

In the Flow

Summer 2018

(PRODUCED WITH VOLUNTEER HELP)

Issue 69

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Seeking New Volunteers! Training in July

Streamkeepers training Classes 1 & 2 will be held on July 10 & 17 from 6-9 pm in Room 042 of the Courthouse basement. Tell your friends to check it out! We always need new volunteers, both indoors and out, to join teams that gather data, enter it into our database, report and analyze it, and keep our equipment inventoried, maintained, and calibrated. Trainees will learn how watersheds provide services to fish, wildlife, and people; what threatens our watersheds; why and how Streamkeepers monitors them; and what happens to the data. The indoor sessions will be followed by hands-on field training later in the month. There is no set time commitment, and no previous experience or special equipment is required. Come join our group of great people doing good work!

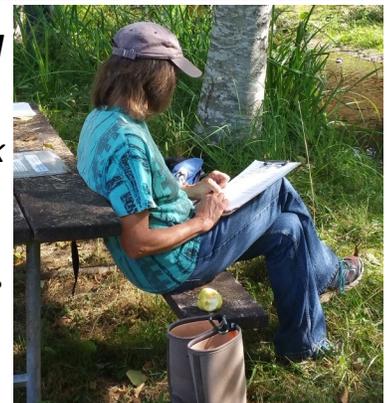
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Salt Creek Monitoring

Coleman Byrnes measuring flow with Robert Buck recording readings; Sue Nattinger checking information. Do you recognize this site from Streamkeepers training?





STREAMKEEPERS ON WHEELS

Tom Fagin, Olivia Vito, Elizabeth Kemp, and Paul Kolesnikoff prepare to do a round of bacterial sampling in Port Angeles on their bikes. The PA grab sampling project motors on...sometimes without motors!

Culvert Assessment Team Crosses the Finish Line

SK volunteers help complete culvert inventory field work

A very recent U.S. Supreme Court ruling let stand a lower court’s order that Washington State make repairs to road culverts to improve habitat and passage for salmon and uphold Native American treaty rights. Cost of these repairs is estimated at more than \$2 billion. This ruling reinforces the importance of a BIG project, begun in 2012 and wrapping up field work now: inventorying every culvert on Clallam County roads, with the help of several Streamkeepers volunteers, most notably Jim McCullough and Coleman Byrnes, under the direction of Eric Carlsen with the North Olympic Peninsula Lead Entity for Salmon. The Washington Coast Sustainable Salmon Partnership is conducting the field work in WRIA 20, in Western Clallam County. Volunteers have walked thousands of miles and assessed more than 2000 sites in this effort, measuring the slope and length of the culvert, the water drop, the depth of the pool at the bottom, the surrounding vegetation, and the integrity of the structure.



Jim McCullough taking inventory

This has been a massive undertaking, and it may be the first time a such a comprehensive assessment will have been completed for an entire county road network. The North Olympic Lead Entity is now continuing with GIS and habitat surveys, which along with the field data; will all inform a prioritization of all county road culverts. This will help access grant funding to make sure that our roads enable easy movement of not only cars and trucks, but fish too! Other partners in this effort include the Clallam County Road Department which is covering transportation costs, and funding partners including the Puget Sound Partnership thru Puget Sound Acquisition & Restoration dollars and the Strait Local Implementation Organization with EPA funding. Congratulations to all!

Ashley Baltusitis Joins Streamkeepers as a Summer Intern



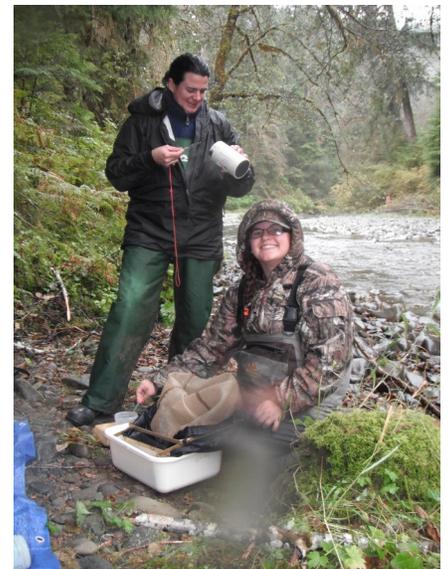
We welcome Ashley to the wacky, wet, and wild world of Streamkeepers this summer! Ashley is an Olympic Peninsula native and former Natural Resources student at the now-former North Olympic Peninsula Skills Center, finishing up her Senior year studying Environmental Science at Western Washington University in Bellingham. Ashley will help organize our summer training; assist teams in the field; apply QA practices; enter, analyze, troubleshoot and report our data; and do public outreach. She's thrilled to be coming back home to do this work. Hopefully you'll all get a chance to meet and work with her.

Message from Ashley:

"Currently, I am attending Western Washington University in Bellingham, in their Huxley College for the Environment. I'm in the process of finishing my bachelors in Environmental Science with an emphasis in Toxicology, this internship being the grand finale. I grew up between Sequim and Port Angeles and spent a summer in the now disbanded natural resources class at the NOPSC. The most memorable experience from that course was working with Streamkeepers on Tumwater Creek. I'm beyond excited to come full circle and work in the program again. Not to mention I'm ecstatic to come home!"

Katie McLean Moves Up and Out

Many of you got to meet Katie while digging bugs on the west end in 2013. Katie is an Olympic Peninsula native, born and raised in Forks. She spent much of her childhood bouncing back and forth from Forks and the Clallam Bay/Seki area participating in such activities as fishing, hunting, and foraging. Katie's love for harvesting from nature brought her to pursue a B.S. in Earth and Environmental Sciences with a major in Wildlife Ecology and Conservation Science from Washington State University. She graduated a year ago and worked as an AmeriCorps volunteer for the North Olympic Salmon Coalition, then got hired as a Wildlife Biologist for the Makah Tribe, among other things, chasing fishers around the tip of the Peninsula. Congratulations, Katie!



Susannah Spock, Hoh Tribe, and Katie McClean sampling bugs on the Sitkum River.

Streamkeepers featured in *Living on the Peninsula* magazine

Nice overview of the why/when/where/how of our program: <http://www.peninsuladailynews.com/print-editions-clallam/?iid=i20180312170832165&pid=p20130716131647996>

SK data plays role in enforcing Clallam County critical-areas ordinance

As part of a settlement over a lawsuit, Clallam County has amended Section CCC 27.12.037(7) of the Critical Areas Code to better regulate agricultural land-use practices—see <http://www.codepublishing.com/WA/ClallamCounty/?ClallamCounty27/ClallamCounty2712.html#27.12.037>. The revised code includes alternative standards that must be met for a pre-existing use that does not meet current zoning regulations, which include using Streamkeepers' water quality and biological data to assess whether there has been an impairment of water resources. In light of this connection with protection of County resources, Steve Gray, Deputy Director of the Department of Community Development, says "DCD supports County and other funding sources to support Streamkeepers efforts, not only in light of CCC 276.12.037(7), but also for the many other reasons Streamkeepers collects such data."

Twenty years of bug data uploaded to regional PSSB database

Hurrah! We've loaded 20 years of bug data into the regional Puget Sound Stream Benthos (PSSB) database.

For details, see <http://www.clallam.net/SK/biologicalmonitoring.html>. Great analytical tools available on the PSSB website include several indices of stream health besides B-IBI, including pollution-sensitivity, fine sediment, and metals tolerance, as well as a forthcoming thermal tolerance index.

Quick stats: 611,885 bugs counted; 992 separately counted samples, combined into 361 collated samples for statistical analysis; BIBI assessments at 136 sites (most with multiple years of data)

Kudos to the field volunteers over the past 20 years, the volunteer Bug-Sorting team, our bug-ID man supreme—Art Frost, numerous volunteers who helped to enter the data, and several volunteers who helped get the data into proper form and uploaded to the PSSB database: Wade Raynes, Julie Slagle, Carol Young, and Alan Brackney.

Bug sampling will hopefully get back on track in 2018 after a multi-year funding gap—get those digging tools ready for August and September!

Water Quality Portal leads to a host of Federal data

One-stop data shopping! The Water Quality Portal is a cooperative service harboring over 300 million water result records from EPA, USGS, and USDA.

- Water Quality Portal [User Guide](#)
- Visit the [Water Quality Portal](#)
- [Water Quality Portal Data Discovery Tool](#) - Advanced users can find, filter, view, and analyze water data.

New EPA system attempts to broadly share "real-time" monitoring data

Modern technology makes available a huge amount of continuously-recorded data taken by sensors installed in streams that can be viewed online in real time, but up till now it has been hard to access these data because they're stored by different agencies in different formats. The Interoperable Watersheds Network attempts to link all of these real-time datasets with a single tool. A demonstration model of this tool, presenting data from 15,678 sensors nationwide, is available at: <http://54.210.62.171>.

Good Memories of Great People!

Dorothy Gendron: Those of you involved with Streamkeepers in the early years cannot have avoided the light-hearted touch of Dorothy Gendron, who, along with Laurene McLane, found that she wasn't steady on her feet in the creek for field work anymore, and thereafter—praise be to the river gods!—served faithfully for a decade in the roles of equipment wrangler, data-enterer, special-event coordinator, troubleshooter, scold, Greek chorus, booster club, and she-wolf, twice a week, most of it in our original 10' x 10' office area, backwards but in sensible shoes. She had a unique combination of a deadly sense of humor, a devilish smile, horrid puns, a straight-arrow way of seeing to the heart of a matter, a ready-for-anything-don't-mess-with-me attitude, a steadfast moral compass, and a real devotion to people and life. Dorothy moved to [eco-senior-housing in Seattle](#) a few years ago to be closer to her children and grandchildren, and she found her niche there riding the bus all over town to see good movies. "Don't your kids worry about you?" "Not if they don't know, and if I get killed it'll be too late for them to worry!" She's still on that bus somewhere.



Virginia and Welden Clark: "Who will watch the watchers?" asked the Roman poet Juvenal.



To those who have watched over our program and helped keep it on the right course, homage must be paid, even if they never lugged an equipment bag or sat in front of a screen entering data. Virginia and Welden Clark were two of those people. A biomedical statistician and an architect, they retired to Sequim and immediately began to dig into some of the thorniest issues related to water management, producing analytical works of professional quality such as the "Keys to an understanding of the natural history of the Dungeness River system" (http://dungenessrivercenter.org/our_story/history-of-the-park/1289-2).



They were key players in the design and construction of the [Dungeness River Audubon Center](#). And they helped to advise Streamkeepers, particularly as regards program design, database construction, and data analysis. Always they asked the question "Why?", and sometimes we had no answer! We saw ourselves doing science because we were under the direction of scientists, but Virginia and Welden reminded us that there's a higher level of science in which you don't just go out and do what you're told, but also think about how it fits together, and with that mindset, we began to make many improvements, such as realizing which sorts of data were going to have long-term value and which were not. Both had a very pragmatic streak, and even with their advanced degrees, they had that rare ability of describing very abstract concepts in a most down-to-earth way, a skill essential in a volunteer program such as ours. Citizen Science never had better friends.

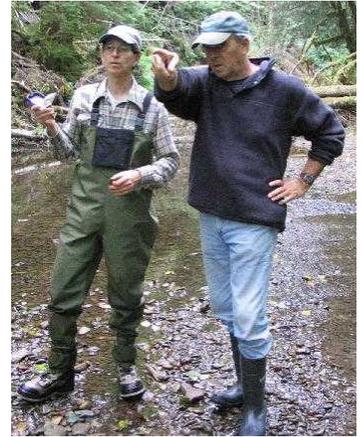
Bruce Ferguson volunteered with Streamkeepers' Dry Creek team from 2004-2009. Most Streamkeeper teams form because our advisors recommend a certain creek be monitored, but in the case of Dry Creek (a somewhat "hammered" creek running past the PA Airport and Transfer Station), the Streamkeepers team formed out of the Dry Creek Coalition, residents determined to protect and restore their watershed. The team was a feisty bunch, and Bruce was one of the feistier among them. He was thrilled to be a retired Federal employee who could "take the gloves off" and liked to portray a "devil-may-care" attitude, but he was always careful with Quality Assurance, even when his wife Gerri made him calibrate equipment in the garage! Thanks to Bruce and his Dry Creek teammates, Dry Creek was spared a number of environmental disturbances and is slated for cleanup under the Clean Water Act.



Gary Ziebarth, Bruce & Gerri Ferguson; the highly-eroded bank is evidence of some of the challenges faced by the Dry Creek team!

Good Memories (cont.)

Gerry Morris was part of our redoubtable West End crew, along with D. Snodgrass and Bill Sarna. (*Currently, the Quileute Tribe takes the lead on water-quality monitoring on the West End, with Streamkeepers helping as needed.*) Gerry used to say, “If you want to come monitor a REAL river, come on out here!” You could hear his contempt for the wimpy rainshadow rivers of the East End! These guys were all retired professionals who came to live among the critters and fish, and they loved it. We’d get reports back like “Humanoid ancestor spotted in creek... correction, it was just D.” But for all their irreverence, their work was reliable and exacting, and they cared about protecting all that beautiful rainforest. Gerry helped the Forest Service on some restoration projects, served as District Fire Chief, built sets for the theater company in Forks, and fished every day he could. Gerry spent his last day fishing for salmon, then cracked a beer, smoked a cigar, watched a crimson sunset and called it good.



*Ed Chadd & Gerry Morris
on the Wild West End*

In our next issue (?)...suggest your own ideas!

- * **Bob Fitton helps rescue our old data, giving it a nice, new home**
- * **Hoko estuary sampling team paddles into its 10th year on the water**
- * **SK team helps to “PIC” streams for remediation to open shellfish areas**
- * **Matt Rosener helps install new gages in PA—flow modeling to follow**
- * **Ron Sidwell crunches, munches, fixes, and uploads big data sets for breakfast**
- * **Volunteer database-designers Walt Johnson and Steve Belcher continue to improve the Clallam County Water Resources database**
- * **Alan Brackney puts the dots on the map, and a lot more**
- * **Steve Bengtson saddles up into new role of Equipment Wrangler**
- * **Data-entry team going through “Squad adjustments”**
- * **SK features prominently in three grant proposals**
- * **Clallam County DCD proposes to reboot draft stormwater management plan**
- * **Will the Dept. of Ecology include Clallam County in the next round of stormwater-discharge permitting?**
- * **Some new exciting tools in the offing?**
 - **Field data entry by tablet**
 - **Near real-time availability of all our data on the Web**
 - **New tools to query, analyze, and portray the data (including a map-based interface)**