Arizona Lower Basin Drought Contingency Plan
Steering Committee Meeting #6
October 10, 2018
Arizona LBDCP Steering Committee Meeting #6 Agenda

• Welcome and Introductions
• Hydrology Update
• Update and Report from Small Group Discussions
• Update from Mitigation Work Group and Mitigation Proposal
• Update from Arizona ICS Framework Work Group and Arizona ICS Framework Proposal
• Delegates’ Comments
• Preparation for Steering Committee Meeting #7 Oct 25th
• Next Steps
Outline of Next Steering Committee Meetings

- October 25th – Refine Proposals and Address Excess Water and Arizona Conservation Plan
- November 8th – Finalize Arizona LBDCP implementation package and framework, review non-binding letters of commitment
- November 29th – Finalization of Arizona LBDCP implementation package if needed
Update on Colorado River Basin Hydrology
Lake Powell & Mead Storage and Percent Capacity
& Unregulated Inflow into Lake Powell

Percentages on the light blue line represent percent of average unregulated inflow into Lake Powell for a given water year, based on the period of record from 1981-2010.
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 Powell Elevations*

End of CY 2018 Projection
Most Probable: 3,583.7 feet (42% full)
Prob Maximum: 3,639 feet (68% full)
Prob Minimum: 3,555 feet (35% full)

End of CY 2019 Projections
Most Probable: 3,574.4 feet (39% full)
Prob Maximum: 3,639 feet (68% full)
Prob Minimum: 3,555 feet (35% full)

Lake Mead Elevations*

End of CY 2018 Projection
Most Probable: 1,079.2 feet (38% full)

End of CY 2019 Projections
Most Probable: 1,070.0 feet (35% full)
Prob Maximum: 1,079 feet (38% full)
Prob Minimum: 1,057 feet (33% full)

*Projections from September 2018 Most Probable and August Probable Min/Max 24-Month Study Inflow Scenarios
Potential Lake Powell Release Scenarios

Water Year 2019 Release Volume as a Function of Unregulated Inflow Volume based on August and September 2018 24-Month Study Conditions

Aug Maximum Probable Inflow Scenario
WY Unreg Inflow = 15.6 maf (144%)
Powell Release = 9.0 maf

Sep 2019 Most Probable
WY Unreg Inflow = 7.9 maf (73%)
Powell Release = 9.0 maf

Aug Minimum Probable Inflow Scenario
WY Unreg Inflow = 4.8 maf (44%)
Powell Release = 8.23 maf

GCD Powerplant max release volume

Potential Glen Canyon Water Year Release Volume (maf)

Potential Water Year Unregulated Inflow Volume (maf)
## Potential Lake Powell Release Scenarios
### Water Years 2019 and 2020

<table>
<thead>
<tr>
<th>Lake Powell</th>
<th>Lake Mead</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Powell WY 2019 Unregulated Inflow (% of average)</strong></td>
<td><strong>End of CY 2019 Elevation (feet)</strong></td>
</tr>
<tr>
<td><strong>WY 2019 Release Volume (maf)</strong></td>
<td><strong>WY 2020 Release Volume (maf)</strong></td>
</tr>
<tr>
<td>&gt;78%</td>
<td>9.00</td>
</tr>
<tr>
<td>70% - 77%</td>
<td>9.00</td>
</tr>
<tr>
<td>64% - 70%</td>
<td>8.23 to 9.00</td>
</tr>
<tr>
<td>&lt; 64%</td>
<td>8.23</td>
</tr>
</tbody>
</table>

*Based on scenarios developed with the September 2018 Most Probable 24-Month Study, including most probable assumptions for Upper Basin reservoir operations (Flaming Gorge, Aspinall, and Navajo) and Lower Basin water use and intervening flows in 2019 and 2020.*
From SC Meeting #5
Overall Status of the Process

• Mitigation Plan Work Group and Arizona ICS Framework Work Group targeted the Oct 10th Steering Committee to provide recommendations:
  – This afternoon

• Excess Water and Arizona Compensated Conservation Program discussion and potential recommendation by October 25th
  – Excess Water discussions to begin on Oct. 10. Additional discussions TBD before October 25. We anticipate that this will include a discussion of the disposition of turnback water.

• Total package on November 9th. In the alternative, we are seeking non-binding letters of support, and commitments to finalize necessary agreements prior to the Arizona Legislative session
From SC Meeting #5
Approach to Consensus Recommendations on Oct. 10th

• ADWR/CAWCD met with small groups and key stakeholders over the last 2 weeks to obtain additional input to frame initial recommendations on Oct. 10th

• Groups included:
  – Arizona legislative leaders
  – Tribal representatives
  – CAP M&I subcontractors
  – Ag representatives
  – Developer interests

• Desire to refine available information on mitigation and ICS tools and resources (water and financial), and build support for a DCP Joint Resolution at the Arizona Legislature
Small Group Meeting Discussions:

- LBDCP is focused on addressing risks to uncertain and possibly extreme cuts if Mead < 1025’ and not on avoiding Mead < 1075’
- LBDCP cuts the risk (Mead<1025’) by half – in exchange for reductions to CAP Other Excess, Ag Pool, and NIA Pool
- Significant interest expressed by some On-River users and some long-term CAP contractors and subcontractors to participate in Mitigation Compensated Conservation programs
- The impacts to the contractors and subcontractors in the current NIA Pool are potentially balanced by the protection provided to those same contractors and subcontractors from the risks to their higher priority supplies without LBDCP
- With increasing risks of Mead < 1050’, some NIA contractors and subcontractors question the value of LBDCP
- Some CAP Settlement Tribes have expressed moderate interest in Tribal ICS, relative to other ways to participate in LBDCP
Risk of Lake Mead < 1,050’

Full Hydrology (1906-2015)

- **2007 Projections** (1906-2005 hydrology)
  - No DCP (April 2018 Projections)
  - With DCP (April 2018 Projections with Upper & Lower Basin DCPs & Binational WSCP)

Stress Test Hydrology (1988-2015)

- **2007 Projections** (1906-2005 hydrology)
  - No DCP (April 2018 Projections)
  - With DCP (April 2018 Projections with Upper & Lower Basin DCPs & Binational WSCP)
Risk of Lake Mead < 1,025’

Full Hydrology (1906-2015)

Stress Test Hydrology (1988-2015)

- 2007 Projections (1906-2005 hydrology)
- No DCP (April 2018 Projections)
- With DCP (April 2018 Projections with Upper & Lower Basin DCPs & Binational WSCP)

- 2007 Projections (1906-2005 hydrology)
- No DCP (April 2018 Projections)
- With DCP (April 2018 Projections with Upper & Lower Basin DCPs & Binational WSCP)

Risk of Lake Mead < 1,025’
Small Group Meeting Results: Proposed Guiding Principles

- Mitigation Package should provide certainty and reliability,
- Mitigation and ICS actions should respect priorities, Settlements, and contractors,
- Mitigation and ICS participation is voluntary,
- Mitigation and ICS participation will require limited waivers for delivery of Mitigation Resources, and for ICS creation/delivery,
- Sharing LBDCP impacts requires mitigation volumes to be less than “full mitigation” and needs to reflect the range of protection from LBDCP,
- Use of Mitigation Resources should use CAP ICS as a safety net if other Resources are unavailable, while attempting to preserve CAP ICS in Lake Mead, to the extent practicable
- ADWR/CAWCD are attempting, along with the United States and others, to compile a Mitigation Resources budget of $85 to $100M to be deployed in 2020-2026
Mitigation Proposal

• Annual vs. Fixed?
  - Fixed
• 3 AMA vs Pinal + HVIDD Mitigation?
  - Pinal+Queen Creek+HVIDD
• Full Ag Mitigation vs Ag Partial?
  - Partial Ag (total 595 kaf through 2026 - see table)
• Mitigation to NIA and CAGRD/Developer impacts
  - Requires further discussion and expression of interest
• Support for water and funding commitments
  - ADWR, CAWCD and others propose $85 to $100M Mitigation budget
  - Voluntary limited waivers for Ag Mitigation, System Conservation, and ICS
  - CAWCD to use Lake Pleasant for Mitigation
  - CAWCD to use CAP ICS as a safety net supply
  - Commitment by CAP M&I subcontractors to explore appropriate, voluntary
    USF-GSF concepts in coordination with ADWR, CAWCD, and AWBA
### Estimate of Mitigation Tools

- Estimated Firm Tools ~ 970 kaf, available during T1/T2
- Potential resources being refined

<table>
<thead>
<tr>
<th>Tools</th>
<th>Total Vol (KAF)</th>
<th>Creation Cost ($M)</th>
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<tbody>
<tr>
<td>Lake Pleasant</td>
<td>50</td>
<td>NA</td>
</tr>
<tr>
<td>Mitigation Comp. Conservation**</td>
<td>420 - 600</td>
<td>$85 to $100M</td>
</tr>
<tr>
<td>New ICS***</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>USF to GSF</td>
<td>0 - 175</td>
<td>NA</td>
</tr>
<tr>
<td>GW Dev./Infrastructure</td>
<td>0 – 175</td>
<td>Up to $10M</td>
</tr>
<tr>
<td>CAP ICS</td>
<td>420*</td>
<td>NA</td>
</tr>
<tr>
<td>Total Potential Supplies</td>
<td>&gt;970</td>
<td>$85 to $110M</td>
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* CAP ICS includes current, pending and anticipated through 2019  
** Cost range reflects historic average and the anticipated higher future costs  
*** Tribal and Non-tribal efforts
Partial Mitigation – Fixed Schedule

- Represents the minimum water requirements for impacted CAP Ag Districts to remain viable through 2026
- Fixed Schedule for Ag Mitigation provided during T 1& 2 shortages
- Represents ~25% reduction from the original Ag request of 778 kaf
- Excludes NIA & Developer Mitigation

<table>
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<tr>
<th>FIXED Mitigation</th>
<th>‘20</th>
<th>‘21</th>
<th>‘22</th>
<th>‘23</th>
<th>‘24</th>
<th>‘25</th>
<th>‘26</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag Mitigation (Pinal-QCIDD-HVIDD)</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>595</td>
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## Mitigation Plan Partial Scenario 1

### Scenario 1 Partial Package - Firm First

<table>
<thead>
<tr>
<th>Mitigation Supply</th>
<th>Available</th>
<th>Contributed</th>
<th>Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mit. Comp. Con.</td>
<td>420 kaf</td>
<td>420 kaf</td>
<td>0</td>
</tr>
<tr>
<td>Lake Pleasant</td>
<td>50 kaf</td>
<td>50 kaf</td>
<td>0</td>
</tr>
<tr>
<td>CAP ICS</td>
<td>420 kaf</td>
<td>125 kaf</td>
<td>295 kaf</td>
</tr>
</tbody>
</table>

### Chart

- **Mit. Comp. Con.**
- **Lake Pleasant**
- **CAP ICS**

Legend:
- Mit Conservation
- L Pleasant
- CAP ICS
- Ag Mitigation
## Mitigation Plan Partial Scenario 2 – USF-GSF

### Scenario 2b Partial Package - USF-GSF

<table>
<thead>
<tr>
<th>Mitigation Supply</th>
<th>Available</th>
<th>Contributed</th>
<th>Remaining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mit. Comp. Con.</td>
<td>420 kaf</td>
<td>420 kaf</td>
<td>0</td>
</tr>
<tr>
<td>USF-GSF</td>
<td>175 kaf</td>
<td>175 kaf</td>
<td>0</td>
</tr>
<tr>
<td>Lake Pleasant</td>
<td>50 kaf</td>
<td>50 kaf</td>
<td>0</td>
</tr>
<tr>
<td>CAP ICS</td>
<td>420 kaf</td>
<td>10 kaf</td>
<td>410 kaf</td>
</tr>
<tr>
<td>System Conservation</td>
<td>NA</td>
<td>60 kaf</td>
<td>NA</td>
</tr>
</tbody>
</table>

### Diagram

- **USF-GSF**: Green
- **Mit Conservation**: Dark Brown
- **Lake Pleasant**: Blue
- **CAP ICS**: Blue
- **Ag Mitigation**: Grey

The diagram shows the mitigation volume from 2020 to 2026.
Mitigation Scenario Results

• Sufficient supplies and funding are available to achieve Ag mitigation target,
• CAP ICS used only as a safety net with remainder for later use or as a potential buffer in Lake Mead
• Potential for System Conservation contributions to Lake Mead as a partial buffer against lower reservoir elevations
• NIA mitigation may be possible but requires further discussion and interest by contractors and subcontractors in the NIA pool
Arizona ICS Framework – Approach

• Develop a framework for CAWCD, On-River Tribes, non-Tribal On-River users, and CAP Settlement Tribes so they can create and deliver ICS,

• Avoid legal disputes that have derailed ICS discussions in the past,

• Preserve parties/participants key legal arguments in the spirit of compromise and collaborative solutions,

• Share capacity in practical and meaningful ways,

• Avoid unintended consequences

• Concurrence through voluntary limited waivers by CAP NIA contractors and subcontractors, as well as by CAWCD
Arizona ICS Framework – Key Terms

• Parties – United States, ADWR and CAWCD
• Purpose – To develop a program for creation, accumulation and delivery of ICS by Arizona ICS Creators pursuant to the 2007 Guidelines and the LBDCP.
• Term – Provisions regarding creation of ICS terminate on 12/31/26. The remaining provisions terminate on the later of 12/31/26 or the date on which all AZ ICS accounts and AZ DCP ICS accounts are reduced to zero.
• Potential AZ ICS Creators – CAWCD, On-River Contractors, On-River Tribes and CAP Settlement Tribes
Arizona ICS Framework – Key Terms contd.

• Cooperative Use of AZ Annual EC ICS Creation Limit
  – AZ annual creation limit = 100 kaf
  – 50/50 split between Tribal ICS Creators (50 kaf/year) and non-Tribal ICS Creators (50 kaf/year)
  – Creation authorized when Mead above 1025’. Parties and AZ ICS Creators to discuss advisability of creating EC ICS below 1025’ if Mead is projected to be at or below 1,030’ within next 2 years
  – Use of unused annual creation capacity authorized between Tribal and non-Tribal ICS Creators

• Cooperative Use of AZ Total ICS Accumulation Limit
  – AZ total ICS accumulation limit = 300 kaf. To be increased to 500 kaf under LBDCP and an additional 100 kaf of accumulation space to be made available from CA and NV pursuant to a separate agreement.
Arizona ICS Framework – Key Terms contd.

• Cooperative Use of AZ Total ICS Accumulation Limit, contd.
  – 50/50 split between Tribal ICS Creators (250 kaf) and non-Tribal ICS creators (250 kaf)
  – CAWCD authorized to occupy accumulation space ascribed to Tribal ICS Creators, provided if a Tribal ICS Creator needs such accumulation space, it shall provide CAWCD at least 1-year notice and CAWCD shall evacuate the amount of accumulation space needed to accommodate the creation or conversion plans of the Tribal ICS Creator(s).
  – CAWCD agrees not to convert ICS occupying accumulation space ascribed to Tribal ICS Creators to DCP ICS
Arizona ICS Framework – Key Terms contd.

• Cooperative Use of AZ Annual ICS Delivery Limit
  – AZ Annual ICS Delivery Limit = 300 kaf
  – 50/50 split between Tribal ICS Creators (150 kaf/yr) and non-Tribal ICS creators (150 kaf/yr)
  – When Mead between 1,025’ and 1,045’, conversion of EC ICS to DCP ICS counts as a delivery
  – No delivery of EC ICS when Mead below 1,025’
  – Unused annual ICS delivery capacity may be shared between Tribal ICS Creators and non-Tribal ICS Creators
  – Delivery of ICS to Tribal and non-tribal ICS Creators will be pursuant to separate Delivery Agreement with the United States
Arizona ICS Framework – Key Terms contd.

• ADWR and CAWCD to coordinate with non-tribal On-River Contractors to determine interest in participation in AZ ICS Program and discuss standards for sharing of ICS creation, accumulation, delivery and conversion limits between On-River Contractors and CAWCD

• U.S. consultation with Tribal ICS Creators to determine how to share ICS creation, accumulation, delivery and conversion limits among Tribal ICS Creators

• Annual Coordination among the U.S., ADWR, CAWCD and ICS Creators to confer on planned ICS creation, accumulation and delivery for the upcoming year
Arizona ICS Framework – Proposal

- Support completion of Arizona ICS Framework Agreement
- Support development of ICS Exhibits for inclusion in the LBDCP
  - CAWCD
  - CAP Settlement Tribal Participants
  - Non-Tribal On-River Participants
  - On-River Tribal Participants
DELEGATES’ COMMENTS
Next Steps

• Develop necessary agreement templates
• Refine recommendation at Oct 25th Steering Committee Meeting
• Prepare package recommendations and non-binding letters of commitment for consideration at the November 8th Steering Committee Meeting
With additional questions contact:

ADWR at sslee@azwater.gov
CAWCD at cthompson@cap-az.com

Presentation Materials Available at:

ADWR’s website – new.azwater.gov/lbdcp
CAWCD’s website – www.cap-az.com/AZDCP