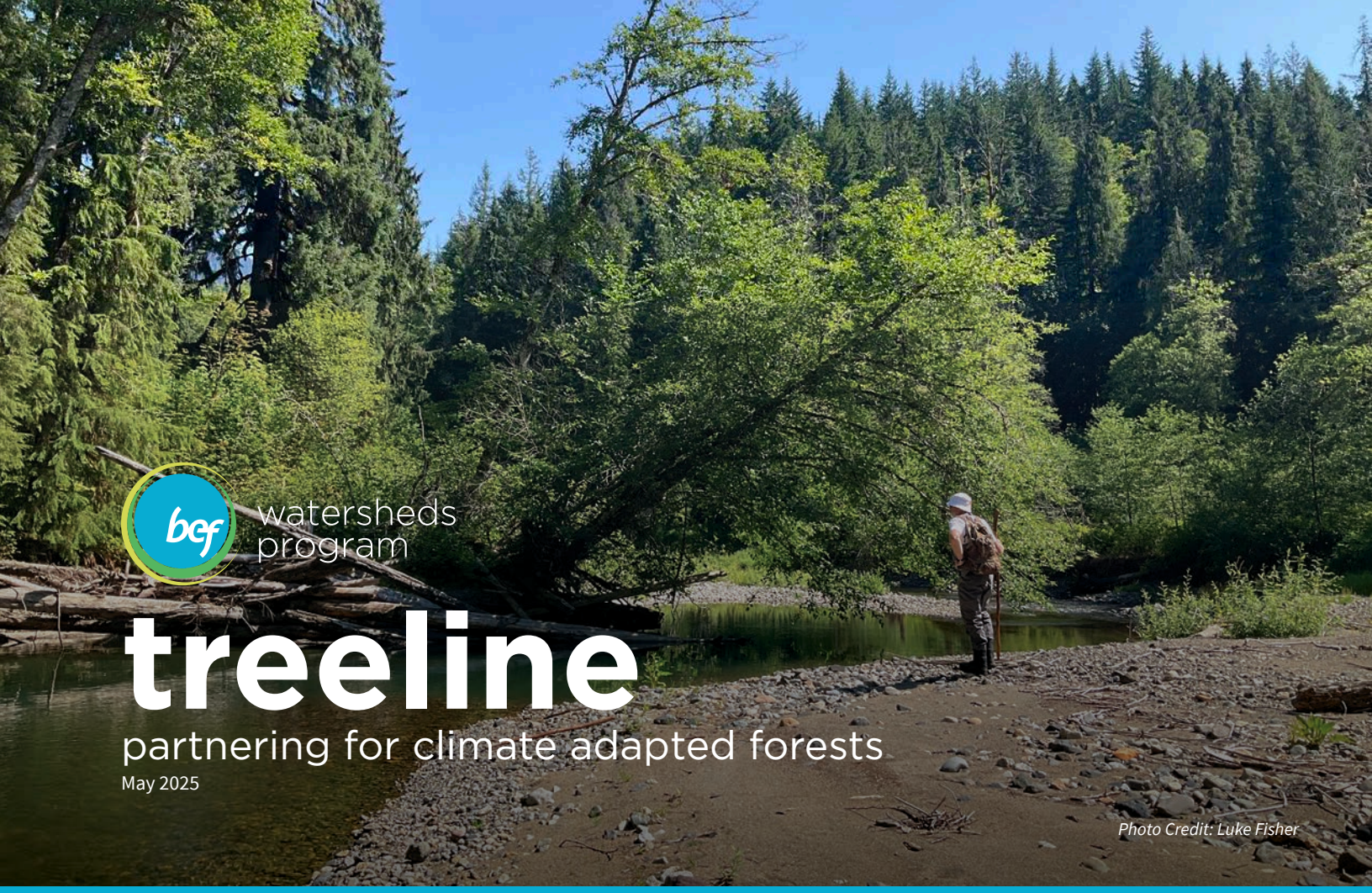


watersheds program

# treeline

## partnering for climate adapted forests

May 2025

*Photo Credit: Luke Fisher*

**treeline** is an information and storytelling hub for Pacific Northwest restoration practitioners, nursery partners and researchers who work for or represent Tribes, Indigenous groups, non-profits, agencies, landowners, businesses and more.

## The Emerging Programs Issue

This issue of treeline explores new and emerging programs that are bringing together coalitions of NGOs, agencies, universities, businesses and more to address stubborn issues and new challenges facing ecological restoration.

**Missed the last treeline Newsletter?** Click *here* to learn about how our partners are adapting to build a resilient workforce.

**Interested in submitting an article?** Reach out to *treeline@b-e-f.org*.

# Pilot Project: Washington State DNR's Large Wood Supply Initiative

**By Kayla Seaforth**

Rivers today look very different from how they did a century or more ago. While returning them to pre-settlement conditions is not feasible in most cases, many groups, often with Tribal leadership, are working hard to improve in-stream and riparian conditions to benefit salmon and other aquatic and terrestrial species. This work is complex and requires a lot of materials, including large logs and rootballs to foster high-quality salmon habitat, which can often be challenging to source, move, and store. Washington State's Department of Natural Resources is experimenting with a pilot project called the **Large Wood Supply Initiative** (LWSI) to meet this challenge and streamline wood procurement to benefit salmon, forests, and communities.

Prior to Euro-American contact in the Pacific Northwest, the landscape, and especially the river systems, looked vastly different than they do today. Influenced by factors like geomorphology, sediment, riparian vegetation communities, beaver engineering, and more, the rivers of this region were full of wood. The Puget Lowlands were a marshy network of sloughs and islands, with driftwood logjams throughout. Higher velocity streams would have had continuous inputs of wood from windthrow, bank erosion, fires, floods, and avalanches, resulting in massive logjams and channels only navigable to the wriggly bodies that can slip between messes of logs, or jump over them (Bureau of Reclamation, 2015).

Check out a recent story from the Seattle Times on the reintroduction of large wood to the Elwha River, work led by the Lower Elwha Klallam Tribe.

This complex and visually messy status quo was an impediment to logging low-elevation timber for early settlers. The disorganized pattern of waterways near their outlet to Puget Sound was

*Photo Credit: Kayla Seaforth*

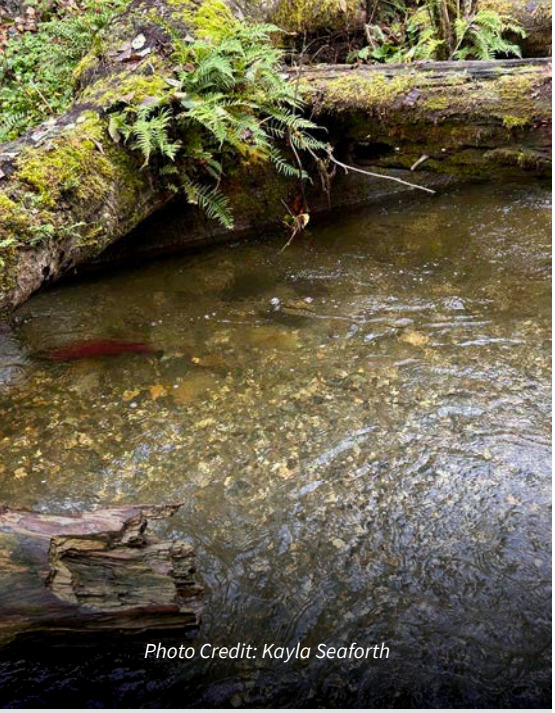


*Photo Credit: Kayla Seaforth*

### The Function of Wood Associated with Aquatic Fluvial Ecosystems

Adapted From **Large Wood National Manual**

- Shade
- Hydraulic influence raises local water elevations, scouring pools, creating low-velocity refugia
- Channel grade control
- Retention and storage of sediment and flotsam
- Retention of nutrients
- Side channel formation
- Increased floodplain connectivity
- Maintaining biological structure
- Maintaining channel and floodplain physical complexity
- Providing complex cover for aquatic organisms
- Increased hyporheic exchange
- Improved water quality
- Increased recharge and aquifer storage
- Habitat for fish and macroinvertebrates

incompatible with the vision of many early settler farmers. Later, when fish populations began to decline, it was also thought that the proliferation of wood in streams was a barrier to fish passage. All of these desires to use the waters and lands surrounding them led to massive clearing of wood from streams of all sizes, and, in many cases, the straightening, drainage, and extreme simplification of PNW waterways. This 1988 paper by the US Forest Service provides a more detailed picture of pre-contact stream conditions and the efforts to clear them.

While enormous log jams, braided channels, and complex networks of islands and bars posed challenges to those looking to shape the land for industry and settlement, the complexity is what made these rivers so valuable to salmon. While life history varies among species, all five species of Pacific Salmon utilize rivers and streams for spawning and juvenile rearing. Estuarine habitat is similarly vital for rearing, and is also affected negatively by a lack of large wood in the system. The presence of large wood in freshwater streams creates variation in stream velocity which is important for salmon at different stages in their journeys up or downstream. Pockets of slow water created by log jams provide rest stops for salmon where they are out of sight from predators. These areas can also create deep pools that can serve as cool water refugia for juvenile fish during the summer low flow period thanks to increased hyporheic exchange, which can moderate water temperature (Hester and Gooseff 2010).

Juvenile salmonids mostly eat plankton, insects, and invertebrates while in freshwater systems. Logjams act as hotspots for these critters because of the nutrient cycling and accumulation of organic material that they facilitate (Coe, et al. 2009).

Considering the benefits that complex, wood-rich systems once provided, it is unsurprising that the removal of wood in aquatic systems coincided with the rapid decline of salmon populations. Together with overfishing, other types of channel modifications, and diminished water quality due to runoff from surrounding land use practices, the period of wood removal has had lasting impacts on salmon.

Today, tribes, governments, scientists, businesses, nonprofits, and more are working on all fronts to reverse declining salmon numbers, often by improving the habitat that they rely on. In place of the large wood that used to define Pacific Northwest rivers, these groups are deploying strategically placed engineered structures made of wood and other materials. These projects seek to restore fluvial processes through the slowing of bank erosion, recruitment of new wood, and creation of in-channel complexity that benefits fish species and the webs of life they rely on. In-stream work around the region is occurring across watersheds, however many of the riparian forests adjacent to project sites are so degraded that they are unable to supply the large wood needed to improve habitat conditions.

Some upper watershed projects are conducive to local wood sourcing. Check out this interview we ran with Cris Salazar from the Calapooia Watershed Council on their approach, dubbed ‘tree-tipping.’

Instead of relying on natural processes to deliver wood into streams, project managers must track down tree trunks and root wads, and manage the often complex and expensive transportation, storage, and sorting of these materials. “There is no typical sourcing process for large wood,” shared Luke Fisher, Geomorphologist for the Tulalip Tribes’ Timber, Fish and Wildlife Department. “Smaller wood may be purchased, but the best course of action is typically to work with the project site landowner to get wood directly from the site. Otherwise, the logistics of moving the large trees that we need can be nearly

impossible to manage." As with many practices, this process can be done more efficiently at scale. This was the rationale behind the creation of the **Large Wood Supply Initiative** (LWSI) by the Washington State Department of Natural Resources (DNR).

As the state's largest manager of timber lands, DNR is well positioned to play a connective role between supplies of wood and stream restoration sites. The initiative is a part of DNR's Watershed Resilience Action Plan (WRAP), "a tree to sea plan for landscape scale restoration and salmon recovery" in the Snohomish Watershed, which drains into Puget Sound near the city of Everett. The LWSI has been in place for just over one year, and is currently working toward three goals:

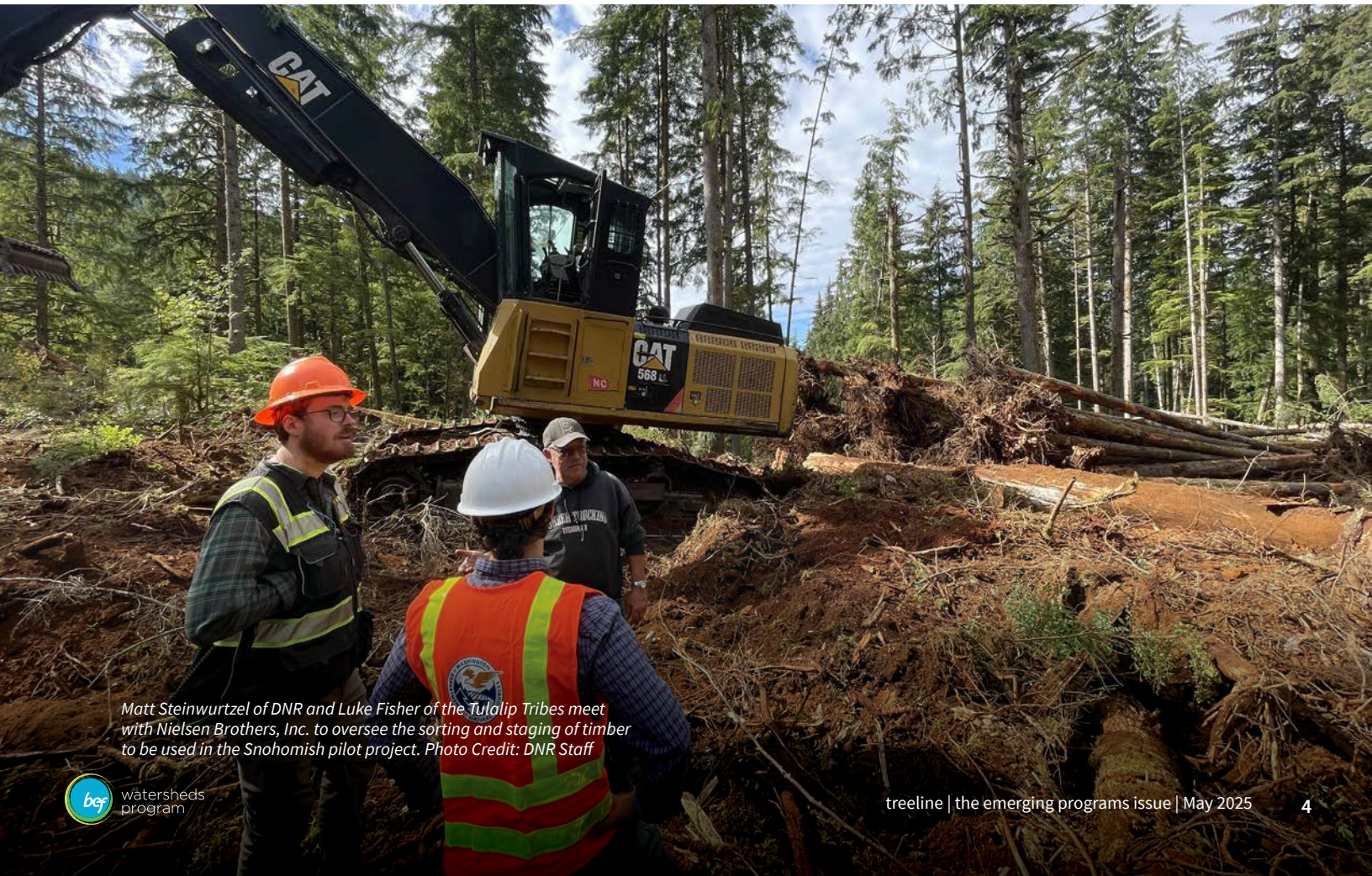
1. Implement a pilot project in the Snohomish Watershed in partnership with the Tulalip Tribes
2. Identify a sustainable mechanism for coordinated large wood distribution
3. Expand the program to operate statewide

In this early phase, the LWSI is funded by appropriations by the legislature, as well as funding from the National Fish and Wildlife Foundation's Killer Whale Research and Conservation Fund. They are testing their process through a pilot project to source wood for a stream restoration project led by the Tulalip Tribes on the upper Pilchuck River.

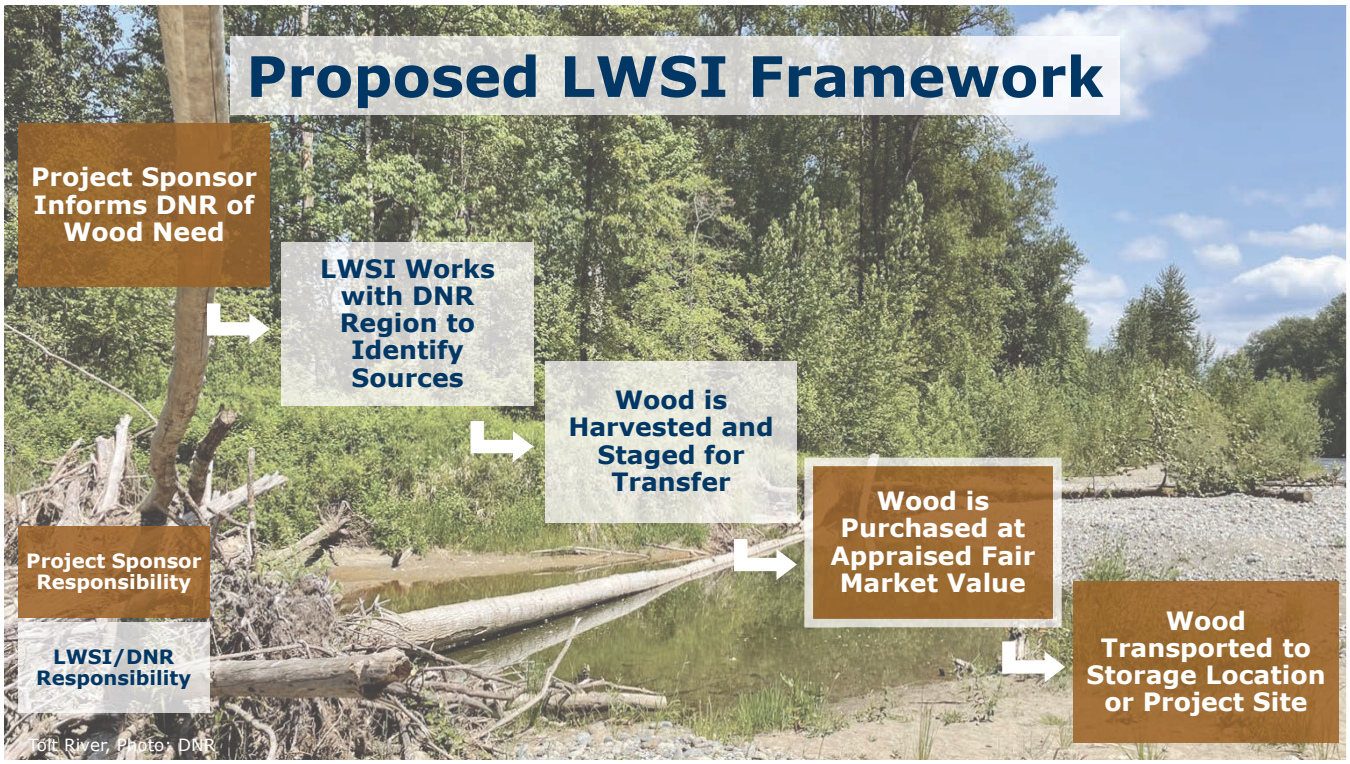
**Senate Bill 5157** put forward an initiative this legislative session to raise the cap on the value of materials sold for habitat restoration projects, which will reduce constraints concerning the volume of wood that the DNR can sell through the Large Wood Supply Initiative. The bill was signed into law by Governor Ferguson on April 22, and takes effect in July 2025. Learn more about the bill **here**.

This project seeks to restore river processes to benefit the seven species of anadromous fish that use this reach during various life stages (**SWIFD**). The reach of the Upper Pilchuck where the project will take place is mostly surrounded by forestland that, up until the 1950's and 1960's, was intensely harvested. The result was the removal of large trees from the riparian zone, floodplain disconnection, and overall simplification of the river (Luke Fisher, pers. comm.). A diversion dam was also constructed on this reach in 1912, which periodically blocked fish passage during low flow periods. The dam eventually fell into disuse and **was removed in 2020** by a coalition of partners including Tulalip Tribes, the City of Snohomish, and the National Oceanic and Atmospheric Administration (NOAA). The habitat above the former dam site is the target of the large wood installation project, also funded by NOAA.

After several years spent seeking funding, permitting, and design, the Tulalip Tribes will place approximately




*Matt Steinwurtzel of DNR and Luke Fisher of the Tulalip Tribes meet with Nielsen Brothers, Inc. to oversee the sorting and staging of timber to be used in the Snohomish pilot project. Photo Credit: DNR Staff*



Tolt River, Photo: DNR

300 pieces of wood in 20-40 log jams over eight river miles, with construction to begin in the summer of 2025. The logs will be large in both diameter and length, necessary because the project engineering staff have elected to avoid anchoring the logjams in place using traditional methods like pilings or cables. This will allow them to place the logs using a helicopter, and avoid bringing heavy machinery into the stream. Because the project design depends on the use of long, large trees, some of which will have rootballs attached, the procurement of wood was one of the trickiest elements for project managers to figure out.

The project is taking place on a reach of the river that is surrounded by DNR managed state forest lands. The Tulalip Tribes' Timber, Fish and Wildlife program, who has planned and will implement the project, has a long history of working with DNR to review forest practices permit applications, as well as on other projects. Luke Fisher cites this partnership as one of the main reasons why this project, the largest large wood installation his department will have executed, has worked so well through the design and permitting phases. "The fact that we're working primarily adjacent to publicly managed forest land has made this process so much easier," said Fisher. "We have a great relationship with the landowner, and that foundation made things much easier when things like permit related design tweaks come up," shared Fisher of his relationship with DNR staff.

According to Matt Steinwurtzel, who oversees the Large Wood Supply Initiative, the pilot project has come together with support from other DNR programs and a little bit of luck. During a storm last fall, a large number of trees blew over in DNR managed state lands, adjacent to the Pilchuck restoration site. State foresters let Matt know about the blowdown, and he set up a contract with a local, family-owned logging company to pull and sort the trees into appropriate size classes, and stage them nearby for installation during the fish window by the Tulalip Tribes and their implementation partners. Through the collaboration of agency staff from Product Sales, State Lands, and the Large Wood Supply Initiative's lead, DNR was able to identify this opportunity as a wood source for Tulalip's project. Had the LWSI initiative not been engaged, it's likely that the blowdown would have been treated as it is in any other working forest, and this opportunity would have been missed. That is the strength of this program: connecting key individuals and programs, and capitalizing on opportunities as they emerge.

Few entities in the stream restoration space are set up to have streamlined access to so much forestland, large equipment, relationships with the logging community, and a network of staff who are regularly out surveying and noting conditions on nearly 2 million acres of forestland. With these assets, DNR is well set up to fill this role which adds capacity to salmon recovery efforts and strengthens relationships in the forestry sector.

Much of the forests that DNR owns are managed as state trust lands. The trees on them are eventually harvested and sold, which funds Washington State schools, counties, and local services. DNR manages state-owned forests in trust for Washington State schools, counties and local services. The legal obligation to manage trust lands for

sustainable revenue generation is written into the state's constitution, so the agency is bound to manage these forests in a way that fulfills their trust responsibilities. Often that revenue is generated by harvesting and selling trees from state-owned forests. For this reason, trees procured by the Large Wood Supply Initiative are sold to implementing organizations at fair market rates. This keeps revenue coming back to state trust beneficiaries the same as if the logs were processed and sold as wood products, while building synergy with salmon restoration priorities. Materials costs are built into project budgets, often funded by state and local grants, so these costs are expected by project managers. The benefit of having DNR assist with wood procurement is the integration with other program areas, and reducing the amount of time project managers have to spend tracking down materials suited to their project design.

The pilot project with the Tulalip Tribes has demonstrated how these pieces can fit together to provide benefits for salmon, professional timber workers, and the state trust lands, and now program staff are hoping to expand their work to other watersheds in Puget Sound, with a goal eventually working with project implementers across Washington State.

## Works Cited


*Bureau of Reclamation and U.S. Army Corps of Engineers. 2015. National Large Wood Manual: Assessment, Planning, Design, and Maintenance of Large Wood in Fluvial Ecosystems: Restoring Process, Function, and Structure.*

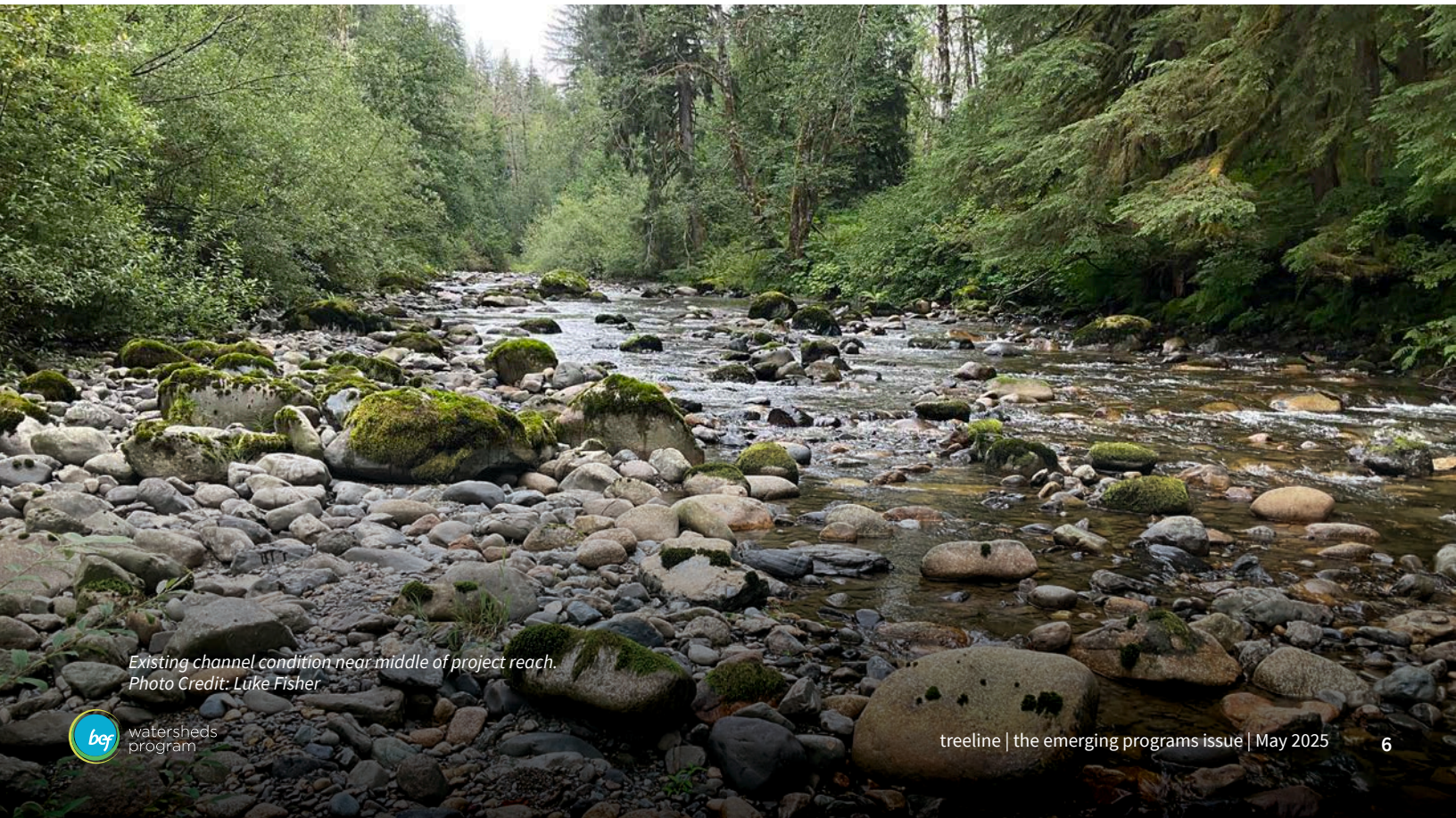
*Coe, H. J., P. M. Kiffney, G. R. Press, K. K. Kloehn, and M. L. McHenry. 2009. Periphyton and Invertebrate Response to Wood Placement in Large Pacific Coastal Rivers. River Research and Applications 25(8):1025–1035.*

*Hester ET, Gooseff MN. Moving beyond the banks: hyporheic restoration is fundamental to restoring ecological services and functions of streams. Environ Sci Technol. 2010 Mar 1;44(5):1521-5. doi: 10.1021/es902988n. PMID: 20131901.*

*C. Maser, R.F. Tarrant, J.M. Trappe, and J.F. Franklin. 1988. From the Forest to the sea: a story of fallen trees. General Technical Report PNW-GTR-229, USDA Forest Service, Pacific Northwest Research Station, Portland, Oregon.*



*Signage depicts the intended use of the sorted and staged timber for use in the pilot project, positioned in the background. Photo Credit: DNR Staff*



*Existing channel condition near middle of project reach. Photo Credit: Luke Fisher*

# PNW Beaver Network Launches to Build Regional Capacity for Beaver-Based Restoration

**By Jean-Paul Zagarola**

On April 11th, the PNW Beaver Network officially launched with a virtual convening hosted by the Bonneville Environmental Foundation (BEF). The event brought together university researchers and restoration practitioners from community based non-profits and Tribal departments across Oregon and Washington.

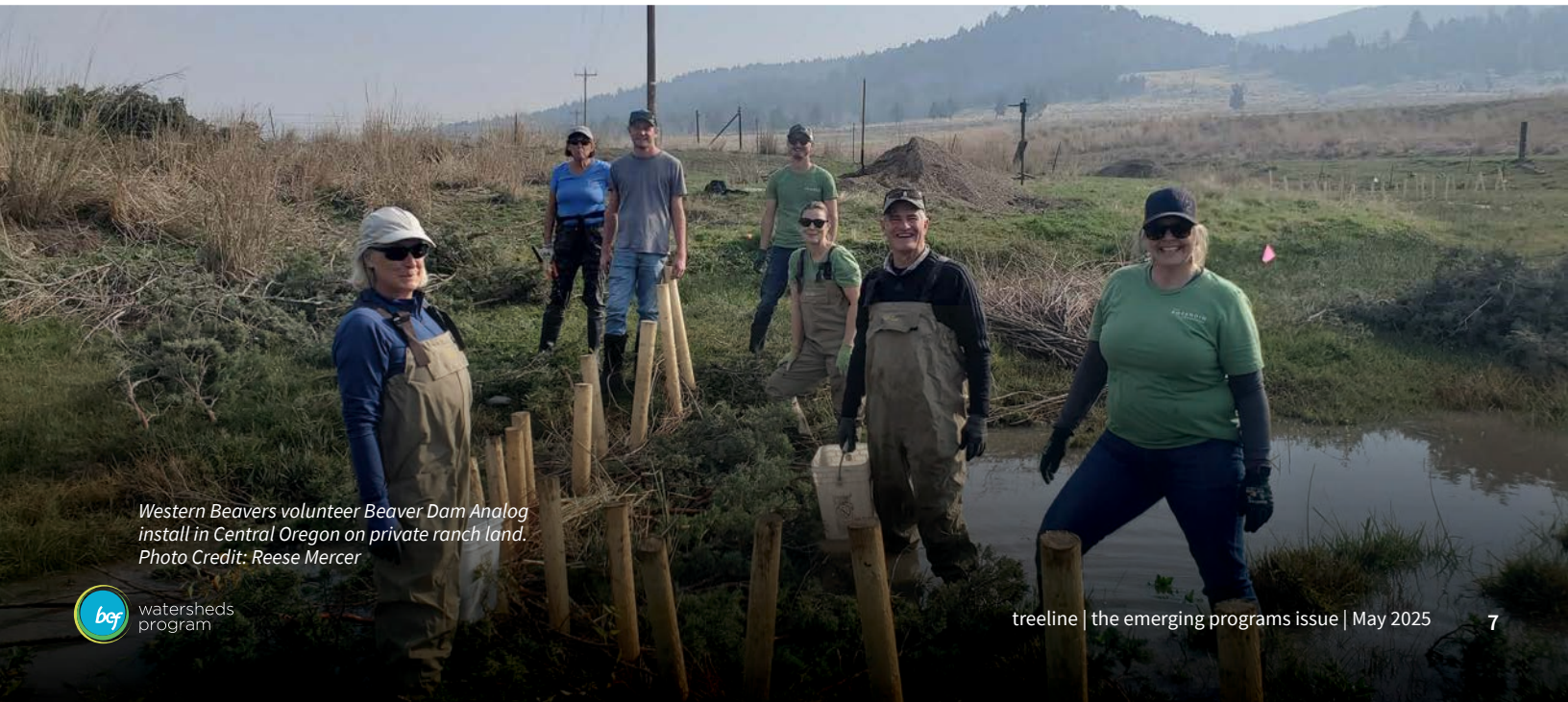
The Network aims to connect beaver-based restoration (BBR) and coexistence practitioners throughout the Pacific Northwest and provide greater access to tools and resources to build beaver programs and implement projects.

With funding from the Paul G. Allen Family Foundation, the Oregon Conservation and Recreation Fund, and other private donors, BEF is advancing several initiatives to expand community based BBR capacity across the region.

Key objectives include:

1. **Leveraging funding** to support BBR projects with willing landowners and land managers.
2. **Localizing a PNW Beaver Restoration Assessment Tool** (BRAT) for fine-scale planning and project prioritization by collaborating with Utah State University, community based non-profits, and Tribal departments on data collection and processing.
3. **Supporting research** led by Washington State University on greenhouse gas dynamics in beaver habitats and restoration sites.
4. **Creating a multi-state resource hub** to promote effective policies, facilitate access to planning data, and connect practitioners on key BBR topics.

These efforts build on more than five years of pilot projects initiated by BEF and local partners. Beginning in Oregon's Willamette Basin, BEF co-led a two year data collection effort with the **Mid-Willamette Beaver Partnership** to localize a Beaver Restoration Assessment Tool, commonly referred to as "the BRAT model" developed by Utah State's Riverscapes and Management Lab (RAM Lab). This community-based initiative engaged volunteers and created opportunities for Native American undergraduate students to gain hands-on experience and career skills in conservation and restoration through the **New Beginnings For Tribal Students Program** hosted at Oregon State University. By the end of the program, all of the participants commented on their newfound appreciation for the ingenuity these crafty rodents possess and their ability to generate a host of benefits for humans and wildlife alike.



*Western Beavers volunteer Beaver Dam Analog install in Central Oregon on private ranch land. Photo Credit: Reese Mercer*

**"I was surprised to learn that beavers could be a part of management strategies for ecological restoration and fire protection. Once we were trained and in the field I started to notice signs of beavers everywhere. These places were often lush and beautiful, and the dams themselves would create amazing alterations to the nearby floodplain. They proved to be ingenious creatures with the ability to adapt their dam building strategies to the available plant materials. I have a new appreciation for beavers which is wild because I already thought they were amazing. Go (real) beavers!"**

*- Corey de la Cruz, M.S. Student, Oregon State University Department of Biological & Ecological Engineering*

During this early phase, BEF also began collaborating with other diverse partners to identify barriers and opportunities for expanding beaver based restoration across the region. Through this work, a community of practice around beaver based restoration for the region, grounded in local but overlapping interests, began to take shape.

The benefits of beaver habitats are well researched and documented. Beaver engineered floodplains and wetlands **create biodiversity hotspots**. Studies have shown beaver managed wetlands can improve water quality better than human constructed wetlands (see **here** and **here** for examples). They **mitigate the impacts of climate change** through flood attenuation, by releasing stored groundwater during summer drought and by providing wet refuge, and in some cases fire breaks, during catastrophic fires. Unfortunately, beaver populations remain far below historic levels and the region's heavily altered stream systems have created conditions that make it challenging for beavers to build year-round dams ultimately limiting ponding and wetland opportunities.

Although the activities of the last century have been detrimental to beaver populations, there are good reasons to be optimistic about their recovery. Beavers are very adaptable and given the opportunity and a little assistance, they can get back to their dam building and canal carving ways. Beavers are on the rebound in many places. Enhancing stream conditions by addressing hydraulic and vegetation limitations can provide what beavers need to create and manage wetlands long-term. A lot of progress is already being made by some tribes and non-profits, however, it is fairly isolated to a few groups in a few specific areas. An analysis of state restoration databases reveals that from 2021 to 2023, only 16 out of 693 (2.3%) completed projects in Oregon and 5 of 538 (0.9%) projects in Washington contained any sort of beaver focus. Partnering with beavers at a scale necessary to help fend off the increasing impacts of climate change in the Pacific Northwest, requires improved accessibility to knowledge and resources and collective action in addressing shared barriers to implementing projects across the region.

The April 11th kickoff drew 35 partners including staff from two universities, five Tribes, and twelve local non-profits. Each partner shared their current beaver-related work and what excites them about joining the Network. BEF also introduced the newly launched **PNW Beaver Hub**. The online hub will act as a central platform offering:

- Access to localized BRAT data and other planning data
- Updates on beaver-related legislation via the Beaver Policy Tracker
- Information on BEF-supported BBR research and information on other critical topics identified by those who participate in the Network.

As the Network takes shape, BEF will be assembling a core team and work groups to guide website content, improve data collection, and collaborate on key focus areas to help build an accessible community of practice around beaver based restoration in the PNW. Sign up for updates at the **Beaver Hub** if you're interested in learning more about the PNW Beaver Network.

*Black Lake Beavers 2022.*
*Photo Credit: Methow - Okanogan Beaver Project*

watersheds program

*Beaver maintaining its lodge in the Tualatin Basin, Oregon. Photo Credit: John Comery (The Wetlands Conservancy volunteer)*

# Program Spotlight: Carbon Credit Regional Operator Pilot

**By Kayla Seaforth**

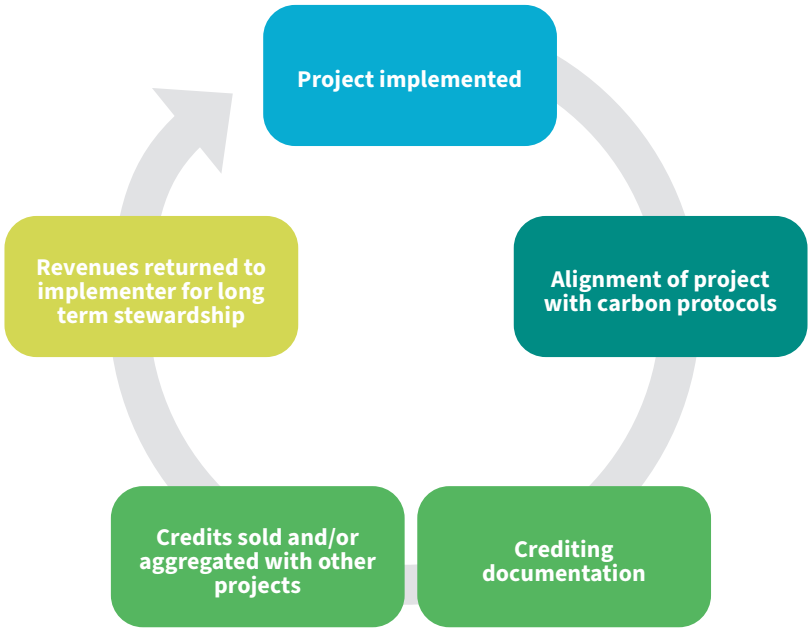
Each biennium, hundreds of millions of dollars are awarded to fund habitat restoration and protection in the Pacific Northwest. These are essential investments to move the needle on salmon recovery, biodiversity preservation, water quality improvement, carbon sequestration, wildlife habitat and more. While these dollars make a significant impact, they are typically short term in nature, and don't provide the means to steward newly restored or protected lands for the amount of time needed to ensure they are ecologically successful. Without complementary stewardship funding, these sites run the risk of being neglected, and failing to provide many of the benefits that they were originally restored or protected to provide.

Organizations are often forced to cobble together many small or limited funding sources to fund long-term stewardship, or forgo it altogether because available funding is too inconsistent to build a functional stewardship program. This paradigm is what led staff at Bonneville Environmental Foundation (BEF) to develop the recently launched Carbon Credit Regional Operator (CCRO) program. By quantifying and leveraging the carbon sequestered through restoration and preservation projects, this program seeks to build capacity for restoration project implementers so that they may leverage environmental markets to fill a funding gap for ongoing, long-term stewardship.

To help fill the long term stewardship funding gap, BEF has partnered with more than 20 groups, including tribes, conservation districts, local governments, fisheries enhancement groups, land trusts, and non-profits across Washington and Oregon. BEF provides technical assistance to verify carbon credits from these partners' new restoration and protection projects, and sell them on the Voluntary Carbon Market (VCM), creating revenues that fund long-term stewardship activities. In this model, partner organizations implement projects, and BEF connects them with carbon registries to translate their on-the-ground activities to verified carbon credits. BEF also provides technical assistance throughout the crediting process, so that implementation partners are not left to wade through the dense technical details associated with the various steps of the carbon crediting processes unsupported.

A variety of partners have been recruited to explore how the carbon crediting process can integrate best with their current programs. This pilot phase of the CCRO has a heavy emphasis on learning how this mechanism works best for each partner, and identifying where improvements can be made, or new solutions can be explored to address gaps and barriers that may hinder participation and access to carbon credit markets.

### CCRO Process



**"We had been working with one landowner for some time to find the right program that met his goals. One thing that was really important to him was to have continued support for the project. He is a retired individual who doesn't have the tools or skillset to take care of a 12 acre planting and for him this was a good model because it ties us [Skagit Conservation District] to the property for 26 years. He has a consistent organization to provide technical support, advice, and a pathway to make this viable in a longer term capacity."**

*- Emmett Wild, District Manager, Skagit Conservation District*

Work kicked off in late 2023 with an original cohort of 6 partners and funding from EPA's National Estuary Program (NEP) through a Habitat Strategic Initiative Lead (HSIL) grant. Over this first program year, BEF staff worked with project managers at Skagit Conservation District and South Puget Sound Salmon Enhancement Group and carbon registry staff from **City Forest Credits** (CFC) to determine which elements of each organization's recent planting projects would be eligible to receive credits under City Forest Credit's Afforestation and Reforestation Protocol. Both of these projects are considered "small" in the world of the VCM, offsetting just under 2,000 metric tons of carbon dioxide each over their 26 year project periods. While on their own they may not be a typical purchase for major carbon buyers, the high quality nature of the projects and the ability to aggregate sales with those that will be certified through this program in the next 2-5 years represent an opportunity for a significant investment by carbon buyers.

Beyond these first two projects, BEF is working with 18 additional partners to scope future carbon projects. Many of these will quantify the carbon benefits of restoration plantings, but some will also explore protocols related to forest preservation, improved forest management, and emerging practices like biochar and blue carbon. All of this work will be done in partnership with the implementing partner organizations in a manner that promotes shared learning and practice.

The projects implemented by Skagit Conservation District and South Puget

## Project Profiles

### SKAGIT CONSERVATION DISTRICT

13 acres
riparian planting across 2 sites

6,650
trees and shrubs planted

1,775
Carbon+ Credits generated

Learn more **here**

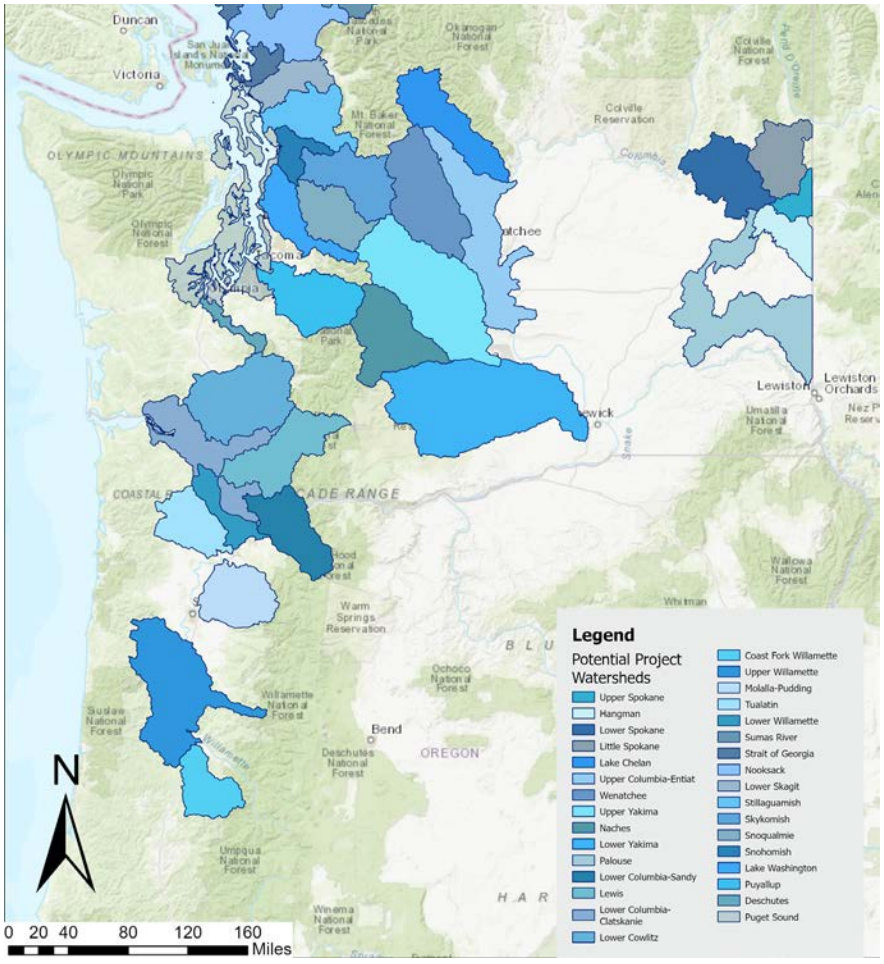
### SOUTH PUGET SOUND SALMON ENHANCEMENT GROUP

15 acres
riparian planting across 2 sites

9,300
trees and shrubs planted

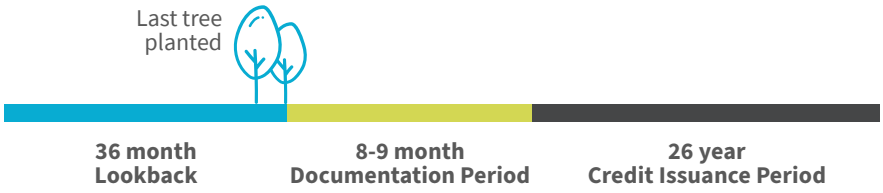
1,607
Carbon+ Credits generated

Learn more **here**




*The map above depicts the watersheds that various CCRO implementation partners are working to restore. We are working with partners across these geographies to understand where and how carbon credits can be effectively used to fund long term stewardship.*

## Planting Timeline




Sound Salmon Enhancement Group, along with the majority of projects in development are planting projects. The carbon and other benefits of these projects will be quantified using an afforestation and reforestation protocol, and will generate ex-ante (also called forward removal) carbon credits. These credits estimate carbon that will be stored over a 26 year project term, as defined by the CFC protocol, and credits are released to project operators at pre-scheduled intervals after they document that the project is progressing as modelled.

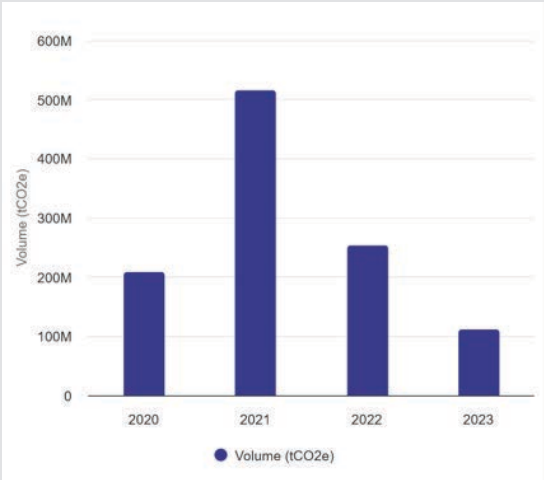
While this program will create another tool to support additional capacity for BEF's partners, it's no silver bullet. Part of the learning journey with our grant partners is also overcoming uncertainty in the carbon market itself. In recent years, the carbon market has been under significant pressure due to some high profile concerns about fraudulent projects and increased buyer due diligence. Fortunately, new integrity initiatives like the Integrity Council for the Voluntary Carbon Markets (ICVCM) **Core Carbon Principles** (CCP), **International Carbon Reduction and Offset Alliance** (ICROA), **BeZero**, **Calyx**, **Renoster** and **Sylvera** have all been developed to provide ratings and standards to ensure projects deliver the benefits they claim. This is a marked shift in the industry from where it began, and a move toward higher integrity credits across the board.

In the case of projects put forward by the Carbon Credit Regional Operator, these go through additional vetting, beyond what is covered during the carbon credit registration process. All of the CCRO partners bring forward projects that they've developed and implemented in accordance with broader habitat recovery strategies, which often require adherence to design standards that have been proven to work. The projects are working toward specific objectives like improved salmon habitat and enhanced biodiversity, which create real ecosystem benefits that also happen to be great at storing atmospheric carbon. The sale of carbon credits ensures that these project operators receive

## What's Going on With the VCM?

Once quantified and verified, carbon credits can be bought and sold by businesses or other groups on the voluntary market. Several regulatory-driven compliance markets also exist, however the voluntary markets are not regulated and tend to be more affordable. As more players have entered this market, and as buyers have become more sophisticated in their purchasing strategies, there have been fluctuations in market activity. Credit volumes peaked at around 500 million tonnes of CO2 equivalent (MtCO2e) in 2021, valued at over $200 billion, and since then have contracted, with just 111 million MtCO2e transacted, worth around $723 million in 2023. Experts cite several causes for this downturn, including media scrutiny of projects, and a response by all parts of the sector to promote higher quality credits across the board. In 2023, the Integrity Council published its **Core Carbon Principles**, a set of standards against which to measure new credits that promotes integrity. Now adopted as a minimum for measuring carbon credit quality, it took some time for CCP approval to be issued, which may be part of the reason for the market contraction in 2023. Buyers, enthusiastic about purchasing credits that had this backing, transacted fewer credits while waiting for various methodologies to receive this seal of approval. These and other ratings and standards bodies that have emerged recently all point to the maturation of the market and actions to ensure that it remains a tool for credible transition to decarbonization.

**Total Volume (tCO2e) by Year**



funding to maintain the sites well into the future, an element that is very difficult to fund in the system as it exists today.

In the first year of this program, BEF watersheds staff identified some key needs to provide a more robust support toolkit for partner organizations, and secured additional funding through a US Forest Service grant to develop these and work with 15 additional partners. Additionally, as this program grows, staff are exploring ways to embed it programmatically within restoration funding programs, first through a contract with the Department of Ecology to work with recipients of the Puget Sound Riparian Systems Lead grant.

Areas that will be further investigated and developed over the next several years include:

1. **Buyer outreach and development:** This body of work, already underway, will include developing a sales strategy and educating potential credit buyers on the unique nature of these credits. We hope these efforts will lead to a pool of buyers who understand and believe in the multi-faceted nature of partner projects.
2. **Development of landowner outreach materials:** Willing and educated landowners are key to this program's success, and as we develop tools to streamline the carbon crediting process, we will develop a package of landowner outreach materials to ensure landowners have the information they need to participate fully.
3. **Engage new registries:** Our early projects partner with a carbon registry that quantifies high quality credits in urban and peri-urban environments. While this is a good fit for many of our partners, others work in rural landscapes, and other methodologies will be needed to ensure equitable access to carbon financing. We will also be exploring other quantifiable project types that enhance the carbon storage across the region through nature-based solutions.
4. **Refining understanding of carbon storage of PNW ecosystems:** In coordination with City Forest Credits and a forest carbon expert, BEF will engage in study of the carbon storage potential of several ecosystems in the Pacific Northwest.
5. **Onboarding remote monitoring tools:** Projects require regular monitoring to make sure they are meeting their targets, and this may be streamlined through the use of remote monitoring tools. BEF will work with Upstream Tech to offer their Lens platform to partners as a tool to aid in project planning, quantification, and ongoing monitoring.

Combined, these initiatives will lead to a more flexible program that is available to more partners working in different PNW geographies and across several nature-based project types.

---

**If you are interested in learning more** about how this program might benefit your own organization's restoration efforts, or purchasing carbon credits, please reach out to Kayla Seaforth at **kseaforth@b-e-f.org**.

*Buck rub at a restoration planting site. Photo Credit: Kayla Seaforth*


## Funder Acknowledgement:

*This article and the work described are supported by the USDA Forest Service. The contents are those of the author(s) and do not necessarily represent the official views of, or an endorsement by, the Forest Service, U.S. Department of Agriculture, or the U.S. Government.*

*This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement 23-22470 through the Washington Department of Fish and Wildlife. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency or the Washington Department of Fish and Wildlife, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.*

# Practitioner Highlight

**Thomas Bulthius, Snohomish Conservation District**

*In this returning feature, we'll share brief reflections on notable projects, emerging issues, and new ideas taking shape among restoration practitioners. If you'd like to be featured, or want to shine a light on the work of your colleagues or partners, please reach out to* **treeline@b-e-f.org**.

## Thomas, what kind of riparian projects are you working on over the next year?

Over the next year, we're committing to process-based riparian restoration with emphasis on enhancing wetland habitats overtaken by invasive reed canarygrass. In three tributary systems, our team is installing small instream wood structures and implementing rapid revegetation efforts using fast-growing native plants. These plants not only outcompete invasive vegetation but also jumpstart the recovery of natural hydrologic functions and habitat-forming processes and improve habitat for native wildlife.

We are particularly excited about the integration of process-based restoration techniques. Inspired by beaver habitat and informed by drone and foot surveys, we're utilizing post-assisted log structures (PALS) to address the unique conditions of each project site. By considering factors such as drainage patterns, channel morphology, reed canarygrass root density, and seasonal water flow, we select locations for our installations that encourage beneficial changes to the floodplain. These interventions seek to coexist with beaver populations where beaver can become long-term drivers of floodplain process on each site.

Our designs promote floodplain reconnection, reduce channel incision, and increase sediment and gravel deposition—all of which are crucial for salmon spawning and rearing. Through consistent monitoring of the process response to our PALS installations we will be able to learn and contribute to detailed protocols and design considerations for process-based restoration techniques in Western Washington stream systems.

### Thomas Bulthius

*Habitat Restoration Program Lead at the Snohomish Conservation District*

Thomas is the Habitat Restoration Program Lead at the Snohomish Conservation District, where he brings over eight years of local experience. He holds a B.S. in Environmental Studies and a Master's in Environmental Resource Management. Throughout his career Thomas has focused on restoring and enhancing riparian ecosystems. He is passionate about bridging the needs of watersheds with the values of local communities, striving to create lasting watershed scale habitat improvement in Western Washington.

# Collaborative Grow

## By the Numbers

BEF's Collaborative Grow Program was established in 2011 to streamline native plant procurement for groups advancing reforestation and plant establishment as part of ecological restoration, soil and water conservation, and habitat initiatives in Oregon's Willamette Basin. The collaborative includes watershed councils, land trusts, Tribes, agencies and NGOs.

**From an initial order of 66,000 plants over a decade ago, this year the program distributed:**

**+435,000 plants in 2025**

Of nearly **50 different species**

Grown by **6 different nurseries**

to **15 tree planting partners**

**Please contact Kayla Seaforth at kseaforth@b-e-f.org if you are working in the Willamette Valley and coordinated plant procurement could benefit you! We are currently accepting orders for pick up in spring 2027 and have some plant availability for 2026.**

With limited staff capacity and significant demands placed upon groups, the program offers a means to leverage economies of scale to:

- Reduce staff time within individual organizations and nurseries directed towards plant ordering and distribution.
- Centralize quality control and plant specification development and adaptation (i.e. minimum and maximum size specifications, target root:shoot ratios, seed source ranges).
- Increase the diversity of species grown at scale by local nurseries (the Collaborative Grow program currently offers 52 tree and shrub species) by building a clear and more reliable demand.
- Provide access to plant stock with greater genetic diversity because partners receive plant stock from numerous nurseries.
- Soften the impact of species failures in a given year due to factors such as flooded nursery fields, seed issues, etc. by facilitating species substitutions, spreading the impact of shortages across groups and supporting partners in offering plants to each other.
- Support use of bare root planting stock to reduce plant, transportation and labor costs.
- Offer financial benefits to groups that often rely on reimbursement-style grant funding and for whom carrying large balances for 5-8 months in the form of plant deposits can be difficult or untenable.

*Photo Credit: Kayla Seaforth*

# News & Publications

### Land of the Menominee—Climate Comic Strips

The land of the Menominee is changing. The Menominee people reside within the territory that has been their home since time immemorial. But within this historic homeland, unprecedented transformations to the environment and its inhabitants are underway. These illustrations explore some of the impacts that Menominee people are experiencing as a result of climate change.

Learn **more**

### The Status of Tribes and Climate Change Volume 2 is now available.

This second volume of the STACC Report series builds off of the 2021 report by presenting updated information, sharing emerging topics, and emphasizing Indigenous-led initiatives.

Learn **more**

### King County foresters plant trees from the climates of tomorrow

**The Seattle Times**

### Is the planet losing one of its best ways to slow climate change?

**The Seattle Times**

### The possibilities of climate grief

**High Country News**

# Events & Opportunities

### Save the Date for Field and Flow

*June 9 & 10, Spokane, WA*

Save the date for Field and Flow, a two-day, in-person gathering for everyone working to restore and protect Washington's floodplains. This event is all about connection, collaboration, and moving forward together. Join Tribal staff, floodplain managers, community leaders, restoration experts, and the Washington Department of Ecology as we come together to share ideas, learn from each other, and build momentum for resilient watersheds—especially in Eastern Washington and the Upper Columbia River Basin.

RSVP **here**

bcf watersheds program

Do you have an idea for a future newsletter article or interview, or a suggestion for how we might improve? Please reach out to Kas Guillozet at **treeline@b-e-f.org**.

**This work is supported by Meyer Memorial Trust, an EPA Climate Resilient Riparian Systems Lead Grant (EPA-I-R10-PS-2023-001), supported by a subaward from the Washington Department of Ecology, the Building Nursery and Recovery Infrastructure for Climate and Fire Resilient Oregon Forests Project supported by a subaward from the USDA Forest Service and Sustainable Northwest.**