

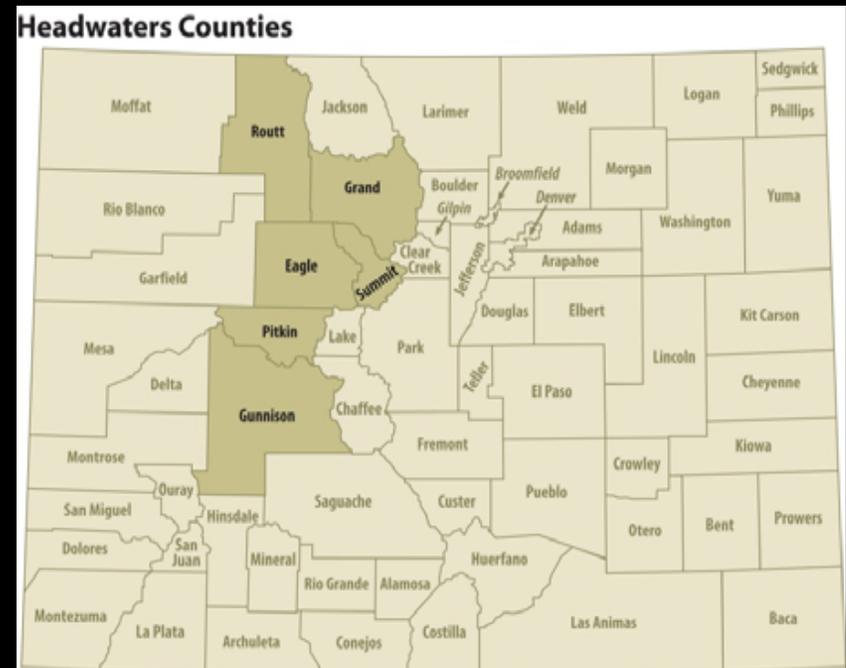
WATER & ITS RELATIONSHIP TO THE ECONOMIES OF THE HEADWATERS COUNTIES



Colorado River – Photo by USGS

REPORT PURPOSES

1. Describe the link between water and the economies of six headwaters counties
2. Describe the link between these local economies and other regions of the State.
3. Describe the compromised economic conditions triggered by transmountain water diversions and other constraining water conditions.



WHY?

- *Recent attention:* Adverse economic consequences of purchasing agricultural water rights from properties on the Eastern Plains
- *Inference:* Transmountain water diversion projects from the West Slope cause less adverse economic consequences
- *Inference:* “Streamlining” local government approvals is important

COUNTERBALANCING PERSPECTIVE

- There are adverse economic consequences to transmountain water diversions.
- Some mitigation solutions, while helpful, have not left headwaters counties “whole.”

DESCRIPTIVE REPORT

- Combines and relies on reports prepared by others, interviews, and some primary research
- Does not take issue with Front Range water providers.
- Supports agricultural property owners in the Eastern Plains; there is a mutually beneficial economic relationship.

UNIQUE CHARACTERISTICS of the SIX HEADWATERS COUNTIES

- Source of water: Colorado + 6 states + Mexico
- Contain primarily public land

Private Land, 30%

Public Land, 70%

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

UNIQUE CHARACTERISTICS, Continued

- Iconic image of economic development initiatives.



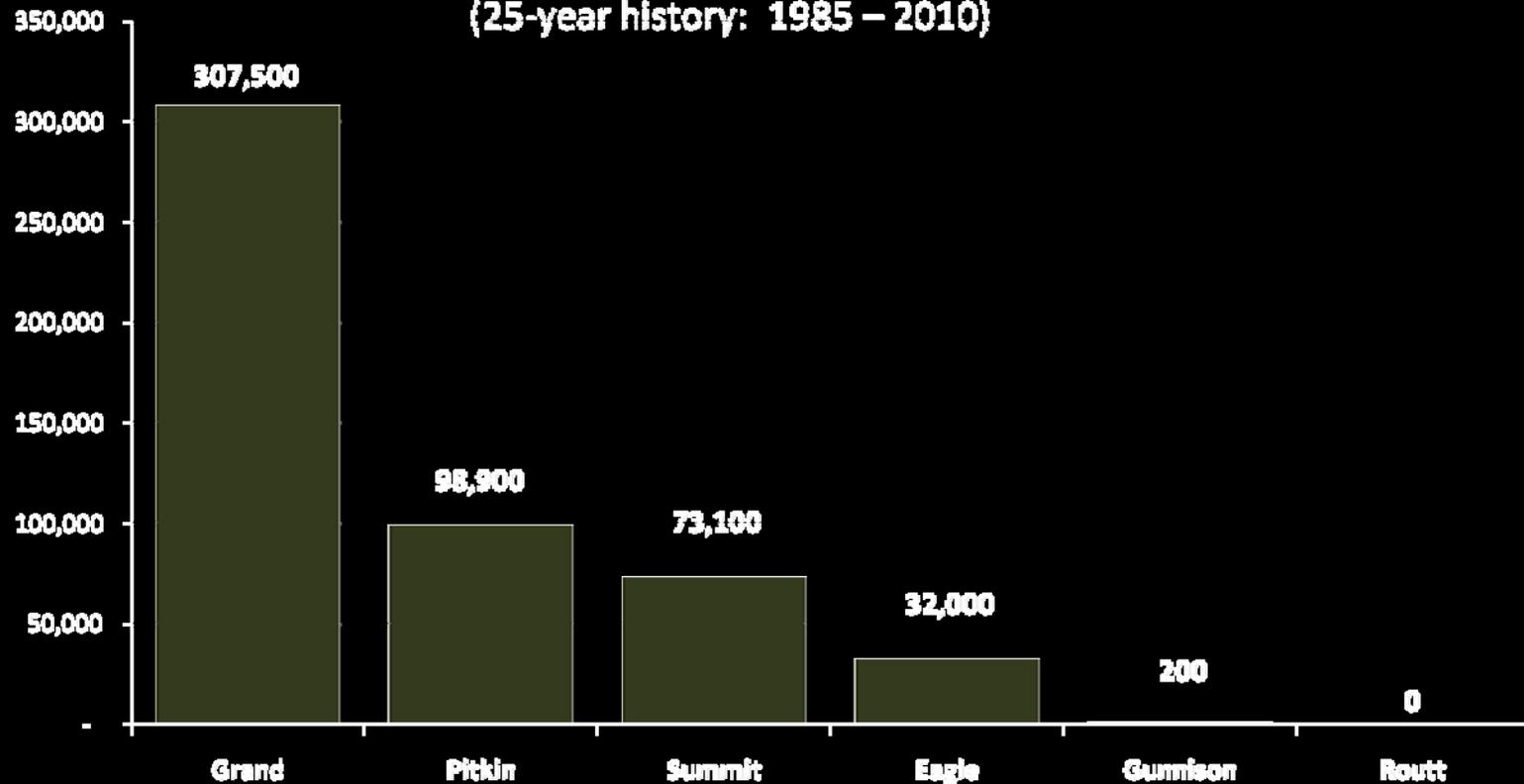
"For Denver to do well, we have to have thriving mountain communities."
(Former) Mayor Hickenlooper

- Colorado needs young, high-value workers, as they are important to attracting employers. World-class recreation venues in headwaters counties are a vital key.

TRANSMOUNTAIN DIVERSIONS

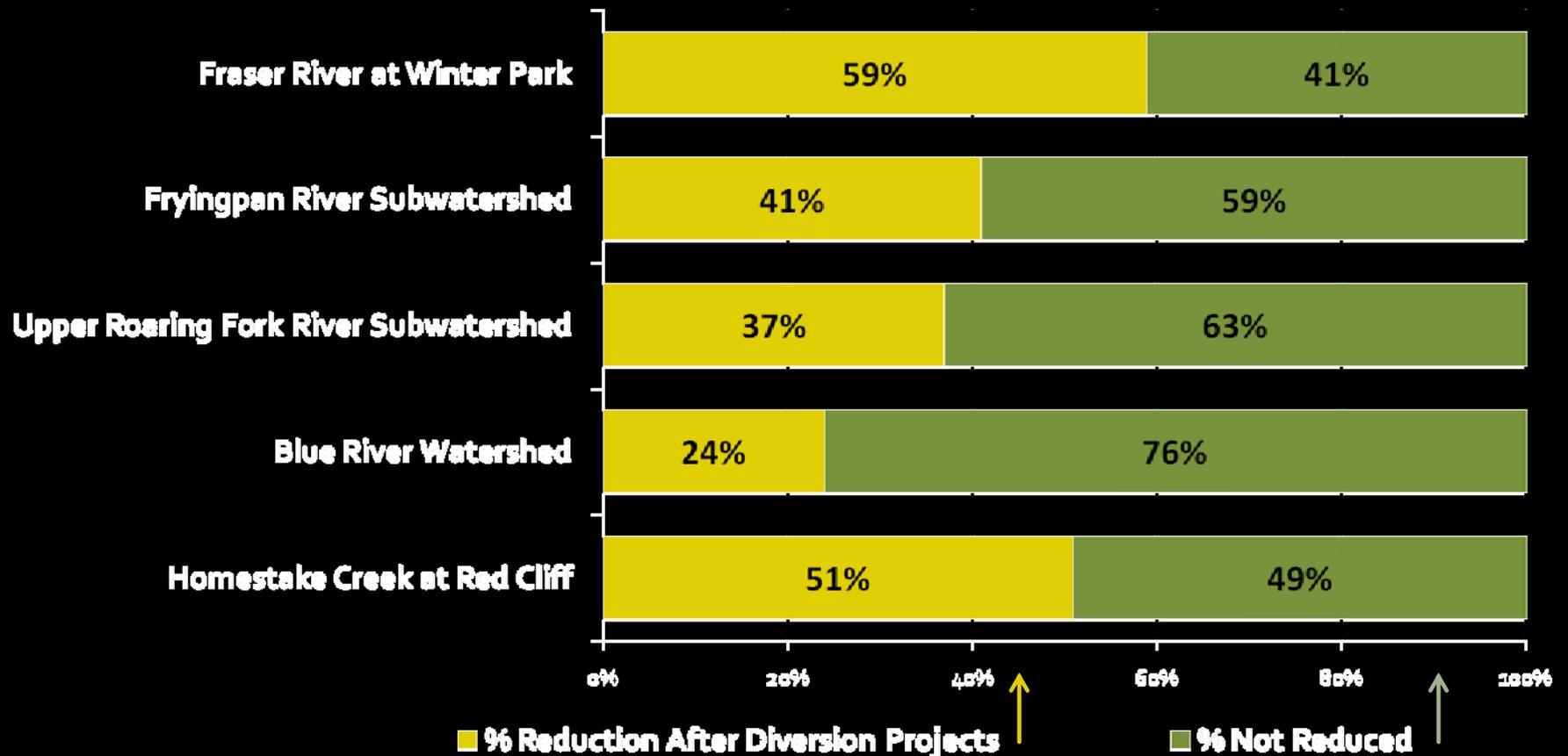


**Estimated Average Annual Acre-Feet Diverted
by Transmountain Diversion Projects
to the East Slope from Headwaters Counties
(25-year history: 1985 – 2010)**



Source: Colorado Division of Water Resources, CDSS Data Base, 25 year historic average

% Streamflow Reductions Principally Attributable to Transmountain Diversion Projects

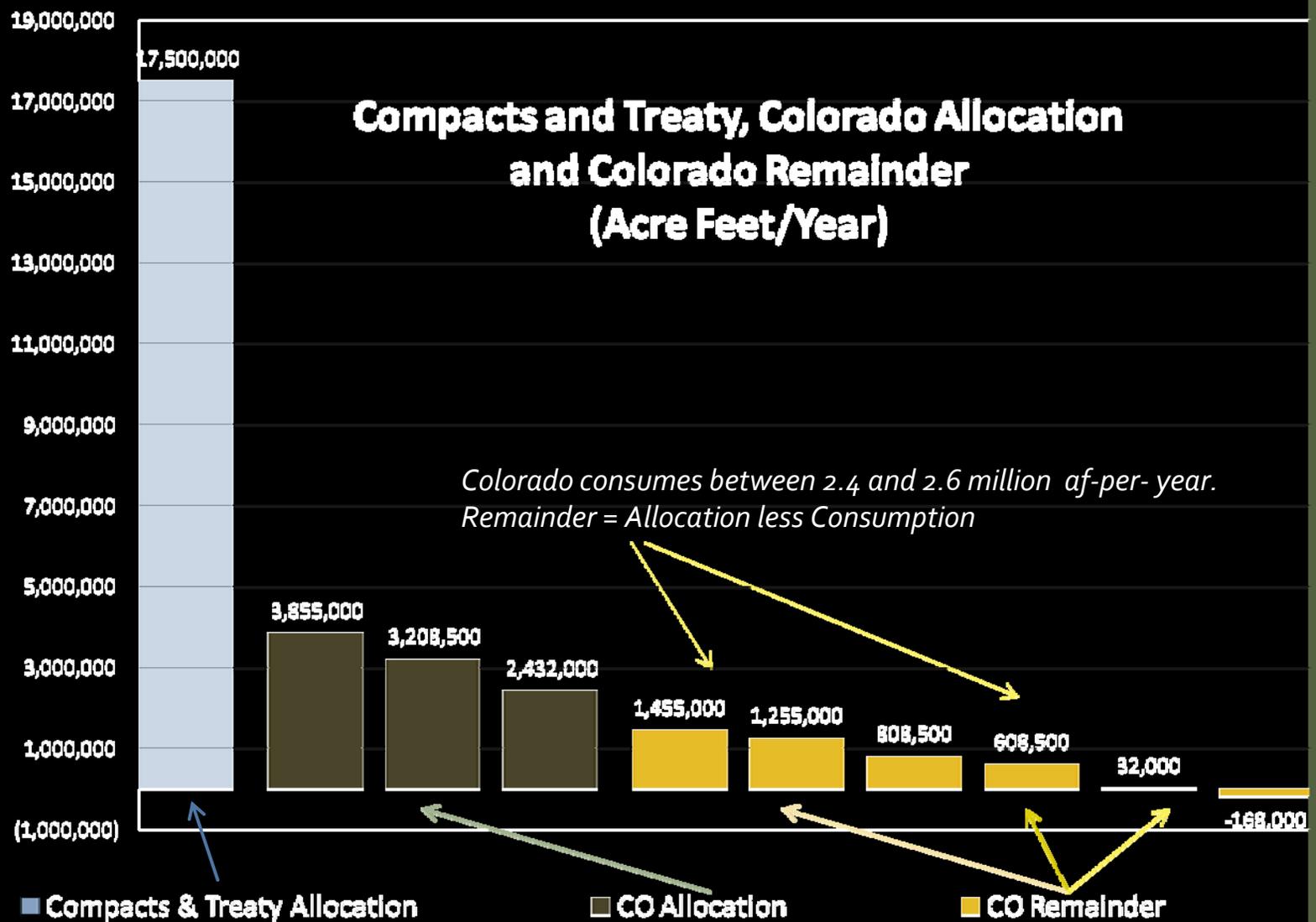


Data from various sources – See report for details.

A TRANSMOUNTAIN DIVERSION STRUCTURE



Jim Creek above and below diversion structure, Grand County



Sources: "The Colorado River – The Story of a Quest for Certainty on a Diminishing River", Eric Kuhn, Colorado River Water Conservation District, Roundtable Edition, 5/8/07 . Consumption estimates: CWCB

SO? / Compromised Impacts

ENVIRONMENTAL IMPACTS AND ECONOMIC CONSEQUENCES FROM WATER DIVERSION PROJECTS

TYPES OF ENVIRONMENTAL IMPACT

- 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

TYPES OF ECONOMIC CONSEQUENCES

- Potential loss of "Gold Medal" fishing status.
- Adverse effects on fishing due to changes in streamflow, water quality and temperature.
- Potential loss of Wild and Scenic River status.
- Less reliable streamflows for kayaking and rafting.
- 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.
- Need to deny rezoning applications due to inadequate future water supply.

CREATIVE & COOPERATIVE SOLUTIONS

- Before 1041 Authority (1974)
- After 1041 Authority (*See below*)

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

- Learning-by-Doing (proposed)
- Colorado River Cooperative Agreement (2011)
- Blue Mesa Plan (2010)
- Wild & Scenic River Determination – Stake'hldr 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)
- Eagle River Memorandum of Understanding (1998)
- Local Voter-Authorized Tax Rate Increases (1995 +)
- Water Conservation (1993)
- Wolford Mountain Reservoir Agreement (1992)
- Clinton Reservoir-Fraser River Agreement (1992)
- Upper CO. Endangered Fish Recovery Program (1988)
- Summit County / Denver Water Agreement (1985)
- QQ Committee of the NWCCOG (1978)

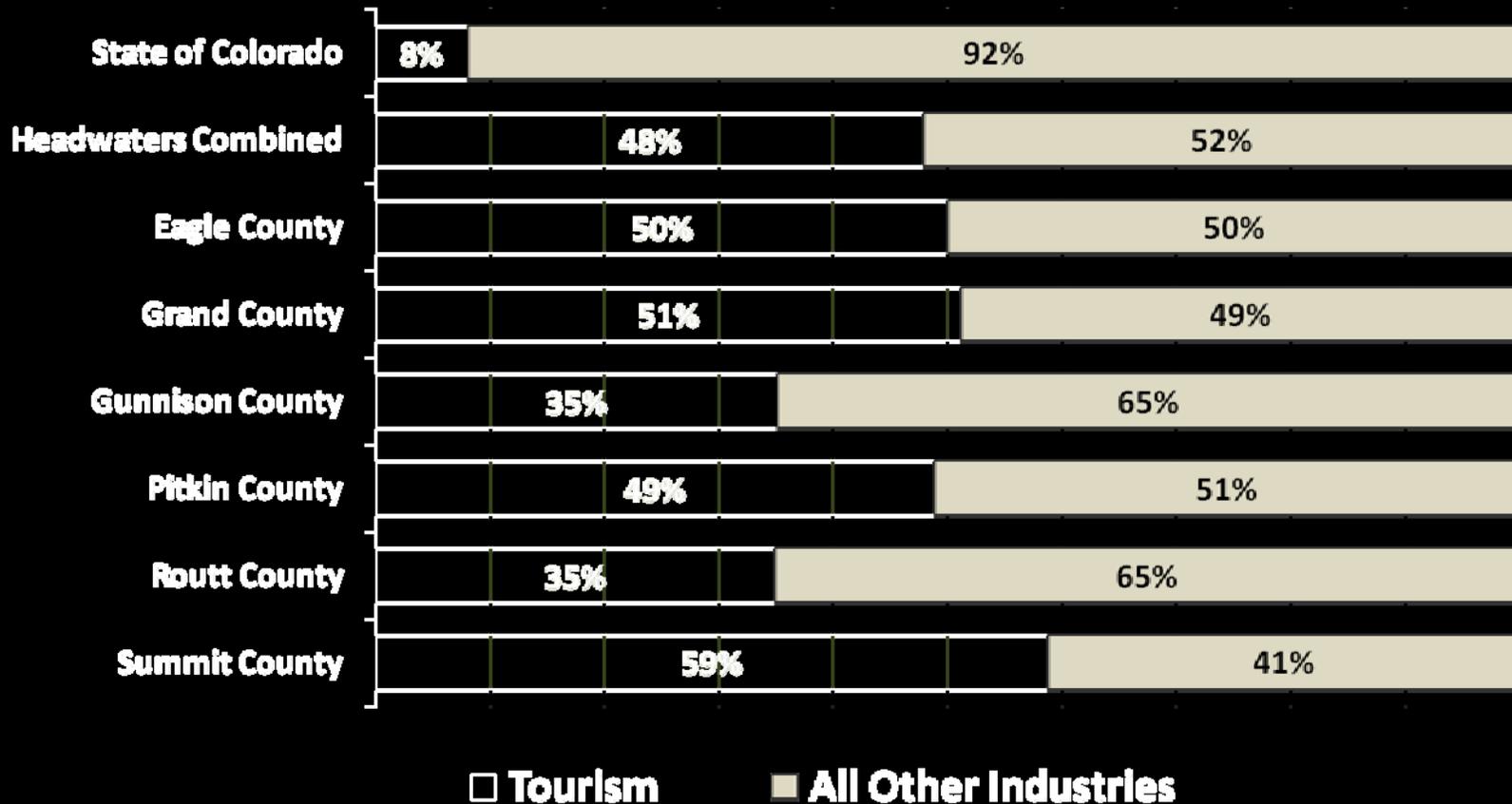
ECONOMIC SECTORS

Tourism, Agriculture & Mineral Resources

- Importance to the local economy
- Relationship to Front Range, Eastern Plains, State
- Reliance on Water

TOURISM

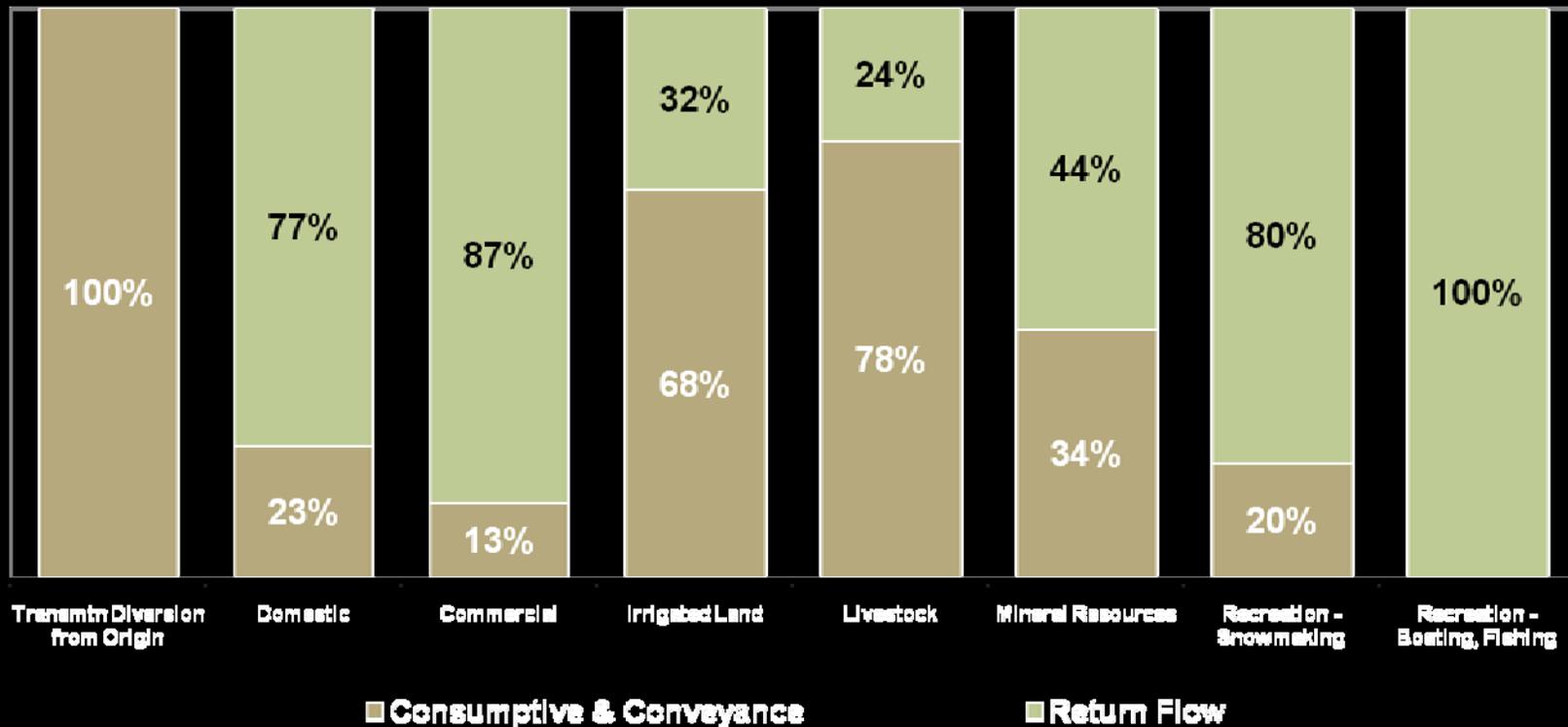
% Jobs in Tourism and All Other Industries



Source: *Tourism Jobs in Colorado*, Center for Business and Economic Forecasting

TOURISM, Minimal Water Resource Footprint

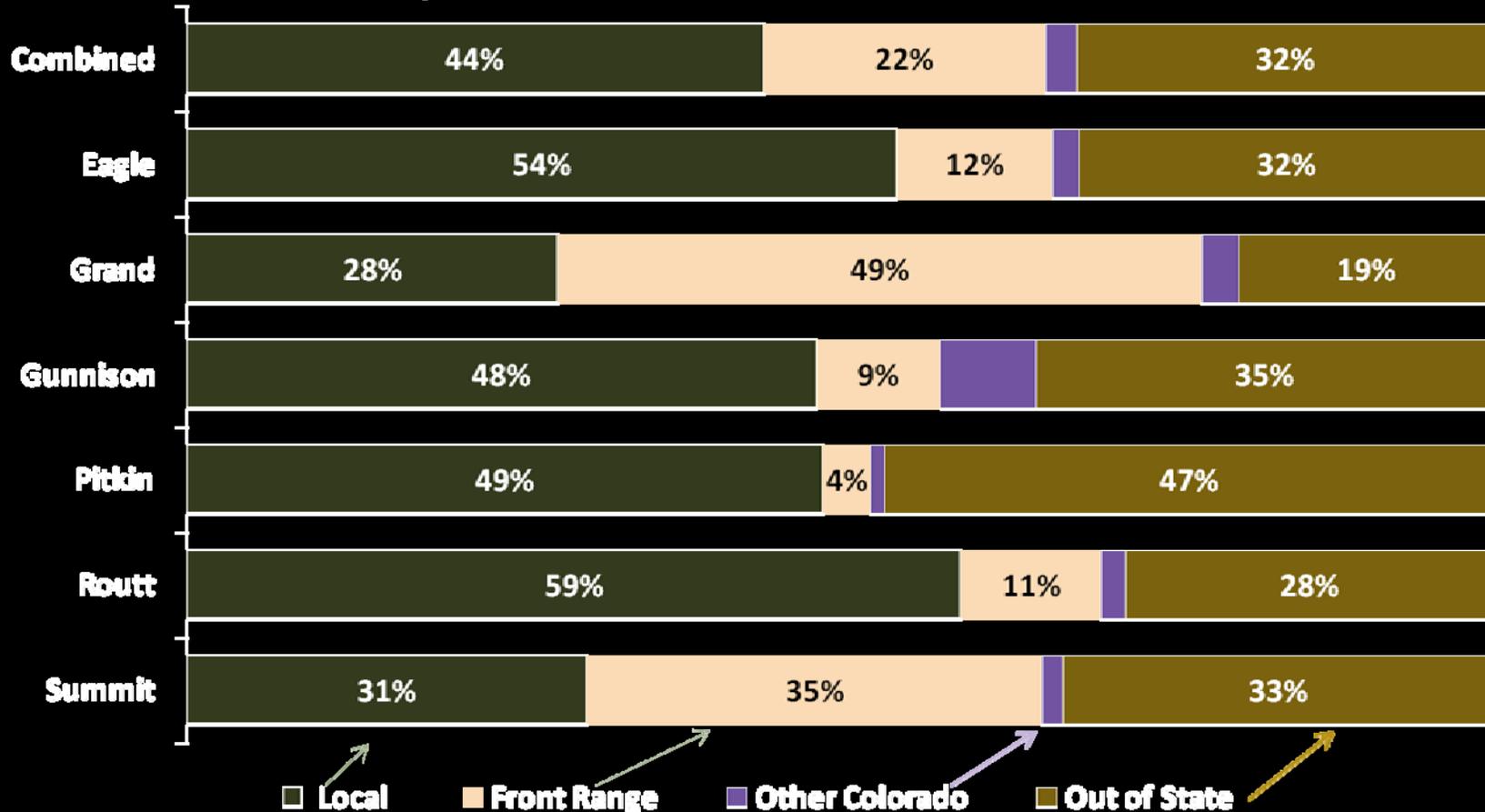
Water Uses: % Consumptive / Conveyance and % Return Flow



Sources: *Estimated Use of Water in the United States in 1995*, Circular 1200, USGS and Individual Ski Areas (Snowmaking)

TOURISM - Statewide Benefits

Primary Residence of Homes Owned - Headwaters Counties



Source: Individual County Assessor Data Bases

TOURISM - Statewide Benefits

FISHING - Total Economic Impact (Statewide, \$1,259,390,000)

Percent spent in Headwaters Counties, Front Range Counties and Remainder



HUNTING - Economic Impact (Statewide, \$502,370,000)

Percent Spent in Headwaters Counties, Front Range Counties and Remainder



Source: *The Economic Impacts of Hunting, Fishing and Wildlife Watching in Colorado*, BBC and the Colorado Division of Wildlife

TOURISM, Work with Resources

- White Water Parks

Gore Creek, Vail,

Teva Mountain Games



- Reservoirs

Dillon Reservoir, Owned by

Denver Water



WATER & TOURISM

- “Wild & Scenic” River
- “Gold Medal” Fishing



Fly Fishing on the Fryingpan River

WATER & TOURISM

- Endangered Rivers
- Inadequate instream flows



Colorado River Below Windy Gap

WATER & TOURISM

- Reservoir & Lake clarity and volume



Grand Lake – Photo by Creative Commons

WATER & TOURISM

Snowmaking – High economic return per 💧

- Average 96 AF of consumptive water per ski area per season
- Assures Nov./ Dec. skiing: jobs + out-of-state holiday trips



Snowmaking at Copper Mountain

AGRICULTURE

Value Often Understated

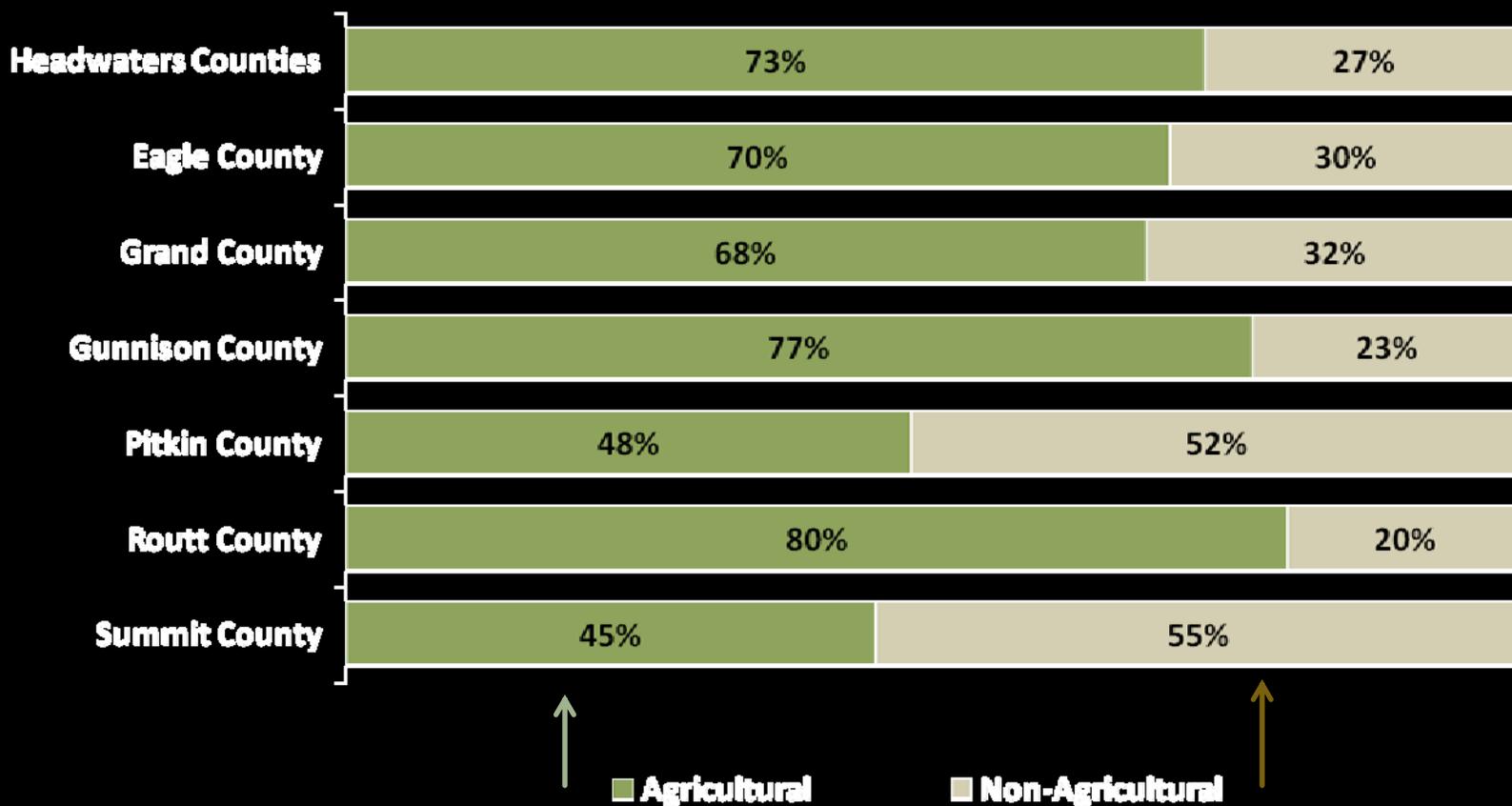
Many attributes are intrinsic and qualitative.

- Part of historic culture
- Dominant private-sector land use
- Complementary relationship to tourism
- Landscape – intrinsic value to residents and visitors
- Return flows sustain late season streamflows for fisheries and recreation
- Cow / calf operations & Eastern Plains feed lots



AGRICULTURE

Private-Sector Land in Headwaters Counties: Percent in Agricultural and Non-Agricultural Land Use



Source: County Assessor databases.

AGRICULTURE & TOURISM

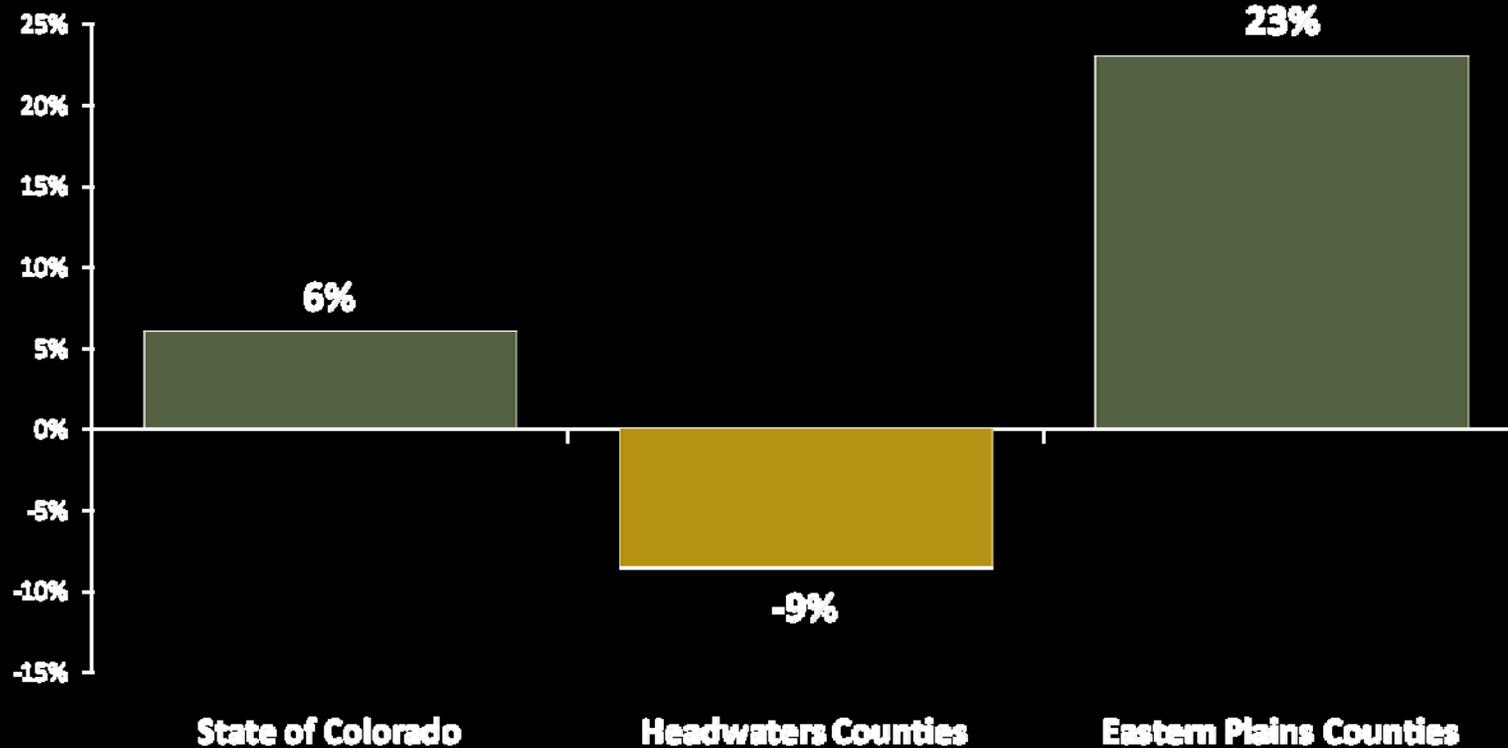
- Winter visitors value agriculture
 - 51% - farms/ranches are an important attribute
 - 83% - valley views are an important attribute
 - 72% - open vistas are an important attribute
 - 54% - would reconsider visit if 25% of ranch land were converted

Source: CSU Survey – Visitors to Gunnison County, March 2003



WATER & AGRICULTURE

% Change in Acres "Land In Farms": 1929 - 2007



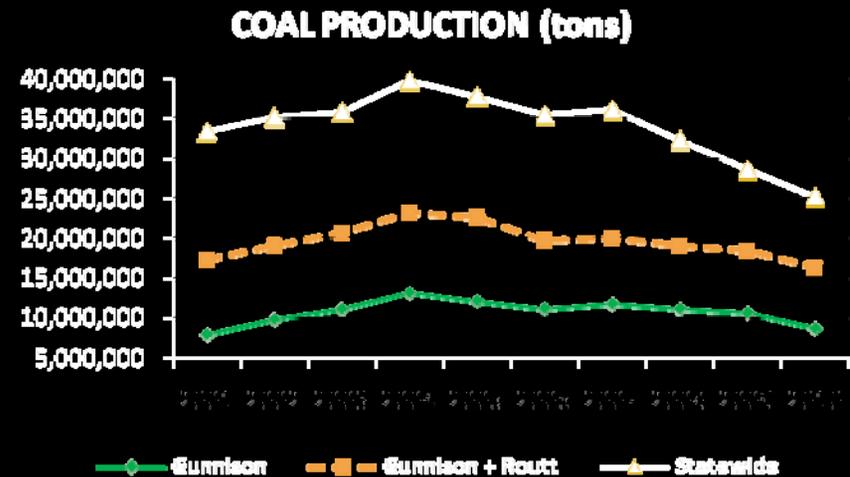
Sources: US Census of Agriculture, 1929 & 2007, US Department of Agriculture

WATER & AGRICULTURE

- Colorado River Compact Calls \Rightarrow junior ag. water rights
- Transmountain Diversion \Rightarrow low flows / irrigation ditch failures
- Low streamflows in high plateaus \Rightarrow reduce to 1 crop per year
- Irrigation practices & rural residential

MINERAL RESOURCE DEVELOPMENT

- Coal (Gunnison & Routt)
- Oil & Gas (Gunnison & Routt)
- Molybdenum (Summit & Grand)
- Rare Earth Minerals (Gunnison)



- Low # of jobs – High salaries
- High assessed valuation
- Oil & Gas / Oil Shale – Potential major changes ahead

WATER & MINERAL RESOURCES

■ Extraction via Fracking

- Renewed interest in Gunnison, Pitkin and Routt Counties
- Indigenous water table supply
- Water quality concerns



■ Water Demand

- White River basin may have sufficient water with some storage improvements.
- Energy companies might purchase water from agricultural interests or from the BLM / Ruedi Reservoir.

WATER & Water & San Districts

- Water temperature increases and lower streamflows triggered by diversion projects make it more difficult to achieve State water quality discharge minimums.
- State imposes standards and penalties on dischargers (local districts) not diverters.
- Created concerns in Eagle, Grand, Pitkin and Summit.



KEY MESSAGES

- ▶ Front Range water users, Eastern Plains agricultural properties and Statewide economic developers benefit directly from healthy headwaters county economies ... numerous, mutually supportive economic relationships.
- ▶ Water in its natural stream course is essential to economies of headwaters counties. Headwaters counties' water needs are primarily nonconsumptive.
- ▶ Headwaters counties are already compromised from historic diversions. Diverting more water without full mitigation will have local and statewide adverse economic consequences.

KEY MESSAGES, continued

- ➔ Historical strategies to manage remaining water may not work in the future. We may be near the environmental “tipping point.”
- ➔ Moving forward, future transmountain diversions from the headwaters counties should only be approved after close coordination with interests in the basin-of-origin and robust mitigation of environmental and socioeconomic impacts.
- ➔ There are creative management solutions to be explored and activated. West Slope and East Slope interests have a strong history of creative and cooperative problem-solving.



Taylor River, Gunnison County