

The Fryingpan- Arkansas Project



One of the largest trans-basin water diversions in Colorado,

the Fryingpan-Arkansas Project provides the infrastructure that makes the VFMP possible. Constructed and operated by the U.S. Bureau of Reclamation, the project includes the Boustead Tunnel, which delivers roughly 70,000 acre-feet of water annually from the Western Slope to Turquoise Lake near Leadville.

About 10 miles downstream, the bureau enlarged Twin Lakes Reservoir for water storage and power generation. The Fry-Ark Project's upper reservoirs also include the Mount Elbert and Clear Creek impoundments. Pueblo Reservoir, the largest of the Fry-Ark water storage reservoirs, lies some 150 miles downstream.

Through the VFMP, owners of Fry-Ark Project water agree to release up to 10,000 acre-feet of water from the upper reservoirs to benefit whitewater recreation during the summer. Water owners also agree to limit water releases during spring months to benefit the upper Arkansas River's Gold Medal fishery.

The key to the success of the VFMP is this ability to move water down the Arkansas River without the owners losing the use of their water. As a result, the Arkansas River between Pueblo Reservoir and the upper Fry-Ark reservoirs includes the longest stretch of Gold Medal trout water in Colorado and the most popular recreational whitewater in the country.

KEY ORGANIZATIONS

U.S. Bureau of Reclamation. The Bureau of Reclamation plays a key role in the Voluntary Flow Management Program as the agency responsible for operating the Frying Pan-Arkansas Project infrastructure. This role includes operating reservoir dams to maintain desired river flows.

Southeastern Colorado Water Conservancy District. The conservancy district owns the Western Slope water imported by the Fryingpan-Arkansas Project. The district commits up to 10,000 acre-feet of that water each year to the VFMP, depending upon availability.

Colorado Parks and Wildlife. As the recreation manager for the Arkansas Headwaters Recreation Area State Park, CPW plays an important role in monitoring river flows. As the fishery manager for the Arkansas River, CPW provides the scientific expertise to optimize flows for a healthy aquatic ecosystem.

Arkansas River Outfitters Association. The outfitters' association represents the interests of the recreational boating industry in VFMP discussions.

Trout Unlimited. Local members of this nonprofit group provide advocacy for the Arkansas River fishery as it relates to the VFMP.

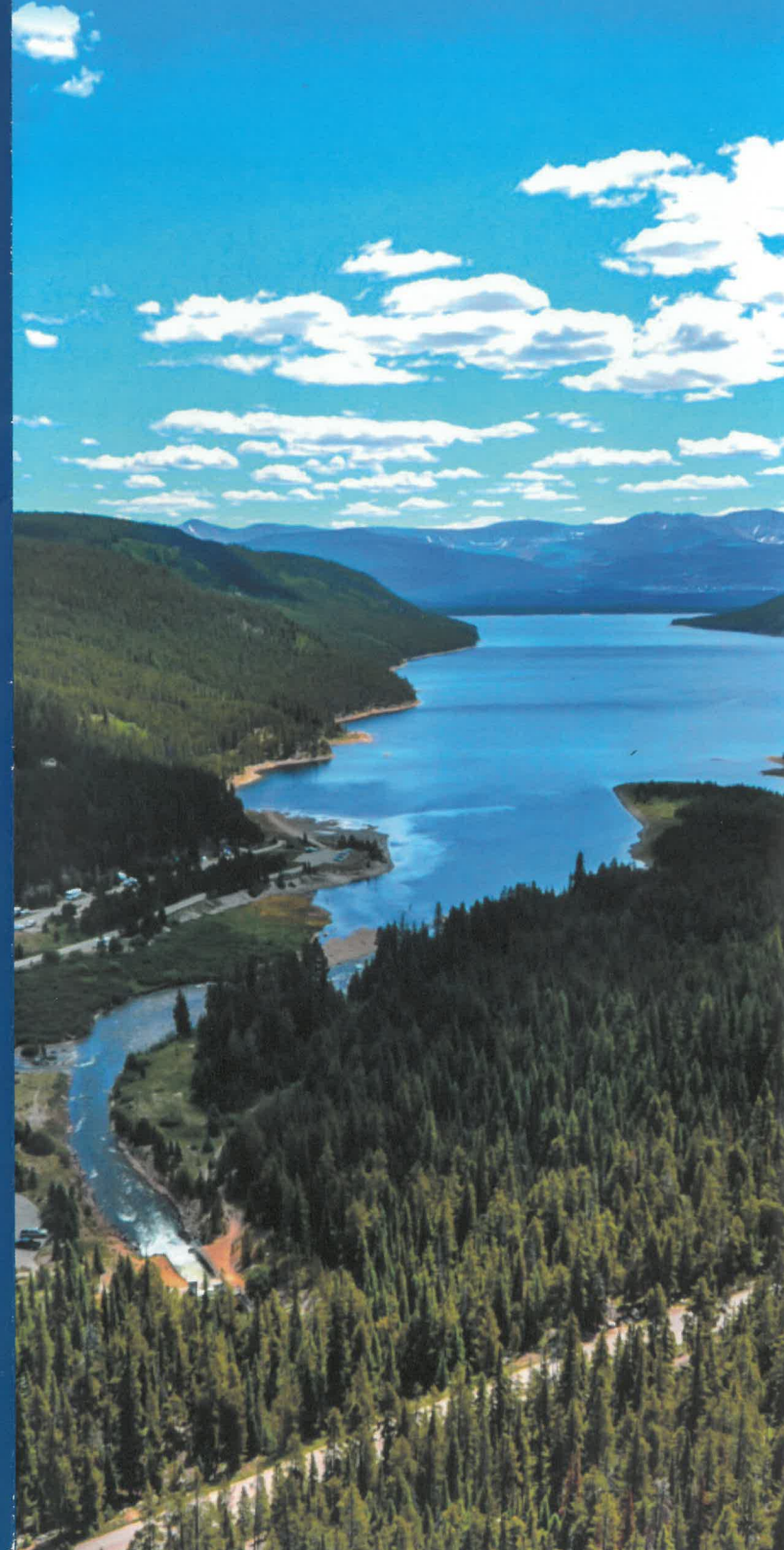
Chaffee County. Local Government.



Funding by the Colorado Water Conservation Board

Produced by the Public Education, Participation and Outreach Workgroup of the Arkansas River Basin Roundtable

The VOLUNTARY FLOW Management Program on the Upper Arkansas River



Colorado Water Rights

To understand how the Voluntary Flow Management Program works, it helps to know a little about water rights in Colorado. Water in Colorado is owned by "the people" and is subject to appropriation for "beneficial use." Putting the water to beneficial use creates a private property right.

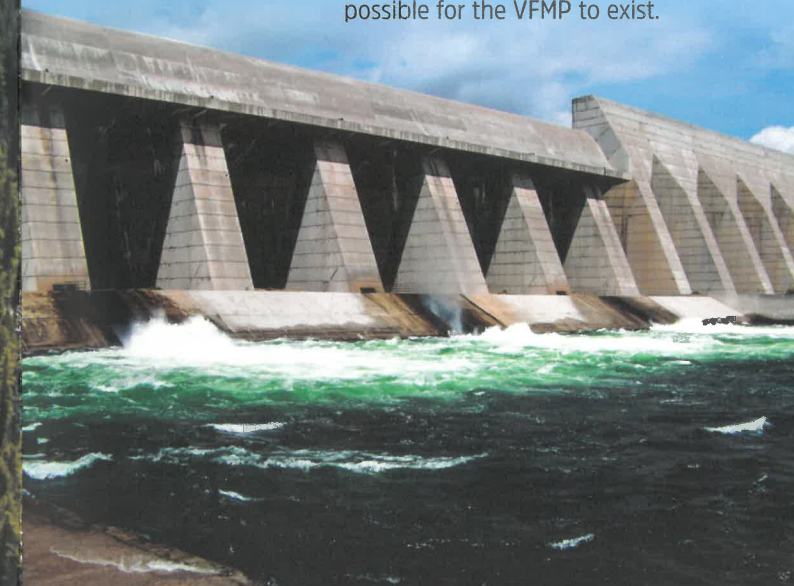
Mining operations were some of the first to claim water rights in Colorado, and while most mining operations were short-lived, they helped establish Colorado's Prior Appropriation system of water rights.

According to the Prior Appropriation system, water users with earlier water right decrees hold a "senior" right and can take water to meet their needs before holders of more recent or "junior" rights.

Colorado water law defines beneficial use as a lawful appropriation of water using reasonably efficient practices to put the water to use without waste. Water uses recognized as "beneficial" have expanded through the years and include irrigation, municipal, industrial and recreational uses.

In this context, the VFMP supports in-stream water uses. Because in-stream-flow rights are far junior to most other water rights, they almost never take priority. The VFMP utilizes the non-consumptive attributes of senior water rights and water from trans-basin diversions as this water is moved from upper basin storage reservoirs to lower basin reservoirs. This voluntary management and delivery of water does not require an in-stream flow right and maximizes the beneficial use of the water by providing multiple benefits for multiple uses.

The Arkansas Basin is unique due to the considerable number of trans-basin diversions (water imported from the Western Slope). Irrigators developed these diversions, storage reservoirs and water management techniques to efficiently utilize their water rights and maximize beneficial use. Today, this water infrastructure makes it possible for the VFMP to exist.



Collaborating for Maximum Benefit

The VFMP represents 25 years of phenomenally successful collaboration between local, state and federal organizations to maximize the beneficial uses of water in Colorado's Arkansas River Basin.

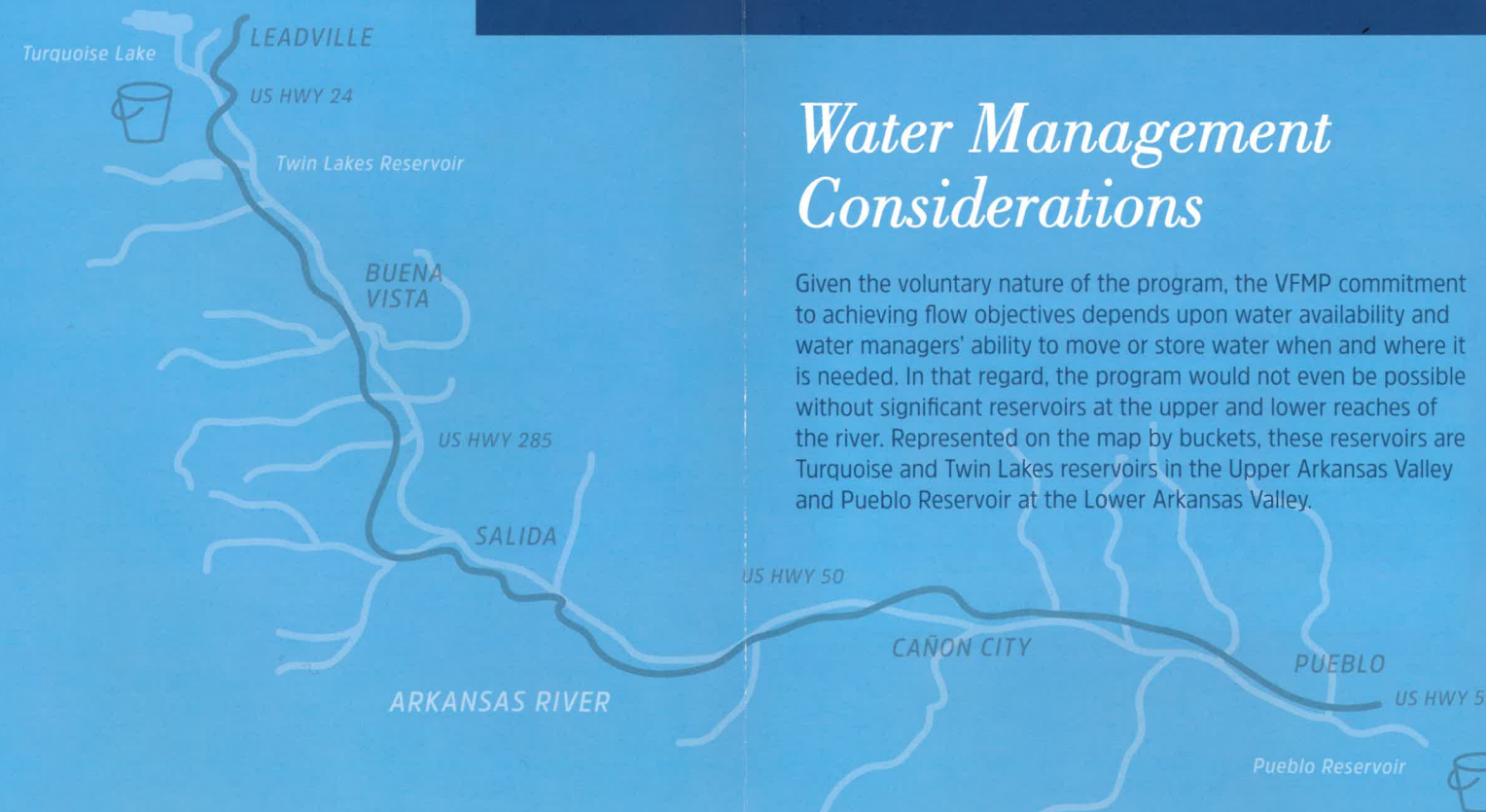
The most visible VFMP benefit is the extended boating season on the upper reaches of the Arkansas River. By maintaining targeted river flows from July 1 through Aug. 15, the program ensures consistent recreational boating opportunities. This consistency contributes to the river's status as the most boated whitewater river in the country, which translates into a flourishing recreation economy that enriches the communities in the Upper Arkansas Valley.

Just as important, the VFMP also manages river flows to benefit the Arkansas River fishery. While the fishery once suffered from mining pollutants, it now boasts Gold Medal status thanks to environmental cleanup efforts and better management of flows through the VFMP. As aquatic biologist Greg Policky with Colorado Parks and Wildlife noted, "High flows are tough on fish."

So while rafting companies need higher flows to keep rafts from running aground during peak summer season, fish need lower flows, especially prior to spring runoff, to maintain a healthy fishery. Healthy trout development requires river flows in the optimal range prior to runoff. This water management practice allows yearlings to become established, optimizes feeding conditions and strengthens fish prior to the challenge of high flows during spring runoff.

The Voluntary Flow Management Program is a national example of what can happen when people take the time to listen to one another, understand each other's needs and then work with that knowledge to attain as much good as possible from every drop of water we receive. Collaborative success like this is the very definition of "community."

— Greg Felt, fly-fishing outfitter,
Southeastern Colorado Water Conservancy District director



Water Management Considerations

Given the voluntary nature of the program, the VFMP commitment to achieving flow objectives depends upon water availability and water managers' ability to move or store water when and where it is needed. In that regard, the program would not even be possible without significant reservoirs at the upper and lower reaches of the river. Represented on the map by buckets, these reservoirs are Turquoise and Twin Lakes reservoirs in the Upper Arkansas Valley and Pueblo Reservoir at the Lower Arkansas Valley.

FISHERY Flow Management

Some of the attributes that boaters enjoy most about the Arkansas River are also challenges for the river's trout fishery. In particular, the steep gradient and confined channel mean that increases to the volume of water in the river result primarily in an increase in flow velocity. Swifter flows negatively impact trout fry growth, physical conditioning and ability to feed.



In response to this challenge, the VFMP seeks to manage water by utilizing upstream storage vessels to reduce flows to the optimal range for trout, 250-400 cubic feet per second, during the spring prior to runoff. This allows for the young trout to become established and provides optimal feeding conditions and strong fish conditioning prior to spring runoff. It also generates excellent conditions for visiting anglers, contributing to the local economy at a time of low visitation.

2006: Small Drought. In 2006, there was very little rainfall in the lower Arkansas Valley until July 1. Snowpack was good, however, and Fry-Ark Project imports were above normal. Adequate early flows had to be augmented after mid-July.

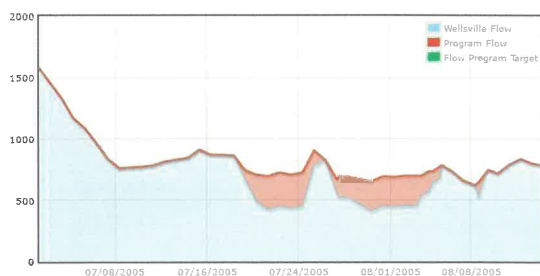
RECREATIONAL BOATING

Flow Management

The upper Arkansas River is the most boated whitewater river in the country with over 200,000 commercial rafting guests and approximately 60,000 private boaters per year. The combination of a steep gradient, confined channel and high-elevation snowpack provides the natural components for great whitewater. Plentiful public access and responsive recreation management provided by Colorado Parks and Wildlife provides for an enjoyable and environmentally sustainable recreational experience.

The proximity of the river corridor to Colorado's urban centers enables visitors and residents to enjoy the river on a day-trip basis, making it a very convenient and affordable outdoor adventure. Since the 1980s, recreational boating on the Arkansas River has come to be a significant tourism draw and contributor to the local economy. Summer flow augmentation through the VFMP helps ensure a viable recreational boating season through peak visitation months, strengthening the commercial boating industry and the rural mountain economy.

WaterFlow Graph
Arkansas River at Wellsville Gage (cfs) (7/1/2005 to 8/15/2005)



2005 – Average Year with Dry Periods. A relatively wet spring was followed by a dry summer, leading to these conditions that developed at the end of July and carried over into August.

WaterFlow Graph
Arkansas River at Wellsville Gage (cfs) (7/1/2006 to 8/15/2006)

