



- Water Surplus and Drought Management Plan

Summary

This Water Surplus and Drought Management (WSDM) report provides a preliminary accounting of water supply, demand, and storage conditions for calendar year (CY) 2017. This report considers conditions as of April 1, 2017.

The Water Year (WY) to date hydrologic conditions in the Upper Colorado River and northern California watersheds continue to be above average despite a dry March. Snowpack accumulations on April 1, considered the peak of the snow season, were well above average in both basins. As a result, the water year runoff that is comprised of the observed flows to date and the anticipated snowmelt are projected to be well above average in each watershed. In fact, the median condition runoff forecast for northern California is 37.1 MAF, the second highest in the historic record should it occur. Despite the favorable hydrologic conditions and outlook, the Department of Water Resources (DWR) has not increased the State Water Project (SWP) allocation beyond 60 percent, given the uncertainties surrounding the operational constraints at key SWP facilities that may impact water supplies. While the allocation may not reflect current conditions, reservoir levels, river flows, and delta export levels can serve as an indicator of the water supply conditions as we progress through the year. Current observations and forecasts of these indicators suggest SWP supplies can exceed the 60 percent allocation level. Further, DWR has made available Article 21 supplies and Metropolitan began taking delivery of these supplies in March. These supplies are in addition to the SWP allocation.

Staff is projecting that supplies will exceed demands in CY 2017 and anticipates adding to Metropolitan's dry-year storage reserves, continuing the storage recovery that began in CY 2016.

Purpose

Informational

Attachments

[Attachment 1: Projected 2017 WSDM Storage Detail \(60% SWP allocation\)](#)

[Attachment 2: Projected 2017 WSDM Storage Detail \(70% SWP allocation\)](#)

Detailed Report

This WSDM report updates the developing water supply and demand conditions for CY 2017. 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 2017.

2017 Estimated Colorado River Aqueduct Supplies

The April 1, 2017 snowpack in the Upper Colorado River Basin measured 122 percent of normal, with a basin weighted snow water content of 19.2 inches. Although overall hydrologic conditions remain above normal, below normal precipitation in March has reduced the water year runoff forecast into Lake Powell to 129 percent of normal. This would be the first above normal year since WY 2010/11, despite the wet conditions, it is anticipated that the storage gains in Lake Powell will not be sufficient to trigger equalization releases this year. Nevertheless, the storage gains that are achieved in Lake Powell this year will improve the probability of equalization next year.

The table below shows staff's estimate of Colorado River supplies for CY 2017 prior to water management actions. The total of 960 TAF is referred to as the Colorado River Aqueduct (CRA) base supply and is comprised of Metropolitan's Basic Apportionment (550 TAF) and the established Colorado River supply programs developed to date. The established supply programs have a range of uncertainty, therefore the yield shown reflects staff's current estimate. A larger degree of uncertainty involves the water use of the higher priority

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agricultural users. The agricultural use, which could be positive or negative, will be better known as the year progresses at which time the appropriate adjustments will be made to the Colorado River supply projection. Therefore, at this time, the projected water supply includes Metropolitan's Basic Apportionment (550 TAF) and estimate for the established Colorado River supply programs developed to date without an agricultural use adjustment.

2017 Colorado River Aqueduct Base Supply Estimate (Acre-Feet)	
Basic Apportionment	550,000
IID/MWD Conservation Program	85,000
PVID/Bard Fallowing Programs	125,000
Exchange with SDCWA (IID Transfer and Canal Lining)	178,000
Canal Lining Water to MWD	16,000
Lower Colorado Water Supply Project	6,000
CRA Supply Before Water Management And Storage Actions	960,000

2017 Estimated State Water Project Supplies

The April 1, 2017 snowpack in northern California measured 148 percent of normal, the largest snowpack since 2011. The anticipated spring snowmelt along with the observed river flows to date is resulting in a median water year runoff forecast of 37.1 MAF. This would be the second highest runoff in historic record. Heavy precipitation earlier in the water year has already filled many reservoirs throughout the State. To manage the anticipated additional inflows from the snowpack, dam operators have been making flood control releases and anticipate continuing these releases in order to manage through the snowmelt season. These conditions will result in continued high river flows through spring that can serve to satisfy regulatory standards thereby easing export restrictions in the Delta.

These high river flows have already resulted in water supply gains. DWR has made available supplies that are in addition to the allocated SWP supplies consistent with Article 21 of the long-term contract for the SWP. The criteria necessary to make these supplies available include meeting all State Water Contractor (Contractor) demands, filling the State's share of San Luis Reservoir, and having excess capacity at Banks Pumping Plant. DWR has satisfied these criteria and has made available the excess capacity or "Article 21" water supplies to Contractors who can use or store these supplies outside of SWP facilities. Metropolitan, through its Inland Feeder conveyance and Diamond Valley Lake storage, is able to take advantage of this excess capacity and has taken delivery of approximately 43 TAF of "Article 21" supplies to date.

Despite these favorable water supply conditions and outlook, DWR has not increased the SWP allocation above 60 percent. The recent incidents at Oroville and Clifton Court Forebay, described below, have created uncertainties regarding SWP operations for the remainder of the year.

Oroville Spillway: Damage to the main and emergency spillways at the Oroville facility has limited DWR's ability to release water from the lake. Temporary repair work to minimize further damage to the spillway structures and collateral damage to the Hyatt Generation facility has been successful. DWR has restored limited use of the spillway and full use of the Hyatt Generation facility adding flexibility to release water from the reservoir. This flexibility will be vital to manage inflows during the spring snowmelt and for environmental and water supply release obligations later in the year. It is unclear, however, what operating criteria will be required to ensure safe working conditions while long-term repairs are made. These criteria may have impacts to the final SWP allocation and future allocations.

Clifton Court Forebay: Damage was discovered at the wing wall and concrete apron of the Clifton Court Forebay inlet structure in early March 2017. Emergency work to repair that damage is underway. To facilitate repairs, no exports from Banks Pumping Plant are planned through April. Under the Coordinated Operating Agreement (COA) between the SWP and the Central Valley Project (CVP) and the Joint Point of Diversion (JPOD) agreement, DWR is authorized to use available pumping capacity at the CVP's Jones

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Pumping Plant to meet Contractor demands. This damage will likely not have impacts to the 60 percent SWP allocation but has and will continue to limit the availability of Article 21 supplies during the Banks Pumping Plant shutdown.

At this time, DWR has maintained a 60 percent SWP allocation. The allocation may be updated in the coming months as the operational criteria for Lake Oroville is determined. As such, this report will continue to plan for a range of supply levels that includes a 60 up to 70 percent final SWP allocation.

The table below shows the SWP supplies for the range of SWP allocations specified.

2017 State Water Project Supply Estimate (Acre-Feet)		
SWP Allocation	60%	70%
Table A Supply	1,147,000	1,338,000
Article 21	43,000	43,000
Port Hueneme Agreement	1,000	1,000
Total	1,191,000	1,382,000

2017 Demands and Losses Estimate

The table below summarizes the estimated demands, obligations and losses for CY 2017 under the current trend demand projection at a 60 and 70 percent SWP allocation. 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 and reflect demand levels under relatively wet conditions. Metropolitan staff continues to work with Member Agencies to refine these demands to reflect low groundwater levels and capacity to replenish as water supplies become available. CY 2017 demands also include obligations to deliver water to the Coachella Valley Water District under a long-term delivery and exchange agreement. Losses for CY 2017 are an estimate of Metropolitan distribution system losses, and evaporative and contractual losses from storage. Storage losses will fluctuate based on the SWP allocation and final accounting of the actual puts to storage.

2017 Estimated Demands, Losses and Obligations (Acre-Feet)	
Member Agency Consumptive Demands	1,233,000
Member Agency Replenishment Demands	124,000
Coachella Valley Water District Agreement	35,000
System and Storage Losses	76,000
Total Estimated Demands and Losses	1,468,000

Transfer/Exchanges

Metropolitan staff is pursuing exchange agreements or other programs that will benefit the region. Metropolitan has entered into unbalanced exchange agreements with Castaic Lake Water Agency and Central Coast Water Authority to help manage roughly 46,000 acre-feet of their SWP supplies that were at risk of spilling as DWR filled San Luis Reservoir. Through this unbalanced exchange, Metropolitan will yield roughly 15,000 acre-feet. In addition, Metropolitan, Southern Nevada Water Authority (SNWA) and the Central Arizona Project are funding conservation programs in Mexico and share the conserved water per the terms of International Boundary and Water Commission Minute No. 319. Metropolitan contributed \$2.5 million for conservation projects and will receive roughly 24,000 acre-feet of binational Intentionally Created Surplus (ICS) water for its share of the funding in 2017. Combined, these programs would yield approximately 39,000 acre-feet.

2017 Water Supply Balance

The following table shows the estimated net balance between demands and water supplies at SWP allocations of 60 and 70 percent for CY 2017.

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2017 Water Supply and Demand Balance Estimate (Acre-Feet)		
	60% SWP Allocation w/ Current Demands	70% SWP Allocation w/ Current Demands
CRA Supplies	960,000	960,000
SWP Supplies	1,191,000	1,382,000
Transfer/Exchanges	39,000	39,000
Total Supplies	2,190,000	2,381,000
Total Demands and Losses	1,468,000	1,468,000
Net Water Supply and Demand Balance	722,000	913,000

Metropolitan is projecting that supplies will exceed demand levels in CY 2017. As shown above, there is an estimated surplus of 722 TAF under a 60 percent SWP allocation and 913 TAF under an 70 percent SWP allocation. Under these scenarios, Metropolitan anticipates adding to its storage reserves in CY 2017 thus continuing the storage recovery that began in CY 2016.

Based on this estimated recovery and a beginning dry-year storage balance of 1.3 MAF, Metropolitan’s dry-year storage balance at the end of CY 2017 could range from 2.0 MAF to 2.2 MAF. This includes a 214 TAF increase to Metropolitan’s ICS account in Lake Mead including the binational ICS component. [Attachments 1 and 2](#) show the starting balance, estimated put and take capacities for CY 2017 and total storage capacity for each of Metropolitan’s storage programs at a 60 and 70 percent SWP allocation respectively. Metropolitan will exercise flexibility and opportunities within the current storage programs to increase put capacities depending on the final SWP allocation and supply/demand balances.

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 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 2016 and does not plan to store any SNWA water in 2017.

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. Metropolitan does not plan to store any IID water 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.

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Repayments are subject to final DWR accounting. The table below shows all outstanding Dry-year Exchange payback amounts.

Dry-year Exchange/Program	Payback Amount (Acre-Feet)	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	98,000 ¹	Any year, conditional on whether or not Metropolitan is implementing a WSAP
Total	428,000	

¹ Estimated and subject to final U.S. Bureau of Reclamation Colorado River Accounting.

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. 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 2 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 (Acre-Feet)	Payback Term
Strand Ranch - Irvine Ranch	4,000	No later than 2024
Dudley Ridge WD – Irvine Ranch	2,000	No later than 2022
Total	6,000	

Projected 2017 WSDM Storage Detail (60% SWP Allocation)

WSDM Storage	1/1/2017 Storage Levels	CY 2017 Take Capacity ¹	CY 2017 Additional Put Capacity ¹	Total Capacity ¹
Colorado River Aqueduct System	78,000	49,000	214,000	1,602,000
Lake Mead Extraordinary Conservation ICS	0	0	190,000	1,500,000
System Efficiency and Binational ICS	78,000	49,000	24,000	102,000
State Water Project System	723,000	558,000	175,000	1,756,000
MWD SWP Carryover	168,000	168,000	-28,000 ²	140,000
DWCV SWP Carryover	42,000	42,000	36,000 ²	78,000
Castaic Lake (DWR Flex Storage)	154,000	154,000	0	154,000
Lake Perris (DWR Flex Storage)	0	0	65,000	65,000
Arvin Edison Storage Program	108,000	28,000	22,000	389,000
Semitropic Storage Program	125,000	116,000	53,000	350,000
Kern Delta Storage Program	99,000	50,000	27,000	250,000
Mojave Storage Program	27,000	0	0	330,000
In-Region Storage	739,000	441,000	388,000	1,389,000
Diamond Valley Lake	566,000	376,000	244,000	810,000
Lake Mathews	135,000	57,000	47,000	182,000
Lake Skinner	37,000	7,000	7,000	44,000
IEUA/TVMWD (Chino Basin)	0	0	10,000	100,000
Long Beach (Cent. Basin)	0	0	0	13,000
Long Beach (Lakewood)	0	0	0	4,000
Foothill (Raymond and Monkhill)	0	0	0	9,000
MWDOC (Orange County Basin)	0	0	16,000	66,000
Three Valleys (Live Oak)	1,000	1,000	0	6,000
Three Valleys (Upper Claremont)	0	0	1,000	3,000
Western	0	0	3,000	12,000
Cyclic - Upper San Gabriel	0	0	60,000	100,000
Cyclic - Three Valleys	0	0	0	40,000
Other Programs	366,000	38,000	388,000	1,128,000
Other Emergency Storage	328,000	0	0	328,000
To Be Determined Storage Action ³	0	0	200,000	0
DWCV Advance Delivery Account	38,000	38,000	188,000	800,000
Total	1,906,000	1,086,000	1,165,000	5,875,000
Emergency	626,000	0	0	626,000
Total WSDM Storage⁴	1,280,000	1,086,000	1,165,000	5,249,000

¹ Take, Put, and Total capacities assumed under a 60% SWP Table A Allocation.

² Metropolitan could put amounts in addition to this subject to increase risk of spill.

³ Metropolitan will exercise flexibility and opportunities within current storage programs to increase put capacities if needed.

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

Projected 2017 WSDM Storage Detail (70% SWP Allocation)

WSDM Storage	1/1/2017 Storage Levels	CY 2017 Take Capacity ¹	CY 2017 Additional Put Capacity ¹	Total Capacity ¹
Colorado River Aqueduct System	78,000	49,000	214,000	1,602,000
Lake Mead Extraordinary Conservation ICS	0	0	190,000	1,500,000
System Efficiency and Binational ICS	78,000	49,000	24,000	102,000
State Water Project System	723,000	572,000	234,000	1,815,000
MWD SWP Carryover	168,000	168,000	12,000 ²	180,000
DWCV SWP Carryover	42,000	42,000	55,000 ²	97,000
Castaic Lake (DWR Flex Storage)	154,000	154,000	0	154,000
Lake Perris (DWR Flex Storage)	0	0	65,000	65,000
Arvin Edison Storage Program	108,000	28,000	22,000	389,000
Semitropic Storage Program	125,000	125,000	53,000	350,000
Kern Delta Storage Program	99,000	55,000	27,000	250,000
Mojave Storage Program	27,000	0	0	330,000
In-Region Storage	739,000	441,000	388,000	1,389,000
Diamond Valley Lake	566,000	376,000	244,000	810,000
Lake Mathews	135,000	57,000	47,000	182,000
Lake Skinner	37,000	7,000	7,000	44,000
IEUA/TVMWD (Chino Basin)	0	0	10,000	100,000
Long Beach (Cent. Basin)	0	0	0	13,000
Long Beach (Lakewood)	0	0	0	4,000
Foothill (Raymond and Monkhill)	0	0	0	9,000
MWDOC (Orange County Basin)	0	0	16,000	66,000
Three Valleys (Live Oak)	1,000	1,000	0	6,000
Three Valleys (Upper Claremont)	0	0	1,000	3,000
Western	0	0	3,000	12,000
Cyclic - Upper San Gabriel	0	0	60,000	100,000
Cyclic - Three Valleys	0	0	0	40,000
Other Programs	366,000	38,000	368,000	1,128,000
Other Emergency Storage	328,000	0	0	328,000
To Be Determined Storage Action ³	0	0	200,000	0
DWCV Advance Delivery Account	38,000	38,000	168,000	800,000
Total	1,906,000	1,100,000	1,204,000	5,934,000
Emergency	626,000	0	0	626,000
Total WSDM Storage⁴	1,280,000	1,100,000	1,204,000	5,308,000

¹ Take, Put, and Total capacities assumed under a 70% SWP Table A Allocation.

² Metropolitan could put amounts in addition to this subject to increase risk of spill.

³ Metropolitan will exercise flexibility and opportunities within current storage programs to increase put capacities if needed.

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