



- Water Surplus and Drought Management Plan

Summary

Hydrologic conditions in California have improved considerably in CY 2016 as compared to the last four years. These improved conditions have led to a higher State Water Project (SWP) allocation than in recent years. However, there remains uncertainty with respect to the Final SWP allocation, Colorado River Aqueduct (CRA) supplies, and member agency demand levels. In May staff will bring a recommendation on the Water Supply Allocation Plan (WSAP). This recommendation will be guided by many factors including projected storage levels and an assessment of the supplies needed next year to maintain appropriate storage levels in CY 2017 to safeguard against future dry years.

Purpose

Informational

Detailed Report

This WSDM report updates the developing water supply and demand conditions for CY 2016. This report provides the Board with a detailed accounting of WSDM conditions that may impact water supply reliability for CY 2016.

Estimated State Water Project Supplies

Weather conditions in the northern Sierra region have shifted to a wetter pattern. On March 17, 2016 DWR increased the SWP allocation to 45 percent. As of April 1, 2016, northern Sierra precipitation measured at eight weather stations, known as the 8-Station Index, was 51.9 inches or 124 percent of normal for that date. This is the first time the 8-Station Index has accumulated precipitation above its annual average of 50 inches since the drought began. Runoff from storm events this season have increased Lake Oroville storage levels by over 2 MAF since the 2016 initial SWP allocation was announced in December 2015. In fact, the inflows from recent storms in the first half of March pushed storage levels in Oroville into the space reserved for flood protection. This encroachment triggered flood releases as required by the Army Corps of Engineers. As the snowpack begins to melt, continued inflow to the reservoir and the Delta is expected and may support further increases to the SWP allocation.

Despite the improved hydrologic conditions, Delta export pumping continues to be limited. Concerns over the declining Delta smelt populations and conditions in the Delta have prompted more restrictive fishery requirements prescribed under the Biological Opinions during wet periods. As a result, both the SWP and Central Valley Project (CVP) have had to forego opportunities to capture high delta flows that accompanied precipitation events and flood control releases this year. To date, the SWP and Central Valley Project (CVP) combined water losses are estimated to be 625 TAF. The severity of the fishery restrictions will also make it difficult for DWR to allocate all of the water that is developed in the watershed. However, any unallocated water captured in Lake Oroville will help bolster the 2017 initial SWP allocation.

The table below shows the associated SWP Table A supplies for the current SWP allocation.

2016 State Water Project Supply Estimate (Acre-Feet)	
SWP Allocation	45%
Table A Supply	860,000

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Estimated Colorado River Aqueduct Supplies

As of April 1, 2016, snowpack in the Upper Colorado River Basin measured 97 percent of normal, with snow-water content of 15.1 inches. Following three consecutive months of below normal precipitation, the water year runoff forecast remains below normal suggesting that the Colorado River watershed could be in its 16th year of drought. This ongoing drought has impacted storage levels in Lake Powell and Lake Mead, which in turn affect the likelihood of surplus or shortage conditions in the future. In addition, the record low water levels in Lake Mead may impact the ability to augment supplies in the current year. Access to Metropolitan’s Intentionally Created Surplus (ICS) and the development of additional transfers and exchanges that would result in additional withdrawals from Lake Mead may be limited by the Secretary of the Interior this year in order to avoid a shortage declaration in 2017.

Staff’s estimate of Colorado River supplies for CY 2016 is approximately 961 TAF with potential 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. Therefore, the estimated water supply includes Metropolitan’s contracted amount of 550 TAF without an agricultural use adjustment and the established Colorado River multi-year supply programs developed to date of approximately 411 TAF. A detailed listing of the Colorado Supplies is included below.

2016 Colorado River Aqueduct Supply Estimate (Acre-Feet)	
<u>Contract</u>	
Basic Apportionment	550,000
<u>Multi-Year Programs</u>	
IID/MWD Conservation Program	90,000
PVID Land Fallowing	118,000
Transfer to SDCWA (IID Transfer and Canal Lining)	180,000
Canal Lining Water to MWD	16,000
Lower Colorado Water Supply Project	6,000
Bard WD Seasonal Fallowing Pilot Program	1,000
Total CRA Supply	961,000

2016 Demands and Losses Estimate

Member agency demands on Metropolitan include water deliveries to the member agencies, as well as water exchanged with the San Diego County Water Authority. Member agency demands on Metropolitan have shown a downward trend since the WSAP Level 3 Regional Shortage was implemented in July 2015. Further influencing the reduced demand is the Governor’s emergency water conservation regulations calling for a 25 percent statewide reduction in consumptive use implemented in May 2015.

Currently, the twelve month rolling demand on Metropolitan is roughly 1.7 MAF including losses. Losses for 2016 are an estimate of Metropolitan distribution system losses, and evaporative and contractual losses from storage. Factors that will likely influence projected demands include climate, improving local supply levels and future decisions surrounding implementation of Metropolitan’s WSAP and the statewide emergency water conservation regulations. These impacts are discussed in the “Uncertainties” section of this report. The table below summarizes the current twelve month rolling demands.

2016 Demands and Losses Estimate (Acre-Feet)	
Member Agency Demands	1,640,000
System and Storage Losses	60,000

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Total Demands, Obligations, and Losses	1,700,000
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WSDM Supplies and Management Actions

WSDM Dry Year Storage

In addition to base CRA and SWP supplies shown above, Metropolitan had a total of approximately 900 TAF of storage in its WSDM dry-year storage portfolio as of the beginning of CY 2016 (this figure excludes water stored for emergency purposes). Accounting for conveyance constraints, approximately 590 TAF is available for use in CY 2016 at a 45 percent SWP allocation. This estimate reflects the contractual minimum amounts of the programs and/or any agreed upon increase in minimum contractual amounts with banking partners. This dry-year storage could be used to meet demands in CY 2016 if necessary. However, it is increasingly likely that supplies will be higher than demands in CY 2016. In this circumstance, Metropolitan’s storage programs have the ability to capture more than 1.5 MAF in CY 2016.

Transfer/Exchanges

In accordance with the WSDM plan guidelines, Metropolitan is pursuing transfer and exchanges to supplement 2016 supplies. These supplies will help offset potential draws from storage reserves and under higher allocations could be used to replenish storage. Staff is pursuing supplies that would augment either SWP and CRA deliveries, or both. For this report, staff is conservatively estimating 50 TAF of supplies. This low estimate is due in part to the projected capacity constraints that may prevent acquisition of north of Delta supplies. As such, staff is focusing efforts on developing supplies from south of Delta partners.

2016 Water Supply Balance

The following table shows the estimated net balance between demands and water supplies at a SWP Table A allocation of 45 percent for CY 2016.

2016 Water Supply and Demand Balance Estimate (Acre-Feet)	
CRA Supplies	961,000
SWP Supplies	860,000
WSDM Transfers/Exchanges	50,000
Total Supplies	1,871,000
Total Demands and Losses	1,700,000
Net Water Supply and Demand Balance	171,000

As shown, under a 45 percent SWP allocation there may be opportunities to increase dry-year storage balances. Dry-year storage balances at the end of CY 2016 could increase to 1.1 MAF with the assumptions on supplies and demands discussed above.

Uncertainties

This WSDM report makes assumptions about the supplies that will be available to Metropolitan in CY 2016 and about deliveries to member agencies. Depending on the hydrologic conditions and other factors, these conditions could change, resulting in decreases or increases in supplies and demands. Following are the uncertainties identified to date:

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SWP Allocation

DWR's latest allocation analysis released on March 18, 2016 shows a narrowing range for the final SWP allocation. In their analysis, a dry to moderate hydrologic condition for the remainder of the year supports a 44 to 52 percent SWP allocation respectively. DWR's latest allocation increase is consistent with past practice taking guidance from the dry scenario. Hydrologic conditions through March are more reflective of moderate to wet conditions. Consequently, further increases in the SWP allocation are possible and according to the latest analysis may result in an additional 100 TAF of Table A supplies for Metropolitan.

Agricultural Adjustment

Base supplies available to Metropolitan on the CRA could be reduced if higher priority users have high Colorado River water use this year. On the other hand, lower water use by the higher priority users could increase supplies available on the CRA. Staff estimates a potential supply swing of +/- 100 TAF is possible.

Access to ICS storage

The fact that Lake Mead is at record low levels and within feet of the shortage trigger could limit Metropolitan's ability to access its Intentionally Created Surplus (ICS) reserves currently stored in Lake Mead. Under certain hydrologic conditions, Metropolitan's ICS storage balance currently estimated at 90 TAF may not be available. Final accounting of the ICS storage balance will be completed in May 2016. If the Secretary of the Interior decides to limit access to ICS supplies, staff anticipates that decision to be made as early as May 2016.

Transfer and Exchanges

Low Lake Mead levels could also limit development of interstate transfer and exchange programs in 2016 to augment Colorado River Aqueduct supplies. These transfers and exchanges could draw down Lake Mead more quickly and trigger shortage conditions earlier thereby precluding partners from participating in those programs. On the other hand, if hydrologic conditions improve in the Upper and Lower Colorado River Basins, Metropolitan could pursue development of up to 200 TAF, the maximum amount allowed under the Storage and Interstate Release Agreement. In California, the ability to export transfers and exchanges originating north of delta will be limited as the SWP allocation increases. DWR's current allocation analysis suggests there would be no capacity to export transfer and exchange supplies at a 50 percent SWP allocation. Metropolitan is also exploring transfer and exchange supplies that originate south of the Delta to avoid these capacity constraints. It is estimated that these uncertainties could result in an additional 150 TAF between the SWP and CRA systems, above the base assumption shown earlier in this report.

Member Agency Demands

This report assumes a baseline of demands equivalent to the last 12-month rolling deliveries to member agencies plus losses. However, there are scenarios that could adjust demands up or down from the last 12-month rolling levels.

For example, the improved hydrologic conditions in the southern Sierra this year may result in higher Los Angeles Aqueduct flows that would reduce demands on Metropolitan. On the other hand, should Metropolitan lift the existing WSAP limits, demands may increase. In addition, the SWRCB is scheduling a workshop in April to discuss revisions to the emergency water conservation regulations in response to the improved hydrologic conditions in northern California. Should the SWRCB decide to relax the existing requirements, increased demands on Metropolitan may result. Considering these factors, staff estimates a potential demand swing of approximately +200/ -100 TAF is possible.

WSAP Recommendation Considerations

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The WSDM Plan provides a water management framework that accounts for the degree or “stage” of surplus and shortage. These stages are defined by parameters such as storage levels and expected SWP and CRA supplies. Each stage has associated actions that could be taken as part of the response to prevailing shortage conditions.

Currently, Metropolitan is in the highest or “Extreme Shortage” stage as defined in the WSDM plan. The current Level 3 Regional Shortage is set to continue through June 2016. Staff will recommend a course of action for the WSAP consistent with this framework and reflective of the latest information available on supplies and demands. The following objectives considered by the Board in 2015 will also be considered in staff’s recommendation:

- a. Supporting the Governor’s call for conservation
- b. Avoiding use of Emergency storage
- c. Managing storage for the following years
- d. Allowing for uncertainties
- e. Avoiding steep increases in WSAP levels in future years, if dry conditions persist

In addition, staff will consider the easing of drought conditions in northern California given recent storm events and the public’s reaction to the flood control releases at Oroville and other key reservoirs in the state. Staff will consider the developments at the SWRCB should the existing emergency water conservation regulations be relaxed.

Staff will provide its recommendation in May accompanied with an analysis of supply/demand balances. This analysis will provide a projection of CY 2016 dry-year storage balances and an assessment of the SWP allocation necessary in CY 2017 to maintain appropriate dry-year storage reserves for future dry years to assist the Board in its decision.