Winter 2018

The Confluence

Newsletter of the Rogue River Watershed Council

Dealing with Increasing Stress in Our Lives: A Fish's Tale

by Jack E. Williams, PhD

Doctors are quick to tell us that to live long happy lives we must successfully manage stress. But sometimes that is easier said than done. Stress comes in many forms and may be caused by a variety of factors such as poor eating habits, living in harmful surroundings, and rapid change in our lives. This last factor – the pace of change – is especially hard for most of us to deal with. If change comes slowly, most people can overcome problems in their day-to-day lives. Essentially, they can successfully adapt to change. But if change occurs too rapidly, stress can overload our systems and cause significant physical and psychological harm. Simply stated, we adapt or we die.

It is much the same for fish.

Stream-dwelling fish live in a variable environment and are subject to daily, weekly, and seasonal changes in their surroundings as water temperature, water quality, flows, available foods, and other requirements shift over time. Any and all of these changes can be stressful. How do fish deal with increasing stress? If possible, they move to places where their stress levels decrease – areas with better, cooler, or cleaner habitats. If suitable habitat isn't accessible, they die.

Comparing a degraded watershed, on the left, characterized by reduced riparian communities, streams that are disconnected from their floodplains, streams that are fragmented by dams and impassible culverts, and streams characterized by shallow, wide channels and high silt loads with a healthy watershed, on the right. Management strategies for healthy stream systems include protecting remaining high-quality habitats, removing dams and poorly-designed culverts that disconnect stream networks, and restoring degraded stream channels and riparian habitats.

Illustration courtesy of Trout Unlimited and Bryan Christie Design

Inside This Issue

Dealing with Stress: A Fish's Tale 1
Notes from Exec. Director & Chair 2
A Fish's Tale *continued* 3
Protecting Rogue Drinking Water 3
Little Butte Creek Floodplain Rehabilitation... 4
Partnership for Pesticide Reduction 4
Wagner Creek Water Quality Improvement ... 5
Neil Creek Water Quality Improvement 5
Rogue Hydrology 6
Under the Surface 6
Species Spotlight 7
Off the Resource Shelf 7
World Fish Migration Day Festival & Run 8

Coldwater-fishes such as trout, salmon, and steelhead thrive in high quality streams characterized by braided channels, lush riparian habitats, deep pools, adequate amounts of large wood, and clean water. In these healthy stream systems fish have more opportunities to find suitable habitat or to move upstream or downstream within an interconnected stream network to find suitable conditions.

Climate Change and Fish Stress — Not only is climate change resulting in higher air and water temperatures, but these warmer conditions increase evaporation, driving more energy and water into storm events. Despite the likelihood of increased winter storms, snowmelt occurs

(Continued on page 3)

ROGUE RIVER WATERSHED COUNCIL

The Confluence
Winter 2018

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RRWC's mission: Stewardship of the Rogue River watershed through restoration, education, and community involvement.

RRWC is tax-exempt under section 501(c)(3) of the Internal Revenue Code and a recognized watershed council. Watershed councils were authorized by the Oregon Legislature in 1995 to promote and implement voluntary cooperative conservation actions.

Notes from the Executive Director's Desk

Photo by Justin Clifton

Ugghhh, the holidays! While it is true they can be stressful, it is also true that they can be a time of great joy.

Indeed, they were a time of stress for this Executive Director. We shifted our fiscal year to a calendar year so we're preparing for taxes and all those associated filings for the second time in a 6-month period!

Despite the 6-month "year," we produced the most outreach and had the highest contracted services expenses of any "year" to date. All those contracted service expenses equate to "on the ground" restoration, help with events, and restoration project design. All the outreach helped us raise our profile and brought in donations. Looking back on the end results brings smiles to our faces. Yes indeed, it was a busy, stressful, productive, and joyful "year."

We've been thinking about how to be more resilient to the ebbs and flows of project design and implementation funding (you know, all that work that goes into developing a project before it can be designed and built or before an event can be organized and implemented). We think the answer, at least in part, is business sponsorships, donations, and friendships.

If you're a business owner or work for a business that relates to our mission of "improving water and stream habitat," consider sponsoring our World Fish Migration Day in Grants Pass (see back page) or June's *Celebrate the Rogue!* in Shady Cove. There will be other sponsorship opportunities if neither of the above suits your fancy.

If you were a "friend of the Rogue River Watershed Council" in 2017, please re-join. If you donated in 2016 or 2017, please consider donating to us again at some point in 2018. There is no time like the present to help us be resilient to the ups and downs of grant funding by making a donation or joining as a "friend" today!

We will struggle to do our work without your support. We hope that our work brings you joy through improved water quality, higher quality habitat along and within our streams, and stronger plant, fish, bird, reptile, amphibian, mollusk, insect (you get the picture) populations.

...and from the Board Chair

Change is inevitable and we need to adapt to this change in order to survive and thrive; this is true in the natural environment and in our organizational one as well. The board of the Rogue River Watershed Council is composed of local volunteers who dedicate their time to govern this organization. Board members are responsible for setting policies, strategic planning, assisting with fundraising, and building local support for the organization and its work. Our board is experiencing change as we bid two of our board members goodbye and welcome two in their stead.

Paul Ancell and Pete Gonzalves have been with RRWC since our merger three years ago and were instrumental in helping us get through the initial transition from four councils into one. They were both board members on their respective pre-merged councils (Upper Rogue for Paul, Little Butte for Pete) for years. I would like to offer a big "THANK YOU" to them for their dedication and hard work and wish them all the best in their future endeavors.

Bob Hunter, a retired attorney and long-time advocate for open and healthy rivers, and Keith Emerson, former director of orchards and environmental programs for Bear Creek Orchards, were recently elected to the board. I would like to welcome Bob and Keith to the board and look forward to them bringing their rich and varied skills to the organization.

Dealing with Increasing Stress: A Fish's Tale
(Continued from page 1)

earlier with peak flows arriving sooner in the year, along with lower flows in summer and fall. Earlier snow melt, warmer spring temperatures, and higher evaporation can lead to conditions that promote drought and wildfire. Climate change may not be the direct cause of every storm, wildfire, or drought, but climate change has made these events much worse and is expected to continue to fuel weather extremes well into the future.

Unfortunately, climate change also tends to exacerbate many pre-existing problems. For example, larger storm events increase erosion, polluted runoff, and stream sedimentation. Increased sedimentation decreases good pool refugia that will become increasingly critical habitat components as climate change-driven stream flows become more chaotic in the winter and more anemic in the summer. In our forests, higher air temperatures dry out forest fuels earlier in the year and cause wildfires to burn at greater intensities.

Helping Fish Cope with Stress — In a natural and undisturbed stream system, fish deal with increased heat and other environmental stressors by moving to deep, well-shaded pools or moving upstream to cooler headwaters. But, in many stream systems these options may no longer exist as large riparian trees have been removed, pools have silted in, and dams block upstream fish movement.

The Rogue River Basin provides many good examples of both problems and solutions for our trout, steelhead, and salmon populations. Often, fish are blocked from moving upstream to escape floods or high temperatures by dams or poorly-designed culverts. In the Rogue, young steelhead will spend up to two years in freshwater streams before heading to the ocean. That means they must find suitable, cool water to escape our valley's hot summers. Summer temperatures in Bear Creek often rise to lethal conditions but headwater streams like Wagner Creek or Ashland Creek flow from higher elevation and well-forested watersheds that provide cool water refuge – if the fish can get there.

Upper portions of Ashland Creek provide excellent cool-water rearing habitat for juvenile steelhead, but fish movement from Bear Creek and lower Ashland Creek into these better conditions is blocked by the Smith-Myer-Roper Dam. With removal of this dam, visitors to Lithia Park could be greeted by the presence of much greater numbers of adult and juvenile steelhead and perhaps, Coho Salmon.

Jack Williams is the Emeritus Senior Scientist for Trout Unlimited and was elected to the Rogue River Watershed Council's board last October. He lives in the foothills outside of Phoenix.

RRWC Project Profile

Protecting Rogue River Drinking Water Supplies

RRWC is partnering with the City of Grants Pass and Medford Water Commission to form the Rogue Drinking Water Partnership (RDWP). The RDWP is a new coalition of public water suppliers who get their drinking water from surface water supplies in the Rogue Basin. In early 2017, the water providers and partners who support protection of drinking water supplies agreed to begin a collaborative process to strengthen awareness and support for drinking water protection.

The partnership received initial funding through a Drinking Water Source Protection Grant through the Oregon Health Authority. RRWC was contracted to manage the grant. Our two-year project seeks to identify and prioritize the greatest risks to drinking water supplies in the basin and develop strategies for water providers to work with partners to prevent, minimize, and mitigate activities that can harm drinking water quality.

RRWC Project Preview

Little Butte Creek Floodplain Rehabilitation Project

This summer, RRWC intends on implementing a complex habitat restoration project on Little Butte Creek in partnership with the City of Eagle Point, the Bureau of Land Management, and the Medford Water Commission. This project will focus on a heavily eroding 0.3-mile stretch of Little Butte Creek, just outside the town of Eagle Point at the site of the old wastewater treatment plant.

The watershed is adversely affected by poor water quality and hydrologic modification, but despite these limited conditions the creek remains a priority stream for endangered Coho Salmon recovery. Little Butte Creek also contributes seasonal drinking water supply for over 136,000 Rogue Valley residents.

In order to alleviate the water quality issues and create habitat for salmon spawning and rearing, we will reconnect Little Butte Creek with its floodplain by selectively breaching a berm, re-grading an existing side channel that has filled in with reed canary grass, and re-contouring eroded stream banks. We will also increase floodplain roughness and habitat complexity by constructing four engineered log jams in the bank and installing ten small log jams in the newly connected floodplain/side channel. The final component of this project will be to remove up to 2.5 acres of noxious weeds and plant with native trees and shrubs.

Currently, RRWC staff are working with partners to apply for the required permits and raise funds to implement this project in late summer 2018. Stay tuned for details and photos of the construction process in late 2018!

RRWC Project Profile

Partnership for Pesticide Reduction

The Rogue River provides drinking water for over 200,000 people, recreation for thousands, and habitat for endangered fish. Since 2014, pesticide monitoring efforts have detected various pesticides in Rogue River tributaries. While current levels of pesticides are well below US EPA drinking water benchmarks, some of the pesticide levels exceed standards set to protect aquatic life. The detections serve as a warning sign that the health of our waterways is threatened. We all need to work together to protect the health of our waterways by using pesticides wisely and sparingly.

The Middle Rogue Watershed Pesticide Stewardship Partnership (Middle Rogue PSP) formed in 2015 to identify potential concerns and improve water quality affected by pesticide use in the Middle Rogue Watershed. The Middle Rogue PSP combines growers and local experts (Southern Oregon Research and Extension Center, Jackson Soil and Water Conservation District, Rogue Valley Sewer Services, and local governments) with state and university technical providers (Oregon Department of Environmental Quality, Oregon Department of Agriculture, and Oregon State University Extension Service) to encourage voluntary changes in pesticide use and management practices.

RRWC is proud to announce that we received a grant from the Oregon Department of Agriculture to serve as the Middle Rogue PSP coordinator. Over the next 18 months, we will work with Middle Rogue PSP partners to develop a five-year strategic plan, engage pesticide applicators in a conversation about pesticide use, and produce materials to educate the public about appropriate pesticide use. Please contact Sarah at 541-423-6175 to get involved.

RRWC Project Update

Wagner Creek Water Quality Improvement

In the summer of 2016, the Rogue River Watershed Council, in partnership with the Jackson Soil & Water Conservation District (JSWCD), received a $198,000 grant through Oregon Department of Agriculture's Strategic Implementation Area Program to help landowners in the Wagner Creek watershed install best management practices to benefit water quality (see 2016 Summer/ Fall issue of *The Confluence*). Wagner Creek provides important habitat for juvenile steelhead; however, the stream's water quality had become impaired and the aquatic habitat degraded due to long-standing agricultural practices that hadn't taken stream health into consideration.

RRWC has been working with eight Wagner Creek landowners to tackle twelve acres of invasive blackberries along both sides of a near-contiguous 0.6 mile reach of the creek. By removing blackberries and establishing native riparian vegetation along the stream, lasting shade will be created to cool late-summer water temperatures. Our contractor, Plant Oregon, began removing blackberries in December of 2016 and finished planting native trees and shrubs in their place in December 2017. We will be installing an irrigation system for the plants this spring, with plant stewardship scheduled through 2023.

We also installed fencing to keep livestock out of the creek, as unrestricted livestock access can cause erosion, damage habitat, and contribute nutrients and bacteria into the water.

Funding was provided by grants from the Oregon Watershed Enhancement Board, Schwemm Family Foundation, Patagonia Environmental Grants, and Jackson Soil and Water Conservation District, with support from participating landowners.

October 2016.
A thick, impenetrable thicket of blackberries lines the creek.

October 2017
An unobstructed view of Wagner Creek! For some landowners, this was the first time they had seen the creek flowing through their back yard.

RRWC Project Preview

Neil Creek Water Quality Improvement

In 2017, Rogue River Watershed Council, again in partnership with Jackson Soil and Water Conservation District, received another grant through the Oregon Department of Agriculture's Strategic Implementation Area program, this time focused on Neil Creek. Neil Creek supports some of the most valued fishery habitat in the Bear Creek watershed and is critical for Bear Creek steelhead production, yet also experiences impaired water quality.

On Neil Creek we are working with the Equamore Horse Sanctuary on a range of projects including: 1) a manure management facility for holding manure and waste generated by up to 66 horses daily; 2) almost 7,000 square feet of improved access road to provide reliable access to the manure facility; 3) conversion from flood irrigation to gated pipe with a new distribution box to improve irrigation water management; 4) a vegetated buffer strip to trap sediment, nutrients, and bacteria; and 5) a drainage system to limit runoff into Neil Creek. The project will be put to bid this winter and we expect construction to begin this summer.

Funding is provided by the Oregon Watershed Enhancement Board, Jackson Soil and Water Conservation District, and Equamore Horse Sanctuary.

Rogue Hydrology

By Jonas Parker

"It's the climate." Here in the Rogue Basin we're all aware that climatically speaking, things are generally anti-climactic. Extreme hydrology can stress a stream network, but with such mild weather this winter it can be difficult to picture our stream networks in a stressed state. Nonetheless, there are both biological and physical stressors that can easily be found throughout the Rogue Basin.

Owing to decades of poor management, many streams have become degraded. Think water diversions, barriers, riparian clearing, and stream simplification. All of these and other actions have a litany of effects that manifest themselves in the stream. While the casual observer may see a tranquil stream, what lies beneath can range from heavy metals to elevated stream temperatures and from low levels of dissolved oxygen to increased solar radiation. These conditions have the potential to shift or eliminate biological communities. Similarly, physical alterations to a stream can be seen as changes to flow regimes, floodplain abandonment, and increased sediment loading.

I call on all of you to give streams and riparian areas in your neighborhood a second look. Is the stream functioning the way it would have before development and management occurred? If not, is there anything that can be done to restore form and function? Partnering with the Rogue River Watershed Council can shine a light on opportunities to participate in local restoration efforts. And through our collaborative restoration efforts, we can gradually move from a stressed system to one more conducive to native populations of fish, wildlife, insects, and vegetation. Remember that often a tranquil stream is indicative of something missing.

Jonas Parker is the district hydrologist for the US Bureau of Land Management based out of Medford.

UNDER THE SURFACE

Riders on the Storm

by Jay Doino

From Field Guide to the Pacific Salmon, by Adopt-a-Stream

This time I'm supposed to write about extremes. How about holidays, then? They're extremely overdone. But I'm trying to be more grateful. For example, I'm grateful I survived another season of extreme joy and giving (I'm not joyful and I prefer getting). But what I'm truly grateful for are the ingenious mechanisms our native fish use to survive winter's extremes! If you're not grateful for that, stop reading and re-gift something. Joyfully.

Now, if you're inches long, cold-blooded, slimy and live in water, winter presents problems. One is floods. First, floods are totally positive things for streams and fish. However, surviving floods does take some maneuvering if you're inches long, cold blooded, etc. Since there's no Ark that I can find, our small, slimy critters use off-channel habitats like floodplains, side channels, and small tributaries to escape the force of floods. To survive, juvenile fish move into and out of these habitats as floods ebb and flow – they're the original "Riders on the Storm." And though he died too young and before I could ask him, I know salmonids were Jim's true muse.

Another problem for small and slimy beasts is food. Though not really. True, food is not widely available for young fish during winter. Their primary foodstuffs, bugs, are mostly nestled safely in stream substrates, rocks, where fish can't get at them. Luckily, this works out since a fish's metabolic rate is low in winter (think cold-blooded), thus reducing their caloric needs. Coincidence? Seems unlikely. Just another way Rogue fish evolved to survive winter's extremes.

Jay Doino is a fisheries biologist and has been working in the Rogue Basin since 1999.

Species Spotlight

Frogs!

By Michael Parker, PhD

Hunkered down in diverse nooks and crannies that provide refuge from freezing temperatures (loose tree bark, downed logs, rock outcrops, and animal burrows), frogs pass the winter. As days grow longer and temperatures increase, frogs emerge from their winter refuges to gather at spring breeding sites. To my ear, the sometimes-deafening chorus of Pacific treefrogs, arising from nearly every pond and puddle, is a welcome harbinger of spring.

The Pacific treefrog is the most abundant and frequently encountered frog in our area, but is only one of seven species that call the Rogue Basin home. These include the high-elevation Cascades frog, the red-legged frog of coastal forests and floodplain wetlands, the widespread western toad, and the invasive American bullfrog.

Two species are particularly interesting because, unlike their pond-breeding counterparts, they are obligate stream-breeders. These are the coastal tailed frog, restricted to cold, turbulent headwater streams of the Cascade, Siskiyou, and coastal mountains, and the foothills yellow-legged frog, an inhabitant of low-elevation, sunlit streams and rivers.

Tailed frogs are unique because they reproduce via internal fertilization – the "tail" of the male that gives the species its name is not a tail at all! As a group, tailed frogs are among the oldest frogs on the planet, whose ancestors were mucking around with the dinosaurs over 200 million years ago. They exist within a very narrow temperature range so are susceptible to disturbances that open up the forest canopy and increase sedimentation.

Yellow-legged frogs, once abundant throughout the mid- and lower Rogue, are now restricted to a handful of larger tributaries. Dams, diversions, and channelization cause loss of breeding habitat and introduced bullfrogs and non-native fishes compete with or prey on juvenile frogs and tadpoles.

Get ready to enjoy the spring chorus!

Male Pacific tree frog in full throat!

Photo by Eugene Wier

Adult tailed frog

Photo by Ryan Ross

Adult foothills yellow-legged frog displaying its namesake legs

Photo by Chaney Swiney

Michael Parker is an aquatic ecologist and professor of biology at Southern Oregon University.

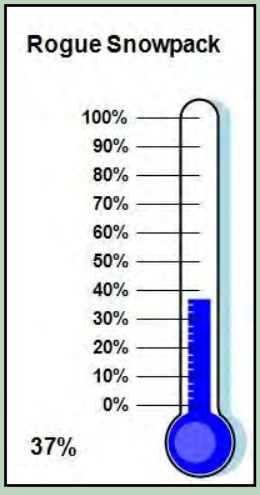
Off the Resource Shelf

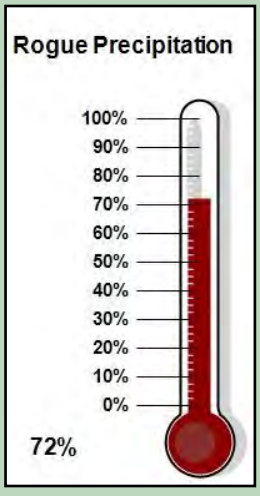
Where's the Snow?

Things are not looking too good in the Rogue Basin in terms of snow-pack right now. In fact, data from early January show the snowpack for the Rogue and Umpqua Basins at 37 percent of normal – a drop from 110% at the same time last year.

You can monitor these conditions yourself by visiting the following web site, which has some great maps and graphs – some of them updated daily!

Oregon Snow Survey Products: https://www.nrcs.usda.gov/wps/portal/nrcs/main/or/snow/products/





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Make a Donation

All donations are greatly appreciated, put to good use, and are tax-deductible. Donate online at http://www.rogueriverwc.org/get-involved/donate/.

Bottle Drop Redemption

Open a Bottle Drop account at an Oregon Redemption Center, drop off your cans and bottles, then transfer your donation to RRWC online.

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Help RRWC earn donations by shopping with your Fred Meyer Rewards Card. Link your card to us at https://www.fredmeyer.com/topic/community-rewards-4. Search for us by name.

AmazonSmile

Online shoppers can go to smile.amazon.com, click on your account and select RRWC as your charity of choice at no cost to you.

WORLD FISH MIGRATION DAY

Please Join Us for Our First Annual

Rogue River – World Fish Migration Day Festival

&

5K Migratory Run/Walk & Kids' Dash

Saturday, 7 April 2018
North Middle School Grounds
Grants Pass

Race: 11:00 am
Festival: 11:00 am – 3:00 pm
Costumed Kids' Dash: noon

For more information:

Visit our website
www.rogueriverwc.org
or contact Donna at
541-423-6185

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