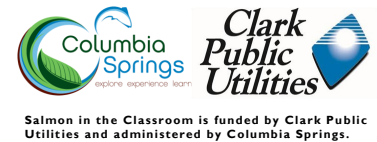


Salmon in the Classroom engages Clark County students in hands-on learning about science, salmon, watersheds, and stewardship. After raising and learning about salmon throughout the year, participants release their fish into local streams near their schools. Special thanks to Clark Public Utilities for another successful year of Salmon in the Classroom! Their ongoing support is what allows our program to thrive in Clark County.



STRATEGIC PROGRAM GROWTH CREATES OPPORTUNITIES FOR SUCCESSFUL OUTCOMES

Participation and engagement increased again in 2018-19! We served **more teachers and more classes** per school; we provided **more classroom activities and more fish releases!** What drives all our program growth is a **strong commitment to providing a high-quality experience with actively engaged participants.** This requires a **strategic approach to distributing our program's resources.** We serve multiple teachers at one school when it creates a **more robust program** for those students. We provide multiple lessons for a single class to **strengthen the fish release as a culminating experience.** Our goal is to **help teachers implement SITC in meaningful ways,** and this year we made huge strides toward that goal.

In 2018-19 Salmon in the Classroom:

- **Encouraged team participation** for entire grade levels, and supported 50 schools in raising salmon, serving over 2000 individual students from **95 individual classes!**
- **Strengthened NGSS connections** for our activities to support national science standards, particularly for **3rd grade teams.** We provided **multiple classroom lessons for each team,** which **strengthened fish releases as truly culminating experiences.**
- **Coordinated 46 salmon release field trips with 17 schools,** and provided educational fish release activities for over **900 students!** We also **developed a new high school fish release field trip option.**
- **Increased student buy-in** at the beginning of the school year and **doubled the number of student contacts for our hands-on Fingerling ID activity,** up to 1,116 students compared to 590 in 2017! We also encouraged teachers to do **hands-on observations of January eggs.** More student buy-in leads to **richer connections and greater success** at our fish release field trips.

"The kids' eyes light up and their curiosity is sparked with Salmon in the Classroom. It really helps connect their learning with the real world."

-Angela Fojtik, FLEX Academy



Ask a 3rd grader:

What's the best part of the fish release field trip?

"I will miss my salmon. I wish I didn't have to let it go, but know they have to live their life."

"My favorite part was making sure the habitat was just right for our salmon."

"I liked naming my salmon after my favorite super-heroes!"



Watch [this video](#) of 3rd graders seriously excited about salmon habitat!

HOW DOES TEAM PARTICIPATION MAKE SITC STRONGER?

SITC has engaged ~50 schools for over a decade, typically with one individual teacher coordinating, implementing, and benefitting from the program at each school. However, **offering program resources to a single participant is problematic for elementary teachers who operate in teams.** When K-5 teachers design their instruction, schedule, and activities for the entire year as a grade-level team, the success of SITC becomes a team effort. **Supporting team participation** when we already serve 50 schools is challenging, but after testing this new model with several schools we found **supporting K-5 teaching teams strengthens our program.** Working with team participants helps us maximize our program's resources and impact.

What happens when participation is team-oriented?

- Teachers are **invested together in planning** how to **use salmon as a lens to support district curriculum and NGSS** learning.
- Teachers support each other with **creative, interdisciplinary teaching.**
- Our staff can provide more **efficient aquarium support and instruction.**
- There's **greater stability** for our program at the school.

How many classes did SITC serve this year?

This year at least **95 classes from 49 schools engaged with SITC**, with instruction provided by classroom teachers, SITC educators, or both! **We led more scheduled activities than ever, and provided ~200 instructional hours** in **74 different classrooms.** Over half our schools have a single teacher participant, but the **vast majority of classes we served were part of a K-5 team.** **Half our total instructional hours were with 3rd grade classes.**

Table 1. Participation by Grade Level

Grade	Schools*	Total Classes	Total Students	Average Classes/School	SITC-led Activities	SITC-led Instructional Hours
K-2	4	4	100	1	1	1
3	8	29	584	3.6	73	96.1
4	9	18	450	2	28	28.6
5	10	21	522	2.3	32	49.3
6-8	10	11	251	1	3	4.5
9-12	8	9	170	1	12	14.25
college	1	1	25	1	0	0
special needs	2	2	20	1	4	4.75
-	-	95	2122	-	153	198.5

Team participation makes sense for K-5 teachers who operate in teams. Individual participation makes sense for middle and high school teachers who teach more specialized life science courses. *Some schools have 2 tanks.



3rd grade teachers Rocky Baker (above) and David Belokonny (below, waving goodbye to his salmon fry) are SITC participants at Endeavor Elem, and all six 3rd grade classes were involved with the program this year.



"SITC brings our **whole school community** together in a **shared learning experience** that connects them to the world outside.

Students, families and staff **become invested** in the care and well-being of the salmon, and it becomes a true **authentic learning experience.**"

-Emily Humphrey,
Orchards Elementary



2018-19 PARTICIPANTS

PARTICIPATION AT A GLANCE

When we report participation as the number of schools who raise salmon, it doesn't capture the full picture of **who we serve** and **how they engage with our program**. *Special thanks to [teachers who coordinated salmon learning](#) for their teaching team!*

We strive to **fully support participants' needs**, and SITC has grown considerably to provide **more instructional hours** for elementary teams.

Schools	49
Tanks	52
Teacher Participants / Team Coordinators	66
Individual Classes / Total Teachers Served	95
Individual Classrooms SITC Instructed	74
Classroom Activities SITC Provided	106
Fish Release Field Trips	46
Total Instructional Hours SITC Provided	197
Total Individual Student Participants*	2122
Individual Students Taught by SITC Educators	1657
*Likely underestimated	
Student Contacts - Fingerlings	1226
Student Contacts - Fish Releases	918
Student Contacts - Other Classroom Activities	960
Total SITC Student Contacts for Instructional Hrs SITC Provided	3104
Total Program Contacts (Youth)	4377
Total Program Contacts (Adult)	1296



In addition to regular "in-class activities," SITC supports teachers in new activities they want to try, such as this hands-on observations of salmon eggs with Mill Plain 3rd graders this January.

School	Teacher Contact
49th Street Academy	Sharon Story, Buffy Harper
Alki Middle	Don Buss
Amboy Middle	Kimberly Klein
Burton Elem	Steve Miller
CAM Academy	Mike Clapp
Cape Horn Skye Elem	Kam Lawrence , Alice Yang
Cascade Middle	Tom Bergemann
CASEE Center	Margaret Bessert, Rod Hallman
Chief Umtuch Middle 1	Jennifer Marrott
Chief Umtuch Middle 2	Bryan Moxley
Clark College	Dr. Phil Jones
Columbia River High	Tim Smith
Columbia Valley Elem	DeAnn VanNess
Crestline Elem	Beth Lawson
Endeavour Elem	David Belokonny , Rocky Baker
Evergreen High	Steve Klauer
Firm Foundation	Tamasen Hayward , Jessica Stinson
Fisher's Landing Elem	Teresa Day
FLEX Academy	Angela Fojtik
Gardner School	Jared Renfro
George Marshall	Stephanie Tynan , Sunny Selders , Michael Lake
Harmony Elementary	Toni Johnson
Hazel Dell Elementary	Kirk Fitzer
Hockinson Heights	Rene Fern , Carolyn Blain
Hudson's Bay High	Amy Carpenter
Image Elementary	Lauren Fern
King's Way Christian School	Sarah Murphy
La Center Elementary	Pete Sloniker
La Center High School	Rebecca Morris
Laurin Middle School	Darrell Kirkpatrick, Tim Medearis
Martin Luther King Elementary	Jennifer Gay
Meadow Glade 7th	Rob McNabb
Mill Plain Elementary	Beky Rasmussen , Joy Bradley
Orchards	Emily Humphrey , Karen Curtis
Pacific Middle	Tyler Carlson, Sarah Moody
Pleasant Valley Middle	Patrick Schommer, Wendy Howell
Pioneer Elementary	Jayne Salisbury
River Homelink	Heather Williams
Roosevelt	Carol Patrick
Roosevelt	Don Nissen
Sacajawea Elementary	Mona Lomeli
Shahala Middle	Matthew Love
Sifton Elementary	Linda Campbell
Sunset Ridge Elementary	Linda Wear
St. Joseph School	Maricela Resendez
Thomas Jefferson Middle	Elizabeth Whitman
Truman Elementary	Sharon Bailey
Tukes Valley Primary School	Diane Hatfield , Kathy Davis
Washington School for the Deaf	Michelle Clark
WyEast Middle	Will Thompson, Patrick McKay
York Elementary	Amanda Pemberton

NEW HIGH SCHOOL FIELD EXPERIENCE CREATED THROUGH COLLABORATION!

Although most students we serve are 3rd-5th graders, SITC also has tanks at 7 local high schools. Several high school teacher champions were not content to let 3rd graders have all the fun at fish release field trips and asked, “What about my students? What could their fish release look like?” *Here’s how we developed a new field experience for high schoolers through a collaborative effort between teacher champions, WDFW biologists, and SITC staff.*



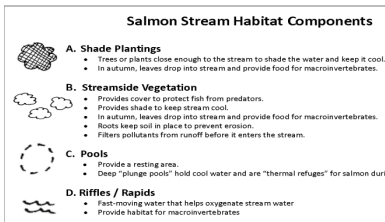
First, Lisa Brown (WDFW coho biologist) took our SITC Coordinator on a spawning survey to learn more about redds, the field protocol, and spawning habitat components. Lisa was incredibly supportive of our project, answered all our questions, and even shared WDFW stream survey training manuals.



How do different salmon species decide where to build redds??

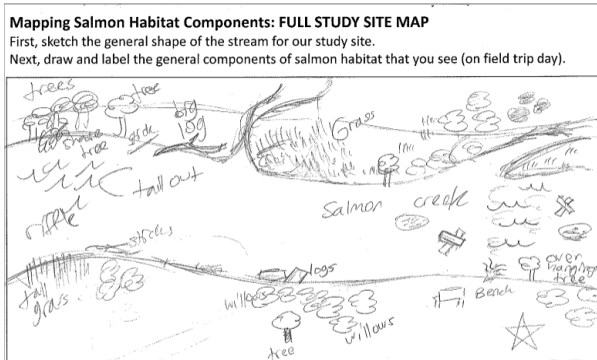
	Chinook	Coho	Chum
Stream Width	Larger streams and rivers	3 ft wide to medium size streams (a little bit in rivers)	Streams and rivers, but look for groundwater source... Lacey!
Gravel Size	Gravel to Cobble (up to half to baseball size gravel)	Pea gravel (dime to quarter size gravel)	Pea gravel (dime to quarter size gravel)
Gravel Bed Dimensions	20' x 2 ft	20' x 2 ft	20' x 2 ft
Water Depth	1ft to 3 ft	1ft to 3 ft	1ft to 3 ft
Pool or Riffle?	End of pool	End of pool	End of pool

Next, Amy Carpenter (Hudson’s Bay teacher) helped us create a “mock spawning survey” which we tested during her Natural Resources students’ 2018 fish release. For 2018-19, we settled on 3 activities (Spawning Habitat Suitability Survey, mapping, water quality testing), and recognized the need for additional classroom visits.



SITC visited the classroom prior to the field trip, providing a presentation about salmon habitat and redds. Students practiced identifying salmon habitat components prior to the field trip using [Salmon Creek drone footage](#) provided by David Lampe (Columbia Springs Board Chair).

SITC developed a [new 12 page field journal booklet](#) providing background info on Salmon Creek watershed, state water quality standards, and spawning habitat preferences for different salmonid species. To evaluate student success, Amy developed a [hiring rubric](#) using responses from science professionals who answered the question: *What are the most important skills students need to be successful in this field?* Students were instructed to think of the field trip as a job interview, and those who received full points for demonstrating skills such as time management, organization, and risk analysis, could receive a recommendation to volunteer on a real WDFW stream survey with Lisa Brown.



Habitat map created by FLEX Academy student (left) and La Center High students collecting data (right). Hudson’s Bay, La Center High, and FLEX Academy participated in the new field experience this year.

On field trip day, students were prepared to complete their survey tasks in small groups. Afterwards we provided students and teachers with more info on local field biology jobs and volunteer opportunities.

SITC SUPPORTS NGSS LEARNING FOR EVERGREEN 3RD GRADERS

Over the past few years we've **focused our efforts** to **better support new district curriculum and Next Generation Science Standards** with our program offerings. Curriculum specialists at Evergreen Public Schools helped us identify **a natural fit for SITC to support 3rd grade NGSS learning**, since **"Life Cycles"** is a major focus for those students. Of the 200 instructional hours SITC provided this year, about half were with 3rd grade classes. We worked with **29 classes of 3rd graders from 8 schools**, most of which were in Evergreen Public School District.

When **Evergreen shifted to using NGSS-aligned STEMscopes** curriculum, SITC gained access to the district's new curriculum to look for **connections between STEMscopes and existing SITC activities**. This curriculum shift created opportunities for SITC to rethink how we can **better support 3rd grade teams throughout the year**.

For example, Orchards teacher Karen Curtis asked us last December, "The 3rd grade STEMscopes includes a unit on Social Behavior and animals that work in groups. We are wondering, **do salmon work in groups?**" Anyone who's seen images of spawning season knows that salmon migration is most certainly a group activity, but are they really working together in groups? After combing through the STEMscope on group behavior, as well as [research articles](#) and [news stories](#) for more info about salmon migration as a social behavioral adaptation, we first [answered Karen's question](#) and then **slightly modified** our [Smell Your Way Home activity](#) to **highlight how salmon work in groups** during migration. We created a new [slideshow](#) for our activity intro to **reflect STEMscope materials**, we showed a [video](#) of salmon migrating in a group, and we had **students pretend to be salmon working collectively** to find the mouth of the "estuary" (a blue string) before completing the normal activity. We presented this at Orchards with all four 3rd grade classes. It is exciting for us to see teachers help **students explore the new district curriculum STEMscopes topics using salmon as a real-world example**.



"The fish release supports the molecules to organisms standard, and students actually play a part in their salmon's life cycle."

-DeAnn VanNess,
Columbia Valley Elem
3rd grade teacher



"SITC is an amazing hands on learning experience for our students. There's great content to use to teach the science standards."

-David Belokonny, Endeavor
3rd grade teacher

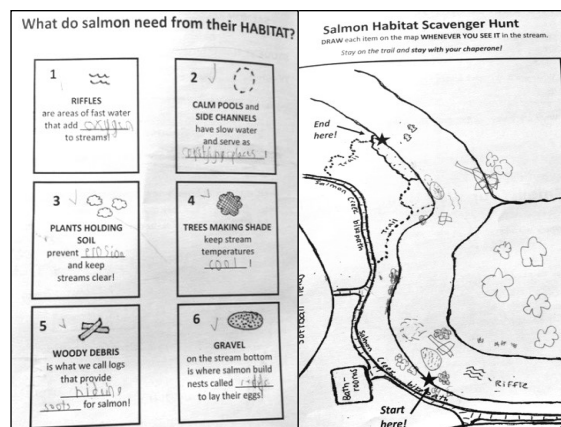


"The Fingerling ID activity was a perfect connection for our unit on traits and characteristics of living organisms."

-Joy Bradley, Mill Plain
3rd grade teacher

"The habitat mapping was really great to show students exactly how our salmon are suited for their environment and vice versa."

-Juliana Blackmon, Mill Plain
3rd grade teacher

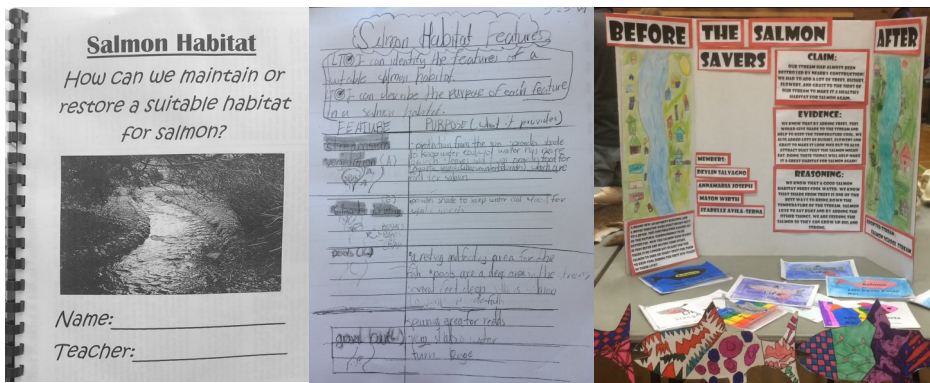


MARSHALL 3RD GRADERS ARE “LASER FOCUSED ON SALMON!”

SITC serves multiple school districts whose science curriculum differs, but most **schools are all tied to the same national science standards** and design their instruction to support NGSS learning. Even though Vancouver School District does not use the same STEMscopes curriculum as Evergreen Schools, **3rd grade teachers at Marshall Elem use salmon to address their NGSS requirements**. Teachers Stephanie Tynan, Sunny Selders, and Michael Lake **invested an incredible number of instructional hours** to salmon-related topics for science learning, but also reading and writing.

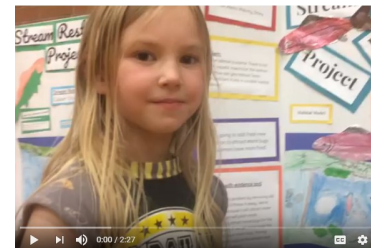
“The salmon unit supports all our NGSS topics and that is why we take part in it!”

-Sunny Selders, Marshall



Students spent weeks on a **salmon habitat project**, first learning about salmon habitat components, then completing group projects on a habitat restoration problem solving activity, and finally presenting their work at the school's science fair.

Marshall teachers also invited us in to their classrooms throughout the year for the Fingerling ID, Fish Dissection, and Macroinvertebrate Exploration activities. SITC presented a table top version of Smell Your Way Home at their school's science fair. **Engaging students throughout the year directly contributes to the success of the culminating 2-hr fish release**. Not only did students have the background knowledge to go deeper into activity topics, they already knew and trusted our educators which fostered excitement and focus during the field trip. We realize class time is precious, and thank all our teachers for that opportunity!

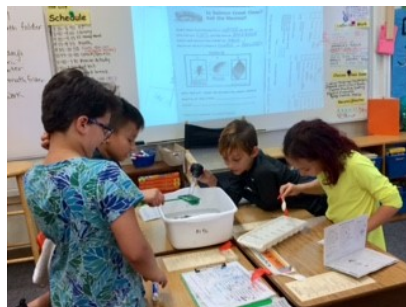


Watch this [video clip](#) of a 3rd grader explaining her group's salmon stream project at the science fair at Marshall Elem (above), and then this [video clip](#) of Stephanie Tynan's 3rd grade class releasing their salmon (below)! Marshall teachers engaged students in salmon learning throughout the entire year.



“When students study all year in the classroom, going out to the creek brings it around full circle.”

-Stephanie Tynan, Marshall



Marshall 3rd graders investigate water bugs to gather evidence if Salmon Creek is a good home for their coho prior to their fish release.

“Those Marshall kids were laser focused on salmon for the entire fish release field trip!”

-Jenna Kallestad, Columbia Springs Onsite Education Coordinator

Appendix A. Summary Table of In-Person Contacts 2018-19

SITC Activity	Description	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual	
		Jul – Sep		Oct – Dec		Jan – Mar		Apr – Jun		Totals	
		Student	Adult	Student	Adult	Student	Adult	Student	Adult	Student	Adult
Salmon Deliveries and Equipment Maintenance	Tank and equipment maintenance		18	5	19		2	5	12	10	51
	Fish/Egg Deliveries	60	5	20	17	35	120			115	142
In-Class Presentations	Short SITC Program Intro	25	1	0	0					25	1
	Fingerling ID	224	14	1116	44					1340	58
	Tracking Salmon Growth			10	2					10	2
	Fish Dissections			280	19	166	21	170	6	616	46
	Hands-on Egg Observations					75	4			75	4
Fish Releases	Smell Your Way Home- Group Behavior					68	4			68	4
	Fish Release Prep (Macros or Redds)					10	1	286	15	296	16
	SITC fish release field trip					61	9	857	244	918	253
Other Activities	Meetings, Trainings, Interns, Misc.		50	2	78		17		20	2	165
On-site Education	Summer Camp	60	45							60	45
	SITC Homeschool Pilot Project			5	4	11	9			16	13
	School Field Trips			65	16	31	5	50	10	146	31
Community Activities	Hooked		50							0	50
	Watershed Festival	200	50							200	50
	Fall Family Nature Fest			50	50					50	50
	Circle of Life			5	35					5	35
	KlineLine Fishing Derby							200	100	200	100
	HGIF							35	50	35	50
	CPU Earth Day Eco Fair							50	50	50	50
	Kids Fishing Festival							50	50	50	50
	Other Community Outreach Events							90	30	90	30
TOTALS		569	233	1558	284	457	192	1793	587	4377	1296