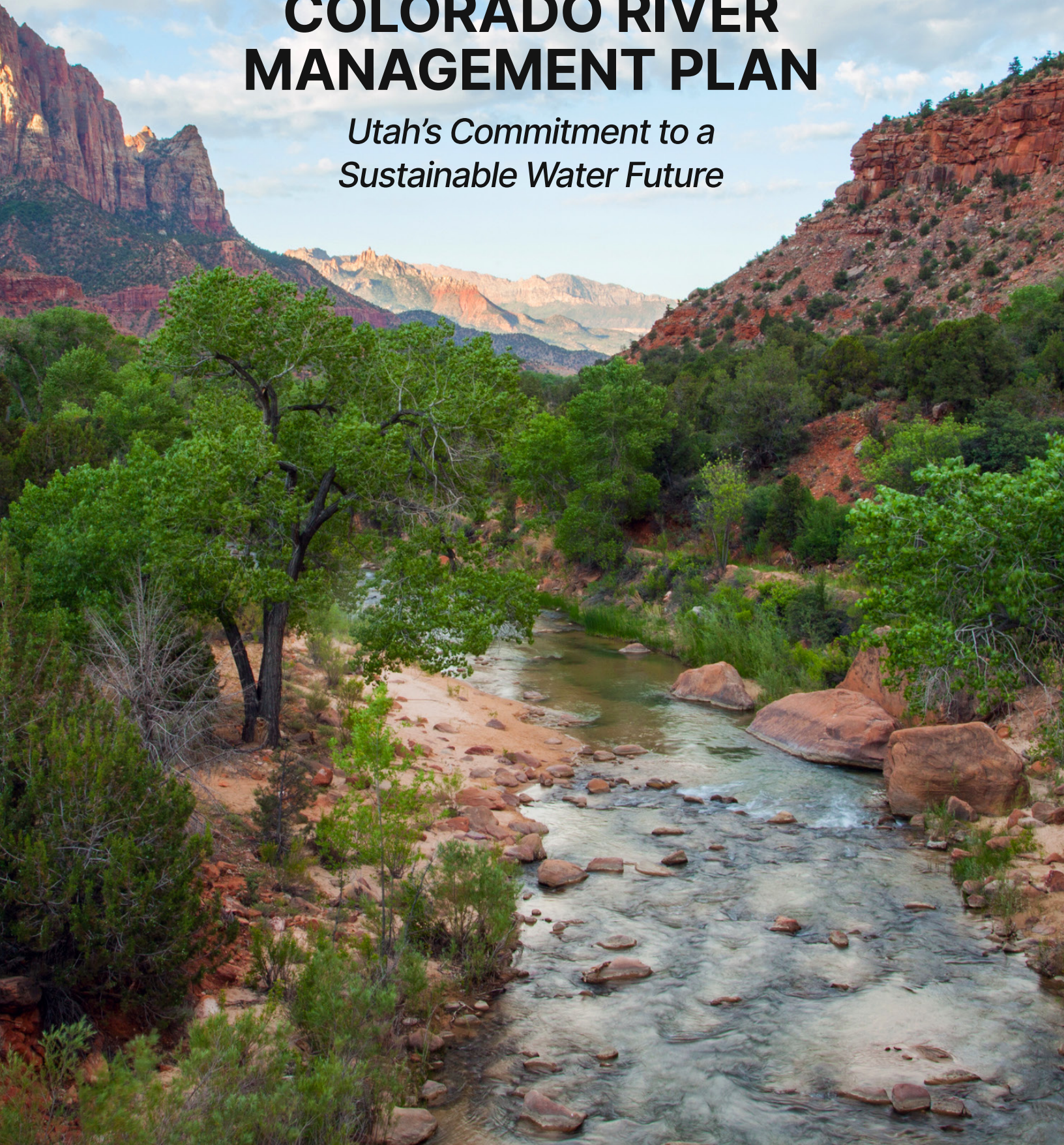


DRAFT



# COLORADO RIVER MANAGEMENT PLAN

*Utah's Commitment to a  
Sustainable Water Future*







Upper Colorado  
River Basin

Lower Colorado  
River Basin



# EXECUTIVE DIRECTOR MESSAGE

**This Management Plan is the first of many steps to promoting a sustainable Colorado River Basin so that its water can be enjoyed by many future generations of Utahns.**

Dear Utahns,

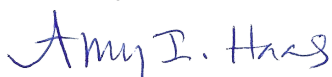
The Colorado River Basin is a vital source of both municipal and agricultural water for the state, supplying over a quarter of all water used in Utah. However, the prolonged drought in the basin and a changing climate has created an urgent need for the efficient use of Utah's share of the Colorado River as supplies shrink and critical reservoir elevations decline.

Against this backdrop, in 2021, Brad Wilson, Speaker of the Utah House of Representatives, and Stuart Adams, President of the Utah Senate, co-sponsored the Colorado River Authority of Utah Act (HB 297) creating the Authority and establishing its broad mission to "protect, conserve, use and develop Utah's waters of the Colorado River system." 63M-14-102 et seq. In furtherance of its mission, the Authority Board has developed the Colorado River Authority of Utah Management Plan ("Management Plan") to ensure that Utah can protect and develop its Colorado River system water and work to ensure that Utah can live within the state's apportionment of 23% of the supply available in the Upper Colorado River Basin.

The Management Plan focuses on three priority areas for the state with respect to the Colorado River: measurement, hydrology/operations and drought mitigation. While its initial term is five years, the Management Plan is meant to be dynamic in order to respond to changing hydrology and conditions in the Colorado River Basin. Authority staff will provide an annual update at a regular meeting of the Authority Board on the implementation of the Management Plan and satisfaction of key benchmarks.

Utah's future depends upon a resilient water supply. This Management Plan is the first of many steps to promoting a sustainable Colorado River Basin so that its water can be enjoyed by many future generations of Utahns.

Thank you,



Amy I. Haas  
Executive Director  
Colorado River Authority of Utah

## BOARD MEMBERS



Gene  
Shawcroft  
*Chair*



Brian  
Steed  
*Vice Chair*



Dan  
Larsen



Jay Mark  
Humphrey



Zach  
Renstrom



Candice  
Hasenyager

# THE NEED IS URGENT

## THE AUTHORITY MUST TAKE ACTION NOW

The Colorado River Basin has experienced prolonged drought and low runoff conditions since 2000. Droughts such as these pose a significant threat to Utah's farms, communities, and environment – the lifeblood of Utah. Robust growth powers economic prosperity, but also drives increasing demands on the limited water supply. The potential for continued drought, compounded by the impacts of climate change, raises the risks of insufficient water supplies in the Colorado River Basin and enforcement of obligations under the Colorado River and Upper Colorado River Basin Compacts. Under these stressed conditions the need to develop new guidelines for the operation of the river is increasingly urgent. Utah must be able to anticipate and minimize these risks and develop successful strategies to enable us to endure, adapt, and transform in the midst of change.



*Photograph taken April 7, 2022 showing Lake Powell at elevation 3522.96 ft (down 42.77 feet from one year ago), its lowest level since first filling, and 14.5 million acre-feet below top of Active Conservation pool.*







# THE TIME IS NOW

## CURRENT STATUS OF THE COLORADO RIVER

- Worst drought in recorded history beginning in 2000
- Lowest Lake Powell elevation since first fill
- Lowest Lake Mead elevation since first fill
- First mandatory cuts to Lower Basin water use in Colorado River history
- Emergency actions sending Upper Basin water to Lake Powell and delaying releases from Glen Canyon Dam
- Measures for greater conservation in the Lower Basin









# ■ A TRAJECTORY FOR SUCCESS

This Management Plan makes certain Utah can protect, conserve, use, and develop its share of the Colorado River while the state lives within its apportionment.

The Management Plan promotes a shared and resilient water supply that empowers a vibrant and prosperous Utah. The Management Plan will provide a suite of adaptable technical and legal strategies that protect and support the farms, homes, businesses, environment, and quality of life that all Utahns enjoy.

## UTAH MUST

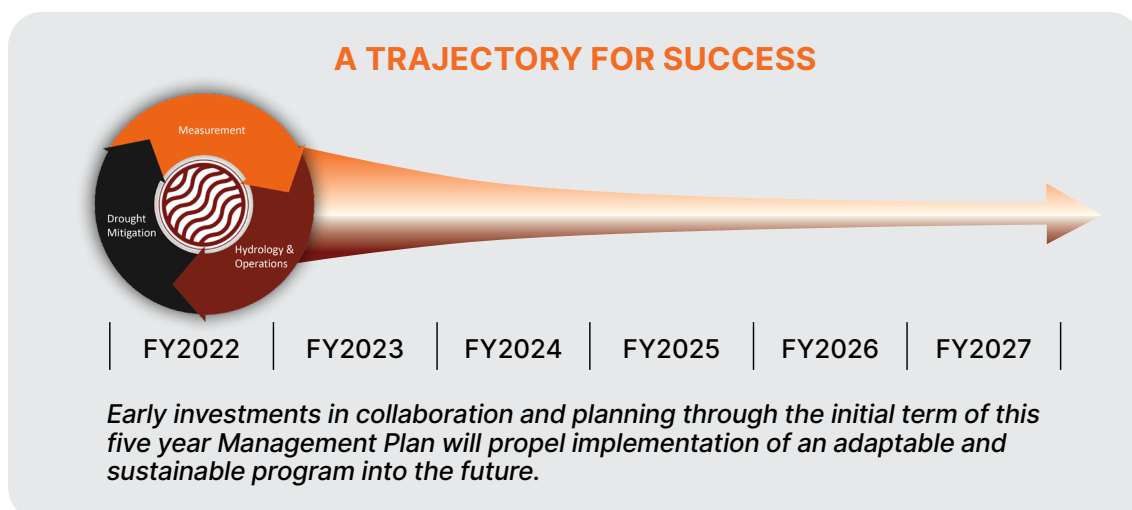
- Improve the certainty of its Colorado River water use
- Enhance and develop tools to facilitate long-term understanding of available Colorado River supply
- Optimize the use of the Colorado River
- Support and enhance relationships among the seven basin states and the Republic of Mexico
- Provide resources

The initial term of the Management Plan is five years, beginning July 1, 2022 through June 30, 2027 (FY23-FY27). The Management Plan is meant to be dynamic to respond to changing hydrology and conditions in the Colorado River Basin. Authority staff will provide an annual update at a regular meeting of the Authority Board on the implementation of the Management Plan and satisfaction of key benchmarks.



*"Utahns have taken remarkable steps to address critical water issues facing our state. The drought in the Colorado River Basin, a major source of water for Utah, has highlighted the need for us to continue to be good stewards of this precious resource so that every drop counts."*

**Governor Spencer Cox**









# UTAH'S COLORADO RIVER MANAGEMENT PLAN

## THREE PRIORITY AREAS

### 01 MEASUREMENT

We cannot effectively manage what we cannot measure. We must improve, expand, and maintain a water measurement network that delivers sound and transparent data.

### 02 HYDROLOGY & OPERATIONS

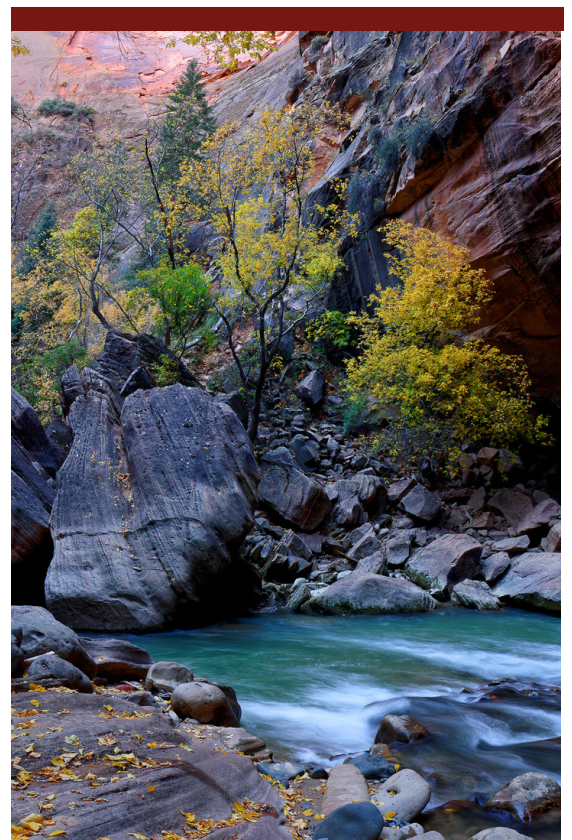
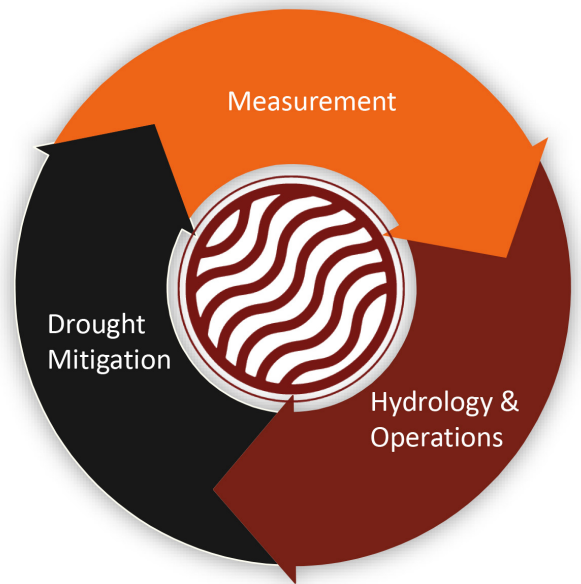
It is essential that we continually improve our understanding of hydrologic conditions, enhance our ability to make informed planning and policy recommendations, and identify opportunities to improve water management.

### 03 DROUGHT MITIGATION

Prudent water management requires measures that prepare us for and enable us to respond to water shortages. It is critical that Utah invest in researching and developing solutions that are adaptable and that enable a sustainable and resilient water supply for the Colorado River Basin.

## A CRITICAL INVESTMENT

The Utah Legislature has made a significant investment to make this Management Plan possible. Funds will be allocated across the three priority areas to build a solid foundation of knowledge, technology, and data – a bedrock for solutions, when fueled by continued investment, that will shape a resilient water supply for future generations of Utahns.

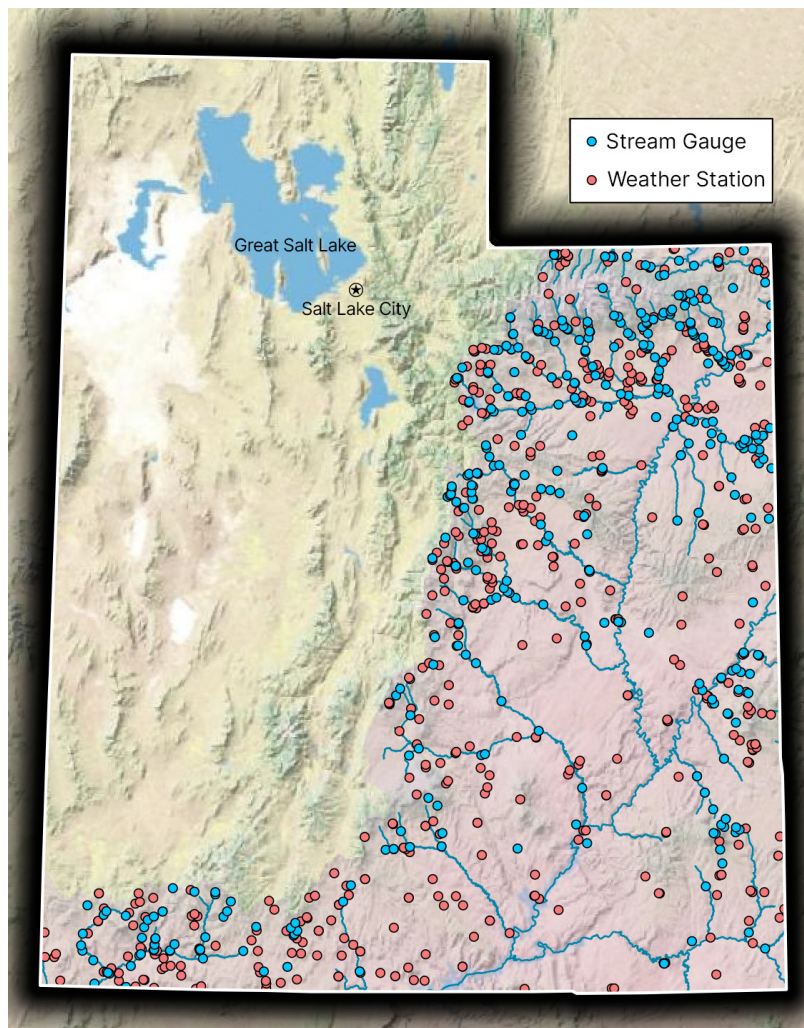
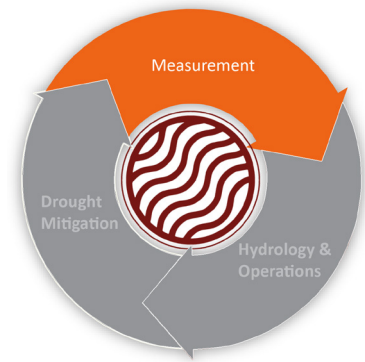




# 01 MEASUREMENT

An improved understanding of Colorado River water use is at the core of the Authority's mission and a basic requirement of effective and equitable water management. Utah's extensive dependence on Colorado River water complicates measurement of water availability and use, while simultaneously highlighting its importance. Building on existing infrastructure, the Authority will improve, expand, and maintain a measurement network that produces sound, transparent, and publicly available data.

**Key Outcome:** *Trust and Confidence in Utah's Actions*



Utah will build upon its existing infrastructure to inform its actions



## ACTIVITIES

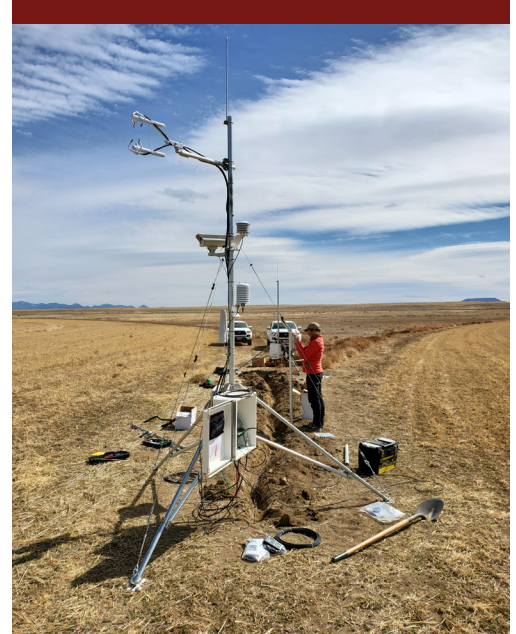
### ***Quantifying Supply and Demand – Informing Actions***

Monitoring use of Colorado River water is necessary to satisfy the Authority's mission. An extensive network of water measurement currently exists in Utah's Colorado River Basin. However, as equipment deteriorates over time and certain sites have been abandoned, there is a need to repair, improve, and expand the water measurement network. This information will enable water operators and diverters to better manage the system by eliminating waste and optimizing use. An improved and expanded network of stream gauges will facilitate implementation of drought mitigation measures.



### ***Verifying the Results – Engendering Trust***

The depletion of water in agricultural and environmental settings can be measured by remote sensing, which relies on sophisticated weather stations and satellites to measure actual consumptive use. The confidence in values produced through remote sensing methods and their accuracy can be greatly improved through in field measurement of actual depletions to validate remote sensing results. Independent verification of measured water supply and demand will engender trust and confidence in the Authority's actions. The Authority will support ongoing efforts to locate, construct, and maintain a measurement network to support and improve remote sensing of depletions for various purposes, including: facilitating interstate compact administration, efficient water application by individual water users, and implementation of drought mitigation measures.

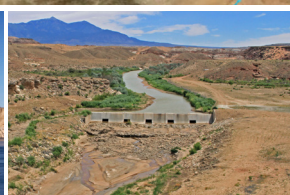
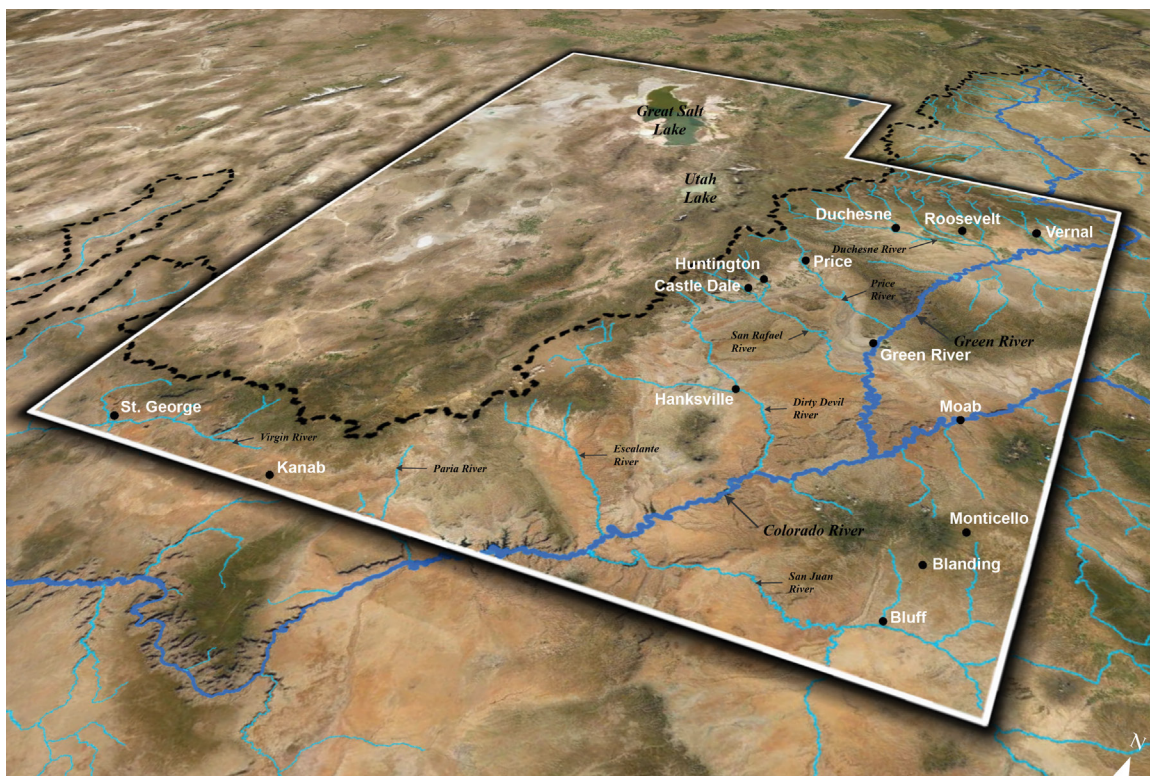




## 02 HYDROLOGY & OPERATIONS

Hydrology is the single largest driver related to Colorado River management and planning. It is essential to continually improve our understanding and monitoring of hydrologic conditions in order to enhance the Authority's ability to make informed planning and policy recommendations. In addition to hydrology, activities in this area include ongoing modeling and evaluation to identify opportunities for the improvement of water management operations within applicable legal and environmental constraints.

**Key Outcome:**  
*Optimal Options & Opportunities*





## ACTIVITIES

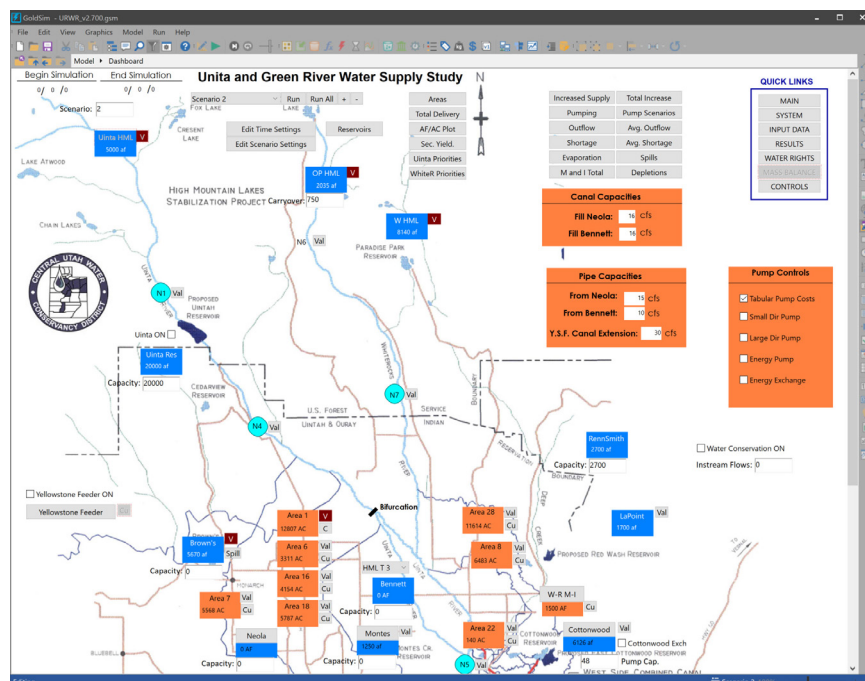
### Natural Flow

Natural flow is the amount of water that would exist in the Colorado River Basin for a given period of time absent human-made diversions, storage, or other works. Calculating natural flow is essential to understanding the available yield of the river. The breadth and depth of science and technology supporting characterization of natural flow for operational and planning purposes is complex, robust, and continually evolving. Natural flow is also the fundamental input to water supply management tools. The Authority will explore, develop, and support improvement of tools for predicting and characterizing natural flow to improve understanding and support dependent technical activities, including:

1. **Evaluate** hydrologic ensembles currently in use
2. **Develop** Water Supply and Reservoir Inflow Forecasting Model
3. **Create** Basin Water Accounting and Forecasting Model.

### Verifying the Results

Development and use of computer models to predict Colorado River Basin responses under a variety of conditions is necessary to developing informed policy and planning activities. Some models are developed to answer short-term, discrete questions, while others support ongoing operations and require improvement and modification over time. The Authority will support the improvement of existing Colorado River Basin computer models and will develop and maintain new models necessary to make informed policy and to plan activities in support of its mission.

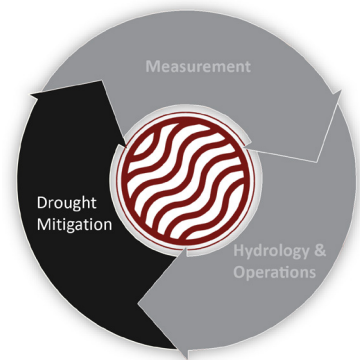




## 03 DROUGHT MITIGATION

Prudent water management requires the establishment of measures to prepare for and respond to water shortage. Current science shows the potential for extended dry periods that yield less water than was historically anticipated, especially in the Colorado River Basin. Researching and developing solutions to support current Colorado River water use and growing demand on the river under these stressed conditions will be a focus of the Authority.

**Key Outcome:**  
*Successful and  
Measurable Results*





## ACTIVITIES

### Planning and Development

The Authority will evaluate the degree and severity of impacts to Utah's Colorado River water users under a variety of conditions. In conjunction with previously discussed focus areas, the Authority will develop tools to identify opportunities for potential solutions and metrics for the effectiveness of such solutions, if implemented. These may include:

1. Identify and map water rights to determine priority and allowed depletion throughout Utah's Colorado River Basin
2. Utilize the OpenET dataset to determine total and effective evapotranspiration for calculation of depletions
3. Develop accounting and forecasting module to integrate allowed versus actual depletion data
4. Develop programs, such as Lake Powell storage, to mitigate future shortages.

### Research

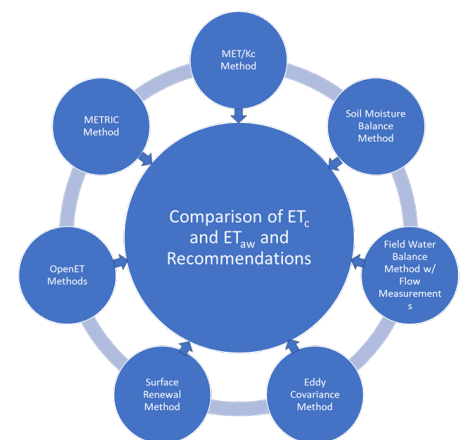
A significant body of research is available to support development of drought mitigation measures. The Authority will continually evaluate the current state of the science and available applications, as well as pursue new research opportunities as they are identified. Research results showing promise may be further evaluated by pursuing pilot projects. These may include:

1. Emerging irrigation technologies
2. Combined agricultural water conservation practices
3. Enhanced forest management.

### Implement Measures

Using existing technology and administrative tools, as well as through research and planning, specific drought mitigation measures will be identified and prioritized, for development into scalable programs. This includes establishment of administrative processes for accounting, monitoring and verification, or conservation activities. Drought mitigation measures will be focused on the temporary, voluntary, and compensated reduction in consumptive use of water and includes, where applicable, non-regulatory interstate engagement through a basin-wide demand management program. These may include:

1. Drought mitigation measures (demand management) focused on temporary, voluntary, and compensated reduction in consumptive use of water
2. Implementation of agricultural water efficiency measures
3. Expansion of weather modification technologies (e.g. Cloud Seeding).



*Utah Agricultural Water Optimization Task Force Case Study comparing Evapotranspiration (ET) Methods in Utah*



# ■ WE MUST PRESERVE THIS VITAL NATURAL RESOURCE

## WE MUST ENSURE THAT THE COLORADO RIVER IS OUR WATER LEGACY TO FUTURE GENERATIONS OF UTAHNS.

The Management Plan will safeguard and protect the rights and interests of Utah's citizens in respect to the waters of the Colorado River Basin. The Management Plan will enable a shared and resilient water supply that empowers a vibrant and prosperous Utah.

The Authority recognizes the challenges. The Management Plan must:

- Be flexible and able to adapt to changing conditions
- Balance vision and need with fiscal responsibility
- Leverage current and emerging science and technology to its full extent
- Advance prudent and defensible strategies in the midst of uncertainty
- Develop solutions that minimize risk and maximize benefits.

## NEXT STEPS

In 2022, the Utah Legislature amended the Colorado River Authority of Utah Act ("Act") to, among other things, add to the Authority board a member of a federally recognized Indian Tribe located within the state and the Colorado River System (SB 160) and appointed by the Utah Governor. In addition, the legislature included a requirement that the Authority seek appropriate government-to-government relationships with Utah's federally recognized Colorado River Tribes on matters related to the Authority's general powers and mission under the Act. Authority staff, in coordination with Governor Spencer Cox's administration, will begin outreach to the Tribes in the coming weeks.

In accordance with the Act, the Authority also will engage Advisory Councils to provide recommendations and ensure the River Commissioner and the Authority have up-to-date information and a full suite of policy options as they address the critical issues facing the Colorado River.



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