Colorado River Update

Metro Basin Roundtable

Denver, CO

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Overview

- Compact Compliance
- The Good News
- The Challenging News
  - Hydrology
- The Uncertainties of Compact Administration
- The Opportunities
  - Interstate Drought Contingency Planning
  - Intrastate Efforts

Compact Compliance

- “The Upper Basin states will not cause the flow at Lee Ferry to be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years.” (Colorado River Compact, Art. III(d))
- This obligation is an UPPER BASIN obligation, not just Colorado.
- From a wholly accounting-based perspective, the Upper Basin is no closer to falling out of compliance than in the history of the compact.
- HOWEVER, from a responsible planning standpoint, variable hydrology and declining storage at Lake Powell are a real and immediate concern, with potential operational impacts and Compact implications in the upcoming years.
- **DON’T PANIC, BUT PLAN.**

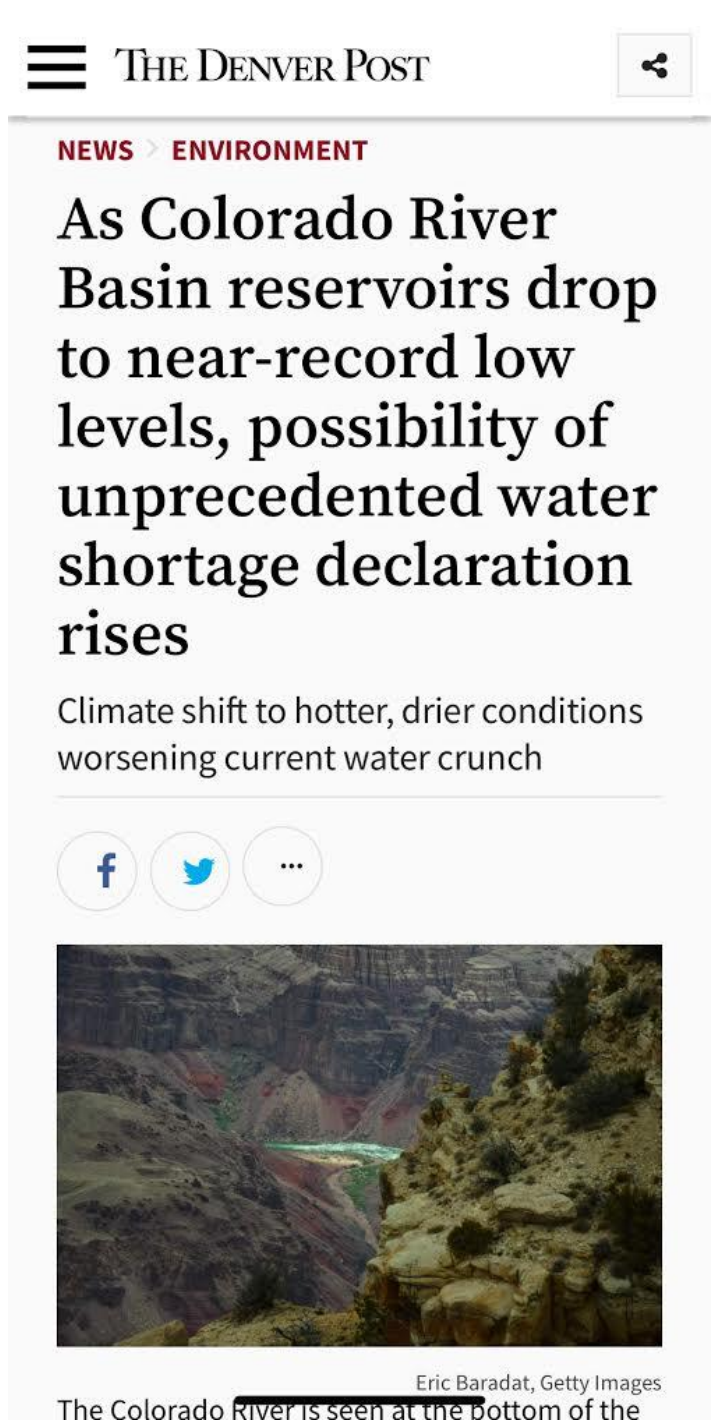
The Good News

- The current 10-year flow at Lee Ferry (Compact point) is **92,133,000 acre-feet** from 2007-2017.
- The state of Colorado and the Upper Basin have not been in a curtailment situation, and under *historical* hydrologic conditions, we will not face a curtailment in the near future.
- The annual flow at Lee Ferry has never been less than that required by the Law of the River.

The Challenging News

The 2007 Interim Guidelines are working as planned but hydrology has been worse than predicted.

- As a result of full use and dry hydrology, Lower Basin states are facing an unprecedented shortage declaration based on reservoir levels.
- The Upper Basin has been able to rely on storage from the CRSPA Units to remain safely in compact compliance under variable hydrology.
- The Upper Basin deals with hydrologic shortages every year – administration under prior appropriation is nothing new for our water users.



THE DENVER POST

NEWS › ENVIRONMENT

As Colorado River Basin reservoirs drop to near-record low levels, possibility of unprecedented water shortage declaration rises

Climate shift to hotter, drier conditions worsening current water crunch

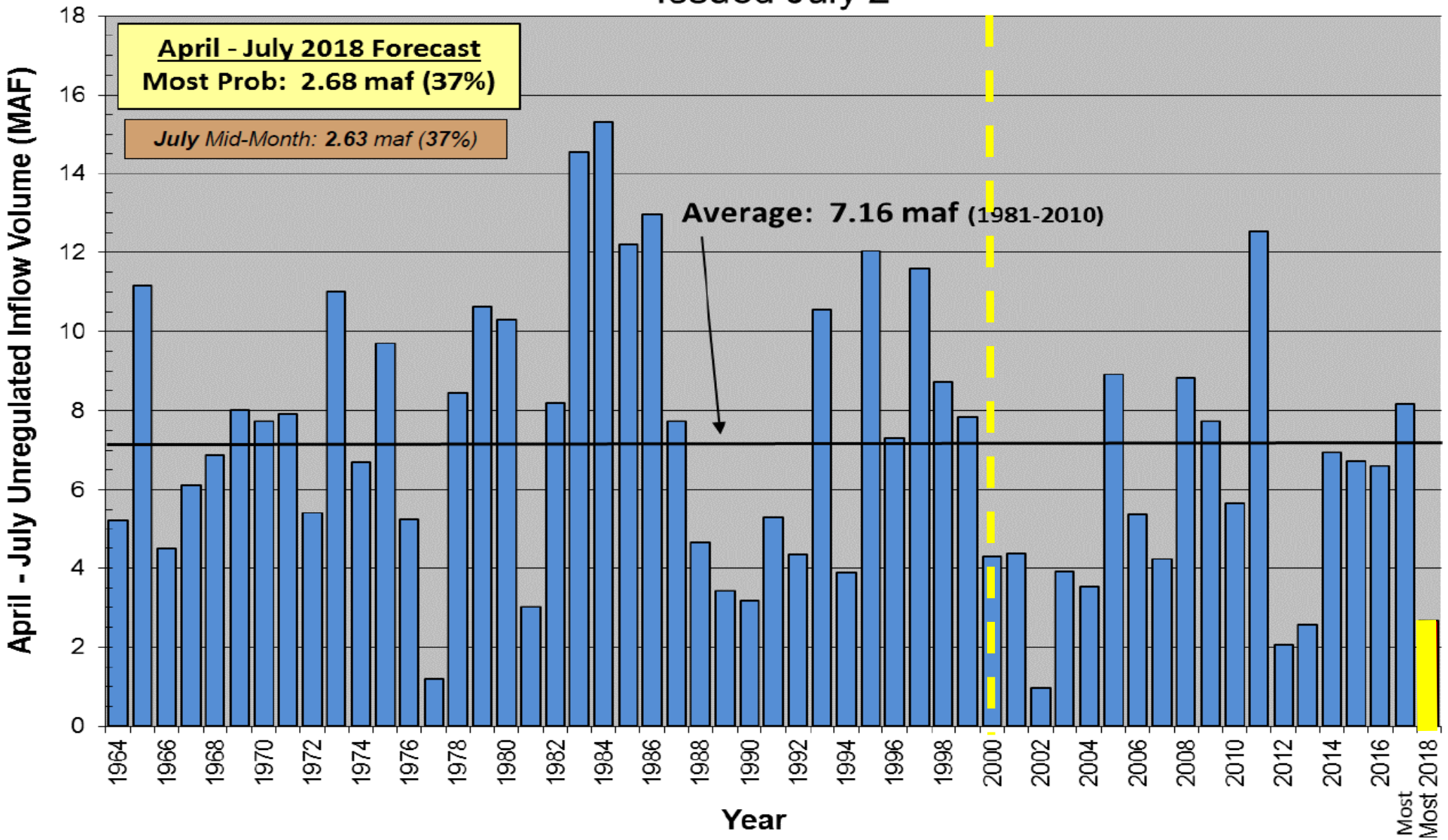
Eric Baradat, Getty Images

The Colorado River is seen at the bottom of the

The Challenging News – Hydrology

- 2000-2018
- 7 of the last 18 years of inflows into Lake Powell (between April and July) were less than 5 million acre-feet.
- Above-average inflows into Lake Powell have occurred only 5 years since 2000.
- 4 of the 5 lowest years on record have occurred during this 17-year drought, with 2012, and 2013 being the driest consecutive two-year period in recorded history.
- Current realistic predictions are for increasing demand and decreasing supply.

Lake Powell Unregulated Inflow
April - July 2018 Forecast
Issued July 2nd



Lake Powell – Minimum Power Pool

- Elevation ~3,490 feet at Lake Powell.
- Below minimum power:
  - Lose large power supply.
  - Lose funds for:
    - Repayment and construction of projects.
    - Operating and maintaining Glen Canyon, Aspinall, Flaming Gorge, Navajo, etc. reservoirs.
    - Implementing compliance with Endangered Species Act, NEPA, and Grand Canyon protection legislation.
  - Increase risk to meeting Compact obligations.

Operational impacts

- More frequent releases of 8.23 MAF or lower each year.
- Minimum elevation for power generation is *approximately* 3,490 feet.
- Below 3,490 feet, releases would be made through bypass tubes only.
- As elevation decreases, cannot release full capacity of bypass tubes (15,000 cfs.)
  - 3500’ – 10.86 MAF annually
  - 3490’ – 10.60 MAF annually
  - 3450’ – 9.09 MAF annually
  - 3440’ – 8.28 MAF annually
  - 3430’ – 7.41 MAF annually
  - 3420’ – 6.37 MAF annually
  - 3400’ - 3.47 MAF annually
  - 3370’ = 0 MAF, dead pool

Compact Administration

- Reactive – waiting until crisis occurs
  - Imposed Involuntary Curtailment
    - High level of uncertainty
    - Inefficient allocation of natural and economic resources
    - Drinking water supplies
    - Litigation
    - Economic ramifications
  - Increased risk of federalization of the Upper Basin
- Proactive – control our own destiny.
  - Voluntary actions to conserve.
    - Plan ahead to mitigate impacts.
    - Reduce the risk of uncertainty with curtailment avoidance (risk will never be zero).
    - Explore and develop position for employing mechanisms that manage risk level within Colorado and Upper Basin.

The Uncertainties of Compact Administration

- “In the event curtailment of use shall become necessary to not deplete the flow at Lee Ferry below that required by Art. III of the Colorado River Compact, the extent of curtailment by each state shall be determined in such amounts and at such times as determined by the UCRC.” (Upper Colorado River Basin Compact, Article IV)
- UCRC is not the authority to determine how curtailment would be implemented within an individual state.
- The State Engineer is responsible for implementing a curtailment scheme within Colorado to maintain compact compliance.

Colorado's Water Plan

- **"The state of Colorado will support strategies to maximize the use of compact water while actively avoiding a Colorado River Compact deficit." (Chapter 9.1)**

- *What is being done to prevent administration?*
  - Interstate Drought Contingency Planning
  - Intrastate planning and implementation efforts

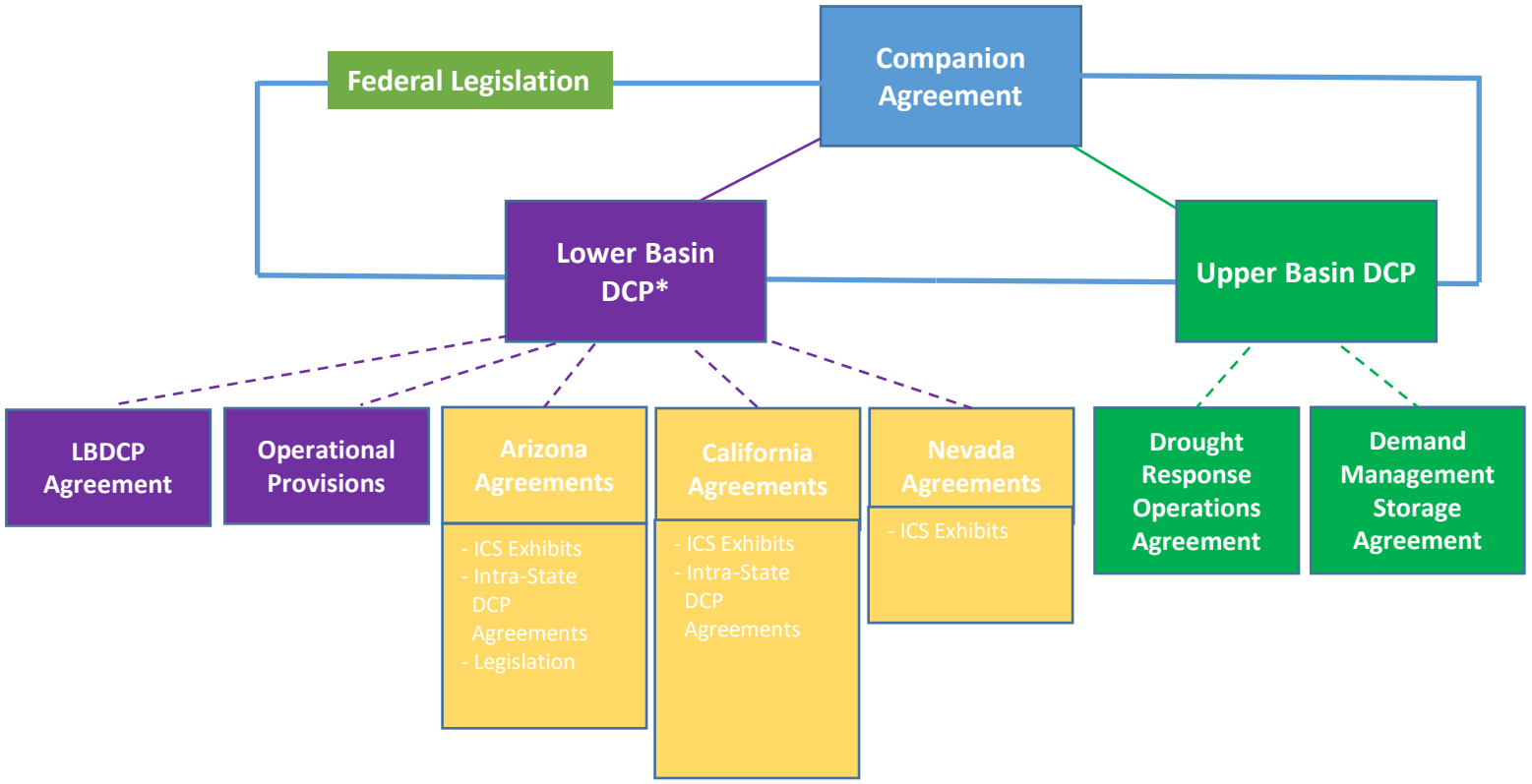
Colorado River Team

- Governor's Office
- Upper Colorado River Commissioner
- CWCB
  - Interstate, Federal, and Water Information Section
- Attorney General's Office (Federal and Interstate Water)
- Division of Water Resources (interstate compact administration)
- Role of water users and stakeholders
  - Serve on work groups, committees and task forces directly related to Colorado river management
  - Serve on UCRC Legal and Engineering Committees
  - Advisory role to Commissioner
  - Intrastate stakeholder forums (basin roundtables, IBCC, water congress)

Drought Contingency Planning Update

- DCP is an ongoing, coordinated effort of the seven basin states and the federal government.
- Planning for drought response to reduce risks associated with reaching critical reservoir elevations at Lake Powell and Lake Mead.
- **Why?**
  - If critical elevations are breached, the system faces threats to ability to control own destiny – drinking water supply, irrigation, power production, environmental resource preservation, and overall sustainability.
- **Low Probability but High Risk**
  - Sensible to plan for the worst case scenarios to avoid potential controversy, conflict, and uncertainty.
  - Preparation for but not predicting need for implementation.

Colorado River Basin Drought Contingency Plan
Documents and Agreements



*Activates Section IV of Minute 323 (Binational Water Scarcity Plan)

Lower Basin DCP

- Contingency Planning
  - Implement voluntary reductions in water use beyond those required by the 2007 Interim Guidelines.
  - Includes a commitment by the U.S. to work to create or conserve Colorado River system water.
  - Incentivize ICS creation/storage.
- Sustainability planning
  - Recognizing need for longer-term mechanisms for addressing “Structural Deficit” in the Lower Basin. But DCP is not solving this deficit.

Lower Basin DCP

Lake Mead Elevation (ft)	2007 Interim Guidelines Shortages (kaf)		Voluntary Reductions (kaf)			Combined Reductions (kaf) (2007 Interim Guidelines Shortages + Voluntary Reductions)			
	AZ	NV	AZ	NV	CA	AZ		CA	TOTAL
1,090	0	0	192	8	0	192		0	200
1,085	0	0	192	8	0			0	200
1,080	0	0	192	8				0	200
1,075	320	13	192				21	0	533
1,070	320	13	192			512	21	0	533
1,065	320	13				512	21	0	533
1,060	320				0	512	21	0	533
1,055	320			8	0	512	21	0	533
1,050	400			8	0	592	25	0	617
1,045	400		240	10	200	640	27	200	867
1,040	400	17	240	10	250	640	27	250	917
1,035	400	17	240	10	300	640	27	300	967
1,030	400	17	240	10	350	640	27	350	1,017
< 1,025	480	20	240	10	350	720	30	350	1,100

DRAFT

Upper Basin DCP

- Goals:
  - Reduce or eliminate probability of Lake Powell reaching minimum power pool elevation through 2026.
  - Ensure the continued operation of the 2007 Interim Guidelines through 2026.
  - Combined with expected action in Lower Basin, increase the synergistic benefits for the Basin as a whole.

Upper Basin DCP

Essential elements in progress, as identified by the UCRC:

- Supply Augmentation (weather modification, phreatophyte management)
- Develop Drought Response Operations for CRSP Facilities.
- Explore feasibility and opportunities for Upper Basin demand management.

Upper Basin DCP Agreements

* Drought Response Operations - (CRSPA Initial Units)

- ✓Conserve water in LP or move available water from Upper CRSPA Units (Aspinall, Flaming Gorge, Navajo) to protect LP target elevation.
- ✓ Allow for subsequent recovery of storage at same facilities.
- ✓Take actions consistent with authorities, permits, contracts for water and power, etc.

* Demand Management Storage

- ✓Secure authorization to store, at no charge, any intentional reductions in consumptive use made to help assure Upper Basin's continued compact compliance.
- ✓Provide the UCRC and Upper Division States sufficient flexibility to explore the feasibility of, and evaluate viable options for, developing an Upper Basin Demand Management Program.

CRSP Reservoir Operations

Navajo Reservoir

Flaming Gorge Reservoir

Blue Mesa Reservoir

Lake Powell

- Agree on operations to implement under emergency conditions to maintain minimum power pool elevation at Lake Powell.
- By conserving water (temporarily) in Lake Powell or moving water available from upper CRSP facilities

Demand Management

- UCRC Resolutions in 2014 and 2018 – explore **feasibility** of:
  - Temporary
  - Voluntary
  - Compensated
  - Reduction in diversions to conserve water that is otherwise consumptively used
- To help avoid potential need for involuntary curtailment of Colorado River uses. Specifically geared to ensure compact compliance.
- 2nd line of defense

Demand Management Considerations

- Goal – evaluate alternatives to facilitate intentional reductions in consumptive use through willing participant arrangements.
- Challenges – Working within the prior appropriation system and respecting way of life of water rights holders, to facilitate voluntary reductions in consumptive use on willing participant basis.
- Lots of questions exist – Feasibility, accounting, implementation, management and administration. Need to be investigated before determining if viable.
- Evaluation mechanisms – Currently include:
  - System Conservation Pilot Program (UCRC)
  - UCRC next steps workgroup
  - Others (intra-state or academic).

Intra-Colorado Efforts

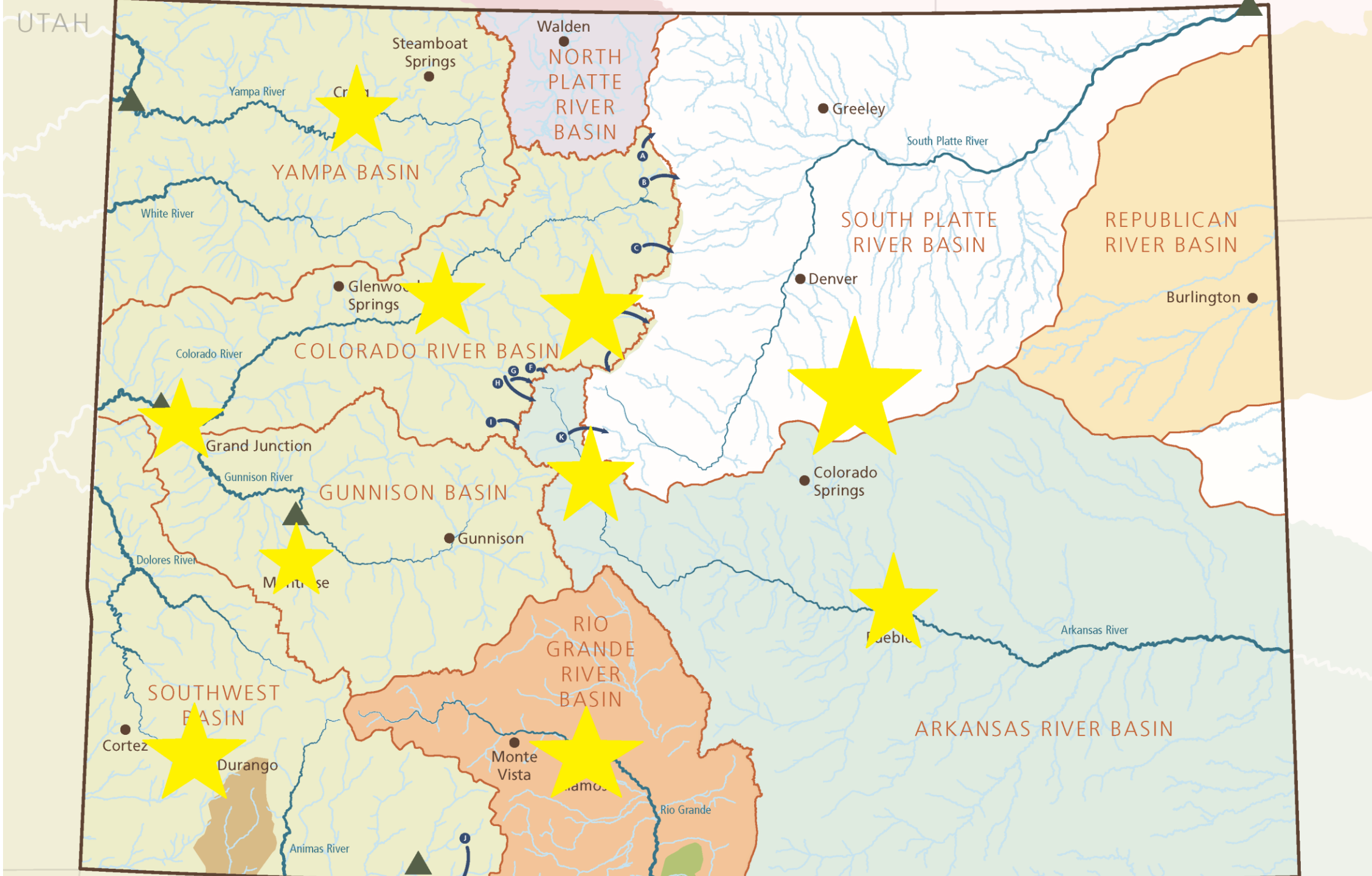
- Working groups and stakeholder efforts within Colorado are underway to examine the risk associated with compact compliance, as well as the impacts of curtailment avoidance strategies.
- Current forums:
  - Compact Compliance Study
  - Colorado Water Bank Work Group
  - System Conservation Projects
  - Risk Studies
  - Shepherding White Paper and Workshops
  - Colorado Water Plan
- ***Important for the state to consider input and interactions between all these, and how they may inform a state position on these ongoing efforts.***

CWCB Demand Management Outreach

- Direction of the Board – November 2017/January 2018
- Identify and evaluate possible options for avoiding involuntary compact curtailment
  - Consistent with direction from Colorado's Water Plan
- Focus on Demand Management considerations to inform progress on the interstate and intrastate fronts.
- Thorough and transparent outreach to water users and stakeholder community to provide information about Colorado River issues and DCP evolution

CWCB Demand Management Outreach

- Southwestern Water Conservation District Annual Seminar – Durango
- Arkansas Basin Roundtable – Pueblo
- West Slope Basin Roundtables' Caucus – Grand Junction
- Interbasin Compact Committee – Keystone
- Front Range Roundtables' Caucus – Parker
- Rio Grande Basin Roundtable – Alamosa
- Yampa/White/Green Basin Roundtable – Craig
- Gunnison Basin Roundtable – Montrose
- Water Bank Working Group – Salida
- Water Resources Review Committee – Denver and Vail


UTAH
Walden
Steamboat Springs
NORTH PLATTE RIVER BASIN
Yampa River
YAMPA BASIN
Greeley
South Platte River
White River
SOUTH PLATTE RIVER BASIN
REPUBLICAN RIVER BASIN
Denver
Burlington
Glenwood Springs
COLORADO RIVER BASIN
Colorado River
Grand Junction
Gunnison River
GUNNISON BASIN
Colorado Springs
Gunnison
Dolores River
RIO GRANDE RIVER BASIN
Arkansas River
SOUTHWEST BASIN
Cortez
Durango
Monte Vista
ARKANSAS RIVER BASIN
Rio Grande
Animas River

CWCB Demand Management Outreach

- CWCB will continue to speak at forums statewide to:
  - Provide context and updates on Colorado River Basin activities
  - Obtain input and feedback on various demand management considerations
- Workshops and technical outreach
  - Identify specific legal, technical, and policy questions associated with demand management

- **Takeaway: Not developing any position regarding whether and how to develop a demand management program in Colorado in a vacuum. Working with stakeholders and water users to preserve options and opportunities while we seek engagement and input to consider positions moving forward.**

Demand Management Considerations

- Consistency with prior appropriation and state water laws
- Preservation of water rights
- Economic and environmental considerations
- Monitoring and verification of water conservation
- Administration and accounting
- Sideboards/limitations to consider
- Water court involvement
- Parity – benefits and burdens shared
- Many others

Temporary. Voluntary. Compensated.

- **Contingency** planning
  - Being prepared for the worst case scenario
  - All state efforts, with UCRC and intrastate stakeholders, have been geared to assessing feasibility of “temporary, voluntary, compensated” scenario
  - **CWCB and AG staff are not assessing, pursuing, or recommending to the Board any type of “anticipatory curtailment” scenario at this time**

Colorado's Water Plan:
Demand Management Policies

"Demand management efforts would be based on **voluntary, temporary, and compensated** reductions in eastern and western slope consumptive use. Willing water users would be temporarily compensated for voluntary reductions of consumptive use, and such reductions in use would be monitored and verified to ensure a benefit to the Colorado River system."

- Section 9.1

Board Direction

- CWCB directed staff to:
  - Perform outreach and public engagement efforts on DCP implementation documents.
  - Develop for Board review a draft policy statement regarding CO River basin demand management strategies within Colorado.

Timeline

Interstate Drought Contingency Plan

- **September 18** – 7-States and Reclamation agreed the concepts in draft documents address the scope of the DCP. Final Working Draft documents to be made available after clean up (estimated, beginning of October).
- **October** – Outreach Performed. Bring DCP documents to the Board; Public Webinar to be scheduled – *Tentatively* – October 9.
- **October – November** - If possible, LB obtain approvals for committing to obligations in LB DCP, Commission confirms path forward, DOI conducts internal review
- **November - December** – If possible, Parties demonstrate path forward at CRWUA. Federal legislation coordination as appropriate.
- **January 2019** – If possible, Az legislature provides approval to execute documents. Federal legislation secured and Parties execute documents.

Intrastate Demand Management Evaluation

- **October – 2019** – Continue demand management outreach (IBCC, roundtables, etc.).

Conceptual Framework

“The collaborative program will develop in concert with intra- and interstate water policies. The IBCC and roundtables can provide an important forum for sharing the work of ongoing interstate negotiations, scoping technical analyses, and identifying issues of concern at the stakeholder level, as well as providing input to the CWCB as it manages and conducts the technical, legal, economic, and other studies necessary for implementation.”

- Conceptual Framework, Chapter 8

Moving Forward

- State team will continue to work cooperatively with interstate partners on DCP efforts.
- CWCB demand management outreach will continue
  - Do NOT want to set up any program in a vacuum
  - Will continue to work with stakeholders to consider observations, concerns, and ideas of Coloradans directly affected or impacted by potential program.
  - Iterative process – will continue to revisit with interested parties to evaluate options and possibilities.
- Colorado River issues affect the entire state – success on this front will require all water users and stakeholders being actively engaged, involved, and informed as we move forward.

Questions, comments, stern guidance:

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