

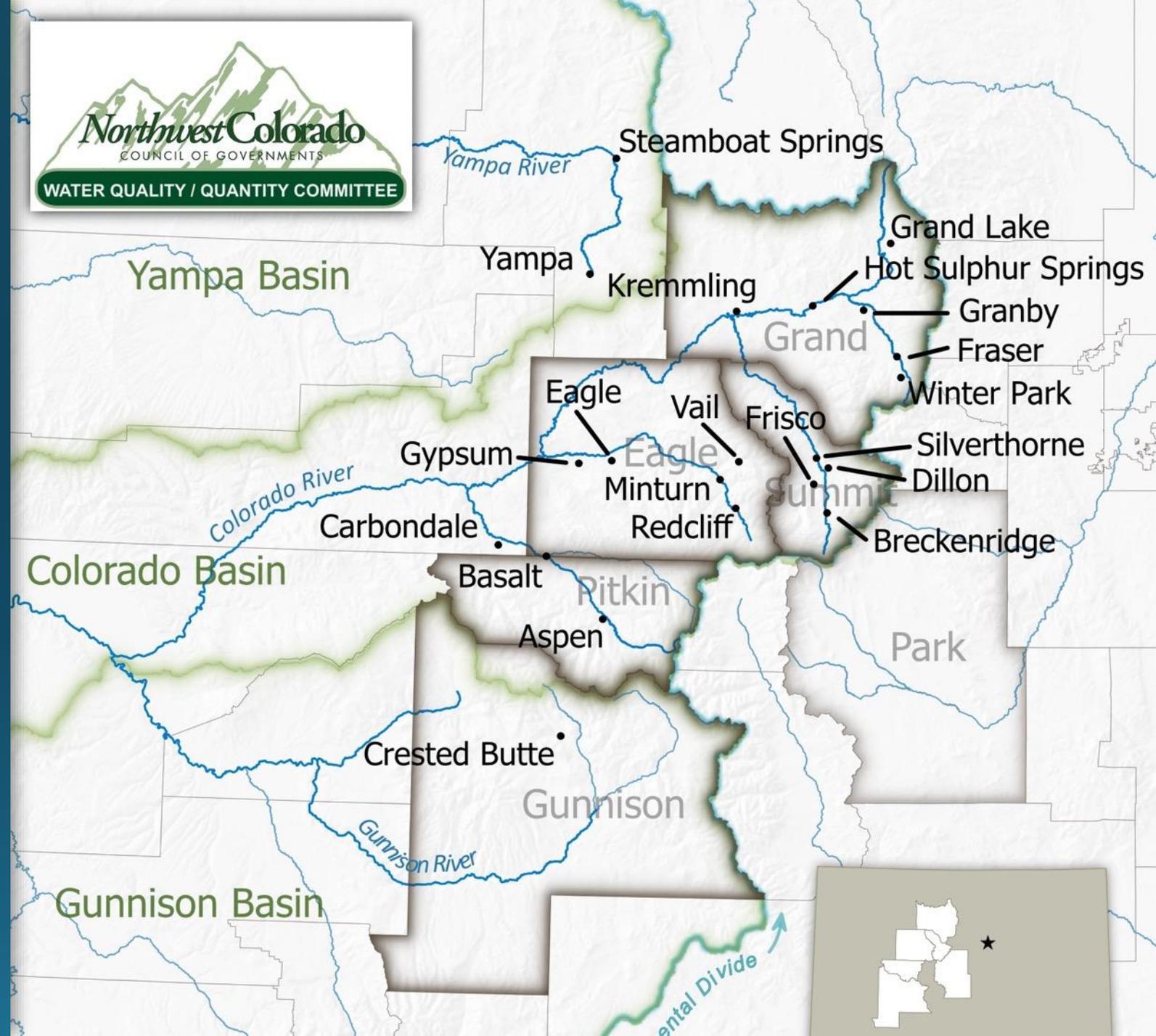


The headwaters region: perspectives and challenges

Sept. 12, 2019

Water Resource Review Committee

Our headwaters region



DEFINING CHARACTERISTICS

- Headwaters of the Colorado River Basin: Water for Colorado + 6 states + Mexico
- Contain primarily public land (70%)



Private Land, 30%

Public Land, 70%

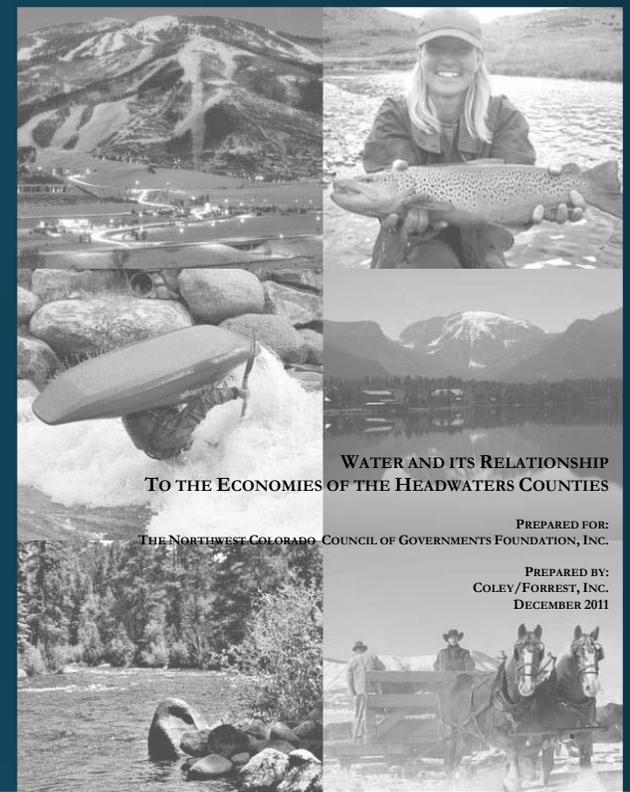
- World class recreation venues that attract national and international visitors and require minimal consumptive water

DEFINING CHARACTERISTICS

Water-dependent economies (recreation-tourism, agriculture, and resource extraction)



Photo by Mason Summing, the Wilderness Society



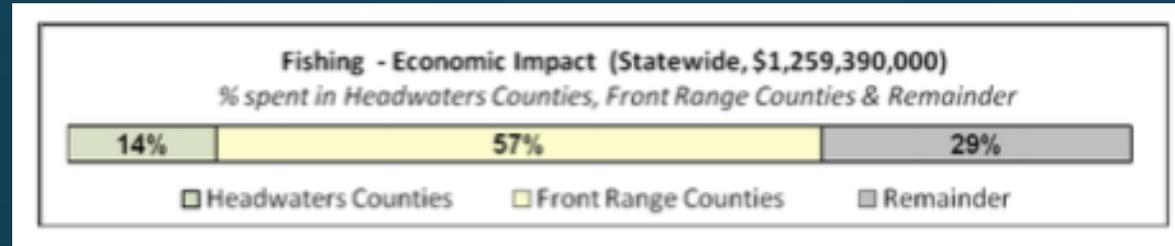
**WATER AND ITS RELATIONSHIP
TO THE ECONOMIES OF THE HEADWATERS COUNTIES**

PREPARED FOR:
THE NORTHWEST COLORADO COUNCIL OF GOVERNMENTS FOUNDATION, INC.

PREPARED BY:
COLEY/FORREST, INC.
DECEMBER 2011

UNIQUE CHARACTERISTICS, Continued

- Region of statewide economic value.



- Provide iconic images for economic development initiatives statewide



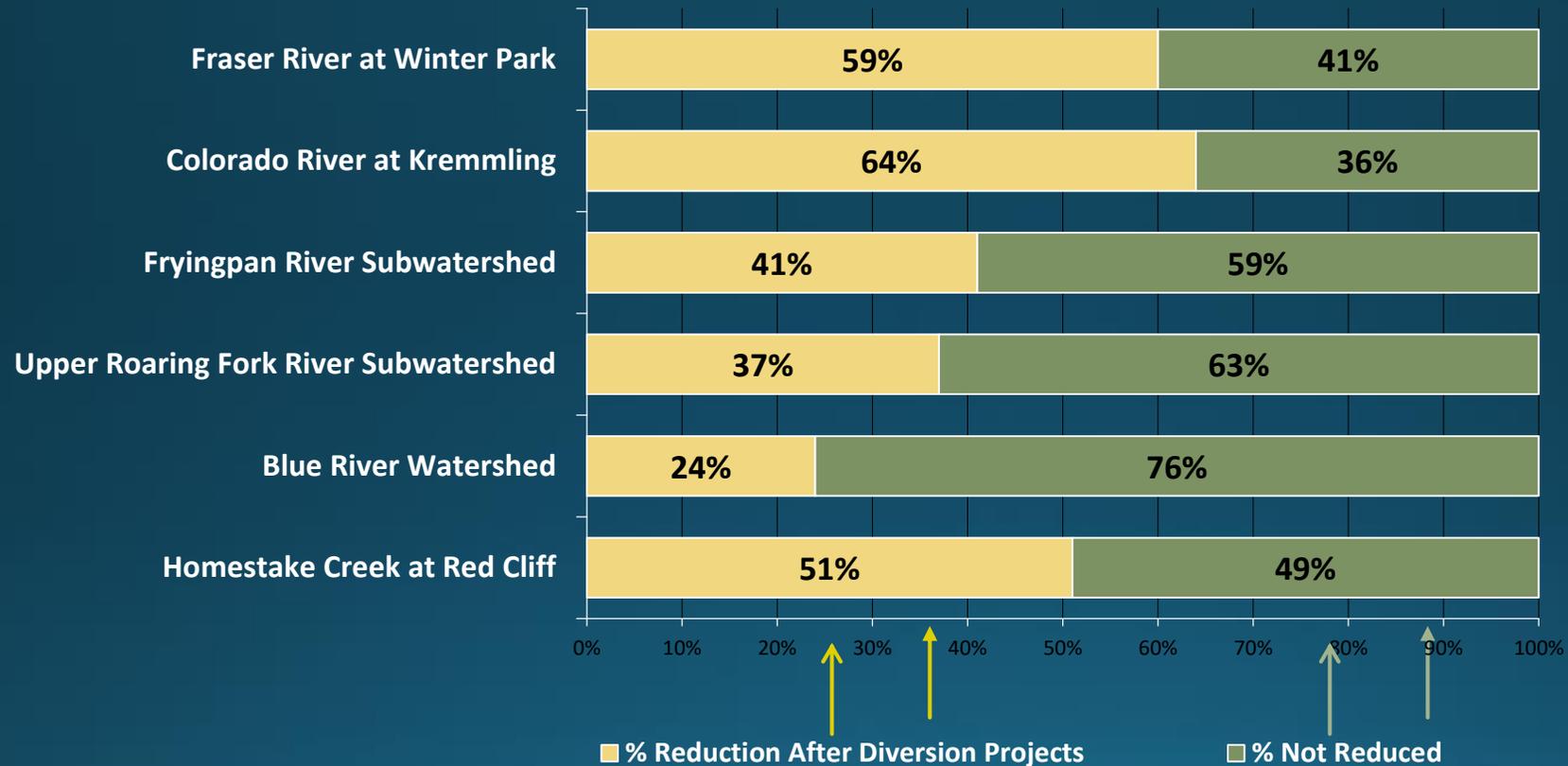
*"For Denver to do well,
we have to have
thriving mountain
communities."
(Former) Mayor
Hickenlooper*

DEFINING CHARACTERISTICS

Water quality and quantity impacted by transmountain diversions



% Streamflow Reductions Principally due to Transmountain Diversion Projects



Various Sources – See *Water and Economy of Headwaters Counties* report for details.

ENVIRO. & ECON. IMPACTS FROM REDUCED FLOWS

TYPES OF ENVIRONMENTAL IMPACT	TYPES OF ECONOMIC CONSEQUENCES
<ul style="list-style-type: none">✗ Lower streamflows✗ Reductions to flushing flows✗ Increases in water temperature● Degradation in water quality● Degradation in water clarity✗ Compromised riparian corridor✗ Compromised aquatic environment✗ Health and variety of fish	<ul style="list-style-type: none">● Less reliable streamflows for kayaking and rafting that impact summer tourism.● Potential loss of “Gold Medal” fishing status and the related benefits of attracting anglers worldwide.✗ Fishing for trout that are reliant on adequate streamflow, water quality and temperature.✗ Potential loss of Wild and Scenic River status and related adverse effects of fewer visitors, kayakers and rafters.✗ Water quality and water clarity degradation in Grand Lake that impacts visitors and property values.✗ Reductions in irrigated land that adversely impact jobs and property values.✗ Devaluation or loss of real estate development that relies on healthy riparian corridors for scenic beauty and fishing.✗ Higher costs for water and sewer treatment facilities that are borne by local rate payers.

DEFINING CHARACTERISTICS

Local governments active in water quality and quantity protection

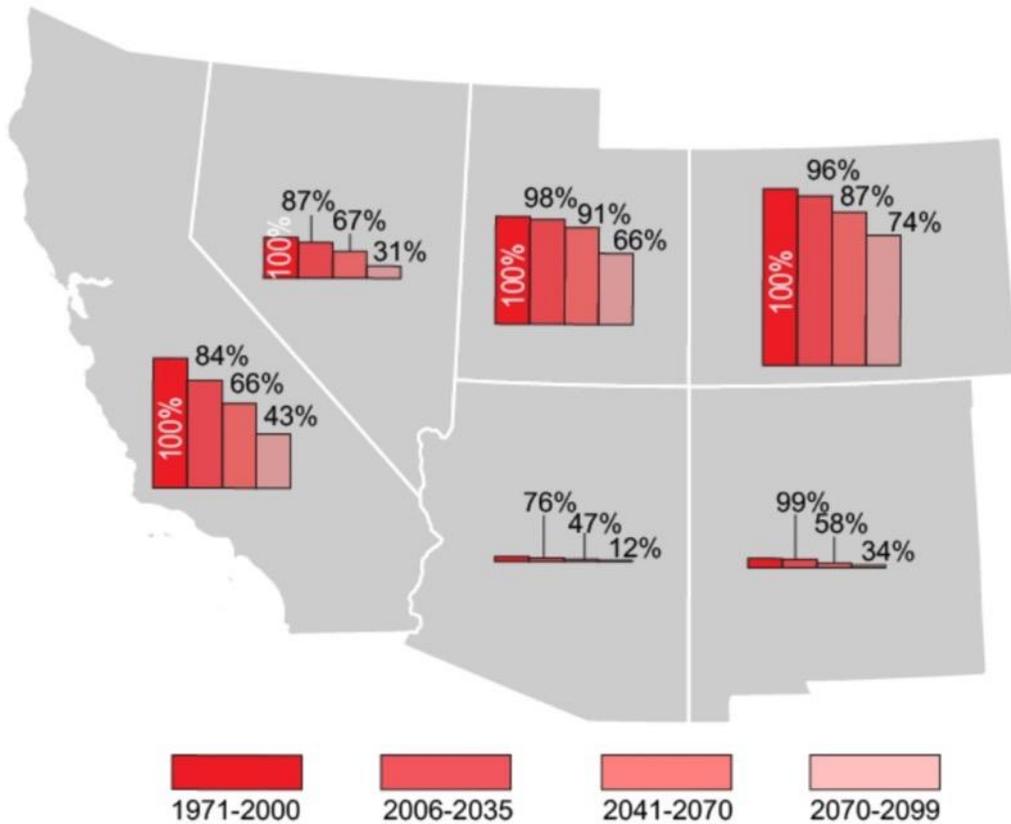


Swan Creek restoration, top photo in 2015, pre-restoration of mine tailings, and bottom photo during restoration in 2017. Courtesy of Summit County, CO, available at <http://www.co.summit.co.us/Blog.aspx?CID=5>.

AN UNCERTAIN FUTURE

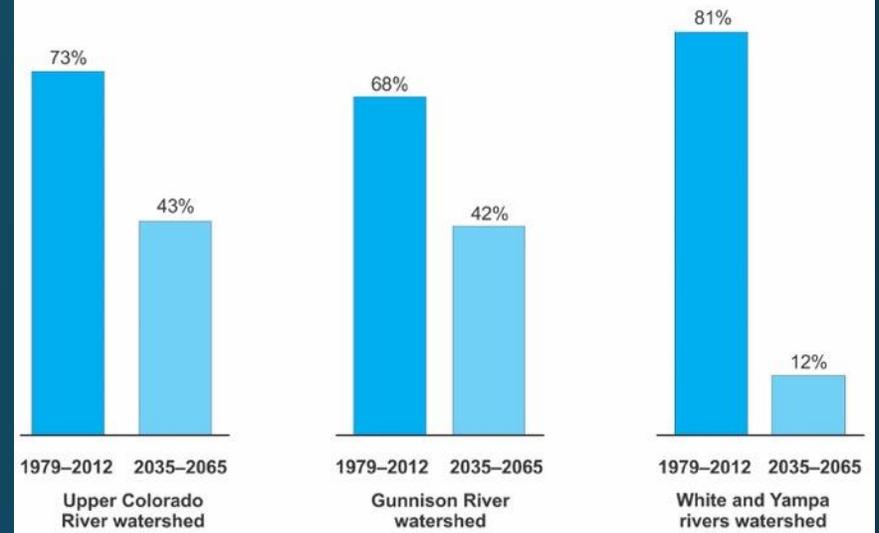
Projected Snowpacks

Projections with medium-high future emissions, comparisons to 1971–2000



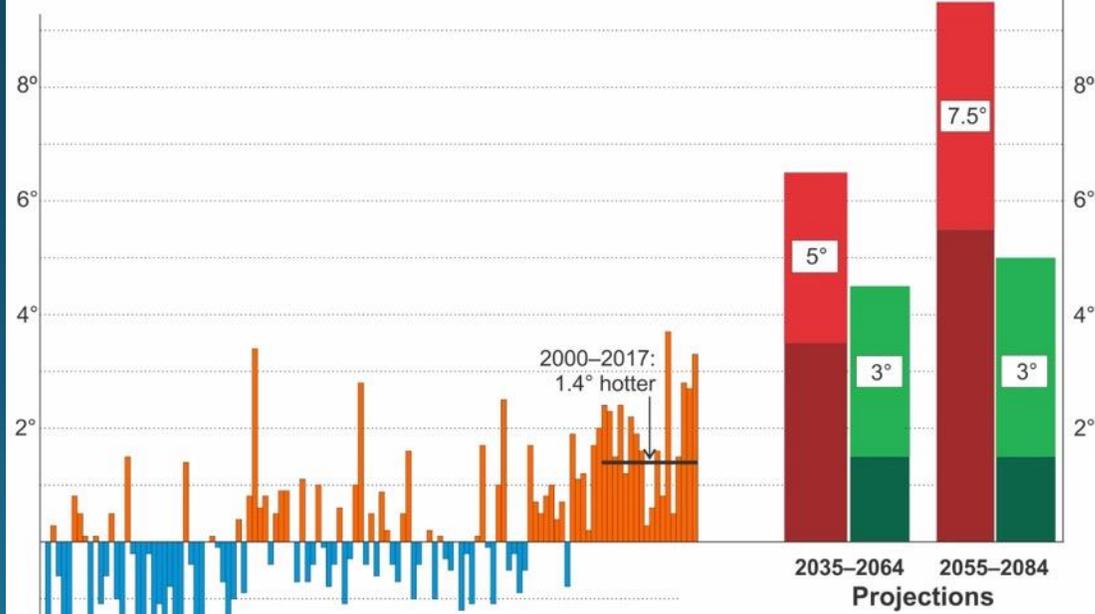
Snowfall as Share of Winter Precipitation

Projections with high emissions



Historical and Projected Colorado Temperatures

Comparisons to 1971–2000 Averages



From *Climate Change in the Headwaters: Water and Snow Impacts*,
Rocky Mountain Climate Organization



AN UNCERTAIN FUTURE

<u>QQ REGIONAL GROWTH</u>	2010	Forecast: 2050	Percent increase
Region 12 (NWCCOG)	113,496	198,180	42%
Eagle County	52,057	85,838	46%
Summit County	16,277	23,797	40%
Garfield County (Carbondale only QQ member)	56,153	105,711	46%
Routt County (Steamboat Springs only QQ member)	23,451	45,998	49%

April 2018, Statistics from Colorado State Demography Office, available at <https://demography.dola.colorado.gov/population/>



Linking Land Use/Water Planning

COLORADO'S WATER PLAN

“Every community can do better on water conservation and efficiency via locally determined measures, such as, but not limited to, reinvestment in aging infrastructure, community education, enhanced building codes, and water-sensitive land-use planning.”

Guiding statement for county commissioners Boulder County, City and County of Denver, City and County of Broomfield, Eagle County, Grand County, Pitkin County and Summit County, *Comments on the Colorado Water Plan (March 5 - May 1, 2015)*, Item No. 67. May 1, 2015.



Model Water Quality Protection Standards for Local Governments



Photo credits, clockwise from top left: Brent Gardner-Smith, Aspen Journalism; City of Aspen; Torie Jarvis.

ENVIRO. & ECON. IMPACTS FROM REDUCED FLOWS

TYPES OF ENVIRONMENTAL IMPACT	TYPES OF ECONOMIC CONSEQUENCES
<ul style="list-style-type: none">✗ Lower streamflows✗ Reductions to flushing flows✗ Increases in water temperature● Degradation in water quality● Degradation in water clarity✗ Compromised riparian corridor✗ Compromised aquatic environment✗ Health and variety of fish	<ul style="list-style-type: none">● Less reliable streamflows for kayaking and rafting that impact summer tourism.● Potential loss of “Gold Medal” fishing status and the related benefits of attracting anglers worldwide.✗ Fishing for trout that are reliant on adequate streamflow, water quality and temperature.✗ Potential loss of Wild and Scenic River status and related adverse effects of fewer visitors, kayakers and rafters.✗ Water quality and water clarity degradation in Grand Lake that impacts visitors and property values.✗ Reductions in irrigated land that adversely impact jobs and property values.✗ Devaluation or loss of real estate development that relies on healthy riparian corridors for scenic beauty and fishing.✗ Higher costs for water and sewer treatment facilities that are borne by local rate payers.

Tools to address water challenges

- Instream flow program
- Recreational in-channel diversions (RICDs)
- “Creative contracting”
- Local project permitting
- IGAs and other negotiated agreements
- Voluntary community-based reductions under conservation plans
- Others?



CREATIVE & COOPERATIVE SOLUTIONS

WEST-SLOPE EAST-SLOPE PROBLEM-SOLVING SUCCESSES – ILLUSTRATIVE PROJECTS AND DATES

- | | |
|--|---|
| <ul style="list-style-type: none">● Learning-by-Doing● Colorado River Cooperative Agreement (2011)● Blue Mesa Plan (2010)● Wild & Scenic River Determination – Stake’holder Groups (2008)● Denver Water – Eagle County Settlement Agreement (2007)● Winter Park Master Plan – Zoning Density Constraint (2006)● Roaring Fork Watershed Collaborative (2002)● Blue River Restoration Project (2001+)● GMUG Pathfinder Project (2000)● Grand Valley / Gunnison Selenium Task Force (1998) | <ul style="list-style-type: none">● Local Voter-Authorized Tax Rate Increases (1995 +)● Water Conservation (1993)● Wolford Mountain Reservoir Agreement (1992)● Clinton Reservoir-Fraser River Agreement (1992)● Eagle River Memorandum of Understanding (1988)● Upper CO. Endangered Fish Recovery Program (1988)● Summit County / Denver Water Agreement (1985)● QQ Committee of the NWCCOG (1978) |
|--|---|

KEY MESSAGES

- We are all linked.
- Water in its natural stream course is essential to economies of headwaters counties. Headwaters counties' water needs are primarily nonconsumptive.
- West Slope is already compromised from historic diversions, and climate change will worsen conditions.
- Creative solutions are needed. We need to utilize all the tools to protect or increase streamflows and address water quality issues.