COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan

Water Project Summary

Name of Applicant	Roaring Fork Conservancy
Name of Water Project	Exploring social and environmental controls on the scalability of water conservation programs.
Grant Request Amount	**$238,100.00**
Primary Category	$238,100.00
Engagement & Innovation Activities	
Total Applicant Match	**$10,000.00**
Applicant Cash Match	$5,500.00
Applicant In-Kind Match	$4,500.00
Total Other Sources of Funding	**$76,300.00**
Colorado River Water Conservation District	$41,300.00
American Rivers	$35,000.00
Total Project Cost	**$324,400.00**

Applicant & Grantee Information

Name of Grantee: Roaring Fork Conservancy
Mailing Address: 22800 Two Rivers Road Basalt CO 81621
FEIN: 841,376,379

Organization Contact: Heather Lewin
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Organization Contact - Alternate: Rick Lofaro
Position/Title: Executive Director
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Grant Management Contact: Heather Lewin
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Grant Management Contact - Alternate: Rick Lofaro
Position/Title: Executive Director
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Description of Grantee/Applicant

Since 1996, Roaring Fork Conservancy has inspired people to explore, value, and protect the Roaring Fork Watershed. We bring people together to protect our rivers and work hard to keep water in local streams, monitor water quality, and preserve riparian habitat.

As one of the largest watershed organizations in Colorado, Roaring Fork Conservancy serves residents and visitors throughout the Roaring Fork Valley through school and community-based Watershed Education programs and Watershed Science and Policy Projects including regional watershed planning, water resource policy initiatives, stream management, and restoration.

Type of Eligible Entity

- ☐ Public (Government)
- ☐ Public (District)
- ☐ Public (Municipality)
- ☐ Ditch Company
- ☐ Private Incorporated
- ☐ Private Individual, Partnership, or Sole Proprietor
- ■ Non-governmental Organization
- ☐ Covered Entity
- ☐ Other

Category of Water Project

- ☐ Agricultural Projects
  Developing communications materials that specifically work with and educate the agricultural community on headwater restoration, identifying the state of the science of this type of work to assist agricultural users among others.
- ☐ Conservation & Land Use Planning
  Activities and projects that implement long-term strategies for conservation, land use, and drought planning.
- ■ Engagement & Innovation Activities
  Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application on the website.
- ☐ Watershed Restoration & Recreation
  Projects that promote watershed health, environmental health, and recreation.
- ☐ Water Storage & Supply
  Projects that facilitate the development of additional storage, artificial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity and Multi-beneficial projects and those projects identified in basin implementation plans to address the water supply and demand gap.

Location of Water Project

Latitude	39.368621
Longitude	-107.038794
Lat Long Flag	Other: Coordinates based on other boundaries or locations
Water Source	Colorado River
Basins	Colorado
Counties	Eagle; Grand; Pitkin; Garfield; Mesa
Districts	45-Divide Creek; 50-Muddy/Troublesome Creeks; 38-Roaring Fork River Basin; 39-Rifle/Elk/Parachute Creeks; 37-Eagle River Basin; 36-Blue River Basin

Water Project Overview

Major Water Use Type	Agricultural
Type of Water Project	Planning (e.g. watershed)

Scheduled Start Date - Design 9/1/2022
Scheduled Start Date - Construction
Description

Implementation of consumptive water use reduction (i.e., water conservation) programs across the state is one important strategy proposed for reducing risks that persistent drought, growing populations, and climate change place on a finite water supply. Voluntary, temporary, and compensated water conservation programs and policies are gaining traction as the most acceptable and viable means for achieving consumptive use reduction goals. A limited number of pilot studies, to date, have endeavored to implement and test outcomes of water conservation efforts among agricultural producers. No reliable data is available to characterize water conservation program participation rates among diverse groups of water users at scale. This research project aims to fill that gap by conducting quantitative social surveys and constructing linked social and hydrological simulation models for the Colorado River Basin in Colorado. If approved, CWP funding will be used to support two of the three research Tasks that comprise the full project (see Exhibit A). The first Task will be funded entirely from match sources and will allow the project to begin prior to the release of CWP funds by CWCB. The second and third Tasks will be supported by CWP funds and will commence following completion of the first Task.

Measurable Results

New Storage Created (acre-feet)
New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
Existing Storage Preserved or Enhanced (acre-feet)
New Storage Created (acre-feet)
Length of Stream Restored or Protected (linear feet)
Efficiency Savings (dollars/year)
Efficiency Savings (acre-feet/year)
Area of Restored or Preserved Habitat (acres)
Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)
Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
400 Number of Coloradans Impacted by Engagement Activity
Other

We anticipate engaging 400+ agricultural water users over the course of this project. The outcomes of this project are expected to benefit water policy development that directly impacts thousands of Coloradans and indirectly impacts millions of Coloradans.

Water Project Justification

The tasks outlined in this project further the goals and objectives laid out in the CWP and the Colorado Basin Roundtable's Basin Implementation Plan (CBRT BIP). The CWP outlines a measurable objective to "[…] share at least 50,000 acre-feet of agricultural water using voluntary alternative transfer methods by 2030." (Section 10.2, page 10-5). This objective is supported in part by the following Critical Actions:

• "Develop a collaborative water management program for the Colorado River Basin, as described in the Conceptual Framework, to maximize the use of compact water while actively avoiding a Colorado River Compact deficit" (Section 10.3, page 10-8).

• "Encourage ditch-wide and regional planning to explore system-wide conservation and efficiency opportunities and tradeoffs, the potential for water sharing, and long-term infrastructure maintenance needs" (Section 10.3, page 10-10).

• “Explore expanded grant funding that supports implementation of Alternative Transfer Method (ATM) projects, related infrastructure, or entities that would help facilitate ATMs” (Section 10.3, page 10-10).

• “Evaluate and incorporate appropriate adaptation for the potential effects of climate change on municipal, industrial, environmental, and agricultural projects and methods that address the water supply gaps” (Section 10.3, page 10-14).

Water conservation, as a value or a structured program is relevant to each of the above Critical Actions. Language included in the CBRT BIP reflects the importance of water conservation as a tool for meeting needs over the long term for users of Colorado River water. The CBRT lists as one of its major Themes, the intention to: “Encourage a high level of basinwide conservation.” (page 51). The following are included among the Plan’s listed goals:

• "Capitalize on science and data to understand gaps and risks and to inform the Basin’s priorities and decision making” (page 55).

• “Encourage and pursue alternative transfer methods (ATMs) as an alternative to permanent buy-and-dry to meet growing municipal demands, while protecting agricultural water rights” (page 55).

This research project intends to support the goals and objectives of the CWP and the CBRT BIP by providing critical information on the scalability of water conservation programs. Notably, this project hopes to illustrate how adoption rates of large-scale water conservation programs may be influenced by social networks, demographics and geography. The critical insights expected from this research will help policy-makers craft policies or conservation program attributes that maximize conservation program effectiveness and help meet conservation goals under a range of climate and development futures.

Related Studies

This effort leverages previously-funded or ongoing projects supported by CWCB grant programs. Notably, this research is a logical progression of the ATM pilot-project coordinated by Trout Unlimited and others in the Kremmling area. That ongoing project was awarded funding by CWCB under the title Evaluating Conserved Consumptive Use in the Upper Colorado River. It utilizes field measurements and remote sensing to characterize consumptive use savings under partial- and full-season fallow in high-elevation pasture. A subsequent grant request to the CWCB titled Supporting Outreach and Engagement for the “Evaluating Conserved Consumptive Use in the Upper Colorado River” Project funded work exploring the barriers and perceptions to conservation program participation in the pilot project. The interviews conducted in this regard with agricultural users in the Kremmling area will be immediately useful to the proposed research. Qualitative interview summaries produced in Kremmling can be overlaid on published findings in the academic literature (e.g., Contrad, 2017; MacIlroy, 2019; Taylor, et. al, 2019) to provide a rich set of information for developing a Discrete Choice Experiment (see Exhibit A, Task 1). The Evaluating Conserved Consumptive Use in the Upper Colorado River demonstrated the use of the OpenET platform (https://openetdata.org) to estimate consumptive water uses under various water conservation treatments. The use of OpenET will be extended under this effort (see Exhibit A, Task 2) to estimate differences consumptive water use savings affected by elevation, soil type, precipitation regime, etc. Social network information collected in Kremmling area will be useful under Task 3 (see Exhibit A) as we endeavor to construct an Agent Based Model that mimics behavior of individual irrigators, as they are affected by time varying environmental circumstances and the interactions with other agents in their network.

Conrad, Steven A., Murray B. Rutherford, and Wolfgang Haider. "Profiling farmers’ preferences about drought response policies using a choice experiment in the Okanagan Basin, Canada." Water Resources Management

31.9 (2017): 2837-2851.

MacIlroy, K. 2019. “Exploring perceptions of voluntary agricultural water conservation program on the Western Slope of Colorado.” Report published by The Nature Conservancy.

Taylor, P. L., MacIlroy, K., Waskom, R., Cabot, P. E., Smith, M., Schempp, A., & Udall, B. 2019. “Every ditch is different: Barriers and opportunities for collaboration for agricultural water conservation and security in the Colorado River Basin.” Journal of Soil and Water Conservation, 74(3), 281-295.

Skaalsveen, K., Ingram, J., & Urquhart, J. 2020. “The role of farmers' social networks in the implementation of no-till farming practices.” Agricultural Systems, 181.

Taxpayer Bill of Rights

Not applicable