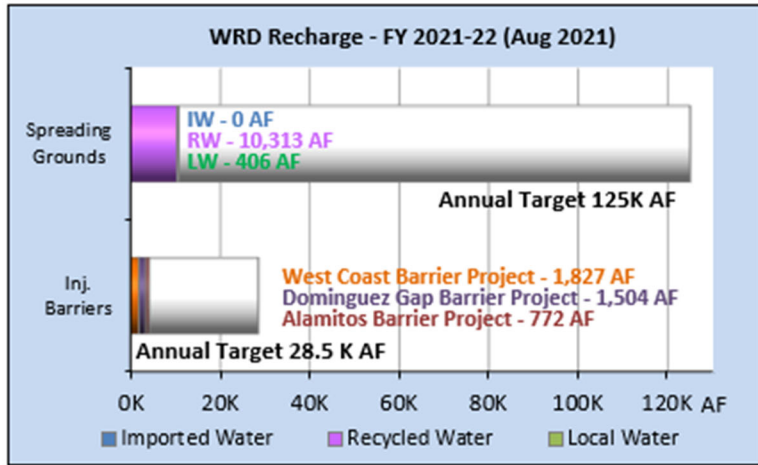
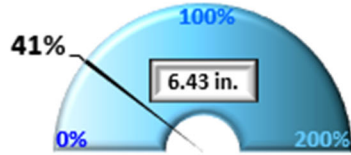


GROUNDWATER BASIN UPDATE FOR OCTOBER 2021

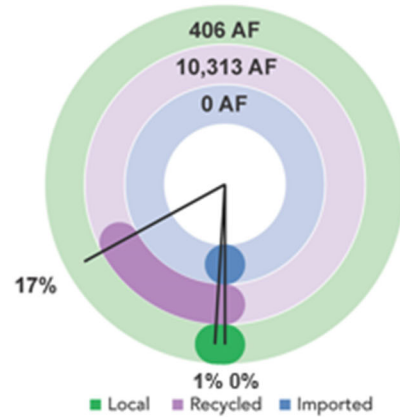
GROUNDWATER BASINS AT A GLANCE*



Precipitation % of Normal to Date
Oct. 1 - Sept. 30



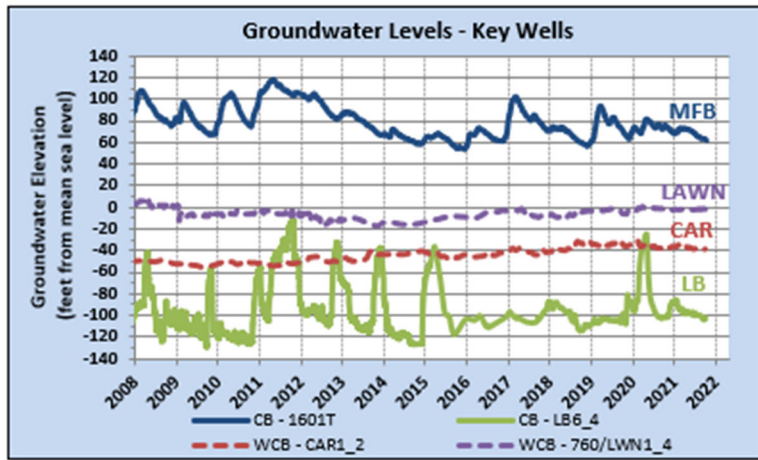
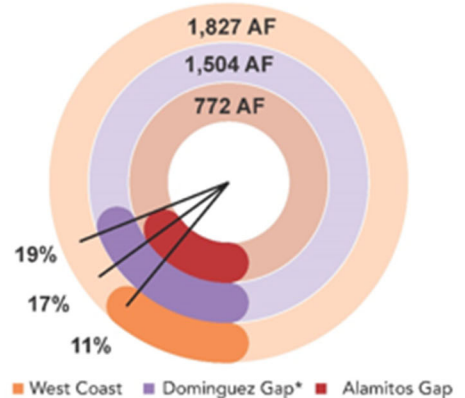
Spreading Grounds Recharge
Fiscal Year to Date



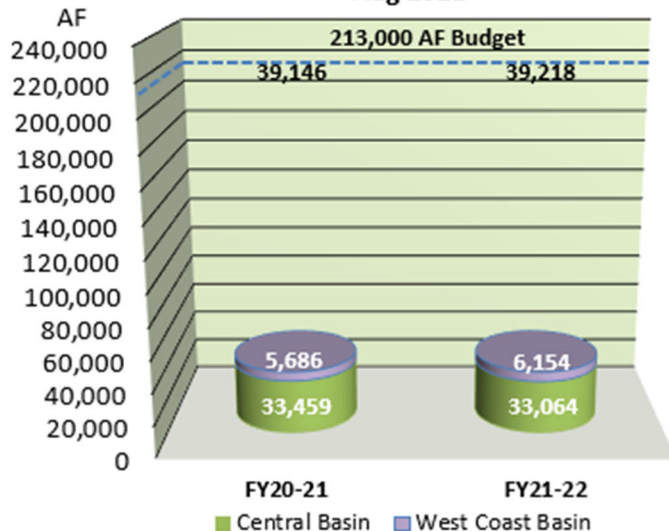
GW Basin Operating Range



Seawater Barrier Recharge
Fiscal Year to Date



Basin Pumping (Q)
Aug 2021



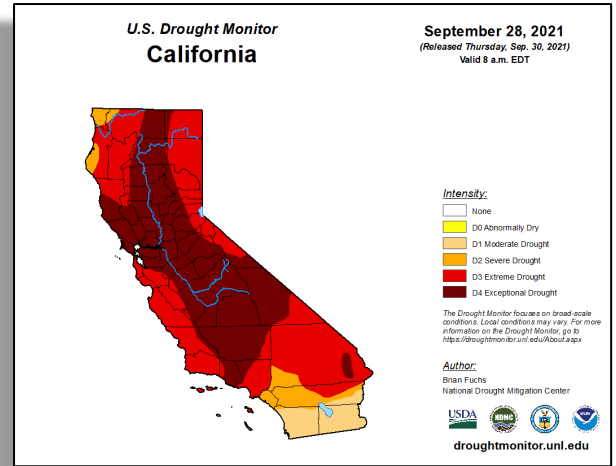
* - Preliminary numbers, subject to change.

SUMMARY

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

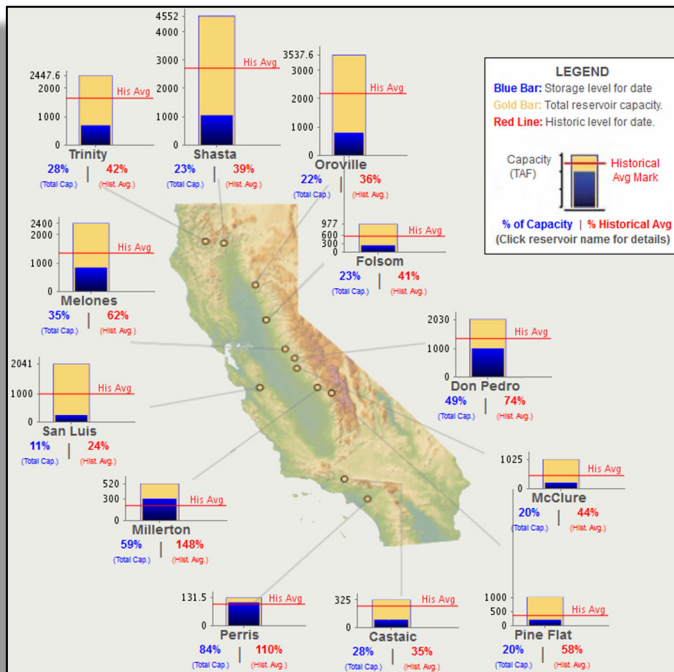
Precipitation (Oct. 1, 2020 – Sept. 30, 2021)

The WRD precipitation index reports that for the 2020-21 Water Year, there has been below average rainfall (6.43 inches) through September 30, 2021. The normal rainfall for this time period is 15.74 inches, so the District is 41% of normal. As of September 28, 2021, the U.S. Drought Monitor is reporting 100% of the State is under moderate, 94% under severe, 88% under extreme, and 46% exceptional drought conditions.



Reservoirs (as of October 6, 2021)

For the 16 reservoirs reported monthly to the committee, water levels have decreased in 12 of 16 reservoirs. The largest decrease (-0.29 million acre feet, MAF) occurred at Lake Powell. The smallest decrease (<0.0 MAF) occurred at Lakes Oroville and Perris. The largest increase occurred at Lakes Millerton (0.07 MAF) and the smallest increases occurred at Pine Flat Reservoir and Lakes Castaic and Silverwood (<0.00 MAF).



MWD Reservoirs (SWP)
Storage in Million Acre Feet

Reservoir	Capacity	Storage	% Full	Change
Trinity Lake	2.45	0.69	28%	-0.14
Lake Shasta	4.55	1.05	23%	-0.14
Lake Oroville	3.54	0.79	22%	0.00
Folsom Lake	0.98	0.23	23%	-0.01
New Melones L.	2.40	0.84	35%	-0.05
Don Pedro Res	2.03	1.00	49%	-0.06
Lake McClure	1.02	0.20	20%	-0.04
San Luis Res	2.04	0.23	11%	-0.03
Millerton Lake	0.52	0.31	59%	0.07
Pine Flat	1.00	0.20	20%	0.00
Castaic Lake	0.33	0.09	28%	0.00
Lake Perris	0.13	0.11	84%	0.00
L. Silverwood	0.08	0.07	87%	0.00

MWD Reservoirs (CRA)
Storage in Million Acre Feet

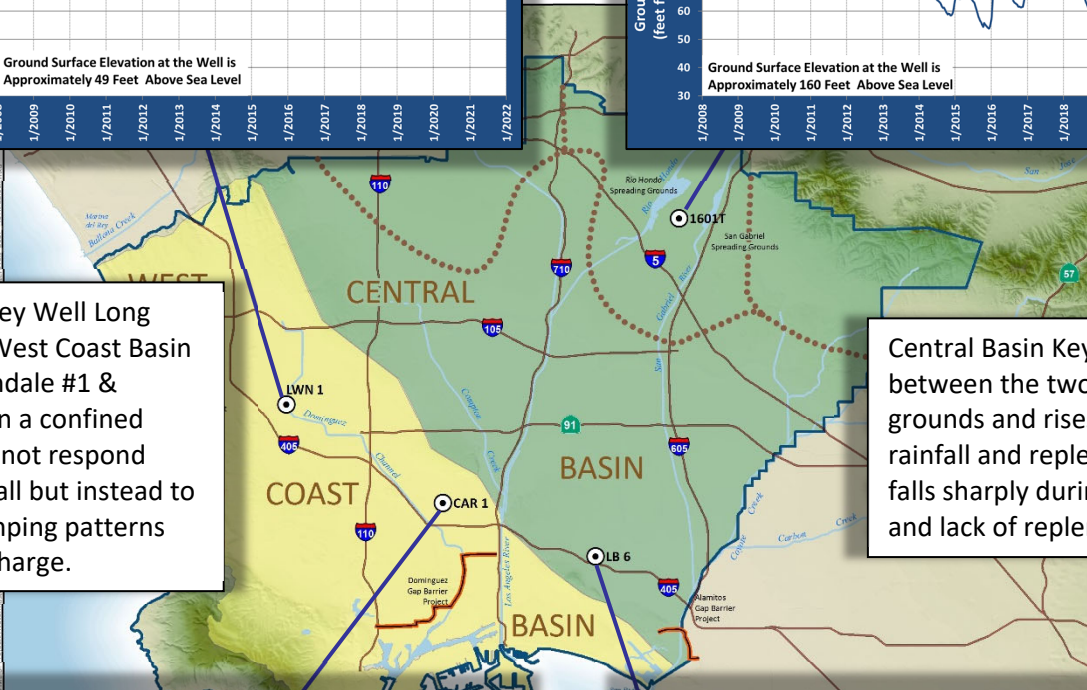
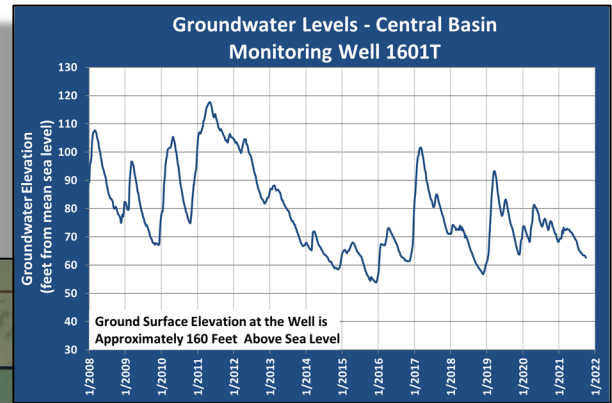
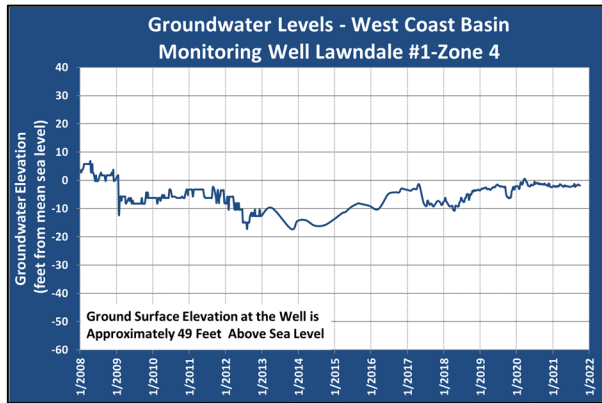
Reservoir	Capacity	Storage	% Full	Change
Powell	24.32	7.26	30%	-0.29
Mead	26.12	9.02	35%	-0.02
DVL	0.81	0.62	76%	-0.01

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 31% capacity (22.69 MAF) which is down 0.72 MAF from the prior month (-0.40 MAF State Water Project [SWP] and -0.32 MAF Colorado River Aqueduct [CRA]).

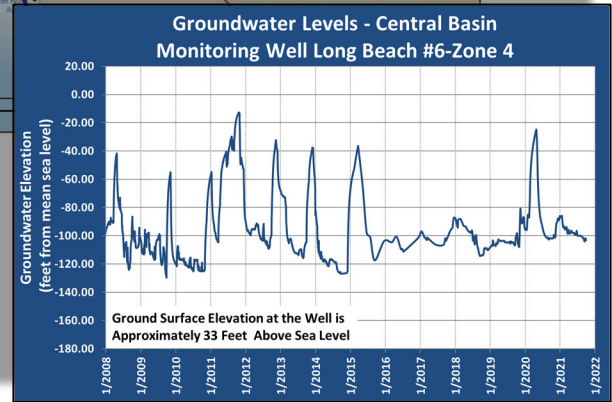
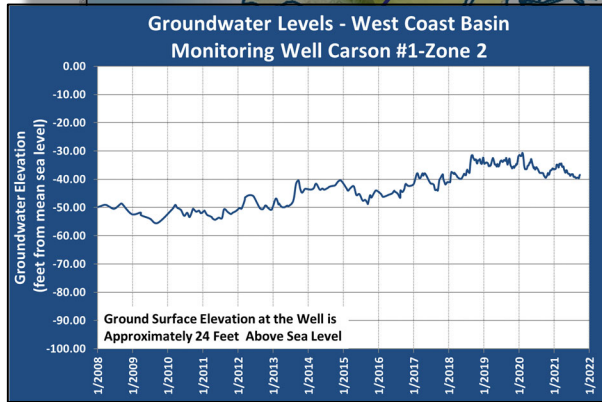
Groundwater Levels (through October 1, 2021)

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 0.9 feet	Decreased 12.2 feet
Central Basin Key Well Long Beach #6 4	Decreased 1.3 feet	Decreased 1.4 feet
West Coast Basin Key Well Lawndale #1 4	Decreased 0.01 foot	Decreased 0.3 foot
West Coast Basin Key Well Carson #1 2	Increased 1.0 foot	Increased 0.9 foot

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

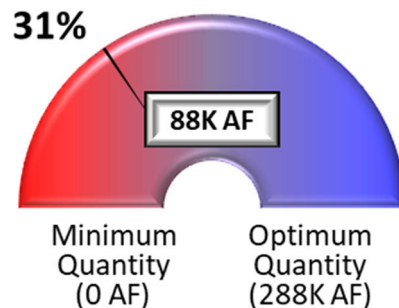
Optimum and Minimum Groundwater Quantity

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 30, 2021, has been estimated at 811,871 acre feet (subject to change), which is 88,129 acre feet above the Minimum Groundwater Quantity and 199,871 acre feet below the Optimum Quantity. The Basin is at 31% of Optimum Quantity which is 1% lower than what was reported last month (~4,000 AF lower).

GW Basin Operating Range

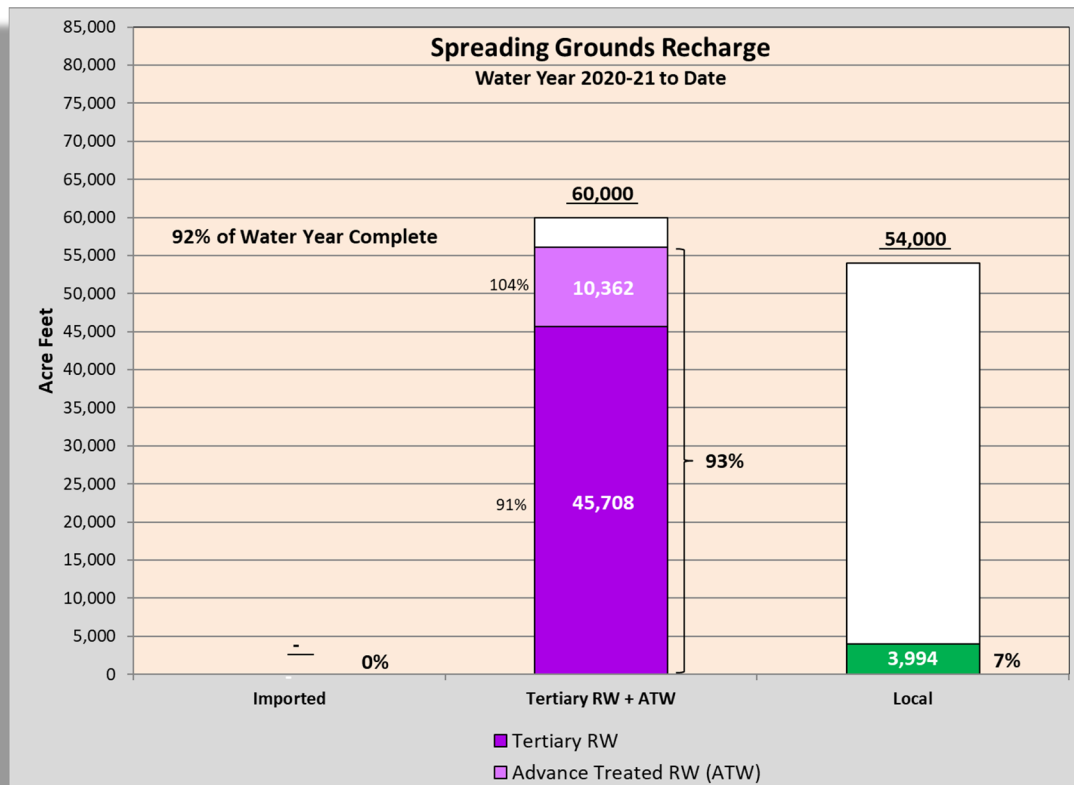
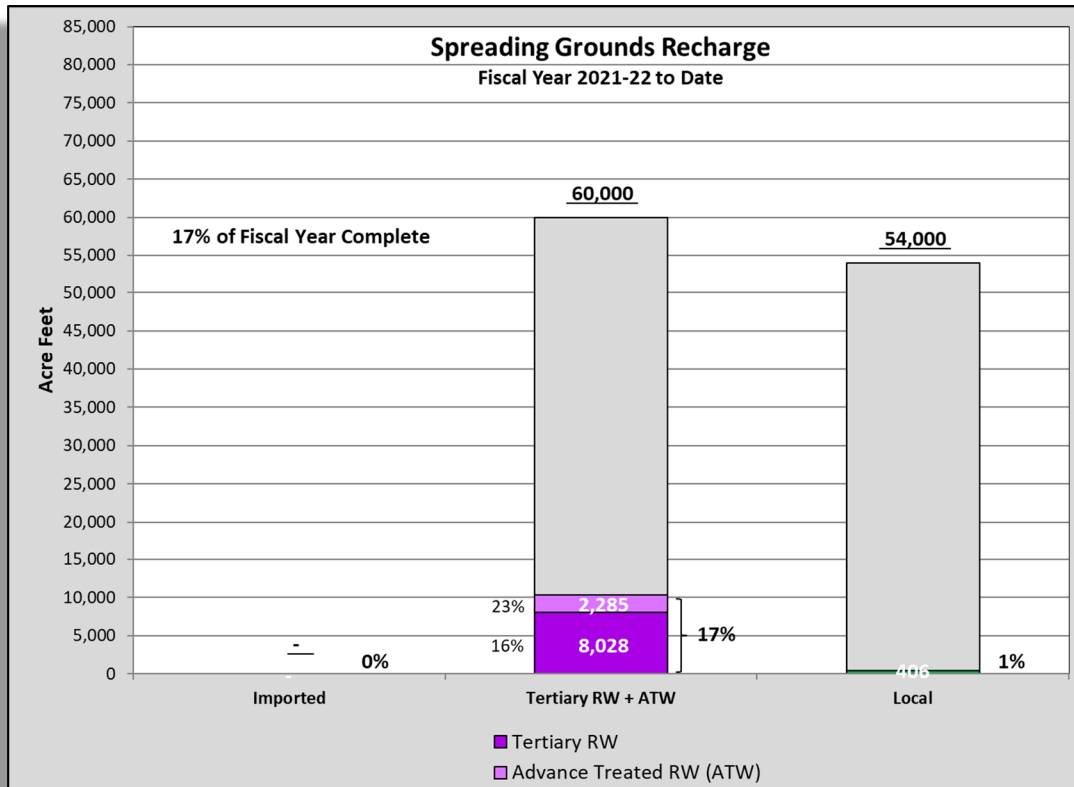


Did you know?

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.

Montebello Forebay Spreading Grounds (July - August 2021)

The following Charts shows the preliminary spreading grounds replenishment water for the current Fiscal Year (2021-22; 2 months) and Water Year (2020-21; 11 months):

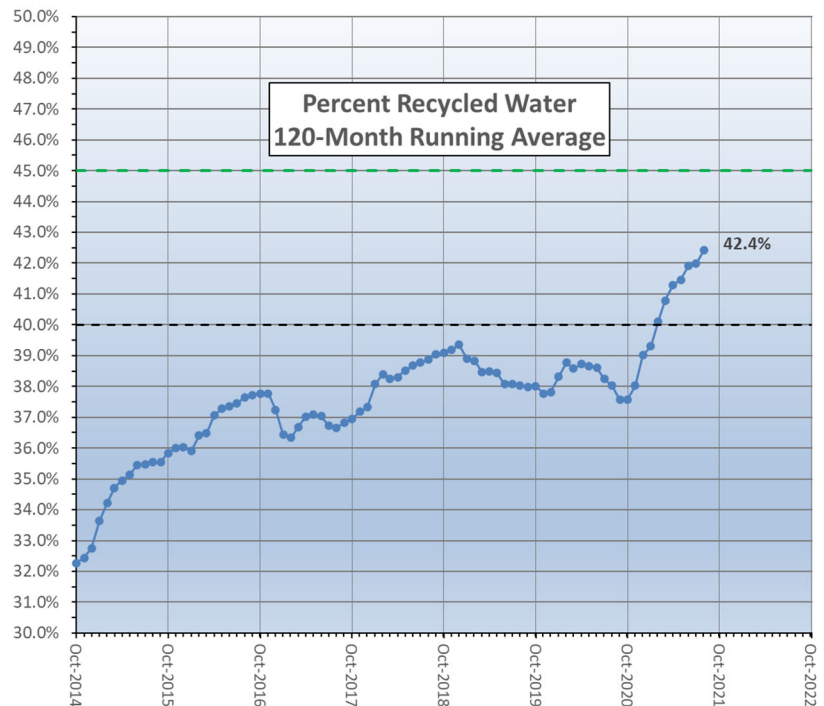
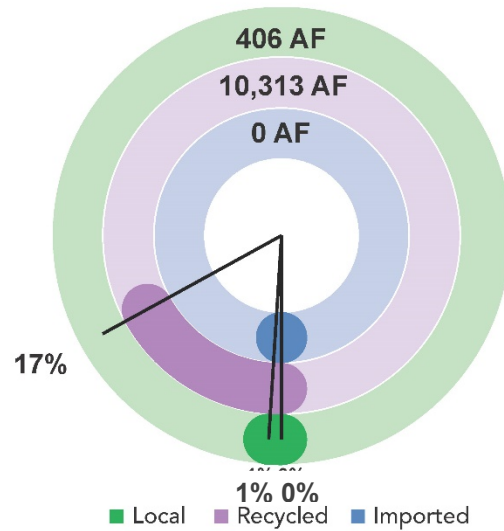


No imported water purchases are planned for Fiscal Year 2021-22.

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 406 acre feet of local water capture has been reported by the LACDPW.

Preliminary numbers for the 2021-22 Fiscal Year show that approximately 10,313 acre feet of recycled water has been recharged with 2,285 acre feet consisting of advanced treat water from the ARC AWTF and 8,028 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 42.4% 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.

Spreading Grounds Recharge Fiscal Year to Date

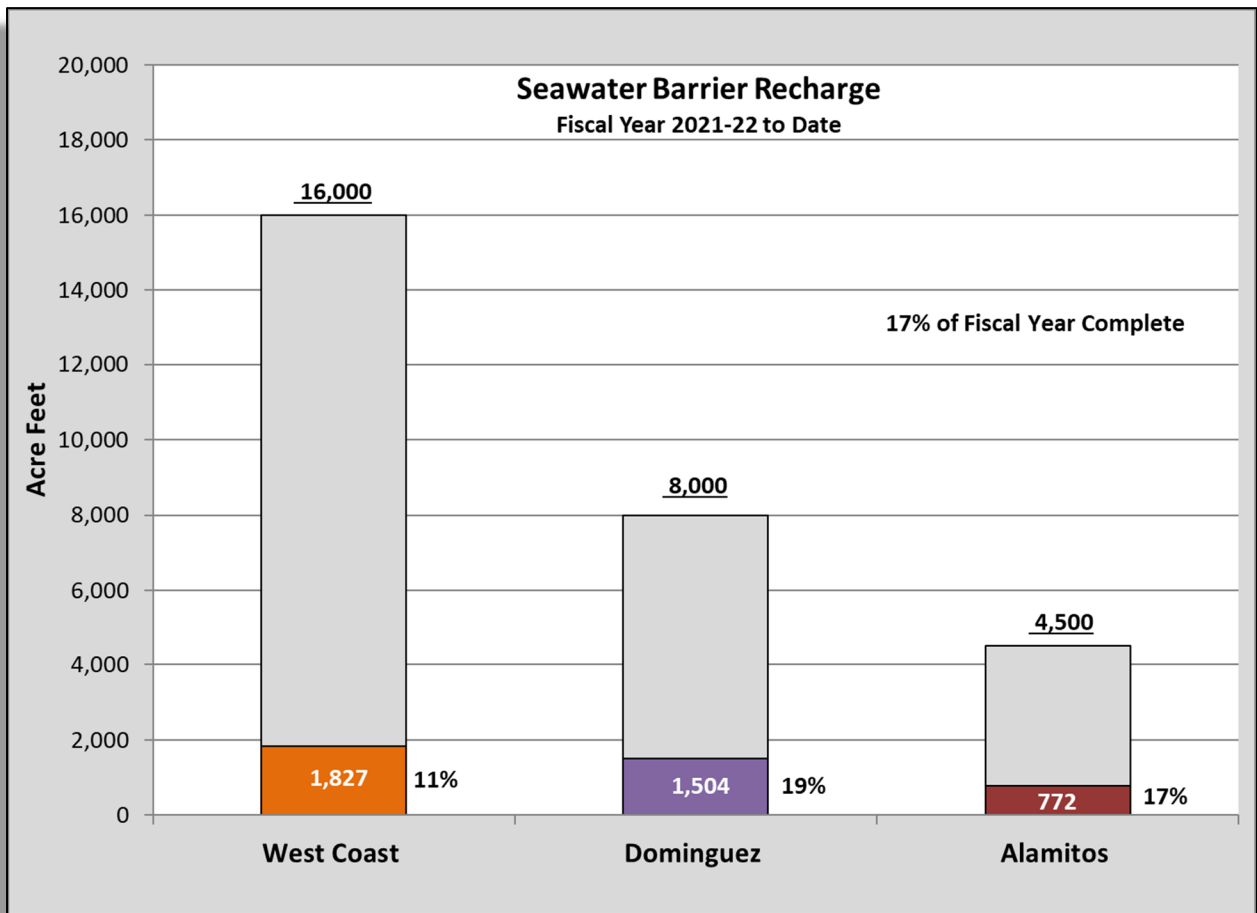


Tertiary Recycle Water Permit Update

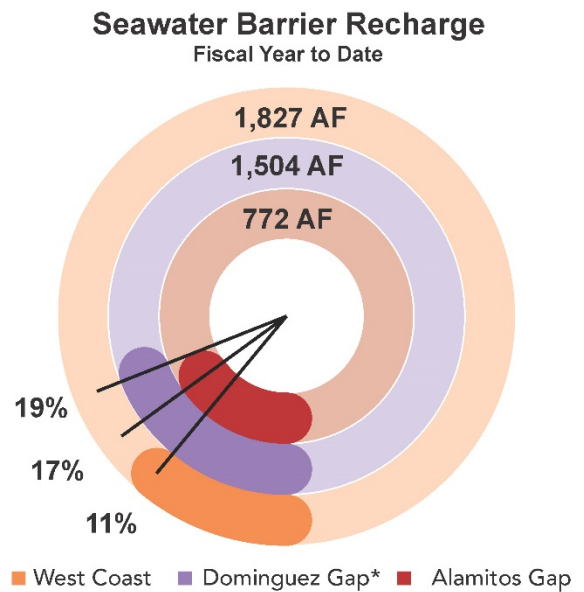
The permit is progressing with LACSD and WRD staff working with both LARWQCB and CA-DDW regulators to respond the questions and update pertinent sections of the new Title 22 Engineering Report. LACSD continues to work on two major studies needed for the new Title 22 Engineering Report – Biodegradable Dissolve Organic Carbon (BDOC) Study and Virus Logarithmic Reduction Value (LRV) Study.

Seawater Barrier Well Injection and Replenishment (July - August 2021)

The following Chart shows the barrier water injection:

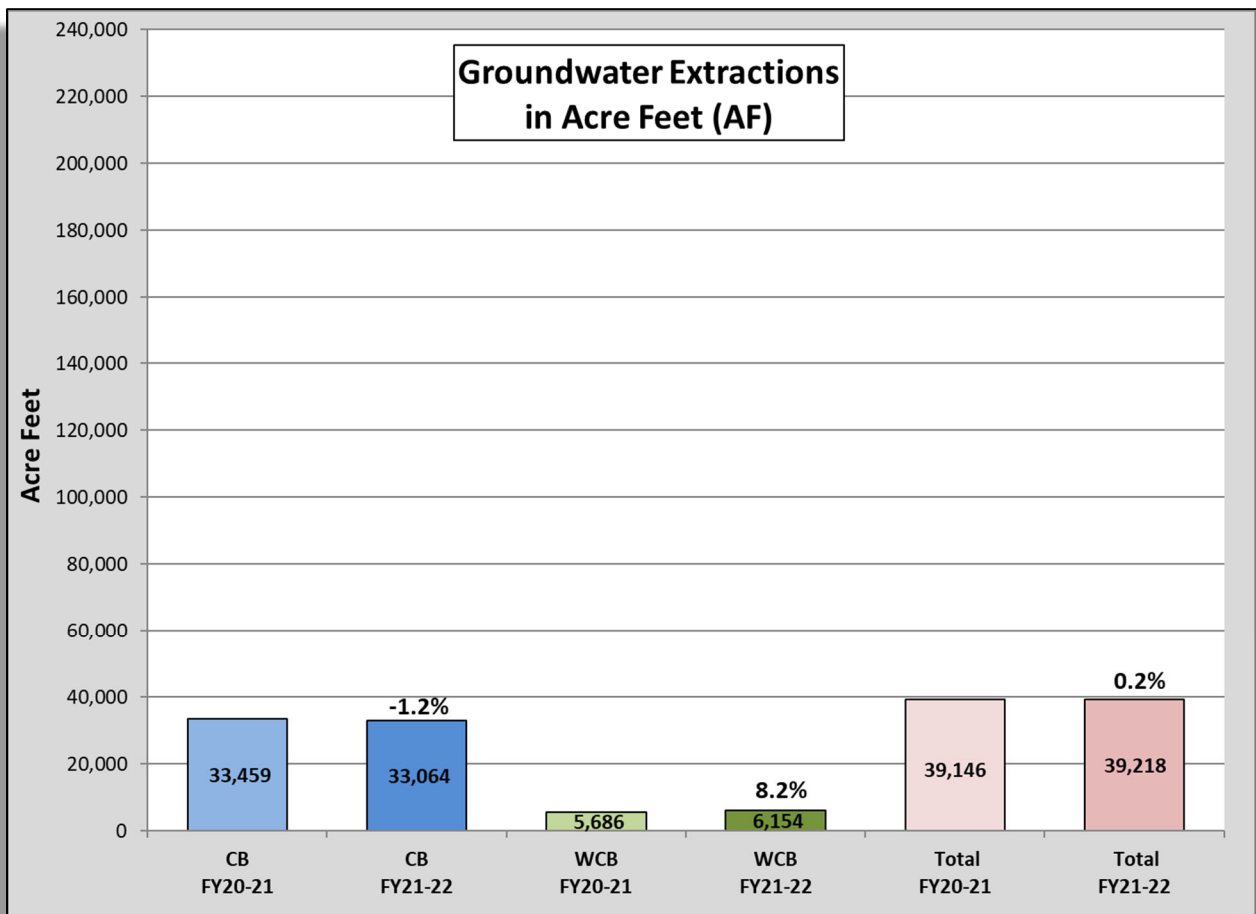


Preliminary numbers for the 2021-22 Fiscal Year show that the West Coast Barrier has used 1,827 acre feet of the total 16,000 acre feet planned for injection, 11% of total for the Fiscal Year. The Dominguez Gap Barrier used 1,504 acre feet of the total 8,000 acre feet planned for injection, 19% of the total for the Fiscal Year. The Alamitos Barrier, on the WRD side, used 772 acre feet of the total 4,500 acre feet planned for injection, 17% of the total for the Fiscal Year.



Assessable Pumping (Fiscal Year 2021-2022)

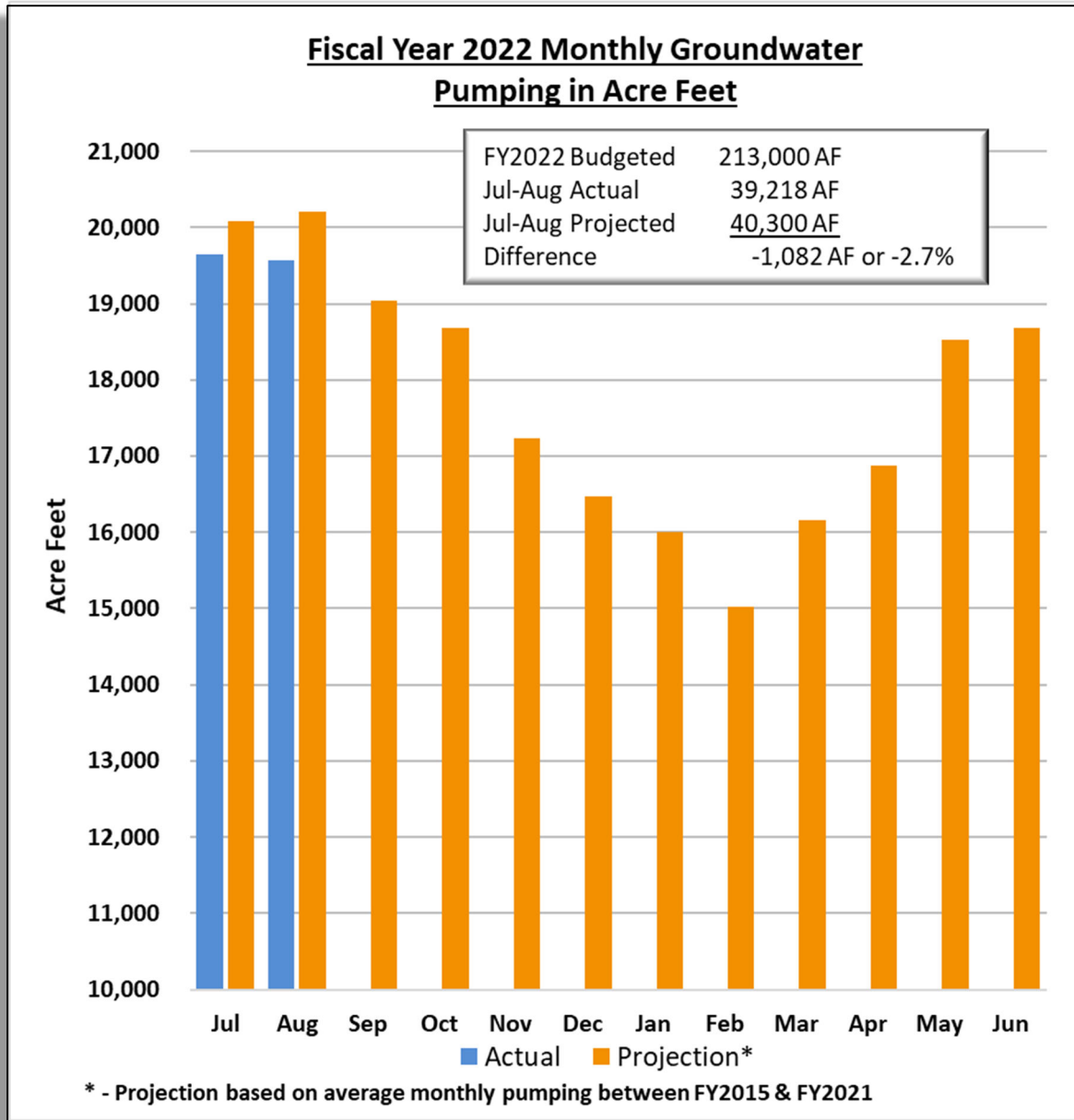
Preliminary numbers for groundwater production in the District for the Fiscal Year 2021-22 (July-August 2021) indicate pumping in the Central Basin was down 395 acre feet from the same time of the previous fiscal year (-1.2%) and the West Coast Basin pumping was 468.2 acre feet higher than the previous fiscal year (+8.2%). The total pumping is 39,218 acre feet compared to 39,146 acre feet during the same time the previous year for an increase of 72 acre feet, or +0.2%. The current pumping data do not include two (2) Central Basin pumpers and one (1) West Coast Basin pumper who have not yet reported for an estimated 3 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 39,218 acre feet have been pumped this fiscal year and is -2.7% below the projected goal of 40,300 acre feet (or -1,082 acre feet). Monthly actual production versus 7-year average monthly production projections (FY 2015 through 2021) are included in the chart below.



"Drawn wells have the sweetest water."

— Iranian Proverb



For the Fiscal Year 2021-22 (July-Aug 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 <u>by Volume</u> (AF)	July-Aug 2020	July-Aug 2021	Difference	% Change
San Gabriel Valley Water Company	1.71	460.86	459.15	26,850%
Whittier, City of	951.34	1,175.38	224.04	23.55%
Downey, City of	2,649.38	2,814.97	165.59	6.25%
Vernon, City of	1,077.64	1,205.48	127.84	11.86%
Maywood Mutual Water Company No. 2	116.77	236.09	119.32	102.18%
Bottom 5 Producing <u>by Volume</u> (AF)	July-Aug 2020-21	July-Aug 2021-22	Difference	% Change
Golden State Water Company	3,979.69	3,498.92	-480.77	-12.08%
California Water Service Company (East LA)	1,839.05	1,526.50	-312.55	-17.00%
Signal Hill, City of	373.40	141.48	-231.92	-62.11%
Paramount, City of	705.50	490.50	-215.00	-30.47%
Long Beach, City of	5,784.28	5,585.77	-198.51	-3.43%

Production Trends – West Coast Basin				
Top 5 Producing <u>by Volume</u> (AF)	July-Aug 2020	July-Aug 2021	Difference	% Change
Phillips 66 Company	866.65	1,103.58	236.93	27.34%
California Water Service Company	124.42	356.23	231.81	186.31%
Tesoro Refining & Marketing Co., LLC	1,411.99	1,635.67	223.68	15.84%
Golden State Water Company	685.40	829.16	143.76	20.97%
Torrance Refining & Marketing Company	26.84	148.72	121.88	454.10%
Bottom 5 Producing <u>by Volume</u> (AF)	July-Aug 2020	July-Aug 2021	Difference	% Change
Torrance, City of	987.40	283.32	-704.08	-71.31%
West Basin Brewer Desalter	207.14	0.00	-207.14	-100.0%
Inglewood, City of	552.01	395.69	-156.32	-28.32%
California Water Service Co. (Dominguez)	436.36	309.09	-127.27	-29.17%
Los Angeles County Dept. of Parks & Rec.	114.14	84.33	-29.81	-26.12%

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.