COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan

Water Project Summary

Name of Applicant	Colorado Water Center
Name of Water Project	Advancing Salinity Research and Engagement in the South Platte River Basin
Grant Request Amount	**$168,308.00**
Primary Category	$168,308.00
Engagement & Innovation Activities	
Total Applicant Match	**$56,147.00**
Applicant Cash Match	$29,100.00
Applicant In-Kind Match	$27,047.00
Total Other Sources of Funding	**$0.00**
Total Project Cost	**$224,455.00**

Applicant & Grantee Information

Name of Grantee: Colorado Water Center
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Description of Grantee/Applicant

The Colorado Water Center leads interdisciplinary research, education, and outreach to address complex and evolving water-related challenges in Colorado and beyond. We do so by fostering collaboration between higher education and water stakeholders, synthesizing objective water knowledge to inform decision-making, and inspiring the next generation of water leaders.

Type of Eligible Entity

- [x] 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.
- [x] 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	40.572900
Longitude	-105.080610
Lat Long Flag	Default/Proponent headquarters: If the location cannot be defined with flags above, use location of project proponent headquarters
Water Source	
Basins	Metro; South Platte
Counties	Boulder; Adams; Arapahoe; Broomfield; Cheyenne; Clear Creek; Denver; Douglas; El Paso; Elbert; Gi...
Districts	

Water Project Overview

Major Water Use Type	Agricultural
Type of Water Project	Capacity Building
Scheduled Start Date - Design	10/1/2025
Scheduled Start Date - Construction	

Description

The South Platte River Basin (SPRB) is the most populous and agriculturally productive basin in Colorado; however, the SPRB is experiencing salinization, which can negatively impact livelihoods and the economy. In 2020, the South Platte Salinity Stakeholder Group (SPSSG) was formed out of the recognition that salinity in the SPRB needs regional dialogue and coordination. The SPSSG is a cooperative effort representing interests from agriculture, municipalities, environment, water suppliers, water treatment, and researchers. The Colorado Water Center (CoWC) facilitates the SPSSG, striving to integrate stakeholder concerns, needs, and priorities to improve understanding of the sources, loads, trends, and impacts of salinity.

Under the CoWC's leadership and with CWCB support for salinity-related research, the group has had success in adding new members, increasing representation across sectors, and identifying research questions based on stakeholder concerns and needs. However, the group is now at an inflection point for which it needs a defined structure, direction, and sustainable funding mechanism going forward. This project would build on previous work and launch the SPSSG into the final phase of its development, enabling the group to become self-sustaining with clear vision, mission, goals, and processes needed to collaboratively address salinity challenges in the basin.

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)
Length of Pipe, Canal Built or Improved (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
80 Number of Coloradans Impacted by Engagement Activity
Other

~80 Coloradans directly engaged in the South Platte Salinity Stakeholder Group. 3.6 million people in the South Platte River Basin will benefit from salinity mitigation and management strategies.

Water Project Justification

The "Advancing Salinity Research and Engagement in the South Platte River Basin" Project is in alignment with the Colorado Water Plan (CWP, 2023) Action Areas of Vibrant Communities, Robust Agriculture, and Thriving Watersheds by identifying salinity mitigation and management strategies and projects that will sustain water use for agriculture, municipalities, and the environment in the South Platte River Basin (SPRB) long into the future.

Vibrant Communities:
For municipalities in the SPRB, salinity erodes infrastructure and is expensive to treat to meet secondary drinking water standards. Salinity management and mitigation strategies identified as part of this project (which may include shared water treatment infrastructure) will be critical to integrate into the Vibrant Communities Partner Actions of ensuring supplies that provide reliable and safe drinking water (CWP, pg. 179), optimizing investments in infrastructure (CWP, pg. 180), and investments in One Water and reuse (CWP, pg. 180). Salinity threatens the viability, affordability, and scalability of water reuse, posing a core technical and policy challenge in the SPRB. Addressing salinity is essential for meeting water quality standards, protecting infrastructure, enabling diverse reuse applications, and ensuring long-term success of water reuse as a strategy for resilience and supply augmentation. By building a common understanding of salinity issues, improving salinity data management, and synthesizing stakeholder input, this project will advance efforts that can inform state and local decision-making around regulation of salinity constituents and water reuse in the basin.

Robust Agriculture:
Sustaining profitable production is inherently linked to water and soil salinity management in agriculture. Salinity is a known threat to crop yield, soil health, and long-term agricultural productivity. This project supports the Plan's calls to sustain irrigated agriculture, including strategies to stretch available water supplies, increase resiliency,

enhance food production, and maintain profitability (CWP, pg. 176). Specifically, the project supports agricultural viability by engaging producers and water managers in identifying and prioritizing research and mitigation strategies to address salinity stress, which increase with adoption of pivot irrigation (Partner Action: on-farm efficiency improvements, pg. 194). The project also aligns with Partner Action: soil heath and effective use of water (pg. 194) by promoting healthy soils and resilient agricultural systems through salinity management.

Thriving Watersheds:
By supporting engagement of diverse stakeholders and sectors across the basin to inform research as well as enhance data management, the project fosters watershed-scale water quality stewardship, consistent with the CWP Thriving Watersheds section (pg. 204). Additionally, salinity is harmful to aquatic life, and the project would identify salinity management and mitigation strategies that could improve aquatic habitat (Partner Action: improving riparian and aquatic habitat, pg. 206).

Furthermore, the project specifically focuses on stakeholder engagement and public outreach and education around salinity in the SPRB, which aligns with one of the CWP partner action categories, Effective Engagement and Education (pg. 175).

Lastly, the project supports the Colorado Water Plan Values: (a) a productive economy; (b) an efficient and effective water infrastructure system; (c) a strong environment with healthy watersheds, rivers, streams, and wildlife; and (d) an informed public with solutions that are sustainable and resilient to changing conditions (pg. 8).

The project activities and goals meet the following South Platte/Metro Basin Implementation Plan (2022) goals:
• Goal 4 – Maintain and promote reuse (pg. 29)
• Goal 5 – Maintain and improve irrigation agriculture (pg. 30); particularly 5.E. Promote continued studies to characterize water quality (surface and groundwater) for irrigated agricultural use and identify practices that may improve water quality (pg. 31)
• Goal 6 – Protect and enhance watershed function (pg. 32); particularly 6.B.3: Impacts of water quality on irrigated agriculture infrastructure (pg. 35)
• Goal 7 – Protect and enhance environmental attributes; particularly 7.A: Continue to develop, promote, and apply best management practices, tools, and methodologies to adequately assess what is needed to maintain, increase, or enhance the following throughout the South Platte Basin: General river health; Aquatic, riparian, floodplain, wetland, and wet meadow habitats; Instream flows; Water quality and impacts associated with temperature and other pollutants; Riverine connectivity, including biological, hydrological, geomorphological processes, and stormwater impacts (pg. 36)
• Goal 11 – Broaden South Platte communications, outreach, and education programs (pg. 39)

Related Studies

The “Advancing Salinity Research and Engagement in the South Platte River Basin” Project builds upon studies and other work previously supported by CWCB. Below is a list of those known to the best of our knowledge:

Website:
- https://watercenter.colostate.edu/water-quality-and-access/south-platte-salinity-stakeholders/
Dataset:
- Northern Water, South Platte River Salinity Monitoring Program (2024), online at <URL: https://www.northernwater.org/getattachment/5d32b437-5e6f-457f-80e8-b8431e64e51c/South_Platte_River_Basin >
Publications:
- Dennehy, K.F., Litke, D.W., Tate, C.M., Qi, S.L., McMahon, P.B., Bruce, B.W., Kimbrough, R.A., and Heiny,

J.S., 1998, Water Quality in the South Platte River Basin, Colorado, Nebraska, and Wyoming, 1992-95: U.S. Geological Survey Circular 1167, online at <URL: https://water.usgs.gov/pubs/circ1167>, updated October 15, 1998.
Completed Studies:
- Grady O'Brien (NEIRBO Hydrogeology), 2020. South Platte River Salinity: Sources, Trends, and Concerns – 1995-2018. Funding Source: Colorado Water Conservation Board (CWCB) Water Supply Reserve Fund (WSRF).
- NEIRBO Hydrogeology, 2023. Geologic Influences on Salinity in the South Platte River Basin. Funding source: CWCB WSRF
- Allan Andales (CSU), Dan Mooney (CSU), Tim Gates (CSU), Jose Chavez (CSU), Grady O'Brien (Neirbo). Assessing the state of knowledge on the nature, extent, and impact of water salinity in the South Platte River Basin. Funding source: Colorado Water Center (2022-2023).
- Grady O'Brien (Neirbo). Identifying Salinity Characterization Sites in the South Platte River Basin. Funding Source: Colorado Corn Council (2022 – 2024).
- Jose Chavez (CSU), Tim Gates (CSU), Allan Andales (CSU), Grady O'Brien (Neirbo); Mazdak Arabi (CSU), Ryan Bailey (CSU). Using Remote Sensing Data to Highlight Salinization Patterns Across an Irrigated River Basin in Relation to Contributing Factors. Funding source: CWCB (2023-2024).
- Lesley Sebol (Colorado Geologic Survey). South Platte Basin Geologic Salinity Sources – Geologic Formation Chemical Characterization. Funding Source: CWCB WSRF (2023-2024).
Ongoing Studies:
- Tim Gates and Jose Chavez (CSU). Characterizing Agro-Environmental Threats from Salinity in the South Platte River Basin. Funding source: Colorado Agricultural Experiment Station (2022 – 2025).
- Tim Gates and Allan Andales (CSU). South Platte River Basin Salinity Study. Funding Source: CWCB Water Plan Grant (2024 – 2027).
- Ryan Bailey (CSU). Assessing, Forecasting, and Planning for Mitigation of Salt Pollution in Semi-Arid Irrigated Regions. Funding source: USDA NIFA (2023-2027).

Taxpayer Bill of Rights

No Tax Bill of Rights provided