

## LESSONS LEARNED PRESENT OPPORTUNITIES

The assessments, research and pilot projects of the past five years have advanced the water banking concept. For the Colorado River Water Bank to expand, it must heed lessons learned. Some of these lessons include:

### **There must be no injury to the water rights of participating landowners or other water users.**

A water bank must not jeopardize or give the appearance of potential harm to the value of water rights. Protections must be transparent and easily understood.

### **Both individual irrigators and the irrigation company or district must benefit.**

For an irrigation district to participate in a water bank, there must be known, equal and fair payments to participating irrigators as well as benefits to the shareholders at-large. In the Grand Valley pilot project, 70% of the \$1 million budget in 2017 was paid to participating irrigators, the remaining 30% offset legal, engineering and administrative costs and established an infrastructure fund for the Grand Valley Water Users Association. The conclusion is that benefits to the water right owner, irrigation association, wider community and multi-state basin are possible.

### **Participation must be open to all landowners who meet a basic set of criteria, and the application, administration and monitoring must be simple.**

To avoid any perceived conflicts of interest or favoritism, participation must be based on an open system that has clear and fair rules. Establishing simple contracting and monitoring processes that are not a burden to the landowner or the irrigation district is essential.

### **Potential impacts to the wider community, local economy and quality of life must be better understood and addressed.**

The positive impacts of a water bank are balanced by potential negative effects of decreasing West Slope irrigated agriculture including impacts to local economies, neighbors, valley-wide aesthetics, and wildlife. The pilot projects helped start a conversation about these challenges. Moving forward we must not lose sight of them, and we must continue conversations about how to address them in a meaningful way.

## WHAT'S NEXT

The Colorado River Water Bank Workgroup continues to test and evaluate the feasibility of water banking for Colorado. Research and pilots conducted by the group to date have proven that the concept can work at some level on the ground for the supply side, though many unanswered questions remain. Some of the group's next challenges are to tackle other questions such as whether a scaled up program is feasible or desired, and what that structure would look like, determining if there is a market for the saved consumptive use, who would administer the program and pay for it, how many participating water users are needed to produce a meaningful amount of saved water, and what legal or policy issues need to be addressed.

At the same time, non-agricultural (municipal and industrial) demand management strategies and reoperation plans for federal reservoirs should be pursued as a means to look for solutions beyond West Slope agriculture. East Slope agriculture that relies on Colorado River water should also be evaluated and considered. West Slope agriculture's water rights cannot be the only solution to the water supply concerns of the entire Colorado River Basin.

To learn more about work done to date, or future plans, contact [info@coloradoriverwaterbank.com](mailto:info@coloradoriverwaterbank.com)

Five years of research and pilot projects on fields such as this one will help understand how a water bank could benefit all involved, while also providing greater predictability during a water shortage crisis. PHOTO © Mark Skalny



Overhead sprinklers irrigate farm ground in the Lower Gunnison River Basin.  
PHOTO © Mark Skalny



# EXPLORING A COLORADO RIVER WATER BANK

Farmers and ranchers productively use Colorado River supplies to irrigate almost 800,000 acres of Western Slope agriculture. A water bank leverages this valuable asset using a market-based approach to compensate water rights' owners to temporarily reduce their use, helping build more sustainable rural economies. PHOTO © Mark Skalny

DROUGHT AND OVERUSE OF WATER WITHIN THE MULTI-STATE COLORADO RIVER BASIN HAVE BEEN THE NORM SINCE THE LATE 1990S. BASIN WATER USERS HAVE WITHSTOOD DRY PERIODS BY RELYING ON WATER STORED IN FEDERAL AND LOCAL RESERVOIRS. BUT A GROWING POPULATION WILL HEIGHTEN WATER DEMAND, WHILE DROUGHT AND CLIMATE CHANGE MAKE SUPPLIES LESS PREDICTABLE. WATER MANAGERS MUST BE CREATIVE IN THEIR SEARCH FOR NEW TOOLS TO PROVIDE A SECURE WATER SUPPLY FOR TOWNS AND CITIES, AGRICULTURE, INDUSTRY, AND THE ENVIRONMENT IN THE FACE OF THIS UNCERTAINTY.

The threat is multi-pronged. Drought and future development of Colorado River supplies could result in river flows that are inadequate to meet current and future demands, as well as the Upper Basin states' obligations under the Colorado River Compact. The states within the Colorado River basin and the federal government are actively working to explore options to maximize beneficial use while remaining within the agreements set forth in the Colorado River Compact. In addition, as Colorado continues to develop its Colorado River supplies, West Slope water users may begin to feel pressure to sell and transfer their water, resulting in permanent agricultural dry-up on the West Slope. This would negatively disrupt the economy and quality of life for area residents.

Part of the answer lies in exploring all options to increase the reliability of Colorado River flows. The Colorado River Water Bank Workgroup was formed in 2010 to study and pilot a voluntary and compensated approach to temporarily reduce consumptive uses of Colorado River water within Colorado. Participating water users receive additional value from their water rights by temporarily reducing their water use without requiring a permanent sale or change of their valuable water rights. By keeping water rights in current ownership and compensating for realized savings during critical years, this option may also build more sustainable rural economies.

Feasibility studies, agronomic research and pilot projects over the last five years have confirmed that a water bank is one tool that could help avoid long-term agricultural dry up and water supply disruption in Colorado while minimizing risk for all Colorado River water users. This approach also gives Colorado River water users a clear pathway to be part of the solution, rather than having a solution imposed by statewide or federal interests.



Gunnison basin farmer John Harold takes a break from irrigating his fields. Participation by individual landowners is key to testing the water bank concept. PHOTO © Mark Skalny

## WATER BANKING 101

A traditional water rights transaction involves the outright sale, transfer, and change of use of a water right. "Water banking" is an alternative to this traditional transaction. All banks are unique in their approach, structure and purpose. Water banking efforts on the East Slope focus on increasing individual transactions into a water market serving Colorado's growing Front Range. In contrast, a Colorado River Water Bank describes an arrangement in which willing water users are compensated to reduce consumptive use, such as by temporarily fallowing or by irrigating for only part of the season. One purpose of water banking is to study the ways reduced consumptive water use may help Colorado meet its obligations under the Colorado River Compact, maintain critical reservoir levels, and allow critical Colorado water uses to continue.



Colorado State University researcher Dr. Perry Cabot uses remote sensing technology to calculate evapotranspiration. This research will help measure water use and savings on this hay field. PHOTO © Barton Glasser Photography

## WHO IS CURRENTLY EXPLORING THE COLORADO RIVER WATER BANK?

The Colorado River Water Bank Workgroup consists of the Colorado River Water Conservation District, Southwestern Water Conservation District, Tri-State Generation & Transmission, and The Nature Conservancy. Others involved include the Bureau of Reclamation, Colorado State University researchers, and managers and shareholders of multiple West Slope irrigation districts. The Colorado Water Conservation Board serves in an advisory capacity to the group and has provided funding in an effort to learn about the options and obstacles for implementing a water bank within the state. Each entity's reasons for participating are unique, though all believe that a water bank can add certainty for water users during unpredictable times.



DAN BIRCH

*Colorado River Water Conservation District*

Colorado cannot ignore levels in Lake Powell and a possible compact shortage. The Colorado River District wants to avoid crisis reactions that could lead to large-scale dry up of West Slope agriculture or solutions imposed by those outside the West Slope. A water bank can mitigate risk and protect uses junior to the compact while helping sustain agricultural economies.



TAYLOR HAWES

*The Nature Conservancy*

This is all about getting ahead of a potential crisis, and our goal is to help shape solutions that work for agriculture, cities, and the environment. We think that's the most effective way to provide long term water security and ensure that our rivers and streams have the water they need to support resilient economies and healthy ecosystems.



MARK HARRIS

*Grand Valley Water Users Association*

From the Grand Valley Water Users' perspective, it is first and foremost about GVWUA members and giving them profit, protection and a seat at the table. A water bank could add to farm profitability and create flexibility for use of on-farm resources. In addition, protecting the larger Colorado River system also protects GVWUA's water rights from measures imposed upon us by federal interests in a drought crisis. Finally, as primary, senior water rights holders, it is in West Slope agriculture's interest to have a say in developing long-term solutions to basin issues.



PAUL KEHMEIER

*System Conservation Pilot Program Participant*

With the help of the Colorado River Water Bank Workgroup, I participated in the System Conservation Pilot Program because I have seen agricultural areas where water rights have been sold, the water moved off the land permanently, and farming has died. I don't want that desolation to come to my valley. I also participated because it looked as if I could make pretty good money doing so.

## WHAT HAS BEEN DONE SO FAR?

### Landowner Interviews & Feasibility Assessments

From 2011 to 2015, feasibility studies, along with interviews with landowners and water managers, investigated how a water bank could work for participants on the ground and with the West Slope's varied irrigation systems. The workgroup partnered with eight diverse irrigation systems, and each system saw different opportunities and challenges to participating in a water bank, including some larger technical, legal, economic and social questions. The Colorado River Water Bank Workgroup then completed an in-depth analysis of three systems. It examined how each system would respond to reduced water use, and looked at conserved consumptive use, return flow obligations and options to track and manage saved water.

### CSU Research on Agronomic Effects of Limited Irrigation

Agricultural producers interested in participating in a water bank need to understand the impacts of reduced irrigation. The Workgroup is conducting this agronomic research with Colorado State University. Initial work completed in 2014 compared reduced irrigation and normal irrigation side by side on seven West Slope grass and alfalfa farms over three years. The research helped quantify how reduced irrigation affects crop yield and assessed how fields recover after irrigation is restored.

An ongoing five-year study expands these comparisons with a focus on providing information on best practices for participating producers and methods to calculate conserved water savings.



As part of CSU's research, a portion of this hay field in Grand Junction had irrigation suspended after the first cutting (left) while a portion was fully irrigated for comparison (right). Impacts on yield and forage quality were measured. The impacts of reduced irrigation to a landowner's bottom line is an important component of designing a water bank that meets their needs. PHOTO © Dr. Perry Cabot

### System Conservation Pilot Program

Four major municipal water providers in the West that rely on water from the Colorado River partnered with the U.S. Bureau of Reclamation to test emergency water-use reduction measures. With funding from this program, the Colorado River Water Bank Workgroup implemented several small-scale pilot projects in Colorado's Colorado, Gunnison and Yampa River basins. These pilot efforts confirmed that producers can temporarily reduce water use in ways that work for their operation but also highlighted numerous challenges.



### Grand Valley Pilot Project

The Grand Valley Pilot Project tests the nuts and bolts of how a demand management program could work at scale within a large irrigation association.

In 2017, 10 Grand Valley farmers participated in the pilot by reducing irrigation on 1,250 acres to achieve a 3,200 acre-foot reduction in water consumption. The pilot provides a look at how an irrigation district can contract with shareholders, how to account for and manage saved water, and whether water banking payments can help finance long-term infrastructure improvements.

The Grand Valley Water Users Association operates this iconic roller dam on the Colorado River near Palisade. Through developing a pilot demand management project to test how consumptive use can be reduced in a voluntary and compensated manner, the Association hopes to maintain a seat at the table for agriculture. PHOTO: © Ken Geiger/The Nature Conservancy with support from LightHawk