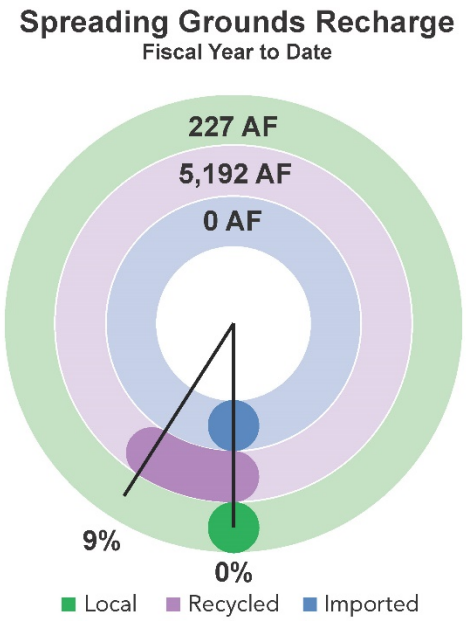
Montebello Forebay Spreading Grounds (July 2021)

The following Charts shows the preliminary spreading grounds replenishment water for the current Fiscal Year (2021-22; 1 month) and Water Year (2020-21; 10 months):



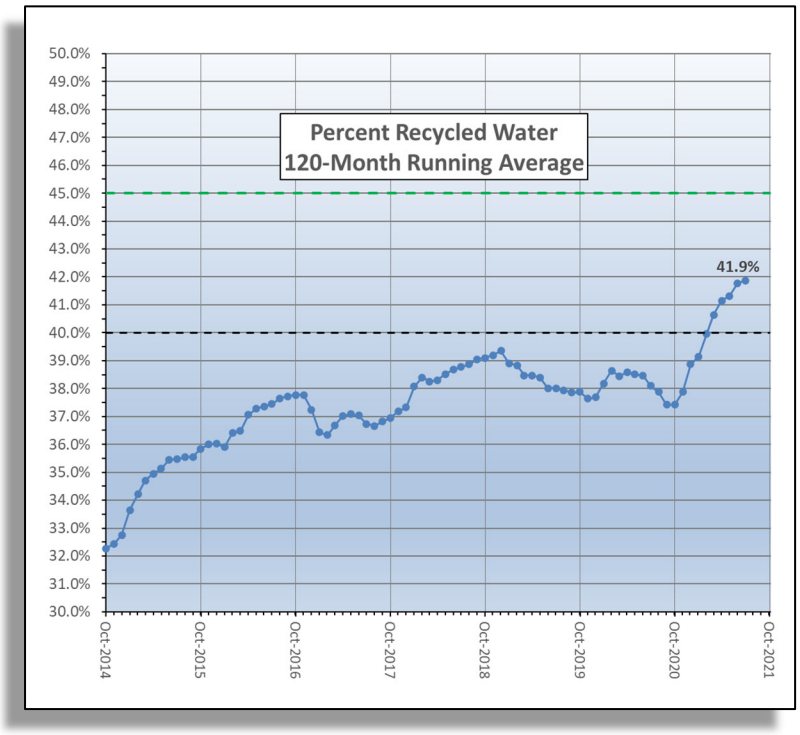


No imported water purchases are planned for Fiscal Year 2021-22.



Local water (stormwater plus dry weather urban runoff) is captured by the Los Angeles County Department of Public Works (LACDPW) 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 2021-22 Fiscal Year, approximately 227 acre feet of local water capture has been reported by the LACDPW.

Preliminary numbers for the 2021-22 Fiscal Year show that approximately 5,192 acre feet of recycled water has been recharged with 1,192 acre feet consisting of advanced treat water from the ARC AWTF and 4,000 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 41.9% 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

Following extensive collaboration between the District and LACSD, the Workplan required by the SWRCB - Division of Drinking Water (DDW) and LARWQCB regarding the use of tertiary treated recycled water at the Montebello Forebay Spreading Grounds was submitted on November 18, 2019.

Upon receipt of comments on the Workplan from the State of California, the District and LACSD will proceed with finalizing the preparation and submittal of the new Title 22 Engineering Report. In anticipation of receiving comments, staff continues to work collaboratively with the LACSD on developing the known components of the new Title 22 Engineering Report. A preliminary scoping meeting and a follow-up strategy meeting were held on November 26, 2019, and January 27, 2020, respectively. A follow-up meeting with the RWQCB to discuss some aspects of the Title 22 Engineering Report was held on December 8, 2020.

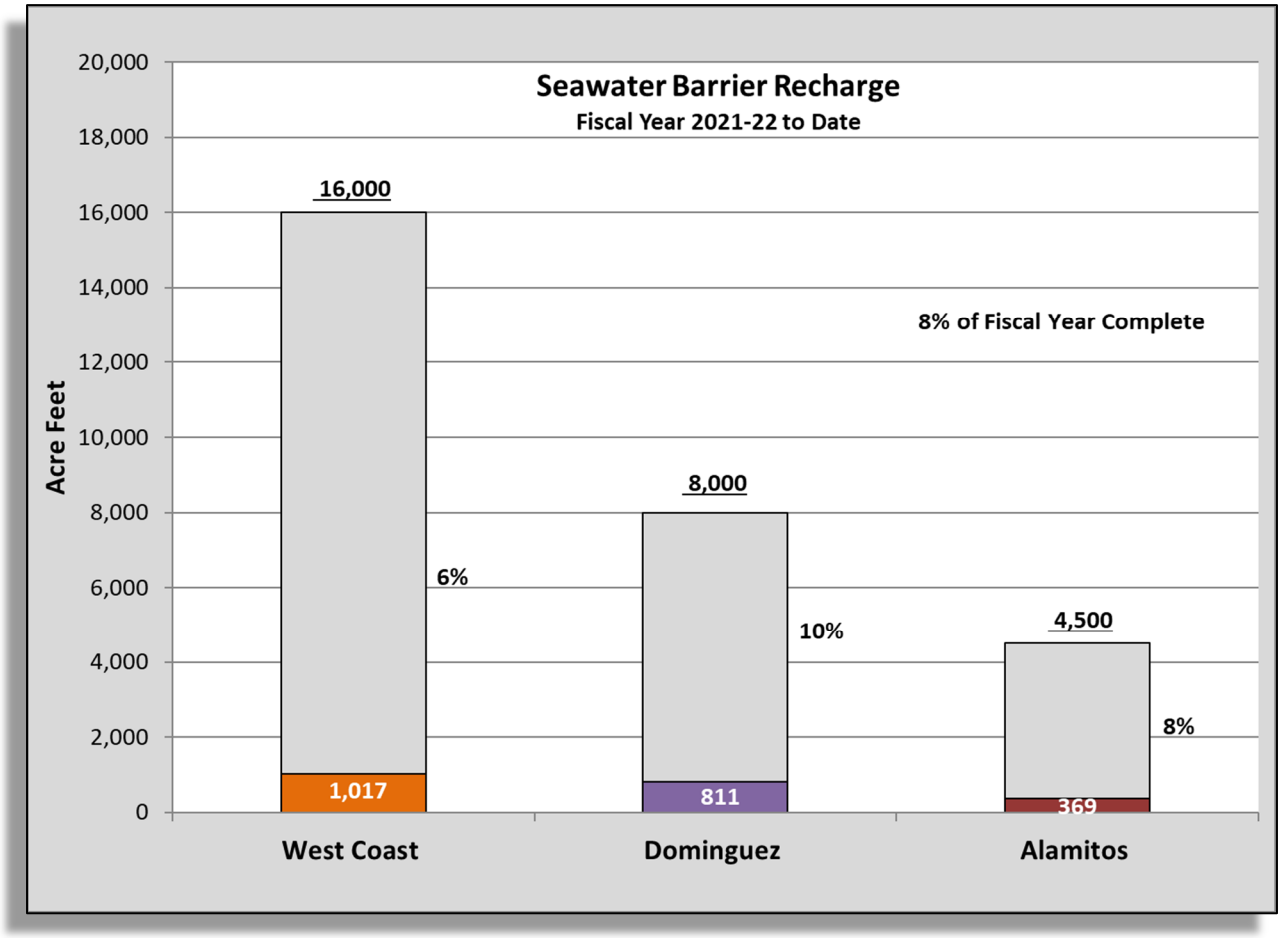
LACSD continues to work on two major studies needed for the new Title 22 Engineering Report – Biodegradable Dissolve Organic Carbon (BDOC) Study and Virus Logarithmic Reduction Value (LRV) Study. As the LACSD continues with the development of these studies they update the District during monthly project meetings. WRD staff and LACSD met with the LARWQCB and DDW on February 1, 2021, to discuss the BDOC Study. With the understanding that there is currently not an approved method for BDOC analysis, it was agreed WRD and LACSD will submit an enhanced monitoring plan in lieu of BDOC analysis once the recycled water contribution reaches 40%. LACSD is still working to schedule a separate meeting regarding the Virus LRV Study. The COVID pandemic has caused challenges with respect to the ability to safely perform the Virus LRV Study.

Interesting…

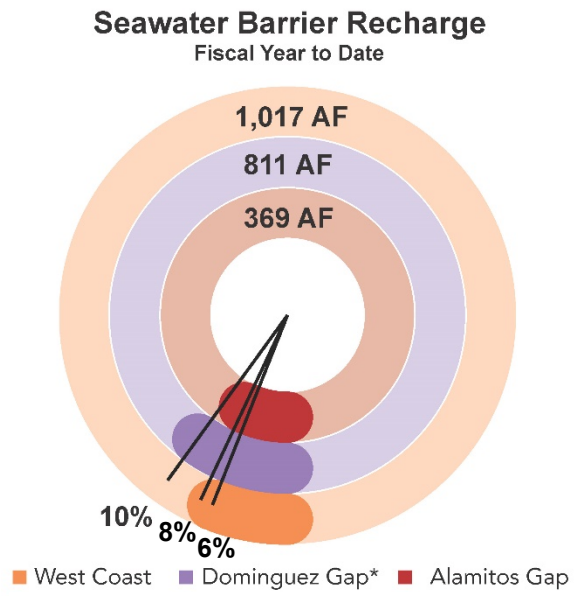
…groundwater provides much of the flow of many streams; many lakes and streams are "windows" to the water table.

Seawater Barrier Well Injection and Replenishment (July 2021)

The following Chart shows the barrier water injection:

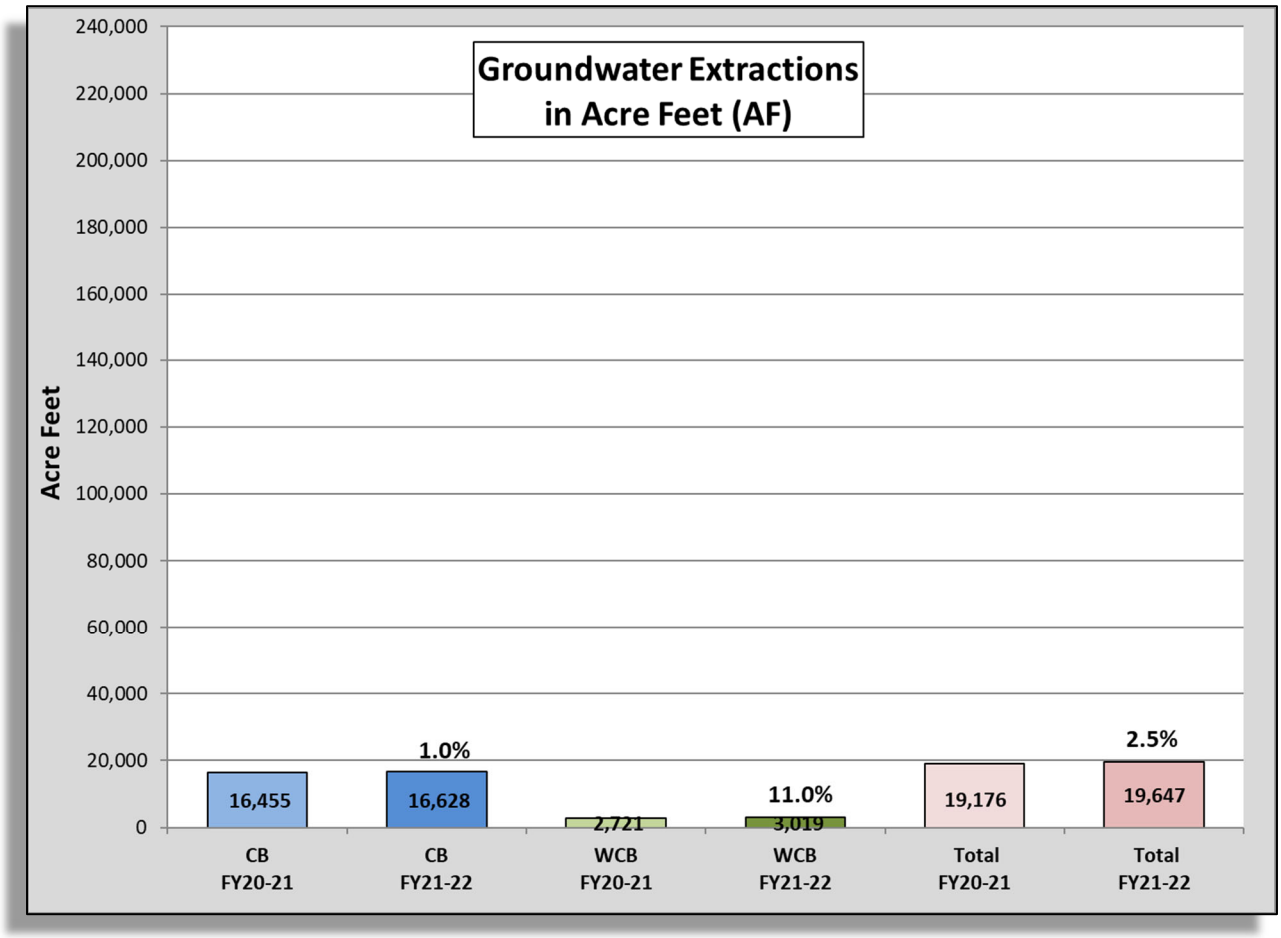


Preliminary numbers for the 2021-22 Fiscal Year show that the West Coast Barrier has used 1,017 acre feet of the total 16,000 acre feet planned for injection, 6% of total for the Fiscal Year. The Dominguez Gap Barrier used 811 acre feet of the total 8,000 acre feet planned for injection, 10% of the total for the Fiscal Year. The Alamitos Barrier, on the WRD side, used 369 acre feet of the total 4,500 acre feet planned for injection, 7% of the total for the Fiscal Year.



Assessable Pumping (Fiscal Year 2021-2022)

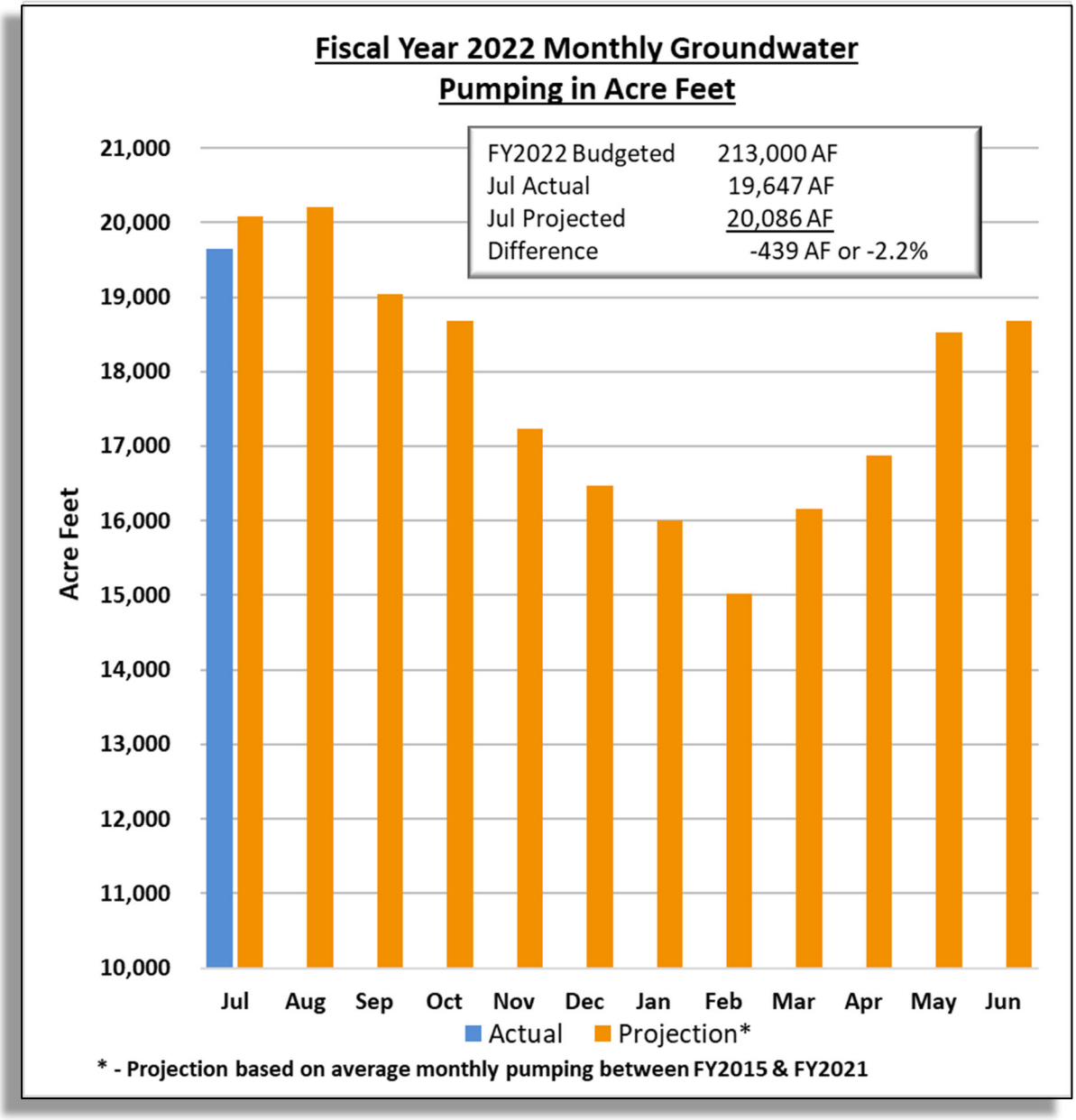
Preliminary numbers for groundwater production in the District for the Fiscal Year 2021-22 (July 2021) indicate pumping in the Central Basin was up 173 acre feet from the same time of the previous fiscal year (+1.0%) and the West Coast Basin pumping was 298 acre feet higher than the previous fiscal year (+11.0%). The total pumping is 19,647 acre feet compared to 19,176 acre feet during the same time the previous year for an increase of 471 acre feet, or +2.5%. The current pumping data do not include three (3) Central Basin pumpers and three (3) West Coast Basin pumpers who have not yet reported for an estimated 8 additional acre feet.



Did you know?

In large part, the flow in a stream represents water that has flowed from the ground into the stream channel. It is estimated by the USGS that about 30 percent of U.S. stream-flow is from groundwater, although it is higher in some locations and less in others.

Preliminary numbers indicate 19,647 acre feet have been pumped this fiscal year and is -2.2% below the projected goal of 20,086 acre feet (or -439 acre feet). Monthly actual production versus 7-year average monthly production projections (FY 2015 through 2021) are included in the chart below.



"Men can dig wells, but they can't create water." — *Craig D. Lounsbrough*

For the Fiscal Year 2021-22 (July 2021), 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)	July 2020-21	July 2021-22	Difference	% Change
Whittier, City of	359.73	601.43	241.70	67.19%
San Gabriel Valley Water Company	0.55	213.19	212.64	38,661%
Downey, City of	1,314.17	1,497.24	183.07	13.93%
Maywood Mutual Water Company No. 2	0.00	84.66	84.66	0.00%
Lakewood, City of Water Department	696.88	778.45	81.57	11.71%
Bottom 5 Producing by Volume (AF)	July 2020-21	July 2021-22	Difference	% Change
Golden State Water Company	1,973.07	1,658.42	-314.65	-15.95%
Paramount, City of	410.04	247.09	-162.95	-39.74%
California Water Service Company (East LA)	905.30	797.30	-108.00	-11.93%
Signal Hill, City of	184.82	83.54	-101.28	-54.80%
Long Beach, City of	2,937.16	2,859.49	-77.67	-2.64%

Production Trends – West Coast Basin				
Top 5 Producing by Volume (AF)	July 2020-21	July 2021-22	Difference	% Change
Tesoro Refining & Marketing Co., LLC	695.68	807.38	111.70	16.06%
Phillips 66 Company	441.54	554.05	112.51	25.48%
Golden State Water Company	338.31	420.75	82.44	24.37%
California Water Service Company	12.72	182.05	169.33	1,331%
Inglewood, City of	283.93	176.10	-107.83	-37.98%
Bottom 5 Producing by Volume (AF)	July 2020-21	July 2021-22	Difference	% Change
Torrance, City of	432.63	156.17	-276.46	-63.90%
Inglewood, City of	283.93	176.10	-107.83	-37.98%
California Water Service Co. (Dominguez)	192.96	155.83	-37.13	-19.24%
Roman Catholic Archbishop of Los Angeles	36.09	0.00	-36.09	-100.00%
Los Angeles County Depart. of Parks & Rec.	63.41	40.88	-22.53	-35.53%

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.