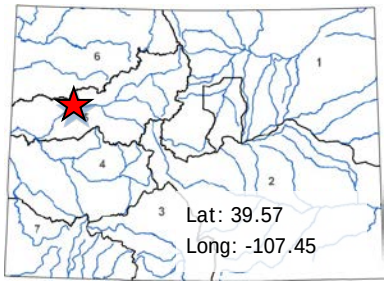
COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Canyon Creek Fish Passage
Trout Unlimited
July 2020 Board Meeting

Water Plan Grant Application



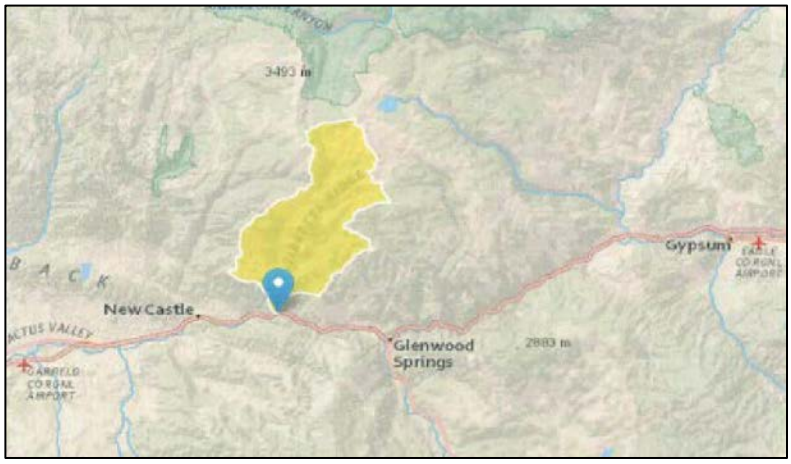
LOCATION	
County/Counties:	Garfield
Drainage Basin:	Colorado

DETAILS	
Total Project Cost:	$203,625
Water Plan Grant Request:	$101,812
Recommended amount:	$101,812
Other CWCB Funding:	$20,700
Other Funding Amount:	$0
Applicant Match:	$27,638
Project Type(s): Study, Construction	
Project Category(Categories): Environment and Recreation	
Measurable Result: 58,080 linear feet of restored stream, 35,840 acres of restored habitat, contribution to the growing data base of fish passage design	

Trout Unlimited is the nation's largest cold-water conservation organization, with 300,000 members who are dedicated to conserving, protecting, and restoring North America's trout and salmon fisheries and their watersheds.

A number of important perennial, freestone creeks run south into the Colorado River main stem. All exhibit excellent water quality and adequate late season flow regimes. Creeks such as Grizzly and No-Name Creek offer very productive spawning and juvenile habitat for cold water fish.

Canyon Creek at Chacra, Colorado is one of these creeks, which, unfortunately, is no longer accessible to spawning fish. The creek is largely blocked at its mouth to the Colorado River by two large (300 LF) concrete box culverts that convey the creek under Interstate 70. As part of the original Interstate 70 construction in the late 70's, the culverts did employ a fish baffle system. Those baffles, however, were constructed from large timbers and have eroded away over time. The result is that very few fish make it upstream to spawn, leaving a large basin (56 square miles) effectively unused.



The Colorado Water Plan Environmental and Recreation grant funds will be used by TU and Wright Water Engineers (WWE) to permit, design, and install a new set of concrete baffles in the east culvert, as well as a short wall in the upstream mouth of the west culvert to focus all flow into the east side during low flow conditions. The project sponsors have created a preliminary design for the project and calculated approximate 100 year flood flows for the basin, via StreamStats, to ensure the culverts will be able to convey flood flow after the baffles are installed. CDOT has reviewed these preliminary designs and provided their approval to proceed with the project. Once CDOT has signed off on the final constructed project they will assume maintenance responsibilities for the project.

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Water Plan Grant Application

Instructions

To receive funding for a Water Plan Grant, applicant must demonstrate how the project, activity, or process (collectively referred to as "project") funded by the CWCB will help meet the measurable objectives and critical actions in the Water Plan. Grant guidelines are available on the CWCB website.

If you have questions, please contact CWCB at (303) 866-3441 or email the following staff to assist you with applications in the following areas:

Water Storage Projects	Anna.Mauss@state.co.us
Conservation, Land Use Planning	Kevin.Reidy@state.co.us
Engagement & Innovation Activities	Ben.Wade@state.co.us
Agricultural Projects	Alexander.Funk@state.co.us
Environmental & Recreation Projects	Chris.Sturm@state.co.us

FINAL SUBMISSION: Submit all application materials in one email to *waterplan.grants@state.co.us*
in the original file formats [Application (word); Statement of Work (word); Budget/Schedule (excel)]. Please do not combine documents. In the subject line, please include the funding category and name of the project.

Water Project Summary

Name of Applicant	Trout Unlimited
Name of Water Project	Canyon Creek Fish Passage Project

CWP Grant Request Amount	$101,812.00
Other Funding Sources FWS-Nat. Fish Passage Program.	$53,475.00
Other Funding Sources CWCB-CBRT-WSRF-Basin Funds	$20,700.00
Other Funding Sources _____	$0.00
Applicant Funding Contribution TU/Wright Water Engineers-In-Kind/Casg Funding.	$27,638.00 ($13,819.00 in-kind and $13,819.00 cash)
Total Project Cost	$203,625.00

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Applicant & Grantee Information
Name of Grantee(s) Trout Unlimited and Wright Water Engineers (TU will act as fiscal agent).
Mailing Address 115 N. 5th Street, Suite #409, Grand Junction, CO 81501
FEIN 38-1612715
Organization Contact Richard Van Gytenbeek
Position/Title Colorado River Basin Outreach Coordinator
Email r.vangytenbeek@tu.org
Phone 307-690-1267
Grant Management Contact Richard Van Gytenbeek
Position/Title Co. River Basin Outreach Coordinator
Email r.vangytenbeek@tu.org
Phone 307-690-1267
Name of Applicant (if different than grantee)
Mailing Address
Position/Title
Email
Phone

Description of Grantee/Applicant
Provide a brief description of the grantee's organization (100 words or less).

Trout Unlimited is the nation's largest cold-water conservation organization, with 300,000 members dedicated to conserving, protecting, and restoring North America's trout and salmon fisheries and their watersheds.

TU, represented by Richard Van Gytenbeek, will be working closely with Scott Schreiber of Wright Water Engineers (WWE) throughout the project. WWE works on water projects throughout the United States with a staff of approximately 45 people including engineers, hydrogeologists, hydrologists, biologists, chemists, geologists, GIS specialists. WWE is a specialist in stream restoration and fish passage investigations and designs and is currently involved in four stream management plans across the state (Big Thompson, South Platte, Uncompahgre, and Middle Colorado).

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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: Private parties may be eligible for funding.
XX	**Non-governmental organizations (NGO):** Organization that is not part of the government and is non-profit in nature.
	Covered Entity: As defined in Section 37-60-126 Colorado Revised Statutes.

Type of Water Project (check all that apply)	
XX	Study
XX	Construction
	Identified Projects and Processes (IPP)
	Other

Category of Water Project (check the primary category that applies and include relevant tasks)		
	Water Storage - 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.. *Applicable Exhibit A Task(s):*	
	Conservation and Land Use Planning - Activities and projects that implement long-term strategies for conservation, land use, and drought planning. *Applicable Exhibit A Task(s):*	
	Engagement & Innovation - Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application on the website. *Applicable Exhibit A Task(s):*	
	Agricultural - Projects that provide technical assistance and improve agricultural efficiency. *Applicable Exhibit A Task(s):*	
XX	Environmental & Recreation - Projects that promote watershed health, environmental health, and recreation. *Applicable Exhibit A Task(s):*	
	Other	Explain:

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Location of Water Project	
Please provide the general county and coordinates of the proposed project below in **decimal degrees**. The Applicant shall also provide, in Exhibit C, a site map if applicable.	
County/Counties	Garfield County.
Latitude	Lat. 39.57
Longitude	Long. -107.45

Water Project Overview
Please provide a summary of the proposed water project (200 words or less). Include a description of the project and what the CWP Grant funding will be used for specifically (e.g., studies, permitting process, construction). Provide a description of the water supply source to be utilized or the water body affected by the project, where applicable. 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, and area of habitat improvements, where applicable. 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, Other Funding Sources/Amounts and Schedule.
Emanating from the southern rim of the Flat Tops mountain range, a number of important perennial, freestone creeks run south into the Colorado River mainstem. All exhibit excellent water quality and adequate late season flow regimes. Creeks such as Grizzly and No-Name Creek offer very productive spawning and juvenile habitat for cold water fish. Canyon Creek at Chacra, Colorado is one of these creeks which unfortunately, is no longer accessible to spawning fish. The creek is largely blocked at its mouth to the Colorado River by two large (300 LF) concrete box culverts that convey the creek under Interstate 70. As part of the original Interstate 70 construction in the late 70's, the culverts did employ a fish baffle system. Those baffles however, were constructed from large timbers and have eroded away over time. The result is very few fish make it upstream to spawn, leaving a large basin (56 square miles) effectively unused. The Colorado Water Plan Environmental and Recreation grant funds will be used by TU and Wright Water Engineers (WWE) to permit, design and install a new set of concrete baffles in the east culvert, as well as a short wall in the upstream mouth of the west culvert to focus all flow into the east side during low flow conditions.

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Measurable Results		
To catalog measurable results achieved with the CWP Grant funds, please provide any of the following values as applicable:		
	New Storage Created (acre-feet)	
	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive	
	Existing Storage Preserved or Enhanced (acre-feet)	
58,080 LF (total length of reopened stream)	Length of Stream Restored or Protected (linear feet)	
	Efficiency Savings (indicate acre-feet/year OR dollars/year)	
35,840 acres (total area of Canyon Crk. drainage)	Area of Restored or Preserved Habitat (acres)	
	Quantity of Water Shared through Alternative Transfer Mechanisms	
	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning	
	Number of Coloradans Impacted by Engagement Activity	
xx	Other	Explain: This project will contribute to the growing data base on fish passage design. CPW and TU will be conducting pre and post project fish population study to determine the relative success of spawning fish to migrate into this basin. This data will help managers to ensure future fish passage design is increasingly successful.

Water Project Justification
Provide a description of how this water project supports the goals of Colorado's Water Plan, the most recent Statewide Water Supply Initiative, and the applicable Roundtable Basin Implementation Plan and Education Action Plan. 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). The proposed water project shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan Framework for State of Colorado Support for a Water Project (CWP, Section 9.4, pp. 9-43 to 9-44;)

Water Project Justification

The Canyon Creek Fish Passage project supports the goals of the:

Colorado Water Plan.

Colorado Water Value #3 . Colorado's Water Plan values a strong environment that includes healthy watersheds, rivers, streams, and wildlife (CWP, Chap. 10, Sec. 10.1, pg. 10-4)

This project will substantively increase the health of Colorado's environment by increasing cold water fish species access to important spawning and juvenile fish rearing habitat in the middle Colorado River basin.

Goal F. Watershed Health, Environment and Recreation (CWP, Chap. 10, Sec. 10.3, pg. 10.12)

The Canyon Creek Fish Passage project hits on almost all components of CWP Goal F. By increasing spawning opportunities, populations of wild cold water fish in both Canyon Creek and the main stem of the Colorado River are improved. Larger populations improve the resiliency of the environment and the recreational fishing opportunities on the highly accessible reaches of the Colorado River. Further, this project will restore a critical and unique component of the complex Middle Colorado watershed. Finally, the project is part of a growing effort to reconnect these Flat Tops streams to the Colorado River main stem. It is supported by both Colorado Parks and Wildlife and the Middle Colorado Watershed Council's Integrated Water Management Plan. The Ware and Hinds Fish Bypass project was the first successful effort. If funded, Canyon Creek will be the second and will be followed by two more fish passage projects in Elk Creek that will be coming on line in the next year. When complete, these projects will have opened 25+ miles of prime spawning and juvenile rearing habitat to wild fish from the Colorado River.

SWSI 2010.

Recommendation #5. "Support meeting Colorado's non-consumptive water needs by working with Colorado's water stakeholders to help:

- ***Promote recovery and sustainability of endangered, threatened, and imperiled species in a manner that allows the state to fully use its compact and decreed entitlements.***
- ***Protect or enhance environmental and recreational values that benefit local and statewide economies.***
- ***Encourage multi-purpose projects that benefit both water users and native species.***
- ***Pursue projects and other strategies, including CWCB's Instream Flow Program, that benefit consumptive water users, the riparian and aquatic environments, and stream recreation.***
- ***Recognize the importance of environmental and recreational benefits derived from agricultural water use, storage reservoirs, and other consumptive water uses and water management (SWSI 2010, Executive Summary, pg. 41)."***

The Canyon Creek Fish Passage project supports Colorado's non-consumptive water needs by:

1) Improving fish passage into the freestone streams that originate on the south rim of the Flat Tops. This improves wild fish populations in these streams and the middle Colorado River which in turn improves the local recreational fishing economy in one of the state's most accessible reaches of large river in Colorado.
2) The project is endorsed by CPW, CDOT and the Middle Colorado Watershed Council. The project is seeking additional funding through the Fish and Wildlife Service-National Fish Passage Project and is a recognized environmental improvement strategy in the Middle Colorado Integrated Water Management Plan.

Colorado Basin Roundtable-Basin Implementation Plan.

Theme #1. "Protect and Restore Healthy Streams, Rivers, Lakes and Riparian Areas (CBRT-BIP, Executive Summary, pg. 2)."

The Canyon Creek Fish Passage Project will restore fish passage to another viable Flat Top tributary stream to the middle Colorado River. By doing so it will continue to improve spawning and juvenile fish for cold water fish in this section of the Colorado River.

Theme #4. "Develop Local Water Conscious Land Use Strategies (CBRT-BIP, Executive Summary, pg. 3)."

The project, in concert with the larger effort to improve fish passage in all Flat Top tributary streams to the Colorado River, is an integral part of the Middle Colorado Integrated Water Management Plan. This plan is intended to further develop local water conscious land use strategies that collaboratively involve consumptive and non-consumptive water users.

Related Studies

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

Middle Colorado Integrated Water Management Plan (IWMP). The Middle Colorado Water Council is currently working on the environmental and recreational components of the Middle Colorado IWMP. The Aquatics Sub-group has specifically recognized this project along with other fish passage projects in this reach as critically important to spawning and juvenile rearing of wild fish. In addition to the environmental benefits of the project the Recreational focus group has recognized the importance of increasing wild stocks to the recreational fishing component of the local economy.

Previous CWCB Grants, Loans or Other Funding

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; 6) Percentage of other CWCB funding for your overall project.

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Grant Name	CWCB Funding Source (WSRF, CWP, Etc.)	Agreement Number	Amount	Start Date	End Date
Innovative Irrigation Efficiency for Mountain Meadows	CWP-Agriculture	not executed yet	$54,048	TBD	TBD
Octate Properties Channel and Irrigation Improvement	CWP-Environment/Recreation	not executed yet	$11,589	TBD	TBD
Cimmaron Canal Diversion Gate Replacement/Water Mgt. Plan	CWP Environment/Recreation	not executed yet	$18,918	TBD	TBD
Cimmaron Canal Diversion Gate Replacement/Water Mgt. Plan	WSRF-GBRT Basin Funds	not executed yet	$11,500	TBD	TBD
Blue River Integrated Water Mgt. Plan	Stream Restoration-SMP	CTGG12020-032	$126,819	7/1/2019	12/31/2021
Blue River Integrated Water Mgt. Plan	CWP-Environment/Recreation	CTGG12020-032	$30,000	7/1/2019	12/31/2021
Blue River Integrated Water Mgt. Plan	CWP-Engagement/Innovation	CTGG12020-032	$16,000	7/1/2019	12/31/2021
Blue River Integrated Water Mgt. Plan	WSRF-CBRT Basin Funds	CTGG12020-032	$17,110	7/1/2019	12/31/2021
Monarch Pass Gravel Pit Reclamation		not executed yet	$77,389	TBD	TBD
Tomichi Creek Flow Restoration		CTGG1 2018-902	$75,000	5/4/2018	10/31/2022
Tomichi Creek Flow Restoration-WSRF Grant		CTGG1 2018-901	$34,500	5/4/2018	10/31/2022
Colorado Abrams Creek Cutthroat		CTGG1 2018-298	$364,711	1/4/2018	9/1/2022
Ware Hinds Fish Bypass	WSRF-CBRT Basin Funds and State Funds (50/50)	POGG1 2017-0749	$63,500	2/14/2017	12/31/2018
Irrigators in Kremmling		CTGG1 2017-0667	$465,400	11/29/2016	9/30/2018
Windy Gap Reservoir Bypass	WSRF-CBRT	POGG1 2016-0900	$30,000	5/18/2016	1/31/2017
Windy Gap Reservoir Bypass Project	CWP-Environment/Recreation	CTGG1 2019-2233	$325,237	12/3/2018	11/30/2023
San Miguel River Stream Management Plan Pilot	WSRF-SWBRT	POGG1 2016-0800	$96,413	3/22/2016	5/31/2021

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Kerber Creek Restoration	POGG1 2015-0286	$30,000	6/10/2015	10/31/2016
River Ranch Irrigation Diversion	CTGG1 2015-3313	$113,000	6/9/2015	5/31/2016
Redburn Ranch Diversion Dam	CTGG1 2015-2791	$148,500	1/27/2015	6/1/2018
W-Mountain Ranch Restoration	POGG1 2016-0610	$15,000	1/8/2015	5/31/2017
South Arkansas River Restoration	POGG1 2015-0175	$10,000	11/14/2014	10/31/2016
Upper Ohio Creek Flow Restoration	POGG1 2015-0161	$6,000	10/10/2014	12/31/2014

Taxpayer Bill of Rights

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

No Tabor issues will affect this application.

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Submittal Checklist	
xx	I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract.
Exhibit A	
xx	Statement of Work(1)
xx	Budget & Schedule(1)
	Engineer's statement of probable cost (projects over $100,000)
xx	Letters of Matching and/or Pending 3rd Party Commitments(1)
Exhibit C	
xx	Map (if applicable)(1)
xx	Photos/Drawings/Reports
xx	Letters of Support (Optional)
	Certificate of Insurance (General, Auto, & Workers' Comp.) (2)
	Certificate of Good Standing with Colorado Secretary of State(2)
	W-9(2)
	Independent Contractor Form(2) (If applicant is individual, not company/organization)
Engagement & Innovation Grant Applicants ONLY	
	Engagement & Innovation Supplemental Application(1)

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

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ENGAGEMENT & INNOVATION GRANT FUND SUPPLEMENTAL APPLICATION

Introduction & Purpose

Colorado's Water Plan calls for an outreach, education, public engagement, and innovation grant fund in Chapter 9.5.

The overall goal of the Engagement & Innovation Grant Fund is to enhance Colorado's water communication, outreach, education, and public engagement efforts; advance Colorado's water supply planning process; and support a statewide water innovation ecosystem.

The grant fund aims to engage the public to promote well-informed community discourse regarding balanced water solutions statewide. The grant fund aims to support water innovation in Colorado. The grant fund prioritizes measuring and evaluating the success of programs, projects, and initiatives. The grant fund prioritizes efforts designed using research, data, and best practices. The grant fund prioritizes a commitment to collaboration and community engagement. The grant fund will support local and statewide efforts.

The grant fund is divided into two tracks: engagement and innovation. The Engagement Track supports education, outreach, communication, and public participation efforts related to water. The Innovation Track supports efforts that advance the water innovation ecosystem in Colorado.

Application Questions

*The grant fund request is referred to as "project" in this application.

Overview (answer for both tracks)
In a few sentences, what is the overall goal of this project? How does it achieve the stated purpose of this grant fund (above)?
Who is/are the target audience(s)? How will you reach them? How will you involve the community?
Describe how the project is collaborative or engages a diverse group of stakeholders. Who are the partners in the project? Do you have other funding partners or sources?

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Overview (answer for both tracks)
Describe how you plan to measure and evaluate the success and impact of the project?
What research, evidence, and data support your project?
Describe potential short- and long-term challenges with this project.

Please fill out the applicable questions for either the Engagement Track or Innovation Track, unless your project contains elements in both tracks. If a question does not relate to your project, just leave it blank. Please answer each question that relates to your project. Please reference the relevant documents and use chapters and page numbers (Colorado's Water Plan, Basin Implementation Plan, PEPO Education Action Plan, etc.).

Engagement Track
Describe how the project achieves the education, outreach, and public engagement measurable objective set forth in Colorado's Water Plan to "significantly improve the level of public awareness and engagement regarding water issues statewide by 2020, as determined by water awareness surveys."
Describe how the project achieves the other measurable objectives and critical goals and actions laid out in Colorado's Water Plan around the supply and demand gap; conservation; land use; agriculture; storage; watershed health, environment, and recreation; funding; and additional.
Describe how the project achieves the education, outreach, and public engagement goals set forth in the applicable Basin Implementation Plan(s).

Describe how the project achieves the basin roundtable's PEPO Education Action Plans.

Innovation Track
Describe how the project enhances water innovation efforts and supports a water innovation ecosystem in Colorado.
Describe how the project engages/leverages Colorado's innovation community to help solve our state's water challenges.
Describe how the project helps advance or develop a solution to a water need identified through TAP-IN and other water innovation challenges. What is the problem/need/challenge?
Describe how this project impacts current or emerging trends; technologies; clusters, sectors, or groups in water innovation.

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Colorado Water Conservation Board
Water Plan Grant - Exhibit A

Statement Of Work	
Date:	**12/31/2019**
Name of Grantee:	**Trout Unlimited**
Name of Water Project:	**Canyon Creek Fish Passage Project**
Funding Source:	**Colorado Water Plan Grant Program, Environmental/Recreational Category.**

Water Project Overview:

Emanating from the southern rim of the Flat Tops mountain range, a number of important perennial, freestone creeks run south into the Colorado River mainstem. All exhibit excellent water quality and adequate late season flow regimes. Creeks such as Grizzly and No-Name Creek offer very productive spawning and juvenile habitat for cold water fish. Spawning trout, suckers, whitefish and sculpin all move into these creeks to spawn with most large fish returning to the Colorado River mainstem due to limited habitat (cross sectional area and seasonal low flow conditions). Their progeny, however, remain in the protective environment of the creek for their first years of life moving eventually to the mainstem as their size increases. This anadromous type of behavior benefits the Colorado River by continually providing new recruitment to the mainstem population. Larger fish populations improve environmental resiliency through strong year classes and larger numbers of mature fish. Further, they help sustain local recreation opportunities by benefitting one of the most publicly accessible reaches of large river in the state.

While having all the aforementioned attributes, some of these creeks are not accessible to spawning fish from the Colorado River. In particular, Canyon Creek at Chacra and Elk Creek at New Castle, Colorado both have historically gone unused due to fish passage issues. In Spring 2018, the lower 3.5 miles of Elk Creek was opened to spawning fish for the first time in 80 years. Trout Unlimited (TU), Colorado Parks and Wildlife (CPW) and the Ware and Hinds Ditch Company partnered to construct a fish bypass around the ditch company's irrigation diversion structure. This project has been hugely successful allowing thousands of spawning fish into Elk Creek over the past 2 years and building a collaborative relationship between agriculture and environmentalists.

Canyon Creek, just a few miles upstream, continues to be largely blocked by two large concrete box culverts that convey the creek under Interstate 70. As part of the original Interstate 70 construction in the late 70's, the culverts did employ a fish baffle system. Those baffles however, were constructed from large timbers and have eroded away over time. Without baffles to create turbulent flow, the culverts present fish with a formidable barrier. At 300 feet long, smooth bottomed and dropping at a 3% grade, the culverts create very high velocities in spring and leave only a thin film of water in fall for spring and fall spawning fish to negotiate. The result is very few fish make it upstream to spawn, leaving a large basin effectively unused.

With help from our partners, CPW and Colorado Department of Transportation (CDOT), TU and Wright Water Engineers (WWE) are proposing to permit, design and install a new set of baffles in the east culvert, as well as a short wall in the upstream mouth of the west culvert to focus all flow into the east side during low flow conditions. The project sponsors have created a preliminary design for the project and calculated approximate 100 year flood flows for the basin, via StreamStats, to ensure the culverts will be able to convey flood flow after the baffles are installed. CDOT has reviewed these preliminary designs and provided their approval to proceed with the project. Once CDOT has signed off on the final constructed project they will assume maintenance responsibilities for the project.

Retrofitting culverts and other structures to enable fish passage is an evolving science. To insure the project is successful and sustainable over time the project will review current literature on fish passage design, perform 2-D modeling of the baffle system and account for sediment transport and deposition within the structure as well as up and downstream of the structure. The project will also assess fish populations in Canyon Creek before and after the project is complete to determine the relative increase in fish passage.

Project Objectives:

Primary Goal-Fish Passage-The primary goal of this project is to improve fish passage (for all fish species present in this reach of the Colorado River) in tributary creeks that feed into the middle Colorado River reach from Glenwood Canyon downstream to Rifle Colorado. Meeting this goal improves environmental resiliency and recreational opportunities in this reach of the Colorado River.

Objective #1- Open the Canyon Creek drainage to spawning cold water fish. This project will retrofit an existing, impassable concrete culvert(s) with fish baffles to increase access to viable spawning habitat in the Canyon Creek drainage.

Objective #2-Increased knowledge of fish passage design-The project will contribute to the general body of knowledge surrounding fish passage design through our research on retrofitting the steep Canyon Creek culverts with baffles to provide greater inner-channel sinuosity and areas of refugia. A final report submitted for publication will enable dissemination of this research.

Objective #3-Increase wild fish population size in Canyon Creek and the Colorado River mainstem.-The project will increase spawning habitat available to wild, adult cold water fish from the Colorado River mainstem. Increased numbers of spawning fish will increase overall fish population size and distribution in Canyon Creek and the Colorado River mainstem. Pre and post project monitoring of population size and distribution will measure the success of this objective.

Objective #4-Improve Local Economy-Increased fish populations increase angler success rates which in turn increases the local recreation and services economy. This is not a measurable outcome. However, this reach of the Colorado River is largely open to public access and increased use must be supported by a large wild fish population.

Objective #5-Increase Community Awareness and Collaboration-Projects like this raise community awareness of the health and potential of local rivers and streams. This was one of the primary objectives of the Ware and Hinds project which has fostered local interest from consumptive

and non-consumptive users in this part of the Colorado River basin. We believe this project will further community awareness and collaboration. Objective success will be measured by continued removal of the remaining fish barriers in Elk Creek and Rifle Creek.

Tasks
Task 1 – Project Permitting
Description of Task:
Project Permitting: Obtain the required permits to construct the Canyon Creek Fish Passage project. Permits will be required from federal, state and local agencies. TU will secure all required permitting. Relation to Objectives. Local, state and federal permits are required to construct the project. Accordingly, all objectives are dependent on successfully obtaining project permits.
Method/Procedure:
Method/Procedure: The permits required will largely depend on construction technique and location. Conceptually the preferred location is to access the culvert system from the up-stream side which will result in very little impact to the stream environment and minimize type and possibly the number of permits.
Deliverable:
Deliverable: ACOE Nationwide 404 Permit, CPW-Senate Bill 40 Wildlife Certification, Garfield County Floodplain Permit, Garfield County Grading Permit and a CDOT Utility permit as necessary to construct the Canyon Creek Fish Passage Project.

Tasks
Task 2 – Project Design
Description of Task:
Description of Task: Design a concrete baffle system that will be installed in the east Canyon Creek culvert that allows passage of all endemic fish from the Colorado River to and from the Canyon Creek drainage. Relation to Objectives. Project design is necessary to construct the project. As such this task is directly related to all objectives. It is particularly related to Objective #2 because the design and modeling process will inform and contribute to the body of knowledge surrounding fish passage design. The success of that design process will be verified by construction and fish use.

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Tasks
Method/Procedure:
Method and Procedure: A conceptual baffle system has been designed for the project. It was based on generally accepted baffle designs from similar projects. Using that concept design as a starting point Wright Water Engineers will perform a literature search and review on culvert retrofits to enable fish passage as well as 2-D modeling analysis. Primary design considerations are twofold. First to provide a continuous upstream pathway of water velocity that does not exceed 6 fps. Second to provide hydraulics during bank full events that are sufficient to keep the baffle system from experiencing sediment transport and deposition that would compromise its ability to provide fish passage. The design process will document and combine results with post construction monitoring to assess the relative success of the project.
Deliverable:
Deliverables: Results of 2-D modeling and 95% Construction Drawing set.

Tasks
Task 3 - Construction
Description of Task:
Description of the Task: Install a fish passage baffle system in the east culvert of a double culvert that coveys Canyon Creek under Interstate 70. Relation to Objectives. Project construction is critical to the realization of all objectives.
Method/Procedure:
Method and Procedure: Construction would be scheduled for Fall 2020 during the low water period (late Oct. to late Nov.) Three options for construction are being considered at this time. 1) Option #1 Access the culvert system on the downstream side (south side) and create a construction access road on the east bank. Once complete, the plunge pool would need to be temporarily filled with rock to allow machinery access to move the concrete baffles into place inside the concrete box culvert. This option is least desirable as it will disrupt bankside vegetation, require fill and removal of rock in the plunge pool and be difficult to permit.

Tasks
2) Option #2 Access the culvert on the downstream side (south side). Temporarily fill the plunge pool with rock and cover with steel plates. Use a crane to lower the necessary machinery (skid steer on tracks) and the concrete baffles onto the staging deck where they can then be moved into the culvert for placement. While this option avoids bank disturbance it is unknown whether recovering fill rock from the plunge pool will be feasible. This is the project sponsor's middle of the road construction choice at this date. 3) Option #3 Access the culvert on the upstream side (north side) from the highway frontage road. At the north end of the culvert system, the river bottom elevation is coincident with the floor of the culvert. Conceptual plans propose lowering steel plates into the stream to create an upstream construction staging platform. No fill would be required. Like the construction plan on the downstream side a crane would lower machinery and the concrete baffles onto the staging platform where they could be ferried into the culvert for installation. Access on the upstream side is confined but if it is feasible this option would avoid bank and channel bottom disturbance.
Deliverable:
Deliverables: Completed fish passage project.

Tasks
Task 4 – Project Management
Description of Task:
Description of the Task: General day to day project management of the project from inception of grant contracts to completion of project and close of grant contract. Relation to Objectives. A successfully designed and constructed project is crucial to all the desired outcomes. This task has two components, ensuring good design and successful construction and informing the community about the project. Informing the community about the project and its relative successes is crucial to building consensus that barrier free streams and rivers contribute to improved environmental health and economic diversity and viability.
Method/Procedure:
Method and Procedure: Project management includes but is not limited to: 1) Communication and coordination with stakeholders, project contractors, etc. during the course of the project. 2) Public outreach as necessary to generally inform about the project and locally to assist the construction process and provide construction progress reports to neighbors. 3) Providing interim progress reports and final reporting for grants as necessary.
Deliverable:

Tasks
Deliverables: Well managed project.

Tasks
Task 5 – Pre and Post Project Monitoring and Documentation
Description of Task:
Description of the Task: CPW and project staff will conduct pre and post project fish population assessments to determine the relative success of fish passage in Canyon Creek. Relation to Objectives. This task will measure the relative success of this project to spawning fish to access the Canyon Creek basin and will inform all desired outcomes depending on whether or not the project is successful.
Method/Procedure:
Method and Procedure: Fish population assessments will employ (either alone or in combination) the following techniques. 1) Electroshocking using either a mark and recapture technique or a two-pass technique. 2) Visual counts using mask and snorkel. This may be used in the plunge pool at the culvert outfall due to water depth. 3) Marking fish with Passive Integrated Transponders (aka PIT tags) to document movement up and down the culvert system.
Deliverable:
Deliverables: Results of the population studies from 2020 and 2021 and a scientific paper that examines design parameters in relation to the field measured success of the project. As such, the project will add to the body of empirical data in the evolving science of fish passage.

Budget and Schedule
This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format.

Last Updated: July 2019

Reporting Requirements

Progress Reports: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status of the tasks identified in the statement of work, including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Report: At completion of the project, the applicant shall provide the CWCB a Final Report on the applicant's letterhead that:

- Summarizes the project and how the project was completed.
- Describes any obstacles encountered, and how these obstacles were overcome.
- Confirms that all matching commitments have been fulfilled.
- Includes photographs, summaries of meetings and engineering reports/designs.

The CWCB will pay out the last 10% of the budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.

Payment

Payment will be made based on actual expenditures and must include invoices for all work completed. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

Costs incurred prior to the effective date of this contract are not reimbursable. The last 10% of the entire grant will be paid out when the final deliverable has been received. All products, data and information developed as a result of this contract must be provided to CWCB in hard copy and electronic format as part of the project documentation.

Performance Measures

Performance measures for this contract shall include the following:
(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Water Plan Grant Guidelines, the CWCB will pay out the last 10% of the budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.
(b) Accountability: Per Water Plan Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per Water Plan Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.
(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.
(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.

Last Updated: July 2019

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan Grant - Exhibit B
Budget and Schedule

Prepared Date: 1-24-2020

Name of Applicant: Trout Unlimited

Name of Water Project: Canyon Creek Fish Passage Project

Project Start Date: 8-1-2020

Project End Date: 4-1-2021

Task No.	Task Description	Task Start Date	Task End Date	Grant Funding Request	Match Funding	Total
1	Project Permitting.	1-Aug-20	Oct. 30, 2020	$5,090.00	$2,212.00	$7,302
2	Project Design.	August 15, 2020	Oct. 10, 2020	$40,724	$3,869	$44,593
3	Construction	Oct. 30, 2020	Dec. 15, 2020	$40,724	$3,869	$44,593
4	Project Management	August 1, 2020	April 1, 2021	$15,274	$3,869	$19,143
5	Pre and Post Project Monitoring and Documentation	Oct. 1, 2020	Dec. 1, 2021	$0	$13,819	$13,819
						$0
						$0
						$0
						$0
						$0
						$0
						$0
						$0
			Total	$101,812	$27,638	$129,450

THE COLORADO BASIN ROUNDTABLE
C/O P.O. BOX 1120
GLENWOOD SPRINGS, COLORADO 81602

October 14, 2019

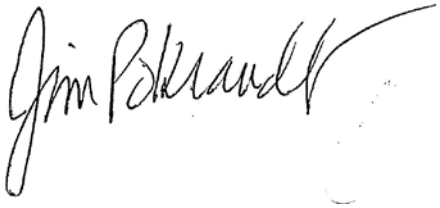
Chris Sturm
Colorado Water Conservation Board
CWCB Stream Restoration Program
1313 Sherman Street, Rom 721
Denver CO
(303) 866-3441

Dear Chris and staff,

The Colorado Basin Roundtable supports the request by Trout Unlimited and Wright Water Engineers for a grant from the CWCB-Stream Restoration Program's Watershed/Stream Restoration program. The grant would be to design and install a fish passage project for Canyon Creek, a tributary to the Colorado River at Chacra, Colorado. Canyon Creek has been identified by Colorado Parks and Wildlife as an important spawning tributary to the Colorado River system. Spawning access to the creek is currently compromised by a largely impassable highway culvert near its confluence with the Colorado. Like the Ware and Hinds Fish Passage project located down valley on Elk Creek at New Castle, this project will increase natural spawning and trout populations in both Canyon Creek and adjacent sections of the Colorado River.

The Roundtable further recognizes that this project directly supports the first of six basin themes identified in the Colorado River BIP. Theme 1 identifies the protection and restoration of healthy streams, rivers, lakes and riparian areas as a priority expressed by basin stakeholders and supported by the Roundtable. We believe this project directly supports this theme and we hope that you will positively consider the attendant grant application.

Sincerely yours,



Jim Pokrandt
Chair, Colorado Basin Roundtable

COLORADO
Parks and Wildlife
Department of Natural Resources
Glenwood Springs Area Wildlife Office
0088 Wildlife Way
Glenwood Springs, CO 81601
P 970.947.2924 | F 970.947.2936

October 29, 2019

Chris Sturm
Colorado Water Conservation Board (CWCB)
1313 Sherman Street
Denver, CO 80203

RE: Canyon Creek Fish Passage Project

Dear Mr. Sturm,

Colorado Parks and Wildlife (CPW) supports Trout Unlimited (TU) in their request for the Canyon Creek Fish Passage Project to be funded through CWCB stream/watershed restoration grant program. We have been an integral partner in the development of the project and we are committed to support of TU in its pursuit. This fish passage project supports CWCB's objective to fund projects that contribute to watershed health, particularly with regard to river connectivity and fish passage.

The Colorado River near Glenwood Springs hosts a high quality trout fishery. It is a recreational and economic resource to local communities as a significant tourism attraction touted by Field and Stream Magazine who designated Glenwood Springs the #1 Fishing Town in America. Once a local secret, the river increasingly attracts an abundance of anglers both commercial and private. The fishery itself is supported by wild brown trout reproduction and a CPW stocking program of whirling disease resistant rainbow trout in an attempt to reestablish the legendary wild "Colorado River Rainbow". Reproduction and recruitment of wild trout to the middle reaches of the Colorado River from Glenwood Canyon downstream occur primarily in local tributaries. This is due to a lack of quality reproductive gravels which are often impacted by fine sediments from the naturally erosive geology that often causes the river to run red during run-off or storm events.

Canyon Creek is a well known spawning tributary for locally popular sportfish including rainbow trout, brown trout, and mountain whitefish. A long-standing spawning closure in the spring and the fall protects spawning salmonids that stack up below the I-70 culvert. Originally, the culvert was fitted with baffles to accommodate fish passage, but those structures have long disintegrated. Now, many of the spawning trout are relegated to spawning in the first 100 yards of Canyon Creek and stack up in the plunge pool below the culvert. This area is not ideal habitat for spawning and is impacted by people walking through it to visit the Colorado River. Spawning fish also spend precious energy during spawning time to attempt to swim up the culvert, often with no success. Furthermore, CPW has also recently observed a decline in the mountain whitefish population locally. CPW believes that the impassability of the culvert significantly limits connection to important

reproductive habitat for Colorado River salmonids, including mountain whitefish, during a time when exploitation of the local sportfishery is at its highest and increasing.

The Canyon Creek Fish Passage project has the potential to improve the local fishery and restore connectivity to vital spawning habitat in the middle Colorado River watershed. Connecting important reproductive habitat will improve wild recruitment of brown trout and mountain whitefish. It will also increase the probability for a successful return of the renowned wild Colorado River Rainbow. A diverse stakeholder group that includes state agencies and local non-profit organizations that support this project will also contribute to public awareness of the importance of healthy rivers to a community that relies on a healthy environment economically and for their quality of life.

Colorado Parks and Wildlife supports projects like these that help protect and enhance habitat for our local fishery resources. CPW will continue to provide technical expertise for project design and implementation; we will also monitor the fishery in the Colorado River and Canyon Creek before and after the project to evaluate project success. If there are any questions or needs for additional information, do not hesitate to contact Kendall Bakich, Aquatic Biologist, or District Wildlife Manager, Dan Cacho, at (970) 947-2920.

Sincerely,

Matt Yamashita,
Area Wildlife Manager

Cc: Dan Cacho, District Wildlife Manager
Kendall Bakich, Aquatic Biologist
File

COLORADO
Department of Transportation

Region 3 Planning and Environmental Unit
222 South 6th Street, #317
Grand Junction, CO 81501

October 25, 2019

Richard Van Gytenbeek
Trout Unlimited
Colorado River Basin Outreach Coordinator
115 N. 5th Street, Suite #409
Grand Junction, CO 81501

RE: Canyon Creek Fish Passage Project

Dear Mr. Van Gytenbeek:

I am writing this letter in support of Trout Unlimited (TU) and Wright Water Engineers proposal for the the Canyon Creek Fish Passage Project on I-70. Colorado Department of Transportation (CDOT) has worked with Trout Unlimited and Wright Water Engineers to vet the project concept and design through envronmental and hydrologic review, and the through the permitting, administrative, and construction processes. CDOT recognizes the importance of Canyon Creek as an essential spawning and rearing tributary for cold water fish in the Colorado River system and will continue to assist the project with means currently at our disposal.

I appreciate your consideration of this project for TU and Wright Water Eningeers fish passage project, please feel free to contact me with any questions.

Sincerely,

Cinnamon Levi-Flinn
CDOT Region 3 Biologist

MIDDLE COLORADO WATERSHED COUNCIL

October 21, 2019

Mr. Chris Sturm, Stream Restoration Coordinator
Colorado Water Conservation Board
1313 Sherman St., Room 718, Denver, CO 80203

RE: Trout Unlimited grant application Canyon Creek

Mr. Sturm:

As Project Manager for the Middle Colorado Integrated Water Management Plan (IWMP), I write to express support for the Canyon Creek Fish Passage Structure grant request as proposed by Trout Unlimited.

Canyon Creek is a tributary to the middle Colorado River that is the focus of the IWMP environmental and recreational assessment. Assessment results indicate that rainbow, Colorado river cutthroat, and brown trout are documented to use the lower reaches of Canyon Creek for spawning, rearing and certain sub-adult and adult life stages. Resource managers rate the importance of use by these species in lower Canyon Creek as high.

By way of background, the IWMP outreach process has included formation and use of an Aquatics Focus Group. Members of the group include fishery biologists from Colorado Parks and Wildlife (CPW), BLM, and the U.S. Forest Service; Richard VanGytenbeek has also participated as a representative from Trout Unlimited. The charge of the group is to provide data for assessment purposes, particularly on the distribution of native and managed sport fishes in the study area, and to identify limiting factors. Once the assessment work has been verified, the group will turn its attention to identifying priority projects on the mainstem and key tributaries where flow, structural or habitat-related management efforts can be implemented to improve aquatic health and function, targeting cold and warmwater natives as well as sport fish. In preliminary discussions with the group, we've learned that physical barriers to fish movement from the mainstem into spawning tributaries is a major impediment that limits the achievement of robust fish populations. Canyon Creek has been singled out as an important tributary where such impediments exist and CPW has emphasized the short-term need for rehabilitating fish passage through the highway underpass structure. I suspect this project will rise to the top of the list once prioritization discussions occur.

In working with our stakeholder Advisory Committee, a theme we continue to emphasize is the desire to develop water management projects, programs or activities that benefit more than one water use. The reconfiguration of an irrigation headgate, for example, is a model project in this regard in that it can benefit agriculture with infrastructure upgrade and modernization, and benefit the environment by way of fish passage. The newly constructed Ware and Hinds fish passage structure on neighboring Elk Creek, and two other projects identified and funded by BLM, on East Divide and Roan Creeks, will similarly benefit ag while managing for conservation populations of bluehead sucker and Colorado cutthroat

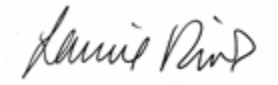
trout. Although the Canyon Creek fish passage structure does not involve any ag structures, it serves as an example of the benefits of this type of work, much of which requires the cooperation of agriculture to achieve success. We are counting on the collaborative project approach to keep ag at the table -- contributions from the agricultural community are critical to the success of both the planning and future implementation phases of the Middle Colorado IWMP.

The Aquatics Focus Group clearly understands and has articulated the benefits of keeping fish movement in and out of Canyon Creek as important for the sport fishery as a whole in the middle river. The IWMP Recreation Focus Group, comprised of municipal recreation planners, private boaters, and commercial outfitters, has also discussed the desire to identify projects that support healthy fisheries, as angling use is growing as an important economic contributor for the communities situated along this highly visible and accessible stretch of state waters.

The Canyon Creek Fish Passage project provides another opportunity to raise public awareness about the importance of healthy, highly functioning rivers. We plan to take advantage of the opportunity by advertising the completed work through our outreach network.

Please feel free to contact me at 303-204-4164 if you have any questions about our support of the proposed project.

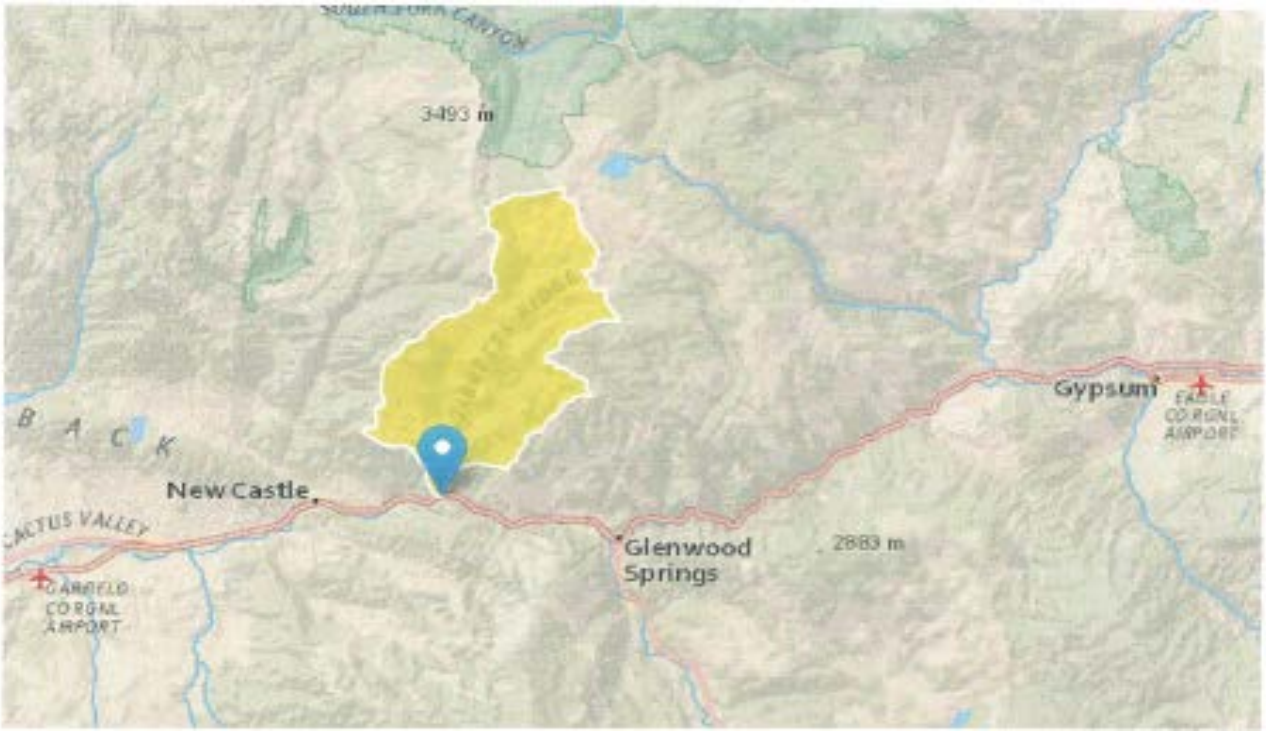
Sincerely,



Laurie Rink
Project Manager

Project Map and Photos

Canyon Creek Culvert under Interstate 70. Looking north, April 2019.



Vicinity Map (Project location denoted by blue icon). Canyon Creek Drainage

Spawning rainbow trout gathering in the plunge pool below the culvert. Canyon Creek-April 2019.

StreamStats Report Canyon Creek

Region ID: CO
Workspace ID: CO20191031143417267000
Clicked Point (Latitude, Longitude): 39.57439, -107.44758
Time: 2019-10-31 08:34:34 -0600

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	55.9	square miles
PRECIP	Mean Annual Precipitation	32.12	inches
ELEV	Mean Basin Elevation	9233	feet
BSLDEM10M	Mean basin slope computed from 10 m DEM	38.2	percent
EL7500	Percent of area above 7500 ft	80	percent

Drainage Map and Basin Statistics (Project location denoted by blue icon). Canyon Creek

Stream miles reconnected: Approximately 11 miles of viable spawning and juvenile rearing habitat will be opened by this project (~8 miles Canyon Creek mainstem, ~3 miles E. Canyon Creek). Additional irrigation diversions exist above the project location, however none are believed to be impassable.