South Platte River Urban Waters Partnership (SPRUWP)
August 18, 2020
Quarterly Meeting Summary – DRAFT

ATTENDANCE
Participants: Evan Bahn, Josh Baker, Bill Battaglin, Warren Brown, Karl Brummert, Maddie Castro, Jennifer Charles, John Covert, Rachel Crouch, John Davenport, Sherry Fountain, Todd Gardiner, Guadalupe Herrera, Kristen Hughes, Peter Ismert, Katie Keefe, Margaret Kennedy, Madelene McDonald, Mike McHugh, Jeff Madaugh, Jordan Parman, Jim Rada, Steve Reeves, Donny Roush, Kelly Shinn, Weston Toll, Summer Waters, Scott Williamson, Alison Witheridge, Shane Wright

Facilitation: Sam Haas, Calley Schubert

ACTION ITEMS

Jordan Parman	Send Sam volunteer information to distribute to the group
Sam Haas	Reach out to Weston Toll to present on the 2020 Forest Action Plan at the next quarterly meeting.
All Partners	Email Scott Williamson if interested in participating in the Statewide Water Education Action Program (SWEAP). If you have updates that would fit in the form of a presentation, reach out to Sam Haas to coordinate.

PARTNER UPDATES
Partners shared general updates.

Red Rocks Community College (RRCC)
Class at RRCC will resume this fall and will remain mostly virtual, but students will be in the classroom for labs and other hands-on classes.

Tri-County Health Department
Warren Brown is a senior environmental health consultant at the Tri-County Health Department; this is his first SPRUWP meeting.

Denver Water
- Denver Water canceled their internship program for 2020 and will not be resuming the program in 2021 due to COVID-19.
- Denver Water has cut their travel conference budget; staff will not be able to attend in-person meetings next year and their hope is that partners continue to hold virtual conferences so Denver Water staff can attend.
- Denver Water will continue to work on non-federal and federal lands in their wildfire risk reduction program.

US Geological Survey (USGS)
USGS is going to do their second round of sampling in the South Platte River and Cherry Creek in August 2020.

City and County of Denver, Department of Transportation and Infrastructure
- Biologists from Colorado Parks and Wildlife (CPW) along with City and County of Denver staff have discovered an infestation (hundreds to thousands) of New Zealand Mud Snails at

Johnson Habitat Park along the South Platte River in Denver. The snails measure approximately seven millimeters in length. A request has been submitted to Denver Parks and Recreation to post signs in the area encouraging anglers and others to take appropriate action with their gear.

- While New Zealand Mud Snails typically get moved around on gear by anglers, they speculate that children coming in and out of the water at Johnson Habitat Park with river shoes on may have contributed to this particular infestation.
- The hope is that the snail infestation does not get as dense as they can get in some western streams; Yellowstone National Park has densities of up to half a million New Zealand mud snails per square meter.

Dominion Water and Sanitation District

- Evan Bahn started with Dominion Water and Sanitation District at the beginning of March 2020; this was his first SPRUWP meeting.
- Dominion is the wholesale water provider for a new development called Sterling Ranch on the Highway 85 corridor off of Sante Fe and Titan Roads.
- Dominion has interest in weighing their options for obtaining reuse supply through the Platte River or through Chatfield.

Department of Housing and Urban Development (HUD)

Denver HUD has many residents near and around creeks and small areas of the South Platte River where there will be developments underway in the near future. Denver HUD staff are staying connected with SPRUWP updates and environmental issues to share with their redevelopment staff.

Denver Trout Unlimited (TU)

- Denver TU currently has an intern from RRCC working on a fish passage project at the intersection of the Bear Creek and South Platte; there is a small dam there so the fish and invertebrates cannot move around. They hope this is something they can be mitigated inexpensively.
- Denver TU has two cleanups scheduled; the first is on September 12, 2020 near the Clear Creek/South Platte confluence, and the second is on October 12 near Cuernavaca Park. The second scheduled cleanup is sponsored by Odell and Buffalo Wild Wings.
- On October 3,2020, Denver TU will hold their annual CarpSlam. The CarpSlam is the major fundraiser for Denver TU each year.
- In order to mitigate the New Zealand Mud Snail infestation, Denver TU informs anglers how to treat their boots; anglers are mainly responsible for bringing these snails from New Zealand to Colorado. The solution to the snail infestation is to diligently clean boots and equipment. Keeping boots dry for two weeks will kill the mud snails. Alternatively, equipment can be placed in the freezer for three days. One other option is to soak boots in a copper sulfate solution that will kill mud snails instantly. More information on cleaning boots and equipment can be found on the Denver TU website.
- Denver TU has two interns that will be working with them on a remote reference tank for the Trout in the Classroom program.

Denver Metro Wastewater and Reclamation District (MWRD)

- Denver MWRD has been doing weekly monitoring of water chemistry and biological assessments downstream of Denver.
- Denver MWRD is looking for volunteers to conduct fish surveys in the South Platte downstream of Denver at the end of August 2020 through early November of 2020.

Denver Audubon

- Denver Audubon is starting to have small group birding hikes.
- Denver Audubon will be offering virtual school programs this fall through December 2020; they will reevaluate about switching to in-person meetings in January 20201.
- There are currently in-person and virtual committee outreach programs for Hudson Gardens, Cherry Hills, and the Highland Canal Conservancy.
- Denver Audubon holds a summer camp in conjunction with Colorado Academy. They hosted this camp in person in July 2020.

Adams County

Colorado Rural Water Association is kicking off a series of source water protection planning workshops for 3-5 different water providers in the county.

Groundwork Denver

- Groundwork Denver hired a new water director; she starts in September 2020.
- One of Groundwork Denver's primary water programs is working with youth on water education, river cleanups, invasive removals, and native planting.

Environmental Protection Agency (EPA)

- Maddie Castro works with the nonpoint source program and is new to the Denver area; this is her first SPRUWP meeting.
- An update to the EPA's green infrastructure website underway.
- Sherry Fountain, USFS, was able to secure funding for an updated version of the water quality assessment tool (WQAT). The SPRUWP Education and Outreach Committee and Science and Data Committee will be reviewing a newly assembled teacher's guide for the WQAT.
- The EPA will be working nationally, and in the Region 7 Office in Kansas City, sampling harmful algae bloom sampling; some Denver lakes will be sampled.

Colorado Department of Public Health and Environment (CDPHE)

- CDPHE is working on PFC testing throughout Colorado.
- The Post Wildfire Playbook has helpful information for anyone recovering from wildfires and can be found on the CDPHE website.
- CDPHE is currently working on source water protection plans throughout the state.
- CDPHE is working on a data-sharing site that provides information on source water protection plans.

Bluff Lake Nature Center

- Bluff Lake Nature Center was able to host camps over the summer.
- Donny Roush, City and County of Denver, completed water testing with kids during camp this summer.
- Bluff Lake Nature Center has some volunteer days coming up for families to participate in a socially distant cleanup of Sand Creek.

Water Education Colorado (WECO)

- The most recent Headwaters Magazine is about aging infrastructure; it is available on the WECO website.
- WECO is hoping to gain additional support for their Statewide Water Education Action Plan (SWEAP). They have received endorsements from a variety of organizations around the state through partner outreach and are trying to build momentum for the value of water education.

- A teacher professional development unit in Denver Public schools is underway to help equip teachers with experiential activities and trainings so that they can provide a well-rounded water education series of lesson plans.

US Forest Service (USFS)

Sherry Fountain will be identifying activities that can be utilized as a result of the Great American Outdoors Act.

Lincoln Hills

Lincoln Hills is partnering with the Rocky Mountain Arsenal to expand work into segment 15 of the South Platte River in order to engage new audiences in the restoration of the river and develop water programs that are focused on ensuring that it is a fishable, swimmable, clean, recreational river for all people in the Denver Corridor within our lifetimes.

Colorado State Forest Service (CSFS)

- CSFS is currently working on their Forest Action Plan, a statewide assessment of the forest conditions and trends in Colorado. The 2020 Forest Action Plan will provide a strategic framework to address the conditions and trends going on in Colorado's forests and what the threats and challenges to the forest are across ownership boundaries. CSFS is currently on track to complete the Forest Action Plan and distribute to partners in October of 2020.
- Most of the CSFS field operations have resumed, although most staff are still working from home and will be for the foreseeable future.
- CSFS has seen a 4% cut in state funding, but they are able to make up some of the gaps with CSU money as well as some federal money and reserves they have.
- The tier 2 severance tax that CSFS typically has from forest restoration and wildfire risk mitigation is going to have a reduction, as taxes from oil and gas revenues are going to be down this year.

SOURCE WATER PROTECTION PLAN: AURORA WATER

Mike McHugh, source water protection and ecosystem services at Aurora Water, presented on the Aurora Water Source Water Protection Plan.

- Aurora is the third largest city in Colorado with a population of approximately 381,000 people. Aurora is 160.53 square miles and is the 54th largest city in the United States.
- Aurora's water department is responsible for five types of water: raw, treated, wastewater, re-use, and stormwater. They do a lot of work in water efficiency and waterwise landscaping.
- Aurora Water is currently working on an update to their integrated water master plan.
- Watershed management is one of the core functions within the Water Resources Division of Aurora Water. They are working hard to protect and improve their water resource quality and quantity, and to avoid impairing the City's ability to use and expand their raw water supply.
- Aurora has water they directly use from their system and water they divert that comes into their system. They also use water from partners and naturally occurring water that comingles at points of diversion. Finally, Aurora Water uses water through a river exchange that allows water that is being used further downstream to be traded up to Aurora, taken higher into their system, and replaced lower in the system.
- A watershed is the point to which all water will drain; it can be organized into sub watersheds, which are given a hydrologic unit code (HUC). Aurora Water defines their watershed as the geographic area above the furthest downstream points of diversion into their raw water intakes in their three watershed basins upstream to their points of origin. These watersheds include any water resources they use directly and water rights that are subject to exchange on the Arkansas, Colorado, and South Platte Rivers.

- All of Aurora's water ends up in the South Platte River with the exception of ground water.
- The watershed management function is divided into two categories: hydrologic watershed functions and ecological functions. Aurora Water is working in this plan to facilitate improvements in all five areas.
- Aurora Water is updating their program plan as a result of new acquisitions further downstream and the application of new science in forest health. For example, Aurora Water recently purchased new water rights in the Windsor area.
- Aurora Water's two major goals are to protect and enhance the five watershed functions and to reap the benefits of using ecosystem services.
- Aurora Water conducts a composite analysis of their watershed hazards. They have completed new modeling using the latest LandFire data, which uses FlamMap and canopy fire activity. They have also looked at flooding/debris flow risks, ruggedness and road density, and have now added analysis based on roads within 100 meters of streams. Aurora Water continues to utilize the Natural Resources Conservation Service (NRCS) K-factor and slope analysis, as well as a composite rank of wildfire hazard, flooding/debris flow hazard, and soil erodibility.
- After all analyses are complete, zones of concern are mapped in the wildfire composite for all areas where water comingles with Aurora's water.
- Aurora Water's closest partners include Colorado Springs Utilities, Denver Water, Pueblo Board of Water Works, and Northern Water (even though they do not overlap any of their service areas or watersheds at this point).
- In the Lower Basin, the near-term use of water rights will be used for exchange or augmentation resulting in a different concerns and hazards.
- Locally, Aurora Water will be placing emphasis on oil and gas, agricultural practices, water quality pesticides/fertilizers, and confined animal feeding operations (CAFOs).

SOURCE WATER PROTECTION PLAN: DENVER WATER

Alison Witheridge, watershed scientist at Denver Water, presented on the Denver Water Source Water Protection Plan.

- Denver Water serves 1.5 million people, about 25% of the Colorado's population. They have a collection system area of 4,000 square miles, or 2.5 million acres.
- Two of Denver Water's South System water treatment plants, Marston WTP and Foothills WTP, receive water from Dillon Reservoir, the Upper South Platte, Bear Creek, and Chatfield. Additionally, Denver Water can convey water through their North System to their existing Moffat WTP. Denver Water is currently building a new plant called Northwater WTP.
- Denver Water owns and operates Williams Fork Reservoir and has 40% ownership and management in Wolford. They do not have the infrastructure to move water over to any of the WTPs, but these areas are critical for substitutions and exchanges and are important to Denver Water's whole system.
- About 80% of Denver's raw water flows through Strontia Springs Reservoir in their South System, while only 20% of water goes through their North System.
- Denver Water is concerned with redundancy and resilience, which is why they are working on the Gross Reservoir expansion and building the new Northwater WTP.
- Denver Water owns 60,000 acres within the 2.5-million-acre collection system, which is only 2% of the land within that collection area.
- CSFS has been Denver Water's forester since 1985; this partnership was in response to mitigation efforts for impacts created by the Mountain Pine Beetle outbreak. Since then, they have continued agreements, and they have treated about 19,000 acres. Some of the management practice services that CSFS conducts on Denver Water land are creating and maintaining defensible space around infrastructure, forest management plans, noxious weed

management, improvements to infrastructure and timber stands, and implementing fuel breaks.

- After the 1996 Buffalo Creek Fire, and prior to the 2002 Hayman Fire, the CSFS implemented a fuel break and is credited with saving about $400,000 worth of Denver Water infrastructure, including operator homes and pump stations.
- The Buffalo Creek Fire burned in the North Fork, directly upstream from Strontia Springs. Two months after the fire, an intense rainfall over the burned area caused flash flooding and resulted in about 160,000 cubic yards of sediment into Strontia Springs. Denver Water has done some dredging projects to remove the sediment, but they continue to struggle with sediment and naturally erosive materials that are still flowing into the Strontia Springs Reservoir from the Buffalo Creek Fire.
- The 2002 Hayman Fire burned 138,000 acres over 200 square miles. Denver Water felt the ramifications of being reactive to wildfire, and that was the catalyst for the 2010 From Forests to Faucets Partnership with the USFS. This partnership was then expanded to CSFS and NRCS with the intention of expanding to private lands to allow for the landscape-scale restoration and progress.
- Overall, in those two contracts, Denver Water has invested $33 million on proactive forest health and wildfire risk reduction management. Denver Water requires a dollar for dollar match, but they often get more than that, and as a result there has been over $66 million invested within this program.
- Prior to the From Forests to Faucets Program, a 2008 white paper was delivered to Denver Water's Board that recognized wildfire management and forest health as the number one risk to Denver's raw water supply.
- In 2018, Alison Witheridge was hired to do planning for the holistic watershed planning program. She began with a basic adaptive management methodology. The first phase was the inventory, assessment, and prioritization (IAP) phase. This phase helped to identify risks and threats, what water quality looks like, assessing the state of the watershed, and prioritizing where to focus implementation efforts. This phase was done internally within Denver Water.
- The second phase is a planning effort that concentrates on identifying partners and stakeholders, estimating budget and funding needs, and determining the most efficient actions along with partners.
- A timeline for the South Collection System was created after an IAP was conducted for the Upper Blue, South Platte, Chatfield, and Bear Creek and completed in 2019. The next steps will be moving toward the action plan and implementation for the South System before moving onto the North Collection System.
- Denver Water's watershed values are to provide high quality water at an affordable rate, protect their infrastructure, and ensure community and environmental stewardship.
- Denver Water's tools and resources are internal for now, but after completing internal communications, they will be able to update their website and share information with partners and the general population. The current tools and resources within Denver Water include the internal staff on the Watershed Steering Committee, watershed document inventory: SharePoint, watershed spatial inventory on an internal GIS platform, water quality databases, water quality results tools, and various reports.
- Through their risk and vulnerabilities assessment, Denver Water determined that forest health and wildfires remain the number one risk. However, they will also be looking into active and abandoned mines, population, transport, aquatic nuisance species, recreation, and oil and gas.
- Denver Water created their own assessment table that demonstrates the presence or likelihood of risk and the level of impact to the Denver Water's watershed values if released.

Clarifying Questions

Meeting participants asked Mike McHugh and Alison Witheridge questions regarding their presentations. Questions are indicated in italics with responses below in plain text.

What have you come across in your work that has been really eye-opening?
As time goes on, the biggest threat is from wildfire, but, in terms of treatability of water, there needs to be more work on some of the abandoned northern mines. Additionally, it was interesting to see the results of water quality assessment, particularly in the areas that are impacted both by the abandoned mines and the geology.

When is the Northwater WTP expected to be completed?
It will be completed in 2024.

Will the Northwater WTP replace the Moffat WTP, or is the purpose to add capacity to Denver Water's system?
Originally the design was to replace the Moffat WTP, but Denver Water will be operating both for the near future as resiliency and redundancy are kept in mind.

A lot of the details in the source water protection plans address long-term risks; do you have a plan to address short- and medium-term risks?
The threat from fire is not necessarily a long-term risk; the fire scar from the Buffalo Creek Fire developed over a day and a half. While the solutions end up being long term, we need to look at a way to raise more in order to more effectively treat these areas. Additionally, Denver Water's original plan was to look at future development and 20-year projections, but that was too much for this initial effort. However, Denver Water now knows the status of water quality and can track if it is increasing or decreasing and why. In the future, they hope to incorporate climate change in some of those predictions.

NEXT STEPS

- The next SPRUWP meeting will be a Zoom meeting on November 17, 2020.
- New group members should reach out to Sam with any questions at sam@peakfacilitation.com.