Cascade 2023 Water Efficiency Program Report

Introduction

The 2023 Cascade Water Efficiency Program (program) saves approximately 7.8 million gallons of water per year. Along with the savings from 2019 - 22, this represents 52% of Cascade's 2019 – 24 Water Use Efficiency Goal. The program benefits thousands of member residents, students, businesses, schools, agencies, parks and more by providing training, education, support, and hardware. The program achieves water savings, promotion of the value of water, and extends the useful life of the region's current water resources further into the future. Cascade employs one full-time employee to manage the program and expenses in 2023 were $634,361.

Classroom Water Education

The Classroom Water Education program delivers high-quality, locally relevant programming that is aligned with Washington essential academic learning requirements. Through its vendor, Nature Vision, Cascade provided in-person programs, remote learning opportunities, Blue Team projects, and online curriculum to support classrooms interested in water issues.

Classroom Presentations

Cascade's vendor provided in-person presentations on diverse topics, such as "Healthy Water, Healthy Ecosystems", "Water Supply", "Waterwise Gardening", "All About Groundwater", and "Carbon, Climate, and Conservation" for K – 12 classrooms. The presentations are supported by materials, activities, and videos developed by the vendor and are locally relevant. Teacher reviews:

"Watershed Ecosystems coupled with Healthy Streams / Healthy Soils is the perfect segue from our Forest Ecology Unit to our Stream Ecology Unit. Love the introduction of a watershed as well as the interaction between water and soil." - Burton Barrager, Eastside Preparatory (Kirkland)

"The groundwater lesson was wonderful! It's one of my favorites because the model is such an engaging way for them to synthesize a lot of information. Our teacher was wonderful, and the students learned many new ways to conserve our water. Thank you!" – Jennifer McCreary, Clara Barton Elementary (Redmond)

"I know my class has always loved this field trip and are looking forward to doing it again." – Morgan Snowden, Samantha Smith Elementary School (Sammamish)

"Students enjoyed the hands-on display and are more aware of water pollution." – Jamie Brown, Lakeview Elementary (Kirkland)

"This program was great. Very informative and hands on. Rob was fantastic. He was real and kept it moving and clearly understood how to engage the students. Our students understood the concepts presented and all had ideas they could start that day to do their part. Highly recommend." – Kathi McCabe, Alicia Ogren, Megan Bair, Challenger Elementary (Sammamish)

Blue Teams

Nature Vision also provides a Blue Team option, where an educator works with a classroom to create a customized project over a period of several visits for a more in-depth study of a particular subject. Twenty Blue Teams representing 497 students were provided in 2023. Example Blue Team projects:

Global Water Crisis

Margaret Mead Elementary (Sammamish), 4th / 5th Grade, Monica Macri and Sue Gabica, 52 Students

Project Synopsis: The project began with an investigation of how communities lacking access to safe water in different parts of the world acquire water. Next, students learned about the connection between healthy water and healthy soil and how both provide a basis for healthy ecosystems. Students learned about the connection between water and energy and how any time people use water, they also use energy. The fourth section covered Waterwise Gardening, where students learned how to use water efficiently in lawns and gardens. The students went on a Restoration Day field trip to restore ecosystems in the Cedar Sammamish River Watershed and the Snohomish Watershed at Evans Creek Park. They followed this field trip by learning about Community Science and practiced their water testing skills during a second field trip at Beaver Lake Park. Students finished by creating stewardship projects that focused on teaching others how to be environmental stewards. They created skits, songs, and PowerPoints presentations that taught people why leaving dog poop on the ground has a negative impact and they focused on teaching others about how they can protect salmon.

Watershed Ecosystems

Tukwila Elementary, 3rd Grade, Stephanie Fisher, Jacquelyn Ford, Matt Whittemore, 57 Students

Project Synopsis: The project began by orienting students to their watershed by making connections to water as a shared resource with native plants and animals. In the second lesson students learned about the salmon lifecycle and understanding the importance of salmon as a keystone species. Students then learned about the role of amphibians in the ecosystem and some of the important adaptations of amphibians. The next sessions focused on soil and water conservation, pollution from human actions, best management practices, looking at aquatic insects, and how students will teach their community about environmental stewardship.

Water Pollution Prevention

Medina Elementary (Bellevue), 4th / 5th Grade, Alison Coombs, April Lee, Kristyn Arnold, Pamela Behan, Sanora Booth, 129 Students

Project Synopsis: The project began with an investigation of how pollution enters our water by having students add components to an Enviroscape watershed model. Next, students learned about salmon, their critical role in an ecosystem as a keystone species, and the vulnerabilities of salmon to pollution throughout their lifecycle. Students learned how native plants filter water and control water pollution. Students also defined community science and practiced the procedures for six water quality tests. Meeting in the field, students tested the water quality of Lake Washington. Students also conducted an aquatic insect dip, explored their watershed as part of a nature walk, and brainstormed how they can help protect our water quality. During the final lesson, students reflected on their projects as a whole, completing projects to help improve watershed health.

<u>Results for Classroom Water Education</u>

A pre-session survey was conducted with 763 students who received the in-person classroom presentations to determine their understanding of watersheds and water conservation concepts. The average score was 64.9%. The same survey was taken after the session by the same students with an average score of 80.1%. A survey was also conducted with 143 English Language Learner students sixty days after the session with an average score of 84.3.

Classroom Water Education Program achievements:

- 521 in-person classroom presentations delivered to 12,990 students
- 11 remote classroom presentations delivered to 235 students
- Online learning packets accessed 1,173 times

Problem-Based Learning for Water Systems

Co-created the Problem-Based Learning for Water Systems (PBL4WS) program with Sustainability Ambassadors for teachers and students who want more in-depth learning about water systems. The program achieved:

- Supported local teacher who developed a Water Management Handbook for an Environmental Systems Design course at STEM high school
- Published new curriculum units including:
  - How People Replumbed an Entire Watershed
  - Analyzing Salmon Habitat Restoration Projects Near Us
  - Stormwater Policy Making
- Published new lesson plan on Shorter Shower Data Stories
- Updated 20 Student Impact Project Templates including:
  - Saving Water
  - Hidden Toilet Leaks
  - Washing Machine Full Loads
  - Recycling Saves Water Too
  - Use a Commercial Car Wash
  - Trees are Cool
- Continued developing and refining tables demonstrating PBL4WS curriculum units / student impact projects alignment with member city climate action plans, which allows PBL4WS to focus efforts that have the greatest impact on locally developed policies and goals
- Produced Curriculum Design Teacher Labs on Snowpack and recruited several new teachers to participate in the utilization of Snowpack materials to help teachers understand and teach the importance of annual snowpack to water systems management
- Continued to utilize and add content to the My Water Tower unit developed last year
- Developed student-led communications strategy aided by Cascade's social media vendor
- Provided student-voiced videos on minimizing peak season water use through smart irrigation techniques

Home Water Audits

Cascade offered materials for teachers who wish to have their students conduct a home water audit to better understand how much water is used in their homes. The program includes digital materials to guide students through the process, measuring devices, and spreadsheets that record the findings. The spreadsheets calculate not only the potential water savings, but also the energy savings and avoided greenhouse gas emissions. When a classroom or entire grade sums the collective savings, the potential impacts are significant. Cascade also provides showerheads and aerators for students who find high-flow fixtures in their homes. In 2023 teachers at Foster High School (Tukwila) and Pacific Cascade Middle School (Issaquah) participated in the program.

Water Bottle Filling Station Project

Cascade worked with Skyline High School in Sammamish to achieve the installation of a water bottle refilling station at the school. The project was initiated by a student who wanted to encourage others to switch from single-use plastic bottles to reusable. Cascade provided partial funding for the cost of the new station and 2,400 *We Need Water* stainless steel water bottles for any student who took a pledge to avoid plastic bottles and use the station. The school held a ribbon-cutting ceremony in March to recognize the work of the student who championed the project and promote the value of water.

Cascade Gardener

Remote Learning

Cascade continued its remote gardening classes with a winter, spring, and a fall series. There were twenty-three classes with 3,060 total attendees and an average of 133 per class (15% increase from 2022). Almost all attendees said they prefer remote learning to in-person classes. Reviews were overwhelmingly positive.

Garden Walking Tours

Cascade holds a number of in-person garden walking tours with expert presenters to help residents see healthy watersheds and native plants options for their home landscapes. In 2023 there were eight garden walking tours with 80 attendees.

Garden Hotline

Cascade supports the regional Garden Hotline, which is a resource for residents to have their gardening and landscaping questions answered by gardening professionals from Tilth Alliance with an emphasis on water efficiency and sustainability. In 2023 the garden hotline received 237 calls from residents in Cascade member areas.

Watershed Ecology Field Trips

Working with member staff, Cascade provided watershed ecology field trips for residents who are interested in learning about ecology, plants and wildlife, and stream sampling. Families sometimes attend the field trips and reviews are positive. The field trips are typically held in local parks with streams nearby. In 2023 there were field trips in Kirkland and Redmond for about 30 attendees.

Irrigation Assessments

Cascade provided 4 irrigation system assessments for high-peak season use customers. Cascade provides a detailed report of the assessment with specific strategies for achieving greater water efficiency and sustainability. Cascade maintains contact with staff at these properties and will assist in the implementation of Cascade's recommended measures over time.

Leak Detection Dye Distribution

Cascade contacted 150 multifamily and public properties, 152 houses of worship, and 57 large employers with offers of free toilet leak detection dye during annul Fix A Leak Week. Cascade provided dye to all accounts that were interested.

Soil and Water Stewardship

Cascade co-created and partners with Tilth Alliance to deliver the Soil and Water Stewardship program, which provides free training for residents on sustainable landscaping practices, rainwater harvesting, drip irrigation, and other water-related topics. Cascade assisted in promoting the program to recruit residents from Cascade member areas. The program was very active in 2023 with 23 Soil and Water Stewardship training events and seven community projects completed with 583 attendees in Cascade member areas:

Metrics

Task 1. Soil and Water Stewardship Training

Training Event	Location	Date	# of Participants
Training #1 – Intro/Social Justice	Zoom	3/25	33
Project: Seed starting, restoration	Rainier Beach Farm	3/26	34
Training #2 – Soil (part 1)	Zoom	4/22	32
Project: Bed building	Southridge House, Federal Way	4/23	12
Project: Compost systems	Redmond High School	4/23	17
Training #3 – Water (part 1)	Zoom	5/20	29
Project: Containers, rain barrels,drip irrigation	Hopelink Bellevue	5/21	17
Project: Drip irrigation at SHARK garden	Shark Garden Burien	5/21	12
Training #4 – Soil (part 2)	Zoom	6/24	23
Project: Native plants and drip irrigation	Riverton Park, Tukwila	6/25	7
Project: Garden beds and composting	McAuliffe Park, Kirkland	6/25	14
Training #5 – Permaculture/holistic design	Zoom	7/22	25
Project: Compost maintenance	Beacon Food Forest, Seattle	7/23	21
Training #6 – Organic gardening and IPM	Zoom	8/26	23
Project: Cooking with weeds, wild foods	Rainier Beach Farm, Seattle	8/27	21
Training #7 – Stormwater management	Zoom	9/23	20
Project: Rain catchment	Rainier Beach Farm, Seattle	9/24	10
Project: Rain garden maintenance	McAuliffe Park, Kirkland	9/24	10
Training #8 – Ecosystem Restoration (part 1)	Zoom	10/28	23
Project: Forest restoration	McAuliffe Park, Kirkland	10/29	19
Training #9 – Ecosystem Restoration (part 2)	Zoom	11/11	20
Project: Native plant propagation	McAuliffe Park, Kirkland	11/12	13
Project: Native plant installation	Riverton Park, Tukwila	11/12	6

Tasks 2. Resources, Workshops

Description	Location	Date	# of Participants
Service learning with IACS youth	McAuliffe Park, Kirkland	2/18	50
We Need Water podcast	Online	3/29	
IACS youth work party	McAuliffe Park, Kirkland	3/30	30
Microsoft work party	McAuliffe Park, Kirkland	4/19	20
Water conservation workshop	Pacific Court, Tukwila	4/25	8
Eastside Prep work party	McAuliffe Park, Kirkland	5/11	19
IACS youth work party	McAuliffe Park, Kirkland	6/17	50
Kirkland Rainbow Adventures Day Camp	McAuliffe Park, Kirkland	7/13	85
Bellevue College Occupational Life Skills work parties	McAuliffe Park, Kirkland	7/20, 27	10
Bellevue College Occupational Life Skills work parties	McAuliffe Park, Kirkland	8/3, 10, 17, 24, 31	10
Eastside Prep work party	McAuliffe Park, Kirkland	9/1	30
IACS youth work party	McAuliffe Park, Kirkland	9/16	52
Pacific Court gardener workshop	Pacific Court, Tukwila	10/3	3
Kirkland Urban Forest Event	McAuliffe Park, Kirkland	10/29	88

Tasks 3. School Garden Water Efficiency Projects

Description	Location	Date	# of Participants
Rain barrel for Benjamin Franklin Elementary	Kirkland	3/29	
Rain barrel for Carl Sandburg Elementary	Kirkland	4/5	
Compost systems support for Redmond HS	Redmond	4/23	17
Rain barrel for Ella Baker Elementary	Redmond	6/8	
Worm bin for Emerson HS	Kirkland	6/25	
School garden design for Foster HS	Tukwila	6/27	
Garden design presentation for Foster HS	Tukwila	10/19	8

Events

Cascade supports its members through events, such as fairs and festivals, to promote water efficiency and support member objectives. Cascade attended the following events in 2023 and provided approximately 5,000 conservation items, such as shower timers, rain gauges, and toilet leak detection dye:

- Bellevue Family Fourth
- Issaquah Sustainability Fair
- Issaquah Salmon Days
- Kirkland Farmer's Market and Concert Series
- Northwest Flower and Garden Show
- Redmond Derby Days
- Sammamish Party on the Plateau
- Skyway Health and Wellness Fair
- Tukwila Back To School Beach Bash

Online Orders

Cascade provided approximately 400 shower timers, rain gauges, leak detection dye packets, and other conservation items through Cascade's website. The conservation items are provided free of charge to Cascade member residents, schools, businesses, and homeowner associations who pay the postage to ship the items. Cascade also provides members with conservation items for distribution to customers at utility offices, community meetings, and events.

We Need Water

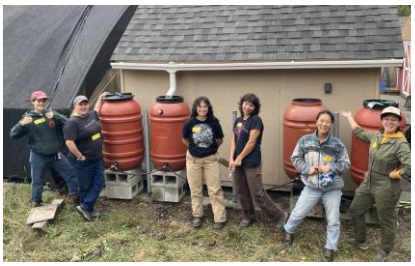
In 2023 Cascade expanded the We Need Water social media campaign. Accomplishments:

- Published nine podcasts with approximately 1,000 downloads
- Reached more than 98,000 people
- Provided 735 posts on Instagram and Facebook
- Started a Cascade Gardener newsletter
- Grew to 1,517 followers

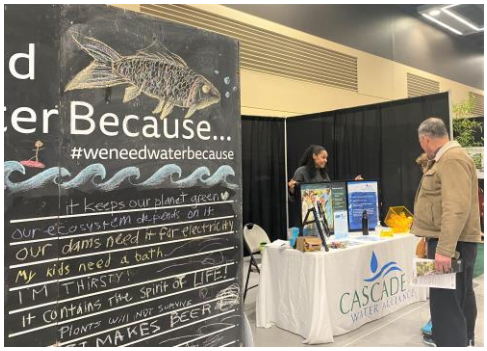
Shared Rebate Programs

Cascade cost shares with Puget Sound Energy on selected Energy Star and WaterSense rebate programs, such as clothes washers, showerheads, and faucets. In 2023 Cascade shared in 1,059 clothes washer and 70 faucet rebates.

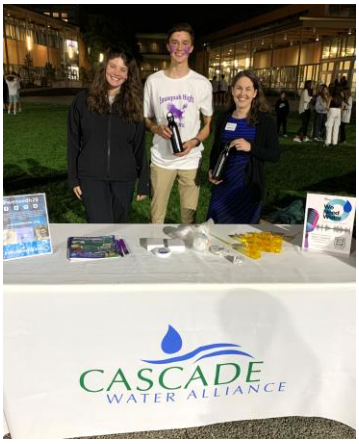
Photos of 2023 Cascade Activities



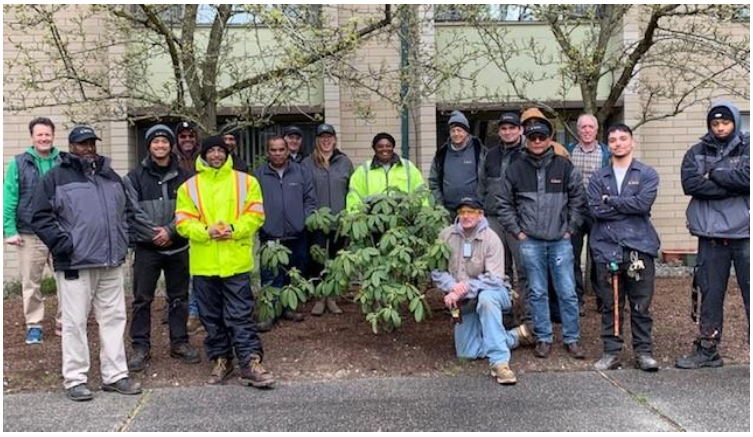
Rainwater Harvesting Project



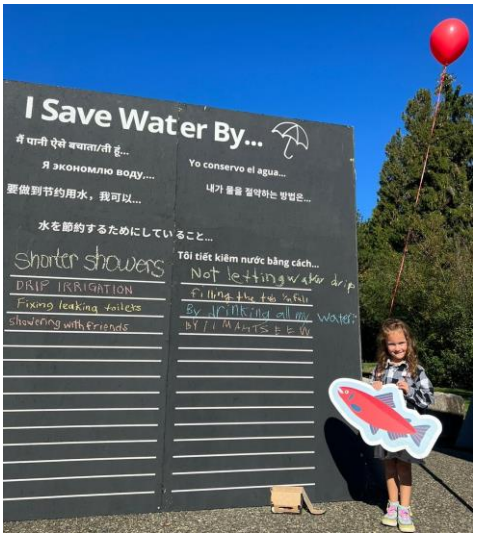
Northwest Flower and Garden Show



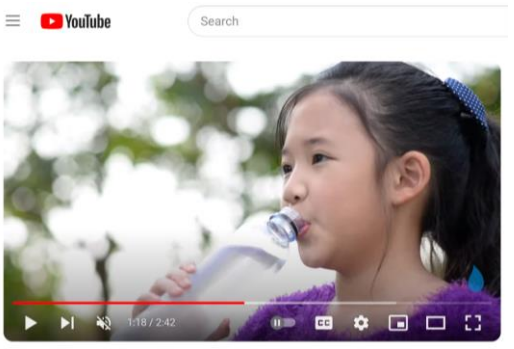
Issaquah High School Water Bottle Distribution



King County Housing Authority Irrigation Training



Salmon Days



Cascade Video in Vietnamese