

South Sound Global Rivers Environmental Education Network (GREEN)

Program Accomplishments 2016-2020



Mission: Connecting communities and schools for watershed protection



**South Sound
GREEN**

Global Rivers Environmental Education Network

Vision: A community with the knowledge, skills, and motivation to act as stewards of our watersheds

2016-2020 Dashboard: City of Olympia

Participating Schools:

Avanti High School
Olympia High School
Capital High School
Marshall Middle School
Roosevelt Elementary
Lincoln Elementary
McKenny Elementary
Hansen Elementary
Olympia Regional Learning Academy
NOVA Middle School
Reeves Middle

Between 2016 and the first half of 2020:

- **3350 City of Olympia** students have participated in water quality experiences
- **135 City of Olympia** teachers received professional development, technical assistance in the classroom and in the field, the needed equipment and supplies, and transportation to and from their field sites
- **596 community volunteers from the City of Olympia** have contributed more than **1582** volunteer hours in assisting with water quality sampling, field excursions and classroom activities.

Program Overview

South Sound GREEN has persevered for almost 30 years due in large part to the extremely effective and efficient program model. Since 1992, South Sound Global Rivers Environmental Education Network (GREEN) has engaged more than **30,000** students in Thurston County in stormwater education through the following program components:

1. Water Quality Monitoring

“I love the work you all do. My students get a big picture view of how important our water is to the quality of life we have. Being part of this program is a natural jumping-off point to important topics such as, climate change, water quality, ocean pollution, citizen science, action projects, and the power of each one of us to change our



Water quality monitoring at the source of Woodard Creek off Ensign Road

behaviors to bring about positive change in our environment.” – Kimberlee Hummel, Roosevelt Elementary School

“This is SUCH great real-life science for students!”- Tony Harris, Tumwater Middle School

“Our Water Quality Field Experiences were some of our most valuable science experiences this year.”- Audrey Hamill, Boston Harbor Elementary

“True science! The outcomes are unknown and nothing is 'staged' like our experiments in the classroom. I have personally learned a lot about our environment and caring for our water systems.”- Becky Crain, Olympic View Elementary

Classes participate in water quality field experiences every October and February where they:

- Collect and analyze water quality data based on parameters needed for healthy salmon habitat: pH, nitrates, dissolved oxygen, turbidity, temperature, fecal coliform and total suspended solids.
- Gain an understanding of stormwater runoff through authentic, hands-on science experiences
- Recognize the impact human actions take on the watershed

2. Student GREEN Congress

“The entire day was fantastic. I've been to many classes before and always enjoyed them. This year I went to the new class about PH, and thought it was great! It ties in nicely with water testing. My students who participated in the session really enjoyed it.”-

Teacher at Congress

Student GREEN Congress is an opportunity for students to

- present their water quality sampling data and compare it with student data from other schools sampling within the same watershed each year at the Student GREEN Congress
- identify “priority actions” to improve water quality in their watershed leading to behavior change. These recommendations are taken back to their classrooms, and action projects are designed and implemented (see Action Projects).

More than 50 natural resource professionals lend their expertise to Congress by facilitating a State of the Rivers session or by offering a hands-on workshop during the afternoon break-out classes. These partnerships vary from year to year, and make the Congress experience not only fun and educational, but also offer real, local connections to Science Technology Engineering and Math (STEM) careers.



Students and teachers attend a keynote at the Student GREEN Congress

3. Action Projects

“Field experiences are the most valuable. Second, making the connection between water quality and student/human land use. I really value students seeing they, themselves (and not just their parents) are part of the system and can actually benefit it, or harm it, with their choices. That stewardship piece”.- Amber Hoenes, Chinook Middle School

- As students begin to look at the health of the watershed as a whole they identify behavior change and actions they can take to improve their watershed.
- These student-initiated ideas lead to collaboratively organized action or “service-learning projects”.
- Projects vary greatly in scope and size, but all strive to improve the conditions in the watershed through public education or hands-on activities. Examples include planting native plants, removing invasive species, organized trash pick up events, and presentations to community groups and City Councils.



Planting native trees in the riparian buffer

4. Nearshore Program

“My favorite thing I learned was that sea cucumbers shoot out their intestines to scare predators and they grow it back later.”- Komachin Middle School student

“I thought the way a barnacle gets its food was funny! (Attaching to the rock, using its legs to bring drifting food to it.)”- Komachin Middle School student

Nearshore field trips are a way for students to connect their freshwater monitoring site with Puget Sound. On these trips they:

- Visit a local beach at low tide to learn about intertidal organisms,
- Visit a local marina where they learn about subtidal organisms and sample the water for clarity and plankton.
- Learn about current issues facing Puget Sound and the ocean like ocean acidification, sea level rise, and sea star wasting disease.



Virtual Nearshore field trip during distance learning for COVID-19

5. Summer Teachers' Institute and Teacher Professional Development

"I love how well the SSG resources are designed for students and teachers. There are a lot of programs/resources that are available for teachers to use with classes that don't have the same level of practical understanding of what kids and teachers need for activities to run smoothly and be developmentally appropriate. I definitely feel like SSG has a good understanding of what it's like to be in the classroom and out in the field working with ten and eleven year olds." - Audrey Hamill, Boston Harbor Elementary School

"This PD never fails to impress me...The organizers of these institutes are always of the very highest quality, both in what they present- but also, and almost more importantly to me- in the WAY that they present. I commend that in the midst of this incredibly difficult era we are living in- that the leaders of this event took the time to consistently address our emotional needs as well, with periodic check-ins, and activities that cater to the overall well-being of the person themselves. I think that is just awesome. I love these folks and the work that they do truly does make an impact!"- Teacher, Summer Stay IN-stitute 2020



Summer Institute includes hands on experiences for teachers, like kayaking in Budd Inlet

This unique three-day professional development training provides teachers with:

- An opportunity to receive training on current issues in the watershed and the best available science
- Teaching tools and curriculum ideas to educate their classes on these issues
- Connection to a local community of teachers committed to integrating watershed studies in their classes.

6. Program Evaluation

South Sound GREEN is committed to equitable evaluations (both internal and external) that utilize the whole child to assess learning which include:

- Traditional surveys (SurveyMonkey or Google Forms, etc)
- Poetry, English Language Arts, and art. These strategies are particularly useful with English language and visual learners
- South Sound GREEN strives to achieve an increased learning of **at least 85%** among all program areas.

Field trip!!!

The field trip was really good. Its really nice of you guys to let us come i really apsheat it. I learned a lot when i was there. So much that i dont remmber some of the things i learned. But the things that i learned is cool and what not to do.

What i learned is about sand dollars. Sand dollars are a round flat shell on it is a star its supo to be black but when its dead it turns white. I think the sand dollars was my favorite thing to learn.

But what i learned not to do was to not stand in the water to long.

1. You will get stuck
2. Dont wear snow bottes in the water
3. When you stuck ask for help
4. Dont carry your phone in the water.

Anyways thank you for everything you did for us it was really nice of u guys for inviting us I really had fun bless your hearts.

From: Lanihya B.
School: Lydia Hawk

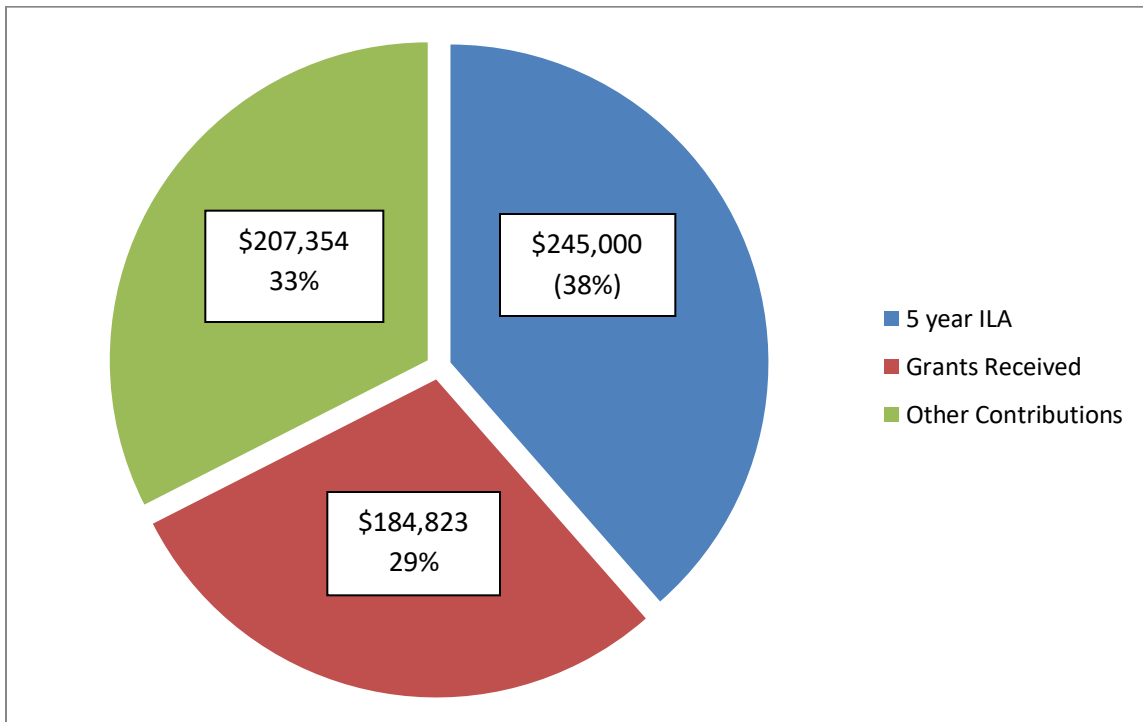
Financial Report (2016-2020)

As per the 2016-2020 Intergovernmental Services Contract for South Sound GREEN the Cities of Lacey, Olympia, Tumwater and Thurston County and the Thurston Conservation District have provided South Sound GREEN with a total of \$245,000 or \$49,200 annually at the following funding levels:

City of Lacey: \$14,400
City of Olympia: \$14,400
City of Tumwater: \$6,000 (Year 1: \$5000)
Thurston County: \$14,400

This dedicated funding has been instrumental in keeping South Sound GREEN financially diverse and sustainable:

- ILA contributions amounted to 38% total program budget
- Cost share benefits means each jurisdiction pays just 1/3 of that amount but gains collective benefit on collaborative events
- Allowed program to leverage funding to secure a total of \$184,823 in grants and an additional \$207,354 via other funding contributions



South Sound GREEN Financial Overview (2016-2020)

City of Olympia Cost Breakdown

- \$64,800 contributed (as of June 30, 2020)
- 4,081 individuals served through the program as of June 30, 2020 (includes teachers, students and volunteers)
- Cost per person: \$15.88

Operational Cost Increases

Through this contract period (2016-2020), South Sound GREEN has seen increased operational cost increases across many categories, but primarily in the cost related to water quality testing equipment, and transportation expenses to transport students to and from their monitoring sites.

The table below shows some of these increases:

Increase in Operation Costs (2016-2020)				
	2015	2020	Annual Change	Notes
Substitute Teacher	\$158/ full day sub	\$174.88/full day sub	+\$253.20	At least 15 full day subs
Nitrate Kit (LaMotte 3354)	\$57.95/kit	\$63.80/kit	+\$58.50	10 kits
Wide Range pH Kit (Hach)	\$71.89/kit	\$87.35/kit	+\$154.60	10 kits
Fecal coliform broth (Millipore)	\$72/50 ampoules	\$86.80/50 ampoules	+\$148	10 packs
Bus to Monitoring Site	\$90.39 (round trip)	\$143.57 (round trip)	+\$1861.30	35 buses
Administrative Fees*	\$9,271.92/ year	\$13,383.36/ year	+\$4111.44	Admin adjustments for 2 SSG staff
Total Annual Increase in Cost of Doing Business			\$6587.04	

*Includes staff benefits and annual 2.8% COLA

2016-2020 Increased Participation

Since 2016, South Sound GREEN has experienced a significant increase in participation from area teachers and students.

- Participation in water quality testing has increased from 43 teachers in 2016 to 63 teachers in 2020
- In 2018, Washington State began implementing the Next Generation Science Standards (NGSS), which have a focus on student-directed learning and local phenomena. The South Sound GREEN offers these local, hands-on, and relevant experiences through water quality testing, and the flexible program model allows students to ask questions and design investigations based on those questions.
- South Sound GREEN influences student performance on state standardized testing, particularly related to data analysis:

“(Teachers) believe that water quality testing helped their students, that the hands on, community engagement and Green congress provided kids with opportunities to experience science first hand. That by having participated in WQT they were 1) ready for application of science in labs and on the test (reading and understanding data) and 6th grade teachers told me that they can tell which students participated in WQT and which ones have not had the opportunity. “

*-Jana Brock
North Thurston Public Schools*

- The Teacher Principal Evaluation Program (TPEP) assesses teachers on their community connections and how they engage their students in local issues/events. Teachers and principals alike value our community-minded educator cohort
- Teachers value the opportunity South Sound GREEN provides to work with science professionals, inspire action and behavior change amongst their students, a connection to their community, and multiple opportunities to get kids outside through field experiences.

Vision for the Future (2021-2025)

The South Sound GREEN model has been in high demand among area teachers and that demand will increase in the coming years. Not only are educators searching for ways to teach their students about water quality, but also to instill a sense of community service through on the ground projects. The “need to continue to educate individuals and communities about ways that they can become part of the solution” is one of five strategies for Puget Sound recovery as listed in the Puget Sound Partnership’s Action Agenda (Puget Sound Partnership). Over the past five years, South Sound GREEN has educated thousands of students about the

effects of stormwater pollution and what they can do to make a difference through hands-on science that aligns with state learning standards. Looking to the future we aim to increase the numbers of teacher, student and community volunteers participating in the following ways:

Relevance to Western Washington Phase II Municipal Stormwater Permit

South Sound GREEN will continue to work directly with City and County staff to meet requirements under the Municipal Stormwater Permit as written below:

55C.1 Public Education and Outreach

The SWMP shall include an education and outreach program designed to:

- *Build general awareness about methods to address and reduce impacts from stormwater runoff.*
- *Effect behavior change to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.*
- *Create stewardship opportunities that encourages community engagement in addressing the impacts from stormwater runoff.*

Program Tracking and Evaluation

South Sound GREEN will continue to evaluate the effectiveness of the program through: pre- and post-surveys, and through soliciting feedback from teachers, volunteers, and program partners. Specifically, we will evaluate the increased learning around stormwater runoff and behavior change achieved as a result of the program. South Sound GREEN will utilize both internal and external evaluators when appropriate.

2020-2025 Anticipated Increased Participation

Participation in South Sound GREEN is at its highest level ever, and more growth is on the horizon:

- Beginning in Fall of 2020, all 5th grade classes within the North Thurston Public Schools will participate in water quality testing under the Fieldstem Model
- In early 2020, South Sound GREEN expanded into Bush Middle School, serving all 150 of their 6th grade students. We plan to continue this partnership in Fall of 2020 and beyond, and are making plans to further expand both water quality testing and involvement in Student GREEN Congress within the Tumwater School District
- Annual participation within the Olympia School District continues to increase each year and are prepared to meet the growing needs of 4th-8th grade teachers and students in the OSD.

- Smaller school districts such as Griffin and Rainier continue to participate at the same level as in previous years, with some increased participation in professional development and action project opportunities.
- The interest in this program will continue to grow over the next five years due to the locally relevant, authentic and student-directed science experiences, classroom support, and professional development offered by South Sound GREEN.
- With this expansion of participating classes, we will also recruit and train adult water quality volunteers through our Water Watchers program, increasing volunteer involvement by at least 10%.

Additional Program Development

South Sound GREEN has the resources and expertise to expand our programming to the K-12 community on new and relevant projects that build on knowledge of stormwater runoff and the Puget Sound ecosystem. Some examples are listed below.

1. **Implement Drain Rangers Curriculum.** This curriculum, developed by the Pacific Education Institute and Puget Sound Starts Here, focuses on school yard studies of stormwater runoff. A Drain Rangers program within South Sound GREEN would involve:
 - a. Classroom visits on selected lessons
 - b. Field exploration of stormwater issues at school campuses
 - c. Potential of hosting a collective Drain Rangers/Water event in January
 - d. Scalable to address the needs of school district

Draft Drain Rangers Budget*	
Staff Time (classroom visits, event planning, overall coordination)	\$3500
Travel	\$56.50
Supplies (soil probe, rain gauges)	\$900
	\$4456.5

*Based on 10 classes/250 students

2. **Salmon Education through the McLane Nature Trail.** In Fall of 2019, South Sound GREEN coordinated field trips to the McLane Salmon Trail on behalf of Thurston County. This pilot project coordinated teachers and volunteers, provided bus and sub reimbursement for visits, and offered pre and post teaching resources. Visits to McLane Salmon Trail provide authentic, in person experiences with wild spawning chum salmon, and dovetail with class studies on water quality, life cycle, habitat, and many more themes. A McLane Salmon Trail program within South Sound GREEN would involve:

- Classroom visits on salmon habitat, salmon life cycle and salmon dissections (upon request)
- Coordination with teachers to schedule visits and minimize impact to the trail
- Coordinate with volunteer Salmon Stewards to provide guidance during all school visits to the trail
- Bus and sub reimbursement for field experience

Draft McLane Salmon Trail Budget*	
Staff Time (classroom visits, tours at trail, teacher and volunteer coordination)	\$1127.60
Travel	\$65.40
Bus (10 classes)	\$3000
	\$4193

*Based on 10 classes

Adapting for the Future

Though the average school day has changed largely due to distance learning in the face of COVID-19, South Sound GREEN is committed to adapting our programming to engage students through a variety of online and in person tools. Looking ahead to the next five years, South Sound GREEN is committed to grow and adapt by:

- Making adjustments in programming to best serve schools during distance learning and other challenges they face
- Utilize technology (Zoom, Canvas, Google Classroom) to reach students virtually
- Host on-campus water quality testing field experiences
- Meet new and evolving state educational standards
- Continue to meet the increased interest in science-based, hands-on experiences to students in Thurston County
- Taking an effective and efficient program model and build on it to make participation accessible to more students, teachers and community members.

The financial support provided by the City of Olympia through the ILA over the past five years has provided crucial base funding to deliver this excellent program to Olympia residents. We look forward to working with the City of Lacey, City of Tumwater, City of Olympia and Thurston County to continue to bring exceptional opportunities for learning to participants, as well as increase access to this program for more of our students, teachers, and community members. Through the South Sound GREEN program, thousands more students and their families will engage in meaningful watershed educational experiences in the coming years.