



• **Water Surplus and Drought Management Plan**

Summary

This report provides a preliminary accounting of water supply, demand, and storage conditions for calendar year (CY) 2018. This report considers conditions as of May 1, 2018.

Following a dry start to the water year, hydrologic conditions in California shifted to a wetter pattern resulting in above normal precipitation for the months of March and April. A series of winter storms brought much needed snow to the Sierra Nevada that staff anticipates will not only support the current 30 percent State Water Project (SWP) allocation but will likely allow for a moderate increase. Overall, however, both the northern Sierra and the Upper Colorado River Basin will likely end the year below average. Metropolitan's water supplies from the Colorado River system are not expected to be impacted this year. Given the low demands within Metropolitan's service area, the SWP allocation needed to balance supplies with demands is estimated to be 35 percent, lower than historical SWP allocation levels typically needed to avoid drawing from storage. This Water Surplus Drought Management (WSDM) report details water balances under the current 30 percent SWP allocation in addition to balances for a 35 and 40 percent SWP allocation.

Purpose

Informational

Attachments

Attachment 1: Projected 2018 WSDM Storage Capacities (30% SWP allocation)

Detailed Report

This report provides the Board with an update on hydrologic conditions and a detailed accounting of WSDM conditions that may impact water supply reliability for CY 2018.

2018 Estimated Colorado River Aqueduct Supplies

The annual snowpack peak accumulation is considered to occur on April 1. This year the peak occurred in early April and measured 74 percent of the April 1 average. The unregulated inflow to Lake Powell is a good measure of hydrologic conditions in the Colorado River Basin. The current forecast by the Colorado River Basin River Forecast Center projects an inflow to Lake Powell of 5.8 million acre feet (MAF) or 54 percent of normal for water year 2018. Even with this below average forecast, the annual release volume from Lake Powell during water year 2018 is projected to be 9.0 MAF, which would not result in any water supply impacts to Metropolitan.

The table below shows staff's estimate of Colorado River Aqueduct (CRA) supply from the Colorado River for CY 2018 prior to water management actions. This supply is referred to as the CRA base supply and is comprised of two components, Metropolitan's Basic Apportionment of 550 thousand acre-feet (TAF) and the established Colorado River supply programs estimated at 395 TAF in CY 2018. Metropolitan's Basic Apportionment is variable and can fluctuate based on higher priority agricultural uses. Past water practices by the higher priority agricultural users have increased and decreased Metropolitan's water supply by as much as 100 TAF in a single year. The agricultural use will be better known as the year progresses at which time the appropriate adjustments will be made to the Colorado River supply projection. Therefore, the estimated CRA base supply is shown without an adjustment at this time.

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2018 Colorado River Aqueduct Base Supply Estimate (Acre-Feet)	
Basic Apportionment	550,000
IID/MWD Conservation Program	85,000
PVID Following Program	76,000
Exchange with SDCWA (IID Transfer and Canal Lining)	209,000
Exchange with USBR (San Luis Rey Settlement Agreement)	16,000
Lower Colorado Water Supply Project	9,000
CRA Supply Before Water Management And Storage Actions	945,000

2018 Estimated State Water Project Supplies

Hydrologic conditions in northern California improved with above normal precipitation in the months of March and April. As of May 1, 2018, northern Sierra precipitation observed at eight weather stations, known as the 8-Station Index, was 38.7 inches or 82 percent of normal for that date. The northern Sierra snowpack also improved with the recent storm systems with the snow accumulation peak occurring in late March that measured 50 percent of the April 1 average with a snow water content of 13.8 inches.

On April 24, 2018, Department of Water Resources (DWR) increased the SWP allocation to 30 percent reflecting a portion of the recent improvements in the hydrologic conditions. DWR is taking a measured approach and slowly increasing the SWP allocation this year given the increased uncertainty of the storage capabilities and water supply development in Oroville. Reservoir releases are more aggressive this year and not following past practices given the more stringent Oroville operating criteria to facilitate spillway construction activities. As a result, it is less certain how much of the runoff from storm systems and snowmelt will be captured.

The next SWP allocation analysis (May Study), scheduled for release later this month, will incorporate all of the hydrologic improvements observed as of May 1. In addition, the May Study will have a better estimate of the remaining snowmelt runoff that will be captured in Oroville. Staff anticipates the May Study will support an additional SWP allocation increase, potentially to 35 percent and could reach as high as 40 percent under certain scenarios (e.g., additional precipitation, less restrictive fishery constraints allowed under the Biological Opinions, maximizing storage in Oroville). The table below shows the associated SWP supplies under the current 30 percent SWP allocation and the potential range of improved SWP allocations. The Table also includes Yuba County Water Agency (YCWA) transfers of approximately 14 TAF of surface supplies explained in more detail in the *“Transfers and Exchanges”* section.

2018 State Water Project Supply Estimate (Acre-Feet)			
	SWP Allocation Range		
	30%	35%	40%
Table A Supply	573,000	669,000	765,000
Yuba Transfers*	14,000	14,000	14,000
Total SWP Supply Estimate	587,000	683,000	779,000

* Does not include groundwater substitution water

2018 Demands and Losses Estimate

The table below summarizes the estimated demands, obligations and losses for CY 2018. These demands include Member Agency consumptive use, including water exchanged with San Diego County Water Authority and sea water barrier requirements. Member Agency replenishment demands include water for groundwater basins and surface reservoir recharge. CY 2018 demands also include obligations to deliver water to the Coachella Valley Water District under a long-term delivery and exchange agreement. Losses for CY 2018 are an estimate of Metropolitan distribution system losses, and evaporative and contractual losses from storage.

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2018 Estimated Demands, Losses and Obligations (Acre-Feet)	
Member Agency Consumptive Demands	1,444,000
Member Agency Replenishment Demands	90,000
Coachella Valley Water District Agreement	35,000
System and Storage Losses	61,000
Total Estimated Demands and Losses	1,630,000

2018 Water Supply and Demand Balance

The following table shows the estimated net balance between demands and water supplies at the current SWP allocation of 30 percent and the potential range of improved SWP allocation of 35 to 40 percent for CY 2018.

2018 Water Supply and Demand Balance Estimate (Acre-Feet)			
	Current SWP Allocation	Potential SWP Allocation Range	
	30%	35%	40%
CRA Supplies	945,000	945,000	945,000
SWP Supplies	587,000	683,000	779,000
Total Supplies	1,532,000	1,628,000	1,724,000
Total Demands and Losses	1,630,000	1,630,000	1,630,000
Net Water Supply and Demand Balance	-98,000	-2,000	94,000

The increase to the SWP allocation and lower demand trends has reduced the amount of water needed to balance supplies and demands. As shown above, under the current 30 percent SWP allocation, roughly 98 TAF of additional supplies would be needed to balance. There is ample dry-year storage available to satisfy this supply deficit. Should the SWP allocation increase to 35 percent, however, staff projects that supplies would more-or-less balance with demands and Metropolitan may store water should the allocation reach 40 percent. There still remain many factors that can impact these balances including the final SWP allocation, retail demand levels, local supply levels and water demands of the higher priority agricultural water users on the Colorado River system. The WSDM Plan provides guidelines for water management actions to be taken to balance supplies with demands. Consistent with the WSDM Plan, withdrawals from dry-year storage within and outside of the service area would satisfy the need identified above. As shown in **Attachment 1**, Metropolitan has ample storage and take capacity to cover the deficit with storage withdrawals alone.

Transfers and Exchanges

Staff has investigated transfer and exchange opportunities in CY 2018. Considerations for pursuing transfers and exchanges include water supply need, cost, supply availability, and the ability to move those supplies across the Delta. Although the supply deficit identified in this report is reducing and may even be eliminated, there still remains uncertainty that can impact Metropolitan's supply demand balances. Depending on conditions, the purchase of an estimated 14 TAF of YCWA surface water supplies (Yuba Transfers) can help minimize the impact of reduced CRA supplies due to higher priority Colorado River water usage, minimize dry-year storage withdrawals or potentially bolster dry-year storage. Authorization to purchase YCWA surface water supplies was granted by Metropolitan's Board in October 2014 along with fixed pricing based on hydrologic conditions for surface supplies through 2020. The final cost will likely range between \$150/AF to \$200/AF and is dependent on the official year type classification determined in early May. In addition to the low cost of water, these Yuba Transfer supplies are low risk in that Metropolitan is only responsible to purchase what is actually delivered.

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Dry-Year Storage Adjustments

Metropolitan's end of year storage levels are subject to change based on accounting adjustments, contractual terms or other actions. Periodic updates are made to incorporate changes to the WSDM dry-year storage reserve levels as they are confirmed. For example, staff have certified the sale of nearly 70 TAF of cyclic program supplies as identified in **Attachment 1**. Additionally, adjustments to Metropolitan's Intentionally Created Surplus (ICS) supply balance in Lake Mead storage are anticipated. The reconciliation of return flow credit under reporting over the period of 2006-2015 may result in an increase to Metropolitan's ICS balance. The Bureau of Reclamation will finalize this adjustment and all other CY 2017 water accounting in mid May.

Future Payback Agreements

Metropolitan has two types of payback agreements; Dry-year Exchanges and Operational Exchanges. The following table shows a list of the future dry-year exchange payback amounts from programs in which Metropolitan participates. Dry-year exchanges are those with payback provisions that are beyond one year from the exchange date.

The exchange agreement with the Southern Nevada Water Authority (SNWA) was executed in 2004 and later amended to address changing conditions. The agreement allows Metropolitan to store unused Nevada apportionment of Colorado River water in California. SNWA may request recovery of this stored water in the future. Return may commence as early as 2022, however, SNWA has other supplies available that would likely delay the need for returns until after this date. Metropolitan did not store any SNWA water in 2017 and does not plan to store any SNWA water in 2018.

The California Extraordinary Conservation ICS agreement with the Imperial Irrigation District (IID) and other agencies executed in 2007, and later amended in 2015 to expand volumes, allows Metropolitan to store conserved IID water in excess of its Quantification Settlement Agreement (QSA) conservation commitments. The water may be returned at IID's request.

The table below shows all outstanding Dry-year Exchange payback amounts.

Dry-year Exchange/Program	Payback Amount	Payback Term
Storage and Interstate Release Agreement with Southern Nevada Water Authority	330,000	Up to 30,000 AFY (no earlier than 2022)
California ICS Agreement - IID	145,500 ¹	Any year, conditional on whether or not Metropolitan is implementing a WSAP
Total	475,500	

¹ Initial Estimate.

The following table shows the future operational exchange payback amounts from the programs in which Metropolitan participates. Operational exchanges are those with payback provisions that may be within one year of the exchange date and provide Metropolitan increased flexibility in the timing and conveyance of deliveries. In 2014, Metropolitan took possession of 5 TAF of water from Irvine Ranch Water District (Irvine Ranch). Metropolitan returned 1 TAF in 2015 and the remaining 4 TAF is to be returned no later than 2024 at Irvine Ranch's request. Metropolitan has also taken possession of 7 TAF of water from Dudley Ridge Water District in coordination with Irvine Ranch. Half of this supply must be returned to Dudley Ridge and the other half to Irvine Ranch no later than 2022.

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Operational Exchange/Program	Payback Amount	Payback Term
Strand Ranch - Irvine Ranch	4,000	No later than 2024
Dudley Ridge WD – Irvine Ranch	7,000	No later than 2022
Total	11,000	

2018 WSDM Storage Detail (30% SWP Allocation)

WSDM Storage	1/1/2018 Storage Levels	CY 2018 Take Capacity ¹	2018 Total Storage Capacity
Colorado River Aqueduct Delivery System	447,000	416,000	1,530,000
Lake Mead ICS	447,000	416,000	1,530,000
State Water Project System	1,031,000	689,000	1,859,000
MWD SWP Carryover	200,000	200,000	350,000 ²
DWCV SWP Carryover	97,000	97,000	
Castaic Lake (DWR Flex Storage)	154,000	154,000	154,000
Lake Perris (DWR Flex Storage)	65,000	65,000	65,000
Arvin Edison Storage Program	149,000	45,000	350,000
Semitropic Storage Program	188,000	61,000	350,000
Kern Delta Storage Program	141,000	50,000	250,000
Mojave Storage Program	27,000	17,000	330,000
AVEK Storage Program	10,000	0	10,000
In-Region Supplies and WSDM Actions	1,012,000	677,000	1,499,000
Diamond Valley Lake	747,000	557,000	810,000
Lake Mathews	139,000	61,000	182,000
Lake Skinner	38,000	8,000	44,000
IEUA/TVMWD (Chino Basin)	36,000	16,000	100,000
Long Beach (Central Basin)	0	0	13,000
Long Beach (Lakewood)	0	0	4,000
Foothill (Raymond and Monkhill)	0	0	9,000
MWDOC (Orange County Basin)	0	0	66,000
Three Valleys (Live Oak)	1,000	1,000	6,000
Three Valleys (Upper Claremont)	0	0	3,000
Western	3,000	2,000	12,000
Cyclic - Upper San Gabriel	32,000 ³	16,000	100,000
Cyclic - Three Valleys	0 ⁴	0	40,000
Cyclic - Burbank	6,000	6,000	7,000
Cyclic - Eastern	1,000	1,000	3,000
Cyclic - MWDOC	9,000 ⁵	9,000	100,000
Other Programs	556,000	88,000	1,128,000
Other Emergency Storage	328,000	0	328,000
DWCV Advanced Delivery Account	228,000	88,000	800,000
Total	3,046,000	1,870,000	6,016,000
Emergency	626,000	0	626,000
Total WSDM Storage ⁶	2,420,000	1,870,000	5,390,000

¹ Annual take capacity assumed under a 30% SWP Table A Allocation. Take capacity may decrease depending on distribution system operations and timing of demands.

² Total Storage Capacity of 350,000 acre-feet is estimated to be the practical operational limit for carryover storage considering Metropolitan's capacity to take delivery of carryover supplies before San Luis Reservoir fills.

³ Reflects sale from cyclic account reducing storage balance by approximately 16,000 AF

⁴ Reflects sale from cyclic account reducing storage balance by approximately 2,000 AF

⁵ Reflects sale from cyclic account reducing storage balance by approximately 49,000 AF

⁶ Total WSDM Storage level is subject to change based on accounting adjustments.