

# Co-Production of Applied Climate Knowledge

Denver Water and NCAR

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# Colorado Water Geography

## West Slope:

80% of the Water



Irrigated Acres:  
918,000

20% of the Population



(562,000 people)

## East Slope:

20% of the Water

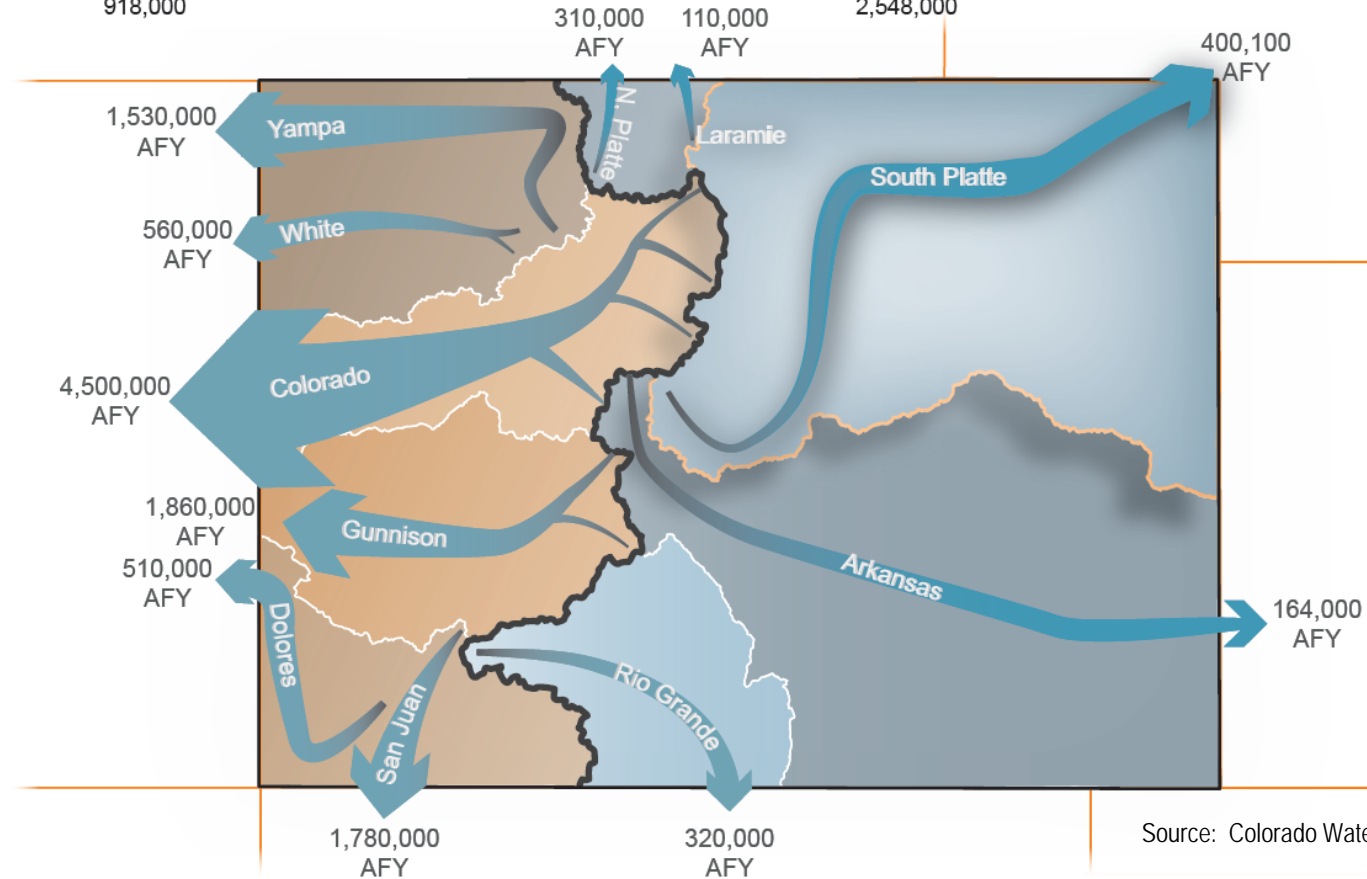


Irrigated Acres:  
2,548,000

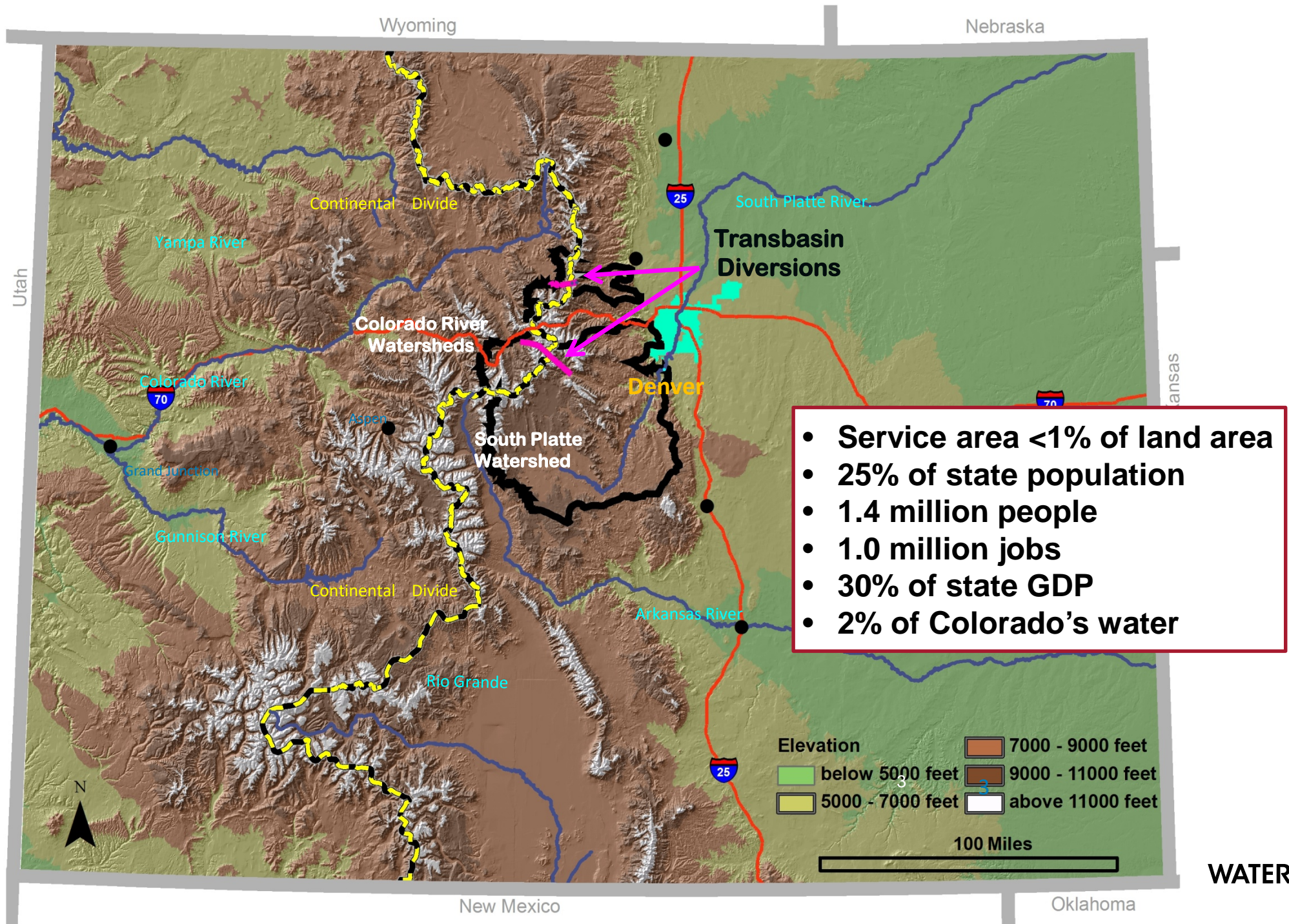
80% of the Population



(4,490,000 people)



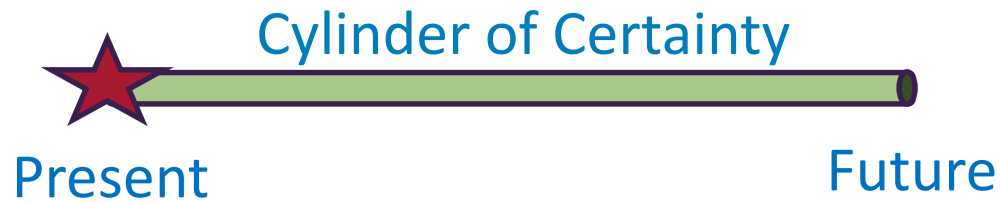
Source: Colorado Water Plan 2015



# This story begins in 2002

## Deterministic thinking

- Observed hydrology and extrapolation of past trends



- Integrated Resources Plan (IRP):
  - Conservation-Supply-Reuse
  - Excess resources?
  - Regional role?

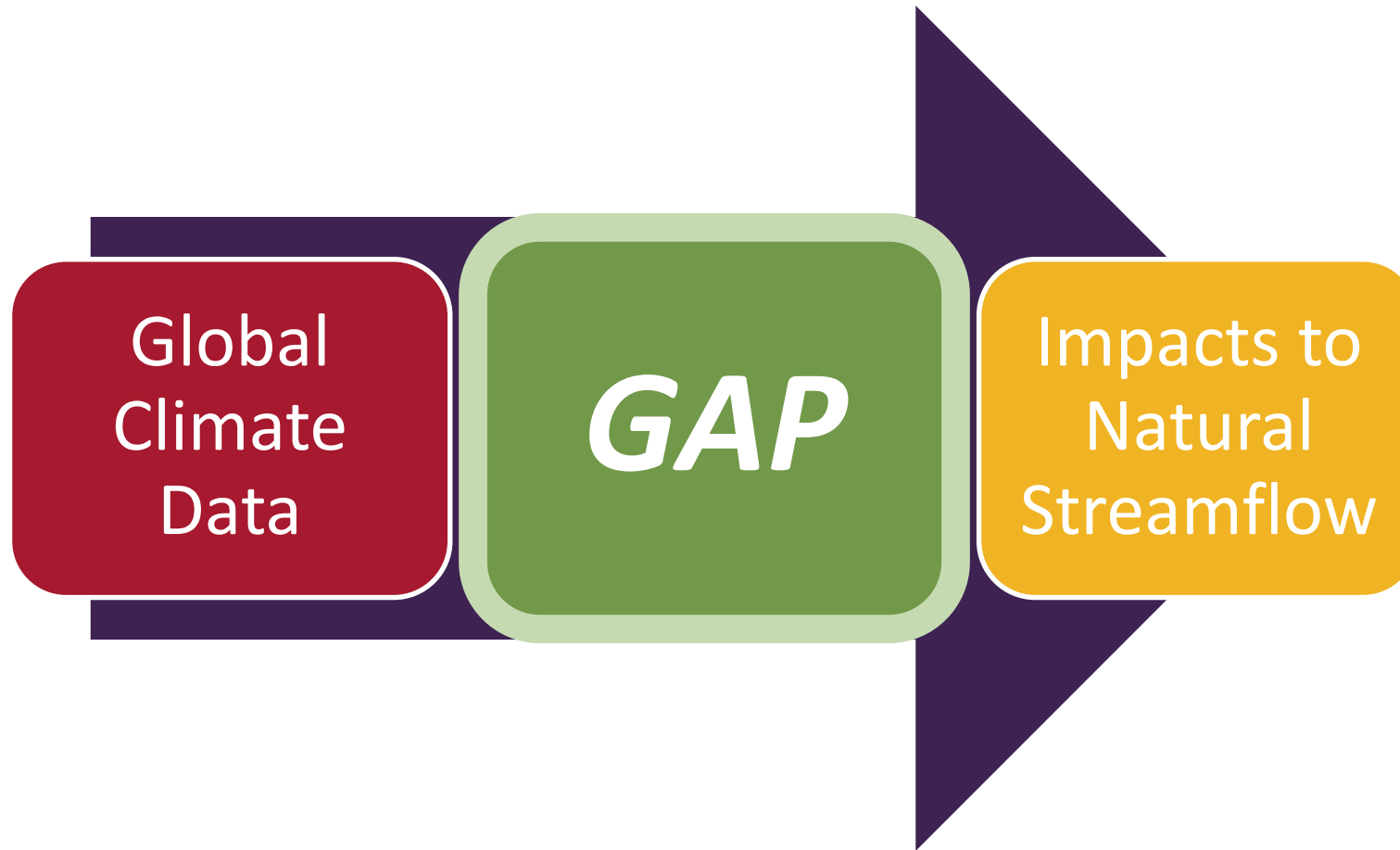
## Unprecedented Simultaneous Natural Disasters



# Building a climate adaptation program

- Capacity: Hired staff to build and maintain understanding
- Partnerships: Looked for regionally and nationally collaboration
- Research: Dove into science and co-production
- Planning: Started bringing climate change into long-range planning

# Climate Change Evaluations in the West

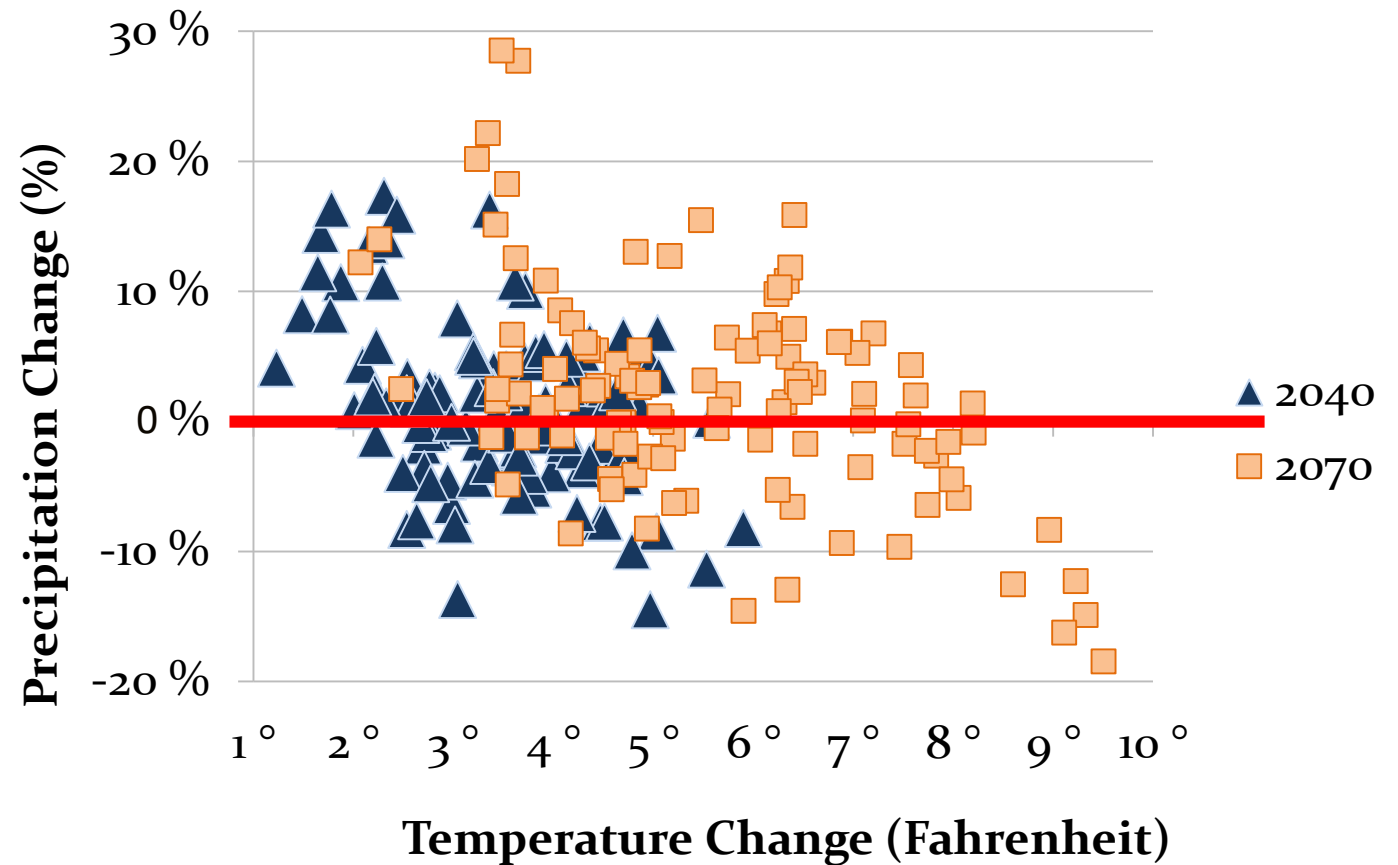


# Front Range Climate Change Vulnerability Study

## Collaborative Approach

- Sophisticated regional assessment
- Provided political coverage
- NCAR and Riverside

Climate Model Projections for Northcentral Colorado



# Important outcomes

- Informed DWs philosophy on climate adaptation and planning
- Informed DWs work with WUCA
- Climate change in CO report
- CRWAS I, II – State climate modeling of CO river
- State bringing climate change and scenario planning into supply and demand analysis – SWSI
- FRCCG – quarterly meetings still!
- Ongoing collaborations with NCAR, WWA, Riverside (Rti), others



# A Decade of Co-production

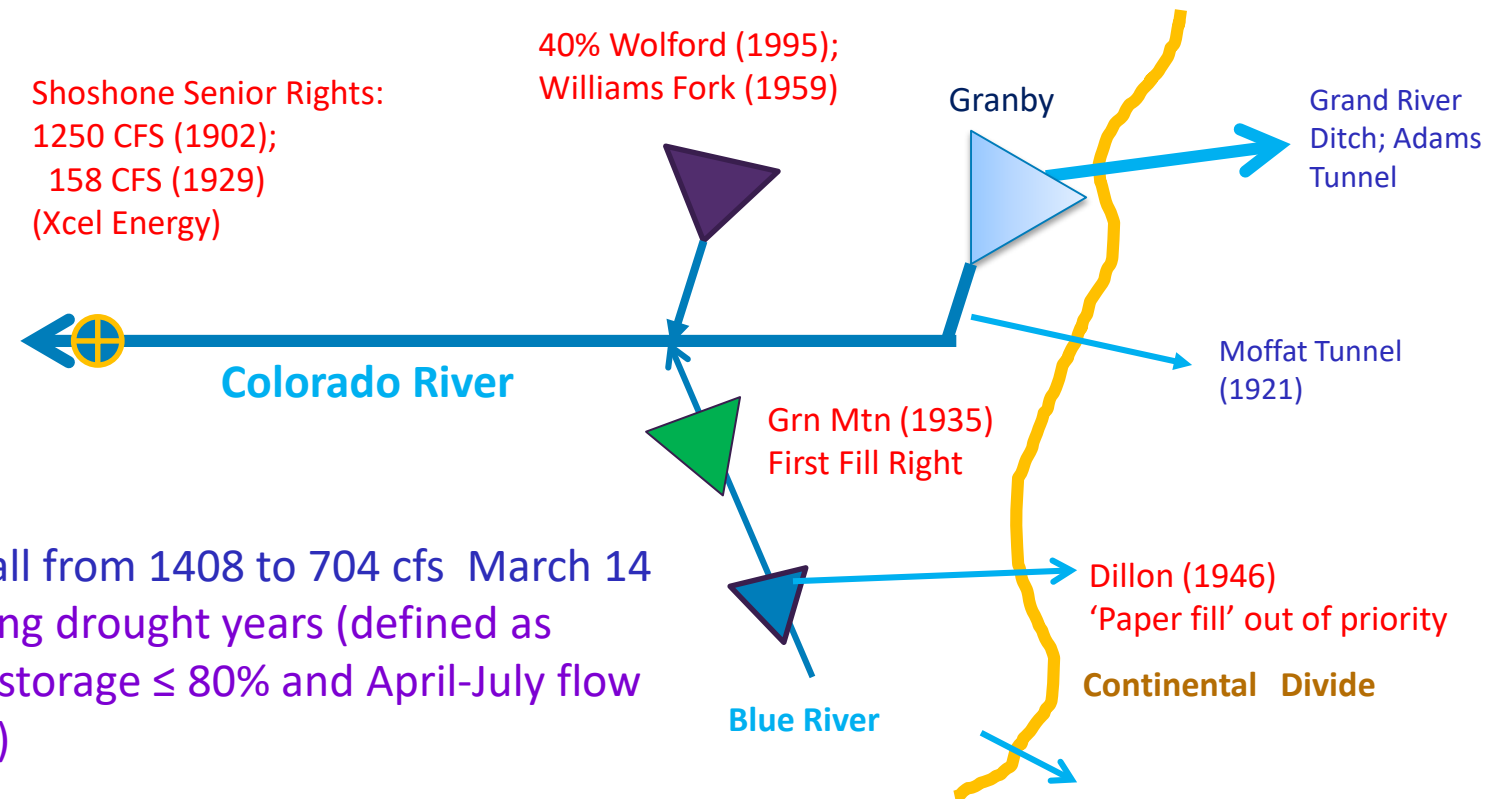
- Shoshone relaxation agreement
- Climate diagnostics for water management decisions
- Using IRI forecasts to inform seasonal and annual operations
- Decadal predictions
- “Simple” planning model?

# Summary of Lessons: For scientists (and their science) to be relevant for decision-makers:

1. TRUST
2. UNDERSTANDING
3. PROOF
4. CAPACITY

**THANK YOU**

# Drought mitigation measure - Shoshone Call Relaxation Agreement (SCRA)



## Key features

- Reduces the Call from 1408 to 704 cfs March 14 to May 20 during drought years (defined as forecast July 1 storage  $\leq$  80% and April-July flow forecast  $\leq$  85%)
- Colorado River Cooperative Agreement allows call relaxation to begin Nov 11 (severe drought & lawn water ban)
- Purpose is to increase Upper Basin Storage