Final Report: Crystal River at Riverfront Park Restoration and Efficiency Project
October 21, 2024
Contract Number: CTGG1 2022-3430

OVERVIEW

This project funded the effort of Roaring Fork Conservancy, in partnership with the Town of Carbondale, to restore and enhance a one-half mile, 18-acre reach of the Crystal River and improve the efficiency, functionality, and stability of the town owned Weaver Ditch diversion. The project was derived from the 2016 Crystal River Management Plan (CRMP), a comprehensive Stream Management Plan supported with CWCB funding. The project reach was identified in the CRMP as severely to unsustainably degraded. A collaborative team of experts used stakeholder input to develop and implement restoration plans that address the habitat, hydrologic, agricultural, and cultural pressures within this reach and associated upland areas. The project is beginning to show the anticipated measurable aquatic and vegetative benefits- with native plants and grasses establishing in the riparian area and notable whitefish and trout within the reach. The project is poised to serve as a model for other projects in the Crystal Valley, Roaring Fork Watershed, and state of Colorado- demonstrating how a completed SMP can be implemented and translated to significant, on-the-ground environmental benefits.

TASK 1 – In-Channel Improvements

The in-channel work was extensive and transformational for this reach. Working within a very tight window between July and September of 2023, the hired contractor, Redoubt Construction, showed extraordinary skill, communication, and efficiency. Peak flows were high and sustained in the summer of 2023, so the group anxiously awaited flows to drop, working on upland projects to keep maintain timing requirements of both migratory birds and fish spawning. Even with a delayed start, the project was completed well before the September 30th deadline and has held up well through one season of runoff. The team completed all work within the allotted budget. See attached photos.

a. The Weaver Ditch Headgate Structure and "Island" Rebuild –The project reach includes the Weaver Ditch diversion structure, which was successfully rebuilt with a permanent boulder grade control structure that is below the surface at most water levels, and engineered riffle for recreation and fish passage.
b. Maintenance Access Ramp Installation – a maintenance access ramp was created in the summer of 2023. This provides a dedicated and durable access point to service and maintain the Weaver Ditch diversion from the east side of the river adjacent to the headgate.
c. In-Channel Improvements – Instream work focused on the lower 1600 feet of the river channel through the project reach, from the Weaver Diversion, downstream to Crystal Bridge Drive bridge. The thalweg in this stretch was re-established to provide low-flow connectivity for fish. In addition, a smaller riffle crest was constructed to provide pool habitat. Material excavated from the thalweg was used to build a gravel bar, creating a low-lying vegetated area on the inside of the riverbend. Habitat boulders, small rock vanes and other roughness elements were placed along the outside of the bend to promote faster moving water and maintain the thalweg while providing bank stabilization. The engineered riffle, improved thalweg, additional riffle, and habitat elements work together to create connectivity at a wide range of flow and improve hydraulic diversity thus providing resident fish with holding and feed areas through the project reach. This reach now resembles more functional reference sections of the Crystal River upstream and downstream.

d. West Bank Improvements – Approximately 900 feet of stream bank was restored, through regrading and planting. Strategically identified sections were rebuilt with boulder steps to create access points for anglers and other river users to limit the formation social trails that damage riparian vegetation.

TASK 2 – **Upland Improvements**

Completed upland improvements include riparian restoration, habitat enhancement and preservation, and creation/formalization of cultural and recreational amenities. See attached photos.

a. Paving and Trail Network - The project made significant accessibility improvements to Riverfront Park. The accessible ramp off Crystal Bridge Drive leads to a rustic gathering area with direct access to the Crystal River. This area, which also serves as an outdoor classroom for the five nearby schools, is already in use, helping to create the community's future river stewards. The 3-foot-wide crusher-fine trail leading to the outdoor classroom and downstream fishing access is wide enough for mobility aids, while additional rustic trails were formalized within the park to provide passive recreational opportunities while preserving important habitat and protecting sensitive areas. These improvements make Riverfront Park the only accessible Crystal River frontage within the Town of Carbondale.
b. Site Features and Furnishing- The outdoor classroom at the downstream end of the property is easily visible from Crystal Bridge Drive. This space provides rustic seating and "stairstep" access to the river. Based on project team site visits, this area is already receiving regular use from school groups and community members of all ages. The nearby angling access boasts an easily accessible deep fishing hole, that anglers have reported as productive. Interpretive elements are being fabricated for spring install. In addition to thoughtfully displaying park rules, the signage will discuss wildlife, hydrology, birds and history in an appealing, durable and modern fashion at the entrance and throughout the park.
c. Restoration Planting and Seeding - Riparian improvements focused on removing invasive species while retaining vegetation in functional habitat areas. Significant plantings took place in re-graded, re-connected floodplain areas as well as throughout the park's riparian and wetland habitats. Many revegetated areas have temporary fencing to prevent deer and elk, known to frequent the area, from over-browsing before the vegetation is fully established. Project team estimates 2-4 years of fencing in some areas. In addition, temporary irrigation was installed to ensure adequate water to new plants. This will also be removed at a future date. Currently, much of the vegetation is thriving- including willow cuttings with lush green leaves and small trees and grasses greening up through the summer months. The Town of Carbondale has dedicated significant time to manually removing invasive species from the area, preventing them going to seed and establishing in the newly planted areas.

TASK 3- Administration and Outreach

Significant public outreach continued throughout the construction phases, from informal community communication and question answering to RFC newsletter articles and press releases. Project coordination and well-chosen contractors ensured quality, fiscally responsible, on-schedule project completion. See attached RFC Newsletter articles.

Downstream view from Crystal Bridge Drive

Pre- Construction Summer, 2018

Post Construction, Summer, 2023

Post Construction, Summer, 2024

Overhead view of Weaver Ditch Diversion

Pre- Construction Summer, 2018

Post- Construction Summer, 2023

Overhead view of Weaver Ditch Diversion

Pre- Construction Summer, 2018

Post- Construction Summer, 2023

Post- Construction Summer, 2024

Riparian Floodplain

Pre- Construction Summer, 2018

Post- Construction Summer, 2023

Post- Construction Summer, 2024

Wetland Boardwalk


Pre- Construction Summer, 2018


Post- Construction Summer, 2024


Pre- Construction Summer, 2018


Post- Construction Summer, 2024

Watershed Science & Policy

Addressing water issues, river health, and related land management through participation in public processes.

City of Glenwood Springs

RFC continues to serve as a technical advisor for the City of Glenwood Springs and the Glenwood Springs River Commission on stream health and policy projects.

RFC is providing consultation for Glenwood's Three Mile Creek Confluence Comprehensive Planning and Design Project. This project includes erosion control, stream bank improvements, recreation access, and riparian restoration.

RFC continues to support the proposed Riparian Setback Regulations currently being reviewed by the Glenwood Springs Planning and Zoning commission. RFC staff regularly attends meetings and submits comments explaining the importance of riparian areas and providing the science behind the proposed regulations.

White River National Forest Fuel Management Plan

Submitted a comment letter to the U.S. Forest Service regarding the proposed Forest Health and Fuels Management Project. Primary goals of the project are to improve forest health, manage live and down fuels, and enhance tree diversity. RFC's comment letter encouraged protection of water resources, minimization of potential impacts, and related use of best management practices throughout project implementation.

Fryingpan River

The winter of 2019 was marked by extreme snowfall and intense cold. Coming out of the 2018 drought, releases in Ruedi Reservoir were scheduled to run at the minimum, 39cfs or inflow. Because of the concern for aquatic life and anchor ice formation, RFC worked with the Colorado Water Conservation Board and the Colorado River Water Conservation District to procure a 3,500 acre-foot lease of water to be released as supplemental flow throughout the winter to benefit the Fryingpan ecosystem. Releases were held to around 65cfs, which is within the range found beneficial to macroinvertebrate life in a 2006 study.

Lake Christine Wildfire

The Lake Christine wildfire left behind a charred landscape, threatening water quality in the Roaring Fork Valley. RFC was approached by Colorado Parks and Wildlife and U.S. Forest Service as a regional entity to lead the local, long-term restoration effort. Since that time RFC has hosted several meetings with all jurisdictions involved to discuss individual and coordinated efforts, which continued through the spring and summer. RFC also worked with Roaring Fork Outdoor Volunteers and Colorado Parks and Wildlife to coordinate a volunteer replanting effort that drew over 300 people. In addition, RFC initiated conversations with Ruedi Reservoir contract water holders to enable a flushing flow in the case of mud or sediment reaching the stream.

Crystal River

RFC, with the Town of Carbondale, and partners Aspen Valley Land Trust, American Rivers, and Public Counsel of the Rockies, completed the planning phase for restoration and enhancement of a one-half mile, 18-acre reach of the Crystal River as it flows through the town of Carbondale. The goal is to improve the efficiency of the town owned Weaver Ditch headgate and diversion. The project involves planning and design for: restoration of the riparian area along the west side of the river, in-river work for the Weaver Ditch diversion structure and in-river habitat and bank improvements. It also calls for enhanced user experience and passive educational opportunities.

With contractors DHM Design, River Restoration, and Lotic Hydrological, RFC and partners worked through several phases of site evaluation and design process. Extensive public comment was documented and used to shape the final design, which was approved by the Town of Carbondale Board of Trustees.

With 60% design complete, the project is moving the approved design forward and is currently in the fundraising phase to implement the design plan, which carefully balances the educational opportunities and accessibility with avian habitat and wildland environment preservation. With ADA accessibility and a gathering space near River Valley Ranch's South Bridge, this property will serve as an educational resource for the five Carbondale schools located within walking distance of the site as well as the community at large. Through thoughtful restoration, that preserves existing habitat, enhances areas of concern, and creates new habitat where it was lost due to human impacts, this project serves as an example to property owners looking to invest in riparian habitat. In addition, the in-channel work, particularly in the areas impacted by the Weaver Ditch diversion structure, both at the structure and downstream, will be a powerful demonstration of how rebuilding dated infrastructure can benefit both the water rights holder and the river.

Fall 2020 Science and Policy Project Update

by Heather Lewin, Director of Science & Policy

While 2020 continues to challenge us in so many ways, Roaring Fork Conservancy (RFC) continues to work for the rivers, building projects and partnerships that benefit the community and water resources. Current project highlights include:

Roaring Fork Watershed Interactive Tool

With an update to the Roaring Fork Watershed Plan in 2019, RFC decided to take the plan online with an Interactive Watershed Tool. This tool contains watershed facts, data, projects and modeling allowing the user to get a simple glimpse of the watershed or dig deep into river science and data, depending on the individual's interests and goals. The tool is a one stop shop for all things Roaring Fork Watershed - and has become more relevant and useful in the time of social distancing. Lessons to guide live exploration or to be used virtually during homeschooling can be found at www.roaringfork.org/activities. Explore the river from the comfort of your own home and see the watershed from a new perspective!

Fryingpan River:

Explore the river from the comfort of your own home and see the watershed from a new perspective!

RFC staff has been working with Ruedi Water and Power Authority and consultant Lotic Hydrological to develop an Environmental Flow (EFLow) tool to help understand the ecological impacts of releases from Ruedi Reservoir. The first facet of the tool will predict water temperature on the Roaring Fork River in Glenwood as a function of air temperature, stream flows on the Roaring Fork, and flow contributions from Ruedi Reservoir. The second tool component predicts the condition of important ecosystem variables - such as macroinvertebrate population, juvenile brown trout population, didymo, etc. – at hydrologic cycles (time and magnitude of flows or releases). This tool will be used to advocate for releases with local environmental needs in mind. We hope to make this tool available to the public in the near future. Thank you to Pitkin County Healthy Rivers Board for their generous contribution towards funding this project.

Crystal River:

RFC with partners Town of Carbondale, Aspen Valley Land Trust, and American Rivers, is working to restore and enhance a 1/2-mile reach and surrounding 18-acre riparian zone of the Crystal River as it flows through Carbondale and River Valley Ranch. The project will also improve the efficiency and reduce maintenance of the town-owned Weaver Ditch diversion. This project was featured in RFC's Summer 2020 edition of River Currents. At press time, the design phase of the project is fully funded, and consultant River Restoration is hard at work on final design and permitting. Meanwhile, the project team is working on securing implementation and construction funding through grants and foundations.

Crystal River Restoration Project at Riverfront Park

by Heather Lewin, Director of Science & Policy

The best things come to those who wait... and the wait is finally coming to an end! After almost two years of fundraising and stakeholder building, The Crystal River Restoration Project at Riverfront Park[1] will break ground this summer. Planned in partnership with the Town of Carbondale and Carbondale-based consultants River Restoration and DHM Design, this project is a direct outcome of the recommendations of the 2016 Crystal River Management Plan. In the Crystal River, the project will create a stable, low maintenance diversion structure for the Town's Weaver Ditch and re-establish a self-sustaining low flow channel through the project reach. In Riverfront Park, the project intends to preserve, enhance, and create riparian and wetland areas; create designated angler access and riparian trails; upgrade interpretive signage; and establish an accessible access point and rustic classroom area near the River Valley Ranch South Bridge. This multi-benefit project will not only improve the project reach, but also serve as a demonstration project for other publicly and privately owned diversions and riparian corridors along the Crystal River with similar concerns.

Extreme low water August 2018: *Looking downstream through the project reach, the alluvial push up dam used to divert water into the Weaver Ditch is clearly visible. The push up dam is re-established annually using large machinery in the river. During high water the material is transported downstream and deposits just upstream of the bridge (see photo below). The construction of a permanent, stable diversion structure will reduce channel disturbing maintenance activities and allow for a wide window for fish and boat passage.*

Low water condition March 2022: *Channel in lower portion of the project reach is over widened with significant bank erosion due to sediment deposition and lack of vegetation on the banks. A combination of re-establishment of a low flow channel (thalweg), instream habitat features, and planting of banks with native vegetation will enhance riverine and riparian habitat and reduce bank erosion and sediment deposition potential. In addition, designated angler access points will be strategically placed to discourage social trails and maintain longevity of both preserved and newly planted riparian vegetation.*

December 2020: *The current Weaver Diversion headgate, consisting of concrete barriers and outdated gate infrastructure. Portions of the Weaver Diversion will be rebuilt with native materials and will be enhanced by two new, modern headgates, funded by the Pitkin County Healthy Rivers Board. The new headgates will increase the ability to control water entering the Weaver Ditch and will have the ability to be retrofitted with an automated system in the future.*

The Pitkin County Healthy Rivers Board, with the Town of Carbondale, has taken the lead on modernizing the Weaver Ditch Headgate and Diversion. They have worked with the Town on plan, design, and purchase of a new headgate. Installation is slated for this fall, when the ditch is turned off. Thanks to the Healthy Rivers Board for funding this important demonstration of headgate efficiency!

August 2018: *Degraded riparian areas in Riverfront Park from past uses. Invasive weed species dominate the northern portion of the project area. The proposed upland improvements will include a rustic footpath and minimalist outdoor classroom space on the disturbed, downstream area. Native plants will replace the invasive species throughout. Upstream, mature cottonwoods and thriving understory will be preserved for avian and wildlife habitat.*

Project Implementation Funders:

Colorado Parks and Wildlife Fishing is Fun

WaterSMART

Colorado Water Conservation Board's Water Plan Grants

Town of Carbondale

Pitkin County Healthy Rivers

GOCO Resilient Communities Fund

Colorado River Water Conservation District

Aspen Valley Land Trust R3 Fund

The project team has raised over $1.5 million through grants, donations, and contributions from the Town. The completed Crystal River Restoration Project aims to achieve the project goals developed during the planning process:

1) Restore the ecological integrity of the riparian zone through streambank stabilization, reconnect the floodplain, and replace invasive weed communities and plant monocultures with healthy and diverse riparian plant regimes, while preserving healthy bird and wildlife habitat.

2) Develop a long-term, self-sustaining solution to improve river channel stability, fish habitat and spawning areas by promoting conditions that support and enhance instream biotic structure and diversity.

3) Create a self-sustaining diversion and headgate structure for the Weaver Ditch to function as part of the river system, while improving the water delivery for the Town of Carbondale and consistent with future ditch improvements and efficiencies.

4) Enhance passive user experiences of Riverfront Park through interpretive signs, trails, gathering spaces, and educational programs.

[1] *For project details, see RFC Summer 2020 Newsletter found at www.roaringfork.org/about-us/river-currents.*

Crystal River Restoration at Riverfront Park: Phase 1 Complete!

"It is hard to contemplate how the Crystal River Restoration Project would have ever gotten to the construction phase without the assistance and expertise of Roaring Fork Conservancy. Whether it was gaining buy-in from other project partners, grant writing and management, public outreach or technical expertise, Heather, Rick and other members of the Conservancy staff were integral in the project and the project's success."

Kevin Schorzman, Carbondale Public Works Director

After years of collaborative work in design, redesign, outreach, fundraising, and planning, the first phase of work in the Crystal River Restoration at Riverfront Park was completed in the summer of 2023. This multi-benefit project will not only improve the reach at hand, but also serve as an example for similar projects elsewhere on the Crystal and other local rivers.

GOAL: ***Restore the ecological integrity of the riparian zone through streambank stabilization, reconnection of the floodplain, and replace invasive weed communities with healthy and diverse riparian plant regimes.***

Action: Riparian grading and reseeding with erosion control were completed to reconnect the floodplain and the river. Dedicated access points for angler access and rustic trail systems were created to protect wildlife habitat and mitigate social trails. Additional spring plantings will enhance habitat, provide wildlife shelter and forage, increasing shading and improve riverine temperatures.

GOAL: ***Implement a long term, self-sustaining solution to improve river channel stability, fish habitat and spawning areas by promoting conditions that support and enhance instream biotic structure and diversity.***

Action: Installed bank improvements to increase stability, decrease erosion, reduce bank height, and help re-establish riparian vegetation. These modifications provide shade and in-stream structural diversity for fish. The recreated thalweg in the lower reach, below the upgraded diversion structure, will create a cool water channel at low flows to re-establish fish passage and enhance habitat.

GOAL: ***Create a self-sustaining diversion and head gate structure for the Weaver Ditch to function as part of the river system while improving the water delivery for the Town of Carbondale and consistent with future ditch improvements and efficiencies.***

Action: The redesigned Weaver Ditch diversion structure functions as a stable part of the stream, requiring minimal in-channel upkeep. The project also added a maintenance access point to eliminate channel disturbance when maintenance is necessary.

GOAL: ***Enhance passive user experiences of Riverfront Park through interpretive signs, trails, gathering spaces, and educational programs.***

An improved access from Crystal Bridge Drive will provide the only accessible trail to the Crystal River within Carbondale Town limits. Additionally, an entrance area with new fence and gate will help enforce seasonal bald eagle closures and remind users of park rules and amenities. An outdoor classroom, visible from the bridge, doubles as river access and informal gathering area. These enhancements provide river access while protecting sensitive ecological areas by directing people into areas designated for recreation and gathering. In spring 2024, additional interpretive signage will highlight the unique ecological components of the park and other educational opportunities.

Photos provided by River Restoration and DHM Design.

2024 Robert Billingsley River Conservators:

Jessica and Seth Mason, *Lotic Hydrological*

RFC will honor Jessica and Seth Mason of Lotic Hydrological as our 2024 Robert Billingsley River Conservators at the Return to the River event on July 17, 2024.

Seth Mason is the Principal Hydrologist at Lotic Hydrological, a consulting firm based in Carbondale. Seth is dedicated to helping local governments and watershed organizations like RFC collect, analyze, and tell stories around data. He hopes that his work helps to motivate community action or policy development for sensible water resource management and protection. Seth received his M.S. in Land Resources and Environmental Sciences from Montana State University and his B.A. in Environmental Studies from the University of Colorado, Boulder. Never one to let a little free time go to waste, Seth is currently completing a Ph.D. in Systems Engineering at Colorado State University. When he's not in the office, Seth can be found volunteering as a Nordic coach and soccer coach, constantly trying to convince himself that he has a knack for corralling the energy of middle-school boys. In his rare moments of downtime, you can find him herding his two rambunctious boys around the valley on a medley of skis and kayaks, tinkering with bikes and sailboats, or pondering the mysteries of bespoke manual espresso machine designs that seem more like Rube Goldberg inventions than coffee makers.

Jessica Mason is a Water Resources Engineer at Lotic and a super-mom who can often be spotted in local rivers measuring streamflow with an acoustic doppler with two kids in tow. She received her M.S. in Water Resources Engineering from Montana State University and a B.S. in Civil Engineering and Architecture from the University of Virginia, Charlottesville. Jessica has over fifteen years of experience in water resources engineering, watershed sciences, and water resource planning. She specializes in hydrological and hydraulic modeling; water rights engineering; deployment and operation of data collection and management systems; and project management. In a former life, Jessica designed bridges, raced with the U.S. Women's Raft Team, swam across the Chesapeake Bay, and danced ballet. These days, you might find her in various corners of the Roaring Fork watershed, maintaining stream gauges, constructing hydraulic models, and designing stream restoration projects. In the summer months, Jessica spends as much time as possible floating rivers and exploring mountainsides with her two young children. When the weather gets cold, she steps into her alpine ski bindings for powder days or grabs her Nordic skis to coach or train for the next big race. Whether at work or at play, Jessica drives toward her goals with furious intent.

Their high level, creative thinking coupled with genuine desire to improve the river system on a small or large scale has made their partnership invaluable to RFC.

Over the past 10 years, Jessica and Seth have partnered with RFC on numerous projects including the 2016 Crystal River Management Plan, Fryingpan Flow Evaluation Tool, and Agricultural Drought Resiliency in the Roaring Fork Valley. Their high level, creative thinking coupled with genuine desire to improve the river system on a small or large scale has made their partnership invaluable to RFC. We are grateful for their support, partnership, and friendship!

UPDATE:

Crystal River Restoration at Riverfront Park

For just over a week this spring, crews returned to Riverfront Park to plant native riparian vegetation and install temporary irrigation and wildlife fencing. All installations were done by hand to minimize disturbance. The park is currently open to the public. The Town of Carbondale anticipates removing both the irrigation and fencing in 1-3 years as vegetation establishes.

Welcome New River Stewards:

Alyssa Drake grew up in Golden, Colorado, where her deep appreciation and respect for the outdoors started early in life. She attended the University of Arizona, earning a B.S. in Natural Resources focusing on Conservation Biology. During her summers in college, Alyssa came to the Roaring Fork Valley where she worked as a raft guide on the Colorado River in Glenwood. After graduating, her passion for outdoor pursuits and love for the RFV led her to work as a ski instructor at Buttermilk during the winter months. Whether she's skiing in the winter or rafting in the summer, Alyssa can always be found immersed in water-related activities. Spending extensive time on the river sparked Alyssa's desire to pursue a career in river conservation. Alyssa is excited to combine her passion for conservation and outdoor recreation to ensure we can enjoy these rivers for generations to come.

Chase Ellsperman is a GIS Analyst for the City of Aspen. He spent his youth exploring the many valleys and peaks of the Roaring Fork watershed and developing a strong conservation ethic. He is a lifelong hunter and angler, and a product of the RFC youth education programs which educate the valley's schools. These days, you'll most often find Chase bushwhacking to discover a new section of fishable water or rock to scramble up. He studied Environmental Science and GIS at Fort Lewis College in Durango, then spent a few years working seasonally for the U.S. Forest Service before landing back in the valley. He hopes to put his wide range of experiences to good use with the River Stewards and looks forward to giving back to the watershed that has provided him so much.

Melissa Wills is a Grants Manager for the Colorado River District – overseeing the distribution of an average of $4 million in grants annually to high impact water projects across the Western Slope of Colorado. Melissa has over eight years of nonprofit and philanthropic experience through past work with Vail Valley Foundation and El Pomar Foundation. Previously, Melissa completed the El Pomar Foundation Fellowship Program - a two-year intensive nonprofit executive and grantmaking training in Colorado Springs. Melissa holds a Bachelor's degree in International Studies from the University of Denver. Originally from Bozeman, Montana, Melissa was raised to find true admiration in some of nature's finest river flows. Melissa lives in Carbondale, CO and can frequently be found backcountry skiing, mountain biking, and backpacking in the Rockies. Melissa is excited to bring her knowledge of West Slope river projects to the River Stewards and the Roaring Fork River.

Staff Flows

Connor Allen was born and raised in the Roaring Fork Valley spending as much time outdoors as possible. From mountain biking to paddle boarding, his love for the outdoors fueled his passion for environmental protection. As a junior at The University of Colorado Boulder majoring in Environmental Studies, he's thrilled to be joining the RFC team this summer as Watershed Health Intern. He's eager to learn and contribute to protecting the valley's unique watershed.

Thank you to....

Cailyn Raper who has been RFC's Watershed Educator since last fall. She is off to do missionary work in orphanages in Africa this summer and we wish her all the best!

Retired River Stewards **Quinn Harnett, Leah Mancabelli, and Chris Vaughan!** Thank you for all the years of volunteering at river cleanups, river floats, film festivals and more – all to connect young professionals to their local rivers. Bravo!

RIVER CURRENTS
is published biannually by Roaring Fork Conservancy. Since 1996, Roaring Fork Conservancy has inspired people to explore, value and protect the Roaring Fork Watershed. We bring people together to protect our rivers and work to keep water in the streams, monitor water quality, and preserve riparian habitat. Roaring Fork Conservancy is an independent 501(c)(3) not-for-profit organization registered in the state of Colorado.

Crystal River Project at Riverfront Park Nears Completion

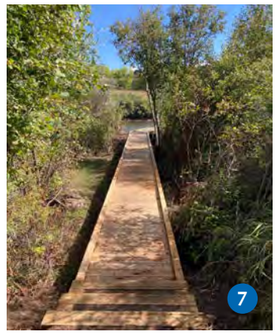
by Heather Lewin, Director of Science and Policy

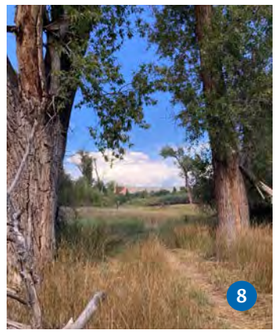
The Crystal River Restoration Project at Riverfront Park in Carbondale's River Valley Ranch (RVR) completed all instream improvements, as well as much of the upland regrading and trail work. This multi-benefit project recreated the Weaver Ditch diversion structure to function as a part of the stream, requiring minimal maintenance in the future. The project also touts a self-sustaining low-flow channel that functions at a variety of water levels, reconnection of the river to the floodplain, and the only Crystal River access for all abilities in the Town of Carbondale.

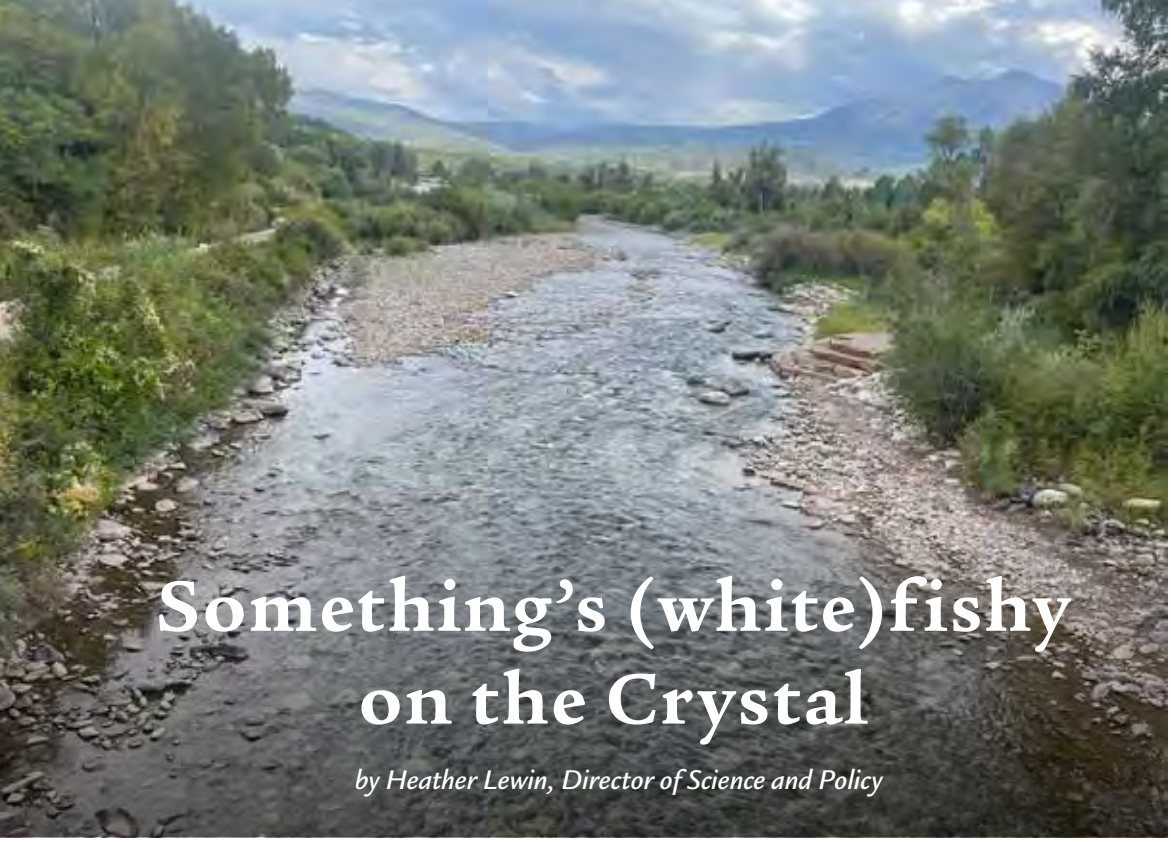
We are beyond excited to see this project on the ground and look forward to sharing this special area with you for years to come. We would like to give special thanks to the Town of Carbondale for partnering with us in this project as landowner, planning partner and funding partner; Pitkin County Healthy Rivers, a planning and funding partner; additional funding partners: Colorado Water Conservation Board, Colorado Healthy River's Fund, Colorado Parks and Wildlife Fishing is Fun Grant, Aspen Valley Land Trust R3 Fund, Bureau of Reclamation's WaterSMART grant, and Colorado River District's Community Funding Partnership. In addition, this project would not have been possible without the top-notch planning and design from River Restoration and DHM Designs. And finally, a huge thank you to David Myers and his crew at Redoubt Construction for completing the project with impeccable skill and attention to detail in less than half the anticipated timeframe! It truly takes a village to care for the river, and we appreciate all who have supported this project along the way!

1. The accessible path allows people of all abilities to interact with the Crystal River.
2. A new entryway provides access to the park and reminds visitors of the winter closure for Bald Eagle nesting and that no dogs are allowed in this area at any time.
3. The view from RVR's Crystal Bridge Drive shows the classroom with river access and a newly established low-flow channel.
4. From a bird's eye view, one can see the classroom, adjacent fishing access, and the boulders placed to both maintain the new channel and create fish habitat.
5. This area was previously covered in pasture grasses and weeds, about 3 feet above the water. A newly reconnected floodplain (currently covered for erosion control) will be planted with native vegetation in spring 2024.
6. The path adjacent to the floodplain will allow visitors a firsthand look at the native regrowth with a fishing access path nearby. The area was hand seeded with native grass, and some is already emerging! More seeds and plants will be added this spring.
7. A boardwalk guides visitors through the lush vegetation and over a wetland area to the riverbank. This follows the original path, reinforcing and revegetating areas that were eroding away.
8. Historic cottonwoods provide a grand entrance to a wetland grass meadow, which remains undisturbed, with just a rustic grass path for quiet passage through this special habitat.
9. The newly-constructed Weaver Ditch diversion allows the town of Carbondale to receive their legal allocation of water while allowing boating and fish passage with minimal maintenance.

More information about this project can be found in RFC's River Currents Summer 2020 and Summer 2022 editions.







Something's (white)fishy on the Crystal

by Heather Lewin, Director of Science and Policy

Mountain whitefish *(Prosopium williamsoni)* are silverish to white in color with a round body shape and larger scales than trout. Their small mouth is under the snout. They are native to Colorado.

Recently, the mountain whitefish had nearly a 90% decline in population on the Crystal River. Increased temperatures and low flows have a negative impact on this sensitive species. We hope with the addition of low flow channels for fish passage, pools for habitat, and riparian vegetation for shade the mountain whitefish will again thrive on the Crystal!

I pulled into the parking lot on Crystal Bridge Drive on a sunny September afternoon. My plan was to check out the conditions at Riverfront Park, as I like to do when I'm nearby and have the time. I knew water levels had recently dropped, so I wanted to see how the low-flow channel, streambanks, and diversion, all completed around this time last year, were looking. As I pulled in, I was pleasantly surprised to see "Hutch" Hutchinson, a local fishing guide and Roaring Fork Fishing Guide Alliance board member putting his boots on. Like me, Hutch was eager to explore the area and see the recent changes, particularly the potential for new angling spots.

I took the opportunity to share the highlights and challenges of completing the restoration project—the delays, grant applications, billings, and reports—and how, in the end, it all feels worthwhile when looking at the finished instream and riparian work. From the bridge, we had a clear view of the well-established thalweg, or low-flow channel. This concentrates moving water at low flows and creates opportunities for fish to migrate through at a much larger variety of flows than the monocultured, shallow reach that existed prior to the restoration efforts.

As we descended the smooth new staircase, adjacent to the accessible ramp, we met the golf path and headed under the bridge to the park entrance. Through the new gate, that will restrict access to the park during the winter closure, we walked the short distance to the outdoor classroom space and main angling access. As the river burbled by, we made note of how high the water had been in June, and discussed how the work seemed to be holding up well. The discernible low flow channel, and a nice deep pool near the fishing access stood out as significant changes since the construction's completion. We turned a few rocks, finding a bustling benthic macroinvertebrate community, food for fish and birds, thriving in the river.

We walked together just a bit further to see the reconnected floodplain area, filled with native grasses and willow plugs that were planted in August, already boasting abundant green leaves. At this point, I sent Hutch down the trail to discover the new boardwalk and fish his way back. I left the site, listening to a chorus of birds chirping, with a renewed excitement in the project - seeing the vegetation really thriving through the wet late summer.

But my pleasant surprises were not quite over! Later that afternoon, I received a text from Hutch, "Nice work to the entire team for the work done on the Crystal. Here is about a 16" whitefish. They were sitting where they should have been in the deepest, slowest moving water. I saw a couple more in there as well. I also caught a few rainbows and browns! Cheers to healthier rivers!!"

Hutch Hutchinson

We are looking forward to seeing the Riverfront Park site continue to mature into a revitalized instream and riparian habitat. And hope to raise our glasses again in the future under a canopy of cottonwoods to cheers a healthier river!