Drought Contingency Planning Process Workshop II

October 9, 2018

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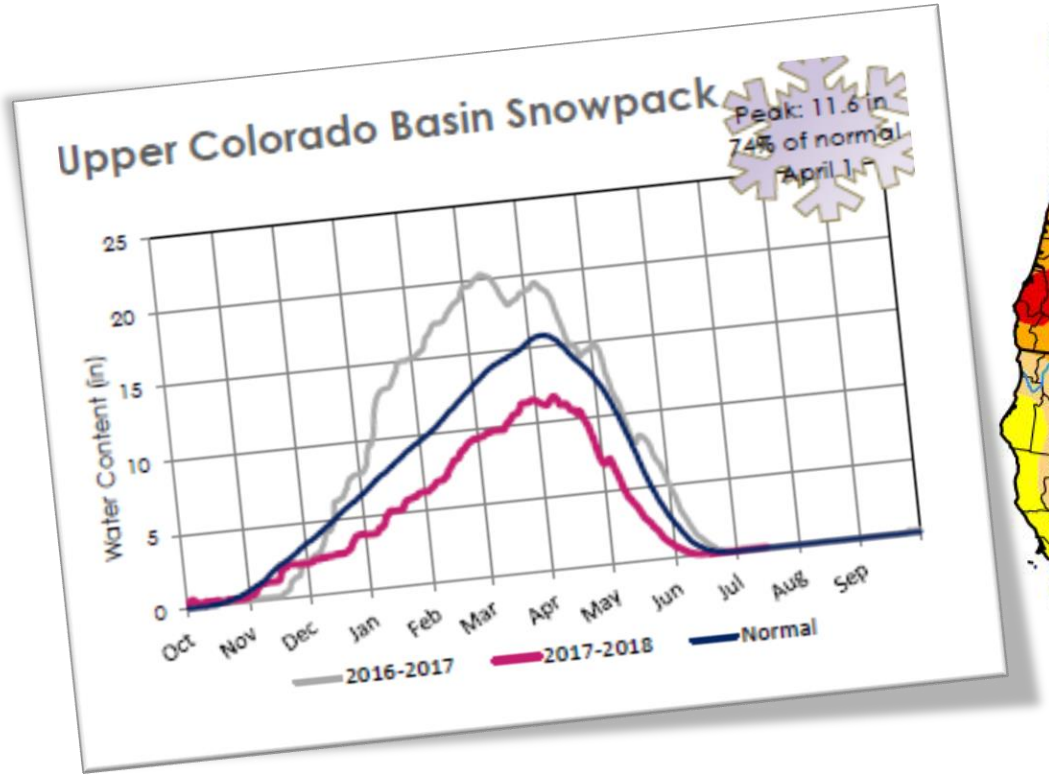
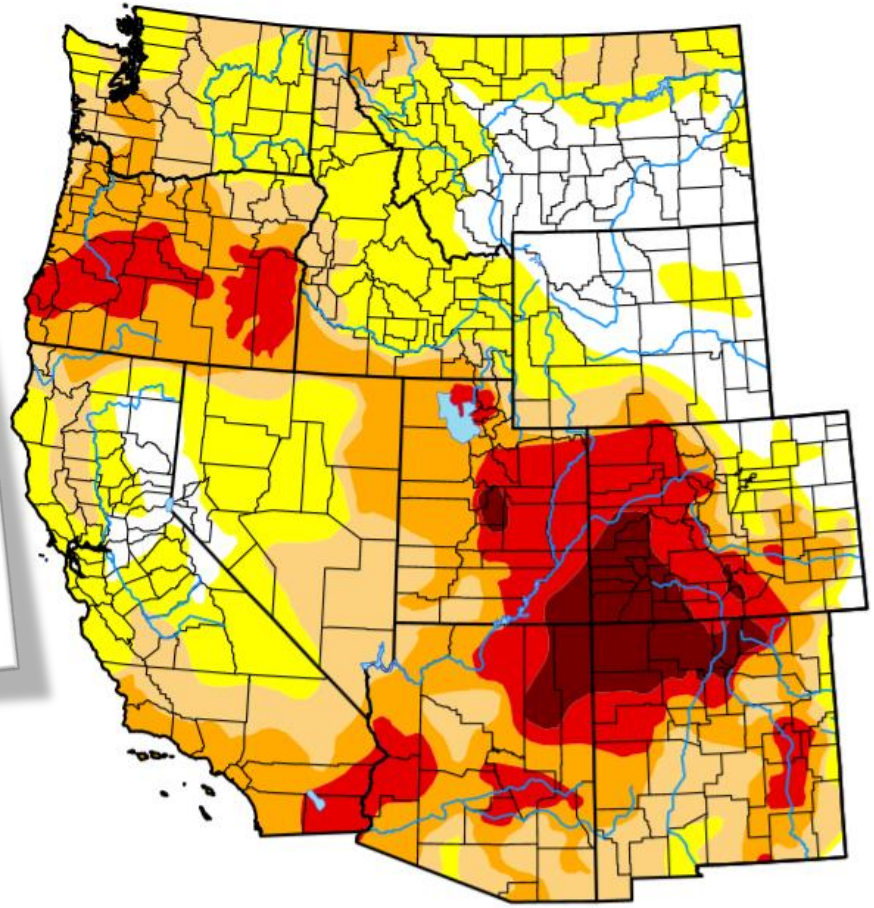
Photo courtesy of Bryan Flores
floresfotography.com

Colorado River Drought Monitor and Snowpack Conditions





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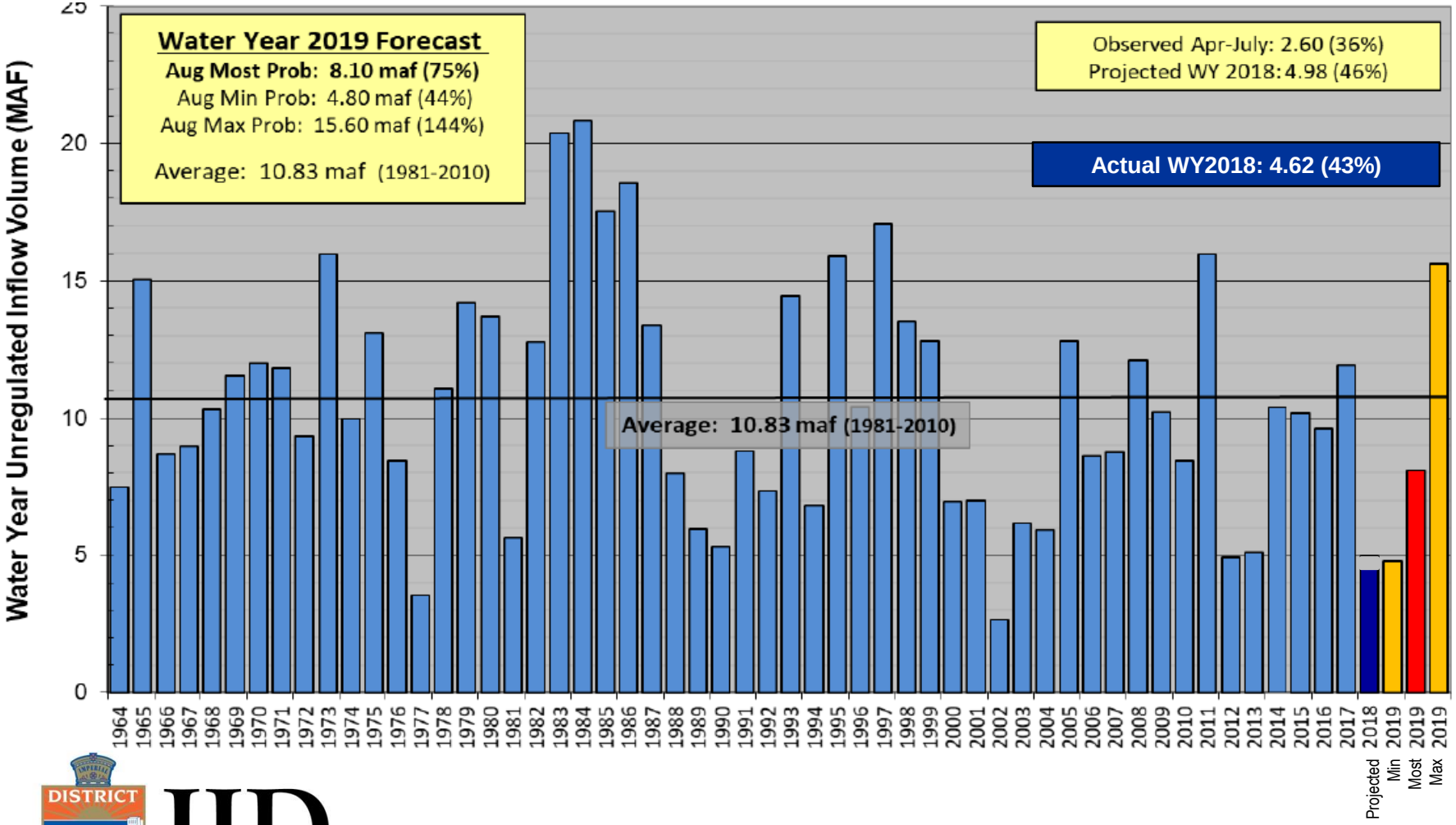
10-4-18 http://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?West

9-30-18 http://www.bewaterwise.com/water_supply_conditions/water_supply_conditions.pdf

Historical Lake Powell Unregulated Inflow



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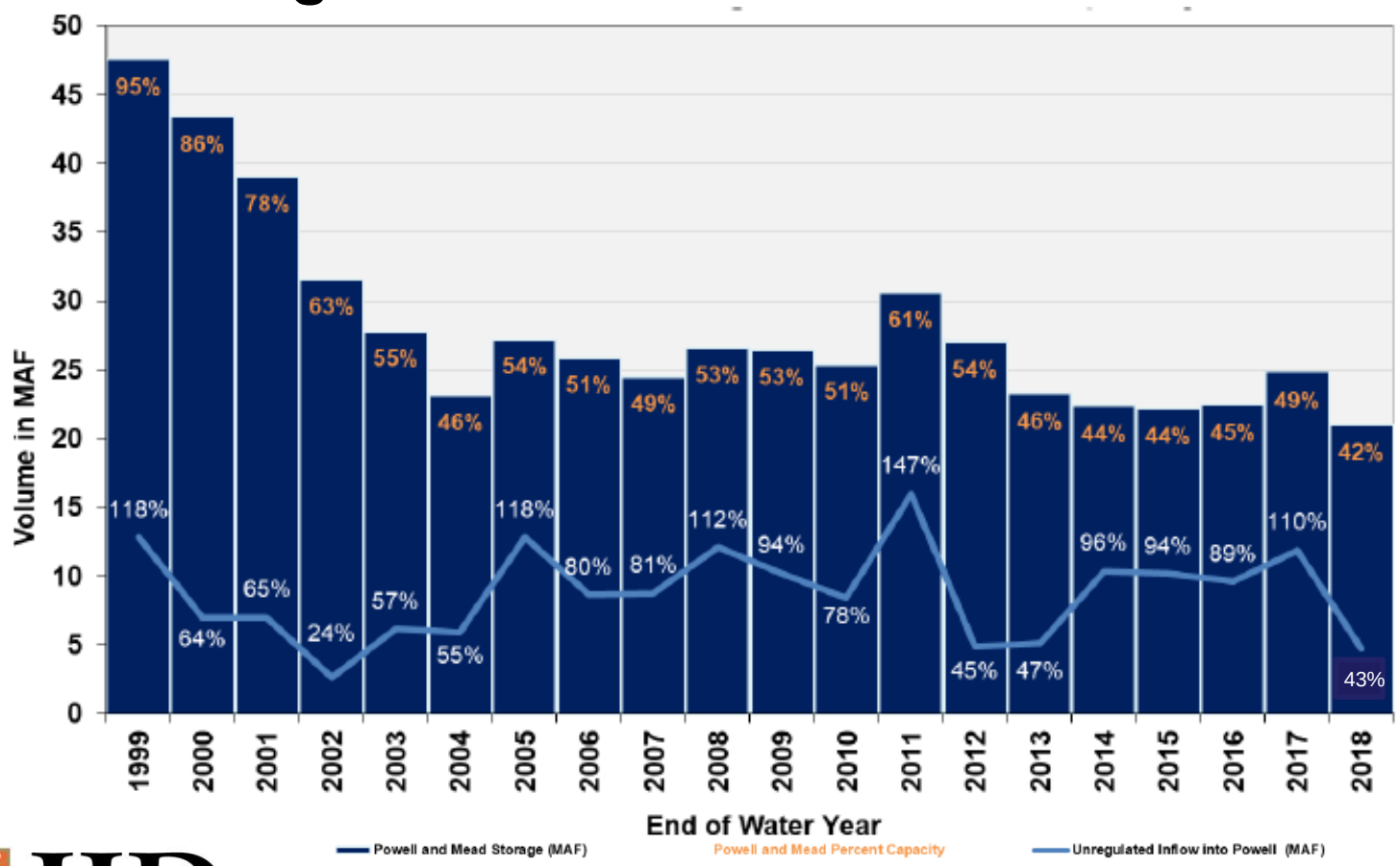
Lakes Powell/Mead Storage and Percent Capacity with Unregulated Inflow into Lake Powell



[1]Values for Water Year 2018 are projected. Unregulated inflow is based on the latest CBRFC forecast dated September 17, 2018. Storage and percent capacity are based on the September 2018 24-Month Study.

[2]Percentages on the light blue line represent percent of average unregulated inflow into Lake Powell for a given water year. The percent of average is based on the period of record from 1981-2010.

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Lake Powell Elevations*

End of CY 2018 Projection

Most Probable: 3,583.7 feet (42% 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

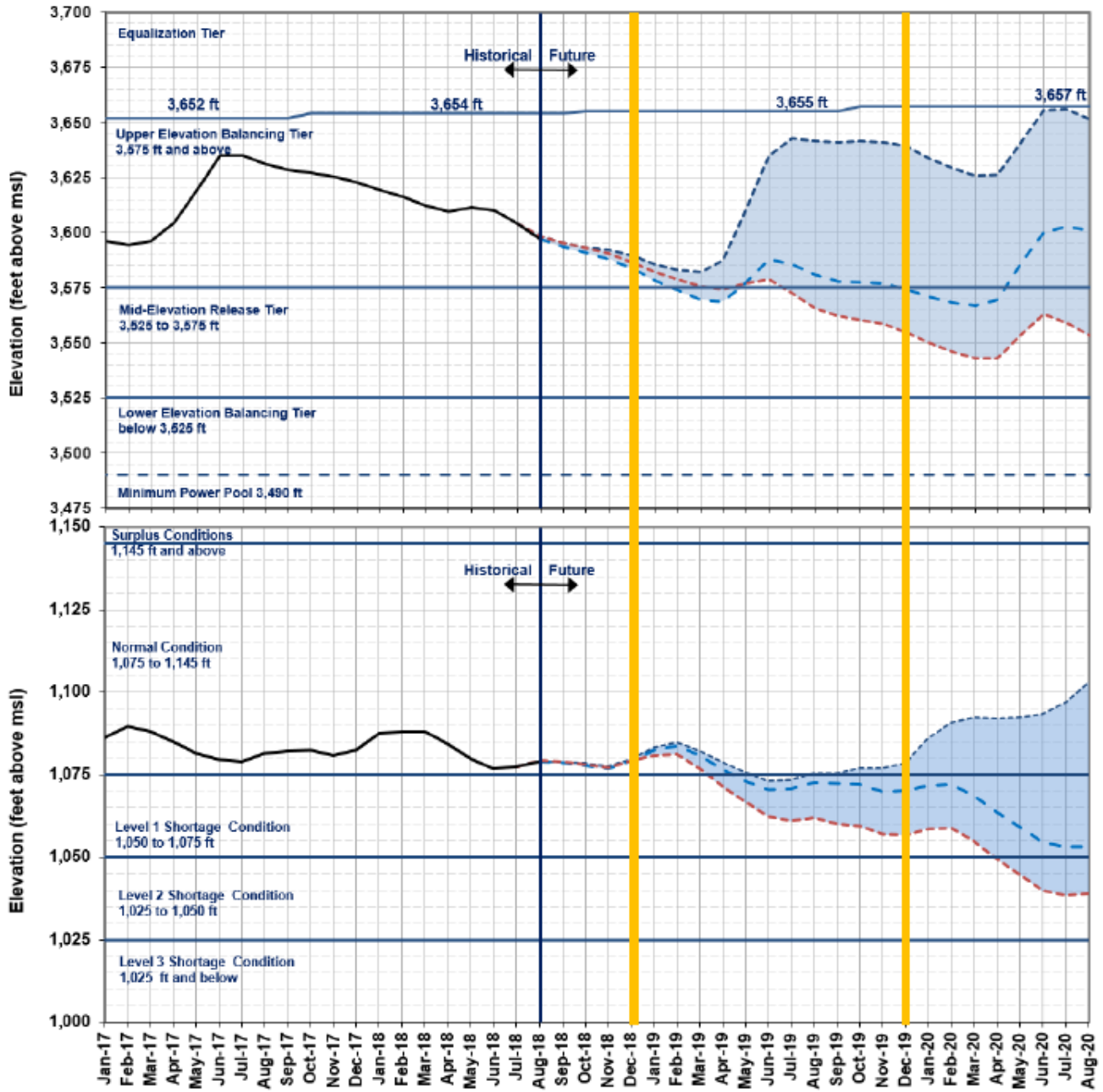
Most Probable: 1,079.2 feet (38% full)

End of CY 2019 Projections

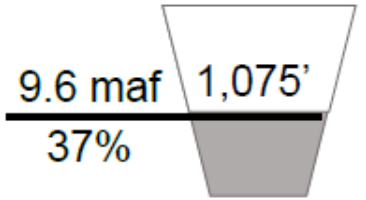
Most Probable: 1,070.0 feet (35% full)

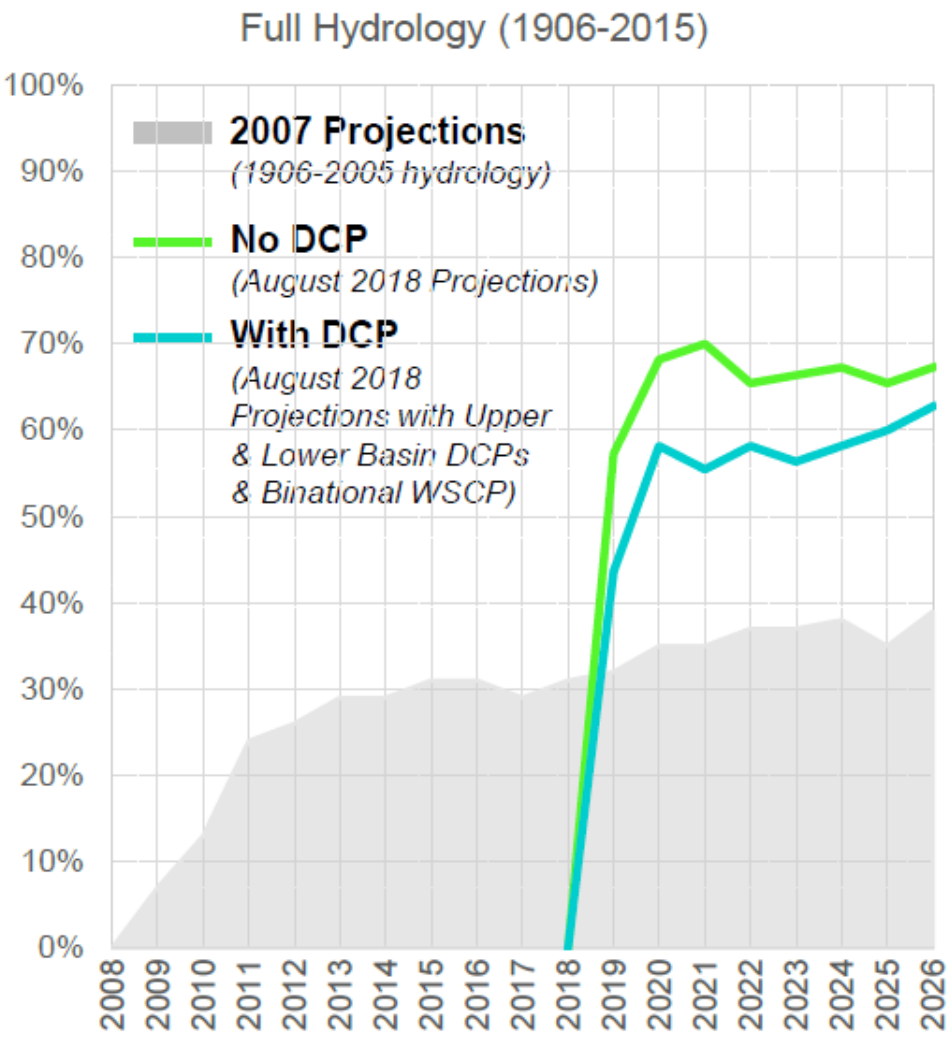
Prob Maximum: 1,079 feet (38% full)
Prob Minimum: 1,057 feet (33% full)

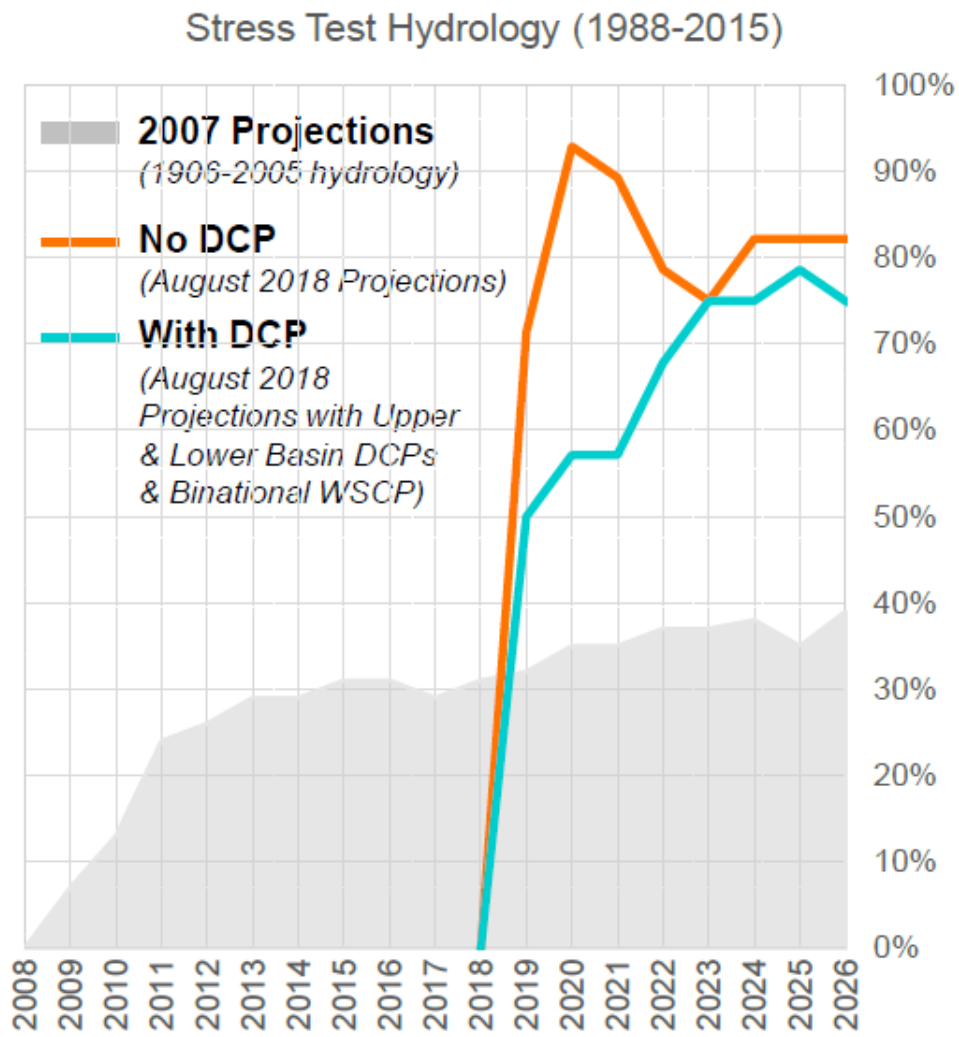
*Projections from September 2018 Most Probable and August Probable Min/Max 24-Month Study Inflow Scenarios



Risk of Lake Mead < 1,075’

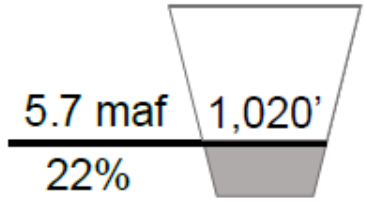


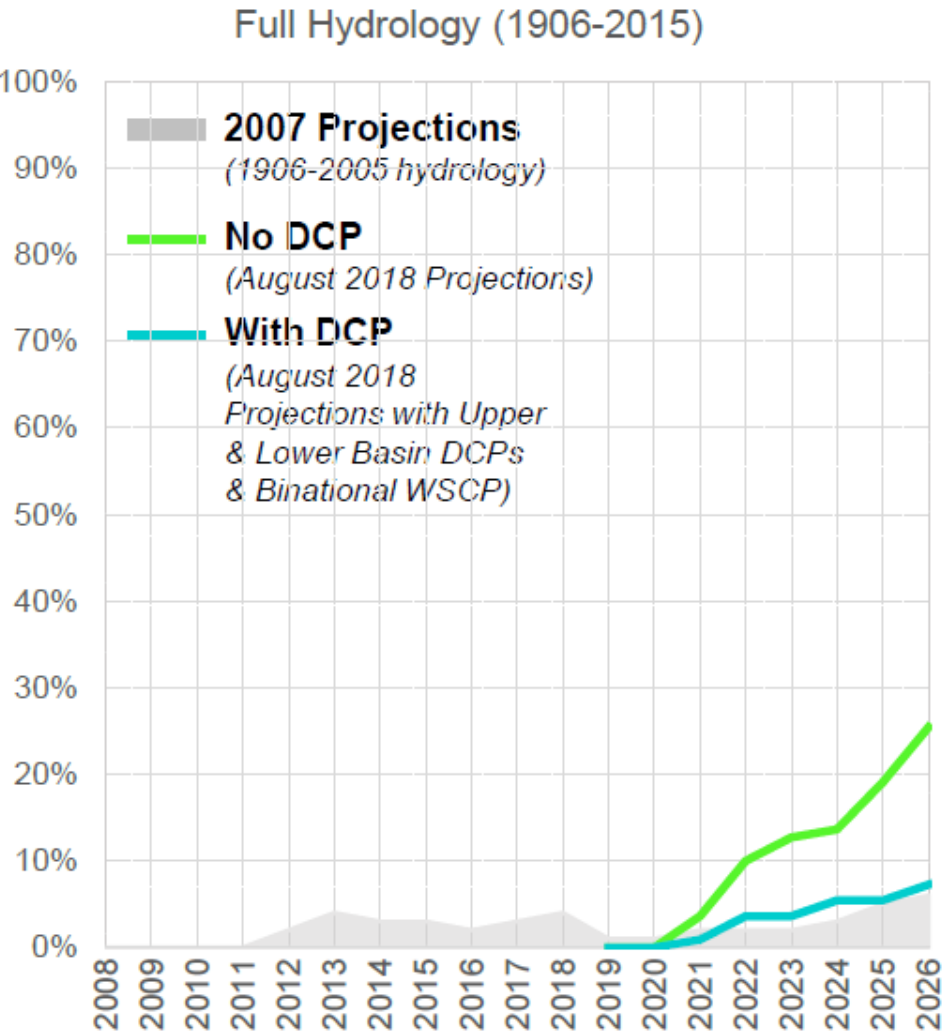


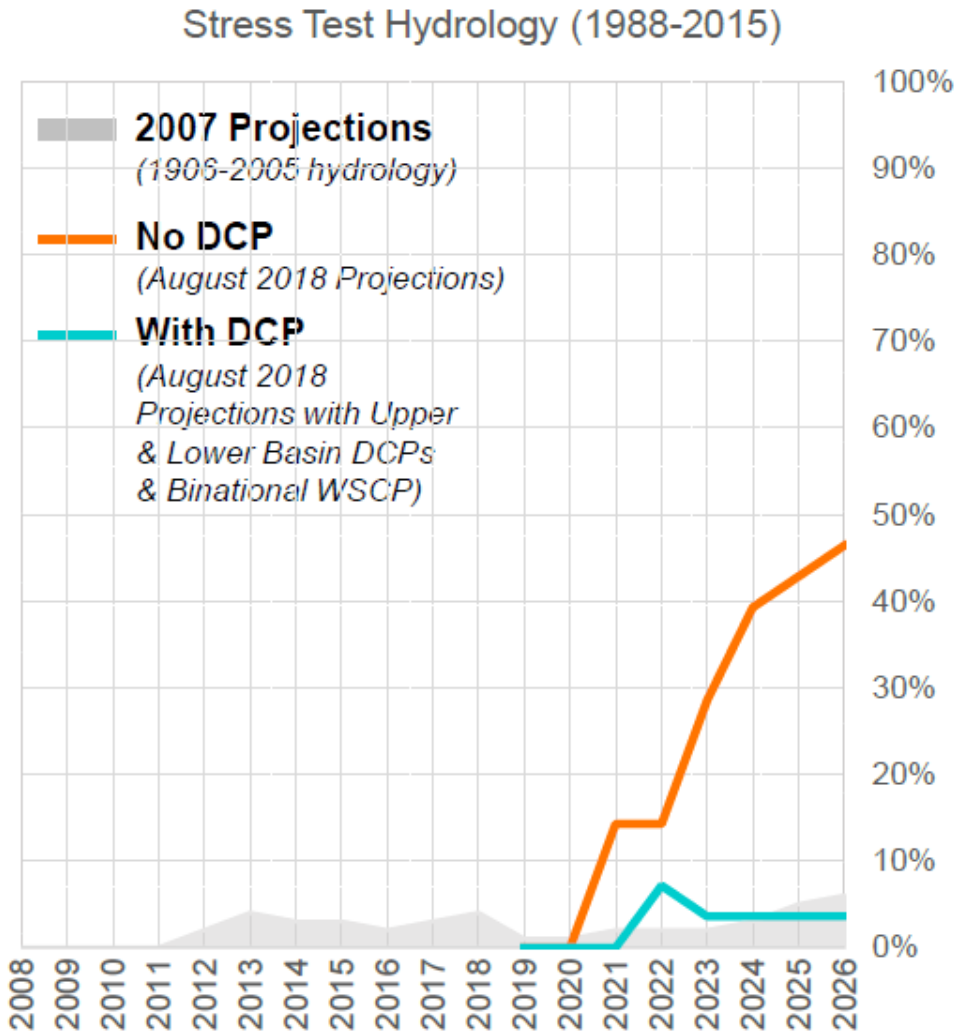


RECLAMATION
Managing Water in the West

Risk of Lake Mead < 1,020’

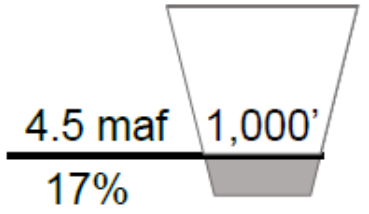


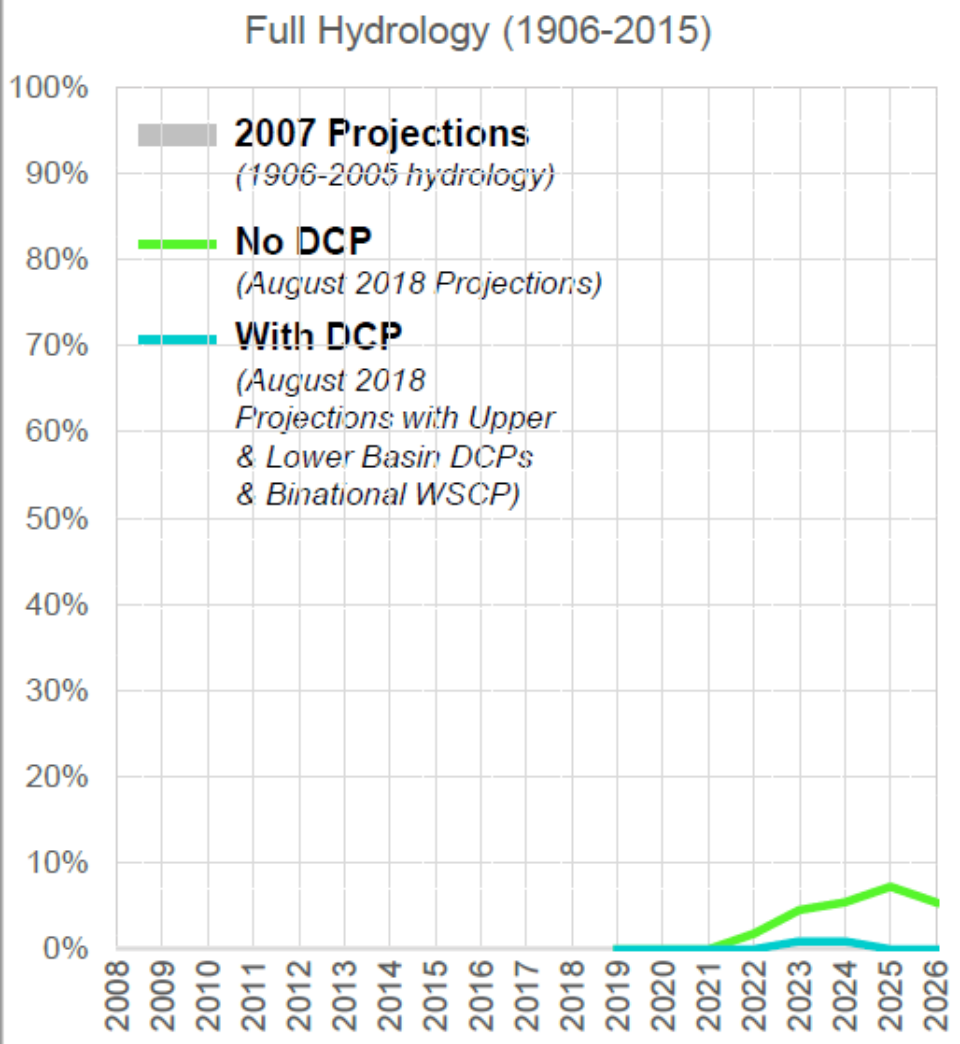


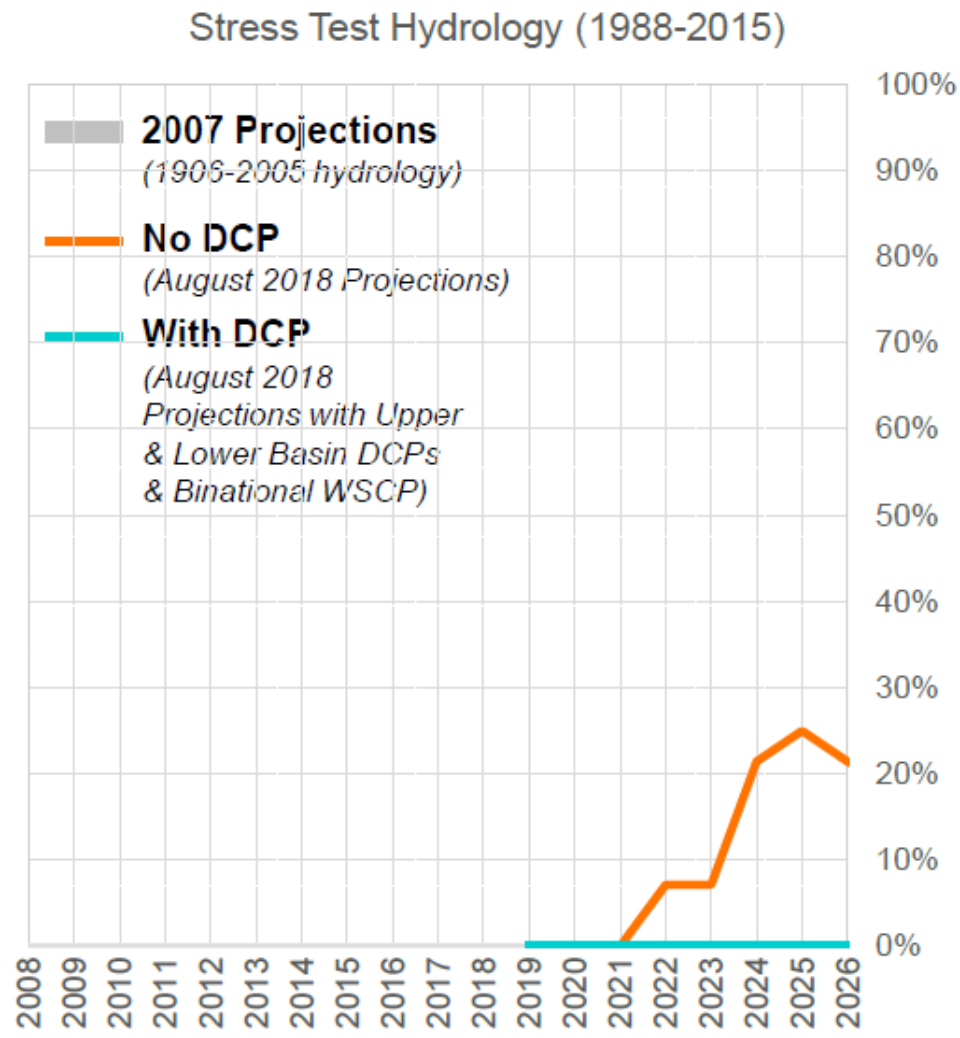


RECLAMATION
Managing Water in the West

Risk of Lake Mead < 1,000’

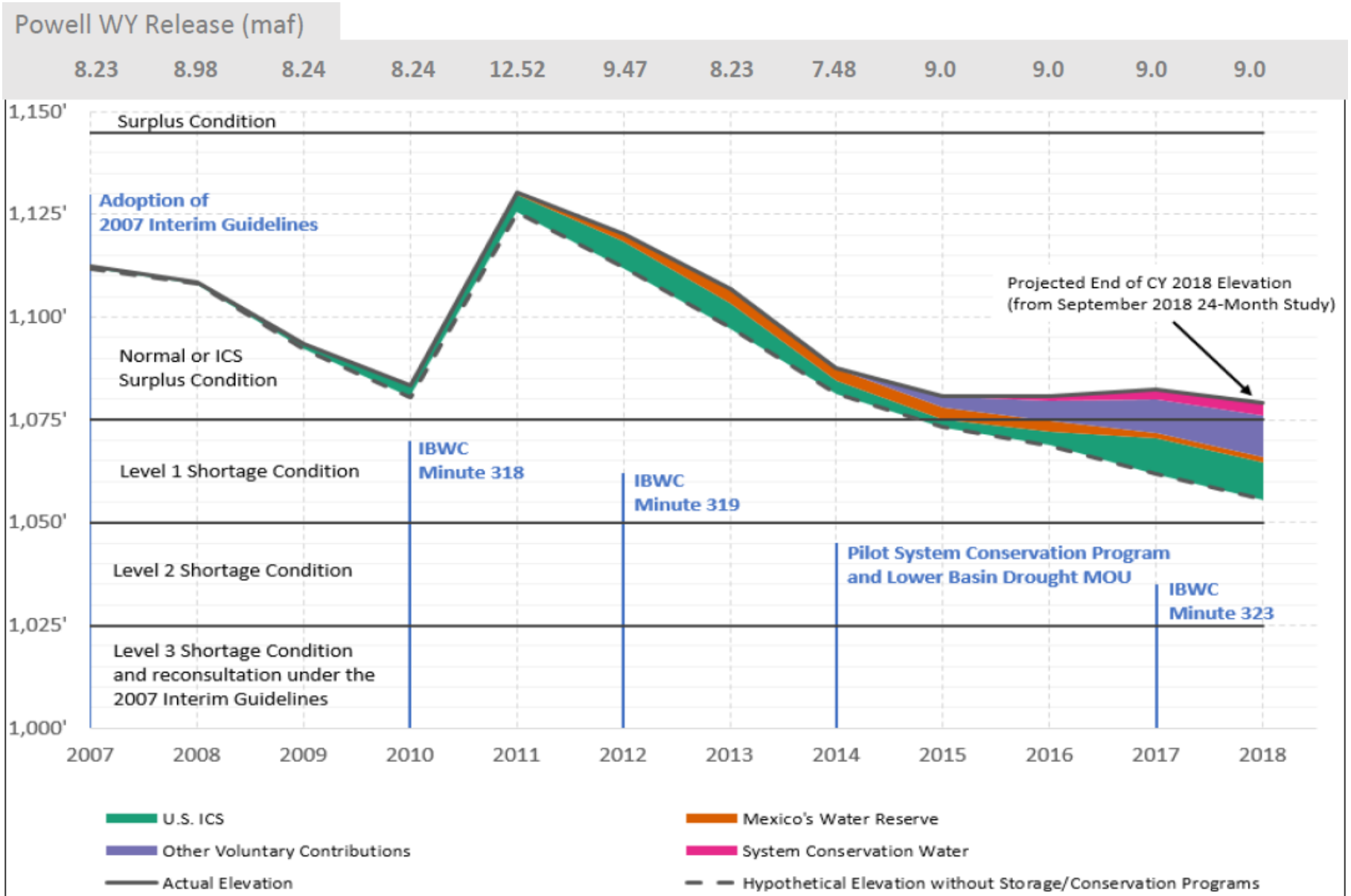






RECLAMATION
Managing Water in the West

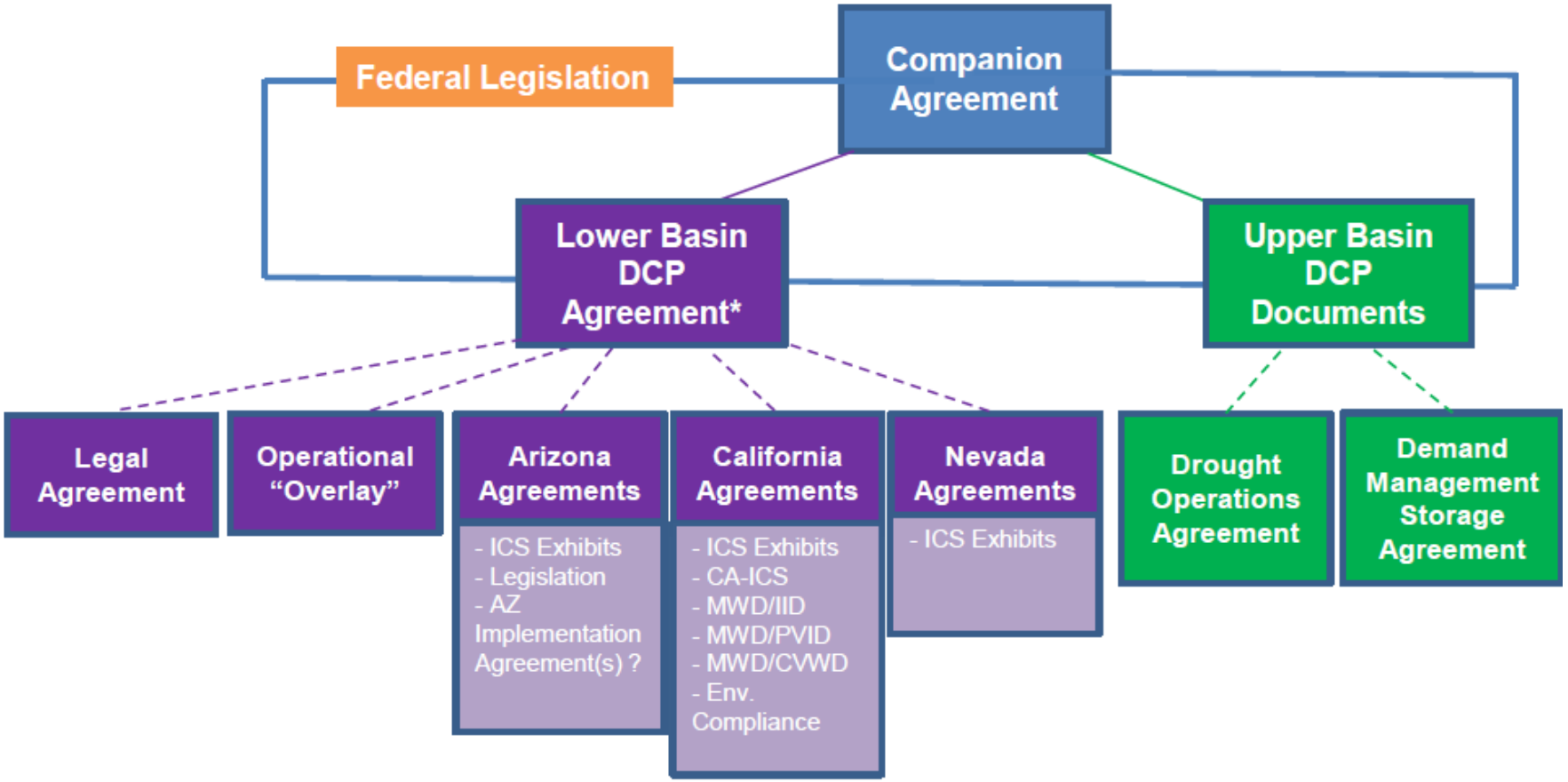
Lake Mead End-of-Calendar Year Elevation



Drought Contingency Plan Goals

- Reduce increased risk of Lake Powell/Lake Mead reaching critically low elevations from drought and climate change to that of the *2007 Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead* (2007 ISG) levels (≤ five percent).
  - *Lake Powell critical elevations: 3490' (minimum hydropower elevation) and 3525' (elevation requiring UB reservoirs to start delivering water to Powell)*
  - *Lake Mead critical elevations: 1020' (below lowest 2007 ISG shortage trigger)*
- Reduce the risk of involuntary UB curtailment to maintain compliance with the 1922 Colorado River Compact and authorize conserved water storage in UB
- Provide LB operational certainty and increased flexibility below 1,075' at Lake Mead (first shortage trigger) by incentivizing voluntary ICS
- Enact Mexico's Water Scarcity Contingency Plan including additional Lake Mead drought contributions from 50,000 AFY to 125,000 AFY
- Continue basin-wide coordinated and collaborative operations

Drought Contingency Plan Framework



*Activates Mexico's Minute 323 Binational Water Scarcity Contingency Plan

DCP Agreements

1. ***Agreement Concerning Colorado River Drought Contingency Management and Operations*** (Companion Agreement) – Upper (Colorado, Wyoming, New Mexico and Utah) & Lower (California, Arizona and Nevada) Basin parties and the Secretary of the Interior
2. ***Agreement Regarding Storage at Colorado River Storage Project Act Reservoirs Under an Upper Basin Demand Management Program*** – Upper Basin states through the Upper Colorado River Commission and the Secretary
3. ***Agreement for Drought Response Operations at the Initial Units of the Colorado River Storage Project Act*** – Upper Basin states through the UCRC and the Secretary
4. ***Lower Basin Drought Contingency Plan Agreement*** – Lower Basin states/contractors and the Secretary
5. ***Lower Basin Drought Contingency Operations Exhibit*** – Lower Basin states/contractors and the Secretary

Companion Agreement

- Between the United States, acting through the Secretary of the Interior and Commissioner of Reclamation, and both Upper Basin and Lower Basin parties
- Incorporates UB and LB DCPs, and includes consultation provisions for DCP implementation and development of UB demand management storage program
- Reserves the rights and legal positions of all parties
- Reaffirms existing law, entitlements and rights and agreement that precedent is not established by UB and LB DCPs
- Recommends consensus draft federal legislation

Lower Basin DCP Agreement Summary

- Overlay to the 2007 Interim Shortage Guidelines
- Annual state DCP ICS contributions from 200,000 AFY to 600,000 AFY through 2026 at defined elevations (in addition to existing shortage reductions)
- Additional operational flexibility for Extraordinary Conservation ICS (contractors may take ICS deliveries below 1,075' and until 1,025')
  - *DCP term is through December 31, 2026, but allows for ICS balances through 2057*
  - *Increases ICS storage limits for each state by 200,000 AF; California = 1,700,000 AF, Nevada = 500,000 AF, Arizona = 500,000 AF*
  - *No change to ICS delivery limits; CA = 400,000 AFY, AZ and NV = 300,000 AFY*
  - *Additional qualifying conservation measures for EC ICS (supplemental 2007 ISG Exhibits)*
- Federal commitment for 100,000 AFY of system improvements
  - Allows contractors to make DCP contributions for other states
  - Extends interstate banking from 1,075' to 1,045'

Lower Basin DCP Operational Framework

EC ICS *(with 2007 ISG delivery limits)*

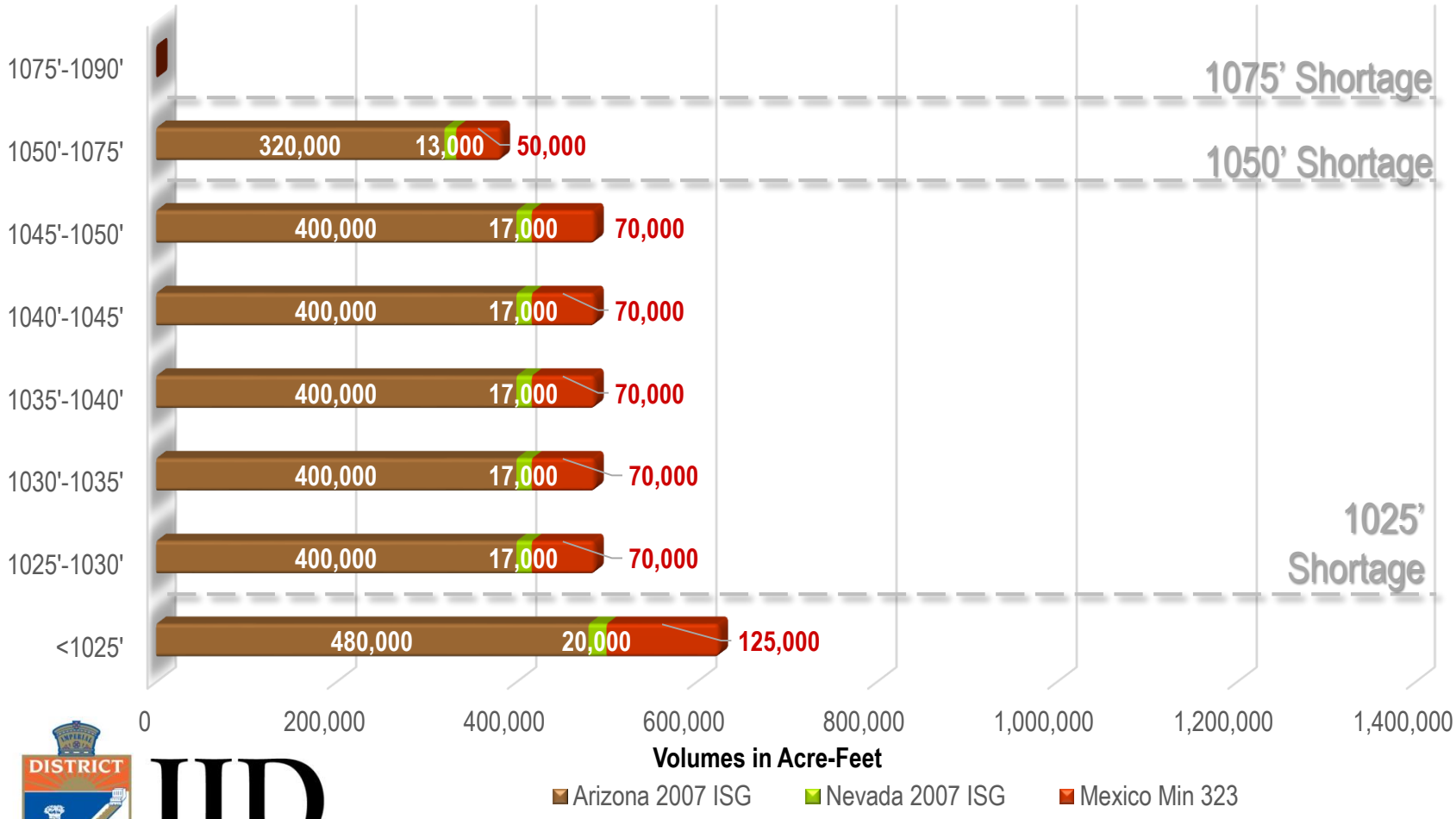
- New delivery flexibility through 2036 below 1,075'
  - *> 1,045'; no repayment obligation*
  - *1,025' to 1,045' delivery limits include any conversion of ICS to DCP ICS*
- 10% total system losses cap (with true-up) for existing ICS through 2026
- 10% one-time system loss for new ICS
- No system loss for ICS replenishment from prior year's delivery through 2026
- Potential for additional ICS capacity if a state reaches its limit

DCP ICS *(with 2007 ISG delivery limits)*

- Limited delivery flexibility through 2026
  - *>1,110'; no repayment obligation*
  - *1,110' to 1,025'; one-year repayment obligation*
- Limited operational flexibility (2027–2057)
  - *>1,110'; no repayment obligation*
  - *1,110' to 1,075'; five-year repayment obligation or 20% assessment*
  - *1,075' to 1,025'; one-year repayment obligation*
- Annual DCP ICS true-up of projected January 1 elevation to actual
- No system loss for ICS replenishment from prior year's delivery through 2026
- Annual system loss of 3% (2027-2057)

Lake Mead Shortage Elevation Reductions

(2007 Interim Guidelines)



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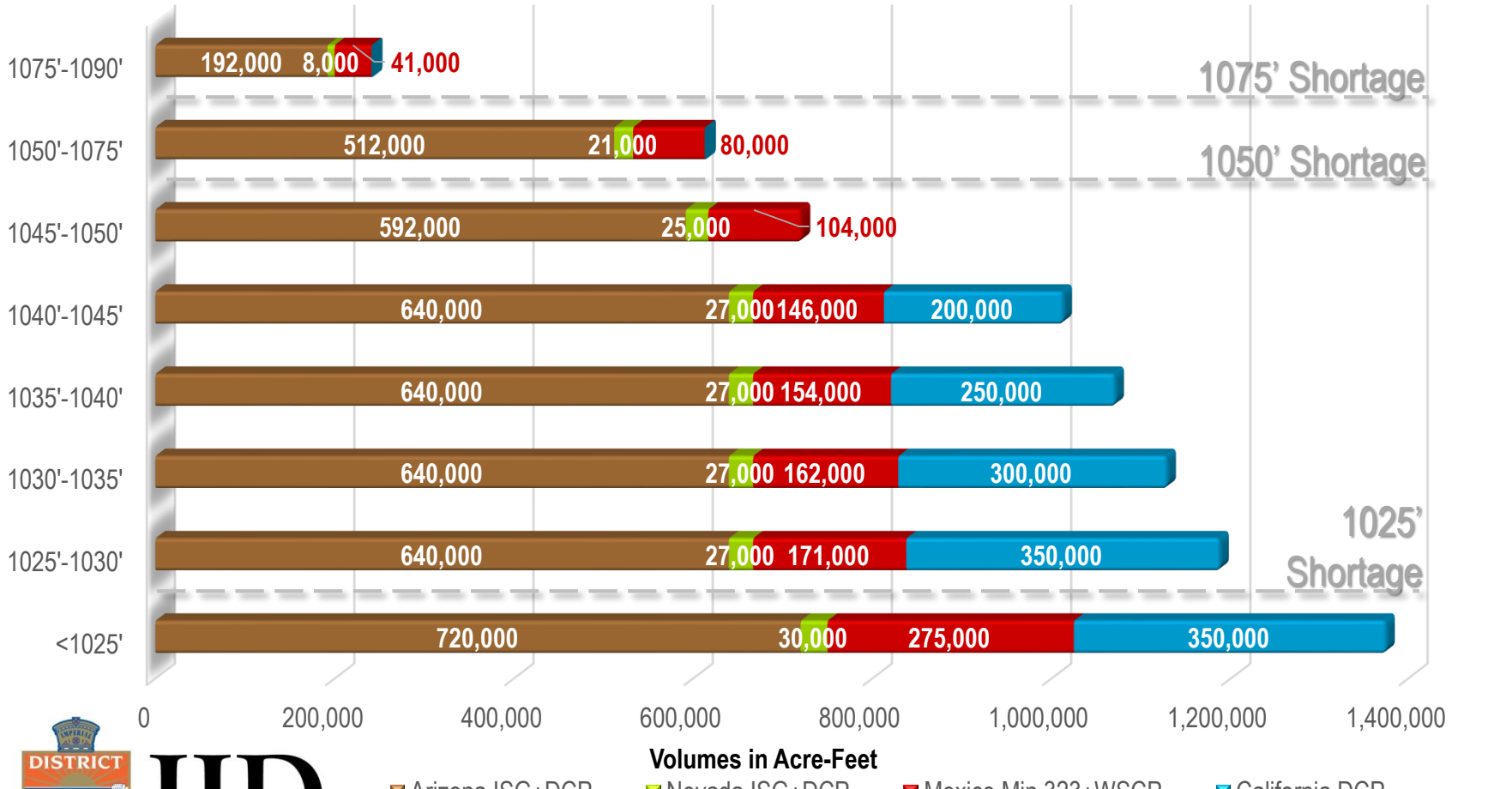
Lake Mead Shortage Elevation Contributions

(2007 Interim Guidelines with Drought Contingency Plan Overlay)



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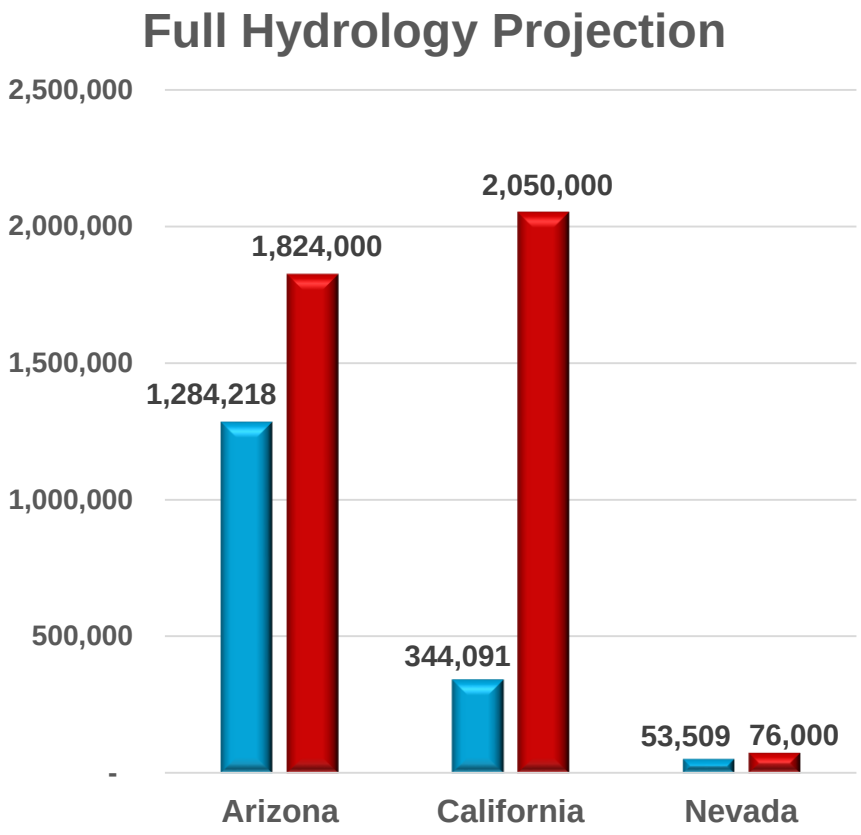
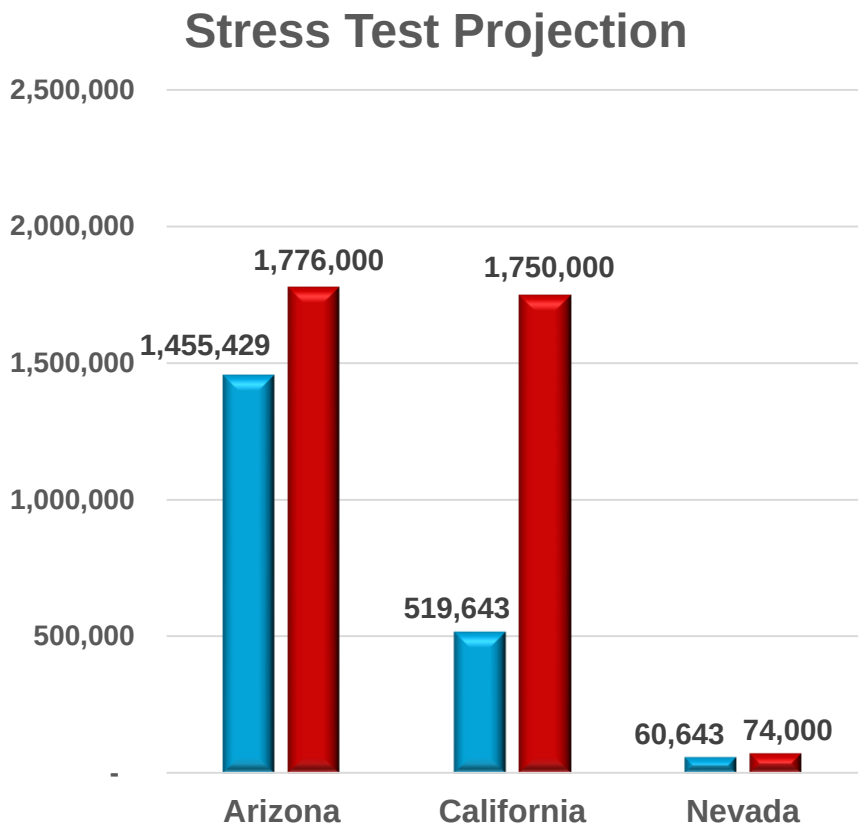
Cumulative DCP Contributions through 2026 (in AF)





Average Contribution ■ Maximum Contribution

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Intra-California DCP Agreements

- ***Amendment No. 2 to the California Agreement for the Creation and Delivery of Extraordinary Conservation ICS*** – PVID, IID, CVWD, MWD and the City of Needles
- ***Intra-California Implementation Agreements*** - defines the distribution between agencies of California's DCP contributions in years in which the projected January 1st Lake Mead elevation is below 1,045' and other inter-agency provisions (details still being negotiated)
  - *PVID/MWD Agreement – provides for up to 28,000 AFY of PVID DCP contributions*
  - *CVWD/MWD Agreement – provides for up to 24,500 AFY of CVWD DCP contributions*
  - *IID/MWD Agreement – provides for up to 250,000 AF of IID DCP contributions (cumulative cap), up to the 297,500 AFY of MWD DCP contributions, transfer of IID's MWD storage water to Lake Mead and 100,000 AF of additional IID ICS capacity*

IID Storage Summary

(volumes in acre-feet)

	Total Annual ICS Created	Lake Mead ICS[1] (Fallowing & Efficiency)	Lake Mead ICS (Minute 319)	MWD ECICS (Efficiency)	Lake Mead EOY Balance	MWD EOY Balance[2]	EOY Total Storage Balance[2]
2014	37,735	18,867	-	18,868	17,924	16,981	34,985
2015	45,477	0	-	45,477	17,386	58,934	76,320
2016	70,077	13,845	-	56,232	30,017	111,244	141,261
2017[3]	80,937	21,983	23,750	58,954	73,750	165,965	239,715
2018[4]	*60k – 100k*	*2,000*	*0*	*25k – 40k*	*73,750*	*200,000*	*275,000*

[1] Lake Mead ICS capped at 50,000 AF cumulative total for extraordinary conservation created from fallowing, limited seepage recovery volumes and TRS.
[2] Estimated losses; MWD will confirm updated balances via letter in 2018.
[3] Provisional values pending final certification.
[4] Estimated, totals subject to Reclamation true-up and MWD storage approval, EOY Balances are net conservation estimates (adjusted for potential overrun)