- **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 April 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 month of March. A series of winter storms brought much needed snow to the Sierra Nevada that staff anticipates will not only support the current 20 percent 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 20 percent SWP allocation in addition to balances for a 25 and 30 percent SWP allocation. Should the Department of Water Resources increase the SWP allocation, the need to draw from dry-year storage to balance supplies and demands will drop.

Purpose

Informational

Attachments

Attachment 1: Projected 2018 WSDM Storage Capacities (20% 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

As of April 1, 2018, snowpack in the Upper Colorado River Basin measured 72 percent of normal, with basin weighted snow water content of 11.3 inches. 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 5.6 MAF or 52 percent of normal for water year 2018. Even with the dry 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 estimated range 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 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 agricultural use adjustment at this time.

2018 Colorado River Aqueduct Base Supply Estimate (Acre-Feet)	
Basic Apportionment	550,000
IID/MWD Conservation Program	85,000
PVID Fallowing 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

After months of below normal hydrologic conditions this water year, California shifted to a wetter pattern beginning in late February through March. As of April 1, 2018, northern Sierra precipitation observed at eight weather stations, known as the 8-Station Index, was 33.9 inches or 78 percent of normal for that date. The recent storm activity has brought much needed snow to the Sierra Nevada. Northern Sierra snowpack increased from near-record-low of 18 percent of normal to 44 percent of normal as measured on April 1 considered the peak of the snow accumulation season. Similar snowpack improvements were observed for the central and southern Sierra Nevada, where the percent of normal snowpack for April 1 was 61 and 54 percent respectively. Improved snowpack in southern Sierra correlates with improved Los Angeles Aqueduct (LAA) supplies which in turn reduces demands on Metropolitan.

DWR has yet to include the recent improved hydrologic conditions in their SWP allocation study. Once the improved hydrologic conditions are incorporated, staff anticipates the April Study will support a 25 to 30 percent SWP allocation. Under certain scenarios (e.g., additional precipitation, less restrictive fishery constraints allowed under the Biological Opinions), a SWP allocation slightly higher than 30 percent could be possible. This WSDM report shows supply and demand balances for the current 20 percent SWP allocation and potential improved SWP allocations of 25-30 percent. The table below shows the associated SWP contracted Table A supplies for this range of SWP allocations.

2018 State Water Project Supply Estimate (Acre-Feet)			
	Planning Scenario Range		
SWP Allocation	20%	25%	30%
Table A Supply	**382,000**	**478,000**	**573,000**

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. As compared to earlier reports, this table shows lower demands. This is a result of accounting for increased LAA supplies due to recent hydrologic improvements in the southern Sierra. 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.

2018 Estimated Demands, Losses and Obligations (Acre-Feet)	
Member Agency Consumptive Demands	1,439,000
Member Agency Replenishment Demands	84,000
Coachella Valley Water District Agreement	35,000
System and Storage Losses	58,000
Total Estimated Demands and Losses	**1,616,000**

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 20 percent and staff's projected range of 25 to 30 percent for CY 2018.

2018 Water Supply and Demand Balance Estimate (Acre-Feet)			
	Current SWP Allocation	Projected SWP Allocation Range	
	20%	25%	30%
CRA Supplies	945,000	945,000	945,000
SWP Supplies	382,000	478,000	573,000
Total Supplies	1,327,000	1,423,000	1,518,000
Total Demands and Losses	1,616,000	1,616,000	1,616,000
Net Water Supply and Demand Balance	**-289,000**	**-193,000**	**-98,000**

The improved hydrologic conditions and lower demand trends have reduced the amount of water needed to balance supplies and demands as indicated in prior WSDM reporting this year. As shown above, under the projected SWP allocation range of 25 to 30 percent, 193 TAF to 98 TAF of additional supplies would be needed to balance respectively. There is ample dry-year storage available to satisfy the supply deficit indicated in the table above. Should the SWP allocation increase to 35 percent, however, staff projects that supplies would balance with demands without the need for water management actions. There still remain many factors that can increase or lessen this deficit including the final SWP allocation, retail demand levels, local supply levels and water demands of the higher priority agricultural water use 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 be appropriate to 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. Given the improved water supply conditions, the need to mitigate withdrawals from dry-year storage is lessening. Depending on future hydrologic conditions and the final SWP allocation, purchasing transfer supplies may bolster dry-year storage reserves rather than needed to meet demands. Beyond addressing the supply deficit identified, other considerations for pursuing transfers and exchanges include cost, supply availability, and the ability to move those supplies across the Delta. For the range of SWP allocations considered in this report, staff is estimating that there will be ample conveyance capacity to move these supplies through the SWP Delta pumping plant this year.

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 supplies previously accounted for as stored supplies in Metropolitan's cyclic accounts and shown in the ***"Cyclic In-Region Supplies and WSDM Actions***" column of **Attachment 1**. As a result of this sale, Metropolitan has adjusted its dry-year storage by reducing the "***1/1/2018 Storage Level"*** total by a like amount. 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 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 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.

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
(20% 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	**1,029,000**	**664,000**	**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	40,000	350,000
Semitropic Storage Program	188,000	54,000	350,000
Kern Delta Storage Program	139,000	45,000	250,000
Mojave Storage Program	27,000	9,000	330,000
AVEK Storage Program	10,000	0	10,000
In-Region Supplies and WSDM Actions	**1,012,000**	**665,000**	**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	2,000	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	16,000	100,000
Cyclic - Three Valleys	0	2,000	40,000
Cyclic - Burbank	6,000	6,000	7,000
Cyclic - Eastern	1,000	1,000	3,000
Cyclic - MWDOC	9,000	58,000	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**	**1,833,000**	**6,016,000**
Emergency	626,000	0	626,000
Total WSDM Storage [3]	**2,420,000**	**1,833,000**	**5,390,000**

[1] Take capacity assumed under a 20% 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] Total WSDM Storage level is subject to change based on accounting adjustments.