Colorado River Basin Overview

• 16.5 million acre-feet (maf) allocated annually
  - 7.5 maf each to Upper and Lower Basins
  - 1.5 maf to Mexico

• 14.8 maf average annual “natural” inflow into Lake Powell over past 110 years

• Inflow is highly variable year-to-year

• 60 maf of storage
  - 4 times the annual inflow

• Operations and water deliveries governed by the “Law of the River”
2007 Interim Guidelines

- In place for an interim period (2007 through 2026)
- Provide for coordinated operations of Lake Powell and Lake Mead to minimize Lower Basin shortages and Upper Basin curtailments
- Encourage efficient use and management of Colorado River water through the Intentionally Create Surplus (ICS) mechanism
- Establish guidelines for determining shortages in the Lower Basin
- Does not include provisions for Mexico
1944 U.S.-Mexico Water Treaty

Minute 319 – November 2012
International Boundary and Water Commission

Minute 323 – September 2017
Binational Water Scarcity Plan

Damage to canal in Mexico from earthquake, April 2010

View of riparian area in Colorado River Delta
2007 Interim Guidelines

- Arizona and Nevada share Lower Basin shortages under the 2007 Guidelines
- Mexico voluntarily agreed in Minute 319 to accept reductions in its deliveries at the same elevations
- No additional reductions to California under 2007 Guidelines
Whenever Lake Mead is below elevation 1,025 feet, the Secretary shall consider whether hydrologic conditions together with anticipated deliveries to the Lower Division States and Mexico is likely to cause the elevation at Lake Mead to fall below 1,000 feet. Such consideration, in consultation with the Basin States, may result in the undertaking of further measures, consistent with applicable Federal law.
Lake Mead – Key Elevations

1,229 ft
Flood Control or Surplus Conditions

1,145 ft
Normal or ICS Surplus Conditions

1,084 ft*
Level 1 Shortage Conditions
U.S. Lower Basin Shortage = 333 kaf
Mexico Reduction = 50 kaf

1,050 ft
Level 2 Shortage Conditions
U.S. Lower Basin Shortage = 417 kaf
Mexico Reduction = 70 kaf

1,025 ft
Level 3 Shortage Conditions
U.S. Lower Basin Shortage = 500 kaf
Mexico Reduction = 125 kaf

1,000 ft
Dead Pool (2.5 maf)

895 ft
Not to scale

*As of July 8, 2019

2 Mexico reductions based on Minute 323 (in place 2017-2026).
Water Budget at Lake Mead

Given current water demands in the Lower Basin and Mexico, and a minimum objective release from Lake Powell (8.23 maf), Lake Mead storage declines by about 1.2 maf annually (equivalent to about 12 feet in elevation).

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inflow</strong></td>
<td>9.0 maf</td>
</tr>
<tr>
<td><em>Powell release + side inflows above Mead</em></td>
<td></td>
</tr>
<tr>
<td><strong>Outflow</strong></td>
<td>-9.6 maf</td>
</tr>
<tr>
<td><em>Lower Basin State apportionments and Mexico Treaty allocation, plus balance of downstream regulation, gains, and losses</em></td>
<td></td>
</tr>
<tr>
<td><strong>Mead evaporation loss</strong></td>
<td>-0.6 maf</td>
</tr>
<tr>
<td><strong>Balance</strong></td>
<td>-1.2 maf</td>
</tr>
</tbody>
</table>

RECLAMATION
In July 2016, Lake Mead was at its lowest elevation of 1,071.61 feet since it was first filled in the 1930s. During the 1950s drought, Mead reached a low of 1,083.23 feet in April 1956.

Prior to 1999, Lake Mead was last at elevation 1,084.71 feet in May 1956.

In September 1999, Lake Mead was at 95% of capacity.

June 2019 was at 40% of capacity.
Natural Flow
Colorado River at Lees Ferry Gaging Station, Arizona
Water Year 1906 to 2019

Provisional data, subject to change

Estimated values for 2018-2019
### Total Contemplated Lower Basin Volumes (in KAF)
*2007 Interim Guidelines, Minute 323, Lower Basin Drought Contingency Plan & Binational Water Scarcity Contingency Plan*

<table>
<thead>
<tr>
<th>Lake Mead Elevation (ft msl)</th>
<th>AZ</th>
<th>NV</th>
<th>Mexico</th>
<th>Lower Basin States + Mexico</th>
<th>AZ</th>
<th>NV</th>
<th>CA</th>
<th>Mexico</th>
<th>AZ Total</th>
<th>NV Total</th>
<th>CA Total</th>
<th>Lower Basin States Total</th>
<th>Mexico Total</th>
<th>Lower Basin States + Mexico</th>
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<tbody>
<tr>
<td>1,090 - &gt;1,075</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>192</td>
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<td>41</td>
<td>192</td>
<td>8</td>
<td>0</td>
<td>200</td>
<td>41</td>
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<tr>
<td>1,075 - &gt;1,050</td>
<td>320</td>
<td>13</td>
<td>50</td>
<td>383</td>
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<td>512</td>
<td>21</td>
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<td>533</td>
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<td>613</td>
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<tr>
<td>1,050 - &gt;1,045</td>
<td>400</td>
<td>17</td>
<td>70</td>
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<td>34</td>
<td>592</td>
<td>25</td>
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<tr>
<td>1,045 - &gt;1,040</td>
<td>400</td>
<td>17</td>
<td>70</td>
<td>487</td>
<td>240</td>
<td>10</td>
<td>200</td>
<td>76</td>
<td>640</td>
<td>27</td>
<td>200</td>
<td>867</td>
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<td>1,040 - &gt;1,035</td>
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<td>70</td>
<td>487</td>
<td>240</td>
<td>10</td>
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<td>84</td>
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<td>917</td>
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<tr>
<td>1,035 - &gt;1,030</td>
<td>400</td>
<td>17</td>
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<td>10</td>
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<td>92</td>
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<td>27</td>
<td>300</td>
<td>967</td>
<td>162</td>
<td>1,129</td>
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<td>1,030 – 1,025</td>
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<td>17</td>
<td>70</td>
<td>487</td>
<td>240</td>
<td>10</td>
<td>350</td>
<td>101</td>
<td>640</td>
<td>27</td>
<td>350</td>
<td>1,017</td>
<td>171</td>
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<tr>
<td>&lt;1,025</td>
<td>480</td>
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<td>625</td>
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<td>10</td>
<td>350</td>
<td>150</td>
<td>720</td>
<td>30</td>
<td>350</td>
<td>1,100</td>
<td>275</td>
<td>1,375</td>
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</table>

The **US** will work to create or conserve 100,000 af or more of Colorado River system water on an annual basis to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs. All actions taken by the United States shall be subject to applicable federal law, including availability of appropriations.
Risk of Lake Mead < 1,020’

Full Hydrology (1906-2016)

- **2007 Projections**
  - (1906-2005 hydrology)
  - **No DCP**
    - (March 2019 Projections)
  - **With DCP**
    - (March 2019 Projections with Upper & Lower Basin DCPs & Binational WSCP)

Stress Test Hydrology (1988-2016)

- **2007 Projections**
  - (1906-2005 hydrology)
  - **No DCP**
    - (August 2018 Projections)
  - **With DCP**
    - (March 2019 Projections with Upper & Lower Basin DCPs & Binational WSCP)
CAP Priority Pools & Shortage

2007 Guidelines

LBDSP
Mitigation Component- Key Terms

- 2020 – 2022
  - 100% mitigation for NIA Pool (annual determination of vol.)
  - Fixed volume for CAP AG, dependent on annual tier determination
- 2023 – 2025
  - No CAP Ag Mitigation (except USF to GSF and groundwater infrastructure)
  - M&I and Indian priority fully mitigated first
  - NIA volume based on actual orders/operating conditions
  - NIA 75% under T1 and T2a (until no supplies)
  - NIA 50% under T2b (until no supplies)
- 2026
  - Zero mitigation
- No mitigation for any water user in T3 or 2026, whichever occurs first

Excerpt from Nov 29, 2018 and Jan 8, 2019
Steering Committee Meetings
Resources

Wet Water:
- 400 kaf CAP ICS
- 50 kaf CAP Lake Pleasant
- 50 kaf CAP-SRP Exchange
- 100 kaf USF-GSF
- Up to 91 kaf GSF (A portion would require WaterBUD partial repeal)
- Up to 30 kaf of CAP operational supplies Compensated Mitigation
  - $60M payments for impacted NIA supplies in lieu of wet water delivery.

Money for GW Infrastructure Development for Pinal Ag
16.5 kaf in 2022, 70 kaf/yr beginning in 2023

Excerpt from Nov 29, 2018
Steering Committee Meeting
# Intra – Arizona

## AZ LBDCP Mitigation Program Summary

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
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<td>105 KAF Tier 1</td>
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</tr>
<tr>
<td><strong>70 KAF Tier 2a/2b</strong></td>
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<td>Groundwater Infrastructure Program</td>
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<td>No CAP Wet Water Mitigation</td>
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<tr>
<td><strong>NIA Pool</strong></td>
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<tr>
<td>100% Tier 1/2a/2b</td>
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<tr>
<td>100% Tier 1/2a/2b</td>
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<tr>
<td>100% Tier 1/2a/2b</td>
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<tr>
<td>75% Tier 1/2a</td>
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<td>NO Mitigation</td>
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<tr>
<td>75% Tier 1/2a</td>
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<td></td>
<td></td>
<td></td>
<td>2026 or Tier 3</td>
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<tr>
<td>50% Tier 2b</td>
<td></td>
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</tbody>
</table>

* Until no supplies

### Resources

- **CAWCD ICS ~400 KAF** (includes 50 KAF SRP Exchange)
- **CAWCD Lake Pleasant ~50 KAF**
- **CAWCD Operational Supplies ~30 KAF**
- **CAWCD $60 Million for Compensated Mitigation or acquisition of additional wet water mitigation supplies**

- Phoenix AMA USF-GSF ~33 KAF/Yr
- **Tucson AMA GSF 35 KAF/Yr**
  - **Tier 1 or Tier 2a only**
  - **Tier 2a/2b**

---

**RECLAMATION**
### Intra – Arizona

#### AZ LBDCP Mitigation Program Summary – Improved Hydrology 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Ag Pool</th>
<th>NIA Pool</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>105 KAF Tier 1</td>
<td>100% Tier 1/2a/2b</td>
<td>CAWCD ICS ~400 KAF</td>
</tr>
<tr>
<td>2021</td>
<td>70 KAF Tier 2a/2b</td>
<td>100% Tier 1/2a/2b</td>
<td>(includes 50 KAF SRP Exchange)</td>
</tr>
<tr>
<td>2022</td>
<td>**</td>
<td>75%* Tier 1/2a</td>
<td>CAWCD Lake Pleasant ~50 KAF</td>
</tr>
<tr>
<td>2023</td>
<td></td>
<td>75%* Tier 1/2a</td>
<td>CAWCD Operational Supplies ~30 KAF</td>
</tr>
<tr>
<td>2024</td>
<td></td>
<td>50%* Tier 2b</td>
<td>CAWCD $60 Million for Compensated Mitigation</td>
</tr>
<tr>
<td>2025</td>
<td></td>
<td></td>
<td>or acquisition of additional wet water mitigation supplies</td>
</tr>
<tr>
<td>2026</td>
<td>No CAP Wet Water Mitigation</td>
<td>NO Mitigation</td>
<td>2026 or Tier 3</td>
</tr>
</tbody>
</table>

* Until no supplies

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**Notes:**
- Phoenix AMA USF-GSF ~33 KAF/Yr
- Tucson AMA GSF 35 KAF/Yr
- ** Tier 2a/2b