Southern California Water Dialogue: Close Call on the Colorado
The Arizona Perspective

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• **Historical Information**
  
  • Authorized by 1968 Basin Project Act  
  • Substantially completed in 1993  
  • Responsible for repaying reimbursable costs to the U.S.  

• **Physical Characteristics**
  
  • 336 mile aqueduct  
  • 15 pumping plants  
  • Lake Pleasant (system storage/release)  
  • Primarily powered through Navajo Generating Station (NGS)  
  • Diverts remainder of Arizona’s Colorado River Apportionment
## Arizona Priorities for Colorado River Water

<table>
<thead>
<tr>
<th>Priority Tier</th>
<th>Type of Contracts</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Pre-1928 Contracts (Present Perfected Rights)</td>
<td>City of Yuma</td>
</tr>
<tr>
<td>P2/P3</td>
<td>Equal Priority Contracts</td>
<td>Cibola NWR</td>
</tr>
<tr>
<td>P4</td>
<td>Post-1968 Contracts</td>
<td>CAP</td>
</tr>
<tr>
<td>P5/P6</td>
<td>Unused/Surplus Water</td>
<td>AZ State Land Dept.</td>
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### CAP Service Area Priorities

<table>
<thead>
<tr>
<th>Priority Tier/Type of Use</th>
<th>Major Uses</th>
</tr>
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<tbody>
<tr>
<td>On-River P3</td>
<td>Indian Agriculture, PHX-Metro Cities</td>
</tr>
<tr>
<td>CAP M&amp;I and Indian</td>
<td>Indian Agriculture, Tucson/PHX-Metro Cities</td>
</tr>
<tr>
<td>CAP Non-Indian Ag</td>
<td>Indian Agriculture, PHX-Metro Cities</td>
</tr>
<tr>
<td>Ag Pool (excess)</td>
<td>Central Arizona Irrigation</td>
</tr>
<tr>
<td>Other Excess</td>
<td>Water Storage, Groundwater Replenishment</td>
</tr>
</tbody>
</table>
Significant Reservoirs

- **Lake Powell (Glen Canyon Dam)**
- **Lake Mead (Hoover Dam)**

1963

Powell: Upper Basin Curtailment
Mead: Lower Basin Supply

1936

Lake Powell (Glen Canyon Dam)
Lake Mead (Hoover Dam)
2007 Interim Guidelines: Shortage Sharing

- Arizona and Nevada share Lower Basin shortages under the 2007 Guidelines (through 2026)

- Mexico voluntarily agreed in Minute 319 to accept reductions in its deliveries at the same elevations

<table>
<thead>
<tr>
<th>Lake Mead Elevation</th>
<th>Arizona Reduction</th>
<th>Nevada Reduction</th>
<th>Mexico Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1075’</td>
<td>320,000 AF</td>
<td>13,000 AF</td>
<td>50,000 AF</td>
</tr>
<tr>
<td>1050’</td>
<td>400,000 AF</td>
<td>17,000 AF</td>
<td>70,000 AF</td>
</tr>
<tr>
<td>1025’</td>
<td>480,000 AF</td>
<td>20,000 AF</td>
<td>125,000 AF</td>
</tr>
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</table>

- No reductions to California under 2007 Guidelines
Water Budget at Lake Mead

- Inflow = 9.0 maf
  (release from Powell + side inflows)

- Outflow = -9.6 maf
  (AZ, CA, NV, and Mexico delivery
  + downstream regulation and gains/losses)

- Mead evaporation losses = -0.6 maf

- Balance = -1.2 maf

Given basic apportionments in the Lower Basin, the allotment to Mexico, and an 8.23 maf release from Lake Powell, Lake Mead storage declines about 12 feet each year.
Lake Mead Elevation

Lake Mead End of Month Elevation (ft)

Lower Basin Structural Deficit

Historical
Projected (24-month study)
Risk to All Colorado River Users

Without equalization or corrective action, Lake Mead could potentially fall below elevation 1000’...

If Lake Mead is below elevation 1000’:
- Impacts quality of water that SNWA withdraws (new intake)
- Less than 4.5 MAF left in storage in Lake Mead
- Reduced power generation and efficiency at Hoover Dam, potential cavitation or vibration damage
- Secretary can take additional measures (below 1025’)

BAD THINGS CAN HAPPEN!
Impact of Tier 1 Shortage to CAP Priority Pools

Tier 1 (320,000 AF)

- Other Excess
- Ag Pool
- NIA Priority
- Indian Priority
- M&I Priority
- Priority 3
Adaptation Strategies: Augmentation and Storage

- **Water Banking**
  - CAP and the Arizona Water Banking Authority (AWBA) have stored water underground for future recovery during shortages (Just over 4 MAF – over twice CAP’s annual diversions from the Colorado River)

- **Weather Modification**
  - CAP partially co-funds with Lower Basin partners cloud seeding projects in Wyoming, Colorado, and Utah to augment Colorado River snowpack
Pilot Drought Response Action MOU

- Voluntary development of water in Lake Mead
- Reduce risks of reaching critically low elevations in Lake Mead
- Creation of Protection Volumes in 2014-2019 by CAP, USBR, SNWA, MWD (740 KAF)

12 Ag Participants
- Tonopah IDD
- Roosevelt WCD
- Queen Creek IDD
- New Magma IDD
- Hohokam IDD
- Maricopa-Stanfield IDD
- Central Arizona IDD
- Kai Farms
- BKW Farms
- Maricopa Water District
- Salt River Project
- Yuma Mesa IDD (on-River)

4 Cities
- Glendale
- Peoria
- Phoenix
- Scottsdale
CAP Cooperative MOU Programs

CAP Agricultural customers in Central Arizona

- Ag Forbearance for reduced rate/charge
- Flexibility in using other water supply sources

Yuma Mesa Irrigation and Drainage District

- Pilot program with CAGRD
- Compensation for fallowing of irrigation acres

CAP Municipal Customers

- Received local supply in lieu of CAP delivery (CAP credits with SRP)
- No cost to CAP
Pilot System Conservation Program

• System conservation programs effective in partially mitigating drought impacts
• Provided opportunities to test new and innovative conservation approaches
• Program considered conservation in different water sectors: agricultural, municipal, industrial, etc.
• Water users compensated for voluntary reductions in water use
• Funding provided by CAP, USBR, SNWA, MWD, Denver Water ($17 M – $3M from CAP)
• Funding supported Upper and Lower Basin projects in all Basin States
• Target total conservation of just over 100 KAF
## Reduction Schemes: Lower Basin Drought Contingency Plan (LBDCP)

<table>
<thead>
<tr>
<th>Lake Mead Elevation (Feet)</th>
<th>AZ Reduction (AF)</th>
<th>NV Reduction (AF)</th>
<th>CA Reduction (AF)</th>
<th>USBR Reduction (AF)</th>
<th>Total (AF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,090 - 1,075</td>
<td>192,000</td>
<td>8,000</td>
<td>0</td>
<td>100,000</td>
<td>300,000</td>
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<tr>
<td>1,075 - 1,050</td>
<td>192,000</td>
<td>8,000</td>
<td>0</td>
<td>100,000</td>
<td>300,000</td>
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<td>192,000</td>
<td>8,000</td>
<td>0</td>
<td>100,000</td>
<td>300,000</td>
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<tr>
<td>1,045 - 1,040</td>
<td>240,000</td>
<td>10,000</td>
<td>200,000</td>
<td>100,000</td>
<td>550,000</td>
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<td>240,000</td>
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<td>250,000</td>
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<td>10,000</td>
<td>350,000</td>
<td>100,000</td>
<td>700,000</td>
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<tr>
<td>&lt; 1,025</td>
<td>240,000</td>
<td>10,000</td>
<td>350,000</td>
<td>100,000</td>
<td>700,000</td>
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### The LBDCP:
- Proposal developed by USBR and the LB states
- Aims to minimize the decline in Lake Mead
- Earlier, deeper, and pro-active reductions
- Provides more certainty and protection of Colorado River supplies
CAP Colorado River Partnerships

**Arizona**
- CAP Customers
- Arizona Water Bank
- Arizona On-River Water Users
- Arizona Department of Water Resources

**Colorado River**
- Basin States
- Indian Tribes
- NGOs
- Mexico
- Secretary of the Interior/Bureau of Reclamation
Final Thoughts...

• The structural deficit creates a long-term risk to all Lower Basin Colorado River water users

• CAP is prepared for future shortage in the Colorado River

• Cooperative programs funded by CAP, MWD, SNWA, BOR are addressing near-term risks

• All Colorado River water users need to participate in efforts to sustain the River’s water supply

• Collaboration is a more effective and efficient approach to address drought impacts