

Stream Team

FALL 2026

If I Were an Orca...

*An Exploration of Seasonal Eating
Patterns and Fragile Predator-Prey
Relationships*

Creating Wildlife Habitat at Home

EDUCATE • PROTECT • RESTORE
OLYMPIA • LACEY • TUMWATER • YELM • THURSTON COUNTY

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Did You Know? Articles marked with a damselfly icon, like the one on the left, will be posted on our website in the Reference Library.

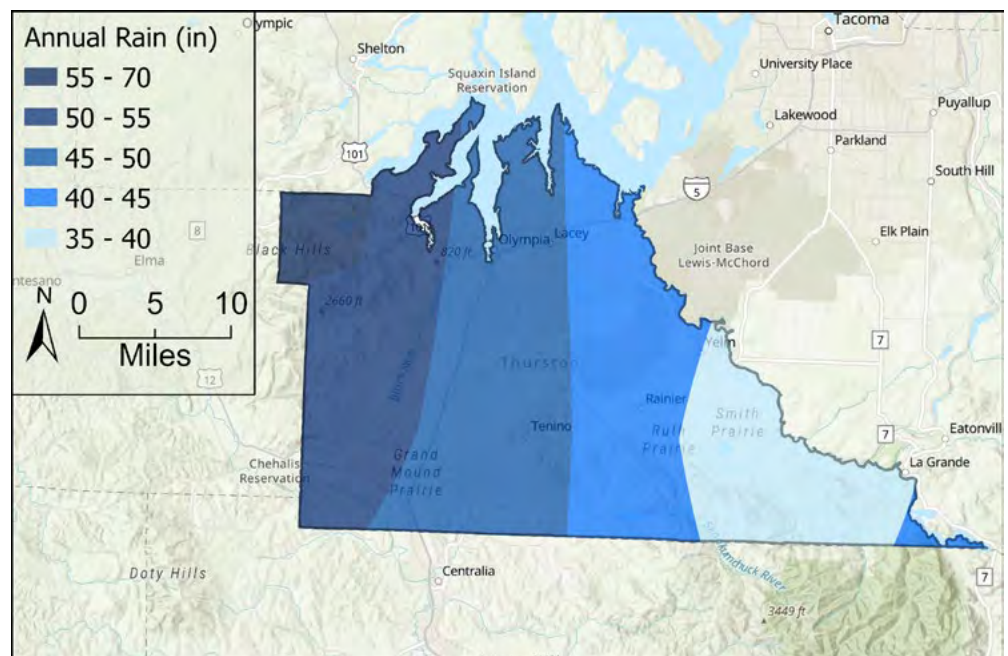
Weather Data and How to Use It

A farmer in Rochester struggles with extended dry conditions in August. Homeowners near the Chehalis and Nisqually rivers experience more flooding in December. A stretch of extreme heat in March—false spring? Your dog has fleas in January!? More rain here, less rain there—did you notice 2025 was hotter and drier than usual? We did, too!

It can be tempting to make sense of these experiences through our own observations. We may even draw sweeping conclusions about the state of the world based on what we see. To some extent, we all do this.

Are you seeing more severe flooding, drier warmer summers, more frequent 100-year storms? Less water pressure in your private well? Using high quality locally collected data coupled with our communities' stories of real-life experience helps us plan better. Whether you call it climate change, global warming, or wild weather - being specific about what that means to our own communities allows us to understand each other better, and is crucial to preparing for impacts.

Weather, especially rainfall conditions, is vastly different across Thurston County. For example, Summit Lake gets about 85 inches annually. South of Yelm gets around 35 inches of rain per year and is recognized as the driest area in the county.



Thurston County has been monitoring rainfall, temperature, streamflow, and groundwater levels for over 35 years and today operates over 100 weather monitoring stations! This data assists scientists in predicting floods, droughts, landslides, and water availability. It helps engineers size and design stormwater ponds appropriately. It is also used for modeling hard-to-reach places to predict how our streams, lakes, and water supplies might respond to proposed projects and policies. We use big, county-wide models to test these ideas—learning more about our water wells, streams, lakes, and deep aquifers!

We can all benefit from this data, be proactive with the trends, and be prepared for wild weather that affects our day-to-day safety, and in some circumstances, our livelihood.

Learn more at bit.ly/water-dash or give the Thurston County Water and Climate Planning team a call! Mark Biever, Water & Climate Planning Team, Program Manager, 360-867-2070.

Creating Wildlife Habitat at Home

Imagine sitting on your porch with a warm drink in hand. You hear children playing in the neighborhood park, and the faint, background hum of traffic. A sweet, citrusy scent drifts from the white flowers of a nearby mock orange shrub. You hear "chick-a-dee-dee-dee" coming from the shrub, followed by another "chick-a-dee-dee-dee" further away.

A bird rustles through leaves, looking for insects and seeds at the foot of the porch. Two Anna's hummingbirds dart past on their way to the fireweed blooming in the small wildflower patch you planted. Bumblebees, butterflies, and other pollinators move amongst the purple, yellow, orange, and white flowers. The "krek-ek" of a Pacific tree frog echoes from a potted Nootka rose and an American goldfinch splashes in the bird bath.

This wildlife habitat began with just a few native plants in containers and a bird bath. Over time, you added more native plants, a wildflower patch, and an eco-lawn.

Eco-Lawn: A low-maintenance lawn made with grasses and plants that naturally use less water, need less mowing, and require little to no fertilizer. It's a simple way to create a healthier yard while supporting the environment.

You laid some bark mulch and found your landscape was holding water more efficiently, helping you conserve water and save money over time. **Together, these provide the four elements of healthy habitat: food, water, shelter, and space.** Your habitat became a safe place for wildlife, inspired your neighbors, and gave you a peaceful place to enjoy. Since then, community members have created habitat on their apartment balconies, in their yards, and in front of local businesses.

These spaces have welcomed wildlife and benefited the community in ways you didn't expect. Native plants and reduced lawn areas slow and filter rainwater, improving water quality from neighborhood streets to the Salish Sea. It's shadier and feels cooler in the summer, while the traffic noise has been dampened by the added shrubs and trees. You've noticed people spending more time outside, yourself included. Your trail camera even picked up a Northern flying squirrel last night, and you didn't know Northern flying squirrels could live in urban areas!



Learn more & apply today:



wdfw.wa.gov



Creating Wildlife Habitat with Habitat at Home

Wildlife habitat can be created anywhere, from a balcony container garden to a yard or community space. Rather than traveling to find wildlife, we can create places for wildlife to thrive where we live, work, and play.

Habitat at Home is a Washington Department of Fish and Wildlife (WDFW) effort to encourage people to build wildlife habitat and connect with nature in their communities no matter the scale. Through online resources, webinars, and in-person workshops, Habitat at Home provides practical guidance to create, steward, and interact with wildlife habitat.

Certify Your Habitat

Habitat at Home also certifies habitats! Certified participants receive a free yard sign, habitat stewardship resources, wildlife identification materials, a native pollinator habitat starter kit, and WDFW swag. WDFW certifies established and beginner habitats. Apply online and join the Habitat at Home community today! bit.ly/wdfwhah

Habitat at Home Workshops

Stream Team hosts Habitat at Home workshops throughout Thurston County. Learn what a healthy local habitat looks like, evaluate conditions at your habitat's site, and leave with a personalized wildlife habitat plan.

Learn from local habitat experts, use our habitat design toolkits, and exchange ideas with other attendees. We look forward to seeing you at a workshop this fall and winter!*

* Thurston County-area Habitat at Home workshops are in-person. Check WDFW's event webpage for virtual Habitat at Home workshops this winter 2026.



If I Were an Orca...

An Exploration of Seasonal Eating Patterns and Fragile Predator-Prey Relationships

In our most recent publication, we presented an overview of *Orcinus orca*—musing at their fascinating nomenclature as well as curious biological order. It is the largest cetacean member of the oceanic dolphin family. We identified 10 unique groups, or “ecotypes.” We discussed the fundamental characteristics, behaviors, language systems, and diet that defines each group. For example, in identifying the Southern Resident Killer Whale (SRKW), the quickest physical characteristic to focus on is the shape and slant of their dorsal fin. Theirs is slightly forward leaning and extra rounded compared to other orcas. Tracking specific orcas by their unique saddle patch markings (designs like fingerprints) is also common. In this article, we'll explore the food sources that sustain Southern Resident killer whales and take a closer look at what makes their habitat unique.

Considering that a SRKW pod can travel up to 100 miles a day while hunting and socializing, it's no surprise that an adult orca needs to eat about 385–500 pounds of fish every day. That is equal to roughly 20-25 adult salmon, which is preferably met by their favorite meal: Chinook salmon (*Oncorhynchus tshawytscha*). Scientists believe that, as their favorite food source has become harder to find over the past several decades, orcas have been forced to eat a wider variety of food. Many of us hope they'll become a little more adventurous at mealtime. After all, they do not appear to have enough to eat as salmon specialists. Today, the population includes just 76 whales (including two new calves) in the J, K, and L pods. That creates a difficult challenge: these iconic, locally-cherished, endangered whales depend almost entirely on Chinook salmon—a fish that people also value and that is itself struggling.

For a long time, and to some extent still today, scientists knew surprisingly little about the specific diet of SRKWs. This has been particularly true during the late fall and winter months when they hunt along the Pacific coastal waters of Southern Alaska, Washington, Oregon, and Northern California. From 2004–2017 though, a team of scientists set out to collect SRKW feces and prey remains. They did this strategically throughout the known SRKW range between the months of May–October. This research revealed important seasonal forage data comprising the below SRKW diet overview.



If I were an Orca...

and the leader of my family pod (my mother) had been ripped away from me in the early stages of life, I'd feel so lost, probably forever. If pollution in my home waters was also increasing, I'd likely spend more time feeling sick as my body fought infection and disease. I'd also avoid some of the places that are important to my family and culture because they no longer feel safe. Inevitably as I eat, thousands of contaminants (like PCBs and DDT) carried into the Salish Sea via stormwater runoff concentrate in my blubber. I am becoming one of the most contaminated marine mammals on earth... and it hurts. Loud boats disrupting my ability to communicate, play, travel, and hunt have left me exhausted. A consistent lack of food has weakened me. I am hungry. Will my clan care for me as I grow vulnerable?

The assumption around the SRKW's more diverse winter diet is that it's driven by a lack of available Chinook stock, as they appear to forage for Chinook almost exclusively when possible. Studying the SRKW seasonal diet led researchers to suggest increasing the abundance of Chinook salmon throughout the SRKW's winter range as a possible conservation strategy.

Simple enough, right? Add more Chinook salmon stock to winter hunting grounds. Attempts to increase prey availability for a critically endangered predator is much more complex when we dig deeper.

First of all, the preferred prey is also at-risk (and highly sought after by both humans and other aquatic species). Most Chinook species along the Pacific coast are struggling or threatened. Samples of feces and prey remains collected from 2004–2017 included 14 unique Chinook stocks; however, four river systems made up 90% of the total. The samples were dominated by Columbia River Chinook (threatened, endangered).

Get ready for the next cluster. An additional factor is the co-managed dance of the three fisheries, where recreational, commercial, and ceremonial/subsistence fisheries are annually planned for by state, federal and Tribal fishery managers. This is all happening while vessel traffic and associated noise negatively impact this sonar-reliant species' ability to communicate, travel, and hunt. Stormwater pollution and bioaccumulation of toxic concentrations amplify up the food chain settling in their blubber. Habitat degradation throughout 3 major drainage basins—the Strait of Georgia, Strait of Juan de Fuca, and Puget Sound—flood their senses and increase barriers, harming critical ecological systems aquatic species depend on.

And lastly, we must remember that the Southern Resident Killer Whale clan is made up of highly intelligent, socially sophisticated matrilineal groups within matriarchal pods. Each pod is known to have its own dialect passed down generationally. They are a deeply connected community of mammals that have experienced catastrophic semi-recent events, likely still affecting their ability to adapt today. In the late 1960's and early 1970's, hunters herded and captured orcas at Penn Cove, off of Whidbey Island. 100+ were corralled, at least 5 were killed, and 10 were sold to marine parks around the world. These events, known as the "Penn Cove Roundups," were so traumatic, it took over 50 years for an orca pod to return to the area. It was the L pod that was seen visiting in November 2024, just one year after their pod member 'Tokitae', or 'Sk'aliChelt-tenaut' died after 50 years

Matriarchal = female led community

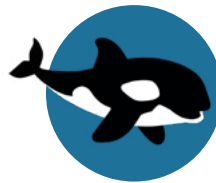
Matrilineal = passing down cultural, behavioral, social, and ecological memory from the oldest female

Matrilineal family groups, or sub-pods, make up each of the larger J, K, and L pods. The oldest female leads the pod.

Current SRKW Matriarchs

J pod matriarch

J16 "Slick"



K pod matriarch

K12 "Sequim"



L pod matriarch

L25 "Ocean Sun"



of captivity in the now closed, Miami Seaquarium. The extent to which SRKW pods were essentially dismantled after the Penn Cove round ups is still being understood today.

There are many accounts of orca sharing prey when food is scarce and helping individual pod or clan members when injured, sick, or in mourning. Although hungry, it is believed the SRKW don't actually die due to starvation, but from vulnerabilities associated with contaminants, disease, or vessel strike.

With a closer look, the challenges facing the Southern Residents and Pacific Chinook salmon should not be theirs to bear at all. This falls heavy on us. What have we been missing? Have some of the SRKW's recent headline-grabbing behaviors—namely what we have dubbed "Salmon Hats" and Tahlequah's heart-wrenching 17-day over 1,000 mile long "Tour of Grief"—been intentional spectacle? Are they reaching out for help? Can humans take a tip from the greatest collaborators on the planet and work together to restore systems we have thrown dramatically out of balance? Could we, bipedal mammals, cooperate effectively enough to navigate back to this place of connectedness, astonishment, and deep mutual respect?

At this critical phase of Orca Recovery, the Orca Task Force is in full swing with prioritized actions underway:

① Increase prey. ② Decrease disturbance from vessels. ③ Reduce contaminants in the Salish Sea.

For the first time ever, an organization called SeaDoc Society—composed of a bunch of self-proclaimed "orca dorks" (i.e., professional scientists)—has become federally permitted to perform field observation and diagnoses. In-field medical intervention is used when necessary. The team uses fine mesh nets to collect orca poop and flies drones equipped with petri dishes to collect orca breath samples. Following analysis, the SeaDocs may move forward with treatment, strategically delivering life-saving medicine directly to the Residents of the Salish Sea (both Southern and Biggs). This effort can be thought of as a stopgap, safeguarding one of this great earth's most precarious, cherished, and iconic whales (errrr... dolphins).

Meanwhile we imagine... How might we shift toward a society that prioritizes harmony with the natural world? How might that look? Tales of 100-pound toxic-free Chinook salmon running thick across wild rivers pop to mind.

Learn more about the Orca Task Force at bit.ly/orcatask.

Find out more about SeaDoc Society at seadocsociety.org.

Chinook in the Puget Sound: A Recovery Story

Salmon are iconic in the Pacific Northwest, representing so many different things to different people. For thousands of years, salmon have been a staple food source for Indigenous peoples.

“Salmon is called a ‘first food,’... eating it is a sacred act for many Northwest Tribes,” said Willie Frank III, son of the late Billy Frank Jr. He noted that the Nisqually people used to fish seven months of the year. Now, that has dwindled to about seven days.*

Beyond their cultural significance, salmon are a vital food source for wildlife, like bears, birds, and marine mammals. They also support a significant commercial and recreational fishery, generating an estimated \$2.7 billion annually in Washington, according to the Governor’s Salmon Recovery Office. Salmon also play an important role in healthy ecosystems. After spawning, their bodies decompose in streams, returning ocean nutrients to the land and feeding more than 100 species, including trees, birds, and insects. They also serve as important indicators of water quality and changing ocean conditions.

The genus *Oncorhynchus* includes many of the Pacific Northwest’s best-known salmon and trout. Each species has a unique life history, and some have adapted better than others to habitat loss, dams, pollution, and other human impacts. Perhaps the most notable of our Pacific salmonids is *Oncorhynchus tshawytscha* (pronounced on-koh-RING-kus cha-WEET-cha), or Chinook salmon. Commonly called King salmon, Chinook live up to their name in how highly they are valued by both people and wildlife. Yet, they are also the species facing the greatest threat to survival across Washington and much of the Pacific coast.

Independent populations of Puget Sound Chinook are listed as threatened under the Endangered Species Act (ESA). Five factors determine if a species should be listed under ESA: 1) lost or degraded habitat, 2) overfishing, 3) disease or predation, 4) lack of existing regulations to protect a species, and 5) other manmade factors that affect its existence. Visit [Endangered Species Act](#) to learn more about how species are listed and protected by visiting bit.ly/endangeredNOAA.

Puget Sound Chinook include 22 distinct populations that live east of the Elwha River, including Hood Canal, South Sound, North Sound, and the Strait of Georgia. Because salmon almost always return to the stream where they were born, populations develop unique characteristics over time. As a result, even small changes to habitat or environment can put individual populations at risk. Since 1999, when Puget Sound Chinook were listed as threatened, evidence has consistently pointed to habitat degradation and overharvesting as the main drivers of their decline.



Map Source: Puget Sound Partnership - Puget Sound Salmon Recovery

Following the listing, stakeholders across the state developed a shared strategy to restore salmon populations. This effort brought together Puget Sound Treaty Tribes, state and local governments, industry groups, nonprofit conservation organizations, National Oceanic and Atmospheric Administration (NOAA), and US Fish and Wildlife Service (USFWS) to create the Puget Sound Salmon Recovery Plan. This established a comprehensive recovery strategy for salmon populations across 14 distinct Puget Sound watersheds. Although the plan focused on Chinook recovery, it was designed with the whole ecosystem in mind.

The plan also established the Puget Sound Technical Recovery Team (PSTRT), a group of biologists from federal, state, Tribal, and local organizations. The PSTRT identified the protection of existing and functioning habitat as the most critical action in the plan. This meant that land use, water quality, and nearshore and estuary protection were prioritized. As estuaries serve as a nursery for many Puget Sound wildlife, they are key in revitalizing Puget Sound Chinook populations.

A compelling example of the Recovery Plan in action is the Nisqually estuary restoration at the Billy Frank Jr. Nisqually National Wildlife Refuge. This site, diked for agriculture in the 1800s, has restored 360 hectares of historic floodplain and delta. The restoration provides salt marsh habitat, tidal flow, and side channels that benefit fish, birds, and wildlife alike.

Since the initial federal listings, harvest has not been a primary limiting factor in salmon recovery. Today, more than 80% of salmon caught come from hatcheries. Under the Recovery Plan, hatchery management includes tools to limit adverse impacts to threatened salmon populations. Hatcheries may increase or decrease the number of hatchery fish released into certain waters to maintain genetic diversity. For example, the Chinook hatchery at Tumwater Falls uses stock that did not originate from the Deschutes River. Chinook that return to the falls are harvested for their milt and eggs to produce the next generation of fish. This is done to increase fish available to commercial and recreational fishers.

Additional support for the Recovery Plan comes from the Governor's Salmon Recovery Office, part of the Washington State Recreation and Conservation Office (RCO). The RCO funds projects statewide to remove fish passage barriers, conserve floodplains and shoreline, integrate pollutant reduction into road and infrastructure projects, and improve water quality through stormwater management. Likewise, the Puget Sound Partnership, created by the Legislature in 2007, coordinates stakeholders around ecosystem recovery in Puget Sound. These statewide bodies help ensure that funds are directed to timely, high-priority projects based on the best available science. Recent examples include fish passage barrier removal projects on Highways 101 and 8—projects that many drivers in western Washington have noticed underway.

Much work has been done, and much more lies ahead to support the recovery of Chinook salmon. With climate change, ongoing development, and emerging science around pollutants like 6PPD-q, the management of Chinook recovery in Puget Sound will continue to adapt. As people who live alongside the waters these salmon call home, we can all contribute. Simple everyday actions like bagging and properly disposing of pet waste, never dumping anything down a storm drain, or joining a riparian restoration project can make a meaningful difference. Let's all do our part; our Chinook salmon and Southern Resident Killer Whales need us!

** Quote taken from interview with Northwest Public Broadcasting.*



The First Flush

Pacific Northwest summers are hard to beat. Long, warm days and access to beautiful water bodies make this region a great place to spend time outdoors. During summer, our typically wet region experiences long periods of dry weather. Although this can be a welcome break from dark skies and rainy days, it can also create problems, and we aren't talking about wildfires (although this is also true).

Pollution Pileup

During dry spells, our roads, parking lots, and other hard surfaces build up large amounts of sediment, heavy metals, oils, pesticides, fertilizers, and other pollutants. The first significant rain of the fall season refreshes dry landscapes, but it also washes a summer's worth of pollutants into nearby streams and water bodies. This potential tidal wave of pollutants is referred to as "the first flush."

First Flush Impacts

The first flush causes slick roads when oil gets lifted from the pavement. When it reaches water, the first flush harms wildlife, especially salmon, which return to their home streams each fall to spawn just as the season's first polluted runoff enters local waterways. Exposure to polluted stormwater runoff harms adult and juvenile salmon. Chemical preservatives in tire particles (6PPD-q) have also been linked to pre-spawn death in adult Coho salmon.

Preparing for the First Flush

We can all make a difference in minimizing the impact of the first flush. Here's what you can do:

- Limit your vehicle trips by biking, walking, using public transit, or carpooling.
- Keep your tires properly inflated. Inflated tires don't break down as fast and limit the amount of toxic chemicals that come from rubber tire dust.
- Check for and fix vehicle leaks. Immediately clean up any leaks or spills.
- Sweep your driveway and sidewalks, and dispose of the sediment in the garbage.
- Pick up and put your pet's waste in the garbage every time.
- Consider building a rain garden or adding some well-placed native plants and mulch to soak up and filter stormwater.

This fall, keep an eye on the forecast, and before you pull out your rain jacket, get ready to do your part in reducing the effects of the first flush.

Looking for a stormwater training for cozy fall and winter nights? Go-at-your-own-pace and learn about stormwater runoff, a variety of best practices for system inspections and maintenance, and how to stay in compliance with local code: tinyurl.com/stormwateredu.

Stream Team Highlights

Connecting the Past to the Future through Hands-on Science

Hands-on science has always been central to Stream Team's mission: "to protect and enhance the water resources and associated habitats and wildlife in Thurston County through community action and education." We do that by connecting people to the remarkable ecosystems of the Puget Lowland bioregion and water that links us across the landscape and through time.

Let's zoom out. The plants and animals of our moderate, maritime climate depend on a landscape formed by the Cordilleran Ice Sheet, a mass of ice nearly 1.5 miles thick that retreated around 15,000 years ago. It left behind the mountains, lakes, streams, valleys, rivers, and inland seas that have shaped our geography and regional identity.

That ancient landscape still influences our lives today—how we travel, eat, spend our free time, build our communities, and work.

Since then, other transformative moments like agriculture, the Industrial Revolution, and the modern technological age have reshaped human society. Yet through it all, one thing has remained constant: water continues to define who we are as people of the Pacific Northwest.

Since the mid-1990s, Stream Team's programs have helped people connect with our region's ecology by introducing them to the plants and animals that share our shorelines and water bodies. These species are part of what makes this place unique. When people understand those connections, they're more likely to protect and celebrate them.

We'll be highlighting these programs in upcoming issues, but let's start with our longest-running one: Stream Bug Monitoring!



Stream Bug Monitoring

Stream bugs are fascinating creatures and essential to healthy streams. They recycle nutrients by breaking down bark and leaves, and scraping algae and diatoms from exposed rock surfaces. They are the primary food source for fish throughout their lives.

Stream bugs are also excellent biological indicators of stream health, which means we can tell how healthy a stream is by the presence and abundance of these bugs. Shade, plenty of oxygen, and a healthy substrate free of sediment (i.e., clean, clear, and cold water) are important ingredients for stream bugs.

One of the joys of stream bug monitoring is seeing these tiny creatures up close! Watching a caddisfly poke its antennae out from its pebble house is a memorable experience. Scraping black fly larvae from slippery rocks? Maybe a little less glamorous. But together, these insects tell the story of what's happening beneath the surface.

For more than 30 years, Stream Team staff and volunteers have monitored the health of 19 streams in Thurston County. We've headed to stream riffles in our gators, placing Surber samplers on the stream bottom, gently disturbing the streambed life (benthos) so the bugs drift into the nets for collection. This process is repeated seven times at each site to obtain a composite sample across multiple riffles. We've measured water depth, stream width, and stream section length, sifted woody debris to isolate the bugs, and peered through magnifying

glasses to identify them. Then comes one of the best parts: marveling at the specimens we find and calling out, "Mayfly! Stonefly!" before preserving them for lab analysis.

Our sampling results are published at Puget Sound Benthos: [PugetSoundStreamBenthos.org](https://www.pugetsoundbenthos.org). This regional website serves as an important tool for scientists tracking changes in stream health over time as habitat degradation, pollution, and population growth place increasing pressure on our waterways.

Stream Team paused Stream Bug Monitoring with volunteers this year while we refresh the program. We're updating volunteer training, aligning our sampling methods with regional standards, and making the data more accessible and useful for the public, policymakers, and planners. We're also finding new ways to share the story of these remarkable aquatic insects—and what they reveal about the health of our streams—with you all!

Did you know? Your stormwater utility fees help make Stream Team programs possible. As part of Washington's stormwater requirements, communities invest in education and outreach that protect local waterways from pollution. Check out our annual report to see how those dollars are put to work!

Check out our 2025 annual report: bit.ly/ST2025report

Growing Together: Welcoming Yelm to Stream Team

The Stream Team community is growing, and we're thrilled to welcome the City of Yelm as our newest partner!

For years, Stream Team has connected people across Thurston County through environmental education, volunteer opportunities, and hands-on stewardship projects. As a collaboration between the cities of Olympia, Lacey, Tumwater, and Thurston County, Stream Team has helped protect the waterways, habitats, and natural spaces we all depend on. Now Yelm is joining this effort, bringing fresh perspectives, energy, and opportunities to the Stream Team mission.

"Yelm serves as a gateway between urban and rural Thurston County," says Stream Team Coordinator, Aris McClelland. "I'm excited to bring Yelm residents into regional conversations about protecting our watersheds and share the community values that maintain strong connections to open spaces, forests, wetlands, and working lands."

For Aris, that sense of shared responsibility is at the heart of the program. From protecting groundwater and local wildlife habitat to helping people better understand stormwater runoff and water quality, the partnership opens the door to new conversations, collaborations, and community connections. One of the things that makes Stream Team special is its belief that everyone has a role to play.

"Whether someone volunteers at a restoration event, participates in educational workshops, or simply adopts water-wise practices at home, every action contributes to healthier waterways and stronger communities," he says.

Most of all, Aris hopes the people of Yelm feel inspired to get involved in caring for the lakes and streams that make Yelm such a special place to live.

"My hope is that Stream Team helps create lasting connections between people and the environment while inspiring the next generation of local stewards," he says.

"We're excited to see what this next chapter brings. Together, we're taking actions for cleaner water today and for future generations."



Photo Credit: Michele Burton Photographer



Meet Aris McClelland

Aris McClelland serves as a Construction Inspector for the City of Yelm, but he wears many hats, now including coordinating the City's Stream Team Program!

He is passionate about helping people understand the impact of everyday actions on local waterways and natural resources, and enjoys connecting people with practical ways to make a difference in their communities. Outside of work, he spends his time exploring local parks and trails, learning about local history, and appreciating the unique landscapes of the Pacific Northwest.

As Yelm's Stream Team Coordinator, Aris is excited to help build connections between the Yelm community and the many clean water education and stewardship opportunities available throughout the region. Additionally, he helps oversee public infrastructure projects and supports environmental compliance efforts. Aris' work connects community growth, infrastructure, and environmental stewardship!

Introducing the Learning Library

Over the last year, we have meticulously combed through roughly 200 articles held in the Stream Team Resource Library. We have been updating, consolidating, redesigning, and removing articles one by one. It has been a long and tedious process, but we are excited to announce our new Learning Library, with refreshed articles, new categories, and better accessibility!

When the Learning Library launches on our website in late 2026, it will work like a curated archive of the best articles from Stream Team Newsletters—articles going back almost 15 years! The updated library will offer seven categories: Transportation, Home Stewardship, Yard Care, Habitat, Climate, Wildlife, and our newest addition—Pollution.

We launched this project after realizing the existing Resource Library was confusing and difficult to navigate. We reviewed and edited every article in the library, and switched our articles from PDFs to webpages to accommodate screen readers. This may sound like a small change, but it makes a big difference. If you would rather have your computer read Stream Team articles aloud, now it can.

Visit streamteam.info for more info—find the Learning Library underneath "Water-Friendly Habits" in our site's navigation!

Help Sally Salmon Find Her Way





Events

Interested in getting involved with Stream Team? We offer regular opportunities for people looking to volunteer, participate in activities, or learn online! This fall there's a lot to look forward to, including:

- **Habitat at Home workshops—Year-round; check schedule for a workshop near you.**
 - ▶ Saturday, October 10, Lacey Timberland Library
 - ▶ Saturday, December 12, LOTT Treatment Plant (Olympia)
- **Second Saturday Restoration in Tumwater.**
- **Woodland Creek Riparian Restoration—Saturday, September 5.**
- **McLane Creek Trail Maintenance—Friday, September 18.**
- **Festival del Salmón: Cataratas de Tumwater—entrada por el Parque Brewery, 19 de septiembre**
- **Salmon Stewards Training: Part 1—Online year round.**
- **McLane Creek Salmon Stewards Field Training—Saturday, October 17.**
- **Salmon & Cider at McLane Creek Nature Trail—Sunday, November 8.**
- **Community Events—Come see us at:**
 - ▶ Nisqually Watershed Festival—September 26
 - ▶ Tumwater Falls Festival—September 26
 - ▶ Children's Day—October 3
 - ▶ Yelm Christmas in the Park—December 5



Scan for complete event info & registration!

Go to [StreamTeam.info](https://streamteam.info) to learn more and register.



The calendar is updated regularly. Keep an eye on your email to see when new opportunities are posted. Join our mailing list by visiting streamteam.info/newsletter-sign-up.

ON THE COVER: Orca with salmon. Photo credit Renee Chamberland SRKW.

Stream Team Mission

To protect and enhance the water resources and associated habitats and wildlife in Thurston County through community action and education.

Special Needs

Participants requiring special accommodations can contact one of the coordinators listed at least one week prior to an event to make special arrangements.

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Stream Team is funded and jointly managed by the stormwater utilities of the Cities of Lacey, Olympia, Tumwater, and Yelm, and Thurston County. Stream Team programs meet the requirements for the National Pollutant Discharge Elimination System (NPDES) permit for stormwater.

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Polychlorinated Biphenyls (PCBs)

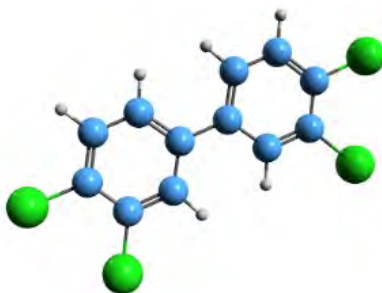
Carbon (C), Hydrogen (H), and Chlorine (Cl)

Yes, you saw that right. Chlorine is involved.

Polychlorinated biphenyls (PCBs) are lab-created chemical mixtures that were widely used from 1936 until production was ultimately banned in the U.S. in 1979. In simple terms, they were created by adding chlorine to biphenyls (molecular combinations of hydrogen and carbon). There are 209 unique combinations with varying amounts of chlorine.

PCBs have similar properties as asbestos. Manufacturers widely used them for several decades due to their fire resistance and insulating properties, especially in building materials. Products that used PCBs ranged from oil-based paint and caulking to electrical equipment and floor finish. PCBs were promoted as stable, long-lasting chemicals. Ironically, two of the three elements they contain are highly reactive on their own. Looking back, that might have been an early warning sign.

Bioaccumulation = chemical toxins concentrating as they move up the food chain



Congeners = chemical mixtures that share a similar core structure (in this case carbon) with various combinations of hydrogen and chlorine

PCBs are incredibly slow to break down. Though they've been out of production for almost half a century, they continue to show up in our waterways. PCBs become more concentrated as they move up the food chain. Some of the highest levels have been found in whale blubber!

New protections are in place to keep PCBs out of our stormwater, rivers, lakes, and groundwater to protect human health and safety as well as the health of aquatic species.

PCBs are a reminder that pollution doesn't always disappear when we stop using a chemical. What we do today matters. Through informed choices, responsible practices, and community action, we can protect our waterways and help ensure healthier ecosystems for generations to come.

PCB Workshop Event

Find out what the regulations mean for you and your business and access resources to help you identify practical alternatives.

- November 5
- River's Edge, Tumwater, WA

Limited seating.
Light breakfast and refreshments served.