Trinity County Resource Conservation District

Summer 2023 Conservation Almanac

Trinity County Resource Conservation District Quarterly Newsletter Summer 2023 Vol. XXXII No.2

In this issue:

@trinityrcd
@TrinityRiverCA

@TrinityRCD

@TrinityCountyRCD
@FireSafeTrinity
@TrinityRiverCA

www.TCRCD.net

Forest Health has A new Forestry Division!

This year in Forest Health, a new forestry division was created in the department to meet the needs of the Shasta Trinity National Forest. This addition will focus on increased technical forestry capacity projects such as project layout and timber cruising. A Grizzlycorps fellow piloted this development and it has since expanded to a seasonal crew of two conservation technicians. There is a growing need for this work and with the increased funding the forest has received through the designation as a Wildfire Crisis Strategy Priority Landscape, the department may have the opportunity to add two more crews next year!

Daphne Hobbs (left) and Thomas Paulson (right)

Our forestry crew has also met the internal needs for project devising as the District tooks on projects on private lands - such as the site planning for the Trinity Wildlife Mitigation Project in partnership with The McConnell Foundation. Our forestry technicians Daphne Hobbs and Thomas Paulson were responsible for leading the site planning for applicable areas in the community.

Our Lead Conservation Technician - Thomas, says, “It was very beneficial for the community to learn more about fuels reduction and gain a greater appreciation for what the RCD and McConnell Foundation can do for them. It was really cool meeting the diversity of landowners and seeing the difference between small and large parcels, including their strengths and interactions with the surrounding landscape.”

Daphne, our Conservation Technician, was “Happy to be able to do outreach to local landowners with the program and allow them to feel heard about their concerns regarding their property and provide support/feedback when needed.”

The fuels reduction crew has been working on a project funded through CAL FIRE in different areas in the county. Pictured above is the vast difference (before, left & after, right) seen on B Bar K.

Trinity County Hazard Mitigation Plan Update

The TCFSC is facilitating the comprehensive update of the Trinity County Hazard Mitigation Plan with the TCRCD and the Trinity County Office of Emergency Services. This project is being implemented in order to bring Trinity County into compliance with the Robert T. Stafford Disaster Relief and Assistance Act, to make the County eligible for certain hazard mitigation assistance program grant funding, and to better understand and mitigate hazard risk. Outreach began for this project in the Fall of 2022 and continued through Winter of 2023 during the Firewise Community outreach meetings. As of July 2023, there have been five community meetings held in the following locations: Hayfork, Trinity Center, Mad River, Weaverville, and Burnt Ranch. The aim of these meetings was to educate the community on the project and receive input. We received nearly 150 unique responses on the hazard perception surveys distributed at these meetings. This strengthens our understanding of community members' experiences with hazards and what mitigation actions should be prioritized in the plan.

Trinity County Fair Booth

In July 2023, the TCFSC tabled at the Trinity County Fair. We had a sand table set up to showcase the different hazards present in Trinity County. Many community members of all ages came to play at the sand table. The opportunity to talk to residents from across the county was valuable in building our understanding of the types of projects the community wants to see. Over the fair weekend, the TCFSC engaged with over 200 people at our booth.

Chipper Naming Contest

In Spring 2023, the TCRCD Forest Health and Watershed Research and Training Center technicians chipped over 130 properties as part of Wildfire Awareness Month. To celebrate the success of this program in June 2023, the TCFSC launched a chipper naming contest for the three TCRCD chippers. After over 100 unique votes, the community decided on the following names for the chippers: Chips Ahoy, Tu-mulch-uous, and The Emulchifier. These names will be displayed with pride on the chippers.

The TCRCD Roads Crew Summer Projects

The TCRCD Roads Crew started work on Shasta-Trinity N.F. roads in the Monument Fire area located near Junction City, CA, focusing on the Big Creek Road and the Hocker Meadow Road areas. Initially, the task at hand was to get the roads cleared of downed trees, slides, and other barriers after a big winter. The roads were a mess, so we repaired or upgraded culverts at stream crossings, improved road drainage issues, and devised plans for the more complex repairs to be completed after stream flows subsided and soils dried out more.

Culvert Replacement on the 28N10 Rd. at Beegum Creek, South Fork of the Trinity River

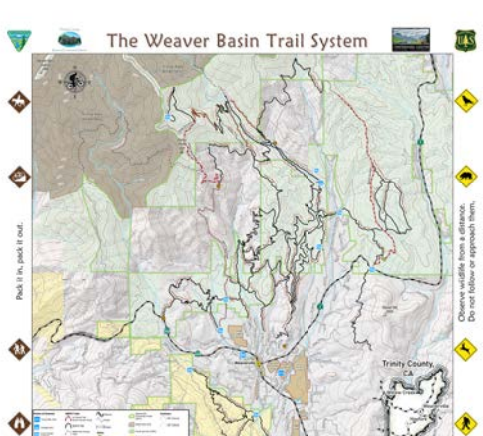
After our initial sweep in the Junction City region, we transitioned to the South Fork Trinity and the Shasta-Trinity National Forest McFarland and August Complex fire areas to continue with essential road clearing activities. The TCRCD spent time working on the mainline road, known as the Wild-Mad Road or 30 Road, which stretches the Wildwood area across the South Fork Trinity to the Mad River. Reopening roads to trailheads is a top priority as well, including Stuart Gap and Yolla Bolly Wilderness at the end of the 27N23 road. Our efforts expanded the Upper reaches of Hayfork Creek, Prospect Creek, Bierce Creek, and also several sites on a half-mile section of the 28N10 road in the South Fork of Beegum Creek, which was severely impacted by a thunderstorm in the fire area in June. Field observations show that summer thunderstorms in fire-stricken areas have led to large volumes of sediment delivered to watercourses, posing a greater issue then 'over winter' flows. This has resulted in numerous plugged culverts throughout the watersheds affected by high-severity fires. Until the vegetation re-establishes, the high-intensity thunderstorms' impact on barren soils pose a real concern to the road infrastructure in the first few years post-fire. Regarding the over winter flow, we encountered more over-saturated fill slopes failures along the road edge, which caused more trees to come down and slip-outs than a normal year., but the intense spring/summer thunderstorms are a real risk to roads in the fire areas for several years after initial blaze.

Additionally, we initiated road repair work for Six Rivers National Forest on several roads hindered by impassable slides or fill failures over the winter. We began our work at Horse Ridge on the 3S12A, the most substantial fill failure, and later moved toward Ruth Lake and repaired four sites on the 1S06 Road (West Bank Road). This road runs along the west side of Ruth Lake from the dam to Ruth Zenia Road and had become impassable on the south side due to a rock slide. Moreover, we repaired several sections of the main 27N02 road from Three Forks, along with several spur roads off the 27N02 road on the way to Jones Ridge.

As of late August, our work continues in Smoky Creek of the South Fork Trinity and also on a large fill failure on the Soldier Loop road near Junction City that was too saturated to address earlier in the year. We are continuing work for Six Rivers N.F. and gearing up to transition to the Lightning Complex fire area down by Hawkins Bar , due to our funding expiring before Halloween, ew, scary stuff!

Slump Repair on the 3S12A Rd., Horse Ridge, Six Rivers National Forest

Weaver Basin Trail System Mapping Update



WBTS Bandanas

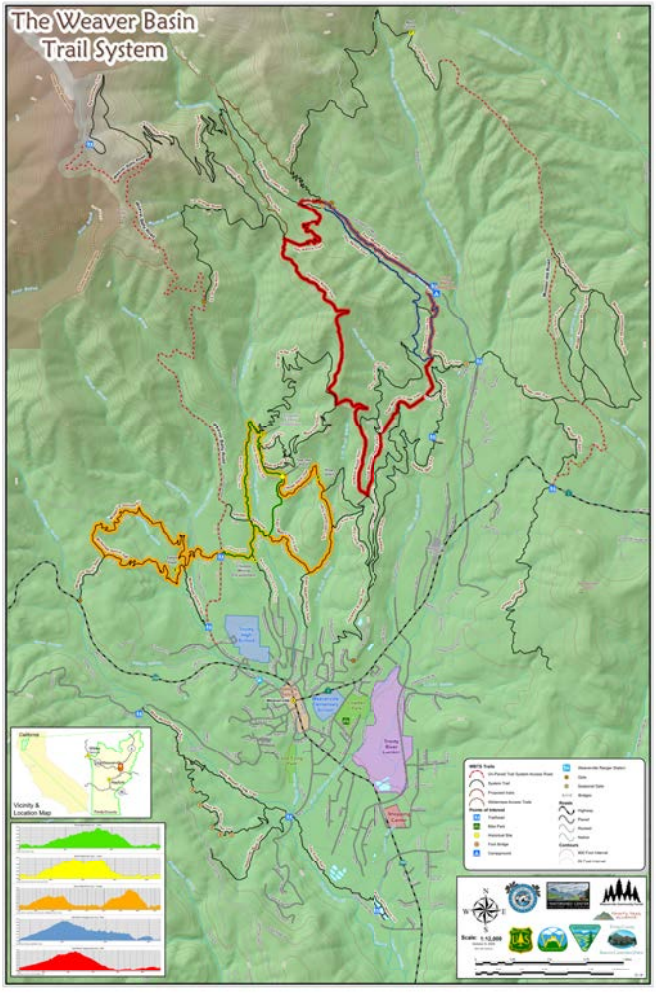
In 2022-23, mapping & GIS updates were made to support WBTS trail improvements, including ditch clearing, brushing, tread improvement, and trail reroutes throughout the Weaver Basin Trail System. Mapping updates helped support the creation of more sustainable trail sections on Upper Howe and Junkans. Most of these reroutes consisted of small-scale vegetation removal and construction of tread to move the trail out of the ditch and onto the ditch line. Additionally, the entrance of Upper Howe was relocated to better connect with Jackass Ridge Trail.

Three large reroutes were completed, including two on Junkans Ditch Trail and one on Upper Howe. The first on Junkans involved 500 ft. of new tread construction to avoid a steep drop in the ditch line. The second reroute removed a straight section of trail crossing a creek, which now takes a more meandering path, allowing it to climb at a gentler pace. The final reroute involved removing a section of trail that flooded frequently and relied on historic stonework. This trail work routed above the ditch to flatter ground along a path that allows users to view the historic stonework from a distance.

In April 2023, the priority shifted to clearing the trails in preparation for the annual La Grange Classic Mountain Bike Race. Our work was cut out for us, as a heavy winter had brought down trees throughout the WBTS. Roughly 100 trees were removed on over 28 miles of trail for Upper Howe Ditch, Junkans Ditch, Ware Ditch, McKenzie Gulch, La Grange Ditch, Day Ranch/ Day Ranch Tie, East Weaver Creek, Al Browder, Blue Lead/Black Lead, West Weaver Creek/ Upper West Weaver, Musser Homestead, Musser Hill Road, and East Garden Gulch Trails.

Determination of GIS needs and priorities were decided on through a series of meetings with community groups and federal partners, including Trinity Trail Alliance (TTA), Watershed Research Training Center (WRTC), and US Forest Service (USFS). GIS work included updating trail names and labels, trail lengths, and cartographic layout for trailhead kiosks. In total, five trailhead kiosk maps were updated. The Highland kiosk map was also updated and installed in downtown Weaverville, along with an updated Business Directory kiosk map.

The WBTS Online application was also updated with the newest trails, segments, and points of interest information. Community mapping support included providing 11x17 printed maps as handouts for RCD in-office customers and at the museum and Weaverville Chamber of Commerce. 500 printed copies of the WBTS were printed on bandanas and handed out as swag at the LaGrange classic, distributed to the public at the Chamber of Commerce, the Jake Jackson Memorial Museum, Up North Mercantile & Eatery, and the Weaverville Ranger Station. Additionally, Trinity County Search & Rescue Support (SAR) mapping efforts were assisted by providing first aid station, trail data, and water station locations for an online mapping application used during the LaGrange Classic Bike Race.



WBTS Trail Head Kiosk Maps

Weaver Summer Day Camp

For three weeks in July, the Young Family Ranch buzzed with youthful excitement as it hosted the Weaverville Summer Day Camp. This year, we welcomed 39 children aged six to twelve, who immersed themselves in a diverse array of activities. The camp offered a range of activities, from visits to a local llama and alpaca ranch and explorations of nearby creeks, to adventures in the Weaverville Community Forest and rafting trips on the Trinity River. Beyond just outdoor fun, the camp incorporated several educational elements and topics like that of soil conservation, pollinators, nutrition, laser and sound engineering, and animal biology. Team-building games and crafts were also part of the agenda, which allowed the children to express their creativity and competitive spirit.

Sighting in their Bows

During this time, we were fortunate to collaborate with various local organizations such as the Bureau of Land Management, One Thing Ranch, US Forest Service, Trinity River Restoration Program, Cal Fresh Healthy Living, 4-H Youth Development Program, Kennedy Family Circus, PosiTees, Trinity Together, in addition to local artists. A heartfelt thank you goes out to all presenters for their engaging and informative sessions. The camp's success was made possible through generous contributions from USFS Shasta Trinity RAC, Trinity River Restoration Program, Holiday Market, Coast Central Credit Union, Friends of the TCRCD, the Young Family Ranch, and numerous community members. Every donation played a crucial role in shaping this enriching experience.

As we reflect on the 2023 Weaverville Summer Day Camp, we're filled with gratitude for the collective efforts that made this year's camp both enriching and memorable for our young adventurers. See you again next year!

Learning to Slackline

Feeding Alpacas

Animal Fur Activity

Watermelon Eating Contest

Fleming Family Donation

The Trinity County Resource Conservation District (TCRCD) would like to express our heartfelt appreciation for the generous gift from the late Sandra Fleming and her family. Earlier this year, they made a significant contribution by donating Sandra's home and property in Douglas City to our District.

Sandra's connection with TCRCD dates back to 2013, when she reached out, expressing her strong belief in our mission and designating the District as the beneficiary of her property within her living trust. Following Sandra's passing in late 2022, her family initiated the process to honor her wishes by transferring the property's ownership.

The decision to place the property on the market was made after careful consideration by the District's Board of Directors. We believe that this action is in the best interest of both the community and the District itself. The proceeds from this sale will play a vital role in supporting various aspects of District operations, including facilities and infrastructure management, equipment acquisition and maintenance, fleet expansion, and the enhancement of our district programs. These resources will enable us to better serve our community and pursue future funding opportunities more effectively.

We extend our deep gratitude to Sandra and her family for their exceptional generosity, which will support us in providing vital services to the communities of Trinity County. If any members of the public are interested in making a similar contribution to our conservation efforts, please don't hesitate to reach out to Kelly Sheen, District Manager of the Trinity County RCD. You can contact Kelly at (530) 623-6004 ext. 202 or via email at ksheen@tcrcd.net.

Your support strengthens our mission to conserve and protect our natural resources and the local environment. Together, we can make a significant difference in our community's sustainability.

After Seven Years, the Moon Lee Ditch gets a Pipe!

Over the last seven years the District's Watershed Program has been developing water conservation strategies for the Moon Lee Ditch. This ditch was historically called the Blue Gulch Ditch and before that, the Bakers Ditch when it was originally built in 1850. Water was provided in an open ditch from West Weaver Creek to the east side of West Weaver Ridge for the Blue Gulch Placer mine and likely, the McKinzey and Old Any Placer mines. Today, the ditch provides agricultural water to the members of the Moon Lee Ditch Association, the Weaverville Cemetery and the Young Family Ranch. For many years, Alan Young hiked the ditch every day to maintain the ditch line to service the agricultural needs on the Ranch. For more history on the ditch line visit: https://youngfamilyranch.org/moonleeditch.htm.

Plastic pipe installed in the ditch

In 2017, District Staff were awarded a grant from California's Wildlife Conservation Board to develop and implement water conservation strategies along the Moon Lee Ditch. Over time, Donna Rupp and then Amelia Fleitz, managed the grant and identified the following three components to the water conservation: 1) improve the diversion, 2) decommission the ditch line in the United States Forest Service parcels between the diversion and the Trinco Water Treatment plant, and 3) pipe the water from a tap off the Weaverville Community Service Districts' pipeline to the members of the Moon Lee Ditch Association in a closed system.

As with any water project, water rights and permitting take a long time to get everything in line. Over the last three years, the District staff have been working with the Young Family Ranch Board, Moon Lee Ditch Association, the Weaverville Cemetery Management Staff, and the local office of the Natural Resource Conservation Service for an Environmental Quality Incentives Program contract to complete the third component.

The District is excited to recognize the efforts of Jesse Brookings, Boyd Butler, Steve Simmons, Bob Simmons (YFR Board Member), Mike Blanchard, Jack Proburko, Kenny Plew, Rod Plew (YFR Board Member), and Scott Lindsay (YFR Board Member) for their long days installing the pipeline intended for the conservation of water from the Trinco Water Treatment plant to the members of the Moon Lee Ditch Association, the Weaverville Cemetery, and the Young Family Ranch. These men worked through the heat of early August to get the pipeline installed on the Ditch line.

Left to Right: Boyd Butler, Rod Plew, Bob Simmons, Steve Simmons and Jesse Brookings

Moon Lee Ditch, cont.

We are excited to see this pipeline decrease the loss of water during transport from the West Weaver Creek Diversion to the end users of the Moon Lee Ditch Association. Additionally, the Weaverville Cemetery Board is excited to utilize the water to support keeping the cemetery's trees and lawn in green health.

The District is happy to see this project move forward and the completion of this component. Thank you to the many District and NRCS staff members that have contributed to advocating and pushing this project forward. The team includes but is not limited to: Kelly Sheen, Donna Rupp, Tracy McFadin, Amelia Fleitz, Molly Breitmün, Chris Cole, Tiffany Perez, and Lorrie Bundy.

In this series of photos Boyd Butler and Jesse Brookings set the tee into clamp to fuse to the next section of pipe. They use a metal paddle run by the generator to heat the plastic on both sides and then clamp it together when hot to fuse the seams together

Jack Proburko and Kenny Plew support their grandfather Rod Plew by hauling rolls of pipe along the ditch line to the next installation site

Thermal Ecology of the Trinity River: *A brief introduction*

Rivers, particularly those in Mediterranean climates, are extremely complicated systems (see figure 1). Water temperatures in unregulated rivers vary over time and space. They tend to be warm in the summer, cold in the winter, colder in the headwaters than in downstream reaches, and colder at the bottom of slowly moving, deep pools. Temperatures in tributaries often differ from mainstem rivers and create even more variability in the system. This complexity 'muddies the water' when the topic of water temperatures comes up in conversation or when making flow management decisions. To complicate matters more, dams and diversions strongly affect water temperatures, especially how they change over time and space, so river managers have invested heavily in understanding riverine thermal patterns to better maintain water temperatures needed by fish and wildlife.

This image shows the Bucktail channel rehabilitation site in April 2019, three years after construction. The Bucktail channel rehabilitation site was designed to build and sustain dynamic mainstem bar (point, medial) and riffle morphology, and off-channel rearing areas designed to increase and sustain the availability, quantity, and quality of anadromous fish habitat between 300 cfs and 2,000 cfs for all life stages. Photo by A. Martin, Yurok Tribal Fisheries Dept., 2019.

It is well known that native Trinity River salmonids- Coho, spring and fall Chinook, and winter and summer Steelhead- generally require 'cold' water. However, Trinity River ecology is more complex than that, as salmonid temperature needs vary by species and life stage. When speaking in generalities, there are a few truths. Mortality is likely if daily average water temperatures reach 73°F (23°C) for young and mature salmonids alike. However, if adult salmonids can access cooler water and don't encounter other stressors, they can survive. When salmonids are young and food is unlimited, optimal growth in freshwater occurs between 55°F-65°F (12°C-18°C), and seasonal runs of adult Chinook salmon stop migrating upstream when temperatures exceed about 68°F (20°C). Among salmonids, Coho eggs are the most sensitive to temperature while developing in the gravel during winter. Optimal temperatures range from 36°F-44°F (2.5°C-6.5°C). Survival rates begin to decline at temperatures above 50°F (10°C).

When a river is dammed, water pools behind it and is exposed to sunlight and warm air, and the water warms. Water that is too warm directly kills salmon. Conversely, colder than optimal temperature water for salmonids doesn't directly kill them, even though it may slow growth, enhance conditions for some diseases, and mask environmental cues for migration. So, for most of the time that people have been conserving salmon in dam-regulated rivers, they have tried to keep tailwaters (the river reach below a dam, where dam releases dominate flows) as cold as possible. Doing this is straightforward: release water from deep in the lake (where water is colder than at the top), and release as much of this cold water as is necessary to keep the tailwater at the desired temperature downstream to the desired point. But from empirical data, we know that rivers within a Mediterranean climate warm in the summer. In fact, the seminal fisheries investigation on the Trinity River documented summer surface water temperatures of about 80°F (27°C) in the Lewiston area, and simultaneously, salmon were present and evidently thriving in this environment. Anecdotal reports from long-time Trinity County residents also suggest that very low flows, "to the point that one could walk across the river" in places without getting wet- were frequent, and salmonids could handle these conditions just fine. Coincidentally, these warmer, slower flows were also needed by other aquatic species that co-evolved with salmonids, such as the foothill yellow-legged frog and western pond turtle, whom we have seen decline in dammed rivers due to higher summer flows and colder temperatures. Another benefit to the natural warming of Mediterranean-climate rivers known to fish biologists is that warm summer waters stop salmon migration. These thermal barriers separated the spring and fall Chinook runs and minimized interbreeding between the spring and fall Chinook runs. This is important because when individuals from these two runs interbreed, their adult offspring are rewired to begin their upstream migration in summer - the worst possible time for a salmon to leave the ocean in a Mediterranean climate!

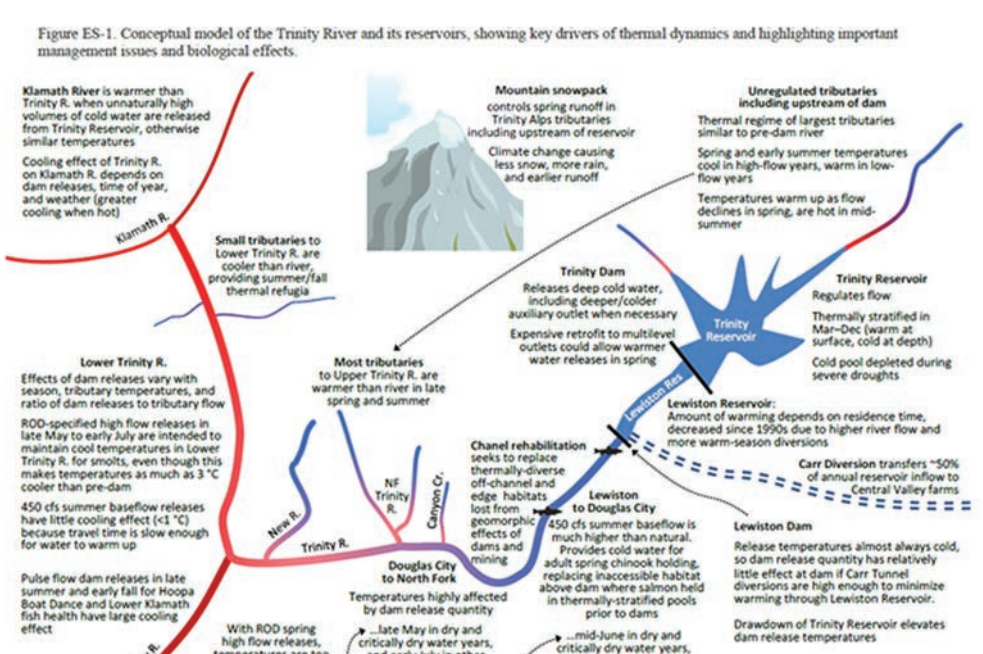
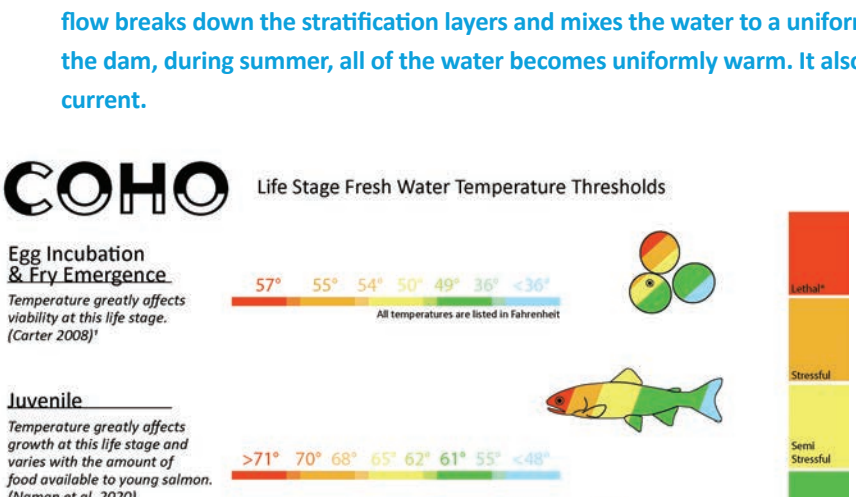


Figure 1. Reproduced from: J. Eli Asarian, Kyle De Juilio, David Gaeuman, Seth Naman, and Todd Buxton. (2023). Synthesizing 87 years of scientific inquiry into Trinity River water temperatures. 80 p. + appendices. Prepared for the Trinity River Restoration Program, Weaverville, California.

So, how do we make sense of this apparent conundrum? Recent research by Dr. Todd Buxton at TRRP sheds some light on the subject . When the Trinity River drops to very low flows- as happened most summers before there was a dam, the water in deep riverine pools would stratify into layers that were very cold on the bottom to very warm on the top. This is why the biologists in the 1940s observed warm surface temperatures even though there were reported healthy runs of spring Chinook. These fish were holding in the deep pools. The water where the salmon were holding was suitable for them, even though the water on the surface was lethally warm. Between the cold water on the bottom and the warm water on the top, there were places for other species and life stages to optimize their body temperature for growth and reproduction. Also found in the study is that too much flow breaks down the stratification layers and mixes the water to a uniform temperature, and at some point downstream of the dam, during summer, all of the water becomes uniformly warm. It also causes salmon to waste valuable energy fighting the current.



So, you can get a cold river by one of two ways- release lots of water from the deep parts of the reservoir and keep the river cold with a large mass of cold water that gradually and uniformly warms as it goes downstream, or release just a little bit of cold water to promote stratification, and have both warm and cold water in close proximity to each other for a long ways downstream. For many years, public opinion and legal requirements, informed by our limited understanding of how rivers work, have favored the former strategy. In the future, an ever-shrinking water supply, a better understanding of thermal ecology, and perhaps a need to conserve other species along with salmonids requires each of us to explore the latter.

Trinity County RCD
P.O. Box 1450
Weaverville, CA 96093

The Trinity County RCD of Directors

John Ritz, Mary Ellen Grigsby, Josh Brown, Kent Collard, and Mike Rourke.

Kelly Sheen, District Manager

Management Staff

Joan Caldwell - Fiscal Manager
Marla Walters - Office Manager
Cari deJong - Bookkeeper
Jessica Tye - Administrative Assistant
Kayla Meyer – Watershed Program Manager
Skylar Fisher - Fire Safe Council Coordinator
Duncan McIntosh - Education and Outreach Project Coordinator
Annyssa Interrante - Watershed Project Coordinator
Christine Burchinal - Watershed Stewards Program Corpsmember
Jacob Johnson - Conservation Planner
Shay Callahan - Conservation Planner
Duncan McIntosh - Education and Outreach Project Coordinator
Miles Raymond Education Coordinator
Denise Wesley - GIS Manager
Erik Flickwir - Systems Administrator, Mechanic, & Graphic Design
Cynthia Tarwater - Road-related Sediment Reduction Program Manager
Arvel Reeves - Project Coordinator – Roads & Recreation
Bethany Llewellyn – Forest Health Program Manager
Adriana Rodriguez - Forest Health Project Coordinator
Dave Johnson - Forest Health Project Coordinator
Annie Barbeau – Revegetation Program Manager
Kaety Howard – Revegetation Project Coordinator

Fuels & Forestry Crew

Jeff McGrew - Fuels Crew Supervisor
Jeff Eads - Fuels Crew Supervisor
Danny Wells - Fuels Crew Supervisor
Mike Dunlap
Josh Scott
Kirk Wolfinbarger
Jesse Capps
Jesse Ferguson
Garett Chapman
Jeff Heinig
Joshua Lee
Larry Jimenez
John Dickerson
Joey Moore
Jeremiah Weiss

Thomas Paulson Conservation Technician IV
Daphne Hobbs Conservation Technician III
Liam Bassler - Grizzlycorps Fellow

Botany Crew

Maryann Perdue
Cristian Campbell
Jack McGlynn
Tyler McKinley

Trinity County RCD Board Meetings
Third Wednesday
5:30 PM
Open to the Public

Trinity County RCD Office
30 Horseshoe Lane
PO Box 1450
Weaverville, CA 96093

Telephone
(530) 623-6004
FAX 623-6006

E-mail: info@tcrcd.net
Internet: www.tcrcd.net

The Trinity County Resource Conservation District (TCRCD) is a special district set up under state law to carry out conservation work and education. It is a not-for-profit, self-governing district led by a volunteer board of directors.

The Trinity County RCD Vision

The Trinity County RCD envisions a balance between utilization and conservation of our natural resources. Through economic diversity and ecosystem management our communities will achieve and sustain a quality environment and healthy economy.

This institution is an equal opportunity provider in accordance with Federal Law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, gender, age, or disability.

Printed with soy-based inks on 55% post-consumer content paper