

**MONTECITO WATER DISTRICT
MEMORANDUM**

SECTION: 5-D

DATE: JULY 23, 2019

TO: BOARD OF DIRECTORS

FROM: GENERAL MANAGER

SUBJECT: QUARTERLY DROUGHT & WATER SUPPLY UPDATE

RECOMMENDATION:

Information only, no action required.

DISCUSSION:

This past winter brought above average rainfall across the State, including in Santa Barbara County, filling reservoirs and resulting in the State becoming nearly drought free for the first time since 2011. The District's Jameson Lake filled and spilled on February 3, 2019 and, despite the entire watershed burning in the 2017 Thomas Fire, water quality is improving. Cachuma Reservoir filled to over 80% of its full storage capacity providing for a 100% allocation for the current water year, WY2019. Above average snowpack in Northern California resulted in a State Water Project (SWP) allocation for 2019 of 75%. For the first time since 2014, the District is not projecting a need for supplemental water to meet its customer's projected annual water demands. The change in hydrologic conditions has resulted in the District projecting sufficient water supplies to meet projected demands over the 3-year planning period (thru 2021). In addition, an improved water supply has resulted in an opportunity to store water in a regional groundwater bank, *Semitropic Groundwater Banking and Exchange Program*, thereby bolstering the District's available water supplies during future droughts or periods of below-average rainfall.

While conditions have significantly improved, the District's water supplies have not fully recovered from the cumulative impacts of the historic seven-year drought spanning 2012 to 2018. Groundwater levels remain near historic lows and although the basin is showing signs of recovery, it is expected to take several consecutive years of above-average rainfall to fully recover. The District's reliance on supplemental water through the drought resulted in water debt, which has yet to be fully repaid. Jameson Lake water quality remains affected by the drought and deliveries continue to be limited. It is expected to take several more years of above-average rainfall for the District's water supplies to fully recover.

Recognizing the significant improvement in water supply conditions, but also the water supply challenges that remain, on April 23, 2019, the Board continued the declared water shortage emergency pursuant to Water Code Section 350 and the District's Urban Water Management Plan 2015 Update, and reduced the declared drought stage from Stage 2 to Stage 1 conditions. Subsequently, on May 28, 2019, the Board adopted Ordinance 96 repealing Ordinance 95 and establishing updated water use restrictions consistent with the declared Stage 1 water shortage emergency and current water supply conditions including the repeal of the prohibition on issuance of new water meters.

Background

In February 2014, following several years of deepening drought conditions, declining water supplies, and increases in customer water use, the District adopted Drought Ordinance 92 declaring a Stage 4 water shortage emergency condition, implementing restrictions on certain uses of water, prohibiting the issuance of new water meters, and instituting fines for failure to comply with water use restrictions. The District also adopted Ordinance 93 establishing monthly customer water use allocations and penalty rates for consumption in excess of allocation, in accordance with the recommended consumption reductions included in the District's Urban Water Management Plan. The customer water use allocations were increased in March 2015 with the adoption of Ordinance 94. Collectively, these actions were successful under extraordinary drought conditions in reducing customer water use by nearly 50% to be commensurate with the District's available water supplies.

In March 2017, following a moderately wet winter that resulted in partial recovery of Cachuma Reservoir and Jameson Lake and an above-average annual State Water Project allocation, the District adopted a revision to Ordinance 92 allowing for the processing of new water service applications for which the District had issued permits prior to the adoption of Ordinance 89 (April, 2008).

Shortly thereafter, in August 2017, the District adopted Ordinance 95, which repealed Ordinances 92 and 94, including monthly customer water use allocations and penalty rates. The adoption of Ordinance 95 transitioned the District from a mandatory to a voluntary-based conservation model, established updated water use restrictions including continuing the prohibition on issuance of new water meters, and reduced the declared water shortage emergency to a Stage 2 condition.

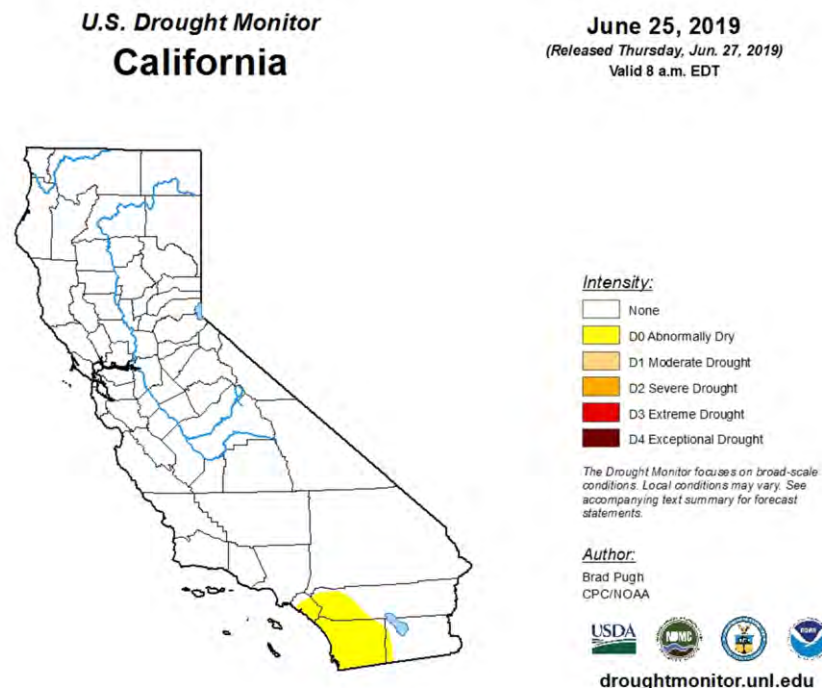
Despite both the partial recovery of surface water supplies in early 2017, and the extremely intense short duration storm in January 2018 which caused devastating debris flows in Montecito, the 2018 water year ended the seven consecutive driest years on record for Santa Barbara County. As a result, the District remained in a declared Stage 2 water shortage emergency condition.

Hydrologic conditions changed in early 2019 when above-average rainfall fell across the State, including Santa Barbara County. January storms produced significant inflow into Jameson Lake, filling and spilling the reservoir on February 3, 2019 for the first time since 2011. Winter storms between January and March 2019 slowly filled Cachuma Reservoir, with total storage reaching over 80% of its full capacity. Northern California experienced near-historic rainfall and snowfall leading to a State Water Project allocation of 75%. As of June 30, 2019, the county-

wide percentage of normal rainfall as a percentage of an entire water year is 127%. The change in drought conditions has led to an improvement in the District's projected three-year water supply outlook (through 2021).

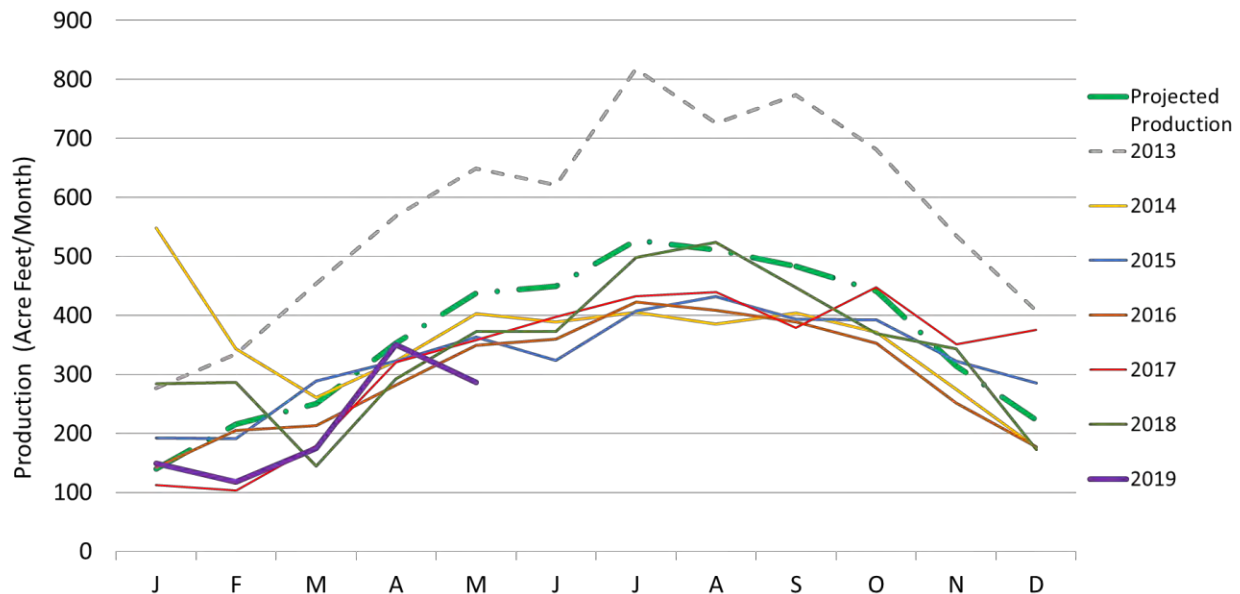
Drought Update

As a result of above average rainfall this past winter, cumulative rainfall totals for WY 2019 for Santa Barbara County are trending above average. According to Santa Barbara County data, as of June 30, 2019 the County has received 128% of average rainfall to date for the water year. In Montecito and at Jameson Lake, according to District records, rainfall accumulation totals to date for WY 2019 are 135% and 125% of average respectively. According to U.S. Drought Monitor data, as of June 30, 2019, nearly the entire State, including Santa Barbara County, remains out of drought conditions. It is important to note that the US Drought Monitor focuses on broad-scale conditions and, because of this, local conditions may vary.



Customer Demands & Conservation

In March of 2017, the District suspended the issuance of penalties for water use in excess of customer allocations following an improvement in water supply conditions. For nearly six months, customer demands remained at or near historic low levels, similar to demands during 2016. In August of 2017, the District repealed its monthly customer water use allocations and penalties through the adoption of Ordinance 95, changing from a mandatory- to voluntary-based conservation model. Since that time, annual customer demands have varied slightly but remain relatively consistent with other drought years. The 2018 total production was approx. 5% under the District's projected 2018 production of approximately 4,100 AF per year. Because of the above-average rainfall received in the first half of 2019, customer demands have been below projections but are expected to rebound as the warmer and dryer months progress.



As of June 30, 2019, the District’s 12-month running average water conservation is 47%, as compared to the baseline usage for 2013, which continues to exceed the current conservation target of 30%. Over the last three months, conservation has varied from 38% to 56%. Continued customer conservation remains important not only to ensure water supply availability in future years but also to ensure continued compliance with Senate Bill X7-7 pertaining to maximum per capita urban water use. District customers are encouraged to continue conserving water at least 30 to 35% below 2013 usage. The District remains on track for full compliance with Senate Bill X7-7 in 2020.

Water Supply Outlook

The District’s three-year water supply planning outlook projects water supply availability through 2021. The projections assume normal or average conditions in 2020 and below average conditions in 2021, with customer conservation continuing at between 30 and 35% of the 2013 usage (baseline). Conservation remains necessary to preserve available water supplies for future years and to help our water supplies fully recover from the drought.

The District continuously evaluates water supply conditions and the need for additional demand-management measures to ensure water supply availability over the three-year planning period. The table below outlines the status of each water source and its projected use over the planning period.

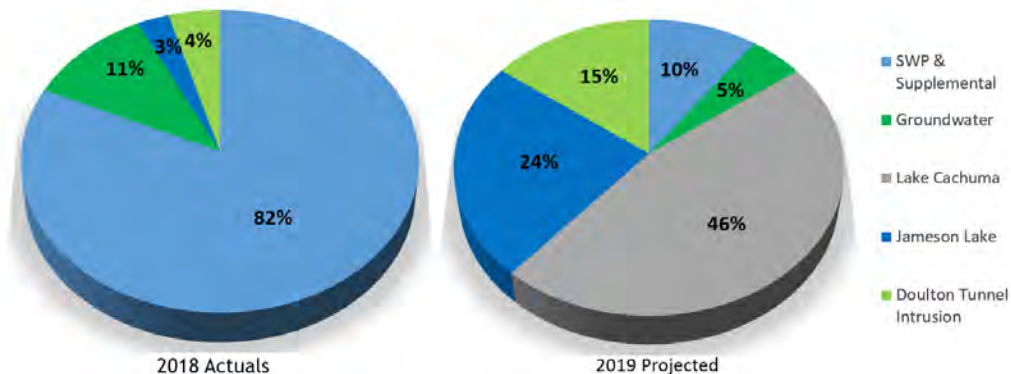
Water Supply by Source		
Source	Current Condition (As of June 30, 2019)	Projections (thru 2021)
Jameson Lake	▪ 97% capacity and spilling (5,014AF) based on 2013 bathymetric survey; ▪ Inflow this past winter has improved water quality to pre-Thomas Fire conditions; TOC remains elevated; ▪ Deliveries remain limited due to water Quality; Current lake deliveries are approx. 800gpm to ensure regulatory compliance; ▪ Treatment Plant enhancements were completed in May 2019; Blower/ aeration system is operating and helping to reduce disinfection byproducts;	▪ Maximize deliveries (Up to 2,000AFY) in 2019 in accordance with Jameson Operational Rule Curve; Creates storage capacity to capture future inflows; ▪ Projecting average annual lake inflow of between 1,000 -1,500AFY; ▪ Deliveries in 2020 and 2021 in accordance with Rule Curve;
Doulton Tunnel	▪ Tunnel Intrusion is approx. 433gpm; ▪ Must take delivery when produced; ▪ Superior water quality; Blended with lake water prior to treatment;	▪ Deliveries expect to drop by up to 50% peak flow as summer approaches; ▪ Projecting moderate rainfall pattern thru planning period with a 25% and 50% reduction in deliveries for 2020 and 2021 respectively;
Groundwater	▪ Total potable well capacity between 500-600gpm; ▪ Basin showing signs of slow recovery but remains near a historic low condition; ▪ Conjunctive use of groundwater and surface water supplies; Resting the basin in years of above-average rainfall; ▪ Potable wells turned off; Rotating one well operation to maintain functionality and avoid water quality complications;	▪ Continue to rest basin through 2019; ▪ Minor increase in well production in 2020, increasing to full production in 2021, assuming average and below average hydrologic conditions exist as projected in 2020 and 2021; ▪ Semi-annual groundwater monitoring report presented in July, 2019;
Cachuma Project	▪ ±80% of full storage capacity; ▪ USBR issues 100% allocation (2,651AF) for WY2019; ▪ Total ±4,550 AF of “project” water stored;	▪ Total stored water in lake projected to exceed 5,850AF at end of 2019; ▪ Increased risk of spill during 2019/20 winter due to elevated lake level; ±3,200AF at risk of loss to spill; ▪ Full allocation for WY2020 requested from USBR and a reduced allocation (40- 50%) projected in 2021; ▪ Lake level projections indicate the emergency pumping barge is not needed thru 2021;

Water Supply by Source (cont'd)

Source	Current Condition (As of June 30, 2019)	Projections (thru 2021)
State Water Project	▪ 2019 allocation is 75% (2,475AF); ▪ All SWP deliveries to Lake Cachuma remain temporarily suspended; Proposed solution to reinstate deliveries continue to be considered by USBR; ▪ SWP deliveries in 2019 limited to those required under the SYRWCD ID1 Exchange obligation (±300-850AF), subject to SYRWCD ID1 demands; ▪ Imported water is at high risk of loss to spill at Cachuma Reservoir as long as an elevated lake elevation exists; ▪ Surplus water stored in SLR as of June 30, 2019 (±1,223AF) to be banked and used to repay water debt; any SWP water carried over into 2020 would be a risk of loss to spill;	▪ Assume average SWP allocation (60%) in 2020 and below average allocation (40%) in 2021; ▪ Similar SWP deliveries in 2020 & 2021; Limited to those required under the SYRWCD ID1 Exchange obligation; ▪ Surplus water stored in SLR in 2020 & 2021 to be banked and/or used to repay water debt;
Supplemental Water Purchases	▪ Secured arrangement with Mojave Water Agency to purchase supplemental water <u>if</u> needed in 2019; Similar terms as 2018 exchange; Locked in low exchange ratio; ▪ Projecting no need for supplemental water in 2019 to meet estimated customer demands;	▪ No supplemental water needed in 2020 or 2021 to meet customer demands based on current water supply projections and water currently in storage; A spill at Cachuma could impact the District's need for supplemental water;
Banked Water	▪ Water Banked in Semitropic Groundwater Banking & Exchange Program prior to 2019 totals 900 AF (less 10% losses); ▪ Planned banking in 2019 is 1,100AF and possibly more depending on available SWP water in SLR following the SYRWCD ID1 Exchange; ▪ 697 AF banked in Semitropic in May and June 2019; ▪ An additional 403AF planned for banking in July 2019;	▪ Project having 800 to 1,000 AF per year available for banking in Semitropic in 2020 and 2021;

Water Supply by Source (cont'd)		
Source	Current Condition (As of June 30, 2019)	Projections (thru 2021)
Water Debt	700 AF of water debt owed to Mojave Water Agency; - Planned repayment of 300AF in July 2019 and possibly more later in 2019 depending on available SWP water in SLR following the SYRWCD ID1 Exchange;	- Any unpaid water debt will carry into subsequent years until full repay; 10 yrs from purchase to repay (2027); - Do not anticipate acquiring any additional water debt in 2020 and 2021;
Conservation	12-month running average water conservation of 47%	30-35% conservation for compliance with SBX7-7

The District's utilization of its available supplies over the next three-year planning period has shifted from a heavy reliance on imported supplies, i.e. SWP and supplemental water purchases to local surface water supplies, i.e. Cachuma and Jameson Lakes. The increase in available local surface water supplies has provided the District with an opportunity to store water in a regional groundwater storage bank, i.e. *Semitropic Water Storage District Groundwater Banking and Exchange Program*, for use in future drought years or periods of below-average rainfall. The charts below illustrate the contrast in water supply utilization between 2018 and 2019.



Water Use Restrictions

The District's current customer water use restrictions are established in Ordinance 96. These water use restrictions include various water use limitations determined by the District to be necessary, based on water supply conditions, to ensure water supply availability for its customers under the current water supply conditions. The restrictions mirror those mandated by the State and/or which are the subject of current rulemaking focused on "*Making Conservation a California Way of Life*".

Ordinance 96, adopted on May 28, 2019 repealed Ordinance 95 in its entirety, including the prohibition on issuance of new water meters, and established updated water use restrictions.

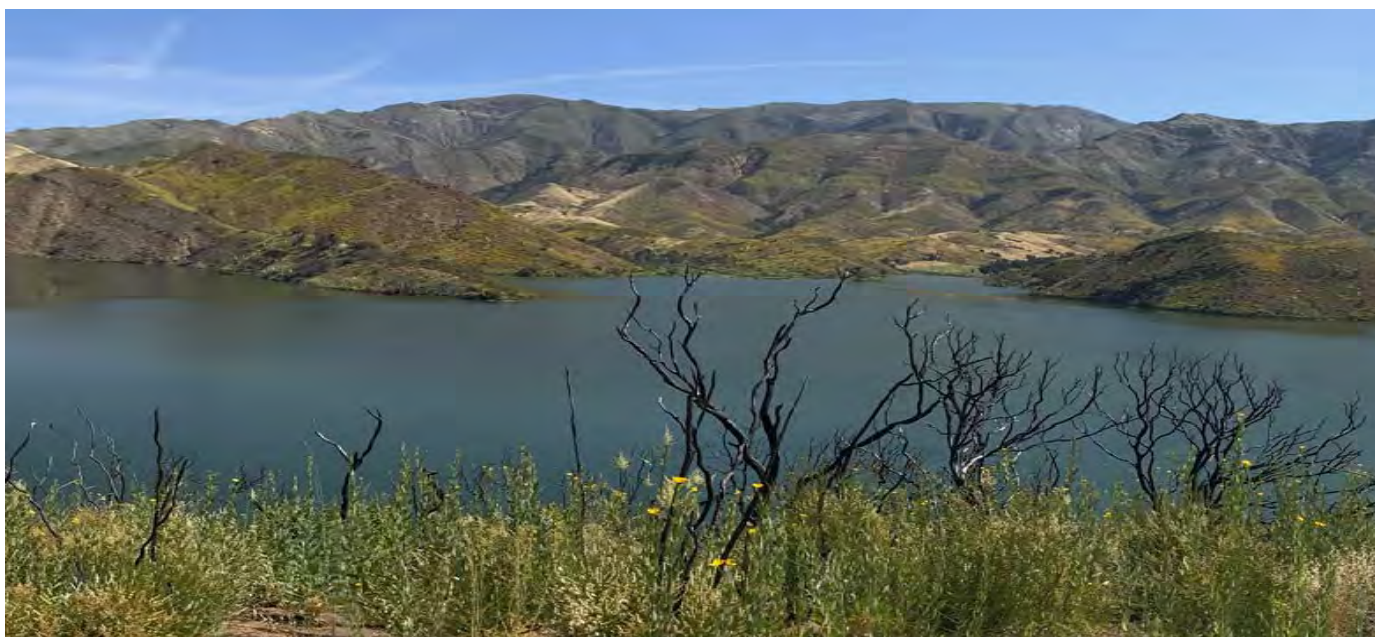
Ordinance 96 retains many of the current water use restrictions included in Ordinance 95 in an effort to encourage water conservation and avoid unnecessary water waste.

ATTACHMENTS

1. Quarterly Drought and Water Supply Update - Presentation

Item 5 - D

Quarterly Drought & Water Supply Update



Board Meeting

July 23, 2019



Outline

1. Drought Status / Forecast
2. Production & Customer Demands
3. Current Water Supply Outlook



DROUGHT STATUS / FORECAST

U.S. Drought Monitor California

June 25, 2019

(Released Thursday, Jun. 27, 2019)

Valid 8 a.m. EDT



Intensity:



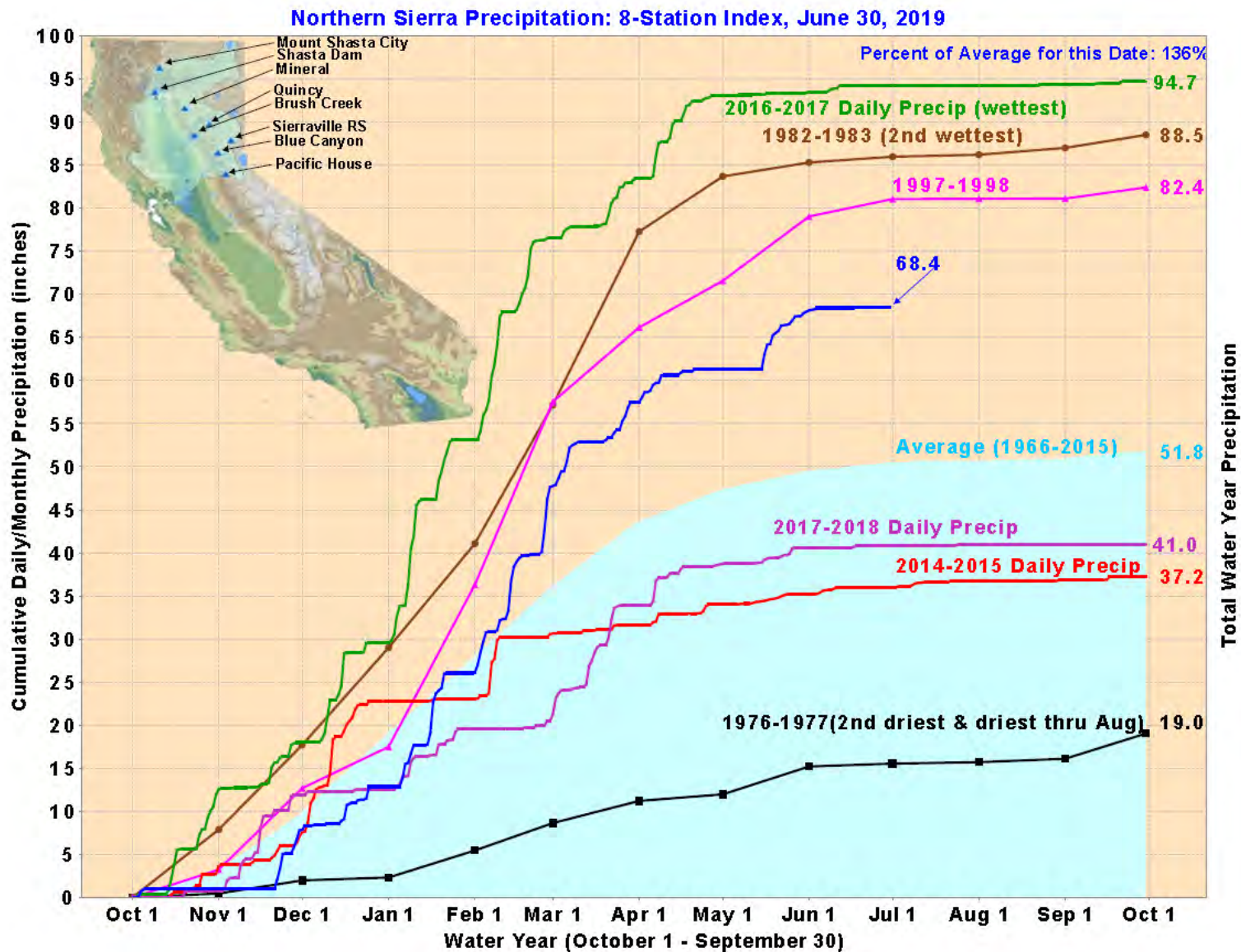
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Brad Pugh
CPC/NOAA



droughtmonitor.unl.edu



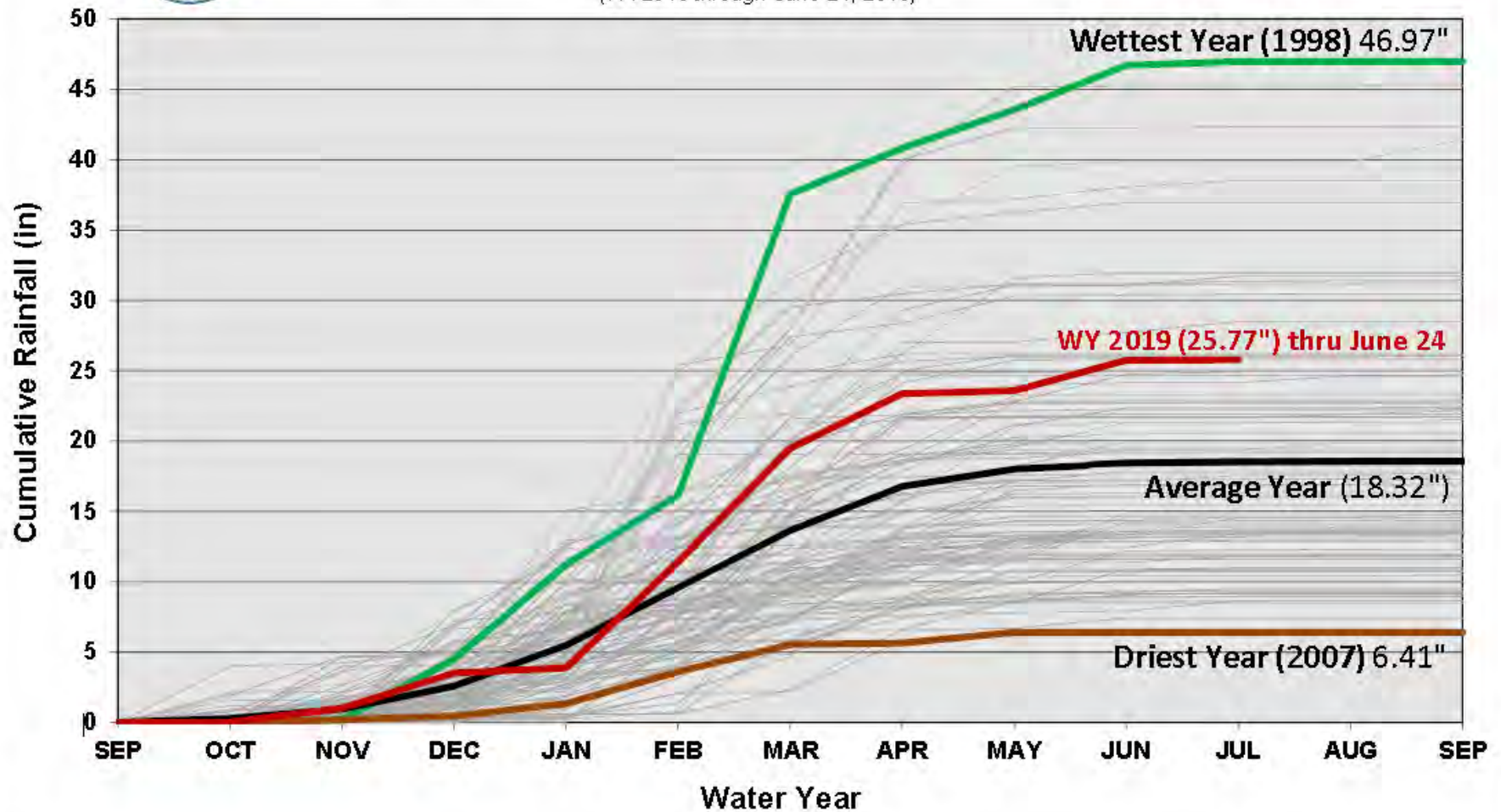


100 Years of Rainfall - Santa Barbara

Water Years 1917 - 2019

(WY2019 through June 24, 2019)

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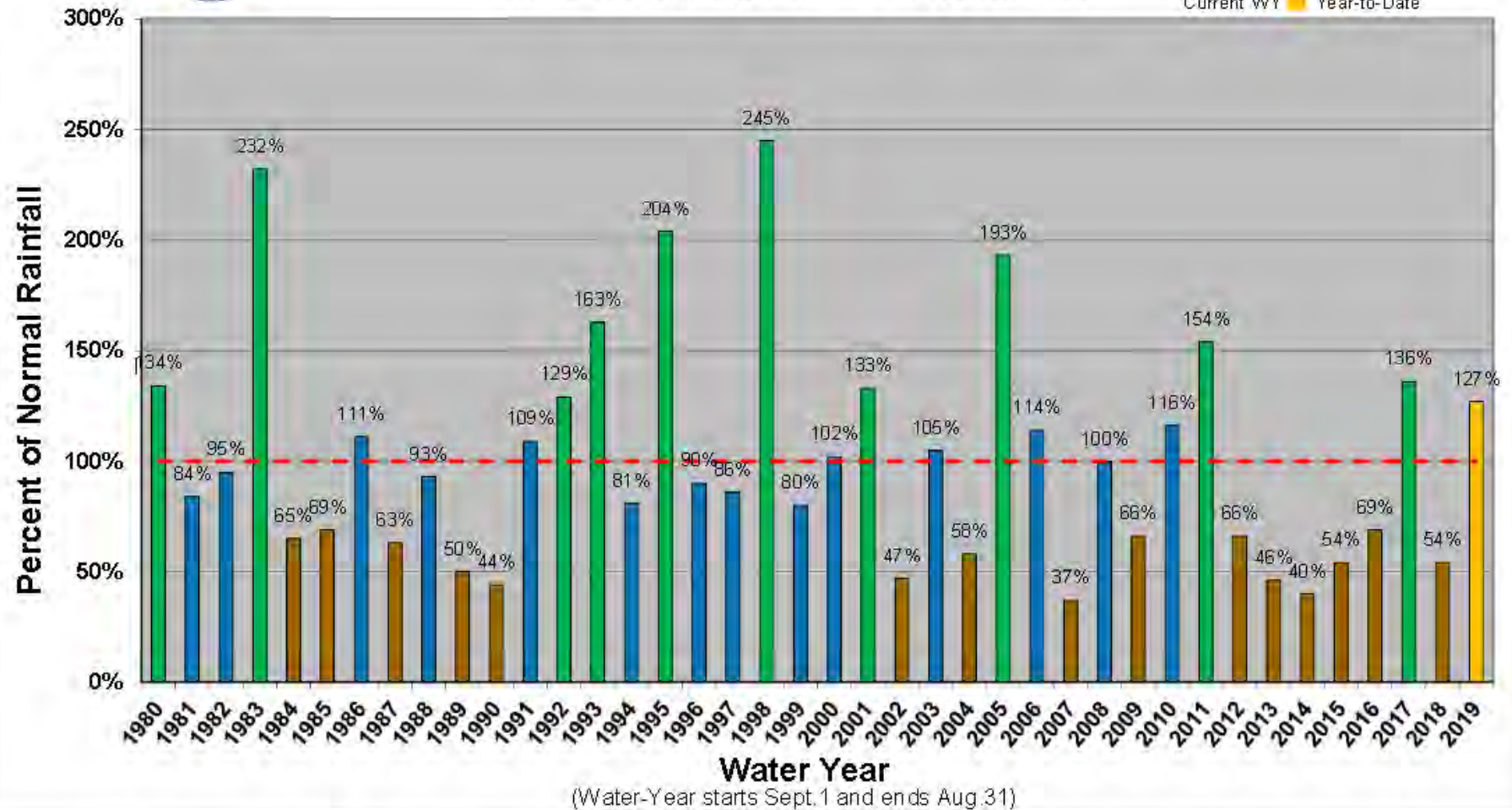


County-Wide Percent-of-Normal Water-Year Rainfall

Updated through June 24, 2019

(Rainfall as a percentage of an entire average water-year)

Wet Years (>120% Normal Rain)
Dry Years (< 80% Normal Rain)
Current WY Year-to-Date





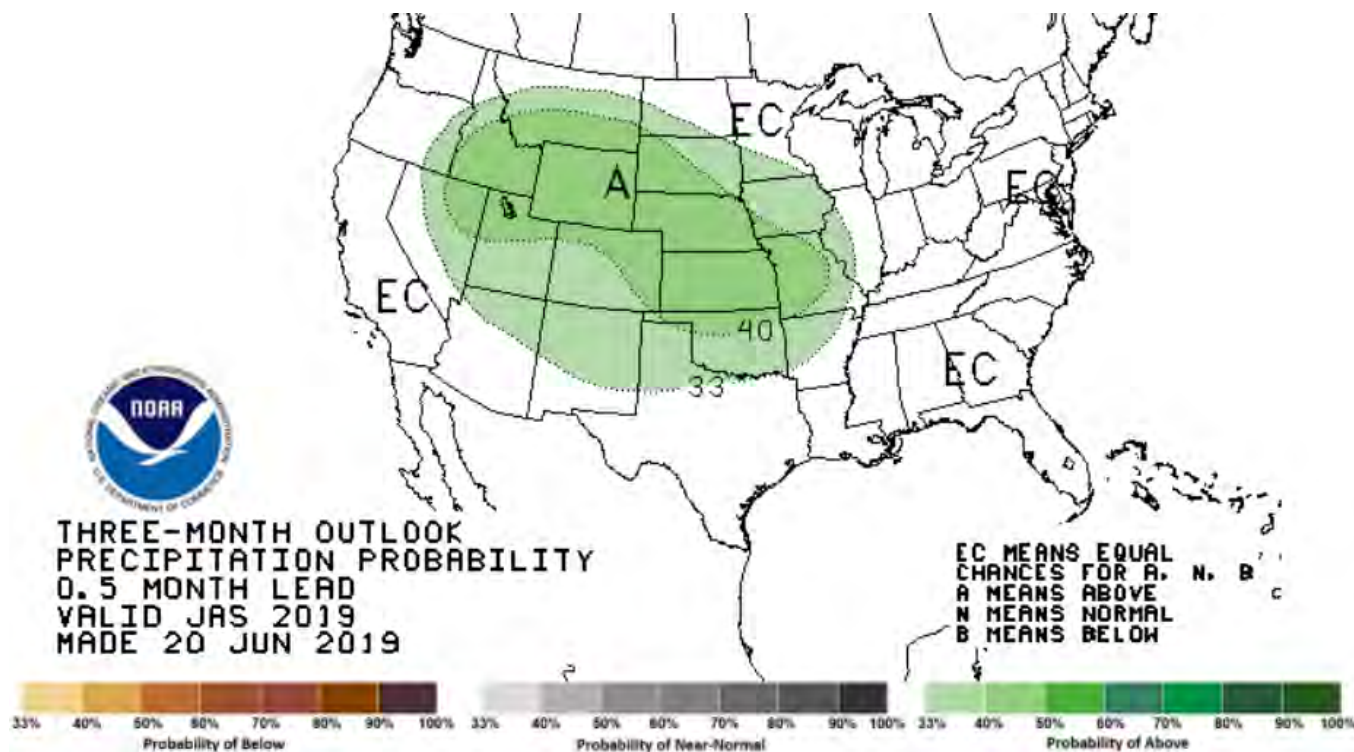
Rainfall Totals

(According to District Records)
October 1, 2018 – June 30, 2019

Location	WY 18-19' Rainfall to date (in)	Historical Average Rainfall to Date (in)	% of Average
Jameson Lake	35.44	28.43	125%
Montecito (District Office)	26.13	19.39	135%
Toro Canyon (Doulton Tunnel)	35.68	26.52	135%

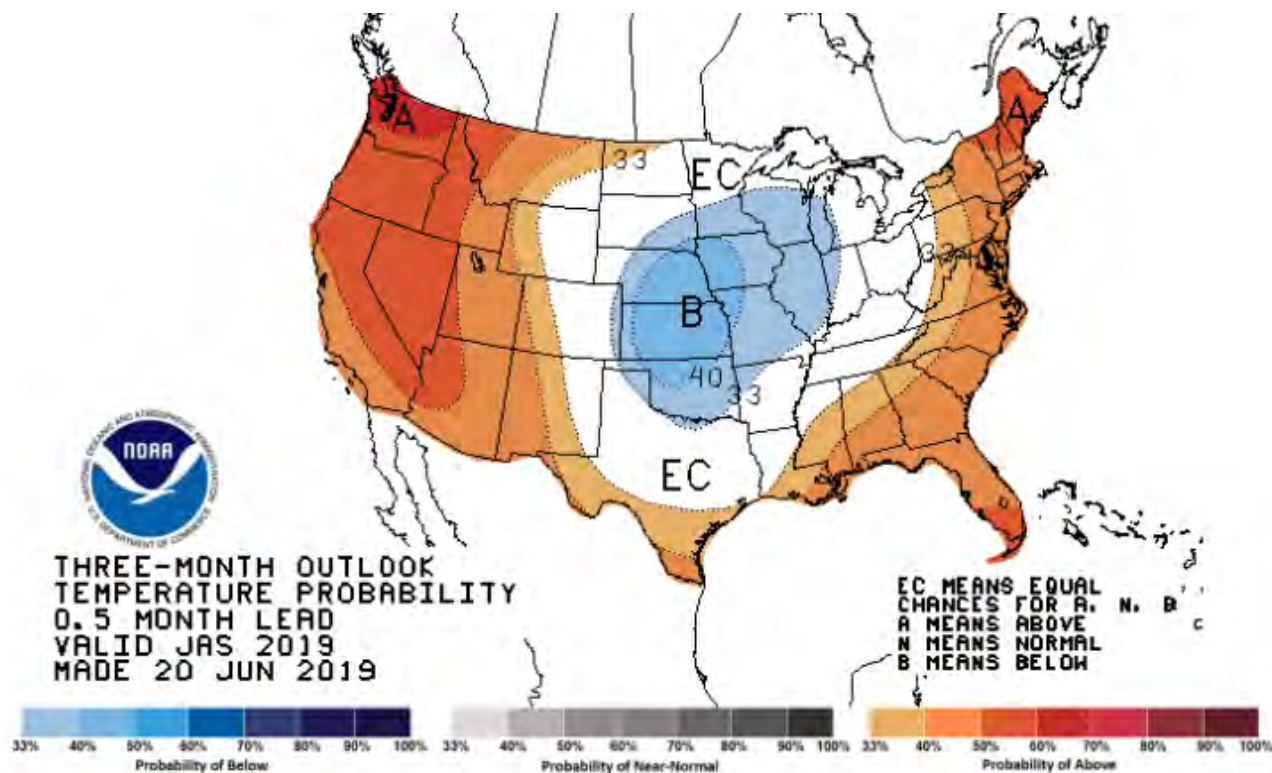
NOAA 3-Month Precipitation Outlook

July 2019 – September 2019



NOAA 3-Month Temperature Outlook

July 2019– September 2019

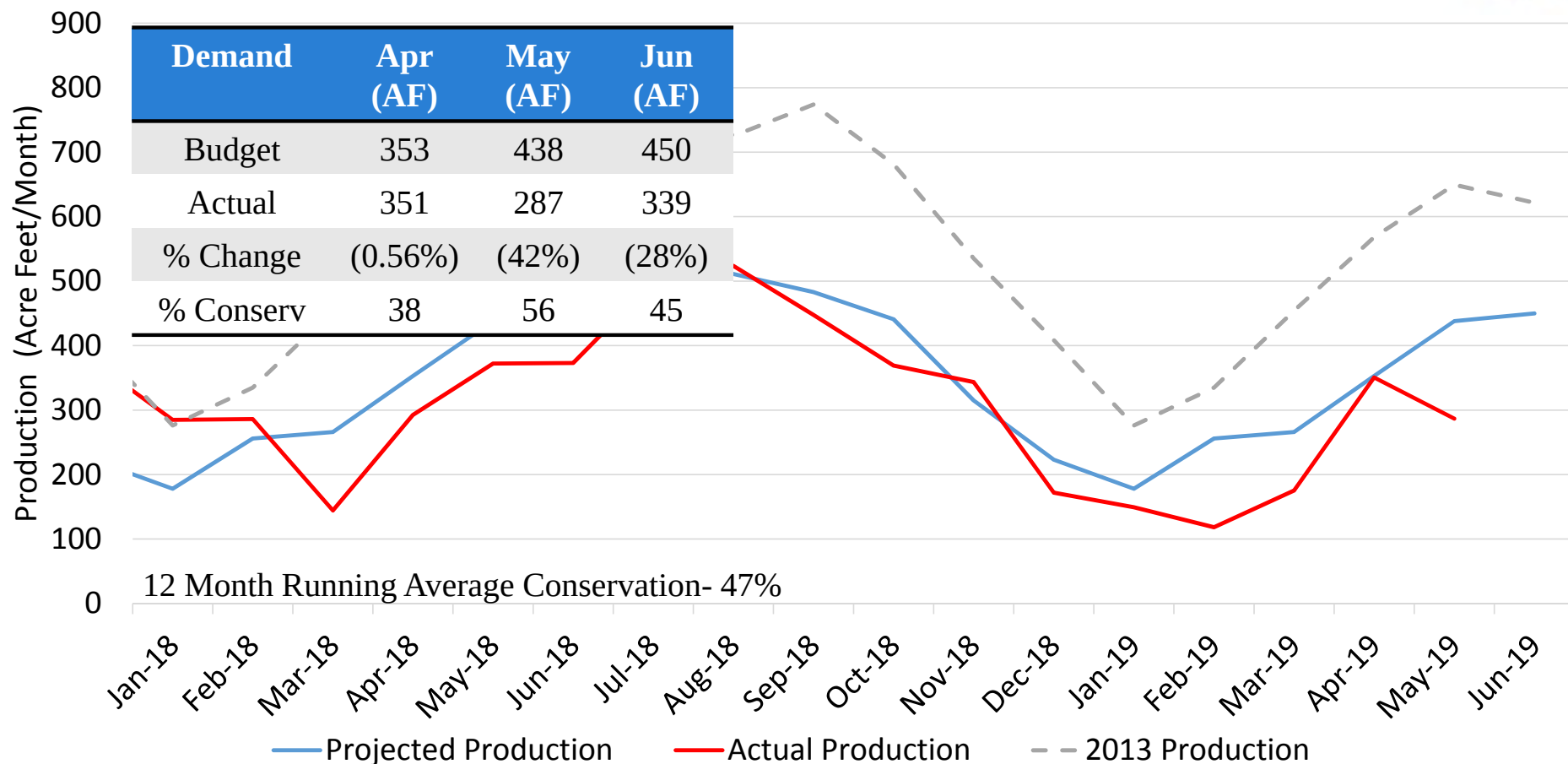




TOTAL PRODUCTION & CUSTOMER DEMANDS

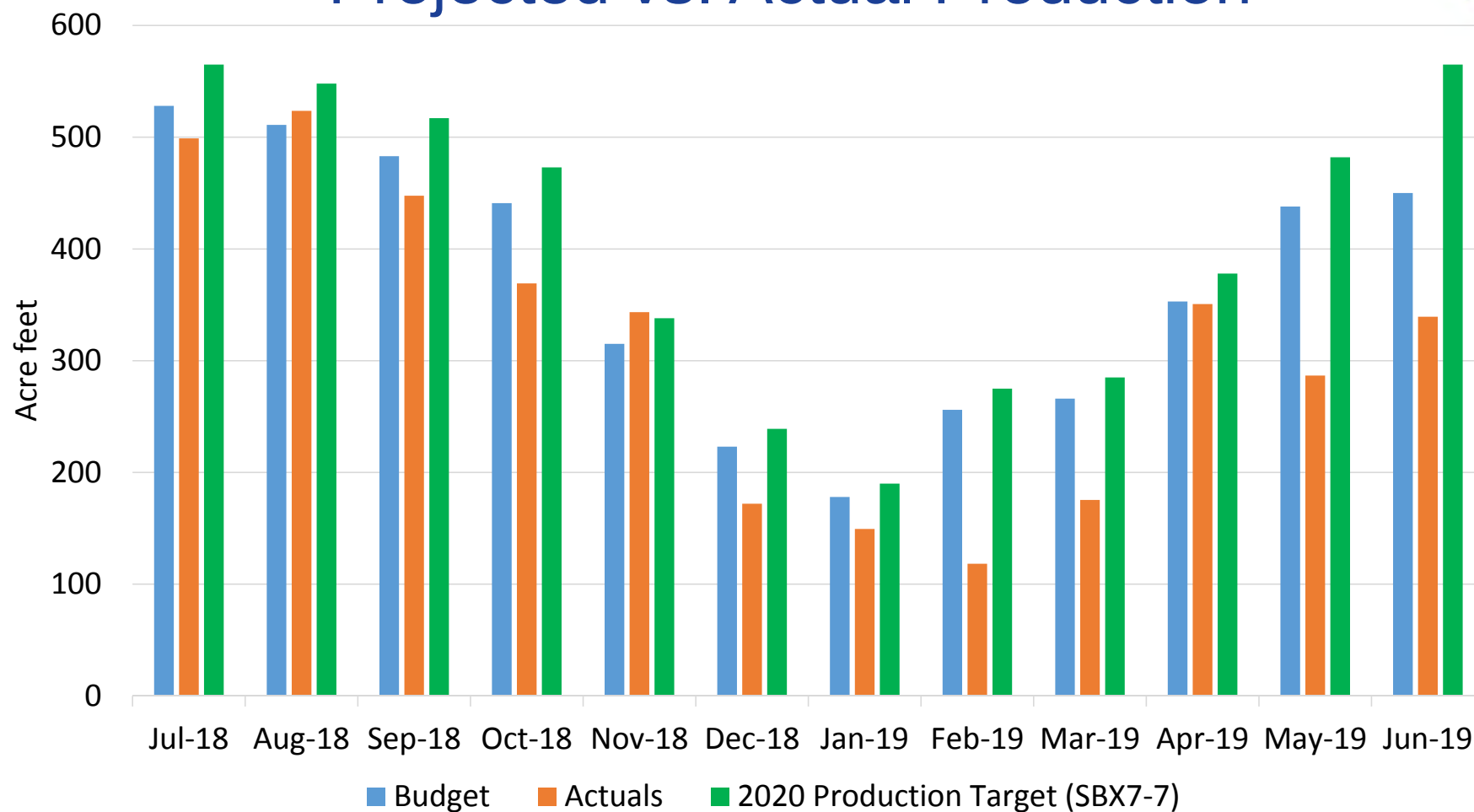


Projected vs. Actual Production



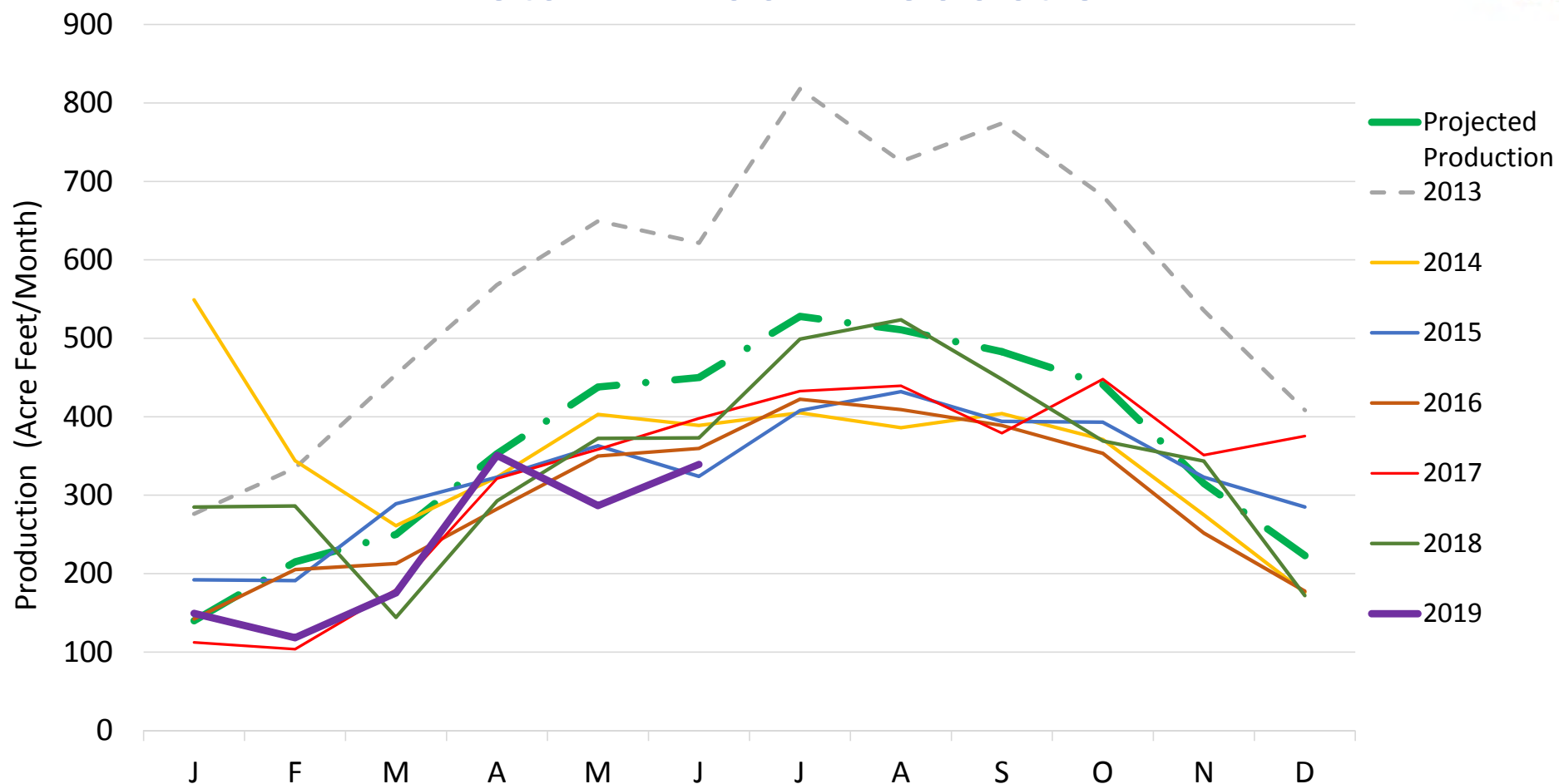


Projected vs. Actual Production



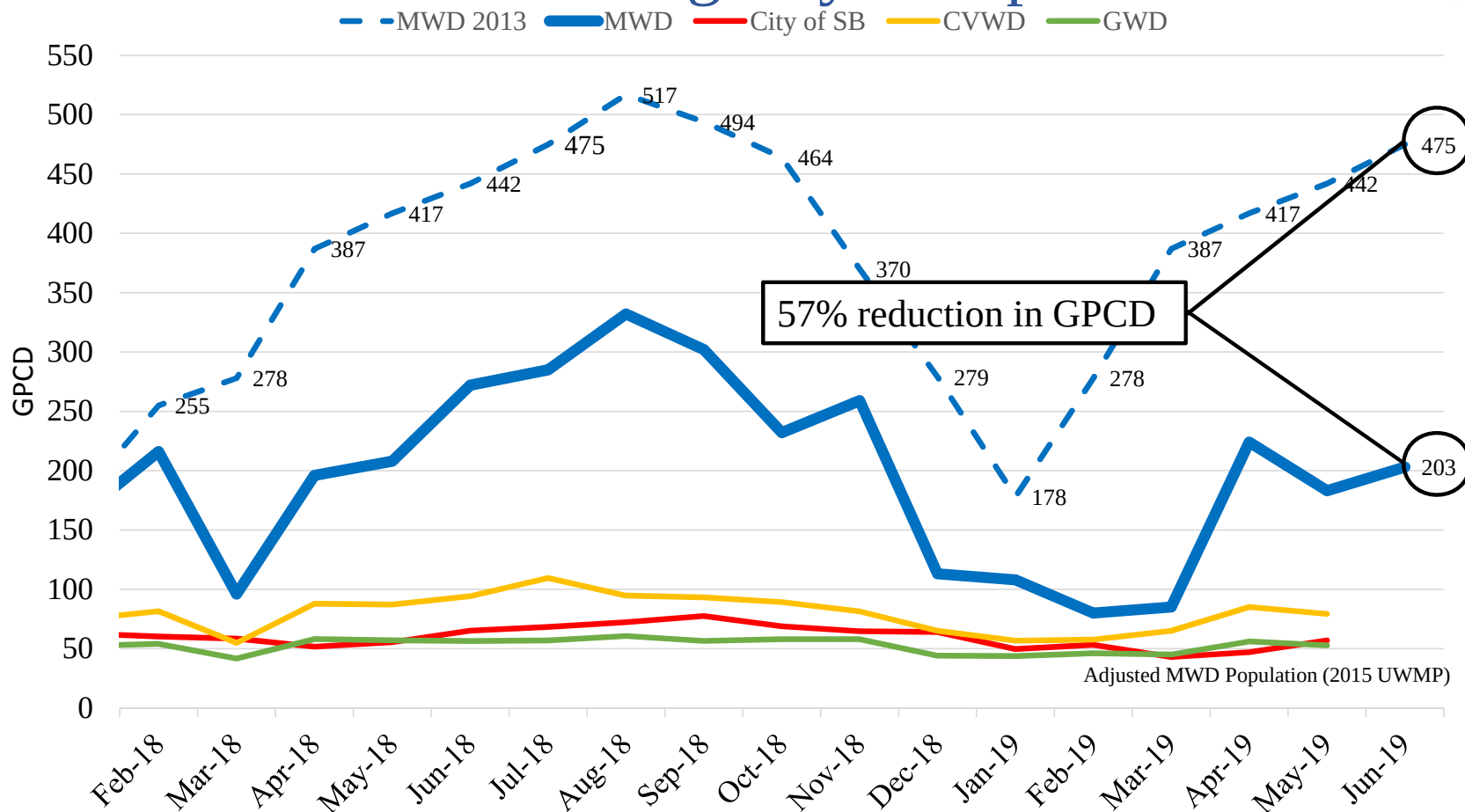


Total Annual Production



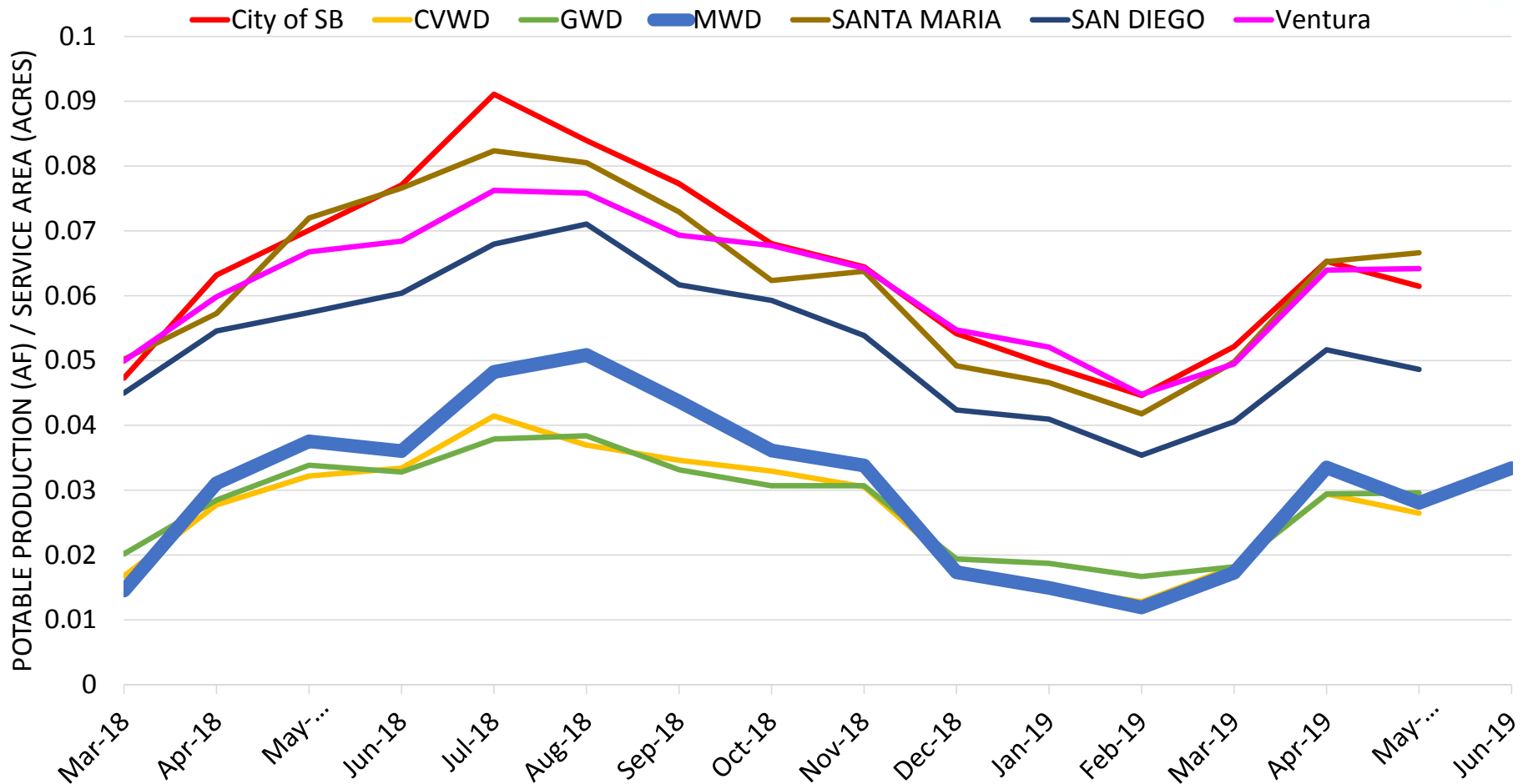


SFR GPCD Agency Comparison



* GPCD data obtained from SWRCB

Water Demand Comparison (AF/Acre)





WATER SUPPLY UPDATE

Lake Cachuma

As of June 30, 2019

1. Storage 155,148 AF*(80.3% of capacity)
2. WY 2019 Allocation – 100% (2,651AF)
3. CMU Request for 100% allocation for WY 2020 made June 14, 2019
4. MWD Balance in Cachuma

a. Cachuma WY 2019	2,651 AF
b. Cachuma Carryover	±1,897 AF
c. State & Supplemental	<u>±3 AF</u>
Total	±4,551 AF
5. Projected Balance end of 2019 ±5,850 AF
(risk of spill in 2020 ±3,200 AF)



* Data obtained from County of Santa Barbara Flood Control District – *Rainfall and Reservoir Summary*

Jameson Lake

As of June 30, 2019

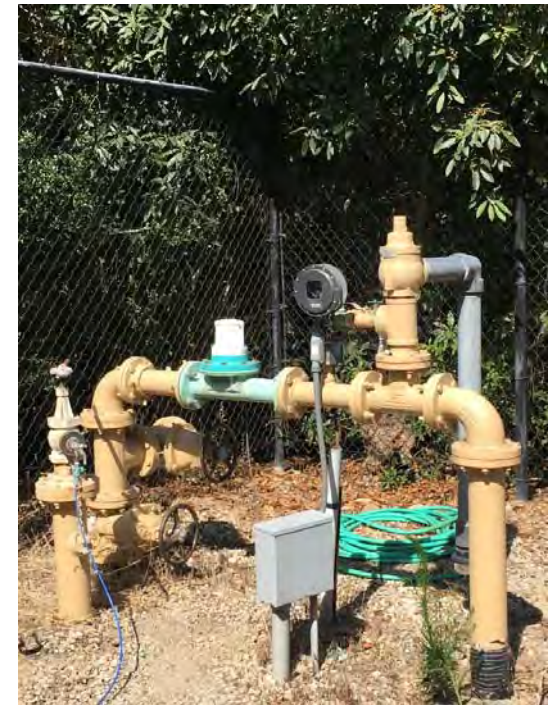


1. Storage $\pm 5,014$ AF ($\pm 97\%$ of capacity)
2. Lake Deliveries ± 800 gpm (1,300AFY)
3. Doulton Tunnel Intrusion ± 433 gpm (± 700 AFY)
4. WTP Enhancements
 - Aeration System effective at lowering effluent TTHMs
 - Influent TOC 3.7 mg/L
 - Effluent TTHM ± 27 ug/L (Reservoir Inlet)
 - Effluent TTHM ± 50 ug/L (Reservoir Outlet)

Groundwater

As of June 30, 2019

1. Potable production ± 12 AF/mo.
2. Production reduction to allow for recharge
3. Semi-annual Groundwater Monitoring Report
 - GW levels remain at or near historic low levels
 - Minimal recharge following wet winter
 - Several years of above average rainfall and/or artificial recharge needed
4. Groundwater Management (Montecito Basin)
 - MGB GSA meeting quarterly
 - GSP development underway
 - Strongly encouraging stakeholder participation
 - Next Meeting July 24th at 12:30pm at MFPD



Paden Well



Imported Water

As of June 30, 2019

1. SWP and Supplemental
 - 2019 SWP Table A Allocation 75% (2,475AF)
 - Water in storage
 - o Cachuma ± 3 AF
 - o SLR $\pm 1,223$ AF (697AF banked in Semitropic May/June)
2. Supplemental Water
 - Non-binding NOI to Mojave Water Agency in 2019 (4:1 exchange, \$320/AF)
 - No supplemental water needed to meet customer demands in 2019
3. Deliveries to Lake Cachuma
 - Monthly delivery capacity 250-300AF/mo.
 - Deliveries temporarily suspended since Feb.
 - No planned SWP deliveries thru end of 2019
4. Surplus SWP in SLR - partial banking (1,100AF) / repayment of water debt (300 AF)

Banked Water

As of June 30, 2019

Semitropic Groundwater Banking & Exchange Program

- Secondary right to bank up to 1,500 AFY (Total 4,500AF)
- First priority right to extract 1,500AFY
- Banked Water
 - o Banked in 2018 900 AF
 - o Banking in May/June 2019 697 AF
 - o Total Banked (June 30th) **1,597 AF**
- Banking in July 2019 (planned) 403 AF
- 1,800 AF available for future use (after 10% loss)





Water Supply Balance by Source

As of June 30, 2019

Source	Total Balance as of 6-30-19 (AF)	Projected Utilization in 2019 (AF)
1. Jameson Lake ^A	5,014	995
2. Cachuma Proj. Allocation WY2019	2,651	0
3. Cachuma Proj. Carryover	1,897	1,471
4. SWP & Supplemental in SLR	1,223 ^C	-
5. SWP Table A/Suppl. stored Cachuma	3	492
6. Groundwater	60 AF/mo	232 ^B
7. Doulton Tunnel Infiltration	60 AF/mo	598
Total	10,908	3,788

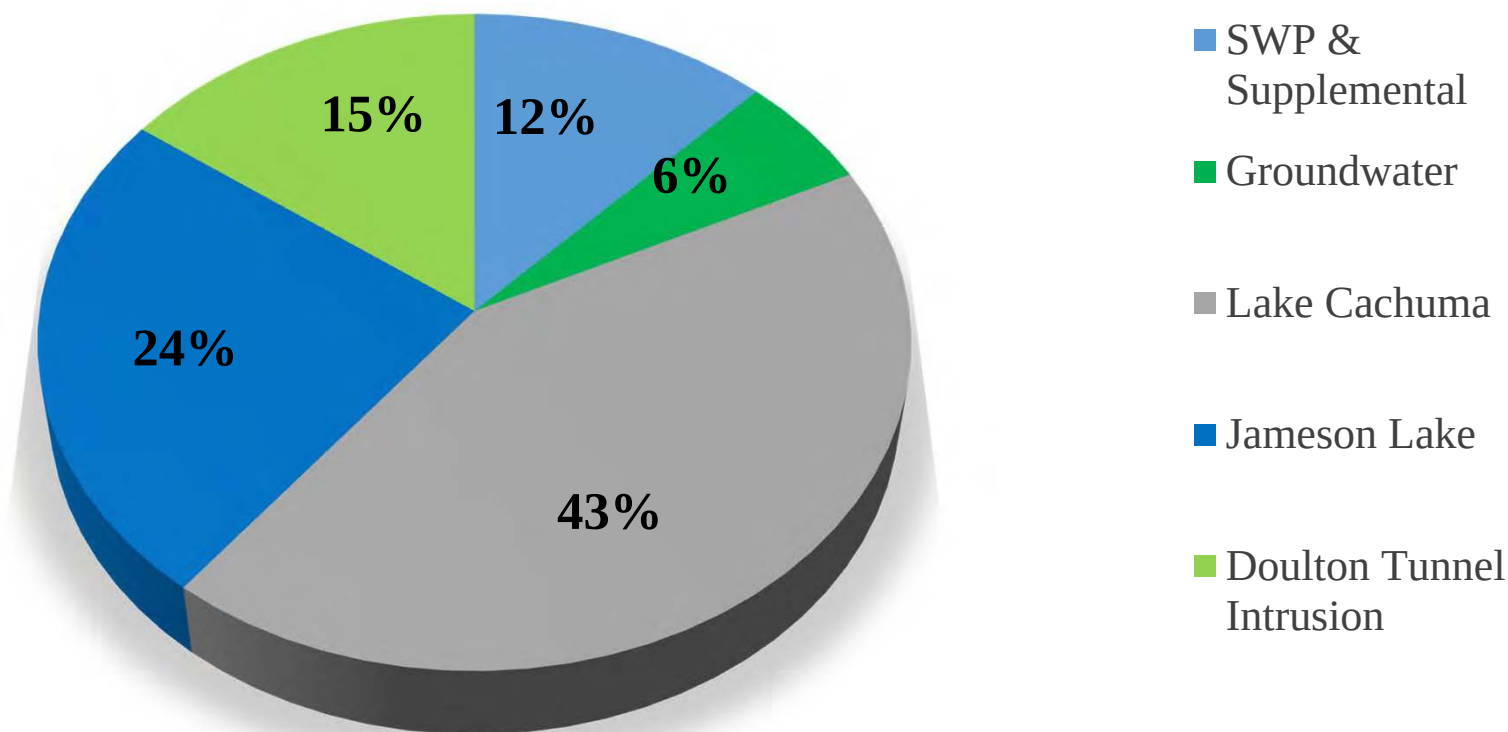
A. Jameson Lake deliveries limited to approx. 1,300AFY due to water quality challenges

B. Groundwater production reduced to between 10-15AF/mo to allow for groundwater recharge

C. Water stored in SLR to be banked and/or repay a portion of the District's water debt in 2019

Distribution of Water Supplies by Source

As of June 30, 2019



Water Supply Strategy

