

# Stream Team News

**FREE**

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EDUCATE • PROTECT • RESTORE



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# Nature Sleuths Scavenger Hunts

## Celebrate the Nisqually Watershed at the Billy Frank Jr. Nisqually National Wildlife Refuge

The scavenger hunts continue! Whether you are an avid sleuth or playing for the first time, be sure to check out The Nisqually Watershed festival activities in September at the Billy Frank Jr. Nisqually National Wildlife Refuge. While you are there, sleuth the Billy Frank Jr. Nisqually National Wildlife Refuge Boardwalk or Twin Barns games.

And for more sleuthing adventures and to see salmon spawning this fall check out the games for Pioneer Park, Woodland Park, and McLane Creek Nature trail.

You can participate as a solo explorer or as a family adventurer. Simply download the GooseChase app on your mobile device and let the games begin.

Complete each mission and receive a park-specific sticker, plus be entered into a drawing to win a pair of Bushnell binoculars! The final drawing will be held on December 1, 2022. Remember, you must participate in the first game and submit your address to receive your stickers.

For more information, visit [streamteam.info/nature-sleuths](https://streamteam.info/nature-sleuths).



STICKERS SHOWN NOT ACTUAL SIZE.

To keep everyone safe during this time, Stream Team is following jurisdictional guidance and the Governor's most up-to-date COVID-19 guidelines in response to the COVID-19 virus. We are modifying some of our programming to accommodate restrictions while still helping you learn and stay involved with Stream Team. **Until further notice COVID effective masks (not gators or bandanas) may be required for all in person events. For the safety of others, if you are sick, or have been around someone who is sick, please stay home and not attend in person events.** Please visit [streamteam.info](https://streamteam.info) to learn more!

Don't forget to follow us on Facebook and Instagram to learn what you can do while staying home to keep our waters clean and habitat healthy for wildlife.

ON THE COVER: Virginia Towne, Stream Team Salmon Steward Volunteer. Photo by Michele Burton Photographer.



### 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.

### STREAM TEAM MISSION

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

*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.*

### SPECIAL NEEDS?

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

### FOLLOW US:

- Thurston Stream Team
- [thurston\\_stream\\_team](https://www.instagram.com/thurston_stream_team)
- Thurston County Stream Team

### NEWSLETTER CONTRIBUTORS:

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### STREAM TEAM INQUIRIES 360-438-2672 or [streamteam@ci.lacey.wa.us](mailto:streamteam@ci.lacey.wa.us)

#### IN LACEY:

City of Lacey Water Resources Program  
420 College St. SE, Lacey, WA 98503

**Attn: Linsey Fields**

Tel: 360-486-8707

TDD: 1-800-833-6388

[WaterResources@ci.lacey.wa.us](mailto:WaterResources@ci.lacey.wa.us)

#### IN TUMWATER:

City of Tumwater Water Resources & Sustainability  
555 Israel Road SW, Tumwater, WA 98501

**Attn: Stream Team Coordinator**

Tel: 360-754-4140

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[WaterResources@ci.tumwater.wa.us](mailto:WaterResources@ci.tumwater.wa.us)

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## Fabulous Fungi

Throughout history, people have been equally fascinated and repelled by mushrooms. These mysterious fungi have been used as food, medicine, fiber dyes, and spiritual aids for centuries and they continue to be used as such.

Fungi are the fruiting bodies of the underground network of mycelium. This root-like structure of fungal colonies plays an important role in benefiting worldwide ecosystems. Scientists believe that over 90% of plants have a mycorrhizal connection with soil producing healthy plants, improving drought tolerance, reducing water use and storing carbon.

Like other living organisms, mushrooms live in specific geographic locations; some are associated with certain types of trees. These fungi have a symbiotic relationship with specific tree species meaning they have a close relationship benefiting each other.

**Mycorrhizal networks** are underground networks created by fungi that connect individual plants together and transfer water, carbon, nitrogen, and other nutrients and minerals.



For example, king bolete mushrooms are often found near spruce and fir trees. Other fungi may be saprotrophic, meaning they feed off decaying organic matter or may even be a parasite to their host. Examples of this are oyster mushrooms which can be commonly found on decaying alder trees.

Join us with mushroom enthusiast Marcus Goodman as we hunt for hidden edible gems in nearby Capitol Forest. Marcus has a B.S. in Plant Ecology/ Mycology from The Evergreen State College and spends his free time enjoying the outdoors and foraging.

To register for this workshop, visit [streamteam.info](http://streamteam.info) and click on "register". For more information, contact Michelle at [mstevie@ci.olympia.wa.us](mailto:mstevie@ci.olympia.wa.us).

## Foraging Tips

- **Safety:** Forage with a buddy and positively identify mushrooms before consuming. Leave soggy-slimy or insect filled mushrooms behind.
- **Conservation:** Remember small mammals and other wildlife depend on mushrooms for food, so please do not harvest all the mushrooms you find, especially in a large group. Only take what you can consume and not waste.
- **Cleaning:** Use a brush, cloth, or knife and gently clean or scrape them off. Do not clean with water as this will cause them to deteriorate more quickly.

## FIELD TRIP

- Sat., Oct. 29
- 10 a.m. – 2 p.m.
- Capitol Forest (Specific location TBD)
- Van pool available and encouraged. Please register separately.

### What to Wear:

- Weather-appropriate clothing, sturdy or hiking footwear, etc.

### What to Bring:

- Small backpack with water, lunch, and personal items (sunscreen, mosquito repellant) needed for a day in the woods.
- Basket or another container to carry foraged mushrooms and an optional small pocket knife. (No plastic bags!)
- Discover Pass for parking
- A foraging friend
- Recommended field guides such as *Mushrooms of the Pacific Northwest* (Trudell & Ammirati, 2009); *Mushrooms Demystified* (Arora, 1986); *All the Rain Promises and More* (Arora, 1991).
- Or explore phone apps such as Shroomify, Google Lens, and Picture Mushroom—Mushroom ID.





## CELEBRATE WITH CIDER ••

- **Sunday, Nov. 13**
- **11:30 a.m. – 2 p.m.**
- **McLane Creek Nature Trail\*\***

Wild chum salmon have returned to McLane Creek and Thurston County Stream Team is celebrating with hot apple cider! Bring the whole family and join Salmon Steward volunteers to learn about the chum cycle of life. Staff will be under the covered picnic table near the trailhead with locally sourced apple cider and treats to warm you up. There will also be fun salmon-related activities for the kids. ***Bring a cup from home for hot beverages to help conserve resources!***

### McLane Creek Nature Trail:

#### Parking

- Please consider carpooling as there are only 20 parking spots and 1 accessible parking spot in the lot.

#### Location

- Located at 5044 Delphi Rd SW, Olympia, WA 98512. Look for the sign on Delphi leading into the forest. Follow the road until it ends at the main parking area.

#### Accessibility

- The viewing platform is connected by a boardwalk and is wheelchair accessible. Boardwalks can get slippery in the fall; wear sturdy footwear. For more information, visit [tinyurl.com/8sy2pr37](http://tinyurl.com/8sy2pr37).

#### Other

- Pit toilets are on site. There is no drinkable water available. Dogs are allowed—but don't let them eat the salmon carcasses, they can prove lethal to your canine buddy. And remember to bag and trash your pet's waste.

**\*\* A Discover Pass parking pass is required.** To purchase a \$ 10-day pass or \$30 annual pass, visit [www.discoverpass.wa.gov](http://www.discoverpass.wa.gov) (Salmon Stewards are granted temporary parking passes.) Or, borrow one for free from your local Timberland Library [www.trl.org/library-things!](http://www.trl.org/library-things!)

## Cheer on the Chum this Fall!



### See the Chum at McLane Creek Nature Trail \*\*

Each fall, McLane Creek welcomes the migrating native chum salmon back to their natal waters. These fearless fish are tired and worn from having traveled all the way from the Pacific Ocean. Some come from as far north as Alaska, yet they are determined to spawn before they die. Witness their unique spawning display from early November through mid-December.

To help you learn more, trained Salmon Steward docents will be at viewing locations to talk about the natural history of the McLane Creek chum run. Look for them between 10 a.m. and 2 p.m. on the weekends in November and the Friday after Thanksgiving.





# The Salmon are Back!



## Stream Team Salmon Stewards, we need your help!

If you are currently a trained Stream Team Salmon Steward or equivalent and interested in staffing at Brewery Park, Tumwater Falls or McLane Creek, please register!

To register, visit [streamteam.info](http://streamteam.info) and click on "register." For more information, contact:

### Brewery Park

- Grant Gilmore, 360-754-4140 or [ggilmore@ci.tumwater.wa.us](mailto:ggilmore@ci.tumwater.wa.us)

### McLane Creek

- Cynthia Taylor, 360-485-3754 or [Cynthia.Taylor@co.thurston.wa.us](mailto:Cynthia.Taylor@co.thurston.wa.us)



## The Best Places to See Salmon

### 5th Avenue Bridge Downtown Olympia

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

### Brewery Park at Tumwater Falls

The hatchery Chinook travel past the 5th Avenue bridge, through Capitol Lake, then head upstream to Brewery Park. See them mid-Sept. through mid-Oct. The Washington State Department of Fish and Wildlife processes fish Mon., Wed., and Fri. mornings. On average, more than 4.5 million eggs are harvested annually during this fish spawning operation.

### McLane Creek Nature Trail

See a wild chum salmon run mid-Nov. through early to mid-Dec. View from an easily walkable 1.1 mile trail. Visitors must have a Discover Pass. Located in the Capitol State Forest at 5044 Delphi Rd. SW, Olympia 98512.

### Kennedy Creek Salmon Trail

See wild chum salmon throughout November. This 1.5 mile trail (3/4 ADA accessible) is a collaborative effort hosted by the South Puget Sound Salmon Enhancement Group. Free to visit, but donations are appreciated. Open to the public on weekends, 10 a.m. to 4 p.m. For directions, visit [www.spsseg.org/education-outreach/kcst](http://www.spsseg.org/education-outreach/kcst).







## Why do we have fisheries co-management in Washington State?

During the late 1960s and early 1970s, Native American tribal members were arrested and jailed for exercising their treaty-reserved rights to harvest salmon. On February 12, 1974, Federal District Judge Boldt ruled that under the 1854-1856 treaties, certain Indian groups retained title to 50 percent of the state fishing resources, which includes salmon. "An exclusive right of fishing was reserved by the tribes within their area and boundary waters of their reservation." "The tribes reserved the right to fish at all usual and accustomed grounds and stations." Judge Boldt's ruling, upheld by the U.S. Supreme Court, did more than affirm Indian fishing rights. It upheld treaties as being supreme over state law, as stated in the U.S. Constitution. This ruling established Treaty Tribes as co-managers of Washington State's salmon fishery.

Following *U.S. v. Washington*, known as the Boldt Decision, the salmon fishery was divided into two commercial fisheries, the "all-citizen" fishery and the "treaty-tribe" fishery.

Treaty tribes were no longer restricted to only fishing on reservation grounds. Judge Boldt's decision permitted tribal fishermen protected access to off-reservation fishing grounds, consequently imposing restrictions on the common-property fishery of the all-citizen fishermen. The effects of the decision did not mean that tribal fishers were taking their allotted share of salmon. They did not have the means to compete with large commercial vessels and fishing technologies, and traditional values conflicted with large-scale fishing operations. Tribal fishing continued to be a small portion of the harvestable fishery. (Cultural Survival, Peter Knutson, June 1987. [tinyurl.com/4hdbjesf](http://tinyurl.com/4hdbjesf)) Possibly more impactful, the ruling permitted treaty tribes to manage fishery practices with the State of Washington salmon populations so that they would no longer be as impacted by less stringent regulations.



An unseen consequence of the Boldt decision to restore fishing rights was that it further reached to protect salmon habitat. As Muckleshoot Tribe attorney Alan Stay stated, "it spawned other actions designed to protect salmon—because if there is no salmon fishery, then the treaty is violated." Historically, limited fishing regulations, extensive non-regulated logging and urban development were causing severe impacts on salmon streams and to salmon returning to their natal streams. Unchecked pollution was being poured

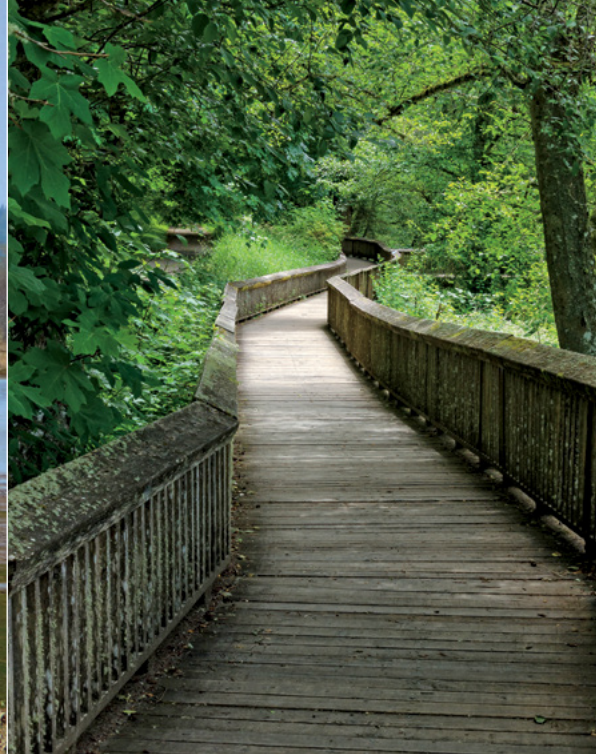


into the bays and streams of Puget Sound. Habitat was lost and degraded by clear cutting streams and splash dam logging to transport logs downstream decimated stream beds and spawning grounds for salmon. Power dams were constructed on all major rivers with no thought to providing upstream migration for fish.

Lenient land use practices accelerated the decline of salmon populations. The Boldt decision started to change all these past practices.

Without the Boldt Decision, many salmon populations would be extinct or near-extinct from overfishing and habitat destruction. Today the states of Washington and Oregon have the most comprehensive forest practice regulations protecting stream function and instream habitat. Buffers are required on all fish streams to provide shade to keep water cool while also providing fish migration and the protection of instream habitat features that create pools for feeding and gravel beds for spawning. As a direct result of these more comprehensive logging regulations to protect streams, local governments were pressured by stakeholder groups to update development regulations in and near streams and other water bodies to protect valuable aquatic resources. Today, urban critical area ordinances provide protection for streams and salmon habitats. We owe more than we realize to Washington Indigenous tribes and Judge Boldt, thank you!





## Billy Frank Jr. Nisqually National Wildlife Refuge and How It Came to Be

Billy Frank Jr. Nisqually National Wildlife Refuge sits at the mouth of the Nisqually River, where the river meets Puget Sound. The Refuge consists of many diverse habitats including salt marsh, saltwater estuary, upland and riparian forest, freshwater wetlands and open grasslands. The refuge is a significant international sanctuary for year-round migratory birds. They stop over to rest and forage on their way north and south. Thousands of birds, mammals, fish and wildlife depend on the refuge for a place to live, feed and reproduce. Estuary mudflats feed migratory shorebirds, while woodpeckers, owls, passerines and small mammals use the forests. Seals haul out into the salt marsh and beaver, heron and otters can be found in the freshwater wetlands.

The nutrient-rich saltwater estuary provides critical habitat for juvenile Pacific salmon that use the estuary as a nursery as they transition from freshwater to the salt waters of Puget Sound. The insect-rich brackish waters provide food for growing salmon to grow large for better survival when migrating out to sea. They will spend most of their lives at sea before returning as adults, to their natal streams to spawn.

The Nisqually Delta has a long history of human interaction with the land and

water. Native American tribes lived, fished and foraged along the delta prior to settlers and farmers arriving. In the early 1900's most of the estuary was diked and leveed to create farmland for white settlers, which limited the ecological productivity of the delta. In the 1960s, the Nisqually Delta faced further change when the Ports of Olympia and Tacoma announced plans to develop a deep-water super-port. Proximity to I-5, deep water just offshore, and the expanse of open land to hold cargo made it an ideal location. The proposal faced resistance from the Nisqually Tribe, the Washington Department of Fish and Wildlife (WDFW), and other private and public groups.

Together, the Nisqually Tribe and the WDFW announced opposition to building the port. Citing the immense impact that such development would have on salmon, game birds and other wildlife. Preserving such an ecosystem benefited both the tribe and the State. To prevent the development of the super-port, WDFW bought a substantial portion of the delta.

Relationships were strained during this time; the Nisqually, Puyallup and other allied tribes were protesting for their treaty rights to be recognized, specifically for their right to hunt and fish in their "usual and accustomed grounds and

stations." As a means to exercise tribal treaty rights and protest, Nisqually and Puyallup tribal members held "fish-ins" and were regularly arrested by WDFW officers. These fish-ins were organized by the Survival for the American Indian Association (SAIA). The SAIA's goals were to resist cultural assimilation and secure recognition of treaty rights, particularly rights surrounding fishing. The struggle for fishing rights came to a point in 1974 when Judge George Boldt sided with the tribes in the legal battle known as *U.S. v Washington*. Affirmed in 1975, this decision came to be known as *The Boldt Decision*.

In the 30 years following the formation of the Nisqually National Wildlife Refuge, essential partnerships were formed. By 2009, the largest estuary restoration project in the Pacific Northwest was completed with the removal of the Brown Farm Dike. Returning tidal waters to 762 acres, restoring valuable estuary habitat. Upstream sections of the Nisqually River were also purchased to provide more watershed protection. In 2015, the refuge was renamed Billy Frank Jr. Nisqually National Wildlife Refuge in honor of Nisqually tribal member Billy Frank Jr. for his lifelong contributions to protecting salmon and tribal fishing rights. To learn more, visit [fws.gov/refuge/billy-frank-jr-nisqually](https://fws.gov/refuge/billy-frank-jr-nisqually).



## Featured Creature

### Fall Wildlife Migrations



PHOTO CREDIT : MICHELE BURTON PHOTOGRAPHER



## Fall Wildlife Migrations

Salmon are not the only wildlife migrating this autumn. Every spring and fall various wildlife species make long journeys up and down our coastlines and across the continent. Many stop to rest and feed in our state.

Occasionally gray whales can be seen in Puget Sound and more commonly off nearshore beaches feeding at Whidbey Island. Gray whales migrate between Alaska and Mexico. Each year they slowly swim 10,000 miles from their warmer water breeding grounds to colder Pacific waters. Throughout the spring and summer, they can be spotted feeding. Gray whales suck food-rich sediment from the sea floor by rolling on their sides and swimming slowly, then filter out food through numerous baleen plates located on each side of their upper jaw. Often “feeding pits” can be seen in the mud on the sea floor along the coastline by Whidbey Island.

Migratory shorebirds can be seen arriving in the spring. They fly from winter grounds in Central and South America as they travel to arctic nesting grounds. They return in the fall to feed on sandy beaches, mudflats and tidal estuaries. Shorebirds have amazing fat storing capabilities that give them the energy needed to travel long distances. Some smaller shore birds can increase the size of their intestines 100 percent before migration to help them store the needed energy for their long flights. One species, the bar-tailed godwit, makes the longest known nonstop flight. Migrating 6,700 miles in nine days traveling from its winter home in New Zealand to breeding grounds in Alaska and the Yukon.

Pacific salmon migrate to South Puget Sound from as far away as Alaska to spawn in natal streams. Their bodies enrich our streams and forests with marine nutrients and feed over 100 species of animals. As the salmon migrate, so do the bald eagles that like to feast on them. The Skagit and Nooksack Rivers host one of the largest concentrations of bald eagles in the Pacific Northwest. They migrate from northern climes when the lakes and rivers begin to freeze, taking advantage of the return of salmon to Washington rivers. Eagles have an average flying speed of 30 miles per hour and arrive in our state to spend winter along rivers and streams that host salmon spawning.

Throughout Central Washington, sandhill cranes can be seen by the thousands as they migrate north to breeding grounds, nesting in the wet meadows and grasslands of southern Alaska. These large, long-legged birds have a wingspan reaching up to 6 feet and each spring perform beautiful courtship displays. In the fall they make the journey south from mid-September to mid-October traveling as far as central California to overwinter.

Also migrating each spring and fall are the green darner dragonflies which are the largest and fastest flying (up to 30 mph) dragonflies! They migrate north from Mexico to the southern United States and even as far as Canada. Dragonflies are thought to fly the same routes as their great-grandparents, although researchers do not yet understand how this information is passed along. Green darners can live up to five years in their larval form. As nymphs under water, they shed their skin 10-15 times before fully emerging as an adult. Not much is known about dragonfly migration. The Migratory Dragonfly Partnership was launched as an opportunity for citizen scientists to help monitor the timing, duration and direction of travel to better understand dragonfly migrations. Concurrently observers also track data on hawk migrations that occur at the same time.

For more information, visit The Nature Conservancy at <https://tinyurl.com/ysv6d5zr>.





## NISQUALLY WATERSHED FESTIVAL .....

- Saturday, Sept. 24
- 10 a.m. – 4 p.m.
- Billy Frank Jr. Nisqually National Wildlife Refuge



## Nisqually Watershed Festival .....

33 years and counting! The Nisqually Watershed Festival is back and Stream Team will be there to share in the fun. Bring your friends and family to this free and festive event that celebrates our magnificent watershed and all the animals that call it home.

### There will be plenty of engaging activities to enjoy:

- Make a salmon life cycle keychain
- Print a salmon on a t-shirt (bring your own or they will be available for purchase at the festival)
- Learn about the natural history of the watershed from many different organizations who do work from the Nisqually Reach all the way to the Nisqually glacier
- Take a guided walk with a Refuge naturalist
- Try hands-on science
- Sample food from local vendors (bring \$\$ for this activity)
- Be captivated by storytellers
- Listen to live music
- Meet “Waddles” the “Goose”
- Bring your binoculars (or check them out from the gift shop) and discover wildlife at the Refuge. There are several trails you can wander at your own pace.
- Join Stream Team’s Nature Sleuth scavenger hunt and complete both park missions at the Refuge to receive cool stickers! Learn more at [streamteam.info/nature-sleuths](http://streamteam.info/nature-sleuths).
- Follow in the footsteps of Billy Frank Jr. and commit to working to protect natural resources

*Note: Free parking and shuttle to the festival (runs every 15 minutes) will be located at River Ridge High School, 350 River Ridge Drive, Lacey. Handicapped parking is available at the Billy Frank Jr. Nisqually National Wildlife Refuge, 100 Brown Farm Rd., Olympia.*



## Celebrate Fall with Arbor Day!

Join Stream Team and the City of Olympia, Parks, Art and Recreation and other partners for free Arbor Day events! Help us celebrate our community trees and honor the great work that has been done to maintain them and join in with other community members to plant new trees for future generations!

### All Day Activities Include:

- Free Pacific Northwest tree, shrub, and wildflower giveaway
- Ask an Arborist—City arborists will be available to answer your tree-related questions
- Kids' art activities and games
- Tabling by local organizations
- Self-guided trail walks

For more information, visit [olympiawa.gov/community/events\\_\\_\\_activities/arbor\\_day.php](http://olympiawa.gov/community/events___activities/arbor_day.php).

## CELEBRATE FALL WITH ARBOR DAY! .....

- Saturday, Oct. 8
- 10 a.m. – 2 p.m.
- Squaxin Park, 2600 East Bay Drive NE, Olympia





## Puget Sound Starts With You!

### Stream Team is celebrating Puget Sound Starts Here Month this September—Join us!

Puget Sound is one of the most diverse and complex saltwater estuarine systems in the world. It's home to countless species, like orcas, harbor seals, sea lions, salmon, seabirds and shellfish. It's also home to 4.5 million people that share our beautiful mountains-to-the-Sound watershed.

### Puget Sound needs our help

Water gives life to our community and it shapes our region's values, history, economy and culture. Despite recovery efforts, the health of Puget Sound and our streams is still in decline. Stormwater pollution and climate change are two major contributors to this chronic problem.

Every year, millions of pounds of toxic pollutants enter Puget Sound. Most of that pollution comes from rainwater runoff. Things like fertilizers, pesticides, soap, oil, pet waste and other pollutants. This polluted runoff flows through ditches, storm drains and pipes into local waterways. Most stormwater runoff is not filtered or treated.

### Take the Challenge

When it comes to healthier and cleaner water, we have the power to make a difference! During September we are challenging you to do at least one action to help keep Puget Sound healthy. What will you do?

To highlight the difference you make, Stream Team is hosting a reels challenge on Instagram! Just post a reel showing your commitment and passion for protecting Puget Sound and tag us!

Cash prizes will be awarded to 1st place and runner up; and anyone who submits a qualifying reel will receive a FREE car wash ticket. See the back page of this issue or visit [streamteam.info](http://streamteam.info) for more details.

### You can make a difference

#### Here are some ways you can help:

- Volunteer to help with local habitat restoration projects.
- Take your car to a commercial car wash instead of washing it in your driveway.
- Check your vehicle for leaks regularly and get them fixed promptly. Use absorbent cloths or drip pans if you find a leak or are doing engine work. Clean up spills immediately.
- Keep tires properly inflated and check alignment so that they will wear down more slowly. Check your tire pressure once per month.
- Pick up pet waste and put it in the trash.
- Never dump anything—liquid or solid—into a storm drain or drainage ditch. Report spills.
- Use natural yard products without chemicals and pesticides. If you use fertilizers, follow the directions and use them sparingly.
- Store and dispose of household chemicals according to the instructions on the label. Have household chemicals you want to get rid of? Visit <https://www.co.thurston.wa.us/health/ehhw/index.html>.
- Remove invasive plants like Himalayan blackberry, English ivy, and holly.
- Landscape your yard with native plants and trees that attract pollinators, soak up rain and slow the flow of runoff.
- Install a rain garden or cistern at home. Rain gardens and cisterns prevent flooding and erosion, add attractive landscaping, and provide water for summer irrigation.
- Keep storm drains clear of debris, trash and sediment.
- Protect marine habitat by using boat pump-out stations for sewage, using caution in eelgrass areas, and being cautious when fueling and cleaning your vessel.

To learn more about the bounty of Puget Sound and how you can help protect it, visit [PugetSoundStartsHere.org](http://PugetSoundStartsHere.org).



Scientists discovered that an ingredient in tires called **6PPD-Q**, used to preserve tire rubber, reacts with ozone in the air, turning it into a chemical that is highly toxic to coho salmon and other fish.

- Reducing the miles travelled in your car and taking care of your tires is the best thing drivers can do to reduce wear and prevent tire pollution:
- Make sure tires are properly inflated. You can find the recommended tire pressure in your owner's manual, stamped on the tire itself, or on a sticker inside the driver's side door.
- Get your tire alignment checked and rotate tires according to the manufacturer's instructions. This will prevent uneven wear on your tires and reduce the amount of tire particles that wear off as you drive.
- Bonus: proper tire maintenance will extend the life of your tires and save you money!



### Thurston County Education and Outreach Specialist



**Cynthia** is an Education and Outreach Specialist with Thurston County. She will be leading Thurston County Stream Team programs such as macroinvertebrate sampling, Salmon Stewards and youth education. For the past five years, she conducted environmental health education and outreach at Public Health & Social Service and served on the COVID-19 response. Cynthia has a Master's in Environmental Education from Western Washington University and four years of previous work experience with the Stream Team program! She is excited to blend her passions for human health and ecological health in her new role.

### City of Tumwater Water Resources Specialist



**Grant** serves as the Water Resources Specialist for the City of Tumwater. His role focuses on water quality, water resources, stormwater, long-term sustainability and restoring habitat within and around the Deschutes Watershed. Grant is a certified commercial diver, marine scientist, wetland biologist, ecologist and has a passion for all things nature. Grant has a keen passion for bringing hands-on science opportunities and pollution prevention campaigns to community members within our region in hopes we all work towards protecting our valuable natural resources.



# Green Infrastructure

## The Back to Nature Future

Have you seen or heard about green or gray stormwater infrastructure and wondered what it is all about? Why is this important to our community?

### The Issue



















Stormwater pollution continues to be the greatest threat to Puget Sound and our local waters. When our communities were first developed the harmful effects of stormwater pollution were not widely known. To prevent flooding, gray stormwater systems were developed to collect and convey rain runoff. Sending it to downstream waters with little or no treatment. A lot of this infrastructure is still in place. The effects of climate change, like more intense weather events and reduced water supplies, were also not anticipated. Today we feel and see the combined stress this is putting on our infrastructure and waterways. Thankfully, there's an alternative approach to urban stormwater management that is gaining momentum.

### Green infrastructure, a natural approach

Green infrastructure (GI) applies design elements mimicking nature to provide a variety of benefits to our community. Vegetation, particularly trees used in GI, can improve water and air quality, increase groundwater recharge, provide habitat, reduce urban heat island and enhance the beauty of community spaces.

GI helps by slowing down, cooling and filtering polluted runoff before it reaches waterways. It also helps increase flows to streams, rivers, lakes, and reservoirs. GI water quality benefits include:

- Reduce polluted runoff entering waterways
- Reduces stream scouring and habitat damage from high-velocity runoff
- Conserves water by recycling and using captured rainwater
- Reduces the likelihood of combined sewer overflows caused by excess rainwater entering the system

BENEFIT	Reduces Stormwater Runoff				Increases Available Water Supply	Increases Groundwater Recharge	Reduces Salt Use	Reduces Energy Use	Improves Air Quality	Reduces Atmospheric CO <sub>2</sub>	Reduces Urban Heat Island	Improves Community Livability					Improves Habitat	Cultivates Public Education Opportunities
	Reduces Water Treatment Needs	Improves Water Quality	Reduces Grey Infrastructure Needs	Reduces Flooding								Improves Aesthetics	Increases Recreational Opportunity	Reduces Noise Pollution	Improves Community Cohesion	Urban Agriculture		
PRACTICE																		
Green Roofs	●	●	●	●	○	○	○	●	●	●	●	●	●	●	●	●	●	●
Tree Planting	●	●	●	●	○	●	○	●	●	●	●	●	●	●	●	●	●	●
Bioretention & Infiltration	●	●	●	●	○	●	○	○	●	●	●	●	●	●	●	○	●	●
Permeable Pavement	●	●	●	●	○	●	●	●	●	●	●	○	○	●	○	○	○	●
Water Harvesting	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	●

● YES    ○ MAYBE    ○ NO



Many types of green stormwater features can be used alone or in combination to soak-up rain runoff. Rain gardens, conservation landscaping, swales and bioretention are a few. These features also create beautiful and peaceful places to connect with nature and enjoy birds, butterflies and other pollinators.

Other GI measures include rainwater harvesting, disconnecting downspouts, and installing permeable pavements and green roofs. All of these measures are designed to slow the flow of runoff and keep it in place instead of sending it downstream. To learn more about green infrastructure visit: [epa.gov/green-infrastructure/what-green-infrastructure](https://epa.gov/green-infrastructure/what-green-infrastructure)

**Gray infrastructure** uses pipes and other facilities to collect and convey rainwater from hard surfaces. Often there is minimal treatment before runoff is discharged into a local water body. Gray infrastructure is usually part of a centralized system.

**Green infrastructure** uses an array of practices designed to mimic natural hydrologic processes that slow, filter and soak-up rainwater where it falls.



PHOTO CREDIT: MICHELE BURTON PHOTOGRAPHER

## Before the Rain, Rake-A-Drain

Fall is here and with it comes brisk autumn walks, spiced lattes and beautiful red, orange and golden colors of changing leaves. It's also when the rainy season is upon us, and storm drains can easily become overwhelmed. Fallen leaves and summer's accumulated street debris can lead to clogged storm drains, causing water to back up and flood 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 may be contaminated with roadway pollutants.
- Prevent clogged storm drains by raking fallen leaves in your yard, sidewalk, or parking strip.

**In addition to looking after a neighborhood storm drain, residents and businesses can take other important steps to get ready for the storm season:**

- Maintain gutters, downspouts, rain barrels, and private culverts by keeping them clean, flowing and directed away from properties and hillsides.
- Call your jurisdiction's emergency hotline number to report storm drain backups, major flooding and spills.



# Kids' CORNER

Plants, animals, and people all need **CLEAN WATER**.  
Pollution and garbage can make people and salmon sick.

**Cross out the things that don't belong in healthy rivers, lakes, streams and Puget Sound.**





## Puget Sound Starts Here Gets "Reel" Creative Challenge



If you love Puget Sound, having fun, and exercising your creative social media muscles, Stream Team's Reel Challenge is for you!

September is Puget Sound Starts Here Month. We are celebrating by inviting you to show us in an Instagram reel what Puget Sound means to you and how we can all protect it. **The grand prize winner will receive a \$250 Visa® gift card and one runner-up will win a \$100 Visa® gift card.** PLUS, everyone who enters will receive a FREE car wash ticket!

For more information, contest rules and entry form, visit [streamteam.info/pssh-gets-reel/](https://streamteam.info/pssh-gets-reel/) or email [streamteam@ci.lacey.wa.us](mailto:streamteam@ci.lacey.wa.us).

### Enter in 3 Easy Steps

**Step 1** – Visit [streamteam.info](https://streamteam.info) and fill out the Puget Sound Starts Here Gets "Reel" entry form and photo release and email both to [streamteam@ci.lacey.wa.us](mailto:streamteam@ci.lacey.wa.us).

**Step 2** – Create your reel! Be creative, original, laugh, dance, recite poetry, make art, or play music. Do your best to get likes, loves, and shares for Puget Sound!

**Step 3** – Post your reel to your Instagram account and tag [@thurston\\_stream\\_team](https://www.instagram.com/thurston_stream_team) before midnight on Friday, Sept. 30.



# Stream Team Events

To keep Stream Team participants safe, we may limit the number of participants and may require safety measures such as physical distancing and wearing masks. We will provide safety guidelines in advance to anyone who registers or contacts us for more information.

For additional events, event details or to register, please visit our website at [streamteam.info](https://streamteam.info) and click on the calendar icon.

## SEPTEMBER • OCTOBER • NOVEMBER

### Celebrate the Nisqually Watershed!

Solve the Billy Frank Jr. Nisqually National Wildlife Refuge game missions and get cool animal photo stickers!

Plus explore more than 30 other parks and trails in Thurston County while looking for natural treasures! Join us on the Goose Chase app to play along.

See pg. 2 for details. For more information, visit [streamteam.info/nature-sleuths](https://streamteam.info/nature-sleuths) or contact Michelle at [mstevie@ci.olympia.wa.us](mailto:mstevie@ci.olympia.wa.us).

Download the *Goose Chase* app:



For Apple



For Android

Search for and select the *Nature Sleuths 2022* game, or search by game code KK55M8.

### McLane Creek Trail Maintenance

Mon., Sept. 19 • 9:30 a.m. – 12:30 p.m.

McLane Creek Nature Trail, Delphi Road (lower parking lot)

Join Native Plant Salvage Project, Stream Team, and the Department of Natural Resources in stewarding the beautiful McLane Creek Nature Trail.

### Nisqually Watershed Festival

Sat., Sept. 24 • 10 a.m. – 4 p.m.

Billy Frank Jr. Nisqually National Wildlife Refuge, 100 Brown Farm Rd., Olympia

See pg. 9 for details. For more information, visit [nisquallyriver.org/festival](https://nisquallyriver.org/festival).

### Arbor Day Celebration

Oct., 8 • 10 a.m. – 2 p.m.

Squaxin Park (Priest Point Park) 2600 East Bay Drive NE, Olympia

Check out the many great activities to celebrate Arbor Day!

See pg. 9 for details. For more information, visit [olympiawa.gov/community/events\\_activities/arbor\\_day.php](https://olympiawa.gov/community/events_activities/arbor_day.php).

### Fabulous Fungi Field Trip

Sat., Oct. 29 • 10 a.m. – 2 p.m.

Capitol Forest (Specific location TBD)

Van pool available. Please register separately.

Join us and mushroom enthusiast Marcus Goodman, as we hunt for hidden edible gems in nearby Capitol Forest.

See pg. 3 for details. To register, visit [streamteam.info](https://streamteam.info) and click on "register." For more information, contact Michelle at [mstevie@ci.olympia.wa.us](mailto:mstevie@ci.olympia.wa.us).

### The Return of the Chum & Cider Celebration

Sun., Nov. 13  
11:30 a.m. – 2 p.m.

McLane Creek Nature Trail, Olympia

See pg. 4 for details. For more information, contact Cynthia at [cynthia.taylor@co.thurston.wa.us](mailto:cynthia.taylor@co.thurston.wa.us).







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## Volunteer SPOTLIGHT

### Meet the Fish Lady!

Virginia Towne is a lifelong resident of Washington State and started volunteering with Stream Team in 2015. Virginia actively volunteers with many other partner organizations throughout South Sound and to date has participated in over 200 Stream Team events! Virginia is passionate about the environment and her general philosophy is that each of us has a responsibility to make the planet a better place for future generations. "If everyone does a little, then we have a lot."

After retiring as a computer programmer working for the University of Washington and a degree in history, Virginia began volunteering. She has an unquenchable thirst for knowledge, seeking new information for her own personal growth and to share with others. She has a huge heart and gives back tirelessly to our community. Whether it be volunteering at local events or walking roads late at night in the drenching cold fall rain to record frog mortality, she retains her keen sense of humor.

One of her greatest joys is teaching children and helping them discover the beauty of where we live, especially teaching about Pacific salmon. Once the salmon return in the fall, you can likely find her sharing salmon life history information and answering related questions with salmon viewers at the 5th Ave bridge and McLane Creek Nature Trail. Be sure to stop and say hello when you see her!



PHOTO CREDIT: MICHELE BURTON PHOTOGRAPHER