

Yampa River Health Assessment & Streamflow Management Plan

2020 Annual Report

Background

The City of Steamboat Springs adopted the Yampa River Health Assessment and Streamflow Management Plan (Plan) in August of 2018. In addition to incorporating an in depth assessment of the health of the Yampa River from the Chuck Lewis State Wildlife Area to the Steamboat Springs Wastewater Treatment Facility, the plan identified water management, land and stream restoration, land-use planning, and education and outreach strategies to meet its goals and objectives. The stream health assessment, streamflow-stream temperature models, and stakeholder feedback informed objectives and monitoring indicators that were established along with a strategy to evaluate and report progress toward these objectives. This Annual Report provides a summary for City Council and the community of the following:

- Status of the implementation of the short-term action items identified in the plan (see 2019-2020 priorities table below)
- Recommendations on new actions to be added to the short-term action plan (see 2020-2021 priorities table below)
- Updates on monitoring indicators of progress toward management objectives
- Summary of any other significant events and trends identified by the City

What: Yampa River Health Assessment and Streamflow Management Plan Updates

Who: City of Steamboat Springs Stream Team

When: Annually and every ten years

How:

- Annual Report on progress and new actions
- Comprehensive update of all plan components every ten years

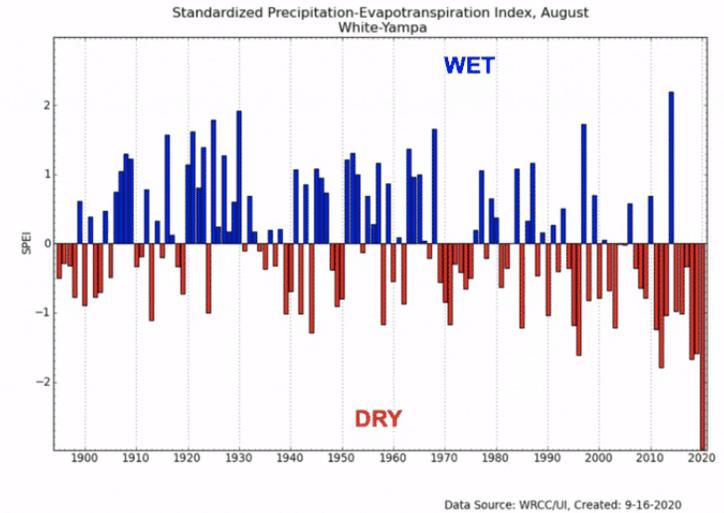
2020 Highlights

Although progress was made on nearly every action item, several projects were particularly successful and highlighted the value of this stream management planning effort.

Streamflow Restoration – Although snow-water equivalent (SWE) stood at 111% of average by March 1st, 2020, an early runoff season decreased SWE to 69% of average by June 1st, 2020. Streamflows had dropped rapidly by an August that proved to be the hottest and driest on record for the Yampa Basin according to a standardized precipitation evapotranspiration index (SPEI).¹ Stagecoach releases augmented flows by as much as 40-cfs as measured at the 5th Street Gage in Steamboat Springs helping to maintain stream temperatures below the acute threshold of 23.9°C and above the recreational closure flow of 85-cfs through mid-September. These releases were a result of the collaboration among the Colorado Water Trust, the Upper Yampa Water Conservancy District, the Yampa River Fund and the City of Steamboat Springs to secure water lease agreements and a legal mechanism for delivering flow.

Yampa-White basin: Summer SPEI

August 2020: when including the effects of temperature, truly extreme



COLORADO CLIMATE CENTER

Data source: Westwide Drought Tracker



Yampa River Fund - Funding and capacity are essential ingredients to the implementation of any plan. Without them plans gather dust on a shelf. But rural economies, like the one in Steamboat Springs, have limited resources for tackling stream health projects and programs without help from partners. The Nature Conservancy recognized this funding gap when it facilitated the development of the Yampa River Fund, an endowment fund that will generate annual contributions for flow restoration and riparian restoration projects in addition to water infrastructure improvements that benefit agriculture and the environment. This fund launched on September 19th, 2019 and it has raised over \$3 million toward the \$4.7 million target. The City contributed \$50k to the fund in 2020 with another \$25k planned for 2021. The fund granted \$200k to projects that meet watershed conservation objectives, including the Colorado Water Trust's Stagecoach streamflow project and YVSC's Yampa River Forest Restoration Project.

¹ Colorado Climate Center, Sept. 16th, 2020. Standardized Precipitation-Evapotranspiration Index (SPEI) Yampa-White Basins.



Yampa Riparian Forest Restoration Project – The City continued to partner with the Yampa Valley Sustainability Council’s (YVSC) ReTREE Program to restore native cottonwood forests on city-owned parcels while also developing a long-term strategy for riparian restoration on private land. Not only did this project lead to the planting and watering of 350 narrow leaf cottonwood trees by 80 volunteers and 110 Rocky Mountain Youth Corp participants, it was featured in a PBS special called, [This American Land](#). While the benefits of riparian reforestation may not be realized for a decade, at least in reducing stream temperature, the predicted long-term benefits and the low-risk nature of the restoration activities continue to make this project a high priority for the community.

Water Quality Trading Stream Temperature Pilot Program – The City teamed up with The Freshwater Trust to kick-off the development of a Water Quality Trading Program that could incentivize restoration activities that improve stream temperature and reduce nutrient loads. The Freshwater Trust has developed successful Water Quality Trading

Programs in other states where the ecosystem services provided by tree-planting and other riparian restoration activities have been quantified and traded to point-source dischargers, such as wastewater treatment facilities, to improve overall stream health while reducing infrastructure costs. The City and The Freshwater Trust secured funding from the Walton Family Foundation to develop a pilot program for the Yampa River that could benefit water quality while enhancing Clean Water Act compliance while providing a framework that could be replicated across Colorado. This project launched in November 2020 and is expected to be completed by June 2021 with restoration recommendations and a discharge permit compliance strategy in place.

Removing Fish Passage Barrier on Fish Creek – [Mountain whitefish](#) are one of the few native fish species left in the Yampa River and its populations are in decline due to climate change, development, and invasive species. Fish Creek is one of the main spawning streams for this native fish and it came to the city’s attention last year that their spawning habitat had been constrained by development along Fish Creek and by the US40 box culvert that stands as a barrier to upstream migration. City staff met with CDOT and CPW and decided to adjust the water diversion to the Botanic Park in a way that concentrated flow in Fish Creek while the mountain whitefish are spawning in October. Botanic Park staff jumped into action by restructuring the diversion. The City soon received reports from CPW that mountain whitefish were seen migrating upstream from the US40 box culvert to spawning habitat they hadn’t accessed in nearly a decade. Although this low budget, temporary solution was successful, the City plans to partner with CDOT and CPW to ensure that the box culvert is retrofitted to allow permanent fish passage.

Monitoring Indicators

The frequency of monitoring indicators is on an annual, 2-year, 5-year, 10-year, and post-flood event basis, so limited monitoring has occurred to date. With that said, the City of Steamboat Springs continued to monitor stream temperature from above Lake Catamount to below the wastewater treatment facility to evaluate the effectiveness of action items, such as streamflow releases from Stagecoach Reservoir. Although stream temperatures exceed the Maximum Weekly Average Temperature (MWAT) in most years during July, August, September, the Stagecoach releases maintained flows below the acute temperature threshold for aquatic life in 2020. Fisheries and macroinvertebrate data were collected by Colorado Parks and Wildlife, but they have not yet been analyzed. Colorado Parks & Wildlife intend to collect mountain whitefish data in 2021 with support from the City staff.

Regional Trends

The Yampa-White-Green Basin Roundtable continued to make progress on its Yampa Integrated Water Management Plan (IWMP), a basin-scale stream management plan that will integrate with the Yampa River Health Assessment & Streamflow Management Plan. The IWMP completed an assessment of water diversion infrastructure, stakeholder feedback, and baseline conditions for four reaches. These analyses will inform a long-term strategy for restoring flows, improving infrastructure, and enhancing riparian conditions. Friends of the Yampa has initiated a monitoring indicators program for the Yampa River that could overlap or compliment the monitoring plan for the Yampa River Health Assessment & Streamflow Management Plan. West Slope voters passed Referendum 7A in November 2020, the Colorado River District's ballot measure that raised mill levy assessments to fund water related projects for the Colorado River Basin, including watershed health and streamflow projects like those identified in this plan.



2021 Priority Actions

ID	ACTION	LEAD ORGANIZATION	PARTNERS	Status/Recommendations
Streamflow Management				
SM-1	Seek water contracts with Upper Yampa Water Conservancy District to meet instream flow and City streamflow objectives.	-City of Steamboat Springs Public Works (Water Resources) -Colorado Water Trust	Upper Yampa Water Conservancy District, The Yampa River Fund, CWCB, CPW	<p>On-Going</p> <p>The Colorado State Legislature passed HB-1157 that expands the use of the “3-in-10 year” Instream Flow Loan Program to 5-in-10 years. While the new rule will improve legal mechanisms for flow deliveries from Stagecoach Reservoir, the 2020 water year revealed the gaps in protecting non-consumptive flows from a reservoir without water decreed for environmental uses. The City was able to combine its leased Stagecoach water with the amount secured by the Colorado Water Trust and funded by the Yampa River Fund to maintain flows through a very dry summer, but the limited legal tools available for restoring flows on the Yampa River forced recreational closures after Labor Day. Concurrently, the Colorado Water Trust continued to take the lead on contract negotiations with Upper Yampa, particularly as it issued draft policies for Environmental Recreation Contracts (ERC) in October 2020. The City is taking the lead on measuring and modeling the effectiveness of these releases for reducing stream temperature.</p>

ID	ACTION	LEAD ORGANIZATION	PARTNERS	Status/Recommendations
SM- 2	Identify water rights owned by the City of Steamboat Springs that could benefit late summer flows and implement projects as appropriate.	City of Steamboat Springs Public Works (Water Resources)	Colorado Water Trust	<p>Ongoing</p> <p>City Staff continue to evaluate opportunities to put City water rights to beneficial use by restoring flows. Fish Creek Reservoir releases were delivered through the RICD reach and to the WWTF. No other specific project has been implemented to date.</p>
SM- 3	Explore other voluntary, market-based streamflow restoration projects.	Colorado Water Trust	Community Agriculture Alliance,	<p>Move to valuable activities to continue doing.</p> <p>The Colorado Water Trust is working with a number of partners convened by the Yampa-White-Green Basin Roundtable on an Integrated Water Management Plan for the whole Yampa Basin that will explore these opportunities.</p>
SM- 4	Improve City of Steamboat Springs water diversion structures.	City of Steamboat Springs Parks and Recreation	City Public Works (Water Resources); CSU Extension	<p>Ongoing</p> <p>City Parks & Recreation partnered with CSU Extension to improve the Gilroy and Windsor ditches on Legacy Ranch, including the installation of measuring devices. Botanic Park staff temporarily modified the diversion structure at the Park City Main Lateral to allow for mountain whitefish spawning migration on Fish Creek. A long-term solution on Fish Creek will be implemented by CDOT.</p>

Land & Stream Restoration

RE-1	Establish a native riparian revegetation program for implementing the identified revegetation projects along the Yampa River through and around Steamboat.	City of Steamboat Springs Parks and Recreation	Yampa Valley Sustainability Council, City Public Works, Colorado State Forest Service, CPW, the Yampa River Fund & private landowners	<p>Ongoing</p> <p>The City of Steamboat Springs continued to partner with the Yampa Valley Sustainability Council’s ReTree Program and the Colorado State Forest Service to implement raise \$175,000 (3-year project) to restore the riparian forest on public-owned parcels, such as the Chuck Lewis State Wildlife Area and Rotary Park, and to develop a 20-year restoration plan to extend upstream to Catamount Reservoir. Over 600 narrowleaf cottonwood trees have been planted and cared for by 200+ volunteers.</p>
RE-2	Participate in the development of the Yampa River Integrated Water Management Plan and implement projects that restore watershed health within the Upper Yampa watershed.	Yampa White Green Basin Roundtable	City of Steamboat Springs, Routt County, Community Agriculture Alliance, CSU Extension, Natural Resources Conservation Service, Upper Yampa River Watershed Group, Trout Unlimited, The Nature Conservancy, River Network.	<p>Ongoing.</p> <p>The Yampa White Green Basin Roundtable made progress on its Integrated Water Management Plan (IWMP) in 2020 that will identify watershed scale projects and diversion structure improvements in the Yampa Basin as a whole.</p>
RE-3	Fund and implement US Geological Survey (USGS) proposed nutrient source evaluation for the Upper Yampa River Basin.	Upper Yampa River Watershed Group	USGS, City of Steamboat Springs, Routt County, Upper Yampa Water Conservancy District, CPW, Trout Unlimited, US Forest Service	<p>Completed.</p> <p>The USGS completed its nutrient-load analysis for the basin that indicated subreaches that warrant better nutrient management. This report will inform watershed-scale restoration activities to reduce nutrient loading and the proliferation of algae. The results will also inform potential alternative compliance solutions for the City’s Wastewater Treatment Facility per CDPHE’s Voluntary Incentive Program (VIP).</p>

RE-4	Further evaluate projects in the Yampa River Structural Master Plan and the Yampa River Restoration 5-Year Capital Improvements Plan and incorporate the Stream Management Plan objectives.	City of Steamboat Springs Parks & Recreation	City Stream Team	Initiated. City Parks & Recreation integrated river health objectives into its “Flourmill” bank restoration and pocket park project. This project, slated for construction in fall 2021, will include enhanced riparian cover.
RE-5	Conduct a wetlands construction or enhancement feasibility assessment to improve riparian vegetation and to offset impacts within the City	City Manager’s Office	City Stream Team, City Public Works, City Planning Dep’t., Johnson Environmental, YVSC, The Freshwater Trust, CPW, Steamboat Ski Area, CWCB	Initiated. To be completed by February 2021. The City contracted Johnson Environmental to conduct a wetland enhancement feasibility study for city-owned parcels. Key opportunity areas include the Williams/Rotary Parcel, the wastewater treatment plant lands, the Oak Creek Parcel, Snake Island, and other smaller parcels along the riparian corridor. The City convened multiple partners in Sept. 2020 to scope next steps for a wetland restoration project at the confluence of the Yampa River and Walton Creek. The City is exploring multiple grant opportunities and partners for project implementation.
Land Use & Planning				
PL-1	Review and improve the effectiveness of the City of Steamboat Springs waterbody setback standards for implementing the objectives of the stream management plan.	City of Steamboat Springs Planning	City Council, City Public Works, City Stream Team, UYRWG, CPW, CWCB, local development community	Initiated. The Planning Department is currently working on this project with direction from Planning Commission and input from the Stream Team. Challenges related to COVID (furloughs, budget cut to new Planning Dept staff position, competing priorities, etc.) limited its progress in 2020. Staff anticipates presenting proposed changes to City Council in 2021.

PL- 2	Review existing City of Steamboat Springs plans and regulations to identify areas to improve consistency and compliance with the stream management plan.	City of Steamboat Springs Planning,	City Council, City Public Works, City Parks and Recreation, City Manager's Office, City Stream Team, Routt County, numerous community partners	<p>Initiated & Ongoing</p> <p>Staff continues to integrate relevant findings from the stream management plan into other community planning efforts, including the Routt County Climate Action Plan and the Water Conservation Plan in 2020. Staff will look for opportunities to incorporate information into the County's Master Plan process in 2021. The Planning Department has reviewed the Area Community Plan and the Community Development Code to identify areas related to stream system health and to prioritize needed updates within staff work plans.</p>
PL- 3	Integrate green infrastructure concepts and improvements into City of Steamboat Springs standards, policies, and procedures.	City of Steamboat Springs Public Works (Engineering)	City Planning and Community Development, City Public Works, local development community	<p>Initiated and Task 1 Complete.</p> <p>Task 1 - The City revised and adopted new Engineering Drainage Standards and Standard Operating Procedures that incorporate green infrastructure requirements for developments that exceed 1-acre, including City Capital Projects. Task 2- City Council is considering a Stormwater Utility Enterprise that could support and incentivize green infrastructure. Task 3 – The City retrofitted multiple storm sewers with underground treatment facilities in 2020. Additional retrofits are planned in 2021.</p>
PL- 4	Establish an interdisciplinary City "Stream Team" to coordinate and review City infrastructure projects, regulatory updates, and other projects, programs, and policies within the City that may affect river health.	City of Steamboat Springs Public Works (Water Resources)	City Public Works, City Planning, City Parks and Recreation, City Manager's Office, City General Services	<p>Initiated and ongoing.</p> <p>The City's Stream Team was established in early 2019 and a Charter outlines the scope and composition and the Stream Team. Challenges related to COVID (furloughs, budget cuts, remote work, etc.) limited its progress and collaboration in 2020. Stream Team will reconvene in early 2021.</p>

PL-5	Identify high priority parcels for acquisition for open space due to location in floodplain or high value riparian habitat.	City of Steamboat Springs	Yampa Valley Land Trust, The Nature Conservancy, CPW, private landowners	Ongoing. The Stream Team will evaluate and set criteria for this action item.
PL-6	Build a Water Quality Trading Program for stream temperature that addresses wastewater permit compliance needs while incentivizing watershed restoration.	City of Steamboat Springs	The Freshwater Trust, Walton Family Foundation, Colorado Water Quality Control Division	*NEW* Initiated. The City and The Freshwater Trust secured a \$75K Walton Family Foundation grant to build a water quality trading program that will reduce stream temperature while meeting the City's regulatory obligations at its WWTF. The Freshwater Trust will apply the methods they developed in other regions for quantifying the heat load removed from a stream through tree-planting and other restoration activities. These restoration benefits will be quantified into credits to be traded to the WWTF to help reduce temperature effluent limits and infrastructure costs. Anticipated completion by July 2021.
Education & Outreach				
ED-1	Implement a K-12 Yampa River curriculum and partner with statewide organizations to enhance understanding of the value of the Yampa River.	Yampa White Green Basin Roundtable	Yampatika school districts within the Yampa, White, and Green River basins	Initiated and On-Going. The Yampa White Green Roundtable funded a 3-year, \$125k program with implementation starting in 2020. Programs include outdoor and remote learning options with community speakers educating students about water management.