



Last Update: August 3, 2017

Colorado Water Conservation Board
Water Supply Reserve Fund Grant Application

Instructions		
All WSRF grant applications shall conform to the current 2016 WSRF Criteria and Guidelines. To receive funding from the WSRF, a proposed water activity must be approved by a Roundtable(s) AND the Colorado Water Conservation Board (CWCB). The process for Roundtable consideration and recommendation is outlined in the 2016 WSRF Criteria and Guidelines. The CWCB meets bimonthly according to the schedule on page 2 of this application. If you have questions, please contact the current CWCB staff Roundtable liaison:		
Arkansas Ben Wade ben.wade@state.co.us 303-866-3441 x3238	Gunnison North Platte South Platte Yampa/White Craig Godbout craig.godbout@state.co.us 303-866-3441 x3210	Colorado Metro Rio Grande Southwest Megan Holcomb megan.holcomb@state.co.us 303-866-3441 x3222

WSRF Submittal Checklist (Required)	
✓	I acknowledge this request for funding was recommended for CWCB approval by the sponsoring Basin Roundtable(s).
✓	I acknowledge I have read and understand the 2016 WSRF Criteria and Guidelines .
✓	I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract . ⁽¹⁾
Exhibit A	
✓	Statement of Work ⁽²⁾ (Word – see Exhibit A Template)
✓	Budget & Schedule ⁽²⁾ (Excel Spreadsheet – see Exhibit A Template)
✓	Letters of Matching and/or Pending 3 rd Party Commitments ⁽²⁾
Exhibit C	
✓	Map ⁽²⁾
	Photos/Drawings/Reports
✓	Letters of Support
	Certificate of Insurance ⁽³⁾ (General, Auto, & Workers' Comp.)
Contracting Documents	
	Certificate of Good Standing ⁽³⁾
	W-9 ⁽³⁾
	Independent Contractor Form ⁽³⁾ (If applicant is individual, not company/organization)
	Electronic Funds Transfer (ETF) Form ⁽³⁾

(1) Click "Grant Agreements". For reference only/do not fill out or submit/required for contracting

(2) Required with application if applicable.

(3) Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.

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Schedule		
CWCB Meeting	Application Submittal Dates	Type of Request
January	December 1	Basin Account; BIP
March, 2019	February 1, 2019	Basin/Statewide Account; BIP
May	April 1	Basin Account; BIP
July	June 1	Basin Account; BIP
September	August 1	Basin/Statewide Account; BIP
November	October 1	Basin Account/BIP

Desired Timeline	
Desired CWCB Hearing Month:	March 2019
Desired Notice to Proceed Date:	May, 2019

Water Activity Summary	
Name of Applicant	Colorado Corn Administrative Committee 127 22nd Street Greeley CO 80631 NEIRBO Hydrogeology 231 S Howes St Fort Collins, CO 80521
Name of Water Activity	Historical Analysis of South Platte River Salinity to Identify Severity, Trends, and Potential Sources
Approving Roundtable(s)	Basin Account Request(s) ⁽¹⁾
South Platte Basin	\$39,000
Basin Account Request Subtotal	\$39,000
Statewide Account Request ⁽¹⁾	\$0
Total WSRF Funds Requested (Basin & Statewide)	\$39,000
Total Project Costs	\$56,500

(1) Please indicate the amount recommended for approval by the Roundtable(s)

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Grantee and Applicant Information	
Name of Grantee(s)	Colorado Corn Administrative Committee
Mailing Address	127 22nd Street Greeley CO 80631
FEIN	84-1074476
Grantee's Organization Contact ⁽¹⁾	Mark Sponsler
Position/Title	Executive Director
Email	msponsler@coloradocorn.com
Phone	(970) 351-8201
Grant Management Contact ⁽²⁾	Mark Sponsler
Position/Title	Executive Director
Email	msponsler@coloradocorn.com
Phone	(970) 351-8201
Name of Applicant (if different than grantee)	Co-Applicants – Grantee above and the following:
Mailing Address	NEIRBO Hydrogeology, 231 S HOWES ST, FORT COLLINS, CO 80521
Position/Title	GRADY O'BRIEN, MEMBER / PRINCIPAL
Email	grady@neirbo.com
Phone	(970) 817-0630

(1) Person with signatory authority

(2) Person responsible for creating reimbursement invoices (Invoice for Services) and corresponding with CWCB staff.

Description of Grantee
Provide a brief description of the grantee's organization (100 words or less).
The Colorado Corn Administrative Committee (CCAC) was established by the 1987 Corn Marketing Order (a legislative action that provided the framework) to manage a one-penny-per-bushel assessment collected from corn producers by first handlers from sales of field corn for grain in Colorado. Those funds are allowed to be used specifically for market development, promotion, research and education on behalf of corn producers in this state.

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Type of Eligible Entity (check one)	
	Public (Government): municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
	Public (Districts): authorities, Title 32/special districts (conservancy, conservation, and irrigation districts), and water activity enterprises
	Private Incorporated: mutual ditch companies, homeowners associations, corporations
	Private Individuals, Partnerships, and Sole Proprietors: are eligible for funding from the Basin Accounts but not for funding from the Statewide Account.
✓	Non-governmental organizations: broadly, any organization that is not part of the government
	Covered Entity: as defined in Section 37-60-126 Colorado Revised Statutes

Type of Water Activity (check one)	
✓	Study
	Implementation

Category of Water Activity (check all that apply)		
	Nonconsumptive (Environmental)	
	Nonconsumptive (Recreational)	
✓	Agricultural	
✓	Municipal/Industrial	
✓	Needs Assessment	
	Education & Outreach	
	Other	Explain:

Location of Water Activity	
Please provide the general county and coordinates of the proposed activity below in decimal degrees . The Applicant shall also provide, in Exhibit C, a site map if applicable.	
County/Countries	South Platte Basin, Northeastern Colorado
Latitude	
Longitude	

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Water Activity Overview

Please provide a summary of the proposed water activity (200 words or less). Include a description of the activity and what the WSRF funding will be used for specifically (e.g. studies, permitting, construction). Provide a description of the water supply source to be utilized or the water body affected by the activity. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, area of habitat improvements. If this project addresses multiple purposes or spans multiple basins, please explain. The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, and Schedule.

This activity investigates the current salinity and the historical salinity trends along the South Platte River (SPR). Total Dissolved Solids (TDS) is an indicator of salts in irrigation water that can damage soils, reduce crop yields, and negatively impact the sustainability of irrigated agriculture. SPR sampling in September 2018 confirmed that TDS concentrations increase dramatically through the Denver Metro area and reach levels that can damage crops. Potential salinity sources include Municipal waste water treatment facility (WWTF) sewage effluent, agricultural return flows, road deicing solutions, geologic formations, livestock waste, and produced water from oil and gas development.

Project objectives are to determine if salinity concentrations are a concern for irrigated agriculture, identify salinity severity and trends, evaluate the influence of historical water management practices, and to identify potential salinity sources. This project will analyze historical TDS concentrations to identify trends over time and along the SPR. Long-term, seasonal, and spatial trends will be used to identify potential salinity sources. Trends will be analyzed for correlations with major water-management policies.

The Colorado South Platte River Basin data sources for this study will include Central and Northern Colorado Water Conservation Districts, Colorado Department of Public Health and Environment (CDPHE), U.S. Geological Survey, U.S. Environmental Protection Agency, and the Colorado Department of Agriculture. Additional data sources may be used if the data can be readily obtained.

Measurable Results

To catalog measurable results achieved with WSRF funds please provide any of the following values.

	New Storage Created (acre-feet)	
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive	
	Existing Storage Preserved or Enhanced (acre-feet)	
	Length of Stream Restored or Protected (linear feet)	
	Efficiency Savings (indicate acre-feet/year OR dollars/year)	
	Area of Restored or Preserved Habitat (acres)	
	Length of Pipe/Canal Built or Improved	
✓	Other	Explain: Document South Platte River salinity severity, trends, and sources

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Water Activity Justification

Provide a description of how this water activity supports the goals of [Colorado's Water Plan](#), the most recent [Statewide Water Supply Initiative](#), and the respective [Roundtable Basin Implementation Plan and Education Action Plan](#) ⁽¹⁾. The Applicant is required to reference specific needs, goals, themes, or Identified Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers).

For applications that include a request for funds from the Statewide Account, the proposed water activity shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan criteria for state support (CWP, Section 9.4, pp. 9-43 to 9-44;) (Also listed pp. 4-5 in [2016 WSRF Criteria and Guidelines](#)).

This project meets the following goals of the South Platte Basin Implementation Plan (SP-BIP):

Page 1-27. Section 1.9.5 Water Quality

Goal: Maintain, enhance and proactively manage water quality for all use classifications.

MO#1 – Maintain or improve the delivery of safe water supplies throughout the basin.

E&R MO#1 – Monitor, protect and improve watershed water quality and identify and document progress and improvements.

E&R MO#2 – Improve areas where water quality may be limiting the suitability of focus areas identified by BRTs through environmental and recreational mapping efforts.

Page 3-7. 3.1.11 Water Quality Management

Higher quality water sources are essentially fully tapped and municipal water suppliers are facing the challenges of using lower quality, more distant water sources. ...After current IPPs are implemented, greater use of the lower quality water sources may be significantly constrained depending on whether the industry's technological advancements satisfy regulatory requirements for disposal of highly concentrated waste streams from advanced water treatment processes.

Page 4-12. 4.2.3 Water Quality Overview

From a water quality perspective in the South Platte Basin, the following examples demonstrate the diversity of concerns relative to current and future Statewide planning:

1. Wastewater treatment and reuse are important facets of the Basin's water supplies. Innovative systems are being developed in the Basin to increase water availability for various beneficial uses.
11. There are salinity concerns related to wastewater treatment plant discharges and salted roads. These salinity issues can impact both surface water and groundwater supplies.

Colorado Water Plan,

Page 7-18 Water Quality and Quantity Connections: Managing water quantity may cause a change in water quality. When entities divert water to farms or cities, store it for future use or flood control, or manage it as return-flows to address downstream water rights, water quality can change

Page 7-19: One option for addressing future municipal water supply needs is the use of alternative agricultural transfers, such as rotational fallowing and interruptible supply options. High concentration of salts and other pollutants from this source water, however, may require advanced water-treatment technologies, such as reverse osmosis, to make the water usable for communities.

page 7-20: Cause-and-effect connections related to water quality and quantity are integral to the State's ability to make sound water management decisions. The State considers these connections during decision-making processes that are dependent on statutory, regulatory and management relationships related to water quality and quantity.

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(1) Access Basin Implementation Plans or Education Action Plans from Basin drop down menu.

Matching Requirements: Basin Account Requests	
Basin (only) Account grant requests require a 25% match (cash and/or in-kind) from the Applicant or 3 rd party and shall be accompanied by a letter of commitment as described in the 2016 WSRF Criteria and Guidelines (submitted on the contributing entity's letterhead). Attach additional sheet if necessary.	
Contributing Entity	Amount and Form of Match (note cash or in-kind)
Colorado Corn Administrative Committee	\$15,000 (cash)
Central Colorado Water Conservation District	\$2,500 (cash)
Total Match	\$17,500 (cash)
If you requested a Waiver to the Basin Account matching requirements, indicate the percentage you wish waived.	

Matching Requirements: Statewide Account Requests	
Statewide Account grant requests require a 50% match as described in the 2016 WSRF Criteria and Guidelines. A minimum of 10% match shall be from Basin Account funds (cash only). A minimum of 10% match shall be provided by the applicant or 3 rd party (cash, in-kind, or combination). The remaining 30% of the required match may be provided from any other source (Basin, applicant, or 3 rd party) and shall be accompanied by a letter of commitment . Attach additional sheet if necessary.	
Contributing Entity	Amount and Form of Match (note cash or in-kind):
Currently not being pursued	
Total Match	\$
If you requested a Waiver to the Statewide Account matching, indicate % you wish waived. (Max 50% reduction of requirement).	

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Related Studies

Please provide a list of any related studies, including if the water activity is complimentary to or assists in the implementation of other CWCB programs.

Northern Colorado Water Conservation District (Northern) conducted a salinity study from 2002-2006 and produced a report, which will be used in this study.

Northern and Central Colorado Water Conservation District (Central) are collecting electrical conductivity data that will be used in this study.

The USGS and the Department of Agriculture are collecting data and have produced reports that will be used.

Previous CWCB Grants

List all previous or current CWCB grants (including WSRF) awarded to both the Applicant and Grantee. Include: 1) Applicant name; 2) Water activity name; 3) Approving RT(s); 4) CWCB board meeting date; 5) Contract number or purchase order

Not applicable

Tax Payer Bill of Rights

The Tax Payer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect the applicant.

Not applicable

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South Platte Basin Roundtable
Garrett Varra, Chair
February 1, 2019

Craig Godbout
Water Supply Planning Section
Colorado Water Conservation Board
1313 Sherman Street, Room 718
Denver, CO 80203

VIA EMAIL to craig.godbout@state.co.us

RE: Approval Recommendation for Historical Analysis of South Platte River Salinity to Identify Severity, Trends, and Potential Sources

Dear Craig,

At the January meeting of the South Platte Basin Roundtable (SPBRT) the membership voted to recommend that the Colorado Water Conservation Board (CWCB) approve funds for the Water Supply Reserve Fund (WSRF) grant application titled "Historical Analysis of South Platte River Salinity to Identify Severity, Trends, and Potential Sources". A quorum was present at the meeting. The SPBRT WSRF basin fund contribution is \$39,000. The total project budget is \$56,500. The Colorado Corn Administrative Committee (CCAC) is the co-applicant and they have provided \$15,000 cash matching funds. The Central Colorado Water Conservancy District (Central) is providing \$2,500 cash matching funds.

This grant application has received strong support from several agricultural organizations in the basin. The CCAC recognizes the damage salinity can cause to irrigated agriculture. The cumulative nature of salinity impacts increases the urgency to understand and address salinity in the basin. The CCAC proactively provided \$15,000 in matching funds to obtain field water quality measurements in September 2018 that confirm high salinity concentrations in the South Platte River. Based on these sampling results Central has also provided \$2,500 cash matching funds and access to their water-quality database. Letters of support, urging funding for this proposal, have been provided by the Colorado Farm Bureau, Colorado Livestock Association, and the Colorado Ag Water Alliance. Central and Northern water districts have also provided support and cooperation by providing access to water-quality data for analysis.

The Colorado Water Plan (2015) and the South Platte Basin Implementation Plan (SP-BIP) address water-shortage concerns by encouraging water reuse, storage, conveyance, and conservation. Increasing salinity concentrations have the potential to make the current water supplies unusable for many water users, which further compounds the water shortages.

Municipalities have obtained approved exchange decrees that allow them to divert fresh water upstream of the Metro area, with low TDS concentrations, and use it in public water supply systems. The municipalities are required to replace the river depletions with Waste Water Treatment Facility (WWTF) water stored in gravel pits. Diverted flows that are not consumed result in WWTF sewage effluent that has higher TDS than the source water. As the SPR and groundwater flows through the basin it is reused due to repeated diversions and pumping. The water accumulates additional salts with each use. Upstream water users have the benefit of a lower-salinity water source that is diverted from the river upstream of the WWTF discharges.

The result is downstream diversions delivering higher-salinity flows, which impact all water users. In addition to direct crop irrigation, there are numerous existing and planned water storage, recharge, augmentation, and pipeline projects that will need to manage these higher salt concentrations.

The design, construction, and management of current and future facilities need to understand and consider water quality in general and salinity specifically. This study addresses the suitability of water for the SP-BIP high priority projects, irrigated agriculture sustainability, and the environment. There will also be an educational component as the results can be used to inform water providers and water uses of this currently under scrutinized problem. The results of this study can guide future water management actions that improve the sustainability of water resources in the South Platte Basin and other state-wide basins.

The South Platte Basin Roundtable, therefore, recommends that the CWCB approve funds for this WSRF grant application. Understanding salinity severity, trends, and potential sources is the first step in addressing the problem and ensuring that current water management policies will not unintentionally exacerbate the water-supply problem.

Sincerely,



Garrett Varra

Water Supply Reserve Fund – Grant and Loan Program
Water Activity Summary Sheet
March 20-21, 2019
Agenda Item 24(b)

Co-Applicants: NEIRBO Hydrogeology/Colorado Corn Administrative Committee

Grantee: Colorado Corn Administration

Water Activity Name: Historical Analysis of South Platte River Salinity to Identify Severity, Trends, and Potential Sources

Water Activity Purpose: Multipurpose/Study (Ag/M&I/Needs Assessment)

County: Multiple-South Platte Basin Counties

Drainage Basin: South Platte

Water Source: South Platte River

Amount Requested: \$39,000 South Platte Basin Account

Matching Funds: Applicant & 3rd Party Match (cash & in-kind) = \$17,500
• 45% of the Basin Account request (meets 25% min)

Staff Recommendation:
Staff recommends approval of up to \$39,000 from the South Platte Basin Account to help fund the project titled: Historical Analysis of South Platte River Salinity to Identify Severity, Trends, and Potential Sources.

Water Activity Summary: WSRF grant funds, if approved, will assist NEIRBO Hydrogeology and the Colorado Corn Administrative Committee investigate current salinity and the historical salinity trends along the South Platte River. Total Dissolved Solids (TDS) is an indicator of salts in irrigation water that can damage soils, reduce crop yields, and negatively impact the sustainability of irrigated agriculture. South Platte River sampling in September 2018 confirmed that TDS concentrations increase dramatically through the Denver Metro area and reach levels that can damage crops. Potential salinity sources include Municipal waste water treatment facility sewage effluent, agricultural return flows, road deicing solutions, geologic formations, livestock waste, and produced water from oil and gas development.

Project objectives are to determine if salinity concentrations are a concern for irrigated agriculture, identify salinity severity and trends, evaluate the influence of historical water management practices, and to identify potential salinity sources. This project will analyze historical TDS concentrations to identify trends over time and along the South Platte River. Long-term, seasonal, and spatial trends will be used to identify potential salinity sources. Trends will be analyzed for correlations with major water-management policies.

Discussion: This project supports the goals of maintaining, enhancing and proactively manage water quality for all use classifications as called for in the South Platte Basin Implementation Plan, as well

as assisting the state to promote protection and restoration of water quality as called for in Chapter 10, Section 10.3 F. Watershed Health, Environmental, and Recreation in Colorado's Water Plan.

Issues/Additional Needs: No issues or additional needs have been identified

Eligibility Requirements: The application meets requirements of all eligibility components: General Eligibility, Entity Eligibility, Water Activity Eligibility, and Eligibility Based on Match Requirements.

Evaluation Criteria: This activity has undergone review and evaluation and staff has determined that it satisfies the Evaluation Criteria. Please refer to Basin Roundtable Chair's Recommendation Letter and the WSRF Grant Application for applicant's detailed response.

Funding Summary/Matching Funds:

<u>Funding Sources</u>	<u>Cash</u>	<u>In-kind</u>	<u>Total</u>	<u>Status</u>
Colorado Corn Administrative Committee	\$15,000	\$0	\$15,000	Secured
Central Colorado Water Conservancy District	\$0	\$2,500	\$2,500	Secured
Subtotal	\$15,000	\$2,500	\$17,500	
WSRF South Platte Basin Account	\$39,000	n/a	\$39,000	Secured
Total Study Costs	\$54,000	\$2,500	\$56,500	

CWCB Project Manager: Craig Godbout

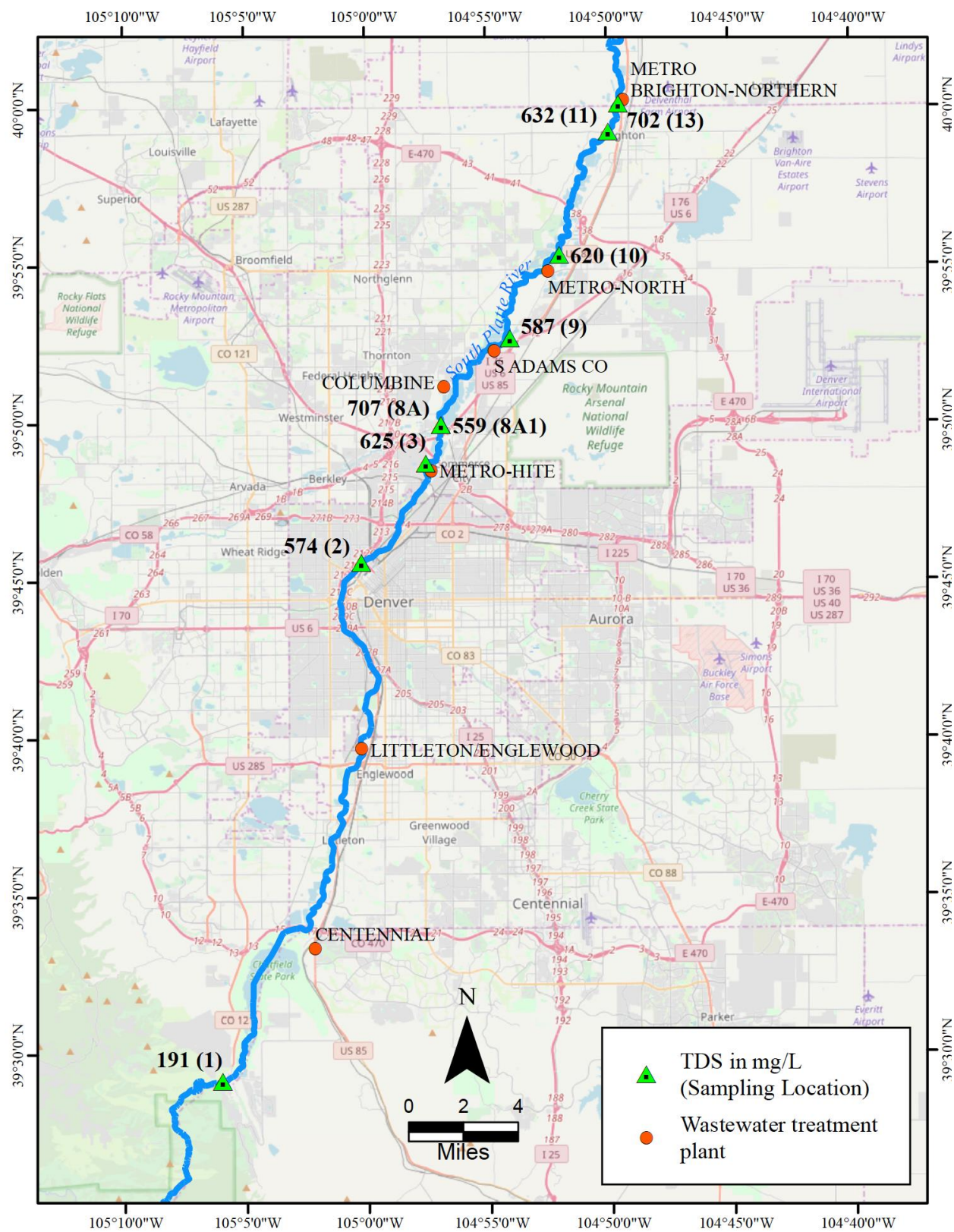


Figure 1. South Platte River total dissolved solids concentrations measured in the Denver Metro area (September, 2018)

Table 1. Sample site descriptions and measured TDS

Site	Description	Field ¹	Laboratory ²
		Total Dissolved Solids (mg/l)	Total Dissolved Solids (mg/l)
1	SPR AT WATERTON CANYON	162	191
2	SPR-AT 19 th ST, USGS GAGE, DENVER	580	574
3	SPR-NEAR CCWCD MD01	626	625
8A	SPR-DS 74 th AVE	707	
8A1	SPR-DS 74 th AVE	562	559
9	FULTON DITCH NEAR SPR	587	
10	SPR AT HENDERSON 124TH AVE	620	
11	SPR-DS BRIGHTON PONDS AT HWY 7	638	632
13	SPR-BRIGHTON NORTHERN WWTF	724	702
17	SPR-DS HWY 52	654	643
20A	SPR AT CR 325	691	702
22	SVR AT CR 34	734	733
23	SVR-USGS GAGE AT CR 38	750	744
27A	EVANS DITCH	849	
27A1	BTR-CR 396	867	849
28	SPR-US OF BTR CONFLUENCE	757	
29	SPR-US OF HWY 85 NEAR LASALLE	701	
29-Ditch	SPR AT LATHAM DITCH NEAR	761	688
33A	CLP-US OF SPR CONFLUENCE	802	728
34A	SPR-DS CLP CONFLUENCE	749	751
35A	SPR AT CR 61	772	788
37	SPR NEAR PLAMASCO	817	
38	SPR AT CR 19 NEAR ORCHARD	756	831
39A	SPR AT CR 9 NEAR WELDONA	877	
41	SPR AT CO 52 NEAR FORT MORGAN	909	912
42A	SPR AT CR 24 DODD BRIDGE	979	976
47A	SPR-DS STERLING BRAVO WILDLIFE	1209	1210
50	SPR DS CO 385 NEAR JULESBURG	1310	1275
52A	CLP-US CO 68 NEAR TIMNATH	475	508
52A-pond	STORAGE POND-AT SPR US CO 68	396	
53	SPR AT COLLEGE AVE (HWY 287) FORT	100	
54	CLP AT OVERLAND TRAIL FORT	121	125

¹ Measured in the field with an In-situ smarTROLL Multiparameter Handheld

² Water sample analyzed by Ward Laboratory, Inc.

Abbreviations: SPR: SOUTH PLATTE RIVER; CLP: CACHE LA POUDE RIVER; SVR: SAINT VRAIN RIVER;
BTR: BIG THOMPSON RIVER; DS: DOWN STREAM; US: UPSTREAM; CR: COUNTY ROAD
CO: COLORADO HIGHWAY; HWY: HIGHWAY

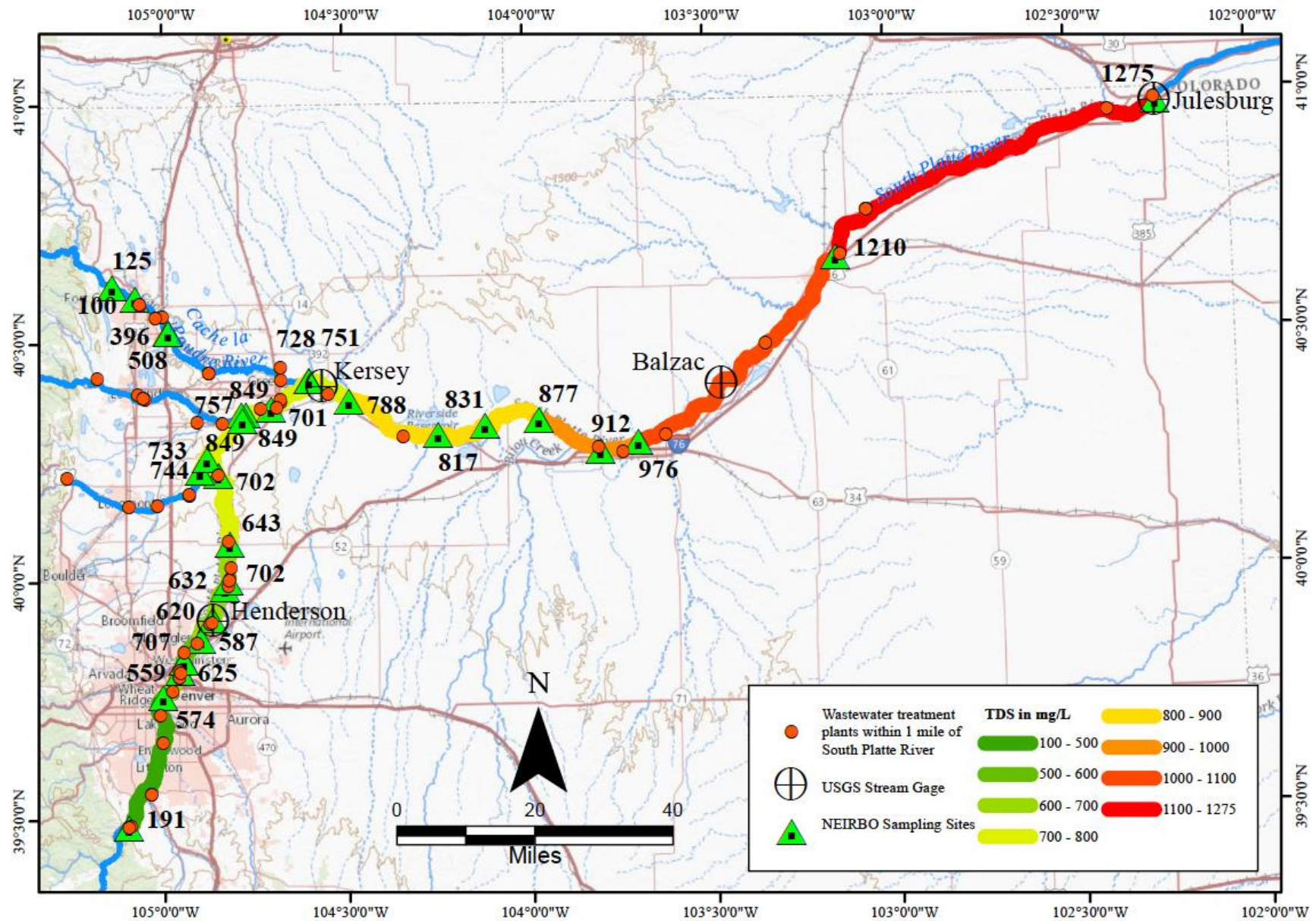


Figure 2. South Platte River total dissolved solids concentrations measured in September, 2018

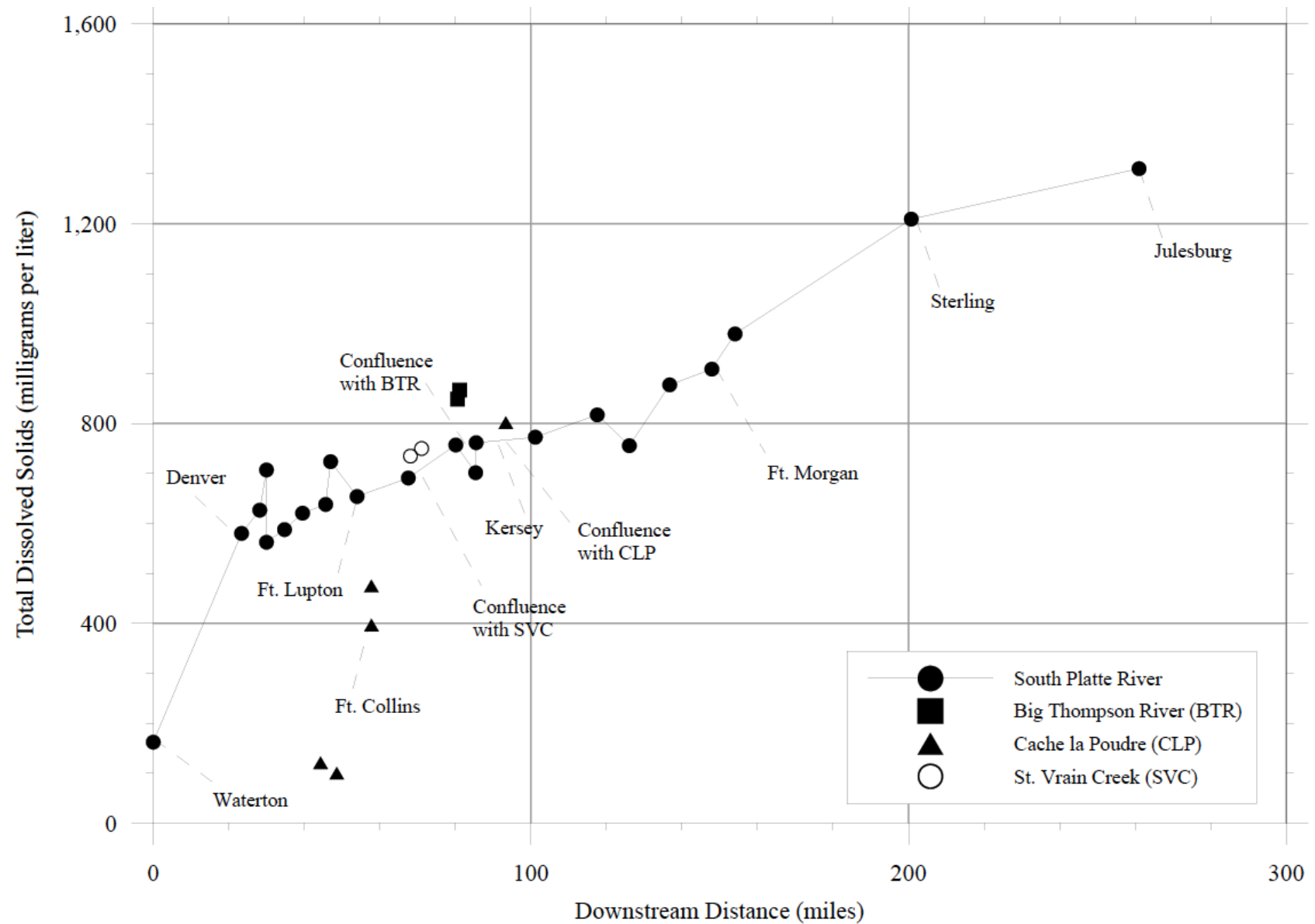


Figure 3. Changes in Total Dissolved Solids concentrations with distance along the South Platte River