Colorado River Update

Thomas W. McCann
September 5, 2013
The elevation of Lake Mead has declined from more than 1200’ above sea level in January 2000 to 1106’ today. Reclamation’s current 24-month study (August 2013) projects that the elevation of Lake Mead will continue to decline to 1060’ by July 2015, which would likely result in a Lower Basin shortage being declared for 2016.

While it would be convenient to blame the decline in Lake Mead water levels on the drought that has gripped the Colorado River Basin since 2000, the annual release from Lake Powell to Lake Mead has been 8.23 million acre-feet (MAF) or more in every year from 2000 through 2013. An 8.23 MAF annual release from Powell is considered “normal.” Larger releases generally occur only when “equalization” is triggered—i.e., when Lake Powell is fairly full. The 2011 winter snowpack, for example, generated one of the largest inflows into Lake Powell since 1964, resulting in a release of 12.52 MAF to Lake Mead in that year.

As the red line indicates, the elevation of Lake Mead has declined since 2000 at a fairly constant rate despite “normal” releases from Lake Powell.
The primary reason for Lake Mead’s decline since 2000 is not the ongoing drought, but rather the “structural deficit” that exists in the Lower Basin.

An 8.23 MAF annual release from Lake Powell is nominally sufficient to cover the 7.5 MAF apportioned to the Lower Basin states as well as one-half of the 1.5 MAF Mexican Treaty obligation. But losses due to evaporation in Lake Mead and evapotranspiration downstream of Glen Canyon Dam exceed average gains from side inflows. And the Lower Basin must also provide its half of the Mexican Treaty obligation. The net result is that the Lower Basin operates at a deficit of about 1.2 MAF per year, which causes a drop of about 12 feet annually in Lake Mead when 8.23 MAF is released from Lake Powell.

Only larger, equalization releases from Lake Powell—which are projected to occur less frequently in the future due to climate change—can prevent the annual decline of water levels in Lake Mead under present conditions.
Based on Reclamation’s August 2013 24-month study, only 7.48 MAF will be released from Lake Powell in 2014. A similar release is currently projected for 2015.

These reduced releases will accelerate the decline of water levels in Lake Mead.

Unless there is a substantial improvement in snowpack and runoff over the next two years, the Secretary of the Interior will likely declare a shortage for the Lower Basin in 2016.
This slide shows projected CAP water use in 2016, organized by priority/class of use.

Priority 3 represents water supplies acquired from Yuma Mesa Irrigation and Drainage District and Wellton-Mohawk Irrigation and Drainage District in connection with water rights settlements for the Ak-Chin Indian Community and Salt River Pima-Maricopa Indian Community, respectively. That water retained a Colorado River priority that is superior to the main CAP supply.

The Indian, M&I and NIA Priority supplies all reflect long-term CAP entitlements. Of these, Indian and M&I share the higher priority. NIA Priority uses are reduced before Indian or M&I Priority uses.

The Ag Pool is the first priority for excess water—i.e., water that is not ordered under a long-term CAP water delivery contract.

Projected long-term contract use is about 30,000 acre-feet higher in 2016 than in 2013, reducing the volume of “other excess” by an equivalent amount.
This slide shows the impact of a first-tier shortage on CAP water deliveries in 2016.

There will be no reduction to Priority 3, Indian, M&I or NIA Priority uses.

All “other excess” deliveries would be curtailed. This includes excess water deliveries to the Arizona Water Banking Authority, CAGRD and the United States (for Indian firming).

Deliveries to the Ag Pool would be reduced by about 60%.