Fiscal Year 2023 Work Plan

(DRAFT)

June 23, 2022

THE COLORADO RIVER AUTHORITY OF UTAH

1 EXECUTIVE SUMMARY

On April 21, 2022, the Colorado River Authority of Utah (Authority) approved a five-year Colorado River Management Plan (Management Plan) to accomplish its statutory mission to "protect, use, conserve and develop Utah's waters of the Colorado River system." 63M-14-102, et seq. The Management Plan begins July 1, 2022, and continues through June 30, 2027 (fiscal year 23 – fiscal year 27). In accordance with the Management Plan, annual plans (Work Plans) will be developed and approved by the Authority board. The Work Plans will include activity details, estimated budgets, and time frames for each of the five years comprising the initial term of the Management Plan.

This document is the Authority's first annual Work Plan[1] for fiscal year 2023 (July 1, 2022, to June 30, 2023). As such, there are new Colorado River activities being initiated, and others, falling within the purview of Authority, that are being adopted and carried forward under its direction.

This Work Plan supports:

- Participation in intrastate and interstate Colorado River commitments
- Investigation and analysis of water supply and use measurement gaps
- Acquisition, installation, and maintenance of agricultural consumptive use measurement instrumentation to improve accuracy of remote sensing technology and other water use efficiency efforts.
- Acquisition of consumptive use data using remote sensing technology
- Research supporting forecasting improvements
- Research supporting water efficiency and demand reduction
- Drought mitigation pilot projects
- Development of a first-of-its-kind Colorado River in Utah forecasting and accounting model
- Modeling to evaluate effectiveness of proposed operations under the Drought Response Operating Agreement (DROA), other operations related to the 2019 Drought Contingency Plans (DCP), and/or emergency actions taken in response to river conditions in the short to mid-term
- Modeling to evaluate long-term operating policy
- Implementation and oversight of Authority Advisory Councils

[1] This work plan by itself is not a full representation of the work of the Colorado River Authority of Utah.

Total FY 2023 budget for this work plan is $4,361,000[2]

Table 1: Summary of work plan elements, FY budgets and funding source

Priority Area	Work Plan Element	FY23 Budget	FY23-FY27 Est. Budget	Funding Source
Colorado River Intrastate and Interstate Activities				
2.0	Intra/Interstate Engagement[3]	$600,000	$3,000,000	Annual Appropriations
Measurement				
3.1	Metering and Gaging	>$200,000	>$200,000+[4]	One-time Appropriation
3.2	Instrumentation and Verification	$600,000	$2,000,000	One-Time Appropriation
3.3	Consumptive Use Quantification	$630,000	$2,600,000	One-Time Appropriation
Hydrology and Operations				
4.1	Short- and Mid-Term Operations modeling (CRMMS 24 Month Study/ESP)	$180,000	$750,000	In-kind Contributions
4.2	Long-Term Operations modeling (CRSS)	$600,000	$1,500,000	In-kind Contributions
4.3	Forecasting and Water Supply Research	$120,000	$600,000	One-Time Appropriation/In-kind Contributions
Drought Mitigation				
5.1	Agricultural Efficiency Investigations/Water Optimization Research	$600,000	$1,500,000	One-Time Appropriation (anticipated FY '24-27)/ In-kind Contributions (FY '23)
5.2	Conserved Consumptive Use Pilot Projects	$250,000	$3,000,000	TBD
5.3	Pilot Utah Colorado River Accounting and Forecasting Model – Duchesne Drainage	$300,000	$943,000[5]	One-Time Appropriation
Advisory Councils				
6.0	Advisory Councils	$281,000	$1,405,000[6]	Annual Appropriations
	Total	**$4,361,000**	**$17,498,000[7]**	

[2] Total provided for under this work plan. Work plan budgets are subject to adjustment depending on conditions and activities in the Colorado River Basin that may be unknown at the time the plan was developed.
[3] Estimated costs are for Authority staff and in-kind contributions only and do not include costs of other state agencies participating.
[4] Total estimated costs for metering and gaging are dependent on the results of the gap analysis being performed in FY23 and is not included here.
[5] Total cost reflects 3 fiscal years from FY23 to FY25.
[6] This is an estimate of the FY 23-FY 27.
[7] This is a partial total. Refer to footnotes 4 and 5.

2 FY '23 WORK PLAN

The Management Plan was developed with the intention of being dynamic to respond to changing hydrology and conditions in the Colorado River Basin. To this end, the Authority committed to developing an annual Work Plan for adoption at a regular meeting of the Authority board. The Work Plan addresses on a yearly basis both the implementation of the Management Plan and the satisfaction of key benchmarks.

This Work Plan describes activities scheduled for fiscal year (FY) 2023, estimated costs and timeframes, and the relationship of each activity to the three Management Plan priority areas of Measurement (Section 3), Hydrology and Operations (Section 4), and Drought Mitigation (Section 5). Consistent with the mission of Authority, the purpose of the Management plan and associated annual work plans is to "ensure that Utah can protect and develop the Colorado River System and work to ensure that Utah can live within the state's apportionment of the Colorado River System".

Activities and work plan elements described herein are supported by funding from several sources including annual appropriations and one-time appropriations to Authority, in-kind goods and services provided to Authority by users of the Colorado River System, and appropriations supporting activities performed by the Department of Natural Resources in coordination with Authority.

Certain activities performed during the Fiscal Year are reflected in the Work Plan as participation on work groups, teams, committees, rather than be being ascribed to a single focus area in the Work and are described in the following section.

Interstate Colorado River Engagement

The Authority and partnering state of Utah entities are fully engaged in intrastate and interstate Colorado River commitments, including but not limited to the Upper Colorado River Commission, Salinity Control Forum, and the endangered fish recovery programs (Glen Canyon Dam Adaptive Management Program; Upper Colorado River Endangered Fish Recovery Program; and the San Juan Recovery Implementation Program), and other Colorado River Programs. Additionally, there are ongoing intrastate activities that are not formally organized, however it is appropriate to acknowledge them because of their critical role in successfully representing the interests and obligations embodied in the Authority mission. Table 2.1.1 tabulates interstate work groups, committees, and the member organization[s]. Some of these are permanent groups, and others have been established to work on

temporary and specific issues, and because of their temporary nature, this list may be added to, or reduced, during the fiscal year.

Table 2.1.1 - List of Colorado River Interstate Activities

Work Group, Committee	Utah Participating Organization
Permanent Upper Colorado River Commission (UCRC) Committee	
UCRC Legal Committee	Office of the Attorney General
UCRC Engineering Committee	Authority/Division of Water Resources (DWRe)/Water Users
Ad Hoc UCRC, Upper Division State and Basinwide Work Groups and Committees	
UCRC Demand Management Committee	Authority/DWRe
UCRC CRSS Modeling Workgroup	Authority/DWRe
UCRC Depletion Demand Schedule Workgroup	Authority/DWRe/Water Users
UCRC Curtailment Workgroup	Office of the Attorney General
Upper Basin Irrigated Agricultural Consumptive Use Study Workgroup	Authority/DWRe
Upper Basin Drought Response Operating Agreement	Authority/Division of Water Rights (DWRi) /DWRe
Basin States Technical Work Group	Authority/DWRe
US-Mexico Minute 323 Binational Work Groups	Authority
Environmental and Water Quality	
Colorado River Salinity Control Forum	DWRe
Glen Canyon Adaptive Management	
Adaptive Management Work Group (AMWG)	DWRe
Leadership Team	Authority
Technical Work Group (TWG)	DWRe
Management Committee	DWRe
Upper Colorado River Fish Recovery Program	
Implementation Committee	DWR
Management Committee	DNR
Biology Committee	DWR
Water Acquisition Committee	DWR/Water Users

3 MEASUREMENT

3.1 Metering and Gaging Gap Analysis

Description

Investigation and analysis of water supply and use measurement gaps in the Colorado River stream system in Utah in order to support accurate measurement and distribution of Colorado River water. In particular, the gap analysis will assess stream gaging and measurement needs on the Colorado River mainstem and its tributaries in Utah, including an estimation of the cost of installation or reinstallation of stream gages and installation of new or upgrade to existing measurement methods. This work will inform next steps in improving the metering and gaging system.

Types of Contractual Services Needed

- Competitive procurement process to engage contractor to conduct gap analysis.

Budget, Funding Source(s), and Time Frame

- The contract is anticipated to be no more than $200,000
- One-time appropriations
- Gap Analysis Completion by June 30, 2023

3.2 Instrumentation and Verification

Description

Acquisition, installation, and maintenance of agricultural consumptive use measurement instrumentation (Eddy Covariance Towers (EC Towers) and other similar water measurement instrumentation) to improve accuracy of remote sensing technology, and support other water use efficiency efforts. This will be completed through an Operating Agreement with the Utah Geological Survey (UGS).

The purpose of tower purchase and installation is to expand the number of ground-truthing points available within the CR basin in Utah to support the use of remote sensing for measurement of consumptive use. This also compliments and supports an existing memorandum of understanding (MOU) between DWRi and UGS, in addition to other ongoing water banking and optimization activities.

Prior to establishment of the Management Plan, an EC Tower was purchased and conveyed to UGS,

and land use agreements and maintenance costs were provided for through In-kind Contributions. This activity carries forward and expands this ongoing work.

Types of Contractual Services Needed

- Interagency Operating Agreement with UGS

Budget, Funding Source(s), and Time Frame

- Approximately $600,000, including the planned purchase of 6 EC Towers, rehabilitation of 3 existing EC Towers, ongoing maintenance, support, data acquisition and synthesis, and coordination on ground -truthing with OpenET (see Section 3.3).
- $2,000,000 FY23-FY27
- One-time appropriations
- This work is anticipated to continue through the 5-year duration of the Management Plan, though the capital cost of EC Tower acquisition will only occur in FY23.

3.3 Consumptive Use Quantification

Description

Acquisition of agricultural consumptive use data using remote sensing technology through OpenET, a non-profit organization, which has developed a platform for measuring and reporting consumptive use of water. The Authority has determined the use of this platform, in collaboration with the OpenET organization and its partners, to develop and compile historic consumptive use data with adequate spatial- and temporal- resolution is an effective means to support its mission. OpenET also provides transparent and reproducible results that will be made publicly available for use by individual water users, system managers, and regulators.

The Authority requires historic consumptive use data on Utah's Colorado River Basin water for a variety of purposes including, but not limited to:

1. The ability to link consumptive use of water to place of use associated with a water right.
2. Evaluation of priority distribution as a function of consumptive use for evaluation of planning scenarios and drought mitigation measures, and implementation of drought mitigation measures.
3. Near "real time" access to consumptive use data (approximate 21-day latency) for implementation of drought mitigation measures.

4. Infrastructure planning (modifications to, improvements to, and/or new infrastructure); and
5. Standardizes calculation of depletion with the Upper Colorado River Basin.

As part of this work, under direction of the Authority, OpenET and UGS will coordinate to incorporate data produced by new EC towers installed by UGS as part of the work described in section 3.2.

Types of Contractual Services Needed

- Multi-year Sole Source contract with the OpenET

Budget, Funding Source(s), and Time Frame

- $630,000 FY23
- $2,600,000 FY23-FY27
- One-time appropriation (to cover full contract value)

4 HYDROLOGY AND OPERATIONS

4.1 Short- and Mid-Term Operations Modeling

Description

Riverware modeling using the United States Bureau of Reclamation (Reclamation) Colorado River Mid-term Modeling System (CRMMS) to evaluate 2007 Interim Guidelines, the effectiveness of proposed operations under the Drought Response Operating Agreement (DROA), other operations related to the 2019 Drought Contingency Plans (DCP)and/or emergency actions taken in response to river conditions in the short to mid-term.

Types of Contractual Services Needed

- Pre-existing multi-year contract (established through a competitive procurement process)

Budget, Funding Source(s), and Time Frame

- $180,000 FY23
- $750,000 FY23-FY27

- All work under this activity is provided through in-kind contributions[8].
- Work under this activity is variable and driven by the actual condition of the river system.

4.2 Long-Term Operations Modeling

Description

Riverware modeling using Reclamation's Colorado River Simulation System (CRSS) to evaluate long-term operating policy. This work includes evaluating system performance under a variety of hydrologic conditions and water use demands when using 2007 Interim Guidelines, variation of the 2007 Interim Guidelines, and other alternative coordinated operations of Lake Powell and Lake Mead.

Types of Contractual Services Needed

- Pre-existing multi-year contract (established through a competitive procurement process)

Budget, Funding Source(s), and Time Frame

- $600,000 FY23[9]
- $1,500,000 FY23-FY27
- Work under this activity is provided through in-kind contributions.
- Work under this activity is variable and driven by the actual condition of the river system.

4.3 Forecasting and Water Supply Research

Description

Tasks under this activity include supporting climate and hydrology research. Research activities include evaluating variability and predictability of precipitation, high resolution forecasting of snow water equivalence and other similar research projects. The Authority will continue to participate in the Colorado River Climate and Hydrology work group, a compendium of state and federal agencies and water users with common interests in collaborating on research opportunities within the Colorado River Basin.

Research is also supported through a funding agreement with the Utah Climate Center (UCC)

[8] In-kind contributions are subject to authorization of the contributing entity, and represent a good faith commitment, however inclusion in this Work Plan is not a guarantee of their availability or expenditures on behalf of the Authority.

[9] Long-Term Operations Modeling is expected to decline after FY24 based on the Department of Interior NEPA process Schedule.

housed at Utah State University (USU) maintenance and operations of approximately 15 weather stations throughout the Colorado River Basin in Utah.

Types of Contractual Services Needed

- Contributed funds agreements with research institutions and partnering agencies.

Budget, Funding Source(s), and Time Frame

- $120,000 FY23 ($30,000 UCC; $40,000 CR Climate and Hydrology Work Group; $50,000 reserved for additional research opportunities)
- $600,000 FY23-FY27 ($150,000 UCC; assume maintenance of research funding levels)
- One-time appropriations and contribution in-kind
- The weather station funding agreement is for the 5-year duration of the Management Plan and subject to annual availability of funds.
- Research funding commitments are made on an annual basis.

5 DROUGHT MITIGATION

5.1 Agricultural Optimization Investigations

Description

The Authority is involved in several ongoing agricultural optimization studies including funding support for the USU Agricultural Water Optimization project. This work was expanded in 2021 to include evaluating post-fallowing recovery. Additionally, the Authority is supporting evaluation of NDrip, a gravity drip irrigation technology that is being tested in Arizona and funded by entities in Colorado, Arizona, Nevada, California, and Utah. These are multi-year projects that are in their second and first years respectively.

Further, the Authority is evaluating risks and opportunities for Agricultural Water Resiliency through a study under way by Jacobs Engineering. This study will investigate the potential for conserved consumptive use through temporary, voluntary, and compensated reduction in consumptive use. The study will include investigating limitations to measurement and shepherding, marginal lands and limits of local beneficial impacts and will identify opportunities for pilot projects described in Section 5.2.

Types of Contractual Services Needed

- Pre-existing contributed funds agreement
- Pre-existing contract (established through a competitive procurement process)

Budget, Funding Source(s), and Time Frame

- $600,000 FY23
- $1,500,000 FY23-FY27
- Work under this activity is provided through in-kind contributions.
- USU Ag Optimization target completion date June 2026
- NDrip target completion date September 2023
- Agricultural Water Resiliency Study target completion date June 2023

5.2 Conserved Consumptive Use Pilot Projects

Description

The establishment of pilot projects to test methods of reduction in consumptive use, and test measurement and delivery to a target location (e.g., Lake Powell) will generally be informed by the activities described in Section 5.1. Conserved consumptive use pilot Projects have been included in the Work Plan, however implementation of these pilots will depend on completion of Section 5.1 activities, and will be established when willing producers are identified, and meaningful projects can be designed and implemented. These pilot projects may include temporary, voluntary, and compensated reductions in consumptive use of water through a variety of mechanisms and will be specifically aimed at establishing defensible measurement of conserved consumptive use, shepherding of conserved water to target locations, evaluating market drivers and testing adequacy of existing water right statutes for purposes of developing scalable drought mitigation programs.

Types of Contractual Services Needed

- Agreements with water right holders, producers, and other partnering entities
- Potential grants with non-profit organizations
- Interlocal agreements with sister agencies
- Potential engineering services contracts

Budget, Funding Source(s), and Time Frame

- $250,000 FY23
- $3,000,000 FY23-FY27
- One-time appropriations and contribution in-kind
- Work under this activity will be included in each annual Work Plan through the duration of the Management Plan. Detail will be added to this activity in subsequent Work Plans as individual pilot projects take shape.

5.3 Pilot Utah Colorado River Accounting and Forecasting Model (UCRAF) – Duchesne Drainage

Description

Pilot project in the Duchesne basin for development of a multi-year first-of-its-kind Colorado River in Utah forecasting and accounting model that is depletion-based and distributes supply according to priority for drought mitigation planning and execution. This will be pursued to develop a comprehensive understanding of current water rights and water usage and to create a planning tool to evaluate how changes (e.g., crop types, irrigation methods, water reduction methods, water right transfer, curtailment, etc.) affect water availability and water rights.

Types of Contractual Services Needed

- Work on this pilot project was started under a pre-existing multi-year contract (established through a competitive procurement process)
- A sole source contract will be issued to build on and maintain continuity of previously completed work.

Budget, Funding Source(s), and Time Frame

- $300,000 FY23
- $1,000,000 FY23-FY24
- One-time appropriations and contribution in-kind
- The pilot project is expected to take three years. The outcome of the pilot project will inform subsequent UCRAF activities.

6 ADVISORY COUNCILS

Description

UCA 63M-14-209 authorizes the Authority to create advisory councils to provide *"data, information, and input… relevant to the mission and objectives of the authority*." Advisory councils will provide a diversity of perspectives to inform the Authority and help it meet its objective to "*protect, conserve, use, and develop Utah's waters of the Colorado River system.*" The three regional advisory councils are composed of engaged citizens, stakeholders, water users, area, and topical experts, along with other Utahns who care about the Colorado River. Advisory councils will share, discuss, and develop ideas related to the challenges facing the Colorado River Basin, provide study and analysis, and serve as a deliberative forum for diverse points of view. When appropriate, advisory councils can also be tasked by the Authority with gathering data and providing information and analysis on specific topics.

While advisory councils are not vested with authority to make decisions regarding public business, council perspectives will provide viewpoints and insights that can help inform the Utah River Commissioner, the Authority Board, and other officials.

Types of Contractual Services Needed

- Travel and Accommodations
- Venue Reservations and Equipment

Budget, Funding Source(s), and Time Frame

- $281,000 FY23
- $1,405,000 FY23-FY24