



### • **Water Surplus and Drought Management Plan**

#### **Summary**

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

Following a year of above normal conditions in the Upper Colorado River Basin, a record breaking wet year in northern California and record deliveries to storage last year; dry hydrologic conditions have returned to the watersheds important to Metropolitan's imported water supplies. Only a few weak storm systems have been observed so far this season. The precipitation observed to date is well below average resulting in below average runoff forecasts for both the Upper Colorado River Basin and northern California. Metropolitan's water supplies from the Colorado River system are not expected to be impacted this year even with these dry conditions. The dry conditions in the State of California, however, have lowered and narrowed the range of potential final State Water Project (SWP) allocations. This report details the current trend supply and demand scenario identifying a need to draw from storage in order to balance supplies with demands.

#### **Purpose**

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Informational

#### **Attachments**

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[Attachment 1: Projected 2018 WSDM Storage Detail \(20% SWP allocation\)](#)

#### **Detailed Report**

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This WSDM report updates the developing water supply and demand conditions for CY 2018. 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 March 1, 2018, snowpack in the Upper Colorado River Basin measured 72 percent of normal, with a basin weighted snow water content of 9.4 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 a water year 2018 inflow to Lake Powell of 6.07 MAF or 56 percent of normal. 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.

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<b>2018 Colorado River Aqueduct Base Supply Estimate (Acre-Feet)</b>	
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
<b>CRA Supply Before Water Management And Storage Actions</b>	<b>945,000</b>

### 2018 Estimated State Water Project Supplies

Dry hydrologic conditions continue this water year throughout the state of California. As of March 1, 2018, northern Sierra precipitation observed at eight weather stations, known as the 8-Station Index and a measure of hydrologic conditions in northern California, was 23.1 inches or 65 percent of normal for that date. The northern Sierra snowpack measured 25 percent of normal for that date and is tracking similar to Water Year 2014/15, the lowest snowpack year on record. With the exception of one strong atmospheric river event in November 2017, the storm systems that have passed over the State have been few in number, weaker and warmer in nature resulting in more rain than snow.

On February 20, 2018, DWR released an updated SWP allocation study. The February study contains information that DWR may need to reduce the current 20 percent SWP allocation under continued dry conditions. Low manual snow survey measurements and automated snow sensor readings have resulted in a drop in the runoff projection from last month. However, DWR has not changed the SWP allocation as wetter conditions in March and April could bolster the current supplies or even lead to a modest increase.

Although more than half of the water year remains, northern California typically receives roughly three quarters of its annual precipitation by this time of year. It is becoming less likely that the 8-Station Index can recover or make up for the dry conditions leading up to March. DWR's SWP allocation analysis shows that it can support an allocation range of roughly 10 to 20 percent under dry to normal hydrologic conditions for the remainder of the water year. A wet March, similar to the record precipitation received back in 1991 and commonly referred to as the "Miracle March", may allow for higher allocation levels. This report uses the current 20 percent SWP allocation in its supply demand balance calculation, but recognizes a range of potential final SWP allocations between 10 and 25 percent to reflect the uncertainty and variability of the hydrologic conditions in the State. The following table below shows the associated SWP contracted Table A supplies for this range of SWP allocations.

<b>2018 State Water Project Supply Estimate (Acre-Feet)</b>			
	Planning Scenario Range		
SWP Allocation	10%	20%	25%
<b>Table A Supply</b>	<b>191,000</b>	<b>382,000</b>	<b>478,000</b>

### 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 which includes water exchanged with San Diego County Water Authority and sea water barrier requirements. The consumptive demand can change significantly with fluctuations in the Los Angeles Aqueduct (LAA) supply. In general, abundant LAA supplies reduce demands on Metropolitan while low LAA supplies can increase demands on Metropolitan. An average LAA supply is assumed in the Member Agency consumptive demand estimate below. 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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<b>2018 Estimated Demands, Losses and Obligations (Acre-Feet)</b>	
Member Agency Consumptive Demands	1,543,000
Member Agency Replenishment Demands	99,000
Coachella Valley Water District Agreement	35,000
System and Storage Losses	61,000
<b>Total Estimated Demands and Losses</b>	<b>1,738,000</b>

### 2018 Water Supply and Demand Balance

Staff is projecting the need to withdraw supplies from storage in 2018. Under the current 20 percent SWP allocation, Metropolitan is estimating that demands will exceed supplies by roughly 411 TAF, as shown below.

<b>2018 Water Supply and Demand Balance Estimate (Acre-Feet)</b>	
CRA Supplies	945,000
SWP Supplies	382,000
<b>Total Supplies</b>	<b>1,327,000</b>
Total Demands and Losses	1,738,000
<b>Net Water Supply and Demand Balance</b>	<b>-411,000</b>

There are 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 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 could be made. As shown in [Attachment 1](#), Metropolitan has ample storage and take capacity to cover the deficit with storage withdrawals alone. The WSDM Plan also supports pursuing Transfers and Exchanges in CY 2018, to help mitigate the draw on dry-year storage reserves. This water management action is described in more detail below.

### Transfers and Exchanges

As a result of the persistent dry conditions and the supply-demand balances discussed above, staff is investigating transfer and exchange opportunities in CY 2018. Depending on future hydrologic conditions, these supplies could help meet demands, offset potential storage draws or supplement storage reserves. 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.

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### 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. IID has requested to store up to 69 TAF of conserved water with Metropolitan this year. The actual amount of water Metropolitan will store for IID will not be known until Metropolitan has verified with IID the volume of conserved water generated by IID in 2017.

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 <sup>1</sup>	Any year, conditional on whether or not Metropolitan is implementing a WSAP
<b>Total</b>	<b>475,500</b>	

<sup>1</sup> 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
<b>Total</b>	<b>11,000</b>	

## 2018 WSDM Storage Detail

WSDM Storage	1/1/2018 Storage Levels	CY 2018 Take Capacity <sup>1</sup>	2018 Total Storage Capacity
<b>Colorado River Aqueduct Delivery System</b>	<b>447,000</b>	<b>416,000</b>	<b>1,530,000</b>
Lake Mead ICS	447,000 <sup>2</sup>	416,000	1,530,000
<b>State Water Project System</b>	<b>1,031,000</b>	<b>681,000</b>	<b>1,994,000</b>
MWD SWP Carryover <sup>3</sup>	200,000	200,000	300,000
DWCV SWP Carryover <sup>3</sup>	97,000	97,000	146,000
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	389,000
Semitropic Storage Program	188,000	54,000	350,000
Kern Delta Storage Program	141,000	45,000	250,000
Mojave Storage Program	27,000	26,000	330,000
AVEK Storage Program	10,000	0	10,000
<b>In-Region Supplies and WSDM Actions</b>	<b>1,012,000</b>	<b>677,000</b>	<b>1,499,000</b>
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	16,000	100,000
Cyclic - Three Valleys	0	0	40,000
Cyclic - Burbank	6,000	6,000	7,000
Cyclic - Eastern	1,000	1,000	3,000
Cyclic - MWDOC	9,000	9,000	100,000
<b>Other Programs</b>	<b>556,000</b>	<b>88,000</b>	<b>1,128,000</b>
Other Emergency Storage	328,000	0	328,000
DWCV Advanced Delivery Account	228,000	88,000	800,000
<b>Total</b>	<b>3,046,000</b>	<b>1,862,000</b>	<b>6,151,000</b>
Emergency	626,000	0	626,000
<b>Total WSDM Storage</b> <sup>4</sup>	<b>2,420,000</b>	<b>1,862,000</b>	<b>5,525,000</b>

<sup>1</sup> Take capacity assumed under a 20% SWP Table A Allocation. Take capacity may decrease depending on system operations and timing of demands.

<sup>2</sup> Preliminary estimate

<sup>3</sup> Total Storage Capacity varies year to year based on prior year remaining balance added to current year contractual limits.

<sup>4</sup> Total WSDM Storage level is subject to change based on accounting adjustments.