
MIDDLE COLORADO – INTEGRATED WATER MANAGEMENT PLAN

BOOKCLIFF, MT. SOPRIS, AND SOUTHSIDE CONSERVATION DISTRICTS

PRESENTED TO AG WATER WORKSHOP, MARCH 2, 2022 – PARACHUTE, CO

Bookcliff, Mount Sopris & South Side
Conservation Districts



PLANNING EFFORT

- Advisory Committee
 - Mission and goal setting
 - Collaborative decision-making to ensure all stakeholders needs addressed
- Focus Groups
 - Develop planning objectives
 - Understand risks and needs
 - Recommend actions to address specific stakeholder needs
- The Middle Colorado is the first IWMP; an alternative to traditional Stream Management Planning.



FOCUS GROUPS

- Aquatics
- Recreation
- Water Quality & Riparian Areas
- Consumptive Use



WHO DID THIS WORK?

- Grassroots Effort
- Local government, water conservancy and conservation districts, state and federal natural resource management agencies, non-profits, private industry, local outfitters, consultants, and private citizens.
- 2,500 hours of volunteer time
- 35 public meetings



IWMP MISSION STATEMENT

- To improve security for all water uses in the Middle Colorado River by understanding and protecting existing uses, meeting shortages, and promoting healthy riverine ecosystems and agriculture in the face of increased future demand and climate uncertainty.



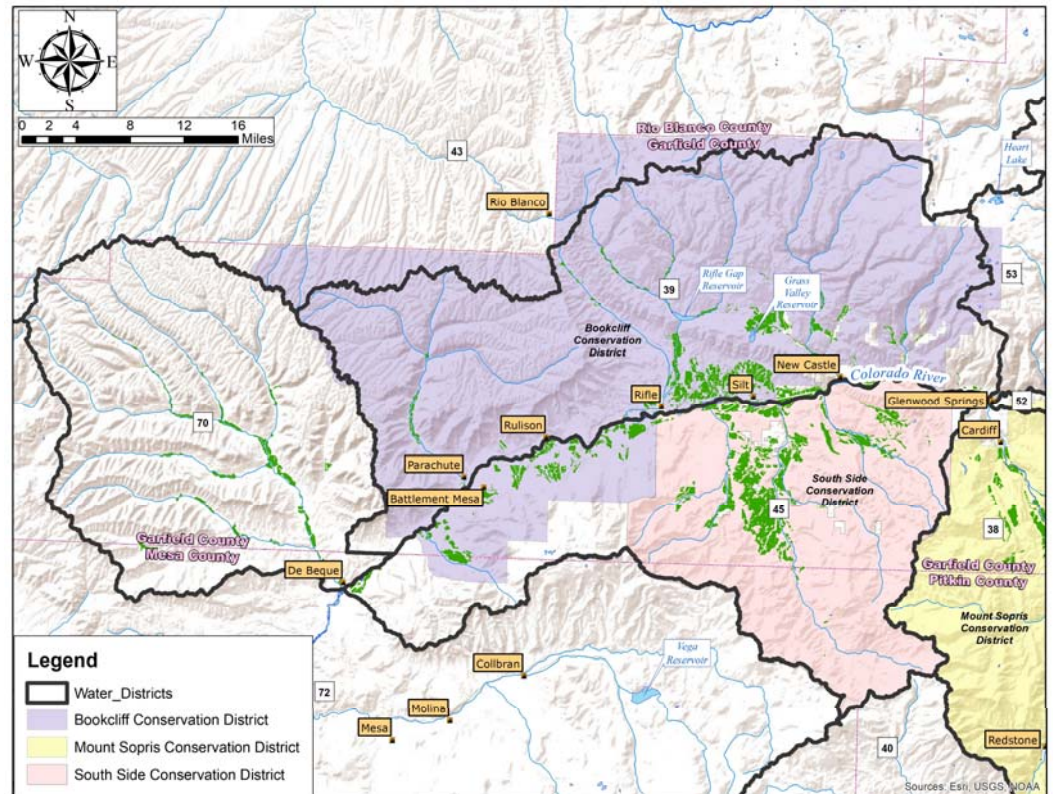
IWMP GOALS:

- Foster a collaborative approach to water management through shared stewardship.
- Protect existing water uses and secure future water supplies
- Maintain, or enhance where appropriate, healthy watersheds, rivers, and streams
- Enhance and promote responsible recreational use of local streams and rivers
- Promote, preserve, and protect agriculture
- Increase resiliency in the regional water supply
- Promote a resilient and diverse economy
- Plan to adaptively meet impacts of a changing climate




























CONSUMPTIVE USE

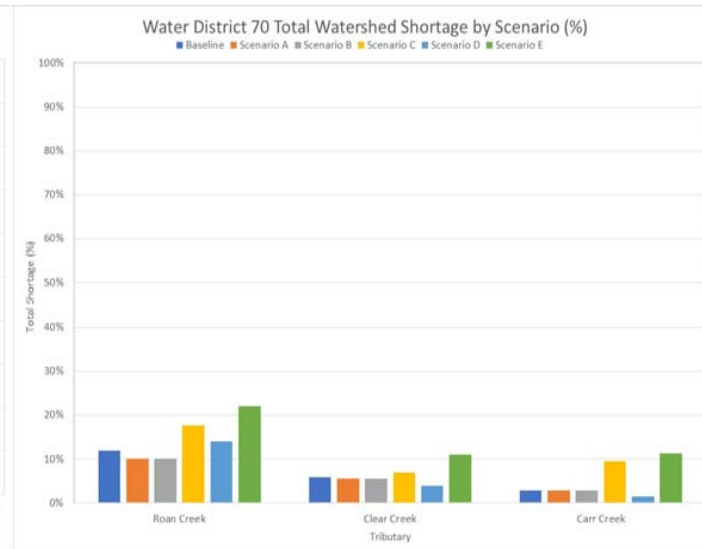
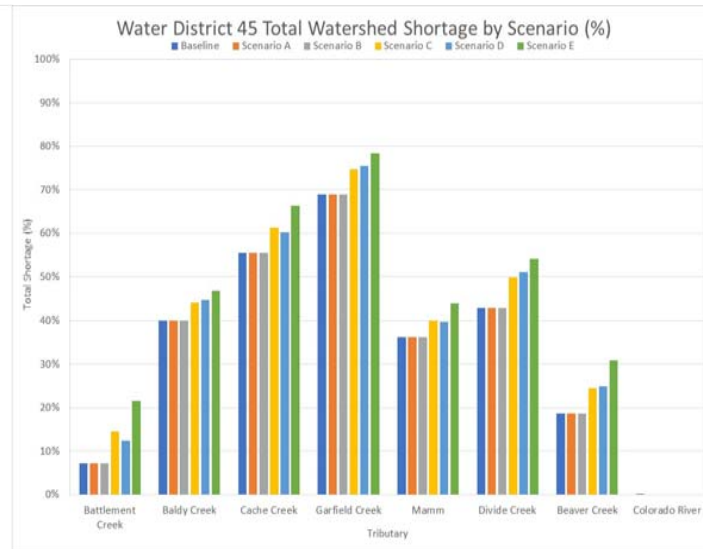
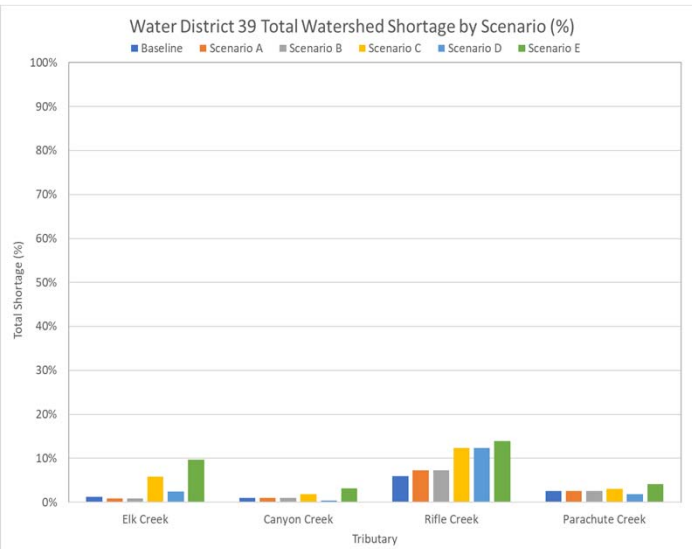
- Water supply, demand, and shortages assessed for Agricultural and Municipal uses
- Relied on Colorado Water Plan Technical Update datasets
 - Scaled results for each represented tributary
- Assessed by Water District
 - 39 – North of the River
 - 45- South of the River
 - 70 – Roan Creek



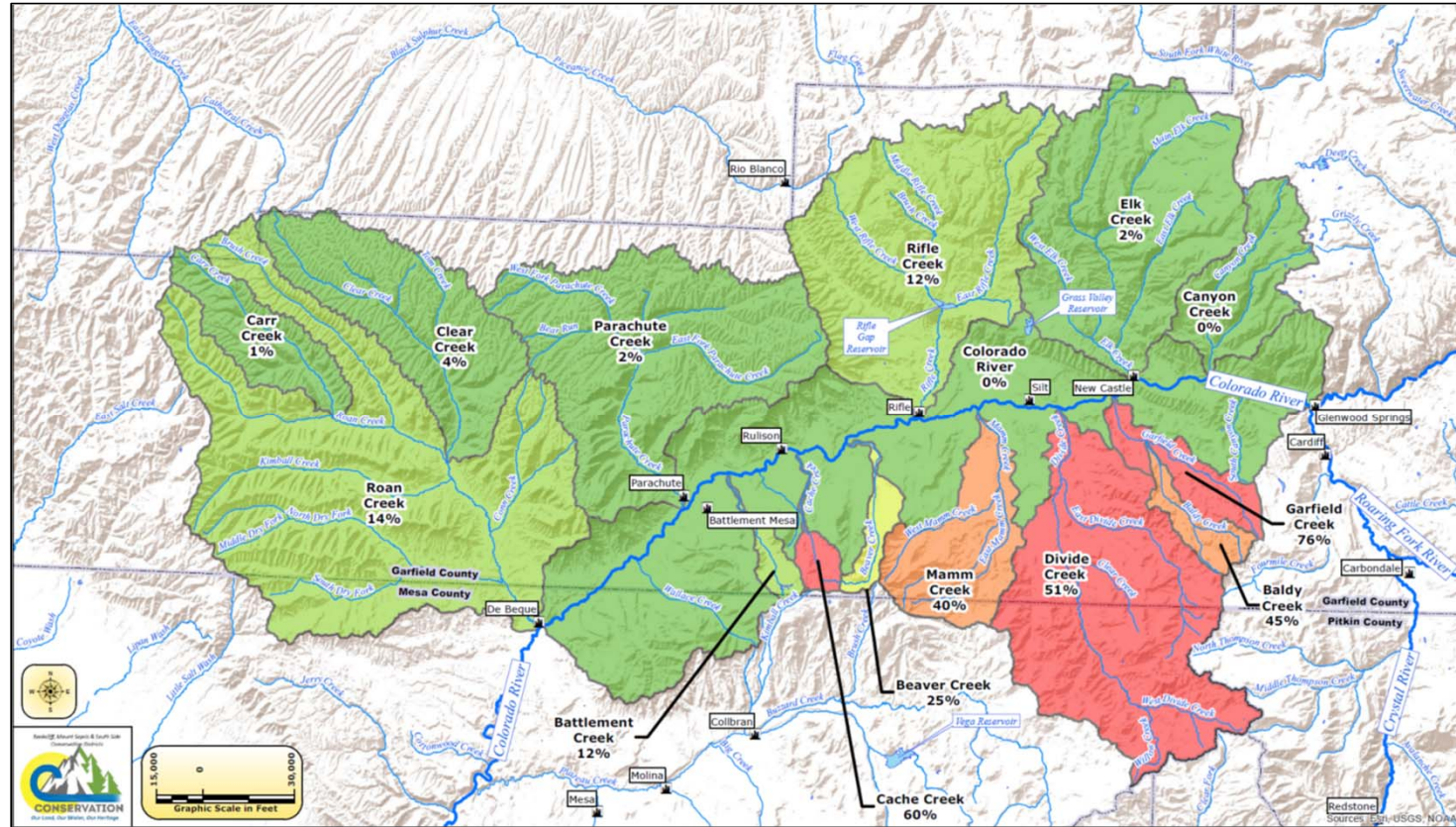
WATER PLAN TECHNICAL UPDATE PLANNING SCENARIOS

	A Business as Usual	B Weak Economy	C Cooperative Growth	D Adaptive Innovation	E Hot Growth
Water Supply					
Climate Status					
Social Values					
Agri. Needs					
M&I Needs					

AGRICULTURAL WATER SHORTAGES

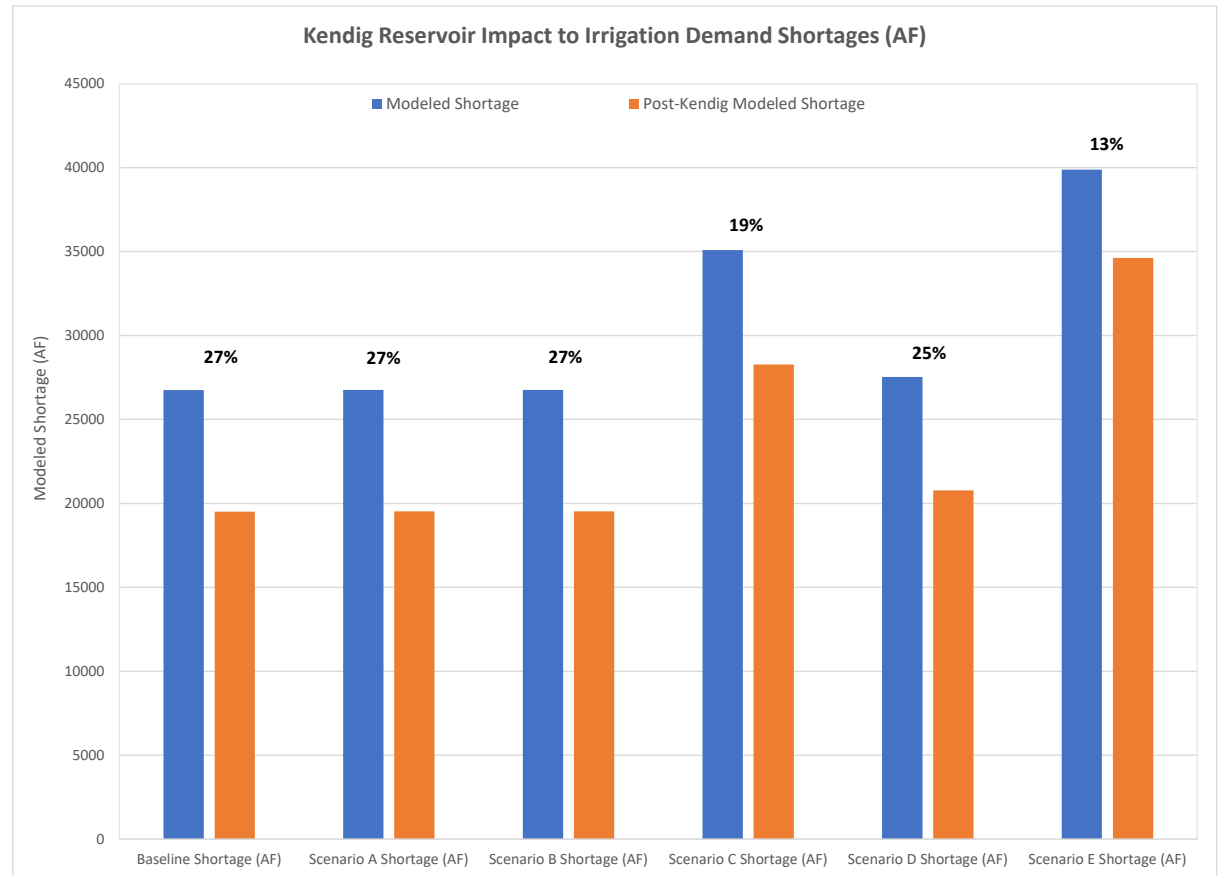


- Results for Planning Scenario D (Adaptive Innovation)
 - Similar across future planning scenarios
- Largest shortages found on Garfield, Baldy, Divide, Mamm, and Cache Creeks
 - These areas would benefit most from additional water supply planning efforts to reduce shortages
 - Incentivizing efficiency upgrades is difficult in these areas without reliable supplies



EXAMPLE: KENDIG RESERVOIR

- Model development to understand how much Kendig Reservoir can decrease shortages in West Divide/Divide Creek basin
- Utilize scaled demand data and available streamflow data from WPTU by scenario.
- Model 16,500 AF reservoir
- Shortage reduction 13-27% or roughly 5,000 to 7,000 AF

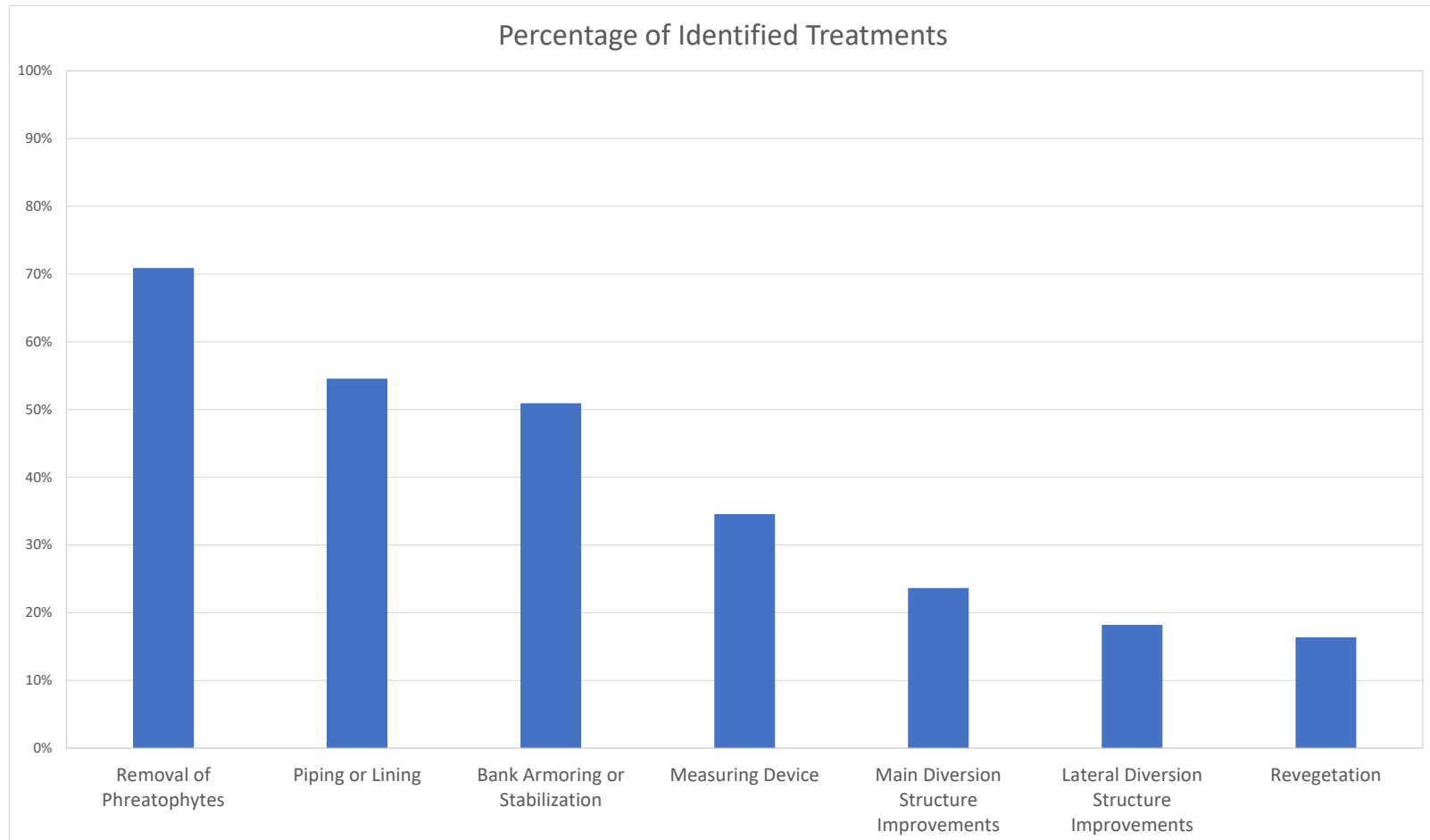


AGRICULTURAL INFRASTRUCTURE ASSESSMENT

- Infrastructure Assessment conducted for landowners in the Middle Colorado Watershed
 - Ditch was walked by a Conservation Technician documenting headgates, measuring devices, conveyance channel, laterals, culverts, etc.
 - ~60 structures and 200 miles of ditch walked
 - Inventories returned to landowners documenting the structure and recommended practices to address identified concerns
 - Provided all available information pertaining to their structure/water right
 - Summary of available funding sources to aid landowners in infrastructure improvements
 - Provided start of ditch notebooks intended to ensure continuity in future operations



MOST COMMON TREATMENTS RECOMMENDED



IDENTIFY HIGH PRIORITY STRUCTURES FOR FISH BYPASS

- Work with CPW/TU to prioritize structures based on:
 - Proximity to confluence with Colorado River
 - Benefited fish species
 - Some tributaries were selected to keep fish blockage in place : Roan Creek, Mitchell Creek, Divide Creek
 - Isolate native species
 - Prevent disease spread

<u>Tributary</u>	<u>Structure</u>	<u>Location Description</u> River=Colorado River main-stem.	<u>Benefitted Fish Species</u> Salmoniformes=Brn., RB, CRC, WF Cypriniformes=Blueheads, FM, RT	<u>Priority for Fish Passage Work</u>
Canyon Creek	Wolverton Ditch	0.78 mi from River	Salmonids, some Cyprinids	High
Canyon Creek	Johnson Ditch	0.85 mi from River	Salmonids, some Cyprinids	High
Canyon Creek	Mings Chenoweth Wolverton Ditch	0.9 from River	Salmonids, some Cyprinids	High
Elk Creek	Thompkins	2.7 miles from the River, upstream of confl with East Elk	Salmonids, some Cyprinids	High
East Elk Creek	Coryell	1 mile from Main Elk	Salmonids, some Cyprinids	High
Rifle Creek	Squier Ditch	0.36 mi from River	Cyprinids	High
Rifle Creek	Pioneer Ditch	0.52 mi from River	Cyprinids	High
Divide Creek	Multa-Flexa AP	0.43 mi from River	Cyprinids	High
Divide Creek	Ward and Reynolds	1.8 mi from River	Cyprinids	High
Garfield Creek	Moore Ditch	0.25 mi from River	Cyprinids	High
Garfield Creek	Harrington Ditch	0.58 mi from River	Cyprinids	High
Garfield Creek	Garfield Co Road #312 Culvert	0.80 mi from River	Cyprinids	High
Garfield Creek	Hudson and Sullivan	3 mi from River	Cyprinids	High
Roan Creek	Reservoir Ditch	5 mi from River	Cyprinids	High
Parachute Creek	Diamond Ditch	1.9 mi from River	Cyprinids	High
Parachute Creek	Cornell Ditch/Daisy Ditch	3.4 mi from River	Cyprinids	High
Parachute Creek	Vieweg Ditch	4.7 mi from River	Cyprinids	High
Mitchell Creek	West Glenwood Muni Divr	0.4 mi from River	Salmonids, some Cyprinids	High
Mitchell Creek	Reynolds and Cain Ditch	0.5 mi from River	Salmonids, some Cyprinids	High
Mitchell Creek	Burton Ditch	0.5 mi from River	Salmonids, some Cyprinids	High
Mitchell Creek	Nott No 2 Ditch	0.6 mi from River	Salmonids, some Cyprinids	High
Mitchell Creek	Nott No. 1 Ditch	0.8 mi from River	Salmonids, some Cyprinids	High
Grizzly Creek	Glenwood Springs Muni Diversion	3.0 mi from River	Salmonids, some Cyprinids	High
No Name Creek	Glenwood Springs Muni Diversion	0.5 mi from River	Salmonids, some Cyprinids	High
Mamm Creek	First structure is 3+ miles upstream		Salmonids, some Cyprinids	High

MUNICIPAL WATER SUPPLIES

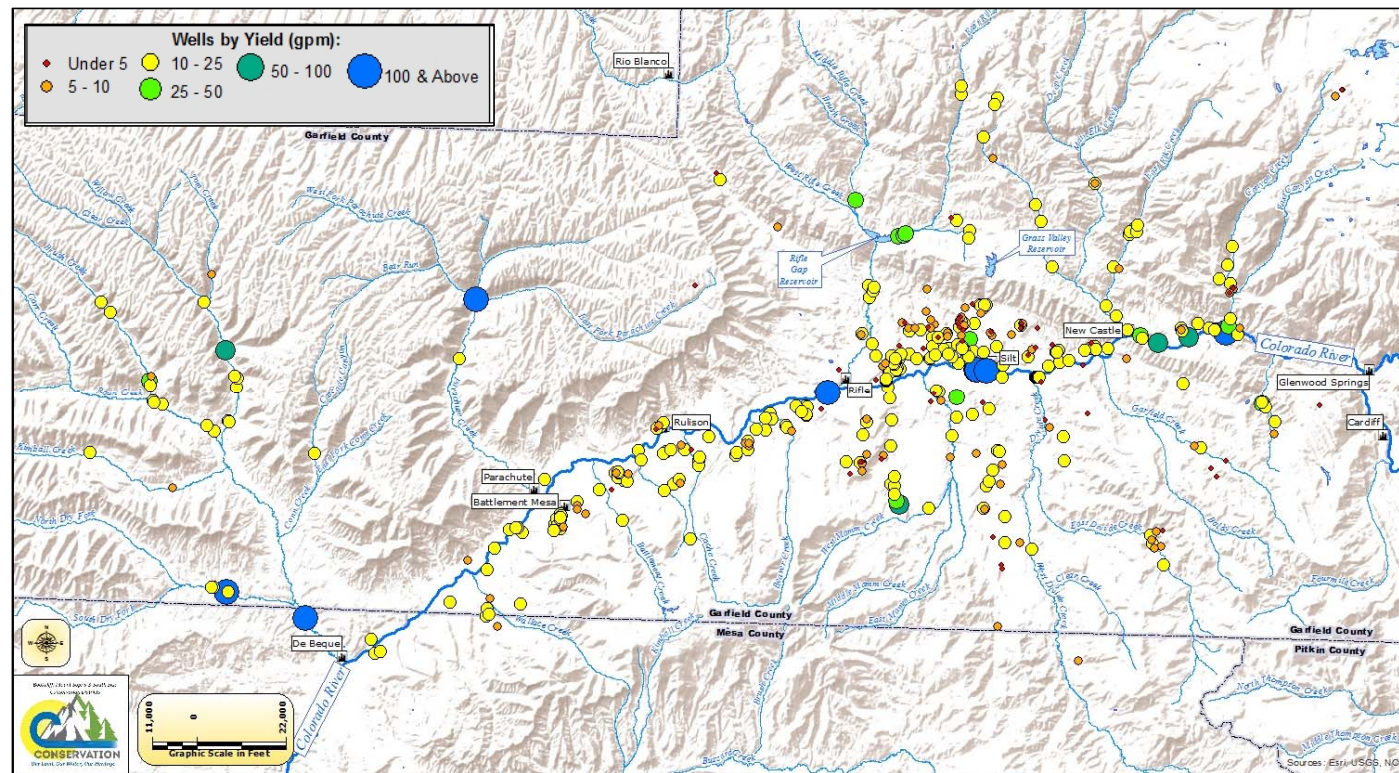
- Water Plan Technical Update data analyzed
 - Rifle and Glenwood Springs were explicitly modeled.
 - Rifle showed shortages in baseline and planning scenarios based on modeling error
 - Rifle reports 13% demand reduction between 2010 and 2017 attributed to water saving measures
 - CBRT should work with CWCB to resolve modeling issue
 - No other municipalities showed shortages
- Risks to Municipal Supplies
 - Heavy reliance on Colorado River as source
 - Contamination threats
 - Heavy reliance on Ruedi Reservoir for augmentation supplies
 - Wildfire and post-fire issues
 - Glenwood Springs example



New plating at the Glenwood Springs water intake on Grizzly Creek was installed by the city to protect the system's valve controls and screen before next spring's snowmelt scours the Grizzly Creek burn zone and potentially clogs the creek with debris. (Provided by the City of Glenwood Springs via ColoradoSun.com)

RURAL GROUNDWATER SUPPLIES

- Analysis of available well yield information
 - Wells drilled from 2000-current
 - Understand areas where groundwater supplies for domestic wells are limited
 - Silt Mesa
 - Grass Mesa
 - Dry Hollow
 - Importance of Bulk Water Hauling Stations



MUNICIPAL BULK WATER HAULING

- Silt, Rifle, and Parachute operate bulk water hauling stations for rural domestic water users
- Many rural users have cisterns to store well water and supplement with hauled water
- Data shows local municipalities provide ~12-28 acre-feet of water annually, on average
- New Castle recently began operation of a bulk water station



Municipality	Average Annual Bulk Water Sales (AF)
Parachute	11.7
Silt	28.1
Rifle	15.9

CONSUMPTIVE USE RECOMMENDED ACTIONS

- CONS1 – Coordinated Agricultural Infrastructure Upgrades
- CONS2 - Streamflow Monitoring
- CONS3 – Support for Kendig Reservoir
- CONS4 - Support Colorado River District
- CONS5 - Encourage Keeping Water Rights Tied to Land
- CONS6 - Local Water Market
- CONS7 - Pilot Local Market for Agricultural Products
- CONS8 - Limit out of Basin Water Exports
- CONS9 – Connect Ag Producers with Funding
- CONS10 – Educational Opportunities of ATMs
- CONS11 - Multi-Benefit Water Storage
- CONS12 – Demand Management Investigations
- CONS13 - Irrigation Scheduling Study



SUMMARY

- Agriculture is Colorado's largest water user and consumer
 - Adaptation to changing market forces and reduction to water supplies
 - Resilience is needed to continue to be stewards of the land & water to ensure future production year after year
 - Dry-up of agricultural lands impacts production, working landscapes, pastoral viewsheds, rural economies, and wildlife habitat

