Stream Team News

FREE

OLYMPIA • LACEY • TUMWATER • THURSTON COUNTY

EDUCATE • PROTECT • RESTORE

FALL EDITION
Sept–Oct–Nov 2020

Inside...

To keep everyone safe during this time, Stream Team is following the Governor's "Safe Start Washington" guidelines.

We have modified some of our programming to accommodate COVID-19 restrictions while still helping you to learn and stay involved with Stream Team.

Stream Team will consider reopening volunteer events when Thurston County is approved for Phase 4 of the Safe Start Washington guidelines.

In the meantime, we will post links to exciting videos and provide additional online educational opportunities.

Please visit **www.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.

Online Learning Resources

Keep the fun going this fall with these hands-on learning activities, games, videos and more!

SOUTH SOUND GREEN
SouthSoundGreen.org

As featured on Thurston Talk. Interactive watershed activities are a great way to get outside and have fun while learning about our local environment!

MARINE CREATURE MONDAY: VIDEO SERIES
streamteam.info/marine-creature-monday-videos

This summer, Matt Balder, drone videographer, and marine biologist Bob Wharton partnered with Stream Team to bring you a mesmerizing showcase of the marine critters found under the surface of Puget Sound. Now you can visit the sea creatures any time of the year!

NISQUALLY RIVER EDUCATION PROJECT
NisquallyRiver.org

Enjoy activities that give you the option to go outside, use craft supplies, print worksheets and play online as you learn about water quality, tree planting, salmon and more!

PUGET SOUND ESTUARIUM
SeaCenter.Org/Online-Estuary-Education

Join Education Coordinator Aeriel as she leads you through a video series with demonstrations and experiments focused on estuaries. Each video includes worksheets and materials to follow along!

WET SCIENCE CENTER
WetScienceCenter.org/Rediscovering-Science

Activities focused on science exploration you can do at home! Every week has a different theme where you can complete the featured activity, send an email and get a WET Science Center prize!

STREAM TEAM ONLINE REFERENCE LIBRARY
StreamTeam.info/Reference-Library

Visit Stream Team's new online reference library to learn more about Home Stewardship, Climate, Car Leaks, Native Plants, Pet Waste, Natural Yard Care, Car Washing and Wildlife!

ON THE COVER: Salmon and Cider event at the McLane Creek Nature Trail. 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:

ThurstonStreamTeam
thurston_stream_team

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www.AzureSGD.com

STREAM TEAM INQUIRIES

360-438-2672 or streamteam@ci.lacey.wa.us

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

Attn: Lacey Water Resources
Tel: 360-438-2687
TDD: 1-800-833-6388
WaterResources@ci.lacey.wa.us

IN OLYMPIA:
City of Olympia Water Resources Program
P.O. Box 1967, Olympia, WA 98507-1967

Attn: Michelle Stevie
mstevie@ci.olympia.wa.us

IN TUMWATER:
City of Tumwater Water Resources Program
555 Israel Road SW, Tumwater, WA 98501

Attn: Meridith Greer
Tel: 360-754-4148
TDD: 1-800-833-6388
mgreer@ci.tumwater.wa.us

IN THURSTON COUNTY:
Thurston County Water Planning
2000 Lakeridge Dr. SW, Bldg. 4, Rm 100,
Olympia, WA 98502

Attn: Ann Marie Pearce
Tel: 360-754-3355 ext. 6857
TDD: 360-754-2933
ann.marie.pearce@co.thurston.wa.us

The Salmon are Back!

Best Places to See Salmon in Thurston County

5th Avenue Bridge Downtown Olympia*

See hatchery Chinook salmon near the fish ladder starting the third week of August/ early September through mid-September.

Brewery Park at Tumwater Falls *

The hatchery Chinook travel past the bridge, through Capitol Lake, and end at the park. They're usually there mid-Sept. through mid-Oct. The Washington Department of Fish and Wildlife processes fish Mon., Wed., and Fri. mornings. Over 4.5 million eggs are harvested annually during this fish spawning operation. This site will only be open to the public if Thurston County is in Phase 4 of the Washington State reopening plan. **1110 Deschutes Way SW, Tumwater, WA**

McLane Creek Nature Trail*

See wild chum salmon as they migrate mid-Nov. through early to mid-Dec. 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 Nov. 7 – Nov. 28, 2020. 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. The trail is reserved for school groups during the week and open to the public from 10 a.m. to 4 p.m. on weekends, Veteran's Day, and the day after Thanksgiving. Volunteer docents may be onsite to answer questions, offer salmon expertise, and direct people to the best viewing spots of the day! For directions visit **spsseg.org/education-outreach/kcst**.

Stream Team Salmon Stewards may be stationed at these viewing locations if we reach Phase 4 of Washington's Phased Approach to reopen. If so, they will be at these locations on weekends, some weekdays, and during the morning spawning operation at Brewery Park at Tumwater Falls. They share information, viewing tips, visual aids, and polarized glasses! For more information on hours at each location, visit* ***www.streamteam.info*

LIVE Salmon Videos!

September–November

Fall means it is time for the great salmon migration all over the Pacific Northwest. This year, we will be taking live videos at each of our viewing locations: 5th Ave bridge, Brewery Park at Tumwater Falls Hatchery and McLane Creek and posting them to our website!

For live videos and salmon viewing information, visit **streamteam.info/ salmon-viewing-videos**.

IMPORTANT NOTICE!

When visiting McLane Creek or Kennedy Creek, please leave your dog at home. Dogs can disturb spawning, and they're are also susceptible to poisoning via a parasite on salmon skin.

Chinook/King

Size: Typically 20–25 lbs
Life Cycle: 3–7 years
Spawns: August – November
Diet: Small fish

Chum

Size: Typically 9–11 lbs
Life Cycle: 3–5 years
Spawns: September – December
Diet: Soft-bodied organisms like jellies and zooplankton

Coho/Silver

Size: Typically 5–12 lbs
Life Cycle: 2–3 years
Spawns: September – March
Diet: Insects, invertebrates, crustaceans, fish, and squid

Pink

Size: 3–5 lbs
Life Cycle: 2 years
Spawns: June – September
Diet: Zooplankton, amphipods, fish

Sockeye

Size: 4–11 lbs
Life Cycle: 3–5 years
Spawns: September – December
Diet: Crustaceans, squid, fish, and plankton

See *Wild Chum* at McLane Creek* this Fall!

Things may be uncertain with COVID-19, but one thing is for sure, wild chum salmon will return to McLane Creek to spawn this November! You can see them in all their spawning splendor at McLane Creek Nature Trail, located off of Delphi Road in the outskirts of west Olympia.

The nature trail includes two great locations to watch the spawning chum without disturbing them. One viewing location is a footbridge that crosses right over the creek. The other location is a large wooden viewing platform right along the edge of the creek.

The chum generally show up between late October and early November, once the fall rains have raised the creek levels high enough for them to swim upstream. By early December most of the chum have spawned and died. Their carcasses provide important food for critters in the stream and for animals in the forest.

Stream Team usually trains volunteers at McLane Creek to help answer questions when visitors come to view the salmon. This year, due to COVID-19 safety concerns, we will not be hosting volunteers at McLane Creek Nature Trail.

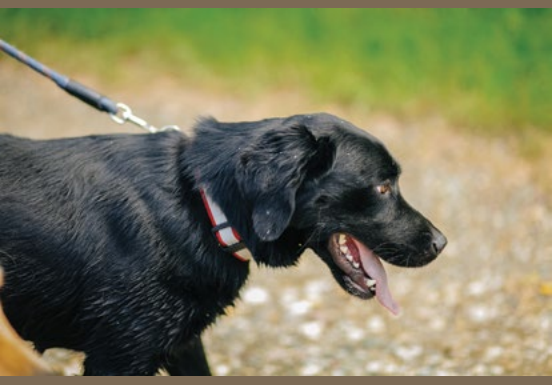
Two Ways to Learn About Chum Salmon

1. Look for our colorful signs posted at salmon viewing locations at McLane Creek Nature Trail*.
2. Watch Stream Team videos of live chum spawning in McLane Creek by visiting **streamteam.info/salmon-viewing-videos**.

CREDIT: MICHELE BURTON PHOTOGRAPHER

Remember to follow COVID-19 safety guidelines when visiting McLane Creek Nature Trail. Stay 6 feet apart from other people and wear a face mask if you cannot stay 6 feet apart.

** Note: The McLane Creek Nature Trail is part of the Capitol State Forest and is a WA State DNR Recreation Site. A Discover Pass parking pass is required when visiting state recreation lands managed by the WA State DNR and WA Department of Fish & Wildlife. For information about how to purchase a $10 day pass or $30 annual pass, visit* ***www.discoverpass.wa.gov***



Keep Your Dogs & Salmon Safe!

Did you know salmon can carry a parasite that can be fatal to dogs? If a dog eats a salmon infected with the parasite, it can become extremely sick or even die if not treated soon enough.

Keep dogs on a leash!

Some wild animals drag salmon carcasses far away from the creek, so it's important to keep your dog on a leash while walking at McLane Creek Nature Trail this fall and winter.

Stay away from and out of the creek while salmon are spawning.

Getting too close to salmon while they spawn scares them. When scared, they have to use precious energy to hide instead of using their last bit of energy to spawn. Please be respectful when watching the salmon:

- Stay on the observation deck or footbridge.
- Stay away from the creek/out of the creek.
- Keep dogs away from the creek/out of the creek.
- Use soft voices so you don't scare the salmon.

Thank you for doing your part to help chum successfully spawn so that their offspring can return in future years!

Climate Conversations Webinars

FOOD CHALLENGE ••••

- **Fri., Sept. 25 • 6:30 p.m.**
- **Register: streamteam.info/events**

The Food Challenge: Food Solutions for Climate Change

The overall production of food including growing, farming, processing, transporting, storing, cooking and disposing of the food we eat, produces greenhouse gas emissions. It is estimated that each household in the U.S. produces a total of 48 tons of greenhouse gases annually. Transportation, housing and food are the three largest contributors to our individual carbon footprint. Food alone produces 8 tons of emissions per household and reports suggest worldwide that livestock agriculture produces approximately half of all man-made emissions. Changing the food we eat can reduce our carbon footprint, reduce pollution and slow global warming.

Join us with guest speaker, Lynn Fitz-Hugh, Community Engagement Director for Thurston Climate Action Team, for her presentation of The Food Challenge. Lynn has been focusing on climate issues for the past 10 years and will present 4 ways that we can individually and collectively take action to positively impact the climate emergency.

Visit **streamteam.info/events** for webinar info.

WESTERN WASHINGTON WILDFIRES ••••

- **Fri., Nov. 6 • 6:30 p.m.**
- **Register: streamteam.info/events**

Western Washington Wildfires: Are Wildfires Imminent?

Join us for an informative talk about past, present and the possible future of Western Washington forests through a climate and wildfire lens. Our speaker Josh Halofsky, research scientist with the Washington State Department of Natural Resources, will talk about how natural disturbances, such as forest fires, can help inform forest-related management decisions. He will also discuss how our expectations for climate adaptation in Western Washington forests will differ from the drier forests in Eastern Washington.

Before coming to Washington Josh studied wolves, elk and aspen in Yellowstone National Park, as well as wildfires in the Southwest.

Visit **streamteam.info/events** for webinar info.

It may seem like a distant problem, but climate change is already affecting the health of our local streams. In the summer, warmer temperatures and lower rainfall mean streams are shallow and hot during a critical time for salmon and other species. During the winter, more intense rainstorms cause an increase in stormwater and flooding. Faster snow melt brings flooding sooner which erodes stream beds. Increasingly acidic water offshore is disrupting life for plankton and shellfish, and by extension, animals that depend on them for food. In recent years, flooding, algae blooms, and smoke from wildfires all have impacted the health of people and the environment in Thurston County. These kinds of events come at a cost, and they are predicted to become more common here in the coming years.

But that future is not locked in. The truth is that there is a lot we can do to change direction, and some of that work is underway now. In 2018, the governments of Thurston County, Lacey, Olympia, and Tumwater, adopted shared targets to reduce greenhouse gas emissions 45 percent below 2015 levels by 2030 and 85 percent below 2015 levels by 2050. Since then, they have been working on a Climate Mitigation Plan to reduce local contributions to climate change.

Climate mitigation is the actions we can take to limit our contributions to climate change. When we travel, use electricity or water, or grow and raise food, we increase emissions of heat-trapping greenhouse gases that warm the planet. In Thurston County, the bulk of our greenhouse gas emissions come from energy use in homes and businesses and from driving gas-powered cars and trucks. Smaller sources include solid waste and agriculture.

Climate mitigation actions take greenhouse gases like carbon dioxide, methane, and nitrous oxide out of the atmosphere or prevent those gases from entering the atmosphere in the first place. We will always need to travel, eat, and use electricity. That's why it is important to find less harmful ways to do the things we do every day and limit climate change impacts in the Thurston region.

Strategies to reduce emissions include increasing the energy efficiency of our homes and offices, increasing production of renewable energy, reducing miles driven alone, switching to electric cars, supporting local farms that use practices to keep carbon in the soil, and preserving and planting trees. Local governments are looking at many different ways to achieve their goal. To find out more about the Thurston Climate Mitigation Plan and climate actions in your area, visit **trpc.org/climate**.

What Can You Do to Take Climate Action?

Dramatic and lasting change comes from countless little shifts throughout society. Governments, businesses, families, and individuals all have a role to play. Here are some ways to get started:

- **Start a conversation.** National surveys have shown that while most Americans believe global warming is happening and are worried about its impacts, the majority say they rarely or never hear it discussed among their friends and family. Researchers call this the "climate change spiral of silence"—people concerned about climate change avoid talking about their concerns because they don't hear other people talking about it. That silence can leave us feeling isolated and overwhelmed. You don't need to be an expert on the science to let others know your hopes, fears, experiences, and actions when it comes to climate change—you might find out you share more common ground than you thought.
- **Rethink your ride.** Try increasing the number of trips you make by transit, carpooling, walking, or biking. Support your city in development that creates high density and mixed-use areas to reduce the need for driving. Buying a new car? Test drive an electric vehicle to see if it makes sense for you.
- **Reduce energy use.** Request a free home energy assessment from Puget Sound Energy, and consider upgrading to higher efficiency appliances and fixtures. If you rely on natural gas for heat, consider switching to a ductless heat pump or other electric heat source. Investigate options for using more renewable energy at your home, place of worship, or business.
- **Reduce waste.** Measure the food that you throw away and take the Waste Less Food Challenge. Try a meat-free meal once a week. Choose items with less packaging, and buy local to reduce emissions from shipping and packaging.
- **Advocate for change.** Tell your elected officials that addressing climate change is important to you, so they know to prioritize it when making work plans and budget decisions. If you have found it difficult to take a climate action, let them know what would make it easier or less expensive. Get together with your friends, neighbors, co-workers, or a local organization like the Thurston Climate Action Team to talk about what to do next.

CELEBRATING

30/50 years!

Stream Team is Celebrating 30 Years of Fun!

Join current and past Stream Team coordinators via webinar as we celebrate 30 years of camaraderie, education, restoration and most importantly, fun!

Event Highlights:

- Live Stream Artesan Rumble & Samba OlyWa
- Introduction of current and past Stream Team coordinators
- Stream Team Trivia
- Stream Team Slide show
- And more!

Not even COVID-19 can keep us from celebrating all of you and the work we have done together! We hope to see you there! If you have questions, please contact Michelle at **mstevie@ci.olympia.wa.us**.

SAVE THE DATE!

- **Fri., Oct. 9 • 6:30 p.m.**
- **Register: streamteam.info/events**

Celebrate Puget Sound Starts Here Month with Us!

Puget Sound Starts Here.org

September is Puget Sound Starts Here month! Each year we take a month to reflect on how our everyday actions impact local waterways and Puget Sound, and what we can all do to prevent stormwater pollution.

By making small changes to our daily activities, we can keep pollution out of our waterways. Visit Actions for Clean Water at **streamteam.info** to learn more about how you can help make a difference!

Middle School & High School students, this challenge is for you!

This September, we want you to show us how you plan to help Puget Sound. It's easy! Submit a short video highlighting an action you can take to help keep water clean and email it to us!

- Visit **StreamTeam.info**
- Select one of the five Actions for Clean Water
- Use your creativity to produce a video highlighting the action!
- Submit the video to **streamteam@ci.lacey.wa.us**

Submit videos by October 31 and be entered to win a $100 gift card!

For more information, visit **streamteam.info**.

Featured Creature

Beaver
(Castor canadensis)

Beaver: As a Restoration Tool For Streams and Salmon

In the past, beavers were abundant and ranged over the entire North American continent, creating ponds and wetland habitats used by many fish and wildlife species. It is estimated that before the fur trade, beaver populations were as high as 200 million. Today, it is estimated that there are less than 1 million beavers living in North America.

Beaver are nature's ultimate engineer. Beaver fell trees and use the tree branches as construction material to form dams in shallow rivers and streams. They then use mud and vegetation to bind and seal the branches together creating a still water ponded reservoir behind the dam. The dams they create provide beaver with a place for food storage and safety from large predators while also providing refuge habitat for fish such as coho salmon and steelhead.

For decades, beavers have been severely misunderstood as their dams were thought to block access during salmon migration and that the water behind the dam was too warm for cold water fish. Not so! What we have learned is that beavers and salmon have evolved together. Even though a dam may seem impassable to migrating fish, they cleverly find a way through and around, migrating upstream to the gravel reaches to spawn. Only during the lowest flows are fish unable to migrate but once winter rains arrive they quickly move upstream. It has been documented that fish production in streams with beaver dam habitat produce larger and more numerous native salmon species. Research has also shown that ponds created by beaver serve as ideal nurseries for juvenile fish. The beaver's ponded water provides a perfect place for macro-invertebrates to grow which young fish feed upon (Pollock et al. 2007).

The ponded waters from beaver dams also provide many habitat functions that are crucial to the health of a watershed and to salmon production. One important function is the storage and recharge of groundwater. In a stream system occupied by beavers, the stream often has a large primary pond and many secondary ponds. These pools increase the surface water storage capacity, recharging the groundwater and increasing the underground soils saturation zone known as the water table.

Water table refers to the saturated zone in the soil. Below the water table, groundwater fills the spaces between rocks and sediment.

The ponded waters stored behind a beaver dam also positively affects stream flow, often changing the timing and delivery of stored water and nutrients. In the summer, water is captured and stored in the ponds, creating protection for fish while providing water flow to the stream channel throughout the summer's low flow period. During flood flows, the dammed ponds slow the water current, reducing or preventing erosion and the loss of incubating eggs in the gravel in addition to providing a calm refuge for smaller fish.

Biologists are currently reintroducing beavers to watersheds where streams have been degraded in order to restore geomorphic, hydrologic and ecological functions. By doing so, beavers help recreate natural stream channels, restoring off channel refuge habitats in ponding water created by the construction of primary and secondary dams. Through the felling of trees, beavers provide pool-forming, in-stream habitat features. The building of beaver dams also traps sediment needed to fill in incised streambeds, providing gravel substrate for spawning.

In areas where snowpack is decreasing due to changes in climate, beavers are being reintroduced to help ease low water impacts. By increasing the amount of beaver ponds and the size of ponded areas in an affected watershed, diminished water can be stored to recharge groundwater reserves and stream flows, providing essential habitat for fish and wildlife.

To learn more about beavers in restoration, visit **tinyurl.com/y4kdgt8m**.

Water Update:

Did the Heavy Spring Rains Make Up for the Lack of Winter Rains?

When people think of Washington they often think of rain. It usually rains about nine months out of the year here in Western Washington. What you may not realize is that the timing of our heavy rains matters for streams, salmon and us.

Spring Rains Equal Warmer Temperatures

We usually get the bulk of our rain during our coldest months—October through March. Rain during these months is colder than rain that falls during spring or summer. That means that groundwater supplied by fall and winter rains is colder than from spring or summer rains.

Groundwater keeps our streams flowing during our hot, dry summer months. Salmon need cool water temperatures to thrive, so it's important that cool water flows into our streams.

Spring Rains May Not Help Refill Groundwater Supplies

Springtime brings spring flowers, green leaves and renewed growth in shrubs and trees. Spring and summer also bring warmer temperatures. Due to the warmer air temperatures, more water evaporates from spring and summer rains than from fall or winter rains.

Plants need a lot of water to fuel their growth in the spring and summer. During the growing season their roots pull water out of the soil before it can soak down into groundwater aquifers. In the fall and winter, plants use much less rainwater because they either slow down or stop growing.

AVERAGE RAINFALL	
2019 WY*	**2008 – 2018 WY**
36.65 inches	**52.64 inches**

WY = Water Year
*The 2019 WY begins on Oct. 1, 2019 and ends on Sept. 30, 2020.

5 Things You Can Do to Help Streams & Salmon and Prevent Toxic Algae Blooms

1. Plant native trees along streams to cool the water.
2. Aerate your lawn to help more water soak in.
3. Mulch around plants to conserve water in soil.
4. Use a slow-release fertilizer to prevent nutrients from running into lakes and streams.
5. Inspect and maintain your septic system to keep nutrients from running into lakes and streams.

Warmer Water Temperatures Equal More Algae Growth

Warmer water temperatures affect more than salmon. Warmer water temperatures fuel the growth of algae, which can lead to toxic algae blooms. Algae need sunlight and nutrients, such as nitrogen, phosphorous and potassium, to grow. Some algae, such as blue-green algae, can be toxic to people and dogs.

During toxic algae blooms it is not safe to fish or swim in lakes or drink the water. It's also not safe for dogs or livestock to swim in or drink the water. For more information on toxic algae blooms or for algae monitoring in Thurston County, visit **www.co.thurston.wa.us/health/ehadm/swimming/blue_green_algae.html**.

Last summer at least three lakes in Thurston County experienced toxic algae blooms. Last year was also one of our driest years. The average rainfall last water year was 15 inches less than the average rainfall from 2008 – 2018!

New "Naturescaping" Webinar Series:

Online Landscaping Lessons to Beautify Your Yard and Keep Water & Wildlife Healthy

Stream Team is bringing back our popular "Naturescaping for Water & Wildlife" workshop! The workshop series will be held in a new COVID-19-safe format online.

Beginning in September, Stream Team collaborator Erica Guttman, from WSU Extension Water Resources/Native Plant Salvage programs, will present a series of online workshops. Erica will share a variety of ways to beautify your landscapes, while using less water, protecting water resources and saving money!

The workshop series combines online lectures, interactive group and independent activities, plus optional reading and activities between sessions. Through it all, participants will learn about:

- Landscaping practices that help protect local waterways and groundwater;
- How to design and implement your own project—from goal-setting and budgeting to realizing your dream-landscape vision;
- Ways to reduce landscape maintenance and costs;
- How to get rid of invasive plant species;
- How to select the right plants for your yard;
- How to manage drainage problems, slopes, and other landscaping concerns.

This workshop series will begin in September. Please visit **streamteam.info/events** for dates & times. We want to make sure you can easily access and enjoy the webinar experience, so each participant will have a chance to practice with the online webinar before the start date.

For more information, email **ericag@wsu.edu** or call 360-867-2164.

Ready for a Fall Yard Makeover?

Try Naturescaping!

Are you dreaming of a lush landscape that will save you money and be easy to care for? Fall is the perfect time to bring year-round beauty and bounty to your yard. With cooler weather headed our way, you will be working with nature to create your own backyard sanctuary. Start with small steps or go all out, it's up to you! Use these tips to create an amazing naturescape (natural landscape) that reduces water use, stormwater runoff and pollution without sacrificing splendor.

Naturescaping uses nature as a guide. It's a way to create a landscape that sustains itself, needing less maintenance and water and no chemical pesticides and fertilizers.

Before Starting Your Project Please Check:

- Where are the utilities such as electric, gas, water, sewer or septic tank and drain field?
- Are there any easements across your property?
- Is there an existing irrigation system? Where?

■ Lose the Lawn (and the Maintenance)

Reducing or removing lawn is the first step to creating your oasis. Lawns tend to dominate landscapes and can be high maintenance and costly. This is because it takes a lot of energy, time and soil supplements to keep a lawn healthy. A big problem is the amount of water needed to keep lawns green during the warm season. As a result, landscapes with a lot of lawn use more water than those with a mixture of plants and lawn. This can have a big impact on your water bill and on local waterways.

Here are a few ways to tackle this step without using toxic chemicals:

Hand Dig. This makes sense when removing small areas of lawn. Dig deep enough to remove grass roots and shake the topsoil (good stuff!) off the roots into the planting bed. Then dispose of remaining roots and grass.

Use a Sod Cutter. This is the quickest way to get rid of lawn by stripping the surface layer of grass. The sod cutter slices under the grass, cutting it into strips about 18" wide. This method leaves a clean, edged bed that's ready for planting. This method also removes organic matter and valuable topsoil. One solution is to compost the cut pieces of sod by flipping them over (dirt side up) and stacking it (lasagna-style) to build bermed beds.

Smother Grass. Use thick stacks of cardboard as a sheet mulch to block light. This causes the lawn underneath to slowly break down and die. It's the lowest cost method to get rid of grass, and it's easy to do! With sheet mulching, valuable nutrients, microorganisms and organic matter found in the topsoil and grass stays in place. As the grass decomposes, it improves soil health and fertility in your new planting bed.

For more information, visit *streamteam.info/downsizingyourlawn*.

■ Remove Unhealthy & Invasive Plants

Problem weeds can quickly overtake a yard and surrounding local habitat. Some are toxic to humans and pets. Problem weeds include knotweed, scotch broom, Himalayan blackberry, English ivy and tansy ragwort.

For more information on identifying, removing, controlling and disposing of noxious weeds and invasive plants, visit Thurston County's website at **www.co.thurston.wa.us/tcweeds**.

CREDIT: MICHELE BURTON PHOTOGRAPHER

Make Your Naturescape Interesting & Inviting

Adding special features to your design that mimic nature can add interest, texture and function to your landscape.

Swales. Rocky, grassy, or vegetated channels that are constructed to move water from one place to another. Swales can help water flow to ponds, wet areas or rain gardens.

Snags, logs, and woody material. Provide nesting, roosting, and foraging for insects and other wildlife. Large decaying logs hold moisture through dry periods for creatures that need it. Carefully placed logs and sticks can also prevent erosion.

Native ground cover. An alternative to lawn for many places.

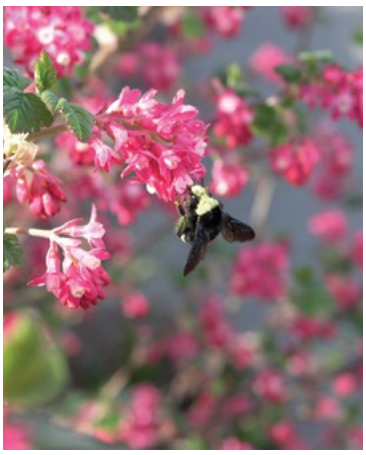
Rock gardens, walls, or terraces. A beautiful way to reduce runoff and erosion from a sloped area.

Rain gardens. Unlined, vegetated depressions used to collect rainwater. The water soaks into the ground within one or two days after a rainstorm.

Attract Bees, Birds & Butterflies

Creating wildlife habitat can be one of the most enjoyable payoffs of any naturescaping project. Remember to include all the basic needs of wildlife: water, food and shelter.

Water. Water is an increasingly rare resource for wildlife in urban environments. Something as simple as a shallow saucer refreshed every 3–5 days with clean water, will attract a variety of interesting birds to bathe and drink. Surround your birdbath with Oregon grape—cats tend to avoid the prickly leaves.



Food. Provide wildlife with natural sources of seeds, berries, and nectar. Plants that attract the insects that birds like to eat are also a good way to provide food. Good examples include: red-osier dogwood, elderberry, vine maple, hazelnut, oceanspray, huckleberry, baldhip, nootka, and woods' rose, mock orange, Oregon grape, salal, red-flowering currant, kinnikinnick and bunchberry!

Cover and Shelter. Birds and other creatures require protection from predators, the weather and need places to nest and raise their young. Create diverse and layered plantings of evergreen trees, dense plantings of native shrubs and groundcovers. It is also important to provide nesting materials such as soft, dried plant material. Birds gather nesting material from around your yard. When cleaning up flower beds this fall leave some soft, dried plant stalks and leaves for birds to use as nesting materials in the spring.

Visit **streamteam.info/native-plants-reference-library** for more information on native plants.

Use Less Water

High water use in the summer is a problem because of how it affects watersheds and lowers the aquifers during the dry months. Both rivers and aquifers (groundwater) can dry up as a result of increased water use.

Use these tips to create a water efficient landscape:

Right plant, right place. Your yard is made up of numerous microclimates with specific growing conditions. These include sun exposure, humidity, soil type, moisture and wind direction. Plants need different amounts of water, sun, shade, soil types, and nutrients to survive. Choosing plants that are suited for the microclimates in your yard will help keep them healthy and save water.

Build soil health. 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 soils ability to store water by covering and cooling the soil to minimize evaporation. It also reduces erosion and weed propagation, and some even provide nutrients and interesting landscape textures.

Create separate watering zones in your landscape. Within each watering zone, all plants should have the same general watering needs, allowing you to give each plant the water it needs.

Water wisely. Irrigate early in the morning when evaporation is minimal. Watering thoroughly, but infrequently, this will help roots go deeper, making plants more drought tolerant.

Stormwater Facilities Highlight:
Albany Street Stormwater Pond

When it Rains, it Pours

Just one storm can dump millions of gallons of water over our homes, lawns, parking lots and roads. As water flows over these surfaces, it picks up substances you wouldn't want to touch or drink—things like oil leaking from vehicles, chemicals from lawns and gardens and animal waste.

Albany Street Stormwater Pond Reduces Roadway Flooding

Stormwater facilities help manage stormwater in highly developed urban areas by carrying runoff off of roads. Before the stormwater facility was constructed , rain caused nearby roads to frequently flood. The Albany Street stormwater pond facility reduces roadway flooding by carrying runoff from nearby neighborhoods to the stormwater pond.

Albany Street Stormwater Pond Filters Runoff and is a Source of Clean Water for Salmon

The Albany Street stormwater pond includes special soils to help soak water into the soil. These special soils filter out pollutants as the water soaks in. This filtered water will soak down into the groundwater aquifer. The cleaner water will flow underground and eventually seep up into the Black River. The Black River is home to Chinook, chum and coho salmon and steelhead and cutthroat trout.

Over the course of a year, the Albany Street stormwater pond will filter and soak in the same amount of water as a football field flooded 12 stories high! That's a lot of cool, clean water for fish and people to enjoy!

Albany Street Stormwater Pond Benefits the Community Too!

This innovative stormwater project doubles as a community space for all to enjoy. Before designing the stormwater pond, the County asked residents what features they would like to see. In response, the County included a walking trail, a crosswalk that connects to a nearby community park area and an outdoor amphitheater with seating.

The County plans on installing some informative signs later this year. If you haven't seen it for yourself, visit Rochester and enjoy the trail. Or see the pond in action after a heavy rain. Think about all that clean water flowing underground to feed the Black River, providing water for salmon and people to enjoy!

The Role of Stormwater Facilities

Stormwater facilities are specially designed ditches, swales, pipes, ponds, storm drains or other engineered parts.

Stormwater facilities can:

1. Reduce flooding in roads.
2. Filter pollution picked up by stormwater runoff.
3. Soak water into the ground—helping to refill groundwater aquifers.

Did you know?

Most of our drinking water in Thurston County comes from groundwater aquifers.

Soil is Nature's Water Filter

Soil cleans dirty water three ways:

1. Soil filters pollutants by catching them in small spaces.
2. Soil holds on to pollutants with an opposite chemical charge.
3. Small organisms in soil can turn pollutants into something less harmful.

Can *Fungi* Help Clean Stormwater Pollution?

The trees are putting on their dresses of red and gold and the fruits of the earth are ripening. With autumn rain, mushrooms have begun to poke their heads up from the damped earth, a sight of delight.

Mushrooms belong to the fungi kingdom and the fruiting body of fungus is what becomes the mushroom. Fungi are nature's decomposers and play an essential role in our ecosystem. Mushrooms can be found all over the world in almost every environment. Edible mushrooms have extraordinary nutritional and medicinal properties, not to mention how delicious they can be. However, there is more to the mushroom than what meets the taste bud!

Studies haves shown that mushrooms are capable of degrading a wide range of harmful pollutants such as heavy metals, insecticides, pesticides, dyes and components of petroleum oil into simpler molecules, transforming toxic substances into nutrients. All of these pollutants can be found in stormwater, making mushrooms an excellent resource to help treat stormwater pollution.

The process of treating contaminated stormwater using fungi is called mycofiltration. Mycofiltration uses the web-like tissue of the mushroom-forming fungi, or mycelium to capture and degrade environmental pollutants before they can reach sensitive water bodies, such as our local streams and Puget Sound.

What if we added mushrooms to stormwater treatment facilities?

To better answer this question, local scientist, Paul Stamets of Fungi Perfecti, is partnering with a research team from Washington State University to further study and learn how fungal mycelium can effectively treat stormwater in urban areas. For more information about this project, visit **tinyurl.com/yyzlox5b**.

Interested in Learning about Northwest Fungi?

Join webinar host Jeremy Collison, amateur mycologist for Intro to Mushrooms of the Pacific Northwest. Jeremy will cover mushroom identification, foraging and cultivation in this fun two-hour webinar presentation. Jeremy is an avid hiker/photographer who is intrigued with fungi found in the locales of the Pacific Northwest. Besides taking numerous classes over the years, he has been sharing his love of fungi and offering workshops for the last five years. For more information on Jeremy's workshop and a calendar of mushrooms fruiting by month, visit **salishmushrooms.com**.

Register online at **streamteam.info/events**.

INTRO TO MUSHROOMS OF THE PACIFIC NORTHWEST WORKSHOP WEBINAR

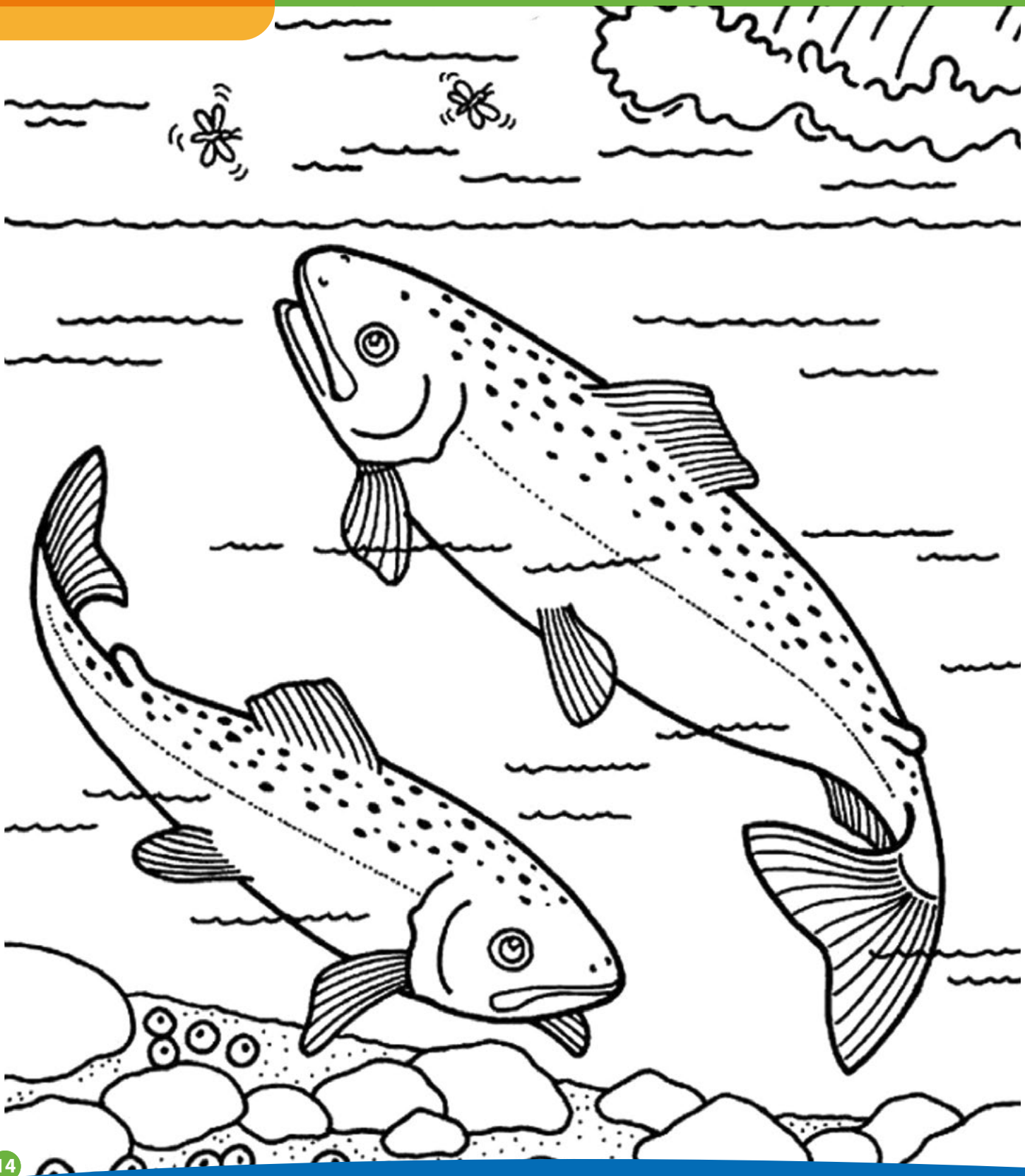
- **Wed., Oct. 7**
- **6 – 8 p.m.**
- **$15**
- **Register: streamteam.info/events**

Kids' CORNER

Some fish, like these salmon, live in the ocean but lay their eggs in streams or rivers.

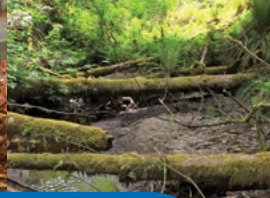
Can you find the salmon eggs?

Find more at-home salmon activities by visiting southsoundgreen.org/home-science-activities-thurstontalk-articles









Stream Team *Events*

For additional events, event details or to register, please visit our website at **streamteam.info** and click on the calendar icon.

SEPTEMBER–OCTOBER–NOVEMBER

McLane Creek Trail Maintenance

Fall 2020. Dates & times TBD, depending on Safe Start Washington Guidelines

McLane Creek Nature Trail, 5044 Delphi Rd. SW, Olympia

During these COVID-safe outdoor opportunities, volunteers will spend a few hours spread out safely along the trails at McLane Creek Nature Trail. We'll trim back plants growing into the walking trail—and other maintenance tasks to keep the trails accessible—all while supporting healthy native plant growth! Join us—as permitted under Safe Start Washington guidelines—to learn about and appreciate the beauty of this special Puget lowland forest.

Register online. For more info., contact **info@nativeplantsalvage.org**.

Pollution-Prevention Planting at the Thurston County Corrections Facility

Fall 2020. Dates & times TBD, depending on Safe Start Washington Guidelines

Thurston County Corrections Facility, 3491 Ferguson St. SW, Tumwater

During this COVID-safe planting opportunity, volunteers will learn how to use native plants and water-wise plants to manage stormwater on-site, reduce pollution from erosion and yard care chemicals, and create wildlife habitat. Join Native Plant Salvage and Stream Team to learn about the role these plants serve in protecting our local waterways!

Register online. For more info., contact **info@nativeplantsalvage.org**.

LIVE Salmon Videos!

September—November

Fall means it is time for the great salmon migration all over the Pacific Northwest. Visit **streamteam.info/salmon-viewing-videos** to view live salmon videos.

See page 3 for details.

Climate Conversations Webinar

The Food Challenge: Food Solutions for Climate Change

Fri., Sept. 25 • 6:30 p.m.

streamteam.info/events

Join us and guest speaker, Lynn FitzHugh, Community Engagement Director for Thurston Climate Action Team, for her presentation of The Food Challenge. Lynn has been focusing on climate issues for the past 10 years and will present 4 ways that we can individually and collectively take action to positively impact the climate emergency

Register online. See page 5 for details.

Intro to Mushrooms of the Pacific Northwest Workshop Webinar

Wed., Oct. 7 • 6 – 8 p.m.

streamteam.info/events

Join webinar host Jeremy Collison, amateur mycologist for Intro to Mushrooms of the Pacific Northwest.

Register online. Workshop fee $15. See page 13 for details.

Mystical Fungi

October—November

Join us as we search for allusive fungi through the rainy months of fall. Share your photos with us by tagging Stream Team on **Instagram** and **Facebook**.

To learn more about fungi, see page 13.

Stream Team Celebrating 30 Years of Fun!

Fri., Oct. 9 • 6:30 p.m.

streamteam.info/events

Join us webinar style as we celebrate 30 years of camaraderie, education, restoration and most importantly, fun!

Register online. See page 7 for details.

Climate Conversations Webinar

Western Washington Wildfires

Fri., Nov. 6 • 6:30 p.m.

streamteam.info/events

Join us for an informative talk about the past, present and possible future of Western Washington forests through a climate and wildfire lens.

Register online. See page 5 for details.

COMMUNITY EVENTS

Creating Beautiful Hedgerow Buffers

November 2020. Dates & times TBD, depending on Safe Start Washington Guidelines

Online Webinar Series

This online training focuses on the beauty and benefits of hedgerows for protecting our local waterways, supporting fish habitat, attracting birds, butterflies and other pollinators, and creating living privacy screens. Geared especially for people engaged in agriculture of all types, this webinar series will also be useful to anyone keen to know more about how to create successful hedgerows in urban and suburban spaces where space is at a premium.

For more info., contact **info@nativeplantsalvage.org**.

COVID-Safe Fall Native & Water-wise Plant Sale

October 2020. Online. Pick-up the first weekend in October, times TBD.

Native Plant Salvage's Nursery, corner of 21st Ave. SW & RW Johnson SW, Tumwater

Safely purchase native and water-wise plants from our Fall Plant Sale Fundraiser, and let Mother Nature do the watering for you! Shop online beginning mid-September, then drive to Native Plant Salvage's Nursery for curbside pick-up during the first weekend in October—by appointment for safe distancing.

For more info., contact **info@nativeplantsalvage.org**.
See **nativeplantsalvage.org** for details.

Stream Team

EDUCATE • PROTECT • RESTORE

2000 Lakeridge Dr SW
Bldg 4 #100
Olympia, WA 98502
streamteam.info

Rake-A-Drain

Keep leaves out of the street!

In heavy rain and snow events, storm drains are essential to prevent localized flooding and to keep homes and roads safe. In one square mile, one inch of rain is equivalent to 17,378,560 gallons of water (that is equal to approximately 1,498 large tanker trucks!).

Stormwater runoff cannot soak through hard surfaces like streets, sidewalks, and roofs, so our communities rely on storm drains to carry that water safely away from neighborhoods and streets to prevent localized flooding. This stormwater runoff travels down storm drains and into creeks, lakes, storm ponds, or other bodies of water. Storm drains must be kept clear for the system to work. Although city and county crews regularly clean our storm drains and streets, during large rain events, leaves and other debris can gather quickly between cleanings and clog the drain, flooding our neighborhood streets.

You can help!

When leaves start to fall, and before the heavy rains start, check to see if there is anything blocking the storm drains around your neighborhood. Organic material like leaves and dirt can go into the yard waste bin or a compost pile and anything else should be disposed of in the garbage.

In the winter months, after a heavy snowfall, remove snow and ice around the storm drain to allow snowmelt to flow down the drain. Checking your storm drain routinely throughout the fall and winter will ensure that water can drain properly, protecting your property and neighborhood. Help keep storm drains clear of debris all year by not blowing or pressure washing debris into the street.

Remember!

- Keep sidewalks clear of yard debris and remember to never blow, rake or pressure wash debris into the street.
- If you can safely unclog the drain, remember to use extreme caution and be aware of traffic. Wear reflective clothing and buddy up with another person when you clean so they can watch for vehicles while you safely unclog the drain.
- In Thurston County, storm drains almost always lead directly to a body of water like a creek, lake, or Puget Sound. Most stormwater runoff from our neighborhoods does not flow to a water treatment facility. That is why it is so important that Only Rain Goes Down the Drain!

Wondering what to do with that pile of leaves?

- Street sweepers weren't designed to pick up large piles of leaves in the street, but luckily your garden can use them! Leaves provide nutrients, protect plants from freezing winter temperatures, and help reduce the number of weeds in your yard. What's bad for your storm drain can be good for your yard.
- Place leaves in your yard waste bin for curbside pickup.
- Take leaves and yard waste to the Thurston County Waste and Recovery Center. Remember to keep those loads covered!

For more information, visit **www.co.thurston.wa.us/solidwaste/garbage/garbage-warc.html.**