VOLUME 23 | ISSUE 1 | SPRING 2017

the REDD

THE NEWSLETTER OF THE SKAGIT FISHERIES ENHANCEMENT GROUP

Dedicated to Restoring Wild Salmon for Future Generations

Transforming STEM into STEAM

By **KAYLANI SIPLIN**, WSC Education Associate

STEM is a widely recognized academic acronym that stands for science, technology, engineering and mathematics. Traditionally, schools have been teaching these subjects independently but many organizations and schools are encouraging education to focus on curriculum that combines these four disciplines together, as they do go hand in hand.

STEM careers have been increasing faster than non-STEM careers, yet there are fewer people with the knowledgebase and the skill to fill those spaces. The idea is to give all of our youth, as early as possible, the skills necessary to obtain careers in these fields through STEM education. By being the innovators for new technologies, these students will in turn help boost and stabilize our economy. Although having ideas for new technology is great, there needs to be someone who can bring these ideas to life, right? That is where the arts come in.

Recently there has been a push to transform STEM into STEAM (science, technology, engineering, art, and mathematics). But how does art fit into all of this?

The basis for adding art into the mix was to include the aspect of design. By adding an artistic element, it gives students the power to come up with more creative solutions to issues in order to make these new ideas a reality. But there's so much more than that.

Art has the ability to help improve observational skills and memory. Modelling is a great way to get students to bring concepts into reality. Whether via computer, drawing or with clay, making a model can challenge students to pull from their memory even the smallest details of something they have seen before such as a flower; from the shape of its leaves to the patterning on the petals. By recreating it, students will notice things they may never have noticed before and therefore expanding their scientific knowledge.

In addition to that aspect, through art, students have the freedom to not only relay information but also put a bit of their own individuality into it. Whether that is with a photograph of a coral reef or with a sculpture on climate change, the individual has the freedom to express it in a way that is specific to them. Their thoughts, their ideas, their voice.

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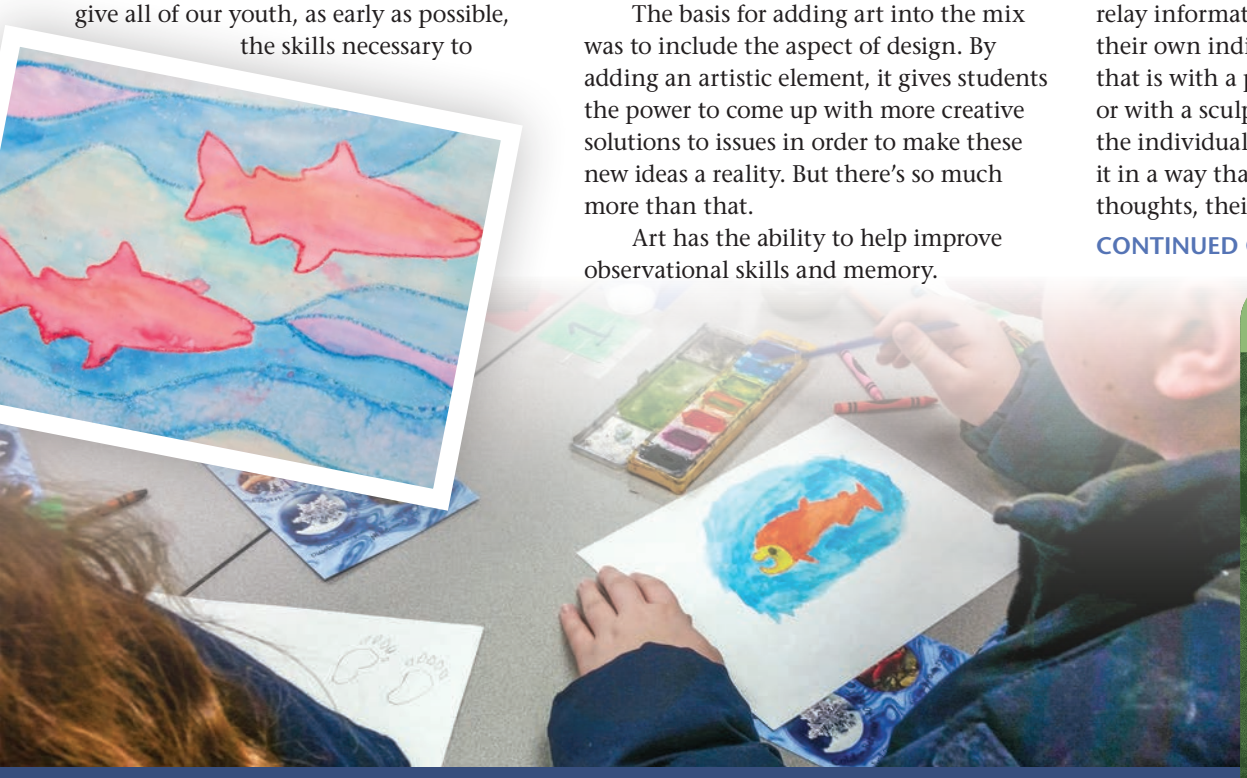

ABOVE: Edison students painting pictures of salmon

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REDD: *A female salmon uses her tail to dig a nest in the gravel. After she deposits her eggs the male fertilizes them. The female then covers the fertilized eggs and the resulting nest is called a redd.*

MISSION

Our mission is to educate and engage the community in habitat restoration and watershed stewardship to enhance wild salmonids.

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BOARD MEETINGS

The SFEG Board meets the 4th Tuesday of each month. The public is welcome.

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ELAINE LEASE

HONORING Partners and Volunteers

At SFEG's 2017 Annual Meeting in February, volunteer Hal Lee was honored with the Dick Knight Volunteer of the Year Award, which honors one volunteer who embodies the qualities of our late friend and board member. Hal spent countless hours in 2016 planting and potting trees, documenting salmon spawning at six restoration sites, and assisting youth in service-learning projects. Splitting his volunteering time between SFEG and Skagit Land Trust, Hal is one of those people who always has a smile and who we're always glad to see!

Also recognized at our Annual Meeting were Deception Pass State Park and Northwest Straits Foundation as Partners of the Year for their outstanding leadership in the Bowman Bay Restoration Project. Three volunteers were re-elected to our Board of Directors: including Mike Olis, a forest and fish biologist of Sedro-Woolley; Bob Mottram, a retired journalist residing in Anacortes; Mary Janda, a Concrete High School teacher; and new member Erin Lietzan, a business owner from Anacortes, was elected for her first term. Welcome aboard!

RIGHT: Volunteer of the Year Hal Lee potting trees at the SFEG nursery

STEM into STEAM

CONTINUED FROM PAGE 1

During the month of December, the SFEG's Junior Stream Stewards (JSS) program offers an optional art project to the schools involved, giving the students the opportunity to reflect on what they have learned though the program up to this point. In the past, students have created bookmarks showing the complex salmon life cycle and have created collages highlighting aspects of salmon habitat and the Pacific Northwest.

This year, we generated some new ideas. 7th and 8th grade students at both Concrete Elementary and Conway Elementary created murals that showcase icons of their watersheds as well as the salmon that live there. Each student got a section of the mural I designed to color however they wanted using oil pastels. Once all of the pieces were finished, each piece was put together like a quilt and hung up in the hallway of the schools for all to see.

The 8th graders at Edison Elementary used watercolor, crayons and salt for their project. Students were asked to (as accurately as possible using those scientific observations we all hope they've been making) paint either salmon or things relating to salmon and their habitat. A wide range of designs arose, from bears eating salmon to streams running through forested landscapes.

Many students complained that "I'm not good at art" or "she's so much better at it than me" and initially it discouraged some. But after discussing how everyone has their own style and that their style won't change if they don't keep at it, a little bit more effort was put into the projects. Some faces even lit up when their piece turned out better than they were expecting. Things of course got a little messy, but it is to be expected when students have the opportunity to learn, have fun and be creative all at the same time.

Check out more about SFEG's educational programs here:
www.skagitfisheries.org/education/school-programs/

Resources:
www.washingtonstem.org
www.stemtosteam.org

Carey's Slough Restoration

By **SUE MADSEN**, SFEG Restoration Ecologist

In 2016, SFEG teamed up with the Town of Hamilton and Skagit Land Trust to kick off a project aimed at improving fish habitat in Carey's Slough. Carey's Slough is an "oxbow lake" that is located in the center of Hamilton. Habitats like Carey's Slough form as the Skagit River migrates back and forth across its floodplain over thousands of years. They remain connected to the river both by groundwater that flows through riverbed gravels beneath the valley floor, and by high flows during the winter that either back-up water into these low lying areas, or spill into them when floods push the river over its banks. Oxbow lakes, side channels, and sloughs are critically important habitats for juvenile salmon, because they provide clear, low velocity areas where young fish can seek refuge during floods. Groundwater fed sloughs also provide highly productive rearing habitat with ample food and cool water during the summer.

Development of a restoration plan for Carey's Slough is challenging, because any habitat improvements that are proposed must consider the effects of changing flow patterns and water levels in the town and nearby farmlands. SFEG has been working with consultants from Herrera Engineering Inc. and Element to hold community meetings and work closely with affected landowners to evaluate options. Participation and input by local landowners has been key for developing a hydraulic model that accurately reflects what residents see during floods, and for identifying restoration actions that benefit both fish and landowners.

To support this effort, SFEG habitat coordinator Kyle Koch has engaged a number of student interns to collect data on Carey's Slough. Last summer, Danielle Vandenberg and Rueben Cash collected flow and water quality data weekly, maintained network of water level recorders, and worked with Kyle to survey "bathymetry" – i.e. the water and muck depth within the slough. A cadre of fishers from Fidalgo Fly Fishers and 4th Corner Fly Fishers, as well as several young enthusiasts from Hamilton helped us identify fish species that currently reside in Carey's Slough. We extended these efforts at our March 18th volunteer planting party by conducting seining events, documenting a number of juvenile salmon utilizing the slough. WDFW data show that the slough and Carey's Creek produced large numbers of coho salmon in the early 1990s, along with steelhead trout and occasional Chinook salmon. Despite several blocked culverts, we observed young coho in Carey's Creek, and several mature cutthroat trout. Other fish encountered included pumpkinseed and stickleback.

We look forward to completing the restoration plan this spring, and will begin seeking funds for design work in 2017. Project elements are expected to include several culvert replacements, and possibly setback of part of the local flood berm system, assuming funds and landowner support can be secured. SFEG believes this restoration work sets the stage for a long term relationship with the Town of Hamilton. We appreciate residents' support and interest, and look forward to working closely with them in the future.

DAMP, Dedicated Volunteers

Spring planting season 2017 was wet, snowy, and cold! Despite these conditions, we had a dedicated force of volunteers of all ages who helped get hundreds of trees planted at restoration sites, and thousands potted at our native plant nursery. Thank you to Calico Cupboard for a donation of delicious muffins for our one March planting party that didn't get snowed out on March 18th! Volunteers helped to build new capillary beds at the nursery, which should help keep the plants nice and hydrated this summer.

The season wrapped up with a festive celebration of Earth Day on April 22 at Howard Miller Steelhead Park in Rockport. More than 60 volunteers joined us to help remove old tree protectors from trees planted several years ago as part of a long-term, ongoing restoration of the banks of the Skagit River and an unnamed tributary that provides rearing habitat for juvenile salmonids and other fish. As part of the celebration, volunteers were treated to yummy food and coffee donated by Breadfarm and Starbucks. Providing educational activities were partners Mount Baker-Snoqualmie National Forest, Skagit County Noxious Weed Control Board, Skagit County Historical Museum, Skagit Land Trust, Skagit River Bald Eagle Interpretive Center, Fidalgo Fly Fishers, Rockport State Park, and local bird expert Tim Manns to teach volunteers that riparian resonation is about WAY more than just salmon.

Thank you to Grandy Lakes Forest and Equinox Research and Consulting International (ERCI), for sponsoring our event t-shirts, which feature an original design by AmeriCorps member KayLani Siplin. Thank you to Eco Orca Tours and Island Adventures, which donated wildlife-watching boat tours that enlivened a raffle at the end of the day! And thank you to the 65 volunteers who did the work! All in all we got about 1400 plants de-tubed, removing 280 lbs of plastic from 2 acres, filling 15 garbage bags. Thanks everyone for making spring planting season great, and we will see you in the fall!

Scholarship Available

Are you a Washington State high school senior headed to college in the fall, or currently pursuing an undergraduate degree in natural sciences? Skagit Fisheries Enhancement Group is soliciting applications for the Paul G. Ancich Memorial Scholarship. This scholarship will be awarded to a graduating Washington State high school student who is accepted and enrolled in a two or four year university or college, or current undergraduate student and plans to major in environmental science, fisheries, biology, ecology, hydrology or related field. The Paul G. Ancich Memorial Scholarship will be awarded by the Regional Fisheries Enhancement Group Coalition in the amount of $1400 and will be paid directly to the school of the awarded recipient's choice. The Paul G. Ancich Memorial Scholarship was established in 2011 by the Washington State Regional Fisheries Enhancement Group Coalition in honor of Paul G. Ancich, a dedicated member, lifelong commercial fisherman and a passionate advocate towards the preservation of wild salmon. The Regional Fisheries Enhancement Groups have a common goal of restoring salmonid populations and habitat to their regions working in partnership with local communities. This scholarship is funded by seven of the 14 Regional Fisheries Enhancement Groups. Applications are due by June 1, 2017. Eligibility, application instructions and selection criteria available at www.skagitfisheries.org

REGIONAL FISHERIES COALITION

Seining in the Rain

By **JENN DUNN**, SFEG Restoration Technician

Though the rainy season seems to persist, the sun has begun to make its much-appreciated and seemingly overdue debut (we now know this has officially been the rainiest Oct-Apr on record: www.seattleweatherblog.com/rain-stats/rainfall-2017/). Leaves are emerging and flowers are blooming. If you're familiar with Skagit County at all, you know this also signifies that crowds of people are flocking in to see the tulip fields. One thing you may not have realized, however, is that the spring season also means new life in the water; emerging young salmon. Similarly to the tulips, this occasion brings people together, albeit in chest waders and rain gear instead of t-shirts and sunglasses. One such collaborative effort occurred the first week of April in Anderson Creek, bringing together Skagit Fisheries Enhancement Group (SFEG) staff and interns from Skagit Valley College and Western Washington University.

Anderson Creek is a dynamic tributary to the Skagit River that lies behind the old Vandersar Dairy, on the South Skagit Highway. While the upper reach of the stream flows through towering trees and contains spawning grounds for salmon and steelhead, the lower portion spreads out over relatively flat terrain and becomes more of a slough. This slough provides off-channel rearing habitat for young salmonids looking to get away from predators and locate a buffet of bugs. As much of the lower reach has been infested with Reed Canary Grass, the site was previously part of a large revegetation effort. The result: a mix of trees in the uplands and willows in the lowlands.

Earlier this year in February, Bengt Miller, SFEG's Stewardship Coordinator, assisted Chinook Engineering with using GPS to map all the channels of Anderson Creek. In support of this mapping, we needed to assess the fish population (or lack thereof) in the lower portion of Anderson Creek owned by Seattle City Light. This would provide further information on which salmonid species were using these channels and where. Leading the collective fish sampling project, Kyle Koch, SFEG's Habitat Restoration Coordinator, ensured the fish were handled with proper care and identified correctly. You may be wondering at this point if we chased the one-inch juveniles upstream while attempting to identify them as they darted past. But I assure you there was a method to the madness, and that method involved the use of seine nets.

Seining is a fish sampling process that uses a long net to corral fish in a chosen location. The bottom line of the net is weighted to keep it close to the stream bed while several mini buoys, or floats, keep the top line afloat. In this venture, we used a 40-foot long seine with a height of roughly three feet, just deep enough to not breach your chest waders while standing next to it. Starting from the stream bank, someone led one end of the net through the channel while avoiding willows and woody debris to eventually loop back around to the starting point. Like a boa constrictor surrounding its prey, we pulled in the two ends of the net at the same time to gather the fish. Our anticipation grew as we waited to see what we just corralled.

Sometimes we caught two or three young fish, other times we didn't see anything; but in the last set of the day, we caught almost a whole school of fish (34 to be exact). We seined in a total of 16 different locations that day, sometimes repeating sets. The total count included 50 Chinook, 11 coho (2 of them being second-year coho), 1 second-year cutthroat trout, 2 peamouth chub, and 1 stickleback. This data was not only exciting, but important to understand the locations of off-channel rearing habitat for Chinook salmon as they are a threatened species under the Endangered Species Act.

LEFT: : Volunteers help with juvenile salmon seining while visitors wait to see what's living in the side channel at Howard Miller Steelhead Park. **BELOW:** Second-year cutthroat trout found in Anderson Creek

Planting in the Snow

By **LINDSEY JUEN**, SFEG Restoration Technician

As the snow melts in the North Cascades, we're reflecting on a very snowy planting season of the past six months. After several disappointing winters in a row, the snowy season came back in full force, starting in early November and lasting right through April. What turned out to be a fantastic winter for skiers and west coast reservoirs resulted in a rather rough season for our field crews. With work sites up and down the Skagit River watershed our restoration techs and Washington Conservation Corps crews muscled through snow deep enough to sled on, frozen ground and even the occasional flood that put our waders and muck boots to the test.

One of our most trying sites this winter was near the Dalles Bridge off the Concrete-Sauk Valley Road. We visited fifteen times as we waited out and worked with the elements. Jenn and I marveled at the falling snow as we transferred 1,800 plants from our nursery to the site in December, not yet knowing how frustrated we would be with it in the coming months. Over the next four months we worked with the WCC crew to dig holes in the frozen ground. When the temperatures warmed up enough to melt the ice, our holes would flood with groundwater as fast as we could dig them. Though our potted plants were stored in tight bundles for insulation, they still froze solid. We learned to dig holes in accordance with the rising sun, moving to areas in the field that melted out earliest in the morning. After the ground froze and thawed a few more times, we had to fix our plant protectors that had been ice-wedged upwards and out of the soil. The planting was finally finished at Dalles Bridge in the last week of March when the ground and plants were sufficiently thawed.

Another project that lasted longer than expected was a large planting in Newhalem where we were scheduled to plant 2,023 trees and shrubs. Though we started planting back in the fall, we didn't get the last plant in the ground until mid-March because of the especially cold and snowy conditions that far upriver.

Snow and ice also graced our crews for spawner surveys and the occasional blackberry brush cutting mission. Other highlights from the season included transporting nearly 1,000 potted plants on sleds and using up a whole pack of toe-warmers in record time. We drank countless thermoses of hot tea and steamed up the work truck with soup every day at lunch. With a total of 17,603 plants put in the ground by our crews, it was a long, cold winter but we've made it through to spring and are happy to see the buds popping all around us, knowing that warmer days are ahead.

BELOW: Lindsey (left) and Jenn (right) moving over 500 potted plants on sleds at Marblemount Boat Launch.

LEFT: A frozen conifer root mass at the Dalles Bridge restoration site.

PHOTO COURTESY OF LYLE PAINS

ABOVE: Interns Reuben Cash (left) and Danielle Vandenberg measure flow in Carey's Slough

2017 Membership

SKAGIT FISHERIES ENHANCEMENT GROUP

SFEG IS A MEMBERSHIP BASED ORGANIZATION

If you are enjoying reading this newsletter, perhaps it's time that you became a member! Your membership dollars are critical to support the operation of SFEG (including producing this newsletter), allowing us to develop new projects with landowners, providing education programs to kids throughout our watersheds, and collecting monitoring data regarding restoration project sites to document successes.

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- ☐ $20 - INDIVIDUAL
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PLEASE MAKE CHECKS PAYABLE TO S.F.E.G.

SFEG is a non-profit 501 c(3) organization. All contributions are tax deductible

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Making Cottonwood Salve

By **RACHAEL WEST**, SFEG Riparian Restoration Coordinator

Finally, the long and arduous winter is behind us and we can get ready to feel the warm PNW sunshine on our faces. Spring comes in a little different here in the Skagit than other places in the country. First you will hear the singing springtime migratory birds, then feel the warm misting rain, and lastly that smell in the air. Behind the floral hints of magnolia and cherry blossoms is a lingering camphor smell. That is the smell of the cottonwood (Populus trichocarpa) buds emerging from their scales all sticky and ready to open up their leaves, eager to begin the summer photosynthesis to store essential sugars into their roots for the long winter that follows. Cottonwoods are an important source of shade, filtration and habitat in riparian areas. They even contribute to the ecosystem after life by creating snags that are favored by our local osprey. Among the wildlife, humans have found medicinal uses for cottonwood: the emerging buds have anti-microbial properties and soothe inflammation. So hurry and fill your first AID kit with this aromatic topical salve recipe below:

STEP 1: Cottonwood Oil

- Collect your sticky cottonwood buds as they are just emerging from the trees. It is easiest to find branches that have been recently blown down and harvest from there. If you are harvesting from a standing tree be sure not to over harvest. A good rule is the 3:1 ratio, leave 3 buds on the tree for every 1 bud you collect. This is to ensure you don't over harvest or damage the tree.
- Once you have collected enough buds to fill a jar of your choice $^2/_3$ full, fill the jar with the oil of your choice. Olive oil is preferred.
- Let this sit in the jar for 8-12 months, shaking it every couple of weeks to infuse the buds into the oil.
- After 8-12 months (the longer the better) strain the infusion through cheese cloth.

STEP 2: Making the Salve

- 1 cup cottonwood oil
- $^1/_4$ cup bees' wax shavings
- Warm the oil in a pot you don't mind dedicating to making salves. Once the oil has warmed, SLOWLY add the bees' wax and stir until all the wax has melted and incorporated into oil. Play around with adding more or less bees' wax to make a consistency you prefer for your salve. Pour the salve into the container(s) of your choice. Enjoy!

SKAGIT FISHERIES ENHANCEMENT GROUP
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Events Calendar AND Volunteer Opportunities

Penn Cove Water Fest

May 20 *(Saturday) 9-4 pm, Coupeville*
Help with SFEG's educational display and a crafty, fishy project for all ages.

SFEG Vegetation Monitoring Workshop

June 3 *(Saturday) 10am-1pm, Bowman Bay* Workshop to help survey vegetation at restoration sites. Introduction to identifying native and invasive plants, assessing plant health, and estimating coverage in riparian planting projects. For more information or to RSVP contact Rachael West at rwest@skagitfisheries.org (360) 336-0172 or visit our website at www.skagitfisheries.org

Bay View Dine & Discover

June 9 *(Friday) 4-8pm at Bay View State Park.*
Have fun and free food while learning about water quality of Samish and Padilla Bays. Help with SFEG's educational display and a crafty, fishy project for all ages.

Kids R Best Fest

July 8 *(Saturday) 11am-4pm at Storvik Park, Anacortes.*
Help with our educational display and a crafty, fishy project for kids.

Taylor Shellfishtival

July 12 *(Wednesday) 11am-3pm at Taylor Shellfish, Bow.*
Help with our educational display and a crafty, fishy project for kids.

Concrete Youth Activity Day

July 14 *(Friday) 12:30-4 in Concrete.*
Help with our educational display and a crafty, fishy project for kids.

Mount Vernon Children's Art Festival

July 15 *(Saturday) 10am-4pm at Hillcrest Park.*
Help with a crafty, fishy project for kids.

Fidalgo Bay Day

August 12 *(Saturday) 11am-3pm at Fidalgo Bay Resort.*
Help with a crafty, fishy project for kids.

Skagit River Salmon Festival

September 9 *(Saturday) 10am-6pm at Edgewater Park in Mount Vernon*
Join us for a FREE fun-filled experience for families featuring: Youth Activities and Crafts, Educational Booths, Live Music and Cultural Opportunities, Great Food and Salmon BBQ, Beer & Wine Garden, Commercial Arts & Craft Vendors, And much, much more! More info at www.skagitriverfest.org

Contact us to volunteer today!