Watershed Connections

Delivering News to the Carson River Watershed Community

Carson Valley and the Sierra from Prison Hill, Photo by Debbie Neddenriep

Getting Outside in Carson City

By Gregg Berggren, Trails Coordinator, Carson City

Inside this Issue:

As we enter 2021, we look forward with a renewed appreciation for the stunning natural beauty that surrounds us in Nevada and the Eastern Sierra. Mother Nature has been a familiar presence, remaining with us through these unfamiliar times. Whether a spring float trip on the Carson River, an early morning stroll in the foothills, a lunch-time walk on an urban pathway, or an epic mountain bike ride through the Carson Range and into the Tahoe Basin, the trails just outside our front door have led many of us to places of refuge and solace.

Regionally, our trails, trailheads, parks, open space properties and other public lands have experienced unprecedented numbers of visitors this year. Carson City continues to work diligently with our public, private, and non-profit partners to create new trails and trailheads, and maintain our old familiar ones.

Carson River Trail System Phase II was our biggest project this past year. On October 30, 2020, Carson City held the ribbon cutting for three new segments of trail designed for sustainability, accessibility and connectivity. Constructed with a compacted decomposed granite surface and built 10'-12' wide, these new trails are open to all non-motorized users including those with mobility issues. The trails connect to many existing routes, helping to enhance our network of trails in the Carson River/Prison Hill area and provide links to downtown Carson City.

The construction of a new crossing at the Mexican Dam Ditch Intake is another exciting project undertaken this past year. Jointly supported by Carson City Quality of Life and Carson Water Subconservancy District funds, the new crossing is both equestrian friendly and enables the portage of small watercraft. Volunteers from Muscle Powered widened about 150' of the previously narrow tail, improving the portage and preparing the area for a planned landing and take-out above the dam. Future plans include completing a loop trail around Prison Hill.

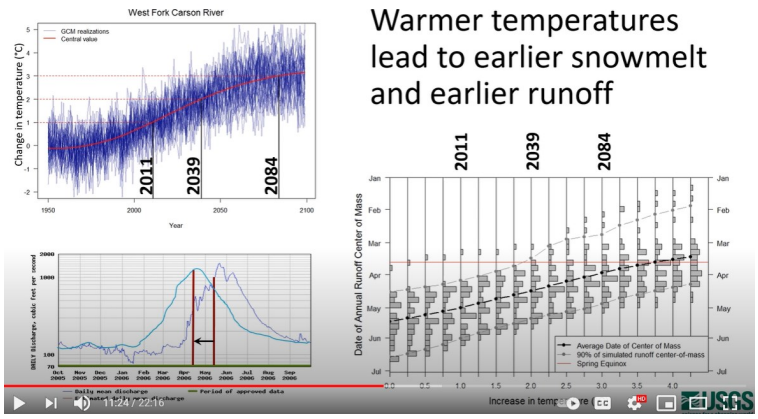
Hiking along the Carson River, Carson City

As we reflect on the many benefits we enjoy from our trails and open spaces, let's also consider the reciprocal care that they deserve. When enjoying public lands, please tread lightly and practice Leave No Trace principles so at a minimum, we leave places as we found them. Be respectful of others on the trails – "go slow and say hello" when approaching someone from behind. Interested in becoming involved with trails and outdoor recreation? Consider joining groups like Muscle Powered, Carson Valley Trails Association, River Wranglers or the Carson River Coalition. Contact Gregg Berggren at gberggren@carson.org.

CWSD Hosted Virtual Water Supply Workshop

By Ed James, General Manager, CWSD

On October 14 CWSD hosted a virtual water supply workshop focusing on water availability issues in Northern Nevada and the Carson River Watershed. The schedule included ten presentations, two Carson River Watershed videos and a final round table discussion with our presenters. We had great attendance, with over 130 people joining in for some part of the day. As it was our first virtual conference, we learned a lot and appreciated the positive feedback we received. CWSD hopes to continue to provide quality events, despite not being able to meet in person. The presentations, videos, and round table discussion are on the Carson River Watershed YouTube channel.



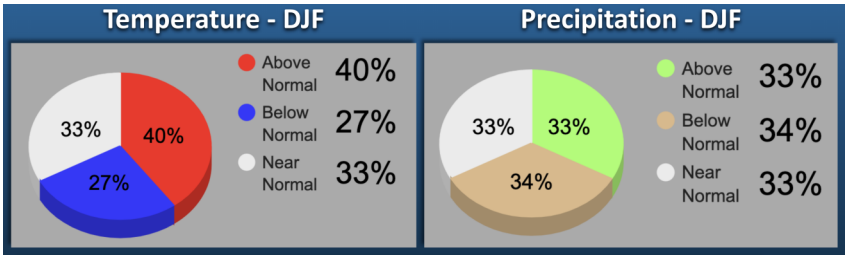
Screen Capture from Eric Morway's Presentation on the Water for the Seasons Study. Oct 2020

After a Slow Start, Will Winter Come Roaring Back?

By Chris Smallcomb, Meteorologist, National Weather Service-Reno

For the first time in recorded history, many areas in our region saw no rainfall during the months of September and October combined. Zero. We've had years with traces of rain but never a total shutout. Even with over a foot of snowfall on November 8th, that moisture was not enough to offset the significant dryness from earlier in fall. Several devastating wildfires impacted the region on November 17th as extreme winds to 90 mph hit the area. As of this writing, the snowpack is starting to dwindle below normal and significant drought is expanding across Nevada and into California.

So, will our winter turn around? Will we start seeing some of those atmospheric rivers come back to replenish the snowpack? We are in a La Niña pattern which tends to favor fewer storms for the Southwest, with more frequent storms for the Pacific Northwest. At our latitude - we're caught in between. Historically we've had both very wet La Niña winters and fairly dry ones; even normal ones. The scatterplot looks like you were target shooting with a shotgun - the data is all over the place!



NOAA/NWS Climate Prediction Center Seasonal Outlook for the Sierra and Western Nevada December 2020 -February 2021, issued November 2020

These pie charts show the Official NWS forecast for December-January-February, our core snowpack building months. As you can see, every scenario is on the table. There is a slight lean toward warmer than normal but again, a cool or normal winter is feasible too. Even though we've started off winter quite slowly, there is plenty of time for the pattern to change and to make up that ground. All it takes is a handful of strong storms to put us right back into the game.

Floodplain Management in the Carson River Watershed

Deborah Neddenriep, Water Resource Specialist 2, CFM

Winter flood season is upon us and CWSD's floodplain management program is as vibrant as ever! Core facets of this holistic program include promoting resilient communities and conserving open floodplain lands, while highlighting water quality benefits, groundwater recharge, habitat protection and recreation. CWSD's multifaceted approach incorporates planning, outreach, funding and coordination to assist Carson River Watershed entities in their floodplain management implementation efforts. We hope you consider sharing these on your social media platforms.

The Carson River Coalition Floodplain Management Working Group (FMWG) is an integral part of CWSD's floodplain management activities in the watershed. In 2017 - 2018, FMWG served as the steering committee to update the Carson River Watershed Regional Floodplain Management Plan. This document recommends 48 Suggested Actions categorized under eight management strategies (*See Table 11 in link provided*).

Since 2005, CWSD has been a Cooperating Technical Partner (CTP) with FEMA and signed a FEMA Risk Map Charter in 2012. As a CTP, CWSD has been awarded 11 grants since 2011. CWSD leverages local funding with these grants and has completed approximately 41 projects throughout the watershed!

As part of our integrated watershed management, CWSD created a series of videos to highlight our work and spur watershed residents to action. Follow the sidebar to watch some of these videos!

One of the long-term guiding principles of the CRC is to protect open floodplain lands in the Carson River Watershed. Our "Floodplains as Community Assets" videos highlight how these open lands protect communities from flood danger, filter pollutants, and recharge groundwater by allowing riverine flood waters to slow down, spread out and sink in. Agriculture, parks and open space are good land uses in the floodplain and in addition to the benefits above, they provide places for growing food, outside play and wildlife habitat.

During the annual Flood Awareness Week, CWSD staff members joined the Nevada Floodplain Manager's core planning team to hold events, promote the Nevada Floods website, and fund media outreach. This year, CWSD staff worked with the National Weather Service to create the video "Know Your Flood Risk Nevada and Eastern California". Please have a look at the video and explore the Carson City inundation maps CWSD funded through a CTP grant.

Finally, CWSD's work under General Manager Edwin James resulted in his being named Floodplain Manager of the Year by the California, Nevada & Hawaii Chapter of the Floodplain Management Association. For more program information contact Debbie Neddenriep at Debbie@cwsd.org.

The Introduction to CWSD gives history and context to our watershed and the work of CWSD.

A Walk Through the Watershed is part of our watershed-literacy campaign, helping residents understand that their actions matter.

Working With the River: An Intro to Geomorphology to learn more about how river processes work!

Alpine Watershed Group's Hope Valley Bank Stabilization Project

By Mo Loden, Watershed Program Manager, AWG

Alpine Watershed Group (AWG) officially wrapped up the long-awaited Hope Valley bank stabilization project this past October. This project is a small piece in the bigger puzzle of reconnecting the West Fork Carson River with its adjacent floodplain. Hope Valley was a major emigrant rest stop in the 1800s and since then has endured decades of grazing. These historical activities compacted the meadow, decreasing its water storage capacity, causing the river to carve out the stream channel instead of accessing its floodplain. Working with project engineers Waterways Consulting, Inc., and construction crew, Hanford Applied Restoration and Conservation, AWG completed bank stabilization at two reaches aimed at repairing approximately 450 feet of river bank in Hope Valley. We are pleased to report that the project was executed with the utmost attention to detail, and we are grateful to have worked with such an experienced and dedicated team.

The project area is located downstream of the "4th crossing" bridge in lower Hope Valley. The "4th crossing" is a reference to the Emigrant Trail, but today is more commonly known as where Highway 88 crosses over the West Fork Carson River. The project area consists of two meanders—Project Site 1 is the first meander approximately 300 feet downstream of the Highway 88 bridge, and Project Site 2 is approximately half a river mile farther downstream at the log crib/2015 American Rivers restoration site. Both project areas are located on California Department of Fish and Wildlife (CDFW) land.

Day one pre-construction meeting with AWG, construction crew, project engineer, CDFW, and USFS

The technical advisory committee included representatives from Friends of Hope Valley, California Department of Fish and Wildlife, the US Forest Service (USFS), Carson Water Subconservancy District, American Rivers, Washoe Tribe of Nevada and California, Lahontan Regional Water Quality Control Board, Alpine County Board of Supervisors, and AWG. This highly collaborative effort throughout the project design process produced a creative result. The science and art of meadow restoration is continually evolving, and the lessons learned from each project contribute to the design of future restoration projects. This restoration uses a light-touch, low-impact, and low-risk design. Like other ecological restoration projects, this project uses natural materials intended to function for some time and eventually break down and become a part of the system. This approach aims to stabilize the banks so a more normal rate of erosion can take place and the river doesn't continue to incise.

Landing mats used to disperse load and decrease impact to the meadow

Continued on next page

At Project Site 1 restoration techniques mimic an abandoned oxbow feature. A bench was created behind the failing bank and filled with live sod blocks, willow stakes, and live willow shrubs. Most live willow shrubs

Site 1 after restoration work is nearly finished

and some live willow stakes were installed at seasonally -low groundwater level which is a key to willow success. The resulting design envisions a more stable and capable streambank behind the current failing bank. The river will continue eroding the failing bank, and in the meantime the willows and sod in the newly created floodplain bench will have time to establish and serve as good habitat for birds and amphibians. Eventually, the project site will become vital fish habitat when the erosion pushes back and the river starts to occupy the area.

At Project Site 2, updates were needed to divert stream energy from scouring behind the 2015 log crib structure installed by American Rivers. A basic approach of installing slash (conifer cuttings) at the ends of this reach added stability. Minor excavation at the downstream end of the reach occurred to smooth out the bend and accommodate the introduction of new vegetative material. Again, when possible, live willow stakes were installed at seasonally-low groundwater level within the slash areas. Sod was salvaged from the meadow toe during excavation and placed near the waterline below the slash to further assist with bank stabilization.

Willow fascines, willow cuttings bound together in an alternating fashion, were installed near the waterline below the sod and slash. Providing protection for the newly placed sod, the fascines may sprout new willows further stabilizing the area. Live willow stakes were strategically placed along the waterline and also installed within the entire log crib structure at approximately a 5-foot on center placement.

Over the next four years AWG will conduct post-construction monitoring to assess if any adaptive

Site 2 before (above) and after (below) construction

management is necessary. You can stay apprised of the project via AWG's project webpage: https://www.alpinewatershedgroup.org/hope-valley-restoration-and-aquatic or by contacting Mo Loden at awg.mo.loden@gmail.com.

Carson City is Set to Adopt LID Standards

By Robb Fellows, Senior Project Manager-Storm Water, Carson City

In January 2021, the Carson City Board of Supervisors will review for approval the Carson City Drainage Manual. The manual includes Low Impact Development (LID) standards as a part of the overall stormwater drainage requirements.

Communities often separate drainage and LID standards, but Carson City chose to combine both criteria into one document. It is hoped that including LID into these overall standards, old site development design habits of shunting stormwater away from structures in the most direct and quickest way, will be replaced with effective LID incorporated into the site design from the start. LID standards, when incorporated at the beginning of site design, reduce overall costs and off-site stormwater impacts to the community. Whether the LID facilities are volume or flow based, removing site stormwater from the impact equation also help remove pollutants, improving the water quality of the Carson River.

What are LID Standards?

Green Infrastructure or Low Impact Development (LID) *is a land development practice that improves stormwater quality in urban areas. LID practices mimic nature and reduce the amount of runoff by slowing, holding, infiltrating, and evaporating stormwater onsite. LID practices filter out pollutants by allowing the runoff to seep through onsite vegetation and soil.*

How does LID protect watershed health?

- Reduces Flooding
- Improves Air and Water Quality
- Restores Aquatic Habitat
- Improves Groundwater Recharge
- Enhances Neighborhood Beauty
- Reduces Cost and Maintenance of Stormwater Infrastructure
- Mitigates Urban Heat Islands

Carson City's proposed new regulations will allow flexibility in LID design based on what the site can support. Furthermore, they give volume credit for LID facilities resulting in reduced detention mitigation requirements. A recent example of LID being incorporated into the site design is the Carson City Community Center's west parking lot. A LID infiltration system was installed to capture run-off from the new parking area. The storm water is then infiltrated into the ground along the edge of the parking spaces. Any excess flow can continue downstream to Mills Park.

Carson City Community Center Parking LID

The Carson City Drainage Manual also lists LID facilities that are best suited for this region of Nevada and give the benefits and limitations of each. The manual provides LID maintenance guidance, as maintenance is very important for the long-term success of any storm water facility. For info contact Robb Fellows at rfellows@carson.org.

Helping the Public Understand Mercury Contamination: Carson River Mercury Site Story Map

By Hilary Clark, Community Involvement Coordinator, EPA

The Carson River Mercury Site spans 330 square miles and five western Nevada counties. This vast area creates challenges not only for sampling the contamination, but for effectively communicating with community members and stakeholders. The new Carson River Mercury Site Story Map produced by the Environmental Protection Agency (EPA), provides an in-depth and interactive platform for homeowners, tribal members, and county representatives to learn about current and historic mercury levels. Working with EPA Region 9 GIS Center and partners at the Nevada Division of Environmental Protection, it took the site team five years to build the GeoPlatform and the Story Map. Based on 30 years of gathering more than 10,000 data samples from 800 unique locations, the Story Map features 52 source datasets. Using the Address Lookup Tool feature, community members can see mercury contamination levels at specific site locations. The Story Map addresses the site history, cleanup progress and health advisories about consuming mercury-contaminated fish. The striking photographs, useful mapping tools and the plain language content effectively communicate a lot of information in an engaging and understandable format. We hope the Story Map will help the public better understand EPA's Proposed Plan for this complex site. We welcome you to widely share this resource on social media. For more information, contact Hilary Clark, Clark.Hilary@epa.gov.

EPA and NDEP In situ Mercury investigation in Six Mile Canyon.

CWSD Recognizes Departing Board Members

By Catrina Schambra, Administrative Assistant, CWSD

CWSD recognized departing Board members at our December 2020 meeting. Due to term limits, elections, and retirements we said goodbye to the following Board members. This is a great group dedicated to the health and restoration of the Carson River Watershed and we thank them for their years of guidance and leadership! New Board members will be appointed to replace them in January 2021. Board materials can be found here.

Brad Bonkowski, Carson City Treasurer 2015-2020

Don Jardine, Alpine County Committee Member 2001-2020

Barry Penzel, Douglas County Director 2013-2020

Carl Erquiaga, Churchill County Chairman 2013-2020

Austin Osborne, Storey County Committee Member 2009-2020

Larry Walsh, Douglas County Director 2019-2020

★ The AMERICORNER ★

Welcome to CWSD!

Katie Smith, AmeriCorp & CWSD Watershed Tech

Hi everyone! My name is Katie Smith, and I am so excited to introduce myself as CWSD's new Watershed Program Technician and AmeriCorps member. This year everything looks a little bit different, but with creative solutions to keep our community engaged, I am thrilled to be taking part in watershed education and outreach with CWSD.

I grew up in Oakland, California and spent summers escaping the busy Bay Area by exploring the Sierra Nevada, where my interest in the environment and outdoor recreation was born. This spring I graduated from UC Davis with my B.S. in Environmental Science and Management and an emphasis in ecology, conservation, and biodiversity. While in college, I fell in love with fieldwork and got to work on a variety of amazing projects including conducting geomorphic surveys of California rivers, mapping carbon sequestration in meadows, and monitoring nesting tree swallows. These experiences helped to foster my interest in community ecology and watershed health and pushed me to get involved with the conservation movement.

I cannot wait to share the enthusiasm I have for conservation and environmental education while getting to know this amazing community around the Carson River Watershed. I am looking forward to exploring the area, familiarizing myself with local flora and fauna, and deepening my knowledge of this incredible watershed network. I can be reached at watershedtech@cwsd.org.

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CWSD works within existing governmental frameworks to promote cooperative action for the watershed that crosses both agency and political boundaries.

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Follow us!

2021 CRC Watershed Forum

WATERSHED WEDNESDAYS

Join us in March for five three-hour themed sessions with presentations including:

Outreach and Education
Recreation
Floodplain Protection
Climate Change
Floodplain Management

SAVE THE DATES!
March 3rd, 10th, 17th, 24th, & 31st
9 a.m. - Noon

More from Around the Watershed

Check out The Nevada Nature Conservancy's Fall Webinar Series

Mining the Sun
Truckee Rivers Headwaters Forests
Birds of the Mojave Desert