

Another Season of Successful Plantings

By Ona Strikas

We would like to thank all of our landowners, the United States Forest Service, The Nature Conservancy, Skagit Land Trust and Barb Trask and Ger Van den Engh, for partnering with us to come together to help restore salmon habitat. This fall SFEG focused on planting trees in flood plain areas to restore salmon habitat. We had 81 volunteers at five planting events, contributing 236 hours. Along with the SFEG and WCC crews, about 3,000 native trees and shrubs were planted this season! Our plantings helped to transform former cattle fields and farm lands to young forest to help stabilize the nearby Skagit River, allow for more woody debris accumulation, and greater groundwater infiltration of the rainwater. We really appreciate the hard work of our volunteers who braved sometimes cold and rainy weather to make a difference for future generations of salmon!



We start them young....



Our wonderful volunteers at The Nature Conservancy's Jackman Creek planting site November 22.



Corinne Hughes leads Mount Vernon Christian High School students in stretches prior to planting.

Mount Vernon Christian High School also partnered with us for a service learning planting party. They toughed the very rocky soil to plant 122 trees while learning about the importance of pristine riparian corridors.

We'd like to thank Krispy Kreme and Mount Vernon Red Apple for donating snacks for our volunteers at these events. We look forward to seeing even more volunteers at our planting parties this spring; together, we can continue to make a difference!

Please join us in welcoming our two AmeriCorps volunteers:



Howdy! My name is Corinne Hughes. I am an individual placement with the Washington Conservation Corps. I will be working for SFEG as a habitat restoration assistant for the next year. I worked on a crew for the Washington Conservation Corps last year in Skagit Valley. We worked with the Nature Conservancy in Rockport, Concrete, and Darrington surveying rivers and tributaries for knotweed, which gave me a lot of familiarity with the county. We were also an emergency response crew and I had the chance to travel to southern Washington for the Chehalis floods and to Louisiana for Hurricane Ike and Gustav. We worked with a number of local groups and the Red Cross. I was born in Texas originally and was raised in Austin. I somehow never learned to play the guitar in the “music capital of the world”, but I did love the music. I spent a year in college at Stephen F. Austin State University’s College of Forestry for

Wildlife Management. I spent six months of that time working with an entomologist on a National Guard base outside of Dallas, Texas trying to unearth a population of the American Burying Beetle, an endangered beetle. After college, I spent a year working as a pond landscaper. Although, as much as I love the outdoors and all the messiest jobs in the world (my pond crew went by the nickname “Pond Scum”), I do have other passions. I love reading and writing. I attended a National Book Foundation’s Writing Workshop in Vermont in 2004. I knit, quilt, and paint! After this year, I plan to use my Americorps award to return to school for oceanography.

Hey y’all, my name is Ona Strikas, and I will be serving Skagit Fisheries through Washington Service Corps for the next nine months as the education and volunteer outreach assistant. I grew up in the bustling city of Atlanta, Georgia, but moved further south to Jacksonville, Florida for middle school and high school. I braved the frigid North to get a B.A. in Environmental Science and Public Policy from Harvard College, and have spent most of my field summers studying fish and stream ecology in the Carolinas and Virginia. I am thrilled to be out in salmon country in Skagit County making a difference for the environment on a ground level. After my WSC term, I am not sure what life holds for me, be it on this coast or back east, but in the mean while, I would love to get to know all of y’all!



Foam on the Water

By Joe George

Have you ever wondered about the foam you see against log jams, in still sections of the creek, and along the lake shore as you walked along your favorite creek or lake? On windy days this foam can also be seen along ocean beaches. Many people believe this foam is caused by pollution, but this foam is naturally occurring.



How does this foam develop? It's because of two components, the change in surface tension and the addition of air into the water. Surface tension is caused by the chemical attraction amongst water molecules. This attraction of water molecules enables insects, such as water striders, to glide across the water without sinking. Surface tension of water can be reduced by the addition of other molecules. These molecules are known as surface active agents, or surfactants. Decomposition of plants or plant material in the water produces natural surfactants.

The second component is air. Physical agitation of the water such as wind, waterfalls, flowing over or around debris, and stream riffles; introduces air into the water. With the surface tension reduced because of natural surfactants, this enables air to bubble to the surface. When the foam first appears it is white and turns brown over time because of the accumulation of dirt.

Foam from pollution generally accumulates near the source; it will not persist, and dissipates quickly once the source is removed. The foam is white and will have a sweet or scented smell. Foam accumulations from synthetic surfactants will generally not be related to rainstorms or windy conditions on lakes.

Volunteers Lead Hatchery Tours during Bald Eagle Season

By Lucy DeGrace

This winter a crew of trained SFEG volunteers will be available to lead guided tours of the Washington Department of Fish and Wildlife Marblemount Hatchery. Why is SFEG involved in hatchery tours, you might ask? With all the visitors coming to the Skagit to see wintering bald eagles, many people are interested in learning about salmon as well. After all, the eagles wouldn't be here if it weren't for the salmon buffet.

The Marblemount Hatchery provides a location for learning about various aspects of salmon biology and fisheries management. Since there are few places in our area with public, safe salmon viewing opportunities, the hatchery and its proximity to the Cascade River offer an excellent gathering place for people to learn about and see salmon in the wild as well as in the hatchery environment.



Clark Creek merges with Jordan Creek and the Cascade River in a rich habitat popular with steelhead fishermen.



Hatchery manager Steve Stout (right) shows volunteers the trays in which the salmon incubate until they reach the fry stage.

Each Saturday and Sunday from now until February 1, you can visit the hatchery between 10am and 2pm and learn about how this facility operates, what species of salmon are raised here, and the work being done here to help wild Skagit Chinook salmon populations. Visit early in the season (December) for a chance to see spawning salmon. On guided tours you can also visit the incubation room where eyed eggs, alevin, and fry reside, feed the fish in the outdoor ponds, and walk the Clark Creek trail to its outlet at the Cascade River. Test your skill at finding our Salmon Letterbox while you're there. Eagles are also commonly seen at this location, and there will be a team of trained Eagle Watcher volunteers stationed here until February. For more information on hatchery tours, contact our office at 360-336-0172 or call the hatchery direct at 360-873-4241.

See you at the hatchery!

Junior Stream Stewards Explore Their Watersheds

By Lucy DeGrace

This school year, nearly 350 middle school students at four local schools are participating in SFEG's Junior Stream Stewards program, learning about the salmon streams near their schools and homes. Through classroom activities these students have learned what a watershed is and in which one their school is located, which salmon live in those streams, and what kind of habitat they need to thrive. Two schools even got treated to expert salmon dissections by SFEG board member and salmon guru Kurt Buchanan. Armed with their new knowledge of watersheds and salmon, students ventured out on field trips to explore the local watershed and assess stream conditions and suitability for salmon.

At Conway School, Mrs. Talman's 7-th graders started their tour at Lake Sixteen, northeast of the school, where the north fork of Bulson Creek begins. Observations were made and water samples were taken to measure water temperature, pH, dissolved oxygen, and turbidity. The next stop was at a lower section of Bulson Creek, where we made the same measurements, and noted a marked change in habitat. At our last stop at the outlet of Fisher Slough, we were met by Jenny Baker, Restoration Manager for The Nature Conservancy (TNC). Jenny explained the restoration effort underway by TNC to restore habitat for salmon and other animals in the Skagit Delta.



Conway students measure the water temperature of Lake Sixteen, above the anadromous zone of Bulson Creek.

For the Cascade Middle School tour, Mr. Robinson's 7th-graders first stopped along the middle section of Brickyard Creek where we were met by Carri Crisp, of the Sedro Woolley Wastewater Treatment facility, and volunteer Patrick O'Hearn. Pat and Carri volunteer with the Stream Team, a program of the Skagit Conservation District that monitors water quality in Skagit County streams. They demonstrated this method for the students as we discussed the quality of

salmon habitat in Brickyard Creek. We visited one more site on Brickyard, and we finished our tour with a stop at the outlet of Hart Slough into the Skagit River.



Volunteer Pat O'Hearn shows Cascade Middle School students the tools that Stream Team volunteers use to measure chemical water quality.



Mrs. Janda's 8-th graders at Concrete stopped at 3 sites along Lorenzan Creek, which flows within walking distance of the school. We also toured the Marblemount Hatchery, where the students watched hatchery staff demonstrate how they collect eggs and milt from coho salmon. The highlight of the tour was seeing coho spawners swimming in Clark Creek, near the hatchery.

Concrete 8-th graders hold eggs recently taken from a hatchery coho.

Mrs. Russell's 8-th graders from Allen school toured the Samish watershed. Starting at a restoration site on Ennis Creek near the headwaters of the Samish River, the group observed salmon habitat and learned about the restoration in partnership with Whatcom Land Trust and Whatcom County. We continued on to Friday Creek at Pomona Grange Park, where students toured the Samish Hatchery and walked the trail along Friday Creek, where Stream Team volunteer Lyn Bishop demonstrated her water quality sampling methods. The second half of this tour took students to the lower Samish watershed, stopping at Edison Slough and the outlet of the river into Samish Bay. Of all the watershed tours, the tour of the Samish exhibited the most noticeable differences along the way in terms of land use and salmon habitat. Standing on the levee on the lower Samish, the group discussed the importance of balancing the needs to salmon with the needs of farmers, and the need to keep both farms and fisheries sustainable.



Allen 8-th graders made observations from a levee at the lower Samish River during their watershed tour.

After the holiday break, SFEG staff will be back in the classroom teaching the students about native plants and riparian zones, chemical and biological water quality, and working with the students to design and implement their service learning projects. These projects usually take the form of planting native plants or posting educational signs along their study streams. Keep an eye out for activities like these along Lorenzan, Bulson, and Brickyard Creeks and the Samish River and its tributaries.

Thank You Junior Stream Stewards Funders!

Junior Stream Stewards is made possible this year thanks to several generous partners. In addition to the wonderful school staff and teachers, we have to thank the funders, without which the program would not happen. The Washington Department of Fish and Wildlife's Aquatic Lands Enhancement Account provided funds for materials, North Cascade National Park provided funding and staff to offset SFEG costs, and the local businesses and organizations listed here have contributed over \$20,000 toward the implementation of the *Junior Stream Stewards* for this school year.

Cap Sante Marine, Ltd
Fidalgo Fly Fishers
Mike and Lisa Janicki
Janicki Logging and Construction
Lakeside Industries
Lucky Seven Foundation
Northwest Women Flyfishers
Puget Sound Energy Foundation
Shell Puget Sound Refinery
Sierra Pacific Foundation
Skagit Community Foundation
Skagit State Bank
Tesoro Companies
Tulalip Tribes Charitable Fund
Washington Alder, LLC
Westport Shipyard, Inc

Puget Sound Energy's Baker River Hydroelectric Project

By Arn Thoreen

After six years of bi-monthly meetings and many compromises, the efforts of Puget Sound Energy (PSE) to relicense the Baker River Hydroelectric Project at Concrete has come to fruition. The Federal Energy Regulatory Commission (FERC) has issued a 50-year license that grants PSE the use of a public resource (water) under the conditions set forth in the Settlement Agreement (the Agreement). Skagit Fisheries Enhancement Group was one of 23 stakeholders to negotiate the Agreement with PSE.

The Agreement attempts to mitigate for impacts of the project over the term of the new license. FERC traditionally only looks at project impacts and mitigation within the project boundary, but SFEG argued that the project has impacts downstream and must mitigate for those impacts as well. With the help of the US Forest Service and the Washington Department of Ecology our concerns have been met. The Agreement mandates that PSE study and mitigate for gravel and large woody debris transmission blocked by the project and to provide funding for the enhancement of riparian habitats downstream from the project. A schedule of the annual funding requirements is listed in the Agreement and SFEG will be in a position to utilize those dollars for mutually beneficial projects.

Mycelium Swimming

By Corinne Hughes

In the past year, since moving to the state of Washington, I have become fascinated by these strange, gooey things on the forest floor: mushrooms! What started last fall as a small passion for the delicious edibles has grown as I have learned more and more about them. First, I learned that mushrooms are the fruiting bodies of a larger organism: mycelium. Then I learned that mycelium is one of the greatest filters on earth. I learned about mycoremediation, using fungi to degrade or remove toxins from the environment.

However, what does all this have to do with salmon? If you have met anyone involved with the Skagit Fisheries Enhancement Group, you know that every one of them is obsessed with the connection of everything in the world around us. Education events express the importance of remembering the connection between trees and salmon, birds and salmon, insects and salmon. Well, consider another connection: mushrooms and salmon. During the first volunteer planting party this fall at Cascade River Park in Marblemount, I noticed a significant number of mushrooms growing in the pots. Ever since, I have kept a close eye on the amount of mycelium we plant. Almost every single pot has the white, web-like growth of mycelium attached to the soil. As good as it is to plant trees, I feel a tremendous boost in confidence by planting mycelium with them.



First, mycelium is good for the trees. Mycorrhizal fungus attaches to the roots of trees, sometimes growing into the roots, to attain access to the carbohydrates produced during the tree's photosynthesis. In exchange, the tree attains access to the mycelium's large surface area. Mycelium transports water, minerals, and nutrients in the soil and fixes carbon into the air. Mycorrhizal plants are often disease-free and drought-resistant. One of the best examples of this type of relationship is shown in hemlocks. Have you ever noticed that hemlocks are one of the first trees growing out of old stumps? That is because the rotting wood is a host to mycelium breaking it down. Hemlocks connect with the mycorrhizal fungus and absorb nutrients even above the forest floor! These nutrients are inside the mushrooms too. When they rot, they provide nutrients to insects, slugs, and bacteria as well.

Second, mycelium is good in terrestrial and aquatic ecosystems for its decomposition of plant material, filtration, and erosion control. Mycelium hyphae, each branch of mycelium, break

down plant material by secreting enzymes onto a food source to break it down until it is absorbed into the mycelium and transported. These enzymes are powerful enough to break down lignin and cellulose, making mycelium one of the only organisms on earth with the ability to break down wood. If mycelium were not able to do this, all fallen trees would simply pile up into a great big mess. This massive system also acts as a giant filter in the forest floor and provides stability in the soil by balancing the water concentration. Mycelium filters pathogens (including protozoa, bacteria, and viruses), silt, and chemical toxins from the watershed and breaks them down. Fungi actually disassemble molecules into simpler, less toxic chemicals. In Skagit County, this process is vital to control the amount of E. Coli entering the water system from dairy farms.

Third, mycelium is good for salmon! While the salmon make their nests in the cold, clear, consistent water of the Pacific Northwest, tiny white webs pump beneath the forest floor to keep the trees above them healthy, the soil around them strong, and the water engulfing them pure. Perhaps, it is a large jump to think of those tiny white button mushrooms we buy at the store for our salads saving salmon, but, in a way, it is true. However, it is not the buttons; it is the chanterelles, the oysters, the angel wings, the shaggy manes, and the morels.

The season of fall fruiting for mycelium is ending, though you can still find a honey mushroom or a looming stropharia below a fern. I encourage anyone to study their local mushrooms or join a mycological society. To help you with identification, I recommend David Arora's All that the Rain Promises and More. For more information on mycoremediation, read Mycelium Running by Paul Stamets or visit his website at www.fungi.com. Give a nod to the next pot you find covered in the white grip of mycelium. Salmon may not be able to know how much they love the mushrooms, but we can!