



VOL. 1 ISSUE 2 • MARCH 2024

FLOWING FORWARD

The Gifford Pinchot Stream Chronicles



Find the Opportunity

Partnerships in aquatic restoration present a unique opportunity to consolidate resources, knowledge, expertise, and technology, fostering a holistic approach to tackle environmental challenges comprehensively. Through collaborative efforts, we can magnify our impact, harness diverse skills, and instill a shared responsibility for the well-being of aquatic ecosystems. Engaging local communities and stakeholders in these partnerships nurtures a sense of stewardship and a profound connection to aquatic environments.

These collaborations also provide a unified voice capable of advocating for policy changes and regulations that bolster aquatic restoration and conservation endeavors. Sustainable restoration efforts are further ensured through ongoing monitoring and maintenance, aspects inherently embedded in collaborative partnerships. Additionally, such alliances facilitate the creation of educational programs, fostering awareness about the vital significance of aquatic ecosystems and restoration initiatives. Furthermore, collaborative efforts spark research on aquatic ecosystems, contributing to a deeper understanding of their dynamics and restoration requirements. The prospect of attracting funding from diverse sources, including government agencies, NGOs, and private sector entities, underscores the financial support pivotal for sustainable restoration projects. Partnerships are indispensable for project implementation, offering innovative strategies to mobilize action on the ground.

In summary, partnerships for aquatic restoration emerge as a robust force, presenting numerous opportunities to elevate conservation endeavors, involve communities, and advocate for sustainable practices, thereby benefiting both aquatic ecosystems and society at large.



This Issue:

Find the Opportunity

Restoring the Heart of the Forest

Riding the Cowlitz Current: Uniting for River Resurgence!

Whirling Winds Unite for Stream Revival!

Stream Revival Spotlights

*Sneek Peek Next Issue

Where we drive into the fascinating realm of road hydrostabilization. Navigate Gifford Pinchot's Salmon Highway and explore aquatic organism passage. Embark on exciting data collection expeditions, and much more. Stay tuned for a magazine Get ready for an adventure that will leave you hooked!





Restoring the Heart of the Forest

Revitalizing Aquatic Ecosystems through Partnerships: A Collaborative Approach for Gifford Pinchot National Forest

Nestled in the Pacific Northwest, the Gifford Pinchot National Forest, boasts breathtaking landscapes and a rich tapestry of diverse aquatic ecosystems. However, the delicate aquatic ecosystems within this natural haven have faced challenges and pressures of human activity and environmental changes. The restoration of these precious habitats requires more than individual efforts; it demands partnerships that form the heart of a collective endeavor. A symphony of partnerships working in unison to breathe life back into the forest's aquatic habitats. In the pursuit of aquatic restoration, the heartbeat of success lies within these robust partnerships.

Understanding the Ecological Symphony

Gifford Pinchot National Forest's aquatic ecosystems, once vibrant symphonies of life, have faced challenges ranging from habitat degradation to water quality issues. Understanding the complexity of these challenges underscores the need for a harmonized approach. This involves not just the Forest Service but a collaborative ensemble of local communities, environmental organizations, and governmental agencies.

The Power of Unified Vision

Restoring the heart of partnerships is not merely about combining efforts but fostering a shared vision. Local communities, intimately connected to the land, bring a wealth of traditional knowledge and commitment. Environmental organizations contribute expertise, research, and advocacy, while governmental agencies provide the regulatory framework and resources. Aligning these diverse perspectives creates a powerful and unified vision for the restoration of Gifford Pinchot's aquatic ecosystems.

Open Dialogue as the Melody of Progress

Communication is the melody that sustains partnerships. Regular and transparent dialogue ensures that each partner contributes their unique notes to the restoration symphony. Listening to the concerns, ideas, and aspirations of each stakeholder builds trust and reinforces the shared commitment to the well-being of the aquatic ecosystems.

“In the silence of the forest, we find the whispers of a thousand years, and in its restoration, we mend not only the land but also the heart of our own existence”





Restoring the Heart of the Forest Continued...

Coordinated Action as the Rhythm of Success

In the realm of restoration, coordinated action is the rhythm that propels progress. Partnerships allow for the efficient use of resources, both human and financial, creating a rhythm that resonates with impact. From habitat restoration initiatives to water quality monitoring programs, each partner contributes to the rhythm of success, ensuring a comprehensive and synchronized approach.

Community Engagement as the Heartbeat

The heartbeat of aquatic restoration in Gifford Pinchot is community engagement. Empowering local residents through education, involvement, and a sense of stewardship instills a heartbeat that echoes through generations. Community members become not just beneficiaries but active participants in the restoration narrative, ensuring that the heart of these ecosystems beats strongly for years to come.

Governmental Support as the Foundation

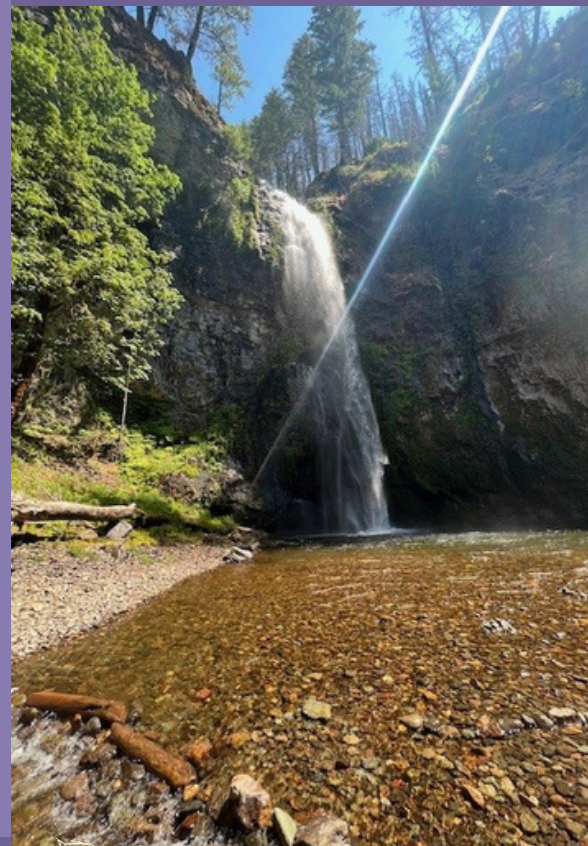
Partnerships with governmental agencies provide the foundation for success. Regulatory support, policy advocacy, and financial resources from federal, state, and local governments amplify the impact of restoration initiatives. Governments, as custodians of public lands, play a pivotal role in ensuring the sustained health of Gifford Pinchot National Forest's aquatic ecosystems.

Crescendo of Hope and Sustainability

As partnerships flourish and restoration efforts gain momentum, there emerges a crescendo of hope and sustainability. The symphony of collaboration becomes a beacon, not only for Gifford Pinchot National Forest but for conservation efforts globally. It demonstrates that when hearts and hands come together, the melody of restoration can harmonize with nature's rhythm.

In restoring the heart of partnerships for Gifford Pinchot National Forest's aquatic ecosystems, we are not just preserving a landscape; we are composing a legacy of conservation, unity, and resilience for the generations yet to come.

“Its about nurturing the roots of life, preserving biodiversity, and rekindling the harmony between humanity and nature”





WIND RIVER

PARTNERSHIPS

The Wind River embarks on a journey through a 582 km² playground, kicking off in Washington's Cascade Mountains and making a grand entrance into the Columbia River just 10 km upstream from the Bonneville Dam in the Columbia Gorge. This aquatic hotspot is home to wild summer steelhead, who are the cool cats of the neighborhood, bravely navigating the rocky roadblocks at Shipherd Falls near the river's mouth. Back in the day, only these daredevil steelhead and maybe a few lampreys could conquer the falls. But fear not, a fish-friendly highway has been built to help more fishy friends pass through, though it's strictly reserved for wild steelhead and Carson National Fish Hatchery's spring Chinook salmon. A series of unfortunate events, like habitat changes, hatchery releases, and fishing, along with external factors, took a toll on the Wind River steelhead population. In 1998, these Lower Columbia River steelhead were officially labeled as Threatened under the Endangered Species Act. The Washington Department of Fish and Wildlife also raised the alarm in 1997, declaring the Wind River summer steelhead population as Critical. This triggered a major rescue operation, putting the Wind River steelhead at the very top of the recovery list in Washington state's Lower Columbia Steelhead Conservation Initiative. By the mid-80s, wild steelhead hunting was put on ice, followed by a halt on releasing hatchery steelhead in the mid-90s, shining a spotlight on habitat quality as the main player affecting fish numbers in the area. The history of habitat degradation reads like a sad novel, with changes in land use leading to less woody debris in the water, more sediment, and unstable channels, disrupting the cozy homes of fish in their alluvial paradise.

WIND RIVER WORKING GROUP

The Wind River Working Group is like a superhero squad on a mission to bring back the awesome steelhead in the Wind River. Picture this: the US Forest Service, Washington Department of Fish and Wildlife, USGS Biological Research Division, and Underwood Conservation District joining forces. With a boost from Bonneville Power Administration, they've been busy enhancing habitats, and conducting vital research on fish populations since the 1990's. Their mission is all about delving deep into the issues, revitalizing the homes of our fishy friends, and spreading awareness and knowledge far and wide. Together, they are truly a superhero squad, determined to make a positive impact on the environment and ensure a brighter future for the steelhead in the Wind River. Go team!

YAKAMA NATION

Exciting news for the Wind River! The Yakama Nation and GP have teamed up to implement multiple projects in the wind river. As represented by their individual missions, the U.S. Forest Service and the Yakama Nation are dedicated to the enhancement and restoration of terrestrial, riparian and aquatic habitats that lead toward a landscape that is more resilient to changing climates and disturbances and that responds in a manner that maintains and restores natural processes, patterns and functions. A healthy landscape, supporting a multitude of species, offers various advantages that extend beyond the immediate needs of a single entity. Therefore, working together on these landscape restoration and enhancement projects provides mutual benefits to both parties. The ultimate mission accomplishment is the restoration and preservation of natural resources across the landscape, promoting long-term ecological health and sustainability.

MID COLUMBIA FISHERIES ENHANCEMENT GROUP

Mid Columbia Fisheries Enhancement Group and the GP have joined forces in an epic team-up! Together, we're on a mission to restore habitats, benefitting folks, fish, and critters alike. By revamping the Wind River watershed, we're not just saving the day for the U.S. Forest Service and Mid-Columbia Fisheries, but also for our aquatic friends. Dive into the project spotlight below for all the juicy details! 🌲 🤝 🧑



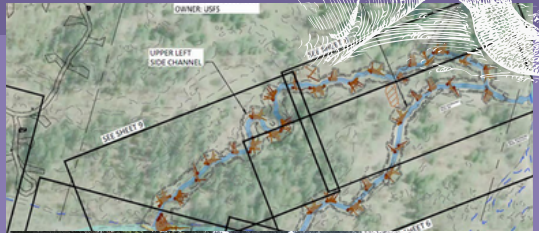
Spotlight: Beaver Campground



Partner: Mid Columbia Fisheries Enhancement Group

The Gifford Pinchot National Forest and Mid-Columbia Fisheries Enhancement Group have worked together to improve habitat and passage for salmonids in the Wind River watershed for the past two decades. The Wind River provides critical habitat for Lower Columbia River steelhead and supports a number of other resident and anadromous fish. As a Tier I Key Watershed, the Wind River is a priority for aquatic habitat restoration under the Northwest Forest Plan. Mid-Columbia Fisheries is a non-profit, community-based group dedicated to protecting and restoring wild salmonid populations and their habitats and ecosystem functions through restoration, protection, education and community involvement. Mid-Columbia Fisheries sponsors and implements priority restoration, fish passage, and habitat protection projects. They provide educational and community outreach programs that promote the long-term commitment our society needs to protect fisheries resources. Mid-Columbia Fisheries works with landowners and community partners to protect and restore fish habitat.

In collaboration with the Mid-Columbia Fisheries Enhancement Group, the GP Aquatics team is embarking on a project to enhance the area below Beaver Campground. This initiative involves the addition of wood and the opening of multiple side channels. In 2024, The Mid Columbia Fisheries Enhancement Group will be responsible for contracting out the work, while the GP Aquatics team will take the lead in permitting and directing the implementation. Together we applied for Funding from the Lower Columbia Salmon Board. Together, we're working towards a healthier aquatic ecosystem. 🌲🍂



Spotlight: Dry Creek

Partners: Yakama Nation, Bonneville Power Administration

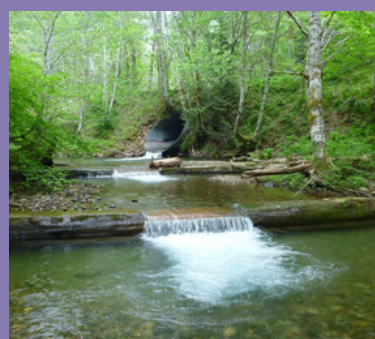
I'm excited to share the latest developments regarding our partnership focused on stream restoration in the Upper Wind River region. Our journey began with the formation of this collaboration, and we've since made significant progress in crafting a watershed restoration action plan. This plan has been crucial in identifying key projects that are vital for the overall health and functionality of the watershed. These projects encompass road hydrostabilization, enhancing aquatic organism passage, and in-stream restoration efforts.

From 2024 thru 2026, our focus is squarely on Dry Creek and a particular section of the Upper Wind River known as the "mining reach," situated just below the confluence of Wind River and Paradise Creek Confluence. These two locations were once-beautiful waterways, but they suffered from the perils of degradation due to logging, splash damming, and misguided wood stream cleaning (removing wood from stream channel). This restoration project is no small feat. Multiple reaches of Dry Creek are being meticulously designed, and they'll be enhanced with large, complex log jams. These log jams will not only add a touch of wilderness charm but also help in stabilizing the streambed and promoting a healthier ecosystem for the aquatic life. To complete this work, the GP currently faces a challenge due to a shortage of personnel, which has made our contracting process somewhat unwieldy. But fear not, for there's a ray of hope! The Gifford Pinchot National Forest has teamed up with the Yakama Nation to breathe new life into this tributary of the Wind River.

Our tentative plan involves having the GP oversee the NEPA (National Environmental Policy Act) and permitting aspects, on the ground guidance and then provide funding to the Yakama Nation to contract the restoration work. This collaborative approach ensures that we can have boots on the ground to implement the necessary restoration efforts effectively.

We are fortunate to have secured two funding sources to support our endeavors. The first source is Bonneville Power Administration, which provides annual funding specifically earmarked for USFS projects in the Wind River area, totaling about \$90,000 per year. We are currently in discussions with Bonneville to allocate these funds directly to the Yakama Nation. This allocation will be utilized for funding for a geomorphic assessment on Dry Creek in 2024 and add funds for the subsequent implementation in 2025 and 2026. Our second funding source stems from the Infrastructure Investments and Jobs Act, which established the Collaborative Aquatic Landscape Restoration program. We had to compete for this funding, and I'm proud to announce that we ranked first in the region, securing funding of up to \$5 million. Our plan is to work out an agreement to allocate a substantial portion of this funding to the Yakama Nation, allowing them to handle the contracted restoration work. This partnership is a testament to our shared commitment to restoring and preserving our aquatic life and ecosystems in the Upper Wind River region.

Speaking of aquatic life, the mighty Steelhead will surely benefit from this endeavor. This means the Steelhead will have a new complex home for spawning and rearing in these rejuvenated waters. A win-win for nature and all those who appreciate the beauty of a restored stream! 🌿🐟🏠



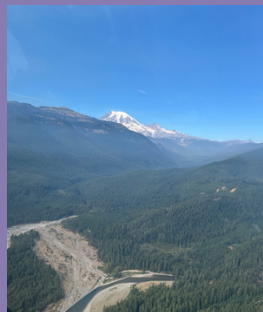
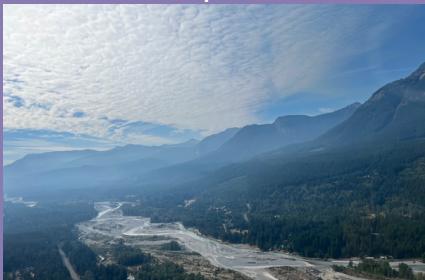


COWLITZ RIVER PARTNERSHIPS

The daring Cowlitz River, born from Mount Rainier's icy embrace, embarks on a wild journey through the rugged terrains of Mount Adams and Mount St. Helens. It dances through the enchanting "Big Bottom Valley" before encountering three formidable dams, then merges with the resilient Toutle River, scarred by Mount St. Helens' volcanic fury. Finally, after a 105-mile escapade, it reaches its grand finale at Longview, where it merges with the majestic Columbia River. The headwaters of the Cowlitz River are under the watchful eye of Gifford Pinchot, nurturing the endangered coho, chinook, and steelhead populations.

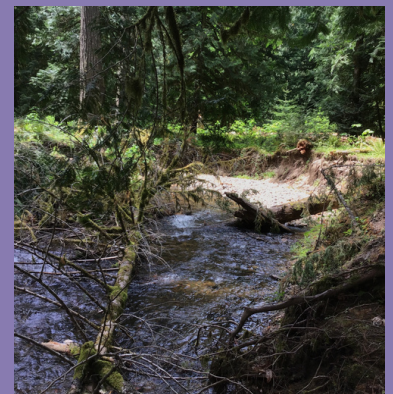
»»» SALMON RECOVER FUNDING BOARD AND TACOMA POWER COWLITZ RESTORATION & RECOVERY

Restoration Funding Update: Tacoma Power, in collaboration with the Lower Columbia Fish Recovery Board (LCFRB), is launching grant rounds to finance habitat projects. The funding is geared towards on-the-ground initiatives or activities leading to such projects, focusing on habitat preservation or restoration to aid the recovery of Endangered Species Act-listed Cowlitz salmon and steelhead populations. Specifically, the Cowlitz Restoration and Recovery (CRR) Program highlights projects that benefit the Upper Cowlitz and/or Cispus spring Chinook and Coho salmon and winter steelhead trout. The USFS and its partners rely on these funding sources to enhance their partnerships and complete their projects. This collaboration is vital in ensuring the conservation and restoration of these precious fish species for future generations to enjoy. By working together, we can make a significant impact on the preservation of our natural habitats and the species that depend on them. Thank you for your continued support in this important initiative. Together, we can make a difference in the protection of our environment.



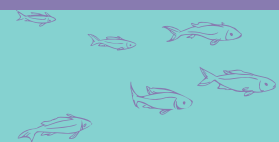
»»» CASCADE FOREST CONSERVANCY

In 2024, Cascade Forest Conservancy (CFC) and Gifford Pinchot National Forest joined forces, securing funding from Tacoma Power's CRR initiative. This partnership will pave the way for contracted work, where CFC will collaborate closely with GP employees to bring these crucial projects to fruition. Read on to see how together, we're committed to making a positive impact on our environment!



»»» COWLITZ INDIAN TRIBE

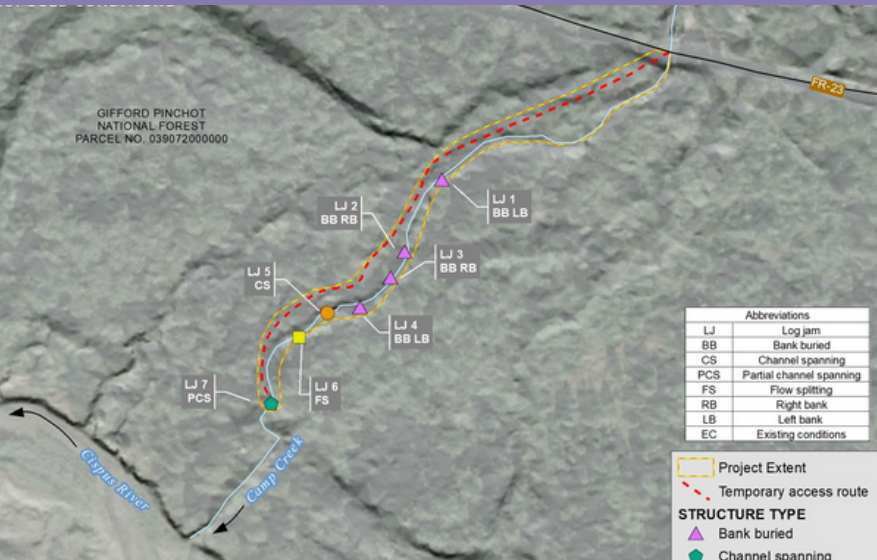
Collaboration and partnership are like the peanut butter and jelly of our mission to spruce up the watershed within the Gifford Pinchot National Forest. Watch us team up with The Cowlitz Indian Tribe to give a makeover to salmon and steelhead hangouts in the Cispus River and Yellowjacket Creek. Keep reading for the juicy details on this awesome tag team effort!



Spotlight: Camp Creek

Partner: Cascade Forest Conservancy

The U.S. Forest Service is dedicated to responsibly managing national forest system lands, while the Cascade Forest Conservancy (CFC) aims to protect and sustain forests, streams, wildlife, and communities in the Cascades through conservation, education, and advocacy. With over 10,000 members and supporters, CFC focuses on the Gifford Pinchot National Forest, collaborating regionally to enhance wildlife connectivity and conservation efforts. Their programs focus on habitat protection, restoration, and community engagement, contributing to numerous successful restoration projects over the years. The partnership between CFC and the Gifford Pinchot National Forest is integral to achieving shared goals of habitat restoration and climate resilience. Camp Creek, a tributary of the Cispus River, is a current focus area for restoration efforts. By strategically placing wood structures in the creek, microhabitats are created, peak flows are slowed, and water is diverted into floodplains, enhancing habitat for various organisms, including salmon. This instream restoration approach not only improves habitat quantity and quality but also addresses the impacts of climate change on aquatic systems. These cost-effective projects, funded through partnerships like the one between CFC and the Gifford Pinchot National Forest, yield immediate habitat benefits and set the stage for ongoing positive impacts on waterways. Securing funding from Tacoma Power's CRR initiative, CFC and the Gifford Pinchot National Forest are collaborating on the Camp Creek restoration project in 2024. CFC will oversee the project's contracting while USFS will lead the groundwork, exemplifying their commitment to environmental stewardship and collaboration. Together, they aim to make a lasting and positive impact on the environment.



Spotlight: Yellowjacket Creek/Cispus River

Partner: Cowlitz Indian Tribe

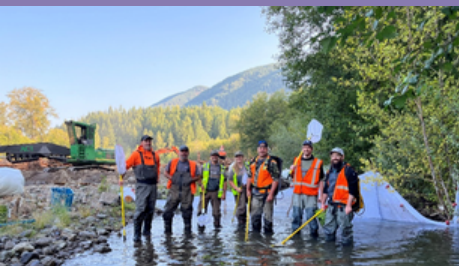
At the heart of our mission to enhance watershed function within the Gifford Pinchot National Forest lies a profound partnership with the Cowlitz Indian Tribe, spanning numerous significant projects. Over the years, the Tribe has been an invaluable collaborator in both fieldwork and natural resources policy, and now we are deeply engaged in on-the-ground restoration efforts together. One of our most significant joint endeavors is a landscape-scale restoration project in the Gifford Pinchot National Forest, stemming from our watershed restoration action plan. Specifically, the Cowlitz Tribe has played a pivotal role in advancing our Cispus River-Yellow Jacket Creek restoration, successfully completing three out of five planned phases. The Cowlitz Indian Tribe Habitat Restoration and Conservation Program has an unwavering commitment and expertise in advancing our shared goal of improving watershed function and improving habitat for culturally significant species on the Gifford Pinchot National Forest.

The Cowlitz are driven by their mission to protect, conserve, restore, and promote culturally relevant species and landscapes integral to their identity. In tandem with the Gifford Pinchot Aquatic staff, they are actively revitalizing Threatened coho, Chinook, and steelhead habitats in the critical tributaries of the Cowlitz River, namely the Cispus River and Yellowjacket Creek. The collaborative effort has shown exemplary leadership from the Cowlitz Tribe, focusing on a culturally, historically, and biologically significant area to the tribe. Their coordination and guidance with the Gifford Pinchot National Forest has significantly enhance project effectiveness, leading to the improvement of first foods and building watershed resilience.

We are working collaboratively to address both GP and Cowlitz priorities. The Cowlitz Tribe is overseeing contracts for design and implementation work, while the Gifford Pinchot National Forest manages environmental analysis, permitting aspects and restoration guidance. Their adept coordination has significantly enhanced the effectiveness of our multiphase project approach, infusing new life into multi mile stretch along both the Cispus River and Yellowjacket Creek and has added significant capacity to the Gifford Pinchot NF's ability to improve and restore aquatic habitat. Cowlitz staff were on site daily working with contractors to complete this work, which allowed the GP aquatic restoration staff to be able to focus on other Watershed Action Plan implementation work elsewhere on the Forest. Central to our collective efforts are intricately designed wood structures, securely embedded in the riverbed and rising above the water's surface. These engineered log jams mimic natural log complexes, creating habitat diversity and fostering the growth of desirable forested islands through native tree planting. The construction process is carefully planned to replicate natural evolution, resulting in slight shifts in the river channel, the resurgence of side channels, and the formation of pools for fish refuge. Cowlitz staff spent over 2000 hours working with contractors overseeing the installation of 12,000 trees with rootwads, building over 45 Engineered Log Jams and implemented project design criteria for a variety of resource areas including fisheries, wildlife, botany and recreation.

Our shared vision aims to provide exceptional spawning grounds, rearing habitats, and secure wintering spots while enhancing water storage, hyporheic exchange, and stream temperatures for fish. This transformative initiative not only fortifies resilience against climate change impacts but also ensures the resilience and durability of these structures against significant river discharge, with a gauged maximum of 28,000 cubic per second.

This monumental undertaking has been made possible through the generous support of organizations like the Tacoma Cowlitz Restoration and Recovery and the Salmon Recovery Funding Board. Furthermore, it is a testament to the steadfast dedication of the Cowlitz Indian Tribe in advocating for and collaborating with these organizations to receive funding. Together, we are charting an enhanced course towards a brighter, more sustainable future for our beloved rivers and their ecosystems within the Gifford Pinchot National Forest.





FUTURE FLOWS

COLLABORATIVE AQUATIC LANDSCAPE RESTORATION (CALR)

PRESERVING OUR WATERWAYS: THE FOREST SERVICE'S SPLASH-TACULAR COMMITMENT TO OUR NATURAL RESOURCES

The Forest Service has always been the ultimate aqua-manager, navigating an epic network of water resources that meander through the heart of our national forests and grasslands. We're talking about a whopping 400,000 miles of streams and approximately 3 million acres of lakes, all artfully sprinkled within the lush canvas of 193 million acres of our beloved landscapes. But hold on, these water bodies are not just like your run-of-the-mill swimming holes. They are water superheroes, quenching the thirst of millions of Americans and hosting exclusive house parties for native fish and an eclectic mix of aquatic celebs, including over 140 aquatic and amphibian A-listers or rather T&E listers, species on the Threatened and Endangered list.

PROJECT SPLASHDOWN: THE COLLABORATIVE LANDSCAPE RESTORATION PROGRAM

Now, here comes the fun part. Thanks to the Infrastructure Investments and Jobs Act, we've got some exciting news. The USFS launched the Collaborative Landscape Restoration Program. It's like a waterpark for projects that improve water quality and ensure a smooth ride for our fishy friends, both in federal and non-federal lands.

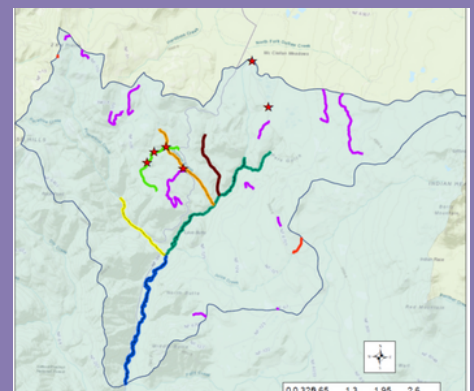
MAKING CALR WAVES ON THE GIFFORD PINCHOT NATIONAL FOREST

The Wind River has secured **\$5 million** in Collaborative Landscape Aquatic Restoration funding dedicated to aquatic restoration efforts. This financial support will be allocated to initiatives such as stream restoration, road hydrostabilization, and the removal of barriers that impede fish passage, to aquatic restoration efforts. This financial support will be allocated to initiatives such as stream restoration, road hydrostabilization, and the removal of barriers that impede fish passage.

➤➤➤ \$5,000,000 CALR

PLAN IN ACTION UPPER WIND RIVER AND DRY CREEK SUBWATERSHEDS

The Wind River Action Plan can now begin being implementation of essential projects. the Upper Wind River and its tributaries will now get a much-needed lift. Starting in 2024 design on Dry Creek and Restoration in Upper Wind River. The Gifford Pinchot Aquatics Team is ready to make waves, protect our waterways, and ensure a watery wonderland for both nature and us



Down by the River Word Search



Look for the words listed below.

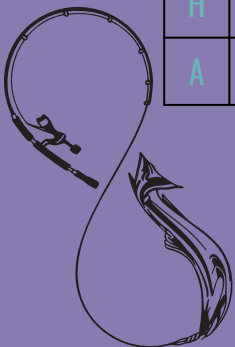
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H	O	K	T	K	I	A	N	A	D	R	O	M	O	U	S	Y	A	U	D
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Redd
Riparian
Lahar
Alluvial Fan

Laminar
Sediment
Ephemeral
Degradation

Regime
Bankfull
Floodplain
Large Wood

Barrier
Anadromous
Thalweg
Lotic



Down by the River Word Search Glossary

1 of 2

Alluvial Fan - An alluvial fan is a triangle-shaped deposit of gravel, sand, and even smaller pieces of sediment, such as silt. This sediment is called alluvium. Alluvial fans are usually created as flowing water interacts with mountains, hills, or the steep walls of canyons.

Anadromous - A fish or fish species that spends portions of its life cycle in both fresh and salt waters, entering fresh water from the sea to spawn and includes the anadromous forms of pacific trout and salmon.

Bankfull - The water level, or stage, at which a stream and river is at the top of its banks and any further rise would result in water moving into the floodplain. Bankfull Discharge: The dominant channel-forming flow resulting from a 1 – 2 year – 24-hour storm event. Storm Event: A 2 year – 24-hour storm is a storm that occurs on average every two years over a 24-hour period. This storm event is used to define the characteristics of a stream. Larger storm events are used when designing structures in and around streams.

Barrier - A barrier is anything that prevents or reduces the ability of aquatic species to move where needed to survive and complete their life cycle. This includes physical barriers, such as dams, culverts, and levees, and environmental barriers such as excess sediment, poor water quality, and temperature or flow variations.

Degradation - The health of an aquatic ecosystem is degraded when the ecosystem's ability to absorb a stress has been exceeded. A stress on an aquatic ecosystem can be a result of physical, chemical or biological alterations to the environment.

Ephemeral - An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round.

Floodplain - An area of low-lying ground adjacent to a river, formed mainly of river sediments and subject to flooding.

Lahar - A violent type of mudflow or debris flow composed of a slurry of pyroclastic material, rocky debris and water. The material flows down from a volcano, typically along a river valley. Mt St Helens Muddy River or Tuttle River

Laminar - Non-turbulent flow. Flow in which the volume of water moves downstream in a fashion similar to water in a smooth pipe, with the particles of water moving parallel to each other. Such conditions are ideal for measuring streamflow. Conditions approximating laminar flow are most commonly found just upstream of a pool tail crest or through a chute.

Large Wood - Live trees or downed wood that intercept bankfull flow in a substantial fashion and are large enough to influence the formation of habitats. For a tree or a downed piece of wood to count as large woody debris, either the root swell or the tree bole must engage bankfull flow; and the wood must be at least 12 inches in diameter at 25 ft. from the larger end of the tree for Westside streams; for Eastside streams wood must be at least 6 inches in diameter at 20 ft. from the larger end of the tree.

Lotic - Lotic. Of or relating to or living in actively moving water. Pertaining to running water, an example being a lotic (running water, streams Rivers) ecosystem.



Down by the River Word Search Glossary

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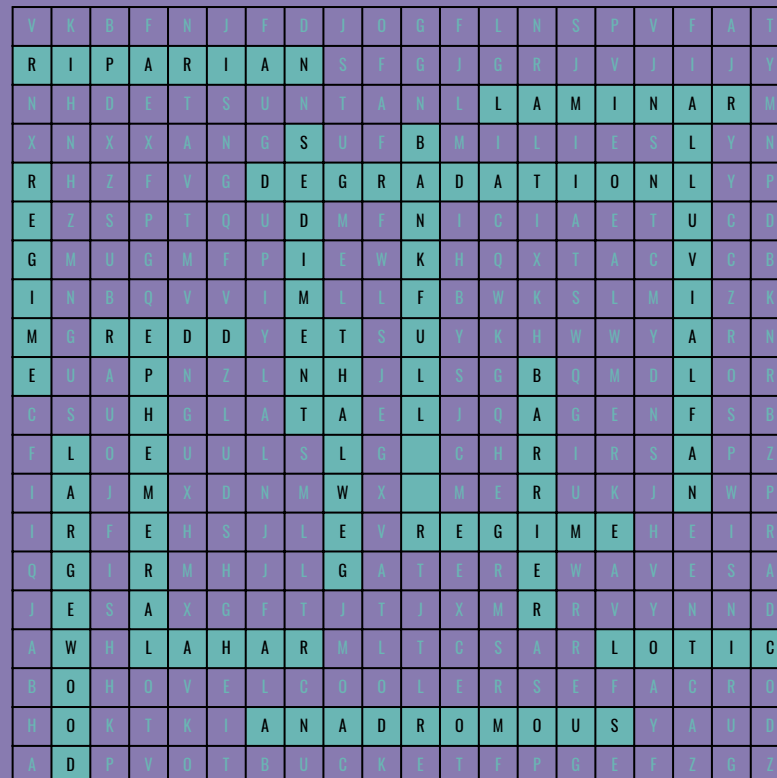
Sediment - Earthen materials better known as rock, sand, silt, and clay. In a healthy stream, the amount of sediment being picked up and moved downstream is equal to the amount being deposited in the stream. In unhealthy streams, this balance is lacking; either too much sediment is being deposited or too much erosion is occurring.

Redd - A spawning nest made by fish. The word “redd” comes from the Scottish dialect, meaning “to put in order, to tidy, or to clear.” Female salmon do exactly that to prepare a good place to put their eggs. When it comes time to spawn, female salmon will look for a spot with good gravel. “Good” gravel is free of mud and silt that can smother eggs and has the right sizes and shapes to incubate eggs and keep them safe, plus the right water speed to supply oxygen and keep eggs cool. Salmon will first dig a test pit with a few strokes of their tails, then slightly back over it. The theory is they are feeling the flow of water through the gravel with their fins because eggs need a good supply of clean, aerated water to develop properly. If the female likes the spot, they will dig further, excavating a deeper pit.

Regime - The river hydrology regime is a dynamic feature of its ecosystem that determines river materials and energy exchange. Alterations in the hydrological regime of rivers will directly affect the stability of ecosystems in the basin. The ecological integrity of river ecosystems depends on their natural dynamic character of their regimes.

Riparian - Relating to or living or located on the bank of a natural watercourse (such as a river) or sometimes of a lake or a tidewater.

Thalweg - In geography, hydrography, and fluvial geomorphology, a thalweg or talweg is the line or curve of lowest elevation within a valley or watercourse.





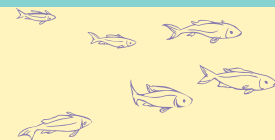
DEEP GRATITUDE: A RIPPLE OF THANKS FOR AQUATIC RESTORATION!!!

IN 2023, THE GP AQUATICS TEAM LOST VALUABLE MEMBERS WHOM, ACCOMPLISHED AN IMPRESSIVE AMOUNT OF MEANINGFUL AQUATIC AND RIPARIAN RESTORATION. WE APPRECIATE ALL THE WORK AND DEDICATION BOTH BROUGHT TO OUR PUBLIC LANDS.

A cascade of thanks to Greg Robertson for his unwavering dedication, commitment, and energy in working on many restoration projects on the Gifford Pinchot. Good luck at the USFWS!



Sending a tidal wave of gratitude crashing onto Ken Meyer's shores for his dedication in shaping the GP! Wishing you a retirement filled with endless joy and relaxation... and to great photography sessions in the Wild.





Fishy friends are essential partners in our mission to restore and rejuvenate our aquatic ecosystems. Together, we work tirelessly to turn turbid waters into pristine, intricate streams. Every project we embark on is a step toward revitalizing nature's masterpiece. Stay tuned for thrilling updates, and always remember that each project plays a vital role in the restoration process. Let's stay committed to reviving our rivers and ensuring they Flow Forward!! 