

### Collaboration and Outreach for Strategic Macroinvertebrate Data River Science

# Water Plan Grant Program Application

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LOCATIO	) N
County/Counties: Sta	tewide
Drainage Basin: Sta	tewide

September 2022 Board Meeting

DETAILS	
Total Project Cost: \$22	4,925
Colorado Water Plan Grant: \$7	4,929
Recommended amount: \$7	4,929
Other CWCB Funding:	\$0
Other Funding Amount: \$7	4,998
Applicant Match: \$7	4,998
Project Type(s): Planning	
Project Category: Watershed Health and Recreation	n
<i>Measurable Result:</i> This data will assist at least fiv SMP groups statewide	e

Macroinvertebrate data is a highly informative parameter of water quality used to understand a stream's overall health and function. The proposed project requests CWCB funding to allow River Watch to build partnerships across the State to ensure that the upcoming macroinvertebrate (macro) data collections' information achieves the greatest benefit. Specifically, River Watch aims to partner and support existing and anticipated Stream Management Plans (SMP) where data gaps exist.

The scope of work involves mapping existing macro data, identifying and prioritizing locations, and



helping bridge the data gap through strategic and collaborative partnerships. They propose a mutually beneficial partnership that will help expand their macro data program while providing valuable data for SMPs.

River Watch has been collecting macro data and chemical indicators of watershed health for over 30 years. Their protocols follow State-approved collection and analysis methods which ensures that the data is highly regarded by multiple State agencies and used by State biologists, toxicologists, and decision-makers to evaluate water quality. The macroinvertebrate portion

of the River Watch program has never been sustainably funded, despite the need for the data. As macro data becomes a higher priority for stakeholders across the State, this project provides a timely opportunity to establish sustainability through effective collaborations to demonstrate the benefits.



#### **Colorado Water Conservation Board**

## Water Plan

	Water Project Summary	
Name of Applicant	River Science	
Name of Water Project	River Watch: Collaboration and Outreach for Strategic Macroinvertebrate Data	
Grant Request Amount		\$74,929.00
Primary Category		\$74,929.00
Watershed Health & Recreation		
Total Applicant Match		\$74,998.00
Applicant Cash Match		\$74,998.00
Applicant In-Kind Match		
Total Other Sources of Funding		\$74,998.00
Colorado Parks & Wildlife		\$74,998.00
Total Project Cost		\$224,925.00

Applicant & Gra	antee Information
Name of Grantee: River Science Mailing Address: 430 Main Street Canon City CO 81212 FEIN: 811,950,889	
Organization Contact: Bradley Boileau Position/Title: Project Manager Phone: 3035470856	Email: bradley@coloradowatershed.org
Organization Contact - Alternate: Luke Javernick Position/Title: Phone: (719) 428-9609	Email: luke@river.science
Grant Management Contact: Bradley Boileau Position/Title: Project Manager Phone: 3035470856	Email: bradley@coloradowatershed.org
Grant Management Contact - Alternate: Luke Javernick Position/Title: Phone: (719) 428-9609	Email: luke@river.science
Description of C	Grantee/Applicant

#### Description of Grantee/Applicant

River Science is a 501c3 Non-Profit Organization. Our mission is to use education, technology, and information to improve river management and project impacts.

Type of Eligible Entity

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

#### Category of Water Project

Agricultural Projects
 Developing communications materials that specifically work with and educate the agricultural community on
 headwater restoration, identifying the state of the science of this type of work to assist agricultural users
 among others.

 Conservation & Land Use Planning
 Activities and projects that implement long-term strategies for conservation, land use, and drought planning.

- Engagement & Innovation Activities
   Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application on the website.
   Watershed Restoration & Recreation
- Projects that promote watershed health, environmental health, and recreation.
- Water Storage & Supply

Projects that facilitate the development of additional storage, artificial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity and Multi-beneficial projects and those projects identified in basin implementation plans to address the water supply and demand gap.

#### **Location of Water Project**

Latitude	0.00000
Longitude	0.00000
Lat Long Flag	Other: Coordinates based on other boundaries or locations
Water Source	Dependent on SMP, statewide.
Basins	Arkansas; Colorado; Gunnison; Metro; Yampa/White/Green; Rio Grande; Southwest;
	South Platte; Nort
Counties	
Districts	

#### Water Project Overview

Major Water Use Type Type of Water Project Scheduled Start Date - Design Scheduled Start Date - Construction Description

Environmental Planning (e.g. watershed) 1/1/2023

Macroinvertebrate data is a highly informative parameter of water quality used to understand a stream's overall health and function. The proposed project requests CWCB funding to allow River Watch to build partnerships across the State to ensure that the upcoming macroinvertebrate (macro) data collections' information achieves the greatest benefit. Specifically, we aim to partner and support existing and anticipated Stream Management Plans (SMP) area where data gaps exist.

The scope of work involves mapping existing macro data, identifying and prioritizing locations, and helping bridge the data gap through strategic and collaborative partnerships. We propose a mutually beneficial partnership that will help expand our macro data program while providing valuable data for SMP.

River Watch has been collecting macro data and chemical indicators of watershed health for over 30 years. Our protocols follow State-approved collection and analysis methods which ensures that our data is highly regarded by multiple State agencies and used by State biologists, toxicologists, and decision-makers to evaluate water quality. The macroinvertebrate portion of the River Watch program has never been sustainably funded, despite the need for the data. As macro data becomes a higher priority for stakeholders across the State, this project provides a timely opportunity to establish sustainability through effective collaborations to demonstrate the benefits.

#### **Measurable Results**

New Storage Created (acre-feet)

New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive Existing Storage Preserved or Enhanced (acre-feet)

New Storage Created (acre-feet)

Length of Stream Restored or Protected (linear feet)

Efficiency Savings (dollars/year)

Efficiency Savings (acre-feet/year)

Area of Restored or Preserved Habitat (acres)

Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)

Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning

Number of Coloradans Impacted by Engagement Activity

100 Other

The quantitative outcomes of this project are based on the objective of assisting at least five SMP groups statewide along with the resources to collect over 100 macro samples that will impact at least 100 Coloradans.

#### Water Project Justification

This project's objectives overlap multiple themes outlined in the 2015 Colorado Water Plan (CWP). The project will contribute to the 2023 Colorado Water Plan focusing on efficient and sustainable solutions benefitting equitable communities statewide. This grant will facilitate more SMPs (and other similar efforts) and the ability to provide more robust macroinvertebrate data and therefore implement plans to protect and enhance watersheds throughout Colorado. This project will directly engage communities through planning efforts, support, and resources necessary to improve and sustain the health of their watersheds.

Our proposed project aligns with section 6.2 Meeting Colorado's Water Gaps (page 172 in 2015 CWP). Specifically, the project will help "Meet Colorado's Environmental and Recreational Needs," "Meet Colorado's Water Quality Management Needs," "Protect and Restore Watershed Health," and "Continue Participation, Education, Outreach, and Communication." Section 6.6 Environmental and Recreational Projects and Methods (page 311 in 2015 CWP) - the plan emphasizes the importance of sustainable watershed health and environmental resiliency, including the need to identify baseline status on an ongoing basis. Our project will contribute to these objectives. This project will also contribute to section 7.1 Watershed Health and Management (page 353 in 2015 CWP) and section 7.3 Water Quality (page 367). Both areas acknowledge projects that include coalition-building, data collection, planning, prioritization, implementation, and monitoring when assessing watershed health and water quality.

Lastly, this project aims to provide education and outreach directly and indirectly by engaging stakeholders and facilitating monitoring efforts aligned with section 9.5 Outreach, Education and Public Engagement (page 463 in CWP). While there is overlap between multiple sections and themes in the CWP and roundtable BIPs, these sections have definite parallels with the goals and objectives of the River Watch: Collaboration and Outreach for Strategic Macroinvertebrate Data Project.

#### **Related Studies**

- Colorado Water Plan
- Stream Management Plans
- River Network SMP planning

**Taxpayer Bill of Rights** 

N/A



#### **Colorado Water Conservation Board**

#### Water Plan Grant - Statement of Work - Exhibit A

	Statement Of Work
Date:	6/29/2022
Name of Grantee:	River Watch
Name of Water Project:	River Watch: Collaboration and Outreach for Strategic Macroinvertebrate Data
Funding Source:	Colorado Water Plan Grant - Watershed Health and Recreation

Water Project Overview:

Macroinvertebrate data is a highly informative parameter of water quality used to understand a stream's overall health and function. The proposed project requests CWCB funding to allow River Watch to build partnerships across the State to ensure that the upcoming macroinvertebrate (macro) data collections' information achieves the greatest benefit. Specifically, we aim to partner and support existing and anticipated Stream Management Plans (SMP) area where data gaps exist.

The scope of work involves mapping existing macro data, identifying and prioritizing locations, and helping bridge the data gap through strategic and collaborative partnerships. We propose a mutually beneficial partnership that will help expand our macro data program while providing valuable data for SMP.

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**Project Objectives:** 



- Strategically expand macro data collection across the State
- Optimize the data for stream management planning
- Demonstrate the value of macro data for stream health assessment, monitoring, and evaluation
- Strengthen partnerships/collaborations to maximize data efficacy
- Support the Colorado Water Plan's Stream Management Objectives
- Educate the importance and value of macro data
- Establish new partnerships and further data collection
- Provide sustainable availability of baseline macro data and collection

#### Tasks

#### Task 1 – Existing Data Collection & Prioritizing Mapping

#### Description of Task:

The primary objective of this task is to utilize GIS to prioritize data collection of macroinvertebrates (macro) in the fall of 2023. To conduct this task, River Watch will map existing macro data, water quality data/sampling sites, and stream management planning data to identify data gaps. River Watch will work with our partners, River Network, to prioritize locations for sampling based on the ability to connect with SMP groups, location of existing River Watch sampling groups, and missing/needed data. The GIS map will give us a spatial understanding of data gaps and will be utilized as a roadmap for connecting with existing and proposed SMP groups in Task 2.

#### Method/Procedure:

- Using ArcGIS to map existing water quality and macro data from River Watch and other available datasets
- Identify macro data metrics with existing datasets
- Overlay existing (and potential) SMPs where macroinvertebrate data is needed
- Identify data gaps and potential opportunities
- Prioritize locations based on need, data gaps, and information from River Network

Deliverable:



The deliverable for this task is a GIS map that contains layers of existing datasets, identified data gaps, and prioritization.

#### Tasks

#### Task 2 – Connect with Prioritized SMP Groups

Description of Task:

Utilizing the priority map from Task 1, River Watch will connect with SMP groups in partnership with River Network. River Watch will meet with identified groups to (1) explain the importance of macro sampling in the development of SMPs, (2) gain knowledge of the SMP group's interest, timeline, urgency, needs, and objectives (3) determine capacity within the SMP group & through River Watch's network and, (4) develop a plan of action for data collection in fall of 2023.

#### Method/Procedure:

- Work with River Network to identify and connect with existing SMP groups based on Task 1
- Join or hold meetings with identified SMP groups to assess interests and needs
- Attend River Network Annual SMP Gathering
- Develop a plan of action/resource allocation plan in partnership with SMP groups



#### Deliverable:

Meet with at least five (5) SMP groups across the State. Identify and develop data collection planning and resource allocation that exists within our allocated 118 data collections.

#### Tasks

#### Task 3 – Baseline Data Collection

Description of Task:

With funding secured through Colorado Parks and Wildlife (CPW), River Watch will purchase all supplies and equipment needed to support the collection and analysis of macro data. Based on developed plans from Task 2, River Watch will provide the identified resources to each location. Resources may include supplies, equipment, training & training materials, connections with River Watch groups, River Watch staff participation, or other identified needs. Groups will collect macro data in the fall of 2023 and deliver/ship the samples to the River Watch labs for analysis. River Watch will analyze the data, map the results in the GIS map developed in Task 1, and distribute the results to SMP groups.

Method/Procedure:

- Disperse identified resources to each location/group
- Collect macro data
- Provide laboratory analysis and map results
- Provide results to SMP groups

Deliverable:



The deliverables of this task include site specific macro data collections, a report detailing the results of the macro data collection, and an updated GIS map of data collection.

#### Tasks

#### Task 4 – Education, Outreach, and Future Partnerships

#### Description of Task:

We believe that macro data collection is a vital tool that should be used in the development and monitoring of stream health and could significantly assist in developing, implementing, and evaluating SMPs. A Primary objective for River Watch is to increase our macro data collection across the State annually. Funding for this task will be used to develop educational materials, expand partnerships, and explore sustainable funding for future macro data collection. Through this task, we will develop educational materials that will express the value of macro data collection, explain the role and abilities of the River Watch network, and reflect on the process developed through this initiative. Based on identified needs and interests, we will work with our existing and newly created partners to explore opportunities for continued macro data collection for future assessment and evaluation purposes.

#### Method/Procedure:

- Develop educational materials to express value, existing resources, and uses
- Share educational resources (digital and print) with partners
- Work with existing SMP partners to explore future macro data collection through their SMP process
- Connect with anticipated SMP groups to provide information on macro data collection and SMPs
- Work with partners to identify opportunities for sustainable funding streams for future macro data collection

Deliverable:



The deliverable for this task will be educational materials, a report detailing future partnerships, and an assessment of potential funding streams.

#### **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.

#### **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 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 C. Per 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 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 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.

Task No.	Task Description	Task Start Date	Task End Date	Grant Funding Request	F	Match Funding	Total
1	Data & Prioritization Mapping	1/1/2023	3/1/2023	\$ 16,531			\$16,531
2	Connent with Prioritized SMP Groups	3/1/2023	8/1/2023	\$ 32,311			\$32,311
3	Macro Data Collection	8/1/2023	11/30/2023		\$	74,998	\$74,998
4	Education, Outreach, & Partner Development	3/1/2023	6/30/2024	\$ 26,087			\$26,087
			Total	\$74,929		\$74,998	\$149,927



## Colorado Water Conservation Board Water Plan Grant - Detailed Budget Estimate Fair and Reasonable Estimate

Prepared Date: 6/29/2022

Name of Applicant: Bradley Boileau Name of Water Project: River Watch: Collaboration and Outreach for Strategic Macroinvertebrate Data

	River Watch/ River Science Staff						Subcontracts							Other Direct					
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	Executive	Program	Project						0,	mberline									Matchin
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Identify Data Gaps & Priorize Locations	10	10	20	э ¢	3,400		\$ 102 \$ \$ 102 \$	100		ې د	202				Ş	-	\$2,327	\$3,602	
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Task 2 - Connect with Prioritized SMP Groups										Ŷ	-		Ļ	0.50 Fel/Wille	240 9	133		Ş139	
Identify and Connect with SMP Groups		Ģ	5 40	ć	3,025		\$    1,500  \$	400 \$	400	ć	2,300				ć	-	\$5,325	\$5,325	
Join or Hold Meetings with SMP Groups	1	5 20		ç	10,075		\$ 1,500 \$ \$ 273 \$	400 Ş 200	400	¢ ¢	473				÷ ¢	-	\$10,548	\$10,548	
Attend River Network Annual SMP Gathering		5 20 5	40	ې د	4,475		\$273 \$ \$454 \$	200		ې د	473 654				ې د	-	\$10,348	\$10,348	
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Develop Plan of Action/ Resource Allocation Plan		0 20		ې 10 خ	-		\$ 884 \$	600		Ş					\$ ¢	-	\$8,009 \$2,575	\$8,009 \$2,575	
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Task 3 - Macro Data Collection			225	4											4		<b>640 075</b>		÷ 40.0
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Macro Data Collection		10	) 110	Ş	8,000					\$	-				Ş	-	\$8,000	, c	\$ 8,0
Lab Analysis & Mapping				\$	-				\$	47,300 <b>\$</b>	47,300				\$	-	\$47,300		\$
Reporting of Results to SMP Groups				\$	-					\$	-				\$	-	\$0		\$ -
Reporting & Grant Management				\$	-					\$	-		\$	144 Per/night	\$ 4 <b>\$</b>	576			\$ 5
Travel				\$	-					\$	-		\$	0.58 Per/Mile	425 <b>\$</b>	247	\$247	Ş	\$24
Task 4 - Education, Outreach, Partner Development																			
Develop and Disperse Educational Materials	1			\$	9,050		\$338\$	400		\$	738		\$ 1	L,200 Lump Sum	\$1 <b>\$</b>	1,200		\$10,988	
Planning for Future Macro Collection		5 10	) 30	\$	3,425					\$	-				\$	-	\$3,425	\$3,425	
Connect with New or Anticipated SMP Groups		5 10	) 35	\$	3,750		\$ 324 \$	200		\$	524				\$	-	\$4,274	\$4,274	
Develop Plan for Continued Macro Collection		5 10	) 25	\$	3,100					\$	-				\$	-	\$3,100	\$3,100	
Final Report & Grant Management		5 15	5 30	10 <b>\$</b>	4,300					\$	-				\$	-	\$4,300	\$4,300	
Travel				Ś	-					Ś	-				Ś	-	\$0	\$0	





River Watch Program 6060 Broadway Denver, CO 80216 P 303.291.7323 | F 303.291.7456

June 23, 2022

To: Colorado Water Conservation Board Grant Application Committee

Re: Letter of Support and Matching Commitment for River Watch: Collaboration and Outreach for Strategic Macroinvertebrate Data.

I am writing in support of the grant proposal "River Watch: Collaboration and Outreach for Strategic Macroinvertebrate Data" designed to evaluate opportunities to support macroinvertebrate sampling in conjunction with statewide Stream Management Plans (SMP). As a Colorado Parks and Wildlife (CPW) Water Quality Specialist and the CPW Program Manager for the River Watch program, understanding how River Watch volunteers statewide could help collect macroinvertebrate data to support Stream Management Plans strategically aligns with the mission of River Watch.

The River Watch program is a 32 year old statewide volunteer based water quality monitoring program which adheres to its mission, "*Real People, doing Real Science, for a Real Purpose.*" This program empowers, trains, and supports student, teachers, and members of the community (*Real People*) to collect monthly baseline high value data that adheres to rigid scientific practices (*Real Science*) to support resource management and decision making in rivers statewide (*Real Purpose*).

River Watch data collection has focused on physical and chemical analysis, but has not been able to sustainably support biological macroinvertebrate analysis. Though all volunteers receive comprehensive training in macroinvertebrate collection that aligns with state standard, most groups cannot afford this analysis, and as a consequence, this data is not available for their sites. Exploring ways for River Watch volunteers to use their training, equipment and knowledge to collect macroinvertebrates to support Stream Management Plan feels like a unique and cost-effective option while building community engagement.

Because macroinvertebrates are at the base of the food chain, compiling a macroinvertebrate species inventory over time is one of the best strategies available for measuring the biological health of a river system. When available, Colorado Parks and Wildlife, stakeholders, and other decision-makers can use macroinvertebrate data to promote ecosystem health and identify <u>actual aquatic life impairments</u>, thereby benefiting aquatic species and recreational fisheries. Qualitatively, the addition of a biological assessment to our already robust program focused on chemical and physical parameters further transforms our program into a multi-dimensional learning experience for our volunteers.



This grant proposes to compile and visualize existing macroinvertebrate data which is critically needed, overlaying known SMP locations with existing River Watch sampling locations, identifying data gaps and priorities and connecting to SMP groups during planning with educational resources. CPW is hopeful this grant will compliment funds received to enhance and support statewide macroinvertebrate monitoring in fiscal years 2023 and 2024 through the River Watch program.

Supporting comprehensive Stream Management Plans is a natural fit for River Watch and I am excited that this grant will examine how best to engage and support this critical work throughout Colorado. Please feel free to contact me if you have any questions.

Kind regards,

Megan McConville, PhD.

Water Quality Specialist; River Watch Program Manager <u>megan.mcconville@state.co.us</u> 303-880-8340 (cell) 303-291-7323 (office)

