



• **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 February 1, 2018.

Following a record breaking wet year in northern California and above normal conditions in the Upper Colorado River Basin 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. While there is still time in the water year and given the variability in hydrologic conditions, it is possible for conditions to change, the likelihood is this year will finish at below average. This uncertainty is reflected in Metropolitan's supply and demand balances. This report details two scenarios, one in which dry-year storage or other water management actions are needed to balance supplies with demands, and one where Metropolitan adds to its storage reserves, continuing the storage recovery that began in CY 2016.

Purpose

Informational

Attachments

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

[Attachment 2: Projected 2018 WSDM Storage Detail \(40% SWP allocation\)](#)

Detailed Report

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 February 1, 2018, snowpack in the Upper Colorado River Basin measured 64 percent of normal, with a basin weighted snow water content of 6.2 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 6.72 MAF or 62 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 estimate of Colorado River Aqueduct (CRA) supplies from the Colorado River for CY 2018 prior to water management actions. The total of 945 TAF is referred to as the CRA base supply and is an estimate that will have some variability based on higher priority agricultural use. 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. At this time, the estimated water supply includes Metropolitan's Basic Apportionment (550 TAF) and the established Colorado River supply programs developed to date without an agricultural use adjustment.

Board Report (Water Surplus and Drought Management Plan)

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

As of February 1, 2018, northern Sierra precipitation measured at eight weather stations, known as the 8-Station Index and a measure of hydrologic conditions in northern California, was 19.6 inches or 73 percent of normal for that date. The northern Sierra snowpack measured 27 percent of normal for that date. Drier hydrologic conditions have returned to California. 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 accumulations.

On January 29, 2018, DWR increased the State Water Project (SWP) allocation to 20 percent despite the below average hydrologic conditions. Two factors contributed to this increase. First, as standard practice DWR shifts its forecast from using a range of runoff values based solely on the historic record to one that considers existing conditions presently and forecasted conditions going forward. This shift resulted in higher runoff projections, and therefore the current studies forecasts more available water supplies. Secondly, the combined export between the State Water Project and the Central Valley Project have been at the maximum pumping levels, also referred to as the “least restrictive” levels, allowed under the existing Biological Opinions for the month of January. Surveys conducted in the south Delta suggested that the distribution of the Delta Smelt were not near the export facilities, reducing concerns of entrainment at the export facilities. In addition, the recent storm systems that passed over northern California did not increase flows in the Sacramento and San Joaquin Rivers enough to generate the turbidity levels in the south Delta that would concern regulatory agencies that Delta Smelt may be present near the export facilities.

It is still somewhat early in the water year and given the variability in California’s hydrologic conditions, a return to wetter conditions remains a possibility. DWR’s SWP allocation analysis shows that it can support an allocation increase to 40 percent under normal hydrologic conditions for the remainder of the water year. As such, Metropolitan staff is using a SWP allocation range of 20 to 40 percent as planning scenarios in this report. 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% - 40%
Table A Supply	382,000 – 765,000

2018 Demands and Losses Estimate

The table below summarizes the estimated demands, obligations and losses for CY 2018 under the current trend demand projection. Demands on Metropolitan include Member Agency consumptive use which includes 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.

Board Report (Water Surplus and Drought Management Plan)

2018 Estimated Demands, Losses and Obligations (Acre-Feet)	
Member Agency Consumptive Demands	1,468,000
Member Agency Replenishment Demands	98,000
Coachella Valley Water District Agreement	35,000
System and Storage Losses	69,000
Total Estimated Demands and Losses	1,670,000

2018 Water Supply Balance

The following table shows the estimated net balance between demands and water supplies at SWP allocations of 20 and 40 percent for CY 2018, and represents staff's most likely range of scenarios at this time.

2018 Water Supply and Demand Balance Estimate (Acre-Feet)		
	20% SWP Allocation	40% SWP Allocation
CRA Supplies	945,000	945,000
SWP Supplies	382,000	765,000
Total Supplies	1,327,000	1,710,000
Total Demands and Losses	1,670,000	1,670,000
Net Water Supply and Demand Balance	-343,000	40,000

It is still uncertain if Metropolitan's supplies will exceed demand levels in CY 2018. As shown above, there are two scenarios that illustrate two different outcomes. At the current SWP allocation of 20 percent Metropolitan projects that demands will exceed supplies by roughly 343 TAF. In this case, water management actions that may include a draw on dry-year storage would be necessary to balance supplies with demands. As shown in [Attachment 1](#), Metropolitan has ample storage and take capacity to cover this deficit with storage withdrawals alone. At a 40 percent SWP allocation, achievable with normal hydrologic conditions for the remainder of the year, Metropolitan's supplies would exceed its demands by roughly 40 TAF. Under this scenario, Metropolitan would be in a position to store this surplus water. As shown in [Attachment 2](#), Metropolitan has ample put capacity to accommodate this amount of supply.

Transfers/Exchanges

Given the uncertainty of Metropolitan's final supply demand balances, Metropolitan is considering pursuing transfers and/or exchanges in CY 2018. Depending on hydrologic conditions, these supplies could help meet demands, help offset potential draws from or supplement storage reserves, and meet water quality objectives.

At the current 20 percent SWP allocation, there is over 1 MAF of available capacity to convey water transfer supplies through the SWP Delta pumping plant. The decision to supplement supplies with transfers and exchanges, including any necessary Board actions, will be made at a later date when more is known of hydrologic conditions and Metropolitan's supply needs.

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

Board Report (Water Surplus and Drought Management Plan)

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.

In 2014, Metropolitan exercised Article 54 of its long-term water supply contract with the State of California and took delivery of 219 TAF from the SWP system. Repayment is required by 2020. Metropolitan paid 30 TAF of this obligation back in 2015, an additional 124 TAF repayment in 2016 through storage management actions, and the remaining balance of 65 TAF was repaid in January and February 2017.

Repayments are subject to final DWR accounting. 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 8 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	8,000	No later than 2022
Total	12,000	

2018 WSDM Storage Detail

WSDM Storage	1/1/2018 Storage Levels	CY 2018 Take Capacity ¹	2018 Total Storage Capacity
Colorado River Aqueduct Delivery System	447,000	305,000	1,530,000
Lake Mead Extraordinary Conservation ICS	367,000	305,000 ²	1,450,000
System Efficiency ICS	80,000		80,000
State Water Project System	1,029,000	664,000	1,984,000
MWD SWP Carryover ³	200,000	200,000	300,000
DWCV SWP Carryover ³	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	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	1,082,000	665,000	1,389,000
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)	2,000	2,000	66,000
Three Valleys (Live Oak)	2,000	1,000	6,000
Three Valleys (Upper Claremont)	0	0	3,000
Western	3,000	2,000	12,000
Cyclic - Upper San Gabriel	48,000	16,000	100,000
Cyclic - Three Valleys	2,000	2,000	40,000
Cyclic - Burbank	6,000	6,000	7,000
Cyclic - Eastern	1,000	1,000	3,000
Cyclic - MWDOC	58,000	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	3,114,000	1,722,000	6,031,000
Emergency	626,000	0	626,000
Total WSDM Storage ⁴	2,488,000	1,722,000	5,405,000

¹ Take capacity assumed under a 20% SWP Table A Allocation.

² Amount needed to fill Colorado River Aqueduct assuming 945,000 AF of base supplies (no agricultural adjustment).

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

⁴ Total WSDM Storage level is subject to change based on accounting adjustments.

2018 WSDM Storage Detail

WSDM Storage	1/1/2018 Storage Levels	CY 2018 Put Capacity ¹	2018 Total Storage Capacity
Colorado River Aqueduct Delivery System	447,000	374,000	1,530,000
Lake Mead Extraordinary Conservation ICS	367,000	374,000	1,450,000
System Efficiency ICS	80,000		80,000
State Water Project System	1,029,000	249,000	1,984,000
MWD SWP Carryover ²	200,000	100,000	300,000
DWCV SWP Carryover ²	97,000	49,000	146,000
Castaic Lake (DWR Flex Storage)	154,000	0	154,000
Lake Perris (DWR Flex Storage)	65,000	0	65,000
Arvin Edison Storage Program	149,000	41,000	389,000
Semitropic Storage Program	188,000	32,000	350,000
Kern Delta Storage Program	139,000	27,000	250,000
Mojave Storage Program	27,000	0	330,000
AVEK Storage Program	10,000	0	10,000
In-Region Supplies and WSDM Actions	1,082,000	257,000	1,389,000
Diamond Valley Lake	747,000	63,000	810,000
Lake Mathews	139,000	43,000	182,000
Lake Skinner	38,000	6,000	44,000
IEUA/TVMWD (Chino Basin)	36,000	25,000	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)	2,000	16,000	66,000
Three Valleys (Live Oak)	2,000	1,000	6,000
Three Valleys (Upper Claremont)	0	0	3,000
Western	3,000	3,000	12,000
Cyclic - Upper San Gabriel	48,000	52,000	100,000
Cyclic - Three Valleys	2,000	3,000	40,000
Cyclic - Burbank	6,000	1,000	7,000
Cyclic - Eastern	1,000	2,000	3,000
Cyclic - MWDOC	58,000	42,000	100,000
Other Programs	556,000	163,000	1,128,000
Other Emergency Storage	328,000	0	328,000
DWCV Advanced Delivery Account	228,000	163,000	800,000
Total	3,114,000	1,043,000	6,031,000
Emergency	626,000	0	626,000
Total WSDM Storage ³	2,488,000	1,043,000	5,405,000

¹ Put capacity assumed under a 40% SWP Table A Allocation.

² Total Storage Capacity varies year to year based on prior year remaining balance added to current year contractual limits.

³ Total WSDM Storage level is subject to change based on accounting adjustments