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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.

Ready for a Fall Makeover?

Fall is the perfect time to rethink outdoor spaces. Cooler temperatures and rain will help you be successful. Start with small steps or go all out, it's up to you! The goal is to use nature as a guide to create areas that need less maintenance and water, and are healthy for people, pets and wildlife. Here's how:

Lose the Lawn

Reducing or removing lawn is the first step. Lawns tend to dominate landscapes and can be high maintenance. They take a large amount of energy, time and soil supplements to stay healthy. This can have a big impact on your wallet and on local waterways. For a "how-to" downsize your lawn, visit streamteam.info/yard-care.



Attract bees, birds and butterflies

Creating wildlife habitat can be one of the most enjoyable payoffs of any outdoor project. Please remember to include wildlife basic needs:

- Water—Water is an increasingly rare resource for wildlife in urban environments. Water will attract a variety of interesting birds to bathe and drink. Keeps cats at bay by surrounding your birdbath with prickly leaved plants.
- Food—Include plants with seeds, berries, and nectar. Good examples include: Red-Osier Dogwood, Elderberry, Hazelnut, Huckleberry, Mock Orange, Oregon Grape, Salal, Red-Flowering Currant, Kinnikinnick and Bunchberry!
- Cover and shelter—Birds and other creatures require protection from predators and weather and need places to nest and raise their young. Include layered plantings of evergreen trees, native shrubs, and groundcovers. This fall leave some soft, dried plant stalks for birds to use as nesting materials in the spring. For more native plant info, visit streamteam.info/native-plants-reference-library.

Use Less Water

High water use and summer heat impacts watersheds and aquifers. Here's how to create a water friendly landscape:

- Right plant right place—Your yard is made up of numerous microclimates with specific growing conditions. Plants need different amounts of water, sun, shade, soil types, and nutrients to survive. Choosing plants that are suited for specific areas will help keep them healthy and save water.
- Build healthy soil—Adding organic soil amendments, like compost, will improve soil structure and the water-holding capacity of sandy soils so you can water less frequently.
- Mulch around plants—Organic mulch increases the soil's ability to store water by covering and cooling the soil to minimize evaporation. It also reduces erosion and weed growth and can provide nutrients and interesting landscape textures.
- **Water wisely**—Water early or late when evaporation is lower. Water fully, but less often, this will help roots go deeper, making plants more drought tolerant.

Remove unhealthy and invasive plants

Problem weeds can quickly overtake a yard and surrounding local habitat. Some are toxic to humans and pets. For more information on identifying, removing, controlling and disposing of noxious weeds and invasive plants, visit Thurston County's website at thurstoncountywa.gov/departments/public-works/noxious-weeds.

A Journey to Salmon Recovery

Chinook Salmon are the heavyweight champions of Pacific salmon, weighing up to 25 pounds and living up to 9 years. Chinook usually return to spawn after spending about four years in the Pacific Ocean. Every fall, the Pacific salmon make their grand return to Washington State's rivers, streams, and tributaries for spawning season. This annual event is a tribute to the amazing work that started in the 1950s when what was then the US Fish and Wildlife service, gave Chinook salmon from the Green River hatchery a new home in the Deschutes River. The Tumwater Falls Hatchery was about to be born.



By 1952, Turnwater Falls had a concrete fish ladder to help these determined swimmers conquer the falls. Then, in 1961, two concrete holding pens were added to collect returning salmon and aid in spawning since their habitat was diminishing across Puget Sound. To this day, the Deschutes Chinook continue to navigate fish ladders, gather in collection pens, and get sorted for spawning and egg collection. Salmon biologists nurture the eggs in hatcheries before releasing them back into the river as fry.

Salmon recovery is all about caring for salmon at every stage of life. This means removing fish passage barriers, improving riparian habitats, and adding logs and other woody materials to streams. It can be pricey, but it's crucial to ensure salmon can complete their epic journey of spawning and rearing. But with so much work to be done, how do we decide where to focus our efforts?

South Puget Sound's spotlight is on the Deschutes River watershed, or Water Resource Inventory Area 13 (WRIA 13). This area is like a giant sponge, catching rain and snowmelt from the mountains and sending it through a maze of streams and rivers before it reaches the ocean. The Deschutes River Watershed has three distinct parts: upper, middle, and lower. The upper section, or headwaters, feels the impact of timber harvests, which leads to erosion and loss of healthy riparian habitats. The middle section flows through farming territory,

where herbicides, pesticides, and fertilizers can find their way into the waterways, further degrading riparian zones. The lower section winds through the bustling cities of Tumwater and Olympia, eventually flowing into Budd Inlet. This urban area is particularly prone to stormwater pollution, habitat degradation, and heavy use.

Addressing these issues holistically requires a united front. For 25 years, watershed management projects have been all about salmon restoration. After Puget Sound Chinook were listed as threatened in 1999, Lead Entities were formed to tackle the challenge. Local committees use science and data to guide habitat restoration efforts. The Deschutes WRIA 13 Salmon Habitat Recovery Committee (WRIA 13 Lead Entity) brings together tribes, agencies, local governments, citizens, nonprofits, businesses, and experts to work together on salmon recovery. The area spans 121 miles of fish-bearing streams and 70 miles of shoreline.

Recent efforts have been promising, and there's still so much to do! The committee has recently sought over \$13 million in grant funding to push forward with restoration projects. Restoring stream health benefits not only salmon, but one hundred plus other important species as well. For more details, check out the WRIA 13 Freshwater Strategy Habitat Prioritization Tool.



Salmon Returns & Spawning

This year, in earlier Stream Team issues, we've talked about how important salmon are to our Pacific Northwest streams. We discussed how they are a keystone species, bringing essential ocean nutrients back to their home streams when they spawn. We also explored how salmon use homing and geomagnetic cues to migrate. Additionally, we looked at the special features of their bodies that allow them to move from fresh water to saltwater and back again.

Now that autumn has arrived, we look to our local streams for adult salmon returning from their ocean journeys. Their freshwater arrival marks the beginning of spawning season. Depending on the species and stream, mature adults may only return on odd or even years. Others have annual returns, around the same time each year.

Each salmon run return is unique. The mature adult salmon in any stream represents a unique group, also called a year class. The size and health of each year class depends on many factors. These include the stream flow and nutrient availability when they first emerged.

Salmon endure a long journey from the ocean back to their natal streams to ensure the survival of the next generation of their species. In Thurston County, hatchery chinook, among others, return to the Nisqually and Deschutes Rivers. We can see other species, like chum and coho, returning to McLane, Woodland, Kennedy, Green Cove, and other creeks in the area.

Spawning adults display specific behaviors to claim ideal nesting habitat, or "redds." Female salmon consider many variables when looking for a place to build a redd, including the size of rocks, available oxygen, stream temperature, and stream flow rate.

Males will compete—often fighting for the opportunity to fertilize a female's eggs. A male covers the redd with milt, fertilizing the deposited eggs. The redds are defended by females, against other competitors.

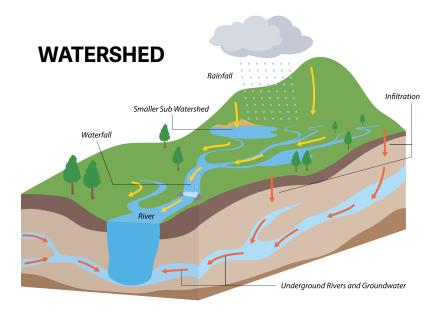
Once they have used up all their stored energy, adult salmon die shortly after spawning. As they decompose, the nutrients in their bodies feed the river's ecosystem. The lush plant life along the banks of our salmon-bearing streams shows how salmon contribute to the health of other organisms.

Stormwater: The Reason for Watershed Planning

Stormwater can be confusing...just the word alone! Yes, it's one word. And it touches everything.

Stormwater starts as rain or snow falling from the sky and picking up polluted bits in the air. Then it runs through streets picking up things like tire particles, pet poop, and yard chemicals. Near the end of its journey, it is collected in ponds, streams, and lakes, and then evaporated back to the sky carrying thousands of chemicals to start the process all over again. And guess what? Scientists have found that these chemicals are not good for us!

These chemicals are byproducts of our modern world (how we live at home, use our roads, and things we do at work or school, and during construction). BUT our water doesn't have to be so dirty. Since we know that stormwater pollution touches ALL water, even the stuff we drink, there are things we can do to help!



What can we do to help?

The sources and severity of stormwater pollution can be confusing, like the recent discovery that 6PPDg (a tire preservative found in road sediments) is toxic to and killing Coho salmon in urban streams. Typically, the more urbanized an area (with more hard surfaces and pollutant-generating activities), the more toxic the stormwater. To help, we design systems and infrastructure that can help filter pollutants—ideally before stormwater flows into our creeks and lakes or soaks into our drinking water, and we work to ensure those systems continue to serve their purpose of protecting our roads, homes, and urban areas from flooding! County, City, and State agencies maintain the systems in the right of way; however, businesses and residents own the ones in their neighborhoods, along private roads and areas connected to their business site (think construction sites, malls, and gas stations). Every one of us affects our neighbor "downstream" in the watershed by the choices we make every day. Keeping all these stormwater systems inspected & maintained is a big responsibility, and we continue to develop resources to help support YOU!

Learn with Us

Below are two great opportunities for residents and professionals to better understand stormwater inspections and maintenance. Stormwater Education and Outreach staff designed these sessions to educate attendees about the importance of managing stormwater, the impact of pollutants, and best practices for maintaining stormwater systems.

Learn how to identify common issues in stormwater infrastructure, the methods for proper maintenance, and the regulatory requirements involved. These opportunities are perfect for anyone involved in property management, landscaping, environmental conservation, or anyone interested in preserving water quality in their community.

Online Stormwater Inspections & Maintenance Workshop

- FREE & Ongoing
- tinyurl.com/stormwateredu

Albany St. Stormwater Pond **Water Symposium**

- Oct. 12, 2024, Rochester
- For more information, visit streamteam.info/events.

For more information, tools, and contact info, visit thurstoncountywa. gov/departments/communityplanning-and-economic-developmentcped/community-planning/stormworkshop or email stormwaterutility@ co.thurston.wa.us.

Interested in a site visit for your HOA pond? Let us know and we'll connect you to your local Stormwater Inspector!

Yauger Park...It's Designed to Flood

Did you know rain from 570 acres in West Olympia flows into Yauger Park? It's a Regional Stormwater Complex designed to catch, hold, and slowly release rainwater runoff. The rain gardens, swales, and ponds help filter polluted stormwater. These engineered features also help prevent flooding in nearby streets, shopping areas, and neighborhoods.

The stormwater features at Yauger mimic natural systems that existed before the area was urbanized. Historically, natural wetlands captured rainwater and snow melt. This slowed the flow of water and let sediment settle out, which protected local streams. Stormwater ponds recreate some of the lost protective functions wetlands once provided. They let water soak back into the ground to help reduce flooding. They also filter out pollutants like oil, fertilizers, bacteria, and tire particles.

Follow the Water

When it rains, storm drains and pipes collect the water running off streets, roofs, and parking lots surrounding Yauger Park and send it to the park. From there, the water flows through the swales, weirs, and rain gardens to the park's wet pond.

But the raindrop's journey doesn't end there! From Yauger Park, stormwater flows through a series of pipes, ditches, storm ponds, and man-made wetlands. The water then spills into Black Lake Ditch, and passes through Percival Creek. This is where it enters Capitol Lake and finally reaches the salty waters of Budd Inlet. Yauger Park benefits life downstream, by cleaning stormwater runoff before it reaches the Salish Sea.





Birds, Beavers, and Amphibians...Oh My!

As the rainy season ramps up in mid-winter, the banks of Yauger Park's pond overflow by design. This flooding transforms the park's recreational fields and parking lots into an expansive lake. The area becomes a wildlife haven. Ducks flock, herons hunt, fish mingle, and amphibians thrive in the flooded park.

Last year, a team of scientists at the Washington Department of Fish and Wildlife (WDFW) began a new study. They wanted to learn if and how stormwater ponds can serve more ecological benefits. Their research is exploring whether stormwater ponds can support biodiversity by providing habitat for wildlife including birds, amphibians,



and beavers. The study includes roughly 200 ponds located in the lowlands of the Salish Sea watershed. Ten city and county partners are collaborating with WDFW to learn how stormwater infrastructure can help address biodiversity loss—not only in our natural areas and streams, but in stormwater ponds alike. If you are interested in learning more about the study, look for our follow-up article in the winter edition. Be the first to learn what WDFW has found!

We encourage you to stop by Yauger Park this fall to see stormwater management in action! Our new educational signage and sculptures will guide you through the park's features and give tips and actions to protect the Salish Sea. To learn more about Yauger Park Regional Stormwater Complex visit **olympiawa.gov/yaugerpark**.



Let Your Leaves Lie (but not in the drain)

Fall is the best! Brisk autumn walks, luminous red, orange and golden leaves, and pumpkin flavored treats! The familiar signs of autumn fill our senses and hearts with joy. This time of year, we may find ourselves working in the yard before the seasons change. Staying busy tidying up and preparing for temperatures to drop and rains to begin.

The urge to rake up all your leaves and put them in the compost bin may strike you.... But wait! Fall is also a time when trees, plants and wildlife prepare for winter. Mulching your yard with leaves provides a warm blanket for plant roots. It also serves as habitat for wildlife including lizards, birds, turtles, frogs, and insects. When you let leaves, twigs, and mosses lie, you help support all these wonderful creatures. This allows them to overwinter beneath a cozy shelter of organic material. Did you know amphibians love moist leafy areas to hide?

Letting leaves lie in your garden beds and yards also improves soil health and reduces erosion. This in turn eliminates our reliance on chemicals and fertilizers. Working with mother nature to do the things she intended is a win-win for people, wildlife, and water!

Speaking of Leaves....

Keeping leaves off the street and out of storm drains is crucial! Storm drains become overwhelmed when leaves and yard debris clog the grates. Fallen leaves and summer's accumulated street debris can cause rain runoff to back up, leading to dangerous flooding of neighborhood streets and sidewalks.

In Thurston County, there are more storm drains than crews can clear quickly. This is where you can help! Look after your neighborhood storm drain by keeping it clear of leaves, snow, and other debris.

Here are some tips to help:

- Use a rake and dustpan or a shovel to remove leaves and debris.
- Be safe by staying off the road and being aware of your surroundings. Wear reflective gear.
- Put leaves and debris from storm drains in your garbage bin, they are contaminated with roadway pollutants.

If any of the following occur, please call your jurisdiction's emergency hotline number:

- You are unable to safely clear a drain.
- You see backups, major flooding, or something under the grate.
- You see a spill. If You See Something, Say Something." Every

Contact:

• City of Olympia: 360-753-8333 • City of Lacey: 360-491-5644 City of Tumwater: 360-754-4150

• Thurston County: 360-867-2099



Hedgerows: Catching On in Thurston County

With the recent creation of a "Hedgerows Toolkit," many Thurston County residents are adopting this strategy to enhance their landscapes, and getting added benefits too. Hedgerows act as a "living fence," making a screen for privacy and reducing noise, odors, dust, and wind. They benefit local agriculture producers by sheltering livestock and becoming habitat for beneficial insects and pollinators, improving crop yields! And they protect local waterways by filtering runoff and protecting against flooding and erosion.

Hedgerows pack a lot of punch in a very small space. They can be as long as needed and as narrow as 10 feet wide!

But what is a hedgerow? The key to a hedgerow—in contrast to a hedge—is that it is planted with a *diversity of plant species* to create a sequence of blooms and fruits. This benefits a variety of pollinators and wildlife. The diversity of plant species makes hedgerows a resilient and attractive landscape feature, providing year-round beauty.

Sponsored by Thurston County's Storm & Surface Water Utility and WSU Water Resources, The Native Plant Salvage program launched a Hedgerows Toolkit. Primarily geared towards rural and agricultural landowners, it's also applicable for smaller homesites.

Here's what the toolkit offers:

- A How-to handbook: Hedgerows for Rural & Working Lands in Western Washington
- Pre-designed planting plan templates for various hedgerow objectives
- Online plant table featuring 75 hedgerow trees & shrubs and 20 plant characteristics to consider for your project
- Videos & webinar presentations
- Resources for budgeting, funding, and everything needed for successful hedgerow implementation

Since last fall, WSU Water Resources staff have been collaborating with local farmers, Thurston Conservation District, and other community partners to design and implement hedgerows on Thurston County farms. Online and field-based workshops have expanded the Hedgerows Toolkit. More farms will be participating in the coming months, and in 2025, there will be additional focus on creating tools for smaller-scale hedgerows for urban and suburban settings.

To access the Hedgerows Handbook and Toolkit resources, and be notified about upcoming workshops, visit **extension.wsu.edu/thurston/hedgerows**.

Welcome New Team Members

Stream Team is thrilled to announce the addition of three new team members. Each of these individuals brings unique skills, experiences, and passion to our mission of protecting and enhancing our local waterways.



Hina **Nahoopii**

Hina serves as our stormwater outreach and engagement intern and began working with the City of Olympia and Stream Team in May 2024. She is from Hilo, Hawai'i,



where she initially discovered her passion for environmental science and sustainability. She is currently attending St. Martins University and majoring in Environmental Studies. Hina looks forward to gaining experience in the field and learning new skills while on the team.

Ali Brown

Ali joined the City of Lacey as the Water Resources Specialist in August 2023. Her role focuses on stormwater pollution prevention, habitat restoration, stormwater education, and community engagement. Her background in stormwater facilities management, riparian restoration, and Pacific salmonid research supports her in delivering science-backed actions to protect salmon and Puget Sound. She works as a member of Stream Team of Thurston County to promote educational opportunities to protect water resources in south Puget Sound and beyond. In her free time, Ali enjoys fishing, backpacking, swimming, and hiking with her husband Dyami and pup Elijah.

Genevieve **Becker**

Genevieve is an Outreach and Engagement Specialist for City of Olympia and joined Stream Team in April 2024. She studied Ecology and Education at the Evergreen State College. Her work includes leading groups of all ages in habitat restoration, stream bug monitoring,



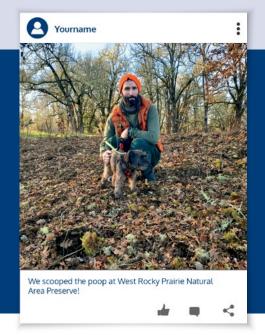
amphibian surveys, salmon stewarding, nature sleuthing, and stormwater education. She is originally from Miami, Florida and moved to Olympia the summer of 2001. Genevieve enjoys plant identification, birding, climbing, surfing, hiking with her dog, Jetty and partner Ben, and finding the beauty in the natural world.

Show Off Your Art with Stream Team

Have you recently visited one of the many beautiful natural areas of Thurston County and felt compelled to snap a photo, paint or sketch a picture, write a poem, or record your experience in some way? Interested in sharing your passion for the outdoors by getting printed/featured?

Stream Team would love to share your experience with our readers! Submit your original creations to hello@streamteam.info, along with your name and art caption including location, title, etc. We just might share your work in our next newsletter, monthly email, or on social media!

Please note that everything the Stream Team does is completely free for our community. We are not accepting submissions for commission or to advertise for any entity.



Stream KIDS' Team corner

MCN

DOWNTOWN OLYMPIA 5TH AVENUE BRIDGE

late August or early September through mid-September See hatchery Chinook salmon near the fish ladder.



BREWERY PARK AT TUMWATER FALLS

mid-Sept. through mid-Oct The hatchery Chinook travel past the 5th Avenue bridge, through Capitol Lake, then head upstream to Brewery Park.

MCLANE CREEK NATURE TRAIL

mid Nov. through early to mid-Dec. See a wild chum salmon run from an easily

walkable 1.1 mile trail.

KENNEDY CREEK SALMON TRAIL

throughout November

See wild chum salmon. Open to the public on weekends, 10 a.m. to 4 p.m.

Fall in Love with South Puget Sound

With school back in session and the days growing shorter, we may want to spend more time outdoors. Here is your opportunity to take a walk through the lovely changing colors of autumn, or to visit one of Thurston County's four public salmon-viewing sites this fall. As an added bonus, Brewery Falls in Tumwater and Mclane Creek Nature Trail in Thurston County offer Nature Sleuths missions!

Visit these or any of the 30+ parks that feature a Nature Sleuths challenge and play along as you explore each one. Simply download the Goosechase app. Then Complete the mission to receive a sticker for each park you visit. Fun and adventure know no season, so grab your raincoat, dress in layers, and have fun out there!





Calendar of **Events Fall 2024**

Salmon Stewards Tumwater Falls at Brewery Park Field Training | Saturday, September 7

McLane Creek Trail Maintenance | Friday, September 13, 9:30 a.m.-12:30 p.m. | McLane Creek Nature Trail

Nisqually Watershed Festival Booth Volunteer | Saturday, September 28, 10 a.m.-4 p.m.

| Billy Frank Jr. National Wildlife Refuge

Albany St. Stormwater Pond Water Symposium | Saturday, October 12 | Rochester

Salmon Steward Docent Training | Saturday, November 2, 10 a.m.-Noon | McLane Creek Nature Trail Salmon and Cider | Sunday, November 10, 11:30 a.m.-2 p.m. | McLane Creek Nature Trail

Scan for complete event info & registration!





Visit StreamTeam.info and click Register

ON THE COVER: Fall Salmon Viewing at McLane Creek. Photo Credit: Michele Burton, Photographer

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 call one of the coordinators listed at least one week prior to an event to make special arrangements.

Follow Us

f Thurston Stream Team thurston_stream_team

Thurston County Stream Team

Newsletter Contributors

Genevieve Becker, Grant Gilmore, Susan McCleary, Kelsey Crane, Cynthia Taylor, Sarah Tolle, Miriam Villacian, Alison Brown, Erica Guttman and Michele Burton Photographer.

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

Stream Team Inquiries

hello@streamteam.info

IN LACEY:

Attn: Alison Brown Tel: 360-486-8707 abrown@ci.lacey.wa.us

IN TUMWATER:

Attn: Grant Gilmore Tel: 360-754-4140 ggilmore@ci.tumwater.wa.us

IN OLYMPIA:

Attn: Susan McCleary smccleary@ci.olympia.wa.us

IN THURSTON COUNTY:

Attn: Cynthia Taylor Tel: 360-754-4013 Cynthia.Taylor@co.thurston.wa.us











3000 Pacific Ave SE Olympia, WA 98501 **streamteam.info**

Fix that Drip!

Water faucets, toilets, hoses...leaks happen. Some types of leaks are easier to ignore than others. When it comes to your car, think twice about turning a blind eye. A small leak will be much less costly to repair than the larger problem waiting to disable your engine.

That small motor oil leak also contributes to the approximately 7 million quarts of vehicle fluids that flow into Puget Sound every year! The Puget Sound is a vital and dynamic estuarine system, it's our duty to keep it pollution free! It's much easier and WAY less expensive to prevent pollution than it is to clean it up. During hot summers, don't you want to cool off at your local beach without worrying about coming into contact with motor oil, brake fluid, or antifreeze?

Find and Fix Leaks

If you drive a car, check your vehicle for leaks regularly—even new cars can have them! Thankfully, if caught early, they can be easier to fix and cost you MUCH less. Cars, like our health, are smarter and cheaper to maintain regularly!

Help keep petrochemicals out of local waters. By spending a little time and money to fix that leak, you'll help ensure healthy orcas, seals, herons, salmon, and humans.



Take these steps to be a leak-free champion—for your car & your watershed:

- Diagnose Your Leak
 - bit.ly/3VwdEwM
- 2. Do It Yourself! Track Down Oil Leaks
 - bit.ly/3KSSNyx
- 3. Find a Reliable Mechanic
 - bit.ly/4cu1drV
- 4. Prevent Leaks
 - bit.ly/4bbYAtJ