

City of SeaTac, Permit #WAR045541

2023, Question 20a

Question: List the regional program elements which were adopted for the Education and Outreach program. (S5.C.2).

The City utilizes various regional resources and public education partnerships, including but not limited to:

Stormwater Outreach for Regional Municipalities (STORM)

- Incorporation of practical municipal stormwater information obtained from regular STORM meetings, symposiums, networking, programs, and resources.
- Co-branding *Puget Sound Starts Here* (PSSH) on printed materials; and linking PSSH events, materials, and tools from the City's stormwater management web page.

Washington Stormwater Center (WSC)

- Utilization of WSC municipal stormwater management and training resources to improve public education and outreach communications, framing of messages, designing of ideas for targeted audiences, engagement of overburdened communities, and creation of appropriate outreach materials (i.e., Business Source Control and & Inspection Program regional group).

King County Local Hazardous Waste Program (KCLHWP)

- Partnering with KCLHWP to assist with business inspections at problematic sites. This program helps to protect public health and the environment by reducing hazardous material exposure at home and at work. Additionally, SeaTac promotes the KCLHWP Voucher Incentive Program that reimburses eligible businesses for costs associated with disposal of sediment or contaminants accumulated within private flow control, conveyance or water quality facilities.

Regional Meetings

- Participating in regional groups to collaborate on Permit-related public education opportunities.

City of SeaTac, Permit #WAR045541

2023, Question 21

Question: Describe the general awareness efforts conducted, including target audiences and subject areas, (§5.C.2.a.i).

The City of SeaTac implements a comprehensive multi-media Stormwater General Awareness Program that utilizes social media messaging via the City of SeaTac Blog and the City of SeaTac Facebook Page. The table below identifies the various Permit-required General Awareness program elements, target audiences, and outreach approaches used by SeaTac.

Approach	Target Audience	Description	Subject Area
City Website, Blog and Facebook Page	General Public (including school-age children); and businesses (home-based or mobile)	Permit information, Stormwater Design/BMP Manual, Spill Hotline, volunteer opportunities (curb marker, lake monitoring), stormwater/surface water issues and events, residential & charity car washing, rain barrels, pet waste management, GIS maps and private water quality facility inspection information.	General impacts of stormwater on surface waters (including impervious)
City Web Page	Engineers, contractors, developers, land use planners	Various types of information including LID infeasibility study, LID criteria, GIS maps, technical guidance and focus sheet.	Low impact development (LID) principles and LID BMPs
Public Displays and Printed Materials at City Hall	General Public and businesses (home-based or mobile), engineers, contractors, developers, land use planners	Various types of information including spill hotline, volunteer opportunities (curb marker, lake monitoring), residential car washing, rain barrels, pet waste management, LID infeasibility study, criteria, maps, technical guidance and focus sheet.	General impacts of stormwater on surface waters (including impervious); Low impact development (LID) principles and LID BMPs
Get your Green On	General Public (including school-age children)	Municipal stormwater management educational, natural yard care and green-clean literature distribution at the annual event. City subsidized rain barrels for purchase.	General impacts of stormwater on surface waters (including impervious)
Recycling Events (Spring and Fall)	General Public (including school-age children)	Municipal stormwater management educational, natural yard care and green-clean literature at the two annual events. City subsidized rain barrels for purchase.	General impacts of stormwater on surface waters (including impervious)
Miller and Walker Creeks Stewardship Web Page	General Public	Cooperative effort involving the cities of Burien, Normandy Park, and SeaTac, the Port of Seattle, the Washington State Department of Transportation, and King County.	General impacts of stormwater on surface waters (including impervious); volunteer opportunities.
Salmon Tank and Display at SeaTac Community Center	General Public (including school-age children)	A prototype salmon aquarium installation designed to educate the public regarding the salmon lifecycle (from eggs to fry) and the connection to surface water resources (scale model tank topper and poster display). Salmon release in Spring.	General impacts of stormwater on surface waters (including impervious)
City Recycling Webpage	General Public	Garbage, recycling and food & yard waste management (including household hazardous waste issues and composting)	General impacts of stormwater on surface waters
Pet Waste Signage in City Parks	General Public	Signage encouraging citizens utilizing City parks to pick up after their pets.	General impacts of stormwater on surface waters



StormFest 2023 Summary



StormFest Committee

CITY OF BURIEN | CITY OF DES MOINES | CITY OF SEATAC | CITY OF NORMANDY PARK | KING COUNTY



StormFest 2023 Summary

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StormFest 2023 Summary

Executive Summary

StormFest is an annual field-based stormwater learning event that engages all 6th grade students in the Highline School District using and testing best practices for outdoor environmental education and equity. At StormFest, students learn about and experience their local watershed, sources of pollution, and engineering solutions to prevent stormwater pollution. This event engages teachers, families, community members, local government staff and educational nonprofits. This shared approach also helps cities and counties meet National Pollutant Discharge Elimination System (NPDES) permit requirements.

The StormFest Committee (Committee) is comprised of jurisdictions in the Highline School District and local partners. StormFest is funded by an Interlocal Agreement (ILA) between five parties: the City of Burien, City of Des Moines, City of SeaTac, City of Normandy Park, and King County. In addition to the five ILA parties, the Committee also includes the Highline School District, the Environmental Science Center, and EnvirolIssues.

Since the COVID-19 restrictions of 2020, Stormfest has taken on multiple iterations. The Committee pivoted to create a virtual event in the spring of 2021, then pivoted again as COVID-19 restrictions eased to create a hybrid adaptation of Stormfest at each middle school campus in 2022.

In the spring of 2023, the Committee was finally able to hold the full in-person Stormfest event at the Des Moines Beach Park. The 3-day event brought together 42 station educators, 2 interpreters, and 46 volunteers to teach 1,400 6th grade students from Highline School District middle schools. Students rotated among 5 stations learning about their local watershed, macroinvertebrate pollution tolerance, and solutions to stormwater pollution. Five station educators taught their lessons in Spanish for the dual language classes.

The city and county partners who organize StormFest invest time, resources and budget into this project to:

- Offer general awareness education to school age children about water quality issues and impacts of stormwater on local surface waters.
- Meet or apply to the requirements of the Washington State Municipal NPDES Phase I and II permit:
 - Western Washington Phase I Permit (S5.C.11. a)
 - Western Washington Phase II Permit (S5.C.2)
- Continue the successful partnership with the Highline School District to offer students an outdoor learning experience that connects them to the environment and stormwater issues in their watershed and that meets statewide educational requirements.
- Apply equity practices in how we invest in and support science-based curricula in school districts facing increasing challenges and changes in student and community demographics, and economic resources.
- Serve overburdened communities, as identified by the Highline School District.
- Use StormFest as a training and job development opportunity for youth, community members and staff.
- Use StormFest as a testing ground to address community, city and county equity and social justice goals.
- Help build regional capacity in environmental education among nonprofits, educators, communities, and jurisdictions throughout Washington by sharing the StormFest toolkit and project resources.

This summary is prepared as part of the annual NPDES report to Washington State Dept of Ecology and shared with other jurisdictions, nonprofits and environmental education networks.



StormFest 2023 Summary

Background

Schools within the Puget Sound region offer stormwater curriculum to teach students about the magnitude of polluted runoff and the urgent need to develop innovative solutions to improve water quality. Often, programs of this type require supplemental school resources and can put undue strain on staff to implement new science-based curricula. As a result, educators often face multiple resource challenges in implementing science curricula. Staff must identify what resources are needed, how new curriculum topics are developed, and whether there is sufficient time during the school year to implement these programs, the impact of the curricula in student awareness and actions, and reporting on educational requirements.

StormFest was developed to address these issues and barriers. StormFest is an annual stormwater education program for Highline School District (HSD) sixth-grade students. At StormFest, students rotate through outdoor hands-on education stations to learn about their local watersheds, the animals that live in them, sources of pollution and engineering solutions to prevent stormwater pollution. [Outdoor education](#) has shown multiple benefits for students and that has been an integral part of StormFest.

StormFest is funded by an Interlocal Agreement (ILA) between five parties: the City of Burien, City of Des Moines, City of SeaTac, City of Normandy Park, and King County. In addition to the five ILA parties, the StormFest Committee (Committee) also includes Highline School district (HSD), the Environmental Science Center, and EnviroIssues.

StormFest goals and activities are developed, coordinated, and implemented by the Committee. The program is designed to meet statewide educational requirements and public education and outreach requirements of the Western Washington Municipal NPDES Stormwater Permit (Permit). StormFest enhances a Permit performance measure to offer awareness education to school age children, especially those from overburdened communities. General awareness topics include water quality issues and impacts of stormwater on local surface waters.

At the inaugural event in 2018, a diverse group of HSD sixth grade students participated in StormFest. Demographic data from the 2018-2019 school year indicate that 36 languages were spoken in HSD sixth-grade classrooms. Additionally, 26% of students were English Language Learners (ELL), 79.4% were students of color, and 65.3% were enrolled in the free or reduced lunch. Recognizing these varying needs, the Committee developed an experiential place-based stormwater education curriculum to reach a diverse student body.

StormFest best education practices included: taking students outdoors to experience lessons, physically demonstrating activities while verbally explaining, providing ample time for students to respond to questions, and avoiding use of U.S.-specific cultural references and slang. Other strategies to ensure attainment of equity oriented StormFest goals involve:

- Testing and providing pre- and post-event learning translated materials in students' primary languages.
- Intentionally recruiting and training event educators that represented the ethnic, cultural, language, and gender diversity of the Highline School District sixth grade student population.
- Compensating event educators in place of recruiting volunteers (community members are often unable to work for free and compensation ensures diverse community members can collaborate).
- Providing interpreters for all ELL students.
- Providing dedicated Spanish language stations for students from dual-language classrooms.
- Trying to identify and respond to physical or other issues that require support or techniques to ensure the outdoor event is accessible to all. For example, using tactile demonstrations with students with vision issues, providing all-terrain wheelchair access in partnership with the Seattle Aquarium, and providing on-site ride-along service for students with other mobility issues.



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StormFest 2023

Training For StormFest

Training for StormFest educators took place on Wednesday, May 31, 2023. A four-hour time block was planned for the training with an additional 1.5 hours where educators could stay and ask questions if they wanted.

Training followed a similar format to the original festival model. Educators were first given general information about 6th grade students and how to create connections with the students. These trainings included plenty of time for questions and were led by Highline School District staff and an outside presenter. These presenters dove into the “how”. They focused on giving the educators a general background of the students they would be working with and strategies to employ to help make their teaching successful.

The remainder of the training day was spent with Environmental Science Center (ESC) staff at the specific stations. Prior to the training day, the ESC station managers got together to create the training day outline document for their specific station. Some highlights of the document include details about how to lay out the materials, key points about each of the main curriculum sections, and information about the timers for each station.

The station-specific training was broken out into several sections. First, the educators were able to observe the ESC station managers teaching the lesson. Second, they had a chance to practice with the materials and teach others in their same group. And finally, after a break, the educators all came together to teach educators working at a different station (i.e., the Enviroscope educators taught the macroinvertebrate educators). This last round allowed them to practice teaching to a group with no knowledge of the material. We ended the day with time reserved for learning how to pack up and put away all the materials.

Educator Feedback from Evaluation:

In general, 63% of educators who responded to the evaluation had a favorable response when asked if the training prepared them for the event (a score of 4 or 5). 26% responded neutrally (score of 3), while 11% responded negatively (a score of 1 or 2). Some of the confusion was in the logistics of the event days such as how all the tables were going to be set up. Some educators would have also preferred more detailed background information on watersheds and stormwater management to review on their own prior to the events. We also had a few educators who were unable to attend the training. While there are videos online of some of the stations, these were not as helpful for some educators.

Many educators really appreciated the time to teach to their peers. Several of them commented about that part being the best part of training and also appreciated when other educators played the roles of 6th graders so they could help prepare responses.

Thoughts and Feedback for next time:

For our training days, we can help the educators by completely setting up all of the stations. While it was easier to not bring out as many tables, it did cause some confusion about how to set up for a full event. We can also take more time to discuss the rotations and the overall event organization.

Additionally, ESC can (with some help from the cities), work to provide a document with more detailed background information about stormwater management for those educators hoping to learn more prior to the event. While we want to be clear in the training that we don't want educators to lecture to the students, we know it can be helpful as an educator to have a solid understanding of the topic before trying to teach it to others.

During the event, we had a few instances where educators insisted on lecturing to the students and using the materials as a demonstration. The lessons (and materials) were designed for hands-on use. We need to spend time emphasizing this teaching technique during the training so educators are clear on our expectations. All educators should be prioritizing an

experiential experience for the students.

The timing of the training day was good. There was sufficient time for the station managers to go through the lesson and cover all the key points and tips and tricks listed in their training outlines. We also found value in both having the educators practice teaching to their peers in their same station as well as having to teach to the other group of educators. For future trainings, we will emphasize these last two rotations and maybe give a little more time to each of them if possible.



Station educators look into tubs with macroinvertebrates



Spanish speaking station educators practice their lesson

2023 StormFest Event – Back to a Festival Model!

StormFest 2023 was back to a regular festival model that was originally developed pre-pandemic! All five stations were taught during each event day:

- Stormwater Pollution (macroinvertebrates)
- Schoolyard Solutions
- Community Actions Relay (with pledge cards)
- Beach Walk
- Watershed Models

To help ease congestion during the event, the schools were spread out across three days. Cascade MS and Pacific MS attended on the first day. Sylvester MS and Chinook MS attended on the second day. Glacier MS, Choice Academy, and Highline Virtual Academy attended on the last day. For most days, four substations were used at each station (A-D).

During each event day, station rotations were kept to 30 minutes with a 5-minute rotation in between. Students were given 25 minutes for lunch. While longer stations might have been ideal, the timing of when the buses would be able to arrive and when they would need to leave made only 30-minute stations possible.

Educators taught in teams of two and had additional volunteer assistance when possible. While each station has materials to run a Spanish bilingual substation, only Stormwater Pollution and Schoolyard Solutions had bilingual educators. Dual language classes were scheduled for these bilingual educators. During other rotations these educators taught in English.

Thoughts and Feedback for Next Time:



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Many educators wished for more volunteer assistance. While the curriculum was designed to be taught with two educators per substation, additional volunteers help to make things run more smoothly. Volunteers can help reset stations between groups, work 1:1 with students as they explore, and assist with general classroom management among other things.

The Seattle Aquarium provided many volunteers for the beach walk station and that was amazing. We really appreciated their support (including providing some volunteers who were bilingual!). ESC recommends reaching out to the aquarium early to secure assistance for the upcoming year.

There were some days where the buses arrived very early. ESC has a number of small games we use to keep students occupied outside. We will plan to create a tip sheet for educators so they can use some of these if they are given their group 15-20 minutes early for the first rotation.

Some educators expressed that they had a disconnect between the stated goals in their lesson and how things played out with the students. ESC staff will work to help make that connection clear both in the curriculum summary page and the training. Additionally, it would be helpful to provide clear alternatives for students who don't want to participate. For example, not all students wanted to do the relay. We can help educators come up with acceptable alternatives for these students. But, we can also let the educators know when it is okay to just let the students sit out.

Overall, the educators for the StormFest events were fantastic. They jumped right in and did a great job connecting with the students. We did, however, have a few challenges where educators spent most of their time lecturing to the students. Several attempts were made to help assist the educator with some more student-led learning but these were not implemented. In general, ESC gives feedback to educators individually and never in front of the students. Most suggestions and teaching tips are not critical and really only help to enhance the experience for the students. However, we do feel it is important that the educators not lecture to the students and that students are given the maximum opportunity to engage in hands-on learning. If educators are unwilling to change, we recommend that they not be asked back to teach for future event days.



A station educator uses the watershed model. Photo credit: Amanda Snyder



A station educator looks at students drawing on maps. Photo credit: Amanda Snyder

Student Surveys

Students were given two surveys to assess and measure student knowledge around key StormFest competencies. The pre-event survey was given to students before beginning the StormFest curriculum, and the post-event survey was given to students before the end of the 2023 school year. In total, 328 students completed both the pre- event and post-event surveys. **Key findings from the surveys included:**

- A paired sample t-test was conducted and showed that students’ total knowledge score significantly increased from pre ($M = 6.75$) to post ($M = 8.66$), $t(327) = -18.45$, $p < .001$. This indicates that, on average, students scored 1.91 points higher on the overall knowledge assessment.
- There was an increase in students demonstrating an understanding of the connection between local actions/stormwater and Puget Sound from pre to post.
- The multiple choice format for the analyzed survey questions yielded higher pre and post test score than previous years.
- Students reported that the bugs/macroinvertebrates was their favorite part of the Stormwater Challenge.

Sustained Behavior Change Investigation

A post survey administered after the event asked students to fill out a follow-up survey that inquired what they had pledged to do to protect stormwater in the pre-event survey and if they had started doing so. Data was reported back from 328 students who pledged one of the following:

- Dog poop pickup! Bag it and trash it.
- Reduce runoff! Plant a native tree.
- Avoid cars! Ride your bike or public transit.
- Identify vehicle leaks! Notify family & friends.
- Natural yardcare! Tell your parents about it.
- Share what you learned! Others can help too.

Self-reported data suggested that most students are enacting their pledges. In the future, the behavior change will be asked several months after the stormwater challenge to get a more accurate gauge of whether students are still enacting their pledged behavior so that we know if this has resulted in a sustained behavior change.



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Resources for StormFest

- [StormFest Article in the Burien Magazine](#)
- [StormFest Article in the South Sound Emerald](#)
- [StormFest Career Videos](#)
- [StormFest 2018 Videos](#)
- [Stormwater Challenge curriculum](#)



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Appendix A: Training Day Schedule

Wednesday, May 31, 2023

Des Moines Beach Park 8:30am – 1:00pm

Time	Activity
8:30 AM	Check-in and coffee <i>Dining Hall</i>
8:40 AM	Introduction to StormFest and overview of training day <i>In the Dining Hall with Paige Morris (City of Burien)</i>
9:00 AM	Station Educator training: model the lesson <i>At station with ESC and other station managers</i>
10:00 AM	Break or Q+A with station manager
10:15 AM	Practice run of lesson with station managers and other educators <i>At station</i>
11:15 AM	Teach your station to other educators <i>At station</i>
12:15 PM	Practice packing up station and re-packing kit <i>At station</i>
12:30 PM	Lunch <i>Des Moines Beach Park</i>
1:00 PM	Training day adjourned!



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Appendix B: 2023 Student Survey Evaluation

Change in total knowledge

Six questions measured student knowledge around key StormFest competencies both before StormFest (pre-test) and after (post-test). Scores were totaled, with a possible range in scores from -3 to 11. Data is reported from 328 students who completed both the pre-tests and post-tests. To preserve the sample size, missing data was counted as an incorrect (0) score. A paired samples t-test was conducted, and indicated that students total knowledge increased from pre ($M = 6.75$) to post ($M = 8.66$), $t(327) = -18.45$, $p < .001$.

Change in total knowledge per school. In order to assess the extent to which students from each of the six schools learned, paired t-tests were conducted based on the overall total score of the pre and post tests.

	Pre-test Mean	Pre-test standard deviation	Post-test mean	Post-test standard deviation	Sample size (N)	Degrees of Freedom	T-statistic	P-value
Cascade	6.24	2.31	7.16	1.97	25	24	-2.28	<.001
Chinook	7.36	2.66	8.68	2.16	66	65	-4.22	<.001
Glacier	6.29	2.03	8.25	2.19	73	72	-6.30	<.001
Pacific	6.24	1.81	8.14	1.90	29	28	-6.43	<.001
Sylvester	7.02	2.13	9.19	1.53	104	103	-9.78	<.001
Choice	6.38	1.83	9.27	1.40	26	25	-8.29	<.001
HVA	6.00	1.67	10.00	0.63	6	5	-5.86	<.001

Change in scores per question

In order to assess the extent to which students learned concepts from individual stations, paired samples t-tests were conducted for individual questions evaluating changes in knowledge from pre- to post-test.

Question 1: What is a watershed?

Response options:

- A place where rainwater is stored to be recycled later
- **An area of land that drains to a particular body of water (correct response)**
- An area of land in the mountains where we get our drinking water
- Our local reservoir

Responses were coded as incorrect (0) or correct (1). Scores from 328 students indicate a significant increase in knowledge from pre- ($M = 0.38$, $SD = 0.49$) to post-test ($M = 0.52$, $SD = 0.50$) $t(327) = -3.99$, $p = <.001$

Question 2: Your school is in a watershed.

Response options:

- **True**
- False

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Responses were coded as incorrect (0) or correct (1). Scores from 328 students indicate a significant increase in understanding the local to broader Puget Sound connection, from pre- ($M = 0.41, SD = 0.49$) and post-test ($M = .67, SD = 0.47$), $t(327) = -8.05, p < .001$.

Question 3: Littering trash is one type of stormwater pollution. Pick all the activities from the list below that you think causes stormwater pollution at or near your home.

Response Option:

A)



Leaving dog poop on the ground
(correct response +1)

B)



Washing a car on pavement like a driveway or parking lot (correct response +1)

C)



Using pesticides in the garden (correct response +1)

D)



Plant native plants and trees
(incorrect response -1)

E)



Walking to school (incorrect response-1)

Students received one point for every correct response they provided and lost one point for any incorrect response. The possible score range for this questions was -2 to $+3$. Data from 328 students indicate a significant increase in knowledge around stormwater protective behaviors from pre- ($M = 0.41, SD = 0.49$) and post-test ($M = .67, SD = 0.47$), $t(327) = -8.05, p < .001$.

Question 4. Your school is competing with another Highline school to reduce the amount of stormwater runoff. What could your school do to win the competition? (From each of the pairs below pick the better option that will help your

school reduce its stormwater runoff the most and help you win the competition)

Response Options:

Question 4a

a) Install permeable pavement (allows water to pass through it) (correct response)



b) Install pavement that does not allow water to pass through it.



Question 4b

a) Plant native plants (correct response)



b) Build a new energy efficient building



Question 4c

a) Plant a flower garden that has really pretty flowers



b) Install a rain garden (correct response)



Question 4d

a) Direct our stormwater runoff to a local creek

b) Install rain barrels (correct response)



For each pair in Question 4, the selection of the correct behavior increased significantly between pre and post- test. The table below provides descriptive and inferential statistics.

Question	Pre-test Mean	Pre-test standard deviation	Post-test mean	Post-test standard deviation	Sample size (N)	Degrees of Freedom	T-statistic	P-value
4a	0.75	0.43	0.86	0.35	328	327	-4.02	<.001
4b	0.80	0.40	0.88	0.32	328	327	-3.35	<.001
4c	0.84	0.34	0.87	0.37	328	327	-1.00	<.001
4d	0.64	0.47	0.78	0.42	328	327	-4.31	<.001

Question 5. The creek is an important home for stream bugs (macroinvertebrates. Why would we study stream bugs?

Response Options:

- Stream bugs can predict the weather
- Stream bugs cause pollution
- **The different types of stream bugs are directly related to water quality**
- We should not study stream bugs because they are so small

Data from 328 students indicate a significant increase in understanding the relationship between macroinvertebrates and water quality between pre- ($M = 0.70, SD = 0.46$) to post-test ($M = 0.80, SD = 0.40$), $t(327) = -3.74, p < .001$.

Question 6: Why is it important to prevent stormwater pollution?

This item was a free response, with responses that approximated “pollution is harmful to the environment, animals, human” constituting a correct answer. Data from 329 students indicate a significant increase in understanding the effects of stormwater pollution between pre- ($M = 0.69, SD = 0.46$) to post-test ($M = 0.80, SD = 0.40$), $t(327) = -3.74, p < .001$.

Answers considered correct include:

- Pollution is harmful to the environment/animals/humans/water quality



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Incorrect answers include reference to the following:

- Drinking water

The results indicated a 10.81% decrease in an “I don’t know” answer.

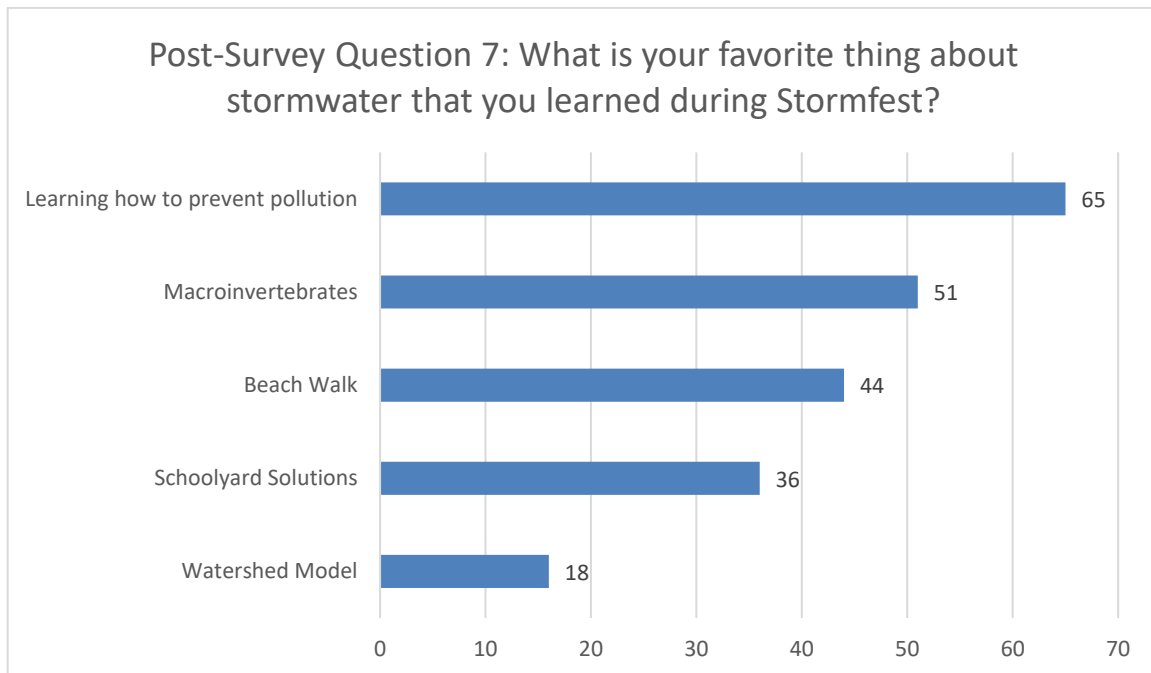
The remaining questions evaluated activities and experiences at StormFest and therefore, only appeared on the post-survey.

Question 7: What is your favorite thing about stormwater that you learned during StormFest?

When asked what their favorite thing that they learned at StormFest was, 231 students provided comments other than “I don’t know”. From this, the following themes displayed in the graph below emerged.

- Students enjoyed the macroinvertebrate station, with many citing that the stream bugs or the stream bugs and their relationship to water quality was the most enjoyable thing they learned about.
- Students also mentioned learning that they can help and ways to help, learning about the different types of stormwater pollution and learning that our community actions have an impact on stormwater as favorites.

Stations or activities that were mentioned include macroinvertebrate, schoolyard solutions, the relay race and the watershed model.

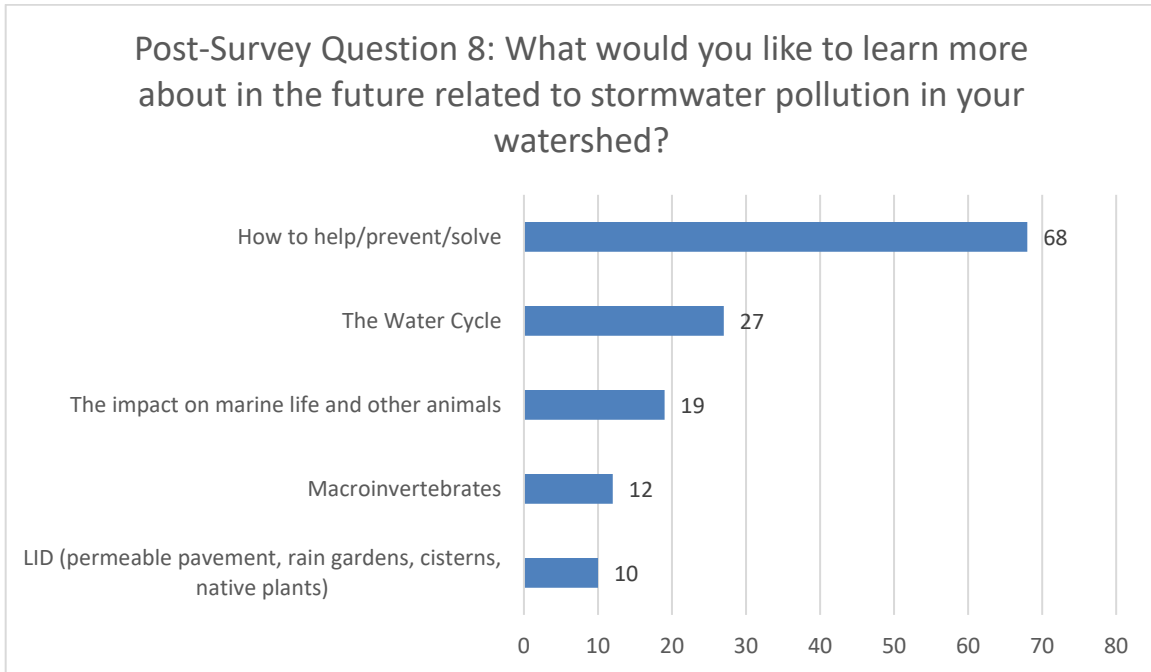


Question 8: What would you like to learn more about in the future related to stormwater pollution in your watershed?

When asked what they were curious about and wanted to learn more about, favorite thing that they learned at StormFest was, 147 students provided comments other than “I don’t know”. From this, the 8 themes displayed in the graph below emerged.

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- Students enjoyed the macroinvertebrate station, with many citing that the stream bugs or the stream bugs and their relationship to water quality was the most enjoyable thing they learned about.
- Students also mentioned learning that they can help and ways to help, learning about the different types of stormwater pollution and learning that our community actions have an impact on stormwater as favorites.
- Stations or activities that were mentioned include macroinvertebrate, schoolyard solutions, the relay race and the watershed model.



Question 9: Did you enjoy the Stormwater Challenge? Using the scale of 1 to 5 above, show you felt during the challenge.





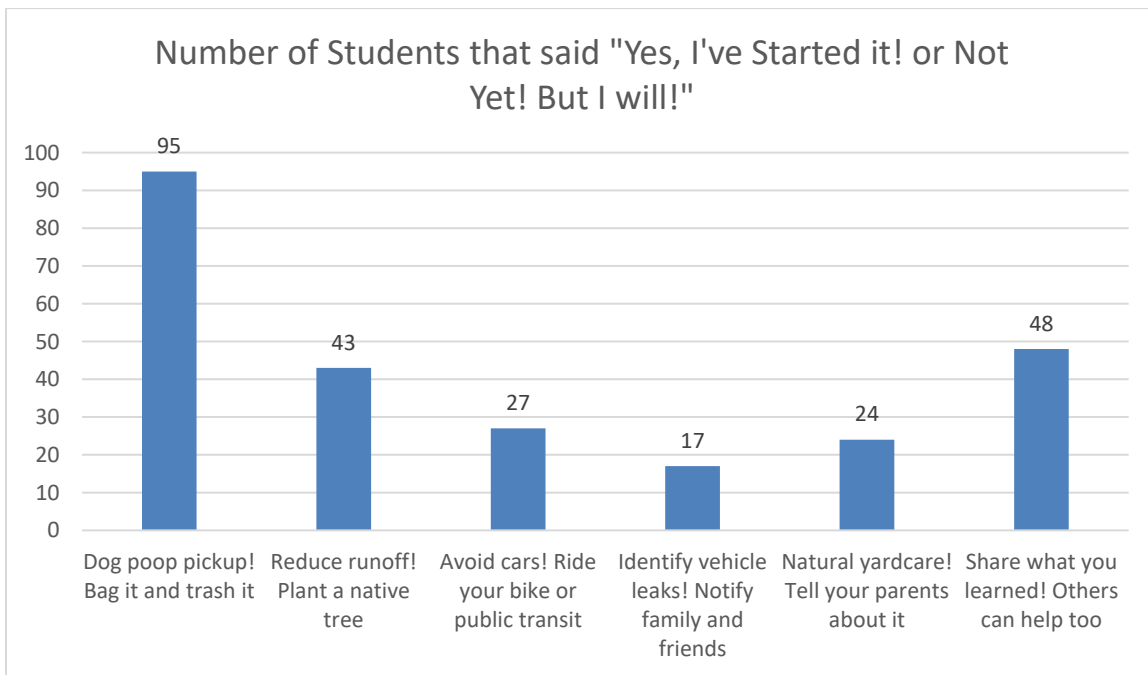
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Question 10: When you filled out your StormFest Pledge card, what did you say you could do to reduce polluted stormwater runoff? (Select One)

Response options:

Dog poop pickup! Bag it and trash it	Yes, I've started it	No, but I will	I never will
Reduce runoff! Plant a native tree	Yes, I've started it	No, but I will	I never will
Avoid cars! Ride your bike or public transit	Yes, I've started it	No, but I will	I never will
Identify vehicle leaks! Notify family & friends	Yes, I've started it	No, but I will	I never will
Natural yardcare! Tell your parents about it	Yes, I've started it	No, but I will	I never will
Share what you learned! Others can help too	Yes, I've started it	No, but I will	I never will

328 students reported making a pledge. The graphs below indicate the number of students who reported starting the behavior to reduce polluted stormwater runoff.





StormFest 2023 Summary

City of SeaTac, Permit #WAR045541

2023, Question 26a

Question: Attach a list of stewardship opportunities promoted to provide and advertise stewardship opportunities and/or partner with existing organizations to encourage residents to participate in activities or events planned and organized within the community, such as: stream teams, storm drain marking, volunteer monitoring, riparian planting, and educational activities. (S5.C.2.a.iii)

The Public Education and Outreach Program required by the Western Washington Phase II Municipal Stormwater Permit (Permit) uses a variety of media and volunteer events to raise stormwater quality awareness through stewardship opportunities. This program encourages community engagement and also promotes adoption of environmentally friendly behaviors.

The Permit-required stewardship outreach efforts implemented by the City throughout 2023 included:

Activity or Event	Description	Subject Area
Drain Markers	Volunteers install plastic curb markers adjacent to stormwater catch basins with the message "Puget Sound Starts Here" to remind people of the connection between stormwater pollution, local streams, and Puget Sound.	General impacts of stormwater on surface waters
Lake Water Quality Monitoring	Volunteers are encouraged to assist the King County Department of Natural Resources monitor the water quality of Angle Lake. This work helps to identify potential environmental problems and/or illegal discharges.	General impacts of stormwater on surface waters
Adopt-a-Drain Program	Individuals, community organizations and businesses can participate to adopt a storm drain in their neighborhood. Their efforts are tracked in an online account.	Encourages and enforces a commitment to stormwater pollution prevention.
Miller and Walker Creek Stewardship	Volunteer opportunities include planting of native trees and shrubs; pulling out invasive non-native plants; and cleaning up litter.	General impacts of stormwater on surface waters
Parks Clean Up Volunteer	Individuals or groups can organize park cleanup events at designated parks.	General impacts of stormwater on surface waters
Solid Waste/Recycling Volunteer	The annual <i>Get your Green On</i> event hosted by the City educates the public regarding recycling and sustainable practices, Natural Yard Care, household hazardous waste, water conservation (rain barrels), and composting. The event also utilizes volunteers to set out native plantings.	General impacts of stormwater on surface waters

City of SeaTac, Permit #WAR045541

2023, Question 27

Question: Describe the opportunities created for the public, including overburdened communities, to participate in the decision-making processes involving the development, implementation, and updates of the Permittee's Stormwater Management Program Plan (SWMP) and Stormwater Management Action Planning (SMAP). (S5.C.3.a).

Within SWMP Plan and SMAP frameworks, the city provides ongoing public involvement, participation, and decision-making opportunities. Furthermore, SeaTac continues to identify and implement more effective ways to engage the overburdened community. These efforts include executing a policy that memorializes a Language Access Plan based on past and current practices which outline reasonable efforts the City will make to eliminate or reduce limited English proficiency as a barrier to accessing City government programs or activities. This Plan is patterned after the United States Department of Justice (U.S. DOJ) Language Access Plan, which provides guidance used for interpretation and application of the City's policy.

Throughout the year, the public is encouraged to comment on the SWMP Plan. Public involvement and participation outreach efforts involve postings of important and timely messages and meeting invitations on the Public Works Stormwater Management web page, and through specialized media, including the City of SeaTac Blog and the City of SeaTac Facebook Page.

The following includes specific public involvement and participation opportunities highlighted for 2024:

- Posting of the 2024 SWMP Plan by March 31.
- Public opportunities as necessary during 2023-2024 as a new Surface Water Comprehensive Plan is developed and updated.
- Posting of routine state and local public notices when required for certain construction and planning efforts.

City of SeaTac, Permit #WAR045541

2023, Question 30a

Question: Attach a spreadsheet that lists the known outfalls' size and material(s). (S5.C.4.b.i).

Number	Outfall ID	Pipe Structure	Pipe Material	Pipe Diameter
1	SWMDEV-20200512-112414	Gravity Main	DI	18
2	SWMDEV-20200512-112418	Gravity Main	LCPE	18
3	SWMDEV-20200820-120455	Gravity Main	CMP	18
4	SWMDEV-20200820-120544	Gravity Main	Concrete	12
5	SWMDEV-20200820-120546	Gravity Main	CMP	12
6	SWMDEV-20200820-120552	Gravity Main	DI	24
7	SWMDEV-20200820-120606	Pipe Culvert	CMP	24
8	SWMDEV-20200820-120606	Gravity Main	Concrete	12
9	SWMDEV-20200820-120625	Gravity Main	Concrete	24
10	SWMDEV-20200820-120627	Gravity Main	Concrete	24
11	SWMDEV-20200820-120629	Gravity Main	Concrete	24
12	SWMDEV-20200820-120631	Gravity Main	Concrete	24
13	SWMDEV-20200820-120633	Gravity Main	Concrete	24
14	SWMDEV-20200820-120635	Gravity Main	Concrete	24
15	SWMDEV-20200820-120637	Inferred	RipRap	24
16	SWMDEV-20200820-120945	Gravity Main	CMP	18
17	SWMDEV-20200820-121003	Gravity Main	Concrete	18
18	SWMDEV-20200820-121321	Gravity Main	HDPE	24
19	SWMDEV-20200820-121323	Gravity Main	Concrete	24
20	SWMDEV-20200820-145415	Gravity Main	Concrete	12
21	SWMDEV-20200820-145650	Gravity Main	DI	8
22	SWMDEV-20220926-110329	Gravity Main	CPEP	24

City of SeaTac, Permit #WAR045541

2023, Question 33a

Informed public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste. Describe actions in Comments field. (S5.C.5.b)

SeaTac municipal employees are informed through training provided pursuant to permit requirements described in S5.C.5.f. Affected staff receive training as either a First Responder at Awareness Level (identification and reporting/notification); or First Responder at Operations Level (identification, reporting/notification, investigation, termination and cleanup).

Businesses that undergo IDDE investigations and/or Source Control inspections receive information regarding hazards associated with illicit discharges and improper disposal of waste as warranted. The general public and interested businesses receive information through a variety of multimedia formats including: the City's website, periodic posts on SeaTac Facebook or Blog, postings at City Hall permit counter, and printed materials used for public education and outreach efforts.

City of SeaTac, Permit #WAR045541

2023, Question 35a

Question: Cite field screening methodology (S5.C.5).

In meeting S5.C.5 Permit requirements, SeaTac has developed a comprehensive Field Screening methodology to detect and identify non-stormwater discharges and illicit connections into the MS4. The methodology is described in the *SeaTac IDDE Program Plan*.

Field screening is performed in tandem with ongoing program assessment, inspection, and cleaning of the MS4. The objective of the city's IDDE Field Screening Program is to routinely inspect, evaluate and investigate the MS4 to identify and eliminate potential sources of stormwater pollution during annual catch basin inspections. Staff are trained to identify unusual conditions encountered during these Field Screening exercises. Documented observations may then trigger follow up action as needed: notification, characterization, isolation, source tracing, and compliance. Follow up actions also consider local stormwater system characteristics to help us identify and react to water quality concerns. In accordance with Permit requirements, SeaTac field screens a minimum of 12% of the MS4 on average each year.

City of SeaTac, Permit #WAR045541

2023, Question 36a

Question:

Cite field screening techniques used to determine percent of MS4 screened (S5.C.5)

Per SeaTac Field Screening methodology, MS4 catch basins are inspected annually and noted for the presence of pollution. Subsequently, all upstream lengths of MS4 conveyance (pipe segments and ditches) associated with each of these inspected catch basins are added up. As a result, percent field screened per year is calculated as: the total inspected feet of MS4 (catch basins plus upstream lengths), divided by the total feet of known MS4 in the city.

**City of SeaTac, Permit #WAR045541
2023, Question 77**

Attach a summary of actions taken to implement the source control program (S5.C.8.b.iii and S5.C.8.b.iv).

1. Prior to January 1, 2023, identified business sites in the inventory were sent a letter notifying them of the program and their applicable source control requirements per S5.C.8.b.iii.a.
2. In the spring of 2023, staff reviewed the source control inventory again and continued to adjust as needed. More information was gathered regarding the business' connection to the MS4 which removed some businesses from the inventory. There were also some businesses that had been closed since the business license data set was first downloaded and, in some cases, a new business had taken their place. Based on these changes, staff adjusted the inventory to 138 total sites. Of these sites, the City chose to prioritize annual inspections in 2023 by creating a subset of auto businesses and businesses in the Miller/Walker Creek basin.
3. Beginning in the spring of 2023, the City sent letters to the list of businesses on the prioritized subset list notifying them that they would be inspected in 2023. Staff began conducting site inspections per S5.C.8.b.iii. A total of 28 inspections were completed (20% of the total inventory) in 2023. Of the inspected sites, nine (9) were in compliance at the time of staff's initial inspection. Three businesses fell under enforcement action and have come into compliance within the timeline set out by the City. An additional seven (7) sites are in the process of coming into compliance. Progressive enforcement actions were taken for one (1) site that failed to implement required BMPs within a reasonable time period per S5.C.8.b.iv.

City of SeaTac, Permit #WAR045541

2023, Question 78

Question: Attach a list of inspections, per S5.C.8.b.iii, organized by the business category, noting the number of times each business was inspected and if enforcement actions were taken.

Business Name	Business Category	NAICS Primary	Number of Inspections	Enforcement Actions Taken
COMMERCIAL FENCE CORPORATION	23 Construction	238990	1	Yes
SPARES DISTRIBUTION CENTER	31-33 Manufacturing	336411	1	No
SEA-TAC CHEVRON	44-45 Retail Trade	447110	1	Yes
CHRISTENSEN, INC.	42 Wholesale Trade	424720	1	No
DICK'S HIGHLINE TOWING	48-49 Transportation and Warehousing	488410	1	Yes
WAKEY WAKEY COFFEE	72 Accommodation and Food Services	722515	1	No
AUTOBAHN AUTOWERKZ	81 Other Services (except Public Administration)	811111	1	No
AL VAN EQUIP NW, INC.	81 Other Services (except Public Administration)	811111	1	No
A-1 AUTO REPAIR & TRANSMISSIONS LLC	81 Other Services (except Public Administration)	811111	1	Yes
INTERNATIONAL AUTO LLC	81 Other Services (except Public Administration)	811111	1	Yes
A1 RIGHT TOWING & RECOVERY	81 Other Services (except Public Administration)	811111	2	Yes
AUTO SPORTS IMPORTS	81 Other Services (except Public Administration)	811111	1	No
NORTHWEST AUTOBODY & AUTO SALES	81 Other Services (except Public Administration)	811111	1	No
SOUND AUTO CARE	81 Other Services (except Public Administration)	811111	1	Yes
GURU AUTO TECH INC	81 Other Services (except Public Administration)	811111	2	Yes
SONIC COLLISION CENTER	81 Other Services (except Public Administration)	811121	2	Yes
LAKE UNION AUTOBODY	81 Other Services (except Public Administration)	811121	1	No
SEATAC COLLISION CENTER	81 Other Services (except Public Administration)	811121	1	Yes
FINISHLINE DETAIL OF SEATAC	81 Other Services (except Public Administration)	811192	1	No
HERTZ MAINTENANCE	53 Real Estate Rental and Leasing	532111	3	Yes
PRO LINE MARBLE AND GRANITE LLC	23 Construction	238340	3	Yes

Total 28